Data Summary Report for the Annual Fourmile Branch and F- and H-Area Seeplines, Appendix IX Metals and Radionuclides, 1998

by

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**Data Summary Report for the
Annual Fourmile Branch and
F- and H-Area Seeplines,
Appendix IX Metals and Radionuclides,
1998
(U)**

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List of Acronyms and Abbreviations

The following acronyms and abbreviations may appear in this Data Summary Report:

°C	degrees Celsius
µg	microgram(s)
µL	microliter
µS	microSiemens
AA	atomic absorption
AQ	analysis qualifier
ASTM	American Society for Testing and Materials
BAT	BAT Associates, Inc.
bls	below land surface
BNA	base/neutral/acid extractables
B	bias qualifier
CCB	continuing calibration blank sample
CCV	continuing calibration verification sample
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act (Superfund)
CFR	Code of Federal Regulations
CLP	Contract Laboratory Program
cm	centimeter(s)
COC	chain of custody; chain-of-custody form
CPT	cone penetrometer test
CRDL	contract-required detection limit
CRQL	contract-required quantitation limit
CSDL	contract-specified detection limit
CV	coefficient of variation
CVAA	cold vapor atomic absorption analysis
DI	deionized (water)

DOE	United States Department of Energy
dpm	disintegrations per minute
DPT	direct push technology
DQOs	data quality objectives
EAS	Environmental Analysis Section
EDD	electronic data deliverable
EGG	Environmental Geochemistry Group
Eh	oxidation-reduction potential
EM-PPM	parts per million methane equivalent
EMSL	EPA's Environmental Monitoring and Support Laboratory
EP	Environmental Physics, Inc.
EPA	United States Environmental Protection Agency
EPD/EMS	Environmental Protection Department/Environmental Monitoring Section
EQL	estimated quantitation limit (for non-radiochemistry analyses)
ERA	Environmental Resource Associates
ERD	Environmental Restoration Department
ESC	expedited site characterization
ES&T	Environmental Sciences and Technology Department, formerly known as ESS (Environmental Sciences Section)
ExR	Exploration Resources, Inc.
FID	flame ionization detector
ft	feet
g	gram(s)
FHSR	Fourmile Branch and F- and H-Area Seeplines
GC	gas chromatography
GC/MS	gas chromatography/mass spectrometry
GE	General Engineering Laboratories, Inc.
GFAA	graphite furnace atomic absorption (metals analysis)

GIMS	Geochemical Information Management System
GMP	Groundwater Monitoring Program
GPC	gel permeation chromatography
GPR	ground penetrating radar
ICB	initial calibration blank
ICP	inductively coupled plasma (metals analysis)
ICS	interference check sample
ICV	initial calibration verification
ID	identification
IDL	instrument detection limit
ISA	ICP interference check sample – interferents only
ISB	ICP interference check sample – interferents plus analytes
kg	kilogram
km	kilometer
L	liter
LCS	laboratory control sample(s)
LDRR	laboratory data records review
LIMS	laboratory information management system
LPQL	lowest practical quantitation limit
max.	maximum
MCL	maximum contaminant level
MDA	minimum detectable activity
MDL	method detection limit
meq	milliequivalents
mg	milligram(s)
min.	minimum
mL	milliliter(s)
MRD	mean relative difference

MS	matrix spike
MSA	method of standard addition
MSD	matrix spike duplicate
MSL	mean sea level
NA	not applicable
NAPL	non-aqueous phase liquid
ng	nanogram(s)
NIST	National Institute of Standards and Technology
NTU	nephelometric turbidity unit
OVA	organic vapor analyzer
PAH	polynuclear aromatic hydrocarbons
PAL	performance acceptance limit
PCB	polychlorinated biphenyl
pCi	picoCurie
PE	performance evaluation
PHA	pulse-height analysis; e.g., gamma PHA
PID	photoionization detector
ppb	parts per billion
ppm	parts per million
QA/QC	quality assurance/quality control
r	correlation coefficient
RCO	Radiological Control Officer
RCRA	Resource Conservation and Recovery Act
Recra	Recra LabNet Philadelphia (formerly Roy F. Weston, Inc., Analytics Division)
RFI/RI	RCRA Facility Investigation/Remedial Investigation
RPD	relative percent difference
RQ	result qualifier

RRT	relative retention time
RSD	relative standard deviation
RTW	retention time window
SAIC	Science Applications International Corporation
SCDHEC	South Carolina Department of Health and Environmental Control
SGS	Site Geotechnical Services
SMC	sample/method combination
SOP	standard operating procedure
SOW	statement of work
SQL	sample quantitation limit
SRS	Savannah River Site
SRTC	Savannah River Technology Center
SSC	site-specific contaminant
ssEQL	sample-specific estimated quantitation limit
std. dev.	standard deviation
SW-846	EPA's Test Methods for Evaluating Solid Waste
TAL	target analyte list
TCL	target compound list
TCLP	toxicity characteristic leaching procedure
TIC	tentatively identified compound
TNU	Thermo NUtech
U	unclassified
USEPA	see EPA
UTM	Universal Transverse Mercator Zone 17 Coordinate System
VOA	volatile organic analyses
VOC	volatile organic compound
WHC	Westinghouse Hanford Company
WSRC	Westinghouse Savannah River Company

Figure

Figure 1. Sampling Locations for Fourmile Branch and the F- and H-Area Seeplines

Executive Summary

Purpose

This report presents a summary of the definitive data validation and verification for the 1998 RFI/RI¹ annual Appendix IX metals and radionuclides survey for Fourmile Branch and the F- and H-Area Seepines. The RFI/RI was performed under the direction of the WSRC Environmental Sciences and Technology Department/Ecology. This report was prepared under the direction of EPD/EMS.

Scope of the Project

ExR of Athens, GA, validated and verified sample collection, shipping, and laboratory information compiled for this project. The information compiled, reviewed, and maintained includes the following:

- sample documentation
- COC forms
- sample holding times
- initial and continuing instrument calibration
- analyte identification
- analyte quantitation
- analytical error
- analysis of blanks
- laboratory performance evaluations
- quantitation limits

The validation process began with project mobilization and continued through the delivery of EDDs and this report.

¹ All acronyms and abbreviations used in this report are defined in the *List of Acronyms and Abbreviations* (pp. vii-xi).

Process and Documentation

Sample documentation and maintenance of COC were examined by reviewing the field logs and COC forms. See section 3.1.2, *Production of Chain-of-Custody Forms*, of this report for more information about the COC forms.

Sample holding times were checked by comparing the time between sample collection and analysis with a look-up table of maximum holding times. Analytical instrument calibration was reviewed as part of the LDRR. See section 3.4.2, *Laboratory Data Records Review*, of this report for more information about the LDRR.

Analyte identification and analyte quantitation were verified as part of the computerized checking of the EDDs, during review of the analytical narratives, and as part of the LDRR. Anomalies were clarified with the laboratories wherever possible, and records not meeting criteria were qualified. See section 3.4, *Verification and Validation Issues*, of this report for further information.

In evaluating analytical error, percent recoveries for QC samples were reviewed, and the QC sample and associated project sample data were qualified where necessary. Relative percent differences between duplicate sample analyses were calculated. The criteria for qualification are described in section 3.4.5, *Qualification of the Data*, of this report.

Field-generated blanks (i.e., field blanks, rinsate blanks, and trip blanks) and laboratory-generated blanks (i.e., method blanks) were examined if included in the sampling plan. See section 3.1, *Planning*, of this report for an overview of the sampling plan. Laboratory-generated blanks were analyzed in ratios of more than one for every 20 samples.

Laboratory performance evaluations are detailed in *Appendix B* of this report.

1998 Annual Appendix IX Metals and Radionuclides Survey for Fourmile Branch and the F- and H-Area Seeplines Affiliates

The project was completed by the following people and/or organizations:

- Jim Koch, WSRC-ES&T/EAS, Aiken, SC, was the project manager.
- C. Dan Rogers, WSRC-EPD/EMS, Aiken, SC, was the project technical lead.
- Jim Koch, WSRC-ES&T/EAS, Aiken, SC, collected the water samples.
- GE of Charleston, SC, and Recra of Lionville, PA, prepared the definitive-level analytical data.
- ExR of Athens, GA, validated the data and prepared this report.

1.0 Summary of the Project

1.1 Objective

The objective of this project is to provide validated data for the 1998 annual Appendix IX metals and radionuclides sampling event in Fourmile Branch and the F- and H-Area Seepines.

1.2 Overview

Seepage basins in the F and H Areas received low-level radioactive waste effluent from the chemical separation processes in the General Separations Area. The basins retained the effluent to delay its release to the environment. The waste effluent consisted principally of sodium hydroxide, nitric acid, low levels of various radionuclides, and some metals. Discharges of tritiated water to the seepage basins account for most of the radioactivity.

In 1988 and 1989, the Savannah River Laboratory (now the Savannah River Technology Center) conducted an extensive study aimed at characterizing the shallow groundwater outcropping into Fourmile Branch and its associated seepines. Researchers measured low pH values, elevated conductivity, and tritium along the seepines and determined that contaminants leaching from the F- and H-Area seepage basins were impacting the area.

Discharges to the seepage basins were stopped in 1988, and the basins were capped and sealed in 1990 to minimize the release of contaminants to the environment. Scientists hypothesized that after eliminating the contaminant source, annual rainfall amounts and natural groundwater flow would, over time, dilute and flush the remaining contaminant plume out of the shallow groundwater, which would allow recovery of the wetland systems below the basins.

1.3 Planning

Twenty-three samples were to be collected, including 17 seepage water samples, two duplicate samples, two split samples, and two field blanks. Concurrent with the sample collection, pH, specific conductance, and water temperatures were to be measured in the field and recorded in the sample logbooks.

1.4 Field Sampling

Sampling took place on April 13–16 and April 21, 1998. Twenty-three samples, duplicates, and splits were collected. Of those collected, 17 were seepage water samples, two were field blanks, two were duplicate samples, and two were split samples.

1.5 Analysis

Seepline water samples, duplicates, and splits were analyzed for the following constituents: Appendix IX tin, chloride, gamma PHA, gross alpha, nitrate, nitrate/nitrite, nonvolatile beta, TAL metals (including cyanide), total hardness, and tritium. For any samples that exceeded 15 pCi/L gross alpha, alpha speciation was required, including alpha spec americium, alpha spec curium, lpha spec neptunium, alpha spec uranium, and radium-226. If nonvolatile beta exceeded 50 pCi/L, beta speciation was required, to include iodine-129, nickel-63, radium-228, strontium-90, and technetium-99. Field blanks were analyzed for Appendix IX tin, gamma PHA, gross alpha , nonvolatile beta, and TAL metals (including cyanide).

1.6 Validation

Validation and verification activities, using definitive data requirements (EPA, 1993), assessed the quality of the definitive level data for the following issues:

- sample documentation
- maintenance of chain of custody
- adherence to sample holding time requirements
- achievement of contract-required quantitation limits
- analytical instrument calibration
- analyte identification
- analyte quantitation

Evaluation of each laboratory's performance in analyte identification and quantitation included examination of the following:

- analytical error
- contamination of blanks
- laboratory performance evaluation samples
- quantitation limit determination, if applicable

2.0 Data Quality Issues Overview

This section provides a summary of the major points affecting the quality of the data for this project.

2.1 Vital Statistics

Twenty-three COCs were generated and used for this project. Of the 23 samples, seventeen were normal environmental, two were duplicates, two were splits, and two were field blanks.

The total number of records for this project is given in table 2.1.

Table 2.1 Number of Records

Type of Records	Chemical Records	Radiochemical Records	Totals
Environmental Sample Records	659	710	1,369
QC Records	564	251	815
Totals	1,223	961	2,184

Table 2.2 lists the number of sample and QC records that were qualified with *R*, *J*, *U*, or *UJ* result qualifiers after verification and validation were performed.

Table 2.2 Number of Soil Records Qualified as Rejected, Estimated, or Not Detected

Data Validation Records	Sample Records	QC Records	Total
Total Number of Analytical Records	1,369	815	2,184
Qualified Data			
Rejected Analytical Records	9	3	12
Result Qualifier <i>U</i>	916	312	1,228
Result Qualifier <i>J</i>	65	39	104
Result Qualifier <i>UJ</i>	18	4	22

2.2 Program Description

This section discusses the validation of the data and gives a brief overview of the laboratories.

2.2.1 Verification and Validation Objectives

Data Quality Objectives

Definitive data, as defined in EPA, 1993, have been determined as most appropriate to meet the DQOs of this investigation. Validation and verification activities assessed the data in relation to these standards, especially with regard to the following issues:

- sample documentation
- maintenance of COC
- adherence to sample holding time and preservation requirements
- achievement of contract-required detection limits
- analytical instrument calibration
- analyte identification
- analyte quantitation

Evaluation of each laboratory's performance for analyte identification and quantitation included examination of analytical error, blank contamination, and laboratory performance in the analysis of independent standards.

Each analytical record in the computer data files contains three qualifier fields: result qualifier, analysis qualifier, and bias qualifier. The result qualifier describes the analytical result. The analysis qualifier describes issues arising during the analytical process. The bias qualifier describes whether the result is biased high or low. The laboratories use these fields in reporting the data. During validation and verification of the analytical data, additional qualifiers may be applied to provide additional information about data quality.

Data Quality Levels

Definitive-level data are used for data collection activities that require a high degree of qualitative and quantitative accuracy for all findings. Rigorous methods of analysis and quality assurance are used for those samples considered essential in making a decision. This data level is intended to give the decision maker a level of confidence to make decisions regarding the following:

- treatment
- disposal
- site remediation and/or removal of pollutants
- health risk or environmental impact
- cleanup verification, pollutant source identification, delineation of contaminants
- other significant decisions where an action level is of concern

Only analyte-specific methods can be used for definitive-level data. The following analyses do not produce definitive-level data: gross alpha, nitrate-nitrite as nitrogen, nonvolatile beta, pH, phenols, specific conductance, total dissolved solids, total organic carbon, total organic halogenes, and total phosphates (as P).

2.2.2 Verification and Validation Functions

The data verification process confirms that the required samples were collected and documented, the required analyses were performed on the samples, and the analytical results were reported correctly. The information evaluated during this process includes

work plan sample lists, work plan analyte/compound lists, field logbooks, COC forms, and analytical results files.

Data reviewers use computer programs and look-up tables to review the computer data files of sample collection, shipping, and analytical data. The data were examined as follows:

- The following fields were checked to ensure that they were not blank: WSRC sample identification number, sample collection date, laboratory receipt date, analysis date, analysis time, analytical method, laboratory code, laboratory sample identification number, analyte code, result units, nominal concentration, number of dilutions, dilution factor, instrument, instrument batch, and analyst's initials.
- The following fields were checked to ensure that the data were within an acceptable range of values: WSRC sample identification number, sample collection date, laboratory receipt date, analysis date, analysis time, analytical result, accuracy, residual weight, number of dilutions, nominal concentration, and bottle number.
- The following fields were checked against a look-up table or a list of valid codes: laboratory code, laboratory duplicate code, analyte code (test name), analytical method, result qualifier, analysis qualifier, analysis bias, result unit, and sample fraction.

The data validation process determines the usefulness of each analytical result based on QC and method requirements. The information evaluated during this process includes COC forms, analytical narrative summaries, analytical result data files, and raw result and calibration data.

Data validation involves evaluating requirements in the following QC categories: holding times, sample preservation, instrument calibration, analyte identification/quantitation, blanks (trip, method, rinsate, and field blanks), laboratory control samples, duplicates (field and laboratory), matrix spikes, surrogates, and internal standards.

Data validation and qualification policies were developed from the following sources: quality control requirements in the analytical methods, data review guidelines provided by the United States Environmental Protection Agency, contract-specific WSRC requirements, and discussions with laboratory personnel.

Data Qualifiers

When analytical data are validated, the analytical results and the associated QC information are reviewed using criteria specific to the analysis performed. Data qualifiers are used during the data validation process to classify sample data as conforming to QC requirements.

The qualifiers used for data associated with this project are defined in *Appendix D*.

Precision

Precision measures the reproducibility of measurements under a given set of conditions. It is a quantitative measure of the variability of a group of measurements compared to its average value. Precision is reported in terms of the relative percent difference. The

analytical results from the field replicate samples provide data on overall measurement precision; analytical results from the laboratory duplicates provide data on analytical precision. See section 3.5.1.

Accuracy

Accuracy measures the bias in a measurement system; it is difficult to measure for the entire data collection activity. Sources of error are the sampling process, field contamination, preservation, handling, sample matrix, sample preparation, and sample analysis techniques. Sampling accuracy may be assessed by evaluating the results of rinsates, field blanks, and trip blanks. Analytical accuracy may be assessed through the use of known and unknown QC samples, matrix spikes, and method blanks. See section 3.5.2.

Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point, or an environmental condition. Representativeness is a qualitative parameter that is most concerned with the proper design of the sampling program and is best satisfied by making certain that sampling locations are selected properly and that a sufficient number of samples are collected.

Completeness

Completeness is defined as the percentage of measurements made that are judged to be valid measurements. It is important that critical samples are identified and that plans are made to achieve valid data for them. Completeness was not determined for this report.

Comparability

Comparability is a qualitative parameter expressing the confidence with which one data set can be compared with another. Sample data should be comparable with other measurement data for similar samples and sample conditions. This goal is achieved through using standard techniques to collect and analyze representative samples and through reporting analytical results in appropriate units. See section 3.5.4.

2.2.3 Laboratories

The following laboratories generated the analytical data for this project:

- GE of Charleston, SC, the primary laboratory, provided definitive-level inorganic and radiological analyses under contract AA07208N.
- Recra of Lionville, PA, the QC laboratory and a CLP laboratory, provided definitive-level inorganic and radiological analyses under contract AA07210N.

2.3 Data Quality Issues Summary

This section provides a summary of the major data quality issues identified during the verification and validation process.

2.3.1 Missing Data

All planned data for environmental samples were collected and received with the exception of neptunium-239 for split sample stations HSP-060-03-D (sample ID 114013) and FSP-032-03-D (sample ID 114022). This data was not reported because an excess of ten half lives had occurred between sample collection and analysis, and therefore, neptunium-239 was no longer present.

2.3.2 Extra Data

Alpha speciation analyses were extraneously performed and reported for station FSP-032-03 (sample ID 114021).

Combined isotopes uranium-233/234 were reported instead of uranium-234.

Combined isotopes curium-243/244 were reported instead of individual isotopes. Curium-245/246 was reported instead of curium-246.

2.3.3 Sample Documentation

All environmental sample COCs were two pages, and both pages for each sample were received from the laboratories. The COCs were also received for both field blanks. The following table details information missing on the COCs. Data quality was not impacted.

Table 2.3 Chain-of-Custody Documentation Summary

Description	Number	Percent
Missing transfer dates, times, and signatures	0	
Missing transfer dates and/or times only	6	26
Missing transfer signatures only	0	
Missing cooler number	2	7 (<i>I get 9</i>)
Missing temperature	0	
Missing COCs	0	
No problems	17	74
Total number of COCs used = 23		

Contingent beta speciation analytes technetium-99 and strontium-90 (*alpha order*) were printed on the COCs, but crossed off on each form and initialed by JWK; no bottles were filled or sent for those analyses.

Two field blanks were associated with this project, however it was not possible to associate either field blank with any environmental samples. The associated sample ID was left blank in the field sample logbook, and the field blanks were recorded with a sample date that did not match any of the normal, duplicate, or split sample collection dates.

2.3.4 Holding Times and Preservation

Holding times were not met for seven nitrate as nitrogen analyses. See section 3.4.5, *Qualification of the Data*, for additional information. Table 2.4 shows records that exceeded holding times.

Table 2.4 Holding Time Exceedances

Type of Records	Number of Records	Percentage of Total Environmental Sample Records
Detects Exceeding Holding Time	7	0.51
Nondetects Exceeding Holding Time	0	0.0
Total Analyses Exceeding Holding Time	7	0.51

No cooler temperatures were exceeded for this project.

2.3.5 Analytical Issues

No significant analytical issues were encountered during verification and validation of the analytical data.

2.3.6 Rejected Data

Table 2.5 summarizes the types and numbers of rejected records.

Table 2.5 Summary of Rejected Records

Types of Records	Number of Records	Number Rejected	Percent of Type Rejected	Percent of Total Records Rejected
Chemical				
QC Records	564	2	0.35	0.09
Environmental Sample Records	659	0	0.0	0.0
Radiochemical				
QC Records	251	1	0.40	0.05
Environmental Sample Records	710	9	1.30	0.41
Totals				
QC Records	815	3	0.37	0.14
Environmental Sample Records	1,369	9	0.66	0.41
All Records	2,184	12		0.55

Rejected Environmental Sample Records

All nine rejected environmental sample records were rejected due to matrix interference.

Table 2.6 Environmental Sample Analytical Records Rejected

Analyte Rejected	Number Rejected	Percent of Rejects
Actinium-228	2	22.2
Barium-133	1	11.1
Potassium-40	1	11.1
Lead-212	5	55.6
Total	9	100

Rejected QC Sample Records

One lead-212 radiological method blanks was rejected due to matrix interference. Two total recoverable aluminum matrix spikes were rejected due to a high concentration of the analyte in the parent sample. No environmental sample records required qualification on the basis of these rejected QC samples.

Table 2.7 Rejected QC Sample Records

Analyte Rejected	Number Rejected	Percent of Rejects
Aluminum	2	66.7
Lead-212	1	33.3
Total	3	100

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3.0 Validation

3.1 Planning

SAIC generated the COCs for this project according to a memo from Jim Koch to Dan Rogers.

3.1.1 Planned Work

Samples were to be collected from 17 sampling locations. Sample splits and duplicates were planned at a frequency of approximately one per 10 samples, to be analyzed for the same parameters as the associated sample.

Samples were to be analyzed for TAL metals (including cyanide) and Appendix IX tin, gross alpha, nonvolatile beta, gamma PHA, tritium, chloride, nitrate, nitrate/nitrite, and total hardness. For any samples that exceeded 15 pCi/L gross alpha, alpha speciation was required-, including alpha spec americium, alpha spec curium, alpha spec neptunium, alpha spec uranium, and radium-226. If nonvolatile beta exceeded 50 pCi/L, beta speciation was required, to include iodine-129, nickel-63, radium-228, strontium-90, and technetium-99. The data were validated as definitive-level data.

3.1.2 Production of Chain-of-Custody Forms

COC forms containing the list of requested analyses for each planned sample were printed on waterproof paper. A tear-off stub attached to the COC form stipulated the sample collection location. Information completed on the COC forms included the following:

- EMS sample identification number from the logbook page for that sample
- laboratory sample identification number (to be completed by the laboratory)
- sample collection date
- shipping information (including the signature of each person handling the sample and the date it was handled)
- cooler number and temperature upon arrival at the analytical laboratory

Twenty-three COC forms were generated for this sampling event.

3.1.3 Sample Set

The following table lists the sample identifiers, sample type, and sample date and time for samples sent to the laboratories. A in the Station ID column indicates a duplicate, and D indicates a split sample.

Table 3.1 Sample Set for FHSR03

Survey Station ID	Sample ID	Laboratory ID	Sample Type	Sample Date and Time	Analyses Requested ^a
FMC001H03	114000	9804348-01	Seepline water	04/13/98, 08:13	1, 2, 3, 4
FMC002H03	114001	9804348-02	Seepline water	04/13/98, 10:19	1, 2, 3, 4
FMC001F03	114002	9804348-03	Seepline water	04/13/98, 11:00	1, 2, 3, 4
BG 00103	114003	9804378-01	Seepline water	04/14/98, 08:28	1, 2, 3, 4
BG 00203	114004	9804378-02	Seepline water	04/14/98, 08:48	1, 2, 3, 4, 5
BG 00303	114005	9804378-03	Seepline water	04/14/98, 09:35	1, 2, 3, 4
HSP 00803	114006	9804378-04	Seepline water	04/14/98, 10:22	1, 2, 3, 4, 5
HSP 00803A	114007	9804378-05	Duplicate	04/14/98, 10:35	1, 2, 3, 4
HSP FB02C	114008	9804467-06	Field blank	04/15/98, 10:00	1, 2
FSP FB02C	114009	9804467-07	Field blank	04/15/98, 11:30	1, 2
BG 00403	114010	9804467-03	Seepline water	04/16/98, 08:15	1, 2, 3, 4
HSP 09203	114011	9804467-04	Seepline water	04/16/98, 09:12	1, 2, 3, 4, 5
HSP 06003	114012	9804467-01	Seepline water	04/16/98, 10:10	1, 2, 3, 4
HSP 06003D	114013	9804L553-001	Split	04/16/98, 10:10	1, 2, 3, 4
HSP 02903	114014	9804467-05	Seepline water	04/16/98, 11:55	1, 2, 3, 4, 5, 6
HSP 04303	114015	9804467-02	Seepline water	04/16/98, 12:40	1, 2, 3, 4, 6
FSP 29003	114016	9804586-01	Seepline water	04/21/98, 08:55	1, 2, 3, 4
FSP 29003A	114017	9804586-02	Duplicate	04/21/98, 09:10	1, 2, 3, 4
FSP 20403	114018	9804586-03	Seepline water	04/21/98, 10:00	1, 2, 3, 4, 5, 6
FSP 01203	114019	9804586-04	Seepline water	04/21/98, 10:20	1, 2, 3, 4
FSP 04703	114020	9804586-05	Seepline water	04/21/98, 10:50	1, 2, 3, 4
FSP 03203	114021	9804586-06	Seepline water	04/21/98, 11:30	1, 2, 3, 4, 6
FSP 03203D	114022	9804L553-002	Split	04/21/98, 11:40	1, 2, 3, 4, 6, 7

3.2 Field Data Quality Issues

3.2.1 Discrepancies from the Planned Work

Strontium-90 and technetium-99 were listed on the GE COCs, but were crossed off and initialed "JWK" with an appropriate date; none of the analyses was performed.

Technetium-99 was not included on the COCs sent to Recra. However, strontium-90 was

-
- ^a
1. Appendix IX tin, TAL metals (including cyanide)
 2. Gross alpha, nonvolatile beta, gamma speciation
 3. Tritium
 4. Chloride, nitrate, nitrate/nitrite, total hardness
 5. Contingent alpha speciation (americium-241, uranium series, curium-series, radium-226, neptunium-237)
 6. Contingent beta speciation (radium-228, iodine-129, nickel-63)
 7. Contingent beta analyte strontium-90
-

listed as a contingent beta speciation analyte and was reported when nonvolatile beta results exceeded trigger levels.

3.2.2 Sample Logbook Observations

There were no sample logbook observations that affected data quality.

3.2.3 Chain-of-Custody Observations

As noted previously, strontium-90 and technetium-99 were marked out on the COCs sent to GE.

There were no COC observations that affected data quality.

3.3 Analytical Data Quality Issues

3.3.1 The Laboratories

Environmental samples were analyzed by GE under contract AA07208N and split samples were analyzed by Recra under contract AA07210N. Both laboratories have been certified by SCDHEC.

3.3.2 Laboratory Quality Control

The laboratories follow their own QA/QC plans, which are designed to measure and document the accuracy and precision for the various sample control and analytical methods it performs. The laboratories are guided by published method-specific QC requirements as well as other regulatory and contract-required QC procedures.

3.3.3 List of Analytical Suites

Samples were to be analyzed for the following:

- TAL metals
- TAL cyanide
- Appendix IX tin
- Gross alpha (For any samples that exceeded 15 pCi/L gross alpha, alpha speciation was required, including alpha spec americium, alpha spec curium, alpha spec neptunium, alpha spec uranium, and radium-226.)
- Nonvolatile beta (If nonvolatile beta exceeded 50 pCi/L, beta speciation was required, to include iodine-129, nickel-63, radium-228, and strontium-90 for Recra samples only.)
- Gamma PHA
- Tritium
- Other: chloride, nitrate, nitrate/nitrite, and total hardness.

The data were validated as definitive-level data. See *Appendix A* for a listing of the analytical methods and the lab's reporting of MDAs.

3.3.4 Analytical Data Observations

The data are final and complete except as noted in this subsection. Data validation is also complete.

Some of the data did not meet all the criteria listed in EPA, 1993, as noted below:

- Field measurements are designed to meet the criteria for screening-level data and they are not analyte specific. Therefore, definitive data criteria are not applicable.
- Analytical error determination (a measurement of method precision) was not calculated; however, precision can be evaluated by referring to the tables in section 3.5, *Precision and Accuracy*, of this report.
- Total measurement error determination (measurement of overall precision from sample acquisition through analysis) was not performed because it requires independently collected samples from the same location, and this practice does not fit into the scope of the project work plan.
- No adjustments to sample values were made for bias or precision.
- Using the criteria defined in EPA, 1993, matrix spike recoveries for an entire project are averaged, and all associated sample data are qualified on the basis of this average. Matrix spike-based qualification for this project, however, was done on a sample-by-sample basis, using the criteria in subsection 3.4.5, *Qualification of the Data*.
- Two matrix spikes of project samples could not be evaluated due to high concentration of the analyte in the sample.

3.4 Verification and Validation Issues

3.4.1 Analytical Narrative Review

The EDDs and analytical narratives arrive from the laboratories and are logged in together. If the analytical narrative is missing, it is requested from the analytical laboratory. The narratives are reviewed and used as a reference throughout the data validation process. Discrepancies between the narratives and the analytical data must be resolved by the analytical laboratory. The analytical narratives contain summaries of the following problems encountered by the laboratory:

- QC samples that do not meet the criteria specified by the analytical method
- matrix interference problems
- sample-specific adjustments to the method caused by high concentration of some analytes
- sample preservation and holding time problems
- instrument calibration problems

- contaminated blanks
- other laboratory QC issues

Additional information about the chain-of-custody data and analytical data is often found in the analytical narratives. Copies of the COC forms attached to the analytical narratives are used for data review.

3.4.2 Laboratory Data Records Review

A laboratory data records review (LDRR) was originally scheduled for this project, but was canceled because of the small size of the project.

3.4.3 ICP Data Evaluation

An evaluation of the metals analyzed by inductively coupled plasma atomic emission spectroscopy (ICP) at GE indicated that no analytical results produced by ICP will require requalification. All reported aluminum and iron results were too low to interfere significantly with other metals.

3.4.4 Radiological Data Review

On July 31, 1998, Walt Kubilius of EMS reviewed laboratory instrument printouts at EP for radiological data from this project. The objective of the review was to evaluate data for false positive results. No requalification of analytical records was necessary based on the review.

3.4.5 Qualification of the Data

Each sample was evaluated on the following issues during validation:

- holding time
- sample preservation
- instrument calibration
- analyte identification and quantitation
- method blanks
- laboratory control samples
- rinsates, field blanks, and field duplicates
- laboratory duplicates
- matrix spikes
- instrument readings
- additional information

Holding Time

Criteria

Each analysis was evaluated according to the holding time limits for preparation (extraction or digestion) and analysis given in the following table.

Table 3.2 Holding Time Criteria

Analytes	Reference	Extraction/Digestion	Analysis
Cation exchange capacity	EPA, 1986	NA	NA
Cyanide	EPA, 1994a	NA	14 days from collection
Mercury	EPA, 1994a	NA	28 days from collection
Metals	EPA, 1994a	NA	6 months from collection
Nitrate	EPA, 1994a	NA	48 hours from collection
Nitrogen (Kjeldahl method)	EPA, 1994a	NA	28 days from collection
Orthophosphate	EPA, 1994a	NA	48 hours from collection
Pesticide (soil)	EPA, 1994a	14 days from collection	40 days from extraction
Pesticide (water)	EPA, 1994a	7 days from collection	40 days from extraction
Radionuclides	EPA, 1994a	NA	6 months from collection
Semivolatile organics (soil)	EPA, 1994a	14 days from collection	40 days from extraction
Semivolatile organics (water)	EPA, 1994a	7 days from collection	40 days from extraction
Sulfate	EPA, 1994a	NA	28 days from collection
Total organic carbon	EPA, 1986	NA	28 days from collection
Total phosphorus as P	EPA, 1994a	NA	28 days from collection
Turbidity	EPA, 1994a	NA	48 hours from collection
Volatile organics	EPA, 1994a	NA	14 days from collection

Action

When holding times were exceeded, the following qualifiers were applied:

Analysis Qualifier: *Q*

Result Qualifier: *J*—for detects *UJ*—for nondetects

Findings

Five of 1,369 environmental sample records were qualified based on holding times.

Table 3.3 Holding Times Exceeded by GE

Sample ID	Method	Number of Results	Sample Date	Ext. Date	Ext. Limit	Analysis Date	Analysis Limit
Specified Analyses							
114000	EPA300.0	3	04/13/98			04/16/98	04/15/98

Table 3.3 Holding Times Exceeded by GE (cont.)

Sample ID	Method	Number of Results	Sample Date	Ext. Date	Ext. Limit	Analysis Date	Analysis Limit
114001	EPA300.0	1	04/13/98			04/16/98	04/15/98
114002	EPA300.0	1	04/13/98			04/16/98	04/15/98

Table 3.4 Holding Times Exceeded by Recra

Sample ID	Method	Number of Results	Sample Date	Ext. Date	Ext. Limit	Analysis Date	Analysis Limit
Specified Analyses							
114013	EPA353.2	1	04/16/98			04/24/98	04/18/98
114022	EPA353.2	1	04/21/98			04/24/98	04/23/98

Discussion

Most methods specify limits on the time that can pass between sample collection and extraction or analysis. When holding times are exceeded, sample integrity may be compromised due to chemical and/or physical effects that can bias sample results either positively or negatively.

Sample Preservation*Criteria*

Sample preservation requirements are determined by regulatory guidance, method specifications, and laboratory protocols.

Findings

No environmental sample records were qualified based on sample preservation.

Instrument Calibration*Criteria*

The calibration criteria specific to each method was used to evaluate instrument calibration during the LDRR.

Action

When calibration criteria were not met, the following qualifiers were assigned:

Analysis Qualifier: *L*

Result Qualifiers: *J* or *R*—detects *UJ*—for nondetects

Findings

No environmental sample records were qualified based on instrument calibration.

Discussion

Instrument calibration ensures that the instrument is capable of producing acceptable quantitative results. Initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of the analysis run. Continuing calibration verification documents that the initial calibration is still valid. After initial calibration, a continuing calibration standard and blank should be analyzed after every 10 samples.

Analyte Identification and Quantitation

This issue was examined during the LDRR. The findings are presented in section 3.4.2, *Laboratory Data Records Review*.

Trip Blanks

Criteria

Trip blanks are used to determine the existence and magnitude of contamination from shipping activities.

Action

When an analyte is detected in a trip blank, an analysis qualifier is assigned to that analyte in the blank and to all samples that are shipped in the same cooler as the trip blank having positive results. If the analyte concentration in a sample is less than five times that in the blank (less than 10 times for the common laboratory contaminants acetone, dichloromethane [methylene chloride], and methyl ethyl ketone), assign a result qualifier to that analyte in the sample.

The following qualifiers may be assigned:

Analysis Qualifier: 8

Result Qualifier: U

Findings

There were no trip blanks associated with this project.

Discussion

Volatile organic contamination can be introduced into a trip blank in three ways: during blank preparation at the laboratory; during storage of the trip blank in the cooler; or by cross-contamination from other samples. The contamination can cause false positives in the trip blank and in the samples exposed to contamination.

Method Blanks

Criteria

Method blanks are used to determine the existence and magnitude of contamination from laboratory activities. Method blanks with analytical results greater than zero are considered to be contaminated. The CLP 5×/10× rule is used for data qualification.

Action

When an analyte is detected in a method blank, an analysis qualifier is assigned to that analyte in the blank and to every sample of the preparation batch having positive results. If the analyte concentration in a sample is less than five times that in the blank (less than 10 times for common laboratory contaminants), assign a result qualifier to that analyte in the sample. A bias qualifier should be used only if the laboratory believes the sample is contaminated and has assigned the qualifier.

The following qualifiers may be assigned:

Analysis Qualifier: *V*

Result Qualifier: *U*

Bias Qualifier: *H*

Findings

Of 1,369 environmental sample records, 139 were qualified based on method blank contamination.

Table 3.5 Method Blank Contamination by GE

Analyte	Frequency Detected
Specified Analyses	
Chloride	3/4
Nitrate as nitrogen	3/4
Nitrate-nitrite as nitrogen	1/4
Metals (total recoverable)	
Aluminum	1/5
Calcium	5/6
Iron	1/5
Lead	2/5
Magnesium	2/5
Manganese	2/5
Mercury	1/4
Potassium	2/5
Silver	3/5

Table 3.5 Method Blank Contamination by GE (cont.)

Analyte	Frequency Detected
Sodium	4/5
Zinc	3/5

Table 3.6 Method Blank Contamination by Recra

Analyte	Frequency Detected
Specified Analyses	
Barium	1/1
Magnesium	1/1
Sodium	1/1

Table 3.7 Method Blank Contamination by EP

Analyte	Frequency Detected
Radionuclides	
Americium-241	1/2
Lead-212	1/2

Discussion

Laboratory contamination of samples during preparation and/or analysis is monitored through the method blank. Laboratory procedures may cause false positive results in the method blanks for common laboratory contaminants.

Laboratory Control Samples*Criteria*

- Dioxins/furans: 40–120% recovery (EPA, 1986)
- Inorganics: 80–120% recovery except EPA6020 and EPA6020A, which have 70–130% recovery
- Pesticides: Page D-61 PEST (EPA, 1991b)
- Radiologicals: 80–120% (WHC, not dated)
- Semivolatiles: Table 7, page D-59 SV (EPA, 1991b)
- Volatiles: Table 7, page D-55 VOA (EPA, 1991b)

Action

When the percent recovery for an analyte in the LCS was outside the QC limits, that analyte in the LCS was qualified with an analysis qualifier. That analyte in each sample of the preparation batch was qualified. If an LCS was not included in the preparation batch, all spike compounds for the associated samples were qualified with an analysis and a results qualifier.

LCS recovery below lower QC limit:

Analysis Qualifier: C

Result Qualifiers: J—for detects UJ—for nondetects

LCS recovery above upper QC limit:

Analysis Qualifier: C

Result Qualifiers: J—for detects

Findings

Three of 1,369 environmental sample records were qualified based on laboratory control and blank spike recoveries. The preparation batch was used to correlate the samples with the spikes.

Table 3.8 Laboratory Control Samples and Blank Spikes Outside Ranges for EP

Analyte	Frequency Detected
Radionuclides	
Iodine-129	1/3

Table 3.9 Laboratory Control Samples and Blank Spikes Outside Ranges for TNU

Analyte	Frequency Detected
Radionuclides	
Nickel-63	1/1

Discussion

LCS percent recoveries that exceed the upper QC limit could indicate a high bias for samples with positive results. Percent recoveries that are less than the lower QC limit could indicate a low bias for samples with positive results, and nondetect results should be considered questionable.

Field Blanks*Criteria*

Field blanks are used to determine the existence and magnitude of contamination from the processing and shipping of samples.

Action

When an analyte is detected in a field blank, an analysis qualifier is assigned to that analyte in the blank and to positive results of that analyte for all samples associated with that blank. Samples associated include all samples from a soil boring taken while the field blank is exposed to the environment or a well cluster sampled on the same day and approximate time as a field blank is assigned. If the analyte concentration in a sample is less than five times that in the blank (less than 10 times for the common laboratory contaminants acetone, dichloromethane [methylene chloride], and methyl ethyl ketone), a result qualifier is assigned to that analyte in the sample.

The following qualifiers may be assigned:

Analysis Qualifier: 6

Result Qualifier: U

Findings

The field blanks for this project were not associated with any samples because the sample date for the field blanks recorded in the sample logbooks did not correlate with any project samples. Therefore, the analysis qualifier 6 was not assigned to any analytes in the analytical data.

Discussion

Positive results in field blanks can be attributed to contaminated sample bottles, DI water or quartz sand, contamination during shipping, or environmental exposure during sampling. The contamination can cause false positives in the field blank and in the samples exposed to the same contamination.

Rinsate Blanks and Field Duplicates

No qualification is performed based on rinsate blanks and field duplicates.

Laboratory Duplicates*Criteria*

- Inorganics: Page 10 (EPA, 1988a)
- Organics: No qualification is done on this basis.
- Radiologicals: (WHC, not dated)

Findings

Four of 1,369 environmental sample records were qualified based on RPDs.

Table 3.10 Laboratory Duplicate Results Outside RPD Limits by TNU

Sample ID	Analyte	Sample Conc.	Duplicate Conc.	Unit	RPD (%)	Acceptance Limit (%)
114013	Nonvolatile beta	34.75	26.68	pCi/L	26.27	20
114013	Promethium-144	1.14	19.07	pCi/L	177.4	20

Discussion

Poor precision (i.e., high RPDs) can be caused by poor instrument performance, inconsistent application of method procedures, the heterogeneous nature of soil samples, or low quantities of an analyte in the sample.

Matrix Spikes*Criteria*

- Dioxins: 40–120% (EPA, 1986)
- Inorganics: Page 11 (EPA, 1988a)
- Pesticides: Page D-61 PEST (EPA, 1991b)
- Semivolatiles: Table 7, page D-59 SV (EPA, 1991b)
- Volatiles: Table 7, page D-55 VOA (EPA, 1991b)

Action

1. MS recovery limits do not apply when the spike concentration is less than 25% of the sample concentration. When this occurred, the MS record only was qualified as follows:

Analysis Qualifier: 5

Result Qualifier: R

2. If the laboratory did not perform matrix spikes for nonradiological analyses, the following qualifier was used:

Analysis Qualifier: I

Findings

Twenty of 1,369 environmental sample records were qualified based on matrix spike recoveries. Table 3.11 lists matrix spike recoveries outside EPA recovery limits and table 3.12 lists the frequency with which matrix spikes were rejected because the sample concentration was four times higher than the nominal concentration.

