Book 2 of 8

Final Status Survey Final Report Phase III

Appendix A1

Survey Unit Release Record 9521-0000, Southeast Pond

May 2006

CYAPCO
FINAL STATUS SURVEY RELEASE RECORD
SOUTHEAST POND
SURVEY UNIT 9521-0000

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Revision 0

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1. SURVEY UNIT DESCRIPTION

Survey Unit 9521-0000 (Southeast Pond) is designated as Final Status Survey (FSS) Class 3 and consists of 25,456 m^2 (6.3 acres) of uninhabited open land located approximately 0.24 miles from the reference coordinate system benchmark used at Haddam Neck Plant (HNP) (see Attachment 1, Figure 1). The area topography varies from flat areas overgrown with brush to rocky outcroppings to wooded sloping hills with steep grades. A small pond is contained in the interior of the survey unit. Some low-lying areas near the pond are marshy. Old stone walls presumably used to mark former property lines are evident along Cove Road and the northern edge of the pond. There are no structures within the survey unit. This survey unit is bounded on the north by Survey Area 9526; by Cove Road on the east; by the Discharge Canal on the south; and by a security fence and Survey Area 9522 on the west.

The reference coordinates associated with this survey unit are E010 through E020 by S076 through S092 (refer to License Termination Plan (LTP) Section 5.4.4). The reference coordinates provide the maximum dimensions of a rectangle containing this survey unit. Some areas contained in this rectangle may not be part of this survey unit. The boundary of the survey unit was defined using a Global Positioning System (GPS).

There are no known events potentially impacting this survey unit. The historical files indicate that, in the past, the public was granted access to the Canal Road area for recreational purposes (e.g. fishing). Typical debris and litter (soda bottles, fishing line, etc.) were seen along the Canal Road during an area inspection prior to FSS. The origin of the litter and timeframe could not be determined with any certainty. From time to time, 55-gallon drums were used for trash containers along the Canal Road to collect and control litter.

Work activities to support the Independent Spent Fuel Storage Installation (ISFSI) construction have occurred in this survey unit, especially on and along the Canal Road. These activities included tree and stump removal, silt fence installation, soil removal and grading. The Canal Road is now more commonly referred to as the ISFSI Road.

In Section 5.4.7.1 of the LTP, Equation 5-1 expresses the total dose contribution from three (3) components; soil contribution, existing groundwater contribution and future groundwater contribution. The survey data results for this release record address the dose contribution due to soil as provided in LTP Equation 5-1. This survey unit is considered impacted by existing groundwater radioactive contamination as the survey unit is within the capture zone perimeter for an affected monitoring well. The dose contribution from the existing groundwater contamination will be addressed later and will be included to show compliance with site unrestricted release criteria as required by the LTP. This survey unit is not considered impacted by future groundwater radioactive contamination, as there are no underground structures, systems or components containing residual radioactive material within the groundwater saturated zone in the area. The

dose contribution from future groundwater, the third component of Equation 5-1, is therefore zero.

2. CLASSIFICATION BASIS

The survey unit was classified in accordance with Procedure RPM 5.1-10, *"Survey Unit Classification."* The historical information, scoping analyses and characterization results provided sufficient data to designate Survey Unit 9521-0000 as Class 3 in June 2002.

The *"Classification Basis Summary"* conducted for this survey unit consisted of:

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

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

c) Historic and current survey records review,

d) Visual inspections and a "walkdown."

A review of the 10CFR50.75 (g) (1) database report identifies five (5) documents associated with or relating to this survey area.

a) Adverse Condition Report (ACR) 97-0716 indicated that tritium was identified in a liquid sample taken at a discharge point in an adjacent survey area (Survey Area 9522).

b) Condition Report (CR) 02-0185 tells of a soil sample containing low-level Co-60. The soil sample was collected for characterization to support FSS planning.

c) Condition Report (CR) 03-0337 is related to failure to maintain isolation and control. Standing water was being pumped for several weeks from an adjacent un-surveyed Class 1 and Class 2 survey area (9522) located within the Industrial Area. A re-survey of the area found no negative change in the radiological status.

d) Condition Report (CR) 04-0205 is related to failure to maintain isolation and control. There was a concern that dredging operations in an adjacent un-surveyed Class 2 survey unit (Discharge Canal) could have impacted the area. A re-survey of the area found no negative change in the radiological status.

e) Memo ISC 05-045: Periodic surveillance following final status survey. Surveillance is required periodically by the LTP to ensure the radiological condition does not significantly change from the FSS results. The memo documents no negative change in the radiological status.

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

A characterization survey plan was initiated and executed by Site Closure personnel in April 2002 to determine existing conditions and obtain radiological data for Final Status Survey (FSS). Radiological results from the recent surveys indicated that plant related radioactive materials in soil (e.g., Co-60) might be present. No areas of elevated radioactivity were identified in the survey unit.

Ten (10) samples were taken initially in accordance with the plan. An additional five (5) investigatory samples were taken near the pond to confirm the identification of plant-related radioactivity Co-60. In addition, a water sample and two (2) sediment samples were collected from the edges of the pond. All samples were analyzed on-site. The concentrations of Cs-137 found in the soil were for the most part consistent with those concentrations in wooded areas determined from off-site locations as documented by Health Physics Technical Support Document (TSD) BCY-HP-0063, *"Background Cs-137 Concentration in Soil."* Cesium-137 was identified in the sediment samples but was not detected in the liquid sample. The values for Cs-137 and Co-60 are provided in Table 1.

Table 1 – Basic Statistical Quantities for Cesium-137 and Cobalt-60 from the Characterization Survey

Parameter	Cs-137 (pCi/g)	Co-60 (pCi/g)
Minimum Value:	4.31E-02	2.71E-03
Maximum Value:	5.37E-01	1.11E-01
Mean:	2.20E-01	1.91E-02
Median:	1.63E-01	1.18E-02
Standard Deviation:	1.43E-01	2.68E-02

The FSS Engineer performed a visual inspection and walkdown during June 2002 to assess the physical condition of the survey unit, evaluate access points and travel paths and identify potentially hazardous conditions.

Assessment of the groundwater impact is discussed in Section 1 and Section 13. 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 the final designation as Class 3.

3. DATA QUALITY OBJECTIVES (DQO)

FSS design and planning is based on the Data Quality Objective (DQO) process as described by the LTP, Procedure RPM 5.1-11, *"Preparation of Final Status Survey Plan,"* and the *"Multi-Agency Radiation Survey and Site Investigation*

Manual" (MARSSIM). A summary of the main features of the DQO process are provided herein.

The DQO process 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. Probabilistic sampling is a preferred method to select a sample so that each item in the population being studied has a known likelihood of being included in the sample. Probabilistic sampling might include simple random sampling where every sample has the same chance of being included, or systematic random sampling where samples are arranged in some order and a random starting point is selected.

The primary objective of the Final Status Survey Plan (FSSP) was to demonstrate that the level of residual radioactivity in this survey unit did not exceed the release criteria specified in the LTP and that the potential dose from residual radioactivity is As Low As Reasonably Achievable (ALARA).

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

A reduction to the Base Case Soil DCGLs provided in Chapter 6 of the LTP must be performed to ensure compliance with the release criteria of twenty-five millirem (25 mrem) in a year Total Effective Dose Equivalent (TEDE) when all three pathways (soil, existing groundwater and future groundwater) are potentially present. Chapter 5 of the LTP shows a compliance formula, Equation 5-1, for including the total dose from the three media. The reduced DCGL is called the Operational DCGL whose relationship to the Base Case Soil DCGL is shown by Equation 5-3 of the LTP. The Base Case Soil DCGL for Cs-137 and the DCGLs for all the other radionuclides potentially present in soil were administratively reduced by about 60% to ensure compliance with the 25 mrem in a year TEDE criterion (Table 2).

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

Radionuclide	Base Case Soil DCGL (pCi/g) [1]	Operational 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 Soil DCGLs for soil are specified by the LTP in Chapter 6
(2) The Operational DCGL is equivalent to achieving 10 mrem per year TEDE
(3) The required MDC was 10% of the Operational DCGL

Another important facet of the DQO process is to identify the radionuclides of concern and determine the concentration variability. Fifteen (15) soil samples were collected and analyzed during characterization as discussed in Section 2. The samples were collected through biased sampling over a simple grid design. Characterization did not include analyses for Hard to Detect (HTD) radionuclides as data from previous survey and sampling in adjacent areas did not identify HTDs in significant quantities (the H-3 identified in Survey Area 9522 would have been less than 4% of the Base Case Groundwater DCGL provided in Table 6-2 of the LTP. Cesium-137 and Co-60 were found to be the predominate radionuclides of concern in soil. The mean and variability of Cs-137 and Co-60 in soil in this survey unit was determined during characterization.

The potential for plant-related radionuclides in the pond water, including H-3 and Sr-90, due to the runoff from Survey Area 9522 and the Industrial Area was

considered during the DQO process and as a result these radionuclides were included in the sample design. Samples of pond water were to be collected and analyzed by gamma spectroscopy and for H-3 and Sr-90.

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 to be performed before issue and after the instrument had been used. Control and accountability of survey instruments was to be maintained to assure the quality and prevent the loss of data.

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

4. SURVEY DESIGN

The level of effort associated with planning a survey is based on the complexity of the survey and nature of the hazards. To assist the FSS Engineers when preparing survey plans for FSS, guidance is provided in Procedure RPM 5.1-11, *"Preparation of Final Status Survey Plans"*. By design, the FSSP meets the ALARA criteria for soils as specified in Chapter 4 of the LTP. The FSSP uses an integrated sample design that combines scanning surveys and sampling which can be either random or biased.

Fifteen (15) data points from characterization were used to determine concentration variability. The samples were collected through biased sampling over a simple grid design. The DQO process determined that Cs-137 and Co-60 would be the radionuclides of concern for soil in this survey unit (refer to Section 3). The sum of fractions or unity rule will be used with the individual Operational DCGLs because multiple radionuclides (Cs-137 and Co-60) are considered in the survey design. Other radionuclides identified during FSS would be evaluated to ensure adequate survey design.

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

The Elevated Measurement Comparison (EMC) did not apply to this survey unit since discrete, elevated areas of contamination were 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. This approach was conservative since it included background Cs-137 as part of the sample set.

The number of soil samples for FSS was determined in accordance with Procedure RPM 5.1-12, *"Determination of the Number of Surface Samples for Final Status Survey."* The Lower Bound of the Gray Region (LBGR) was set in accordance with Procedure RPM 5.1-11 to 0.9 to maintain the relative shift (Δ/σ) in the range of 1 and 3. A Prospective Power Curve was generated using COMPASS, a software package developed under the sponsorship of the United States Nuclear Regulatory Commission (USNRC) for implementation of the MARSSIM in support of the decommissioning license termination rule (10 CFR 20, Subpart E). The result of the COMPASS computer run showed adequate power for the survey design. Survey design specified fifteen (15) surface soil samples for non-parametric statistical testing.

The grid pattern and locations of the soil samples were determined using Visual Sample Plan (VSP) in accordance with Procedure RPM 5.1-14, *"Identifying, and Marking Surface Sample Locations for Final Status Survey."* Visual Sample Plan was created by Pacific Northwest National Laboratory (PNNL) for the United States Department of Energy. A systematic triangular grid pattern with a random starting point was selected for sample design, which is appropriate for a Class 3 area.

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

Table 3 -Sample Measurement Locations with Associated GPS Coordinates

Designation	Northing	Easting
9521-0000-001F	235918.51	669762.05
9521-0000-002F	236362.48	669670.19
9521-0000-003F	236045.98	669505.63
9521-0000-004F	236443.11	669657.91
9521-0000-005F	236007.70	669604.04
9521-0000-006F	236454.54	669615.97
9521-0000-007F	236276.60	669618.82
9521-0000-008F	235966.26	669532.84
9521-0000-009F	236286.98	669557.55
9521-0000-010F	236383.36	669645.07

Table 3 -Sample Measurement Locations with Associated GPS Coordinates

Designation	Northing	Easting
9521-0000-011F	236165.95	669871.24
9521-0000-012F	235930.73	669574.78
9521-0000-013F	236415.59	669452.43
9521-0000-014F	236249.53	669634.82
9521-0000-015F	236046.15	669601.52

There were to be seven (7) judgmental samples total for soil and pond water sampling. The four (4) soil samples were determined based on professional judgment and observation during characterization and walkdowns to determine areas having the potential for residual radioactivity (e.g., runoff and collection, area disturbance). The three (3) pond water samples would be from the shoreline of the pond at the discretion of the FSS Engineer. The number of judgmental samples represented about 50% of the number of samples that would be used for non-parametric statistical testing.

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

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 one (1) 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 5% of fifteen (15) samples, rounded up to the next whole number.

The LTP specifies that scanning will be performed in judgmental measurements for a Class 3 land area and cover a selected amount of the area. The fraction of scanning coverage was determined during the DQO process with the total amount and location(s) based on the likelihood of finding elevated activity during FSS. Elevated areas of residual radioactivity were not considered likely based on characterization data. The DQOs designated five (5) judgmental or biased scan areas for this survey unit. Scans were also prescribed for a one (1) meter radius around each random and biased sample measurement location.

For this Class 3 survey unit, the "Investigation Level" for area scanning and soil sample measurement results are those levels specified in LTP, Table 5-8, "Investigation Levels." Table 4 provides a synopsis of the survey design.

Table 4 – Synopsis of the Survey Design

Feature	Design Criteria	Basis
Survey Unit Land Area	25,456 m^2	Based on AutoCAD-Lt and Visual Sample Plan calculations
Number of Measurements	15	Type 1 and Type 2 errors were 0.05, sigma was 0.048, the LBGR was adjusted to 0.9 to maintain Relative Shift in the range of 1 and 3, Relative Shift was 2
Grid Spacing	Random and random start	Appropriate design for Class 3
Interval Spacing	Not Applicable	Not appropriate for Class 3
Operational DCGL	3.16 pCi/g Cs-137 1.52 pCi/g Co-60	Administratively set to achieve 10 mrem in a year TEDE
Scan Survey Area Coverage	564 m^2	Judgmental scanning coverage for Class 3 area based on likelihood of finding elevated areas
Scan Investigation Level	Detectable over background	Based on achieving the Operational DCGL

5. SURVEY IMPLEMENTATION

Final status survey field activities were conducted under Work Plan and Inspection Record (WP&IR) 24265-000-GEN-0000-00105-000. The WP&IR package included a detailed FSSP, job safety analysis, job planning checklist and related procedures for reference. Daily briefings were conducted to discuss the expectations for job performance and the safety aspects of the survey. The "Daily Survey Journal" was used to document field activities and other information pertaining to the FSS.

Survey activities occurred June 25, 2002 through July 10, 2002.

The five (5) scan areas were marked out and scanned for elevated readings (see Attachment 2 for Scan Area Results). Scanning was performed with an Eberline E-600 using a SPA-3 sodium iodide detector. The E-600 was operated in the rate-meter mode and used with audio response. The probe was positioned as close to the ground as possible and was moved at a scan speed of about 0.5 meters per second.

Using GPS coordinates, sample measurement locations were identified and marked with a surveyor's flag for identification. At each sample measurement location, a one (1) meter radius around the sample flag was scanned for elevated radiation levels.

Fifteen (15) surface soil samples were collected and packaged in accordance with Haddam Neck Plant (HNP) Procedure RPM 5.1-3, *"Collection of Sample*

Media for Final Status Survey" and FSS design. Samples were controlled, transported, stored, and transferred to the off-site laboratory using Chain-of-Custody (COC) protocol in accordance with Procedure RPM 5.1-5, *"Chain of Custody for Final Status Survey Samples."*

Four (4) soil samples (9521-0000-008F, 9521-0000-009F, 9521-0000-013F and 9521-0000-015F) were randomly selected for HTD radionuclide analysis by the off-site laboratory.

Four (4) biased soil samples (9521-0000-016FM, 9521-0000-017FM, 9521-0000-018FM and 9521-0000-019FM) were collected and analyzed using gamma spectroscopy by the on-site laboratory. The "FM" designation was used to distinguish between on-site and off-site analyses; where "FM" means soil collected and analyzed on-site in a one liter (1 L) marinelli container. Three (3) biased pond water samples (9521-0000-020F, 9521-0000-021F and 9521-0000-022F) were collected from the pond and analyzed by the off-site laboratory using gamma spectroscopy and selected HTD analyses (i.e., for Sr-90 and H-3).

The implementation of survey specific quality control measures included the collection of sample 9521-0000-004F for "split sample" analysis by the off-site laboratory.

6. SURVEY RESULTS

The nineteen (19) soil sample measurement locations identified in the FSS plan were scanned about a one (1) meter radius for elevated radiation levels. Table 5 provides an overview of the scan area survey. Scan area results are provided in Attachment 2.

Table 5- Scan Area Results for Sample Measurement Locations

Sample Measurement Location	Highest Logged Reading (kcpm)	Action Level (kcpm)	Above Action Level
1	9.40	10.8	No
2	20.2	21.1	No
3	11.7	12.4	No
4	17.0	19.1	No
5	9.02	12.2	No
6	18.2	18.8	No
7	13.4	17.6	No
8	9.99	10.8	No
9	14.5	15.5	No
10	18.3	17.8	Yes
11	10.2	11.4	No
12	10.8	10.5	Yes

Table 5- Scan Area Results for Sample Measurement Locations

Sample Measurement Location	Highest Logged Reading (kcpm)	Action Level (kcpm)	Above Action Level
13	22.1	26.7	No
14	14.9	17.4	No
15	10.9	12.1	No
16	12.1	13.6	No
17	9.71	11.6	No
18	9.39	10.5	No
19	9.13	10.9	No

(1) FSS sample plans require movement of the sample measurement location to the area within the 1 meter radius yielding the response above the action level

Five (5) areas were scanned for elevated radiation levels. Several elevated areas were identified. Table 6 provides an overview of the scan area survey. Scan area results are provided in Attachment 2.

Table 6- Scan Area Results

Scan Area	Highest Logged Reading (kcpm)	Action Level (kcpm)	Elevated Reading Identification [1]	Investigation Sample
1	14.7	17.4	None – no elevated areas identified	None
2	14.5	14.1	9521-00-ER-02-16-1	9521-0000-025F
3	13.1	16.0	None – no elevated areas identified	None
4	17.3	16.1	9521-00-ER-04-05-1	9521-0000-023F
			9521-00-ER-04-11-1	9521-0000-024F
5	9.10	10.1	None – no elevated areas identified	None

(1) ER is nomenclature associated with the barcodes used in the field where ER stands for Elevated Reading

The off-site laboratory employed for the radiological analyses of samples was Severn Trent Laboratories – STL Richland, Richland, Washington. The laboratory analyzed the fifteen (15) samples taken for non-parametric statistical testing and the associated duplicates using gamma spectroscopy. Gamma spectroscopy analysis was performed to the required MDC. Gamma spectroscopy results identified some radionuclides meeting the accepted criteria for detection (i.e., a result greater than two standard deviations uncertainty). All but one (1) radionuclide could be deselected or excluded using the 5% and 10% rule described in Section 4. The exception was Cs-134 which was reported in several samples. Further explanation of Cs-134 will be provided in Section 10.

Cesium-137 was identified in fourteen (14) of the fifteen (15) samples. Cobalt-60 was identified in six (6) of the fifteen (15) samples and Cs-134 was identified in twelve (12) of the fifteen (15) samples. The mean of the results of gamma spectrometry analysis for each of the samples indicated Cs-137 at levels slightly lower than the concentrations of Cs-137 found in soil at off-site locations within the vicinity of the HNP as presented in the Health Physics TSD BCY-HP-0063.

Sample analysis did not indicate any anomalies requiring further investigation. A summary of the sample results is provided in Table 7.

Table 7- Summary of Soil Sample Results

Sample Number	Cs-137 pCi/g	Co-60 pCi/g	Cs-134 pCi/g	Fraction of the Operational DCGL (1)
9521-0000-001F	2.44E-02	-2.61E-03	3.39E-02	0.024
9521-0000-002F	1.07E+00	7.93E-02	1.06E-01	0.447
9521-0000-003F	3.77E-01	1.33E-02	9.77E-03	0.133
9521-0000-004F	5.45E-01	4.36E-02	6.42E-02	0.235
9521-0000-005F	1.39E-01	1.32E-02	1.69E-02	0.062
9521-0000-006F	1.05E+00	2.29E-04	6.44E-02	0.367
9521-0000-007F	1.10E+00	4.34E-02	1.03E-01	0.432
9521-0000-008F	2.33E-01	8.44E-02	6.73E-02	0.165
9521-0000-009F	5.43E-01	4.56E-02	5.01E-02	0.229
9521-0000-010F	1.85E+00	4.22E-02	7.57E-02	0.654
9521-0000-011F	1.98E-01	1.34E-02	8.51E-02	0.117
9521-0000-012F	3.40E-01	6.40E-02	5.26E-02	0.178
9521-0000-013F	9.13E-01	-2.71E-02	4.41E-02	0.295
9521-0000-014F	1.04E+00	1.69E-02	1.18E-01	0.403
9521-0000-015F	2.09E-01	2.11E-03	4.90E-02	0.094

(1) The Operational DCGLs are 3.16 pCi/g for Cs-137 and 1.52 pCi/g for Co-60 used in conjunction with the unity rule

The off-site laboratory also processed four (4) samples for HTD analysis as required by the sample plan. The requested analyses included alpha spectroscopy, gas proportional counting, and liquid scintillation depending on the radionuclide and the measurement method. All analyses met the required MDC with the exception of Sr-90. However, the DQOs recognize that for some HTD analyses, the radionuclides may not meet MDC requirements due to analytic method (e.g., Carbon-14 in soil). In these cases, comparison to a higher value (i.e., 50% of the DCGL) is acceptable and consistent with the LTP. Table 8 lists the results for those radionuclides meeting the accepted criteria for detection (i.e., a result greater than two standard deviations uncertainty) in more than one sample. All but one (1) radionuclide could be deselected or excluded using the 5% and 10% rule described in Section 4. The exception was Sr-90 which was reported in concentrations greater than 5% in two of the four

samples. Further explanation of Sr-90 will be provided in Section 10. A summary of the sample results is provided in Table 8

Table 8-Hard-to-Detect Sample Results

Sample	H-3 pCi/g	Sr-90 pCi/g	Fraction of the Operational Level [1]
9521-0000-008F	4.27E-02	5.43E-02	0.088
9521-0000-009F	6.74E-02	1.54E-02	0.025
9521-0000-013F	4.56E-02	8.59E-02	0.139
9521-0000-015F	5.02E-02	8.73E-03	0.014

(1) The Operational DCGLs are 165 pCi/g for H-3 and 0.62 pCi/g for Sr-90 used in conjunction with the unity rule

Seven (7) biased samples of soil and pond water were collected at locations selected by FSS Supervision based on professional judgment and observation. Gamma spectroscopy analysis was performed on the four (4) soil samples by the on-site laboratory to the required MDC. Off-site analysis of the water samples included gamma spectroscopy and analysis for H-3 and Sr-90. None of the samples exceeded 10% of the Operational DCGL. In addition, none of the radionuclides met the accepted criteria for detection in the water samples (i.e., a result greater than two standard deviations uncertainty). A summary of the sample results is provided in Table 9a and Table 9b.

Table 9a- Biased Soil Sample Results

Sample Number [1]	Cs-137 pCi/g	Co-60 pCi/g	Fraction of the Operational DCGL[2]
9521-0000-016FM	6.78E-03	1.01E-02	0.009
9521-0000-017FM	8.18E-03	9.54E-03	0.009
9521-0000-018FM	6.71E-03	9.86E-03	0.009
9521-0000-019FM	1.82E-02	5.96E-03	0.010

(1) The "FM" designation was used to distinguish between on-site and off-site analyses; where "FM" means soil collected and analyzed on-site in a 1 L marinelli container
(2) The Operational DCGLs are 3.16 pCi/g for Cs-137 and 1.52 pCi/g for Co-60 used in conjunction with the unity rule

Table 9b- Biased Pond Water Sample Results

Sample Number	Cs-137 pCi/L	Co-60 pCi/L	Sr-90 pCi/L	H-3 pCi/L	Fraction of the GW DCGL[1]
9521-0000-020F	-4.47E-01	-3.43E-01	1.78E-01	-1.01E+02	-0.001
9521-0000-021F	-4.33E-01	1.31E+00	-----	------	0.000
9521-0000-022F	-1.67E-01	-3.73E-01	2.64E-01	2.10E+00	0.000

(1) The GW (groundwater) DCGL are the Base Case Groundwater values in Table 6-2 of the LTP used in conjunction with the unity rule

7. QUALITY CONTROL

The off-site laboratory processed the split sample and performed gamma spectroscopy analysis. Five percent (5%) of the samples were selected for analysis, which meets the 5% minimum required by the LTP. The data were evaluated using USNRC acceptance criteria specified in Inspection Procedure 84750 as detailed in HNP Procedure RPM 5.1-24, *"Split Sample Assessment for Final Status Survey."* There was acceptable agreement between field split results.

The sample analysis vendor, Severn Trent Laboratories – STL Richland, Richland, Washington, maintained quality control and quality assurance plans as part of normal operation. Refer to Attachment 2 for data and data quality analysis results.

8. INVESTIGATIONS AND RESULTS

Three (3) localized areas were found to verifiably exceed their investigation level during the scan area survey. A sample was collected from each location. The samples were analyzed on-site using gamma spectroscopy. The analyses reported Cs-137 as shown in Table 10.

Final status survey soil sample 9521-0000-010F was 65% of the Operational DCGL which exceeded the investigation level specified by the DQOs. A sample was collected at that location and was designated 9521-000-026F. The confirmatory sample was analyzed by the off-site laboratory using gamma spectroscopy. A summary of the sample results is provided in Table 10. No further investigations were required

Table 10- Confirmatory Sample Results

Sample Number [1]	Cs-137 pCi/g	Co-60 pCi/g	Fraction of the Operational DCGL [2]
9521-0000-023FM	1.23E-01	1.95E-02	0.052
9521-0000-024FM	1.02E-01	9.37E-03	0.038
9521-0000-025FM	1.43E-01	9.49E-03	0.097
9521-0000-026F	1.53E-00	9.74E-03	0.491

(1) The "FM" designation was used to distinguish between on-site and off-site analyses; where "FM" means soil collected and analyzed on-site in a 1 L marinelli container; an where "F" means soil collected and analyzed off-site.
(2) The Operational DCGLs are 3.16 pCi/g for Cs-137 and 1.52 pCi/g for Co-60 used in conjunction with the unity rule

9. REMEDIATION AND RESULTS

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

10. CHANGES FROM THE FINAL STATUS SURVEY PLAN

Several radionuclides (i.e., Cs-134 and Sr-90) were reported in concentrations exceeding the 5% and 10% rule for de-selection. Therefore, the individual Operational DCGLs for these radionuclides were included into sample design to demonstrate compliance with the unity rule and ensure adequate survey design in accordance with the DQOs. The result of the COMPASS computer run showed adequate power for the revised survey design. The revised survey design maintained the original fifteen (15) surface soil samples for non-parametric statistical testing.

Survey design required HTD analysis for three (3) pond water samples; however, the off-site laboratory processed and analyzed only two (2) of the samples. A review of the pond water sample results in Table 9b indicate that the third sample would be unnecessary given the low concentrations reported for the radionuclides of interest (Sr-90 and H-3).

11. DATA QUALITY ASSESSMENT (DQA)

The DQO sample design and data were reviewed in accordance with Procedure RPM 5.1-23, *"Data Quality Assessment,"* for completeness and consistency. The sampling design had adequate power as indicated by the Retrospective Power Curve. The Sign Test was performed on the data and compared to the original assumptions of the DQOs. The 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 3.

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

The range of the data, about 3.6 standard deviations, was not unusually large. The difference between the mean and median was 15% of the standard deviation. The difference is enough to indicate skewness in the data. The data was represented graphically through posting plots, a frequency plot, and a quantile plot. The frequency plot shows slight positive skewness as confirmed by the calculated skew of 0.3 and some bimodality (two peaks) probably due to the differences in terrain or soil type.

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

12. ANOMALIES

No anomalies were noted.

13. CONCLUSION

Survey Unit 9521-0000 has met the final DQOs of the FSS. The ALARA criteria for soils as specified in Chapter 4 of the LTP were achieved. Elevated Measurement Comparison and remediation was not required.

The sample data passed the Sign Test. The null hypothesis was rejected. Graphical representation of data indicates significant positive skewness as that is probably due to the differences in terrain and the collection of runoff. The Retrospective Power Curve generated using COMPASS shows adequate power was achieved. The survey unit was properly designated as Class 3.

As discussed in Section 1, the survey data results for this release record address the dose contribution due to soil as provided in LTP Equation 5-1. This survey unit is considered impacted by existing groundwater radioactive contamination as the survey unit is within the capture zone perimeter for an affected monitoring well. The dose contribution from the existing groundwater contamination will be addressed later and will be included to show compliance with site unrestricted release criteria as required by the LTP. This survey unit is not considered impacted by future groundwater radioactive contamination, as there are no underground structures, systems or components containing residual radioactive material within the groundwater saturated zone in the area. The dose contribution from future groundwater, the third component of Equation 5-1, is therefore zero.

14. ATTACHMENTS

14.1 Attachment 1 – Figures

14.2 Attachment 2 – Sample and Statistical Data

Attachment 1
Figures
(6 pages)

C-01

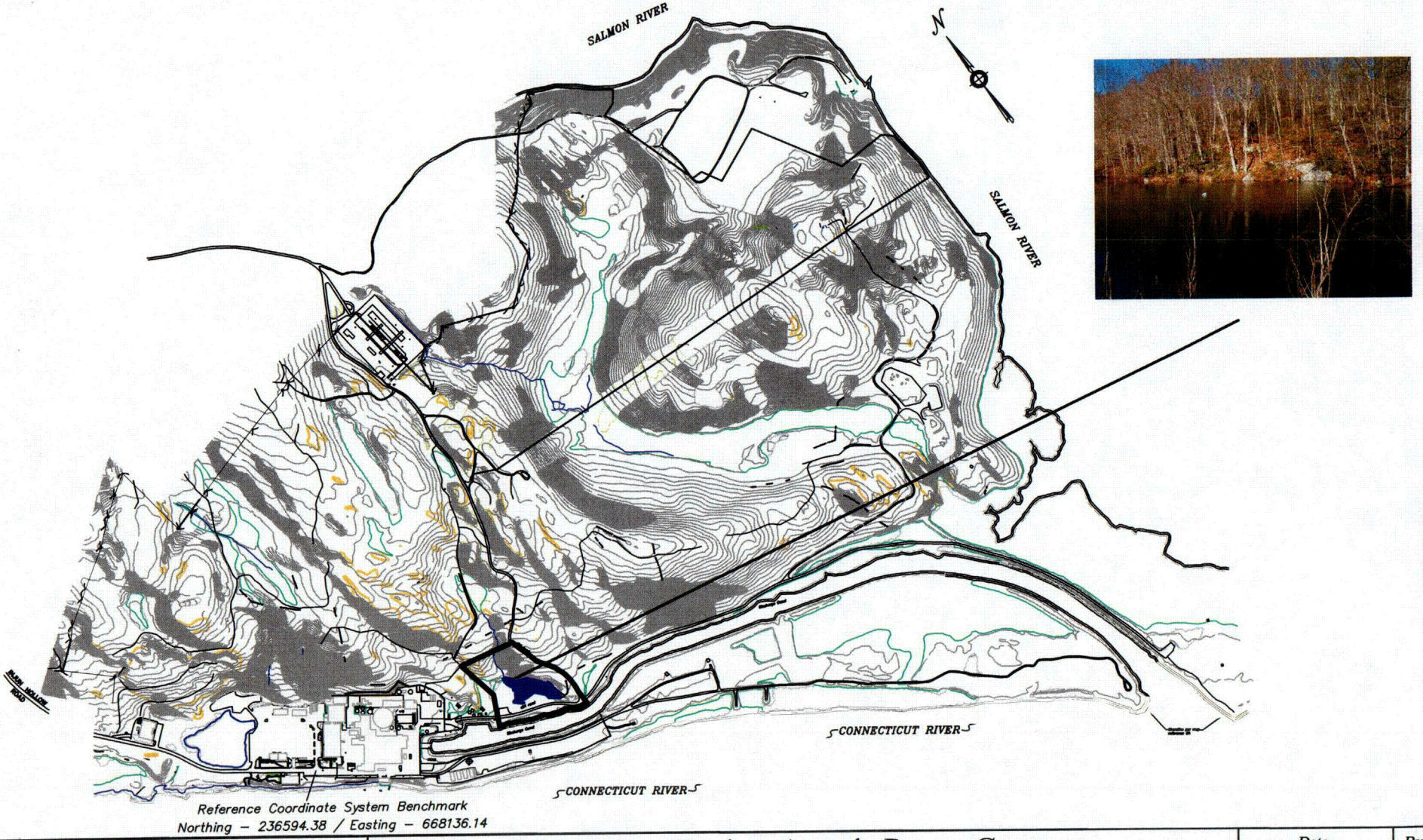


Figure 1	Connecticut Yankee Atomic Power Company Site Map With Reference To Survey Unit 9521-0000	Date	By
		February 2006	J. McC

Figure 2	Connecticut Yankee Atomic Power Company 9521-0000 Final Status Survey Design	Date	By
		February 2006	J. McC.

C-03

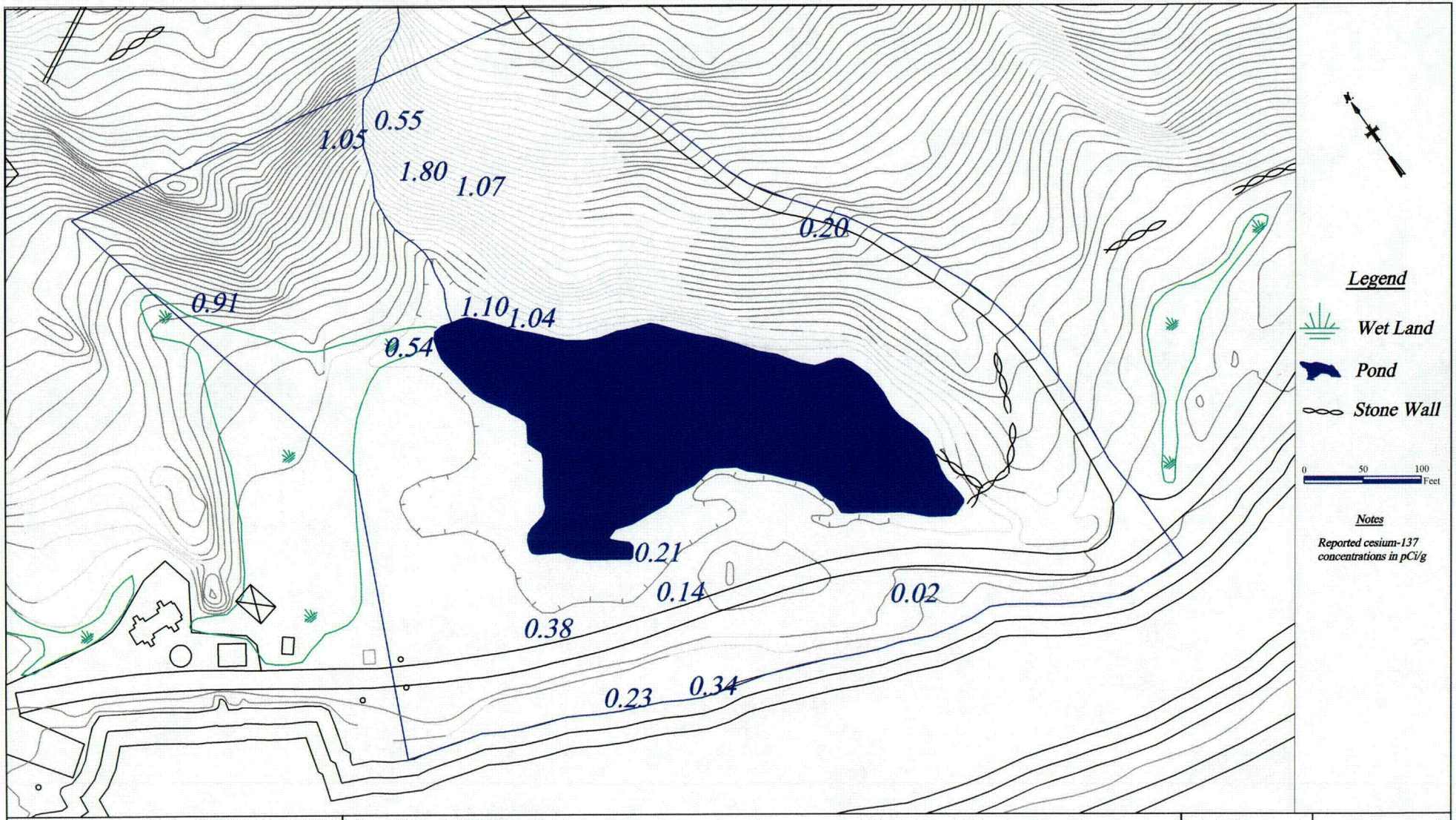


Figure 3	Connecticut Yankee Atomic Power Company 9521-0000 Final Status Survey Cs-137 Posting Plot	Date	By
		February 2006	J. McC.

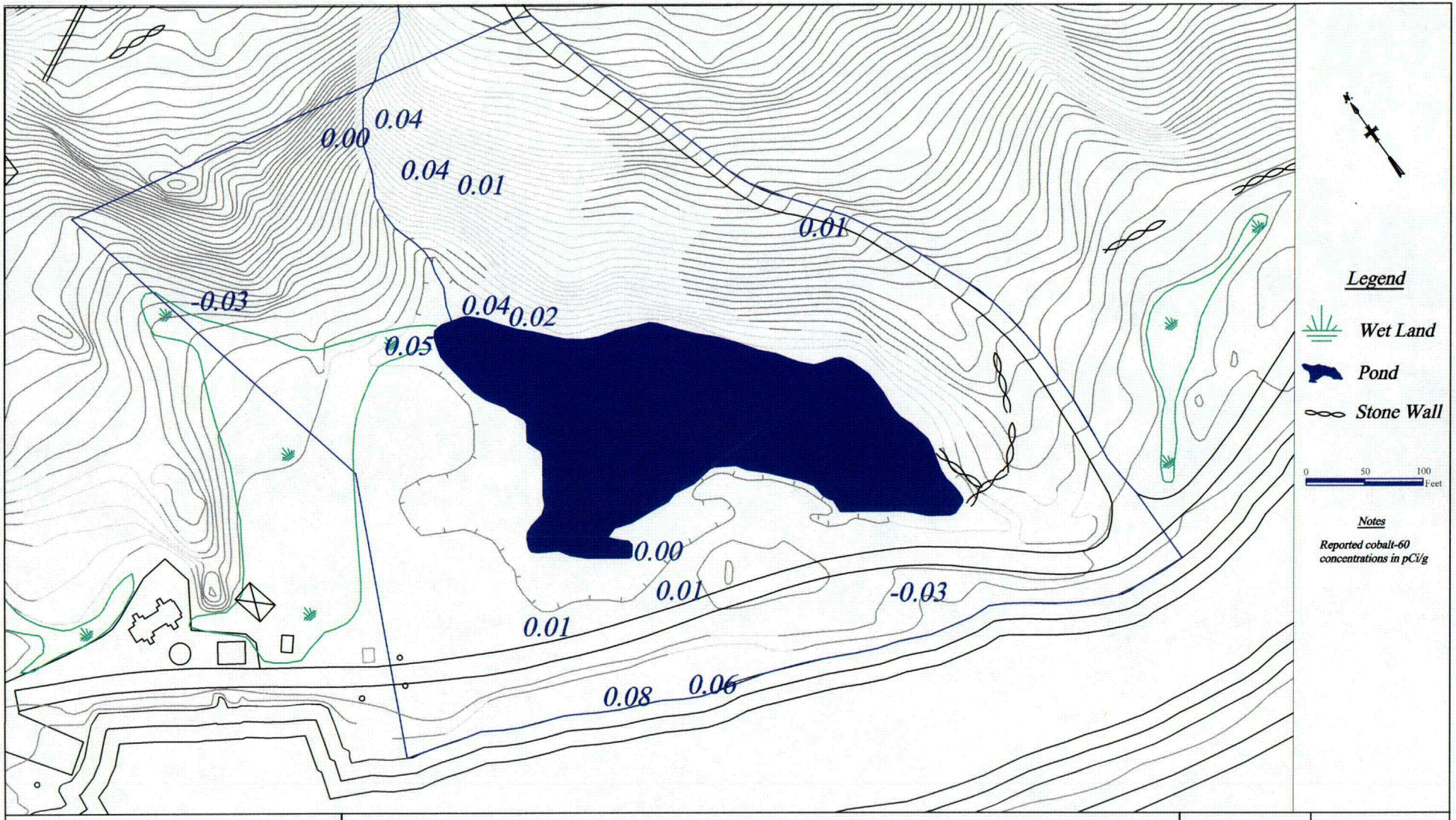
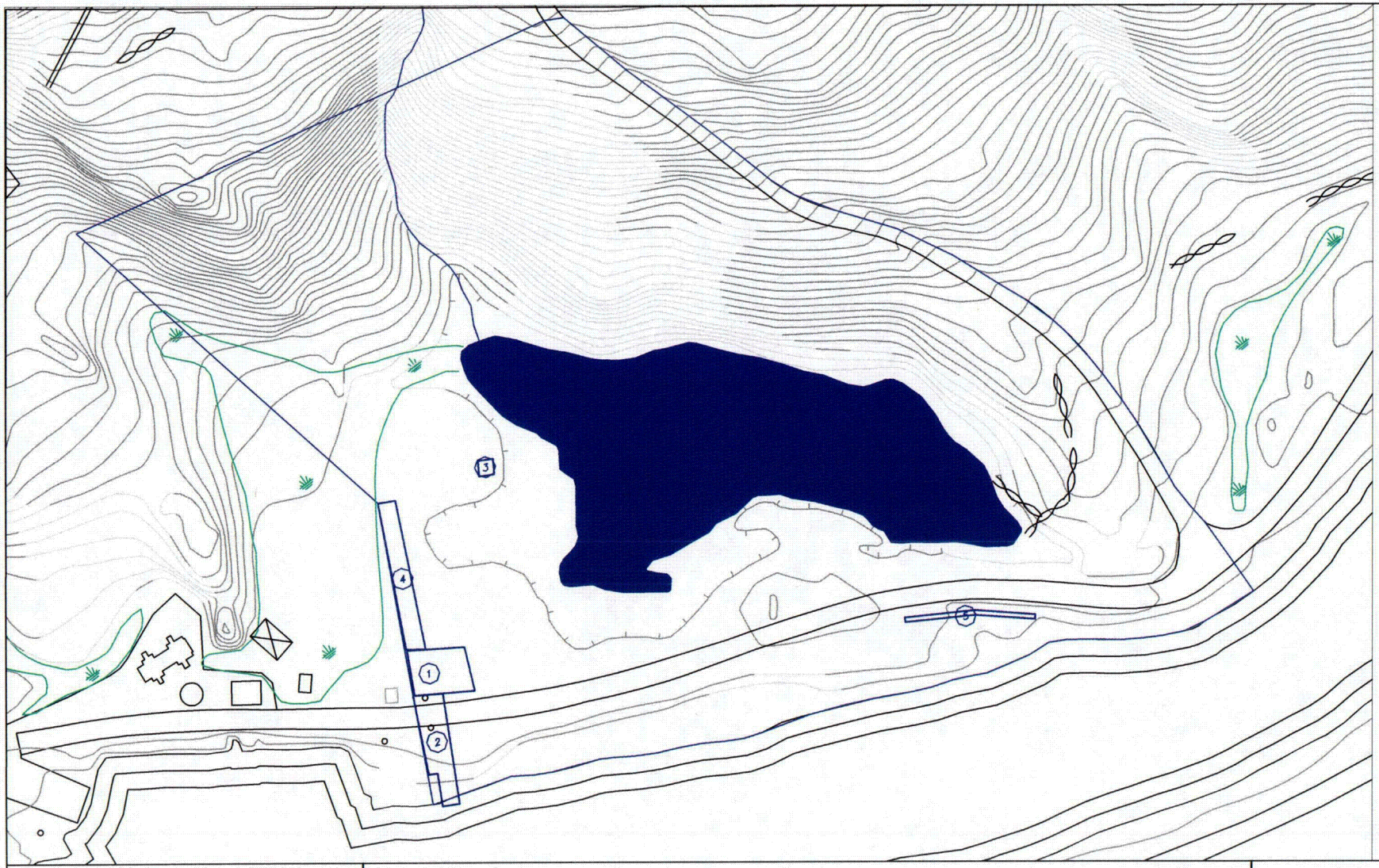


Figure 4	Connecticut Yankee Atomic Power Company 9521-0000 Final Status Survey Co-60 Posting Plot	Date	By
		February 2006	J. McC.

C-5



Legend

- Wet Land
- Pond
- Stone Wall

0 50 100 Feet

Notes

Background ranged from 8.2 kcpm to 16.2 kcpm as determined by an E-600 with SPA-3 Probe

Refer to Table 6 for scan area results

Figure 5	*Connecticut Yankee Atomic Power Company* *9521-0004 Final Status Survey Scan Areas*	*Date*	*By*
		February 2006	*J. McC.*

C-06

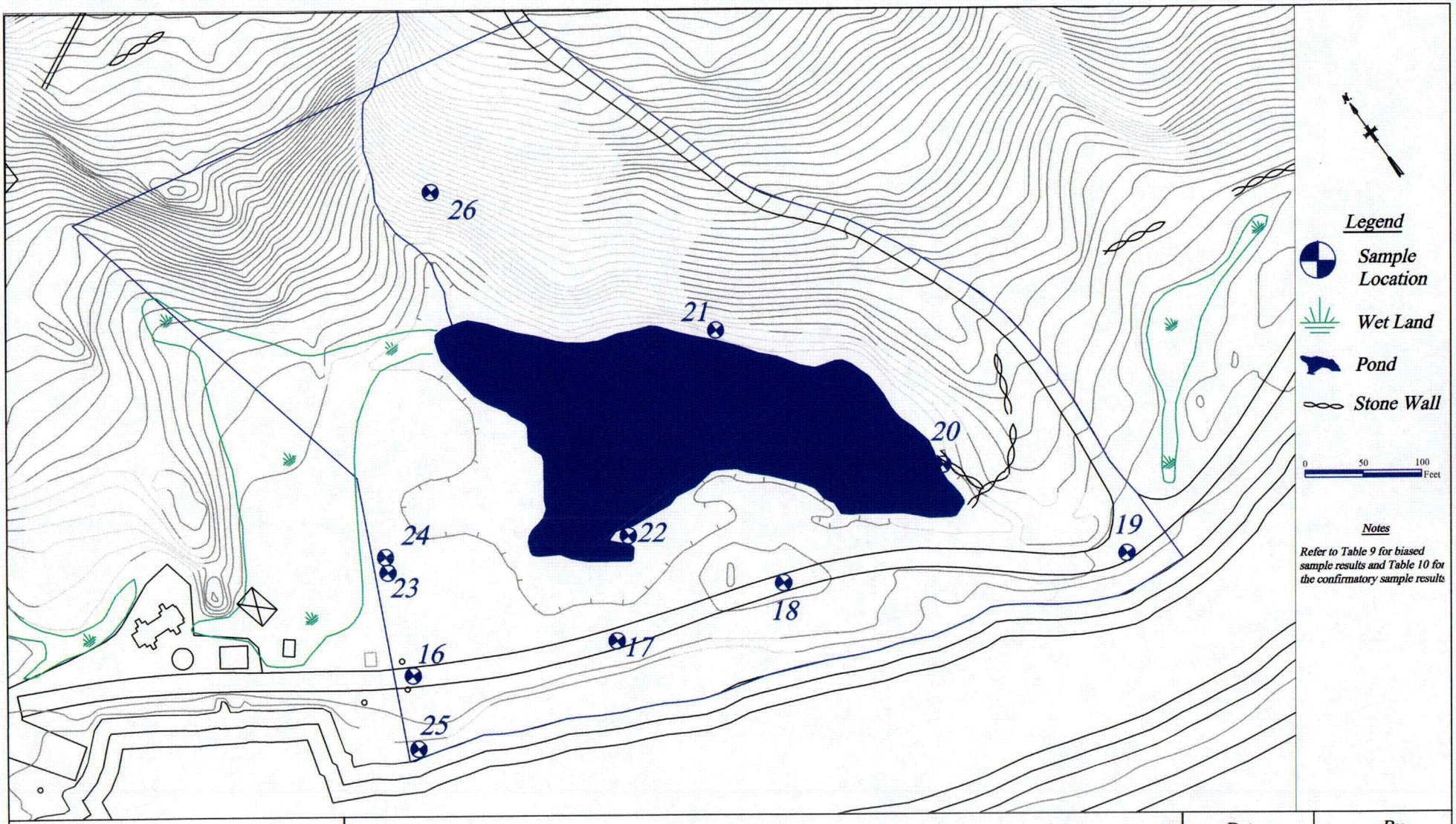


Figure 6	Connecticut Yankee Atomic Power Company 9521-0000 Biased and Confirmatory Sample Locations	Date	By
		February 2006	J. McC.

Attachment 2
Sample and Statistical Data

Attachment 2a
Sample Data
(196 Pages)

Analytical Data Package Prepared For

Bechtel CT Yankee Project

Radiochemical Analysis By

STL Richland

2800 G.W. Way, Richland Wa, 99352, (509)-375-3131.

Assigned Laboratory Code: STLRL

Data Package Contains _____ Pages

Report No.: 21031

SDG No.	Order No.	Client Sample ID (List Order)	Lot-Sa No.	Work Order	Report DB ID	Batch No.
21409		9521-0000-001F	J2J240260-3	FAPE91AA	9FAPE910	2298403
		9521-0000-002F	J2J240260-6	FAPFF1AA	9FAPFF10	2298403
		9521-0000-003F	J2J240260-1	FAPE71AA	9FAPE710	2298403
		9521-0000-004F	J2J240260-4	FAPFC1AA	9FAPFC10	2298403
		9521-0000-004FS	J2J240260-5	FAPFE1AA	9FAPFE10	2298403
		9521-0000-005F	J2J240260-2	FAPE81AA	9FAPE810	2298403
		9521-0000-006F	J2J240260-7	FAPFG1AA	9FAPFG10	2298403
		9521-0000-007F	J2J240260-8	FAPFH1AA	9FAPFH10	2298403
		9521-0000-010F	J2J240260-11	FAPFP1AA	9FAPFP10	2298403
		9521-0000-011F	J2J240260-9	FAPFK1AA	9FAPFK10	2298403
		9521-0000-012F	J2J240260-10	FAPFN1AA	9FAPFN10	2298403
		9521-0000-014F	J2J240260-12	FAPFR1AA	9FAPFR10	2298403

SEVERN TRENT SERVICES

CERTIFICATE OF ANALYSIS

November 24, 2002

Bechtel Corporation
362 Injun Hollow Road
East Hampton, CT 06424

Attention: Alan Heter

SDG Number	:	21409
Date SDG Received	:	October 24, 2002
Number of Samples	:	Twelve (12)
Sample Type	:	Soil
Data deliverable	:	Summary Report

I. Introduction

On October 24, 2002, twelve soil samples were received at STL Richland (STLR) for radiochemical analysis on two COCs (2002-0026 and 00024). Upon receipt, the samples were assigned to Lot Number J2J240260 with the laboratory ID numbers to correspond with the Bechtel Corp. (BCT) specific IDs as listed on the cover page.

II. Analytical Results/Methodology

The analytical results for this report are presented by laboratory sample ID. Each set of data includes sample identification information; analytical results and the appropriate associated statistical errors.

The requested analyses are: **Gamma Spectroscopy**
Gamma Spec by method RICH-RC-5017

III. Quality Control

The analytical results for each analysis performed under SDG 21409 includes a minimum of one Laboratory Control Sample (LCS) and one method (reagent) blank and one duplicate sample analysis. Any exceptions have been noted in the "Comments" section.

QC and sample results are reported in the same units.

IV. Comments

Gamma Spectroscopy
Gamma Spec by method RICH-RC-5017:
Seventeen of the eighteen requested radionuclides have been reported for each sample. The Bi-212 was over eight half lives since collection, therefore, not reported. Except as noted, the LCS, sample duplicate, batch blank and sample results are within required limits.

I certify that this Certificate of Analysis 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.

Reviewed and approved:

Barbara M. Gillespie
Project Manager

Drinking Water Method Cross References

	DRINKING WATER ASTM METHOD CROSS REFERENCES	
Referenced Method	**Isotope(s)**	**STL Richland's SOP number**
EPA 901.1	Cs-134, I-131	RICH-RC-5017
EPA 900.0	Alpha & Beta	RICH-RC-5014
EPA 903.1	Ra-226	RICH-RC-5005
EPA 904.0	Ra-228	RICH-RC-5005
EPA 905.0	Sr89/90	RICH-RC-5006
ASTM D2460	Total Radium	RICH-RC-5027
Standard Method 7500-U-C & ASTM D5174	Uranium	RICH-RC-5058
EPA 906.0	Tritium	RICH-RC-5007
NOTE:		
The Gross Alpha LCS is prepared with Am-241 (unless otherwise specified in the case narrative)		
The Gross Beta LCS is prepared with Sr/Y-90 (unless otherwise specified in the case narrative)		

Uncertainty Estimation

STL Richland has adopted the internationally accepted approach to estimating uncertainties described in "NIST Technical Note 1297, 1994 Edition". The approach, "Law of Propagation of Errors", involves the identification of all variables in an analytical method which are used to derive a result. These variables are related to the analytical result (R) by some functional relationship, R = constants * f(x,y,z,...). The components (x,y,z) are evaluated to determine their contribution to the overall method uncertainty. The individual component uncertainties (u_i) are then combined using a statistical model that provides the most probable overall uncertainty value. All component uncertainties are categorized as type A, evaluated by statistical methods, or type B, evaluated by other means. Uncertainties not included in the components, such as sample homogeneity, are combined with the component uncertainty as the square root of the sum-of-the-squares of the individual uncertainties. The uncertainty associated with the derived result is the combined uncertainty (u_c) multiplied by the coverage factor (1,2, or 3).

When three or more sample replicates are used to derive the analytical result, the type A uncertainty is the standard deviation of the mean value (S/vn), where S is the standard deviation of the derived results. The type B uncertainties are all other random or non-random components that are not included in the standard deviation.

The derivation of the general "Law of Propagation of Errors" equations and specific example are available on request.

Report Definitions

Action Lev	An agreed upon activity level used to trigger some action when the final result is greater than or equal to the Action Level. Often the Action Level is related to the Decision Limit.
Batch	The QC preparation batch number that relates laboratory samples to QC samples that were prepared and analyzed together.
Bias	Defined by the equation (Result/Expected)-1 as defined by ANSI N13.30.
COC No	Chain of Custody Number assigned by the Client or STL Richland.
Count Error (#s)	Poisson counting statistics of the gross sample count and background. The uncertainty is absolute and in the same units as the result. For Liquid Scintillation Counting (LSC) the batch blank count is the background.
Total Uncert (#s) *u_c - Combined Uncertainty.*	All known uncertainties associated with the preparation and analysis of the sample are propagated to give a measure of the uncertainty associated with the result, *u_c the combined uncertainty*. The uncertainty is absolute and in the same units as the result.
(#s), Coverage Factor	The coverage factor defines the width of the confidence interval, 1, 2 or 3 standard deviations.
CRDL (RL)	Contractual Required Detection Limit as defined in the Client's Statement Of Work or STL Richland "default" nominal detection limit. Often referred to the reporting level (RL)
Lc	Decision Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume associated with the sample. The Type I error probability is approximately 5%. Lc=(1.645 * Sqrt(2*(BkgrndCnt/BkgrndCntMin)/SCntMin)) * (ConvFct/(Eff*Yld*Abn*Vol) * IngrFct). For LSC methods the batch blank is used as a measure of the background variability. Lc cannot be calculated when the background count is zero.
Lot-Sample No	The number assigned by the LIMS software to track samples received on the same day for a given client. The sample number is a sequential number assigned to each sample in the Lot.
MDC|MDA	Detection Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume with a Type I and II error probability of approximately 5%. MDC = (4.65 * Sqrt((BkgrndCnt/BkgrndCntMin)/SCntMin) + 2.71/SCntMin) * (ConvFct/(Eff * Yld * Abn * Vol) * IngrFct). For LSC methods the batch blank is used as a measure of the background variability.
Primary Detector	The instrument identifier associated with the analysis of the sample aliquot.
Ratio U-234/U-238	The U-234 result divided by the U-238 result. The U-234/U-238 ratio for natural uranium in NIST SRM 4321C is 1.038.
Rst/MDC	Ratio of the Result to the MDC. A value greater than 1 may indicate activity above background at a high level of confidence. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Rst/TotUcert	Ratio of the Result to the Total Uncertainty. If the uncertainty has a coverage factor of 2 a value greater than 1 may indicate activity above background at approximately the 95% level of confidence assuming a two-sided confidence interval. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Report DB No	Sample Identifier used by the report system. The number is based upon the first five digits of the **Work Order** Number.
RER	The equation Replicate Error Ratio = (S-D)/[sqrt($TPUs^2 + TPUd^2$)] as defined by ICPT BOA where S is the original sample result, D is the result of the duplicate, TPUs is the total uncertainty of the original sample and TPUd is the total uncertainty of the duplicate sample.
SDG	Sample Delivery Group Number assigned by the Client or assigned by STL Richland upon sample receipt.
Sum Rpt Alpha Spec Rst(s)	The sum of the reported alpha spec results for tests derived from the same sample excluding duplicate result where the results are in the same units.
Work Order	The LIMS software assign test specific identifier.
Yield	The recovery of the tracer added to the sample such as Pu-242 used to trace a Pu-239/40 method.

Sample Results Summary

Date: 24-Nov-02

STL Richland STLRL

Ordered by Client Sample ID, Batch No.

Report No. : 21031 **SDG No:** 21409

Client ID	Work Order Number	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	MDC|MDA	RER
9521-0000-001F	FAPE91AA	ACTINIUM-228	5.24E-01 +- 1.6E-01		pCi/g		1.22E-01	
		AG-108M	-4.33E-03 +- 1.8E-02	U	pCi/g		3.14E-02	
		AMERICIUM-241	2.25E-02 +- 6.9E-02	U	pCi/g		1.20E-01	
		BISMUTH-214	5.03E-01 +- 1.2E-01	U	pCi/g		1.74E-01	
		COBALT-60	-2.61E-03 +- 2.5E-02	U	pCi/g		4.64E-02	
		CESIUM-134	3.39E-02 +- 3.2E-02	U	pCi/g		6.14E-02	
		CESIUM-137	2.44E-02 +- 2.5E-02	U	pCi/g		4.73E-02	
		EUROPIUM-152	-1.41E-02 +- 6.6E-02	U	pCi/g		1.06E-01	
		EUROPIUM-154	7.11E-02 +- 8.2E-02	U	pCi/g		1.63E-01	
		EUROPIUM-155	2.87E-02 +- 6.7E-02	U	pCi/g		1.15E-01	
		POTASSIUM-40	9.47E+00 +- 1.5E+00		pCi/g		3.66E-01	
		MAGNESIUM-54	9.00E-03 +- 3.3E-02	U	pCi/g		6.06E-02	
		NIOBIUM-94	-1.63E-02 +- 2.3E-02	U	pCi/g		3.70E-02	
		LEAD-212	5.65E-01 +- 1.2E-01		pCi/g		7.80E-02	
		LEAD-214	5.52E-01 +- 1.3E-01		pCi/g		6.84E-02	
		RADIUM-226	5.03E-01 +- 1.2E-01	U	pCi/g		1.74E-01	
		THALLIUM-208	1.85E-01 +- 5.6E-02		pCi/g		3.64E-02	
9521-0000-002F	FAPFF1AA	ACTINIUM-228	1.26E+00 +- 3.2E-01		pCi/g		2.79E-01	
		AG-108M	4.90E-04 +- 4.1E-02	U	pCi/g		7.15E-02	
		AMERICIUM-241	-4.85E-02 +- 1.9E-01	U	pCi/g		3.24E-01	
		BISMUTH-214	1.49E+00 +- 2.7E-01	U	pCi/g		3.56E-01	
		COBALT-60	7.93E-02 +- 5.1E-02	U	pCi/g		1.04E-01	
		CESIUM-134	1.06E-01 +- 6.2E-02	U	pCi/g		1.18E-01	
		CESIUM-137	1.07E+00 +- 1.8E-01		pCi/g		8.69E-02	
		EUROPIUM-152	-8.36E-02 +- 2.1E-01	U	pCi/g		2.20E-01	
		EUROPIUM-154	-1.50E-01 +- 1.4E-01	U	pCi/g		2.27E-01	
		EUROPIUM-155	-5.01E-02 +- 1.5E-01	U	pCi/g		2.47E-01	
		POTASSIUM-40	1.19E+01 +- 1.9E+00		pCi/g		5.37E-01	
		MAGNESIUM-54	-2.62E-02 +- 5.9E-02	U	pCi/g		1.00E-01	
		NIOBIUM-94	7.69E-03 +- 4.3E-02	U	pCi/g		7.70E-02	
		LEAD-212	1.33E+00 +- 3.0E-01		pCi/g		1.21E-01	
		LEAD-214	1.55E+00 +- 3.2E-01		pCi/g		1.60E-01	
		RADIUM-226	1.49E+00 +- 2.7E-01	U	pCi/g		3.56E-01	
		THALLIUM-208	3.22E-01 +- 8.4E-02		pCi/g		7.53E-02	

STL Richland
rptSTLRchSaSum
V3.96 A97

RER - Replicate Error Ratio = (S-D)/|sqrt(sq(TPUs)+sq(TPUd))| as defined by ICPT BOA.

U Qual - Analyzed for, but the result is less than the Mdc/Mda/Total Uncert or gamma scan software did not identify the nuclide.

Sample Results Summary

STL Richland STLRL

Ordered by Client Sample ID, Batch No.

Date: 24-Nov-02

Report No. : 21031 **SDG No:** 21409

Client ID	Work Order Number	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	MDC|MDA	RER
9521-0000-003F	FAPE71AA	ACTINIUM-228	6.19E-01 +- 1.9E-01	U	pCi/g		3.09E-01	
		AG-108M	3.90E-03 +- 2.4E-02	U	pCi/g		4.26E-02	
		AMERICIUM-241	-5.58E-02 +- 1.1E-01	U	pCi/g		1.89E-01	
		BISMUTH-214	4.88E-01 +- 1.3E-01	U	pCi/g		1.77E-01	
		COBALT-60	1.33E-02 +- 3.1E-02	U	pCi/g		5.95E-02	
		CESIUM-134	9.77E-03 +- 3.7E-02	U	pCi/g		6.72E-02	
		CESIUM-137	3.77E-01 +- 7.9E-02		pCi/g		5.05E-02	
		EUROPIUM-152	8.41E-02 +- 9.5E-02	U	pCi/g		1.28E-01	
		EUROPIUM-154	4.69E-02 +- 9.9E-02	U	pCi/g		1.83E-01	
		EUROPIUM-155	2.70E-02 +- 9.1E-02	U	pCi/g		1.54E-01	
		POTASSIUM-40	9.79E+00 +- 1.5E+00		pCi/g		4.22E-01	
		MAGNESIUM-54	-1.24E-02 +- 3.8E-02	U	pCi/g		6.51E-02	
		NIOBIUM-94	7.17E-03 +- 2.7E-02	U	pCi/g		4.80E-02	
		LEAD-212	5.24E-01 +- 1.4E-01		pCi/g		9.67E-02	
		LEAD-214	6.22E-01 +- 1.4E-01		pCi/g		8.58E-02	
		RADIUM-226	4.88E-01 +- 1.3E-01	U	pCi/g		1.77E-01	
		THALLIUM-208	2.14E-01 +- 6.1E-02	U	pCi/g		8.48E-02	
9521-0000-003F DUP	FAPE71AC	ACTINIUM-228	4.02E-01 +- 2.0E-01	U	pCi/g		3.02E-01	
		AG-108M	1.38E-02 +- 2.4E-02	U	pCi/g		4.38E-02	
		AMERICIUM-241	-1.55E-01 +- 2.8E-01	U	pCi/g		4.63E-01	
		BISMUTH-214	5.40E-01 +- 1.2E-01	U	pCi/g		1.82E-01	
		COBALT-60	8.06E-04 +- 2.7E-02	U	pCi/g		4.96E-02	
		CESIUM-134	3.66E-02 +- 3.7E-02	U	pCi/g		7.05E-02	
		CESIUM-137	3.53E-01 +- 7.2E-02		pCi/g		5.03E-02	
		EUROPIUM-152	-1.46E-01 +- 8.8E-02	U	pCi/g		1.32E-01	
		EUROPIUM-154	-4.80E-02 +- 8.9E-02	U	pCi/g		1.50E-01	
		EUROPIUM-155	-1.40E-02 +- 1.1E-01	U	pCi/g		1.92E-01	
		POTASSIUM-40	1.05E+01 +- 1.6E+00		pCi/g		3.67E-01	
		MAGNESIUM-54	-8.87E-03 +- 3.6E-02	U	pCi/g		6.20E-02	
		NIOBIUM-94	6.55E-03 +- 2.7E-02	U	pCi/g		4.95E-02	
		LEAD-212	5.93E-01 +- 1.5E-01		pCi/g		7.83E-02	
		LEAD-214	4.17E-01 +- 1.3E-01		pCi/g		1.10E-01	
		RADIUM-226	5.40E-01 +- 1.2E-01	U	pCi/g		1.82E-01	
		THALLIUM-208	1.93E-01 +- 6.1E-02	U	pCi/g		8.86E-02	

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RER - Replicate Error Ratio = (S-D)/|sqrt(sq(TPUs)+sq(TPUd))| as defined by ICPT BOA.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

Sample Results Summary

Date: 24-Nov-02

STL Richland STLRL

Ordered by Client Sample ID, Batch No.

Report No. : 21031 **SDG No:** 21409

Client ID	Work Order Number	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	MDC|MDA	RER
9521-0000-004F	FAPFC1AA	ACTINIUM-228	8.37E-01 +- 2.4E-01		pCi/g		1.97E-01	
		AG-108M	2.05E-02 +- 2.6E-02	U	pCi/g		4.88E-02	
		AMERICIUM-241	3.11E-02 +- 1.0E-01	U	pCi/g		1.83E-01	
		BISMUTH-214	8.99E-01 +- 1.7E-01		pCi/g		9.11E-02	
		COBALT-60	4.36E-02 +- 3.3E-02	U	pCi/g		7.10E-02	
		CESIUM-134	6.42E-02 +- 4.3E-02	U	pCi/g		8.50E-02	
		CESIUM-137	5.45E-01 +- 1.0E-01		pCi/g		6.04E-02	
		EUROPIUM-152	-4.14E-02 +- 1.0E-01	U	pCi/g		1.41E-01	
		EUROPIUM-154	-6.88E-02 +- 1.0E-01	U	pCi/g		1.67E-01	
		EUROPIUM-155	1.06E-02 +- 9.2E-02	U	pCi/g		1.55E-01	
		POTASSIUM-40	9.40E+00 +- 1.6E+00		pCi/g		5.12E-01	
		MAGNESIUM-54	-2.16E-02 +- 4.1E-02	U	pCi/g		6.99E-02	
		NIOBIUM-94	4.00E-03 +- 2.7E-02	U	pCi/g		4.99E-02	
		LEAD-212	9.05E-01 +- 1.9E-01		pCi/g		8.67E-02	
		LEAD-214	1.07E+00 +- 2.1E-01		pCi/g		1.06E-01	
		RADIUM-226	8.99E-01 +- 1.7E-01		pCi/g		9.11E-02	
		THALLIUM-208	2.98E-01 +- 7.1E-02		pCi/g		4.80E-02	
9521-0000-004FS	FAPFE1AA	ACTINIUM-228	9.75E-01 +- 2.3E-01		pCi/g		1.58E-01	
		AG-108M	1.25E-02 +- 2.3E-02	U	pCi/g		4.19E-02	
		AMERICIUM-241	3.79E-02 +- 6.4E-02	U	pCi/g		1.02E-01	
		BISMUTH-214	1.00E+00 +- 1.8E-01		pCi/g		9.25E-02	
		COBALT-60	7.40E-03 +- 2.8E-02	U	pCi/g		5.36E-02	
		CESIUM-134	5.72E-02 +- 3.5E-02	U	pCi/g		7.00E-02	
		CESIUM-137	5.54E-01 +- 1.0E-01		pCi/g		5.53E-02	
		EUROPIUM-152	3.95E-02 +- 8.2E-02	U	pCi/g		1.40E-01	
		EUROPIUM-154	6.28E-02 +- 8.3E-02	U	pCi/g		1.65E-01	
		EUROPIUM-155	-2.35E-02 +- 7.9E-02	U	pCi/g		1.34E-01	
		POTASSIUM-40	9.64E+00 +- 1.5E+00		pCi/g		4.44E-01	
		MAGNESIUM-54	2.17E-03 +- 3.8E-02	U	pCi/g		6.76E-02	
		NIOBIUM-94	-7.18E-03 +- 2.5E-02	U	pCi/g		4.23E-02	
		LEAD-212	9.40E-01 +- 1.8E-01		pCi/g		9.59E-02	
		LEAD-214	1.13E+00 +- 2.1E-01		pCi/g		9.38E-02	
		RADIUM-226	1.00E+00 +- 1.8E-01		pCi/g		9.25E-02	
		THALLIUM-208	2.41E-01 +- 8.3E-02		pCi/g		4.69E-02	

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RER - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.

U Qual - Analyzed for, but the result is less than the Mdc/Mda/Total Uncert or gamma scan software did not identify the nuclide.

Sample Results Summary

Date: 24-Nov-02

STL Richland STLRL

Ordered by Client Sample ID, Batch No.

Report No. : 21031

SDG No: 21409

Client ID	Work Order Number	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	MDC|MDA	RER
9521-0000-005F	FAPE81AA	ACTINIUM-228	4.74E-01 +- 1.7E-01		pCi/g		1.66E-01	
		AG-108M	-7.59E-03 +- 2.2E-02	U	pCi/g		3.68E-02	
		AMERICIUM-241	3.19E-02 +- 4.9E-02	U	pCi/g		8.38E-02	
		BISMUTH-214	5.34E-01 +- 1.2E-01	U	pCi/g		1.77E-01	
		COBALT-60	1.31E-02 +- 2.8E-02	U	pCi/g		5.41E-02	
		CESIUM-134	1.69E-02 +- 3.3E-02	U	pCi/g		6.08E-02	
		CESIUM-137	1.39E-01 +- 4.3E-02	J	pCi/g		4.95E-02	
		EUROPIUM-152	-1.53E-02 +- 7.7E-02	U	pCi/g		1.16E-01	
		EUROPIUM-154	-5.90E-03 +- 7.9E-02	U	pCi/g		1.44E-01	
		EUROPIUM-155	4.00E-02 +- 6.8E-02	U	pCi/g		1.18E-01	
		POTASSIUM-40	1.00E+01 +- 1.6E+00		pCi/g		4.19E-01	
		MAGNESIUM-54	-2.29E-04 +- 3.1E-02	U	pCi/g		5.71E-02	
		NIOBIUM-94	8.06E-03 +- 2.3E-02	U	pCi/g		4.30E-02	
		LEAD-212	6.01E-01 +- 1.3E-01		pCi/g		6.70E-02	
		LEAD-214	5.88E-01 +- 1.4E-01		pCi/g		8.13E-02	
		RADIUM-226	5.34E-01 +- 1.2E-01	U	pCi/g		1.77E-01	
		THALLIUM-208	2.45E-01 +- 6.0E-02	U	pCi/g		9.05E-02	
9521-0000-006F	FAPFG1AA	ACTINIUM-228	1.12E+00 +- 3.7E-01		pCi/g		2.51E-01	
		AG-108M	1.34E-02 +- 3.8E-02	U	pCi/g		6.65E-02	
		AMERICIUM-241	-5.69E-01 +- 4.7E-01	U	pCi/g		7.49E-01	
		BISMUTH-214	1.93E+00 +- 3.0E-01		pCi/g		1.23E-01	
		COBALT-60	2.29E-04 +- 4.2E-02	U	pCi/g		7.62E-02	
		CESIUM-134	6.44E-02 +- 4.9E-02	U	pCi/g		9.50E-02	
		CESIUM-137	1.05E+00 +- 1.7E-01		pCi/g		8.46E-02	
		EUROPIUM-152	1.20E-02 +- 1.7E-01	U	pCi/g		2.16E-01	
		EUROPIUM-154	-4.09E-02 +- 1.2E-01	U	pCi/g		2.09E-01	
		EUROPIUM-155	1.10E-01 +- 1.9E-01	U	pCi/g		3.29E-01	
		POTASSIUM-40	9.23E+00 +- 1.7E+00		pCi/g		6.77E-01	
		MAGNESIUM-54	4.10E-03 +- 5.6E-02	U	pCi/g		9.84E-02	
		NIOBIUM-94	-4.74E-03 +- 3.5E-02	U	pCi/g		6.14E-02	
		LEAD-212	1.28E+00 +- 2.6E-01		pCi/g		1.15E-01	
		LEAD-214	2.17E+00 +- 3.6E-01		pCi/g		1.47E-01	
		RADIUM-226	1.93E+00 +- 3.0E-01		pCi/g		1.24E-01	
		THALLIUM-208	4.02E-01 +- 9.9E-02		pCi/g		7.66E-02	

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RER - Replicate Error Ratio = (S-D)/|sqrt(sq(TPUs)+sq(TPUd))| as defined by ICPT BOA.

J Qual - No U qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.

U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

Sample Results Summary

STL Richland STLRL

Ordered by Client Sample ID, Batch No.

Date: 24-Nov-02

Report No. : 21031 **SDG No:** 21409

Client ID	Work Order Number	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	MDC|MDA	RER
9521-0000-007F	FAPFH1AA	ACTINIUM-228	1.02E+00 +- 2.8E-01		pCi/g		2.01E-01	
		AG-108M	1.71E-02 +- 3.6E-02	U	pCi/g		6.45E-02	
		AMERICIUM-241	6.00E-02 +- 8.5E-02	U	pCi/g		1.36E-01	
		BISMUTH-214	9.46E-01 +- 2.4E-01	U	pCi/g		3.16E-01	
		COBALT-60	4.34E-02 +- 4.4E-02	U	pCi/g		9.12E-02	
		CESIUM-134	1.03E-01 +- 5.1E-02	U	pCi/g		1.10E-01	
		CESIUM-137	1.10E+00 +- 1.8E-01		pCi/g		7.41E-02	
		EUROPIUM-152	-1.16E-01 +- 1.1E-01	U	pCi/g		1.85E-01	
		EUROPIUM-154	4.06E-02 +- 1.2E-01	U	pCi/g		2.32E-01	
		EUROPIUM-155	8.95E-02 +- 1.1E-01	U	pCi/g		1.87E-01	
		POTASSIUM-40	1.08E+01 +- 2.0E+00		pCi/g		4.94E-01	
		MAGNESIUM-54	3.92E-02 +- 5.8E-02	U	pCi/g		1.11E-01	
		NIOBIUM-94	-1.18E-02 +- 3.4E-02	U	pCi/g		5.95E-02	
		LEAD-212	9.06E-01 +- 2.1E-01		pCi/g		1.36E-01	
		LEAD-214	1.30E+00 +- 2.6E-01		pCi/g		1.36E-01	
		RADIUM-226	9.46E-01 +- 2.4E-01	U	pCi/g		3.16E-01	
		THALLIUM-208	3.95E-01 +- 9.1E-02		pCi/g		7.15E-02	
9521-0000-010F	FAPFP1AA	ACTINIUM-228	8.99E-01 +- 2.4E-01		pCi/g		1.77E-01	
		AG-108M	2.91E-03 +- 3.3E-02	U	pCi/g		5.80E-02	
		AMERICIUM-241	2.36E-02 +- 7.5E-02	U	pCi/g		1.18E-01	
		BISMUTH-214	1.02E+00 +- 2.1E-01		pCi/g		1.02E-01	
		COBALT-60	4.22E-02 +- 4.1E-02	U	pCi/g		8.36E-02	
		CESIUM-134	7.57E-02 +- 4.4E-02	U	pCi/g		9.01E-02	
		CESIUM-137	1.85E+00 +- 2.6E-01		pCi/g		6.48E-02	
		EUROPIUM-152	1.58E-02 +- 9.8E-02	U	pCi/g		1.73E-01	
		EUROPIUM-154	3.90E-03 +- 9.5E-02	U	pCi/g		1.78E-01	
		EUROPIUM-155	1.26E-01 +- 9.7E-02	U	pCi/g		1.75E-01	
		POTASSIUM-40	9.23E+00 +- 1.5E+00		pCi/g		5.11E-01	
		MAGNESIUM-54	4.36E-02 +- 4.3E-02	U	pCi/g		8.53E-02	
		NIOBIUM-94	-1.67E-02 +- 2.9E-02	U	pCi/g		4.80E-02	
		LEAD-212	8.87E-01 +- 1.8E-01		pCi/g		1.05E-01	
		LEAD-214	9.08E-01 +- 1.9E-01		pCi/g		1.24E-01	
		RADIUM-226	1.02E+00 +- 2.1E-01		pCi/g		1.02E-01	
		THALLIUM-208	3.30E-01 +- 7.8E-02		pCi/g		5.68E-02	

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V3.96 A97

RER - Replicate Error Ratio = (S-D)/|sqrt(sq(TPUs)+sq(TPUd))| as defined by ICPT BOA.

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Sample Results Summary

Date: 24-Nov-02

STL Richland STLRL

Ordered by Client Sample ID, Batch No.

Report No. : 21031 **SDG No:** 21409

Client ID	Work Order Number	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	MDC|MDA	RER
9521-0000-011F	FAPFK1AA	ACTINIUM-228	1.15E+00 +- 2.5E-01		pCi/g		1.55E-01	
		AG-108M	-8.13E-04 +- 2.4E-02	U	pCi/g		4.18E-02	
		AMERICIUM-241	-1.46E-03 +- 9.6E-02	U	pCi/g		1.60E-01	
		BISMUTH-214	1.11E+00 +- 1.9E-01	U	pCi/g		2.55E-01	
		COBALT-60	1.34E-02 +- 3.5E-02	U	pCi/g		6.62E-02	
		CESIUM-134	8.51E-02 +- 3.9E-02	U	pCi/g		7.88E-02	
		CESIUM-137	1.98E-01 +- 7.1E-02	J	pCi/g		5.15E-02	
		EUROPIUM-152	3.48E-03 +- 8.0E-02	U	pCi/g		1.41E-01	
		EUROPIUM-154	-2.47E-02 +- 1.0E-01	U	pCi/g		1.82E-01	
		EUROPIUM-155	1.01E-02 +- 8.9E-02	U	pCi/g		1.48E-01	
		POTASSIUM-40	9.74E+00 +- 1.6E+00		pCi/g		4.11E-01	
		MAGNESIUM-54	5.72E-02 +- 4.2E-02	U	pCi/g		8.16E-02	
		NIOBIUM-94	8.80E-04 +- 3.2E-02	U	pCi/g		5.17E-02	
		LEAD-212	1.01E+00 +- 1.9E-01		pCi/g		8.40E-02	
		LEAD-214	1.19E+00 +- 2.3E-01		pCi/g		9.85E-02	
		RADIUM-226	1.11E+00 +- 1.9E-01		pCi/g		9.67E-02	
		THALLIUM-208	3.17E-01 +- 8.4E-02		pCi/g		5.13E-02	
9521-0000-012F	FAPFN1AA	ACTINIUM-228	8.32E-01 +- 2.2E-01		pCi/g		1.97E-01	
		AG-108M	-1.10E-02 +- 2.5E-02	U	pCi/g		4.20E-02	
		AMERICIUM-241	-2.93E-02 +- 1.0E-01	U	pCi/g		1.71E-01	
		BISMUTH-214	6.96E-01 +- 1.5E-01	U	pCi/g		2.28E-01	
		COBALT-60	6.40E-02 +- 3.9E-02	U	pCi/g		8.17E-02	
		CESIUM-134	5.26E-02 +- 4.2E-02	U	pCi/g		8.10E-02	
		CESIUM-137	3.40E-01 +- 8.0E-02		pCi/g		5.63E-02	
		EUROPIUM-152	6.05E-02 +- 8.6E-02	U	pCi/g		1.37E-01	
		EUROPIUM-154	-2.74E-02 +- 9.6E-02	U	pCi/g		1.69E-01	
		EUROPIUM-155	1.23E-01 +- 9.1E-02	U	pCi/g		1.62E-01	
		POTASSIUM-40	1.36E+01 +- 2.1E+00		pCi/g		5.88E-01	
		MAGNESIUM-54	3.91E-03 +- 4.1E-02	U	pCi/g		7.41E-02	
		NIOBIUM-94	1.47E-02 +- 2.6E-02	U	pCi/g		4.96E-02	
		LEAD-212	7.85E-01 +- 1.6E-01		pCi/g		1.15E-01	
		LEAD-214	6.67E-01 +- 1.6E-01		pCi/g		1.02E-01	
		RADIUM-226	6.96E-01 +- 1.5E-01		pCi/g		9.88E-02	
		THALLIUM-208	3.08E-01 +- 8.7E-02		pCi/g		4.81E-02	

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J Qual - No U qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
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Sample Results Summary

Date: 24-Nov-02

STL Richland STLRL

Ordered by Client Sample ID, Batch No.

Report No. : 21031 **SDG No:** 21409

Client ID	Work Order Number	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	MDC|MDA	RER
9521-0000-014F	FAPFR1AA	ACTINIUM-228	1.09E+00 +- 3.3E-01	U	pCi/g		4.96E-01	
		AG-108M	-1.01E-02 +- 3.5E-02	U	pCi/g		5.88E-02	
		AMERICIUM-241	8.48E-02 +- 4.3E-01	U	pCi/g		7.34E-01	
		BISMUTH-214	1.26E+00 +- 2.3E-01	U	pCi/g		3.00E-01	
		COBALT-60	1.69E-02 +- 4.1E-02	U	pCi/g		7.85E-02	
		CESIUM-134	1.18E-01 +- 5.6E-02	U	pCi/g		1.10E-01	
		CESIUM-137	1.04E+00 +- 1.7E-01		pCi/g		7.66E-02	
		EUROPIUM-152	-7.46E-02 +- 1.6E-01	U	pCi/g		2.01E-01	
		EUROPIUM-154	-1.57E-02 +- 1.2E-01	U	pCi/g		2.04E-01	
		EUROPIUM-155	1.26E-01 +- 1.8E-01	U	pCi/g		3.18E-01	
		POTASSIUM-40	1.17E+01 +- 1.9E+00		pCi/g		5.55E-01	
		MAGNESIUM-54	1.18E-03 +- 5.2E-02	U	pCi/g		9.09E-02	
		NIOBIUM-94	-4.42E-02 +- 3.7E-02	U	pCi/g		5.56E-02	
		LEAD-212	1.48E+00 +- 3.2E-01		pCi/g		1.17E-01	
		LEAD-214	1.30E+00 +- 2.5E-01		pCi/g		1.46E-01	
		RADIUM-226	1.26E+00 +- 2.3E-01		pCi/g		1.21E-01	
		THALLIUM-208	4.07E-01 +- 9.7E-02		pCi/g		6.87E-02	

Number of Results: 221

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V3.96 A97

RER - Replicate Error Ratio = (S-D)/|sqrt(sq(TPUs)+sq(TPUd))| as defined by ICPT BOA.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

QC Results Summary
STL Richland STLRL

Ordered by QC Type, Batch No.

Date: 24-Nov-02

Report No. : 21031

SDG No.: 21409

QC Type	Work Order Number	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	Recovery	Bias	MDC|MDA
BLANK QC	FAR4V1AA	ACTINIUM-228	1.43E-02 +- 1.1E-01	U	pCi/g				2.28E-01
		AG-108M	1.17E-02 +- 2.2E-02	U	pCi/g				4.37E-02
		AMERICIUM-241	-1.25E-02 +- 8.0E-02	U	pCi/g				1.42E-01
		BISMUTH-214	-8.06E-02 +- 7.2E-02	U	pCi/g				1.26E-01
		COBALT-60	-7.01E-04 +- 3.0E-02	U	pCi/g				6.01E-02
		CESIUM-134	-2.27E-02 +- 2.8E-02	U	pCi/g				4.32E-02
		CESIUM-137	-1.80E-02 +- 3.0E-02	U	pCi/g				5.15E-02
		EUROPIUM-152	-5.46E-02 +- 8.2E-02	U	pCi/g				1.35E-01
		EUROPIUM-154	-2.48E-02 +- 6.1E-02	U	pCi/g				1.13E-01
		EUROPIUM-155	-6.51E-02 +- 6.2E-02	U	pCi/g				9.55E-02
		POTASSIUM-40	-8.75E-01 +- 6.1E-01	U	pCi/g				1.27E+00
		MAGNESIUM-54	-1.03E-03 +- 2.8E-02	U	pCi/g				5.33E-02
		NIOBIUM-94	3.03E-03 +- 2.5E-02	U	pCi/g				4.99E-02
		LEAD-212	-7.29E-02 +- 4.4E-02	U	pCi/g				6.79E-02
		LEAD-214	-4.45E-02 +- 6.0E-02	U	pCi/g				1.05E-01
		RADIUM-226	-8.04E-02 +- 7.2E-02	U	pCi/g				1.26E-01
		THALLIUM-208	1.17E-02 +- 3.5E-02	U	pCi/g				7.08E-02
LCS	FAR4V1AC	CESIUM-137	1.06E+00 +- 1.7E-01		pCi/g		104.24%	0.0	5.27E-02

Number of Results: 18

STL Richland
rptSTLRchQcSum
V3.96 A97

Bias - (Result/Expected)-1 as defined by ANSI N13.30.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM I

SAMPLE RESULTS

Date: 24-Nov-02

Lab Name: STL Richland **SDG:** 21409 **Collection Date:** 6/26/2002 10:44:00 AM

Lot-Sample No.: J2J240260-3 **Report No. :** 21031 **Received Date:** 10/24/2002 11:55:00 AM

Client Sample ID: 9521-0000-001F **COC No. :** **Matrix:** SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2298403	Work Order: FAPE91AA			Report DB ID: 9FAPE910								
ACTINIUM-228	5.24E-01		1.6E-01	1.6E-01	1.22E-01	pCi/g		*(4.3)*	11/19/02 08:08 a		404.5	E901.1
								(6.4)			g	GER6$1
AG-108M	-4.33E-03	U	1.8E-02	1.8E-02	3.14E-02	pCi/g		*-0.14*	11/19/02 08:08 a		404.5	E901.1
								-0.47			g	GER6$1
AMERICIUM-241	2.25E-02	U	6.9E-02	6.9E-02	1.20E-01	pCi/g		*0.19*	11/19/02 08:08 a		404.5	E901.1
								0.65			g	GER6$1
BISMUTH-214	5.03E-01	U	1.2E-01	1.2E-01	1.74E-01	pCi/g		*(2.9)*	11/19/02 08:08 a		404.5	E901.1
								(8.5)			g	GER6$1
COBALT-60	-2.61E-03	U	2.5E-02	2.5E-02	4.64E-02	pCi/g		*-0.06*	11/19/02 08:08 a		404.5	E901.1
							1.52E-01	*-0.2*			g	GER6$1
CESIUM-134	3.39E-02	U	3.2E-02	3.2E-02	6.14E-02	pCi/g		*0.55*	11/19/02 08:08 a		404.5	E901.1
							1.87E-01	*(2.1)*			g	GER6$1
CESIUM-137	2.44E-02	U	2.5E-02	2.5E-02	4.73E-02	pCi/g		*0.52*	11/19/02 08:08 a		404.5	E901.1
							3.16E-01	*(2.)*			g	GER6$1
EUROPIUM-152	-1.41E-02	U	6.6E-02	6.6E-02	1.06E-01	pCi/g		*-0.13*	11/19/02 08:08 a		404.5	E901.1
							4.04E-01	*-0.43*			g	GER6$1
EUROPIUM-154	7.11E-02	U	8.2E-02	8.2E-02	1.63E-01	pCi/g		*0.44*	11/19/02 08:08 a		404.5	E901.1
							3.72E-01	*(1.7)*			g	GER6$1
EUROPIUM-155	2.87E-02	U	6.7E-02	6.7E-02	1.15E-01	pCi/g		*0.25*	11/19/02 08:08 a		404.5	E901.1
							1.57E+01	*0.85*			g	GER6$1

STL Richland
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V3.96 A97

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM I

SAMPLE RESULTS

Date: 24-Nov-02

Lab Name: STL Richland | **SDG:** 21409 | **Collection Date:** 6/26/2002 10:44:00 AM

Lot-Sample No.: J2J240260-3 | **Report No. :** 21031 | **Received Date:** 10/24/2002 11:55:00 AM

Client Sample ID: 9521-0000-001F | **COC No. :** | **Matrix:** SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
POTASSIUM-40	9.47E+00		1.5E+00	1.5E+00	3.66E-01	pCi/g		*(25.8)*	11/19/02 08:08 a		404.5	E901.1
								(12.5)			g	GER6$1
MAGNESIUM-54	9.00E-03	U	3.3E-02	3.3E-02	6.06E-02	pCi/g		*0.15*	11/19/02 08:08 a		404.5	E901.1
							6.96E-01	*0.54*			g	GER6$1
NIOBIUM-94	-1.63E-02	U	2.3E-02	2.3E-02	3.70E-02	pCi/g		*-0.44*	11/19/02 08:08 a		404.5	E901.1
							2.85E-01	*-(1.4)*			g	GER6$1
LEAD-212	5.65E-01		1.2E-01	1.2E-01	7.80E-02	pCi/g		*(7.2)*	11/19/02 08:08 a		404.5	E901.1
								(9.2)			g	GER6$1
LEAD-214	5.52E-01		1.3E-01	1.3E-01	6.84E-02	pCi/g		*(8.1)*	11/19/02 08:08 a		404.5	E901.1
								(8.6)			g	GER6$1
RADIUM-226	5.03E-01	U	1.2E-01	1.2E-01	1.74E-01	pCi/g		*(2.9)*	11/19/02 08:08 a		404.5	E901.1
								(8.5)			g	GER6$1
THALLIUM-208	1.85E-01		5.6E-02	5.6E-02	3.64E-02	pCi/g		*(5.1)*	11/19/02 08:08 a		404.5	E901.1
								(6.6)			g	GER6$1

Number of Results: 17

Comments:

STL Richland
rptSTLRchSample
V3.96 A97

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM I

SAMPLE RESULTS

Date: 24-Nov-02

Lab Name: STL Richland **SDG:** 21409 **Collection Date:** 6/27/2002 9:36:00 AM

Lot-Sample No.: J2J240260-6 **Report No. :** 21031 **Received Date:** 10/24/2002 11:55:00 AM

Client Sample ID: 9521-0000-002F **COC No. :** **Matrix:** SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2298403	Work Order: FAPFF1AA			Report DB ID: 9FAPFF10								
ACTINIUM-228	1.26E+00		3.2E-01	3.2E-01	2.79E-01	pCi/g		*(4.5)*	11/19/02 09:55 a		253.4	E901.1
								(8.)			g	GER1$1
AG-108M	4.90E-04	U	4.1E-02	4.1E-02	7.15E-02	pCi/g		*0.01*	11/19/02 09:55 a		253.4	E901.1
								0.02			g	GER1$1
AMERICIUM-241	-4.85E-02	U	1.9E-01	1.9E-01	3.24E-01	pCi/g		*-0.15*	11/19/02 09:55 a		253.4	E901.1
								-0.51			g	GER1$1
BISMUTH-214	1.49E+00	U	2.7E-01	2.7E-01	3.56E-01	pCi/g		*(4.2)*	11/19/02 09:55 a		253.4	E901.1
								(10.9)			g	GER1$1
COBALT-60	7.93E-02	U	5.1E-02	5.1E-02	1.04E-01	pCi/g		*0.76*	11/19/02 09:55 a		253.4	E901.1
							1.52E-01	*(3.1)*			g	GER1$1
CESIUM-134	1.06E-01	U	6.2E-02	6.2E-02	1.18E-01	pCi/g		*0.89*	11/19/02 09:55 a		253.4	E901.1
							1.87E-01	*(3.4)*			g	GER1$1
CESIUM-137	1.07E+00		1.8E-01	1.8E-01	8.69E-02	pCi/g		*(12.3)*	11/19/02 09:55 a		253.4	E901.1
							3.16E-01	*(11.9)*			g	GER1$1
EUROPIUM-152	-8.36E-02	U	2.1E-01	2.1E-01	2.20E-01	pCi/g		*-0.38*	11/19/02 09:55 a		253.4	E901.1
							4.04E-01	*-0.81*			g	GER1$1
EUROPIUM-154	-1.50E-01	U	1.4E-01	1.4E-01	2.27E-01	pCi/g		*-0.66*	11/19/02 09:55 a		253.4	E901.1
							3.72E-01	*-(2.1)*			g	GER1$1
EUROPIUM-155	-5.01E-02	U	1.5E-01	1.5E-01	2.47E-01	pCi/g		*-0.2*	11/19/02 09:55 a		253.4	E901.1
							1.57E+01	*-0.67*			g	GER1$1

STL Richland
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V3.96 A97

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM I

SAMPLE RESULTS

Date: 24-Nov-02

Lab Name: STL Richland **SDG:** 21409 **Collection Date:** 6/27/2002 9:36:00 AM

Lot-Sample No.: J2J240260-6 **Report No. :** 21031 **Received Date:** 10/24/2002 11:55:00 AM

Client Sample ID: 9521-0000-002F **COC No. :** **Matrix:** SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
POTASSIUM-40	1.19E+01		1.9E+00	1.9E+00	5.37E-01	pCi/g		*(22.2)*	11/19/02 09:55 a		253.4	E901.1
								(12.4)			g	GER1$1
MAGNESIUM-54	-2.62E-02	U	5.9E-02	5.9E-02	1.00E-01	pCi/g		*-0.26*	11/19/02 09:55 a		253.4	E901.1
							6.96E-01	*-0.88*			g	GER1$1
NIOBIUM-94	7.69E-03	U	4.3E-02	4.3E-02	7.70E-02	pCi/g		*0.1*	11/19/02 09:55 a		253.4	E901.1
							2.85E-01	*0.36*			g	GER1$1
LEAD-212	1.33E+00		3.0E-01	3.0E-01	1.21E-01	pCi/g		*(11.)*	11/19/02 09:55 a		253.4	E901.1
								(8.9)			g	GER1$1
LEAD-214	1.55E+00		3.2E-01	3.2E-01	1.60E-01	pCi/g		*(9.7)*	11/19/02 09:55 a		253.4	E901.1
								(9.8)			g	GER1$1
RADIUM-226	1.49E+00	U	2.7E-01	2.7E-01	3.56E-01	pCi/g		*(4.2)*	11/19/02 09:55 a		253.4	E901.1
								(10.9)			g	GER1$1
THALLIUM-208	3.22E-01		8.4E-02	8.4E-02	7.53E-02	pCi/g		*(4.3)*	11/19/02 09:55 a		253.4	E901.1
								(7.7)			g	GER1$1

Number of Results: 17

Comments:

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM I

SAMPLE RESULTS

Date: 24-Nov-02

Lab Name: STL Richland **SDG:** 21409 **Collection Date:** 6/25/2002 3:12:00 PM

Lot-Sample No.: J2J240260-1 **Report No. :** 21031 **Received Date:** 10/24/2002 11:55:00 AM

Client Sample ID: 9521-0000-003F **COC No. :** **Matrix:** SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2298403	Work Order: FAPE71AA			Report DB ID: 9FAPE710								
ACTINIUM-228	6.19E-01	U	1.9E-01	1.9E-01	3.09E-01	pCi/g		*(2.)*	11/19/02 08:07 a		377.0	E901.1
								(6.5)			g	GER1$1
AG-108M	3.90E-03	U	2.4E-02	2.4E-02	4.26E-02	pCi/g		*0.09*	11/19/02 08:07 a		377.0	E901.1
								0.32			g	GER1$1
AMERICIUM-241	-5.58E-02	U	1.1E-01	1.1E-01	1.89E-01	pCi/g		*-0.3*	11/19/02 08:07 a		377.0	E901.1
								-1.			g	GER1$1
BISMUTH-214	4.88E-01	U	1.3E-01	1.3E-01	1.77E-01	pCi/g		*(2.8)*	11/19/02 08:07 a		377.0	E901.1
								(7.7)			g	GER1$1
COBALT-60	1.33E-02	U	3.1E-02	3.1E-02	5.95E-02	pCi/g		*0.22*	11/19/02 08:07 a		377.0	E901.1
							1.52E-01	*0.85*			g	GER1$1
CESIUM-134	9.77E-03	U	3.7E-02	3.7E-02	6.72E-02	pCi/g		*0.15*	11/19/02 08:07 a		377.0	E901.1
							1.87E-01	*0.52*			g	GER1$1
CESIUM-137	3.77E-01		7.9E-02	7.9E-02	5.05E-02	pCi/g		*(7.5)*	11/19/02 08:07 a		377.0	E901.1
							3.16E-01	*(9.6)*			g	GER1$1
EUROPIUM-152	8.41E-02	U	9.5E-02	9.5E-02	1.28E-01	pCi/g		*0.66*	11/19/02 08:07 a		377.0	E901.1
							4.04E-01	*(1.8)*			g	GER1$1
EUROPIUM-154	4.69E-02	U	9.9E-02	9.9E-02	1.83E-01	pCi/g		*0.26*	11/19/02 08:07 a		377.0	E901.1
							3.72E-01	*0.95*			g	GER1$1
EUROPIUM-155	2.70E-02	U	9.1E-02	9.1E-02	1.54E-01	pCi/g		*0.17*	11/19/02 08:07 a		377.0	E901.1
							1.57E+01	*0.59*			g	GER1$1

STL Richland
rptSTLRchSample
V3.96 A97

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM I

SAMPLE RESULTS

Date: 24-Nov-02

Lab Name: STL Richland | **SDG:** 21409 | **Collection Date:** 6/25/2002 3:12:00 PM

Lot-Sample No.: J2J240260-1 | **Report No. :** 21031 | **Received Date:** 10/24/2002 11:55:00 AM

Client Sample ID: 9521-0000-003F | **COC No. :** | **Matrix:** SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
POTASSIUM-40	9.79E+00		1.5E+00	1.5E+00	4.22E-01	pCi/g		*(23.2)*	11/19/02 08:07 a		377.0	E901.1
								(12.9)			g	GER1$1
MAGNESIUM-54	-1.24E-02	U	3.8E-02	3.8E-02	6.51E-02	pCi/g		*-0.19*	11/19/02 08:07 a		377.0	E901.1
							6.96E-01	*-0.65*			g	GER1$1
NIOBIUM-94	7.17E-03	U	2.7E-02	2.7E-02	4.80E-02	pCi/g		*0.15*	11/19/02 08:07 a		377.0	E901.1
							2.85E-01	*0.54*			g	GER1$1
LEAD-212	5.24E-01		1.4E-01	1.4E-01	9.67E-02	pCi/g		*(5.4)*	11/19/02 08:07 a		377.0	E901.1
								(7.4)			g	GER1$1
LEAD-214	6.22E-01		1.4E-01	1.4E-01	8.58E-02	pCi/g		*(7.3)*	11/19/02 08:07 a		377.0	E901.1
								(8.9)			g	GER1$1
RADIUM-226	4.88E-01	U	1.3E-01	1.3E-01	1.77E-01	pCi/g		*(2.8)*	11/19/02 08:07 a		377.0	E901.1
								(7.7)			g	GER1$1
THALLIUM-208	2.14E-01	U	6.1E-02	6.1E-02	8.48E-02	pCi/g		*(2.5)*	11/19/02 08:07 a		377.0	E901.1
								(7.)			g	GER1$1

Number of Results: 17

Comments:

STL Richland
rptSTLRchSample
V3.96 A97

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM I

SAMPLE RESULTS

Date: 24-Nov-02

Lab Name: STL Richland **SDG:** 21409 **Collection Date:** 6/27/2002 9:14:00 AM

Lot-Sample No.: J2J240260-4 **Report No. :** 21031 **Received Date:** 10/24/2002 11:55:00 AM

Client Sample ID: 9521-0000-004F **COC No. :** **Matrix:** SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2298403	Work Order: FAPFC1AA			Report DB ID: 9FAPFC10								
ACTINIUM-228	8.37E-01		2.4E-01	2.4E-01	1.97E-01	pCi/g		*(4.2)*	11/19/02 08:08 a		321.7	E901.1
								(6.9)			g	GER7$1
AG-108M	2.05E-02	U	2.6E-02	2.6E-02	4.88E-02	pCi/g		*0.42*	11/19/02 08:08 a		321.7	E901.1
								(1.6)			g	GER7$1
AMERICIUM-241	3.11E-02	U	1.0E-01	1.0E-01	1.83E-01	pCi/g		*0.17*	11/19/02 08:08 a		321.7	E901.1
								0.6			g	GER7$1
BISMUTH-214	8.99E-01		1.7E-01	1.7E-01	9.11E-02	pCi/g		*(9.9)*	11/19/02 08:08 a		321.7	E901.1
								(10.6)			g	GER7$1
COBALT-60	4.36E-02	U	3.3E-02	3.3E-02	7.10E-02	pCi/g		*0.61*	11/19/02 08:08 a		321.7	E901.1
							1.52E-01	*(2.6)*			g	GER7$1
CESIUM-134	6.42E-02	U	4.3E-02	4.3E-02	8.50E-02	pCi/g		*0.76*	11/19/02 08:08 a		321.7	E901.1
							1.87E-01	*(3.)*			g	GER7$1
CESIUM-137	5.45E-01		1.0E-01	1.0E-01	6.04E-02	pCi/g		*(9.)*	11/19/02 08:08 a		321.7	E901.1
							3.16E-01	*(10.5)*			g	GER7$1
EUROPIUM-152	-4.14E-02	U	1.0E-01	1.0E-01	1.41E-01	pCi/g		*-0.29*	11/19/02 08:08 a		321.7	E901.1
							4.04E-01	*-0.82*			g	GER7$1
EUROPIUM-154	-6.88E-02	U	1.0E-01	1.0E-01	1.67E-01	pCi/g		*-0.41*	11/19/02 08:08 a		321.7	E901.1
							3.72E-01	*-(1.4)*			g	GER7$1
EUROPIUM-155	1.06E-02	U	9.2E-02	9.2E-02	1.55E-01	pCi/g		*0.07*	11/19/02 08:08 a		321.7	E901.1
							1.57E+01	*0.23*			g	GER7$1

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MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM I

SAMPLE RESULTS

Date: 24-Nov-02

Lab Name: STL Richland **SDG:** 21409 **Collection Date:** 6/27/2002 9:14:00 AM

Lot-Sample No.: J2J240260-4 **Report No. :** 21031 **Received Date:** 10/24/2002 11:55:00 AM

Client Sample ID: 9521-0000-004F **COC No. :** **Matrix:** SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
POTASSIUM-40	9.40E+00		1.6E+00	1.6E+00	5.12E-01	pCi/g		*(18.4)*	11/19/02 08:08 a		321.7	E901.1
								(11.6)			g	GER7$1
MAGNESIUM-54	-2.16E-02	U	4.1E-02	4.1E-02	6.99E-02	pCi/g		*-0.31*	11/19/02 08:08 a		321.7	E901.1
							6.96E-01	*-(1.1)*			g	GER7$1
NIOBIUM-94	4.00E-03	U	2.7E-02	2.7E-02	4.99E-02	pCi/g		*0.08*	11/19/02 08:08 a		321.7	E901.1
							2.85E-01	*0.3*			g	GER7$1
LEAD-212	9.05E-01		1.9E-01	1.9E-01	8.67E-02	pCi/g		*(10.4)*	11/19/02 08:08 a		321.7	E901.1
								(9.8)			g	GER7$1
LEAD-214	1.07E+00		2.1E-01	2.1E-01	1.06E-01	pCi/g		*(10.1)*	11/19/02 08:08 a		321.7	E901.1
								(10.4)			g	GER7$1
RADIUM-226	8.99E-01		1.7E-01	1.7E-01	9.11E-02	pCi/g		*(9.9)*	11/19/02 08:08 a		321.7	E901.1
								(10.6)			g	GER7$1
THALLIUM-208	2.98E-01		7.1E-02	7.1E-02	4.80E-02	pCi/g		*(6.2)*	11/19/02 08:08 a		321.7	E901.1
								(8.5)			g	GER7$1

Number of Results: 17

Comments:

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM I

SAMPLE RESULTS

Date: 24-Nov-02

Lab Name: STL Richland **SDG:** 21409 **Collection Date:** 6/27/2002 9:14:00 AM

Lot-Sample No.: J2J240260-5 **Report No. :** 21031 **Received Date:** 10/24/2002 11:55:00 AM

Client Sample ID: 9521-0000-004FS **COC No. :** **Matrix:** SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2298403	Work Order: FAPFE1AA			Report DB ID: 9FAPFE10								
ACTINIUM-228	9.75E-01		2.3E-01	2.3E-01	1.58E-01	pCi/g		*(6.2)*	11/19/02 08:09 a		330.5	E901.1
								(8.6)			g	GER8$1
AG-108M	1.25E-02	U	2.3E-02	2.3E-02	4.19E-02	pCi/g		*0.3*	11/19/02 08:09 a		330.5	E901.1
								(1.1)			g	GER8$1
AMERICIUM-241	3.79E-02	U	6.4E-02	6.4E-02	1.02E-01	pCi/g		*0.37*	11/19/02 08:09 a		330.5	E901.1
								(1.2)			g	GER8$1
BISMUTH-214	1.00E+00		1.8E-01	1.8E-01	9.25E-02	pCi/g		*(10.8)*	11/19/02 08:09 a		330.5	E901.1
								(11.)			g	GER8$1
COBALT-60	7.40E-03	U	2.8E-02	2.8E-02	5.36E-02	pCi/g		*0.14*	11/19/02 08:09 a		330.5	E901.1
							1.52E-01	*0.53*			g	GER8$1
CESIUM-134	5.72E-02	U	3.5E-02	3.5E-02	7.00E-02	pCi/g		*0.82*	11/19/02 08:09 a		330.5	E901.1
							1.87E-01	*(3.3)*			g	GER8$1
CESIUM-137	5.54E-01		1.0E-01	1.0E-01	5.53E-02	pCi/g		*(10.)*	11/19/02 08:09 a		330.5	E901.1
							3.16E-01	*(11.1)*			g	GER8$1
EUROPIUM-152	3.95E-02	U	8.2E-02	8.2E-02	1.40E-01	pCi/g		*0.28*	11/19/02 08:09 a		330.5	E901.1
							4.04E-01	*0.96*			g	GER8$1
EUROPIUM-154	6.28E-02	U	8.3E-02	8.3E-02	1.65E-01	pCi/g		*0.38*	11/19/02 08:09 a		330.5	E901.1
							3.72E-01	*(1.5)*			g	GER8$1
EUROPIUM-155	-2.35E-02	U	7.9E-02	7.9E-02	1.34E-01	pCi/g		*-0.18*	11/19/02 08:09 a		330.5	E901.1
							1.57E+01	*-0.6*			g	GER8$1

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MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
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FORM I

SAMPLE RESULTS

Date: 24-Nov-02

Lab Name: STL Richland **SDG:** 21409 **Collection Date:** 6/27/2002 9:14:00 AM

Lot-Sample No.: J2J240260-5 **Report No. :** 21031 **Received Date:** 10/24/2002 11:55:00 AM

Client Sample ID: 9521-0000-004FS **COC No. :** **Matrix:** SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
POTASSIUM-40	9.64E+00		1.5E+00	1.5E+00	4.44E-01	pCi/g		*(21.7)*	11/19/02 08:09 a		330.5	E901.1
								(13.)			g	GER8$1
MAGNESIUM-54	2.17E-03	U	3.8E-02	3.8E-02	6.76E-02	pCi/g		*0.03*	11/19/02 08:09 a		330.5	E901.1
							6.96E-01	*0.11*			g	GER8$1
NIOBIUM-94	-7.18E-03	U	2.5E-02	2.5E-02	4.23E-02	pCi/g		*-0.17*	11/19/02 08:09 a		330.5	E901.1
							2.85E-01	*-0.59*			g	GER8$1
LEAD-212	9.40E-01		1.8E-01	1.8E-01	9.59E-02	pCi/g		*(9.8)*	11/19/02 08:09 a		330.5	E901.1
								(10.2)			g	GER8$1
LEAD-214	1.13E+00		2.1E-01	2.1E-01	9.38E-02	pCi/g		*(12.1)*	11/19/02 08:09 a		330.5	E901.1
								(10.9)			g	GER8$1
RADIUM-226	1.00E+00		1.8E-01	1.8E-01	9.25E-02	pCi/g		*(10.8)*	11/19/02 08:09 a		330.5	E901.1
								(11.)			g	GER8$1
THALLIUM-208	2.41E-01		8.3E-02	8.3E-02	4.69E-02	pCi/g		*(5.1)*	11/19/02 08:09 a		330.5	E901.1
								(5.8)			g	GER8$1

Number of Results: 17

Comments:

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MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
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FORM I

SAMPLE RESULTS

Date: 24-Nov-02

Lab Name: STL Richland **SDG:** 21409 **Collection Date:** 6/25/2002 3:25:00 PM

Lot-Sample No.: J2J240260-2 **Report No. :** 21031 **Received Date:** 10/24/2002 11:55:00 AM

Client Sample ID: 9521-0000-005F **COC No. :** **Matrix:** SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2298403	Work Order: FAPE81AA			Report DB ID: 9FAPE810								
ACTINIUM-228	4.74E-01		1.7E-01	1.7E-01	1.66E-01	pCi/g		*(2.9)*	11/19/02 08:08 a		392.6	E901.1
								(5.5)			g	GER5$1
AG-108M	-7.59E-03	U	2.2E-02	2.2E-02	3.68E-02	pCi/g		*-0.21*	11/19/02 08:08 a		392.6	E901.1
								-0.7			g	GER5$1
AMERICIUM-241	3.19E-02	U	4.9E-02	4.9E-02	8.38E-02	pCi/g		*0.38*	11/19/02 08:08 a		392.6	E901.1
								(1.3)			g	GER5$1
BISMUTH-214	5.34E-01	U	1.2E-01	1.2E-01	1.77E-01	pCi/g		*(3.)*	11/19/02 08:08 a		392.6	E901.1
								(9.2)			g	GER5$1
COBALT-60	1.31E-02	U	2.8E-02	2.8E-02	5.41E-02	pCi/g		*0.24*	11/19/02 08:08 a		392.6	E901.1
							1.52E-01	*0.94*			g	GER5$1
CESIUM-134	1.69E-02	U	3.3E-02	3.3E-02	6.08E-02	pCi/g		*0.28*	11/19/02 08:08 a		392.6	E901.1
							1.87E-01	*(1.)*			g	GER5$1
CESIUM-137	1.39E-01	J	4.3E-02	4.3E-02	4.95E-02	pCi/g		*(2.8)*	11/19/02 08:08 a		392.6	E901.1
							3.16E-01	*(6.4)*			g	GER5$1
EUROPIUM-152	-1.53E-02	U	7.7E-02	7.7E-02	1.16E-01	pCi/g		*-0.13*	11/19/02 08:08 a		392.6	E901.1
							4.04E-01	*-0.4*			g	GER5$1
EUROPIUM-154	-5.90E-03	U	7.9E-02	7.9E-02	1.44E-01	pCi/g		*-0.04*	11/19/02 08:08 a		392.6	E901.1
							3.72E-01	*-0.15*			g	GER5$1
EUROPIUM-155	4.00E-02	U	6.8E-02	6.8E-02	1.18E-01	pCi/g		*0.34*	11/19/02 08:08 a		392.6	E901.1
							1.57E+01	*(1.2)*			g	GER5$1

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MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
J Qual - No U qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM I