Table 3.11 Matrix Spike Recoveries Outside the EPA Recovery Limits by GE

Sample ID	Lab ID	Analyte	EPA Minimum (%)	EPA Maximum (%)	Recovery (%)
114007	QC500790	Aluminum	80	120	40.2
114007	QC500791	Aluminum	80	120	52.2
114009	QC501407	Cyanide	80	120	73.2

Table 3.12 Matrix Spikes With Sample Concentrations Four Times Higher Than Nominal Concentration for Samples by GE

Analyte	Rejection Frequency
Metals (total recoverable)	
Aluminum	2/8

Discussion

When the matrix spike percent recovery for an analyte is high, the results for associated data may be biased positively. When the matrix spike percent recovery for an analyte is low, the results for associated data may be biased negatively, and the nondetected results should be considered questionable.

Instrument Readings*Criteria*

For radiologicals, nondetected parameters reported from an instrument reading require a result qualifier.

Action

The result qualifier was as follows:

Result Qualifier: *UI*—for nondetects

Findings

Of 1,369 environmental sample records, 601 qualified as instrument readings.

Discussion

For radiological analyses, the laboratory instrumentation and data management software calculate the MDA, result, and accuracy. If the reported result was less than the MDA and/or the accuracy, a *UI* result qualifier was assigned.

3.5 Precision and Accuracy

This section discusses the analytical data in terms of the precision and accuracy indicators of data quality. Precision is determined from the field and laboratory duplicate analyses and indicates the consistency of field and laboratory techniques. Accuracy is determined

from the laboratory control samples, matrix spikes, and the results of the method, field, trip, and equipment blanks or rinsates and indicates the ability of the laboratory to generate correct results.

3.5.1 Precision

Precision is a measure of the repeatability of a measurement and is evaluated from the results of field and laboratory duplicate samples. Field duplicates measure the repeatability for the sampling and analytical techniques, and laboratory duplicates measure the ability of the laboratory to reproduce a result. Low precision can be caused by poor instrument performance, poor operator technique, inconsistent application of method protocols, laboratory environment, time between analyses, or by a difficult, heterogeneous sample matrix. Precision is especially important when the action limit approaches the quantitation limit. At least 5% of the samples are collected in duplicate. The laboratory performs duplicate analyses on at least 10% of the samples received.

Precision is expressed in terms of the relative percent difference as follows:

$$RPD = \frac{|x - y|}{\left(\frac{x + y}{2}\right)} \times 100,$$

where x is the original sample result and y is the duplicate sample result. When one result of a duplicate pair is below the MDL, the ssEQL is used for that result in the calculation. When both results are below the MDL, the RPD cannot be calculated.

The RPD should be less than 20% for water samples and less than 35% for soil samples when results are above the ssEQL. In the case where results are between the ssEQL and the MDL, the RPD should be less than 100% for water samples and less than 200% for soil samples.

The RPDs for the laboratory and field duplicates are listed in the following tables. The frequency out of range is the number of duplicates that had RPDs greater than the acceptance limit compared to the total number analyzed; the other columns provide the mean RPD, standard deviation, and the minimum and maximum RPDs.

Table 3.13 Relative Percent Differences of Laboratory Duplicates by GE

Analyte	Frequency Out of Range	Mean RPD (%)	Std. Dev.	Minimum RPD (%)	Maximum RPD (%)
Specified Analyses					
Chloride	0/4	5.6	3.62	0.952	9.77
Cyanide	0/2	0	0	0	0
Hardness as CaCO ₃	0/3	10.2	9.3	0	18.2
Nitrate as nitrogen	0/4	4.09	3.03	0.966	7.67
Nitrate-nitrite as nitrogen	0/1	0.851		0.851	0.851

Table 3.14 Relative Percent Differences of Laboratory Duplicates by Recra

Analyte	Frequency Out of Range	Mean RPD (%)	Std. Dev.	Minimum RPD (%)	Maximum RPD (%)
Specified Analyses					
Cyanide	0/1	0		0	0
Hardness as CaCO ₃	0/1	4.26		4.26	4.26
Metals (total recoverable)					
Mercury	0/1	0		0	0

Table 3.15 Relative Percent Differences of Laboratory Duplicates by EP

Analyte	Frequency Out of Range	Mean RPD (%)	Std. Dev.	Minimum RPD (%)	Maximum RPD (%)
Radionuclides					
Actinium-228	1/2	54.4	76.9	0	109
Americium-241	0/1	0		0	0
Antimony-124	0/2	0	0	0	0
Antimony-125	0/2	0	0	0	0
Barium-133	0/2	0	0	0	0
Cerium-144	0/2	0	0	0	0
Cesium-134	0/2	0	0	0	0
Cesium-137	0/2	0	0	0	0
Cobalt-57	0/2	0	0	0	0
Cobalt-58	0/2	0	0	0	0
Cobalt-60	0/2	2.54	3.6	0	5.09
Curium-242	0/1	0		0	0
Curium-243/244	0/1	0		0	0
Curium-245/246	0/1	0		0	0
Europium-152	0/2	0	0	0	0
Europium-154	0/2	0	0	0	0
Europium-155	0/2	0	0	0	0
Gross alpha	0/0				
Iodine-129	1/2	17.2	24.3	0	34.3
Lead-212	0/2	0	0	0	0
Manganese-54	0/2	0	0	0	0
Neptunium-237	1/1	43.4		43.4	43.4
Neptunium-239	0/2	0	0	0	0
Nickel-63	0/1	0		0	0
Nonvolatile beta	0/0				
Potassium-40	0/2	0	0	0	0

Table 3.15 Relative Percent Differences of Laboratory Duplicates by EP (cont.)

Analyte	Frequency Out of Range	Mean RPD (%)	Std. Dev.	Minimum RPD (%)	Maximum RPD (%)
Promethium-144	0/2	0	0	0	0
Promethium-146	0/2	0	0	0	0
Radium-226	0/2	12.8	6.62	8.16	17.5
Radium-228	0/1	0		0	0
Ruthenium-106	0/2	0	0	0	0
Sodium-22	0/2	0	0	0	0
Tin-113	0/2	0	0	0	0
Tritium	0/0				
Uranium-233/234	0/1	11.5		11.5	11.5
Uranium-235	0/1	0		0	0
Uranium-238	1/1	199		199	199
Yttrium-88	0/2	0	0	0	0
Zinc-65	0/2	0	0	0	0
Zirconium-95	0/2	0	0	0	0

Table 3.16 Relative Percent Differences of Laboratory Duplicates by TNU

Analyte	Frequency Out of Range	Mean RPD (%)	Std. Dev.	Minimum RPD (%)	Maximum RPD (%)
Radionuclides					
Actinium-228	0/1	0		0	0
Antimony-124	0/1	0		0	0
Antimony-125	0/1	0		0	0
Barium-133	0/1	0		0	0
Cerium-144	0/1	0		0	0
Cesium-134	0/1	0		0	0
Cesium-137	0/1	0		0	0
Cobalt-57	0/1	0		0	0
Cobalt-58	0/1	0		0	0
Cobalt-60	0/1	0		0	0
Europium-152	0/1	0		0	0
Europium-154	0/1	0		0	0
Europium-155	0/1	0		0	0
Gross alpha	1/1	34.3		34.3	34.3
Iodine-129	0/1	0		0	0
Lead-212	1/1	313		313	313
Manganese-54	0/1	0		0	0
Nickel-63	0/1	0		0	0

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Table 3.16 Relative Percent Differences of Laboratory Duplicates by TNU (cont.)

Analyte	Frequency Out of Range	Mean RPD (%)	Std. Dev.	Minimum RPD (%)	Maximum RPD (%)
Nonvolatile beta	1/1	26.3		26.3	26.3
Potassium-40	0/1	-518		-518	-518
Promethium-144	1/1	177		177	177
Promethium-146	0/1	0		0	0
Radium-228	0/1	16.6		16.6	16.6
Ruthenium-106	0/1	0		0	0
Sodium-22	0/1	0		0	0
Strontium-90	0/1	6.21		6.21	6.21
Tin-113	0/1	0		0	0
Tritium	0/1	15		15	15
Yttrium-88	0/1	0		0	0
Zinc-65	0/1	0		0	0
Zirconium-95	0/1	0		0	0

Table 3.17 Relative Percent Differences of Field Duplicates by GE

Analyte	Frequency Out of Range	Mean RPD (%)	Std. Dev.	Minimum RPD (%)	Maximum RPD (%)
Specified Analyses					
Chloride	0/2	6.35	4.21	3.37	9.33
Cyanide	0/2	0	0	0	0
Hardness as CaCO ₃	1/2	33.7	37.8	6.9	60.4
Nitrate as nitrogen	1/2	14.2	15.9	2.91	25.4
Nitrate-nitrite as nitrogen	1/2	24.5	15.2	13.8	35.3
Metals (total recoverable)					
Aluminum	0/2	2.73	0.17	2.61	2.85
Antimony	0/2	0	0	0	0
Arsenic	0/2	0	0	0	0
Barium	0/2	5.22	4.09	2.33	8.12
Beryllium	0/2	0	0	0	0
Cadmium	0/2	0	0	0	0
Calcium	0/2	6	8.49	0	12
Chromium	1/2	11.1	15.7	0	22.2
Cobalt	0/2	6.24	8.82	0	12.5
Copper	0/2	0	0	0	0
Iron	0/2	8.31	7.72	2.85	13.8
Lead	1/2	64.2	90.8	0	128
Magnesium	0/2	2.99	2.66	1.11	4.88

Table 3.17 Relative Percent Differences of Field Duplicates by GE (cont.)

Analyte	Frequency Out of Range	Mean RPD (%)	Std. Dev.	Minimum RPD (%)	Maximum RPD (%)
Manganese	0/2	0.718	0.581	0.307	1.13
Mercury	0/2	0	0	0	0
Nickel	0/2	0	0	0	0
Potassium	0/2	12.6	1.86	11.3	13.9
Selenium	0/2	0	0	0	0
Silver	0/2	0	0	0	0
Sodium	0/2	1.44	0.971	0.755	2.13
Thallium	0/2	0	0	0	0
Tin	0/2	0	0	0	0
Vanadium	1/2	19.3	15.4	8.4	30.2
Zinc	1/2	19.9	28.1	0	39.7

Table 3.18 Relative Percent Differences of Field Duplicates by EP

Analyte	Frequency Out of Range	Mean RPD (%)	Std. Dev.	Minimum RPD (%)	Maximum RPD (%)
Radionuclides					
Actinium-228	0/2	0	0	0	0
Antimony-124	0/2	0	0	0	0
Antimony-125	0/2	0	0	0	0
Barium-133	1/2	149	210	0	298
Cerium-144	0/2	0	0	0	0
Cesium-134	0/2	0	0	0	0
Cesium-137	0/2	0	0	0	0
Cobalt-57	0/2	0	0	0	0
Cobalt-58	0/2	0	0	0	0
Cobalt-60	0/2	0	0	0	0
Europium-152	0/2	0	0	0	0
Europium-154	0/2	0	0	0	0
Europium-155	0/2	0	0	0	0
Gross alpha	2/2	79.3	36.7	53.4	105
Lead-212	1/2	47.9	67.8	0	95.9
Manganese-54	0/2	0	0	0	0
Neptunium-239	0/2	0	0	0	0
Nonvolatile beta	1/2	76.8	91.5	12.1	142
Potassium-40	0/2	0	0	0	0
Promethium-144	0/2	0	0	0	0
Promethium-146	0/2	0	0	0	0

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Table 3.18 Relative Percent Differences of Field Duplicates by EP (cont.)

Analyte	Frequency Out of Range	Mean RPD (%)	Std. Dev.	Minimum RPD (%)	Maximum RPD (%)
Ruthenium-106	0/2	0	0	0	0
Sodium-22	0/2	0	0	0	0
Tin-113	0/2	0	0	0	0
Tritium	0/2	4.57	0.666	4.1	5.04
Yttrium-88	0/2	0	0	0	0
Zinc-65	0/2	0	0	0	0
Zirconium-95	0/2	0	0	0	0

3.5.2 Accuracy

Accuracy is defined as the closeness of agreement between an observed value and an accepted reference value. Accuracy is especially important when the concentration of concern approaches the quantitation limit and/or the action limit. When the concentration is underestimated near the quantitation limit, the analyte may be present but reported as not detected. When the concentration is underestimated near the action limit, the analyte may be at a concentration that would require remediation, but the remediation would not be performed. When the concentration is overestimated near the quantitation limit, the analyte may not be present but reported as detected. When the concentration is overestimated near the action limit, the analyte may not be at a concentration that would require remediation, but the remediation would be performed. The sample types used to evaluate accuracy are performance evaluation studies (see *Appendix B*), LCS/BSs, surrogate spikes, and matrix spikes.

Laboratory Control Samples

LCSs monitor the performance of all steps in the analysis process, including sample preparation, and are used to identify problems with the analytical procedure. LCSs for inorganic analyses are DI water that is spiked with the target analyte, digested, and analyzed with the regular samples. LCSs for organic analyses are DI water that is spiked with selected target analytes, extracted, and analyzed with the regular samples. The LCS spiking solutions or solid LCSs are obtained from EPA or a third-party supplier or are prepared in the laboratory from chemicals from a different source than the calibration standards. The QC limits for radionuclide LCS are 80-120%.

The following tables list the statistical information for the percent recovery for LCSs by analyte. The frequency out of range is the number of LCSs that had percent recoveries outside the acceptance limits compared to the total number analyzed; the other columns provide the mean percent recovery, standard deviation, and the minimum and maximum percent recoveries.

The percent recovery is calculated as

$$\%R = \frac{SR}{SA} \times 100,$$

where %R = percent recovery

SR = LCS sample result

SA = spike-added result

Table 3.19 Laboratory Control Samples and Blank Spike Recoveries by GE

Analyte	Frequency Out of Range	Mean Recovery (%)	Std. Dev.	Minimum Recovery (%)	Maximum Recovery (%)
Specified Analyses					
Chloride	0/4	93.6	1.79	91.2	95
Cyanide	0/2	102	8.27	96.3	108
Hardness as CaCO ₃	0/3	97.7	0.577	97	98
Nitrate as nitrogen	0/4	99.5	4.53	92.8	103
Nitrate-nitrite as nitrogen	0/4	102	6.7	95	111
Metals (total recoverable)					
Aluminum	0/5	100	1.57	99.1	103
Antimony	0/5	98.8	3.18	93.8	102
Arsenic	0/5	99	3.8	92.4	102
Barium	0/5	99.5	0.86	98.8	101
Beryllium	0/5	99.7	3.07	94.7	103
Cadmium	0/5	101	2.91	98.2	106
Calcium	0/6	99.4	3.86	92.3	104
Chromium	0/5	99.3	3.23	94.1	103
Cobalt	0/5	99.8	3.96	93	103
Copper	0/5	99	2.8	94.5	102
Iron	0/5	99.7	3.63	93.5	103
Lead	0/5	100	3.32	94.5	103
Magnesium	0/5	96.2	3.79	89.6	99.4
Manganese	0/5	97.8	3.65	91.7	101
Mercury	0/4	102	4.55	96.6	107
Nickel	0/5	101	2.44	98.2	105
Potassium	0/5	95.8	3.34	91.1	98.2
Selenium	0/5	96.5	4.01	89.6	99.6
Silver	0/5	103	3.34	97.8	107
Sodium	0/5	102	2.77	98	105
Thallium	0/5	100	2.38	96.6	103
Tin	0/5	98.7	3.85	92.2	102

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Table 3.19 Laboratory Control Samples and Blank Spike Recoveries by GE (cont.)

Analyte	Frequency Out of Range	Mean Recovery (%)	Std. Dev.	Minimum Recovery (%)	Maximum Recovery (%)
Vanadium	0/5	99	2.92	94	101
Zinc	0/5	101	2.22	98.2	104

Table 3.20 Laboratory Control Samples and Blank Spike Recoveries by Recra

Analyte	Frequency Out of Range	Mean Recovery (%)	Std. Dev.	Minimum Recovery (%)	Maximum Recovery (%)
Specified Analyses					
Chloride	0/1	94.6		94.6	94.6
Cyanide	0/2	95.6	0.212	95.4	95.7
Hardness as CaCO ₃	0/2	102	0.707	101	102
Nitrate as nitrogen	0/2	106	1.41	105	107
Nitrate-nitrite as nitrogen	0/2	102	0	102	102
Metals (total recoverable)					
Aluminum	0/1	103		103	103
Antimony	0/1	98.4		98.4	98.4
Arsenic	0/1	100		100	100
Barium	0/1	98.7		98.7	98.7
Beryllium	0/1	101		101	101
Cadmium	0/1	101		101	101
Calcium	0/1	103		103	103
Chromium	0/1	99		99	99
Cobalt	0/1	100		100	100
Copper	0/1	99.8		99.8	99.8
Iron	0/1	99.6		99.6	99.6
Lead	0/1	101		101	101
Magnesium	0/1	102		102	102
Manganese	0/1	105		105	105
Mercury	0/1	102		102	102
Nickel	0/1	98.2		98.2	98.2
Potassium	0/1	101		101	101
Selenium	0/1	98.3		98.3	98.3
Silver	0/1	100		100	100
Sodium	0/1	100		100	100
Thallium	0/1	100		100	100
Tin	0/1	98.9		98.9	98.9
Vanadium	0/1	102		102	102
Zinc	0/1	99.2		99.2	99.2

Table 3.21 Laboratory Control Samples and Blank Spike Recoveries by EP

Analyte	Frequency Out of Range	Mean Recovery (%)	Std. Dev.	Minimum Recovery (%)	Maximum Recovery (%)
Radionuclides					
Americium-241	0/2	100	11.3	92	108
Cesium-137	0/2	98	5.66	94	102
Curium-243/244	0/2	99.4	5.09	95.8	103
Gross alpha	0/5	104	5.83	99.4	113
Iodine-129	1/3	100	18.8	78.8	114
Neptunium-237	0/2	104	6.72	99.5	109
Nickel-63	0/3	90.4	1.12	89.2	91.4
Nonvolatile beta	0/5	109	5.81	102	118
Radium-226	0/3	101	10.2	90.2	110
Radium-228	0/3	104	12.5	96	118
Tritium	0/3	98.8	3.94	94.4	102
Uranium-238	0/2	95.2	8.27	89.3	101

Table 3.22 Laboratory Control Samples and Blank Spike Recoveries by TNU

Analyte	Frequency Out of Range	Mean Recovery (%)	Std. Dev.	Minimum Recovery (%)	Maximum Recovery (%)
Radionuclides					
Cesium-137	0/1	106		106	106
Cobalt-60	0/1	106		105.55	105.55
Gross alpha	0/1	96.9		96.89	96.89
Iodine-129	0/1	87.6		87.64	87.64
Nickel-63	1/1	73.5		73.45	73.45
Nonvolatile beta	0/1	101		101.31	101.31
Radium-228	0/1	109		109.04	109.04
Strontium-90	0/1	87.1		87.07	87.07
Tritium	0/1	102		102.45	102.45

Matrix Spikes

Matrix spikes are used to evaluate the effect of the sample matrix on the analytical procedure. Matrix spikes for at least 5% of the samples are prepared by adding a known quantity of the target analyte to the samples prior to sample preparation. All target analytes are spiked for the inorganic analyses. Selected target analytes are used in the spiking solution for the organic analyses. Results from the matrix spikes are used to evaluate the extent of matrix interference.

The QC limits for matrix spikes are the same as those for LCSs except for inorganics, which have limits of 75–125%. Matrix spikes are rejected if the concentration of the analyte in the sample is more than four times the amount of the spike.

The following tables list the percent recovery for the matrix spikes. The frequency out of range is the number of matrix spikes that had percent recoveries outside the acceptance limits compared to the total number analyzed; the other columns provide the mean percent recovery, standard deviation, and the minimum and maximum percent recoveries.

Table 3.23 Matrix Spike Recoveries by GE

Analyte	Frequency Out of Range	Mean Recovery (%)	Std. Dev.	Minimum Recovery (%)	Maximum Recovery (%)
Specified Analyses					
Chloride	0/4	99.7	5.54	93.2	106
Cyanide	1/3	89.2	15.4	73.2	104
Hardness as CaCO ₃	0/3	96	2.17	93.7	98
Nitrate as nitrogen	0/4	110	10.6	99.7	122
Nitrate-nitrite as nitrogen	0/8	102	10.9	83	117
Metals (total recoverable)					
Aluminum	2/6	82.8	28.6	40.2	103
Antimony	0/8	96.1	7.33	84.4	104
Arsenic	0/8	98.3	5.35	89.4	105
Barium	0/8	99.5	2.14	96.9	103
Beryllium	0/8	98.9	3.58	92.5	103
Cadmium	0/8	99.7	3.23	94.5	103
Calcium	0/10	98.8	4.78	89.9	104
Chromium	0/8	98	3.72	91.2	102
Cobalt	0/8	98.6	4.93	90	104
Copper	0/8	99.5	3.29	93.8	104
Iron	0/8	101	8.47	87.6	113
Lead	0/8	98.5	4.16	91.6	104
Magnesium	0/8	95.3	3.95	88.6	99.7
Manganese	0/8	96.4	5.7	87.6	103
Mercury	0/6	103	1.83	101	105
Nickel	0/8	100	3.36	94.8	104
Potassium	0/8	95.9	3.81	90.2	100
Selenium	0/8	95.7	5	87	101
Silver	0/8	101	5.76	89.4	108
Sodium	0/8	97.1	5.74	87.7	104
Thallium	0/8	97.8	6.29	83.4	103
Tin	0/8	97.1	5.01	87.8	101

Table 3.23 Matrix Spike Recoveries by GE (cont.)

Analyte	Frequency Out of Range	Mean Recovery (%)	Std. Dev.	Minimum Recovery (%)	Maximum Recovery (%)
Vanadium	0/8	97.8	3.5	91.4	101
Zinc	0/8	99.9	2.5	95.6	103

Table 3.24 Matrix Spike Recoveries by Recra

Analyte	Frequency Out of Range	Mean Recovery (%)	Std. Dev.	Minimum Recovery (%)	Maximum Recovery (%)
Specified Analyses					
Cyanide	0/2	96.4	2.26	94.8	98
Hardness as CaCO ₃	0/2	100	0	100	100
Metals (total recoverable)					
Mercury	0/2	99.3	0.99	98.6	100

Table 3.25 Matrix Spike Recoveries by EP

Analyte	Frequency Out of Range	Mean Recovery (%)	Std. Dev.	Minimum Recovery (%)	Maximum Recovery (%)
Radionuclides					
Americium-241	0/2	105	5.66	101	109
Cesium-137	0/2	104	6.58	99.7	109
Curium-243/244	0/2	97.8	4.53	94.6	101
Gross alpha	0/5	108	17.1	83.4	125
Iodine-129	0/3	97.4	8.27	88.1	104
Neptunium-237	0/2	97.4	3.68	94.8	100
Nickel-63	0/3	92.2	0.666	91.8	93
Nonvolatile beta	0/5	111	8.48	98.8	120
Radium-226	0/3	104	11.4	91.4	112
Radium-228	1/3	119	15	102	131
Tritium	0/2	98.4	5.16	94.7	102
Uranium-238	0/2	100	12.8	90.9	109

3.5.3 Contamination in Quality Control Samples

Field Blanks

Field blanks are used to identify possible sources of contamination from the processing and shipping of samples. Field blanks consist of DI water or dry quartz sand sealed in sample bottles prior to sampling, opened in the field during sampling, resealed, and shipped to the laboratory with the samples. Positive results from field blanks can result from

contaminated sample bottles, contaminated DI water or quartz sand, vapors in the air during sampling, contamination during shipping or analysis, or analytical bias. The results from all samples in the sample delivery group are evaluated to determine the cause of the contamination and the corrective action to be taken.

The following tables list the statistical information for the field blanks. The frequency detected is the number of field blanks analyzed for each analyte that had detectable concentrations compared to the total number analyzed. The other columns list the mean result, standard deviation, minimum and maximum results, and reporting unit. When the analyte is not detected, the mean and min./max. results are the ssEQLs for the field blanks.

Table 3.26 Analytes Detected in Field Blanks by GE

Analyte	Frequency Detected	Mean Result	Std. Dev.	Min./Max. Result	Unit
Specified Analyses					
Cyanide	0/3	10	0	10/10	ug/L
Metals (total recoverable)					
Aluminum	2/2	42.8	0.566	42.4/43.2	ug/L
Antimony	2/2	2.11	0.304	1.89/2.32	ug/L
Arsenic	1/2	4.41	0.841	3.81/5	ug/L
Barium	1/2	2.8	3.11	0.597/5	ug/L
Beryllium	0/2	5	0	5/5	ug/L
Cadmium	0/2	5	0	5/5	ug/L
Calcium	0/2	17.1	0.707	16.6/17.6	ug/L
Chromium	0/2	5	0	5/5	ug/L
Cobalt	0/2	5	0	5/5	ug/L
Copper	0/2	5	0	5/5	ug/L
Iron	0/2	50	0	50/50	ug/L
Lead	0/2	3.13	2.65	1.25/5	ug/L
Magnesium	0/2	10	0	10/10	ug/L
Manganese	0/2	10	0	10/10	ug/L
Mercury	0/2	0.2	0	0.2/0.2	ug/L
Nickel	0/2	5	0	5/5	ug/L
Potassium	0/2	15	3.11	12.8/17.2	ug/L
Selenium	0/2	5	0	5/5	ug/L
Silver	0/2	2.57	0.0212	2.55/2.58	ug/L
Sodium	0/2	39.6	2.55	37.8/41.4	ug/L
Thallium	0/2	10	0	10/10	ug/L
Tin	0/2	10	0	10/10	ug/L
Vanadium	0/2	5	0	5/5	ug/L
Zinc	0/2	2.46	0.0424	2.43/2.49	ug/L

Table 3.27 Analytes Detected in Field Blanks by EP

Analyte	Frequency Detected	Mean Result	Std. Dev.	Min./Max. Result	Unit
Radionuclides					
Actinium-228	0/2	7.24	6.46	2.67/11.8	pCi/L
Antimony-124	0/2	1.45	0.191	1.31/1.58	pCi/L
Antimony-125	0/2	-4.3	1.49	-5.35/-3.24	pCi/L
Barium-133	0/2	-2.3	1.13	-3.1/-1.5	pCi/L
Cerium-144	0/2	7.26	21.3	-7.78/22.3	pCi/L
Cesium-134	0/2	-0.35	0.359	-0.604/-0.0963	pCi/L
Cesium-137	0/2	-0.932	0.139	-1.03/-0.834	pCi/L
Cobalt-57	0/2	-0.551	0.79	-1.11/0.00711	pCi/L
Cobalt-58	0/2	1.68	1.99	0.27/3.08	pCi/L
Cobalt-60	0/2	0.365	0.912	-0.28/1.01	pCi/L
Europium-152	0/2	-0.39	3.25	-2.69/1.91	pCi/L
Europium-154	0/2	1.73	3.51	-0.751/4.21	pCi/L
Europium-155	0/2	2.53	4.61	-0.724/5.79	pCi/L
Gross alpha	0/2	0.0639	0.192	-0.0722/0.2	pCi/L
Lead-212	0/2	3.83	2.84	1.82/5.83	pCi/L
Manganese-54	0/2	0.285	2.79	-1.69/2.26	pCi/L
Neptunium-239	0/2	-1.42	6.71	-6.16/3.33	pCi/L
Nonvolatile beta	0/2	0.181	0.566	-0.219/0.581	pCi/L
Potassium-40	0/2	30.6	26.6	11.8/49.4	pCi/L
Promethium-144	0/2	1.97	0.686	1.48/2.45	pCi/L
Promethium-146	0/2	-0.756	0.387	-1.03/-0.482	pCi/L
Ruthenium-106	0/2	17.4	21	2.53/32.2	pCi/L
Sodium-22	0/2	0.363	1.62	-0.784/1.51	pCi/L
Tin-113	0/2	2.66	2.57	0.846/4.48	pCi/L
Yttrium-88	0/2	-1.25	2.42	-2.96/0.461	pCi/L
Zinc-65	0/2	0.238	0.818	-0.341/0.816	pCi/L
Zirconium-95	0/2	3.63	2.69	1.72/5.53	pCi/L

Method Blanks

Method blanks are used to determine the existence and magnitude of contamination resulting from the analytical process. Method blanks are analyte-free matrices (DI water for aqueous samples and sodium sulfate for solid samples) that are prepared in the same manner and at the same time as the samples. When method blanks have detectable concentrations of analytes, the laboratory must determine the cause and take corrective action to eliminate the contamination.

The following tables list the statistical information for the method blanks. The frequency detected column gives the number of method blanks analyzed for each analyte that had detectable concentrations compared to the total number analyzed. The other columns list

the mean result, standard deviation, minimum and maximum results, and reporting unit. When the the analyte is not detected, the mean and minimum and maximum results are the ssEQLs for the method blanks.

Table 3.28 Analytes Detected in Method Blanks by GE

Analyte	Frequency Detected	Mean Result	Std. Dev.	Min./Max. Result	Unit
Specified Analyses					
Chloride	3/4	60	40.7	23/100	ug/L
Cyanide	0/2	10	0	10/10	ug/L
Hardness as CaCO ₃	0/3	2000	0	2000/2000	ug/L
Nitrate as nitrogen	3/4	21	19.8	7/50	ug/L
Nitrate-nitrite as nitrogen	1/4	40	20	10/50	ug/L
Metals (total recoverable)					
Aluminum	1/5	49.1	1.97	45.6/50	ug/L
Antimony	0/5	10	0	10/10	ug/L
Arsenic	0/5	5	0	5/5	ug/L
Barium	0/5	5	0	5/5	ug/L
Beryllium	0/5	5	0	5/5	ug/L
Cadmium	0/5	5	0	5/5	ug/L
Calcium	5/6	81.8	91.1	18.6/257	ug/L
Chromium	0/5	5	0	5/5	ug/L
Cobalt	0/5	5	0	5/5	ug/L
Copper	0/5	5	0	5/5	ug/L
Iron	1/5	46.7	7.38	33.5/50	ug/L
Lead	2/5	3.56	2.01	0.857/5	ug/L
Magnesium	2/5	7.73	3.11	4.12/10	ug/L
Manganese	2/5	6.59	4.68	0.933/10	ug/L
Mercury	1/4	0.177	0.047	0.106/0.2	ug/L
Nickel	0/5	5	0	5/5	ug/L
Potassium	2/5	64.2	49	10.3/100	ug/L
Selenium	0/5	5	0	5/5	ug/L
Silver	3/5	3.03	1.96	1.03/5	ug/L
Sodium	4/5	55	26.2	32.8/100	ug/L
Thallium	0/5	10	0	10/10	ug/L
Tin	0/5	10	0	10/10	ug/L
Vanadium	0/5	5	0	5/5	ug/L
Zinc	3/5	3.09	1.83	1.02/5	ug/L

Table 3.29 Analytes Detected in Method Blanks by Recra

Analyte	Frequency Detected	Mean Result	Std. Dev.	Min./Max. Result	Unit
Specified Analyses					
Chloride	0/1	210		210/210	ug/L
Cyanide	0/1	15.2		15.2/15.2	ug/L
Hardness as CaCO ₃	0/1	9000		9000/9000	ug/L
Nitrate as nitrogen	0/1	20		20/20	ug/L
Nitrate-nitrite as nitrogen	0/1	40		40/40	ug/L
Metals (total recoverable)					
Aluminum	0/1	146		146/146	ug/L
Antimony	0/1	27		27/27	ug/L
Arsenic	0/1	40		40/40	ug/L
Barium	1/1	0.69		0.69/0.69	ug/L
Beryllium	0/1	1.6		1.6/1.6	ug/L
Cadmium	0/1	4.7		4.7/4.7	ug/L
Calcium	0/1	471		471/471	ug/L
Chromium	0/1	7		7/7	ug/L
Cobalt	0/1	4.5		4.5/4.5	ug/L
Copper	0/1	15		15/15	ug/L
Iron	0/1	74		74/74	ug/L
Lead	0/1	47		47/47	ug/L
Magnesium	1/1	11.9		11.9/11.9	ug/L
Manganese	0/1	7.8		7.8/7.8	ug/L
Mercury	0/2	0.7	0	0.7/0.7	ug/L
Nickel	0/1	26		26/26	ug/L
Potassium	0/1	187		187/187	ug/L
Selenium	0/1	66		66/66	ug/L
Silver	0/1	5		5/5	ug/L
Sodium	1/1	60.2		60.2/60.2	ug/L
Thallium	0/1	55		55/55	ug/L
Tin	0/1	70		70/70	ug/L
Vanadium	0/1	6.9		6.9/6.9	ug/L
Zinc	0/1	53		53/53	ug/L

Table 3.30 Analytes Detected in Method Blanks by EP

Analyte	Frequency Detected	Mean Result	Std. Dev.	Min./Max. Result	Unit
Radionuclides					
Actinium-228	0/2	3.26	1.19	2.42/4.1	pCi/L
Americium-241	1/2	0.0166	0.00247	0.0148/0.0183	pCi/L

Table 3.30 Analytes Detected in Method Blanks by EP (cont.)

Analyte	Frequency Detected	Mean Result	Std. Dev.	Min./Max. Result	Unit
Antimony-124	0/2	0.684	0.674	0.207/1.16	pCi/L
Antimony-125	0/2	0.121	0.861	-0.488/0.73	pCi/L
Barium-133	0/2	-0.0485	0.907	-0.69/0.593	pCi/L
Cerium-144	0/2	-0.21	3.69	-2.82/2.4	pCi/L
Cesium-134	0/2	-0.027	1.18	-0.863/0.809	pCi/L
Cesium-137	0/2	-1.19	0.844	-1.79/-0.597	pCi/L
Cobalt-57	0/2	-0.298	0.433	-0.604/0.00801	pCi/L
Cobalt-58	0/2	-0.381	0.218	-0.535/-0.226	pCi/L
Cobalt-60	0/2	-0.065	0.851	-0.667/0.537	pCi/L
Curium-242	0/2	0.0074	0.0105	0/0.0148	pCi/L
Curium-243/244	0/2	0.0085	0.012	0/0.017	pCi/L
Curium-245/246	0/2	0.00831	0.00136	0.00734/0.00927	pCi/L
Europium-152	0/2	3.76	0.969	3.07/4.44	pCi/L
Europium-154	0/2	-1.39	1.38	-2.36/-0.415	pCi/L
Europium-155	0/2	0.65	2.35	-1.01/2.31	pCi/L
Gross alpha	0/5	0.00566	0.128	-0.18/0.135	pCi/L
Iodine-129	0/3	0.284	0.0925	0.218/0.39	pCi/L
Lead-212	1/2	3.44	3.68	0.839/6.05	pCi/L
Manganese-54	0/2	0.107	0.371	-0.155/0.369	pCi/L
Neptunium-237	0/2	-0.00111	0.00873	-0.00728/0.00507	pCi/L
Neptunium-239	0/2	-0.852	0.747	-1.38/-0.324	pCi/L
Nickel-63	0/3	-1.81	20.2	-17.4/21	pCi/L
Nonvolatile beta	0/5	-0.0378	0.195	-0.289/0.248	pCi/L
Potassium-40	0/2	17.2	0.566	16.8/17.6	pCi/L
Promethium-144	0/2	0.441	1.46	-0.589/1.47	pCi/L
Promethium-146	0/2	-0.595	0.431	-0.9/-0.29	pCi/L
Radium-226	0/3	0.204	0.0958	0.13/0.312	pCi/L
Radium-228	0/3	-0.386	0.656	-1.14/0.0498	pCi/L
Ruthenium-106	0/2	1.17	5.13	-2.46/4.8	pCi/L
Sodium-22	0/2	-0.492	0.482	-0.832/-0.151	pCi/L
Tin-113	0/2	0.57	1.2	-0.28/1.42	pCi/L
Tritium	0/3	-0.0507	0.0731	-0.121/0.0249	pCi/mL
Uranium-233/234	0/2	0.0233	0.00375	0.0206/0.0259	pCi/L
Uranium-235	0/2	0.011	0.00224	0.00943/0.0126	pCi/L
Uranium-238	0/2	0.00709	0.00327	0.00478/0.0094	pCi/L
Yttrium-88	0/2	0.0686	0.148	-0.0358/0.173	pCi/L
Zinc-65	0/2	-1.02	0.56	-1.42/-0.628	pCi/L
Zirconium-95	0/2	0.585	0.899	-0.0507/1.22	pCi/L

Table 3.31 Analytes Detected in Method Blanks by TNU

Analyte	Frequency Detected	Mean Result	Std. Dev.	Min./Max. Result	Unit
Radionuclides					
Cesium-137	0/1	1.46		1.46/1.46	pCi/L
Cobalt-60	0/1	-0.25		-0.25/-0.25	pCi/L
Gross alpha	0/1	-0.07		-0.07/-0.07	pCi/L
Iodine-129	0/1	0.14		0.14/0.14	pCi/L
Nickel-63	0/1	-1.86		-1.86/-1.86	pCi/L
Nonvolatile beta	0/1	-0.75		-0.75/-0.75	pCi/L
Radium-228	0/1	0.82		0.82/0.82	pCi/L
Strontium-90	0/1	0.47		0.47/0.47	pCi/L
Tritium	0/1	-0.2		-0.2/-0.2	pCi/mL

Trip Blanks

Trip blanks are used to detect contamination by volatile substances during shipping, primarily due to the breaking of the seal on the vial caused by depressurization during air transport. Trip blanks are analyzed for VOAs only. Trip blanks are prepared by the EPD/EMS laboratory for groundwater studies and by the analytical laboratory for other studies. If prepared by the analytical laboratory, trip blanks are shipped to EPD/EMS with the sample containers. The blanks are prepared by adding preservative to a 40-mL vial, filling it completely with DI water (no air bubbles), and sealing the top with a Teflon-lined septum cap. If a trip blank is found to be contaminated, the results from all samples shipped in the same cooler are evaluated to determine the extent of the contamination and the corrective action to be taken.

No trip blanks were associated with this project.

Rinsates

Rinsates are used to determine if sampling equipment that has been cleaned in the field is contaminated. Prior to sampling, DI water is poured over or pumped through portions of the sampling equipment that come in contact with the sample. If the rinsate is contaminated, the field cleaning procedure must be evaluated to determine the cause of the contamination. Results for all samples collected with equipment cleaned in the field must be evaluated to determine if the contamination is isolated or generalized.

No rinsates were associated with this project.

3.5.4 Comparability

The comparability of the data from the laboratories is based on the results of the split samples. For at least 10% of the sample locations, a split sample is collected and sent to the designated QC laboratory. The following table lists the RPDs, sample IDs, results that are greater than the quantitation limit for each analyte, and reporting units.

Table 3.32 Split Sample Results for GE and Recra

		GE		Recra		
Analyte	RPD	Sample ID	Result	Sample ID	Result	Unit
Specified Analyses						
Chloride	23.5	114012	2030	114013	2570	ug/L
Chloride	14.8	114021	1810	114022	2100	ug/L
Hardness as CaCO3	93.3	114012	4000	114013	11000	ug/L
Hardness as CaCO3	100	114021	4000	114022	12000	ug/L
Nitrate as nitrogen	77.8	114012	325	114013	143	ug/L
Nitrate as nitrogen	33.9	114021	1250	114022	1760	ug/L
Nitrate-nitrite as nitrogen	179	114012	560	114013	31	ug/L
Nitrate-nitrite as nitrogen	2.02	114021	1470	114022	1500	ug/L
Metals (total recoverable)						
Aluminum	46	114012	13100	114013	8200	ug/L
Aluminum	24.9	114021	611	114022	785	ug/L
Barium	86.5	114012	52	114013	20.6	ug/L
Barium	14.4	114021	90	114022	104	ug/L
Beryllium	184	114021	5	114022	0.21	ug/L
Cadmium	165	114021	0.678	114022	7.1	ug/L
Calcium	31.5	114012	697	114013	958	ug/L
Calcium	20.8	114021	669	114022	824	ug/L
Chromium	40.3	114012	8.58	114013	5.7	ug/L
Chromium	137	114021	5	114022	0.93	ug/L
Cobalt	198	114012	0.741	114013	144	ug/L
Cobalt	198	114021	0.937	114022	156	ug/L
Copper	110	114012	5	114013	17.3	ug/L
Copper	100	114021	5	114022	15	ug/L
Iron	42.1	114012	6990	114013	4560	ug/L
Iron	96.7	114021	217	114022	623	ug/L
Lead	24.9	114012	6.81	114013	5.3	ug/L
Lead	179	114021	5	114022	89.5	ug/L
Magnesium	24.5	114012	445	114013	348	ug/L
Magnesium	19.2	114021	348	114022	422	ug/L
Manganese	52.4	114012	195	114013	114	ug/L
Manganese	23.9	114021	357	114022	454	ug/L
Nickel	184	114012	3.54	114013	85.6	ug/L
Nickel	180	114021	5	114022	92.6	ug/L
Potassium	15.9	114012	347	114013	296	ug/L
Potassium	9.67	114021	128	114022	141	ug/L
Sodium	39.6	114012	25400	114013	17000	ug/L

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Table 3.32 Split Sample Results for GE and Recra (cont.)