SAMPLE RESULTS

Date: 24-Nov-02

Lab Name:	STL Richland	**SDG:**	21409	**Collection Date:**	6/25/2002 3:25:00 PM
Lot-Sample No.:	J2J240260-2	**Report No. :**	21031	**Received Date:**	10/24/2002 11:55:00 AM
Client Sample ID:	9521-0000-005F	**COC No. :**		**Matrix:**	SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
POTASSIUM-40	1.00E+01		1.6E+00	1.6E+00	4.19E-01	pCi/g		*(23.9)*	11/19/02 08:08 a		392.6	E901.1
								(12.7)			g	GER5$1
MAGNESIUM-54	-2.29E-04	U	3.1E-02	3.1E-02	5.71E-02	pCi/g		*0.*	11/19/02 08:08 a		392.6	E901.1
							6.96E-01	*-0.01*			g	GER5$1
NIOBIUM-94	8.06E-03	U	2.3E-02	2.3E-02	4.30E-02	pCi/g		*0.19*	11/19/02 08:08 a		392.6	E901.1
							2.85E-01	*0.71*			g	GER5$1
LEAD-212	6.01E-01		1.3E-01	1.3E-01	6.70E-02	pCi/g		*(9.)*	11/19/02 08:08 a		392.6	E901.1
								(9.6)			g	GER5$1
LEAD-214	5.88E-01		1.4E-01	1.4E-01	8.13E-02	pCi/g		*(7.2)*	11/19/02 08:08 a		392.6	E901.1
								(8.7)			g	GER5$1
RADIUM-226	5.34E-01	U	1.2E-01	1.2E-01	1.77E-01	pCi/g		*(3.)*	11/19/02 08:08 a		392.6	E901.1
								(9.2)			g	GER5$1
THALLIUM-208	2.45E-01	U	6.0E-02	6.0E-02	9.05E-02	pCi/g		*(2.7)*	11/19/02 08:08 a		392.6	E901.1
								(8.2)			g	GER5$1

Number of Results: 17

Comments:

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
J Qual - No U qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM I

SAMPLE RESULTS

Date: 24-Nov-02

Lab Name: STL Richland **SDG:** 21409 **Collection Date:** 6/27/2002 8:55:00 AM

Lot-Sample No.: J2J240260-7 **Report No. :** 21031 **Received Date:** 10/24/2002 11:55:00 AM

Client Sample ID: 9521-0000-006F **COC No. :** **Matrix:** SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2298403	Work Order: FAPFG1AA			Report DB ID: 9FAPFG10								
ACTINIUM-228	1.12E+00		3.7E-01	3.7E-01	2.51E-01	pCi/g		*(4.5)*	11/19/02 09:55 a		291.4	E901.1
								(6.)			g	GER2$1
AG-108M	1.34E-02	U	3.8E-02	3.8E-02	6.65E-02	pCi/g		*0.2*	11/19/02 09:55 a		291.4	E901.1
								0.7			g	GER2$1
AMERICIUM-241	-5.69E-01	U	4.7E-01	4.7E-01	7.49E-01	pCi/g		*-0.76*	11/19/02 09:55 a		291.4	E901.1
								-(2.4)			g	GER2$1
BISMUTH-214	1.93E+00		3.0E-01	3.0E-01	1.23E-01	pCi/g		*(15.6)*	11/19/02 09:55 a		291.4	E901.1
								(12.7)			g	GER2$1
COBALT-60	2.29E-04	U	4.2E-02	4.2E-02	7.62E-02	pCi/g		*0.*	11/19/02 09:55 a		291.4	E901.1
							1.52E-01	*0.01*			g	GER2$1
CESIUM-134	6.44E-02	U	4.9E-02	4.9E-02	9.50E-02	pCi/g		*0.68*	11/19/02 09:55 a		291.4	E901.1
							1.87E-01	*(2.6)*			g	GER2$1
CESIUM-137	1.05E+00		1.7E-01	1.7E-01	8.46E-02	pCi/g		*(12.4)*	11/19/02 09:55 a		291.4	E901.1
							3.16E-01	*(12.5)*			g	GER2$1
EUROPIUM-152	1.20E-02	U	1.7E-01	1.7E-01	2.16E-01	pCi/g		*0.06*	11/19/02 09:55 a		291.4	E901.1
							4.04E-01	*0.14*			g	GER2$1
EUROPIUM-154	-4.09E-02	U	1.2E-01	1.2E-01	2.09E-01	pCi/g		*-0.2*	11/19/02 09:55 a		291.4	E901.1
							3.72E-01	*-0.67*			g	GER2$1
EUROPIUM-155	1.10E-01	U	1.9E-01	1.9E-01	3.29E-01	pCi/g		*0.33*	11/19/02 09:55 a		291.4	E901.1
							1.57E+01	*(1.1)*			g	GER2$1

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MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
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FORM I

SAMPLE RESULTS

Date: 24-Nov-02

Lab Name: STL Richland | **SDG:** 21409 | **Collection Date:** 6/27/2002 8:55:00 AM

Lot-Sample No.: J2J240260-7 | **Report No. :** 21031 | **Received Date:** 10/24/2002 11:55:00 AM

Client Sample ID: 9521-0000-006F | **COC No. :** | **Matrix:** SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
POTASSIUM-40	9.23E+00		1.7E+00	1.7E+00	6.77E-01	pCi/g		*(13.6)*	11/19/02 09:55 a		291.4	E901.1
								(11.)			g	GER2$1
MAGNESIUM-54	4.10E-03	U	5.6E-02	5.6E-02	9.84E-02	pCi/g		*0.04*	11/19/02 09:55 a		291.4	E901.1
							6.96E-01	*0.15*			g	GER2$1
NIOBIUM-94	-4.74E-03	U	3.5E-02	3.5E-02	6.14E-02	pCi/g		*-0.08*	11/19/02 09:55 a		291.4	E901.1
							2.85E-01	*-0.27*			g	GER2$1
LEAD-212	1.28E+00		2.6E-01	2.6E-01	1.15E-01	pCi/g		*(11.1)*	11/19/02 09:55 a		291.4	E901.1
								(9.7)			g	GER2$1
LEAD-214	2.17E+00		3.6E-01	3.6E-01	1.47E-01	pCi/g		*(14.8)*	11/19/02 09:55 a		291.4	E901.1
								(12.1)			g	GER2$1
RADIUM-226	1.93E+00		3.0E-01	3.0E-01	1.24E-01	pCi/g		*(15.6)*	11/19/02 09:55 a		291.4	E901.1
								(12.7)			g	GER2$1
THALLIUM-208	4.02E-01		9.9E-02	9.9E-02	7.66E-02	pCi/g		*(5.3)*	11/19/02 09:55 a		291.4	E901.1
								(8.1)			g	GER2$1

Number of Results: 17

Comments:

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
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FORM I

SAMPLE RESULTS

Date: 24-Nov-02

Lab Name: STL Richland **SDG:** 21409 **Collection Date:** 6/27/2002 10:24:00 AM

Lot-Sample No.: J2J240260-8 **Report No. :** 21031 **Received Date:** 10/24/2002 11:55:00 AM

Client Sample ID: 9521-0000-007F **COC No. :** **Matrix:** SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2298403	Work Order: FAPFH1AA			Report DB ID: 9FAPFH10								
ACTINIUM-228	1.02E+00		2.8E-01	2.8E-01	2.01E-01	pCi/g		*(5.1)*	11/19/02 09:57 a		238.8	E901.1
								(7.3)			g	GER5$1
AG-108M	1.71E-02	U	3.6E-02	3.6E-02	6.45E-02	pCi/g		*0.27*	11/19/02 09:57 a		238.8	E901.1
								0.96			g	GER5$1
AMERICIUM-241	6.00E-02	U	8.5E-02	8.5E-02	1.36E-01	pCi/g		*0.44*	11/19/02 09:57 a		238.8	E901.1
								(1.4)			g	GER5$1
BISMUTH-214	9.46E-01	U	2.4E-01	2.4E-01	3.16E-01	pCi/g		*(3.)*	11/19/02 09:57 a		238.8	E901.1
								(8.)			g	GER5$1
COBALT-60	4.34E-02	U	4.4E-02	4.4E-02	9.12E-02	pCi/g		*0.48*	11/19/02 09:57 a		238.8	E901.1
							1.52E-01	*(2.)*			g	GER5$1
CESIUM-134	1.03E-01	U	5.1E-02	5.1E-02	1.10E-01	pCi/g		*0.94*	11/19/02 09:57 a		238.8	E901.1
							1.87E-01	*(4.1)*			g	GER5$1
CESIUM-137	1.10E+00		1.8E-01	1.8E-01	7.41E-02	pCi/g		*(14.9)*	11/19/02 09:57 a		238.8	E901.1
							3.16E-01	*(12.1)*			g	GER5$1
EUROPIUM-152	-1.16E-01	U	1.1E-01	1.1E-01	1.85E-01	pCi/g		*-0.63*	11/19/02 09:57 a		238.8	E901.1
							4.04E-01	*-(2.)*			g	GER5$1
EUROPIUM-154	4.06E-02	U	1.2E-01	1.2E-01	2.32E-01	pCi/g		*0.17*	11/19/02 09:57 a		238.8	E901.1
							3.72E-01	*0.67*			g	GER5$1
EUROPIUM-155	8.95E-02	U	1.1E-01	1.1E-01	1.87E-01	pCi/g		*0.48*	11/19/02 09:57 a		238.8	E901.1
							1.57E+01	*(1.7)*			g	GER5$1

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MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
J Qual - No U qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM I

SAMPLE RESULTS

Date: 24-Nov-02

Lab Name: STL Richland **SDG:** 21409 **Collection Date:** 6/27/2002 10:24:00 AM

Lot-Sample No.: J2J240260-8 **Report No. :** 21031 **Received Date:** 10/24/2002 11:55:00 AM

Client Sample ID: 9521-0000-007F **COC No. :** **Matrix:** SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
POTASSIUM-40	1.08E+01		2.0E+00	2.0E+00	4.94E-01	pCi/g		*(21.8)*	11/19/02 09:57 a		238.8	E901.1
								(10.8)			g	GER5$1
MAGNESIUM-54	3.92E-02	U	5.8E-02	5.8E-02	1.11E-01	pCi/g		*0.35*	11/19/02 09:57 a		238.8	E901.1
							6.96E-01	*(1.3)*			g	GER5$1
NIOBIUM-94	-1.18E-02	U	3.4E-02	3.4E-02	5.95E-02	pCi/g		*-0.2*	11/19/02 09:57 a		238.8	E901.1
							2.85E-01	*-0.7*			g	GER5$1
LEAD-212	9.06E-01		2.1E-01	2.1E-01	1.36E-01	pCi/g		*(6.7)*	11/19/02 09:57 a		238.8	E901.1
								(8.7)			g	GER5$1
LEAD-214	1.30E+00		2.6E-01	2.6E-01	1.36E-01	pCi/g		*(9.5)*	11/19/02 09:57 a		238.8	E901.1
								(10.1)			g	GER5$1
RADIUM-226	9.46E-01	U	2.4E-01	2.4E-01	3.16E-01	pCi/g		*(3.)*	11/19/02 09:57 a		238.8	E901.1
								(8.)			g	GER5$1
THALLIUM-208	3.95E-01		9.1E-02	9.1E-02	7.15E-02	pCi/g		*(5.5)*	11/19/02 09:57 a		238.8	E901.1
								(8.7)			g	GER5$1

Number of Results: 17

Comments:

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
J Qual - No U qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM I

SAMPLE RESULTS

Date: 24-Nov-02

Lab Name: STL Richland | **SDG:** 21409 | **Collection Date:** 6/27/2002 9:26:00 AM

Lot-Sample No.: J2J240260-11 | **Report No. :** 21031 | **Received Date:** 10/24/2002 11:55:00 AM

Client Sample ID: 9521-0000-010F | **COC No. :** | **Matrix:** SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2298403	Work Order: FAPFP1AA			Report DB ID: 9FAPFP10								
ACTINIUM-228	8.99E-01		2.4E-01	2.4E-01	1.77E-01	pCi/g		*(5.1)*	11/19/02 09:57 a		253.6	E901.1
								(7.4)			g	GER8$1
AG-108M	2.91E-03	U	3.3E-02	3.3E-02	5.80E-02	pCi/g		*0.05*	11/19/02 09:57 a		253.6	E901.1
								0.17			g	GER8$1
AMERICIUM-241	2.36E-02	U	7.5E-02	7.5E-02	1.18E-01	pCi/g		*0.2*	11/19/02 09:57 a		253.6	E901.1
								0.63			g	GER8$1
BISMUTH-214	1.02E+00		2.1E-01	2.1E-01	1.02E-01	pCi/g		*(10.)*	11/19/02 09:57 a		253.6	E901.1
								(9.8)			g	GER8$1
COBALT-60	4.22E-02	U	4.1E-02	4.1E-02	8.36E-02	pCi/g		*0.5*	11/19/02 09:57 a		253.6	E901.1
							1.52E-01	*(2.1)*			g	GER8$1
CESIUM-134	7.57E-02	U	4.4E-02	4.4E-02	9.01E-02	pCi/g		*0.84*	11/19/02 09:57 a		253.6	E901.1
							1.87E-01	*(3.4)*			g	GER8$1
CESIUM-137	1.85E+00		2.6E-01	2.6E-01	6.48E-02	pCi/g		*(28.5)*	11/19/02 09:57 a		253.6	E901.1
							3.16E-01	*(14.3)*			g	GER8$1
EUROPIUM-152	1.58E-02	U	9.8E-02	9.8E-02	1.73E-01	pCi/g		*0.09*	11/19/02 09:57 a		253.6	E901.1
							4.04E-01	*0.32*			g	GER8$1
EUROPIUM-154	3.90E-03	U	9.5E-02	9.5E-02	1.78E-01	pCi/g		*0.02*	11/19/02 09:57 a		253.6	E901.1
							3.72E-01	*0.08*			g	GER8$1
EUROPIUM-155	1.26E-01	U	9.7E-02	9.7E-02	1.75E-01	pCi/g		*0.72*	11/19/02 09:57 a		253.6	E901.1
							1.57E+01	*(2.6)*			g	GER8$1

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MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
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FORM I

SAMPLE RESULTS

Date: 24-Nov-02

Lab Name: STL Richland **SDG:** 21409 **Collection Date:** 6/27/2002 9:26:00 AM

Lot-Sample No.: J2J240260-11 **Report No. :** 21031 **Received Date:** 10/24/2002 11:55:00 AM

Client Sample ID: 9521-0000-010F **COC No. :** **Matrix:** SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
POTASSIUM-40	9.23E+00		1.5E+00	1.5E+00	5.11E-01	pCi/g		*(18.)*	11/19/02 09:57 a		253.6	E901.1
								(12.1)			g	GER8$1
MAGNESIUM-54	4.36E-02	U	4.3E-02	4.3E-02	8.53E-02	pCi/g		*0.51*	11/19/02 09:57 a		253.6	E901.1
							6.96E-01	*(2.)*			g	GER8$1
NIOBIUM-94	-1.67E-02	U	2.9E-02	2.9E-02	4.80E-02	pCi/g		*-0.35*	11/19/02 09:57 a		253.6	E901.1
							2.85E-01	*-(1.2)*			g	GER8$1
LEAD-212	8.87E-01		1.8E-01	1.8E-01	1.05E-01	pCi/g		*(8.4)*	11/19/02 09:57 a		253.6	E901.1
								(10.)			g	GER8$1
LEAD-214	9.08E-01		1.9E-01	1.9E-01	1.24E-01	pCi/g		*(7.3)*	11/19/02 09:57 a		253.6	E901.1
								(9.3)			g	GER8$1
RADIUM-226	1.02E+00		2.1E-01	2.1E-01	1.02E-01	pCi/g		*(10.)*	11/19/02 09:57 a		253.6	E901.1
								(9.8)			g	GER8$1
THALLIUM-208	3.30E-01		7.8E-02	7.8E-02	5.68E-02	pCi/g		*(5.8)*	11/19/02 09:57 a		253.6	E901.1
								(8.5)			g	GER8$1

Number of Results: 17

Comments:

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
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FORM I

SAMPLE RESULTS

Date: 24-Nov-02

Lab Name: STL Richland | **SDG:** 21409 | **Collection Date:** 6/27/2002 1:21:00 PM

Lot-Sample No.: J2J240260-9 | **Report No. :** 21031 | **Received Date:** 10/24/2002 11:55:00 AM

Client Sample ID: 9521-0000-011F | **COC No. :** | **Matrix:** SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2298403	Work Order: FAPFK1AA			Report DB ID: 9FAPFK10								
ACTINIUM-228	1.15E+00		2.5E-01	2.5E-01	1.55E-01	pCi/g		*(7.4)*	11/19/02 09:56 a		348.9	E901.1
								(9.3)			g	GER6$1
AG-108M	-8.13E-04	U	2.4E-02	2.4E-02	4.18E-02	pCi/g		*-0.02*	11/19/02 09:56 a		348.9	E901.1
								-0.07			g	GER6$1
AMERICIUM-241	-1.46E-03	U	9.6E-02	9.6E-02	1.60E-01	pCi/g		*-0.01*	11/19/02 09:56 a		348.9	E901.1
								-0.03			g	GER6$1
BISMUTH-214	1.11E+00	U	1.9E-01	1.9E-01	2.55E-01	pCi/g		*(4.4)*	11/19/02 09:56 a		348.9	E901.1
								(11.5)			g	GER6$1
COBALT-60	1.34E-02	U	3.5E-02	3.5E-02	6.62E-02	pCi/g		*0.2*	11/19/02 09:56 a		348.9	E901.1
							1.52E-01	*0.76*			g	GER6$1
CESIUM-134	8.51E-02	U	3.9E-02	3.9E-02	7.88E-02	pCi/g		*(1.1)*	11/19/02 09:56 a		348.9	E901.1
							1.87E-01	*(4.4)*			g	GER6$1
CESIUM-137	1.98E-01	J	7.1E-02	7.1E-02	5.15E-02	pCi/g		*(3.9)*	11/19/02 09:56 a		348.9	E901.1
							3.16E-01	*(5.6)*			g	GER6$1
EUROPIUM-152	3.48E-03	U	8.0E-02	8.0E-02	1.41E-01	pCi/g		*0.02*	11/19/02 09:56 a		348.9	E901.1
							4.04E-01	*0.09*			g	GER6$1
EUROPIUM-154	-2.47E-02	U	1.0E-01	1.0E-01	1.82E-01	pCi/g		*-0.14*	11/19/02 09:56 a		348.9	E901.1
							3.72E-01	*-0.48*			g	GER6$1
EUROPIUM-155	1.01E-02	U	8.9E-02	8.9E-02	1.48E-01	pCi/g		*0.07*	11/19/02 09:56 a		348.9	E901.1
							1.57E+01	*0.23*			g	GER6$1

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MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
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FORM I

SAMPLE RESULTS

Date: 24-Nov-02

Lab Name: STL Richland **SDG:** 21409 **Collection Date:** 6/27/2002 1:21:00 PM

Lot-Sample No.: J2J240260-9 **Report No. :** 21031 **Received Date:** 10/24/2002 11:55:00 AM

Client Sample ID: 9521-0000-011F **COC No. :** **Matrix:** SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
POTASSIUM-40	9.74E+00		1.6E+00	1.6E+00	4.11E-01	pCi/g		*(23.7)*	11/19/02 09:56 a		348.9	E901.1
								(12.4)			g	GER6$1
MAGNESIUM-54	5.72E-02	U	4.2E-02	4.2E-02	8.16E-02	pCi/g		*0.7*	11/19/02 09:56 a		348.9	E901.1
							6.96E-01	*(2.7)*			g	GER6$1
NIOBIUM-94	8.80E-04	U	3.2E-02	3.2E-02	5.17E-02	pCi/g		*0.02*	11/19/02 09:56 a		348.9	E901.1
							2.85E-01	*0.06*			g	GER6$1
LEAD-212	1.01E+00		1.9E-01	1.9E-01	8.40E-02	pCi/g		*(12.1)*	11/19/02 09:56 a		348.9	E901.1
								(10.5)			g	GER6$1
LEAD-214	1.19E+00		2.3E-01	2.3E-01	9.85E-02	pCi/g		*(12.1)*	11/19/02 09:56 a		348.9	E901.1
								(10.4)			g	GER6$1
RADIUM-226	1.11E+00		1.9E-01	1.9E-01	9.67E-02	pCi/g		*(11.5)*	11/19/02 09:56 a		348.9	E901.1
								(11.5)			g	GER6$1
THALLIUM-208	3.17E-01		8.4E-02	8.4E-02	5.13E-02	pCi/g		*(6.2)*	11/19/02 09:56 a		348.9	E901.1
								(7.6)			g	GER6$1

Number of Results: 17

Comments:

STL Richland
rptSTLRchSample
V3.96 A97

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
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FORM I

SAMPLE RESULTS

Date: 24-Nov-02

Lab Name: STL Richland | **SDG:** 21409 | **Collection Date:** 6/26/2002 2:43:00 PM

Lot-Sample No.: J2J240260-10 | **Report No. :** 21031 | **Received Date:** 10/24/2002 11:55:00 AM

Client Sample ID: 9521-0000-012F | **COC No. :** | **Matrix:** SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2298403	Work Order: FAPFN1AA			Report DB ID: 9FAPFN10								
ACTINIUM-228	8.32E-01		2.2E-01	2.2E-01	1.97E-01	pCi/g		*(4.2)*	11/19/02 09:56 a		331.0	E901.1
								(7.4)			g	GER7$1
AG-108M	-1.10E-02	U	2.5E-02	2.5E-02	4.20E-02	pCi/g		*-0.26*	11/19/02 09:56 a		331.0	E901.1
								-0.9			g	GER7$1
AMERICIUM-241	-2.93E-02	U	1.0E-01	1.0E-01	1.71E-01	pCi/g		*-0.17*	11/19/02 09:56 a		331.0	E901.1
								-0.58			g	GER7$1
BISMUTH-214	6.96E-01	U	1.5E-01	1.5E-01	2.28E-01	pCi/g		*(3.1)*	11/19/02 09:56 a		331.0	E901.1
								(9.3)			g	GER7$1
COBALT-60	6.40E-02	U	3.9E-02	3.9E-02	8.17E-02	pCi/g		*0.78*	11/19/02 09:56 a		331.0	E901.1
							1.52E-01	*(3.3)*			g	GER7$1
CESIUM-134	5.26E-02	U	4.2E-02	4.2E-02	8.10E-02	pCi/g		*0.65*	11/19/02 09:56 a		331.0	E901.1
							1.87E-01	*(2.5)*			g	GER7$1
CESIUM-137	3.40E-01		8.0E-02	8.0E-02	5.63E-02	pCi/g		*(6.1)*	11/19/02 09:56 a		331.0	E901.1
							3.16E-01	*(8.5)*			g	GER7$1
EUROPIUM-152	6.05E-02	U	8.6E-02	8.6E-02	1.37E-01	pCi/g		*0.44*	11/19/02 09:56 a		331.0	E901.1
							4.04E-01	*(1.4)*			g	GER7$1
EUROPIUM-154	-2.74E-02	U	9.6E-02	9.6E-02	1.69E-01	pCi/g		*-0.16*	11/19/02 09:56 a		331.0	E901.1
							3.72E-01	*-0.57*			g	GER7$1
EUROPIUM-155	1.23E-01	U	9.1E-02	9.1E-02	1.62E-01	pCi/g		*0.76*	11/19/02 09:56 a		331.0	E901.1
							1.57E+01	*(2.7)*			g	GER7$1

STL Richland
rptSTLRchSample V3.96 A97

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FORM I

SAMPLE RESULTS

Date: 24-Nov-02

Lab Name: STL Richland **SDG:** 21409 **Collection Date:** 6/26/2002 2:43:00 PM

Lot-Sample No.: J2J240260-10 **Report No. :** 21031 **Received Date:** 10/24/2002 11:55:00 AM

Client Sample ID: 9521-0000-012F **COC No. :** **Matrix:** SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
POTASSIUM-40	1.36E+01		2.1E+00	2.1E+00	5.88E-01	pCi/g		*(23.2)*	11/19/02 09:56 a		331.0	E901.1
								(13.)			g	GER7$1
MAGNESIUM-54	3.91E-03	U	4.1E-02	4.1E-02	7.41E-02	pCi/g		*0.05*	11/19/02 09:56 a		331.0	E901.1
							6.96E-01	*0.19*			g	GER7$1
NIOBIUM-94	1.47E-02	U	2.6E-02	2.6E-02	4.96E-02	pCi/g		*0.3*	11/19/02 09:56 a		331.0	E901.1
							2.85E-01	*(1.2)*			g	GER7$1
LEAD-212	7.85E-01		1.6E-01	1.6E-01	1.15E-01	pCi/g		*(6.8)*	11/19/02 09:56 a		331.0	E901.1
								(10.)			g	GER7$1
LEAD-214	6.67E-01		1.6E-01	1.6E-01	1.02E-01	pCi/g		*(6.5)*	11/19/02 09:56 a		331.0	E901.1
								(8.3)			g	GER7$1
RADIUM-226	6.96E-01		1.5E-01	1.5E-01	9.88E-02	pCi/g		*(7.)*	11/19/02 09:56 a		331.0	E901.1
								(9.3)			g	GER7$1
THALLIUM-208	3.08E-01		8.7E-02	8.7E-02	4.81E-02	pCi/g		*(6.4)*	11/19/02 09:56 a		331.0	E901.1
								(7.1)			g	GER7$1

Number of Results: 17

Comments:

STL Richland
rptSTLRchSample
V3.96 A97

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
J Qual - No U qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM I

SAMPLE RESULTS

Date: 24-Nov-02

Lab Name: STL Richland **SDG:** 21409 **Collection Date:** 6/27/2002 10:35:00 AM

Lot-Sample No.: J2J240260-12 **Report No. :** 21031 **Received Date:** 10/24/2002 11:55:00 AM

Client Sample ID: 9521-0000-014F **COC No. :** **Matrix:** SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2298403	Work Order: FAPFR1AA			Report DB ID: 9FAPFR10								
ACTINIUM-228	1.09E+00	U	3.3E-01	3.3E-01	4.96E-01	pCi/g		*(2.2)*	11/19/02 11:53 a		287.2	E901.1
								(6.5)			g	GER2$1
AG-108M	-1.01E-02	U	3.5E-02	3.5E-02	5.88E-02	pCi/g		*-0.17*	11/19/02 11:53 a		287.2	E901.1
								-0.58			g	GER2$1
AMERICIUM-241	8.48E-02	U	4.3E-01	4.3E-01	7.34E-01	pCi/g		*0.12*	11/19/02 11:53 a		287.2	E901.1
								0.4			g	GER2$1
BISMUTH-214	1.26E+00	U	2.3E-01	2.3E-01	3.00E-01	pCi/g		*(4.2)*	11/19/02 11:53 a		287.2	E901.1
								(10.9)			g	GER2$1
COBALT-60	1.69E-02	U	4.1E-02	4.1E-02	7.85E-02	pCi/g		*0.21*	11/19/02 11:53 a		287.2	E901.1
							1.52E-01	*0.81*			g	GER2$1
CESIUM-134	1.18E-01	U	5.6E-02	5.6E-02	1.10E-01	pCi/g		*(1.1)*	11/19/02 11:53 a		287.2	E901.1
							1.87E-01	*(4.2)*			g	GER2$1
CESIUM-137	1.04E+00		1.7E-01	1.7E-01	7.66E-02	pCi/g		*(13.6)*	11/19/02 11:53 a		287.2	E901.1
							3.16E-01	*(12.2)*			g	GER2$1
EUROPIUM-152	-7.46E-02	U	1.6E-01	1.6E-01	2.01E-01	pCi/g		*-0.37*	11/19/02 11:53 a		287.2	E901.1
							4.04E-01	*-0.95*			g	GER2$1
EUROPIUM-154	-1.57E-02	U	1.2E-01	1.2E-01	2.04E-01	pCi/g		*-0.08*	11/19/02 11:53 a		287.2	E901.1
							3.72E-01	*-0.27*			g	GER2$1
EUROPIUM-155	1.26E-01	U	1.8E-01	1.8E-01	3.18E-01	pCi/g		*0.4*	11/19/02 11:53 a		287.2	E901.1
							1.57E+01	*(1.4)*			g	GER2$1

STL Richland
rptSTLRchSample
V3.96 A97

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
J Qual - No U qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM I

SAMPLE RESULTS

Date: 24-Nov-02

Lab Name: STL Richland **SDG:** 21409 **Collection Date:** 6/27/2002 10:35:00 AM

Lot-Sample No.: J2J240260-12 **Report No. :** 21031 **Received Date:** 10/24/2002 11:55:00 AM

Client Sample ID: 9521-0000-014F **COC No. :** **Matrix:** SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
POTASSIUM-40	1.17E+01		1.9E+00	1.9E+00	5.55E-01	pCi/g		*(21.1)*	11/19/02 11:53 a		287.2	E901.1
								(12.4)			g	GER2$1
MAGNESIUM-54	1.18E-03	U	5.2E-02	5.2E-02	9.09E-02	pCi/g		*0.01*	11/19/02 11:53 a		287.2	E901.1
							6.96E-01	*0.05*			g	GER2$1
NIOBIUM-94	-4.42E-02	U	3.7E-02	3.7E-02	5.56E-02	pCi/g		*-0.79*	11/19/02 11:53 a		287.2	E901.1
							2.85E-01	*-(2.4)*			g	GER2$1
LEAD-212	1.48E+00		3.2E-01	3.2E-01	1.17E-01	pCi/g		*(12.7)*	11/19/02 11:53 a		287.2	E901.1
								(9.1)			g	GER2$1
LEAD-214	1.30E+00		2.5E-01	2.5E-01	1.46E-01	pCi/g		*(8.9)*	11/19/02 11:53 a		287.2	E901.1
								(10.4)			g	GER2$1
RADIUM-226	1.26E+00		2.3E-01	2.3E-01	1.21E-01	pCi/g		*(10.4)*	11/19/02 11:53 a		287.2	E901.1
								(10.9)			g	GER2$1
THALLIUM-208	4.07E-01		9.7E-02	9.7E-02	6.87E-02	pCi/g		*(5.9)*	11/19/02 11:53 a		287.2	E901.1
								(8.4)			g	GER2$1

Number of Results: 17

Comments:

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
J Qual - No U qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM II

Date: 24-Nov-02

DUPLICATE RESULTS

Lab Name: STL Richland **SDG:** 21409 **Collection Date:** 6/25/2002 3:12:00 PM

Lot-Sample No.: J2J240260-1 **Report No. :** 21031 **Received Date:** 10/24/2002 11:55:00 AM

Client Sample ID: 9521-0000-003F DUP **COC No. :** **Matrix:** SOIL

Parameter	Result, Orig Rst	Qual		Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2298403	Work Order: FAPE71AC				Report DB ID: FAPE71CR		Orig Sa DB ID:						
ACTINIUM-228	4.02E-01	U		2.0E-01	2.0E-01	3.02E-01	pCi/g		(1.3)	11/19/02 08:07 a		376.5	E901.1
	6.19E-01	U	RER	1.6					(4.1)			g	GER2$1
AG-108M	1.38E-02	U		2.4E-02	2.4E-02	4.38E-02	pCi/g		0.32	11/19/02 08:07 a		376.5	E901.1
	3.90E-03	U	RER	0.6					(1.1)			g	GER2$1
AMERICIUM-241	-1.55E-01	U		2.8E-01	2.8E-01	4.63E-01	pCi/g		-0.34	11/19/02 08:07 a		376.5	E901.1
	-5.58E-02	U	RER	0.7					-(1.1)			g	GER2$1
BISMUTH-214	5.40E-01	U		1.2E-01	1.2E-01	1.82E-01	pCi/g		(3.)	11/19/02 08:07 a		376.5	E901.1
	4.88E-01	U	RER	0.6					(9.1)			g	GER2$1
COBALT-60	8.06E-04	U		2.7E-02	2.7E-02	4.96E-02	pCi/g		0.02	11/19/02 08:07 a		376.5	E901.1
	1.33E-02	U	RER	0.6				1.52E-01	0.06			g	GER2$1
CESIUM-134	3.66E-02	U		3.7E-02	3.7E-02	7.05E-02	pCi/g		0.52	11/19/02 08:07 a		376.5	E901.1
	9.77E-03	U	RER	1.0				1.87E-01	(2.)			g	GER2$1
CESIUM-137	3.53E-01			7.2E-02	7.2E-02	5.03E-02	pCi/g		(7.)	11/19/02 08:07 a		376.5	E901.1
	3.77E-01		RER	0.4				3.16E-01	(9.8)			g	GER2$1
EUROPIUM-152	-1.46E-01	U		8.8E-02	8.8E-02	1.32E-01	pCi/g		-(1.1)	11/19/02 08:07 a		376.5	E901.1
	8.41E-02	U	RER	3.6				4.04E-01	-(3.3)			g	GER2$1
EUROPIUM-154	-4.80E-02	U		8.9E-02	8.9E-02	1.50E-01	pCi/g		-0.32	11/19/02 08:07 a		376.5	E901.1
	4.69E-02	U	RER	1.4				3.72E-01	-(1.1)			g	GER2$1
EUROPIUM-155	-1.40E-02	U		1.1E-01	1.1E-01	1.92E-01	pCi/g		-0.07	11/19/02 08:07 a		376.5	E901.1
	2.70E-02	U	RER	0.6				1.57E+01	-0.25			g	GER2$1
POTASSIUM-40	1.05E+01			1.6E+00	1.6E+00	3.67E-01	pCi/g		(28.5)	11/19/02 08:07 a		376.5	E901.1
	9.79E+00		RER	0.6					(13.1)			g	GER2$1

STL Richland
rptSTLRchDupV3.9 6 A97

RER - Replicate Error Ratio = (S-D)/|sqrt(sq(TPUs)+sq(TPUd))| as defined by ICPT BOA.
MDC|MDA.Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM II

Date: 24-Nov-02

DUPLICATE RESULTS

Lab Name: STL Richland **SDG:** 21409 **Collection Date:** 6/25/2002 3:12:00 PM

Lot-Sample No.: J2J240260-1 **Report No. :** 21031 **Received Date:** 10/24/2002 11:55:00 AM

Client Sample ID: 9521-0000-003F DUP **COC No. :** **Matrix:** SOIL

Parameter	Result, Orig Rst	Qual		Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
MAGNESIUM-54	-8.87E-03	U		3.6E-02	3.6E-02	6.20E-02	pCi/g		-0.14	11/19/02 08:07 a		376.5	E901.1
	-1.24E-02	U	RER	0.1			6.96E-01		-0.49			g	GER2$1
NIOBIUM-94	6.55E-03	U		2.7E-02	2.7E-02	4.95E-02	pCi/g		0.13	11/19/02 08:07 a		376.5	E901.1
	7.17E-03	U	RER	0.0			2.85E-01		0.48			g	GER2$1
LEAD-212	5.93E-01			1.5E-01	1.5E-01	7.83E-02	pCi/g		(7.6)	11/19/02 08:07 a		376.5	E901.1
	5.24E-01		RER	0.7					(7.7)			g	GER2$1
LEAD-214	4.17E-01			1.3E-01	1.3E-01	1.10E-01	pCi/g		(3.8)	11/19/02 08:07 a		376.5	E901.1
	6.22E-01		RER	2.2					(6.5)			g	GER2$1
RADIUM-226	5.40E-01	U		1.2E-01	1.2E-01	1.82E-01	pCi/g		(3.)	11/19/02 08:07 a		376.5	E901.1
	4.88E-01	U	RER	0.6					(9.1)			g	GER2$1
THALLIUM-208	1.93E-01	U		6.1E-02	6.1E-02	8.86E-02	pCi/g		(2.2)	11/19/02 08:07 a		376.5	E901.1
	2.14E-01	U	RER	0.5					(6.3)			g	GER2$1

Number of Results: 17

Comments:

STL Richland
rptSTLRchDupV3.9 6 A97

RER - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.
MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM II

BLANK RESULTS

Date: 24-Nov-02

Lab Name: STL Richland **SDG:** 21409

Lot-Sample No.: J2J250000-403 **Report No. :** 21031 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2298403	Work Order: FAR4V1AA			Report DB ID: FAR4V1AB								
ACTINIUM-228	1.43E-02	U	1.1E-01	1.1E-01	2.28E-01	pCi/g		0.06	11/19/02 11:53 a		200.0	E901.1
								0.26			g	GER7$1
AG-108M	1.17E-02	U	2.2E-02	2.2E-02	4.37E-02	pCi/g		0.27	11/19/02 11:53 a		200.0	E901.1
								(1.1)			g	GER7$1
AMERICIUM-241	-1.25E-02	U	8.0E-02	8.0E-02	1.42E-01	pCi/g		-0.09	11/19/02 11:53 a		200.0	E901.1
								-0.31			g	GER7$1
BISMUTH-214	-8.06E-02	U	7.2E-02	7.2E-02	1.26E-01	pCi/g		-0.64	11/19/02 11:53 a		200.0	E901.1
								-(2.2)			g	GER7$1
COBALT-60	-7.01E-04	U	3.0E-02	3.0E-02	6.01E-02	pCi/g		-0.01	11/19/02 11:53 a		200.0	E901.1
						1.52E-01		-0.05			g	GER7$1
CESIUM-134	-2.27E-02	U	2.8E-02	2.8E-02	4.32E-02	pCi/g		-0.53	11/19/02 11:53 a		200.0	E901.1
						1.87E-01		-(1.6)			g	GER7$1
CESIUM-137	-1.80E-02	U	3.0E-02	3.0E-02	5.15E-02	pCi/g		-0.35	11/19/02 11:53 a		200.0	E901.1
						2.00E-01		-(1.2)			g	GER7$1
EUROPIUM-152	-5.46E-02	U	8.2E-02	8.2E-02	1.35E-01	pCi/g		-0.4	11/19/02 11:53 a		200.0	E901.1
						4.04E-01		-(1.3)			g	GER7$1
EUROPIUM-154	-2.48E-02	U	6.1E-02	6.1E-02	1.13E-01	pCi/g		-0.22	11/19/02 11:53 a		200.0	E901.1
						3.72E-01		-0.81			g	GER7$1
EUROPIUM-155	-6.51E-02	U	6.2E-02	6.2E-02	9.55E-02	pCi/g		-0.68	11/19/02 11:53 a		200.0	E901.1
						1.57E+00		-(2.1)			g	GER7$1
POTASSIUM-40	-8.75E-01	U	6.1E-01	6.1E-01	1.27E+00	pCi/g		-0.69	11/19/02 11:53 a		200.0	E901.1
								-(2.9)			g	GER7$1
MAGNESIUM-54	-1.03E-03	U	2.8E-02	2.8E-02	5.33E-02	pCi/g		-0.02	11/19/02 11:53 a		200.0	E901.1
						6.96E-01		-0.07			g	GER7$1

STL Richland
rptSTLRchBlank
V3.96 A97

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM II

BLANK RESULTS

Date: 24-Nov-02

Lab Name: STL Richland **SDG:** 21409

Lot-Sample No.: J2J250000-403 **Report No. :** 21031 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
NIOBIUM-94	3.03E-03	U	2.5E-02	2.5E-02	4.99E-02	pCi/g		0.06	11/19/02 11:53 a		200.0	E901.1
						2.85E-01		0.24			g	GER7$1
LEAD-212	-7.29E-02	U	4.4E-02	4.4E-02	6.79E-02	pCi/g		-(1.1)	11/19/02 11:53 a		200.0	E901.1
								-(3.3)			g	GER7$1
LEAD-214	-4.45E-02	U	6.0E-02	6.0E-02	1.05E-01	pCi/g		-0.42	11/19/02 11:53 a		200.0	E901.1
								-(1.5)			g	GER7$1
RADIUM-226	-8.04E-02	U	7.2E-02	7.2E-02	1.26E-01	pCi/g		-0.64	11/19/02 11:53 a		200.0	E901.1
								-(2.2)			g	GER7$1
THALLIUM-208	1.17E-02	U	3.5E-02	3.5E-02	7.08E-02	pCi/g		0.17	11/19/02 11:53 a		200.0	E901.1
								0.67			g	GER7$1

Number of Results: 17

Comments:

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM II

LCS RESULTS

Date: 24-Nov-02

Lab Name: STL Richland **SDG:** 21409

Lot-Sample No.: J2J250000-403 **Report No. :** 21031 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 2298403	Work Order: FAR4V1AC			Report DB ID: FAR4V1CS									
CESIUM-137	1.06E+00		1.7E-01	1.7E-01	5.27E-02	pCi/g		1.01E+00	3.5E-02	104.24%	11/19/02 11:54 a	200.0	E901.1
							Rec Limits:	70.	130.	0.0		g	GER8$1

Number of Results: 1

Comments:

STL Richland Bias - (Result/Expected)-1 as defined by ANSI N13.30.

rptSTLRchLcs
V3.96 A97

Bechtel Power Corporation 362 Injun Hollow Road, East Hampton, CT 06424 860-267-2556	**Chain of Custody Form**	**COC No: 00024** **P.O. #: 24265-FSB-S-00552-AC** **Activity Code: 24265-200-034AA3**

Project Name: Haddam Neck Decommissioning

Contact Name: Jack McCarthy
Phone: 1-860-267-2556 ext 3024

Analytical Lab (Name, City, State):
Chemistry Lab

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

Analyses Requested

Lab Use Only

Comments:

Sample Designation	Date	Time	Media Code	Sample Type Code	Container Size-&Type Code	Number of Containers	Analysis Type 1	Analysis Type 2	Analysis Type 3	Comment, Preservation	Lab Sample ID
9521-0000-011F ✓	6/27/2002	1321	TS	G	BP	1	BFSSGAM			N/A	FAPFK
9521-0000-012F ✓	6/26/2002	1443	TS	G	BP	1	BFSSGAM			N/A	FAPFN
9521-0000-010F ✓	6/27/2002	0926	TS	G	BP	1	BFSSGAM			N/A	FAPFP
9521-0000-014F ✓	6/27/2002	1035	TS	G	BP	1	BFSSGAM			N/A	FAPFR

NOTES: Multiple individuals performing sampling, refer to Daily Survey Journal sheet for list of team members

1) Sampled By	Date/Time	2) Received By	Date/Time
[signature]	6/27/02 1530	[signature] 4100 CA	10-24-02 1155
3) Relinquished By	Date/Time	4) Received By	Date/Time
5) Relinquished By	Date/Time	6) Received By	Date/Time

Samples Shipped Via:
☒ Fed Ex
☐ UPS
☐ Hand
☐ Other

Bill of Lading #

Internal Container Temp.: ____ **Deg. C**

Custody Sealed? Y ☐ N ☐

Custody Seal Intact? Y ☐ N ☐

Media Code	WG: Ground Water, WF: Surface Water, RW: River Water, WE: Estuary Water, WS: Sea Water, EW: Effluent Water, TS: Soil, SE: Sediment, AS: Asphalt, TG: Vegetation, CT: Concrete, OT: Other
Sample Type Code	G: Grab, C: Composite, CR: Core, D: Duplicate, S: Split, FB: Field Blank, RB: Rinsate Blank, MSB: Matrix Spike Dup. OT: Other
Container Type	BP: Plastic Bag, BC: Cloth Bag, P: Plastic, SC: Steel Can, G: Glass, A: Amber glass, V: Vial, 1LM: 1 liter marinelli; OT: Other

Analytical Data Package Prepared For

Bechtel CT Yankee Project

Radiochemical Analysis By

STL Richland

2800 G.W. Way, Richland Wa, 99352, (509)-375-3131.

Assigned Laboratory Code: STLRL

Data Package Contains _____ Pages

Report No.: 21337

SDG No.	Order No.	Client Sample ID (List Order)	Lot-Sa No.	Work Order	Report DB ID	Batch No.
21408		9521-0000-008F	J2J240255-1	FAPD21AE	9FAPD210	2292206
		9521-0000-008F	J2J240255-1	FAPD21AF	9FAPD210	2292207
		9521-0000-008F	J2J240255-1	FAPD21AK	9FAPD210	2292215
		9521-0000-008F	J2J240255-1	FAPD21AG	9FAPD210	2298407
		9521-0000-008F	J2J240255-1	FAPD21AH	9FAPD210	2298409
		9521-0000-008F	J2J240255-1	FAPD21AD	9FAPD210	2298410
		9521-0000-008F	J2J240255-1	FAPD21AL	9FAPD210	2298411
		9521-0000-008F	J2J240255-1	FAPD21AJ	9FAPD210	2298415
		9521-0000-008F	J2J240255-1	FAPD21AC	9FAPD210	2298417
		9521-0000-008F	J2J240255-1	FAPD21AA	9FAPD210	2298419
		9521-0000-009F	J2J240255-2	FAPEE1AE	9FAPEE10	2292206
		9521-0000-009F	J2J240255-2	FAPEE1AF	9FAPEE10	2292207
		9521-0000-009F	J2J240255-2	FAPEE1AK	9FAPEE10	2292215
		9521-0000-009F	J2J240255-2	FAPEE1AG	9FAPEE10	2298407
		9521-0000-009F	J2J240255-2	FAPEE1AH	9FAPEE10	2298409
		9521-0000-009F	J2J240255-2	FAPEE1AL	9FAPEE10	2298411
		9521-0000-009F	J2J240255-2	FAPEE1AJ	9FAPEE10	2298415
		9521-0000-009F	J2J240255-2	FAPEE1AC	9FAPEE10	2298417
		9521-0000-009F	J2J240255-2	FAPEE1AA	9FAPEE10	2298419
		9521-0000-009F	J2J240255-2	FAPEE2AD	9FAPEE20	2344266
		9521-0000-013F	J2J240255-3	FAPEN1AE	9FAPEN10	2292206
		9521-0000-013F	J2J240255-3	FAPEN1AF	9FAPEN10	2292207
		9521-0000-013F	J2J240255-3	FAPEN1AK	9FAPEN10	2292215
		9521-0000-013F	J2J240255-3	FAPEN1AG	9FAPEN10	2298407
		9521-0000-013F	J2J240255-3	FAPEN1AH	9FAPEN10	2298409
		9521-0000-013F	J2J240255-3	FAPEN1AL	9FAPEN10	2298411

Report No.: 21337

SDG No.	Order No.	Client Sample ID (List Order)	Lot-Sa No.	Work Order	Report DB ID	Batch No.
21408		9521-0000-013F	J2J240255-3	FAPEN1AJ	9FAPEN10	2298415
		9521-0000-013F	J2J240255-3	FAPEN1AC	9FAPEN10	2298417
		9521-0000-013F	J2J240255-3	FAPEN1AA	9FAPEN10	2298419
		9521-0000-013F	J2J240255-3	FAPEN2AD	9FAPEN20	2344266
		9521-0000-015F	J2J240255-4	FAPER1AE	9FAPER10	2292206
		9521-0000-015F	J2J240255-4	FAPER1AF	9FAPER10	2292207
		9521-0000-015F	J2J240255-4	FAPER1AK	9FAPER10	2292215
		9521-0000-015F	J2J240255-4	FAPER1AG	9FAPER10	2298407
		9521-0000-015F	J2J240255-4	FAPER1AH	9FAPER10	2298409
		9521-0000-015F	J2J240255-4	FAPER1AL	9FAPER10	2298411
		9521-0000-015F	J2J240255-4	FAPER1AJ	9FAPER10	2298415
		9521-0000-015F	J2J240255-4	FAPER1AC	9FAPER10	2298417
		9521-0000-015F	J2J240255-4	FAPER1AA	9FAPER10	2298419
		9521-0000-015F	J2J240255-4	FAPER1AD	9FAPER10	2325279

SEVERN TRENT SERVICES

STL Richland
2800 George Washington Way
Richland, WA 99352-1613

Tel: 509 375 3131
Fax: 509 375 5590
www.stl-inc.com

CERTIFICATE OF ANALYSIS

December 31, 2002

Bechtel Corporation
362 Injun Hollow Road
East Hampton, CT 06424

Attention: Alan Heter

SDG Number	:	21408
Date SDG Received	:	October 24, 2002
Number of Samples	:	Four (4)
Sample Type	:	Soil
Data deliverable	:	Summary Report

I. Introduction

On October 24, 2002, four soil samples were received at STL Richland (STLR) for radiochemical analysis on one chain-of-custody (00022). Upon receipt, the samples were assigned to Lot Number J2J240255 with the laboratory ID numbers to correspond with the Bechtel Corp. (BCT) specific IDs as listed on the cover page.

II. Analytical Results/Methodology

The analytical results for this report are presented by laboratory sample ID. Each set of data includes sample identification information; analytical results and the appropriate associated statistical errors.

The requested analyses are:

Alpha Spectroscopy
Americium/Curium-isotopic by method RICH-RC-5080
Plutonium-238, 239/240 by method RICH-RC-5010
Gas Proportional Counting
Strontium-90 by method RICH-RC-5006
Gamma Spectroscopy
Gamma Spec by method RICH-RC-5017
Liquid Scintillation Counting
Tritium by method RICH-RC-5037
Technetium-99 by method RICH-RC-5065

Carbon-14 by method RICH-RC-5022
Iron-55 by method RICH-RC-5074
Nickel-63 by method RICH-RC-5069
Plutonium-241 by method RICH-RC-5010

III. Quality Control

The analytical results for each analysis performed under SDG 21408 includes a minimum of one Laboratory Control Sample (LCS) and one method (reagent) blank and one duplicate sample analysis. Any exceptions have been noted in the "Comments" section.

QC and sample results are reported in the same units.

IV. Comments

Alpha Spectroscopy

Americium/Curium-isotopic by method RICH-RC-5080:
All results are below the CRDL and/or below the MDC. Except as noted, the LCS, sample duplicate, batch blank and sample results are within contractual requirements.

Plutonium-238, 239/240 by method RICH-RC-5010:
All results are below the CRDL and/or below the MDC. The LCS, sample duplicate, batch blank and sample results are within contractual requirements.

Gas Proportional Counting

Strontium-90 by method RICH-RC-5006:
All four samples were processed twice due to low yields caused by matrix effects. The MDA for samples 9521-0000-015F and 9521-0000-008F are greater than the MDA. Except as noted, the LCS, sample duplicate, batch blank and sample results are within contractual requirements.

Gamma Spectroscopy

Gamma Spec by method RICH-RC-5017:
Seventeen of the eighteen requested radionuclides have been reported for each sample. The Bi-212 was over eight half lives since collection, therefore, not reported. Except as noted, the LCS, sample duplicate, batch blank and sample results are within required limits.

Liquid Scintillation Counting

Tritium by method RICH-RC-5007:
All results are below the CRDL and/or below the MDC. The LCS, sample duplicate, batch blank and sample results are within contractual requirements.

Technetium-99 by method RICH-RC-5065:
All results are below the CRDL and/or below the MDC. The LCS, sample duplicate, batch blank, matrix spike, and sample results are within contractual requirements.

Carbon-14 by method RICH-RC-5022:
All results are below the CRDL and below the MDC. The LCS, sample duplicate, batch blank and sample results are within contractual requirements.

Iron-55 by method RICH-RC-5074:
The matrix spike is at 42% and the LCS is at 52%. Since the result are well below the CRDL, the data are accepted as is. Except as noted, the LCS, sample duplicate, batch blank, matrix spike, and sample results are within contractual requirements.

Nickel-63 by method RICH-RC-5069:
All results are below the CRDL and/or below the MDC. The LCS, sample duplicate, batch blank, matrix spike, and sample results are within contractual requirements.

Plutonium-241 by method RICH-RC-5080:
All results are below the CRDL and below the MDC. The LCS, sample duplicate, batch blank and sample results are within contractual requirements.

I certify that this Certificate of Analysis 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.

Reviewed and approved:

Barbara M. Gillespie
Project Manager

Drinking Water Method Cross References

	DRINKING WATER ASTM METHOD CROSS REFERENCES	
Referenced Method	**Isotope(s)**	**STL Richland's SOP number**
EPA 901.1	Cs-134, I-131	RICH-RC-5017
EPA 900.0	Alpha & Beta	RICH-RC-5014
EPA 903.1	Ra-226	RICH-RC-5005
EPA 904.0	Ra-228	RICH-RC-5005
EPA 905.0	Sr89/90	RICH-RC-5006
ASTM D2460	Total Radium	RICH-RC-5027
Standard Method 7500-U-C & ASTM D5174	Uranium	RICH-RC-5058
EPA 906.0	Tritium	RICH-RC-5007
NOTE:		
The Gross Alpha LCS is prepared with Am-241 (unless otherwise specified in the case narrative)		
The Gross Beta LCS is prepared with Sr/Y-90 (unless otherwise specified in the case narrative)		

Uncertainty Estimation

STL Richland has adopted the internationally accepted approach to estimating uncertainties described in "NIST Technical Note 1297, 1994 Edition". The approach, "Law of Propagation of Errors", involves the identification of all variables in an analytical method which are used to derive a result. These variables are related to the analytical result (R) by some functional relationship, R = constants * f(x,y,z,...). The components (x,y,z) are evaluated to determine their contribution to the overall method uncertainty. The individual component uncertainties (u_i) are then combined using a statistical model that provides the most probable overall uncertainty value. All component uncertainties are categorized as type A, evaluated by statistical methods, or type B, evaluated by other means. Uncertainties not included in the components, such as sample homogeneity, are combined with the component uncertainty as the square root of the sum-of-the-squares of the individual uncertainties. The uncertainty associated with the derived result is the combined uncertainty (u_c) multiplied by the coverage factor (1,2, or 3).

When three or more sample replicates are used to derive the analytical result, the type A uncertainty is the standard deviation of the mean value (S/vn), where S is the standard deviation of the derived results. The type B uncertainties are all other random or non-random components that are not included in the standard deviation.

The derivation of the general "Law of Propagation of Errors" equations and specific example are available on request.

Report Definitions

Action Lev	An agreed upon activity level used to trigger some action when the final result is greater than or equal to the Action Level. Often the Action Level is related to the Decision Limit.
Batch	The QC preparation batch number that relates laboratory samples to QC samples that were prepared and analyzed together.
Bias	Defined by the equation (Result/Expected)-1 as defined by ANSI N13.30.
COC No	Chain of Custody Number assigned by the Client or STL Richland.
Count Error (#s)	Poisson counting statistics of the gross sample count and background. The uncertainty is absolute and in the same units as the result. For Liquid Scintillation Counting (LSC) the batch blank count is the background.
Total Uncert (#s) u_c - ***Combined Uncertainty.***	All known uncertainties associated with the preparation and analysis of the sample are propagated to give a measure of the uncertainty associated with the result, u_c *the combined uncertainty.* The uncertainty is absolute and in the same units as the result.
(#s), Coverage Factor	The coverage factor defines the width of the confidence interval, 1, 2 or 3 standard deviations.
CRDL (RL)	Contractual Required Detection Limit as defined in the Client's Statement Of Work or STL Richland "default" nominal detection limit. Often referred to the reporting level (RL)
Lc	Decision Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume associated with the sample. The Type I error probability is approximately 5%. Lc=(1.645 * Sqrt(2*(BkgrndCnt/BkgrndCntMin)/SCntMin)) * (ConvFct/(Eff*Yld*Abn*Vol) * IngrFct). For LSC methods the batch blank is used as a measure of the background variability. Lc cannot be calculated when the background count is zero.
Lot-Sample No	The number assigned by the LIMS software to track samples received on the same day for a given client. The sample number is a sequential number assigned to each sample in the Lot.
MDC|MDA	Detection Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume with a Type I and II error probability of approximately 5%. MDC = (4.65 * Sqrt((BkgrndCnt/BkgrndCntMin)/SCntMin) + 2.71/SCntMin) * (ConvFct/(Eff * Yld * Abn * Vol) * IngrFct). For LSC methods the batch blank is used as a measure of the background variability.
Primary Detector	The instrument identifier associated with the analysis of the sample aliquot.
Ratio U-234/U-238	The U-234 result divided by the U-238 result. The U-234/U-238 ratio for natural uranium in NIST SRM 4321C is 1.038.
Rst/MDC	Ratio of the Result to the MDC. A value greater than 1 may indicate activity above background at a high level of confidence. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Rst/TotUcert	Ratio of the Result to the Total Uncertainty. If the uncertainty has a coverage factor of 2 a value greater than 1 may indicate activity above background at approximately the 95% level of confidence assuming a two-sided confidence interval. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Report DB No	Sample Identifier used by the report system. The number is based upon the first five digits of the **Work Order** Number.
RER	The equation Replicate Error Ratio = (S-D)/[sqrt($TPUs^2$ + $TPUd^2$)] as defined by ICPT BOA where S is the original sample result, D is the result of the duplicate, TPUs is the total uncertainty of the original sample and TPUd is the total uncertainty of the duplicate sample.
SDG	Sample Delivery Group Number assigned by the Client or assigned by STL Richland upon sample receipt.
Sum Rpt Alpha Spec Rst(s)	The sum of the reported alpha spec results for tests derived from the same sample excluding duplicate result where the results are in the same units.
Work Order	The LIMS software assign test specific identifier.
Yield	The recovery of the tracer added to the sample such as Pu-242 used to trace a Pu-239/40 method.

Sample Results Summary

Date: 31-Dec-02

STL Richland STLRL

Ordered by Client Sample ID, Batch No.

Report No. : 21337

SDG No: 21408

Client ID	Work Order Number	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	MDC|MDA	RER
9521-0000-008F	FAPD21AE	PLUTONIUM-238	7.35E-03 +- 1.2E-02	U	pCi/g	81.07%	1.96E-02	
		PLUTONIUM-239/40	8.14E-03 +- 1.2E-02	U	pCi/g	81.07%	1.10E-02	
9521-0000-008F	FAPD21AF	PLUTONIUM-241	2.14E-01 +- 3.3E-01	U	pCi/g	81.10%	6.60E-01	
9521-0000-008F	FAPD21AK	AMERICIUM-241	8.08E-02 +- 4.5E-02	J	pCi/g	74.77%	2.61E-02	
		CURIUM-242	0.00E+00 +- 2.5E-02	U	pCi/g	74.77%	2.81E-02	
		CURIUM-243/244	0.00E+00 +- 1.4E-02	U	pCi/g	74.77%	1.50E-02	
9521-0000-008F	FAPD21AG	NICKEL-63	2.47E-01 +- 4.0E+00	U	pCi/g	92.00%	6.28E+00	
9521-0000-008F	FAPD21AH	IRON-55	-1.27E+01 +- 7.1E+00	U	pCi/g	119.26%	1.64E+01	
9521-0000-008F	FAPD21AD	STRONTIUM-90	5.43E-02 +- 4.5E-02	U	pCi/g	35.71%	7.64E-02	
9521-0000-008F	FAPD21AL	ACTINIUM-228	6.70E-01 +- 2.1E-01	U	pCi/g		3.34E-01	
		AG-108M	4.41E-03 +- 2.0E-02	U	pCi/g		3.57E-02	
		AMERICIUM-241	-6.35E-02 +- 8.4E-02	U	pCi/g		1.41E-01	
		BISMUTH-214	5.26E-01 +- 1.4E-01	U	pCi/g		1.95E-01	
		COBALT-60	8.44E-02 +- 5.7E-02	U	pCi/g		8.75E-02	
		CESIUM-134	6.73E-02 +- 3.8E-02	U	pCi/g		7.48E-02	
		CESIUM-137	2.33E-01 +- 6.7E-02	J	pCi/g		4.69E-02	
		EUROPIUM-152	-3.58E-02 +- 6.7E-02	U	pCi/g		1.11E-01	
		EUROPIUM-154	-5.86E-02 +- 8.4E-02	U	pCi/g		1.37E-01	
		EUROPIUM-155	5.51E-02 +- 8.0E-02	U	pCi/g		1.39E-01	
		POTASSIUM-40	1.03E+01 +- 1.6E+00		pCi/g		3.84E-01	
		MAGNESIUM-54	-3.80E-03 +- 3.5E-02	U	pCi/g		6.29E-02	
		NIOBIUM-94	-8.50E-03 +- 2.6E-02	U	pCi/g		4.54E-02	
		LEAD-212	7.31E-01 +- 1.4E-01		pCi/g		6.45E-02	
		LEAD-214	5.22E-01 +- 1.5E-01		pCi/g		8.40E-02	
		RADIUM-226	5.26E-01 +- 1.4E-01		pCi/g		8.64E-02	
		THALLIUM-208	2.05E-01 +- 5.5E-02	U	pCi/g		8.87E-02	
9521-0000-008F	FAPD21AJ	TRITIUM	4.27E-02 +- 2.3E-02	U	pCi/g	100.00%	4.95E-02	
9521-0000-008F	FAPD21AC	TECHNETIUM-99	-1.17E-01 +- 2.2E-01	U	pCi/g	100.00%	3.19E-01	
9521-0000-008F	FAPD21AA	CARBON-14	8.84E-03 +- 7.3E-02	U	pCi/g	100.00%	1.39E-01	
9521-0000-008F DUP	FAPD21AN	NICKEL-63	-5.68E-01 +- 4.0E+00	U	pCi/g	92.10%	6.34E+00	0.3
9521-0000-008F DUP	FAPD21AQ	IRON-55	-2.60E+00 +- 9.3E+00	U	pCi/g	126.78%	3.10E+01	1.7
9521-0000-008F DUP	FAPD21AT	TRITIUM	5.47E-02 +- 2.5E-02	J	pCi/g	100.00%	5.28E-02	0.7

STL Richland

rptSTLRchSaSum V3.97 A97

RER - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.

J Qual - No U qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.

U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

Sample Results Summary

STL Richland STLRL

Ordered by Client Sample ID, Batch No.

Date: 31-Dec-02

Report No. : 21337

SDG No: 21408

Client ID	Work Order Number	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	MDC|MDA	RER
9521-0000-009F	FAPEE1AE	PLUTONIUM-238	3.65E-03 +- 9.3E-03	U	pCi/g	72.26%	2.19E-02	
		PLUTONIUM-239/40	4.55E-03 +- 9.1E-03	U	pCi/g	72.26%	1.23E-02	
9521-0000-009F	FAPEE1AF	PLUTONIUM-241	2.93E-01 +- 3.7E-01	U	pCi/g	72.30%	7.48E-01	
9521-0000-009F	FAPEE1AK	AMERICIUM-241	3.05E-02 +- 2.8E-02	J	pCi/g	64.60%	1.66E-02	
		CURIUM-242	0.00E+00 +- 2.8E-02	U	pCi/g	64.60%	3.13E-02	
		CURIUM-243/244	0.00E+00 +- 1.5E-02	U	pCi/g	64.60%	1.68E-02	
9521-0000-009F	FAPEE1AG	NICKEL-63	1.88E-01 +- 4.4E+00	U	pCi/g	83.60%	7.04E+00	
9521-0000-009F	FAPEE1AH	IRON-55	2.64E+00 +- 1.1E+01	U	pCi/g	123.83%	3.95E+01	
9521-0000-009F	FAPEE1AL	ACTINIUM-228	8.88E-01 +- 2.9E-01		pCi/g		2.56E-01	
		AG-108M	1.03E-02 +- 3.1E-02	U	pCi/g		5.53E-02	
		AMERICIUM-241	-4.81E-01 +- 3.9E-01	U	pCi/g		6.22E-01	
		BISMUTH-214	7.33E-01 +- 1.8E-01	U	pCi/g		2.56E-01	
		COBALT-60	4.56E-02 +- 3.8E-02	U	pCi/g		7.91E-02	
		CESIUM-134	5.01E-02 +- 4.3E-02	U	pCi/g		8.43E-02	
		CESIUM-137	5.43E-01 +- 1.1E-01		pCi/g		7.57E-02	
		EUROPIUM-152	9.35E-02 +- 1.3E-01	U	pCi/g		1.89E-01	
		EUROPIUM-154	2.36E-02 +- 1.3E-01	U	pCi/g		2.30E-01	
		EUROPIUM-155	4.17E-02 +- 1.6E-01	U	pCi/g		2.76E-01	
		POTASSIUM-40	1.47E+01 +- 2.2E+00		pCi/g		5.31E-01	
		MAGNESIUM-54	9.57E-05 +- 4.9E-02	U	pCi/g		8.71E-02	
		NIOBIUM-94	-2.21E-02 +- 3.3E-02	U	pCi/g		5.41E-02	
		LEAD-212	7.60E-01 +- 2.1E-01		pCi/g		1.06E-01	
		LEAD-214	7.88E-01 +- 1.7E-01		pCi/g		1.34E-01	
		RADIUM-226	7.33E-01 +- 1.8E-01	U	pCi/g		2.56E-01	
		THALLIUM-208	3.07E-01 +- 8.3E-02	U	pCi/g		1.26E-01	
9521-0000-009F	FAPEE1AJ	TRITIUM	6.74E-02 +- 3.7E-02	U	pCi/g	100.00%	8.44E-02	
9521-0000-009F	FAPEE1AC	TECHNETIUM-99	-1.68E-01 +- 2.2E-01	U	pCi/g	100.00%	3.20E-01	
9521-0000-009F	FAPEE1AA	CARBON-14	6.29E-02 +- 7.4E-02	U	pCi/g	100.00%	1.38E-01	
9521-0000-009F	FAPEE2AD	STRONTIUM-90	1.54E-02 +- 2.7E-02	U	pCi/g	52.80%	5.14E-02	
9521-0000-009F DUP	FAPEE1AR	TECHNETIUM-99	-8.20E-02 +- 2.2E-01	U	pCi/g	100.00%	3.18E-01	0.6
9521-0000-013F	FAPEN1AE	PLUTONIUM-238	-9.58E-04 +- 1.9E-03	U	pCi/g	68.00%	2.29E-02	

STL Richland
rptSTLRchSaSum V3.97 A97

RER - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.

J Qual - No U qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.

U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

Sample Results Summary

Date: 31-Dec-02

STL Richland STLRL

Ordered by Client Sample ID, Batch No.

Report No. : 21337

SDG No: 21408

Client ID	Work Order Number	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	MDC|MDA	RER
9521-0000-013F	FAPEN1AE	PLUTONIUM-239/40	2.39E-02 +- 2.2E-02	J	pCi/g	68.00%	1.29E-02	
9521-0000-013F	FAPEN1AF	PLUTONIUM-241	4.44E-01 +- 4.0E-01	U	pCi/g	68.00%	7.85E-01	
9521-0000-013F	FAPEN1AK	AMERICIUM-241	1.89E-02 +- 2.2E-02	J	pCi/g	65.92%	1.71E-02	
		CURIUM-242	0.00E+00 +- 2.9E-02	U	pCi/g	65.92%	3.23E-02	
		CURIUM-243/244	0.00E+00 +- 1.6E-02	U	pCi/g	65.92%	1.73E-02	
9521-0000-013F	FAPEN1AG	NICKEL-63	1.42E-02 +- 4.6E+00	U	pCi/g	92.50%	7.36E+00	
9521-0000-013F	FAPEN1AH	IRON-55	-1.39E+01 +- 5.6E+00	U	pCi/g	139.16%	1.07E+01	
9521-0000-013F	FAPEN1AL	ACTINIUM-228	8.72E-01 +- 2.7E-01		pCi/g		2.05E-01	
		AG-108M	1.37E-02 +- 3.0E-02	U	pCi/g		5.34E-02	
		AMERICIUM-241	-2.07E-02 +- 1.1E-01	U	pCi/g		1.95E-01	
		BISMUTH-214	9.50E-01 +- 2.1E-01		pCi/g		1.04E-01	
		COBALT-60	-2.71E-02 +- 4.1E-02	U	pCi/g		6.76E-02	
		CESIUM-134	4.41E-02 +- 4.4E-02	U	pCi/g		8.40E-02	
		CESIUM-137	9.13E-01 +- 1.5E-01		pCi/g		6.19E-02	
		EUROPIUM-152	-5.79E-02 +- 9.5E-02	U	pCi/g		1.56E-01	
		EUROPIUM-154	9.79E-03 +- 9.4E-02	U	pCi/g		1.75E-01	
		EUROPIUM-155	3.72E-02 +- 9.9E-02	U	pCi/g		1.69E-01	
		POTASSIUM-40	1.37E+01 +- 2.1E+00		pCi/g		4.26E-01	
		MAGNESIUM-54	5.27E-02 +- 3.9E-02	U	pCi/g		7.94E-02	
		NIOBIUM-94	-5.96E-04 +- 3.0E-02	U	pCi/g		5.46E-02	
		LEAD-212	1.09E+00 +- 2.0E-01		pCi/g		8.86E-02	
		LEAD-214	1.08E+00 +- 2.0E-01		pCi/g		1.13E-01	
		RADIUM-226	9.50E-01 +- 2.1E-01		pCi/g		1.04E-01	
		THALLIUM-208	2.71E-01 +- 8.7E-02		pCi/g		6.00E-02	
9521-0000-013F	FAPEN1AJ	TRITIUM	4.56E-02 +- 1.8E-02	J	pCi/g	100.00%	3.86E-02	
9521-0000-013F	FAPEN1AC	TECHNETIUM-99	-6.40E-02 +- 2.2E-01	U	pCi/g	100.00%	3.19E-01	
9521-0000-013F	FAPEN1AA	CARBON-14	7.80E-04 +- 7.3E-02	U	pCi/g	100.00%	1.39E-01	
9521-0000-013F	FAPEN2AD	STRONTIUM-90	8.59E-02 +- 3.7E-02		pCi/g	56.57%	4.98E-02	
9521-0000-013F DUP	FAPEN1AP	STRONTIUM-90	1.25E-01 +- 5.7E-02		pCi/g	48.68%	8.37E-02	
9521-0000-015F	FAPER1AE	PLUTONIUM-238	0.00E+00 +- 9.9E-03	U	pCi/g	80.99%	1.10E-02	
		PLUTONIUM-239/40	0.00E+00 +- 9.9E-03	U	pCi/g	80.99%	1.09E-02	

STL Richland

rptSTLRchSaSum V3.97 A97

RER - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.

J Qual - No U qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.

U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

Sample Results Summary

Date: 31-Dec-02

STL Richland STLRL

Ordered by Client Sample ID, Batch No.

Report No. : 21337

SDG No: 21408

Client ID	Work Order Number	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	MDC|MDA	RER
9521-0000-015F	FAPER1AF	PLUTONIUM-241	2.83E-01 +- 3.3E-01	U	pCi/g	81.00%	6.87E-01	
9521-0000-015F	FAPER1AK	AMERICIUM-241	3.83E-03 +- 9.8E-03	U	pCi/g	86.27%	2.29E-02	
		CURIUM-242	9.09E-03 +- 1.8E-02	U	pCi/g	86.27%	2.46E-02	
		CURIUM-243/244	0.00E+00 +- 1.2E-02	U	pCi/g	86.27%	1.32E-02	
9521-0000-015F	FAPER1AG	NICKEL-63	-2.91E+00 +- 4.8E+00	U	pCi/g	86.60%	7.86E+00	
9521-0000-015F	FAPER1AH	IRON-55	-1.20E+00 +- 1.0E+01	U	pCi/g	116.15%	3.15E+01	
9521-0000-015F	FAPER1AL	ACTINIUM-228	9.31E-01 +- 2.3E-01		pCi/g		1.52E-01	
		AG-108M	1.25E-02 +- 2.3E-02	U	pCi/g		4.14E-02	
		AMERICIUM-241	5.41E-02 +- 6.5E-02	U	pCi/g		9.70E-02	
		BISMUTH-214	8.64E-01 +- 1.6E-01		pCi/g		7.38E-02	
		COBALT-60	2.11E-03 +- 3.2E-02	U	pCi/g		5.96E-02	
		CESIUM-134	4.90E-02 +- 3.9E-02	U	pCi/g		7.60E-02	
		CESIUM-137	2.09E-01 +- 6.9E-02	J	pCi/g		5.60E-02	
		EUROPIUM-152	8.95E-03 +- 7.6E-02	U	pCi/g		1.29E-01	
		EUROPIUM-154	-5.34E-02 +- 8.5E-02	U	pCi/g		1.41E-01	
		EUROPIUM-155	2.08E-02 +- 7.9E-02	U	pCi/g		1.37E-01	
		POTASSIUM-40	1.21E+01 +- 1.8E+00		pCi/g		4.17E-01	
		MAGNESIUM-54	-1.63E-02 +- 3.7E-02	U	pCi/g		6.18E-02	
		NIOBIUM-94	3.22E-03 +- 2.6E-02	U	pCi/g		4.76E-02	
		LEAD-212	7.50E-01 +- 1.6E-01		pCi/g		1.18E-01	
		LEAD-214	7.22E-01 +- 1.5E-01		pCi/g		8.90E-02	
		RADIUM-226	8.64E-01 +- 1.6E-01		pCi/g		7.38E-02	
		THALLIUM-208	2.63E-01 +- 6.0E-02		pCi/g		4.88E-02	
9521-0000-015F	FAPER1AJ	TRITIUM	5.02E-02 +- 3.4E-02	U	pCi/g	100.00%	8.41E-02	
9521-0000-015F	FAPER1AC	TECHNETIUM-99	-7.44E-02 +- 2.2E-01	U	pCi/g	100.00%	3.18E-01	
9521-0000-015F	FAPER1AA	CARBON-14	1.37E-02 +- 7.3E-02	U	pCi/g	100.00%	1.39E-01	
9521-0000-015F	FAPER1AD	STRONTIUM-90	8.73E-03 +- 5.7E-02	U	pCi/g	33.81%	1.12E-01	
9521-0000-015F DUP	FAPER1AP	ACTINIUM-228	7.53E-01 +- 2.5E-01		pCi/g		1.80E-01	1.0
		AG-108M	-1.30E-02 +- 3.1E-02	U	pCi/g		5.11E-02	1.3
		AMERICIUM-241	-3.08E-01 +- 3.5E-01	U	pCi/g		5.73E-01	2.0
		BISMUTH-214	6.91E-01 +- 1.6E-01	U	pCi/g		2.29E-01	1.5
		COBALT-60	-1.17E-02 +- 3.5E-02	U	pCi/g		6.15E-02	0.6
		CESIUM-134	5.53E-02 +- 4.3E-02	U	pCi/g		8.35E-02	0.2

STL Richland

rptSTLRchSaSum V3.97 A97

RER - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.

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U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

Sample Results Summary

Date: 31-Dec-02

STL Richland STLRL

Ordered by Client Sample ID, Batch No.

Report No. : 21337 **SDG No: 21408**

Client ID	Work Order Number	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	MDC|MDA	RER
9521-0000-015F DUP	FAPER1AP	CESIUM-137	2.01E-01 +- 6.2E-02	J	pCi/g		6.13E-02	0.2
		EUROPIUM-152	-9.01E-02 +- 1.3E-01	U	pCi/g		1.48E-01	1.3
		EUROPIUM-154	4.00E-02 +- 1.2E-01	U	pCi/g		2.13E-01	1.3
		EUROPIUM-155	6.34E-02 +- 1.5E-01	U	pCi/g		2.57E-01	0.5
		POTASSIUM-40	1.22E+01 +- 1.9E+00		pCi/g		5.48E-01	0.1
		MAGNESIUM-54	-2.38E-02 +- 4.2E-02	U	pCi/g		6.92E-02	0.3
		NIOBIUM-94	-3.32E-03 +- 3.1E-02	U	pCi/g		5.47E-02	0.3
		LEAD-212	6.93E-01 +- 1.6E-01		pCi/g		1.10E-01	0.5
		LEAD-214	5.60E-01 +- 1.5E-01		pCi/g		1.11E-01	1.5
		RADIUM-226	6.91E-01 +- 1.6E-01		pCi/g		1.05E-01	1.5
		THALLIUM-208	3.27E-01 +- 7.9E-02		pCi/g		5.41E-02	1.3
9521-0000-015F DUP	FAPER1AQ	CARBON-14	-2.12E-03 +- 7.3E-02	U	pCi/g	100.00%	1.39E-01	0.3
9528-0003-004F DUP	E94PK1AP	AMERICIUM-241	0.00E+00 +- 1.3E-02	U	pCi/g	76.04%	1.47E-02	0.6
		CURIUM-242	0.00E+00 +- 2.4E-02	U	pCi/g	76.04%	2.60E-02	0.0
		CURIUM-243/244	0.00E+00 +- 1.3E-02	U	pCi/g	76.04%	1.49E-02	0.3
9528-0004-008F DUP	E969G1AN	PLUTONIUM-238	-8.40E-04 +- 1.7E-03	U	pCi/g	78.83%	2.01E-02	0.2
		PLUTONIUM-239/40	3.35E-02 +- 2.4E-02	J	pCi/g	78.83%	1.13E-02	0.7
9528-0004-008F DUP	E969G1AP	PLUTONIUM-241	1.40E-01 +- 3.3E-01	U	pCi/g	78.80%	6.72E-01	0.7

Number of Results: 145

STL Richland
rptSTLRchSaSum V3.97 A97

RER - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.
J Qual - No U qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
U Qual - Analyzed for, but the result is less than the Mdc/Mda\|Total Uncert or gamma scan software did not identify the nuclide.

QC Results Summary
STL Richland STLRL

Ordered by QC Type, Batch No.

Date: 31-Dec-02

Report No. : 21337 **SDG No.: 21408**

QC Type	Work Order Number	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	Recovery	Bias	MDC/MDA
MATRIX SPIK	FAPEE1AM	NICKEL-63	4.92E+02 +- 3.6E+01		pCi/g	93.80%	99.16%	0.0	6.21E+00
MATRIX SPIK	FAPEE1AP	IRON-55	2.53E+01 +- 1.6E+01	U	pCi/g	133.15%	42.42%	-0.6	3.58E+01
MATRIX SPIK	FAPEN1AQ	TECHNETIUM-99	2.55E+01 +- 1.8E+00		pCi/g	100.00%	94.09%	-0.1	3.20E-01
BLANK QC	FADT91AA	PLUTONIUM-238	0.00E+00 +- 1.2E-02	U	pCi/g	65.99%			1.36E-02
		PLUTONIUM-239/40	5.01E-03 +- 1.0E-02	U	pCi/g	65.99%			1.36E-02
BLANK QC	FADVF1AA	PLUTONIUM-241	7.18E-01 +- 4.2E-01	U	pCi/g	66.00%			8.30E-01
BLANK QC	FADXD1AA	AMERICIUM-241	-1.16E-03 +- 2.3E-03	U	pCi/g	71.24%			2.77E-02
		CURIUM-242	-2.05E-03 +- 4.1E-03	U	pCi/g	71.24%			4.90E-02
		CURIUM-243/244	2.34E-03 +- 1.2E-02	U	pCi/g	71.24%			3.70E-02
BLANK QC	FAR561AA	NICKEL-63	1.81E+00 +- 4.3E+00	U	pCi/g	88.90%			6.74E+00
BLANK QC	FAR6D1AA	IRON-55	-1.41E+01 +- 1.3E+01	U	pCi/g	69.44%			2.87E+01
BLANK QC	FAR6F1AA	STRONTIUM-90	-1.35E-02 +- 1.8E-02	U	pCi/g	69.03%			4.01E-02
BLANK QC	FAR6K1AA	ACTINIUM-228	-1.67E-02 +- 1.1E-01	U	pCi/g				2.22E-01
		AG-108M	-1.15E-02 +- 2.2E-02	U	pCi/g				3.78E-02
		AMERICIUM-241	-5.68E-02 +- 8.0E-02	U	pCi/g				1.34E-01
		BISMUTH-214	1.83E-02 +- 7.2E-02	U	pCi/g				1.46E-01
		COBALT-60	-7.01E-04 +- 3.0E-02	U	pCi/g				6.01E-02
		CESIUM-134	1.39E-03 +- 3.1E-02	U	pCi/g				5.92E-02
		CESIUM-137	7.09E-03 +- 2.9E-02	U	pCi/g				5.73E-02
		EUROPIUM-152	-9.67E-03 +- 7.8E-02	U	pCi/g				1.38E-01
		EUROPIUM-154	6.91E-03 +- 8.9E-02	U	pCi/g				1.78E-01
		EUROPIUM-155	4.17E-02 +- 6.1E-02	U	pCi/g				1.14E-01
		POTASSIUM-40	-1.92E-01 +- 6.6E-01	U	pCi/g				1.47E+00
		MAGNESIUM-54	-2.28E-02 +- 2.8E-02	U	pCi/g				4.55E-02
		NIOBIUM-94	-7.43E-03 +- 2.7E-02	U	pCi/g				5.01E-02
		LEAD-212	-1.86E-02 +- 4.6E-02	U	pCi/g				8.24E-02
		LEAD-214	-7.09E-02 +- 6.5E-02	U	pCi/g				1.09E-01
		RADIUM-226	1.81E-02 +- 7.2E-02	U	pCi/g				1.46E-01
		THALLIUM-208	7.16E-03 +- 3.5E-02	U	pCi/g				6.98E-02

STL Richland **Bias** - (Result/Expected)-1 as defined by ANSI N13.30.

rptSTLRchQcSum V3.97 A97 **U Qual** - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

QC Results Summary
STL Richland STLRL

Ordered by QC Type, Batch No.

Date: 31-Dec-02

Report No. : 21337 **SDG No.:** 21408

QC Type	Work Order Number	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	Recovery	Bias	MDC|MDA
BLANK QC	FAR6T1AA	TRITIUM	-4.84E-02 +- 1.2E-01	U	pCi/g	100.00%			2.88E-01
BLANK QC	FAR631AA	TECHNETIUM-99	-7.91E-02 +- 2.2E-01	U	pCi/g	100.00%			3.19E-01
BLANK QC	FAR7F1AA	CARBON-14	-1.90E-02 +- 7.3E-02	U	pCi/g	100.00%			1.39E-01
BLANK QC	FDK2R1AA	STRONTIUM-90	-6.65E-04 +- 2.1E-02	U	pCi/g	85.81%			4.11E-02
BLANK QC	FEHL61AA	STRONTIUM-90	2.58E-03 +- 2.2E-02	U	pCi/g	78.32%			4.20E-02
LCS	FADT91AC	PLUTONIUM-239/40	4.83E-01 +- 1.3E-01	J	pCi/g	63.89%	106.18%	0.1	1.44E-02
LCS	FADVF1AC	PLUTONIUM-241	1.99E+01 +- 1.4E+00		pCi/g	63.90%	86.38%	-0.1	8.78E-01
LCS	FADXD1AC	AMERICIUM-241	4.33E+00 +- 8.7E-01		pCi/g	57.34%	94.85%	-0.1	3.30E-02
LCS	FAR561AC	NICKEL-63	5.20E+02 +- 3.7E+01		pCi/g	90.30%	102.55%	0.0	6.63E+00
LCS	FAR6D1AC	IRON-55	3.11E+01 +- 1.6E+01	U	pCi/g	72.59%	52.28%	-0.5	3.33E+01
LCS	FAR6F1AC	STRONTIUM-90	1.38E+00 +- 3.0E-01		pCi/g	52.25%	100.34%	0.0	5.21E-02
LCS	FAR6K1AC	CESIUM-137	1.20E+00 +- 1.8E-01		pCi/g		117.77%	0.2	4.73E-02
LCS	FAR6T1AC	TRITIUM	6.69E+00 +- 4.1E-01	J	pCi/g	100.00%	96.57%	0.0	2.92E-01
LCS	FAR631AC	TECHNETIUM-99	1.22E+01 +- 9.5E-01	J	pCi/g	100.00%	89.90%	-0.1	3.20E-01
LCS	FAR7F1AC	CARBON-14	2.63E+00 +- 1.4E-01	J	pCi/g	100.00%	96.17%	0.0	1.39E-01
LCS	FDK2R1AC	STRONTIUM-90	5.10E-01 +- 1.2E-01		pCi/g	82.03%	111.14%	0.1	4.92E-02
LCS	FEHL61AC	STRONTIUM-90	1.43E+00 +- 3.0E-01		pCi/g	68.73%	103.20%	0.0	5.48E-02

Number of Results: 46

STL Richland **rptSTLRichQcSum V3.97 A97**

Bias - (Result/Expected)-1 as defined by ANSI N13.30.

J Qual - No U qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.

U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM I

SAMPLE RESULTS

Date: 31-Dec-02

Lab Name: STL Richland **SDG:** 21408 **Collection Date:** 6/26/2002 2:20:00 PM

Lot-Sample No.: J2J240255-1 **Report No. :** 21337 **Received Date:** 10/24/2002 11:55:00 AM

Client Sample ID: 9521-0000-008F **COC No. :** **Matrix:** SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2292206	Work Order: FAPD21AE			Report DB ID: 9FAPD210								
PLUTONIUM-238	**7.35E-03**	U	1.2E-02	1.2E-02	1.96E-02	pCi/g	81.07%	*0.38*	11/19/02 01:25 p		2.03	RICHRC5010
						4.25E-03	1.18E+00	*(1.3)*			g	ALP132
PLUTONIUM-239/40	**8.14E-03**	U	1.2E-02	1.2E-02	1.10E-02	pCi/g	81.07%	*0.74*	11/19/02 01:25 p		2.03	RICHRC5010
							1.07E+00	*(1.4)*			g	ALP132
Batch: 2292207	Work Order: FAPD21AF			Report DB ID: 9FAPD210								
PLUTONIUM-241	**2.14E-01**	U	2.7E-01	3.3E-01	6.60E-01	pCi/g	81.10%	*0.32*	11/26/02 03:53 p		2.03	RICHRC5010
						3.20E-01	3.48E+01	*(1.3)*			g	LSC4
Batch: 2292215	Work Order: FAPD21AK			Report DB ID: 9FAPD210								
AMERICIUM-241	**8.08E-02**	J	4.2E-02	4.5E-02	2.61E-02	pCi/g	74.77%	*(3.1)*	11/24/02 11:04 a		2.02	RICHRC5080
						5.68E-03	1.03E+00	*(3.6)*			g	ALP47
CURIUM-242	**0.00E+00**	U	0.0E+00	2.5E-02	2.81E-02	pCi/g	74.77%	*0.*	11/24/02 11:04 a		2.02	RICHRC5080
								0.			g	ALP47
CURIUM-243/244	**0.00E+00**	U	0.0E+00	1.4E-02	1.50E-02	pCi/g	74.77%	*0.*	11/24/02 11:04 a		2.02	RICHRC5080
							1.16E+00	*0.*			g	ALP47
Batch: 2298407	Work Order: FAPD21AG			Report DB ID: 9FAPD210								
NICKEL-63	**2.47E-01**	U	2.6E+00	4.0E+00	6.28E+00	pCi/g	92.00%	*0.04*	12/2/02 06:29 p		0.2585	RC5069
						3.05E+00	2.89E+01	*0.12*			g	LSC3
Batch: 2298409	Work Order: FAPD21AH			Report DB ID: 9FAPD210								
IRON-55	**-1.27E+01**	U		7.1E+00	1.64E+01	pCi/g	119.26%	*-0.78*	12/3/02 09:11 a		0.2585	FBXZ
						7.69E+00	1.10E+02	*-(3.6)*			g	LSC7

STL Richland
rptSTLRchSample V3.97 A97

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
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U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM I

SAMPLE RESULTS

Date: 31-Dec-02

Lab Name: STL Richland **SDG:** 21408 **Collection Date:** 6/26/2002 2:20:00 PM

Lot-Sample No.: J2J240255-1 **Report No. :** 21337 **Received Date:** 10/24/2002 11:55:00 AM

Client Sample ID: 9521-0000-008F **COC No. :** **Matrix:** SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2298410	Work Order: FAPD21AD			Report DB ID: 9FAPD210								
STRONTIUM-90	5.43E-02	U	4.4E-02	4.5E-02	7.64E-02	pCi/g	35.71%	*0.71*	12/25/02 12:14 p		10.0	CMUD
						3.52E-02	6.00E-02	*(2.4)*			g	GPC2C
Batch: 2298411	Work Order: FAPD21AL			Report DB ID: 9FAPD210								
ACTINIUM-228	6.70E-01	U	2.1E-01	2.1E-01	3.34E-01	pCi/g		*(2.)*	11/19/02 03:58 p		375.2	E901.1
								(6.3)			g	GER7$1
AG-108M	4.41E-03	U	2.0E-02	2.0E-02	3.57E-02	pCi/g		*0.12*	11/19/02 03:58 p		375.2	E901.1
								0.45			g	GER7$1
AMERICIUM-241	-6.35E-02	U	8.4E-02	8.4E-02	1.41E-01	pCi/g		*-0.45*	11/19/02 03:58 p		375.2	E901.1
								-(1.5)			g	GER7$1
BISMUTH-214	5.26E-01	U	1.4E-01	1.4E-01	1.95E-01	pCi/g		*(2.7)*	11/19/02 03:58 p		375.2	E901.1
								(7.8)			g	GER7$1
COBALT-60	8.44E-02	U	5.7E-02	5.7E-02	8.75E-02	pCi/g		*0.97*	11/19/02 03:58 p		375.2	E901.1
							1.52E-01	*(3.)*			g	GER7$1
CESIUM-134	6.73E-02	U	3.8E-02	3.8E-02	7.48E-02	pCi/g		*0.9*	11/19/02 03:58 p		375.2	E901.1
							1.87E-01	*(3.6)*			g	GER7$1
CESIUM-137	2.33E-01	J	6.7E-02	6.7E-02	4.69E-02	pCi/g		*(5.)*	11/19/02 03:58 p		375.2	E901.1
							3.16E-01	*(7.)*			g	GER7$1
EUROPIUM-152	-3.58E-02	U	6.7E-02	6.7E-02	1.11E-01	pCi/g		*-0.32*	11/19/02 03:58 p		375.2	E901.1
							4.04E-01	*-(1.1)*			g	GER7$1
EUROPIUM-154	-5.86E-02	U	8.4E-02	8.4E-02	1.37E-01	pCi/g		*-0.43*	11/19/02 03:58 p		375.2	E901.1
							3.72E-01	*-(1.4)*			g	GER7$1

STL Richland
rptSTLRchSample V3.97 A97

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FORM I

SAMPLE RESULTS

Date: 31-Dec-02

Lab Name: STL Richland **SDG:** 21408 **Collection Date:** 6/26/2002 2:20:00 PM

Lot-Sample No.: J2J240255-1 **Report No. :** 21337 **Received Date:** 10/24/2002 11:55:00 AM

Client Sample ID: 9521-0000-008F **COC No. :** **Matrix:** SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
EUROPIUM-155	**5.51E-02**	U	8.0E-02	8.0E-02	1.39E-01	pCi/g		*0.4*	11/19/02 03:58 p		375.2	E901.1
							1.57E+01	*(1.4)*			g	GER7$1
POTASSIUM-40	**1.03E+01**		1.6E+00	1.6E+00	3.84E-01	pCi/g		*(26.8)*	11/19/02 03:58 p		375.2	E901.1
								(12.6)			g	GER7$1
MAGNESIUM-54	**-3.80E-03**	U	3.5E-02	3.5E-02	6.29E-02	pCi/g		*-0.06*	11/19/02 03:58 p		375.2	E901.1
							6.96E-01	*-0.22*			g	GER7$1
NIOBIUM-94	**-8.50E-03**	U	2.6E-02	2.6E-02	4.54E-02	pCi/g		*-0.19*	11/19/02 03:58 p		375.2	E901.1
							2.85E-01	*-0.65*			g	GER7$1
LEAD-212	**7.31E-01**		1.4E-01	1.4E-01	6.45E-02	pCi/g		*(11.3)*	11/19/02 03:58 p		375.2	E901.1
								(10.5)			g	GER7$1
LEAD-214	**5.22E-01**		1.5E-01	1.5E-01	8.40E-02	pCi/g		*(6.2)*	11/19/02 03:58 p		375.2	E901.1
								(7.2)			g	GER7$1
RADIUM-226	**5.26E-01**		1.4E-01	1.4E-01	8.64E-02	pCi/g		*(6.1)*	11/19/02 03:58 p		375.2	E901.1
								(7.8)			g	GER7$1
THALLIUM-208	**2.05E-01**	U	5.5E-02	5.5E-02	8.87E-02	pCi/g		*(2.3)*	11/19/02 03:58 p		375.2	E901.1
								(7.4)			g	GER7$1
Batch: 2298415	Work Order: FAPD21AJ			Report DB ID: 9FAPD210								
TRITIUM	**4.27E-02**	U	2.2E-02	2.3E-02	4.95E-02	pCi/g	100.00%	*0.86*	11/12/02 11:59 p		100.4	E906.0
						2.29E-02	1.65E+01	*(3.7)*			g	LSC4
Batch: 2298417	Work Order: FAPD21AC			Report DB ID: 9FAPD210								
TECHNETIUM-99	**-1.17E-01**	U	1.3E-01	2.2E-01	3.19E-01	pCi/g	100.00%	*-0.37*	11/29/02 01:49 p		5.0	RICHRC5078
						1.55E-01	5.04E-01	*-(1.1)*			g	LSC6

STL Richland
rptSTLRchSample V3.97 A97

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FORM I

SAMPLE RESULTS

Date: 31-Dec-02

Lab Name:	STL Richland	**SDG:**	21408	**Collection Date:**	6/26/2002 2:20:00 PM
Lot-Sample No.:	J2J240255-1	**Report No. :**	21337	**Received Date:**	10/24/2002 11:55:00 AM
Client Sample ID:	9521-0000-008F	**COC No. :**		**Matrix:**	SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2298419	**Work Order:** FAPD21AA			**Report DB ID:** 9FAPD210								
CARBON-14	**8.84E-03**	U	5.9E-02	7.3E-02	1.39E-01	pCi/g	100.00%	*0.06*	11/13/02 10:04 a		5.011	RC5022
						6.80E-02	2.26E-01	*0.24*			g	LSC3

Number of Results: 29

Comments:

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
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FORM I

SAMPLE RESULTS

Date: 31-Dec-02

Lab Name: STL Richland | **SDG:** 21408 | **Collection Date:** 6/27/2002 10:06:00 AM

Lot-Sample No.: J2J240255-2 | **Report No. :** 21337 | **Received Date:** 10/24/2002 11:55:00 AM

Client Sample ID: 9521-0000-009F | **COC No. :** | **Matrix:** SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2292206	Work Order: FAPEE1AE			Report DB ID: 9FAPEE10								
PLUTONIUM-238	**3.65E-03**	U	9.3E-03	9.3E-03	2.19E-02	pCi/g	72.26%	*0.17*	11/19/02 06:40 p		2.02	RICHRC5010
						4.75E-03	1.18E+00	*0.78*			g	ALP45
PLUTONIUM-239/40	**4.55E-03**	U	9.1E-03	9.1E-03	1.23E-02	pCi/g	72.26%	*0.37*	11/19/02 06:40 p		2.02	RICHRC5010
							1.07E+00	*1.*			g	ALP45
Batch: 2292207	Work Order: FAPEE1AF			Report DB ID: 9FAPEE10								
PLUTONIUM-241	**2.93E-01**	U	3.1E-01	3.7E-01	7.48E-01	pCi/g	72.30%	*0.39*	11/26/02 07:15 p		2.02	RICHRC5010
						3.63E-01	3.48E+01	*(1.6)*			g	LSC4
Batch: 2292215	Work Order: FAPEE1AK			Report DB ID: 9FAPEE10								
AMERICIUM-241	**3.05E-02**	J	2.7E-02	2.8E-02	1.66E-02	pCi/g	64.60%	*(1.8)*	11/24/02 11:04 a		2.02	RICHRC5080
							1.03E+00	*(2.2)*			g	ALP125
CURIUM-242	**0.00E+00**	U	0.0E+00	2.8E-02	3.13E-02	pCi/g	64.60%	*0.*	11/24/02 11:04 a		2.02	RICHRC5080
								0.			g	ALP125
CURIUM-243/244	**0.00E+00**	U	0.0E+00	1.5E-02	1.68E-02	pCi/g	64.60%	*0.*	11/24/02 11:04 a		2.02	RICHRC5080
							1.16E+00	*0.*			g	ALP125
Batch: 2298407	Work Order: FAPEE1AG			Report DB ID: 9FAPEE10								
NICKEL-63	**1.88E-01**	U	2.9E+00	4.4E+00	7.04E+00	pCi/g	83.60%	*0.03*	12/2/02 09:54 p		0.2561	RC5069
						3.42E+00	2.89E+01	*0.09*			g	LSC3
Batch: 2298409	Work Order: FAPEE1AH			Report DB ID: 9FAPEE10								
IRON-55	**2.64E+00**	U		1.1E+01	3.95E+01	pCi/g	123.83%	*0.07*	12/3/02 09:11 a		0.2561	FBXZ
						1.86E+01	1.10E+02	*0.48*			g	LSC7

STL Richland
rptSTLRchSample V3.97 A97

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FORM I

SAMPLE RESULTS

Date: 31-Dec-02

Lab Name: STL Richland **SDG:** 21408 **Collection Date:** 6/27/2002 10:06:00 AM

Lot-Sample No.: J2J240255-2 **Report No. :** 21337 **Received Date:** 10/24/2002 11:55:00 AM

Client Sample ID: 9521-0000-009F **COC No. :** **Matrix:** SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2298411	Work Order: FAPEE1AL			Report DB ID: 9FAPEE10								
ACTINIUM-228	**8.88E-01**		2.9E-01	2.9E-01	2.56E-01	pCi/g		*(3.5)*	11/19/02 05:50 p		285.7	E901.1
								(6.2)			g	GER2$1
AG-108M	**1.03E-02**	U	3.1E-02	3.1E-02	5.53E-02	pCi/g		*0.19*	11/19/02 05:50 p		285.7	E901.1
								0.66			g	GER2$1
AMERICIUM-241	**-4.81E-01**	U	3.9E-01	3.9E-01	6.22E-01	pCi/g		*-0.77*	11/19/02 05:50 p		285.7	E901.1
								-(2.5)			g	GER2$1
BISMUTH-214	**7.33E-01**	U	1.8E-01	1.8E-01	2.56E-01	pCi/g		*(2.9)*	11/19/02 05:50 p		285.7	E901.1
								(8.1)			g	GER2$1
COBALT-60	**4.56E-02**	U	3.8E-02	3.8E-02	7.91E-02	pCi/g		*0.58*	11/19/02 05:50 p		285.7	E901.1
							1.52E-01	*(2.4)*			g	GER2$1
CESIUM-134	**5.01E-02**	U	4.3E-02	4.3E-02	8.43E-02	pCi/g		*0.59*	11/19/02 05:50 p		285.7	E901.1
							1.87E-01	*(2.3)*			g	GER2$1
CESIUM-137	**5.43E-01**		1.1E-01	1.1E-01	7.57E-02	pCi/g		*(7.2)*	11/19/02 05:50 p		285.7	E901.1
							3.16E-01	*(10.2)*			g	GER2$1
EUROPIUM-152	**9.35E-02**	U	1.3E-01	1.3E-01	1.89E-01	pCi/g		*0.49*	11/19/02 05:50 p		285.7	E901.1
							4.04E-01	*(1.4)*			g	GER2$1
EUROPIUM-154	**2.36E-02**	U	1.3E-01	1.3E-01	2.30E-01	pCi/g		*0.1*	11/19/02 05:50 p		285.7	E901.1
							3.72E-01	*0.37*			g	GER2$1
EUROPIUM-155	**4.17E-02**	U	1.6E-01	1.6E-01	2.76E-01	pCi/g		*0.15*	11/19/02 05:50 p		285.7	E901.1
							1.57E+01	*0.52*			g	GER2$1

STL Richland
rptSTLRchSample V3.97 A97

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FORM I

SAMPLE RESULTS

Date: 31-Dec-02

Lab Name:	STL Richland	**SDG:**	21408	**Collection Date:**	6/27/2002 10:06:00 AM
Lot-Sample No.:	J2J240255-2	**Report No. :**	21337	**Received Date:**	10/24/2002 11:55:00 AM
Client Sample ID:	9521-0000-009F	**COC No. :**		**Matrix:**	SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
POTASSIUM-40	**1.47E+01**		2.2E+00	2.2E+00	5.31E-01	pCi/g		*(27.7)*	11/19/02 05:50 p		285.7	E901.1
								(13.2)			g	GER2$1
MAGNESIUM-54	**9.57E-05**	U	4.9E-02	4.9E-02	8.71E-02	pCi/g		*0.*	11/19/02 05:50 p		285.7	E901.1
							6.96E-01	*0.*			g	GER2$1
NIOBIUM-94	**-2.21E-02**	U	3.3E-02	3.3E-02	5.41E-02	pCi/g		*-0.41*	11/19/02 05:50 p		285.7	E901.1
							2.85E-01	*-(1.3)*			g	GER2$1
LEAD-212	**7.60E-01**		2.1E-01	2.1E-01	1.06E-01	pCi/g		*(7.2)*	11/19/02 05:50 p		285.7	E901.1
								(7.3)			g	GER2$1
LEAD-214	**7.88E-01**		1.7E-01	1.7E-01	1.34E-01	pCi/g		*(5.9)*	11/19/02 05:50 p		285.7	E901.1
								(9.1)			g	GER2$1
RADIUM-226	**7.33E-01**	U	1.8E-01	1.8E-01	2.56E-01	pCi/g		*(2.9)*	11/19/02 05:50 p		285.7	E901.1
								(8.1)			g	GER2$1
THALLIUM-208	**3.07E-01**	U	8.3E-02	8.3E-02	1.26E-01	pCi/g		*(2.4)*	11/19/02 05:50 p		285.7	E901.1
								(7.4)			g	GER2$1
Batch: 2298415	**Work Order:** FAPEE1AJ			**Report DB ID:** 9FAPEE10								
TRITIUM	**6.74E-02**	U	3.6E-02	3.7E-02	8.44E-02	pCi/g	100.00%	*0.8*	11/13/02 01:23 a		75.0	E906.0
						3.90E-02	1.65E+01	*(3.6)*			g	LSC4
Batch: 2298417	**Work Order:** FAPEE1AC			**Report DB ID:** 9FAPEE10								
TECHNETIUM-99	**-1.68E-01**	U	1.3E-01	2.2E-01	3.20E-01	pCi/g	100.00%	*-0.52*	11/29/02 02:51 p		5.0	RICHRC5078
						1.56E-01	5.04E-01	*-(1.5)*			g	LSC6
Batch: 2298419	**Work Order:** FAPEE1AA			**Report DB ID:** 9FAPEE10								

STL Richland
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V3.97 A97

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FORM I

SAMPLE RESULTS

Date: 31-Dec-02

Lab Name: STL Richland **SDG:** 21408 **Collection Date:** 6/27/2002 10:06:00 AM

Lot-Sample No.: J2J240255-2 **Report No. :** 21337 **Received Date:** 10/24/2002 11:55:00 AM

Client Sample ID: 9521-0000-009F **COC No. :** **Matrix:** SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
CARBON-14	**6.29E-02**	U	5.9E-02	7.4E-02	1.38E-01	pCi/g	100.00%	*0.46*	11/13/02 01:26 p		5.031	RC5022
						6.78E-02	2.26E-01	*(1.7)*			g	LSC3
Batch: 2344266	Work Order: FAPEE2AD			Report DB ID: 9FAPEE20								
STRONTIUM-90	**1.54E-02**	U	2.6E-02	2.7E-02	5.14E-02	pCi/g	52.80%	*0.3*	12/30/02 06:42 a		10.0	CMUD
						2.37E-02	6.00E-02	*(1.1)*			g	GPC4C

Number of Results: 29

Comments:

STL Richland
rptSTLRchSample V3.97 A97

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
J Qual - No U qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM I

SAMPLE RESULTS

Date: 31-Dec-02

Lab Name: STL Richland **SDG:** 21408 **Collection Date:** 6/27/2002 8:41:00 AM

Lot-Sample No.: J2J240255-3 **Report No. :** 21337 **Received Date:** 10/24/2002 11:55:00 AM

Client Sample ID: 9521-0000-013F **COC No. :** **Matrix:** SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2292206	Work Order: FAPEN1AE			Report DB ID: 9FAPEN10								
PLUTONIUM-238	-9.58E-04	U	1.9E-03	1.9E-03	2.29E-02	pCi/g	68.00%	*-0.04*	11/19/02 06:41 p		2.01	RICHRC5010
						4.98E-03	1.18E+00	*-1.*			g	ALP46
PLUTONIUM-239/40	2.39E-02	J	2.1E-02	2.2E-02	1.29E-02	pCi/g	68.00%	*(1.8)*	11/19/02 06:41 p		2.01	RICHRC5010
							1.07E+00	*(2.2)*			g	ALP46
Batch: 2292207	Work Order: FAPEN1AF			Report DB ID: 9FAPEN10								
PLUTONIUM-241	4.44E-01	U	3.3E-01	4.0E-01	7.85E-01	pCi/g	68.00%	*0.57*	11/26/02 10:37 p		2.01	RICHRC5010
						3.81E-01	3.48E+01	*(2.2)*			g	LSC4
Batch: 2292215	Work Order: FAPEN1AK			Report DB ID: 9FAPEN10								
AMERICIUM-241	1.89E-02	J	2.2E-02	2.2E-02	1.71E-02	pCi/g	65.92%	*(1.1)*	11/24/02 11:04 a		2.01	RICHRC5080
							1.03E+00	*(1.7)*			g	ALP129
CURIUM-242	0.00E+00	U	0.0E+00	2.9E-02	3.23E-02	pCi/g	65.92%	*0.*	11/24/02 11:04 a		2.01	RICHRC5080
								0.			g	ALP129
CURIUM-243/244	0.00E+00	U	0.0E+00	1.6E-02	1.73E-02	pCi/g	65.92%	*0.*	11/24/02 11:04 a		2.01	RICHRC5080
							1.16E+00	*0.*			g	ALP129
Batch: 2298407	Work Order: FAPEN1AG			Report DB ID: 9FAPEN10								
NICKEL-63	1.42E-02	U	3.0E+00	4.6E+00	7.36E+00	pCi/g	92.50%	*0.*	12/3/02 01:18 a		0.2543	RC5069
						3.57E+00	2.89E+01	*0.01*			g	LSC3
Batch: 2298409	Work Order: FAPEN1AH			Report DB ID: 9FAPEN10								
IRON-55	-1.39E+01	U		5.6E+00	1.07E+01	pCi/g	139.16%	*-(1.3)*	12/3/02 09:11 a		0.2543	FBXZ
						5.05E+00	1.10E+02	*-(4.9)*			g	LSC7

STL Richland
rptSTLRchSample V3.97 A97

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
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FORM I

SAMPLE RESULTS

Date: 31-Dec-02

Lab Name: STL Richland **SDG:** 21408 **Collection Date:** 6/27/2002 8:41:00 AM

Lot-Sample No.: J2J240255-3 **Report No. :** 21337 **Received Date:** 10/24/2002 11:55:00 AM

Client Sample ID: 9521-0000-013F **COC No. :** **Matrix:** SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2298411	Work Order: FAPEN1AL			Report DB ID: 9FAPEN10								
ACTINIUM-228	**8.72E-01**		2.7E-01	2.7E-01	2.05E-01	pCi/g		*(4.3)*	11/19/02 05:51 p		314.1	E901.1
								(6.5)			g	GER7$1
AG-108M	**1.37E-02**	U	3.0E-02	3.0E-02	5.34E-02	pCi/g		*0.26*	11/19/02 05:51 p		314.1	E901.1
								0.93			g	GER7$1
AMERICIUM-241	**-2.07E-02**	U	1.1E-01	1.1E-01	1.95E-01	pCi/g		*-0.11*	11/19/02 05:51 p		314.1	E901.1
								-0.36			g	GER7$1
BISMUTH-214	**9.50E-01**		2.1E-01	2.1E-01	1.04E-01	pCi/g		*(9.1)*	11/19/02 05:51 p		314.1	E901.1
								(9.1)			g	GER7$1
COBALT-60	**-2.71E-02**	U	4.1E-02	4.1E-02	6.76E-02	pCi/g		*-0.4*	11/19/02 05:51 p		314.1	E901.1
							1.52E-01	*-(1.3)*			g	GER7$1
CESIUM-134	**4.41E-02**	U	4.4E-02	4.4E-02	8.40E-02	pCi/g		*0.52*	11/19/02 05:51 p		314.1	E901.1
							1.87E-01	*(2.)*			g	GER7$1
CESIUM-137	**9.13E-01**		1.5E-01	1.5E-01	6.19E-02	pCi/g		*(14.8)*	11/19/02 05:51 p		314.1	E901.1
							3.16E-01	*(12.3)*			g	GER7$1
EUROPIUM-152	**-5.79E-02**	U	9.5E-02	9.5E-02	1.56E-01	pCi/g		*-0.37*	11/19/02 05:51 p		314.1	E901.1
							4.04E-01	*-(1.2)*			g	GER7$1
EUROPIUM-154	**9.79E-03**	U	9.4E-02	9.4E-02	1.75E-01	pCi/g		*0.06*	11/19/02 05:51 p		314.1	E901.1
							3.72E-01	*0.21*			g	GER7$1
EUROPIUM-155	**3.72E-02**	U	9.9E-02	9.9E-02	1.69E-01	pCi/g		*0.22*	11/19/02 05:51 p		314.1	E901.1
							1.57E+01	*0.75*			g	GER7$1

STL Richland
rptSTLRchSample V3.97 A97

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
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FORM I

SAMPLE RESULTS

Date: 31-Dec-02

Lab Name: STL Richland **SDG:** 21408 **Collection Date:** 6/27/2002 8:41:00 AM

Lot-Sample No.: J2J240255-3 **Report No. :** 21337 **Received Date:** 10/24/2002 11:55:00 AM

Client Sample ID: 9521-0000-013F **COC No. :** **Matrix:** SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
POTASSIUM-40	**1.37E+01**		2.1E+00	2.1E+00	4.26E-01	pCi/g		*(32.2)*	11/19/02 05:51 p		314.1	E901.1
								(13.1)			g	GER7$1
MAGNESIUM-54	**5.27E-02**	U	3.9E-02	3.9E-02	7.94E-02	pCi/g		*0.66*	11/19/02 05:51 p		314.1	E901.1
							6.96E-01	*(2.7)*			g	GER7$1
NIOBIUM-94	**-5.96E-04**	U	3.0E-02	3.0E-02	5.46E-02	pCi/g		*-0.01*	11/19/02 05:51 p		314.1	E901.1
							2.85E-01	*-0.04*			g	GER7$1
LEAD-212	**1.09E+00**		2.0E-01	2.0E-01	8.86E-02	pCi/g		*(12.3)*	11/19/02 05:51 p		314.1	E901.1
								(11.1)			g	GER7$1
LEAD-214	**1.08E+00**		2.0E-01	2.0E-01	1.13E-01	pCi/g		*(9.6)*	11/19/02 05:51 p		314.1	E901.1
								(10.6)			g	GER7$1
RADIUM-226	**9.50E-01**		2.1E-01	2.1E-01	1.04E-01	pCi/g		*(9.1)*	11/19/02 05:51 p		314.1	E901.1
								(9.1)			g	GER7$1
THALLIUM-208	**2.71E-01**		8.7E-02	8.7E-02	6.00E-02	pCi/g		*(4.5)*	11/19/02 05:51 p		314.1	E901.1
								(6.2)			g	GER7$1
Batch: 2298415	Work Order: FAPEN1AJ			Report DB ID: 9FAPEN10								
TRITIUM	**4.56E-02**	J	1.7E-02	1.8E-02	3.86E-02	pCi/g	100.00%	*(1.2)*	11/13/02 02:06 a		100.5	E906.0
						1.78E-02	1.65E+01	*(5.1)*			g	LSC4
Batch: 2298417	Work Order: FAPEN1AC			Report DB ID: 9FAPEN10								
TECHNETIUM-99	**-6.40E-02**	U	1.3E-01	2.2E-01	3.19E-01	pCi/g	100.00%	*-0.2*	11/29/02 04:55 p		5.0	RICHRC5078
						1.55E-01	5.04E-01	*-0.58*			g	LSC6
Batch: 2298419	Work Order: FAPEN1AA			Report DB ID: 9FAPEN10								

STL Richland
rptSTLRchSample
V3.97 A97

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
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FORM I

SAMPLE RESULTS

Date: 31-Dec-02

Lab Name: STL Richland | **SDG:** 21408 | **Collection Date:** 6/27/2002 8:41:00 AM

Lot-Sample No.: J2J240255-3 | **Report No. :** 21337 | **Received Date:** 10/24/2002 11:55:00 AM

Client Sample ID: 9521-0000-013F | **COC No. :** | **Matrix:** SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
CARBON-14	**7.80E-04**	U	5.8E-02	7.3E-02	1.39E-01	pCi/g	100.00%	*0.01*	11/13/02 04:49 p		5.013	RC5022
						6.80E-02	2.26E-01	*0.02*			g	LSC3
Batch: 2344266	Work Order: FAPEN2AD			Report DB ID: 9FAPEN20								
STRONTIUM-90	**8.59E-02**		3.2E-02	3.7E-02	4.98E-02	pCi/g	56.57%	*(1.7)*	12/30/02 06:42 a		10.01	CMUD
						2.30E-02	6.00E-02	*(4.6)*			g	GPC4D