Analyte	RPD	GE		Recra		Unit
		Sample ID	Result	Sample ID	Result	
Sodium	9.45	114021	2880	114022	2620	ug/L
Vanadium	52.1	114012	18.4	114013	10.8	ug/L
Zinc	56.5	114012	15.9	114013	8.9	ug/L
Zinc	10.3	114021	32.3	114022	35.8	ug/L
Radionuclides						
Gross alpha	46.2	114012	12.7	114013	7.93	pCi/L
Gross alpha	76.2	114021	5.11	114022	11.4	pCi/L
Lead-212	134	114012	8.7	114013	1.72	pCi/L
Nonvolatile beta	3.81	114012	36.1	114013	34.75	pCi/L
Nonvolatile beta	8.57	114021	73	114022	79.54	pCi/L
Potassium-40	168	114012	82.9	114013	7.22	pCi/L
Radium-228	198	114021	0.105	114022	25.99	pCi/L
Strontium-90		114021		114022	19.2	pCi/L
Tritium	51	114012	227	114013	382.46	pCi/mL
Tritium	16.1	114021	88.2	114022	103.69	pCi/mL

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4.0 References

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Appendix A: Analytical Methods and Method Detection Limits

In the following tables of analytical methods and detection limits, the MDL column reports the matrix-specific method detection limit (MDL). The MDL takes into account the reagents, sample matrix, and preparation steps of a specific analytical method, and is defined as the minimum concentration that can be measured and reported with 99% confidence that the analyte concentration is greater than zero.

Table A.1 Water Analytical Methods and Detection Limits for GE

Analyte	Method	MDL	Units
Specified Analyses			
Chloride	EPA300.0	7	µg/L
Cyanide	EPA335.3	3.34	µg/L
Hardness as CaCO ₃	EPA130.2	1000	µg/L
Nitrate as nitrogen	EPA300.0	6	µg/L
Nitrate-nitrite as nitrogen	EPA353.1	7	µg/L
Metals (total recoverable)			
Aluminum	EPA6010A	37.6	µg/L
Antimony	EPA6010A	1.64	µg/L
Arsenic	EPA6010A	2.98	µg/L
Barium	EPA6010A	0.332	µg/L
Beryllium	EPA6010A	0.223	µg/L
Cadmium	EPA6010A	0.208	µg/L
Calcium	EPA6010A	15.4	µg/L
Chromium	EPA6010A	0.729	µg/L
Cobalt	EPA6010A	0.671	µg/L
Copper	EPA6010A	1.32	µg/L
Iron	EPA6010A	8.63	µg/L
Lead	EPA6010A	0.678	µg/L
Magnesium	EPA6010A	3.33	µg/L
Manganese	EPA6010A	0.903	µg/L
Mercury	EPA7470	0.104	µg/L
Nickel	EPA6010A	2.27	µg/L
Potassium	EPA6010A	5.87	µg/L
Selenium	EPA6010A	1.4	µg/L
Silver	EPA6010A	0.62	µg/L
Sodium	EPA6010A	29.1	µg/L
Thallium	EPA6010A	2.63	µg/L
Tin	EPA6010A	2.94	µg/L

Table A.1 Water Analytical Methods and Detection Limits for GE (cont.)

Analyte	Method	MDL	Units
Vanadium	EPA6010A	0.427	µg/L
Zinc	EPA6010A	0.966	µg/L

Table A.2 Water Analytical Methods and Detection Limits for Recra

Analyte	Method	MDL	Units
Specified Analyses			
Chloride	EPA9056	21	µg/L
Cyanide	EPA9010A	1.52	µg/L
Hardness as CaCO ₃	EPA130.2	960	µg/L
Nitrate as nitrogen	EPA353.2	2	µg/L
Nitrate-nitrite as nitrogen	EPA353.2	2	µg/L
Metals (total recoverable)			
Aluminum	EPA6010	14.6	µg/L
Antimony	EPA6010	2.7	µg/L
Arsenic	EPA6010	4	µg/L
Barium	EPA6010	0.18	µg/L
Beryllium	EPA6010	0.16	µg/L
Cadmium	EPA6010	0.47	µg/L
Calcium	EPA6010	47.1	µg/L
Chromium	EPA6010	0.7	µg/L
Cobalt	EPA6010	0.45	µg/L
Copper	EPA6010	1.5	µg/L
Iron	EPA6010	7.4	µg/L
Lead	EPA6010	4.7	µg/L
Magnesium	EPA6010	7.4	µg/L
Manganese	EPA6010	0.78	µg/L
Mercury	EPA7470	0.045	µg/L
Nickel	EPA6010	2.6	µg/L
Potassium	EPA6010	18.7	µg/L
Selenium	EPA6010	6.6	µg/L
Silver	EPA6010	0.5	µg/L
Sodium	EPA6010	28.5	µg/L
Thallium	EPA6010	5.5	µg/L
Tin	EPA6010	7	µg/L
Vanadium	EPA6010	0.69	µg/L
Zinc	EPA6010	5.3	µg/L

In the following tables of analytical methods and minimum detectable activities, the MDA column reports the mean matrix-specific minimum detectable activity. The MDA takes into account the reagents, sample matrix, and preparation steps of a specific analytical method, and is defined as the smallest quantity of a radionuclide that can be detected in a sample with a 95% confidence level.

Table A.3 Water Analytical Methods and Minimum Detectable Activities for EP

Analyte	Method	MDA	Units
Radionuclides			
Actinium-228	EPIA-013	18.9	pCi/L
Americium-241	EPIA-011	0.132	pCi/L
Antimony-124	EPIA-013	4.99	pCi/L
Antimony-125	EPIA-013	11.1	pCi/L
Barium-133	EPIA-013	5.13	pCi/L
Cerium-144	EPIA-013	25.5	pCi/L
Cesium-134	EPIA-013	4.12	pCi/L
Cesium-137	EPIA-013	4.44	pCi/L
Cobalt-57	EPIA-013	3.23	pCi/L
Cobalt-58	EPIA-013	4.57	pCi/L
Cobalt-60	EPIA-013	4.76	pCi/L
Curium-242	EPIA-011	0.152	pCi/L
Curium-243/244	EPIA-011	0.145	pCi/L
Curium-245/246	EPIA-011	0.0613	pCi/L
Europium-152	EPIA-013	11.5	pCi/L
Europium-154	EPIA-013	12.7	pCi/L
Europium-155	EPIA-013	13.8	pCi/L
Gross alpha	EPIA-001	1.1	pCi/L
Iodine-129	EPIA-006	1.04	pCi/L
Lead-212	EPIA-013	7.89	pCi/L
Manganese-54	EPIA-013	4.32	pCi/L
Neptunium-237	EPIA-032	0.106	pCi/L
Neptunium-239	EPIA-013	23.9	pCi/L
Nickel-63	EPIA-022	242	pCi/L
Nonvolatile beta	EPIA-001	1.76	pCi/L
Potassium-40	EPIA-013	51.9	pCi/L
Promethium-144	EPIA-013	4.27	pCi/L
Promethium-146	EPIA-013	5.29	pCi/L
Radium-226	EPIA-008	0.486	pCi/L
Radium-228	EPIA-009	0.84	pCi/L
Ruthenium-106	EPIA-013	38.8	pCi/L
Sodium-22	EPIA-013	4.52	pCi/L
Tin-113	EPIA-013	5.42	pCi/L

Table A.3 Water Analytical Methods and Minimum Detectable Activities for EP (cont.)

Analyte	Method	MDA	Units
Tritium	EPA906.0	0.888	pCi/mL
Uranium-233/234	EPIA-011	0.164	pCi/L
Uranium-235	EPIA-011	0.179	pCi/L
Uranium-238	EPIA-011	0.201	pCi/L
Yttrium-88	EPIA-013	5.51	pCi/L
Zinc-65	EPIA-013	9.24	pCi/L
Zirconium-95	EPIA-013	8.34	pCi/L

Table A.4 Water Analytical Methods and Minimum Detectable Activities for TNU

Analyte	Method	MDA	Units
Radionuclides			
Actinium-228	EPA901.1MOD	14.2	pCi/L
Antimony-124	EPA901.1MOD	4.85	pCi/L
Antimony-125	EPA901.1MOD	8.33	pCi/L
Barium-133	EPA901.1MOD	4.02	pCi/L
Cerium-144	EPA901.1MOD	17.2	pCi/L
Cesium-134	EPA901.1MOD	3.58	pCi/L
Cesium-137	EPA901.1MOD	3.92	pCi/L
Cobalt-57	EPA901.1MOD	2.27	pCi/L
Cobalt-58	EPA901.1MOD	4.48	pCi/L
Cobalt-60	EPA901.1MOD	3.67	pCi/L
Europium-152	EPA901.1MOD	27.6	pCi/L
Europium-154	EPA901.1MOD	12.1	pCi/L
Europium-155	EPA901.1MOD	6.99	pCi/L
Gross alpha	EPA900.0MOD	1.51	pCi/L
Iodine-129	EPA902.0MOD	10.5	pCi/L
Lead-212	EPA901.1MOD	4.95	pCi/L
Manganese-54	EPA901.1MOD	3.85	pCi/L
Nickel-63	3500NIEMOD	12.6	pCi/L
Nonvolatile beta	EPA900.0MOD	2.14	pCi/L
Potassium-40	EPA901.1MOD	37.3	pCi/L
Promethium-144	EPA901.1MOD	3.88	pCi/L
Promethium-146	EPA901.1MOD	6.17	pCi/L
Radium-228	EPA904.0MOD	6.76	pCi/L
Ruthenium-106	EPA901.1MOD	33.5	pCi/L

Table A.4 Water Analytical Methods and Minimum Detectable Activities for TNU (cont.)

Analyte	Method	MDA	Units
Sodium-22	EPA901.1MOD	4.36	pCi/L
Strontium-90	EMLSR02MOD	1.84	pCi/L
Tin-113	EPA901.1MOD	4.65	pCi/L
Tritium	EPA906.0MOD	0.623	pCi/mL
Yttrium-88	EPA901.1MOD	4.34	pCi/L
Zinc-65	EPA901.1MOD	7.59	pCi/L
Zirconium-95	EPA901.1MOD	8.72	pCi/L

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Appendix B: Laboratory Performance Evaluation Results

This appendix contains recent performance evaluation results for the laboratories that report data for soils and groundwater samples. Not all laboratories report data for each project.

B.1 EPA Performance Evaluation Study Results

EPA conducts the water pollution (WP) and water supply (WS) performance evaluation studies biannually to certify laboratories for specific analyses. EPA's Environmental Monitoring Systems Laboratory (EMSL) of Cincinnati, OH, distributes water samples spiked with known concentrations of constituents found in polluted waters and potable water and submits them to laboratories seeking certification to analyze wastewater and potable water. EMSL evaluates the results, using limits statistically based on the performance of approximately 100 top-rated laboratories that analyze each constituent by the same procedure as the laboratory being evaluated.

All laboratories reported results for WP036, and EMAX, QST, and Recra reported results for WP037.

For study WP036, the results from EMAX were outside the acceptance limits for chloride, potassium, and sodium. The results for dibromochloro-methane and nonfilterable residue were acceptable but near the acceptance limits; EMAX was instructed to check for error. The results from GE were outside the acceptance limits for fluoride, magnesium, potassium, and total phosphorus. In addition, the results for benzene and methylene chloride were acceptable but near the acceptance limits; GE was instructed to check for error. The results from QST were outside the acceptance limits for chloroform and methylene chloride. In addition, the results for 5-day biochemical oxygen demand, bromodichloromethane, 1,3-dichlorobenzene, and tetrachloroethylene were acceptable but near the acceptance limits; QST was instructed to check for error. The results from Recra for all analytes were within acceptance limits.

For study WP037, the results for EMAX were outside the acceptance limits for fluoride, total phosphorus, and total phenolics. The results for QST were outside the acceptance limits for beryllium and total phenolics. The result for carbonaceous biochemical oxygen demand was acceptable but near the acceptance limits; QST was instructed to check for error. The results for Recra were outside the acceptance limits for calcium, total organic carbon, and nonfilterable residue. The results for magnesium and sodium were acceptable but near the acceptance limits; Recra was instructed to check for error.

EMAX and QST reported results for WS037, and EMAX, GE, and QST reported results for WS038.

For WS037, the results for EMAX were outside the acceptance limits for dieldrin, endrin, nitrite, orthophosphate, propachlor, total organic carbon, toxaphene, and trifluralin. The results for QST were outside the acceptance limits for 2,4-D, hardness, nitrate, pentachlorophenol, total organic carbon, and 2,4,5-TP (Silvex).

For WS038, the results for EMAX were outside the acceptance limits for 2,4-D, propachlor, tetrachloroethylene, and total organic carbon. The results for GE were outside the acceptance limits for dicamba and zinc. The results for QST were outside the acceptance limits for 2,4-D, cis-1,2-dichloroethylene, and orthophosphate.

B.2 EMS Quality Control Standards Results

During second quarter 1997, EPD/EMS conducted quality assessments of the laboratories. Each laboratory received a set of certified environmental quality control standards from Environmental Resource Associates (ERA) of Arvada, CO (lot numbers 573, 3218, 3418, 8915, and 9973). Each laboratory's results were compared with the ERA-certified values and performance acceptance limits (PALs). The PALs are listed as guidelines for acceptable analytical results given the limitations of the EPA methods used to determine these parameters. The PALs closely approximate the 95% confidence interval.

Of the 100 analyses reported by GE, 96 (or 96%), were within the PALs. Of 99 analyses reported by Recra, 94 (or 95%), were within the PALs. Of the 100 analyses reported by QST, 97 (or 97%) were within the PALs. Of the 98 analyses reported by EMAX, 91 (or 93%) were within the PALs.

B.3 Mixed Analyte Performance Evaluation Program

The Department of Energy mixed analyte performance evaluation program provides proficiency samples containing metals, pesticides, and radionuclides. The results from the June 1996 MAPEP-96-S3 study were reported in December 1996. GE and Recra reported only chemical analyses, and EP and TNU reported only radionuclide analyses.

For GE, copper was not acceptable and nickel was reported at 23.4 mg/kg although it was not included in the original sample. Five of the eight pesticides had a negative bias and were not acceptable; 4,4'-DDE and methoxychlor were not reported. For Recra, all the metals were within the acceptance limits. Four of the eight pesticides were not acceptable, three were acceptable, and methoxychlor was not reported.

For EP, all eight radionuclides were acceptable, but plutonium-238 was close to the upper acceptance limit and given a warning flag. For TNU, seven of eight radionuclides were within the acceptance limits; however the result for strontium-90 was not acceptable. The results for EP and TNU are reported in table B.1.

The results for MAPEP-96-W4 were reported in April 1997. For QST, the results for 4-methylphenol and phenol were outside the acceptance limits.

Table B.1 Mixed Analyte Performance Evaluation Program Results for MAPEP-96-S3 for EP and TNU

Analyte	EP Result	TNU Result	Reference Value	Acceptance Limits
Radionuclides (Bq/kg)				
Americium-241	29.0	28.7	28.7	20.09–37.31
Cesium-137	1770	1359	1531	1071.7–1990.3
Cobalt-60	931	727	812	568.4–1055.6
Plutonium-238	20.5^a	17.3	15.9	11.13–20.67
Plutonium-239/240	22.6	18.9	19.7	13.79–25.61
Strontium-90	540	347^b	536.0	375.2–696.8
Uranium-233/234	56.6	59.7	63.9	44.73–83.07
Uranium-238	52.9	59.7	64.0	44.80–83.20

B.4 EPA Radiological Performance Evaluation Studies

EP and QR participated in the EPA radiological performance evaluation studies administered by the Characterization Research Division-Las Vegas. The studies included in this order are the following:

- Tritium in water, August 9, 1996
- Blind-A, October 15, 1996
- Blind-B, October 15, 1996
- Gamma in water, November 8, 1996
- Strontium in water, January 17, 1997
- Gross alpha-beta in water, January 31, 1997
- Iodine in water, February 7, 1997
- Uranium-radium in water, February 14, 1997

For tritium in water (8/9/96), the results were 9,613 pCi/L for EP and 10,707 pCi/L for QR. The EPA reference value was 10,879 pCi/L and the acceptance limits were 8,991–12,767 pCi/L.

For iodine in water (2/7/97), both EP and QR reported results of 88.00 pCi/L. The EPA reference value was 86.0 pCi/L and the acceptance limits were 70.4–101.6 pCi/L.

In the following tables, all results are reported in pCi/L.

^a In cases where a warning was given, the reported values appear in ***bold italic***.

^b Reported values that were outside the acceptance limits appear in **bold**.

Table B.2 Blind-A Results for EP and QR (10/15/96)

Analyte	EP Result	QR Result	Reference Value	Acceptance Limits
Gross alpha	65.27	48.87	59.1	33.4–84.8
Radium-226	9.40	9.60	9.9	7.3–12.5
Radium-228	4.67	4.57	5.1	2.8–7.4
Uranium (natural)	37.33	40.10	40.9	33.8–48.0

Table B.3 Blind-B Results for EP and QR (10/15/96)

Analyte	EP Result	QR Result	Reference Value	Acceptance Limits
Cesium-134	18.00	18.00	20.0	11.3–28.7
Cesium-137	31.33	30.67	30.0	21.3–38.7
Cobalt-60	15.33	15.33	15.0	6.3–23.7
Gross beta	43.43^c	119.67	111.8	82.7–140.9
Strontium-89	11.67	16.67	10.0	1.3–18.7
Strontium-90	24.67	21.33	25.0	16.3–33.7

Table B.4 Gamma in Water Results for EP and QR (11/8/96)

Analyte	EP Result	QR Result	Reference Value	Acceptance Limits
Cobalt-60	45.67	43.33	44.0	35.3–52.7
Zinc-65	39.33	36.67	35.0	26.3–43.7
Cesium-134	10.67	9.33	11.0	2.3–19.7
Cesium-137	22.67	20.33	19.0	10.3–27.7
Barium-133	64.67	61.00	64.0	53.6–74.4

Table B.5 Strontium in Water Results for EP and QR (1/17/97)

Analyte	EP Result	QR Result	Reference Value	Acceptance Limits
Strontium-89	8.67	11.00	12.0	3.3–20.7
Strontium-90	26.33	24.33	25.0	16.3–33.7

^c Reported values that were out of range appear in **bold**.

Table B.6 Gross Alpha-Beta in Water Results for EP and QR (1/31/97)

Analyte	EP Result	QR Result	Reference Value	Acceptance Limits
Gross alpha	4.83	4.60	5.2	0.0-13.9
Gross beta	14.23	17.40	14.7	6.0-23.4

Table B.7 Uranium-Radium in Water Results for EP and QR (2/14/97)

Analyte	EP Result	QR Result	Reference Value	Acceptance Limits
Radium-226	5.17	5.90	5.9	4.3-7.5
Radium-228	7.30	8.33	8.2	4.6-11.8
Uranium (natural)	32.07	27.8	27.0	21.8-32.2

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Appendix C: Formats of the Data Files

The formats presented in this appendix have been established by WSRC-EPD/EMS. When entering data in any of the formats, the following conventions are to be used:

- Alpha and alphanumeric entries must be left justified in the records.
- Numeric entries must be right justified in the records.
- There will be no leading zeros except in dates and times.

Table C.1 describes the sample data format, SAM93, which is used for coding and transmitting sampling data records.

Table C.1 Sample Data Format SAM93

Name	Columns	Type	Description
Record format	1-8	Alphanumeric	SAM93 (the format of the data record)
Sample identification number	9-14	Integer	Number of the sample printed on the page of the sample logbook
Sample collection date	15-20	Numeric	Sample collection date recorded using the MMDDYY format
Sample collection time	21-24	Integer	Sample collection time recorded as military time
Sample type	25	Numeric	Sample type coded as 1 = normal 2 = trip blank 3 = field blank 4 = split 5 = rinsate 6 = duplicate 7 = other
Sample matrix	26	Numeric	Sample matrix coded as 1 = soil 2 = rock 3 = sludge 4 = water 5 = sediment 6 = other
Delay check	27	Alpha	Enter a Y if there was an unusual delay in bottling samples
Sampler's initials	28-30	Alpha	Sampler's initials
Associated sample	31-36	Integer	Sample identification of associated sample if this sample is a duplicate, split, rinsate, etc.

Table C.1 Sample Data Format SAM93 (cont.)

Name	Columns	Type	Description
Planned sample name	37-46	Alphanumeric	Identification of the sample as it appears in the site work plan
Sample name	47-56	Alphanumeric	Identification of the actual sample (includes any modification made in the field)
Planned top of interval	57-62	Numeric	Depth from the ground to the top of the planned sampling interval to the nearest 0.01 ft
Top of interval	63-68	Numeric	Depth from the ground to the top of the actual sampling interval to the nearest 0.01 ft
Planned bottom of interval	69-74	Numeric	Depth from the ground to the bottom of the planned sampling interval to the nearest 0.01 ft
Bottom of interval	75-80	Numeric	Depth from the ground to the bottom of the actual sampling interval to the nearest 0.01 ft
Soil moisture ^a	81	Numeric	Soil moisture coded as 1 = dry 2 = damp 3 = wet 4 = sludge 5 = liquid
Munsell color ^a	82-91	Alphanumeric	Munsell color
Soil classification ^a	92-93	Alphanumeric	Unified Soil Classification
Number of bottles	94-96	Integer	Number of bottle label numbers used during collection
Insufficient recovery check	97	Alpha	Enter an <i>R</i> if insufficient material was recovered to perform all analyses
Improper procedure check	98	Alpha	Enter a <i>P</i> if an improper sampling procedure was followed
Sampling tool ^b	99	Numeric	Instrument type coded as 1 = hand auger 2 = drill rig 3 = pump 4 = bailer 5 = scoop 6 = other

^a No datum is reported for this field.

^b This field is not a part of the official data format.

Table C.2 is a description of the sample bottle data format, SAM93A, which is used for coding and transmitting sample bottle data records.

Table C.2 Sample Bottle Data Format SAM93A

Name	Columns	Type	Description
Record format	1-8	Alphanumeric	SAM93A (the format of the data record)
Sample identification number	9-14	Integer	Number of the sample printed on the page of the sample logbook
Bottle label number	15-23	Integer	Number of the bottle label attached to the bottle

Table C.3 is a description of the survey station data format, STA93, which is used for coding and transmitting station data records.

Table C.3 Survey Station Data Format STA93

Name	Columns	Type	Description
Record format	1-8	Alphanumeric	STA93 (the format of the data record)
Station	9-18	Alphanumeric	Identification of the station (the facility identification and sampling point)
SRS north coordinate	20-27	Numeric	SRS grid north coordinate of the station reported in feet
SRS east coordinate	29-36	Numeric	SRS grid east coordinate of the station reported in feet
Ground elevation	43-48	Numeric	Ground elevation reported in feet above median sea level

Table C.4 is a description of the chain-of-custody data format, COC93, which is used for coding and transmitting chain-of-custody data records.

Table C.4 Chain-of-Custody Data Format COC93

Name	Columns	Type	Description
Record format	1-8	Alphanumeric	COC93 (the format of the data record)
Sample identification number	9-18	Integer	Number of the sample printed on the page of the sample logbook
Laboratory sample identification	19-33	Alphanumeric	Identifier used for the sample by the analytical laboratory
Sample collection date	34-39	Numeric	Sample collection date recorded using the MMDDYY format
Shipping date	40-45	Numeric	Sample shipping date recorded using the MMDDYY format
Cooler identification	46-53	Alphanumeric	Number assigned to the cooler in which the samples are shipped to the analytical laboratory
Sample temperature upon receipt	54-57	Numeric	Temperature of the samples upon receipt at the analytical laboratory in °C

Table C.5 is a description of the analytical data format, AN95, which is used for coding and transmitting analytical data records.

Table C.5 Analytical Data Format AN95

Name	Columns	Type	Description
WSRC identifier ^a	1-12	Alphanumeric	WSRC identifier for the sample
COC number	13-17	Alphanumeric	Identifier of the sample's chain-of-custody form (Required field for groundwater samples; not used for soil samples)
Sample collection date ^a	18-23	Numeric	Date the sample was collected. Enter the preparation date for laboratory blanks and QC samples; enter the date of completion of TCLP sample generation for TCLP samples
Sample collection time	24-27	Numeric	Time of sample collection or generation
Lab receipt date ^a	28-33	Numeric	Date the sample was received by the laboratory; blank for laboratory blanks and QC samples
Extraction date	34-39	Numeric	Date the sample was extracted; blank unless the holding time is dependent upon the extraction time

^a This field must have an entry for every record.

Table C.5 Analytical Data Format AN95 (cont.)

Name	Columns	Type	Description
Extraction time	40-43	Numeric	Time the sample extraction was started; blank unless the holding time is dependent upon the extraction time
Extraction/digestion method	44-56	Alphanumeric	Coded identifier for the method used to perform the extraction or digestion (e.g., EPA###.#)
Analysis date ^a	57-62	Numeric	Date the analyte concentration was determined
Analysis time ^a	63-66	Numeric	Time the analyte concentration was determined
Analytical method ^a	67-79	Alphanumeric	Coded identifier for the method used to perform the analysis (e.g., EPA###.#)
Preparation batch	80-87	Alphanumeric	Identification of the sample preparation batch
Laboratory ^a	88-89	Alphanumeric	Code assigned by EPD/EMS to identify the laboratory performing the analysis
Laboratory sample identification ^a	90-104	Alphanumeric	Identifier used for the sample by the analytical laboratory
Laboratory replicate	105-107	Alphanumeric	Indicates that the sample is a non-blind replicate analysis (see table C.7)
Analyte ^a	108-117	Alphanumeric	EPD/EMS identifier for the analyte
Quantitation limit	118-125	Numeric	GE and WA report the ssEQL for non-radiochemistry analyses; all labs report the MDA for radiochemistry analyses
Result qualifier	126-128	Alphanumeric	Coded field used to qualify the analytical result (see table D.1)
Analysis qualifier	129-131	Alphanumeric	Coded field used to qualify the analytical result (see table D.2)
Bias of analysis	132	Alphanumeric	Coded field for specifying the expected bias (see table D.3)
Analytical result	133-142	Numeric	Concentration of the analyte. For non-detects, the ssEQL is reported. Results are reported on a dry weight basis for all analyses reported in per mass units
Result unit ^a	143-146	Alpha	Unit in which the analytical result is expressed
Accuracy	147-154	Numeric	Statistically determined value, 95% confidence level, representing a plus or minus value for the result and reported in the same units as the analytical result. Required for all radiochemical analyses above the detection limit, but not generally reported for non-radiochemical analyses. Do not report more figures than are significant

Table C.5 Analytical Data Format AN95 (cont.)

Name	Columns	Type	Description
Residual weight	155-160	Numeric	Weight of material in milligrams on the planchet after evaporation; used for radionuclide determinations
Nominal concentration ^a	161-168	Numeric	Concentration of analyte added to the sample prior to analysis; reported in the same units as the analytical result. Zero must be entered if the sample was not spiked
Percent recovery	169-174	Numeric	Recovery of the spiked constituent reported as a percentage
Number of dilutions ^a	175	Numeric	Number of steps required to reach the final dilution factor. Zero must be entered if the sample was not diluted
Dilution factor ^a	176-181	Numeric	Dilution used in the analysis; a value of one indicates the sample was not diluted
Instrument ^a	182-189	Alphanumeric	Coded identifier for the instrument used to perform the analysis; each laboratory develops its own codes and provides them to EPD/EMS
Instrument batch ^a	190-197	Alphanumeric	Number assigned by the analytical laboratory to the analysis batch (group of samples analyzed together in a single instrument run along with the associated QC samples)
Analyst's initials ^a	198-200	Alpha	Initials of the analyst
Percent solids	201-205	Numeric	Percentage of the sample that is dry solids; required field if result is reported in per mass units; not applicable for water samples
Bottle label number	206-215	Integer	Number on the bottle label; required field if bottle label is numbered
Sample fraction	216-219	Alphanumeric	EPD/EMS identifier for the fraction of the sample analyzed (see table C.8)
Validation status	220-221	Alphanumeric	0 = Unvalidated (used by laboratory) 3 = Validated definitive data
EPD/EMS receipt date	222-227	Numeric	Date that the analytical data are received by EPD/EMS from the laboratory. The laboratory leaves this blank
ESH-EMS number	228-234	Alphanumeric	Document number assigned to the project report

Table C.6 is a description of the analytical data format, AN95-R2.B which is used for coding and transmitting a subset of the AN95 analytical data records.

Table C.6 Analytical Data Format AN95-R2.B

Name	Columns	Type	Description
Station identifier	1-11	Alphanumeric	Identification of the actual sample (includes any modification made in the field)
Top of interval	12-17	Numeric	Depth from the ground to the top of the actual sampling interval to the nearest 0.01 ft
Bottom of interval	18-23	Numeric	Depth from the ground to the bottom of the actual sampling interval to the nearest 0.01 ft
Sample collection date	24-30	Numeric	Date sample was collected. Enter the preparation date for laboratory blanks and QC samples; enter the date of completion of TCLP sample generation for TCLP samples
Laboratory replicate	31-43	Alphanumeric	Indicates that the sample is a non-blind replicate analysis (see table C.7)
Analyte name	44-83	Alphanumeric	Full analyte name
Analysis type	84-93	Alphanumeric	Analytical suite
Quantitation limit	95-102	Numeric	GE and WA report the ssEQL for non-radiochemistry analyses; all labs report the MDA for radiochemistry analyses
Result qualifier	103-105	Alphanumeric	Coded field used to qualify the analytical result (see table D.1)
Result	106-115	Numeric	Concentration of the analyte. For non-detects, the ssEQL is reported. Results are reported on a dry weight basis for all analyses reported in per mass units
Result unit	116-121	Alpha	Unit in which the analytical result is reported
Validation status	122-123	Alphanumeric	0 = Unvalidated (used by laboratory) 3 = Validated definitive data
Document number	124-130	Alphanumeric	Document number assigned to the project report

When making entries in the laboratory replicate field of the data files, only the codes listed in table C.7 are used.

Table C.7 Codes for Laboratory Replicates

Remark	Definition
(blank)	Data not remarked; the result is a routine analysis of a sample
1	Laboratory replicate
2A	Matrix spike
2B	Matrix spike duplicate
2C	Surrogate spike
2D	Blank spike
2E	Blank spike duplicate
3	Laboratory blank
4	Re-analysis of a sample at the request of EPD/EMS
CCB	Continuing calibration blank
CCV	Continuing calibration verification sample
ICB	Initial calibration blank
ICS	Interference check sample
ICV	Initial calibration verification sample

When making entries in the sample fraction field of the data files, only the codes listed in table C.8 are used.

Table C.8 Codes for Fractions

Code	Description
(blank)	Sample was not fractionated prior to analysis
A	Ashed fraction
D	Dried fraction of a soil or sludge sample; not used with water samples
F	Liquid fraction passing through a filter was analyzed
SL	Liquid fraction of a sample separated from the solid fraction
SS	Suspended soils
T	TCLP extraction

Appendix D: Data Tables

D.1 Qualifiers

The following qualifiers may have been applied to the analytical results during data validation.

Table D.1 Result Qualifiers

Qualifier	Description
(blank)	Data are not remarked. Values should be interpreted exactly as reported.
C ¹	Calculated. Analytical result reported was not measured directly but was calculated from other available data. This does not apply to conversions, nor does it apply to calculations made as part of an analytical procedure.
D ¹	Field measurement
I	The value in the result field is the instrument reading, not the sample quantitation limit. Always used with the result qualifier <i>U</i> .
J ²	The analytical result is an estimated quantity.
L ¹	Off-scale high. The actual value is not known but is known to be greater than value shown.
R ¹	Result was rejected because performance requirements in the sample or associated quality control analysis were not met. The analyte may or may not be present.
U ²	Material analyzed for but not detected. The analyte concentration is less than the ssEQL. NOTE: When both the result qualifier <i>U</i> and the result qualifier <i>I</i> are reported, the numerical value in the result field is the instrument reading rather than the ssEQL.

Table D.2 Analysis Qualifiers

Qualifier	Description
A	GC/MS Compound Identification Relative retention time or mass spectra criteria were not met. Compound Identification All anomalies
B	The result is below the sample quantitation limit and above or equal to the instrument detection limit.
C	Laboratory Control Sample Criteria were not met.
D	ICP Serial Dilution Criteria were not met.

¹ This code is based on the STORET codes from the EPA.

² This code is based on the CLP Laboratory Data Qualifiers from the EPA.

Table D.2 Analysis Qualifiers (cont.)

Qualifier	Description
E	The detected result is between the ssEQL and the method detection limit. Report the actual result detected.
F	Pesticides Compound Identification Pesticide result has been confirmed by gas chromatography/mass spectrometry.
G	Pesticides Instrument Performance Use for all conditions outside criteria other than those flagged <i>N</i> (see code <i>N</i> below).
H	Internal Standards Performance Criteria were not met.
I	Matrix Spike/Matrix Spike Duplicate Matrix Spike Sample Analysis Spike recovery was not within control limits.
K	Tentatively Identified Compounds A tentatively identified compound is a suspected aldol-condensation product.
L	Calibration Criteria Not Met Calibration criteria (initial or continuing) were not met. See also <i>Z</i> for inorganics.
M	GC/MS Tuning Mass calibration criteria were not met.
N	Tentatively Identified Compounds All TIC results
O	Surrogate Recovery Surrogate spike recovery results are not within control limits.
P	Furnace Atomic Absorption QC Duplicate injection precision criteria were not met, or post-digestion spike recovery was not within control limits, but sample absorbance is greater than 50% of post-digestion spike absorbance.
Q	Holding Time Sample held beyond normal holding time.
R	ICP Interference Check Sample Criteria not met
S	The reported value was determined by the method of standard additions.
V	Method Blank Contamination Indicates the analyte was detected in both the sample and associated method blank.
W	Furnace Atomic Absorption QC Post-digestion spike recovery for furnace atomic absorption analysis is not within control limits while sample absorbance is less than 50% of spike absorbance.
X	Matrix Spike/Matrix Spike Duplicates Laboratory Duplicate Sample Analysis Duplicate analysis relative percent difference is not within control limits.
Y	Result obtained from unpreserved or improperly preserved sample.

Table D.2 Analysis Qualifiers (cont.)

Qualifier	Description
Z	Calibration Furnace Atomic Absorption QC Correlation coefficient was less than 0.995.
4	Matrix interference; value cannot be determined.
5	The analytical value was four times higher than the standard concentration, and percent recovery cannot be determined.
6	The analyte was detected in both the sample and associated field blank.
7	The analyte was detected in both the sample and associated rinsate or equipment blank.
8	The analyte was detected in both the sample and associated trip blank.
9	Field Duplicate Sample Analysis Duplicate analysis relative percent difference is not within control limits.

Table D.3 Bias Qualifiers

Qualifier	Description
L	Analytical factor causing bias. The associated result may underestimate the true value.
H	Analytical factor causing bias. The associated result may overestimate the true value.

D.2 Data Summaries

Table D.4 Number of Analytical Records by Method and Type of Record

Table D.5 Analytes Not Detected in Background Water Samples

Table D.6 Analytes Detected in Background Water Samples

Table D.7 Analytes Not Detected in Routine Water Samples

Table D.8 Analytes Detected in Routine Water Samples

Table D.9 Results Sorted By Sample

Table D.10 Blank Results Sorted by Sample

Table D.11 Sample Results Sorted by Analyte

Table D.12 Blank Results Sorted by Analyte

Table D.4 Number of Analytical Records by Method and Type of Record

Method	Sample Records	Laboratory Duplicates	Laboratory Blanks	Matrix Spike Duplicates	Calibration Checks	Totals
3500NIEMOD	1	1	1	0	0	3
EMLSR02MOD	1	1	1	0	0	3
EPA130.2	21	4	4	5	0	34
EPA300.0	38	8	8	8	0	62
EPA335.3	21	2	2	2	0	27
EPA353.1	19	1	4	1	0	25
EPA353.2	4	0	2	0	0	6
EPA6010	46	0	23	0	0	69
EPA6010A	483	0	116	186	0	785
EPA7470	23	1	6	6	14	50
EPA900.0MOD	4	2	2	0	0	8
EPA901.1MOD	48	24	2	0	0	74
EPA9010A	2	1	1	2	0	6
EPA902.0MOD	1	1	1	0	0	3
EPA904.0MOD	1	1	1	0	0	3
EPA9056	2	0	1	0	0	3
EPA906.0	19	0	3	0	0	22
EPA906.0MOD	2	1	1	0	0	4
EPIA-001	42	0	10	0	0	52
EPIA-006	4	2	3	2	0	11
EPIA-008	6	2	3	2	0	13
EPIA-009	4	1	3	1	0	9
EPIA-011	42	7	14	3	0	66
EPIA-013	525	50	50	2	0	627
EPIA-022	4	1	3	1	0	9
EPIA-032	6	1	2	1	0	10

Table D.5 Analytes Not Detected in Background Water Samples

Analyte	Min/Max ssMDLs	Unit
Actinium-228	1.84E+01/3.05E+01	pCi/L
Antimony	1.64/1.64	µg/L
Antimony-124	5.17E+00/7.68E+00	pCi/L
Antimony-125	1.07E+01/1.69E+01	pCi/L
Arsenic	2.98/2.98	µg/L
Barium-133	5.11E+00/7.20E+00	pCi/L
Beryllium	0.223/0.223	µg/L
Cadmium	0.208/0.208	µg/L
Cerium-144	2.43E+01/3.65E+01	pCi/L
Cesium-134	4.37E+00/6.48E+00	pCi/L
Cesium-137	4.08E+00/7.34E+00	pCi/L
Chromium	0.729/0.729	µg/L
Cobalt	0.671/0.671	µg/L
Cobalt-57	3.14E+00/4.86E+00	pCi/L
Cobalt-58	4.57E+00/6.84E+00	pCi/L
Cobalt-60	4.60E+00/7.11E+00	pCi/L
Copper	1.32/1.32	µg/L
Curium-242	1.18E-01/1.18E-01	pCi/L
Curium-245/246	4.57E-02/4.57E-02	pCi/L
Cyanide	3.34/3.34	µg/L
Europium-152	1.13E+01/1.83E+01	pCi/L
Europium-154	1.12E+01/1.94E+01	pCi/L
Europium-155	1.32E+01/1.99E+01	pCi/L
Lead	0.678/0.678	µg/L
Manganese-54	4.28E+00/6.65E+00	pCi/L
Mercury	0.104/0.104	µg/L
Neptunium-237	1.49E-01/1.49E-01	pCi/L
Neptunium-239	2.30E+01/3.53E+01	pCi/L
Promethium-144	4.22E+00/7.06E+00	pCi/L
Promethium-146	5.17E+00/8.83E+00	pCi/L
Ruthenium-106	3.75E+01/6.46E+01	pCi/L
Selenium	1.4/1.4	µg/L
Silver	0.62/0.62	µg/L
Sodium-22	4.03E+00/6.93E+00	pCi/L
Thallium	2.63/2.63	µg/L
Tin	2.94/2.94	µg/L
Tin-113	5.40E+00/8.32E+00	pCi/L
Uranium-235	2.85E-01/2.85E-01	pCi/L
Yttrium-88	4.85E+00/8.03E+00	pCi/L

Table D.5 Analytes Not Detected in Background Water Samples (cont.)