Number of Results: 29

Comments:

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
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FORM I

SAMPLE RESULTS

Date: 31-Dec-02

Lab Name:	STL Richland	**SDG:**	21408	**Collection Date:**	6/26/2002 3:05:00 PM
Lot-Sample No.:	J2J240255-4	**Report No. :**	21337	**Received Date:**	10/24/2002 11:55:00 AM
Client Sample ID:	9521-0000-015F	**COC No. :**		**Matrix:**	SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2292206	**Work Order: FAPER1AE**			**Report DB ID: 9FAPER10**								
PLUTONIUM-238	**0.00E+00**	U	0.0E+00	9.9E-03	1.10E-02	pCi/g	80.99%	*0.*	11/19/02 06:41 p		2.02	RICHRC5010
							1.18E+00	*0.*			g	ALP47
PLUTONIUM-239/40	**0.00E+00**	U	0.0E+00	9.9E-03	1.09E-02	pCi/g	80.99%	*0.*	11/19/02 06:41 p		2.02	RICHRC5010
							1.07E+00	*0.*			g	ALP47
Batch: 2292207	**Work Order: FAPER1AF**			**Report DB ID: 9FAPER10**								
PLUTONIUM-241	**2.83E-01**	U	2.8E-01	3.3E-01	6.87E-01	pCi/g	81.00%	*0.41*	11/27/02 02:00 a		2.02	RICHRC5010
						3.34E-01	3.48E+01	*(1.7)*			g	LSC4
Batch: 2292215	**Work Order: FAPER1AK**			**Report DB ID: 9FAPER10**								
AMERICIUM-241	**3.83E-03**	U	9.8E-03	9.8E-03	2.29E-02	pCi/g	86.27%	*0.17*	11/24/02 11:05 a		2.01	RICHRC5080
						4.98E-03	1.03E+00	*0.78*			g	ALP130
CURIUM-242	**9.09E-03**	U	1.8E-02	1.8E-02	2.46E-02	pCi/g	86.27%	*0.37*	11/24/02 11:05 a		2.01	RICHRC5080
								1.			g	ALP130
CURIUM-243/244	**0.00E+00**	U	0.0E+00	1.2E-02	1.32E-02	pCi/g	86.27%	*0.*	11/24/02 11:05 a		2.01	RICHRC5080
							1.16E+00	*0.*			g	ALP130
Batch: 2298407	**Work Order: FAPER1AG**			**Report DB ID: 9FAPER10**								
NICKEL-63	**-2.91E+00**	U	3.1E+00	4.8E+00	7.86E+00	pCi/g	86.60%	*-0.37*	12/3/02 03:00 a		0.254	RC5069
						3.81E+00	2.89E+01	*-(1.2)*			g	LSC3
Batch: 2298409	**Work Order: FAPER1AH**			**Report DB ID: 9FAPER10**								
IRON-55	**-1.20E+00**	U		1.0E+01	3.15E+01	pCi/g	116.15%	*-0.04*	12/3/02 09:11 a		0.254	FBXZ
						1.48E+01	1.10E+02	*-0.24*			g	LSC7

STL Richland
rptSTLRchSample V3.97 A97

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FORM I

SAMPLE RESULTS

Date: 31-Dec-02

Lab Name: STL Richland **SDG:** 21408 **Collection Date:** 6/26/2002 3:05:00 PM

Lot-Sample No.: J2J240255-4 **Report No. :** 21337 **Received Date:** 10/24/2002 11:55:00 AM

Client Sample ID: 9521-0000-015F **COC No. :** **Matrix:** SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2298411	Work Order: FAPER1AL			Report DB ID: 9FAPER10								
ACTINIUM-228	**9.31E-01**		2.3E-01	2.3E-01	1.52E-01	pCi/g		*(6.1)*	11/19/02 05:52 p		322.5	E901.1
								(7.9)			g	GER8$1
AG-108M	**1.25E-02**	U	2.3E-02	2.3E-02	4.14E-02	pCi/g		*0.3*	11/19/02 05:52 p		322.5	E901.1
								(1.1)			g	GER8$1
AMERICIUM-241	**5.41E-02**	U	6.5E-02	6.5E-02	9.70E-02	pCi/g		*0.56*	11/19/02 05:52 p		322.5	E901.1
								(1.7)			g	GER8$1
BISMUTH-214	**8.64E-01**		1.6E-01	1.6E-01	7.38E-02	pCi/g		*(11.7)*	11/19/02 05:52 p		322.5	E901.1
								(10.8)			g	GER8$1
COBALT-60	**2.11E-03**	U	3.2E-02	3.2E-02	5.96E-02	pCi/g		*0.04*	11/19/02 05:52 p		322.5	E901.1
							1.52E-01	*0.13*			g	GER8$1
CESIUM-134	**4.90E-02**	U	3.9E-02	3.9E-02	7.60E-02	pCi/g		*0.65*	11/19/02 05:52 p		322.5	E901.1
							1.87E-01	*(2.5)*			g	GER8$1
CESIUM-137	**2.09E-01**	J	6.9E-02	6.9E-02	5.60E-02	pCi/g		*(3.7)*	11/19/02 05:52 p		322.5	E901.1
							3.16E-01	*(6.1)*			g	GER8$1
EUROPIUM-152	**8.95E-03**	U	7.6E-02	7.6E-02	1.29E-01	pCi/g		*0.07*	11/19/02 05:52 p		322.5	E901.1
							4.04E-01	*0.24*			g	GER8$1
EUROPIUM-154	**-5.34E-02**	U	8.5E-02	8.5E-02	1.41E-01	pCi/g		*-0.38*	11/19/02 05:52 p		322.5	E901.1
							3.72E-01	*-(1.3)*			g	GER8$1
EUROPIUM-155	**2.08E-02**	U	7.9E-02	7.9E-02	1.37E-01	pCi/g		*0.15*	11/19/02 05:52 p		322.5	E901.1
							1.57E+01	*0.53*			g	GER8$1

STL Richland
rptSTLRchSample V3.97 A97

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FORM I

SAMPLE RESULTS

Date: 31-Dec-02

Lab Name: STL Richland **SDG:** 21408 **Collection Date:** 6/26/2002 3:05:00 PM

Lot-Sample No.: J2J240255-4 **Report No. :** 21337 **Received Date:** 10/24/2002 11:55:00 AM

Client Sample ID: 9521-0000-015F **COC No. :** **Matrix:** SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
POTASSIUM-40	**1.21E+01**		1.8E+00	1.8E+00	4.17E-01	pCi/g		*(28.9)*	11/19/02 05:52 p		322.5	E901.1
								(13.4)			g	GER8$1
MAGNESIUM-54	**-1.63E-02**	U	3.7E-02	3.7E-02	6.18E-02	pCi/g		*-0.26*	11/19/02 05:52 p		322.5	E901.1
							6.96E-01	*-0.89*			g	GER8$1
NIOBIUM-94	**3.22E-03**	U	2.6E-02	2.6E-02	4.76E-02	pCi/g		*0.07*	11/19/02 05:52 p		322.5	E901.1
							2.85E-01	*0.24*			g	GER8$1
LEAD-212	**7.50E-01**		1.6E-01	1.6E-01	1.18E-01	pCi/g		*(6.4)*	11/19/02 05:52 p		322.5	E901.1
								(9.3)			g	GER8$1
LEAD-214	**7.22E-01**		1.5E-01	1.5E-01	8.90E-02	pCi/g		*(8.1)*	11/19/02 05:52 p		322.5	E901.1
								(9.9)			g	GER8$1
RADIUM-226	**8.64E-01**		1.6E-01	1.6E-01	7.38E-02	pCi/g		*(11.7)*	11/19/02 05:52 p		322.5	E901.1
								(10.8)			g	GER8$1
THALLIUM-208	**2.63E-01**		6.0E-02	6.0E-02	4.88E-02	pCi/g		*(5.4)*	11/19/02 05:52 p		322.5	E901.1
								(8.8)			g	GER8$1
Batch: 2298415	Work Order: FAPER1AJ			Report DB ID: 9FAPER10								
TRITIUM	**5.02E-02**	U	3.2E-02	3.4E-02	8.41E-02	pCi/g	100.00%	*0.6*	11/13/02 02:48 a		75.2	E906.0
						3.89E-02	1.65E+01	*(3.)*			g	LSC4
Batch: 2298417	Work Order: FAPER1AC			Report DB ID: 9FAPER10								
TECHNETIUM-99	**-7.44E-02**	U	1.3E-01	2.2E-01	3.18E-01	pCi/g	100.00%	*-0.23*	11/29/02 07:00 p		5.0	RICHRC5078
						1.55E-01	5.04E-01	*-0.67*			g	LSC6
Batch: 2298419	Work Order: FAPER1AA			Report DB ID: 9FAPER10								

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MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
J Qual - No U qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM I

SAMPLE RESULTS

Date: 31-Dec-02

Lab Name:	STL Richland	**SDG:**	21408	**Collection Date:**	6/26/2002 3:05:00 PM
Lot-Sample No.:	J2J240255-4	**Report No. :**	21337	**Received Date:**	10/24/2002 11:55:00 AM
Client Sample ID:	9521-0000-015F	**COC No. :**		**Matrix:**	SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
CARBON-14	**1.37E-02**	U	5.9E-02	7.3E-02	1.39E-01	pCi/g	100.00%	*0.1*	11/13/02 08:11 p		5.002	RC5022
						6.81E-02	2.26E-01	*0.37*			g	LSC3
Batch: 2325279	Work Order: FAPER1AD			Report DB ID: 9FAPER10								
STRONTIUM-90	**8.73E-03**	U	5.7E-02	5.7E-02	1.12E-01	pCi/g	33.81%	*0.08*	12/8/02 10:30 a		10.0	CMUD
						5.31E-02	6.00E-02	*0.3*			g	GPC6B

Number of Results: 29

Comments:

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
J Qual - No U qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM II

Date: 31-Dec-02

DUPLICATE RESULTS

Lab Name:	STL Richland	**SDG:**	21408	**Collection Date:**	6/26/2002 2:20:00 PM
Lot-Sample No.:	J2J240255-1	**Report No. :**	21337	**Received Date:**	10/24/2002 11:55:00 AM
Client Sample ID:	9521-0000-008F DUP	**COC No. :**		**Matrix:**	SOIL

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2298407	**Work Order:** FAPD21AN			**Report DB ID:** FAPD21NR		**Orig Sa DB ID:** 9FAPD210						
NICKEL-63	-5.68E-01	U	2.6E+00	4.0E+00	6.34E+00	pCi/g	92.10%	-0.09	12/2/02 08:11 p		0.2553	RC5069
	2.47E-01	U RER	0.3			2.89E+01		-0.29			g	LSC3
Batch: 2298409	**Work Order:** FAPD21AQ			**Report DB ID:** FAPD21QR		**Orig Sa DB ID:** 9FAPD210						
IRON-55	-2.60E+00	U		9.3E+00	3.10E+01	pCi/g	126.78%	-0.08	12/3/02 09:11 a		0.2553	FBXZ
	-1.27E+01	U RER	1.7			1.10E+02		-0.56			g	LSC7
Batch: 2298415	**Work Order:** FAPD21AT			**Report DB ID:** FAPD21TR		**Orig Sa DB ID:** 9FAPD210						
TRITIUM	5.47E-02	J	2.4E-02	2.5E-02	5.28E-02	pCi/g	100.00%	(1.)	11/13/02 12:41 a		100.4	E906.0
	4.27E-02	U RER	0.7			1.65E+01		(4.4)			g	LSC4

Number of Results: 3

Comments:

RER - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.

J Qual - No U qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.

U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM II

Date: 31-Dec-02

DUPLICATE RESULTS

Lab Name:	STL Richland	**SDG:**	21408	**Collection Date:**	6/27/2002 10:06:00 AM
Lot-Sample No.:	J2J240255-2	**Report No. :**	21337	**Received Date:**	10/24/2002 11:55:00 AM
Client Sample ID:	9521-0000-009F DUP	**COC No. :**		**Matrix:**	SOIL

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2298417	Work Order: FAPEE1AR			Report DB ID: FAPEE1RR		Orig Sa DB ID: 9FAPEE10						
TECHNETIUM-99	-8.20E-02	U	1.3E-01	2.2E-01	3.18E-01	pCi/g	100.00%	-0.26	11/29/02 03:53 p		5.0	RICHRC5078
	-1.68E-01	U RER	0.6			5.04E-01		-0.74			g	LSC6

Number of Results: 1

Comments:

STL Richland
rptSTLRchDupV3.9 7 A97

RER - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.
MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM II

Date: 31-Dec-02

DUPLICATE RESULTS

Lab Name: STL Richland **SDG:** 21408 **Collection Date:** 6/26/2002 3:05:00 PM

Lot-Sample No.: J2J240255-4 **Report No. :** 21337 **Received Date:** 10/24/2002 11:55:00 AM

Client Sample ID: 9521-0000-015F DUP **COC No. :** **Matrix:** SOIL

Parameter	Result, Orig Rst	Qual		Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2298411	Work Order: FAPER1AP			Report DB ID: FAPER1PR			Orig Sa DB ID: 9FAPER10						
ACTINIUM-228	7.53E-01			2.5E-01	2.5E-01	1.80E-01	pCi/g		(4.2)	11/19/02 07:38 p		322.0	E901.1
	9.31E-01		RER	1.0					(6.1)			g	GER2$1
AG-108M	-1.30E-02	U		3.1E-02	3.1E-02	5.11E-02	pCi/g		-0.25	11/19/02 07:38 p		322.0	E901.1
	1.25E-02	U	RER	1.3					-0.85			g	GER2$1
AMERICIUM-241	-3.08E-01	U		3.5E-01	3.5E-01	5.73E-01	pCi/g		-0.54	11/19/02 07:38 p		322.0	E901.1
	5.41E-02	U	RER	2.0					-(1.8)			g	GER2$1
BISMUTH-214	6.91E-01	U		1.6E-01	1.6E-01	2.29E-01	pCi/g		(3.)	11/19/02 07:38 p		322.0	E901.1
	8.64E-01	U	RER	1.5					(8.6)			g	GER2$1
COBALT-60	-1.17E-02	U		3.5E-02	3.5E-02	6.15E-02	pCi/g		-0.19	11/19/02 07:38 p		322.0	E901.1
	2.11E-03	U	RER	0.6			1.52E-01		-0.66			g	GER2$1
CESIUM-134	5.53E-02	U		4.3E-02	4.3E-02	8.35E-02	pCi/g		0.66	11/19/02 07:38 p		322.0	E901.1
	4.90E-02	U	RER	0.2			1.87E-01		(2.6)			g	GER2$1
CESIUM-137	2.01E-01	J		6.2E-02	6.2E-02	6.13E-02	pCi/g		(3.3)	11/19/02 07:38 p		322.0	E901.1
	2.09E-01	J	RER	0.2			3.16E-01		(6.4)			g	GER2$1
EUROPIUM-152	-9.01E-02	U		1.3E-01	1.3E-01	1.48E-01	pCi/g		-0.61	11/19/02 07:38 p		322.0	E901.1
	8.95E-03	U	RER	1.3			4.04E-01		-(1.4)			g	GER2$1
EUROPIUM-154	4.00E-02	U		1.2E-01	1.2E-01	2.13E-01	pCi/g		0.19	11/19/02 07:38 p		322.0	E901.1
	-5.34E-02	U	RER	1.3			3.72E-01		0.69			g	GER2$1
EUROPIUM-155	6.34E-02	U		1.5E-01	1.5E-01	2.57E-01	pCi/g		0.25	11/19/02 07:38 p		322.0	E901.1
	2.08E-02	U	RER	0.5			1.57E+01		0.85			g	GER2$1
POTASSIUM-40	1.22E+01			1.9E+00	1.9E+00	5.48E-01	pCi/g		(22.3)	11/19/02 07:38 p		322.0	E901.1
	1.21E+01		RER	0.1					(12.8)			g	GER2$1

STL Richland
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RER - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.
MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
J Qual - No U qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM II

Date: 31-Dec-02

DUPLICATE RESULTS

Lab Name: STL Richland SDG: 21408 Collection Date: 6/26/2002 3:05:00 PM

Lot-Sample No.: J2J240255-4 Report No. : 21337 Received Date: 10/24/2002 11:55:00 AM

Client Sample ID: 9521-0000-015F DUP COC No. : Matrix: SOIL

Parameter	Result, Orig Rst	Qual		Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
MAGNESIUM-54	-2.38E-02	U		4.2E-02	4.2E-02	6.92E-02	pCi/g		-0.34	11/19/02 07:38 p		322.0	E901.1
	-1.63E-02	U	RER	0.3			6.96E-01		-(1.1)			g	GER2$1
NIOBIUM-94	-3.32E-03	U		3.1E-02	3.1E-02	5.47E-02	pCi/g		-0.06	11/19/02 07:38 p		322.0	E901.1
	3.22E-03	U	RER	0.3			2.85E-01		-0.21			g	GER2$1
LEAD-212	6.93E-01			1.6E-01	1.6E-01	1.10E-01	pCi/g		(6.3)	11/19/02 07:38 p		322.0	E901.1
	7.50E-01		RER	0.5					(8.5)			g	GER2$1
LEAD-214	5.60E-01			1.5E-01	1.5E-01	1.11E-01	pCi/g		(5.)	11/19/02 07:38 p		322.0	E901.1
	7.22E-01		RER	1.5					(7.4)			g	GER2$1
RADIUM-226	6.91E-01			1.6E-01	1.6E-01	1.05E-01	pCi/g		(6.6)	11/19/02 07:38 p		322.0	E901.1
	8.64E-01		RER	1.5					(8.6)			g	GER2$1
THALLIUM-208	3.27E-01			7.9E-02	7.9E-02	5.41E-02	pCi/g		(6.1)	11/19/02 07:38 p		322.0	E901.1
	2.63E-01		RER	1.3					(8.3)			g	GER2$1
Batch: 2298419	Work Order: FAPER1AQ				Report DB ID: FAPER1QR			Orig Sa DB ID: 9FAPER10					
CARBON-14	-2.12E-03	U		5.9E-02	7.3E-02	1.39E-01	pCi/g	100.00%	-0.02	11/13/02 11:34 p		5.003	RC5022
	1.37E-02	U	RER	0.3			2.26E-01		-0.06			g	LSC3

Number of Results: 18

Comments:

STL Richland
rptSTLRchDupV3.9 7 A97

RER - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.

U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM II

Date: 31-Dec-02

DUPLICATE RESULTS

Lab Name:	STL Richland	**SDG:**	21324	**Collection Date:**	7/13/2002 8:13:00 AM
Lot-Sample No.:	J2J160129-5	**Report No. :**	21337	**Received Date:**	10/15/2002 2:30:00 PM
Client Sample ID:	9528-0003-004F DUP	**COC No. :**		**Matrix:**	SOIL

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2292215	Work Order: E94PK1AP			Report DB ID: E94PK1PR		Orig Sa DB ID: 9E94PK10						
AMERICIUM-241	0.00E+00	U	0.0E+00	1.3E-02	1.47E-02	pCi/g	76.04%	0.	11/24/02 07:29 a		2.02	RICHRC5080
	4.79E-03	U RER	0.6			1.03E+00		0.			g	ALP129
CURIUM-242	0.00E+00	U	0.0E+00	2.4E-02	2.60E-02	pCi/g	76.04%	0.	11/24/02 07:29 a		2.02	RICHRC5080
	0.00E+00	U RER	0.0					0.			g	ALP129
CURIUM-243/244	0.00E+00	U	0.0E+00	1.3E-02	1.49E-02	pCi/g	76.04%	0.	11/24/02 07:29 a		2.02	RICHRC5080
	-1.94E-03	U RER	0.3			1.16E+00		0.			g	ALP129

Number of Results: 3

Comments:

STL Richland
rptSTLRchDupV3.9 7 A97

RER - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.
MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM II

Date: 31-Dec-02

DUPLICATE RESULTS

Lab Name: STL Richland **SDG:** 21338 **Collection Date:** 7/17/2002 2:00:00 PM

Lot-Sample No.: J2J170140-1 **Report No. :** 21337 **Received Date:** 10/16/2002 2:15:00 PM

Client Sample ID: 9528-0004-008F DUP **COC No. :** **Matrix:** SOIL

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2292206	Work Order: E969G1AN			Report DB ID: E969G1NR		Orig Sa DB ID: 9E969G10						
PLUTONIUM-238	-8.40E-04	U	1.7E-03	1.7E-03	2.01E-02	pCi/g	78.83%	-0.04	11/19/02 01:24 p		2.01	RICHRC5010
	0.00E+00	U RER	0.2			1.18E+00		-1.			g	ALP128
PLUTONIUM-239/40	3.35E-02	J	2.4E-02	2.4E-02	1.13E-02	pCi/g	78.83%	(3.)	11/19/02 01:24 p		2.01	RICHRC5010
	2.21E-02	J RER	0.7			1.07E+00		(2.8)			g	ALP128
											Alpha Spec Result Sum = 3.3E-02	
Batch: 2292207	Work Order: E969G1AP			Report DB ID: E969G1PR		Orig Sa DB ID: 9E969G10						
PLUTONIUM-241	1.40E-01	U	2.8E-01	3.3E-01	6.72E-01	pCi/g	78.80%	0.21	11/25/02 11:01 p		2.01	RICHRC5010
	3.21E-01	U RER	0.7			3.48E+01		0.84			g	LSC4
											Alpha Spec Result Sum = 3.3E-02	

Number of Results: 3

Comments:

RER - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.

J Qual - No U qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.

U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM II

BLANK RESULTS

Date: 31-Dec-02

Lab Name: STL Richland **SDG:** 21324

Lot-Sample No.: J2J190000-206 **Report No. :** 21337 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2292206	Work Order: FADT91AA			Report DB ID: FADT91AB								
PLUTONIUM-238	0.00E+00	U	0.0E+00	1.2E-02	1.36E-02	pCi/g	65.99%	0.	11/19/02 01:24 p		2.0	RICHRC5010
						1.18E+00		0.			g	ALP130
PLUTONIUM-239/40	5.01E-03	U	1.0E-02	1.0E-02	1.36E-02	pCi/g	65.99%	0.37	11/19/02 01:24 p		2.0	RICHRC5010
						1.07E+00		1.			g	ALP130

Number of Results: 2

Comments:

STL Richland
rptSTLRchBlank
V3.97 A97

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM II

BLANK RESULTS

Date: 31-Dec-02

Lab Name: STL Richland **SDG:** 21324

Lot-Sample No.: J2J190000-207 **Report No. :** 21337 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2292207	Work Order: FADVF1AA			Report DB ID: FADVF1AB								
PLUTONIUM-241	7.18E-01	U	3.5E-01	4.2E-01	8.30E-01	pCi/g	66.00%	0.86	11/26/02 05:45 a		2.0	RICHRC5010
					4.03E-01	3.48E+01		(3.4)			g	LSC4

Number of Results: 1

Comments:

STL Richland
rptSTLRchBlank
V3.97 A97

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for, but the result is less than the Mdc/Mda[Total Uncert or gamma scan software did not identify the nuclide.

FORM II

BLANK RESULTS

Date: 31-Dec-02

Lab Name: STL Richland **SDG:** 21324

Lot-Sample No.: J2J190000-215 **Report No. :** 21337 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2292215	Work Order: FADXD1AA			Report DB ID: FADXD1AB								
AMERICIUM-241	-1.16E-03	U	2.3E-03	2.3E-03	2.77E-02	pCi/g	71.24%	-0.04	11/24/02 11:03 a		2.0	RICHRC5080
					6.02E-03	1.03E+00		-1.			g	ALP45
CURIUM-242	-2.05E-03	U	4.1E-03	4.1E-03	4.90E-02	pCi/g	71.24%	-0.04	11/24/02 11:03 a		2.0	RICHRC5080
					1.06E-02			-1.			g	ALP45
CURIUM-243/244	2.34E-03	U	1.2E-02	1.2E-02	3.70E-02	pCi/g	71.24%	0.06	11/24/02 11:03 a		2.0	RICHRC5080
					1.06E-02	1.16E+00		0.38			g	ALP45

Number of Results: 3

Comments:

STL Richland
rptSTLRchBlank
V3.97 A97

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM II

BLANK RESULTS

Date: 31-Dec-02

Lab Name: STL Richland **SDG:** 21408

Lot-Sample No.: J2J250000-407 **Report No. :** 21337 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2298407	Work Order: FAR561AA			Report DB ID: FAR561AB								
NICKEL-63	1.81E+00	U	2.8E+00	4.3E+00	6.74E+00	pCi/g	88.90%	0.27	12/3/02 04:43 a		0.25	RC5069
					3.27E+00	1.00E+01		0.84			g	LSC3

Number of Results: 1

Comments:

STL Richland
rptSTLRchBlank
V3.97 A97

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM II

BLANK RESULTS

Date: 31-Dec-02

Lab Name: STL Richland SDG: 21408

Lot-Sample No.: J2J250000-409 Report No. : 21337 Matrix: SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2298409	Work Order: FAR6D1AA			Report DB ID: FAR6D1AB								
IRON-55	-1.41E+01	U		1.3E+01	2.87E+01	pCi/g	69.44%	-0.49	12/3/02 09:11 a		0.25	FBXZ
					1.35E+01	1.00E+00		-(2.2)			g	LSC7

Number of Results: 1

Comments:

STL Richland
rptSTLRchBlank
V3.97 A97

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM II

BLANK RESULTS

Date: 31-Dec-02

Lab Name: STL Richland **SDG:** 21408

Lot-Sample No.: J2J250000-410 **Report No. :** 21337 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2298410	Work Order: FAR6F1AA			Report DB ID: FAR6F1AB								
STRONTIUM-90	-1.35E-02	U	1.8E-02	1.8E-02	4.01E-02	pCi/g	69.03%	-0.34	12/25/02 12:14 p		10.0	CMUD
					1.85E-02	6.00E-02		-(1.5)			g	GPC2D

Number of Results: 1

Comments:

STL Richland
rptSTLRchBlank
V3.97 A97

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM II

BLANK RESULTS

Date: 31-Dec-02

Lab Name: STL Richland **SDG:** 21408

Lot-Sample No.: J2J250000-411 **Report No. :** 21337 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2298411	Work Order: FAR6K1AA			Report DB ID: FAR6K1AB								
ACTINIUM-228	-1.67E-02	U	1.1E-01	1.1E-01	2.22E-01	pCi/g		-0.08	11/19/02 07:39 p		200.0	E901.1
								-0.29			g	GER7$1
AG-108M	-1.15E-02	U	2.2E-02	2.2E-02	3.78E-02	pCi/g		-0.3	11/19/02 07:39 p		200.0	E901.1
								-(1.)			g	GER7$1
AMERICIUM-241	-5.68E-02	U	8.0E-02	8.0E-02	1.34E-01	pCi/g		-0.42	11/19/02 07:39 p		200.0	E901.1
								-(1.4)			g	GER7$1
BISMUTH-214	1.83E-02	U	7.2E-02	7.2E-02	1.46E-01	pCi/g		0.13	11/19/02 07:39 p		200.0	E901.1
								0.51			g	GER7$1
COBALT-60	-7.01E-04	U	3.0E-02	3.0E-02	6.01E-02	pCi/g		-0.01	11/19/02 07:39 p		200.0	E901.1
						1.52E-01		-0.05			g	GER7$1
CESIUM-134	1.39E-03	U	3.1E-02	3.1E-02	5.92E-02	pCi/g		0.02	11/19/02 07:39 p		200.0	E901.1
						1.87E-01		0.09			g	GER7$1
CESIUM-137	7.09E-03	U	2.9E-02	2.9E-02	5.73E-02	pCi/g		0.12	11/19/02 07:39 p		200.0	E901.1
						2.00E-01		0.48			g	GER7$1
EUROPIUM-152	-9.67E-03	U	7.8E-02	7.8E-02	1.38E-01	pCi/g		-0.07	11/19/02 07:39 p		200.0	E901.1
						4.04E-01		-0.25			g	GER7$1
EUROPIUM-154	6.91E-03	U	8.9E-02	8.9E-02	1.78E-01	pCi/g		0.04	11/19/02 07:39 p		200.0	E901.1
						3.72E-01		0.15			g	GER7$1
EUROPIUM-155	4.17E-02	U	6.1E-02	6.1E-02	1.14E-01	pCi/g		0.36	11/19/02 07:39 p		200.0	E901.1
						1.57E+00		(1.4)			g	GER7$1
POTASSIUM-40	-1.92E-01	U	6.6E-01	6.6E-01	1.47E+00	pCi/g		-0.13	11/19/02 07:39 p		200.0	E901.1
								-0.58			g	GER7$1
MAGNESIUM-54	-2.28E-02	U	2.8E-02	2.8E-02	4.55E-02	pCi/g		-0.5	11/19/02 07:39 p		200.0	E901.1
						6.96E-01		-(1.6)			g	GER7$1

STL Richland
rptSTLRchBlank
V3.97 A97

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM II

BLANK RESULTS

Date: 31-Dec-02

Lab Name: STL Richland SDG: 21408

Lot-Sample No.: J2J250000-411 Report No. : 21337 Matrix: SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
NIOBIUM-94	-7.43E-03	U	2.7E-02	2.7E-02	5.01E-02	pCi/g		-0.15	11/19/02 07:39 p		200.0	E901.1
						2.85E-01		-0.54			g	GER7$1
LEAD-212	-1.86E-02	U	4.6E-02	4.6E-02	8.24E-02	pCi/g		-0.23	11/19/02 07:39 p		200.0	E901.1
								-0.8			g	GER7$1
LEAD-214	-7.09E-02	U	6.5E-02	6.5E-02	1.09E-01	pCi/g		-0.65	11/19/02 07:39 p		200.0	E901.1
								-(2.2)			g	GER7$1
RADIUM-226	1.81E-02	U	7.2E-02	7.2E-02	1.46E-01	pCi/g		0.12	11/19/02 07:39 p		200.0	E901.1
								0.5			g	GER7$1
THALLIUM-208	7.16E-03	U	3.5E-02	3.5E-02	6.98E-02	pCi/g		0.1	11/19/02 07:39 p		200.0	E901.1
								0.41			g	GER7$1

Number of Results: 17

Comments:

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM II

BLANK RESULTS

Date: 31-Dec-02

Lab Name: STL Richland **SDG:** 21408

Lot-Sample No.: J2J250000-415 **Report No. :** 21337 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2298415	Work Order: FAR6T1AA			Report DB ID: FAR6T1AB								
TRITIUM	-4.84E-02	U	1.1E-01	1.2E-01	2.88E-01	pCi/g	100.00%	-0.17	11/12/02 10:34 p		10.0	E906.0
					1.33E-01	1.65E+00		-0.81			g	LSC4

Number of Results: 1

Comments:

STL Richland
rptSTLRchBlank
V3.97 A97

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM II

BLANK RESULTS

Date: 31-Dec-02

Lab Name: STL Richland SDG: 21408

Lot-Sample No.: J2J250000-417 Report No. : 21337 Matrix: SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2298417	Work Order: FAR631AA			Report DB ID: FAR631AB								
TECHNETIUM-99	-7.91E-02	U	1.3E-01	2.2E-01	3.19E-01	pCi/g	100.00%	-0.25	11/29/02 08:02 p		5.0	RICHRC5078
					1.55E-01	5.04E-01		-0.71			g	LSC6

Number of Results: 1

Comments:

STL Richland
rptSTLRchBlank
V3.97 A97

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM II

BLANK RESULTS

Date: 31-Dec-02

Lab Name: STL Richland **SDG:** 21408

Lot-Sample No.: J2J250000-419 **Report No. :** 21337 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2298419	Work Order: FAR7F1AA			Report DB ID: FAR7F1AB								
CARBON-14	-1.90E-02	U	5.8E-02	7.3E-02	1.39E-01	pCi/g	100.00%	-0.14	11/13/02 03:19 a		5.0	RC5022
					6.82E-02	2.26E-01		-0.52			g	LSC3

Number of Results: 1

Comments:

STL Richland
rptSTLRchBlank
V3.97 A97

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for, but the result is less than the Mdc/Mda/Total Uncert or gamma scan software did not identify the nuclide.

FORM II

BLANK RESULTS

Date: 31-Dec-02

Lab Name: STL Richland **SDG:** 21408

Lot-Sample No.: J2K210000-279 **Report No. :** 21337 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2325279	Work Order:	FDK2R1AA		Report DB ID:	FDK2R1AB							
STRONTIUM-90	-6.65E-04	U	1.8E-02	2.1E-02	4.11E-02	pCi/g	85.81%	-0.02	12/8/02 10:30 a		10.0	CMUD
					1.95E-02			-0.06			g	GPC6C

Number of Results: 1

Comments:

STL Richland
rptSTLRchBlank
V3.97 A97

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM II

BLANK RESULTS

Date: 31-Dec-02

Lab Name: STL Richland **SDG:** 21408

Lot-Sample No.: J2L100000-266 **Report No. :** 21337 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2344266	Work Order: FEHL61AA			Report DB ID: FEHL61AB								
STRONTIUM-90	2.58E-03	U	2.2E-02	2.2E-02	4.20E-02	pCi/g	78.32%	0.06	12/30/02 10:10 a		10.0	CMUD
					1.97E-02	6.00E-02		0.24			g	GPC1A

Number of Results: 1

Comments:

STL Richland
rptSTLRchBlank
V3.97 A97

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM II

Date: 31-Dec-02

LCS RESULTS

Lab Name: STL Richland **SDG:** 21324

Lot-Sample No.: J2J190000-206 **Report No. :** 21337 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 2292206	Work Order: FADT91AC			Report DB ID: FADT91CS									
PLUTONIUM-239/40	4.83E-01		1.0E-01	1.3E-01	1.44E-02	pCi/g	63.89%	4.55E-01	2.3E-02	106.18%	11/19/02 01:24 p	2.0	RICHRC5010
							Rec Limits:	70.	130.	0.1		g	ALP131

Number of Results: 1

Comments:

FORM II

LCS RESULTS

Date: 31-Dec-02

Lab Name: STL Richland **SDG:** 21324

Lot-Sample No.: J2J190000-207 **Report No. :** 21337 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 2292207	Work Order: FADVF1AC			Report DB ID: FADVF1CS									
PLUTONIUM-241	1.99E+01		7.1E-01	1.4E+00	8.78E-01	pCi/g	63.90%	2.30E+01	1.0E+00	86.38%	11/26/02 09:08 a	2.0	RICHRC5010
							Rec Limits:	70.	130.	-0.1		g	LSC4

Number of Results: 1

Comments:

STL Richland Bias - (Result/Expected)-1 as defined by ANSI N13.30.

rptSTLRchLcs
V3.97 A97

FORM II

LCS RESULTS

Date: 31-Dec-02

Lab Name: STL Richland SDG: 21324

Lot-Sample No.: J2J190000-215 Report No. : 21337 Matrix: SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 2292215	Work Order: FADXD1AC			Report DB ID: FADXD1CS									
AMERICIUM-241	4.33E+00		3.5E-01	8.7E-01	3.30E-02	pCi/g	57.34%	4.57E+00	1.5E-01	94.85%	11/24/02 11:04 a	2.0	RICHRC5080
							Rec Limits:	70.	130.	-0.1		g	ALP46

Number of Results: 1

Comments:

STL Richland Bias - (Result/Expected)-1 as defined by ANSI N13.30.

rptSTLRchLcs
V3.97 A97

FORM II

LCS RESULTS

Date: 31-Dec-02

Lab Name: STL Richland **SDG:** 21408

Lot-Sample No.: J2J250000-407 **Report No. :** 21337 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 2298407	Work Order: FAR561AC			Report DB ID: FAR561CS									
NICKEL-63	5.20E+02		9.1E+00	3.7E+01	6.63E+00	pCi/g	90.30%	5.07E+02	1.7E+01	102.55%	12/3/02 06:25 a	0.25	RC5069
							Rec Limits:	70.	130.	0.0		g	LSC3

Number of Results: 1

Comments:

STL Richland Bias - (Result/Expected)-1 as defined by ANSI N13.30.

rptSTLRchLcs
V3.97 A97

FORM II

Date: 31-Dec-02

LCS RESULTS

Lab Name: STL Richland **SDG:** 21408

Lot-Sample No.: J2J250000-409 **Report No. :** 21337 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 2298409	Work Order: FAR6D1AC			Report DB ID: FAR6D1CS									
IRON-55	3.11E+01	U		1.6E+01	3.33E+01	pCi/g	72.59%	5.95E+01	3.2E+00	52.28%	12/3/02 09:11 a	0.25	FBXZ
							Rec Limits:	70.	130.	-0.5		g	LSC7

Number of Results: 1

Comments:

STL Richland
rptSTLRchLcs
V3.97 A97

Bias - (Result/Expected)-1 as defined by ANSI N13.30.
U Qual - Analyzed for, but the result is less than the Mdc/Mda/Total Uncert or gamma scan software did not identify the nuclide.

FORM II

LCS RESULTS

Date: 31-Dec-02

Lab Name: STL Richland **SDG:** 21408

Lot-Sample No.: J2J250000-410 **Report No. :** 21337 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 2298410	Work Order: FAR6F1AC			Report DB ID: FAR6F1CS									
STRONTIUM-90	1.38E+00		9.3E-02	3.0E-01	5.21E-02	pCi/g	52.25%	1.38E+00	2.7E-02	100.34%	12/25/02 12:10 p	10.0	CMUD
							Rec Limits:	70.	130.	0.0		g	GPC3A

Number of Results: 1

Comments:

FORM II

Date: 31-Dec-02

LCS RESULTS

Lab Name: STL Richland **SDG:** 21408

Lot-Sample No.: J2J250000-411 **Report No. :** 21337 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 2298411	Work Order: FAR6K1AC			Report DB ID: FAR6K1CS									
CESIUM-137	1.20E+00		1.8E-01	1.8E-01	4.73E-02	pCi/g		1.02E+00	3.5E-02	117.77%	11/19/02 07:39 p	200.0	E901.1
							Rec Limits:	70.	130.	0.2		g	GER8$1

Number of Results: 1

Comments:

STL Richland **Bias** - (Result/Expected)-1 as defined by ANSI N13.30.

rptSTLRchLcs
V3.97 A97

FORM II

LCS RESULTS

Date: 31-Dec-02

Lab Name: STL Richland **SDG:** 21408

Lot-Sample No.: J2J250000-415 **Report No. :** 21337 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 2298415	Work Order: FAR6T1AC			Report DB ID: FAR6T1CS									
TRITIUM	6.69E+00		3.5E-01	4.1E-01	2.92E-01	pCi/g	100.00%	6.92E+00	2.4E-01	96.57%	11/12/02 11:16 p	10.0	E906.0
							Rec Limits:	70.	130.	0.0		g	LSC4

Number of Results: 1

Comments:

STL Richland Bias - (Result/Expected)-1 as defined by ANSI N13.30.

rptSTLRchLcs
V3.97 A97

FORM II

LCS RESULTS

Date: 31-Dec-02

Lab Name: STL Richland **SDG:** 21408

Lot-Sample No.: J2J250000-417 **Report No. :** 21337 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 2298417	Work Order: FAR631AC			Report DB ID: FAR631CS									
TECHNETIUM-99	1.22E+01		3.1E-01	9.5E-01	3.20E-01	pCi/g	100.00%	1.36E+01	3.0E-01	89.90%	11/29/02 09:04 p	5.0	RICHRC5078
							Rec Limits:	70.	130.	-0.1		g	LSC6

Number of Results: 1

Comments:

FORM II

LCS RESULTS

Date: 31-Dec-02

Lab Name: STL Richland **SDG:** 21408

Lot-Sample No.: J2J250000-419 **Report No. :** 21337 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 2298419	Work Order: FAR7F1AC			Report DB ID: FAR7F1CS									
CARBON-14	2.63E+00		9.3E-02	1.4E-01	1.39E-01	pCi/g	100.00%	2.73E+00	8.9E-02	96.17%	11/13/02 06:41 a	5.0	RC5022
							Rec Limits:	70.	130.	0.0		g	LSC3

Number of Results: 1

Comments:

FORM II

LCS RESULTS

Date: 31-Dec-02

Lab Name: STL Richland **SDG:** 21408

Lot-Sample No.: J2K210000-279 **Report No. :** 21337 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 2325279	Work Order: FDK2R1AC			Report DB ID: FDK2R1CS									
STRONTIUM-90	5.10E-01		4.7E-02	1.2E-01	4.92E-02	pCi/g	82.03%	4.59E-01	9.0E-03	111.14%	12/8/02 01:58 p	10.0	CMUD
							Rec Limits:	70.	130.	0.1		g	GPC6A

Number of Results: 1

Comments:

STL Richland Bias - (Result/Expected)-1 as defined by ANSI N13.30.

rptSTLRchLcs
V3.97 A97

FORM II

LCS RESULTS

Date: 31-Dec-02

Lab Name: STL Richland **SDG:** 21408

Lot-Sample No.: J2L100000-266 **Report No. :** 21337 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 2344266	Work Order: FEHL61AC			Report DB ID: FEHL61CS									
STRONTIUM-90	1.43E+00		8.1E-02	3.0E-01	5.48E-02	pCi/g	68.73%	1.39E+00	2.7E-02	103.20%	12/30/02 10:10 a	10.0	CMUD
							Rec Limits:	70.	130.	0.0		g	GPC1B

Number of Results: 1

Comments:

STL Richland Bias - (Result/Expected)-1 as defined by ANSI N13.30.

rptSTLRchLcs
V3.97 A97

FORM II

Date: 31-Dec-02

MATRIX SPIKE RESULTS

Lab Name: STL Richland **SDG:** 21408

Lot-Sample No.: J2J240255-2 **Report No. :** 21337 **Matrix:** SOIL

Parameter	SpikeResult, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA	Rpt Unit, CRDL	Yield	Rec-overy	Exp-ected	Exp Uncert	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 2298407	Work Order: FAPEE1AM			Report DB ID: FAPEE1MW			Orig Sa DB ID:						
NICKEL-63	4.92E+02		8.5E+00	3.6E+01	6.21E+00	pCi/g	93.80%	99.16%	4.97E+02	1.7E+01	12/2/02 11:36 p	0.256	RC5069
		RER										g	LSC3
Batch: 2298409	Work Order: FAPEE1AP			Report DB ID: FAPEE1PW			Orig Sa DB ID:						
IRON-55	2.53E+01	U		1.6E+01	3.58E+01	pCi/g	133.15%	42.42%	5.97E+01	3.2E+00	12/3/02 09:11 a	0.256	FBXZ
		RER										g	LSC7

Number of Results: 2

Comments:

STL Richland
rptSTLRchMs
V3.97 A97

RER - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.
Bias - (Result/Expected)-1 as defined by ANSI N13.30.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM II

MATRIX SPIKE RESULTS

Date: 31-Dec-02

Lab Name: STL Richland **SDG:** 21408

Lot-Sample No.: J2J240255-3 **Report No. :** 21337 **Matrix:** SOIL

Parameter	SpikeResult, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA	Rpt Unit, CRDL	Yield	Rec-overy	Exp-ected	Exp Uncert	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 2298417	Work Order: FAPEN1AQ			Report DB ID: FAPEN1QW		Orig Sa DB ID:							
TECHNETIUM-99	2.55E+01		4.3E-01	1.8E+00	3.20E-01	pCi/g	100.00%	94.09%	2.71E+01	6.1E-01	11/29/02 05:58 p	5.0	RICHRC5078
		RER										g	LSC6

Number of Results: 1

Comments:

STL Richland
rptSTLRchMs
V3.97 A97

RER - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.
Bias - (Result/Expected)-1 as defined by ANSI N13.30.

Q-47573 J2J240255 Due 11-23
SDG 21408

Bechtel Power Corporation 362 Injun Hollow Road, East Hampton, CT 06424 860-267-2556	**Chain of Custody Form**	**COC No: 00022** **P.O. #: 24265-FSB-S-00552-AC** **Activity Code: 24265-200-034AA3**

Project Name: Haddam Neck Decommissioning

Contact Name: Jack McCarthy
Phone: 1-860-267-2556 ext 3024

Analytical Lab (Name, City, State):
STL Richland,
2800 George Washington Way
Richland, WA 99352 Attention: Barb Gillespi

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

Analyses Requested

Lab Use Only

Comments:

Sample Designation	Date	Time	Media Code	Sample Type Code	Container Size-&Type Code	Number of Containers	Analysis Type 1	Analysis Type 2	Analysis Type 3	Comment, Preservation	Lab Sample ID
9521-0000-008F ✓	6/26/2002	1420	TS	G	BP	1	BFSSALL			N/A	FAPD2
9521-0000-009F ✓	6/27/2002	1006	TS	G	BP	1	BFSSALL			N/A	FAPEE
9521-0000-013F ✓	6/27/2002	0841	TS	G	BP	1	BFSSALL			N/A	FAPEN
9521-0000-015F ✓	6/26/2002	1505	TS	G	BP	1	BFSSALL			N/A	FAPER

NOTES: Multiple individuals performing sampling, refer to Daily Survey Journal sheet for list of team members

1) Sampled By	Date/Time 6/27/02 1520	2) Received By	Date/Time 10-24-02 1155
3) Relinquished By	Date/Time	4) Received By	Date/Time
5) Relinquished By	Date/Time	6) Received By	Date/Time

Samples Shipped Via:
☒ Fed Ex
☐ UPS
☐ Hand
☐ Other

Bill of Lading #

Internal Container Temp.: ____ Deg. C
Custody Sealed? Y☐ N☐
Custody Seal Intact? Y☐ N☐

Media Code	WG: Ground Water, WF: Surface Water, RW: River Water, WE: Estuary Water, WS: Sea Water, EW: Effluent Water, TS: Soil, SE: Sediment, AS: Asphalt, TG: Vegetation, CT: Concrete, OT: Other
Sample Type Code	G: Grab, C: Composite, CR: Core, D: Duplicate, S: Split, FB: Field Blank, RB: Rinsate Blank, MSB: Matrix Spike Dup. OT: Other
Container Type	BP: Plastic Bag, BC: Cloth Bag, P: Plastic, SC: Steel Can, G: Glass, A: Amber glass, V: Vial, 1LM: 1 liter marinelli; OT: Other

MATRIX OF REQUIRED ANALYSES AND DETECTION SENSITIVITIES

Column 1	Column 2	Column 3	Column 4 BFSSGAM	Column 5 BFSSALL
Radionuclide	Analyses	Soil MDC (pCi/g)	Required analysis?	Required analysis ?
Ac-228	(GEA)	N/A	YES	YES
Ag-108m	(GEA)	2.86E-01	YES	YES
Am-241	(GEA)	1.03E+00	YES	YES
Am-241	(AEA)	1.03E+00		YES
Bi-212	(GEA)	N/A	YES	YES
Bi-214	(GEA)	N/A	YES	YES
C-14	(Liquid Scintillation)	2.26E-01		YES
Cm-243/244	(AEA)	1.16E+00		YES
Co-60	(GEA)	1.52E-01	YES	YES
Cs-134	(GEA)	1.87E-01	YES	YES
Cs-137	(GEA)	3.16E-01	YES	YES
Eu-152	(GEA)	4.04E-01	YES	YES
Eu-154	(GEA)	3.72E-01	YES	YES
Eu-155	(GEA)	1.57E+01	YES	YES
Fe-55		1.10E+03		YES
H-3	(Liquid Scintillation)	1.65E+01		YES
K-40	(GEA)	N/A	YES	YES
Mn-54	(GEA)	6.96E-01	YES	YES
Nb-94	(GEA)	2.85E-01	YES	YES
Ni-63	(Liquid Scintillation)	2.89E+01		YES
Pb-212	(GEA)	N/A	YES	YES
Pb-214	(GEA)	N/A	YES	YES
Pu-238	(AEA)	1.18E+00		YES
Pu-239/240	(AEA)	1.07E+00		YES
Pu-241	(Liquid Scintillation)	3.48E+01		YES
Ra-226	(GEA)	N/A	YES	YES
Sr-90	(GPC)	6.20E-02		YES
Tc-99	(Liquid Scintillation)	5.04E-01		YES
Tl-208	(GEA)	N/A	YES	YES

****
26-JUN-2002 09:16:01.00

CONNECTICUT YANKEE
HADDAM NECK STATION
****

SAMPLE TITLE : - SOIL SAMPLE: 9521-0000-016FM
REASON FOR ANALYSIS: Site Characterization
SAMPLE ID : 020626003 * SAMPLE GEOMETRY : 1LMARSAND
SAMPLE TIME : 25-JUN-2002 14:55 * GEO EFFICIENCY DATE: 1-JUL-1998
SAMPLE TYPE : DIRT/SEDIMENT * SAMPLE QUANTITY : 1.75400E+03 GM
****

DETECTOR : DET 5 * LIBRARY : FSS_DIRT
LAST ENERGY CAL : 26-JUN-2002 07:57 * ENERGY TOLERANCE: 1.00000
KEV/CHANNEL : 5.00770E-01 * HALF LIFE RATIO : 9.00000
START CHANNEL : 100 * END CHANNEL : 4096
ACQ DATE & TIME : 26-JUN-2002 08:59 * DEADTIME (%) : 0.1%
PRESET LIVE TIME : 0 00:16:40 * SENSITIVITY : 5.00000
ELAPSED REAL TIME : 1000.5 Secs * GAUSSIAN SEN : 10.00000
ELAPSED LIVE TIME : 1000.0 Secs * CORRECTION FACTOR: 1.00000E+06
DECAYED TO 0 DAYS HOURS
FILE IDENT : CAS$DISK:[NEU.SAMPLE.RP.NEW]020626003_ADC5_DIRTSEDIMENT.CNF;1

****
ANALYSES : PEAK V16.8 NID V3.2 MINACT V2.8 WTMEAN V1.8
****

Collected by : JOHNSON
REVIEWED BY : _____
COMMENTS :

****

Post-NID Peak Search Report

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides
0	63.20	91	232	1.03	126.57	123	7	29.8		TH-234
1	74.85	194	222	0.96	149.83	143	16	14.2	1.85E+00	PB-212
										PB-214
1	77.03	283	219	0.94	154.18	143	16	10.4		PB-214
										PB-212
0	87.27	94	176	1.18	174.64	172	6	24.6		PB-212
4	89.78	82	105	0.96	179.65	178	17	20.4	1.31E+00	
4	92.68	119	197	1.33	185.44	178	17	22.7		
0	128.48	54	169	0.82	256.93	253	9	45.5		
0	186.12	71	163	0.93	372.09	368	10	35.9		RA-226
0	209.22	70	103	1.10	418.22	414	9	28.8		AC-228
0	238.55	354	141	1.03	476.81	473	8	7.9		PB-212
0	241.52	59	84	2.32	482.74	481	6	28.5		PB-214
0	270.86	52	97	1.44	541.36	536	13	41.2		AC-228
0	295.30	154	75	1.24	590.19	585	11	13.8		PB-214
0	338.11	67	85	0.78	675.72	672	9	27.4		AC-228
0	351.92	212	87	1.15	703.31	696	14	11.6		PB-214
0	463.20	32	30	1.03	925.69	921	9	35.8		AC-228
0	511.20	53	39	2.19	1021.61	1015	13	27.7		

Sample ID : 020626003 Acquisition date : 26-JUN-2002 08:59:02

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides
0	583.19	151	35	1.18	1165.51	1159	14	11.7		TL-208
0	609.34	204	24	1.48	1217.79	1212	14	8.7		BI-214
0	727.11	34	6	1.50	1453.22	1448	9	22.1		BI-212
0	861.06	27	13	2.99	1721.07	1714	13	33.6		TL-208
0	911.04	96	20	0.94	1821.02	1813	16	14.6		AC-228
0	968.96	54	15	2.03	1936.87	1932	10	19.0		AC-228
0	1120.42	48	21	1.68	2239.85	2234	12	24.0		BI-214
0	1377.23	22	0	1.58	2753.77	2749	9	21.3		
0	1460.55	434	4	1.65	2920.56	2912	15	4.9		K-40
0	1764.02	32	3	2.57	3528.22	3522	12	20.7		BI-214

Sample ID : 020626003 Acquisition date : 26-JUN-2002 08:59:02

---- Identified Nuclides ----

Nuclide	Activity (pCi/GM)	Act error	MDA (pCi/GM)	MDA error	Act/MDA
K-40	7.970E+00	5.404E-01	1.323E-01	6.196E-03	60.261
TL-208	1.676E-01	2.035E-02	8.828E-03	4.762E-04	18.981
BI-212	3.132E-01	7.138E-02	7.818E-02	4.252E-03	4.006
PB-212	3.645E-01	3.197E-02	3.718E-02	1.881E-03	9.804
BI-214	4.295E-01	3.716E-02	2.799E-02	1.533E-03	15.341
PB-214	3.646E-01	3.320E-02	3.500E-02	1.678E-03	10.418
RA-226	8.610E-01	3.121E-01	4.002E-01	1.995E-02	2.152
AC-228	4.569E-01	4.490E-02	6.624E-02	2.986E-03	6.897
TH-234	8.902E-01	2.780E-01	3.662E-01	3.474E-02	2.431

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GM)	K.L. Ided	Act error	MDA (pCi/GM)	MDA error	Act/MDA
BE-7	-4.399E-02		3.889E-02	1.205E-01	5.986E-03	-0.365
MN-54	-1.218E-03		4.205E-03	1.755E-02	8.653E-04	-0.069
CO-60	1.011E-02		6.460E-03	3.068E-02	1.427E-03	0.329
NB-94	5.157E-03		4.004E-03	1.952E-02	9.160E-04	0.264
RU-106	-1.101E-01		5.082E-02	1.219E-01	6.716E-03	-0.903
AG-108M	1.233E-03		4.885E-03	1.802E-02	9.890E-04	0.068
AG-110M	-6.296E-03		4.192E-03	1.118E-02	6.254E-04	-0.563
SB-125	2.785E-02		1.351E-02	5.664E-02	2.671E-03	0.492
CS-134	1.344E-03		4.110E-03	1.556E-02	8.500E-04	0.086
CS-137	6.785E-03		6.184E-03	2.421E-02	1.357E-03	0.280
EU-152	6.008E-02		2.936E-02	1.489E-01	6.965E-03	0.404
EU-154	9.410E-03		1.312E-02	6.294E-02	3.294E-03	0.150
EU-155	1.738E-02		1.533E-02	5.854E-02	2.733E-03	0.297
RA-223	6.330E-02		2.607E-02	1.068E-01	5.400E-03	0.593
TH-228	4.408E-01		3.432E-01	1.289E+00	6.248E-02	0.342
PA-234	-7.036E-04		8.422E-03	3.042E-02	1.495E-03	-0.023
U-235	5.223E-02	+	1.893E-02	3.533E-02	1.761E-03	1.478
AM-241	8.803E-03		1.086E-02	4.129E-02	2.233E-03	0.213

REPORT NAME : DET LIM (V1.1) PAGE 1 OF ___
REPORT DATE : 26-JUN-2002 09:16
REQUESTOR : CAS_TECH

CYAPCO
HADDAM NECK STATION

DETECTION LIMIT CONFIRMATION REPORT

Sample ID : 020626003
Sample Title : - SOIL SAMPLE: 9521-0000-016FM
Sample Time : 25-JUN-2002 14:55
Count Time : 26-JUN-2002 08:59
Sample Qauntity : 1.75400E+03 GM
Nuclide Library : FSS_DIRT
Analyzed By : CAS
Sample Media : 1LMARSAND
Sample Shelf : 0
Detector : 5
Required LLD File : CAS_LLD:pge_fss_sand.DAT DIRT/SEDIMENT FSS (1LMARSA

Nuclide	Required LLD (~~µCi~~ pCi/GM)	Measured VALUE (~~µCi~~ pCi/GM)	LLD MET
MN-54	7.000E-01	< 1.755E-02	Passed
CO-60	1.500E-01	< 3.068E-02	Passed
NB-94	2.800E-01	< 1.952E-02	Passed
AG-108M	2.900E-01	< 1.802E-02	Passed
CS-134	1.900E-01	< 1.556E-02	Passed
CS-137	3.200E-01	< 2.421E-02	Passed
EU-152	4.000E-01	< 1.489E-01	Passed
EU-154	3.700E-01	< 6.294E-02	Passed
EU-155	1.570E+01	< 5.854E-02	Passed
AM-241	1.030E+00	< 4.129E-02	Passed