Analyte	Min/Max ssMDLs	Unit
Zinc-65	8.77E+00/1.36E+01	pCi/L
Zirconium-95	8.45E+00/1.16E+01	pCi/L

Table D.6 Analytes Detected in Background Water Samples

Analyte	Avg Result	Min/Max Results	Unit
Aluminum	274	174/453	µg/L
Americium-241	7.81E-01	7.81E-01/7.81E-01	pCi/L
Barium	17.1	11.8/24	µg/L
Calcium	725	410/1020	µg/L
Chloride	1860	1460/2380	µg/L
Curium-243/244	1.53E-01	1.53E-01/1.53E-01	pCi/L
Gross alpha	9.40E+00	8.28E-01/3.13E+01	pCi/L
Hardness as CaCO ₃	11200	6000/16000	µg/L
Iron	1110	83.8/2360	µg/L
Lead-212	2.09E+01	1.24E+01/2.93E+01	pCi/L
Magnesium	396	288/458	µg/L
Manganese	56.6	19.8/97.2	µg/L
Nickel	3.36	3.36/3.36	µg/L
Nitrate as nitrogen	192	102/309	µg/L
Nitrate-nitrite as nitrogen	205	90/320	µg/L
Nonvolatile beta	7.78E+00	1.01E+00/1.79E+01	pCi/L
Potassium	146	69.9/273	µg/L
Potassium-40	8.89E+01	8.89E+01/8.89E+01	pCi/L
Radium-226	3.03E+00	2.76E+00/3.29E+00	pCi/L
Sodium	1240	927/1650	µg/L
Tritium	2.12	0.734/4.15	pCi/mL
Uranium-233/234	1.29E+00	1.29E+00/1.29E+00	pCi/L
Uranium-238	9.87E-01	9.87E-01/9.87E-01	pCi/L
Vanadium	1.57	1.57/1.57	µg/L
Zinc	5.88	5.88/5.88	µg/L

Table D.7 Analytes Not Detected in Routine Water Samples

Analyte	Min/Max ssMDLs	Unit
Antimony	1.64/3.28	µg/L
Antimony-124	3.42E+00/6.15E+00	pCi/L
Antimony-125	8.09E+00/1.42E+01	pCi/L
Arsenic	2.98/5.96	µg/L
Barium-133	3.38E+00/6.42E+00	pCi/L
Cerium-144	2.03E+01/2.97E+01	pCi/L
Cesium-134	3.10E+00/5.02E+00	pCi/L
Cesium-137	2.91E+00/6.20E+00	pCi/L
Cobalt-57	2.61E+00/3.54E+00	pCi/L
Cobalt-58	3.12E+00/6.17E+00	pCi/L
Curium-242	3.79E-02/3.20E-01	pCi/L
Curium-245/246	3.06E-02/1.04E-01	pCi/L
Cyanide	3.34/3.34	µg/L
Europium-152	7.93E+00/1.47E+01	pCi/L
Europium-154	7.30E+00/1.65E+01	pCi/L
Europium-155	1.10E+01/1.58E+01	pCi/L
Manganese-54	2.14E+00/5.83E+00	pCi/L
Mercury	0.104/0.104	µg/L
Neptunium-239	1.87E+01/2.68E+01	pCi/L
Nickel-63	2.20E+02/2.55E+02	pCi/L
Promethium-144	2.69E+00/5.39E+00	pCi/L
Promethium-146	3.43E+00/6.64E+00	pCi/L
Ruthenium-106	2.51E+01/5.05E+01	pCi/L
Selenium	1.4/2.8	µg/L
Silver	0.62/1.24	µg/L
Sodium-22	2.62E+00/5.92E+00	pCi/L
Thallium	2.63/5.26	µg/L
Tin	2.94/5.88	µg/L
Tin-113	3.52E+00/6.61E+00	pCi/L
Uranium-235	1.05E-01/2.18E-01	pCi/L
Yttrium-88	3.84E+00/7.36E+00	pCi/L
Zinc-65	5.67E+00/1.31E+01	pCi/L
Zirconium-95	5.80E+00/1.00E+01	pCi/L

Table D.8 Analytes Detected in Routine Water Samples

Analyte	Avg Result	Min/Max Results	Unit
Actinium-228	2.55E+01	2.44E+01/2.66E+01	pCi/L
Aluminum	3210	145/13100	µg/L
Americium-241	2.36E-01	1.17E-01/3.55E-01	pCi/L
Barium	69.9	14.1/216	µg/L
Beryllium	1.26	0.737/1.78	µg/L
Cadmium	1.98	0.678/3.13	µg/L
Calcium	1450	355/4620	µg/L
Chloride	2260	1380/4090	µg/L
Chromium	3.63	1.07/8.58	µg/L
Cobalt	6.73	0.741/28.4	µg/L
Cobalt-60	3.74E+01	3.64E+01/3.83E+01	pCi/L
Copper	3.36	1.54/4.82	µg/L
Curium-243/244	3.07E-01	3.07E-01/3.07E-01	pCi/L
Gross alpha	1.34E+01	1.19E+00/4.82E+01	pCi/L
Hardness as CaCO ₃	13700	4000/67000	µg/L
Iodine-129	4.19E+00	1.58E+00/8.71E+00	pCi/L
Iron	2550	217/8430	µg/L
Lead	7.28	1.09/18.7	µg/L
Lead-212	8.89E+00	6.97E+00/1.08E+01	pCi/L
Magnesium	808	348/2640	µg/L
Manganese	338	19.4/1140	µg/L
Neptunium-237	1.71E-01	9.39E-02/3.22E-01	pCi/L
Nickel	8.69	3.54/17.8	µg/L
Nitrate as nitrogen	2930	163/34200	µg/L
Nitrate-nitrite as nitrogen	4250	80/35800	µg/L
Nonvolatile beta	1.01E+02	3.58E+00/4.82E+02	pCi/L
Potassium	345	37.8/880	µg/L
Potassium-40	6.47E+01	6.47E+01/6.47E+01	pCi/L
Radium-226	5.43E+00	6.67E-01/1.48E+01	pCi/L
Radium-228	2.64E+00	2.64E+00/2.64E+00	pCi/L
Sodium	7800	1480/25400	µg/L
Tritium	334	6.66/1720	pCi/mL
Uranium-233/234	7.36E-01	2.18E-01/2.81E+00	pCi/L
Uranium-238	8.70E-01	1.70E-01/2.64E+00	pCi/L
Vanadium	5.2	0.977/18.4	µg/L
Zinc	19.6	8.53/35.7	µg/L

D.3 Results Sorted by Sample

Table D.9 Results Sorted By Sample

SURVEY ID: BG 00103

Sample ID: 114003

Survey location: 59153E 67208N (SRS coordinates)

Ground elevation above MSL: . ft

Sample type: Normal

Sample matrix: Water

Constituent	RQ	AQ	B	Result	Unit	ssMDL	Method
<i>Specified Analyses</i>							
Chloride			V	1460	µg/L	7	EPA300.0
Chloride			V	1610	µg/L	7	EPA300.0
Cyanide	UJ	I	L	10	µg/L	3.34	EPA335.3
Hardness as CaCO ₃				11000	µg/L	1000	EPA130.2
Nitrate as nitrogen			V	302	µg/L	6	EPA300.0
Nitrate as nitrogen			V	309	µg/L	6	EPA300.0
Nitrate-nitrite as nitrogen				320	µg/L	7	EPA353.1
<i>Metals (total recoverable)</i>							
Aluminum	J	I	L	209	µg/L	37.6	EPA6010A
Antimony	U			10	µg/L	1.64	EPA6010A
Arsenic	U			5	µg/L	2.98	EPA6010A
Barium				11.8	µg/L	0.332	EPA6010A
Beryllium	U			5	µg/L	0.223	EPA6010A
Cadmium	U			5	µg/L	0.208	EPA6010A
Calcium			V	514	µg/L	15.4	EPA6010A
Chromium	U			5	µg/L	0.729	EPA6010A
Cobalt	U			5	µg/L	0.671	EPA6010A
Copper	U			5	µg/L	1.32	EPA6010A
Iron				83.8	µg/L	8.63	EPA6010A
Lead	U			5	µg/L	0.678	EPA6010A
Magnesium			V	288	µg/L	3.33	EPA6010A
Manganese				32.4	µg/L	0.903	EPA6010A
Mercury	U			0.2	µg/L	0.104	EPA7470
Nickel	U			5	µg/L	2.27	EPA6010A
Potassium	J	E		95.3	µg/L	5.87	EPA6010A
Selenium	U			5	µg/L	1.4	EPA6010A
Silver	U			5	µg/L	0.62	EPA6010A
Sodium			V	932	µg/L	29.1	EPA6010A
Thallium	U			10	µg/L	2.63	EPA6010A
Tin	U			10	µg/L	2.94	EPA6010A
Vanadium	U			5	µg/L	0.427	EPA6010A
Zinc	U	V		3.68	µg/L	0.966	EPA6010A
<i>Radionuclides</i>							
Actinium-228	UI			1.15E+01	pCi/L	1.84E+01	EPIA-013
Antimony-124	UI			-3.38E-01	pCi/L	5.18E+00	EPIA-013
Antimony-125	UI			6.49E+00	pCi/L	1.21E+01	EPIA-013
Barium-133	UI			4.28E-01	pCi/L	5.45E+00	EPIA-013
Cerium-144	UI			2.94E-01	pCi/L	2.43E+01	EPIA-013
Cesium-134	UI			-1.67E+00	pCi/L	4.55E+00	EPIA-013
Cesium-137	UI			-2.51E+00	pCi/L	4.08E+00	EPIA-013
Cobalt-57	UI			1.26E+00	pCi/L	3.39E+00	EPIA-013

SURVEY ID: BG 00103 (cont.)

Sample ID: 114003

Constituent	RQ	AQ	B	Result	Unit	ssMDL	Method
<i>Radionuclides</i>							
Cobalt-58	UI			1.66E+00	pCi/L	4.73E+00	EPIA-013
Cobalt-60	UI			1.38E+00	pCi/L	4.80E+00	EPIA-013
Europium-152	UI			4.25E-02	pCi/L	1.23E+01	EPIA-013
Europium-154	UI			-2.72E-01	pCi/L	1.12E+01	EPIA-013
Europium-155	UI			4.17E+00	pCi/L	1.34E+01	EPIA-013
Gross alpha				4.61E+00	pCi/L	6.41E-01	EPIA-001
Lead-212	UI			2.44E+00	pCi/L	6.43E+00	EPIA-013
Manganese-54	UI			5.04E-02	pCi/L	4.52E+00	EPIA-013
Neptunium-239	UI			7.39E+00	pCi/L	2.44E+01	EPIA-013
Nonvolatile beta				4.43E+00	pCi/L	1.13E+00	EPIA-001
Potassium-40	UI			8.24E+00	pCi/L	4.21E+01	EPIA-013
Promethium-144	UI			-1.79E-01	pCi/L	4.22E+00	EPIA-013
Promethium-146	UI			1.79E+00	pCi/L	6.01E+00	EPIA-013
Ruthenium-106	UI			-1.24E+01	pCi/L	3.75E+01	EPIA-013
Sodium-22	UI			-9.05E-02	pCi/L	4.03E+00	EPIA-013
Tin-113	UI			1.32E+00	pCi/L	5.70E+00	EPIA-013
Tritium				4.15E+00	pCi/mL	5.65E-01	EPA906.0
Yttrium-88	UI			-8.84E-01	pCi/L	4.85E+00	EPIA-013
Zinc-65	UI			-1.48E+00	pCi/L	1.01E+01	EPIA-013
Zirconium-95	UI			2.87E+00	pCi/L	9.73E+00	EPIA-013

SURVEY ID: BG 00203

Sample ID: 114004

Survey location: 59363E 67229N (SRS coordinates)

Ground elevation above MSL: . ft

Sample type: Normal

Sample matrix: Water

Constituent	RQ	AQ	B	Result	Unit	ssMDL	Method
<i>Specified Analyses</i>							
Chloride		V		1690	µg/L	7	EPA300.0
Cyanide	UJ	I	L	10	µg/L	3.34	EPA335.3
Hardness as CaCO ₃				16000	µg/L	1000	EPA130.2
Nitrate as nitrogen		V		102	µg/L	6	EPA300.0
Nitrate-nitrite as nitrogen				210	µg/L	7	EPA353.1
<i>Metals (total recoverable)</i>							
Aluminum	J	I	L	258	µg/L	37.6	EPA6010A
Antimony	U			10	µg/L	1.64	EPA6010A
Arsenic	U			5	µg/L	2.98	EPA6010A
Barium				13.2	µg/L	0.332	EPA6010A
Beryllium	U			5	µg/L	0.223	EPA6010A
Cadmium	U			5	µg/L	0.208	EPA6010A
Calcium		V		410	µg/L	15.4	EPA6010A
Chromium	U			5	µg/L	0.729	EPA6010A
Cobalt	U			5	µg/L	0.671	EPA6010A
Copper	U			5	µg/L	1.32	EPA6010A
Iron				2360	µg/L	8.63	EPA6010A
Lead	U			5	µg/L	0.678	EPA6010A
Magnesium		V		394	µg/L	3.33	EPA6010A
Manganese				19.8	µg/L	0.903	EPA6010A

SURVEY ID: BG 00203 (cont.)

Sample ID: 114004

Constituent	RQ	AQ	B	Result	Unit	ssMDL	Method
<i>Metals (total recoverable)</i>							
Mercury	U			0.2	µg/L	0.104	EPA7470
Nickel	U			5	µg/L	2.27	EPA6010A
Potassium	J	E		69.9	µg/L	5.87	EPA6010A
Selenium	U			5	µg/L	1.4	EPA6010A
Silver	U			5	µg/L	0.62	EPA6010A
Sodium			V	927	µg/L	29.1	EPA6010A
Thallium	U			10	µg/L	2.63	EPA6010A
Tin	U			10	µg/L	2.94	EPA6010A
Vanadium	U			5	µg/L	0.427	EPA6010A
Zinc	U	V		4.03	µg/L	0.966	EPA6010A
<i>Radionuclides</i>							
Actinium-228	UI			1.56E+01	pCi/L	2.05E+01	EPIA-013
Americium-241		V		7.81E-01	pCi/L	1.33E-01	EPIA-011
Antimony-124	UI			6.98E-01	pCi/L	5.50E+00	EPIA-013
Antimony-125	UI			4.30E-01	pCi/L	1.26E+01	EPIA-013
Barium-133	UI			-2.63E+00	pCi/L	5.11E+00	EPIA-013
Cerium-144	UI			1.58E+01	pCi/L	2.57E+01	EPIA-013
Cesium-134	UI			-1.30E-01	pCi/L	4.37E+00	EPIA-013
Cesium-137	UI			1.13E-04	pCi/L	4.94E+00	EPIA-013
Cobalt-57	UI			2.75E-01	pCi/L	3.39E+00	EPIA-013
Cobalt-58	UI			-1.90E+00	pCi/L	4.84E+00	EPIA-013
Cobalt-60	UI			-2.45E+00	pCi/L	4.60E+00	EPIA-013
Curium-242	UI			9.27E-03	pCi/L	1.18E-01	EPIA-011
Curium-243/244				1.53E-01	pCi/L	1.47E-01	EPIA-011
Curium-245/246	UI			4.57E-02	pCi/L	4.57E-02	EPIA-011
Europium-152	UI			-2.52E+00	pCi/L	1.27E+01	EPIA-013
Europium-154	UI			2.61E+00	pCi/L	1.46E+01	EPIA-013
Europium-155	UI			5.32E-01	pCi/L	1.38E+01	EPIA-013
Gross alpha				3.13E+01	pCi/L	2.45E+00	EPIA-001
Lead-212	UI			3.57E+00	pCi/L	8.35E+00	EPIA-013
Manganese-54	UI			1.34E-01	pCi/L	4.76E+00	EPIA-013
Neptunium-237	UI			-7.62E-03	pCi/L	1.49E-01	EPIA-032
Neptunium-239	UI			-6.40E+00	pCi/L	2.42E+01	EPIA-013
Nonvolatile beta				1.79E+01	pCi/L	2.88E+00	EPIA-001
Potassium-40	UI			8.87E-01	pCi/L	4.34E+01	EPIA-013
Promethium-144	UI			-8.66E-02	pCi/L	4.60E+00	EPIA-013
Promethium-146	UI			-7.85E-01	pCi/L	5.71E+00	EPIA-013
Radium-226				2.76E+00	pCi/L	4.52E-01	EPIA-008
Radium-226				3.29E+00	pCi/L	6.13E-01	EPIA-008
Ruthenium-106	UI			2.19E+00	pCi/L	4.33E+01	EPIA-013
Sodium-22	UI			9.42E-01	pCi/L	5.22E+00	EPIA-013
Tin-113	UI			3.04E+00	pCi/L	6.23E+00	EPIA-013
Tritium				7.34E-01	pCi/mL	6.40E-01	EPA906.0
Uranium-233/234				1.29E+00	pCi/L	3.17E-01	EPIA-011
Uranium-235	UI			2.53E-01	pCi/L	2.85E-01	EPIA-011
Uranium-238				9.87E-01	pCi/L	4.66E-01	EPIA-011
Yttrium-88	UI			4.76E-01	pCi/L	6.54E+00	EPIA-013
Zinc-65	UI			1.05E+00	pCi/L	9.64E+00	EPIA-013
Zirconium-95	UI			-2.02E+00	pCi/L	8.45E+00	EPIA-013

SURVEY ID: BG 00303

Sample ID: 114005

Survey location: 59281E 67633N (SRS coordinates)

Ground elevation above MSL: . ft

Sample type: Normal

Sample matrix: Water

Constituent	RQ	AQ	B	Result	Unit	ssMDL	Method
<i>Specified Analyses</i>							
Chloride		V		2380	µg/L	7	EPA300.0
Cyanide	UJ	I	L	10	µg/L	3.34	EPA335.3
Hardness as CaCO ₃				11700	µg/L	1000	EPA130.2
Nitrate as nitrogen		V		122	µg/L	6	EPA300.0
Nitrate-nitrite as nitrogen				90	µg/L	7	EPA353.1
<i>Metals (total recoverable)</i>							
Aluminum	J	I	L	174	µg/L	37.6	EPA6010A
Antimony	U			10	µg/L	1.64	EPA6010A
Arsenic	U			5	µg/L	2.98	EPA6010A
Barium				19.4	µg/L	0.332	EPA6010A
Beryllium	U			5	µg/L	0.223	EPA6010A
Cadmium	U			5	µg/L	0.208	EPA6010A
Calcium		V		954	µg/L	15.4	EPA6010A
Chromium	U			5	µg/L	0.729	EPA6010A
Cobalt	U			5	µg/L	0.671	EPA6010A
Copper	U			5	µg/L	1.32	EPA6010A
Iron				700	µg/L	8.63	EPA6010A
Lead	U			5	µg/L	0.678	EPA6010A
Magnesium		V		445	µg/L	3.33	EPA6010A
Manganese				97.2	µg/L	0.903	EPA6010A
Mercury	U			0.2	µg/L	0.104	EPA7470
Nickel	U			5	µg/L	2.27	EPA6010A
Potassium				146	µg/L	5.87	EPA6010A
Selenium	U			5	µg/L	1.4	EPA6010A
Silver	U			5	µg/L	0.62	EPA6010A
Sodium		V		1470	µg/L	29.1	EPA6010A
Thallium	U			10	µg/L	2.63	EPA6010A
Tin	U			10	µg/L	2.94	EPA6010A
Vanadium	U			5	µg/L	0.427	EPA6010A
Zinc	U	V		4.9	µg/L	0.966	EPA6010A
<i>Radionuclides</i>							
Actinium-228	UI			4.72E+00	pCi/L	1.94E+01	EPIA-013
Antimony-124	UI			-8.55E-01	pCi/L	5.17E+00	EPIA-013
Antimony-125	UI			1.70E+00	pCi/L	1.07E+01	EPIA-013
Barium-133	UI			5.21E-01	pCi/L	5.37E+00	EPIA-013
Cerium-144	UI			-2.16E+00	pCi/L	2.54E+01	EPIA-013
Cesium-134	UI			9.79E-01	pCi/L	4.46E+00	EPIA-013
Cesium-137	UI			-7.11E-01	pCi/L	4.12E+00	EPIA-013
Cobalt-57	UI			-6.67E-01	pCi/L	3.14E+00	EPIA-013
Cobalt-58	UI			-2.17E+00	pCi/L	4.57E+00	EPIA-013
Cobalt-60	UI			1.54E-01	pCi/L	4.82E+00	EPIA-013
Europium-152	UI			-4.96E+00	pCi/L	1.13E+01	EPIA-013
Europium-154	UI			6.64E+00	pCi/L	1.48E+01	EPIA-013
Europium-155	UI			2.28E+00	pCi/L	1.32E+01	EPIA-013
Gross alpha				8.28E-01	pCi/L	4.18E-01	EPIA-001
Lead-212	R	4		1.24E+01	pCi/L	8.76E+00	EPIA-013

SURVEY ID: BG 00303 (cont.)

Sample ID: 114005

Constituent	RQ	AQ	B	Result	Unit	ssMDL	Method
<i>Radionuclides</i>							
Manganese-54	UI			1.17E+00	pCi/L	4.28E+00	EPIA-013
Neptunium-239	UI			-3.17E+00	pCi/L	2.30E+01	EPIA-013
Nonvolatile beta	UI			1.12E+00	pCi/L	1.13E+00	EPIA-001
Potassium-40	UI			4.91E+01	pCi/L	6.86E+01	EPIA-013
Promethium-144	UI			1.39E+00	pCi/L	4.38E+00	EPIA-013
Promethium-146	UI			1.56E+00	pCi/L	5.17E+00	EPIA-013
Ruthenium-106	UI			9.22E+00	pCi/L	4.05E+01	EPIA-013
Sodium-22	UI			2.38E+00	pCi/L	5.30E+00	EPIA-013
Tin-113	UI			3.15E+00	pCi/L	5.40E+00	EPIA-013
Tritium				2.26E+00	pCi/mL	5.74E-01	EPA906.0
Yttrium-88	UI			-2.29E-01	pCi/L	5.25E+00	EPIA-013
Zinc-65	UI			2.60E+00	pCi/L	8.77E+00	EPIA-013
Zirconium-95	UI			1.01E+00	pCi/L	8.63E+00	EPIA-013

SURVEY ID: BG 00403

Sample ID: 114010

Survey location: 68527E 64723N (SRS coordinates)

Ground elevation above MSL: . ft

Sample type: Normal

Sample matrix: Water

Constituent	RQ	AQ	B	Result	Unit	ssMDL	Method
<i>Specified Analyses</i>							
Chloride		V		2150	µg/L	7	EPA300.0
Cyanide	UJ	I	L	10	µg/L	3.34	EPA335.3
Hardness as CaCO ₃				6000	µg/L	1000	EPA130.2
Nitrate as nitrogen		V		126	µg/L	6	EPA300.0
Nitrate-nitrite as nitrogen				200	µg/L	7	EPA353.1
<i>Metals (total recoverable)</i>							
Aluminum		V		453	µg/L	37.6	EPA6010A
Antimony	U			10	µg/L	1.64	EPA6010A
Arsenic	U			5	µg/L	2.98	EPA6010A
Barium				24	µg/L	0.332	EPA6010A
Beryllium	U			5	µg/L	0.223	EPA6010A
Cadmium	U			5	µg/L	0.208	EPA6010A
Calcium				1020	µg/L	15.4	EPA6010A
Chromium	U			5	µg/L	0.729	EPA6010A
Cobalt	U			5	µg/L	0.671	EPA6010A
Copper	U			5	µg/L	1.32	EPA6010A
Iron				1310	µg/L	8.63	EPA6010A
Lead	U	V		0.734	µg/L	0.678	EPA6010A
Magnesium				458	µg/L	3.33	EPA6010A
Manganese		V		76.8	µg/L	0.903	EPA6010A
Mercury	U			0.2	µg/L	0.104	EPA7470
Nickel	J	E		3.36	µg/L	2.27	EPA6010A
Potassium		V		273	µg/L	5.87	EPA6010A
Selenium	U			5	µg/L	1.4	EPA6010A
Silver	U	V		3.1	µg/L	0.62	EPA6010A
Sodium		V		1650	µg/L	29.1	EPA6010A
Thallium	U			10	µg/L	2.63	EPA6010A

SURVEY ID: BG 00403 (cont.)

Sample ID: 114010

Constituent	RQ	AQ	B	Result	Unit	ssMDL	Method
<i>Metals (total recoverable)</i>							
Tin	U			10	µg/L	2.94	EPA6010A
Vanadium	J	E		1.57	µg/L	0.427	EPA6010A
Zinc			V	5.88	µg/L	0.966	EPA6010A

Radionuclides

Actinium-228	UI			5.62E+00	pCi/L	3.05E+01	EPIA-013
Antimony-124	UI			-2.10E+00	pCi/L	7.68E+00	EPIA-013
Antimony-125	UI			-1.32E+00	pCi/L	1.69E+01	EPIA-013
Barium-133	UI			-5.61E+00	pCi/L	7.20E+00	EPIA-013
Cerium-144	UI			-2.12E+00	pCi/L	3.65E+01	EPIA-013
Cesium-134	UI			-2.02E+00	pCi/L	6.48E+00	EPIA-013
Cesium-137	UI			2.21E+00	pCi/L	7.34E+00	EPIA-013
Cobalt-57	UI			1.80E+00	pCi/L	4.86E+00	EPIA-013
Cobalt-58	UI			-1.53E+00	pCi/L	6.84E+00	EPIA-013
Cobalt-60	UI			-3.89E-01	pCi/L	7.11E+00	EPIA-013
Europium-152	UI			2.67E+00	pCi/L	1.83E+01	EPIA-013
Europium-154	UI			4.23E+00	pCi/L	1.94E+01	EPIA-013
Europium-155	UI			1.77E-01	pCi/L	1.99E+01	EPIA-013
Gross alpha				8.69E-01	pCi/L	4.38E-01	EPIA-001
Lead-212	R	4		2.93E+01	pCi/L	1.31E+01	EPIA-013
Manganese-54	UI			-7.21E-01	pCi/L	6.65E+00	EPIA-013
Neptunium-239	UI			-1.89E+01	pCi/L	3.53E+01	EPIA-013
Nonvolatile beta				1.01E+00	pCi/L	9.40E-01	EPIA-001
Potassium-40				8.89E+01	pCi/L	7.36E+01	EPIA-013
Promethium-144	UI			3.40E+00	pCi/L	7.06E+00	EPIA-013
Promethium-146	UI			1.20E+00	pCi/L	8.83E+00	EPIA-013
Ruthenium-106	UI			2.00E+01	pCi/L	6.46E+01	EPIA-013
Sodium-22	UI			1.96E+00	pCi/L	6.93E+00	EPIA-013
Tin-113	UI			2.49E-01	pCi/L	8.32E+00	EPIA-013
Tritium				1.32E+00	pCi/mL	6.20E-01	EPA906.0
Yttrium-88	UI			8.35E-01	pCi/L	8.03E+00	EPIA-013
Zinc-65	UI			2.43E+00	pCi/L	1.36E+01	EPIA-013
Zirconium-95	UI			-4.78E+00	pCi/L	1.16E+01	EPIA-013

SURVEY ID: FMC001F03

Sample ID: 114002

Survey location: 57050E 70350N (SRS coordinates)

Ground elevation above MSL: . ft

Sample type: Normal

Sample matrix: Water

Constituent	RQ	AQ	B	Result	Unit	ssMDL	Method
<i>Specified Analyses</i>							
Chloride				4090	µg/L	35	EPA300.0
Cyanide	UJ	I	L	10	µg/L	3.34	EPA335.3
Hardness as CaCO ₃				13500	µg/L	1000	EPA130.2
Nitrate as nitrogen	J	Q	L	919	µg/L	6	EPA300.0
Nitrate-nitrite as nitrogen				1020	µg/L	7	EPA353.1

SURVEY ID: FMC001F03 (cont.)

Sample ID: 114002

Constituent	RQ	AQ	B	Result	Unit	ssMDL	Method
<i>Metals (total recoverable)</i>							
Aluminum				194	µg/L	37.6	EPA6010A
Antimony	U			10	µg/L	1.64	EPA6010A
Arsenic	U			5	µg/L	2.98	EPA6010A
Barium				22.1	µg/L	0.332	EPA6010A
Beryllium	U			5	µg/L	0.223	EPA6010A
Cadmium	U			5	µg/L	0.208	EPA6010A
Calcium		V		2180	µg/L	15.4	EPA6010A
Chromium	U			5	µg/L	0.729	EPA6010A
Cobalt	J	E		1.06	µg/L	0.671	EPA6010A
Copper	J	E		1.54	µg/L	1.32	EPA6010A
Iron				1580	µg/L	8.63	EPA6010A
Lead	U			5	µg/L	0.678	EPA6010A
Magnesium				570	µg/L	3.33	EPA6010A
Manganese				147	µg/L	0.903	EPA6010A
Mercury	U			0.2	µg/L	0.104	EPA7470
Nickel	U			5	µg/L	2.27	EPA6010A
Potassium				409	µg/L	5.87	EPA6010A
Selenium	U			5	µg/L	1.4	EPA6010A
Silver	U			5	µg/L	0.62	EPA6010A
Sodium		V		4250	µg/L	29.1	EPA6010A
Thallium	U			10	µg/L	2.63	EPA6010A
Tin	U			10	µg/L	2.94	EPA6010A
Vanadium	U			5	µg/L	0.427	EPA6010A
Zinc				11.9	µg/L	0.966	EPA6010A
<i>Radionuclides</i>							
Actinium-228	UI			7.86E+00	pCi/L	1.80E+01	EPIA-013
Antimony-124	UI			1.99E-01	pCi/L	4.70E+00	EPIA-013
Antimony-125	UI			-1.76E+00	pCi/L	1.10E+01	EPIA-013
Barium-133	UI			2.20E+00	pCi/L	5.51E+00	EPIA-013
Cerium-144	UI			-7.98E+00	pCi/L	2.72E+01	EPIA-013
Cesium-134	UI			-1.78E+00	pCi/L	3.63E+00	EPIA-013
Cesium-137	UI			1.58E+00	pCi/L	4.35E+00	EPIA-013
Cobalt-57	UI			-1.17E-01	pCi/L	3.53E+00	EPIA-013
Cobalt-58	UI			-5.42E-01	pCi/L	4.34E+00	EPIA-013
Cobalt-60	UI			-2.36E+00	pCi/L	4.36E+00	EPIA-013
Europium-152	UI			-3.12E+00	pCi/L	1.22E+01	EPIA-013
Europium-154	UI			5.35E+00	pCi/L	1.37E+01	EPIA-013
Europium-155	UI			6.14E+00	pCi/L	1.48E+01	EPIA-013
Gross alpha				2.64E+00	pCi/L	5.09E-01	EPIA-001
Lead-212	R	4		1.08E+01	pCi/L	8.73E+00	EPIA-013
Manganese-54	UI			-2.18E+00	pCi/L	3.92E+00	EPIA-013
Neptunium-239	UI			-5.89E+00	pCi/L	2.50E+01	EPIA-013
Nonvolatile beta				1.74E+01	pCi/L	1.20E+00	EPIA-001
Potassium-40	UI			2.81E+00	pCi/L	5.06E+01	EPIA-013
Promethium-144	UI			9.32E-01	pCi/L	4.29E+00	EPIA-013
Promethium-146	UI			7.83E-01	pCi/L	5.49E+00	EPIA-013
Ruthenium-106	UI			1.26E+01	pCi/L	4.05E+01	EPIA-013
Sodium-22	UI			1.91E+00	pCi/L	4.91E+00	EPIA-013
Tin-113	UI			-3.40E+00	pCi/L	5.28E+00	EPIA-013
Tritium				2.42E+02	pCi/mL	5.72E-01	EPA906.0
Yttrium-88	UI			-2.57E+00	pCi/L	4.79E+00	EPIA-013

SURVEY ID: FMC001F03 (cont.)

Sample ID: 114002

Constituent	RQ	AQ	B	Result	Unit	ssMDL	Method
<i>Radionuclides</i>							
Zinc-65	UI			-2.08E+00	pCi/L	8.98E+00	EPIA-013
Zirconium-95	UI			-3.84E-01	pCi/L	8.38E+00	EPIA-013

SURVEY ID: FMC001H03

Sample ID: 114000

Survey location: 5300E 72600N (SRS coordinates)

Ground elevation above MSL: . ft

Sample type: Normal

Sample matrix: Water

Constituent	RQ	AQ	B	Result	Unit	ssMDL	Method
<i>Specified Analyses</i>							
Chloride				2110	µg/L	35	EPA300.0
Chloride				2090	µg/L	35	EPA300.0
Cyanide	UJ	I	L	10	µg/L	3.34	EPA335.3
Hardness as CaCO ₃				67000	µg/L	1000	EPA130.2
Nitrate as nitrogen	J	Q	L	807	µg/L	6	EPA300.0
Nitrate as nitrogen	J	Q	L	852	µg/L	6	EPA300.0
Nitrate-nitrite as nitrogen				80	µg/L	7	EPA353.1

Metals (total recoverable)

Aluminum				187	µg/L	37.6	EPA6010A
Antimony	U			10	µg/L	1.64	EPA6010A
Arsenic	U			5	µg/L	2.98	EPA6010A
Barium				19.3	µg/L	0.332	EPA6010A
Beryllium	U			5	µg/L	0.223	EPA6010A
Cadmium	U			5	µg/L	0.208	EPA6010A
Calcium			V	1380	µg/L	15.4	EPA6010A
Chromium	U			5	µg/L	0.729	EPA6010A
Cobalt	J	E		1.39	µg/L	0.671	EPA6010A
Copper	J	E		4.34	µg/L	1.32	EPA6010A
Iron				832	µg/L	8.63	EPA6010A
Lead	U			5	µg/L	0.678	EPA6010A
Magnesium				452	µg/L	3.33	EPA6010A
Manganese				80.6	µg/L	0.903	EPA6010A
Mercury	U			0.2	µg/L	0.104	EPA7470
Nickel	U			5	µg/L	2.27	EPA6010A
Potassium				297	µg/L	5.87	EPA6010A
Selenium	U			5	µg/L	1.4	EPA6010A
Silver	U			5	µg/L	0.62	EPA6010A
Sodium			V	3630	µg/L	29.1	EPA6010A
Thallium	U			10	µg/L	2.63	EPA6010A
Tin	U			10	µg/L	2.94	EPA6010A
Vanadium	U			5	µg/L	0.427	EPA6010A
Zinc				8.53	µg/L	0.966	EPA6010A

Radionuclides

Actinium-228	R	4		2.44E+01	pCi/L	2.04E+01	EPIA-013
Antimony-124	UI			5.72E-01	pCi/L	5.18E+00	EPIA-013

SURVEY ID: FMC001H03 (cont.)

Sample ID: 114000

Constituent	RQ	AQ	B	Result	Unit	ssMDL	Method
<i>Radionuclides</i>							
Antimony-125	UI			1.74E-01	pCi/L	1.20E+01	EPIA-013
Barium-133	UI			1.11E+00	pCi/L	5.69E+00	EPIA-013
Cerium-144	UI			-1.27E+01	pCi/L	2.64E+01	EPIA-013
Cesium-134	UI			-1.92E+00	pCi/L	4.18E+00	EPIA-013
Cesium-137	UI			3.88E+00	pCi/L	5.51E+00	EPIA-013
Cobalt-57	UI			4.88E-02	pCi/L	3.46E+00	EPIA-013
Cobalt-58	UI			-2.11E-01	pCi/L	4.72E+00	EPIA-013
Cobalt-60	UI			-4.68E-01	pCi/L	5.37E+00	EPIA-013
Europium-152	UI			6.04E-01	pCi/L	1.28E+01	EPIA-013
Europium-154	UI			1.19E+00	pCi/L	1.56E+01	EPIA-013
Europium-155	UI			5.95E+00	pCi/L	1.53E+01	EPIA-013
Gross alpha				1.19E+00	pCi/L	4.59E-01	EPIA-001
Lead-212	UI			7.77E+00	pCi/L	8.77E+00	EPIA-013
Manganese-54	UI			-7.88E-01	pCi/L	4.64E+00	EPIA-013
Neptunium-239	UI			-1.00E+00	pCi/L	2.56E+01	EPIA-013
Nonvolatile beta				3.58E+00	pCi/L	1.06E+00	EPIA-001
Potassium-40	UI			6.80E+01	pCi/L	7.51E+01	EPIA-013
Promethium-144	UI			-1.17E-01	pCi/L	4.51E+00	EPIA-013
Promethium-146	UI			-1.82E+00	pCi/L	5.72E+00	EPIA-013
Ruthenium-106	UI			-7.76E+00	pCi/L	4.04E+01	EPIA-013
Sodium-22	UI			4.53E-01	pCi/L	5.60E+00	EPIA-013
Tin-113	UI			-3.79E-01	pCi/L	6.35E+00	EPIA-013
Tritium				6.66E+00	pCi/mL	5.72E-01	EPA906.0
Yttrium-88	UI			7.94E-01	pCi/L	5.76E+00	EPIA-013
Zinc-65	UI			3.80E+00	pCi/L	1.11E+01	EPIA-013
Zirconium-95	UI			-1.34E+00	pCi/L	9.23E+00	EPIA-013

SURVEY ID: FMC002H03

Sample ID: 114001

Survey location: 53000E 72600N (SRS coordinates)

Ground elevation above MSL: . ft

Sample type: Normal

Sample matrix: Water

Constituent	RQ	AQ	B	Result	Unit	ssMDL	Method
<i>Specified Analyses</i>							
Chloride				3660	µg/L	35	EPA300.0
Cyanide	UJ	I	L	10	µg/L	3.34	EPA335.3
Hardness as CaCO ₃				10000	µg/L	1000	EPA130.2
Nitrate as nitrogen	J	Q	L	163	µg/L	6	EPA300.0
Nitrate-nitrite as nitrogen				170	µg/L	7	EPA353.1

Metals (total recoverable)

Aluminum				145	µg/L	37.6	EPA6010A
Antimony	U			10	µg/L	1.64	EPA6010A
Arsenic	U			5	µg/L	2.98	EPA6010A
Barium				18	µg/L	0.332	EPA6010A
Beryllium	U			5	µg/L	0.223	EPA6010A
Cadmium	U			5	µg/L	0.208	EPA6010A
Calcium		V		2010	µg/L	15.4	EPA6010A
Chromium	U			5	µg/L	0.729	EPA6010A

SURVEY ID: FMC002H03 (cont.)

Sample ID: 114001

Constituent	RQ	AQ	B	Result	Unit	ssMDL	Method
<i>Metals (total recoverable)</i>							
Cobalt	U			5	µg/L	0.671	EPA6010A
Copper	J	E		4.82	µg/L	1.32	EPA6010A
Iron				882	µg/L	8.63	EPA6010A
Lead	U			5	µg/L	0.678	EPA6010A
Magnesium				483	µg/L	3.33	EPA6010A
Manganese				31.9	µg/L	0.903	EPA6010A
Mercury	U			0.2	µg/L	0.104	EPA7470
Nickel	U			5	µg/L	2.27	EPA6010A
Potassium				316	µg/L	5.87	EPA6010A
Selenium	U			5	µg/L	1.4	EPA6010A
Silver	U			5	µg/L	0.62	EPA6010A
Sodium		V		3940	µg/L	29.1	EPA6010A
Thallium	U			10	µg/L	2.63	EPA6010A
Tin	U			10	µg/L	2.94	EPA6010A
Vanadium	U			5	µg/L	0.427	EPA6010A
Zinc				8.73	µg/L	0.966	EPA6010A
<i>Radionuclides</i>							
Actinium-228	UI			2.49E+01	pCi/L	2.57E+01	EPIA-013
Antimony-124	UI			1.77E-01	pCi/L	6.11E+00	EPIA-013
Antimony-125	UI			4.37E+00	pCi/L	1.42E+01	EPIA-013
Barium-133	UI			-3.12E+00	pCi/L	6.15E+00	EPIA-013
Cerium-144	UI			1.31E+01	pCi/L	2.88E+01	EPIA-013
Cesium-134	UI			-2.58E+00	pCi/L	5.00E+00	EPIA-013
Cesium-137	UI			4.96E+00	pCi/L	5.49E+00	EPIA-013
Cobalt-57	UI			6.51E-02	pCi/L	3.54E+00	EPIA-013
Cobalt-58	UI			1.05E+00	pCi/L	5.41E+00	EPIA-013
Cobalt-60	UI			2.80E+00	pCi/L	6.95E+00	EPIA-013
Europium-152	UI			-8.63E+00	pCi/L	1.33E+01	EPIA-013
Europium-154	UI			-4.42E+00	pCi/L	1.58E+01	EPIA-013
Europium-155	UI			9.63E+00	pCi/L	1.58E+01	EPIA-013
Gross alpha				1.53E+00	pCi/L	8.14E-01	EPIA-001
Lead-212	UI			4.92E+00	pCi/L	8.14E+00	EPIA-013
Manganese-54	UI			-3.00E+00	pCi/L	5.25E+00	EPIA-013
Neptunium-239	UI			2.37E+00	pCi/L	2.68E+01	EPIA-013
Nonvolatile beta				8.88E+00	pCi/L	1.40E+00	EPIA-001
Potassium-40	UI			6.57E+01	pCi/L	4.61E+01	EPIA-013
Promethium-144	UI			-3.34E-01	pCi/L	5.39E+00	EPIA-013
Promethium-146	UI			1.41E+00	pCi/L	6.64E+00	EPIA-013
Ruthenium-106	UI			-2.05E+01	pCi/L	5.05E+01	EPIA-013
Sodium-22	UI			-1.57E+00	pCi/L	5.65E+00	EPIA-013
Tin-113	UI			-2.44E+00	pCi/L	6.58E+00	EPIA-013
Tritium				3.35E+01	pCi/mL	5.67E-01	EPA906.0
Yttrium-88	UI			1.40E+00	pCi/L	7.36E+00	EPIA-013
Zinc-65	UI			3.03E-01	pCi/L	1.31E+01	EPIA-013
Zirconium-95	UI			-4.67E+00	pCi/L	1.00E+01	EPIA-013

SURVEY ID: FSP 01203

Sample ID: 114019

Survey location: 49644E 73602N (SRS coordinates)

Ground elevation above MSL: . ft

Sample type: Normal

Sample matrix: Water

Constituent	RQ	AQ	B	Result	Unit	ssMDL	Method
<i>Specified Analyses</i>							
Chloride		V		2380	µg/L	7	EPA300.0
Cyanide	U			10	µg/L	3.34	EPA335.3
Hardness as CaCO ₃				11500	µg/L	1000	EPA130.2
Nitrate as nitrogen		V		237	µg/L	6	EPA300.0
Nitrate-nitrite as nitrogen		V		11400	µg/L	35	EPA353.1
<i>Metals (total recoverable)</i>							
Aluminum				672	µg/L	37.6	EPA6010A
Antimony	U			10	µg/L	1.64	EPA6010A
Arsenic	U			5	µg/L	2.98	EPA6010A
Barium				86.6	µg/L	0.332	EPA6010A
Beryllium	U			5	µg/L	0.223	EPA6010A
Cadmium	U			5	µg/L	0.208	EPA6010A
Calcium		V		1440	µg/L	15.4	EPA6010A
Chromium	U			5	µg/L	0.729	EPA6010A
Cobalt	J	E		2.62	µg/L	0.671	EPA6010A
Copper	U			5	µg/L	1.32	EPA6010A
Iron		V		8430	µg/L	8.63	EPA6010A
Lead	U			5	µg/L	0.678	EPA6010A
Magnesium		V		1090	µg/L	3.33	EPA6010A
Manganese				1020	µg/L	0.903	EPA6010A
Mercury	U			0.2	µg/L	0.104	EPA7470
Nickel	U			5	µg/L	2.27	EPA6010A
Potassium				880	µg/L	5.87	EPA6010A
Selenium	U			5	µg/L	1.4	EPA6010A
Silver	U			5	µg/L	0.62	EPA6010A
Sodium				1480	µg/L	29.1	EPA6010A
Thallium	U			10	µg/L	2.63	EPA6010A
Tin	U			10	µg/L	2.94	EPA6010A
Vanadium	J	E		1.27	µg/L	0.427	EPA6010A
Zinc				35.7	µg/L	0.966	EPA6010A
<i>Radionuclides</i>							
Actinium-228	UI			5.14E+00	pCi/L	1.49E+01	EPIA-013
Antimony-124	UI			-6.74E-01	pCi/L	3.68E+00	EPIA-013
Antimony-125	UI			-2.14E+00	pCi/L	8.22E+00	EPIA-013
Barium-133	UI			-7.72E-01	pCi/L	3.75E+00	EPIA-013
Cerium-144	UI			3.02E+00	pCi/L	2.08E+01	EPIA-013
Cesium-134	UI			5.71E-01	pCi/L	3.36E+00	EPIA-013
Cesium-137	UI			2.35E-01	pCi/L	3.43E+00	EPIA-013
Cobalt-57	UI			1.12E+00	pCi/L	2.69E+00	EPIA-013
Cobalt-58	UI			-2.04E-01	pCi/L	3.12E+00	EPIA-013
Cobalt-60	UI			8.02E-02	pCi/L	3.73E+00	EPIA-013
Europium-152	UI			-1.80E+00	pCi/L	8.19E+00	EPIA-013
Europium-154	UI			-9.53E-01	pCi/L	9.65E+00	EPIA-013
Europium-155	UI			-1.57E+00	pCi/L	1.17E+01	EPIA-013
Gross alpha				3.39E+00	pCi/L	3.24E-01	EPIA-001
Lead-212	UI			4.27E+00	pCi/L	6.29E+00	EPIA-013

SURVEY ID: FSP 01203 (cont.)

Sample ID: 114019

Constituent	RQ	AQ	B	Result	Unit	ssMDL	Method
<i>Radionuclides</i>							
Manganese-54	UI			-4.59E-01	pCi/L	3.26E+00	EPIA-013
Neptunium-239	UI			2.95E+00	pCi/L	1.95E+01	EPIA-013
Nonvolatile beta				2.94E+01	pCi/L	2.03E+00	EPIA-001
Potassium-40				6.47E+01	pCi/L	2.68E+00	EPIA-013
Promethium-144	UI			2.61E-01	pCi/L	2.85E+00	EPIA-013
Promethium-146	UI			2.83E+00	pCi/L	4.24E+00	EPIA-013
Ruthenium-106	UI			9.89E+00	pCi/L	3.33E+01	EPIA-013
Sodium-22	UI			-3.28E-01	pCi/L	3.47E+00	EPIA-013
Tin-113	UI			1.81E+00	pCi/L	4.11E+00	EPIA-013
Tritium				4.49E+01	pCi/mL	6.00E-01	EPA906.0
Yttrium-88	UI			-1.39E+00	pCi/L	3.87E+00	EPIA-013
Zinc-65	UI			-1.14E+00	pCi/L	6.93E+00	EPIA-013
Zirconium-95	UI			-1.39E+00	pCi/L	5.87E+00	EPIA-013

SURVEY ID: FSP 03203

Sample ID: 114021

Survey location: 50258E 73367N (SRS coordinates)

Ground elevation above MSL: . ft

Sample type: Normal

Sample matrix: Water

Constituent	RQ	AQ	B	Result	Unit	ssMDL	Method
<i>Specified Analyses</i>							
Chloride		V		1810	µg/L	7	EPA300.0
Cyanide	U			10	µg/L	3.34	EPA335.3
Hardness as CaCO ₃				4000	µg/L	1000	EPA130.2
Hardness as CaCO ₃				4000	µg/L	1000	EPA130.2
Nitrate as nitrogen		V		1250	µg/L	6	EPA300.0
Nitrate-nitrite as nitrogen		V		1470	µg/L	7	EPA353.1

Metals (total recoverable)

Aluminum				611	µg/L	37.6	EPA6010A
Antimony	U			10	µg/L	1.64	EPA6010A
Arsenic	U			5	µg/L	2.98	EPA6010A
Barium				90	µg/L	0.332	EPA6010A
Beryllium	U			5	µg/L	0.223	EPA6010A
Cadmium	J	E		0.678	µg/L	0.208	EPA6010A
Calcium		V		669	µg/L	15.4	EPA6010A
Chromium	U			5	µg/L	0.729	EPA6010A
Cobalt	J	E		0.937	µg/L	0.671	EPA6010A
Copper	U			5	µg/L	1.32	EPA6010A
Iron		V		217	µg/L	8.63	EPA6010A
Lead	U			5	µg/L	0.678	EPA6010A
Magnesium		V		348	µg/L	3.33	EPA6010A
Manganese				357	µg/L	0.903	EPA6010A
Mercury	U			0.2	µg/L	0.104	EPA7470
Nickel	U			5	µg/L	2.27	EPA6010A
Potassium				128	µg/L	5.87	EPA6010A
Selenium	U			5	µg/L	1.4	EPA6010A
Silver	U	V		1.38	µg/L	0.62	EPA6010A
Sodium				2880	µg/L	29.1	EPA6010A

SURVEY ID: FSP 03203 (cont.)

Sample ID: 114021

Constituent	RQ	AQ	B	Result	Unit	ssMDL	Method
<i>Metals (total recoverable)</i>							
Thallium	U			10	µg/L	2.63	EPA6010A
Tin	U			10	µg/L	2.94	EPA6010A
Vanadium	U			5	µg/L	0.427	EPA6010A
Zinc				32.3	µg/L	0.966	EPA6010A
<i>Radionuclides</i>							
Actinium-228	UI			7.86E+00	pCi/L	1.61E+01	EPIA-013
Actinium-228	R	4		2.66E+01	pCi/L	1.59E+01	EPIA-013
Americium-241	UI			6.55E-02	pCi/L	1.61E-01	EPIA-011
Americium-241	UI			1.01E-01	pCi/L	1.68E-01	EPIA-011
Antimony-124	UI			-9.26E-01	pCi/L	3.83E+00	EPIA-013
Antimony-124	UI			1.14E+00	pCi/L	3.97E+00	EPIA-013
Antimony-125	UI			2.48E+00	pCi/L	9.60E+00	EPIA-013
Antimony-125	UI			5.64E-01	pCi/L	8.67E+00	EPIA-013
Barium-133	UI			1.69E+00	pCi/L	4.56E+00	EPIA-013
Barium-133	UI			1.71E+00	pCi/L	4.97E+00	EPIA-013
Cerium-144	UI			-1.74E+00	pCi/L	2.27E+01	EPIA-013
Cerium-144	UI			-8.00E-01	pCi/L	2.32E+01	EPIA-013
Cesium-134	UI			-1.30E+00	pCi/L	3.23E+00	EPIA-013
Cesium-134	UI			2.82E-01	pCi/L	3.16E+00	EPIA-013
Cesium-137	UI			7.66E-01	pCi/L	3.86E+00	EPIA-013
Cesium-137	UI			1.67E+00	pCi/L	3.94E+00	EPIA-013
Cobalt-57	UI			4.99E-01	pCi/L	3.08E+00	EPIA-013
Cobalt-57	UI			-7.19E-01	pCi/L	2.96E+00	EPIA-013
Cobalt-58	UI			1.10E-01	pCi/L	3.98E+00	EPIA-013
Cobalt-58	UI			2.83E-01	pCi/L	3.67E+00	EPIA-013
Cobalt-60	UI			-2.12E-02	pCi/L	4.02E+00	EPIA-013
Cobalt-60	UI			1.13E-01	pCi/L	4.03E+00	EPIA-013
Curium-242	UI			-1.06E-02	pCi/L	2.33E-01	EPIA-011
Curium-242	UI			-3.31E-02	pCi/L	3.20E-01	EPIA-011
Curium-243/244	UI			1.15E-01	pCi/L	1.62E-01	EPIA-011
Curium-243/244	UI			8.85E-02	pCi/L	1.69E-01	EPIA-011
Curium-245/246	UI			0.00E+00	pCi/L	9.12E-02	EPIA-011
Curium-245/246	UI			3.18E-02	pCi/L	9.53E-02	EPIA-011
Europium-152	UI			2.12E-01	pCi/L	9.35E+00	EPIA-013
Europium-152	UI			-7.64E-02	pCi/L	9.78E+00	EPIA-013
Europium-154	UI			7.38E-02	pCi/L	1.02E+01	EPIA-013
Europium-154	UI			3.55E+00	pCi/L	1.15E+01	EPIA-013
Europium-155	UI			2.91E-01	pCi/L	1.32E+01	EPIA-013
Europium-155	UI			2.19E+00	pCi/L	1.32E+01	EPIA-013
Gross alpha				5.11E+00	pCi/L	1.23E+00	EPIA-001
Iodine-129				1.58E+00	pCi/L	1.16E+00	EPIA-006
Lead-212	UI			1.13E+00	pCi/L	6.80E+00	EPIA-013
Lead-212	UI			3.50E+00	pCi/L	5.45E+00	EPIA-013
Manganese-54	UI			-1.50E+00	pCi/L	3.61E+00	EPIA-013
Manganese-54	UI			-5.49E-01	pCi/L	3.63E+00	EPIA-013
Neptunium-237	UI			3.27E-02	pCi/L	9.80E-02	EPIA-032
Neptunium-239	UI			2.52E+00	pCi/L	2.32E+01	EPIA-013
Neptunium-239	UI			4.00E+00	pCi/L	2.34E+01	EPIA-013
Nickel-63	UI			-1.23E+02	pCi/L	2.53E+02	EPIA-022
Nonvolatile beta				7.30E+01	pCi/L	2.05E+00	EPIA-001
Potassium-40	UI			3.02E+01	pCi/L	4.96E+01	EPIA-013
Potassium-40	UI			3.16E+01	pCi/L	4.80E+01	EPIA-013

SURVEY ID: FSP 03203 (cont.)

Sample ID: 114021

Constituent	RQ	AQ	B	Result	Unit	ssMDL	Method
<i>Radionuclides</i>							
Promethium-144	UI			-1.58E-01	pCi/L	3.41E+00	EPIA-013
Promethium-144	UI			-1.35E+00	pCi/L	3.10E+00	EPIA-013
Promethium-146	UI			-5.05E-01	pCi/L	4.57E+00	EPIA-013
Promethium-146	UI			9.72E-01	pCi/L	4.51E+00	EPIA-013
Radium-226				6.67E-01	pCi/L	4.86E-01	EPIA-008
Radium-228	UI			1.05E-01	pCi/L	1.02E+00	EPIA-009
Ruthenium-106	UI			9.02E+00	pCi/L	3.29E+01	EPIA-013
Ruthenium-106	UI			3.44E+00	pCi/L	3.02E+01	EPIA-013
Sodium-22	UI			6.74E-03	pCi/L	3.63E+00	EPIA-013
Sodium-22	UI			1.28E+00	pCi/L	4.11E+00	EPIA-013
Tin-113	UI			2.92E-01	pCi/L	4.52E+00	EPIA-013
Tin-113	UI			1.65E+00	pCi/L	4.67E+00	EPIA-013
Tritium				8.82E+01	pCi/mL	6.12E-01	EPA906.0
Uranium-233/234				2.67E-01	pCi/L	8.91E-02	EPIA-011
Uranium-233/234				2.38E-01	pCi/L	1.43E-01	EPIA-011
Uranium-235	UI			5.25E-02	pCi/L	1.57E-01	EPIA-011
Uranium-235	UI			1.09E-03	pCi/L	2.06E-01	EPIA-011
Uranium-238				4.61E-01	pCi/L	1.85E-01	EPIA-011
Uranium-238	UI			1.09E-03	pCi/L	2.05E-01	EPIA-011
Yttrium-88	UI			9.57E-01	pCi/L	4.72E+00	EPIA-013
Yttrium-88	UI			7.71E-01	pCi/L	4.87E+00	EPIA-013
Zinc-65	UI			-3.40E+00	pCi/L	6.55E+00	EPIA-013
Zinc-65	UI			3.36E+00	pCi/L	8.02E+00	EPIA-013
Zirconium-95	UI			2.26E+00	pCi/L	7.28E+00	EPIA-013
Zirconium-95	UI			-4.65E-01	pCi/L	6.35E+00	EPIA-013

SURVEY ID: FSP 03203D

Sample ID: 114022

Sample type: Split

Constituent	RQ	AQ	B	Result	Unit	ssMDL	Method
<i>Specified Analyses</i>							
Chloride				2100	µg/L	21	EPA9056
Cyanide	U			15.2	µg/L	1.52	EPA9010A
Hardness as CaCO ₃				12000	µg/L	900	EPA130.2
Hardness as CaCO ₃				11500	µg/L	900	EPA130.2
Nitrate as nitrogen	J	Q		1760	µg/L	20	EPA353.2
Nitrate-nitrite as nitrogen				1500	µg/L	20	EPA353.2
<i>Metals (total recoverable)</i>							
Aluminum				785	µg/L	14.6	EPA6010
Antimony	U			27	µg/L	2.7	EPA6010
Arsenic	U			40	µg/L	4	EPA6010
Barium		V		104	µg/L	0.18	EPA6010
Beryllium	J	E		0.21	µg/L	0.16	EPA6010
Cadmium				7.1	µg/L	0.47	EPA6010
Calcium				824	µg/L	47.1	EPA6010
Chromium				0.93	µg/L	0.7	EPA6010
Cobalt				156	µg/L	0.45	EPA6010
Copper				15	µg/L	1.5	EPA6010
Iron				623	µg/L	7.4	EPA6010

SURVEY ID: FSP 03203D (cont.)

Sample ID: 114022

Constituent	RQ	AQ	B	Result	Unit	ssMDL	Method
<i>Metals (total recoverable)</i>							
Lead				89.5	µg/L	4.7	EPA6010
Magnesium			V	422	µg/L	7.4	EPA6010
Manganese				454	µg/L	0.78	EPA6010
Mercury	U			0.7	µg/L	0.07	EPA7470
Nickel				92.6	µg/L	2.6	EPA6010
Potassium	J	E		141	µg/L	18.7	EPA6010
Selenium	U			66	µg/L	6.6	EPA6010
Silver	U			5	µg/L	0.5	EPA6010
Sodium			V	2620	µg/L	28.5	EPA6010
Thallium	U			55	µg/L	5.5	EPA6010
Tin	U			70	µg/L	7	EPA6010
Vanadium	U			6.9	µg/L	0.69	EPA6010
Zinc	J	E		35.8	µg/L	5.3	EPA6010
<i>Radionuclides</i>							
Actinium-228	UI			-1.10E+00	pCi/L	1.19E+01	EPA901.1MOD
Antimony-124	UI			-2.61E+00	pCi/L	4.04E+00	EPA901.1MOD
Antimony-125	UI			-2.34E+00	pCi/L	7.41E+00	EPA901.1MOD
Barium-133	UI			7.70E-01	pCi/L	4.12E+00	EPA901.1MOD
Cerium-144	UI			-1.31E+00	pCi/L	1.77E+01	EPA901.1MOD
Cesium-134	UI			-2.22E+00	pCi/L	3.06E+00	EPA901.1MOD
Cesium-137	UI			1.04E+00	pCi/L	3.62E+00	EPA901.1MOD
Cobalt-57	UI			1.80E-01	pCi/L	2.63E+00	EPA901.1MOD
Cobalt-58	UI			-1.70E-01	pCi/L	3.80E+00	EPA901.1MOD
Cobalt-60	UI			7.10E-01	pCi/L	3.52E+00	EPA901.1MOD
Europium-152	UI			2.34E+00	pCi/L	2.56E+01	EPA901.1MOD
Europium-154	UI			-3.30E+00	pCi/L	1.01E+01	EPA901.1MOD
Europium-155	UI			3.17E+00	pCi/L	9.46E+00	EPA901.1MOD
Gross alpha				1.14E+01	pCi/L	1.70E+00	EPA900.0MOD
Iodine-129	UI			4.20E+00	pCi/L	1.07E+01	EPA902.0MOD
Iodine-129	UI			2.52E+00	pCi/L	1.02E+01	EPA902.0MOD
Lead-212	UI			-8.90E-01	pCi/L	5.01E+00	EPA901.1MOD
Manganese-54	UI			-1.48E+00	pCi/L	3.06E+00	EPA901.1MOD
Nickel-63	UIJ	C		-3.04E+00	pCi/L	1.27E+01	3500NIEMOD
Nickel-63	UIJ	C		-5.28E+00	pCi/L	1.25E+01	3500NIEMOD
Nonvolatile beta			X	7.95E+01	pCi/L	2.61E+00	EPA900.0MOD
Potassium-40	UI			-9.69E+00	pCi/L	3.80E+01	EPA901.1MOD
Promethium-144	UI	X		3.50E-01	pCi/L	3.65E+00	EPA901.1MOD
Promethium-146	UI			-5.50E-01	pCi/L	5.73E+00	EPA901.1MOD
Radium-228				3.07E+01	pCi/L	5.75E+00	EPA904.0MOD
Radium-228				2.60E+01	pCi/L	7.77E+00	EPA904.0MOD
Ruthenium-106	UI			3.15E+00	pCi/L	3.26E+01	EPA901.1MOD
Sodium-22	UI			-1.19E+00	pCi/L	3.63E+00	EPA901.1MOD
Strontium-90				2.04E+01	pCi/L	1.94E+00	EMLSR02MOD
Strontium-90				1.92E+01	pCi/L	1.73E+00	EMLSR02MOD
Tin-113	UI			1.89E+00	pCi/L	4.51E+00	EPA901.1MOD
Tritium				1.04E+02	pCi/mL	6.10E-01	EPA906.0MOD
Yttrium-88	UI			-2.60E-01	pCi/L	3.56E+00	EPA901.1MOD
Zinc-65	UI			-4.50E-01	pCi/L	7.15E+00	EPA901.1MOD
Zirconium-95	UI			2.13E+00	pCi/L	7.33E+00	EPA901.1MOD

SURVEY ID: FSP 04703

Sample ID: 114020

Survey location: 50607E 73609N (SRS coordinates)

Ground elevation above MSL: . ft

Sample type: Normal

Sample matrix: Water

Constituent	RQ	AQ	B	Result	Unit	ssMDL	Method
<i>Specified Analyses</i>							
Chloride		V		3560	µg/L	7	EPA300.0
Cyanide	U			10	µg/L	3.34	EPA335.3
Hardness as CaCO ₃				5000	µg/L	1000	EPA130.2
Nitrate as nitrogen		V		440	µg/L	6	EPA300.0
Nitrate-nitrite as nitrogen		V		500	µg/L	7	EPA353.1
<i>Metals (total recoverable)</i>							
Aluminum				553	µg/L	37.6	EPA6010A
Antimony	U			10	µg/L	1.64	EPA6010A
Arsenic	U			5	µg/L	2.98	EPA6010A
Barium				91.7	µg/L	0.332	EPA6010A
Beryllium	U			5	µg/L	0.223	EPA6010A
Cadmium	U			5	µg/L	0.208	EPA6010A
Calcium		V		355	µg/L	15.4	EPA6010A
Chromium	J	E		1.07	µg/L	0.729	EPA6010A
Cobalt	J	E		3.74	µg/L	0.671	EPA6010A
Copper	U			5	µg/L	1.32	EPA6010A
Iron		V		3910	µg/L	8.63	EPA6010A
Lead	J	E		2.52	µg/L	0.678	EPA6010A
Magnesium		V		586	µg/L	3.33	EPA6010A
Manganese				220	µg/L	0.903	EPA6010A
Mercury	U			0.2	µg/L	0.104	EPA7470
Nickel	U			5	µg/L	2.27	EPA6010A
Potassium	J	E		37.8	µg/L	5.87	EPA6010A
Selenium	U			5	µg/L	1.4	EPA6010A
Silver	U	V		1.09	µg/L	0.62	EPA6010A
Sodium				2720	µg/L	29.1	EPA6010A
Thallium	U			10	µg/L	2.63	EPA6010A
Tin	U			10	µg/L	2.94	EPA6010A
Vanadium	J	E		1.55	µg/L	0.427	EPA6010A
Zinc				18.2	µg/L	0.966	EPA6010A
<i>Radionuclides</i>							
Actinium-228	UI			6.59E+00	pCi/L	1.43E+01	EPIA-013
Antimony-124	UI			-4.65E-01	pCi/L	3.72E+00	EPIA-013
Antimony-125	UI			3.04E+00	pCi/L	9.89E+00	EPIA-013
Barium-133	UI			-9.69E-02	pCi/L	4.32E+00	EPIA-013
Cerium-144	UI			9.46E+00	pCi/L	2.31E+01	EPIA-013
Cesium-134	UI			-1.94E-01	pCi/L	3.28E+00	EPIA-013
Cesium-137	UI			-8.00E-01	pCi/L	3.59E+00	EPIA-013
Cobalt-57	UI			7.42E-02	pCi/L	2.92E+00	EPIA-013
Cobalt-58	UI			1.08E+00	pCi/L	4.01E+00	EPIA-013
Cobalt-60	UI			6.24E-01	pCi/L	3.51E+00	EPIA-013
Europium-152	UI			-5.41E+00	pCi/L	8.45E+00	EPIA-013
Europium-154	UI			-1.06E+00	pCi/L	1.13E+01	EPIA-013
Europium-155	UI			1.71E+00	pCi/L	1.30E+01	EPIA-013
Gross alpha				3.92E+00	pCi/L	7.35E-01	EPIA-001
Lead-212				6.97E+00	pCi/L	5.31E+00	EPIA-013

SURVEY ID: FSP 04703 (cont.)

Sample ID: 114020

Constituent	RQ	AQ	B	Result	Unit	ssMDL	Method
<i>Radionuclides</i>							
Manganese-54	UI			9.39E-01	pCi/L	4.03E+00	EPIA-013
Neptunium-239	UI			-7.51E+00	pCi/L	2.15E+01	EPIA-013
Nonvolatile beta				3.25E+01	pCi/L	1.97E+00	EPIA-001
Potassium-40	UI			2.93E+01	pCi/L	4.92E+01	EPIA-013
Promethium-144	UI			-3.19E-01	pCi/L	3.56E+00	EPIA-013
Promethium-146	UI			-8.42E-01	pCi/L	3.99E+00	EPIA-013
Ruthenium-106	UI			1.56E+00	pCi/L	3.35E+01	EPIA-013
Sodium-22	UI			-3.79E-01	pCi/L	4.04E+00	EPIA-013
Tin-113	UI			-1.68E+00	pCi/L	4.29E+00	EPIA-013
Tritium				2.31E+01	pCi/mL	6.08E-01	EPA906.0
Yttrium-88	UI			4.73E-01	pCi/L	3.84E+00	EPIA-013
Zinc-65	UI			-2.68E+00	pCi/L	7.51E+00	EPIA-013
Zirconium-95	UI			9.74E-01	pCi/L	6.76E+00	EPIA-013

SURVEY ID: FSP 20403

Sample ID: 114018

Survey location: 48801E 73281N (SRS coordinates)

Ground elevation above MSL: . ft

Sample type: Normal

Sample matrix: Water

Constituent	RQ	AQ	B	Result	Unit	ssMDL	Method
<i>Specified Analyses</i>							
Chloride		V		1610	µg/L	7	EPA300.0
Cyanide	U			10	µg/L	3.34	EPA335.3
Hardness as CaCO ₃				26500	µg/L	1000	EPA130.2
Nitrate as nitrogen		V		34200	µg/L	600	EPA300.0
Nitrate-nitrite as nitrogen		V		35800	µg/L	175	EPA353.1
<i>Metals (total recoverable)</i>							
Aluminum				8590	µg/L	75.2	EPA6010A
Antimony	U			20	µg/L	3.28	EPA6010A
Arsenic	U			10	µg/L	5.96	EPA6010A
Barium				199	µg/L	0.664	EPA6010A
Beryllium	J	E		0.737	µg/L	0.446	EPA6010A
Cadmium	J	E		3.13	µg/L	0.416	EPA6010A
Calcium		V		4620	µg/L	30.8	EPA6010A
Chromium	U			10	µg/L	1.46	EPA6010A
Cobalt				28.4	µg/L	1.34	EPA6010A
Copper	U			10	µg/L	2.64	EPA6010A
Iron	U			100	µg/L	17.3	EPA6010A
Lead	U			10	µg/L	1.36	EPA6010A
Magnesium		V		2640	µg/L	6.66	EPA6010A
Manganese				940	µg/L	1.81	EPA6010A
Mercury	U			0.2	µg/L	0.104	EPA7470
Nickel	J	E		9.42	µg/L	4.54	EPA6010A
Potassium				405	µg/L	11.7	EPA6010A
Selenium	U			10	µg/L	2.8	EPA6010A
Silver	U			10	µg/L	1.24	EPA6010A
Sodium				17600	µg/L	58.2	EPA6010A
Thallium	U			20	µg/L	5.26	EPA6010A

SURVEY ID: FSP 20403 (cont.)

Sample ID: 114018

Constituent	RQ	AQ	B	Result	Unit	ssMDL	Method
<i>Metals (total recoverable)</i>							
Tin	U			20	µg/L	5.88	EPA6010A
Vanadium	U			10	µg/L	0.854	EPA6010A
Zinc				25.1	µg/L	1.93	EPA6010A
<i>Radionuclides</i>							
Actinium-228	UI			1.46E+01	pCi/L	1.67E+01	EPIA-013
Americium-241				3.55E-01	pCi/L	1.83E-01	EPIA-011
Antimony-124	UI			1.23E+00	pCi/L	4.07E+00	EPIA-013
Antimony-125	UI			-2.22E+00	pCi/L	8.68E+00	EPIA-013
Barium-133	UI			1.99E+00	pCi/L	4.27E+00	EPIA-013
Cerium-144	UI			4.58E+00	pCi/L	2.28E+01	EPIA-013
Cesium-134	UI			-1.05E+00	pCi/L	3.21E+00	EPIA-013
Cesium-137	UI			-6.00E-01	pCi/L	3.22E+00	EPIA-013
Cobalt-57	UI			1.22E+00	pCi/L	3.07E+00	EPIA-013
Cobalt-58	UI			8.87E-02	pCi/L	3.61E+00	EPIA-013
Cobalt-60	UI			1.41E+00	pCi/L	4.55E+00	EPIA-013
Curium-242	UI			1.00E-01	pCi/L	1.51E-01	EPIA-011
Curium-243/244				3.07E-01	pCi/L	1.85E-01	EPIA-011
Curium-245/246	UI			0.00E+00	pCi/L	1.04E-01	EPIA-011
Europium-152	UI			-1.84E+00	pCi/L	8.99E+00	EPIA-013
Europium-154	UI			-4.38E+00	pCi/L	7.75E+00	EPIA-013
Europium-155	UI			7.17E-01	pCi/L	1.28E+01	EPIA-013
Gross alpha				4.82E+01	pCi/L	1.60E+00	EPIA-001
Iodine-129				3.79E+00	pCi/L	1.91E+00	EPIA-006
Iodine-129				2.68E+00	pCi/L	8.79E-01	EPIA-006
Lead-212	UI			3.32E+00	pCi/L	6.27E+00	EPIA-013
Manganese-54	UI			-2.46E-01	pCi/L	3.33E+00	EPIA-013
Neptunium-237				1.46E-01	pCi/L	8.80E-02	EPIA-032
Neptunium-237				9.39E-02	pCi/L	8.60E-02	EPIA-032
Neptunium-239	UI			6.57E+00	pCi/L	2.25E+01	EPIA-013
Nickel-63	UI			6.53E+01	pCi/L	2.20E+02	EPIA-022
Nonvolatile beta				4.82E+02	pCi/L	2.21E+00	EPIA-001
Potassium-40	UI			1.58E+01	pCi/L	4.17E+01	EPIA-013
Promethium-144	UI			1.99E+00	pCi/L	3.59E+00	EPIA-013
Promethium-146	UI			3.61E-01	pCi/L	4.06E+00	EPIA-013
Radium-226				1.48E+01	pCi/L	1.77E-01	EPIA-008
Radium-228				2.64E+00	pCi/L	1.01E+00	EPIA-009
Ruthenium-106	UI			-2.65E+00	pCi/L	3.01E+01	EPIA-013
Sodium-22	UI			-1.57E+00	pCi/L	2.77E+00	EPIA-013
Tin-113	UI			-1.02E-01	pCi/L	4.19E+00	EPIA-013
Tritium				1.62E+03	pCi/mL	2.92E+00	EPA906.0
Uranium-233/234				2.81E+00	pCi/L	1.83E-01	EPIA-011
Uranium-235	UI			8.13E-02	pCi/L	1.56E-01	EPIA-011
Uranium-238				2.64E+00	pCi/L	1.55E-01	EPIA-011
Yttrium-88	UI			1.83E-02	pCi/L	4.53E+00	EPIA-013
Zinc-65	UI			-4.73E+00	pCi/L	6.39E+00	EPIA-013
Zirconium-95	UI			-2.23E+00	pCi/L	5.80E+00	EPIA-013

SURVEY ID: FSP 29003

Sample ID: 114016

Survey location: 46865E 73160N (SRS coordinates)

Ground elevation above MSL: . ft

Sample type: Normal

Sample matrix: Water

Constituent	RQ	AQ	B	Result	Unit	ssMDL	Method
<i>Specified Analyses</i>							
Chloride			V	2020	µg/L	7	EPA300.0
Chloride			V	1900	µg/L	7	EPA300.0
Cyanide	U			10	µg/L	3.34	EPA335.3
Hardness as CaCO ₃				12500	µg/L	1000	EPA130.2
Nitrate as nitrogen			V	206	µg/L	6	EPA300.0
Nitrate as nitrogen			V	208	µg/L	6	EPA300.0
Nitrate-nitrite as nitrogen			V	280	µg/L	7	EPA353.1
<i>Metals (total recoverable)</i>							
Aluminum				391	µg/L	37.6	EPA6010A
Antimony	U			10	µg/L	1.64	EPA6010A
Arsenic	U			5	µg/L	2.98	EPA6010A
Barium				30.4	µg/L	0.332	EPA6010A
Beryllium	U			5	µg/L	0.223	EPA6010A
Cadmium	U			5	µg/L	0.208	EPA6010A
Calcium			V	742	µg/L	15.4	EPA6010A
Chromium	U			5	µg/L	0.729	EPA6010A
Cobalt	J	E		0.996	µg/L	0.671	EPA6010A
Copper	U			5	µg/L	1.32	EPA6010A
Iron			V	1730	µg/L	8.63	EPA6010A
Lead	U			5	µg/L	0.678	EPA6010A
Magnesium			V	420	µg/L	3.33	EPA6010A
Manganese				65.1	µg/L	0.903	EPA6010A
Mercury	U			0.2	µg/L	0.104	EPA7470
Nickel	U			5	µg/L	2.27	EPA6010A
Potassium				114	µg/L	5.87	EPA6010A
Selenium	U			5	µg/L	1.4	EPA6010A
Silver	U		V	1.41	µg/L	0.62	EPA6010A
Sodium				1900	µg/L	29.1	EPA6010A
Thallium	U			10	µg/L	2.63	EPA6010A
Tin	U			10	µg/L	2.94	EPA6010A
Vanadium	J	E		0.977	µg/L	0.427	EPA6010A
Zinc				12.1	µg/L	0.966	EPA6010A
<i>Radionuclides</i>							
Actinium-228	UI			7.43E-01	pCi/L	1.14E+01	EPIA-013
Antimony-124	UI			-2.08E+00	pCi/L	3.42E+00	EPIA-013
Antimony-125	UI			-2.54E+00	pCi/L	8.09E+00	EPIA-013
Barium-133	UI			-1.76E+00	pCi/L	3.38E+00	EPIA-013
Cerium-144	UI			-7.56E-01	pCi/L	2.03E+01	EPIA-013
Cesium-134	UI			1.67E+00	pCi/L	3.10E+00	EPIA-013
Cesium-137	UI			1.96E+00	pCi/L	2.91E+00	EPIA-013
Cobalt-57	UI			1.62E-01	pCi/L	2.64E+00	EPIA-013
Cobalt-58	UI			9.43E-01	pCi/L	3.38E+00	EPIA-013
Cobalt-60	UI			3.60E-02	pCi/L	2.66E+00	EPIA-013
Europium-152	UI			-1.57E+00	pCi/L	7.93E+00	EPIA-013
Europium-154	UI			-2.06E+00	pCi/L	7.30E+00	EPIA-013
Europium-155	UI			-1.48E+00	pCi/L	1.10E+01	EPIA-013

SURVEY ID: FSP 29003 (cont.)

Sample ID: 114016

Constituent	RQ	AQ	B	Result	Unit	ssMDL	Method
<i>Radionuclides</i>							
Gross alpha				4.24E+00	pCi/L	1.24E+00	EPIA-001
Lead-212	UI			9.58E-03	pCi/L	5.49E+00	EPIA-013
Manganese-54	UI			1.45E+00	pCi/L	2.14E+00	EPIA-013
Neptunium-239	UI			4.84E+00	pCi/L	1.99E+01	EPIA-013
Nonvolatile beta				7.61E+00	pCi/L	2.16E+00	EPIA-001
Potassium-40	UI			2.40E+01	pCi/L	2.34E+01	EPIA-013
Promethium-144	UI			-8.35E-01	pCi/L	2.69E+00	EPIA-013
Promethium-146	UI			-6.16E-01	pCi/L	3.43E+00	EPIA-013
Ruthenium-106	UI			-1.21E+00	pCi/L	2.51E+01	EPIA-013
Sodium-22	UI			-7.35E-01	pCi/L	2.62E+00	EPIA-013
Tin-113	UI			1.56E+00	pCi/L	3.52E+00	EPIA-013
Tritium				5.48E+01	pCi/mL	6.35E-01	EPA906.0
Yttrium-88	UI			7.67E-01	pCi/L	3.95E+00	EPIA-013
Zinc-65	UI			-2.98E+00	pCi/L	5.67E+00	EPIA-013
Zirconium-95	UI			1.33E+00	pCi/L	6.20E+00	EPIA-013

SURVEY ID: FSP 29003A

Sample ID: 114017

Sample type: Duplicate

Associated sample: 114016

Constituent	RQ	AQ	B	Result	Unit	ssMDL	Method
<i>Specified Analyses</i>							
Chloride		V		1840	µg/L	7	EPA300.0
Cyanide	U			10	µg/L	3.34	EPA335.3
Hardness as CaCO ₃				6700	µg/L	1000	EPA130.2
Nitrate as nitrogen		V		266	µg/L	6	EPA300.0
Nitrate-nitrite as nitrogen		V		400	µg/L	7	EPA353.1
<i>Metals (total recoverable)</i>							
Aluminum				380	µg/L	37.6	EPA6010A
Antimony	U			10	µg/L	1.64	EPA6010A
Arsenic	U			5	µg/L	2.98	EPA6010A
Barium				29.7	µg/L	0.332	EPA6010A
Beryllium	U			5	µg/L	0.223	EPA6010A
Cadmium	U			5	µg/L	0.208	EPA6010A
Calcium		V		658	µg/L	15.4	EPA6010A
Chromium	U			5	µg/L	0.729	EPA6010A
Cobalt	J	E		0.879	µg/L	0.671	EPA6010A
Copper	U			5	µg/L	1.32	EPA6010A
Iron		V		1780	µg/L	8.63	EPA6010A
Lead	U			5	µg/L	0.678	EPA6010A
Magnesium		V		400	µg/L	3.33	EPA6010A
Manganese				65.3	µg/L	0.903	EPA6010A
Mercury	U			0.2	µg/L	0.104	EPA7470
Nickel	U			5	µg/L	2.27	EPA6010A
Potassium				131	µg/L	5.87	EPA6010A
Selenium	U			5	µg/L	1.4	EPA6010A
Silver	U	V		1.14	µg/L	0.62	EPA6010A
Sodium				1860	µg/L	29.1	EPA6010A
Thallium	U			10	µg/L	2.63	EPA6010A

SURVEY ID: FSP 29003A (cont.)

Sample ID: 114017

Constituent	RQ	AQ	B	Result	Unit	ssMDL	Method
<i>Metals (total recoverable)</i>							
Tin	U			10	µg/L	2.94	EPA6010A
Vanadium	J	E		0.721	µg/L	0.427	EPA6010A
Zinc				18.1	µg/L	0.966	EPA6010A
<i>Radionuclides</i>							
Actinium-228	UI			8.20E+00	pCi/L	1.51E+01	EPIA-013
Antimony-124	UI			3.36E-01	pCi/L	3.93E+00	EPIA-013
Antimony-125	UI			-3.20E+00	pCi/L	7.88E+00	EPIA-013
Barium-133	R	4		8.98E+00	pCi/L	3.94E+00	EPIA-013
Cerium-144	UI			1.18E+01	pCi/L	2.34E+01	EPIA-013
Cesium-134	UI			-6.55E-01	pCi/L	3.21E+00	EPIA-013
Cesium-137	UI			-1.91E-01	pCi/L	3.25E+00	EPIA-013
Cobalt-57	UI			-5.77E-01	pCi/L	2.91E+00	EPIA-013
Cobalt-58	UI			-1.58E+00	pCi/L	3.17E+00	EPIA-013
Cobalt-60	UI			-2.75E-01	pCi/L	3.35E+00	EPIA-013
Europium-152	UI			-2.37E+00	pCi/L	9.43E+00	EPIA-013
Europium-154	UI			-3.31E-01	pCi/L	1.01E+01	EPIA-013
Europium-155	UI			-3.06E+00	pCi/L	1.21E+01	EPIA-013
Gross alpha				7.33E+00	pCi/L	8.55E-01	EPIA-001
Lead-212	UI			5.56E+00	pCi/L	6.74E+00	EPIA-013
Manganese-54	UI			-1.16E+00	pCi/L	3.06E+00	EPIA-013
Neptunium-239	UI			-6.40E-01	pCi/L	2.22E+01	EPIA-013
Nonvolatile beta				8.59E+00	pCi/L	2.07E+00	EPIA-001
Potassium-40	UI			3.00E+01	pCi/L	4.94E+01	EPIA-013
Promethium-144	UI			9.12E-01	pCi/L	3.52E+00	EPIA-013
Promethium-146	UI			2.41E-01	pCi/L	4.56E+00	EPIA-013
Ruthenium-106	UI			-7.79E+00	pCi/L	3.04E+01	EPIA-013
Sodium-22	UI			-1.12E-01	pCi/L	3.62E+00	EPIA-013
Tin-113	UI			-1.22E+00	pCi/L	4.07E+00	EPIA-013
Tritium				5.26E+01	pCi/mL	6.35E-01	EPA906.0
Yttrium-88	UI			7.38E-01	pCi/L	4.85E+00	EPIA-013
Zinc-65	UI			1.08E+00	pCi/L	7.14E+00	EPIA-013
Zirconium-95	UI			1.85E+00	pCi/L	6.93E+00	EPIA-013

SURVEY ID: HSP 00803

Sample ID: 114006

Survey location: 56990E 71005N (SRS coordinates)

Ground elevation above MSL: . ft

Sample type: Normal

Sample matrix: Water

Constituent	RQ	AQ	B	Result	Unit	ssMDL	Method
<i>Specified Analyses</i>							
Chloride		V		2040	µg/L	7	EPA300.0
Cyanide	UJ	I	L	10	µg/L	3.34	EPA335.3
Hardness as CaCO ₃				14000	µg/L	1000	EPA130.2
Nitrate as nitrogen		V		2030	µg/L	6	EPA300.0
Nitrate-nitrite as nitrogen				2430	µg/L	7	EPA353.1

SURVEY ID: HSP 00803 (cont.)