**** End Of Report (1 Page) ****

REPORT NAME : QA_CHECK (V9.1) PAGE 1 OF ___
REPORT DATE : 26-JUN-2002 09:16
REQUESTOR : CAS_TECH

CYAPCO
HADDAM NECK STATION

POST NID QA ANALYSIS

TITLE : - SOIL SAMPLE: 9521-0000-016FM

SAMPLE No. : 020626003 OPERATOR NAME : CAS
SAMPLE TYPE : DIRT/SEDIMENT SAMPLE GEOMETRY : 1LMARSAND
COUNT TIME : 26-JUN-2002 08:59:02 SAMPLE QUANTITY : 1.75400E+03
SAMPLE TIME : 25-JUN-2002 14:55:00 DETECTOR : DET 5
LIBRARY : FSS_DIRT

ISOTOPE	PEAK ENERGY	ENERGY DIFF (KEV)	DECAY CORR pCi/GM	COMMENTS
K-40	1460.80	-0.25	7.970E+00	QA Results OK
TL-208	583.14	0.05	1.676E-01	QA Results OK
BI-212	727.17	-0.06	3.132E-01	QA Results OK
PB-212	238.63	-0.08	3.645E-01	QA Results OK
BI-214	609.31	0.03	4.295E-01	QA Results OK
PB-214	351.92	0.00	3.646E-01	QA Results OK
RA-226	186.21	-0.09	8.610E-01	QA Results OK
AC-228	911.07	-0.03	4.569E-01	QA Results OK
TH-234	63.29	-0.09	8.902E-01	QA Results OK
		------	---------	
AVG ENERGY DIFF =		-0.06	1.182E+01	= TOTAL GAMMA ACTIVITY

74.85 KeV Peak was used in identifying 2 isotopes
77.03 KeV Peak was used in identifying 2 isotopes

UNIDENTIFIED/REJECTED PEAKS

ENERGY	NET AREA	FWHM	GAMMA/SEC	GAMMA/SEC /GM	% ERROR	FLAG	POTENTIAL ID	ACTIVITY
89.78	82.	0.96	1.808E+00	1.031E-03	20.4	P	BI-214	1.035E+01
						P	AC-228	1.335E+00
92.68	119.	1.33	2.615E+00	1.491E-03	22.7	P	PB_X-RAY	0.000E+00
						P	AC-228	1.159E+00
						P	TH-234	1.500E+00
128.48	54.	0.82	1.221E+00	6.962E-04	45.5	P	AC-228	6.763E-01
511.20	53.	2.19	2.808E+00	1.601E-03	27.7	U	ANN-RD	0.000E+00
1377.23	22.	1.58	2.679E+00	1.527E-03	21.3	P	BI-214	1.011E+00

CYAPCO
HADDAM NECK STATION

POST NID QA ANALYSIS

Total Unidentified/Rejected Peaks = 5
% Unidentified/Rejected Peaks = 18.52

Flags: U - Unknown Line
R - Rejected During Analysis
P - Positively Identified (line not in analysis library)

Performed by: _____

Reviewed by: _____

**** End Of Report (2 Pages) ****

****
26-JUN-2002 10:23:15.81

CONNECTICUT YANKEE
HADDAM NECK STATION
****

SAMPLE TITLE : - SOIL SAMPLE: 9521-0000-017FM
REASON FOR ANALYSIS: Site Characterization
SAMPLE ID : 020626006 * SAMPLE GEOMETRY : 1LMARSAND
SAMPLE TIME : 25-JUN-2002 15:18 * GEO EFFICIENCY DATE: 19-AUG-1997
SAMPLE TYPE : DIRT/SEDIMENT * SAMPLE QUANTITY : 1.55700E+03 GM
****

DETECTOR : DET 2 * LIBRARY : FSS_DIRT
LAST ENERGY CAL : 26-JUN-2002 07:21 * ENERGY TOLERANCE: 1.00000
KEV/CHANNEL : 5.00963E-01 * HALF LIFE RATIO : 9.00000
START CHANNEL : 100 * END CHANNEL : 4096
ACQ DATE & TIME : 26-JUN-2002 10:06 * DEADTIME (%) : 0.0%
PRESET LIVE TIME : 0 00:16:40 * SENSITIVITY : 5.00000
ELAPSED REAL TIME : 1000.3 Secs * GAUSSIAN SEN : 10.00000
ELAPSED LIVE TIME : 1000.0 Secs * CORRECTION FACTOR: 1.00000E+06
DECAYED TO 0 DAYS HOURS
FILE IDENT : CAS$DISK:[NEU.SAMPLE.RP.NEW]020626006_ADC2_DIRTSEDIMENT.CNF;1

****
ANALYSES : PEAK V16.8 NID V3.2 MINACT V2.8 WTMEAN V1.8
****

Collected by : JOHNSON
REVIEWED BY : _____
COMMENTS :

****

Post-NID Peak Search Report

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides
2	74.86	95	92	0.95	149.96	146	21	19.6	1.84E+00	PB-212
										PB-214
2	77.26	159	123	1.19	154.75	146	21	14.2		PB-214
										PB-212
0	186.11	48	88	0.99	372.09	368	9	38.4		RA-226
4	238.55	255	58	1.12	476.82	472	27	7.9	1.27E+00	PB-212
4	241.60	66	72	1.79	482.92	472	27	31.2		PB-214
0	295.28	80	36	0.85	590.13	588	7	16.8		PB-214
0	338.39	87	25	1.15	676.24	671	11	15.3		AC-228
0	351.70	182	36	1.35	702.83	696	13	10.0		PB-214
0	511.02	42	35	0.87	1021.17	1016	12	32.4		
0	583.25	90	26	1.30	1165.52	1159	15	16.2		TL-208
0	609.29	117	24	1.66	1217.57	1213	13	12.8		BI-214
0	727.65	28	17	2.02	1454.19	1448	10	34.2		BI-212
0	911.43	58	12	1.50	1821.69	1815	11	17.2		AC-228
0	968.79	41	6	1.51	1936.44	1932	9	19.3		AC-228
0	1120.49	37	9	1.81	2239.96	2234	12	23.0		BI-214
0	1460.72	321	16	2.05	2921.04	2913	15	6.2		K-40
0	1763.70	20	0	1.65	3528.00	3522	12	22.4		BI-214

Sample ID : 020626006 Acquisition date : 26-JUN-2002 10:06:21

---- Identified Nuclides ----

Nuclide	Activity (pCi/GM)	Act error	MDA (pCi/GM)	MDA error	Act/MDA
K-40	9.925E+00	7.746E-01	3.313E-01	1.583E-02	29.961
TL-208	1.619E-01	2.769E-02	2.531E-02	1.389E-03	6.398
BI-212	4.252E-01	1.474E-01	2.237E-01	1.253E-02	1.901
PB-212	4.313E-01	3.981E-02	3.926E-02	1.877E-03	10.984
BI-214	4.354E-01	4.702E-02	5.260E-02	2.942E-03	8.277
PB-214	4.438E-01	4.025E-02	4.782E-02	2.203E-03	9.281
RA-226	9.622E-01	3.725E-01	5.149E-01	2.499E-02	1.869
AC-228	5.615E-01	5.844E-02	1.060E-01	4.909E-03	5.299

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GM)	K.L. Ided	Act error	MDA (pCi/GM)	MDA error	Act/MDA
BE-7	-7.932E-02		5.251E-02	1.426E-01	7.098E-03	-0.556
MN-54	-4.809E-03		5.389E-03	2.121E-02	1.075E-03	-0.227
CO-60	9.539E-03		9.081E-03	4.317E-02	2.056E-03	0.221
NB-94	-6.606E-04		4.452E-03	2.055E-02	9.918E-04	-0.032
RU-106	-4.379E-02		4.658E-02	1.847E-01	1.042E-02	-0.237
AG-108M	-1.384E-03		5.379E-03	2.155E-02	1.210E-03	-0.064
AG-110M	-3.826E-03		3.886E-03	1.570E-02	9.056E-04	-0.244
SB-125	-1.459E-02		2.163E-02	6.988E-02	3.280E-03	-0.209
CS-134	2.840E-04		6.164E-03	2.601E-02	1.450E-03	0.011
CS-137	8.183E-03		7.368E-03	3.380E-02	1.954E-03	0.242
EU-152	1.645E-02		4.055E-02	1.857E-01	8.876E-03	0.089
EU-154	6.299E-03		2.087E-02	9.590E-02	5.116E-03	0.066
EU-155	-2.072E-02		2.630E-02	8.970E-02	3.910E-03	-0.231
RA-223	9.121E-02		4.102E-02	1.665E-01	7.811E-03	0.548
TH-228	-1.596E-01		6.676E-01	2.342E+00	1.190E-01	-0.068
PA-234	2.881E-01	+	4.404E-02	6.696E-02	3.790E-03	4.303
TH-234	3.605E-01		3.017E-01	1.153E+00	1.352E-01	0.313
U-235	5.837E-02	+	2.260E-02	4.617E-02	2.241E-03	1.264
AM-241	-3.990E-03		3.068E-02	1.130E-01	1.158E-02	-0.035

CYAPCO
HADDAM NECK STATION

DETECTION LIMIT CONFIRMATION REPORT

Sample ID : 020626006
Sample Title : - SOIL SAMPLE: 9521-0000-017FM
Sample Time : 25-JUN-2002 15:18
Count Time : 26-JUN-2002 10:06
Sample Qauntity : 1.55700E+03 GM
Nuclide Library : FSS_DIRT
Analyzed By : CAS
Sample Media : 1LMARSAND
Sample Shelf : 0
Detector : 2
Required LLD File : CAS_LLD:pge_fss_sand.DAT - DIRT/SEDIMENT FSS (1LMARSA

Nuclide	Required LLD (~~uCi~~ pCi/GM)	Measured VALUE (~~uCi~~ pCi/GM)	LLD MET
MN-54	7.000E-01	< 2.121E-02	Passed
CO-60	1.500E-01	< 4.317E-02	Passed
NB-94	2.800E-01	< 2.055E-02	Passed
AG-108M	2.900E-01	< 2.155E-02	Passed
CS-134	1.900E-01	< 2.601E-02	Passed
CS-137	3.200E-01	< 3.380E-02	Passed
EU-152	4.000E-01	< 1.857E-01	Passed
EU-154	3.700E-01	< 9.590E-02	Passed
EU-155	1.570E+01	< 8.970E-02	Passed
AM-241	1.030E+00	< 1.130E-01	Passed

**** End Of Report (1 Page) ****

REPORT NAME : QA_CHECK (V9.1) PAGE 1 OF ___
REPORT DATE : 26-JUN-2002 10:23
REQUESTOR : CAS_TECH

CYAPCO
HADDAM NECK STATION

POST NID QA ANALYSIS

TITLE : - SOIL SAMPLE: 9521-0000-017FM

SAMPLE No. : 020626006 OPERATOR NAME : CAS
SAMPLE TYPE : DIRT/SEDIMENT SAMPLE GEOMETRY : 1LMARSAND
COUNT TIME : 26-JUN-2002 10:06:21 SAMPLE QUANTITY : 1.55700E+03
SAMPLE TIME : 25-JUN-2002 15:18:00 DETECTOR : DET 2
LIBRARY : FSS_DIRT

ISOTOPE	PEAK ENERGY	ENERGY DIFF (KEV)	DECAY CORR pCi/GM	COMMENTS
K-40	1460.80	-0.08	9.925E+00	QA Results OK
TL-208	583.14	0.11	1.619E-01	QA Results OK
BI-212	727.17	0.48	4.252E-01	QA Results OK
PB-212	238.63	-0.08	4.313E-01	QA Results OK
BI-214	609.31	-0.02	4.354E-01	QA Results OK
PB-214	351.92	-0.22	4.438E-01	QA Results OK
RA-226	186.21	-0.10	9.622E-01	QA Results OK
AC-228	911.07	0.36	5.615E-01	QA Results OK
		------	---------	
AVG ENERGY DIFF =		0.06	1.335E+01 = TOTAL GAMMA ACTIVITY	

74.86 KeV Peak was used in identifying 2 isotopes
77.26 KeV Peak was used in identifying 2 isotopes

UNIDENTIFIED/REJECTED PEAKS

ENERGY	NET AREA	FWHM	GAMMA/SEC	GAMMA/SEC /GM	% ERROR	FLAG	POTENTIAL ID	ACTIVITY
511.02	42.	0.87	3.258E+00	2.092E-03	32.4	U	ANN-RD	0.000E+00

Total Unidentified/Rejected Peaks = 1
% Unidentified/Rejected Peaks = 5.88

Flags: U - Unknown Line
R - Rejected During Analysis
P - Positively Identified (line not in analysis library)

Performed by: _____

CYAPCO
HADDAM NECK STATION

POST NID QA ANALYSIS

Reviewed by: _____

**** End Of Report (2 Pages) ****

****
26-JUN-2002 19:45:23.73

CONNECTICUT YANKEE
HADDAM NECK STATION
****

SAMPLE TITLE : - 9521-0000-018FM DIRT
REASON FOR ANALYSIS: Site Characterization
SAMPLE ID : 020626016 * SAMPLE GEOMETRY : 1LMARSAND
SAMPLE TIME : 26-JUN-2002 10:36 * GEO EFFICIENCY DATE: 1-JUL-1998
SAMPLE TYPE : DIRT/SEDIMENT * SAMPLE QUANTITY : 1.81100E+03 GM
****

DETECTOR : DET 5 * LIBRARY : FSS_DIRT
LAST ENERGY CAL : 26-JUN-2002 07:57 * ENERGY TOLERANCE: 1.00000
KEV/CHANNEL : 5.00770E-01 * HALF LIFE RATIO : 9.00000
START CHANNEL : 100 * END CHANNEL : 4096
ACQ DATE & TIME : 26-JUN-2002 19:28 * DEADTIME (%) : 0.1%
PRESET LIVE TIME : 0 00:16:40 * SENSITIVITY : 5.00000
ELAPSED REAL TIME : 1000.6 Secs * GAUSSIAN SEN : 10.00000
ELAPSED LIVE TIME : 1000.0 Secs * CORRECTION FACTOR: 1.00000E+06
DECAYED TO 0 DAYS HOURS
FILE IDENT : CAS$DISK:[NEU.SAMPLE.RP.NEW]020626016_ADC5_DIRTSEDIMENT.CNF;1

****
ANALYSES : PEAK V16.8 NID V3.2 MINACT V2.8 WTMEAN V1.8
****

Collected by : JOHNSON
REVIEWED BY : _____
COMMENTS :

****

Post-NID Peak Search Report

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides
0	63.37	93	271	1.07	126.90	124	7	31.1		TH-234
4	74.92	205	231	0.86	149.98	146	13	13.1	1.86E+00	PB-212
										PB-214
4	77.16	363	227	0.90	154.45	146	13	8.1		PB-214
										PB-212
0	87.12	71	289	0.94	174.34	171	7	41.3		PB-212
0	89.80	113	186	0.96	179.69	177	6	21.6		
1	92.52	133	77	0.90	185.12	183	9	11.3	1.46E+00	
1	93.37	70	151	1.00	186.82	183	9	34.2		
0	186.20	130	148	1.43	372.24	368	10	19.5		RA-226
2	238.58	489	70	0.99	476.87	473	20	5.2	2.20E+00	PB-212
2	240.88	78	72	1.34	481.46	473	20	33.9		
2	242.15	58	56	1.11	484.00	473	20	30.5		PB-214
0	295.24	169	71	1.26	590.08	586	10	12.0		PB-214
0	300.20	52	55	1.05	599.97	596	9	29.1		
0	338.43	76	74	0.79	676.36	672	9	23.6		AC-228
0	351.87	308	45	1.10	703.22	697	12	7.2		PB-214
0	463.36	31	44	1.33	926.01	920	10	44.1		AC-228
0	511.04	59	36	1.09	1021.29	1016	10	23.2		

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides
0	583.25	145	33	1.23	1165.64	1159	14	11.9		TL-208
0	609.28	188	39	1.44	1217.67	1212	11	9.7		BI-214
0	727.51	48	20	1.36	1454.03	1449	13	24.0		BI-212
0	770.16	72	9	5.08	1539.30	1530	22	16.5		
0	861.72	32	14	4.39	1722.39	1716	14	32.1		
0	911.57	129	17	1.97	1822.08	1814	19	12.0		AC-228
0	969.14	66	26	1.88	1937.22	1932	12	20.5		AC-228
0	1017.29	14	9	1.58	2033.55	2025	11	47.8		
0	1120.55	42	45	1.95	2240.12	2233	18	40.5		BI-214
0	1377.07	23	2	1.82	2753.45	2748	10	24.6		
0	1460.48	549	12	2.09	2920.42	2912	15	4.5		K-40
0	1763.89	40	3	1.86	3527.95	3522	12	18.0		BI-214

Sample ID : 020626016 Acquisition date : 26-JUN-2002 19:28:29

---- Identified Nuclides ----

Nuclide	Activity (pCi/GM)	Act error	MDA (pCi/GM)	MDA error	Act/MDA
K-40	9.776E+00	6.331E-01	2.080E-01	9.742E-03	47.010
TL-208	1.517E-01	1.985E-02	1.562E-02	8.428E-04	9.707
BI-212	4.293E-01	1.058E-01	1.132E-01	6.157E-03	3.792
PB-212	4.676E-01	3.365E-02	2.721E-02	1.376E-03	17.185
BI-214	3.963E-01	3.734E-02	4.144E-02	2.269E-03	9.564
PB-214	4.563E-01	3.208E-02	2.364E-02	1.133E-03	19.298
RA-226	1.526E+00	3.076E-01	3.310E-01	1.650E-02	4.610
AC-228	5.115E-01	5.057E-02	6.416E-02	2.892E-03	7.972
TH-234	8.795E-01	2.857E-01	3.947E-01	3.743E-02	2.228

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GM)	K.L. Ided	Act error	MDA (pCi/GM)	MDA error	Act/MDA
BE-7	7.132E-03		3.591E-02	1.319E-01	6.553E-03	0.054
MN-54	-5.194E-03		4.447E-03	1.672E-02	8.241E-04	-0.311
CO-60	9.861E-03		6.267E-03	2.977E-02	1.384E-03	0.331
NB-94	-4.101E-03		3.523E-03	1.344E-02	6.309E-04	-0.305
RU-106	2.294E-02		3.385E-02	1.397E-01	7.696E-03	0.164
AG-108M	-4.574E-03		4.861E-03	1.510E-02	8.286E-04	-0.303
AG-110M	-1.062E-02		5.885E-03	1.558E-02	8.717E-04	-0.682
SB-125	-1.538E-02		1.398E-02	4.397E-02	2.074E-03	-0.350
CS-134	-2.821E-03		5.161E-03	1.687E-02	9.214E-04	-0.167
CS-137	6.708E-03		6.739E-03	2.547E-02	1.427E-03	0.263
EU-152	3.221E-02		2.920E-02	1.363E-01	6.374E-03	0.236
EU-154	-1.518E-02		1.890E-02	7.084E-02	3.707E-03	-0.214
EU-155	2.822E-02		1.562E-02	6.074E-02	2.836E-03	0.465
RA-223	3.383E-02		3.220E-02	1.183E-01	5.981E-03	0.286
TH-228	4.435E-01		3.480E-01	1.300E+00	6.304E-02	0.341
PA-234	2.510E-01	+	2.372E-02	3.210E-02	1.578E-03	7.821
U-235	9.257E-02	+	1.866E-02	3.502E-02	1.746E-03	2.643
AM-241	-2.297E-02		1.185E-02	4.016E-02	2.171E-03	-0.572

REPORT NAME : DET LIM (V1.1) PAGE 1 OF ___
REPORT DATE : 26-JUN-2002 19:45
REQUESTOR : CAS_TECH

CYAPCO
HADDAM NECK STATION

DETECTION LIMIT CONFIRMATION REPORT

Sample ID : 020626016
Sample Title : - 9521-0000-018FM DIRT
Sample Time : 26-JUN-2002 10:36
Count Time : 26-JUN-2002 19:28
Sample Qauntity : 1.81100E+03 GM
Nuclide Library : FSS_DIRT
Analyzed By : CAS
Sample Media : 1LMARSAND
Sample Shelf : 0
Detector : 5
Required LLD File : CAS_LLD:pge_fss_sand.DAT - DIRT/SEDIMENT FSS (1LMARSA

Nuclide	Required LLD (~~uCi~~ pCi/GM) 6-27-02	Measured VALUE (~~uCi~~ pCi/GM) 6-27-02	LLD MET
MN-54	7.000E-01	< 1.672E-02	Passed
CO-60	1.500E-01	< 2.977E-02	Passed
NB-94	2.800E-01	< 1.344E-02	Passed
AG-108M	2.900E-01	< 1.510E-02	Passed
CS-134	1.900E-01	< 1.687E-02	Passed
CS-137	3.200E-01	< 2.547E-02	Passed
EU-152	4.000E-01	< 1.363E-01	Passed
EU-154	3.700E-01	< 7.084E-02	Passed
EU-155	1.570E+01	< 6.074E-02	Passed
AM-241	1.030E+00	< 4.016E-02	Passed

**** End Of Report (1 Page) ****

REPORT NAME : QA_CHECK (V9.1) PAGE 1 OF ___
REPORT DATE : 26-JUN-2002 19:45
REQUESTOR : CAS_TECH

CYAPCO
HADDAM NECK STATION

POST NID QA ANALYSIS

TITLE : - 9521-0000-018FM DIRT

SAMPLE No. : 020626016 OPERATOR NAME : CAS
SAMPLE TYPE : DIRT/SEDIMENT SAMPLE GEOMETRY : 1LMARSAND
COUNT TIME : 26-JUN-2002 19:28:29 SAMPLE QUANTITY : 1.81100E+03
SAMPLE TIME : 26-JUN-2002 10:36:00 DETECTOR : DET 5
LIBRARY : FSS_DIRT

ISOTOPE	PEAK ENERGY	ENERGY DIFF (KEV)	DECAY CORR pCi/GM	COMMENTS
K-40	1460.80	-0.32	9.776E+00	QA Results OK
TL-208	583.14	0.12	1.517E-01	QA Results OK
BI-212	727.17	0.34	4.293E-01	QA Results OK
PB-212	238.63	-0.04	4.676E-01	QA Results OK
BI-214	609.31	-0.03	3.963E-01	QA Results OK
PB-214	351.92	-0.05	4.563E-01	QA Results OK
RA-226	186.21	-0.01	1.526E+00	QA Results OK
AC-228	911.07	0.50	5.115E-01	QA Results OK
TH-234	63.29	0.08	8.795E-01	QA Results OK
		------	---------	
AVG ENERGY DIFF =		0.07	1.459E+01	= TOTAL GAMMA ACTIVITY

74.92 KeV Peak was used in identifying 2 isotopes
77.16 KeV Peak was used in identifying 2 isotopes

UNIDENTIFIED/REJECTED PEAKS

ENERGY	NET AREA	FWHM	GAMMA/SEC	GAMMA/SEC /GM	% ERROR	FLAG	POTENTIAL ID	ACTIVITY
89.80	113.	0.96	2.481E+00	1.370E-03	21.6	P	BI-214	1.376E+01
						P	AC-228	1.775E+00
92.52	133.	0.90	2.918E+00	1.611E-03	11.3	P	PB_X-RAY	0.000E+00
						P	AC-228	1.252E+00
						P	TH-234	1.621E+00
93.37	70.	1.00	1.541E+00	8.510E-04	34.2	P	AC-228	6.613E-01
						P	TH-234	8.562E-01
240.88	78.	1.34	2.302E+00	1.271E-03	33.9	U		
300.20	52.	1.05	1.803E+00	9.955E-04	29.1	P	PB-212	7.941E-01
511.04	59.	1.09	3.114E+00	1.719E-03	23.2	U	ANN-RD	0.000E+00
770.16	72.	5.08	5.420E+00	2.993E-03	16.5	U		
861.72	32.	4.39	2.673E+00	1.476E-03	32.1	U		
1017.29	14.	1.58	1.350E+00	7.453E-04	47.8	U		
1377.07	23.	1.82	2.764E+00	1.526E-03	24.6	P	BI-214	1.011E+00

CYAPCO
HADDAM NECK STATION

POST NID QA ANALYSIS

UNIDENTIFIED/REJECTED PEAKS

ENERGY	NET AREA	FWHM	GAMMA/SEC	GAMMA/SEC /GM	% ERROR	FLAG	POTENTIAL ID	ACTIVITY

Total Unidentified/Rejected Peaks = 10
% Unidentified/Rejected Peaks = 34.48

Flags: U - Unknown Line
R - Rejected During Analysis
P - Positively Identified (line not in analysis library)

Performed by: _____

Reviewed by: _____

**** End Of Report (2 Pages) ****

****
26-JUN-2002 19:47:31.60

CONNECTICUT YANKEE
HADDAM NECK STATION
****

SAMPLE TITLE : - 9521-0000-019 FM DIRT
REASON FOR ANALYSIS: Site Characterization
SAMPLE ID : 020626018 * SAMPLE GEOMETRY : 1LMARSAND
SAMPLE TIME : 26-JUN-2002 10:54 * GEO EFFICIENCY DATE: 24-SEP-1997
SAMPLE TYPE : DIRT/SEDIMENT * SAMPLE QUANTITY : 1.64100E+03 GM
****

DETECTOR : DET 1 * LIBRARY : FSS_DIRT
LAST ENERGY CAL : 26-JUN-2002 07:56 * ENERGY TOLERANCE: 1.00000
KEV/CHANNEL : 5.00610E-01 * HALF LIFE RATIO : 9.00000
START CHANNEL : 100 * END CHANNEL : 4096
ACQ DATE & TIME : 26-JUN-2002 19:30 * DEADTIME (%) : 0.0%
PRESET LIVE TIME : 0 00:16:40 * SENSITIVITY : 5.00000
ELAPSED REAL TIME : 1000.2 Secs * GAUSSIAN SEN : 10.00000
ELAPSED LIVE TIME : 1000.0 Secs * CORRECTION FACTOR: 1.00000E+06
DECAYED TO 0 DAYS HOURS
FILE IDENT : CAS$DISK:[NEU.SAMPLE.RP.NEW]020626018_ADC1_DIRTSEDIMENT.CNF;1

****
ANALYSES : PEAK V16.8 NID V3.2 MINACT V2.8 WTMEAN V1.8
****

Collected by : JOHNSON
REVIEWED BY :
COMMENTS :

****

Post-NID Peak Search Report

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides
0	77.36	94	137	1.00	154.73	152	7	23.4		PB-214 PB-212
0	186.55	51	105	0.79	372.89	369	9	39.8		RA-226
0	238.50	251	101	0.90	476.71	473	8	9.4		PB-212
0	241.84	62	71	2.56	483.38	481	7	27.3		PB-214
4	295.21	80	29	1.72	590.04	583	20	17.6	1.22E+00	PB-214
4	300.12	29	10	1.33	599.84	583	20	27.6		
0	338.39	69	25	1.03	676.33	672	10	18.1		AC-228
0	352.05	125	48	1.08	703.64	699	10	13.8		PB-214
0	510.94	39	30	2.35	1021.28	1016	10	30.8		
0	583.63	79	16	1.29	1166.60	1161	12	15.5		TL-208
0	609.31	105	19	1.49	1217.97	1211	15	13.3		BI-214
0	727.55	28	9	1.67	1454.43	1450	8	27.3		BI-212
0	911.79	41	12	1.21	1822.98	1818	10	22.2		AC-228
0	969.26	40	0	2.50	1937.97	1933	11	15.8		AC-228
0	1461.09	283	10	2.21	2922.52	2913	16	6.5		K-40

Sample ID : 020626018 Acquisition date : 26-JUN-2002 19:30:31

---- Identified Nuclides ----

Nuclide	Activity (pCi/GM)	Act error	MDA (pCi/GM)	MDA error	Act/MDA
K-40	1.333E+01	1.076E+00	5.607E-01	2.669E-02	23.779
TL-208	1.978E-01	3.258E-02	3.814E-02	2.089E-03	5.187
BI-212	6.115E-01	1.703E-01	2.982E-01	1.662E-02	2.050
PB-212	5.529E-01	5.824E-02	6.698E-02	3.228E-03	8.255
BI-214	5.008E-01	7.208E-02	5.071E-02	2.824E-03	9.877
PB-214	4.820E-01	5.146E-02	6.883E-02	3.197E-03	7.004
RA-226	1.300E+00	5.216E-01	6.640E-01	3.226E-02	1.958
AC-228	6.602E-01	7.390E-02	1.422E-01	6.594E-03	4.642

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GM)	K.L. Ided	Act error	MDA (pCi/GM)	MDA error	Act/MDA
BE-7	-1.587E-01		8.068E-02	2.070E-01	1.034E-02	-0.767
MN-54	-1.258E-04		7.152E-03	3.275E-02	1.660E-03	-0.004
CO-60	5.959E-03		1.034E-02	5.098E-02	2.402E-03	0.117
NB-94	-1.002E-02		7.391E-03	2.699E-02	1.302E-03	-0.371
RU-106	-1.803E-01		1.056E-01	2.718E-01	1.525E-02	-0.663
AG-108M	9.532E-03		8.189E-03	3.648E-02	2.038E-03	0.261
AG-110M	5.425E-03		7.783E-03	3.331E-02	1.903E-03	0.163
SB-125	7.366E-03		1.992E-02	7.970E-02	3.756E-03	0.092
CS-134	-2.794E-03		6.890E-03	2.449E-02	1.360E-03	-0.114
CS-137	1.819E-02		1.406E-02	5.624E-02	3.220E-03	0.323
EU-152	1.163E-01		5.258E-02	3.068E-01	1.457E-02	0.379
EU-154	-1.411E-02		2.593E-02	1.093E-01	5.816E-03	-0.129
EU-155	-2.080E-02		3.198E-02	1.143E-01	4.902E-03	-0.182
RA-223	-6.631E-02		5.214E-02	1.673E-01	7.903E-03	-0.396
TH-228	3.656E-02		7.885E-01	2.928E+00	1.513E-01	0.012
PA-234	2.424E-01	+	5.866E-02	8.953E-02	5.364E-03	2.708
TH-234	1.131E+00		4.921E-01	1.967E+00	2.635E-01	0.575
U-235	7.885E-02	+	3.164E-02	5.684E-02	2.762E-03	1.387
AM-241	3.298E-02		6.090E-02	2.371E-01	3.242E-02	0.139

REPORT NAME : DET LIM (V1.1) PAGE 1 OF ___
REPORT DATE : 26-JUN-2002 19:47
REQUESTOR : CAS_TECH

CYAPCO
HADDAM NECK STATION

DETECTION LIMIT CONFIRMATION REPORT

Sample ID : 020626018
Sample Title : - 9521-0000-019 FM DIRT
Sample Time : 26-JUN-2002 10:54
Count Time : 26-JUN-2002 19:30
Sample Qauntity : 1.64100E+03 GM
Nuclide Library : FSS_DIRT
Analyzed By : CAS
Sample Media : 1LMARSAND
Sample Shelf : 0
Detector : 1
Required LLD File : CAS_LLD:pge_fss_sand.DAT - DIRT/SEDIMENT FSS (1LMARSA

Nuclide	Required LLD (uCi/GM) pCi 6-27-02	Measured VALUE (uCi/GM) pCi 6-27-02	LLD MET
MN-54	7.000E-01	< 3.275E-02	Passed
CO-60	1.500E-01	< 5.098E-02	Passed
NB-94	2.800E-01	< 2.699E-02	Passed
AG-108M	2.900E-01	< 3.648E-02	Passed
CS-134	1.900E-01	< 2.449E-02	Passed
CS-137	3.200E-01	< 5.624E-02	Passed
EU-152	4.000E-01	< 3.068E-01	Passed
EU-154	3.700E-01	< 1.093E-01	Passed
EU-155	1.570E+01	< 1.143E-01	Passed
AM-241	1.030E+00	< 2.371E-01	Passed

**** End Of Report (1 Page) ****

REPORT NAME : QA_CHECK (V9.1) PAGE 1 OF ___
REPORT DATE : 26-JUN-2002 19:47
REQUESTOR : CAS_TECH

CYAPCO
HADDAM NECK STATION

POST NID QA ANALYSIS

TITLE : - 9521-0000-019 FM DIRT

SAMPLE No. : 020626018 OPERATOR NAME : CAS
SAMPLE TYPE : DIRT/SEDIMENT SAMPLE GEOMETRY : 1LMARSAND
COUNT TIME : 26-JUN-2002 19:30:31 SAMPLE QUANTITY : 1.64100E+03
SAMPLE TIME : 26-JUN-2002 10:54:00 DETECTOR : DET 1
LIBRARY : FSS_DIRT

ISOTOPE	PEAK ENERGY	ENERGY DIFF (KEV)	DECAY CORR pCi/GM	COMMENTS
K-40	1460.80	0.29	1.333E+01	QA Results OK
TL-208	583.14	0.49	1.978E-01	QA Results OK
BI-212	727.17	0.38	6.115E-01	QA Results OK
PB-212	238.63	-0.12	5.529E-01	QA Results OK
BI-214	609.31	0.00	5.008E-01	QA Results OK
PB-214	351.92	0.13	4.820E-01	QA Results OK
RA-226	186.21	0.34	1.300E+00	QA Results OK
AC-228	911.07	0.72	6.602E-01	QA Results OK
		------	---------	
AVG ENERGY DIFF =		0.28	1.764E+01 = TOTAL GAMMA ACTIVITY	

77.36 KeV Peak was used in identifying 2 isotopes

UNIDENTIFIED/REJECTED PEAKS

ENERGY	NET AREA	FWHM	GAMMA/SEC	GAMMA/SEC /GM	% ERROR	FLAG	POTENTIAL ID	ACTIVITY
300.12	29.	1.33	2.082E+00	1.269E-03	27.6	P	PB-212	1.012E+00
510.94	39.	2.35	4.443E+00	2.707E-03	30.8	U	ANN-RD	0.000E+00

Total Unidentified/Rejected Peaks = 2
% Unidentified/Rejected Peaks = 13.33

Flags: U - Unknown Line
R - Rejected During Analysis
P - Positively Identified (line not in analysis library)

Performed by: _____

CYAPCO
HADDAM NECK STATION

POST NID QA ANALYSIS

Reviewed by: _____

**** End Of Report (2 Pages) ****

Analytical Data Package Prepared For

Bechtel CT Yankee Project

Radiochemical Analysis By

STL Richland

2800 G.W. Way, Richland Wa, 99352, (509)-375-3131.

Assigned Laboratory Code: STLRL

Data Package Contains _____ Pages

Report No.: 21233

SDG No.	Order No.	Client Sample ID (List Order)	Lot-Sa No.	Work Order	Report DB ID	Batch No.
21410		9521-0000-020F	J2J240267-1	FAPGJ1AC	9FAPGJ10	2298396
		9521-0000-020F	J2J240267-1	FAPGJ1AD	9FAPGJ10	2298399
		9521-0000-020F	J2J240267-1	FAPGJ1AA	9FAPGJ10	2298400
		9521-0000-021F	J2J240267-2	FAPGR1AC	9FAPGR10	2298396
		9521-0000-021F	J2J240267-2	FAPGR1AD	9FAPGR10	2298399
		9521-0000-022F	J2J240267-3	FAPGT1AC	9FAPGT10	2298396
		9521-0000-022F	J2J240267-3	FAPGT1AD	9FAPGT10	2298399
		9521-0000-022F	J2J240267-3	FAPGT1AA	9FAPGT10	2298400

SEVERN TRENT SERVICES

CERTIFICATE OF ANALYSIS

December 19, 2002

Bechtel Corporation
362 Injun Hollow Road
East Hampton, CT 06424

Attention: Alan Heter

SDG Number	:	21410
Date SDG Received	:	October 24, 2002
Number of Samples	:	Three (3)
Sample Type	:	Soil
Data deliverable	:	Summary Report

I. Introduction

On October 24, 2002, three soil samples were received at STL Richland (STLR) for radiochemical analysis on one chain-of-custody (00029). Upon receipt, the samples were assigned to Lot Number J2J240267 with the laboratory ID numbers to correspond with the Bechtel Corp. (BCT) specific IDs as listed on the cover page.

II. Analytical Results/Methodology

The analytical results for this report are presented by laboratory sample ID. Each set of data includes sample identification information; analytical results and the appropriate associated statistical errors.

The requested analyses are:

Gas Proportional Counting
Strontium-90 by method RICH-RC-5006
Gamma Spectroscopy
Gamma Spec by method RICH-RC-5017
Liquid Scintillation Counting
Tritium by method RICH-RC-5037

III. Quality Control

The analytical results for each analysis performed under SDG 21410 includes a minimum of one Laboratory Control Sample (LCS) and one method (reagent) blank and one duplicate sample analysis. Any exceptions have been noted in the "Comments" section.

QC and sample results are reported in the same units.

IV. Comments

Gas Proportional Counting
Strontium-90 by method RICH-RC-5006:
The LCS, sample duplicate, batch blank and sample results are within contractual requirements.

Gamma Spectroscopy
Gamma Spec by method RICH-RC-5017:
Seventeen of the eighteen requested radionuclides have been reported for each sample. The Bi-212 was over eight half lives since collection, therefore, not reported. Except as noted, the LCS, sample duplicate, batch blank and sample results are within required limits.

Liquid Scintillation Counting
Tritium by method RICH-RC-5007:
The entire sample was inadvertently used for gamma analysis for 9521-0000-021F (client was notified via email on 11/27/02), therefore, no tritium fraction was saved before gamma analysis. All results are below the CRDL and/or below the MDC. The LCS, sample duplicate, batch blank and sample results are within contractual requirements.

I certify that this Certificate of Analysis 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.

Reviewed and approved:

Barbara M. Gillespie
Project Manager

Drinking Water Method Cross References

	DRINKING WATER ASTM METHOD CROSS REFERENCES	
Referenced Method	**Isotope(s)**	**STL Richland's SOP number**
EPA 901.1	Cs-134, I-131	RICH-RC-5017
EPA 900.0	Alpha & Beta	RICH-RC-5014
EPA 903.1	Ra-226	RICH-RC-5005
EPA 904.0	Ra-228	RICH-RC-5005
EPA 905.0	Sr89/90	RICH-RC-5006
ASTM D2460	Total Radium	RICH-RC-5027
Standard Method 7500-U-C & ASTM D5174	Uranium	RICH-RC-5058
EPA 906.0	Tritium	RICH-RC-5007
NOTE:		
The Gross Alpha LCS is prepared with Am-241 (unless otherwise specified in the case narrative)		
The Gross Beta LCS is prepared with Sr/Y-90 (unless otherwise specified in the case narrative)		

Uncertainty Estimation

STL Richland has adopted the internationally accepted approach to estimating uncertainties described in "NIST Technical Note 1297, 1994 Edition". The approach, "Law of Propagation of Errors", involves the identification of all variables in an analytical method which are used to derive a result. These variables are related to the analytical result (R) by some functional relationship, R = constants * f(x,y,z....). The components (x,y,z) are evaluated to determine their contribution to the overall method uncertainty. The individual component uncertainties (u_i) are then combined using a statistical model that provides the most probable overall uncertainty value. All component uncertainties are categorized as type A, evaluated by statistical methods, or type B, evaluated by other means. Uncertainties not included in the components, such as sample homogeneity, are combined with the component uncertainty as the square root of the sum-of-the-squares of the individual uncertainties. The uncertainty associated with the derived result is the combined uncertainty (u_c) multiplied by the coverage factor (1,2, or 3).

When three or more sample replicates are used to derive the analytical result, the type A uncertainty is the standard deviation of the mean value ($S/\sqrt{n}$), where S is the standard deviation of the derived results. The type B uncertainties are all other random or non-random components that are not included in the standard deviation.

The derivation of the general "Law of Propagation of Errors" equations and specific example are available on request.

Report Definitions

Action Lev	An agreed upon activity level used to trigger some action when the final result is greater than or equal to the Action Level. Often the Action Level is related to the Decision Limit.
Batch	The QC preparation batch number that relates laboratory samples to QC samples that were prepared and analyzed together.
Bias	Defined by the equation (Result/Expected)-1 as defined by ANSI N13.30.
COC No	Chain of Custody Number assigned by the Client or STL Richland.
Count Error (#s)	Poisson counting statistics of the gross sample count and background. The uncertainty is absolute and in the same units as the result. For Liquid Scintillation Counting (LSC) the batch blank count is the background.
Total Uncert (#s) ***u_c - Combined Uncertainty.***	All known uncertainties associated with the preparation and analysis of the sample are propagated to give a measure of the uncertainty associated with the result, *u_c the combined uncertainty*. The uncertainty is absolute and in the same units as the result.
(#s), Coverage Factor	The coverage factor defines the width of the confidence interval, 1, 2 or 3 standard deviations.
CRDL (RL)	Contractual Required Detection Limit as defined in the Client's Statement Of Work or STL Richland "default" nominal detection limit. Often referred to the reporting level (RL)
Lc	Decision Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume associated with the sample. The Type I error probability is approximately 5%. Lc=(1.645 * Sqrt(2*(BkgrndCnt/BkgrndCntMin)/SCntMin)) * (ConvFct/(Eff*Yld*Abn*Vol) * IngrFct). For LSC methods the batch blank is used as a measure of the background variability. Lc cannot be calculated when the background count is zero.
Lot-Sample No	The number assigned by the LIMS software to track samples received on the same day for a given client. The sample number is a sequential number assigned to each sample in the Lot.
MDC|MDA	Detection Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume with a Type I and II error probability of approximately 5%. MDC = (4.65 * Sqrt((BkgrndCnt/BkgrndCntMin)/SCntMin) + 2.71/SCntMin) * (ConvFct/(Eff * Yld * Abn * Vol) * IngrFct). For LSC methods the batch blank is used as a measure of the background variability.
Primary Detector	The instrument identifier associated with the analysis of the sample aliquot.
Ratio U-234/U-238	The U-234 result divided by the U-238 result. The U-234/U-238 ratio for natural uranium in NIST SRM 4321C is 1.038.
Rst/MDC	Ratio of the Result to the MDC. A value greater than 1 may indicate activity above background at a high level of confidence. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Rst/TotUcert	Ratio of the Result to the Total Uncertainty. If the uncertainty has a coverage factor of 2 a value greater than 1 may indicate activity above background at approximately the 95% level of confidence assuming a two-sided confidence interval. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Report DB No	Sample Identifier used by the report system. The number is based upon the first five digits of the **Work Order** Number.
RER	The equation Replicate Error Ratio = (S-D)/[sqrt($TPUs^2$ + $TPUd^2$)] as defined by ICPT BOA where S is the original sample result, D is the result of the duplicate, TPUs is the total uncertainty of the original sample and TPUd is the total uncertainty of the duplicate sample.
SDG	Sample Delivery Group Number assigned by the Client or assigned by STL Richland upon sample receipt.
Sum Rpt Alpha Spec Rst(s)	The sum of the reported alpha spec results for tests derived from the same sample excluding duplicate result where the results are in the same units.
Work Order	The LIMS software assign test specific identifier.
Yield	The recovery of the tracer added to the sample such as Pu-242 used to trace a Pu-239/40 method.

Sample Results Summary

STL Richland STLRL

Ordered by Client Sample ID, Batch No.

Date: 19-Dec-02

Report No. : 21233

SDG No: 21410

Client ID	Work Order Number	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	MDC|MDA	RER
9521-0000-020F	FAPGJ1AC	STRONTIUM-90	1.78E-01 +- 4.9E-01	U	pCi/L	61.21%	9.98E-01	
9521-0000-020F	FAPGJ1AD	ACTINIUM-228	5.20E-01 +- 7.1E+00	U	pCi/L		1.27E+01	
		AG-108M	7.26E-01 +- 1.2E+00	U	pCi/L		2.21E+00	
		AMERICIUM-241	6.43E-01 +- 3.7E+00	U	pCi/L		6.47E+00	
		BISMUTH-214	-1.30E+00 +- 3.8E+00	U	pCi/L		6.77E+00	
		COBALT-60	-3.43E-01 +- 1.7E+00	U	pCi/L		3.08E+00	
		CESIUM-134	1.35E+00 +- 1.9E+00	U	pCi/L		3.67E+00	
		CESIUM-137	-4.47E-01 +- 1.4E+00	U	pCi/L		2.46E+00	
		EUROPIUM-152	1.06E+00 +- 3.9E+00	U	pCi/L		6.98E+00	
		EUROPIUM-154	6.13E-01 +- 5.1E+00	U	pCi/L		9.62E+00	
		EUROPIUM-155	-5.84E-03 +- 3.2E+00	U	pCi/L		5.69E+00	
		POTASSIUM-40	-1.13E+01 +- 3.5E+01	U	pCi/L		7.31E+01	
		MAGNESIUM-54	3.36E-01 +- 1.9E+00	U	pCi/L		3.52E+00	
		NIOBIUM-94	-4.45E-01 +- 1.4E+00	U	pCi/L		2.40E+00	
		LEAD-212	1.06E+00 +- 2.5E+00	U	pCi/L		4.34E+00	
		LEAD-214	1.11E+00 +- 3.4E+00	U	pCi/L		6.06E+00	
		RADIUM-226	-1.29E+00 +- 3.8E+00	U	pCi/L		6.78E+00	
		THALLIUM-208	-9.19E-01 +- 2.0E+00	U	pCi/L		3.31E+00	
9521-0000-020F	FAPGJ1AA	TRITIUM	-1.01E+02 +- 1.1E+02	U	pCi/L	100.00%	2.81E+02	
9521-0000-020F DUP	FAPGJ1AE	STRONTIUM-90	4.77E-01 +- 6.9E-01	U	pCi/L	58.48%	1.31E+00	0.7
9521-0000-021F	FAPGR1AC	STRONTIUM-90	5.29E-01 +- 4.7E-01	U	pCi/L	60.06%	8.33E-01	
9521-0000-021F	FAPGR1AD	ACTINIUM-228	1.31E+00 +- 4.5E+00	U	pCi/L		8.74E+00	
		AG-108M	-3.32E-01 +- 1.1E+00	U	pCi/L		1.84E+00	
		AMERICIUM-241	-1.14E+00 +- 1.6E+00	U	pCi/L		2.58E+00	
		BISMUTH-214	3.01E+00 +- 2.6E+00	U	pCi/L		5.22E+00	
		COBALT-60	1.31E+00 +- 1.4E+00	U	pCi/L		3.08E+00	
		CESIUM-134	1.45E+00 +- 1.5E+00	U	pCi/L		3.14E+00	
		CESIUM-137	-4.33E-01 +- 1.2E+00	U	pCi/L		2.06E+00	
		EUROPIUM-152	-1.40E+00 +- 3.2E+00	U	pCi/L		5.53E+00	
		EUROPIUM-154	-3.99E+00 +- 3.5E+00	U	pCi/L		4.95E+00	
		EUROPIUM-155	-3.63E-01 +- 2.3E+00	U	pCi/L		4.05E+00	
		POTASSIUM-40	-1.04E+01 +- 2.2E+01	U	pCi/L		4.24E+01	
		MAGNESIUM-54	-5.60E-01 +- 1.5E+00	U	pCi/L		2.56E+00	

STL Richland

rptSTLRchSaSum V3.97 A97

RER - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by HCPT BOA.

U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

Sample Results Summary

Date: 19-Dec-02

STL Richland STLRL

Ordered by Client Sample ID, Batch No.

Report No. : 21233 **SDG No: 21410**

Client ID	Work Order Number	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	MDC|MDA	RER
9521-0000-021F	FAPGR1AD	NIOBIUM-94	2.99E-02 +- 1.1E+00	U	pCi/L		2.10E+00	
		LEAD-212	2.07E+00 +- 3.1E+00	U	pCi/L		2.77E+00	
		LEAD-214	3.83E-01 +- 2.9E+00	U	pCi/L		4.78E+00	
		RADIUM-226	3.00E+00 +- 2.6E+00	U	pCi/L		5.22E+00	
		THALLIUM-208	6.36E-01 +- 1.3E+00	U	pCi/L		2.53E+00	
9521-0000-021F DUP	FAPGR1AE	ACTINIUM-228	3.05E+00 +- 1.3E+01	U	pCi/L		1.86E+01	0.3
		AG-108M	8.13E-01 +- 1.8E+00	U	pCi/L		3.29E+00	1.1
		AMERICIUM-241	2.31E+00 +- 5.9E+00	U	pCi/L		9.48E+00	1.1
		BISMUTH-214	-7.46E-01 +- 5.9E+00	U	pCi/L		1.05E+01	1.2
		COBALT-60	2.89E+00 +- 2.7E+00	U	pCi/L		5.77E+00	1.0
		CESIUM-134	2.35E+00 +- 2.6E+00	U	pCi/L		5.20E+00	0.6
		CESIUM-137	7.85E-01 +- 2.5E+00	U	pCi/L		4.66E+00	0.9
		EUROPIUM-152	-2.05E+00 +- 5.7E+00	U	pCi/L		9.56E+00	0.2
		EUROPIUM-154	8.32E-01 +- 6.5E+00	U	pCi/L		1.26E+01	1.3
		EUROPIUM-155	-1.90E+00 +- 4.7E+00	U	pCi/L		8.12E+00	0.6
		POTASSIUM-40	1.02E+01 +- 5.2E+01	U	pCi/L		4.81E+01	0.7
		MAGNESIUM-54	3.45E-01 +- 3.2E+00	U	pCi/L		5.79E+00	0.5
		NIOBIUM-94	-6.09E-01 +- 2.0E+00	U	pCi/L		3.50E+00	0.6
		LEAD-212	-8.84E-02 +- 3.9E+00	U	pCi/L		6.61E+00	0.9
		LEAD-214	-1.75E+00 +- 5.4E+00	U	pCi/L		9.23E+00	0.7
		RADIUM-226	-7.56E-01 +- 5.9E+00	U	pCi/L		1.05E+01	1.2
		THALLIUM-208	3.81E-01 +- 3.0E+00	U	pCi/L		4.60E+00	0.2
9521-0000-022F	FAPGT1AC	STRONTIUM-90	2.64E-01 +- 4.9E-01	U	pCi/L	48.43%	1.01E+00	
9521-0000-022F	FAPGT1AD	ACTINIUM-228	6.74E-01 +- 5.0E+00	U	pCi/L		9.39E+00	
		AG-108M	2.45E-01 +- 1.0E+00	U	pCi/L		1.82E+00	
		AMERICIUM-241	-9.07E-01 +- 1.6E+00	U	pCi/L		2.63E+00	
		BISMUTH-214	3.78E+00 +- 3.0E+00	U	pCi/L		5.89E+00	
		COBALT-60	-3.73E-01 +- 1.1E+00	U	pCi/L		1.98E+00	
		CESIUM-134	-8.73E-01 +- 1.5E+00	U	pCi/L		2.59E+00	
		CESIUM-137	-1.67E-01 +- 1.4E+00	U	pCi/L		2.50E+00	
		EUROPIUM-152	-1.12E+00 +- 3.1E+00	U	pCi/L		5.39E+00	
		EUROPIUM-154	-2.18E+00 +- 3.5E+00	U	pCi/L		5.90E+00	
		EUROPIUM-155	2.61E-01 +- 2.5E+00	U	pCi/L		4.37E+00	
		POTASSIUM-40	-1.80E+01 +- 2.0E+01	U	pCi/L		3.82E+01	

STL Richland
rptSTLRchSaSum V3.97 A97

RER - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.

U Qual - Analyzed for, but the result is less than the Mdc/Mda[Total Uncert or gamma scan software did not identify the nuclide.

Sample Results Summary

Date: 19-Dec-02

STL Richland STLRL

Ordered by Client Sample ID, Batch No.

Report No. : 21233 **SDG No:** 21410

Client ID	Work Order Number	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	MDC|MDA	RER
9521-0000-022F	FAPGT1AD	MAGNESIUM-54	5.22E-01 +- 1.8E+00	U	pCi/L		3.36E+00	
		NIOBIUM-94	-5.17E-01 +- 1.1E+00	U	pCi/L		1.96E+00	
		LEAD-212	-9.22E-01 +- 2.2E+00	U	pCi/L		3.53E+00	
		LEAD-214	3.19E+00 +- 3.0E+00	U	pCi/L		5.24E+00	
		RADIUM-226	3.77E+00 +- 3.0E+00	U	pCi/L		5.89E+00	
		THALLIUM-208	3.41E-01 +- 1.3E+00	U	pCi/L		2.47E+00	
9521-0000-022F	FAPGT1AA	TRITIUM	2.10E+00 +- 1.2E+02	U	pCi/L	100.00%	2.78E+02	
9521-0000-022F DUP	FAPGT1AE	TRITIUM	7.58E+01 +- 1.2E+02	U	pCi/L	100.00%	2.76E+02	0.9

Number of Results: 75

STL Richland
rptSTLRchSaSum V3.97 A97

RER - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

QC Results Summary
STL Richland STLRL

Ordered by QC Type, Batch No.

Date: 19-Dec-02

Report No. : 21233 **SDG No.:** 21411

QC Type	Work Order Number	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	Recovery	Bias	MDC|MDA
BLANK QC	FAR3Q1AA	STRONTIUM-90	2.34E-04 +- 3.2E-01	U	pCi/L	59.44%			7.43E-01
BLANK QC	FAR311AA	ACTINIUM-228	1.64E+00 +- 7.8E+00	U	pCi/L				1.26E+01
		AG-108M	3.41E-01 +- 1.3E+00	U	pCi/L				2.30E+00
		AMERICIUM-241	-3.96E+00 +- 3.9E+00	U	pCi/L				6.28E+00
		BISMUTH-214	-2.12E+00 +- 3.7E+00	U	pCi/L				6.46E+00
		COBALT-60	3.50E-01 +- 1.5E+00	U	pCi/L				2.96E+00
		CESIUM-134	9.91E-01 +- 1.7E+00	U	pCi/L				3.35E+00
		CESIUM-137	-2.47E-02 +- 1.3E+00	U	pCi/L				2.40E+00
		EUROPIUM-152	-1.55E+00 +- 3.9E+00	U	pCi/L				6.53E+00
		EUROPIUM-154	-6.52E-01 +- 4.0E+00	U	pCi/L				7.54E+00
		EUROPIUM-155	5.42E-01 +- 3.1E+00	U	pCi/L				5.56E+00
		POTASSIUM-40	-2.73E+01 +- 3.4E+01	U	pCi/L				6.93E+01
		MAGNESIUM-54	-2.83E-01 +- 2.1E+00	U	pCi/L				3.78E+00
		NIOBIUM-94	-1.19E+00 +- 1.5E+00	U	pCi/L				2.34E+00
		LEAD-212	-4.88E-01 +- 2.5E+00	U	pCi/L				4.16E+00
		LEAD-214	-5.43E-01 +- 3.5E+00	U	pCi/L				6.00E+00
		RADIUM-226	-2.13E+00 +- 3.7E+00	U	pCi/L				6.46E+00
		THALLIUM-208	-1.70E+00 +- 1.9E+00	U	pCi/L				3.04E+00
BLANK QC	FAR381AA	TRITIUM	-3.79E+01 +- 1.2E+02	U	pCi/L	100.00%			2.76E+02
BLANK QC	FAR381AD	TRITIUM	1.17E+02 +- 1.3E+02	U	pCi/L	100.00%			2.79E+02
LCS	FAR3Q1AC	STRONTIUM-90	1.62E+01 +- 3.6E+00		pCi/L	62.42%	117.12%	0.2	7.29E-01
LCS	FAR311AC	CESIUM-137	9.88E+01 +- 1.3E+01		pCi/L		97.51%	0.0	2.26E+00
LCS	FAR381AC	TRITIUM	2.59E+03 +- 2.5E+02		pCi/L	100.00%	92.11%	-0.1	2.78E+02
LCS	FAR381AE	TRITIUM	2.69E+03 +- 2.6E+02		pCi/L	100.00%	95.82%	0.0	2.79E+02

Number of Results: 24

STL Richland **rptSTLRchQcSum V3.97 A97**

Bias - (Result/Expected)-1 as defined by ANSI N13.30.