Sample ID: 114006

Constituent	RQ	AQ	B	Result	Unit	ssMDL	Method
<i>Metals (total recoverable)</i>							
Aluminum	J	I	L	3490	µg/L	37.6	EPA6010A
Antimony	U			10	µg/L	1.64	EPA6010A
Arsenic	U			5	µg/L	2.98	EPA6010A
Barium				14.1	µg/L	0.332	EPA6010A
Beryllium	U			5	µg/L	0.223	EPA6010A
Cadmium	U			5	µg/L	0.208	EPA6010A
Calcium		V		849	µg/L	15.4	EPA6010A
Chromium	J	E		1.9	µg/L	0.729	EPA6010A
Cobalt	U			5	µg/L	0.671	EPA6010A
Copper	U			5	µg/L	1.32	EPA6010A
Iron				1630	µg/L	8.63	EPA6010A
Lead	J	E		1.09	µg/L	0.678	EPA6010A
Magnesium		V		814	µg/L	3.33	EPA6010A
Manganese				71.3	µg/L	0.903	EPA6010A
Mercury	U			0.2	µg/L	0.104	EPA7470
Nickel	U			5	µg/L	2.27	EPA6010A
Potassium				169	µg/L	5.87	EPA6010A
Selenium	U			5	µg/L	1.4	EPA6010A
Silver	U			5	µg/L	0.62	EPA6010A
Sodium		V		13200	µg/L	29.1	EPA6010A
Thallium	U			10	µg/L	2.63	EPA6010A
Tin	U			10	µg/L	2.94	EPA6010A
Vanadium	J	E		4.59	µg/L	0.427	EPA6010A
Zinc	U	V		3.53	µg/L	0.966	EPA6010A

Radionuclides

Actinium-228	UI		6.85E+00	pCi/L	1.43E+01	EPIA-013
Americium-241	UI		4.34E-02	pCi/L	1.20E-01	EPIA-011
Antimony-124	UI		1.04E+00	pCi/L	4.80E+00	EPIA-013
Antimony-125	UI		9.35E-01	pCi/L	1.05E+01	EPIA-013
Barium-133	UI		2.21E-01	pCi/L	4.78E+00	EPIA-013
Cerium-144	UI		4.20E-02	pCi/L	2.11E+01	EPIA-013
Cesium-134	UI		-3.67E-01	pCi/L	4.18E+00	EPIA-013
Cesium-137	UI		-2.21E-01	pCi/L	4.06E+00	EPIA-013
Cobalt-57	UI		-5.95E-01	pCi/L	2.61E+00	EPIA-013
Cobalt-58	UI		2.61E-01	pCi/L	4.10E+00	EPIA-013
Cobalt-60	UI		3.95E+00	pCi/L	4.90E+00	EPIA-013
Curium-242	UI		-6.46E-03	pCi/L	1.09E-01	EPIA-011
Curium-243/244	UI		3.54E-02	pCi/L	1.32E-01	EPIA-011
Curium-245/246	UI		0.00E+00	pCi/L	3.06E-02	EPIA-011
Europium-152	UI		-3.38E+00	pCi/L	9.80E+00	EPIA-013
Europium-154	UI		-2.08E+00	pCi/L	1.23E+01	EPIA-013
Europium-155	UI		3.36E+00	pCi/L	1.14E+01	EPIA-013
Gross alpha			2.14E+01	pCi/L	4.69E+00	EPIA-001
Lead-212	UI		5.21E+00	pCi/L	6.23E+00	EPIA-013
Manganese-54	UI		3.84E-01	pCi/L	3.88E+00	EPIA-013
Neptunium-237			1.21E-01	pCi/L	7.30E-02	EPIA-032
Neptunium-239	UI		2.84E+00	pCi/L	1.87E+01	EPIA-013
Nonvolatile beta			3.77E+01	pCi/L	4.81E+00	EPIA-001
Potassium-40	UI		5.77E-01	pCi/L	4.42E+01	EPIA-013
Promethium-144	UI		-8.83E-01	pCi/L	3.64E+00	EPIA-013
Promethium-146	UI		-1.68E+00	pCi/L	4.69E+00	EPIA-013
Radium-226			6.80E-01	pCi/L	5.01E-01	EPIA-008

SURVEY ID: HSP 00803 (cont.)

Sample ID: 114006

Constituent	RQ	AQ	B	Result	Unit	ssMDL	Method
<i>Radionuclides</i>							
Ruthenium-106	UI			-1.35E+01	pCi/L	3.50E+01	EPIA-013
Sodium-22	UI			-7.17E-01	pCi/L	4.42E+00	EPIA-013
Tin-113	UI			2.76E+00	pCi/L	5.30E+00	EPIA-013
Tritium				8.90E+01	pCi/mL	6.06E-01	EPA906.0
Uranium-233/234				2.18E-01	pCi/L	7.28E-02	EPIA-011
Uranium-235	UI			1.85E-02	pCi/L	1.28E-01	EPIA-011
Uranium-238				1.70E-01	pCi/L	7.28E-02	EPIA-011
Yttrium-88	UI			2.48E-01	pCi/L	5.91E+00	EPIA-013
Zinc-65	UI			-1.49E+00	pCi/L	7.85E+00	EPIA-013
Zirconium-95	UI			-8.69E-01	pCi/L	7.82E+00	EPIA-013

SURVEY ID: HSP 00803A

Sample ID: 114007

Sample type: Duplicate

Associated sample: 114006

Constituent	RQ	AQ	B	Result	Unit	ssMDL	Method
<i>Specified Analyses</i>							
Chloride		V		2110	µg/L	7	EPA300.0
Cyanide	UJ	I	L	10	µg/L	3.34	EPA335.3
Cyanide	UJ	I	L	10	µg/L	3.34	EPA335.3
Hardness as CaCO ₃				15000	µg/L	1000	EPA130.2
Hardness as CaCO ₃				17000	µg/L	1000	EPA130.2
Nitrate as nitrogen			V	2090	µg/L	6	EPA300.0
Nitrate-nitrite as nitrogen				2790	µg/L	7	EPA353.1
<i>Metals (total recoverable)</i>							
Aluminum	J	I	L	3400	µg/L	37.6	EPA6010A
Antimony	U			10	µg/L	1.64	EPA6010A
Arsenic	U			5	µg/L	2.98	EPA6010A
Barium				13	µg/L	0.332	EPA6010A
Beryllium	U			5	µg/L	0.223	EPA6010A
Cadmium	U			5	µg/L	0.208	EPA6010A
Calcium			V	849	µg/L	15.4	EPA6010A
Chromium	J		E	1.52	µg/L	0.729	EPA6010A
Cobalt	U			5	µg/L	0.671	EPA6010A
Copper	U			5	µg/L	1.32	EPA6010A
Iron				1420	µg/L	8.63	EPA6010A
Lead	U			5	µg/L	0.678	EPA6010A
Magnesium			V	805	µg/L	3.33	EPA6010A
Manganese				70.5	µg/L	0.903	EPA6010A
Mercury	U			0.2	µg/L	0.104	EPA7470
Nickel	U			5	µg/L	2.27	EPA6010A
Potassium				151	µg/L	5.87	EPA6010A
Selenium	U			5	µg/L	1.4	EPA6010A
Silver	U			5	µg/L	0.62	EPA6010A
Sodium			V	13300	µg/L	29.1	EPA6010A
Thallium	U			10	µg/L	2.63	EPA6010A
Tin	U			10	µg/L	2.94	EPA6010A
Vanadium	J		E	4.22	µg/L	0.427	EPA6010A
Zinc	U		V	2.01	µg/L	0.966	EPA6010A

SURVEY ID: HSP 00803A (cont.)

Sample ID: 114007

Constituent	RQ	AQ	B	Result	Unit	ssMDL	Method
<i>Radionuclides</i>							
Actinium-228	UI			2.37E-01	pCi/L	2.05E+01	EPIA-013
Antimony-124	UI			-1.58E+00	pCi/L	5.27E+00	EPIA-013
Antimony-125	UI			5.09E+00	pCi/L	1.25E+01	EPIA-013
Barium-133	UI			-3.47E+00	pCi/L	5.19E+00	EPIA-013
Cerium-144	UI			-4.93E-01	pCi/L	2.53E+01	EPIA-013
Cesium-134	UI			-4.78E-01	pCi/L	4.41E+00	EPIA-013
Cesium-137	UI			5.25E-01	pCi/L	4.75E+00	EPIA-013
Cobalt-57	UI			-1.73E+00	pCi/L	2.98E+00	EPIA-013
Cobalt-58	UI			6.14E-02	pCi/L	4.64E+00	EPIA-013
Cobalt-60	UI			-1.96E+00	pCi/L	4.56E+00	EPIA-013
Europium-152	UI			8.02E-01	pCi/L	1.23E+01	EPIA-013
Europium-154	UI			1.58E+00	pCi/L	1.39E+01	EPIA-013
Europium-155	UI			2.36E-02	pCi/L	1.37E+01	EPIA-013
Gross alpha				6.64E+00	pCi/L	5.60E-01	EPIA-001
Lead-212	R	4		1.48E+01	pCi/L	9.00E+00	EPIA-013
Manganese-54	UI			-3.08E-01	pCi/L	4.35E+00	EPIA-013
Neptunium-239	UI			-2.05E+00	pCi/L	2.36E+01	EPIA-013
Nonvolatile beta				6.45E+00	pCi/L	8.36E-01	EPIA-001
Potassium-40	UI			2.49E+01	pCi/L	4.87E+01	EPIA-013
Promethium-144	UI			-1.65E+00	pCi/L	4.34E+00	EPIA-013
Promethium-146	UI			3.99E-02	pCi/L	5.51E+00	EPIA-013
Ruthenium-106	UI			8.75E+00	pCi/L	3.97E+01	EPIA-013
Sodium-22	UI			5.80E-01	pCi/L	4.99E+00	EPIA-013
Tin-113	UI			-4.21E+00	pCi/L	5.47E+00	EPIA-013
Tritium				9.36E+01	pCi/mL	5.97E-01	EPA906.0
Yttrium-88	UI			1.99E+00	pCi/L	5.86E+00	EPIA-013
Zinc-65	UI			-1.14E+00	pCi/L	9.94E+00	EPIA-013
Zirconium-95	UI			-7.48E-01	pCi/L	8.49E+00	EPIA-013

SURVEY ID: HSP 02903

Sample ID: 114014

Survey location: 56257E 71278N (SRS coordinates)

Ground elevation above MSL: . ft

Sample type: Normal

Sample matrix: Water

Constituent	RQ	AQ	B	Result	Unit	ssMDL	Method
<i>Specified Analyses</i>							
Chloride		V		1380	µg/L	7	EPA300.0
Cyanide	UJ	I	L	10	µg/L	3.34	EPA335.3
Hardness as CaCO ₃				8000	µg/L	1000	EPA130.2
Hardness as CaCO ₃				9600	µg/L	1000	EPA130.2
Nitrate as nitrogen		V		994	µg/L	6	EPA300.0
Nitrate-nitrite as nitrogen				1010	µg/L	7	EPA353.1
<i>Metals (total recoverable)</i>							
Aluminum		V		10000	µg/L	37.6	EPA6010A
Antimony	U			10	µg/L	1.64	EPA6010A
Arsenic	U			5	µg/L	2.98	EPA6010A
Barium				216	µg/L	0.332	EPA6010A
Beryllium	J	E		1.78	µg/L	0.223	EPA6010A

SURVEY ID: HSP 02903 (cont.)

Sample ID: 114014

Constituent	RQ	AQ	B	Result	Unit	ssMDL	Method
<i>Metals (total recoverable)</i>							
Cadmium	J	E		2.13	µg/L	0.208	EPA6010A
Calcium				2230	µg/L	15.4	EPA6010A
Chromium	J	E		4.69	µg/L	0.729	EPA6010A
Cobalt				20.7	µg/L	0.671	EPA6010A
Copper	J	E		2.75	µg/L	1.32	EPA6010A
Iron				2580	µg/L	8.63	EPA6010A
Lead			V	18.7	µg/L	0.678	EPA6010A
Magnesium				1100	µg/L	3.33	EPA6010A
Manganese			V	1140	µg/L	0.903	EPA6010A
Mercury	U			0.2	µg/L	0.104	EPA7470
Nickel				17.8	µg/L	2.27	EPA6010A
Potassium			V	457	µg/L	5.87	EPA6010A
Selenium	U			5	µg/L	1.4	EPA6010A
Silver	U	V		3.25	µg/L	0.62	EPA6010A
Sodium		V		4490	µg/L	29.1	EPA6010A
Thallium	U			10	µg/L	2.63	EPA6010A
Tin	U			10	µg/L	2.94	EPA6010A
Vanadium				9.07	µg/L	0.427	EPA6010A
Zinc			V	27.8	µg/L	0.966	EPA6010A
<i>Radionuclides</i>							
Actinium-228	UI			1.23E+01	pCi/L	1.94E+01	EPIA-013
Actinium-228	UI			1.28E+00	pCi/L	2.22E+01	EPIA-013
Americium-241	UI			4.46E-02	pCi/L	6.54E-02	EPIA-011
Antimony-124	UI			7.08E-01	pCi/L	5.07E+00	EPIA-013
Antimony-124	UI			1.80E+00	pCi/L	5.90E+00	EPIA-013
Antimony-125	UI			-1.70E+00	pCi/L	1.13E+01	EPIA-013
Antimony-125	UI			1.34E+00	pCi/L	1.31E+01	EPIA-013
Barium-133	UI			2.17E+00	pCi/L	5.55E+00	EPIA-013
Barium-133	UI			-2.50E+00	pCi/L	5.62E+00	EPIA-013
Cerium-144	UI			7.11E+00	pCi/L	2.91E+01	EPIA-013
Cerium-144	UI			2.32E+00	pCi/L	2.66E+01	EPIA-013
Cesium-134	UI			-2.07E+00	pCi/L	4.15E+00	EPIA-013
Cesium-134	UI			-6.23E-02	pCi/L	4.66E+00	EPIA-013
Cesium-137	UI			-6.96E-01	pCi/L	4.70E+00	EPIA-013
Cesium-137	UI			3.57E-02	pCi/L	5.26E+00	EPIA-013
Cobalt-57	UI			-6.84E-01	pCi/L	3.44E+00	EPIA-013
Cobalt-57	UI			-5.86E-01	pCi/L	3.29E+00	EPIA-013
Cobalt-58	UI			1.75E+00	pCi/L	4.94E+00	EPIA-013
Cobalt-58	UI			-1.50E+00	pCi/L	5.47E+00	EPIA-013
Cobalt-60				3.83E+01	pCi/L	5.35E+00	EPIA-013
Cobalt-60				3.64E+01	pCi/L	4.65E+00	EPIA-013
Curium-242	UI			0.00E+00	pCi/L	3.79E-02	EPIA-011
Curium-243/244	UI			3.64E-02	pCi/L	6.56E-02	EPIA-011
Curium-245/246	UI			2.07E-02	pCi/L	3.11E-02	EPIA-011
Europium-152	UI			-1.42E+00	pCi/L	1.23E+01	EPIA-013
Europium-152	UI			2.04E-01	pCi/L	1.28E+01	EPIA-013
Europium-154	UI			-5.01E+00	pCi/L	1.21E+01	EPIA-013
Europium-154	UI			-2.64E+00	pCi/L	1.32E+01	EPIA-013
Europium-155	UI			5.90E+00	pCi/L	1.50E+01	EPIA-013
Europium-155	UI			3.53E+00	pCi/L	1.45E+01	EPIA-013
Gross alpha				4.23E+01	pCi/L	5.62E-01	EPIA-001
Iodine-129	UIJ	C		1.31E+00	pCi/L	9.10E-01	EPIA-006

SURVEY ID: HSP 02903 (cont.)

Sample ID: 114014

Constituent	RQ	AQ	B	Result	Unit	ssMDL	Method
<i>Radionuclides</i>							
Iodine-129	UI	J	C	1.54E+00	pCi/L	7.59E-01	EPIA-006
Lead-212	UI			5.42E+00	pCi/L	9.10E+00	EPIA-013
Lead-212	UI			3.75E+00	pCi/L	8.71E+00	EPIA-013
Manganese-54	UI			-5.93E-01	pCi/L	4.80E+00	EPIA-013
Manganese-54	UI			2.44E-01	pCi/L	5.47E+00	EPIA-013
Neptunium-237				3.22E-01	pCi/L	1.28E-01	EPIA-032
Neptunium-239	UI			-6.40E+00	pCi/L	2.66E+01	EPIA-013
Neptunium-239	UI			-1.71E+01	pCi/L	2.33E+01	EPIA-013
Nickel-63	UI			4.07E+01	pCi/L	2.49E+02	EPIA-022
Nickel-63	UI			1.96E+02	pCi/L	2.55E+02	EPIA-022
Nonvolatile beta				3.32E+02	pCi/L	9.36E-01	EPIA-001
Potassium-40	UI			4.66E+01	pCi/L	4.64E+01	EPIA-013
Potassium-40	UI			4.53E+01	pCi/L	6.88E+01	EPIA-013
Promethium-144	UI			1.03E+00	pCi/L	4.75E+00	EPIA-013
Promethium-144	UI			2.07E+00	pCi/L	4.93E+00	EPIA-013
Promethium-146	UI			4.30E-01	pCi/L	5.63E+00	EPIA-013
Promethium-146	UI			-1.73E+00	pCi/L	5.67E+00	EPIA-013
Radium-226				7.91E+00	pCi/L	7.07E-01	EPIA-008
Radium-226				7.29E+00	pCi/L	5.48E-01	EPIA-008
Radium-228	UI			4.50E-02	pCi/L	7.11E-01	EPIA-009
Radium-228	UI			-2.06E-01	pCi/L	7.83E-01	EPIA-009
Ruthenium-106	UI			-1.52E+01	pCi/L	3.66E+01	EPIA-013
Ruthenium-106	UI			7.08E+00	pCi/L	4.53E+01	EPIA-013
Sodium-22	UI			-8.02E-01	pCi/L	4.32E+00	EPIA-013
Sodium-22	UI			-9.55E-01	pCi/L	4.75E+00	EPIA-013
Tin-113	UI			-2.99E+00	pCi/L	5.17E+00	EPIA-013
Tin-113	UI			2.06E+00	pCi/L	6.61E+00	EPIA-013
Tritium				2.66E+01	pCi/mL	5.88E-01	EPA906.0
Uranium-233/234				5.34E-01	pCi/L	2.37E-01	EPIA-011
Uranium-235	UI			1.97E-01	pCi/L	2.18E-01	EPIA-011
Uranium-238	UI			4.01E-02	pCi/L	2.18E-01	EPIA-011
Yttrium-88	UI			-1.71E+00	pCi/L	4.74E+00	EPIA-013
Yttrium-88	UI			3.17E-01	pCi/L	6.60E+00	EPIA-013
Zinc-65	UI			-2.10E+00	pCi/L	1.10E+01	EPIA-013
Zinc-65	UI			-3.92E+00	pCi/L	1.11E+01	EPIA-013
Zirconium-95	UI			3.43E+00	pCi/L	8.73E+00	EPIA-013
Zirconium-95	UI			-3.87E+00	pCi/L	9.79E+00	EPIA-013

SURVEY ID: HSP 04303

Sample ID: 114015

Survey location: 55722E 71644N (SRS coordinates)

Ground elevation above MSL: . ft

Sample type: Normal

Sample matrix: Water

Constituent	RQ	AQ	B	Result	Unit	ssMDL	Method
<i>Specified Analyses</i>							
Chloride		V		1610	µg/L	7	EPA300.0
Cyanide	UI	I	L	10	µg/L	3.34	EPA335.3
Hardness as CaCO ₃				8000	µg/L	1000	EPA130.2
Nitrate as nitrogen		V		2700	µg/L	6	EPA300.0

SURVEY ID: HSP 04303 (cont.)

Sample ID: 114015

Constituent	RQ	AQ	B	Result	Unit	ssMDL	Method
<i>Specified Analyses</i>							
Nitrate-nitrite as nitrogen				2480	µg/L	7	EPA353.1
<i>Metals (total recoverable)</i>							
Aluminum			V	469	µg/L	37.6	EPA6010A
Antimony	U			10	µg/L	1.64	EPA6010A
Arsenic	U			5	µg/L	2.98	EPA6010A
Barium				18.7	µg/L	0.332	EPA6010A
Beryllium	U			5	µg/L	0.223	EPA6010A
Cadmium	U			5	µg/L	0.208	EPA6010A
Calcium				1080	µg/L	15.4	EPA6010A
Chromium	U			5	µg/L	0.729	EPA6010A
Cobalt	U			5	µg/L	0.671	EPA6010A
Copper	U			5	µg/L	1.32	EPA6010A
Iron				429	µg/L	8.63	EPA6010A
Lead	U			5	µg/L	0.678	EPA6010A
Magnesium				778	µg/L	3.33	EPA6010A
Manganese			V	19.4	µg/L	0.903	EPA6010A
Mercury	U			0.2	µg/L	0.104	EPA7470
Nickel	U			5	µg/L	2.27	EPA6010A
Potassium			V	766	µg/L	5.87	EPA6010A
Selenium	U			5	µg/L	1.4	EPA6010A
Silver	U		V	3.15	µg/L	0.62	EPA6010A
Sodium			V	16100	µg/L	29.1	EPA6010A
Thallium	U			10	µg/L	2.63	EPA6010A
Tin	U			10	µg/L	2.94	EPA6010A
Vanadium	J	E		1.46	µg/L	0.427	EPA6010A
Zinc	U		V	1.45	µg/L	0.966	EPA6010A
<i>Radionuclides</i>							
Actinium-228	UI			9.18E+00	pCi/L	1.77E+01	EPIA-013
Antimony-124	UI			2.82E+00	pCi/L	4.95E+00	EPIA-013
Antimony-125	UI			-2.33E+00	pCi/L	1.02E+01	EPIA-013
Barium-133	UI			6.41E-01	pCi/L	4.79E+00	EPIA-013
Cerium-144	UI			7.75E+00	pCi/L	2.22E+01	EPIA-013
Cesium-134	UI			2.43E+00	pCi/L	3.91E+00	EPIA-013
Cesium-137	UI			3.13E-01	pCi/L	4.07E+00	EPIA-013
Cobalt-57	UI			-1.34E-01	pCi/L	2.65E+00	EPIA-013
Cobalt-58	UI			-6.19E-01	pCi/L	3.90E+00	EPIA-013
Cobalt-60	UI			3.88E-02	pCi/L	4.32E+00	EPIA-013
Europium-152	UI			1.85E-01	pCi/L	1.07E+01	EPIA-013
Europium-154	UI			-1.21E+00	pCi/L	1.22E+01	EPIA-013
Europium-155	UI			-4.01E-01	pCi/L	1.12E+01	EPIA-013
Gross alpha				2.61E+00	pCi/L	8.11E-01	EPIA-001
Iodine-129	J	C		8.71E+00	pCi/L	6.30E-01	EPIA-006
Lead-212	UI			3.46E+00	pCi/L	7.89E+00	EPIA-013
Manganese-54	UI			-2.13E-01	pCi/L	4.03E+00	EPIA-013
Neptunium-239	UI			-1.33E+01	pCi/L	1.97E+01	EPIA-013
Nickel-63	UI			-2.82E+01	pCi/L	2.33E+02	EPIA-022
Nonvolatile beta				2.33E+02	pCi/L	1.25E+00	EPIA-001
Potassium-40	UI			2.74E+01	pCi/L	5.90E+01	EPIA-013
Promethium-144	UI			1.09E+00	pCi/L	4.28E+00	EPIA-013
Promethium-146	UI			-4.72E-01	pCi/L	4.98E+00	EPIA-013

SURVEY ID: HSP 04303 (cont.)

Sample ID: 114015

Constituent	RQ	AQ	B	Result	Unit	ssMDL	Method
<i>Radionuclides</i>							
Radium-228	UI			2.34E-01	pCi/L	6.74E-01	EPIA-009
Ruthenium-106	UI			-5.92E+00	pCi/L	3.54E+01	EPIA-013
Sodium-22	UI			-4.21E-01	pCi/L	4.37E+00	EPIA-013
Tin-113	UI			-1.26E+00	pCi/L	4.77E+00	EPIA-013
Tritium				1.72E+03	pCi/mL	3.07E+00	EPA906.0
Yttrium-88	UI			-1.77E+00	pCi/L	5.16E+00	EPIA-013
Zinc-65	UI			-1.97E+00	pCi/L	8.81E+00	EPIA-013
Zirconium-95	UI			-9.78E-01	pCi/L	7.88E+00	EPIA-013

SURVEY ID: HSP 06003

Sample ID: 114012

Survey location: 55190E 71629N (SRS coordinates)

Ground elevation above MSL: . ft

Sample type: Normal

Sample matrix: Water

Constituent	RQ	AQ	B	Result	Unit	ssMDL	Method
<i>Specified Analyses</i>							
Chloride		V		2030	µg/L	7	EPA300.0
Chloride		V		1920	µg/L	7	EPA300.0
Cyanide	UJ	I	L	10	µg/L	3.34	EPA335.3
Hardness as CaCO ₃				4000	µg/L	1000	EPA130.2
Nitrate as nitrogen		V		325	µg/L	6	EPA300.0
Nitrate as nitrogen		V		301	µg/L	6	EPA300.0
Nitrate-nitrite as nitrogen				560	µg/L	7	EPA353.1

Metals (total recoverable)

Aluminum		V		13100	µg/L	37.6	EPA6010A
Antimony	U			10	µg/L	1.64	EPA6010A
Arsenic	U			5	µg/L	2.98	EPA6010A
Barium				52	µg/L	0.332	EPA6010A
Beryllium	U			5	µg/L	0.223	EPA6010A
Cadmium	U			5	µg/L	0.208	EPA6010A
Calcium				697	µg/L	15.4	EPA6010A
Chromium				8.58	µg/L	0.729	EPA6010A
Cobalt	J	E		0.741	µg/L	0.671	EPA6010A
Copper	U			5	µg/L	1.32	EPA6010A
Iron				6990	µg/L	8.63	EPA6010A
Lead		V		6.81	µg/L	0.678	EPA6010A
Magnesium				445	µg/L	3.33	EPA6010A
Manganese		V		195	µg/L	0.903	EPA6010A
Mercury	U	V		0.111	µg/L	0.104	EPA7470
Nickel	J	E		3.54	µg/L	2.27	EPA6010A
Potassium		V		347	µg/L	5.87	EPA6010A
Selenium	U			5	µg/L	1.4	EPA6010A
Silver	U	V		2.96	µg/L	0.62	EPA6010A
Sodium		V		25400	µg/L	29.1	EPA6010A
Thallium	U			10	µg/L	2.63	EPA6010A
Tin	U			10	µg/L	2.94	EPA6010A
Vanadium				18.4	µg/L	0.427	EPA6010A
Zinc		V		15.9	µg/L	0.966	EPA6010A

SURVEY ID: HSP 06003 (cont.)

Sample ID: 114012

Constituent	RQ	AQ	B	Result	Unit	ssMDL	Method
<i>Radionuclides</i>							
Actinium-228	UI			9.35E+00	pCi/L	2.45E+01	EPIA-013
Antimony-124	UI			1.90E-01	pCi/L	6.15E+00	EPIA-013
Antimony-125	UI			2.07E+00	pCi/L	1.38E+01	EPIA-013
Barium-133	UI			-3.27E+00	pCi/L	6.42E+00	EPIA-013
Cerium-144	UI			7.33E+00	pCi/L	2.97E+01	EPIA-013
Cesium-134	UI			-1.89E+00	pCi/L	5.02E+00	EPIA-013
Cesium-137	UI			2.33E+00	pCi/L	6.20E+00	EPIA-013
Cobalt-57	UI			-8.42E-01	pCi/L	3.41E+00	EPIA-013
Cobalt-58	UI			3.38E-01	pCi/L	6.17E+00	EPIA-013
Cobalt-60	UI			2.09E+00	pCi/L	6.24E+00	EPIA-013
Europium-152	UI			1.84E+00	pCi/L	1.47E+01	EPIA-013
Europium-154	UI			-5.42E+00	pCi/L	1.65E+01	EPIA-013
Europium-155	UI			1.56E+00	pCi/L	1.49E+01	EPIA-013
Gross alpha				1.27E+01	pCi/L	1.71E+00	EPIA-001
Lead-212	UI			8.70E+00	pCi/L	9.59E+00	EPIA-013
Manganese-54	UI			6.70E-01	pCi/L	5.83E+00	EPIA-013
Neptunium-239	UI			-1.19E+00	pCi/L	2.67E+01	EPIA-013
Nonvolatile beta				3.61E+01	pCi/L	2.13E+00	EPIA-001
Potassium-40	UI			8.29E+01	pCi/L	8.45E+01	EPIA-013
Promethium-144	UI			-2.28E-01	pCi/L	5.34E+00	EPIA-013
Promethium-146	UI			-7.81E-01	pCi/L	6.19E+00	EPIA-013
Ruthenium-106	UI			5.64E+00	pCi/L	5.02E+01	EPIA-013
Sodium-22	UI			-1.92E+00	pCi/L	5.92E+00	EPIA-013
Tin-113	UI			-7.35E-01	pCi/L	6.34E+00	EPIA-013
Tritium				2.27E+02	pCi/mL	1.05E+00	EPA906.0
Yttrium-88	UI			4.73E-01	pCi/L	7.29E+00	EPIA-013
Zinc-65	UI			3.22E-01	pCi/L	1.15E+01	EPIA-013
Zirconium-95	UI			-2.41E+00	pCi/L	9.59E+00	EPIA-013

SURVEY ID: HSP 06003D

Sample ID: 114013

Sample type: Split

Associated sample: 114012

Constituent	RQ	AQ	B	Result	Unit	ssMDL	Method
<i>Specified Analyses</i>							
Chloride				2570	µg/L	21	EPA9056
Cyanide	U			30.4	µg/L	3.04	EPA9010A
Cyanide	U			30.4	µg/L	3.04	EPA9010A
Hardness as CaCO ₃				11000	µg/L	900	EPA130.2
Nitrate as nitrogen	J	Q		143	µg/L	2	EPA353.2
Nitrate-nitrite as nitrogen	J	E		31	µg/L	4	EPA353.2
<i>Metals (total recoverable)</i>							
Aluminum				8200	µg/L	14.6	EPA6010
Antimony	U			27	µg/L	2.7	EPA6010
Arsenic	U			40	µg/L	4	EPA6010
Barium			V	20.6	µg/L	0.18	EPA6010
Beryllium	U			1.6	µg/L	0.16	EPA6010
Cadmium	U			4.7	µg/L	0.47	EPA6010
Calcium				958	µg/L	47.1	EPA6010

SURVEY ID: HSP 06003D (cont.)

Sample ID: 114013

Constituent	RQ	AQ	B	Result	Unit	ssMDL	Method
<i>Metals (total recoverable)</i>							
Chromium	J	E		5.7	µg/L	0.7	EPA6010
Cobalt				144	µg/L	0.45	EPA6010
Copper				17.3	µg/L	1.5	EPA6010
Iron				4560	µg/L	7.4	EPA6010
Lead	J	E		5.3	µg/L	4.7	EPA6010
Magnesium			V	348	µg/L	7.4	EPA6010
Manganese				114	µg/L	0.78	EPA6010
Mercury	U			0.7	µg/L	0.07	EPA7470
Mercury	U			0.7	µg/L	0.07	EPA7470
Nickel				85.6	µg/L	2.6	EPA6010
Potassium				296	µg/L	18.7	EPA6010
Selenium	U			66	µg/L	6.6	EPA6010
Silver	U			5	µg/L	0.5	EPA6010
Sodium			V	17000	µg/L	28.5	EPA6010
Thallium	U			55	µg/L	5.5	EPA6010
Tin	U			70	µg/L	7	EPA6010
Vanadium				10.8	µg/L	0.69	EPA6010
Zinc	J	E		8.9	µg/L	5.3	EPA6010
<i>Radionuclides</i>							
Actinium-228	UI			3.20E+00	pCi/L	1.57E+01	EPA901.1MOD
Actinium-228	UI			-2.45E+00	pCi/L	1.51E+01	EPA901.1MOD
Antimony-124	UI			6.40E-01	pCi/L	5.40E+00	EPA901.1MOD
Antimony-124	UI			1.80E-01	pCi/L	5.10E+00	EPA901.1MOD
Antimony-125	UI			-7.40E-01	pCi/L	8.43E+00	EPA901.1MOD
Antimony-125	UI			-6.40E-01	pCi/L	9.14E+00	EPA901.1MOD
Barium-133	UI			2.50E-01	pCi/L	3.94E+00	EPA901.1MOD
Barium-133	UI			-5.00E-02	pCi/L	4.00E+00	EPA901.1MOD
Cerium-144	UI			7.80E-01	pCi/L	1.68E+01	EPA901.1MOD
Cerium-144	UI			3.10E-01	pCi/L	1.72E+01	EPA901.1MOD
Cesium-134	UI			-1.13E+00	pCi/L	3.94E+00	EPA901.1MOD
Cesium-134	UI			9.40E-01	pCi/L	3.73E+00	EPA901.1MOD
Cesium-137	UI			1.88E+00	pCi/L	4.08E+00	EPA901.1MOD
Cesium-137	UI			-5.60E-01	pCi/L	4.06E+00	EPA901.1MOD
Cobalt-57	UI			7.60E-01	pCi/L	2.14E+00	EPA901.1MOD
Cobalt-57	UI			1.10E-01	pCi/L	2.03E+00	EPA901.1MOD
Cobalt-58	UI			-1.03E+00	pCi/L	4.63E+00	EPA901.1MOD
Cobalt-58	UI			-2.50E-01	pCi/L	5.01E+00	EPA901.1MOD
Cobalt-60	UI			-1.03E+00	pCi/L	3.45E+00	EPA901.1MOD
Cobalt-60	UI			-2.20E-01	pCi/L	4.03E+00	EPA901.1MOD
Europium-152	UI			-6.01E+00	pCi/L	2.15E+01	EPA901.1MOD
Europium-152	UI			2.21E+01	pCi/L	3.56E+01	EPA901.1MOD
Europium-154	UI			2.29E+00	pCi/L	1.40E+01	EPA901.1MOD
Europium-154	UI			-1.55E+00	pCi/L	1.21E+01	EPA901.1MOD
Europium-155	UI			7.10E-01	pCi/L	5.71E+00	EPA901.1MOD
Europium-155	UI			1.64E+00	pCi/L	5.79E+00	EPA901.1MOD
Gross alpha				5.61E+00	pCi/L	1.33E+00	EPA900.0MOD
Gross alpha				7.93E+00	pCi/L	1.51E+00	EPA900.0MOD
Lead-212	UI			-3.80E-01	pCi/L	5.11E+00	EPA901.1MOD
Lead-212	R	4		1.72E+00	pCi/L	4.72E+00	EPA901.1MOD
Manganese-54	UI			-3.60E-01	pCi/L	4.41E+00	EPA901.1MOD
Manganese-54	UI			-1.80E-01	pCi/L	4.08E+00	EPA901.1MOD
Nonvolatile beta	J	X		2.67E+01	pCi/L	1.88E+00	EPA900.0MOD

SURVEY ID: HSP 06003D (cont.)

Sample ID: 114013

Constituent	RQ	AQ	B	Result	Unit	ssMDL	Method
<i>Radionuclides</i>							
Nonvolatile beta	J	X		3.48E+01	pCi/L	1.92E+00	EPA900.0MOD
Potassium-40	UI			-1.63E+01	pCi/L	3.94E+01	EPA901.1MOD
Potassium-40	R	4		7.22E+00	pCi/L	3.44E+01	EPA901.1MOD
Promethium-144	J	X		1.91E+01	pCi/L	3.83E+00	EPA901.1MOD
Promethium-144	UIJ	X		1.14E+00	pCi/L	4.17E+00	EPA901.1MOD
Promethium-146	UI			-5.00E-01	pCi/L	6.28E+00	EPA901.1MOD
Promethium-146	UI			-2.13E+00	pCi/L	6.50E+00	EPA901.1MOD
Ruthenium-106	UI			-2.54E+00	pCi/L	3.49E+01	EPA901.1MOD
Ruthenium-106	UI			-7.29E+00	pCi/L	3.29E+01	EPA901.1MOD
Sodium-22	UI			8.60E-01	pCi/L	5.08E+00	EPA901.1MOD
Sodium-22	UI			-5.40E-01	pCi/L	4.38E+00	EPA901.1MOD
Tin-113	UI			-1.03E+00	pCi/L	4.55E+00	EPA901.1MOD
Tin-113	UI			1.69E+00	pCi/L	4.90E+00	EPA901.1MOD
Tritium				3.29E+02	pCi/mL	5.80E-01	EPA906.0MOD
Tritium				3.82E+02	pCi/mL	6.80E-01	EPA906.0MOD
Yttrium-88	UI			-1.35E+00	pCi/L	4.75E+00	EPA901.1MOD
Yttrium-88	UI			0.00E+00	pCi/L	4.72E+00	EPA901.1MOD
Zinc-65	UI			-3.22E+00	pCi/L	7.45E+00	EPA901.1MOD
Zinc-65	UI			-9.00E-02	pCi/L	8.18E+00	EPA901.1MOD
Zirconium-95	UI			2.53E+00	pCi/L	1.01E+01	EPA901.1MOD
Zirconium-95	UI			1.93E+00	pCi/L	8.72E+00	EPA901.1MOD

SURVEY ID: HSP 09203

Sample ID: 114011

Survey location: 54129E 72672N (SRS coordinates)

Ground elevation above MSL: . ft

Sample type: Normal

Sample matrix: Water

Constituent	RQ	AQ	B	Result	Unit	ssMDL	Method
<i>Specified Analyses</i>							
Chloride		V		1980	µg/L	7	EPA300.0
Cyanide	UJ	I	L	10	µg/L	3.34	EPA335.3
Hardness as CaCO ₃				8000	µg/L	1000	EPA130.2
Nitrate as nitrogen		V		1190	µg/L	6	EPA300.0
Nitrate-nitrite as nitrogen				1180	µg/L	7	EPA353.1
Nitrate-nitrite as nitrogen				1170	µg/L	7	EPA353.1
<i>Metals (total recoverable)</i>							
Aluminum		V		3330	µg/L	37.6	EPA6010A
Antimony	U			10	µg/L	1.64	EPA6010A
Arsenic	U			5	µg/L	2.98	EPA6010A
Barium				51.1	µg/L	0.332	EPA6010A
Beryllium	U			5	µg/L	0.223	EPA6010A
Cadmium	U			5	µg/L	0.208	EPA6010A
Calcium				584	µg/L	15.4	EPA6010A
Chromium	J	E		1.92	µg/L	0.729	EPA6010A
Cobalt	U			5	µg/L	0.671	EPA6010A
Copper	U			5	µg/L	1.32	EPA6010A
Iron				1330	µg/L	8.63	EPA6010A
Lead	U	V		3.18	µg/L	0.678	EPA6010A

SURVEY ID: HSP 09203 (cont.)