U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM I

SAMPLE RESULTS

Date: 19-Dec-02

Lab Name: STL Richland | **SDG:** 21410 | **Collection Date:** 7/3/2002 9:40:00 AM

Lot-Sample No.: J2J240267-1 | **Report No. :** 21233 | **Received Date:** 10/24/2002 11:55:00 AM

Client Sample ID: 9521-0000-020F | **COC No. :** | **Matrix:** WATER

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2298396	Work Order: FAPGJ1AC			Report DB ID: 9FAPGJ10								
STRONTIUM-90	**1.78E-01**	U	4.5E-01	4.9E-01	9.98E-01	pCi/L	61.21%	*0.18*	12/15/02 09:28 a		1.0002	E905.0
						4.64E-01	2.00E+00	*0.73*			L	GPC1C
Batch: 2298399	Work Order: FAPGJ1AD			Report DB ID: 9FAPGJ10								
ACTINIUM-228	**5.20E-01**	U	7.1E+00	7.1E+00	1.27E+01	pCi/L		*0.04*	11/20/02 02:17 p		2.0005	E901.1
								0.15			L	GER7$1
AG-108M	**7.26E-01**	U	1.2E+00	1.2E+00	2.21E+00	pCi/L		*0.33*	11/20/02 02:17 p		2.0005	E901.1
								(1.2)			L	GER7$1
AMERICIUM-241	**6.43E-01**	U	3.7E+00	3.7E+00	6.47E+00	pCi/L		*0.1*	11/20/02 02:17 p		2.0005	E901.1
								0.35			L	GER7$1
BISMUTH-214	**-1.30E+00**	U	3.8E+00	3.8E+00	6.77E+00	pCi/L		*-0.19*	11/20/02 02:17 p		2.0005	E901.1
								-0.68			L	GER7$1
COBALT-60	**-3.43E-01**	U	1.7E+00	1.7E+00	3.08E+00	pCi/L		*-0.11*	11/20/02 02:17 p		2.0005	E901.1
							2.50E+01	*-0.41*			L	GER7$1
CESIUM-134	**1.35E+00**	U	1.9E+00	1.9E+00	3.67E+00	pCi/L		*0.37*	11/20/02 02:17 p		2.0005	E901.1
							1.50E+01	*(1.4)*			L	GER7$1
CESIUM-137	**-4.47E-01**	U	1.4E+00	1.4E+00	2.46E+00	pCi/L		*-0.18*	11/20/02 02:17 p		2.0005	E901.1
							1.50E+01	*-0.64*			L	GER7$1
EUROPIUM-152	**1.06E+00**	U	3.9E+00	3.9E+00	6.98E+00	pCi/L		*0.15*	11/20/02 02:17 p		2.0005	E901.1
							5.00E+01	*0.54*			L	GER7$1
EUROPIUM-154	**6.13E-01**	U	5.1E+00	5.1E+00	9.62E+00	pCi/L		*0.06*	11/20/02 02:17 p		2.0005	E901.1
							5.00E+01	*0.24*			L	GER7$1

STL Richland
rptSTLRchSample V3.97 A97

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM I

SAMPLE RESULTS

Date: 19-Dec-02

Lab Name: STL Richland | SDG: 21410 | Collection Date: 7/3/2002 9:40:00 AM

Lot-Sample No.: J2J240267-1 | Report No. : 21233 | Received Date: 10/24/2002 11:55:00 AM

Client Sample ID: 9521-0000-020F | COC No. : | Matrix: WATER

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
EUROPIUM-155	**-5.84E-03**	U	3.2E+00	3.2E+00	5.69E+00	pCi/L		*0.*	11/20/02 02:17 p		2.0005	E901.1
							5.00E+01	*0.*			L	GER7$1
POTASSIUM-40	**-1.13E+01**	U	3.5E+01	3.5E+01	7.31E+01	pCi/L		*-0.15*	11/20/02 02:17 p		2.0005	E901.1
								-0.64			L	GER7$1
MAGNESIUM-54	**3.36E-01**	U	1.9E+00	1.9E+00	3.52E+00	pCi/L		*0.1*	11/20/02 02:17 p		2.0005	E901.1
							2.00E+02	*0.36*			L	GER7$1
NIOBIUM-94	**-4.45E-01**	U	1.4E+00	1.4E+00	2.40E+00	pCi/L		*-0.19*	11/20/02 02:17 p		2.0005	E901.1
							2.00E+02	*-0.64*			L	GER7$1
LEAD-212	**1.06E+00**	U	2.5E+00	2.5E+00	4.34E+00	pCi/L		*0.24*	11/20/02 02:17 p		2.0005	E901.1
								0.85			L	GER7$1
LEAD-214	**1.11E+00**	U	3.4E+00	3.4E+00	6.06E+00	pCi/L		*0.18*	11/20/02 02:17 p		2.0005	E901.1
								0.65			L	GER7$1
RADIUM-226	**-1.29E+00**	U	3.8E+00	3.8E+00	6.78E+00	pCi/L		*-0.19*	11/20/02 02:17 p		2.0005	E901.1
								-0.67			L	GER7$1
THALLIUM-208	**-9.19E-01**	U	2.0E+00	2.0E+00	3.31E+00	pCi/L		*-0.28*	11/20/02 02:17 p		2.0005	E901.1
								-0.94			L	GER7$1
Batch: 2298400	Work Order: FAPGJ1AA				Report DB ID: 9FAPGJ10							
TRITIUM	**-1.01E+02**	U	1.0E+02	1.1E+02	2.81E+02	pCi/L	100.00%	*-0.36*	12/1/02 07:28 a		0.01	E906.0
						1.30E+02	4.00E+02	*-(1.8)*			L	LSC4

Number of Results: 19

Comments:

STL Richland
rptSTLRchSample
V3.97 A97

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM I

SAMPLE RESULTS

Date: 19-Dec-02

Lab Name: STL Richland **SDG:** 21410 **Collection Date:** 7/3/2002 9:48:00 AM

Lot-Sample No.: J2J240267-2 **Report No. :** 21233 **Received Date:** 10/24/2002 11:55:00 AM

Client Sample ID: 9521-0000-021F **COC No. :** **Matrix:** WATER

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2298396	Work Order: FAPGR1AC			Report DB ID: 9FAPGR10								
STRONTIUM-90	**5.29E-01**	U	4.7E-01	4.7E-01	8.33E-01	pCi/L	60.06%	*0.64*	12/15/02 09:28 a		0.978978	E905.0
						3.76E-01	2.00E+00	*(2.3)*			L	GPC2B
Batch: 2298399	Work Order: FAPGR1AD			Report DB ID: 9FAPGR10								
ACTINIUM-228	**1.31E+00**	U	4.5E+00	4.5E+00	8.74E+00	pCi/L		*0.15*	11/20/02 02:19 p		2.002	E901.1
								0.58			L	GER8$1
AG-108M	**-3.32E-01**	U	1.1E+00	1.1E+00	1.84E+00	pCi/L		*-0.18*	11/20/02 02:19 p		2.002	E901.1
								-0.62			L	GER8$1
AMERICIUM-241	**-1.14E+00**	U	1.6E+00	1.6E+00	2.58E+00	pCi/L		*-0.44*	11/20/02 02:19 p		2.002	E901.1
								-(1.4)			L	GER8$1
BISMUTH-214	**3.01E+00**	U	2.6E+00	2.6E+00	5.22E+00	pCi/L		*0.58*	11/20/02 02:19 p		2.002	E901.1
								(2.3)			L	GER8$1
COBALT-60	**1.31E+00**	U	1.4E+00	1.4E+00	3.08E+00	pCi/L		*0.43*	11/20/02 02:19 p		2.002	E901.1
							2.50E+01	*(1.9)*			L	GER8$1
CESIUM-134	**1.45E+00**	U	1.5E+00	1.5E+00	3.14E+00	pCi/L		*0.46*	11/20/02 02:19 p		2.002	E901.1
							1.50E+01	*(1.9)*			L	GER8$1
CESIUM-137	**-4.33E-01**	U	1.2E+00	1.2E+00	2.06E+00	pCi/L		*-0.21*	11/20/02 02:19 p		2.002	E901.1
							1.50E+01	*-0.74*			L	GER8$1
EUROPIUM-152	**-1.40E+00**	U	3.2E+00	3.2E+00	5.53E+00	pCi/L		*-0.25*	11/20/02 02:19 p		2.002	E901.1
							5.00E+01	*-0.86*			L	GER8$1
EUROPIUM-154	**-3.99E+00**	U	3.5E+00	3.5E+00	4.95E+00	pCi/L		*-0.8*	11/20/02 02:19 p		2.002	E901.1
							5.00E+01	*-(2.3)*			L	GER8$1

STL Richland
rptSTLRchSample V3.97 A97

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM I

SAMPLE RESULTS

Date: 19-Dec-02

Lab Name: STL Richland **SDG:** 21410 **Collection Date:** 7/3/2002 9:48:00 AM

Lot-Sample No.: J2J240267-2 **Report No. :** 21233 **Received Date:** 10/24/2002 11:55:00 AM

Client Sample ID: 9521-0000-021F **COC No. :** **Matrix:** WATER

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
EUROPIUM-155	**-3.63E-01**	U	2.3E+00	2.3E+00	4.05E+00	pCi/L		*-0.09*	11/20/02 02:19 p		2.002	E901.1
							5.00E+01	*-0.31*			L	GER8$1
POTASSIUM-40	**-1.04E+01**	U	2.2E+01	2.2E+01	4.24E+01	pCi/L		*-0.25*	11/20/02 02:19 p		2.002	E901.1
								-0.95			L	GER8$1
MAGNESIUM-54	**-5.60E-01**	U	1.5E+00	1.5E+00	2.56E+00	pCi/L		*-0.22*	11/20/02 02:19 p		2.002	E901.1
							2.00E+02	*-0.76*			L	GER8$1
NIOBIUM-94	**2.99E-02**	U	1.1E+00	1.1E+00	2.10E+00	pCi/L		*0.01*	11/20/02 02:19 p		2.002	E901.1
							2.00E+02	*0.05*			L	GER8$1
LEAD-212	**2.07E+00**	U	3.1E+00	3.1E+00	2.77E+00	pCi/L		*0.75*	11/20/02 02:19 p		2.002	E901.1
								(1.3)			L	GER8$1
LEAD-214	**3.83E-01**	U	2.9E+00	2.9E+00	4.78E+00	pCi/L		*0.08*	11/20/02 02:19 p		2.002	E901.1
								0.26			L	GER8$1
RADIUM-226	**3.00E+00**	U	2.6E+00	2.6E+00	5.22E+00	pCi/L		*0.57*	11/20/02 02:19 p		2.002	E901.1
								(2.3)			L	GER8$1
THALLIUM-208	**6.36E-01**	U	1.3E+00	1.3E+00	2.53E+00	pCi/L		*0.25*	11/20/02 02:19 p		2.002	E901.1
								0.96			L	GER8$1

Number of Results: 18

Comments:

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM I

SAMPLE RESULTS

Date: 19-Dec-02

Lab Name: STL Richland **SDG:** 21410 **Collection Date:** 7/3/2002 10:00:00 AM

Lot-Sample No.: J2J240267-3 **Report No. :** 21233 **Received Date:** 10/24/2002 11:55:00 AM

Client Sample ID: 9521-0000-022F **COC No. :** **Matrix:** WATER

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2298396	Work Order: FAPGT1AC			Report DB ID: 9FAPGT10								
STRONTIUM-90	**2.64E-01**	U	4.9E-01	4.9E-01	1.01E+00	pCi/L	48.43%	*0.26*	12/15/02 09:28 a		1.0001	E905.0
						4.50E-01	2.00E+00	*(1.1)*			L	GPC2C
Batch: 2298399	Work Order: FAPGT1AD			Report DB ID: 9FAPGT10								
ACTINIUM-228	**6.74E-01**	U	5.0E+00	5.0E+00	9.39E+00	pCi/L		*0.07*	11/20/02 05:47 p		2.0003	E901.1
								0.27			L	GER8$1
AG-108M	**2.45E-01**	U	1.0E+00	1.0E+00	1.82E+00	pCi/L		*0.13*	11/20/02 05:47 p		2.0003	E901.1
								0.49			L	GER8$1
AMERICIUM-241	**-9.07E-01**	U	1.6E+00	1.6E+00	2.63E+00	pCi/L		*-0.35*	11/20/02 05:47 p		2.0003	E901.1
								-(1.1)			L	GER8$1
BISMUTH-214	**3.78E+00**	U	3.0E+00	3.0E+00	5.89E+00	pCi/L		*0.64*	11/20/02 05:47 p		2.0003	E901.1
								(2.5)			L	GER8$1
COBALT-60	**-3.73E-01**	U	1.1E+00	1.1E+00	1.98E+00	pCi/L		*-0.19*	11/20/02 05:47 p		2.0003	E901.1
							2.50E+01	*-0.69*			L	GER8$1
CESIUM-134	**-8.73E-01**	U	1.5E+00	1.5E+00	2.59E+00	pCi/L		*-0.34*	11/20/02 05:47 p		2.0003	E901.1
							1.50E+01	*-(1.1)*			L	GER8$1
CESIUM-137	**-1.67E-01**	U	1.4E+00	1.4E+00	2.50E+00	pCi/L		*-0.07*	11/20/02 05:47 p		2.0003	E901.1
							1.50E+01	*-0.24*			L	GER8$1
EUROPIUM-152	**-1.12E+00**	U	3.1E+00	3.1E+00	5.39E+00	pCi/L		*-0.21*	11/20/02 05:47 p		2.0003	E901.1
							5.00E+01	*-0.71*			L	GER8$1
EUROPIUM-154	**-2.18E+00**	U	3.5E+00	3.5E+00	5.90E+00	pCi/L		*-0.37*	11/20/02 05:47 p		2.0003	E901.1
							5.00E+01	*-(1.2)*			L	GER8$1

STL Richland
rptSTLRchSample
V3.97 A97

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM I

SAMPLE RESULTS

Date: 19-Dec-02

Lab Name: STL Richland | **SDG:** 21410 | **Collection Date:** 7/3/2002 10:00:00 AM

Lot-Sample No.: J2J240267-3 | **Report No. :** 21233 | **Received Date:** 10/24/2002 11:55:00 AM

Client Sample ID: 9521-0000-022F | **COC No. :** | **Matrix:** WATER

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
EUROPIUM-155	**2.61E-01**	U	2.5E+00	2.5E+00	4.37E+00	pCi/L		*0.06*	11/20/02 05:47 p		2.0003	E901.1
							5.00E+01	*0.21*			L	GER8$1
POTASSIUM-40	**-1.80E+01**	U	2.0E+01	2.0E+01	3.82E+01	pCi/L		*-0.47*	11/20/02 05:47 p		2.0003	E901.1
								-(1.8)			L	GER8$1
MAGNESIUM-54	**5.22E-01**	U	1.8E+00	1.8E+00	3.36E+00	pCi/L		*0.16*	11/20/02 05:47 p		2.0003	E901.1
							2.00E+02	*0.58*			L	GER8$1
NIOBIUM-94	**-5.17E-01**	U	1.1E+00	1.1E+00	1.96E+00	pCi/L		*-0.26*	11/20/02 05:47 p		2.0003	E901.1
							2.00E+02	*-0.9*			L	GER8$1
LEAD-212	**-9.22E-01**	U	2.2E+00	2.2E+00	3.53E+00	pCi/L		*-0.26*	11/20/02 05:47 p		2.0003	E901.1
								-0.86			L	GER8$1
LEAD-214	**3.19E+00**	U	3.0E+00	3.0E+00	5.24E+00	pCi/L		*0.61*	11/20/02 05:47 p		2.0003	E901.1
								(2.1)			L	GER8$1
RADIUM-226	**3.77E+00**	U	3.0E+00	3.0E+00	5.89E+00	pCi/L		*0.64*	11/20/02 05:47 p		2.0003	E901.1
								(2.5)			L	GER8$1
THALLIUM-208	**3.41E-01**	U	1.3E+00	1.3E+00	2.47E+00	pCi/L		*0.14*	11/20/02 05:47 p		2.0003	E901.1
								0.51			L	GER8$1
Batch: 2298400	Work Order: FAPGT1AA				Report DB ID: 9FAPGT10							
TRITIUM	**2.10E+00**	U	1.1E+02	1.2E+02	2.78E+02	pCi/L	100.00%	*0.01*	12/1/02 08:10 a		0.01	E906.0
						1.29E+02	4.00E+02	*0.04*			L	LSC4

Number of Results: 19

Comments:

STL Richland
rptSTLRchSample
V3.97 A97

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM II

Date: 19-Dec-02

DUPLICATE RESULTS

Lab Name:	STL Richland	**SDG:**	21410	**Collection Date:**	7/3/2002 9:40:00 AM
Lot-Sample No.:	J2J240267-1	**Report No. :**	21233	**Received Date:**	10/24/2002 11:55:00 AM
Client Sample ID:	9521-0000-020F DUP	**COC No. :**		**Matrix:**	WATER

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2298396	Work Order: FAPGJ1AE			Report DB ID: FAPGJ1ER		Orig Sa DB ID: 9FAPGJ10						
STRONTIUM-90	4.77E-01	U	6.9E-01	6.9E-01	1.31E+00	pCi/L	58.48%	0.36	12/15/02 09:28 a		0.6468	E905.0
	1.78E-01	U RER	0.7			2.00E+00		(1.4)			L	GPC2A

Number of Results: 1

Comments:

STL Richland
rptSTLRchDupV3.9 7 A97

RER - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.
MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM II

Date: 19-Dec-02

DUPLICATE RESULTS

Lab Name: STL Richland **SDG:** 21410 **Collection Date:** 7/3/2002 9:48:00 AM

Lot-Sample No.: J2J240267-2 **Report No. :** 21233 **Received Date:** 10/24/2002 11:55:00 AM

Client Sample ID: 9521-0000-021F DUP **COC No. :** **Matrix:** WATER

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2298399	Work Order: FAPGR1AE			Report DB ID: FAPGR1ER		Orig Sa DB ID: 9FAPGR10						
ACTINIUM-228	3.05E+00	U	1.3E+01	1.3E+01	1.86E+01	pCi/L		0.16	11/20/02 05:46 p		1.3215	E901.1
	1.31E+00	U RER	0.3					0.49			L	GER7$1
AG-108M	8.13E-01	U	1.8E+00	1.8E+00	3.29E+00	pCi/L		0.25	11/20/02 05:46 p		1.3215	E901.1
	-3.32E-01	U RER	1.1					0.93			L	GER7$1
AMERICIUM-241	2.31E+00	U	5.9E+00	5.9E+00	9.48E+00	pCi/L		0.24	11/20/02 05:46 p		1.3215	E901.1
	-1.14E+00	U RER	1.1					0.79			L	GER7$1
BISMUTH-214	-7.46E-01	U	5.9E+00	5.9E+00	1.05E+01	pCi/L		-0.07	11/20/02 05:46 p		1.3215	E901.1
	3.01E+00	U RER	1.2					-0.25			L	GER7$1
COBALT-60	2.89E+00	U	2.7E+00	2.7E+00	5.77E+00	pCi/L		0.5	11/20/02 05:46 p		1.3215	E901.1
	1.31E+00	U RER	1.0			2.50E+01		(2.1)			L	GER7$1
CESIUM-134	2.35E+00	U	2.6E+00	2.6E+00	5.20E+00	pCi/L		0.45	11/20/02 05:46 p		1.3215	E901.1
	1.45E+00	U RER	0.6			1.50E+01		(1.8)			L	GER7$1
CESIUM-137	7.85E-01	U	2.5E+00	2.5E+00	4.66E+00	pCi/L		0.17	11/20/02 05:46 p		1.3215	E901.1
	-4.33E-01	U RER	0.9			1.50E+01		0.63			L	GER7$1
EUROPIUM-152	-2.05E+00	U	5.7E+00	5.7E+00	9.56E+00	pCi/L		-0.21	11/20/02 05:46 p		1.3215	E901.1
	-1.40E+00	U RER	0.2			5.00E+01		-0.73			L	GER7$1
EUROPIUM-154	8.32E-01	U	6.5E+00	6.5E+00	1.26E+01	pCi/L		0.07	11/20/02 05:46 p		1.3215	E901.1
	-3.99E+00	U RER	1.3			5.00E+01		0.26			L	GER7$1
EUROPIUM-155	-1.90E+00	U	4.7E+00	4.7E+00	8.12E+00	pCi/L		-0.23	11/20/02 05:46 p		1.3215	E901.1
	-3.63E-01	U RER	0.6			5.00E+01		-0.8			L	GER7$1
POTASSIUM-40	1.02E+01	U	5.2E+01	5.2E+01	4.81E+01	pCi/L		0.21	11/20/02 05:46 p		1.3215	E901.1
	-1.04E+01	U RER	0.7					0.4			L	GER7$1

STL Richland
rptSTLRchDupV3.9 7 A97

RER - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.

U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM II

Date: 19-Dec-02

DUPLICATE RESULTS

Lab Name: STL Richland **SDG:** 21410 **Collection Date:** 7/3/2002 9:48:00 AM

Lot-Sample No.: J2J240267-2 **Report No. :** 21233 **Received Date:** 10/24/2002 11:55:00 AM

Client Sample ID: 9521-0000-021F DUP **COC No. :** **Matrix:** WATER

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC/MDA, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
MAGNESIUM-54	3.45E-01	U	3.2E+00	3.2E+00	5.79E+00	pCi/L		0.06	11/20/02 05:46 p		1.3215	E901.1
	-5.60E-01	U RER	0.5			2.00E+02		0.22			L	GER7$1
NIOBIUM-94	-6.09E-01	U	2.0E+00	2.0E+00	3.50E+00	pCi/L		-0.17	11/20/02 05:46 p		1.3215	E901.1
	2.99E-02	U RER	0.6			2.00E+02		-0.61			L	GER7$1
LEAD-212	-8.84E-02	U	3.9E+00	3.9E+00	6.61E+00	pCi/L		-0.01	11/20/02 05:46 p		1.3215	E901.1
	2.07E+00	U RER	0.9					-0.05			L	GER7$1
LEAD-214	-1.75E+00	U	5.4E+00	5.4E+00	9.23E+00	pCi/L		-0.19	11/20/02 05:46 p		1.3215	E901.1
	3.83E-01	U RER	0.7					-0.64			L	GER7$1
RADIUM-226	-7.56E-01	U	5.9E+00	5.9E+00	1.05E+01	pCi/L		-0.07	11/20/02 05:46 p		1.3215	E901.1
	3.00E+00	U RER	1.2					-0.26			L	GER7$1
THALLIUM-208	3.81E-01	U	3.0E+00	3.0E+00	4.60E+00	pCi/L		0.08	11/20/02 05:46 p		1.3215	E901.1
	6.36E-01	U RER	0.2					0.25			L	GER7$1

Number of Results: 17

Comments:

STL Richland
rptSTLRchDupV3.9 7 A97

RER - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.
MDC/MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for, but the result is less than the Mdc/Mda/Total Uncert or gamma scan software did not identify the nuclide.

FORM II

Date: 19-Dec-02

DUPLICATE RESULTS

Lab Name: STL Richland **SDG:** 21410 **Collection Date:** 7/3/2002 10:00:00 AM

Lot-Sample No.: J2J240267-3 **Report No. :** 21233 **Received Date:** 10/24/2002 11:55:00 AM

Client Sample ID: 9521-0000-022F DUP **COC No. :** **Matrix:** WATER

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2298400	Work Order: FAPGT1AE			Report DB ID: FAPGT1ER		Orig Sa DB ID: 9FAPGT10						
TRITIUM	7.58E+01	U	1.2E+02	1.2E+02	2.76E+02	pCi/L	100.00%	0.27	12/1/02 08:52 a		0.01	E906.0
	2.10E+00	U RER	0.9			4.00E+02		(1.2)			L	LSC4

Number of Results: 1

Comments:

STL Richland
rptSTLRchDupV3.9 7 A97

RER - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.

U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM II

BLANK RESULTS

Date: 19-Dec-02

Lab Name: STL Richland **SDG:** 21411

Lot-Sample No.: J2J250000-396 **Report No. :** 21233 **Matrix:** WATER

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2298396	Work Order: FAR3Q1AA			Report DB ID: FAR3Q1AB								
STRONTIUM-90	2.34E-04	U	9.5E-03	3.2E-01	7.43E-01	pCi/L	59.44%	0.	12/15/02 11:12 a		1.0	E905.0
					3.28E-01	2.00E+00		0.			L	GPC2A

Number of Results: 1

Comments:

STL Richland
rptSTLRchBlank
V3.97 A97

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM II

BLANK RESULTS

Date: 19-Dec-02

Lab Name: STL Richland **SDG:** 21410

Lot-Sample No.: J2J250000-399 **Report No. :** 21233 **Matrix:** WATER

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2298399	Work Order: FAR311AA			Report DB ID: FAR311AB								
ACTINIUM-228	1.64E+00	U	7.8E+00	7.8E+00	1.26E+01	pCi/L		0.13	11/20/02 09:19 p		2.0014	E901.1
								0.42			L	GER7$1
AG-108M	3.41E-01	U	1.3E+00	1.3E+00	2.30E+00	pCi/L		0.15	11/20/02 09:19 p		2.0014	E901.1
								0.54			L	GER7$1
AMERICIUM-241	-3.96E+00	U	3.9E+00	3.9E+00	6.28E+00	pCi/L		-0.63	11/20/02 09:19 p		2.0014	E901.1
								-(2.)			L	GER7$1
BISMUTH-214	-2.12E+00	U	3.7E+00	3.7E+00	6.46E+00	pCi/L		-0.33	11/20/02 09:19 p		2.0014	E901.1
								-(1.1)			L	GER7$1
COBALT-60	3.50E-01	U	1.5E+00	1.5E+00	2.96E+00	pCi/L		0.12	11/20/02 09:19 p		2.0014	E901.1
						2.50E+00		0.47			L	GER7$1
CESIUM-134	9.91E-01	U	1.7E+00	1.7E+00	3.35E+00	pCi/L		0.3	11/20/02 09:19 p		2.0014	E901.1
						1.50E+00		(1.2)			L	GER7$1
CESIUM-137	-2.47E-02	U	1.3E+00	1.3E+00	2.40E+00	pCi/L		-0.01	11/20/02 09:19 p		2.0014	E901.1
						1.50E+00		-0.04			L	GER7$1
EUROPIUM-152	-1.55E+00	U	3.9E+00	3.9E+00	6.53E+00	pCi/L		-0.24	11/20/02 09:19 p		2.0014	E901.1
						5.00E+00		-0.8			L	GER7$1
EUROPIUM-154	-6.52E-01	U	4.0E+00	4.0E+00	7.54E+00	pCi/L		-0.09	11/20/02 09:19 p		2.0014	E901.1
						5.00E+00		-0.32			L	GER7$1
EUROPIUM-155	5.42E-01	U	3.1E+00	3.1E+00	5.56E+00	pCi/L		0.1	11/20/02 09:19 p		2.0014	E901.1
						5.00E+00		0.35			L	GER7$1
POTASSIUM-40	-2.73E+01	U	3.4E+01	3.4E+01	6.93E+01	pCi/L		-0.39	11/20/02 09:19 p		2.0014	E901.1
								-(1.6)			L	GER7$1
MAGNESIUM-54	-2.83E-01	U	2.1E+00	2.1E+00	3.78E+00	pCi/L		-0.07	11/20/02 09:19 p		2.0014	E901.1
						2.00E+00		-0.26			L	GER7$1

STL Richland
rptSTLRchBlank
V3.97 A97

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM II

BLANK RESULTS

Date: 19-Dec-02

Lab Name: STL Richland SDG: 21410

Lot-Sample No.: J2J250000-399 Report No. : 21233 Matrix: WATER

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
NIOBIUM-94	-1.19E+00	U	1.5E+00	1.5E+00	2.34E+00	pCi/L		-0.51	11/20/02 09:19 p		2.0014	E901.1
						2.00E+00		-(1.6)			L	GER7$1
LEAD-212	-4.88E-01	U	2.5E+00	2.5E+00	4.16E+00	pCi/L		-0.12	11/20/02 09:19 p		2.0014	E901.1
								-0.39			L	GER7$1
LEAD-214	-5.43E-01	U	3.5E+00	3.5E+00	6.00E+00	pCi/L		-0.09	11/20/02 09:19 p		2.0014	E901.1
								-0.31			L	GER7$1
RADIUM-226	-2.13E+00	U	3.7E+00	3.7E+00	6.46E+00	pCi/L		-0.33	11/20/02 09:19 p		2.0014	E901.1
								-(1.1)			L	GER7$1
THALLIUM-208	-1.70E+00	U	1.9E+00	1.9E+00	3.04E+00	pCi/L		-0.56	11/20/02 09:19 p		2.0014	E901.1
								-(1.8)			L	GER7$1

Number of Results: 17

Comments:

STL Richland
rptSTLRchBlank
V3.97 A97

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM II

BLANK RESULTS

Date: 19-Dec-02

Lab Name: STL Richland SDG: 21410

Lot-Sample No.: J2J250000-400 Report No. : 21233 Matrix: WATER

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2298400	Work Order: FAR381AA			Report DB ID: FAR381AB								
TRITIUM	-3.79E+01	U	1.1E+02	1.2E+02	2.76E+02	pCi/L	100.00%	-0.14	12/1/02 04:39 a		0.01	E906.0
					1.28E+02	4.00E+02		-0.65			L	LSC4
Batch: 2298400	Work Order: FAR381AD			Report DB ID: FAR381DX								
TRITIUM	1.17E+02	U	1.2E+02	1.3E+02	2.79E+02	pCi/L	100.00%	0.42	12/1/02 06:03 a		0.01	E906.0
					1.29E+02	5.00E+02		(1.8)			L	LSC4

Number of Results: 2

Comments:

STL Richland
rptSTLRchBlank
V3.97 A97

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM II

Date: 19-Dec-02

LCS RESULTS

Lab Name: STL Richland **SDG:** 21411

Lot-Sample No.: J2J250000-396 **Report No. :** 21233 **Matrix:** WATER

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 2298396	Work Order: FAR3Q1AC			Report DB ID: FAR3Q1CS									
STRONTIUM-90	1.62E+01		1.4E+00	3.6E+00	7.29E-01	pCi/L	62.42%	1.38E+01	2.7E-01	117.12%	12/15/02 11:12 a	1.0	E905.0
							Rec Limits:	70.	130.	0.2		L	GPC2B

Number of Results: 1

Comments:

STL Richland Bias - (Result/Expected)-1 as defined by ANSI N13.30.

rptSTLRchLcs
V3.97 A97

FORM II

LCS RESULTS

Date: 19-Dec-02

Lab Name: STL Richland SDG: 21410

Lot-Sample No.: J2J250000-399 Report No. : 21233 Matrix: WATER

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 2298399	Work Order: FAR311AC			Report DB ID: FAR311CS									
CESIUM-137	9.88E+01		1.3E+01	1.3E+01	2.26E+00	pCi/L		1.01E+02	3.5E+00	97.51%	11/20/02 09:20 p	2.0017	E901.1
							Rec Limits:	70.	130.	0.0		L	GER8$1

Number of Results: 1

Comments:

STL Richland Bias - (Result/Expected)-1 as defined by ANSI N13.30.

rptSTLRchLcs
V3.97 A97

FORM II

Date: 19-Dec-02

LCS RESULTS

Lab Name: STL Richland **SDG:** 21410

Lot-Sample No.: J2J250000-400 **Report No. :** 21233 **Matrix:** WATER

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 2298400	Work Order: FAR381AC			Report DB ID: FAR381CS									
TRITIUM	2.59E+03		2.3E+02	2.5E+02	2.78E+02	pCi/L	100.00%	2.81E+03	8.4E+01	92.11%	12/1/02 05:21 a	0.01	E906.0
							Rec Limits:	70.	130.	-0.1		L	LSC4
Batch: 2298400	Work Order: FAR381AE			Report DB ID: FAR381EM									
TRITIUM	2.69E+03		2.3E+02	2.6E+02	2.79E+02	pCi/L	100.00%	2.81E+03	8.4E+01	95.82%	12/1/02 06:46 a	0.01	E906.0
							Rec Limits:	70.	130.	0.0		L	LSC4

Number of Results: 2

Comments:

STL Richland Bias - (Result/Expected)-1 as defined by ANSI N13.30.

rptSTLRchLcs
V3.97 A97

Q-47573 J2J240267 Date 11-23

SDG 21410

STL RICHLAND

Bechtel Power Corporation 362 Injun Hollow Road, East Hampton, CT 06424 860-267-2556	**Chain of Custody Form**	**COC No: 00029** **P.O. #: 24265-FSB-S-00552-AC** **Activity Code: 24265-200-034AA3**

Project Name: Haddam Neck Decommissioning

Contact Name: Jack McCarthy
Phone: 1-860-267-2556 ext 3024

Analytical Lab (Name, City, State):
STL Richland,
2800 George Washington Way
Richland, WA 99352 Attention: Barb Gillespi

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

Analyses Requested

Lab Use Only

Comments: HLP

Sample Designation	Date	Time	Media Code	Sample Type Code	Container Size-&Type Code	Number of Containers	Analysis Type 1	Analysis Type 2	Analysis Type 3	Comment, Preservation	Lab Sample ID
9521-0000-020F	7/3/2002	0940	WF	G	P	1	BFSSGAM	BFSSOTHR Sr-90, H-3		5ml/gal HNO3	FAPGJ
9521-0000-021F	7/3/2002	0948	WF	G	P	1	BFSSGAM	BESSOTHR Sr-90, H-3		5ml/gal HNO3	FAPGR
9521-0000-022F	7/3/2002	1000	WF	G	P	1	BFSSGAM	BFSSOTHR Sr-90, H-3		5ml/gal HNO3	FAPGT

NOTES: Multiple individuals performing sampling, refer to Daily Survey Journal sheet for list of team members

1) Sampled By	Date/Time	2) Received By	Date/Time
[signature]	7/3/02 1200	Heidelberg	10-24-02 1155
3) Relinquished By	Date/Time	4) Received By	Date/Time
5) Relinquished By	Date/Time	6) Received By	Date/Time

Samples Shipped Via:
☒ Fed Ex
☐ UPS
☐ Hand
☐ Other

Bill of Lading #

Internal Container Temp.: ____ Deg. C

Custody Sealed? Y ☐ N ☐

Custody Seal Intact? Y ☐ N ☐

Media Code	WG: Ground Water, WF: Surface Water, RW: River Water, WE: Estuary Water, WS: Sea Water, EW: Effluent Water, TS: Soil, SE: Sediment, AS: Asphalt, TG: Vegetation, CT: Concrete, OT: Other
Sample Type Code	G: Grab, C: Composite, CR: Core, D: Duplicate, S: Split, FB: Field Blank, RB: Rinsate Blank, MSB: Matrix Spike Dup. OT: Other
Container Type	BP: Plastic Bag, BC: Cloth Bag, P: Plastic, SC: Steel Can, G: Glass, A: Amber glass, V: Vial, 1LM: 1 liter marinelli; OT: Other

****
10-JUL-2002 16:57:23.26

CONNECTICUT YANKEE
HADDAM NECK STATION
****

SAMPLE TITLE : - SOIL SAMPLE: 9521-0000-023FM
REASON FOR ANALYSIS: Site Characterization
SAMPLE ID : 020710017 * SAMPLE GEOMETRY : 1LMAR
SAMPLE TIME : 10-JUL-2002 15:18 * GEO EFFICIENCY DATE: 7-JUN-1999
SAMPLE TYPE : DIRT/SEDIMENT * SAMPLE QUANTITY : 1.36300E+03 GM
****

DETECTOR : DET 1 * LIBRARY : FSS_DIRT
LAST ENERGY CAL : 10-JUL-2002 08:10 * ENERGY TOLERANCE: 1.00000
KEV/CHANNEL : 5.00655E-01 * HALF LIFE RATIO : 9.00000
START CHANNEL : 100 * END CHANNEL : 4096
ACQ DATE & TIME : 10-JUL-2002 16:40 * DEADTIME (%) : 0.0%
PRESET LIVE TIME : 0 00:16:40 * SENSITIVITY : 5.00000
ELAPSED REAL TIME : 1000.1 Secs * GAUSSIAN SEN : 10.00000
ELAPSED LIVE TIME : 1000.0 Secs * CORRECTION FACTOR: 1.00000E+06
DECAYED TO 0 DAYS HOURS
FILE IDENT : CAS$DISK:[NEU.SAMPLE.RP.NEW]020710017_ADC1_DIRTSEDIMENT.CNF;1

****
ANALYSES : PEAK V16.8 NID V3.2 MINACT V2.8 WTMEAN V1.8
****

Collected by : DEGOSTIN
REVIEWED BY : _____
COMMENTS :

Cs-137 Id'd

****

Post-NID Peak Search Report

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides
4	74.96	91	71	1.21	149.89	146	19	18.4	2.89E+00	PB-212
										PB-214
4	77.13	124	65	1.21	154.21	146	19	14.4		PB-214
										PB-212
0	185.77	53	59	1.04	371.26	367	10	30.2		RA-226
0	209.70	40	44	1.14	419.07	415	9	34.2		AC-228
5	238.66	248	24	1.06	476.95	473	22	7.1	2.29E+00	PB-212
5	240.83	35	21	1.34	481.28	473	22	50.4		
5	242.55	27	19	1.46	484.72	473	22	48.8		PB-214
3	295.53	71	21	1.54	590.59	586	18	16.8	2.40E+00	PB-214
3	300.12	24	19	1.55	599.77	586	18	39.2		
0	338.43	45	28	1.26	676.34	672	8	25.2		AC-228
0	352.16	128	26	1.20	703.77	699	12	12.2		PB-214
0	462.51	27	18	1.58	924.36	918	14	38.4		AC-228
0	583.47	67	11	1.32	1166.18	1159	15	16.4		TL-208
0	609.37	77	3	1.26	1217.97	1211	13	12.4		BI-214
0	661.74	38	13	1.23	1322.72	1317	13	25.7		CS-137
0	911.06	39	4	1.83	1821.42	1813	13	18.8		AC-228
0	1120.64	29	7	1.60	2240.83	2234	14	26.8		BI-214

Sample ID : 020710017 Acquisition date : 10-JUL-2002 16:40:24

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides
0	1461.03	126	6	1.68	2922.36	2916	12	9.7		K-40

Sample ID : 020710017 Acquisition date : 10-JUL-2002 16:40:24

---- Identified Nuclides ----

Nuclide	Activity (pCi/GM)	Act error	MDA (pCi/GM)	MDA error	Act/MDA
K-40	6.557E+00	6.851E-01	4.812E-01	1.844E-02	13.627
CS-137	1.227E-01	3.179E-02	2.735E-02	9.526E-04	4.485
TL-208	1.955E-01	3.274E-02	3.082E-02	1.112E-03	6.345
PB-212	6.192E-01	5.824E-02	3.880E-02	2.412E-03	15.961
BI-214	4.470E-01	5.329E-02	4.597E-02	1.629E-03	9.723
PB-214	5.028E-01	5.022E-02	6.657E-02	2.227E-03	7.553
RA-226	1.514E+00	4.661E-01	5.614E-01	3.306E-02	2.697
AC-228	5.850E-01	7.899E-02	1.355E-01	4.289E-03	4.317

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GM)	K.L. Ided	Act error	MDA (pCi/GM)	MDA error	Act/MDA
BE-7	-3.254E-02		6.392E-02	2.257E-01	9.065E-03	-0.144
MN-54	-3.458E-03		8.656E-03	3.732E-02	1.261E-03	-0.093
CO-60	1.947E-02		1.413E-02	7.107E-02	2.437E-03	0.274
NB-94	-8.673E-05		6.164E-03	3.091E-02	1.017E-03	-0.003
RU-106	-3.781E-02		3.929E-02	9.730E-02	3.425E-03	-0.389
AG-108M	-3.887E-04		1.074E-02	3.941E-02	1.392E-03	-0.010
AG-110M	-5.764E-03		6.806E-03	2.152E-02	7.499E-04	-0.268
SB-125	1.642E-02		2.108E-02	9.051E-02	3.642E-03	0.181
CS-134	-5.214E-03		5.869E-03	1.849E-02	6.571E-04	-0.282
EU-152	1.041E-01		5.217E-02	3.124E-01	1.160E-02	0.333
EU-154	-1.555E-02		3.472E-02	1.435E-01	5.819E-03	-0.108
EU-155	3.489E-02		2.744E-02	1.126E-01	3.944E-03	0.310
BI-212	1.624E-01		9.337E-02	4.512E-01	1.569E-02	0.360
RA-223	3.803E-02		5.333E-02	2.054E-01	9.330E-03	0.185
TH-228	-4.733E-01		6.493E-01	2.373E+00	1.136E-01	-0.199
PA-234	3.269E-01	+	4.997E-02	7.518E-02	3.944E-03	4.349
TH-234	5.846E-01		3.620E-01	1.528E+00	1.383E-01	0.383
U-235	9.181E-02	+	2.825E-02	5.637E-02	3.289E-03	1.629
AM-241	5.476E-02		4.246E-02	1.817E-01	9.274E-03	0.301

REPORT NAME : QA_CHECK (V9.1) PAGE 1 OF ___
REPORT DATE : 10-JUL-2002 16:57
REQUESTOR : CAS_TECH

CYAPCO
HADDAM NECK STATION

POST NID QA ANALYSIS

TITLE : - SOIL SAMPLE: 9521-0000023FM

SAMPLE No. : 020710017 OPERATOR NAME : CAS
SAMPLE TYPE : DIRT/SEDIMENT SAMPLE GEOMETRY : 1LMAR
COUNT TIME : 10-JUL-2002 16:40:24 SAMPLE QUANTITY : 1.36300E+03
SAMPLE TIME : 10-JUL-2002 15:18:00 DETECTOR : DET 1
LIBRARY : FSS_DIRT

ISOTOPE	PEAK ENERGY	ENERGY DIFF (KEV)	DECAY CORR pCi/GM	COMMENTS
K-40	1460.80	0.23	6.557E+00	QA Results OK
CS-137	661.65	0.10	1.227E-01	QA Results OK
TL-208	583.14	0.33	1.955E-01	QA Results OK
PB-212	238.63	0.04	6.192E-01	QA Results OK
BI-214	609.31	0.05	4.470E-01	QA Results OK
PB-214	351.92	0.24	5.028E-01	QA Results OK
RA-226	186.21	-0.44	1.514E+00	QA Results OK
AC-228	911.07	-0.01	5.850E-01	QA Results OK
AVG ENERGY DIFF =		0.07	1.054E+01 = TOTAL GAMMA ACTIVITY	

74.96 KeV Peak was used in identifying 2 isotopes
77.13 KeV Peak was used in identifying 2 isotopes

UNIDENTIFIED/REJECTED PEAKS

ENERGY	NET AREA	FWHM	GAMMA/SEC	GAMMA/SEC /GM	% ERROR	FLAG	POTENTIAL ID	ACTIVITY
240.83	35.	1.34	1.977E+00	1.450E-03	50.4	U	PB10	
300.12	24.	1.55	1.590E+00	1.166E-03	39.2	P	PB-212	9.299E-01

Total Unidentified/Rejected Peaks = 2
% Unidentified/Rejected Peaks = 11.11

Flags: U - Unknown Line
R - Rejected During Analysis
P - Positively Identified (line not in analysis library)

CYAPCO
HADDAM NECK STATION

POST NID QA ANALYSIS

Performed by: _____

Reviewed by: _____

**** End Of Report (2 Pages) ****

****
10-JUL-2002 17:00:43.44

CONNECTICUT YANKEE
HADDAM NECK STATION
****

SAMPLE TITLE : - SOIL SAMPLE: 9521-0000-024FM
REASON FOR ANALYSIS: Site Characterization
SAMPLE ID : 020710019 * SAMPLE GEOMETRY : 1LMARSAND
SAMPLE TIME : 10-JUL-2002 15:15 * GEO EFFICIENCY DATE: 19-AUG-1997
SAMPLE TYPE : DIRT/SEDIMENT * SAMPLE QUANTITY : 1.55200E+03 GM
****

DETECTOR : DET 2 * LIBRARY : FSS_DIRT
LAST ENERGY CAL : 10-JUL-2002 08:53 * ENERGY TOLERANCE: 1.00000
KEV/CHANNEL : 5.01094E-01 * HALF LIFE RATIO : 9.00000
START CHANNEL : 100 * END CHANNEL : 4096
ACQ DATE & TIME : 10-JUL-2002 16:43 * DEADTIME (%) : 0.0%
PRESET LIVE TIME : 0 00:16:40 * SENSITIVITY : 5.00000
ELAPSED REAL TIME : 1000.3 Secs * GAUSSIAN SEN : 10.00000
ELAPSED LIVE TIME : 1000.0 Secs * CORRECTION FACTOR: 1.00000E+06
DECAYED TO 0 DAYS HOURS
FILE IDENT : CAS$DISK:[NEU.SAMPLE.RP.NEW]020710019_ADC2_DIRTSEDIMENT.CNF;1

****
ANALYSES : PEAK V16.8 NID V3.2 MINACT V2.8 WTMEAN V1.8 INTERF V2.4
****

Collected by : DEGOSTIN
REVIEWED BY : _____
COMMENTS :

Cs-137 Id'd

****

Post-NID Peak Search Report

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides
4	74.90	90	110	0.88	150.05	146	13	20.1	7.16E-01	PB-212
										PB-214
4	77.14	172	109	1.05	154.52	146	13	12.7		PB-214
										PB-212
0	87.45	69	151	0.82	175.10	172	7	31.9		PB-212
0	185.80	76	118	1.16	371.42	367	9	28.3		RA-226
0	209.47	62	107	1.03	418.69	413	12	35.7		AC-228
1	238.65	368	54	1.10	476.95	471	17	6.2	1.12E+00	PB-212
1	240.80	43	63	1.35	481.24	471	17	53.9		
1	242.06	50	56	1.16	483.76	471	17	30.9		PB-214
0	269.84	46	54	1.06	539.23	535	10	32.7		AC-228
0	295.24	93	48	0.92	589.96	586	8	16.6		PB-214
0	338.80	65	38	1.72	676.96	673	12	22.5		AC-228
0	351.86	209	39	1.10	703.03	697	12	9.1		PB-214
0	511.23	67	31	2.06	1021.40	1014	18	23.0		
0	583.12	134	23	1.54	1165.04	1158	15	11.6		TL-208
0	609.31	122	15	1.43	1217.40	1212	12	11.1		BI-214
0	661.66	51	14	1.03	1322.02	1318	10	19.1		CS-137
0	727.67	29	10	1.31	1453.96	1447	13	28.7		BI-212

Sample ID : 020710019 Acquisition date : 10-JUL-2002 16:43:43

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides
0	911.39	91	8	1.72	1821.30	1815	16	12.6		AC-228
0	969.30	50	6	1.73	1937.14	1933	9	16.8		AC-228
0	1460.88	299	0	1.96	2920.96	2914	13	5.8		K-40

Sample ID : 020710019 Acquisition date : 10-JUL-2002 16:43:43

---- Identified Nuclides ----

Nuclide	Activity (pCi/GM)	Act error	MDA (pCi/GM)	MDA error	Act/MDA
K-40	9.265E+00	6.950E-01	2.290E-01	1.094E-02	40.457
CS-137	1.017E-01	2.029E-02	3.254E-02	1.881E-03	3.124
TL-208	2.409E-01	3.088E-02	2.419E-02	1.327E-03	9.960
BI-212	4.545E-01	1.327E-01	1.873E-01	1.049E-02	2.426
PB-212	6.248E-01	4.770E-02	4.256E-02	2.035E-03	14.681
BI-214	4.128E-01	5.125E-02	4.589E-02	2.567E-03	8.995
PB-214	5.082E-01	4.338E-02	4.811E-02	2.217E-03	10.563
RA-226	1.529E+00	4.396E-01	6.157E-01	2.988E-02	2.482
AC-228	6.975E-01	6.341E-02	8.207E-02	3.802E-03	8.499

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GM)	K.L. Ided	Act error	MDA (pCi/GM)	MDA error	Act/MDA
BE-7	6.720E-02		5.921E-02	2.368E-01	1.179E-02	0.284
MN-54	-1.090E-03		8.428E-03	3.403E-02	1.725E-03	-0.032
CO-60	9.372E-03		9.171E-03	4.330E-02	2.062E-03	0.216
NB-94	-9.898E-03		7.217E-03	2.559E-02	1.235E-03	-0.387
RU-106	-5.799E-02		3.567E-02	1.242E-01	7.005E-03	-0.467
AG-108M	-4.048E-03		5.558E-03	2.231E-02	1.252E-03	-0.181
AG-110M	1.146E-02		7.414E-03	3.310E-02	1.909E-03	0.346
SB-125	8.063E-03		2.019E-02	7.456E-02	3.500E-03	0.108
CS-134	6.276E-03		6.893E-03	2.913E-02	1.624E-03	0.215
EU-152	4.656E-02		4.112E-02	2.034E-01	9.720E-03	0.229
EU-154	-3.079E-02		2.022E-02	6.420E-02	3.425E-03	-0.480
EU-155	1.245E-02		2.815E-02	1.026E-01	4.470E-03	0.121
RA-223	2.801E-01		9.258E-02	1.883E-01	8.832E-03	1.488
TH-228	-3.696E-01		6.616E-01	2.292E+00	1.164E-01	-0.161
PA-234	3.114E-01	+	4.326E-02	6.733E-02	3.811E-03	4.625
TH-234	-4.952E-01		3.332E-01	1.099E+00	1.289E-01	-0.451
U-235	9.273E-02	+	2.667E-02	5.717E-02	2.775E-03	1.622
AM-241	1.172E-01		4.194E-02	1.651E-01	1.691E-02	0.710

---- Interference between AC-228 and RA-223 ----

**** AC-228 energy lines ****

Energy	# Disint.	% Error	Comments
209.28	5.681E+04	36.04	
270.23	---------	------	Line interferes with RA-223
338.32	3.149E+04	22.98	
463.00	---------	------	Line not identified
794.70	---------	------	Line not identified
835.50	---------	------	Line not identified
911.07	4.194E+04	13.40	
964.60	---------	------	Line not identified
969.11	4.069E+04	17.45	
Average:	3.935E+04	9.41	

Nuclide	Energy	Interfered energy lines Old Area	New Area	Critical Level	New Activity (pCi/GM)	% Error
RA-223	269.46	46.5	16.4	22.3	0.000E+00	0.00
	269.46	Line invalidated: New Area less than critical level				

RA-223 has been rejected: Failed abundance Test

REPORT NAME : QA_CHECK (V9.1) PAGE 1 OF ___
REPORT DATE : 10-JUL-2002 17:00
REQUESTOR : CAS_TECH

CYAPCO
HADDAM NECK STATION

POST NID QA ANALYSIS

TITLE : - SOIL SAMPLE: 9521-0000-024FM

SAMPLE No. : 020710019 OPERATOR NAME : CAS
SAMPLE TYPE : DIRT/SEDIMENT SAMPLE GEOMETRY : 1LMARSAND
COUNT TIME : 10-JUL-2002 16:43:43 SAMPLE QUANTITY : 1.55200E+03
SAMPLE TIME : 10-JUL-2002 15:15:00 DETECTOR : DET 2
LIBRARY : FSS_DIRT

ISOTOPE	PEAK ENERGY	ENERGY DIFF (KEV)	DECAY CORR pCi/GM	COMMENTS
K-40	1460.80	0.08	9.265E+00	QA Results OK
CS-137	661.65	0.01	1.017E-01	QA Results OK
TL-208	583.14	-0.02	2.409E-01	QA Results OK
BI-212	727.17	0.50	4.545E-01	QA Results OK
PB-212	238.63	0.02	6.248E-01	QA Results OK
BI-214	609.31	0.00	4.128E-01	QA Results OK
PB-214	351.92	-0.06	5.082E-01	QA Results OK
RA-226	186.21	-0.42	1.529E+00	QA Results OK
AC-228	911.07	0.32	6.975E-01	QA Results OK
		------	---------	
AVG ENERGY DIFF =		0.05	1.383E+01 = TOTAL GAMMA ACTIVITY	

74.90 KeV Peak was used in identifying 2 isotopes
77.14 KeV Peak was used in identifying 2 isotopes

UNIDENTIFIED/REJECTED PEAKS

ENERGY	NET AREA	FWHM	GAMMA/SEC	GAMMA/SEC /GM	% ERROR	FLAG	POTENTIAL ID	ACTIVITY
240.80	43.	1.35	1.867E+00	1.203E-03	53.9	~~U~~	~~PB~~ BI	
511.23	67.	2.06	5.239E+00	3.376E-03	23.0	~~U~~	ANN-RD	0.000E+00

Total Unidentified/Rejected Peaks = 2
% Unidentified/Rejected Peaks = 10.00

Flags: U - Unknown Line
R - Rejected During Analysis
P - Positively Identified (line not in analysis library)

CYAPCO
HADDAM NECK STATION

POST NID QA ANALYSIS

Performed by: _____

Reviewed by: _____

**** End Of Report (2 Pages) ****

****
10-JUL-2002 16:58:43.38

CONNECTICUT YANKEE
HADDAM NECK STATION
****

SAMPLE TITLE : - SOIL SAMPLE: 9521-0000-25FM
REASON FOR ANALYSIS: Site Characterization
SAMPLE ID : 020710018 * SAMPLE GEOMETRY : 1LMARSAND
SAMPLE TIME : 10-JUL-2002 15:10 * GEO EFFICIENCY DATE: 1-JUL-1998
SAMPLE TYPE : DIRT/SEDIMENT * SAMPLE QUANTITY : 1.41200E+03 GM
****

DETECTOR : DET 5 * LIBRARY : FSS_DIRT
LAST ENERGY CAL : 10-JUL-2002 08:12 * ENERGY TOLERANCE: 1.00000
KEV/CHANNEL : 5.00829E-01 * HALF LIFE RATIO : 9.00000
START CHANNEL : 100 * END CHANNEL : 4096
ACQ DATE & TIME : 10-JUL-2002 16:41 * DEADTIME (%) : 0.1%
PRESET LIVE TIME : 0 00:16:40 * SENSITIVITY : 5.00000
ELAPSED REAL TIME : 1000.8 Secs * GAUSSIAN SEN : 10.00000
ELAPSED LIVE TIME : 1000.0 Secs * CORRECTION FACTOR: 1.00000E+06
DECAYED TO 0 DAYS HOURS
FILE IDENT : CAS$DISK:[NEU.SAMPLE.RP.NEW]020710018_ADC5_DIRTSEDIMENT.CNF;1

****
ANALYSES : PEAK V16.8 NID V3.2 MINACT V2.8 WTMEAN V1.8 INTERF V2.4
****

Collected by : DEGOSTIN
REVIEWED BY : _____
COMMENTS :

Cs-137 Id'd

****

Post-NID Peak Search Report

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides
0	63.21	142	371	1.05	126.63	123	7	24.1		TH-234
7	72.85	118	280	1.72	145.88	143	19	24.1	2.49E+00	
7	74.89	341	323	1.09	149.96	143	19	10.7		PB-212
										PB-214
7	77.08	585	272	1.00	154.33	143	19	6.2		PB-214
										PB-212
3	84.18	131	272	1.20	168.51	165	13	22.4	4.88E-01	TH-228
3	87.22	208	219	1.00	174.56	165	13	13.3		PB-212
4	89.89	113	143	0.94	179.90	178	14	17.7	8.00E-01	
4	92.73	280	289	1.34	185.58	178	14	12.2		
0	185.67	239	237	1.17	371.19	365	12	14.4		RA-226
2	238.60	605	116	1.02	476.91	472	24	4.9	2.80E+00	PB-212
2	240.53	39	127	1.23	480.78	472	24	77.3		
2	241.85	168	143	1.33	483.41	472	24	15.0		PB-214
0	269.90	56	149	1.45	539.44	534	11	44.3		AC-228
0	295.21	325	137	1.29	590.00	583	14	9.4		PB-214
0	338.35	125	79	1.02	676.18	671	9	14.7		AC-228
0	351.90	503	99	1.07	703.26	698	11	5.9		PB-214
0	463.18	52	49	1.24	925.60	920	11	29.7		AC-228

Sample ID : 020710018 Acquisition date : 10-JUL-2002 16:41:43

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides
0	510.93	92	52	0.92	1021.01	1015	11	18.4		
0	583.56	167	79	1.29	1166.18	1159	14	13.7		TL-208
0	609.31	384	34	1.23	1217.65	1212	12	5.9		BI-214
1	661.63	97	15	1.61	1322.23	1316	19	12.8	1.19E+00	CS-137
1	665.47	23	15	1.61	1329.91	1316	19	38.0		
0	728.08	32	47	1.34	1455.05	1449	13	46.7		BI-212
0	769.62	70	50	5.22	1538.11	1528	24	28.9		
0	794.99	35	42	0.80	1588.84	1582	16	43.8		AC-228
0	861.22	38	12	1.34	1721.26	1717	12	24.4		TL-208
0	911.38	130	37	1.28	1821.57	1816	12	12.7		AC-228
0	969.13	67	39	1.38	1937.07	1931	14	23.2		AC-228
0	1120.83	88	23	1.21	2240.50	2234	12	15.5		BI-214
0	1238.82	32	29	0.96	2476.56	2472	11	38.4		BI-214
0	1460.89	675	0	1.65	2920.99	2913	15	3.8		K-40
0	1586.88	19	0	1.09	3173.21	3166	13	22.9		
0	1764.40	55	4	1.39	3528.69	3521	14	15.3		BI-214

---- Identified Nuclides ----

Nuclide	Activity (pCi/GM)	Act error	MDA (pCi/GM)	MDA error	Act/MDA
K-40	1.541E+01	9.342E-01	2.679E-01	1.255E-02	57.505
CS-137	1.428E-01	1.999E-02	1.840E-02	1.031E-03	7.761
TL-208	2.422E-01	3.185E-02	2.577E-02	1.390E-03	9.396
BI-212	3.737E-01	1.758E-01	2.063E-01	1.122E-02	1.812
PB-212	8.016E-01	5.106E-02	4.688E-02	2.372E-03	17.098
BI-214	9.971E-01	6.468E-02	4.125E-02	2.258E-03	24.172
PB-214	1.052E+00	6.079E-02	4.883E-02	2.340E-03	21.552
RA-226	3.594E+00	5.480E-01	4.941E-01	2.464E-02	7.273
AC-228	7.969E-01	6.886E-02	1.032E-01	4.652E-03	7.722
TH-228	4.600E+00	1.054E+00	1.455E+00	7.053E-02	3.162
TH-234	1.718E+00	4.443E-01	5.632E-01	5.342E-02	3.050

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GM)	K.L. Ided	Act error	MDA (pCi/GM)	MDA error	Act/MDA
BE-7	7.544E-02		5.002E-02	2.024E-01	1.006E-02	0.373
MN-54	5.449E-03		7.429E-03	3.153E-02	1.555E-03	0.173
CO-60	9.488E-03		1.059E-02	4.472E-02	2.079E-03	0.212
NB-94	-2.100E-03		6.074E-03	2.464E-02	1.157E-03	-0.085
RU-106	6.908E-02		6.687E-02	2.572E-01	1.417E-02	0.269
AG-108M	-5.580E-03		7.205E-03	2.273E-02	1.248E-03	-0.245
AG-110M	2.784E-03		5.939E-03	2.250E-02	1.259E-03	0.124
SB-125	1.458E-02		1.807E-02	6.800E-02	3.207E-03	0.214
CS-134	1.402E-02		5.655E-03	2.542E-02	1.388E-03	0.552
EU-152	7.325E-02		4.234E-02	2.004E-01	9.374E-03	0.366
EU-154	2.314E-02		1.846E-02	8.977E-02	4.698E-03	0.258
EU-155	4.630E-02		2.499E-02	9.443E-02	4.409E-03	0.490
RA-223	2.506E-01		1.118E-01	1.641E-01	8.295E-03	1.527
PA-234	1.645E-02		1.213E-02	4.512E-02	2.218E-03	0.365
U-235	2.180E-01	+	3.324E-02	6.003E-02	2.993E-03	3.632
AM-241	1.985E-02		1.623E-02	6.123E-02	3.311E-03	0.324

---- Interference between AC-228 and RA-223 ----

**** AC-228 energy lines ****

Energy	# Disint.	% Error	Comments
209.28	---------	------	Line not identified
270.23	---------	------	Line interferes with RA-223
338.32	4.121E+04	15.52	
463.00	5.696E+04	30.06	
794.70	5.908E+04	44.06	
835.50	---------	------	Line not identified
911.07	4.092E+04	13.50	
964.60	---------	------	Line not identified
969.11	3.701E+04	23.60	
Average:	4.142E+04	8.80	

Nuclide	Energy	Interfered energy lines Old Area	New Area	Critical Level	New Activity (pCi/GM)	% Error
RA-223	269.46	55.9	9.2	38.8	0.000E+00	0.00

269.46 Line invalidated: New Area less than critical level
RA-223 has been rejected: Failed abundance Test

REPORT NAME : QA_CHECK (V9.1) PAGE 1 OF ___
REPORT DATE : 10-JUL-2002 16:58
REQUESTOR : CAS_TECH

CYAPCO
HADDAM NECK STATION

POST NID QA ANALYSIS

TITLE : - SOIL SAMPLE: 9521-0000-25FM

SAMPLE No. : 020710018 OPERATOR NAME : CAS
SAMPLE TYPE : DIRT/SEDIMENT SAMPLE GEOMETRY : 1LMARSAND
COUNT TIME : 10-JUL-2002 16:41:43 SAMPLE QUANTITY : 1.41200E+03
SAMPLE TIME : 10-JUL-2002 15:10:00 DETECTOR : DET 5
LIBRARY : FSS_DIRT

ISOTOPE	PEAK ENERGY	ENERGY DIFF (KEV)	DECAY CORR pCi/GM	COMMENTS
K-40	1460.80	0.09	1.541E+01	QA Results OK
CS-137	661.65	-0.02	1.428E-01	QA Results OK
TL-208	583.14	0.42	2.422E-01	QA Results OK
BI-212	727.17	0.91	3.737E-01	QA Results OK
PB-212	238.63	-0.03	8.016E-01	QA Results OK
BI-214	609.31	0.00	9.971E-01	QA Results OK
PB-214	351.92	-0.02	1.052E+00	QA Results OK
RA-226	186.21	-0.54	3.594E+00	QA Results OK
AC-228	911.07	0.31	7.969E-01	QA Results OK
TH-228	84.37	-0.19	4.600E+00	QA Results OK
TH-234	63.29	-0.08	1.718E+00	QA Results OK
		------	---------	
AVG ENERGY DIFF =		0.08	2.973E+01	= TOTAL GAMMA ACTIVITY

74.89 KeV Peak was used in identifying 2 isotopes
77.08 KeV Peak was used in identifying 2 isotopes

UNIDENTIFIED/REJECTED PEAKS

ENERGY	NET AREA	FWHM	GAMMA/SEC	GAMMA/SEC /GM	% ERROR	FLAG	POTENTIAL ID	ACTIVITY
72.85	118.	1.72	2.700E+00	1.912E-03	24.1	P	TL-208	2.562E+00
89.89	113.	0.94	2.484E+00	1.759E-03	17.7	P	BI-214	1.767E+01
						P	AC-228	2.279E+00
92.73	280.	1.34	6.151E+00	4.356E-03	12.2	P	PB_X-RAY	0.000E+00
						P	AC-228	3.386E+00
						P	TH-234	4.383E+00
240.53	39.	1.23	1.144E+00	8.099E-04	77.3	U		
510.93	92.	0.92	4.840E+00	3.428E-03	18.4	U	ANN-RD	0.000E+00
665.47	23.	1.61	1.523E+00	1.078E-03	38.0	P	BI-214	1.870E+00
769.62	70.	5.22	5.252E+00	3.720E-03	28.9	U		
1586.88	19.	1.09	2.565E+00	1.817E-03	22.9	U		

CYAPCO
HADDAM NECK STATION

POST NID QA ANALYSIS

Total Unidentified/Rejected Peaks = 8
% Unidentified/Rejected Peaks = 24.24

Flags: U - Unknown Line
R - Rejected During Analysis
P - Positively Identified (line not in analysis library)

Performed by: _____

Reviewed by: _____

**** End Of Report (2 Pages) ****

Table of Contents

CASE NARRATIVE

CASE NARRATIVE
For
CONNECTICUT YANKEE
RE: Soils
PO# 002332
Work Order: 118392
SDG: MSR#04-2429

August 11, 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 sample for the Soil Project for work order 118392 arrived at General Engineering Laboratories, LLC, (GEL) in Charleston, South Carolina August 5, 2004 for environmental analysis. All sample container arrived without any visible signs of tampering or breakage. The chain of custody contained the proper documentation and signatures.