Sample ID: 114011

Constituent	RQ	AQ	B	Result	Unit	ssMDL	Method
<i>Metals (total recoverable)</i>							
Magnesium				773	µg/L	3.33	EPA6010A
Manganese		V		111	µg/L	0.903	EPA6010A
Mercury	U			0.2	µg/L	0.104	EPA7470
Nickel	J	E		4	µg/L	2.27	EPA6010A
Potassium		V		164	µg/L	5.87	EPA6010A
Selenium	U			5	µg/L	1.4	EPA6010A
Silver	U	V		2.83	µg/L	0.62	EPA6010A
Sodium		V		3750	µg/L	29.1	EPA6010A
Thallium	U			10	µg/L	2.63	EPA6010A
Tin	U			10	µg/L	2.94	EPA6010A
Vanadium	J	E		4.29	µg/L	0.427	EPA6010A
Zinc	U	V		4.65	µg/L	0.966	EPA6010A
<i>Radionuclides</i>							
Actinium-228	UI			1.79E+01	pCi/L	2.12E+01	EPIA-013
Americium-241		V		1.17E-01	pCi/L	9.05E-02	EPIA-011
Antimony-124	UI			5.53E-01	pCi/L	5.68E+00	EPIA-013
Antimony-125	UI			3.40E+00	pCi/L	1.27E+01	EPIA-013
Barium-133	UI			4.55E-01	pCi/L	5.52E+00	EPIA-013
Cerium-144	UI			1.38E+01	pCi/L	2.69E+01	EPIA-013
Cesium-134	UI			-1.75E-01	pCi/L	4.82E+00	EPIA-013
Cesium-137	UI			-4.69E-01	pCi/L	5.13E+00	EPIA-013
Cobalt-57	UI			2.20E-01	pCi/L	3.33E+00	EPIA-013
Cobalt-58	UI			-5.77E-01	pCi/L	5.11E+00	EPIA-013
Cobalt-60	UI			3.74E+00	pCi/L	5.64E+00	EPIA-013
Curium-242	UI			1.25E-02	pCi/L	9.71E-02	EPIA-011
Curium-243/244	UI			7.23E-02	pCi/L	1.51E-01	EPIA-011
Curium-245/246	UI			3.11E-02	pCi/L	3.11E-02	EPIA-011
Europium-152	UI			2.11E+00	pCi/L	1.33E+01	EPIA-013
Europium-154	UI			9.95E-01	pCi/L	1.39E+01	EPIA-013
Europium-155	UI			7.18E-01	pCi/L	1.43E+01	EPIA-013
Gross alpha				2.50E+01	pCi/L	2.02E+00	EPIA-001
Lead-212	UI			8.42E+00	pCi/L	8.66E+00	EPIA-013
Manganese-54	UI			-8.15E-02	pCi/L	4.65E+00	EPIA-013
Neptunium-237	UI			6.50E-04	pCi/L	1.23E-01	EPIA-032
Neptunium-239	UI			-4.62E+00	pCi/L	2.46E+01	EPIA-013
Nonvolatile beta				1.62E+01	pCi/L	2.48E+00	EPIA-001
Potassium-40	UI			1.56E+01	pCi/L	4.79E+01	EPIA-013
Promethium-144	UI			-5.82E-02	pCi/L	4.54E+00	EPIA-013
Promethium-146	UI			4.12E-01	pCi/L	5.95E+00	EPIA-013
Radium-226				1.26E+00	pCi/L	4.04E-01	EPIA-008
Ruthenium-106	UI			-3.35E+00	pCi/L	4.30E+01	EPIA-013
Sodium-22	UI			3.69E-01	pCi/L	4.97E+00	EPIA-013
Tin-113	UI			3.95E+00	pCi/L	6.25E+00	EPIA-013
Tritium				1.66E+02	pCi/mL	8.47E-01	EPA906.0
Uranium-233/234				3.47E-01	pCi/L	1.04E-01	EPIA-011
Uranium-235	UI			6.97E-02	pCi/L	1.05E-01	EPIA-011
Uranium-238				2.08E-01	pCi/L	1.04E-01	EPIA-011
Yttrium-88	UI			2.07E+00	pCi/L	6.54E+00	EPIA-013
Zinc-65	UI			-1.11E+00	pCi/L	1.03E+01	EPIA-013
Zirconium-95	UI			8.68E+00	pCi/L	9.83E+00	EPIA-013

Table D.10 Blank Results Sorted by Sample

SURVEY ID: FSP FB02C

Sample ID: 114009

Sample type: Field Blank

Constituent	RQ	AQ	B	Result	Unit	ssMDL	Method
<i>Specified Analyses</i>							
Cyanide	UJ	I	L	10	µg/L	3.34	EPA335.3
Cyanide	UJ	I	L	10	µg/L	3.34	EPA335.3
<i>Metals (total recoverable)</i>							
Aluminum	J	E		42.4	µg/L	37.6	EPA6010A
Antimony	J	E		1.89	µg/L	1.64	EPA6010A
Arsenic	U			5	µg/L	2.98	EPA6010A
Barium	U			5	µg/L	0.332	EPA6010A
Beryllium	U			5	µg/L	0.223	EPA6010A
Cadmium	U			5	µg/L	0.208	EPA6010A
Calcium	U	V		16.6	µg/L	15.4	EPA6010A
Chromium	U			5	µg/L	0.729	EPA6010A
Cobalt	U			5	µg/L	0.671	EPA6010A
Copper	U			5	µg/L	1.32	EPA6010A
Iron	U			50	µg/L	8.63	EPA6010A
Lead	U			5	µg/L	0.678	EPA6010A
Magnesium	U			10	µg/L	3.33	EPA6010A
Manganese	U			10	µg/L	0.903	EPA6010A
Mercury	U			0.2	µg/L	0.104	EPA7470
Nickel	U			5	µg/L	2.27	EPA6010A
Potassium	U	V		17.2	µg/L	5.87	EPA6010A
Selenium	U			5	µg/L	1.4	EPA6010A
Silver	U	V		2.58	µg/L	0.62	EPA6010A
Sodium	U	V		41.4	µg/L	29.1	EPA6010A
Thallium	U			10	µg/L	2.63	EPA6010A
Tin	U			10	µg/L	2.94	EPA6010A
Vanadium	U			5	µg/L	0.427	EPA6010A
Zinc	U	V		2.49	µg/L	0.966	EPA6010A
<i>Radionuclides</i>							
Actinium-228	UI			1.18E+01	pCi/L	1.94E+01	EPIA-013
Antimony-124	UI			1.31E+00	pCi/L	5.42E+00	EPIA-013
Antimony-125	UI			-5.35E+00	pCi/L	1.02E+01	EPIA-013
Barium-133	UI			-3.10E+00	pCi/L	5.20E+00	EPIA-013
Cerium-144	UI			-7.78E+00	pCi/L	2.68E+01	EPIA-013
Cesium-134	UI			-9.63E-02	pCi/L	4.17E+00	EPIA-013
Cesium-137	UI			-1.03E+00	pCi/L	3.92E+00	EPIA-013
Cobalt-57	UI			-1.11E+00	pCi/L	3.33E+00	EPIA-013
Cobalt-58	UI			3.08E+00	pCi/L	5.50E+00	EPIA-013
Cobalt-60	UI			1.01E+00	pCi/L	5.04E+00	EPIA-013
Europium-152	UI			-2.69E+00	pCi/L	1.20E+01	EPIA-013
Europium-154	UI			4.21E+00	pCi/L	1.34E+01	EPIA-013
Europium-155	UI			5.79E+00	pCi/L	1.44E+01	EPIA-013
Gross alpha	UI			2.00E-01	pCi/L	4.22E-01	EPIA-001
Lead-212	UI			1.82E+00	pCi/L	8.77E+00	EPIA-013

SURVEY ID: FSP FB02C (cont.)

Sample ID: 114009

Constituent	RQ	AQ	B	Result	Unit	ssMDL	Method
<i>Radionuclides</i>							
Manganese-54	UI			2.26E+00	pCi/L	4.87E+00	EPIA-013
Neptunium-239	UI			-6.16E+00	pCi/L	2.38E+01	EPIA-013
Nonvolatile beta	UI			-2.19E-01	pCi/L	1.09E+00	EPIA-001
Potassium-40	UI			1.18E+01	pCi/L	4.09E+01	EPIA-013
Promethium-144	UI			2.45E+00	pCi/L	4.69E+00	EPIA-013
Promethium-146	UI			-1.03E+00	pCi/L	5.05E+00	EPIA-013
Ruthenium-106	UI			3.22E+01	pCi/L	3.63E+01	EPIA-013
Sodium-22	UI			1.51E+00	pCi/L	4.22E+00	EPIA-013
Tin-113	UI			4.48E+00	pCi/L	6.05E+00	EPIA-013
Yttrium-88	UI			-2.96E+00	pCi/L	5.29E+00	EPIA-013
Zinc-65	UI			8.16E-01	pCi/L	9.10E+00	EPIA-013
Zirconium-95	UI			5.53E+00	pCi/L	9.94E+00	EPIA-013

SURVEY ID: HSP FB02C

Sample ID: 114008

Sample type: Field Blank

Constituent	RQ	AQ	B	Result	Unit	ssMDL	Method
<i>Specified Analyses</i>							
Cyanide	UJ	I	L	10	µg/L	3.34	EPA335.3
<i>Metals (total recoverable)</i>							
Aluminum	J	E		43.2	µg/L	37.6	EPA6010A
Antimony	J	E		2.32	µg/L	1.64	EPA6010A
Arsenic	J	E		3.81	µg/L	2.98	EPA6010A
Barium	J	E		0.597	µg/L	0.332	EPA6010A
Beryllium	U			5	µg/L	0.223	EPA6010A
Cadmium	U			5	µg/L	0.208	EPA6010A
Calcium	U	V		17.6	µg/L	15.4	EPA6010A
Chromium	U			5	µg/L	0.729	EPA6010A
Cobalt	U			5	µg/L	0.671	EPA6010A
Copper	U			5	µg/L	1.32	EPA6010A
Iron	U			50	µg/L	8.63	EPA6010A
Lead	U	V		1.25	µg/L	0.678	EPA6010A
Magnesium	U			10	µg/L	3.33	EPA6010A
Manganese	U			10	µg/L	0.903	EPA6010A
Mercury	U			0.2	µg/L	0.104	EPA7470
Nickel	U			5	µg/L	2.27	EPA6010A
Potassium	U	V		12.8	µg/L	5.87	EPA6010A
Selenium	U			5	µg/L	1.4	EPA6010A
Silver	U	V		2.55	µg/L	0.62	EPA6010A
Sodium	U	V		37.8	µg/L	29.1	EPA6010A
Thallium	U			10	µg/L	2.63	EPA6010A
Tin	U			10	µg/L	2.94	EPA6010A
Vanadium	U			5	µg/L	0.427	EPA6010A
Zinc	U	V		2.43	µg/L	0.966	EPA6010A

SURVEY ID: HSP FB02C (cont.)

Sample ID: 114008

Constituent	RQ	AQ	B	Result	Unit	ssMDL	Method
<i>Radionuclides</i>							
Actinium-228	UI			2.67E+00	pCi/L	1.88E+01	EPIA-013
Antimony-124	UI			1.58E+00	pCi/L	5.44E+00	EPIA-013
Antimony-125	UI			-3.24E+00	pCi/L	1.06E+01	EPIA-013
Barium-133	UI			-1.50E+00	pCi/L	5.34E+00	EPIA-013
Cerium-144	UI			2.23E+01	pCi/L	2.86E+01	EPIA-013
Cesium-134	UI			-6.04E-01	pCi/L	4.13E+00	EPIA-013
Cesium-137	UI			-8.34E-01	pCi/L	4.03E+00	EPIA-013
Cobalt-57	UI			7.11E-03	pCi/L	3.59E+00	EPIA-013
Cobalt-58	UI			2.70E-01	pCi/L	4.94E+00	EPIA-013
Cobalt-60	UI			-2.80E-01	pCi/L	4.87E+00	EPIA-013
Europium-152	UI			1.91E+00	pCi/L	1.22E+01	EPIA-013
Europium-154	UI			-7.51E-01	pCi/L	1.17E+01	EPIA-013
Europium-155	UI			-7.24E-01	pCi/L	1.42E+01	EPIA-013
Gross alpha	UI			-7.22E-02	pCi/L	5.37E-01	EPIA-001
Lead-212	UI			5.83E+00	pCi/L	8.97E+00	EPIA-013
Manganese-54	UI			-1.69E+00	pCi/L	4.29E+00	EPIA-013
Neptunium-239	UI			3.33E+00	pCi/L	2.69E+01	EPIA-013
Nonvolatile beta	UI			5.81E-01	pCi/L	1.10E+00	EPIA-001
Potassium-40	UI			4.94E+01	pCi/L	6.52E+01	EPIA-013
Promethium-144	UI			1.48E+00	pCi/L	4.46E+00	EPIA-013
Promethium-146	UI			-4.82E-01	pCi/L	5.15E+00	EPIA-013
Ruthenium-106	UI			2.53E+00	pCi/L	3.77E+01	EPIA-013
Sodium-22	UI			-7.84E-01	pCi/L	4.21E+00	EPIA-013
Tin-113	UI			8.46E-01	pCi/L	5.49E+00	EPIA-013
Yttrium-88	UI			4.61E-01	pCi/L	6.02E+00	EPIA-013
Zinc-65	UI			-3.41E-01	pCi/L	9.31E+00	EPIA-013
Zirconium-95	UI			1.72E+00	pCi/L	8.60E+00	EPIA-013

D.4 Results Sorted by Analyte

Table D.11 Sample Results Sorted by Analyte

ANALYTE: Actinium-228

Analytical Group: Radionuclides

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003	UI		1.15E+01	pCi/L	1.84E+01	EPIA-013	
BG 00203	114004	UI		1.56E+01	pCi/L	2.05E+01	EPIA-013	
BG 00303	114005	UI		4.72E+00	pCi/L	1.94E+01	EPIA-013	
BG 00403	114010	UI		5.62E+00	pCi/L	3.05E+01	EPIA-013	
FMC001F03	114002	UI		7.86E+00	pCi/L	1.80E+01	EPIA-013	
FMC001H03	114000	R		2.44E+01	pCi/L	2.04E+01	EPIA-013	4
FMC002H03	114001	UI		2.49E+01	pCi/L	2.57E+01	EPIA-013	
FSP 01203	114019	UI		5.14E+00	pCi/L	1.49E+01	EPIA-013	
FSP 03203	114021	UI		7.86E+00	pCi/L	1.61E+01	EPIA-013	
FSP 03203	114021	R		2.66E+01	pCi/L	1.59E+01	EPIA-013	4
FSP 03203D	114022	UI		-1.10E+00	pCi/L	1.19E+01	EPA901.1MOD	
FSP 04703	114020	UI		6.59E+00	pCi/L	1.43E+01	EPIA-013	
FSP 20403	114018	UI		1.46E+01	pCi/L	1.67E+01	EPIA-013	
FSP 29003	114016	UI		7.43E-01	pCi/L	1.14E+01	EPIA-013	
FSP 29003A	114017	UI		8.20E+00	pCi/L	1.51E+01	EPIA-013	
HSP 00803	114006	UI		6.85E+00	pCi/L	1.43E+01	EPIA-013	
HSP 00803A	114007	UI		2.37E-01	pCi/L	2.05E+01	EPIA-013	
HSP 02903	114014	UI		1.23E+01	pCi/L	1.94E+01	EPIA-013	
HSP 02903	114014	UI		1.28E+00	pCi/L	2.22E+01	EPIA-013	
HSP 04303	114015	UI		9.18E+00	pCi/L	1.77E+01	EPIA-013	
HSP 06003	114012	UI		9.35E+00	pCi/L	2.45E+01	EPIA-013	
HSP 06003D	114013	UI		3.20E+00	pCi/L	1.57E+01	EPA901.1MOD	
HSP 06003D	114013	UI		-2.45E+00	pCi/L	1.51E+01	EPA901.1MOD	
HSP 09203	114011	UI		1.79E+01	pCi/L	2.12E+01	EPIA-013	

ANALYTE: Aluminum

Analytical Group: Metals (total recoverable)

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003	J	L	209	µg/L	37.6	EPA6010A	I
BG 00203	114004	J	L	258	µg/L	37.6	EPA6010A	I
BG 00303	114005	J	L	174	µg/L	37.6	EPA6010A	I
BG 00403	114010			453	µg/L	37.6	EPA6010A	V
FMC001F03	114002			194	µg/L	37.6	EPA6010A	
FMC001H03	114000			187	µg/L	37.6	EPA6010A	
FMC002H03	114001			145	µg/L	37.6	EPA6010A	
FSP 01203	114019			672	µg/L	37.6	EPA6010A	
FSP 03203	114021			611	µg/L	37.6	EPA6010A	
FSP 03203D	114022			785	µg/L	14.6	EPA6010	
FSP 04703	114020			553	µg/L	37.6	EPA6010A	
FSP 20403	114018			8590	µg/L	75.2	EPA6010A	
FSP 29003	114016			391	µg/L	37.6	EPA6010A	
FSP 29003A	114017			380	µg/L	37.6	EPA6010A	
HSP 00803	114006	J	L	3490	µg/L	37.6	EPA6010A	I
HSP 00803A	114007	J	L	3400	µg/L	37.6	EPA6010A	I
HSP 02903	114014			10000	µg/L	37.6	EPA6010A	V
HSP 04303	114015			469	µg/L	37.6	EPA6010A	V
HSP 06003	114012			13100	µg/L	37.6	EPA6010A	V

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ANALYTE: Aluminum (cont.)

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
HSP 06003D	114013			8200	µg/L	14.6	EPA6010	
HSP 09203	114011			3330	µg/L	37.6	EPA6010A	V

 ANALYTE: Americium-241
 Analytical Group: Radionuclides

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00203	114004			7.81E-01	pCi/L	1.33E-01	EPIA-011	V
FSP 03203	114021	UI		6.55E-02	pCi/L	1.61E-01	EPIA-011	
FSP 03203	114021	UI		1.01E-01	pCi/L	1.68E-01	EPIA-011	
FSP 20403	114018			3.55E-01	pCi/L	1.83E-01	EPIA-011	
HSP 00803	114006	UI		4.34E-02	pCi/L	1.20E-01	EPIA-011	
HSP 02903	114014	UI		4.46E-02	pCi/L	6.54E-02	EPIA-011	
HSP 09203	114011			1.17E-01	pCi/L	9.05E-02	EPIA-011	V

 ANALYTE: Antimony
 Analytical Group: Metals (total recoverable)

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003	U		10	µg/L	1.64	EPA6010A	
BG 00203	114004	U		10	µg/L	1.64	EPA6010A	
BG 00303	114005	U		10	µg/L	1.64	EPA6010A	
BG 00403	114010	U		10	µg/L	1.64	EPA6010A	
FMC001F03	114002	U		10	µg/L	1.64	EPA6010A	
FMC001H03	114000	U		10	µg/L	1.64	EPA6010A	
FMC002H03	114001	U		10	µg/L	1.64	EPA6010A	
FSP 01203	114019	U		10	µg/L	1.64	EPA6010A	
FSP 03203	114021	U		10	µg/L	1.64	EPA6010A	
FSP 03203D	114022	U		27	µg/L	2.7	EPA6010	
FSP 04703	114020	U		10	µg/L	1.64	EPA6010A	
FSP 20403	114018	U		20	µg/L	3.28	EPA6010A	
FSP 29003	114016	U		10	µg/L	1.64	EPA6010A	
FSP 29003A	114017	U		10	µg/L	1.64	EPA6010A	
HSP 00803	114006	U		10	µg/L	1.64	EPA6010A	
HSP 00803A	114007	U		10	µg/L	1.64	EPA6010A	
HSP 02903	114014	U		10	µg/L	1.64	EPA6010A	
HSP 04303	114015	U		10	µg/L	1.64	EPA6010A	
HSP 06003	114012	U		10	µg/L	1.64	EPA6010A	
HSP 06003D	114013	U		27	µg/L	2.7	EPA6010	
HSP 09203	114011	U		10	µg/L	1.64	EPA6010A	

 ANALYTE: Antimony-124
 Analytical Group: Radionuclides

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003	UI		-3.38E-01	pCi/L	5.18E+00	EPIA-013	
BG 00203	114004	UI		6.98E-01	pCi/L	5.50E+00	EPIA-013	
BG 00303	114005	UI		-8.55E-01	pCi/L	5.17E+00	EPIA-013	
BG 00403	114010	UI		-2.10E+00	pCi/L	7.68E+00	EPIA-013	

ANALYTE: Antimony-124 (cont.)

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FMC001F03	114002	UI		1.99E-01	pCi/L	4.70E+00	EPIA-013	
FMC001H03	114000	UI		5.72E-01	pCi/L	5.18E+00	EPIA-013	
FMC002H03	114001	UI		1.77E-01	pCi/L	6.11E+00	EPIA-013	
FSP 01203	114019	UI		-6.74E-01	pCi/L	3.68E+00	EPIA-013	
FSP 03203	114021	UI		-9.26E-01	pCi/L	3.83E+00	EPIA-013	
FSP 03203	114021	UI		1.14E+00	pCi/L	3.97E+00	EPIA-013	
FSP 03203D	114022	UI		-2.61E+00	pCi/L	4.04E+00	EPA901.1MOD	
FSP 04703	114020	UI		-4.65E-01	pCi/L	3.72E+00	EPIA-013	
FSP 20403	114018	UI		1.23E+00	pCi/L	4.07E+00	EPIA-013	
FSP 29003	114016	UI		-2.08E+00	pCi/L	3.42E+00	EPIA-013	
FSP 29003A	114017	UI		3.36E-01	pCi/L	3.93E+00	EPIA-013	
HSP 00803	114006	UI		1.04E+00	pCi/L	4.80E+00	EPIA-013	
HSP 00803A	114007	UI		-1.58E+00	pCi/L	5.27E+00	EPIA-013	
HSP 02903	114014	UI		7.08E-01	pCi/L	5.07E+00	EPIA-013	
HSP 02903	114014	UI		1.80E+00	pCi/L	5.90E+00	EPIA-013	
HSP 04303	114015	UI		2.82E+00	pCi/L	4.95E+00	EPIA-013	
HSP 06003	114012	UI		1.90E-01	pCi/L	6.15E+00	EPIA-013	
HSP 06003D	114013	UI		6.40E-01	pCi/L	5.40E+00	EPA901.1MOD	
HSP 06003D	114013	UI		1.80E-01	pCi/L	5.10E+00	EPA901.1MOD	
HSP 09203	114011	UI		5.53E-01	pCi/L	5.68E+00	EPIA-013	

ANALYTE: Antimony-125

Analytical Group: Radionuclides

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003	UI		6.49E+00	pCi/L	1.21E+01	EPIA-013	
BG 00203	114004	UI		4.30E-01	pCi/L	1.26E+01	EPIA-013	
BG 00303	114005	UI		1.70E+00	pCi/L	1.07E+01	EPIA-013	
BG 00403	114010	UI		-1.32E+00	pCi/L	1.69E+01	EPIA-013	
FMC001F03	114002	UI		-1.76E+00	pCi/L	1.10E+01	EPIA-013	
FMC001H03	114000	UI		1.74E-01	pCi/L	1.20E+01	EPIA-013	
FMC002H03	114001	UI		4.37E+00	pCi/L	1.42E+01	EPIA-013	
FSP 01203	114019	UI		-2.14E+00	pCi/L	8.22E+00	EPIA-013	
FSP 03203	114021	UI		2.48E+00	pCi/L	9.60E+00	EPIA-013	
FSP 03203	114021	UI		5.64E-01	pCi/L	8.67E+00	EPIA-013	
FSP 03203D	114022	UI		-2.34E+00	pCi/L	7.41E+00	EPA901.1MOD	
FSP 04703	114020	UI		3.04E+00	pCi/L	9.89E+00	EPIA-013	
FSP 20403	114018	UI		-2.22E+00	pCi/L	8.68E+00	EPIA-013	
FSP 29003	114016	UI		-2.54E+00	pCi/L	8.09E+00	EPIA-013	
FSP 29003A	114017	UI		-3.20E+00	pCi/L	7.88E+00	EPIA-013	
HSP 00803	114006	UI		9.35E-01	pCi/L	1.05E+01	EPIA-013	
HSP 00803A	114007	UI		5.09E+00	pCi/L	1.25E+01	EPIA-013	
HSP 02903	114014	UI		-1.70E+00	pCi/L	1.13E+01	EPIA-013	
HSP 02903	114014	UI		1.34E+00	pCi/L	1.31E+01	EPIA-013	
HSP 04303	114015	UI		-2.33E+00	pCi/L	1.02E+01	EPIA-013	
HSP 06003	114012	UI		2.07E+00	pCi/L	1.38E+01	EPIA-013	
HSP 06003D	114013	UI		-7.40E-01	pCi/L	8.43E+00	EPA901.1MOD	
HSP 06003D	114013	UI		-6.40E-01	pCi/L	9.14E+00	EPA901.1MOD	
HSP 09203	114011	UI		3.40E+00	pCi/L	1.27E+01	EPIA-013	

ANALYTE: Arsenic**Analytical Group:** *Metals (total recoverable)*

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003	U		5	µg/L	2.98	EPA6010A	
BG 00203	114004	U		5	µg/L	2.98	EPA6010A	
BG 00303	114005	U		5	µg/L	2.98	EPA6010A	
BG 00403	114010	U		5	µg/L	2.98	EPA6010A	
FMC001F03	114002	U		5	µg/L	2.98	EPA6010A	
FMC001H03	114000	U		5	µg/L	2.98	EPA6010A	
FMC002H03	114001	U		5	µg/L	2.98	EPA6010A	
FSP 01203	114019	U		5	µg/L	2.98	EPA6010A	
FSP 03203	114021	U		5	µg/L	2.98	EPA6010A	
FSP 03203D	114022	U		40	µg/L	4	EPA6010	
FSP 04703	114020	U		5	µg/L	2.98	EPA6010A	
FSP 20403	114018	U		10	µg/L	5.96	EPA6010A	
FSP 29003	114016	U		5	µg/L	2.98	EPA6010A	
FSP 29003A	114017	U		5	µg/L	2.98	EPA6010A	
HSP 00803	114006	U		5	µg/L	2.98	EPA6010A	
HSP 00803A	114007	U		5	µg/L	2.98	EPA6010A	
HSP 02903	114014	U		5	µg/L	2.98	EPA6010A	
HSP 04303	114015	U		5	µg/L	2.98	EPA6010A	
HSP 06003	114012	U		5	µg/L	2.98	EPA6010A	
HSP 06003D	114013	U		40	µg/L	4	EPA6010	
HSP 09203	114011	U		5	µg/L	2.98	EPA6010A	

ANALYTE: Barium**Analytical Group:** *Metals (total recoverable)*

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003			11.8	µg/L	0.332	EPA6010A	
BG 00203	114004			13.2	µg/L	0.332	EPA6010A	
BG 00303	114005			19.4	µg/L	0.332	EPA6010A	
BG 00403	114010			24	µg/L	0.332	EPA6010A	
FMC001F03	114002			22.1	µg/L	0.332	EPA6010A	
FMC001H03	114000			19.3	µg/L	0.332	EPA6010A	
FMC002H03	114001			18	µg/L	0.332	EPA6010A	
FSP 01203	114019			86.6	µg/L	0.332	EPA6010A	
FSP 03203	114021			90	µg/L	0.332	EPA6010A	
FSP 03203D	114022			104	µg/L	0.18	EPA6010	V
FSP 04703	114020			91.7	µg/L	0.332	EPA6010A	
FSP 20403	114018			199	µg/L	0.664	EPA6010A	
FSP 29003	114016			30.4	µg/L	0.332	EPA6010A	
FSP 29003A	114017			29.7	µg/L	0.332	EPA6010A	
HSP 00803	114006			14.1	µg/L	0.332	EPA6010A	
HSP 00803A	114007			13	µg/L	0.332	EPA6010A	
HSP 02903	114014			216	µg/L	0.332	EPA6010A	
HSP 04303	114015			18.7	µg/L	0.332	EPA6010A	
HSP 06003	114012			52	µg/L	0.332	EPA6010A	
HSP 06003D	114013			20.6	µg/L	0.18	EPA6010	V
HSP 09203	114011			51.1	µg/L	0.332	EPA6010A	

ANALYTE: Barium-133**Analytical Group:** Radionuclides

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003	UI		4.28E-01	pCi/L	5.45E+00	EPIA-013	
BG 00203	114004	UI		-2.63E+00	pCi/L	5.11E+00	EPIA-013	
BG 00303	114005	UI		5.21E-01	pCi/L	5.37E+00	EPIA-013	
BG 00403	114010	UI		-5.61E+00	pCi/L	7.20E+00	EPIA-013	
FMC001F03	114002	UI		2.20E+00	pCi/L	5.51E+00	EPIA-013	
FMC001H03	114000	UI		1.11E+00	pCi/L	5.69E+00	EPIA-013	
FMC002H03	114001	UI		-3.12E+00	pCi/L	6.15E+00	EPIA-013	
FSP 01203	114019	UI		-7.72E-01	pCi/L	3.75E+00	EPIA-013	
FSP 03203	114021	UI		1.69E+00	pCi/L	4.56E+00	EPIA-013	
FSP 03203	114021	UI		1.71E+00	pCi/L	4.97E+00	EPIA-013	
FSP 03203D	114022	UI		7.70E-01	pCi/L	4.12E+00	EPA901.1MOD	
FSP 04703	114020	UI		-9.69E-02	pCi/L	4.32E+00	EPIA-013	
FSP 20403	114018	UI		1.99E+00	pCi/L	4.27E+00	EPIA-013	
FSP 29003	114016	UI		-1.76E+00	pCi/L	3.38E+00	EPIA-013	
FSP 29003A	114017	R		8.98E+00	pCi/L	3.94E+00	EPIA-013	4
HSP 00803	114006	UI		2.21E-01	pCi/L	4.78E+00	EPIA-013	
HSP 00803A	114007	UI		-3.47E+00	pCi/L	5.19E+00	EPIA-013	
HSP 02903	114014	UI		2.17E+00	pCi/L	5.55E+00	EPIA-013	
HSP 02903	114014	UI		-2.50E+00	pCi/L	5.62E+00	EPIA-013	
HSP 04303	114015	UI		6.41E-01	pCi/L	4.79E+00	EPIA-013	
HSP 06003	114012	UI		-3.27E+00	pCi/L	6.42E+00	EPIA-013	
HSP 06003D	114013	UI		2.50E-01	pCi/L	3.94E+00	EPA901.1MOD	
HSP 06003D	114013	UI		-5.00E-02	pCi/L	4.00E+00	EPA901.1MOD	
HSP 09203	114011	UI		4.55E-01	pCi/L	5.52E+00	EPIA-013	

ANALYTE: Beryllium**Analytical Group:** Metals (total recoverable)

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003	U		5	µg/L	0.223	EPA6010A	
BG 00203	114004	U		5	µg/L	0.223	EPA6010A	
BG 00303	114005	U		5	µg/L	0.223	EPA6010A	
BG 00403	114010	U		5	µg/L	0.223	EPA6010A	
FMC001F03	114002	U		5	µg/L	0.223	EPA6010A	
FMC001H03	114000	U		5	µg/L	0.223	EPA6010A	
FMC002H03	114001	U		5	µg/L	0.223	EPA6010A	
FSP 01203	114019	U		5	µg/L	0.223	EPA6010A	
FSP 03203	114021	U		5	µg/L	0.223	EPA6010A	
FSP 03203D	114022	J		0.21	µg/L	0.16	EPA6010	E
FSP 04703	114020	U		5	µg/L	0.223	EPA6010A	
FSP 20403	114018	J		0.737	µg/L	0.446	EPA6010A	E
FSP 29003	114016	U		5	µg/L	0.223	EPA6010A	
FSP 29003A	114017	U		5	µg/L	0.223	EPA6010A	
HSP 00803	114006	U		5	µg/L	0.223	EPA6010A	
HSP 00803A	114007	U		5	µg/L	0.223	EPA6010A	
HSP 02903	114014	J		1.78	µg/L	0.223	EPA6010A	E
HSP 04303	114015	U		5	µg/L	0.223	EPA6010A	
HSP 06003	114012	U		5	µg/L	0.223	EPA6010A	
HSP 06003D	114013	U		1.6	µg/L	0.16	EPA6010	
HSP 09203	114011	U		5	µg/L	0.223	EPA6010A	

ANALYTE: Cadmium

Analytical Group: Metals (total recoverable)

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003	U		5	µg/L	0.208	EPA6010A	
BG 00203	114004	U		5	µg/L	0.208	EPA6010A	
BG 00303	114005	U		5	µg/L	0.208	EPA6010A	
BG 00403	114010	U		5	µg/L	0.208	EPA6010A	
FMC001F03	114002	U		5	µg/L	0.208	EPA6010A	
FMC001H03	114000	U		5	µg/L	0.208	EPA6010A	
FMC002H03	114001	U		5	µg/L	0.208	EPA6010A	
FSP 01203	114019	U		5	µg/L	0.208	EPA6010A	
FSP 03203	114021	J		0.678	µg/L	0.208	EPA6010A	E
FSP 03203D	114022			7.1	µg/L	0.47	EPA6010	
FSP 04703	114020	U		5	µg/L	0.208	EPA6010A	
FSP 20403	114018	J		3.13	µg/L	0.416	EPA6010A	E
FSP 29003	114016	U		5	µg/L	0.208	EPA6010A	
FSP 29003A	114017	U		5	µg/L	0.208	EPA6010A	
HSP 00803	114006	U		5	µg/L	0.208	EPA6010A	
HSP 00803A	114007	U		5	µg/L	0.208	EPA6010A	
HSP 02903	114014	J		2.13	µg/L	0.208	EPA6010A	E
HSP 04303	114015	U		5	µg/L	0.208	EPA6010A	
HSP 06003	114012	U		5	µg/L	0.208	EPA6010A	
HSP 06003D	114013	U		4.7	µg/L	0.47	EPA6010	
HSP 09203	114011	U		5	µg/L	0.208	EPA6010A	

ANALYTE: Calcium

Analytical Group: Metals (total recoverable)

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003			514	µg/L	15.4	EPA6010A	V
BG 00203	114004			410	µg/L	15.4	EPA6010A	V
BG 00303	114005			954	µg/L	15.4	EPA6010A	V
BG 00403	114010			1020	µg/L	15.4	EPA6010A	
FMC001F03	114002			2180	µg/L	15.4	EPA6010A	V
FMC001H03	114000			1380	µg/L	15.4	EPA6010A	V
FMC002H03	114001			2010	µg/L	15.4	EPA6010A	V
FSP 01203	114019			1440	µg/L	15.4	EPA6010A	V
FSP 03203	114021			669	µg/L	15.4	EPA6010A	V
FSP 03203D	114022			824	µg/L	47.1	EPA6010	
FSP 04703	114020			355	µg/L	15.4	EPA6010A	V
FSP 20403	114018			4620	µg/L	30.8	EPA6010A	V
FSP 29003	114016			742	µg/L	15.4	EPA6010A	V
FSP 29003A	114017			658	µg/L	15.4	EPA6010A	V
HSP 00803	114006			849	µg/L	15.4	EPA6010A	V
HSP 00803A	114007			849	µg/L	15.4	EPA6010A	V
HSP 02903	114014			2230	µg/L	15.4	EPA6010A	
HSP 04303	114015			1080	µg/L	15.4	EPA6010A	
HSP 06003	114012			697	µg/L	15.4	EPA6010A	
HSP 06003D	114013			958	µg/L	47.1	EPA6010	
HSP 09203	114011			584	µg/L	15.4	EPA6010A	

ANALYTE: Cerium-144**Analytical Group: Radionuclides**

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003	UI		2.94E-01	pCi/L	2.43E+01	EPIA-013	
BG 00203	114004	UI		1.58E+01	pCi/L	2.57E+01	EPIA-013	
BG 00303	114005	UI		-2.16E+00	pCi/L	2.54E+01	EPIA-013	
BG 00403	114010	UI		-2.12E+00	pCi/L	3.65E+01	EPIA-013	
FMC001F03	114002	UI		-7.98E+00	pCi/L	2.72E+01	EPIA-013	
FMC001H03	114000	UI		-1.27E+01	pCi/L	2.64E+01	EPIA-013	
FMC002H03	114001	UI		1.31E+01	pCi/L	2.88E+01	EPIA-013	
FSP 01203	114019	UI		3.02E+00	pCi/L	2.08E+01	EPIA-013	
FSP 03203	114021	UI		-1.74E+00	pCi/L	2.27E+01	EPIA-013	
FSP 03203	114021	UI		-8.00E-01	pCi/L	2.32E+01	EPIA-013	
FSP 03203D	114022	UI		-1.31E+00	pCi/L	1.77E+01	EPA901.1MOD	
FSP 04703	114020	UI		9.46E+00	pCi/L	2.31E+01	EPIA-013	
FSP 20403	114018	UI		4.58E+00	pCi/L	2.28E+01	EPIA-013	
FSP 29003	114016	UI		-7.56E-01	pCi/L	2.03E+01	EPIA-013	
FSP 29003A	114017	UI		1.18E+01	pCi/L	2.34E+01	EPIA-013	
HSP 00803	114006	UI		4.20E-02	pCi/L	2.11E+01	EPIA-013	
HSP 00803A	114007	UI		-4.93E-01	pCi/L	2.53E+01	EPIA-013	
HSP 02903	114014	UI		7.11E+00	pCi/L	2.91E+01	EPIA-013	
HSP 02903	114014	UI		2.32E+00	pCi/L	2.66E+01	EPIA-013	
HSP 04303	114015	UI		7.75E+00	pCi/L	2.22E+01	EPIA-013	
HSP 06003	114012	UI		7.33E+00	pCi/L	2.97E+01	EPIA-013	
HSP 06003D	114013	UI		7.80E-01	pCi/L	1.68E+01	EPA901.1MOD	
HSP 06003D	114013	UI		3.10E-01	pCi/L	1.72E+01	EPA901.1MOD	
HSP 09203	114011	UI		1.38E+01	pCi/L	2.69E+01	EPIA-013	

ANALYTE: Cesium-134**Analytical Group: Radionuclides**

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003	UI		-1.67E+00	pCi/L	4.55E+00	EPIA-013	
BG 00203	114004	UI		-1.30E-01	pCi/L	4.37E+00	EPIA-013	
BG 00303	114005	UI		9.79E-01	pCi/L	4.46E+00	EPIA-013	
BG 00403	114010	UI		-2.02E+00	pCi/L	6.48E+00	EPIA-013	
FMC001F03	114002	UI		-1.78E+00	pCi/L	3.63E+00	EPIA-013	
FMC001H03	114000	UI		-1.92E+00	pCi/L	4.18E+00	EPIA-013	
FMC002H03	114001	UI		-2.58E+00	pCi/L	5.00E+00	EPIA-013	
FSP 01203	114019	UI		5.71E-01	pCi/L	3.36E+00	EPIA-013	
FSP 03203	114021	UI		-1.30E+00	pCi/L	3.23E+00	EPIA-013	
FSP 03203	114021	UI		2.82E-01	pCi/L	3.16E+00	EPIA-013	
FSP 03203D	114022	UI		-2.22E+00	pCi/L	3.06E+00	EPA901.1MOD	
FSP 04703	114020	UI		-1.94E-01	pCi/L	3.28E+00	EPIA-013	
FSP 20403	114018	UI		-1.05E+00	pCi/L	3.21E+00	EPIA-013	
FSP 29003	114016	UI		1.67E+00	pCi/L	3.10E+00	EPIA-013	
FSP 29003A	114017	UI		-6.55E-01	pCi/L	3.21E+00	EPIA-013	
HSP 00803	114006	UI		-3.67E-01	pCi/L	4.18E+00	EPIA-013	
HSP 00803A	114007	UI		-4.78E-01	pCi/L	4.41E+00	EPIA-013	
HSP 02903	114014	UI		-2.07E+00	pCi/L	4.15E+00	EPIA-013	
HSP 02903	114014	UI		-6.23E-02	pCi/L	4.66E+00	EPIA-013	
HSP 04303	114015	UI		2.43E+00	pCi/L	3.91E+00	EPIA-013	
HSP 06003	114012	UI		-1.89E+00	pCi/L	5.02E+00	EPIA-013	
HSP 06003D	114013	UI		-1.13E+00	pCi/L	3.94E+00	EPA901.1MOD	
HSP 06003D	114013	UI		9.40E-01	pCi/L	3.73E+00	EPA901.1MOD	
HSP 09203	114011	UI		-1.75E-01	pCi/L	4.82E+00	EPIA-013	

ANALYTE: Cesium-137**Analytical Group:** Radionuclides

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003	UI		-2.51E+00	pCi/L	4.08E+00	EPIA-013	
BG 00203	114004	UI		1.13E-04	pCi/L	4.94E+00	EPIA-013	
BG 00303	114005	UI		-7.11E-01	pCi/L	4.12E+00	EPIA-013	
BG 00403	114010	UI		2.21E+00	pCi/L	7.34E+00	EPIA-013	
FMC001F03	114002	UI		1.58E+00	pCi/L	4.35E+00	EPIA-013	
FMC001H03	114000	UI		3.88E+00	pCi/L	5.51E+00	EPIA-013	
FMC002H03	114001	UI		4.96E+00	pCi/L	5.49E+00	EPIA-013	
FSP 01203	114019	UI		2.35E-01	pCi/L	3.43E+00	EPIA-013	
FSP 03203	114021	UI		7.66E-01	pCi/L	3.86E+00	EPIA-013	
FSP 03203	114021	UI		1.67E+00	pCi/L	3.94E+00	EPIA-013	
FSP 03203D	114022	UI		1.04E+00	pCi/L	3.62E+00	EPA901.1MOD	
FSP 04703	114020	UI		-8.00E-01	pCi/L	3.59E+00	EPIA-013	
FSP 20403	114018	UI		-6.00E-01	pCi/L	3.22E+00	EPIA-013	
FSP 29003	114016	UI		1.96E+00	pCi/L	2.91E+00	EPIA-013	
FSP 29003A	114017	UI		-1.91E-01	pCi/L	3.25E+00	EPIA-013	
HSP 00803	114006	UI		-2.21E-01	pCi/L	4.06E+00	EPIA-013	
HSP 00803A	114007	UI		5.25E-01	pCi/L	4.75E+00	EPIA-013	
HSP 02903	114014	UI		-6.96E-01	pCi/L	4.70E+00	EPIA-013	
HSP 02903	114014	UI		3.57E-02	pCi/L	5.26E+00	EPIA-013	
HSP 04303	114015	UI		3.13E-01	pCi/L	4.07E+00	EPIA-013	
HSP 06003	114012	UI		2.33E+00	pCi/L	6.20E+00	EPIA-013	
HSP 06003D	114013	UI		1.88E+00	pCi/L	4.08E+00	EPA901.1MOD	
HSP 06003D	114013	UI		-5.60E-01	pCi/L	4.06E+00	EPA901.1MOD	
HSP 09203	114011	UI		-4.69E-01	pCi/L	5.13E+00	EPIA-013	

ANALYTE: Chloride**Analytical Group:** Specified Analyses

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003			1460	µg/L	7	EPA300.0	V
BG 00103	114003			1610	µg/L	7	EPA300.0	V
BG 00203	114004			1690	µg/L	7	EPA300.0	V
BG 00303	114005			2380	µg/L	7	EPA300.0	V
BG 00403	114010			2150	µg/L	7	EPA300.0	V
FMC001F03	114002			4090	µg/L	35	EPA300.0	
FMC001H03	114000			2110	µg/L	35	EPA300.0	
FMC001H03	114000			2090	µg/L	35	EPA300.0	
FMC002H03	114001			3660	µg/L	35	EPA300.0	
FSP 01203	114019			2380	µg/L	7	EPA300.0	V
FSP 03203	114021			1810	µg/L	7	EPA300.0	V
FSP 03203D	114022			2100	µg/L	21	EPA9056	
FSP 04703	114020			3560	µg/L	7	EPA300.0	V
FSP 20403	114018			1610	µg/L	7	EPA300.0	V
FSP 29003	114016			2020	µg/L	7	EPA300.0	V
FSP 29003	114016			1900	µg/L	7	EPA300.0	V
FSP 29003A	114017			1840	µg/L	7	EPA300.0	V
HSP 00803	114006			2040	µg/L	7	EPA300.0	V
HSP 00803A	114007			2110	µg/L	7	EPA300.0	V
HSP 02903	114014			1380	µg/L	7	EPA300.0	V
HSP 04303	114015			1610	µg/L	7	EPA300.0	V
HSP 06003	114012			2030	µg/L	7	EPA300.0	V
HSP 06003	114012			1920	µg/L	7	EPA300.0	V

ANALYTE: Chloride (cont.)