The laboratory received the following sample:

118392001 9521-0000-026F.

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:

One 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 Koklik
Project Manager

CHAIN OF CUSTODY

1183982.

Connecticut Yankee Atomic Power Company

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

Chain of Custody Form

No. 2004-00095

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:

Sample Designation	Date	Time	Media Code	Sample Type Code	Container Size- &Type Code	FSSGAM	FSS ALL	FSSHTD	FSSTRU	Sr-90		Comment, Preservation	Lab Sample ID
9521-0000-026F	6/8/2004	0914	TS	G	BP	X							

Analyses Requested

Lab Use Only
Comments:

NOTES: PO #: 002332 MSR #: 04-2429 ☒ LTP QA ☐ Radwaste QA ☐ Non QA

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

Internal Container Temp.: .24 Deg. C
Custody Sealed? Y ☐ N ☐
Custody Seal Intact? Y ☐ N ☐

1) Relinquished By [signature]	Date/Time 8/4/04 1430
2) Received By [signature]	Date/Time 8/5/04 8/6/04 10:35
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: 8/5/24

SDG#: MSR# 04-2429

Work Order Number: 118392

Shipping Container ID: 79 27 0057 7638 Chain of Custody # 2004-00395

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 2.4°
5. Vermiculite/packing materials is: Wet [ ] Dry [✓]
6. Number of samples in shipping container: 1
7. Sample holding times exceeded? Yes [✓] No [ ]

8. Samples have:
   - [✓] tape
   - [✓] hazard labels
   - [✓] custody seals
   - [ ] appropriate sample labels

9. Samples are:
   - [✓] in good condition
   - [ ] leaking
   - [ ] broken
   - [ ] have air bubbles

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

Sample Custodian/Laboratory: _____ Date: _____

Telephoned to: _____ On _____ By _____

SAMPLE RECEIPT & REVIEW FORM

PM use only

Client: Connecticut Yankee	SDG/ARCOC/Work Order:
Date Received: 8-5-04	PM(A) Review (ensure non-conforming items are resolved prior to signing):
Received By: Melba Sm.	

	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.		✓		Circle Temp device serial # ice bags blue ice dry ice none other(describe) 24°
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, & Additional Comments	7927 0058 4039			

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

PM (or PMA) review of Receiving Rad classification: SK Initials 8/9/04 Date

RADIOLOGICAL ANALYSIS

Radiochemistry Case Narrative
Connecticut Yankee Atomic Power Co. (YANK)
SDG MSR#04-2429

Method/Analysis Information

Product:	**Gamma,Solid-FSS GAM & ALL FSS 226 Ingrowth Waived**
Analytical Method:	EML HASL 300, 4.5.2.3
Prep Method:	Dry Soil Prep
Analytical Batch Number:	353365
Prep Batch Number:	355584

Sample ID	Client ID
118392001	9521-0000-026F
1200673551	Method Blank (MB)
1200673553	Laboratory Control Sample (LCS)
1200673552	117770001(9530-05-005C) Sample Duplicate (DUP)

SOP Reference
Procedures 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: 117770001 (9530-05-005C).

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

Technical Information:

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

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

Sample Re-prep/Re-analysis
Sample 1200673552 (9530-05-005C) was recounted due to high relative percent difference/relative error ratio.

Miscellaneous Information:

NCR Documentation
NCR ID 134028 1. Non-Rad samples analyzed with Rad Samples: 116707001, 116707002 117770001, 117770002, 117770003, 117770004, 117770005, 117770006 Above samples are "Non RAD" 2. The relative percent difference for Bi-214 did not meet acceptance criteria. The relative error ratio was calculated and passed at 0.82814.
1. Samples were not prepared in the same batch, but were analyzed in the same batch. Reporting results.
2. Batch precision was demonstrated using the relative error ratio. Reporting results.

Qualifier information

Qualifier	Reason	Analyte	Sample
UI	Data rejected due to low abundance.	Europium-154	1200673551

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: _____

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

NCR Report No.: 134028
Revision No.: 2

COMPANY - WIDE NONCONFORMANCE REPORT

Mo.Day Yr.	Division:		Type:
10-AUG-04	Radiochemistry		Process
Instrument Type:	**Quality Criteria:**		**Client Code:**
GAMMA SPECTROMETER	Specifications		YANK
Test / Method:	**Matrix Type:**	**Batch ID:**	**Sample Numbers:**
EML HASL 300, 4.5.2.3	Solid	353365	See Below

Potentially affected work order(s)(SDG): 116707(MSR#04-2156),117770(MSR#04-2375),118392(MSR#04-2429)

Application Issues:

Failed RPD for LCS/LCSD, MS/MSD, or PS/PSD

Non-Rad samples analyzed with Rad Samples

Specification and Requirements Nonconformance Description:	NRG Disposition:
1. Non-Rad samples analyzed with Rad Samples: 116707 001,002 117770 001,002,003,004,005,006 Above samples are "Non RAD" 2. The relative percent difference for Bi-214 did not meet acceptance criteria. The relative error ratio was calculated and passed at 0.82814.	1.Samples were not prepared in the same batch, but were analyzed in the same batch. Reporting results. 2. Batch precision was demonstrated using the relative error ratio. Reporting results.

Originator's Name:
michael hilton 10-AUG-04

Data Validator/Group Leader:
Scott Moreland 10-AUG-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: August 11, 2004

Client Sample ID:	9521-0000-026F	Project:	YANK00504
Sample ID:	118392001	Client ID:	YANK001
Matrix:	Soil	Vol. Recv.:	
Collect Date:	08-JUN-04		
Receive Date:	05-AUG-04		
Collector:	Client		
Moisture:	35.5%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis													
Gamma,Solid-FSS GAM & ALL FSS 226 Ingrowth Waived													
Actinium-228		0.770	+/-0.234	0.0779	+/-0.230	0.171	pCi/g		SRB	08/09/04	1339	353365	1
Americium-241	U	0.0778	+/-0.136	0.0951	+/-0.133	0.197	pCi/g						
Bismuth-212		0.611	+/-0.446	0.213	+/-0.437	0.456	pCi/g						
Bismuth-214		0.624	+/-0.144	0.0443	+/-0.141	0.0947	pCi/g						
Cesium-134	U	0.0448	+/-0.0397	0.0313	+/-0.0389	0.0672	pCi/g						
Cesium-137		1.53	+/-0.145	0.0251	+/-0.142	0.0539	pCi/g						
Cobalt-60	U	0.00974	+/-0.0337	0.028	+/-0.033	0.0622	pCi/g						
Europium-152	U	0.0865	+/-0.0836	0.0682	+/-0.082	0.143	pCi/g						
Europium-154	U	-0.00746	+/-0.0938	0.0742	+/-0.0919	0.165	pCi/g						
Europium-155	U	0.0341	+/-0.117	0.0538	+/-0.115	0.113	pCi/g						
Lead-212		0.834	+/-0.109	0.0342	+/-0.106	0.0716	pCi/g						
Lead-214		0.707	+/-0.127	0.0451	+/-0.124	0.095	pCi/g						
Manganese-54	U	-0.0298	+/-0.0354	0.0248	+/-0.0347	0.0541	pCi/g						
Niobium-94	U	0.00578	+/-0.0284	0.0228	+/-0.0279	0.0489	pCi/g						
Potassium-40		9.08	+/-1.23	0.258	+/-1.20	0.577	pCi/g						
Radium-226		0.624	+/-0.144	0.0443	+/-0.141	0.0947	pCi/g						
Silver-108m	U	-0.0166	+/-0.0294	0.023	+/-0.0288	0.0485	pCi/g						
Thallium-208		0.258	+/-0.0715	0.0218	+/-0.0701	0.047	pCi/g						

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	MJM1	08/06/04	1352	355584

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: August 11, 2004

Client Sample ID: 9521-0000-026F
Sample ID: 118392001

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

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

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: August 11, 2004

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

Workorder: 118392

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 353365										
QC1200673552 117770001 DUP										
Actinium-228		1.18		1.37	pCi/g	15		(0% - 100%)	SRB	08/10/04 11:01
	Uncert:	+/-0.300		+/-0.422						
	TPU:	+/-0.294		+/-0.414						
Americium-241	U	0.0223	U	0.020	pCi/g	11		(0% - 100%)		
	Uncert:	+/-0.115		+/-0.212						
	TPU:	+/-0.112		+/-0.208						
Bismuth-212		1.19		1.44	pCi/g	20		(0% - 100%)		
	Uncert:	+/-0.577		+/-0.650						
	TPU:	+/-0.566		+/-0.637						
Bismuth-214		0.833		1.16	pCi/g	33*				
	Uncert:	+/-0.188		+/-0.214						
	TPU:	+/-0.184		+/-0.210						
Cesium-134	UUI	0.00	U	0.105	pCi/g	31		(0% - 100%)		
	Uncert:	+/-0.0582		+/-0.0794						
	TPU:	+/-0.057		+/-0.0778						
Cesium-137		1.36		1.54	pCi/g	12		(0%-20%)		
	Uncert:	+/-0.131		+/-0.137						
	TPU:	+/-0.128		+/-0.134						
Cobalt-60		0.759		0.686	pCi/g	10		(0%-20%)		
	Uncert:	+/-0.0998		+/-0.134						
	TPU:	+/-0.0978		+/-0.132						
Europium-152	U	-0.0429	U	-0.039	pCi/g	N/A		(0% - 100%)		
	Uncert:	+/-0.080		+/-0.119						
	TPU:	+/-0.0784		+/-0.117						
Europium-154	U	0.00343	U	-0.0549	pCi/g	N/A		(0% - 100%)		
	Uncert:	+/-0.0974		+/-0.139						
	TPU:	+/-0.0955		+/-0.136						
Europium-155	U	0.130	U	0.0813	pCi/g	46		(0% - 100%)		
	Uncert:	+/-0.114		+/-0.116						
	TPU:	+/-0.112		+/-0.113						
Lead-212		1.36		1.40	pCi/g	3		(0% - 20%)		
	Uncert:	+/-0.139		+/-0.134						
	TPU:	+/-0.136		+/-0.131						
Lead-214		1.21		1.31	pCi/g	7		(0% - 20%)		
	Uncert:	+/-0.176		+/-0.187						
	TPU:	+/-0.172		+/-0.183						
Manganese-54	U	0.0169	U	0.0132	pCi/g	24		(0% - 100%)		
	Uncert:	+/-0.0334		+/-0.0458						
	TPU:	+/-0.0328		+/-0.0449						
Niobium-94	U	0.00976	U	0.0407	pCi/g	123		(0% - 100%)		
	Uncert:	+/-0.0285		+/-0.0435						
	TPU:	+/-0.0279		+/-0.0426						

QC Summary

Workorder: 118392

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 353365										
Potassium-40		21.2		20.9	pCi/g	1		(0% - 20%)		
	Uncert:	+/-1.94		+/-1.87						
	TPU:	+/-1.90		+/-1.83						
Radium-226		0.833		1.16	pCi/g	33		(0% - 100%)		
	Uncert:	+/-0.188		+/-0.214						
	TPU:	+/-0.184		+/-0.210						
Silver-108m	U	0.0245	U	-0.0145	pCi/g	N/A		(0% - 100%)		
	Uncert:	+/-0.0287		+/-0.0466						
	TPU:	+/-0.0281		+/-0.0457						
Thallium-208		0.480		0.441	pCi/g	9		(0% - 20%)		
	Uncert:	+/-0.0799		+/-0.0935						
	TPU:	+/-0.0783		+/-0.0916						
QC1200673553 LCS										
Actinium-228			U	-0.0973	pCi/g					08/09/04 14:59
	Uncert:			+/-0.557						
	TPU:			+/-0.545						
Americium-241	23.4			24.7	pCi/g		105	(75%-125%)		
	Uncert:			+/-2.47						
	TPU:			+/-2.42						
Bismuth-212			U	0.210	pCi/g					
	Uncert:			+/-0.961						
	TPU:			+/-0.941						
Bismuth-214			U	0.152	pCi/g					
	Uncert:			+/-0.224						
	TPU:			+/-0.219						
Cesium-134			U	0.0213	pCi/g					
	Uncert:			+/-0.141						
	TPU:			+/-0.138						
Cesium-137	9.21			9.49	pCi/g		103	(75%-125%)		
	Uncert:			+/-0.803						
	TPU:			+/-0.787						
Cobalt-60	14.0			14.6	pCi/g		104	(75%-125%)		
	Uncert:			+/-1.10						
	TPU:			+/-1.07						
Europium-152			U	-0.0443	pCi/g					
	Uncert:			+/-0.290						
	TPU:			+/-0.284						
Europium-154			U	-0.334	pCi/g					
	Uncert:			+/-0.295						
	TPU:			+/-0.289						
Europium-155			U	0.0387	pCi/g					
	Uncert:			+/-0.300						
	TPU:			+/-0.294						
Lead-212			U	0.0983	pCi/g					
	Uncert:			+/-0.144						
	TPU:			+/-0.141						
Lead-214			U	-0.0806	pCi/g					
	Uncert:			+/-0.207						

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch 353365											
	TPU:			+/-0.203							
Manganese-54			U	0.0719	pCi/g						
	Uncert:			+/-0.250							
	TPU:			+/-0.245							
Niobium-94			U	-0.0732	pCi/g						
	Uncert:			+/-0.122							
	TPU:			+/-0.119							
Potassium-40			U	0.611	pCi/g						
	Uncert:			+/-1.07							
	TPU:			+/-1.05							
Radium-226			U	0.152	pCi/g			(75%-125%)			
	Uncert:			+/-0.224							
	TPU:			+/-0.219							
Silver-108m			U	-0.00409	pCi/g						
	Uncert:			+/-0.115							
	TPU:			+/-0.113							
Thallium-208			U	-0.0301	pCi/g						
	Uncert:			+/-0.115							
	TPU:			+/-0.113							
QC1200673551 MB											
Actinium-228			U	0.0589	pCi/g					08/09/04	13:39
	Uncert:			+/-0.0638							
	TPU:			+/-0.0625							
Americium-241			U	0.0109	pCi/g						
	Uncert:			+/-0.0653							
	TPU:			+/-0.064							
Bismuth-212			U	0.0331	pCi/g						
	Uncert:			+/-0.146							
	TPU:			+/-0.143							
Bismuth-214			U	0.0222	pCi/g						
	Uncert:			+/-0.0627							
	TPU:			+/-0.0614							
Cesium-134			U	0.0119	pCi/g						
	Uncert:			+/-0.0204							
	TPU:			+/-0.020							
Cesium-137			U	0.0147	pCi/g						
	Uncert:			+/-0.0156							
	TPU:			+/-0.0153							
Cobalt-60			U	-0.0151	pCi/g						
	Uncert:			+/-0.0207							
	TPU:			+/-0.0203							
Europium-152			U	-0.0235	pCi/g						
	Uncert:			+/-0.0453							
	TPU:			+/-0.0444							
Europium-154			UUI	0.00	pCi/g						
	Uncert:			+/-0.183							
	TPU:			+/-0.180							
Europium-155			U	0.00204	pCi/g						

QC Summary

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch 353365											
	Uncert:			+/-0.0445							
	TPU:			+/-0.0436							
Lead-212			U	0.0103	pCi/g						
	Uncert:			+/-0.0446							
	TPU:			+/-0.0437							
Lead-214			U	0.0254	pCi/g						
	Uncert:			+/-0.0312							
	TPU:			+/-0.0306							
Manganese-54			U	-0.000168	pCi/g						
	Uncert:			+/-0.0165							
	TPU:			+/-0.0162							
Niobium-94			U	0.0019	pCi/g						
	Uncert:			+/-0.017							
	TPU:			+/-0.0167							
Potassium-40			U	0.142	pCi/g						
	Uncert:			+/-0.471							
	TPU:			+/-0.462							
Radium-226			U	0.0222	pCi/g						
	Uncert:			+/-0.0627							
	TPU:			+/-0.0614							
Silver-108m			U	0.0122	pCi/g						
	Uncert:			+/-0.0169							
	TPU:			+/-0.0165							
Thallium-208			U	0.0128	pCi/g						
	Uncert:			+/-0.0401							
	TPU:			+/-0.0393							

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.

QC Summary

Workorder: 118392

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
Sample and Scan Area Data
(4 Pages)

Survey Release Record Scan Area Results
Survey Unit 9521-0000

Sample Name	Background (cpm)	Action Level (cpm)	Results (cpm)	Above AL	Log Date	Log Time	E600 S/N	Probe S/N
9521-00-SL-00-01-0	9380	10762	9400		06/26/2002	10:39 AM	1105	1003
9521-00-SL-00-02-0	19100	21072	20200		06/27/2002	9:28 AM	1105	1003
9521-00-SL-00-03-0	10900	12390	11700		06/25/2002	3:05 PM	1105	1003
9521-00-SL-00-04-0	17200	19072	17000		06/27/2002	9:06 AM	1105	1003
9521-00-SL-00-05-0	10700	12176	9020		06/25/2002	3:21 PM	1105	1003
9521-00-SL-00-06-0	16900	18755	18200		06/27/2002	8:48 AM	1105	1003
9521-00-SL-00-07-0	15800	17594	13400		06/27/2002	10:13 AM	1105	1003
9521-00-SL-00-08-0	9380	10762	9990		06/26/2002	2:23 PM	1105	1003
9521-00-SL-00-09-0	13800	15477	14500		06/27/2002	9:57 AM	1105	1003
9521-00-SL-00-10-0	16000	17805	18300	+	06/27/2002	9:18 AM	1105	1003
9521-00-SL-00-11-0	10000	11427	10200		06/27/2002	1:15 PM	1105	1003
9521-00-SL-00-12-0	9140	10504	10800	+	06/26/2002	2:32 PM	1105	1003
9521-00-SL-00-13-0	24500	26734	22100		06/27/2002	8:34 AM	1105	1003
9521-00-SL-00-14-0	15500	17277	14900		06/27/2002	10:21 AM	1105	1003
9521-00-SL-00-15-0	10600	12069	10900		06/26/2002	2:56 PM	1105	1003
9521-00-SL-00-16-0	12000	13563	12100		06/25/2002	2:52 PM	1105	1003
9521-00-SL-00-17-0	10200	11641	9710		06/25/2002	3:12 PM	1105	1003
9521-00-SL-00-18-0	9170	10537	9390		06/26/2002	10:29 AM	1105	1003
9521-00-SL-00-19-0	9520	10912	9130		06/26/2002	10:48 AM	1105	1003

AL - Above Action Level

Survey Release Record Scan Area Results
Survey Unit 9521-0000

9521-0000 SCAN AREA 1

Sample Name	Background (cpm)	Action Level (cpm)	Results (cpm)	Above AL	Log Date	Log Time	E600 S/N	Probe S/N
9521-00-SC-01-01-0	13200	14840	12300		07/10/2002	8:35 AM	1105	1006
9521-00-SC-01-02-0	13200	14840	11700		07/10/2002	8:37 AM	1105	1006
9521-00-SC-01-03-0	13200	14840	10700		07/10/2002	8:39 AM	1105	1006
9521-00-SC-01-04-0	13200	14840	11900		07/10/2002	8:40 AM	1105	1006
9521-00-SC-01-05-0	13200	14840	13800		07/10/2002	8:42 AM	1105	1006
9521-00-SC-01-06-0	15600	17383	13200		07/10/2002	8:52 AM	1105	1006
9521-00-SC-01-07-0	15600	17383	12600		07/10/2002	8:54 AM	1105	1006
9521-00-SC-01-08-0	15600	17383	13800		07/10/2002	8:56 AM	1105	1006
9521-00-SC-01-09-0	15600	17383	13500		07/10/2002	8:57 AM	1105	1006
9521-00-SC-01-10-0	15600	17383	14300		07/10/2002	8:59 AM	1105	1006
9521-00-SC-01-11-0	15600	17383	12700		07/10/2002	9:01 AM	1105	1006
9521-00-SC-01-12-0	15600	17383	14700		07/10/2002	9:03 AM	1105	1006
9521-00-SC-01-13-0	15600	17383	11200		07/10/2002	9:04 AM	1105	1006
9521-00-SC-01-14-0	15600	17383	11800		07/10/2002	9:05 AM	1105	1006

AL - Above Action Level

Survey Release Record Scan Area Results
Survey Unit 9521-0000

9521-0000 SCAN AREA 2

Sample Name	Background (cpm)	Action Level (cpm)	Results (cpm)	Above AL	Log Date	Log Time	E600 S/N	Probe S/N
9521-00-SC-02-01-0	14200	15901	13900		07/10/2002	1:52 PM	1105	1006
9521-00-SC-02-02-0	14200	15901	13100		07/10/2002	1:55 PM	1105	1006
9521-00-SC-02-03-0	14200	15901	13900		07/10/2002	1:59 PM	1105	1006
9521-00-SC-02-04-0	14200	15901	13400		07/10/2002	2:01 PM	1105	1006
9521-00-SC-02-05-0	14200	15901	12600		07/10/2002	2:03 PM	1105	1006
9521-00-SC-02-06-0	14200	15901	8100		07/10/2002	2:05 PM	1105	1006
9521-00-SC-02-07-0	14200	15901	8280		07/10/2002	2:08 PM	1105	1006
9521-00-SC-02-08-0	14100	15795	14300		07/10/2002	2:19 PM	1105	1006
9521-00-SC-02-09-0	14100	15795	12900		07/10/2002	2:20 PM	1105	1006
9521-00-SC-02-10-0	14100	15795	11900		07/10/2002	2:21 PM	1105	1006
9521-00-SC-02-11-0	14100	15795	11100		07/10/2002	2:22 PM	1105	1006
9521-00-SC-02-12-0	14100	15795	11900		07/10/2002	2:22 PM	1105	1006
9521-00-SC-02-13-0	14100	15795	9680		07/10/2002	2:23 PM	1105	1006
9521-00-SC-02-14-0	14100	15795	7140		07/10/2002	2:24 PM	1105	1006
9521-00-SC-02-15-0	12500	14096	11100		07/10/2002	2:34 PM	1105	1006
9521-00-SC-02-16-0	12500	14096	11800		07/10/2002	2:35 PM	1105	1006
9521-00-ER-02-16-1	12500	14096	14500	+	07/10/2002	2:38 PM	1105	1006
9521-00-SC-02-17-0	12500	14096	11000		07/10/2002	2:39 PM	1105	1006

AL - Above Action Level

Survey Release Record Scan Area Results
Survey Unit 9521-0000

9521-0000 SCAN AREA 3

Sample Name	Background (cpm)	Action Level (cpm)	Results (cpm)	Above AL	Log Date	Log Time	E600 S/N	Probe S/N
9521-00-SC-03-01-0	14300	16007	13100		07/10/2002	10:53 AM	1105	1006

9521-0000 SCAN AREA 4

Sample Name	Background (cpm)	Action Level (cpm)	Results (cpm)	Above AL	Log Date	Log Time	E600 S/N	Probe S/N
9521-00-SC-04-02-0	13200	14840	13300		07/10/2002	9:17 AM	1105	1006
9521-00-SC-04-03-0	13200	14840	13600		07/10/2002	9:19 AM	1105	1006
9521-00-SC-04-04-0	13200	14840	13200		07/10/2002	9:21 AM	1105	1006
9521-00-SC-04-05-0	14400	16113	14500		07/10/2002	9:31 AM	1105	1006
9521-00-ER-04-05-1	14400	16113	17300	+	07/10/2002	9:24 AM	1105	1006
9521-00-SC-04-06-0	14400	16113	11700		07/10/2002	9:32 AM	1105	1006
9521-00-SC-04-07-0	14400	16113	11700		07/10/2002	9:34 AM	1105	1006
9521-00-SC-04-08-0	14400	16113	11400		07/10/2002	9:35 AM	1105	1006
9521-00-SC-04-09-0	13900	15583	11600		07/10/2002	9:38 AM	1105	1006
9521-00-SC-04-10-0	13900	15583	12400		07/10/2002	9:39 AM	1105	1006
9521-00-SC-04-11-0	13900	15583	12600		07/10/2002	9:42 AM	1105	1006
9521-00-ER-04-11-1	13900	15583	16100	+	07/10/2002	9:45 AM	1105	1006
9521-00-SC-04-12-0	13900	15583	14400		07/10/2002	9:47 AM	1105	1006
9521-00-SC-04-13-0	16200	18016	14200		07/10/2002	9:49 AM	1105	1006
9521-00-SC-04-14-0	16200	18016	14400		07/10/2002	9:50 AM	1105	1006
9521-00-SC-04-15-0	16200	18016	14900		07/10/2002	9:51 AM	1105	1006
9521-00-SC-04-16-0	16200	18016	12700		07/10/2002	9:52 AM	1105	1006
9521-00-SC-04-17-0	14500	16219	16200		07/10/2002	9:56 AM	1105	1006
9521-00-SC-04-18-0	14500	16219	14100		07/10/2002	9:59 AM	1105	1006
9521-00-SC-04-19-0	14500	16219	12400		07/10/2002	10:02 AM	1105	1006
9521-00-SC-04-20-0	14500	16219	12000		07/10/2002	10:05 AM	1105	1006

9521-0000 SCAN AREA 5

Sample Name	Background (cpm)	Action Level (cpm)	Results (cpm)		Log Date	Log Time	E600 S/N	Probe S/N
9521-00-SC-05-01-0	8480	9794	9080		07/10/2002	11:00 AM	1105	1006
9521-00-SC-05-02-0	8740	10074	9130		07/10/2002	11:02 AM	1105	1006
9521-00-SC-05-03-0	8200	9492	7720		07/10/2002	11:05 AM	1105	1006

AL - Above Action Level

Attachment 2c
Split Sample Assessment Forms
(1 Page)

Split Sample Assessment Form

Survey Area#: 9521	Survey Unit #: 0000	Survey Unit name: Southeast Pond
Sample Plan or WPIR#: 24265-000-GEN-0000-00105-000		SML#: 9521-0000-004

Sample Description: Comparison of split samples collected from sample measurement location #4 and analyzed using gamma spectroscopy by the off-site Vendor Laboratory. The standard sample was 9521-0000-004F, the comparison sample was 9521-0000-004FS.

STANDARD					COMPARISON			
Radionuclide	Activity Value	Standard Error	Resolution	Agreement Range	Activity Value	Standard Error	Comparison Ratio	Acceptable (Y/N)
Cs-137	5.45E-1	5.0E-2	11	0.6 – 1.66	5.54E-1	5.0E-2	1.0	Y

Comments/Corrective Actions: N/A

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

Resolution	Agreement Range
4 - 7	0.5 - 2.0
8 - 15	0.6 - 1.66
16 - 50	0.75 - 1.33
51 - 200	0.80 - 1.25
>200	0.85 - 1.18

Performed By:	Date	Reviewed By:	Date:
Jack McLoughlin	3/16/06	[signature]	3-16-06

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Attachment 2d
Preliminary Data Forms
(3 Pages)

PRELIMINARY DATA REVIEW FORM

WP&IR No. :	24265-000-GEN-0000-00105-000
Survey Unit :	9521-0000
Survey Unit Name :	Southeast Pond
Classification :	3
Survey Media :	Soil
Type of Survey :	Final Status Survey
Type of Measurement :	Radionuclide Specific
Number of Measurements :	15

BASIC STATISTICAL QUANTITIES

RANGE	Cs-137	Co-60	Cs-134	Sr-90
Target Level (pCi/g) :	3.16E+00	1.52E+00	1.87E+00	6.20E-01
Minimum Value :	2.44E-02	-2.71E-02	9.77E-03	8.73E-03
Maximum Value :	1.85E+00	8.44E-02	1.18E-01	8.59E-02
Mean :	6.42E-01	2.88E-02	6.27E-02	4.11E-02
Median :	5.43E-01	1.69E-02	6.42E-02	3.49E-02
Standard Deviation :	5.08E-01	3.19E-02	3.14E-02	3.60E-02

Reported Results

Sample Identification	Cs-137 Concentration (pCi/g)	Co-60 Concentration (pCi/g)	Cs-134 Concentration (pCi/g)	Sr-90 Concentration (pCi/g)	Fraction of Target Level
9521-0000-001F	2.44E-02	-2.61E-03	3.39E-02		0.024
9521-0000-002F	1.07E+00	7.93E-02	1.06E-01		0.447
9521-0000-003F	3.77E-01	1.33E-02	9.77E-03		0.133
9521-0000-004F	5.45E-01	4.36E-02	6.42E-02		0.235
9521-0000-005F	1.39E-01	1.32E-02	1.69E-02		0.062
9521-0000-006F	1.05E+00	2.29E-04	6.44E-02		0.367
9521-0000-007F	1.10E+00	4.34E-02	1.03E-01		0.432

Jack McCurley 3/16/06
Submitted by/Date

Reviewed Dale Rentall 3-16-06

PRELIMINARY DATA REVIEW FORM

Sample Identification	Reported Results Cs-137 Concentration (pCi/g)	Co-60 Concentration (pCi/g)	Cs-134 Concentration (pCi/g)	Sr-90 Concentration (pCi/g)	Fraction of Target Level
9521-0000-008F	2.33E-01	8.44E-02	6.73E-02	5.43E-02	0.253
9521-0000-009F	5.43E-01	4.56E-02	5.01E-02	1.54E-02	0.253
9521-0000-010F	1.85E+00	4.22E-02	7.57E-02		0.654
9521-0000-011F	1.98E-01	1.34E-02	8.51E-02		0.117
9521-0000-012F	3.40E-01	6.40E-02	5.26E-02		0.178
9521-0000-013F	9.13E-01	-2.71E-02	4.41E-02	8.59E-02	0.433
9521-0000-014F	1.04E+00	1.69E-02	1.18E-01		0.403
9521-0000-015F	2.09E-01	2.11E-03	4.90E-02	8.73E-03	0.108

Reported results for the listed radionuclides did not always meet the accepted level of detection (i.e., a result greater than two standard deviations uncertainty)

Jack Wright 3/16/06
Submitted by/Date

Reviewed Dal Rendall 3-16-06

PRELIMINARY DATA REVIEW FORM

WP&IR No. :	24265-000-GEN-0000-00105-000
Survey Unit :	9521-0000
Survey Unit Name :	Southeast Pond
Classification :	3
Survey Media :	Soil
Type of Survey :	Final Status Survey - Biased Pond Water
Type of Measurement :	Radionuclide Specific
Number of Measurements :	3

BASIC STATISTICAL QUANTITIES

		Cs-137	Co-60	Sr-90	H-3
	Target Level (pCi/L) :	4.31E+02	1.14E+03	2.51E+02	6.52E+05
RANGE	Minimum Value :	-4.47E-01	-3.78E-01	1.78E-01	-1.01E+02
	Maximum Value :	-1.67E-01	1.31E+00	2.64E-01	2.10E+00
	Mean :	-3.49E-01	1.96E-01	2.21E-01	-4.95E+01
	Median :	-4.33E-01	-3.43E-01	2.21E-01	-4.95E+01
	Standard Deviation :	1.58E-01	9.65E-01	6.08E-02	7.29E+01

	Reported Results				
Sample Identification	Cs-137 Concentration (pCi/L)	Co-60 Concentration (pCi/L)	Sr-90 Concentration (pCi/L)	H-3 Concentration (pCi/L)	Fraction of Target Level
9521-0000-020F	-4.47E-01	-3.43E-01	1.78E-01	-1.01E+02	-0.001
9521-0000-021F	-4.33E-01	1.31E+00			0.000
9521-0000-022F	-1.67E-01	-3.78E-01	2.64E-01	2.10E+00	0.000

Reported results for the listed radionuclides did not always meet the accepted level of detection (i.e., a result greater than two standard deviations uncertainty)

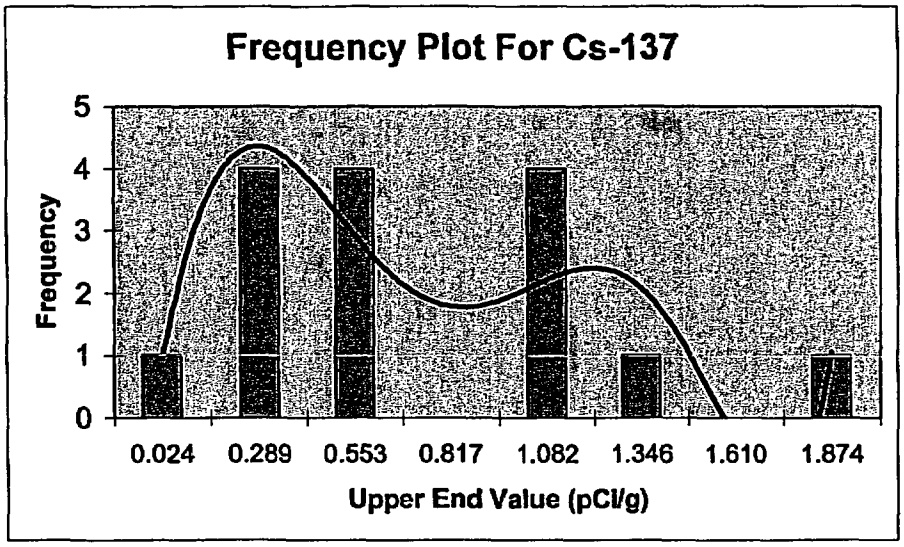
Jack McCarthy 3/16/06
Submitted by/Date

Reviewed Del Rondell 3-16-06

Attachment 2e
Graphical Representation of Data
(4 Pages)

FREQUENCY PLOT FOR CESIUM-137

Survey Unit: 9521-0000
Survey Unit Name: Southeast Pond
Mean: 6.42E-01 pCi/g



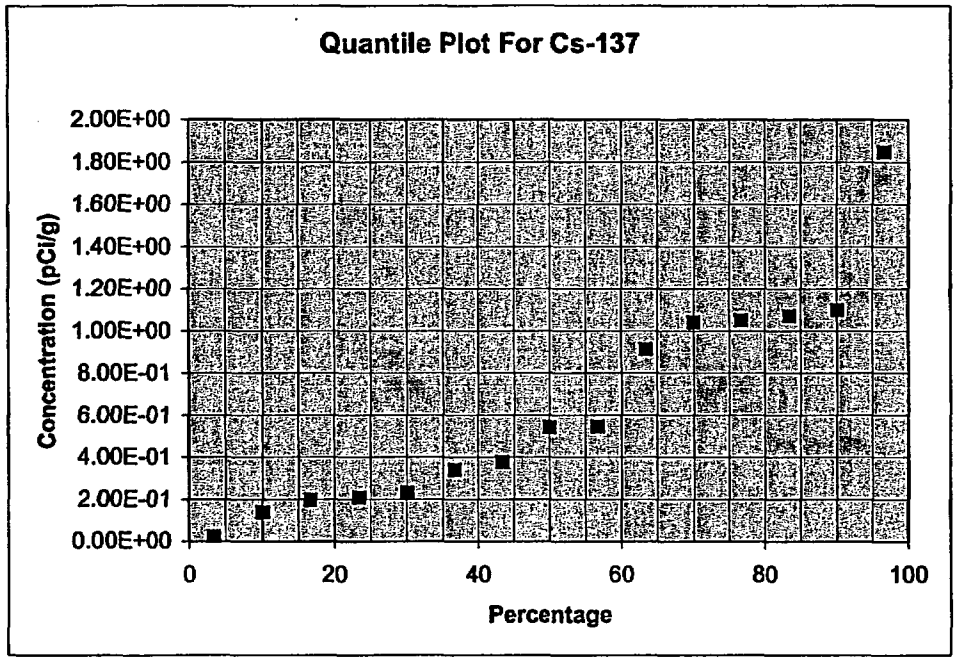
Upper End Value	Observation Frequency	Observation Frequency
0.024	1	7%
0.289	4	27%
0.553	4	27%
0.817	0	0%
1.082	4	27%
1.346	1	7%
1.610	0	0%
1.874	1	7%
Total:	15	100%

Jack McGrath 3/6/06
Submitted By/Date

Dale Rockwell 3-6-06
Reviewed By/Date

QUANTILE PLOT FOR CESIUM-137

Survey Unit: 9521-0000
Survey Unit Name: Southeast Pond
Mean: 6.42E-01 pCi/g



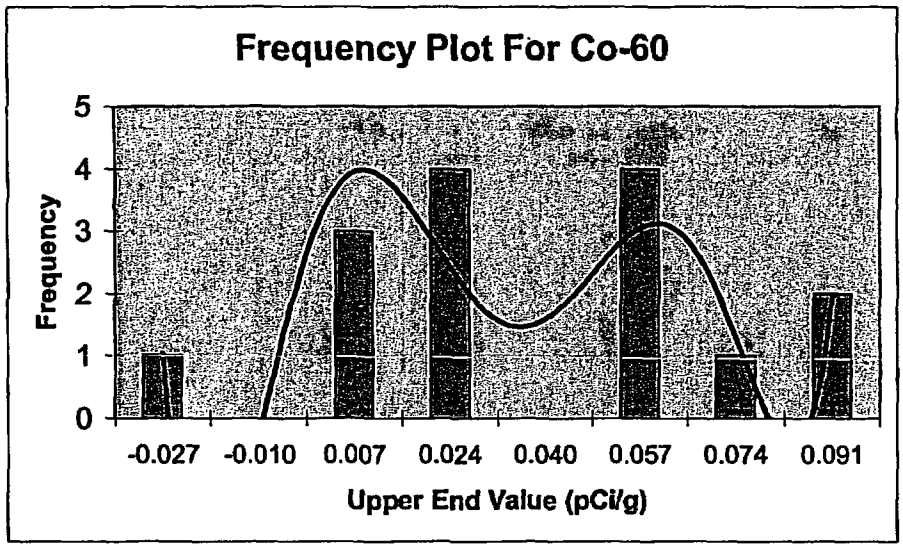
Cs-137	Rank	Percentage
2.44E-02	1	3%
1.39E-01	2	10%
1.98E-01	3	17%
2.09E-01	4	23%
2.33E-01	5	30%
3.40E-01	6	37%
3.77E-01	7	43%
5.43E-01	8	50%
5.45E-01	9	57%
9.13E-01	10	63%
1.04E+00	11	70%
1.05E+00	12	77%
1.07E+00	13	83%
1.10E+00	14	90%
1.85E+00	15	97%

Jack McCarthy 3/15/06
Submitted By/Date

Paul Randall 3-16-06
Reviewed By/Date

FREQUENCY PLOT FOR COBALT-60

Survey Unit: 9521-0000
Survey Unit Name: Southeast Pond
Mean: 2.88E-02 pCi/g



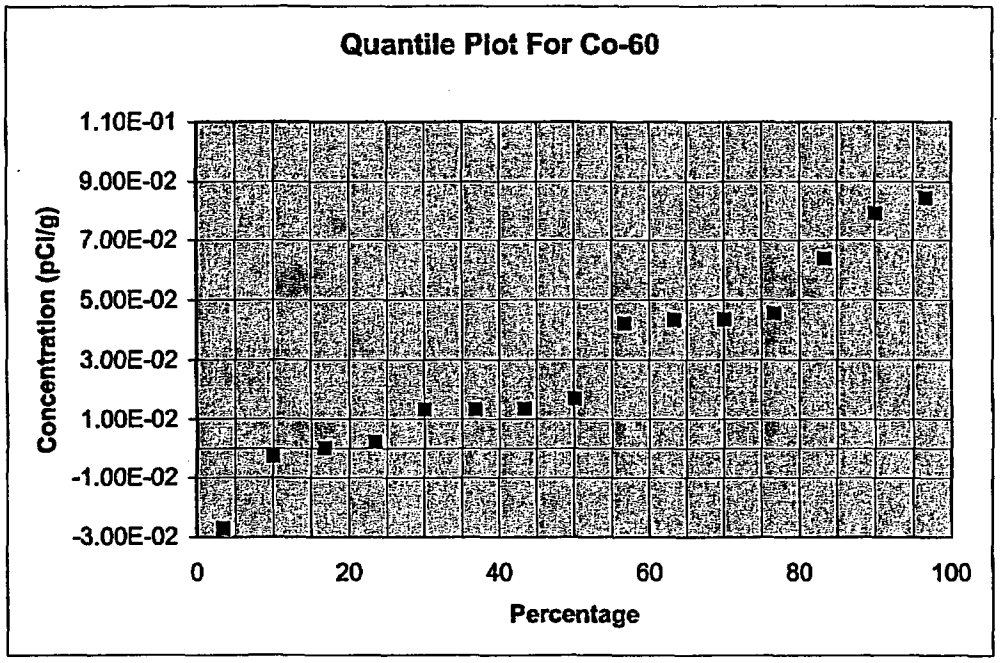
Upper End Value	Observation Frequency	Observation Frequency
-0.027	1	7%
-0.010	0	0%
0.007	3	20%
0.024	4	27%
0.040	0	0%
0.057	4	27%
0.074	1	7%
0.091	2	13%
Total:	15	100%

Jack McCarty 3/16/06
Submitted By/Date

Dale Rundell 3-16-06
Reviewed By/Date

QUANTILE PLOT FOR COBALT-60

Survey Unit: 9521-0000
Survey Unit Name: Southeast Pond
Mean: 2.88E-02 pCi/g



Co-60	Rank	Percentage
-2.71E-02	1	3%
-2.61E-03	2	10%
2.29E-04	3	17%
2.11E-03	4	23%
1.32E-02	5	30%
1.33E-02	6	37%
1.34E-02	7	43%
1.69E-02	8	50%
4.22E-02	9	57%
4.34E-02	10	63%
4.36E-02	11	70%
4.56E-02	12	77%
6.40E-02	13	83%
7.93E-02	14	90%
8.44E-02	15	97%

Jack McGrath 3/6/06
Submitted By/Date
Dale Randall 3-6-06

Attachment 2f
Sign Test Calculation
(1 Page)

Sign Test Calculation Sheet For Multiple Radionuclides

Survey Area Number: 9521			Survey Unit Number: 0000			WPIR#: 24265-000-GEN-0000-00105-000	
Survey Area Name: Southeast Pond			Classification: 3		TYPE I (α error): 0.05	N: 15	
Radionuclides:	Cs-137		Co-60		Cs-134	Sr-90	
DCGL:	3.16 pCi/g		1.52 pCi/g		1.87 pCi/g	0.62 pCi/g	
Results 1st Radionuclide (pCi/g)	Results 2nd Radionuclide (pCi/g)	Results 3rd Radionuclide (pCi/g)		Results 4th Radionuclide (pCi/g)	Weighted Sum (W_s)	1 - W_s	Sign
2.44E-02	-2.61E-03	3.39E-02			0.024	0.976	+
1.07E+00	7.93E-02	1.06E-01			0.447	0.553	+
3.77E-01	1.33E-02	9.77E-03			0.133	0.867	+
5.45E-01	4.36E-02	6.42E-02			0.235	0.765	+
1.39E-01	1.32E-02	1.69E-02			0.062	0.938	+
1.05E+00	2.29E-04	6.44E-02			0.367	0.633	+
1.10E+00	4.34E-02	1.03E-01			0.432	0.568	+
2.33E-01	8.44E-02	6.73E-02		5.43E-02	0.253	0.747	+
5.43E-01	4.56E-02	5.01E-02		1.54E-02	0.253	0.747	+
1.85E+00	4.22E-02	7.57E-02			0.654	0.346	+
1.98E-01	1.34E-02	8.51E-02			0.117	0.883	+
3.40E-01	6.40E-02	5.26E-02			0.178	0.822	+
9.13E-01	-2.71E-02	4.41E-02		8.59E-02	0.433	0.567	+
1.04E+00	1.69E-02	1.18E-01			0.403	0.597	+
2.09E-01	2.11E-03	4.90E-02		8.73E-03	0.108	0.892	+
					Number of positive differences (S+):		15

Critical Value: 11 Survey Unit Meets Acceptance Criterion

Performed by: Jack McCarthy Date: 3/16/06

Reviewed Dale Rudall 3-16-06

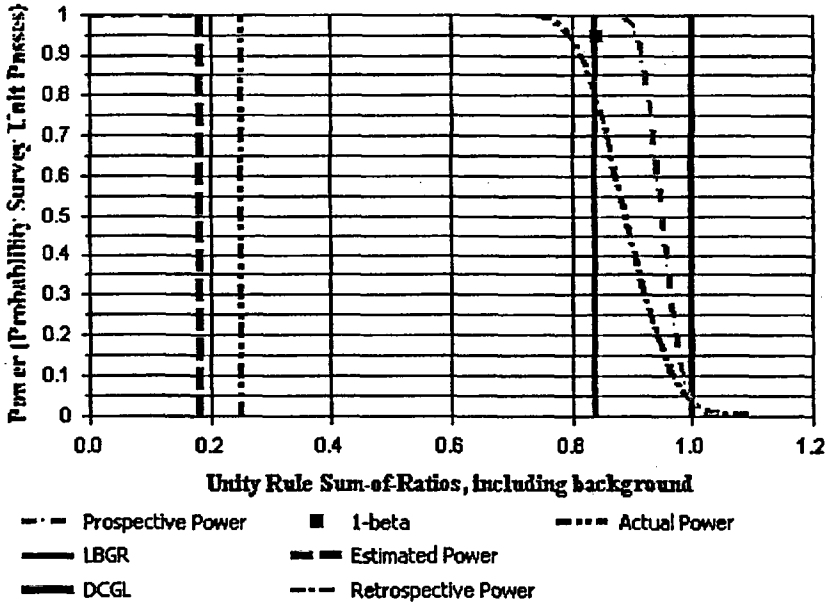
Attachment 2g
COMPASS DQA Surface Soil Report with
Retrospective Power Curve
(4 Pages)

DQA Surface Soil Report

Assessment Summary

Site:	9521-0000 FSS (retrospective)		
Planner(s):	McCarthy CT Revised Dal Rudall 3-16-06		
Survey Unit Name:	Southeast Pond		
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



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-134 (pCi/g)	Cs-137 (pCi/g)
9521-0000-001F	S	0	0.03	0.02
9521-0000-002F	S	0.08	0.11	1.07
9521-0000-003F	S	0.01	0.01	0.38
9521-0000-004F	S	0.04	0.06	0.55
9521-0000-005F	S	0.01	0.02	0.14
9521-0000-006F	S	0	0.06	1.05
9521-0000-007F	S	0.04	0.1	1.1
9521-0000-008F	S	0.08	0.07	0.23
9521-0000-009F	S	0.05	0.05	0.54
9521-0000-010F	S	0.04	0.08	1.85
9521-0000-011F	S	0.01	0.09	0.2
9521-0000-012F	S	0.06	0.05	0.34
9521-0000-013F	S	-0.03	0.04	0.91
9521-0000-014F	S	0.02	0.12	1.04
9521-0000-015F	S	0	0.05	0.21

Sample Number	Type	SrY-90 (pCi/g)
9521-0000-001F	S	0
9521-0000-002F	S	0
9521-0000-003F	S	0
9521-0000-004F	S	0
9521-0000-005F	S	0
9521-0000-006F	S	0
9521-0000-007F	S	0
9521-0000-008F	S	0.05
9521-0000-009F	S	0.02
9521-0000-010F	S	0
9521-0000-011F	S	0
9521-0000-012F	S	0
9521-0000-013F	S	0.09
9521-0000-014F	S	0
9521-0000-015F	S	0.01

DQA Surface Soil Report

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)
9521-0000-001F	S	0.02
9521-0000-002F	S	0.45
9521-0000-003F	S	0.13
9521-0000-004F	S	0.24
9521-0000-005F	S	0.06
9521-0000-006F	S	0.37
9521-0000-007F	S	0.43
9521-0000-008F	S	0.25
9521-0000-009F	S	0.25
9521-0000-010F	S	0.65
9521-0000-011F	S	0.12
9521-0000-012F	S	0.18
9521-0000-013F	S	0.43
9521-0000-014F	S	0.4
9521-0000-015F	S	0.11

DQA Surface Soil Report

Basic Statistical Quantities Summary

Statistic	Survey Unit	Background	DQO Results
Sample Number	15	N/A	N=15
Mean (SOR)	0.27	N/A	0.18
Median (SOR)	0.25	N/A	N/A
Std Dev (SOR)	0.18	N/A	0.08
High Value (SOR)	0.65	N/A	N/A
Low Value (SOR)	0.02	N/A	N/A