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
HSP 06003D	114013			2570	µg/L	21	EPA9056	
HSP 09203	114011			1980	µg/L	7	EPA300.0	V

ANALYTE: Chromium**Analytical Group:** Metals (total recoverable)

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003	U		5	µg/L	0.729	EPA6010A	
BG 00203	114004	U		5	µg/L	0.729	EPA6010A	
BG 00303	114005	U		5	µg/L	0.729	EPA6010A	
BG 00403	114010	U		5	µg/L	0.729	EPA6010A	
FMC001F03	114002	U		5	µg/L	0.729	EPA6010A	
FMC001H03	114000	U		5	µg/L	0.729	EPA6010A	
FMC002H03	114001	U		5	µg/L	0.729	EPA6010A	
FSP 01203	114019	U		5	µg/L	0.729	EPA6010A	
FSP 03203	114021	U		5	µg/L	0.729	EPA6010A	
FSP 03203D	114022			0.93	µg/L	0.7	EPA6010	
FSP 04703	114020	J		1.07	µg/L	0.729	EPA6010A	E
FSP 20403	114018	U		10	µg/L	1.46	EPA6010A	
FSP 29003	114016	U		5	µg/L	0.729	EPA6010A	
FSP 29003A	114017	U		5	µg/L	0.729	EPA6010A	
HSP 00803	114006	J		1.9	µg/L	0.729	EPA6010A	E
HSP 00803A	114007	J		1.52	µg/L	0.729	EPA6010A	E
HSP 02903	114014	J		4.69	µg/L	0.729	EPA6010A	E
HSP 04303	114015	U		5	µg/L	0.729	EPA6010A	
HSP 06003	114012			8.58	µg/L	0.729	EPA6010A	
HSP 06003D	114013	J		5.7	µg/L	0.7	EPA6010	E
HSP 09203	114011	J		1.92	µg/L	0.729	EPA6010A	E

ANALYTE: Cobalt**Analytical Group:** Metals (total recoverable)

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003	U		5	µg/L	0.671	EPA6010A	
BG 00203	114004	U		5	µg/L	0.671	EPA6010A	
BG 00303	114005	U		5	µg/L	0.671	EPA6010A	
BG 00403	114010	U		5	µg/L	0.671	EPA6010A	
FMC001F03	114002	J		1.06	µg/L	0.671	EPA6010A	E
FMC001H03	114000	J		1.39	µg/L	0.671	EPA6010A	E
FMC002H03	114001	U		5	µg/L	0.671	EPA6010A	
FSP 01203	114019	J		2.62	µg/L	0.671	EPA6010A	E
FSP 03203	114021	J		0.937	µg/L	0.671	EPA6010A	E
FSP 03203D	114022			156	µg/L	0.45	EPA6010	
FSP 04703	114020	J		3.74	µg/L	0.671	EPA6010A	E
FSP 20403	114018			28.4	µg/L	1.34	EPA6010A	
FSP 29003	114016	J		0.996	µg/L	0.671	EPA6010A	E
FSP 29003A	114017	J		0.879	µg/L	0.671	EPA6010A	E
HSP 00803	114006	U		5	µg/L	0.671	EPA6010A	
HSP 00803A	114007	U		5	µg/L	0.671	EPA6010A	
HSP 02903	114014			20.7	µg/L	0.671	EPA6010A	
HSP 04303	114015	U		5	µg/L	0.671	EPA6010A	

ANALYTE: Cobalt (cont.)

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
HSP 06003	114012	J		0.741	µg/L	0.671	EPA6010A	E
HSP 06003D	114013			144	µg/L	0.45	EPA6010	
HSP 09203	114011	U		5	µg/L	0.671	EPA6010A	

ANALYTE: Cobalt-57

Analytical Group: Radionuclides

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003	UI		1.26E+00	pCi/L	3.39E+00	EPIA-013	
BG 00203	114004	UI		2.75E-01	pCi/L	3.39E+00	EPIA-013	
BG 00303	114005	UI		-6.67E-01	pCi/L	3.14E+00	EPIA-013	
BG 00403	114010	UI		1.80E+00	pCi/L	4.86E+00	EPIA-013	
FMC001F03	114002	UI		-1.17E-01	pCi/L	3.53E+00	EPIA-013	
FMC001H03	114000	UI		4.88E-02	pCi/L	3.46E+00	EPIA-013	
FMC002H03	114001	UI		6.51E-02	pCi/L	3.54E+00	EPIA-013	
FSP 01203	114019	UI		1.12E+00	pCi/L	2.69E+00	EPIA-013	
FSP 03203	114021	UI		4.99E-01	pCi/L	3.08E+00	EPIA-013	
FSP 03203	114021	UI		-7.19E-01	pCi/L	2.96E+00	EPIA-013	
FSP 03203D	114022	UI		1.80E-01	pCi/L	2.63E+00	EPA901.1MOD	
FSP 04703	114020	UI		7.42E-02	pCi/L	2.92E+00	EPIA-013	
FSP 20403	114018	UI		1.22E+00	pCi/L	3.07E+00	EPIA-013	
FSP 29003	114016	UI		1.62E-01	pCi/L	2.64E+00	EPIA-013	
FSP 29003A	114017	UI		-5.77E-01	pCi/L	2.91E+00	EPIA-013	
HSP 00803	114006	UI		-5.95E-01	pCi/L	2.61E+00	EPIA-013	
HSP 00803A	114007	UI		-1.73E+00	pCi/L	2.98E+00	EPIA-013	
HSP 02903	114014	UI		-6.84E-01	pCi/L	3.44E+00	EPIA-013	
HSP 02903	114014	UI		-5.86E-01	pCi/L	3.29E+00	EPIA-013	
HSP 04303	114015	UI		-1.34E-01	pCi/L	2.65E+00	EPIA-013	
HSP 06003	114012	UI		-8.42E-01	pCi/L	3.41E+00	EPIA-013	
HSP 06003D	114013	UI		7.60E-01	pCi/L	2.14E+00	EPA901.1MOD	
HSP 06003D	114013	UI		1.10E-01	pCi/L	2.03E+00	EPA901.1MOD	
HSP 09203	114011	UI		2.20E-01	pCi/L	3.33E+00	EPIA-013	

ANALYTE: Cobalt-58

Analytical Group: Radionuclides

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003	UI		1.66E+00	pCi/L	4.73E+00	EPIA-013	
BG 00203	114004	UI		-1.90E+00	pCi/L	4.84E+00	EPIA-013	
BG 00303	114005	UI		-2.17E+00	pCi/L	4.57E+00	EPIA-013	
BG 00403	114010	UI		-1.53E+00	pCi/L	6.84E+00	EPIA-013	
FMC001F03	114002	UI		-5.42E-01	pCi/L	4.34E+00	EPIA-013	
FMC001H03	114000	UI		-2.11E-01	pCi/L	4.72E+00	EPIA-013	
FMC002H03	114001	UI		1.05E+00	pCi/L	5.41E+00	EPIA-013	
FSP 01203	114019	UI		-2.04E-01	pCi/L	3.12E+00	EPIA-013	
FSP 03203	114021	UI		1.10E-01	pCi/L	3.98E+00	EPIA-013	
FSP 03203	114021	UI		2.83E-01	pCi/L	3.67E+00	EPIA-013	
FSP 03203D	114022	UI		-1.70E-01	pCi/L	3.80E+00	EPA901.1MOD	
FSP 04703	114020	UI		1.08E+00	pCi/L	4.01E+00	EPIA-013	
FSP 20403	114018	UI		8.87E-02	pCi/L	3.61E+00	EPIA-013	
FSP 29003	114016	UI		9.43E-01	pCi/L	3.38E+00	EPIA-013	
FSP 29003A	114017	UI		-1.58E+00	pCi/L	3.17E+00	EPIA-013	

ANALYTE: Cobalt-58 (cont.)

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
HSP 00803	114006	UI		2.61E-01	pCi/L	4.10E+00	EPIA-013	
HSP 00803A	114007	UI		6.14E-02	pCi/L	4.64E+00	EPIA-013	
HSP 02903	114014	UI		1.75E+00	pCi/L	4.94E+00	EPIA-013	
HSP 02903	114014	UI		-1.50E+00	pCi/L	5.47E+00	EPIA-013	
HSP 04303	114015	UI		-6.19E-01	pCi/L	3.90E+00	EPIA-013	
HSP 06003	114012	UI		3.38E-01	pCi/L	6.17E+00	EPIA-013	
HSP 06003D	114013	UI		-1.03E+00	pCi/L	4.63E+00	EPA901.1MOD	
HSP 06003D	114013	UI		-2.50E-01	pCi/L	5.01E+00	EPA901.1MOD	
HSP 09203	114011	UI		-5.77E-01	pCi/L	5.11E+00	EPIA-013	

ANALYTE: Cobalt-60

Analytical Group: Radionuclides

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003	UI		1.38E+00	pCi/L	4.80E+00	EPIA-013	
BG 00203	114004	UI		-2.45E+00	pCi/L	4.60E+00	EPIA-013	
BG 00303	114005	UI		1.54E-01	pCi/L	4.82E+00	EPIA-013	
BG 00403	114010	UI		-3.89E-01	pCi/L	7.11E+00	EPIA-013	
FMC001F03	114002	UI		-2.36E+00	pCi/L	4.36E+00	EPIA-013	
FMC001H03	114000	UI		-4.68E-01	pCi/L	5.37E+00	EPIA-013	
FMC002H03	114001	UI		2.80E+00	pCi/L	6.95E+00	EPIA-013	
FSP 01203	114019	UI		8.02E-02	pCi/L	3.73E+00	EPIA-013	
FSP 03203	114021	UI		-2.12E-02	pCi/L	4.02E+00	EPIA-013	
FSP 03203	114021	UI		1.13E-01	pCi/L	4.03E+00	EPIA-013	
FSP 03203D	114022	UI		7.10E-01	pCi/L	3.52E+00	EPA901.1MOD	
FSP 04703	114020	UI		6.24E-01	pCi/L	3.51E+00	EPIA-013	
FSP 20403	114018	UI		1.41E+00	pCi/L	4.55E+00	EPIA-013	
FSP 29003	114016	UI		3.60E-02	pCi/L	2.66E+00	EPIA-013	
FSP 29003A	114017	UI		-2.75E-01	pCi/L	3.35E+00	EPIA-013	
HSP 00803	114006	UI		3.95E+00	pCi/L	4.90E+00	EPIA-013	
HSP 00803A	114007	UI		-1.96E+00	pCi/L	4.56E+00	EPIA-013	
HSP 02903	114014			3.83E+01	pCi/L	5.35E+00	EPIA-013	
HSP 02903	114014			3.64E+01	pCi/L	4.65E+00	EPIA-013	
HSP 04303	114015	UI		3.88E-02	pCi/L	4.32E+00	EPIA-013	
HSP 06003	114012	UI		2.09E+00	pCi/L	6.24E+00	EPIA-013	
HSP 06003D	114013	UI		-1.03E+00	pCi/L	3.45E+00	EPA901.1MOD	
HSP 06003D	114013	UI		-2.20E-01	pCi/L	4.03E+00	EPA901.1MOD	
HSP 09203	114011	UI		3.74E+00	pCi/L	5.64E+00	EPIA-013	

ANALYTE: Copper

Analytical Group: Metals (total recoverable)

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003	U		5	µg/L	1.32	EPA6010A	
BG 00203	114004	U		5	µg/L	1.32	EPA6010A	
BG 00303	114005	U		5	µg/L	1.32	EPA6010A	
BG 00403	114010	U		5	µg/L	1.32	EPA6010A	
FMC001F03	114002	J		1.54	µg/L	1.32	EPA6010A	E
FMC001H03	114000	J		4.34	µg/L	1.32	EPA6010A	E
FMC002H03	114001	J		4.82	µg/L	1.32	EPA6010A	E
FSP 01203	114019	U		5	µg/L	1.32	EPA6010A	
FSP 03203	114021	U		5	µg/L	1.32	EPA6010A	

ANALYTE: Copper (cont.)

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP 03203D	114022			15	µg/L	1.5	EPA6010	
FSP 04703	114020	U		5	µg/L	1.32	EPA6010A	
FSP 20403	114018	U		10	µg/L	2.64	EPA6010A	
FSP 29003	114016	U		5	µg/L	1.32	EPA6010A	
FSP 29003A	114017	U		5	µg/L	1.32	EPA6010A	
HSP 00803	114006	U		5	µg/L	1.32	EPA6010A	
HSP 00803A	114007	U		5	µg/L	1.32	EPA6010A	
HSP 02903	114014	J		2.75	µg/L	1.32	EPA6010A	E
HSP 04303	114015	U		5	µg/L	1.32	EPA6010A	
HSP 06003	114012	U		5	µg/L	1.32	EPA6010A	
HSP 06003D	114013			17.3	µg/L	1.5	EPA6010	
HSP 09203	114011	U		5	µg/L	1.32	EPA6010A	

ANALYTE: Curium-242

Analytical Group: Radionuclides

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00203	114004	UI		9.27E-03	pCi/L	1.18E-01	EPIA-011	
FSP 03203	114021	UI		-1.06E-02	pCi/L	2.33E-01	EPIA-011	
FSP 03203	114021	UI		-3.31E-02	pCi/L	3.20E-01	EPIA-011	
FSP 20403	114018	UI		1.00E-01	pCi/L	1.51E-01	EPIA-011	
HSP 00803	114006	UI		-6.46E-03	pCi/L	1.09E-01	EPIA-011	
HSP 02903	114014	UI		0.00E+00	pCi/L	3.79E-02	EPIA-011	
HSP 09203	114011	UI		1.25E-02	pCi/L	9.71E-02	EPIA-011	

ANALYTE: Curium-243/244

Analytical Group: Radionuclides

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00203	114004			1.53E-01	pCi/L	1.47E-01	EPIA-011	
FSP 03203	114021	UI		1.15E-01	pCi/L	1.62E-01	EPIA-011	
FSP 03203	114021	UI		8.85E-02	pCi/L	1.69E-01	EPIA-011	
FSP 20403	114018			3.07E-01	pCi/L	1.85E-01	EPIA-011	
HSP 00803	114006	UI		3.54E-02	pCi/L	1.32E-01	EPIA-011	
HSP 02903	114014	UI		3.64E-02	pCi/L	6.56E-02	EPIA-011	
HSP 09203	114011	UI		7.23E-02	pCi/L	1.51E-01	EPIA-011	

ANALYTE: Curium-245/246

Analytical Group: Radionuclides

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00203	114004	UI		4.57E-02	pCi/L	4.57E-02	EPIA-011	
FSP 03203	114021	UI		0.00E+00	pCi/L	9.12E-02	EPIA-011	
FSP 03203	114021	UI		3.18E-02	pCi/L	9.53E-02	EPIA-011	
FSP 20403	114018	UI		0.00E+00	pCi/L	1.04E-01	EPIA-011	
HSP 00803	114006	UI		0.00E+00	pCi/L	3.06E-02	EPIA-011	
HSP 02903	114014	UI		2.07E-02	pCi/L	3.11E-02	EPIA-011	
HSP 09203	114011	UI		3.11E-02	pCi/L	3.11E-02	EPIA-011	

ANALYTE: Cyanide

Analytical Group: Specified Analyses

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003	UJ	L	10	µg/L	3.34	EPA335.3	I
BG 00203	114004	UJ	L	10	µg/L	3.34	EPA335.3	I
BG 00303	114005	UJ	L	10	µg/L	3.34	EPA335.3	I
BG 00403	114010	UJ	L	10	µg/L	3.34	EPA335.3	I
FMC001F03	114002	UJ	L	10	µg/L	3.34	EPA335.3	I
FMC001H03	114000	UJ	L	10	µg/L	3.34	EPA335.3	I
FMC002H03	114001	UJ	L	10	µg/L	3.34	EPA335.3	I
FSP 01203	114019	U		10	µg/L	3.34	EPA335.3	
FSP 03203	114021	U		10	µg/L	3.34	EPA335.3	
FSP 03203D	114022	U		15.2	µg/L	1.52	EPA9010A	
FSP 04703	114020	U		10	µg/L	3.34	EPA335.3	
FSP 20403	114018	U		10	µg/L	3.34	EPA335.3	
FSP 29003	114016	U		10	µg/L	3.34	EPA335.3	
FSP 29003A	114017	U		10	µg/L	3.34	EPA335.3	
HSP 00803	114006	UJ	L	10	µg/L	3.34	EPA335.3	I
HSP 00803A	114007	UJ	L	10	µg/L	3.34	EPA335.3	I
HSP 00803A	114007	UJ	L	10	µg/L	3.34	EPA335.3	I
HSP 02903	114014	UJ	L	10	µg/L	3.34	EPA335.3	I
HSP 04303	114015	UJ	L	10	µg/L	3.34	EPA335.3	I
HSP 06003	114012	UJ	L	10	µg/L	3.34	EPA335.3	I
HSP 06003D	114013	U		30.4	µg/L	3.04	EPA9010A	
HSP 06003D	114013	U		30.4	µg/L	3.04	EPA9010A	
HSP 09203	114011	UJ	L	10	µg/L	3.34	EPA335.3	I

ANALYTE: Europium-152

Analytical Group: Radionuclides

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003	UI		4.25E-02	pCi/L	1.23E+01	EPIA-013	
BG 00203	114004	UI		-2.52E+00	pCi/L	1.27E+01	EPIA-013	
BG 00303	114005	UI		-4.96E+00	pCi/L	1.13E+01	EPIA-013	
BG 00403	114010	UI		2.67E+00	pCi/L	1.83E+01	EPIA-013	
FMC001F03	114002	UI		-3.12E+00	pCi/L	1.22E+01	EPIA-013	
FMC001H03	114000	UI		6.04E-01	pCi/L	1.28E+01	EPIA-013	
FMC002H03	114001	UI		-8.63E+00	pCi/L	1.33E+01	EPIA-013	
FSP 01203	114019	UI		-1.80E+00	pCi/L	8.19E+00	EPIA-013	
FSP 03203	114021	UI		2.12E-01	pCi/L	9.35E+00	EPIA-013	
FSP 03203	114021	UI		-7.64E-02	pCi/L	9.78E+00	EPIA-013	
FSP 03203D	114022	UI		2.34E+00	pCi/L	2.56E+01	EPA901.1MOD	
FSP 04703	114020	UI		-5.41E+00	pCi/L	8.45E+00	EPIA-013	
FSP 20403	114018	UI		-1.84E+00	pCi/L	8.99E+00	EPIA-013	
FSP 29003	114016	UI		-1.57E+00	pCi/L	7.93E+00	EPIA-013	
FSP 29003A	114017	UI		-2.37E+00	pCi/L	9.43E+00	EPIA-013	
HSP 00803	114006	UI		-3.38E+00	pCi/L	9.80E+00	EPIA-013	
HSP 00803A	114007	UI		8.02E-01	pCi/L	1.23E+01	EPIA-013	
HSP 02903	114014	UI		-1.42E+00	pCi/L	1.23E+01	EPIA-013	
HSP 02903	114014	UI		2.04E-01	pCi/L	1.28E+01	EPIA-013	
HSP 04303	114015	UI		1.85E-01	pCi/L	1.07E+01	EPIA-013	
HSP 06003	114012	UI		1.84E+00	pCi/L	1.47E+01	EPIA-013	
HSP 06003D	114013	UI		-6.01E+00	pCi/L	2.15E+01	EPA901.1MOD	
HSP 06003D	114013	UI		2.21E+01	pCi/L	3.56E+01	EPA901.1MOD	
HSP 09203	114011	UI		2.11E+00	pCi/L	1.33E+01	EPIA-013	

ANALYTE: Europium-154
Analytical Group: Radionuclides

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003	UI		-2.72E-01	pCi/L	1.12E+01	EPIA-013	
BG 00203	114004	UI		2.61E+00	pCi/L	1.46E+01	EPIA-013	
BG 00303	114005	UI		6.64E+00	pCi/L	1.48E+01	EPIA-013	
BG 00403	114010	UI		4.23E+00	pCi/L	1.94E+01	EPIA-013	
FMC001F03	114002	UI		5.35E+00	pCi/L	1.37E+01	EPIA-013	
FMC001H03	114000	UI		1.19E+00	pCi/L	1.56E+01	EPIA-013	
FMC002H03	114001	UI		-4.42E+00	pCi/L	1.58E+01	EPIA-013	
FSP 01203	114019	UI		-9.53E-01	pCi/L	9.65E+00	EPIA-013	
FSP 03203	114021	UI		7.38E-02	pCi/L	1.02E+01	EPIA-013	
FSP 03203	114021	UI		3.55E+00	pCi/L	1.15E+01	EPIA-013	
FSP 03203D	114022	UI		-3.30E+00	pCi/L	1.01E+01	EPA901.1MOD	
FSP 04703	114020	UI		-1.06E+00	pCi/L	1.13E+01	EPIA-013	
FSP 20403	114018	UI		-4.38E+00	pCi/L	7.75E+00	EPIA-013	
FSP 29003	114016	UI		-2.06E+00	pCi/L	7.30E+00	EPIA-013	
FSP 29003A	114017	UI		-3.31E-01	pCi/L	1.01E+01	EPIA-013	
HSP 00803	114006	UI		-2.08E+00	pCi/L	1.23E+01	EPIA-013	
HSP 00803A	114007	UI		1.58E+00	pCi/L	1.39E+01	EPIA-013	
HSP 02903	114014	UI		-5.01E+00	pCi/L	1.21E+01	EPIA-013	
HSP 02903	114014	UI		-2.64E+00	pCi/L	1.32E+01	EPIA-013	
HSP 04303	114015	UI		-1.21E+00	pCi/L	1.22E+01	EPIA-013	
HSP 06003	114012	UI		-5.42E+00	pCi/L	1.65E+01	EPIA-013	
HSP 06003D	114013	UI		2.29E+00	pCi/L	1.40E+01	EPA901.1MOD	
HSP 06003D	114013	UI		-1.55E+00	pCi/L	1.21E+01	EPA901.1MOD	
HSP 09203	114011	UI		9.95E-01	pCi/L	1.39E+01	EPIA-013	

ANALYTE: Europium-155
Analytical Group: Radionuclides

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003	UI		4.17E+00	pCi/L	1.34E+01	EPIA-013	
BG 00203	114004	UI		5.32E-01	pCi/L	1.38E+01	EPIA-013	
BG 00303	114005	UI		2.28E+00	pCi/L	1.32E+01	EPIA-013	
BG 00403	114010	UI		1.77E-01	pCi/L	1.99E+01	EPIA-013	
FMC001F03	114002	UI		6.14E+00	pCi/L	1.48E+01	EPIA-013	
FMC001H03	114000	UI		5.95E+00	pCi/L	1.53E+01	EPIA-013	
FMC002H03	114001	UI		9.63E+00	pCi/L	1.58E+01	EPIA-013	
FSP 01203	114019	UI		-1.57E+00	pCi/L	1.17E+01	EPIA-013	
FSP 03203	114021	UI		2.91E-01	pCi/L	1.32E+01	EPIA-013	
FSP 03203	114021	UI		2.19E+00	pCi/L	1.32E+01	EPIA-013	
FSP 03203D	114022	UI		3.17E+00	pCi/L	9.46E+00	EPA901.1MOD	
FSP 04703	114020	UI		1.71E+00	pCi/L	1.30E+01	EPIA-013	
FSP 20403	114018	UI		7.17E-01	pCi/L	1.28E+01	EPIA-013	
FSP 29003	114016	UI		-1.48E+00	pCi/L	1.10E+01	EPIA-013	
FSP 29003A	114017	UI		-3.06E+00	pCi/L	1.21E+01	EPIA-013	
HSP 00803	114006	UI		3.36E+00	pCi/L	1.14E+01	EPIA-013	
HSP 00803A	114007	UI		2.36E-02	pCi/L	1.37E+01	EPIA-013	
HSP 02903	114014	UI		5.90E+00	pCi/L	1.50E+01	EPIA-013	
HSP 02903	114014	UI		3.53E+00	pCi/L	1.45E+01	EPIA-013	
HSP 04303	114015	UI		-4.01E-01	pCi/L	1.12E+01	EPIA-013	
HSP 06003	114012	UI		1.56E+00	pCi/L	1.49E+01	EPIA-013	
HSP 06003D	114013	UI		7.10E-01	pCi/L	5.71E+00	EPA901.1MOD	

ANALYTE: Europium-155 (cont.)

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
HSP 06003D	114013	UI		1.64E+00	pCi/L	5.79E+00	EPA901.1MOD	
HSP 09203	114011	UI		7.18E-01	pCi/L	1.43E+01	EPIA-013	

ANALYTE: Gross alpha
Analytical Group: Radionuclides

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003			4.61E+00	pCi/L	6.41E-01	EPIA-001	
BG 00203	114004			3.13E+01	pCi/L	2.45E+00	EPIA-001	
BG 00303	114005			8.28E-01	pCi/L	4.18E-01	EPIA-001	
BG 00403	114010			8.69E-01	pCi/L	4.38E-01	EPIA-001	
FMC001F03	114002			2.64E+00	pCi/L	5.09E-01	EPIA-001	
FMC001H03	114000			1.19E+00	pCi/L	4.59E-01	EPIA-001	
FMC002H03	114001			1.53E+00	pCi/L	8.14E-01	EPIA-001	
FSP 01203	114019			3.39E+00	pCi/L	3.24E-01	EPIA-001	
FSP 03203	114021			5.11E+00	pCi/L	1.23E+00	EPIA-001	
FSP 03203D	114022			1.14E+01	pCi/L	1.70E+00	EPA900.0MOD	
FSP 04703	114020			3.92E+00	pCi/L	7.35E-01	EPIA-001	
FSP 20403	114018			4.82E+01	pCi/L	1.60E+00	EPIA-001	
FSP 29003	114016			4.24E+00	pCi/L	1.24E+00	EPIA-001	
FSP 29003A	114017			7.33E+00	pCi/L	8.55E-01	EPIA-001	
HSP 00803	114006			2.14E+01	pCi/L	4.69E+00	EPIA-001	
HSP 00803A	114007			6.64E+00	pCi/L	5.60E-01	EPIA-001	
HSP 02903	114014			4.23E+01	pCi/L	5.62E-01	EPIA-001	
HSP 04303	114015			2.61E+00	pCi/L	8.11E-01	EPIA-001	
HSP 06003	114012			1.27E+01	pCi/L	1.71E+00	EPIA-001	
HSP 06003D	114013			5.61E+00	pCi/L	1.33E+00	EPA900.0MOD	
HSP 06003D	114013			7.93E+00	pCi/L	1.51E+00	EPA900.0MOD	
HSP 09203	114011			2.50E+01	pCi/L	2.02E+00	EPIA-001	

ANALYTE: Hardness as CaCO₃
Analytical Group: Specified Analyses

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003			11000	µg/L	1000	EPA130.2	
BG 00203	114004			16000	µg/L	1000	EPA130.2	
BG 00303	114005			11700	µg/L	1000	EPA130.2	
BG 00403	114010			6000	µg/L	1000	EPA130.2	
FMC001F03	114002			13500	µg/L	1000	EPA130.2	
FMC001H03	114000			67000	µg/L	1000	EPA130.2	
FMC002H03	114001			10000	µg/L	1000	EPA130.2	
FSP 01203	114019			11500	µg/L	1000	EPA130.2	
FSP 03203	114021			4000	µg/L	1000	EPA130.2	
FSP 03203	114021			4000	µg/L	1000	EPA130.2	
FSP 03203D	114022			12000	µg/L	900	EPA130.2	
FSP 03203D	114022			11500	µg/L	900	EPA130.2	
FSP 04703	114020			5000	µg/L	1000	EPA130.2	
FSP 20403	114018			26500	µg/L	1000	EPA130.2	
FSP 29003	114016			12500	µg/L	1000	EPA130.2	
FSP 29003A	114017			6700	µg/L	1000	EPA130.2	
HSP 00803	114006			14000	µg/L	1000	EPA130.2	
HSP 00803A	114007			15000	µg/L	1000	EPA130.2	

ANALYTE: Hardness as CaCO₃ (cont.)

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
HSP 00803A	114007			17000	µg/L	1000	EPA130.2	
HSP 02903	114014			8000	µg/L	1000	EPA130.2	
HSP 02903	114014			9600	µg/L	1000	EPA130.2	
HSP 04303	114015			8000	µg/L	1000	EPA130.2	
HSP 06003	114012			4000	µg/L	1000	EPA130.2	
HSP 06003D	114013			11000	µg/L	900	EPA130.2	
HSP 09203	114011			8000	µg/L	1000	EPA130.2	

ANALYTE: Iodine-129

Analytical Group: Radionuclides

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP 03203	114021			1.58E+00	pCi/L	1.16E+00	EPIA-006	
FSP 03203D	114022	UI		4.20E+00	pCi/L	1.07E+01	EPA902.0MOD	
FSP 03203D	114022	UI		2.52E+00	pCi/L	1.02E+01	EPA902.0MOD	
FSP 20403	114018			3.79E+00	pCi/L	1.91E+00	EPIA-006	
FSP 20403	114018			2.68E+00	pCi/L	8.79E-01	EPIA-006	
HSP 02903	114014	UIJ		1.31E+00	pCi/L	9.10E-01	EPIA-006	C
HSP 02903	114014	UIJ		1.54E+00	pCi/L	7.59E-01	EPIA-006	C
HSP 04303	114015	J		8.71E+00	pCi/L	6.30E-01	EPIA-006	C

ANALYTE: Iron

Analytical Group: Metals (total recoverable)

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003			83.8	µg/L	8.63	EPA6010A	
BG 00203	114004			2360	µg/L	8.63	EPA6010A	
BG 00303	114005			700	µg/L	8.63	EPA6010A	
BG 00403	114010			1310	µg/L	8.63	EPA6010A	
FMC001F03	114002			1580	µg/L	8.63	EPA6010A	
FMC001H03	114000			832	µg/L	8.63	EPA6010A	
FMC002H03	114001			882	µg/L	8.63	EPA6010A	
FSP 01203	114019			8430	µg/L	8.63	EPA6010A	V
FSP 03203	114021			217	µg/L	8.63	EPA6010A	V
FSP 03203D	114022			623	µg/L	7.4	EPA6010	
FSP 04703	114020			3910	µg/L	8.63	EPA6010A	V
FSP 20403	114018	U		100	µg/L	17.3	EPA6010A	
FSP 29003	114016			1730	µg/L	8.63	EPA6010A	V
FSP 29003A	114017			1780	µg/L	8.63	EPA6010A	V
HSP 00803	114006			1630	µg/L	8.63	EPA6010A	
HSP 00803A	114007			1420	µg/L	8.63	EPA6010A	
HSP 02903	114014			2580	µg/L	8.63	EPA6010A	
HSP 04303	114015			429	µg/L	8.63	EPA6010A	
HSP 06003	114012			6990	µg/L	8.63	EPA6010A	
HSP 06003D	114013			4560	µg/L	7.4	EPA6010	
HSP 09203	114011			1330	µg/L	8.63	EPA6010A	

ANALYTE: Lead**Analytical Group: Metals (total recoverable)**

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003	U		5	µg/L	0.678	EPA6010A	
BG 00203	114004	U		5	µg/L	0.678	EPA6010A	
BG 00303	114005	U		5	µg/L	0.678	EPA6010A	
BG 00403	114010	U		0.734	µg/L	0.678	EPA6010A	V
FMC001F03	114002	U		5	µg/L	0.678	EPA6010A	
FMC001H03	114000	U		5	µg/L	0.678	EPA6010A	
FMC002H03	114001	U		5	µg/L	0.678	EPA6010A	
FSP 01203	114019	U		5	µg/L	0.678	EPA6010A	
FSP 03203	114021	U		5	µg/L	0.678	EPA6010A	
FSP 03203D	114022			89.5	µg/L	4.7	EPA6010	
FSP 04703	114020	J		2.52	µg/L	0.678	EPA6010A	E
FSP 20403	114018	U		10	µg/L	1.36	EPA6010A	
FSP 29003	114016	U		5	µg/L	0.678	EPA6010A	
FSP 29003A	114017	U		5	µg/L	0.678	EPA6010A	
HSP 00803	114006	J		1.09	µg/L	0.678	EPA6010A	E
HSP 00803A	114007	U		5	µg/L	0.678	EPA6010A	
HSP 02903	114014			18.7	µg/L	0.678	EPA6010A	V
HSP 04303	114015	U		5	µg/L	0.678	EPA6010A	
HSP 06003	114012			6.81	µg/L	0.678	EPA6010A	V
HSP 06003D	114013	J		5.3	µg/L	4.7	EPA6010	E
HSP 09203	114011	U		3.18	µg/L	0.678	EPA6010A	V

ANALYTE: Lead-212**Analytical Group: Radionuclides**

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003	UI		2.44E+00	pCi/L	6.43E+00	EPIA-013	
BG 00203	114004	UI		3.57E+00	pCi/L	8.35E+00	EPIA-013	
BG 00303	114005	R		1.24E+01	pCi/L	8.76E+00	EPIA-013	4
BG 00403	114010	R		2.93E+01	pCi/L	1.31E+01	EPIA-013	4
FMC001F03	114002	R		1.08E+01	pCi/L	8.73E+00	EPIA-013	4
FMC001H03	114000	UI		7.77E+00	pCi/L	8.77E+00	EPIA-013	
FMC002H03	114001	UI		4.92E+00	pCi/L	8.14E+00	EPIA-013	
FSP 01203	114019	UI		4.27E+00	pCi/L	6.29E+00	EPIA-013	
FSP 03203	114021	UI		1.13E+00	pCi/L	6.80E+00	EPIA-013	
FSP 03203	114021	UI		3.50E+00	pCi/L	5.45E+00	EPIA-013	
FSP 03203D	114022	UI		-8.90E-01	pCi/L	5.01E+00	EPA901.1MOD	
FSP 04703	114020			6.97E+00	pCi/L	5.31E+00	EPIA-013	
FSP 20403	114018	UI		3.32E+00	pCi/L	6.27E+00	EPIA-013	
FSP 29003	114016	UI		9.58E-03	pCi/L	5.49E+00	EPIA-013	
FSP 29003A	114017	UI		5.56E+00	pCi/L	6.74E+00	EPIA-013	
HSP 00803	114006	UI		5.21E+00	pCi/L	6.23E+00	EPIA-013	
HSP 00803A	114007	R		1.48E+01	pCi/L	9.00E+00	EPIA-013	4
HSP 02903	114014	UI		5.42E+00	pCi/L	9.10E+00	EPIA-013	
HSP 02903	114014	UI		3.75E+00	pCi/L	8.71E+00	EPIA-013	
HSP 04303	114015	UI		3.46E+00	pCi/L	7.89E+00	EPIA-013	
HSP 06003	114012	UI		8.70E+00	pCi/L	9.59E+00	EPIA-013	
HSP 06003D	114013	UI		-3.80E-01	pCi/L	5.11E+00	EPA901.1MOD	
HSP 06003D	114013	R		1.72E+00	pCi/L	4.72E+00	EPA901.1MOD	4
HSP 09203	114011	UI		8.42E+00	pCi/L	8.66E+00	EPIA-013	

ANALYTE: Magnesium**Analytical Group: Metals (total recoverable)**

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003			288	µg/L	3.33	EPA6010A	V
BG 00203	114004			394	µg/L	3.33	EPA6010A	V
BG 00303	114005			445	µg/L	3.33	EPA6010A	V
BG 00403	114010			458	µg/L	3.33	EPA6010A	
FMC001F03	114002			570	µg/L	3.33	EPA6010A	
FMC001H03	114000			452	µg/L	3.33	EPA6010A	
FMC002H03	114001			483	µg/L	3.33	EPA6010A	
FSP 01203	114019			1090	µg/L	3.33	EPA6010A	V
FSP 03203	114021			348	µg/L	3.33	EPA6010A	V
FSP 03203D	114022			422	µg/L	7.4	EPA6010	V
FSP 04703	114020			586	µg/L	3.33	EPA6010A	V
FSP 20403	114018			2640	µg/L	6.66	EPA6010A	V
FSP 29003	114016			420	µg/L	3.33	EPA6010A	V
FSP 29003A	114017			400	µg/L	3.33	EPA6010A	V
HSP 00803	114006			814	µg/L	3.33	EPA6010A	V
HSP 00803A	114007			805	µg/L	3.33	EPA6010A	V
HSP 02903	114014			1100	µg/L	3.33	EPA6010A	
HSP 04303	114015			778	µg/L	3.33	EPA6010A	
HSP 06003	114012			445	µg/L	3.33	EPA6010A	
HSP 06003D	114013			348	µg/L	7.4	EPA6010	V
HSP 09203	114011			773	µg/L	3.33	EPA6010A	

ANALYTE: Manganese**Analytical Group: Metals (total recoverable)**

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003			32.4	µg/L	0.903	EPA6010A	
BG 00203	114004			19.8	µg/L	0.903	EPA6010A	
BG 00303	114005			97.2	µg/L	0.903	EPA6010A	
BG 00403	114010			76.8	µg/L	0.903	EPA6010A	V
FMC001F03	114002			147	µg/L	0.903	EPA6010A	
FMC001H03	114000			80.6	µg/L	0.903	EPA6010A	
FMC002H03	114001			31.9	µg/L	0.903	EPA6010A	
FSP 01203	114019			1020	µg/L	0.903	EPA6010A	
FSP 03203	114021			357	µg/L	0.903	EPA6010A	
FSP 03203D	114022			454	µg/L	0.78	EPA6010	
FSP 04703	114020			220	µg/L	0.903	EPA6010A	
FSP 20403	114018			940	µg/L	1.81	EPA6010A	
FSP 29003	114016			65.1	µg/L	0.903	EPA6010A	
FSP 29003A	114017			65.3	µg/L	0.903	EPA6010A	
HSP 00803	114006			71.3	µg/L	0.903	EPA6010A	
HSP 00803A	114007			70.5	µg/L	0.903	EPA6010A	
HSP 02903	114014			1140	µg/L	0.903	EPA6010A	V
HSP 04303	114015			19.4	µg/L	0.903	EPA6010A	V
HSP 06003	114012			195	µg/L	0.903	EPA6010A	V
HSP 06003D	114013			114	µg/L	0.78	EPA6010	
HSP 09203	114011			111	µg/L	0.903	EPA6010A	V

ANALYTE: Manganese-54**Analytical Group:** Radionuclides

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003	UI		5.04E-02	pCi/L	4.52E+00	EPIA-013	
BG 00203	114004	UI		1.34E-01	pCi/L	4.76E+00	EPIA-013	
BG 00303	114005	UI		1.17E+00	pCi/L	4.28E+00	EPIA-013	
BG 00403	114010	UI		-7.21E-01	pCi/L	6.65E+00	EPIA-013	
FMC001F03	114002	UI		-2.18E+00	pCi/L	3.92E+00	EPIA-013	
FMC001H03	114000	UI		-7.88E-01	pCi/L	4.64E+00	EPIA-013	
FMC002H03	114001	UI		-3.00E+00	pCi/L	5.25E+00	EPIA-013	
FSP 01203	114019	UI		-4.59E-01	pCi/L	3.26E+00	EPIA-013	
FSP 03203	114021	UI		-1.50E+00	pCi/L	3.61E+00	EPIA-013	
FSP 03203	114021	UI		-5.49E-01	pCi/L	3.63E+00	EPIA-013	
FSP 03203D	114022	UI		-1.48E+00	pCi/L	3.06E+00	EPA901.1MOD	
FSP 04703	114020	UI		9.39E-01	pCi/L	4.03E+00	EPIA-013	
FSP 20403	114018	UI		-2.46E-01	pCi/L	3.33E+00	EPIA-013	
FSP 29003	114016	UI		1.45E+00	pCi/L	2.14E+00	EPIA-013	
FSP 29003A	114017	UI		-1.16E+00	pCi/L	3.06E+00	EPIA-013	
HSP 00803	114006	UI		3.84E-01	pCi/L	3.88E+00	EPIA-013	
HSP 00803A	114007	UI		-3.08E-01	pCi/L	4.35E+00	EPIA-013	
HSP 02903	114014	UI		-5.93E-01	pCi/L	4.80E+00	EPIA-013	
HSP 02903	114014	UI		2.44E-01	pCi/L	5.47E+00	EPIA-013	
HSP 04303	114015	UI		-2.13E-01	pCi/L	4.03E+00	EPIA-013	
HSP 06003	114012	UI		6.70E-01	pCi/L	5.83E+00	EPIA-013	
HSP 06003D	114013	UI		-3.60E-01	pCi/L	4.41E+00	EPA901.1MOD	
HSP 06003D	114013	UI		-1.80E-01	pCi/L	4.08E+00	EPA901.1MOD	
HSP 09203	114011	UI		-8.15E-02	pCi/L	4.65E+00	EPIA-013	

ANALYTE: Mercury**Analytical Group:** Metals (total recoverable)

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003	U		0.2	µg/L	0.104	EPA7470	
BG 00203	114004	U		0.2	µg/L	0.104	EPA7470	
BG 00303	114005	U		0.2	µg/L	0.104	EPA7470	
BG 00403	114010	U		0.2	µg/L	0.104	EPA7470	
FMC001F03	114002	U		0.2	µg/L	0.104	EPA7470	
FMC001H03	114000	U		0.2	µg/L	0.104	EPA7470	
FMC002H03	114001	U		0.2	µg/L	0.104	EPA7470	
FSP 01203	114019	U		0.2	µg/L	0.104	EPA7470	
FSP 03203	114021	U		0.2	µg/L	0.104	EPA7470	
FSP 03203D	114022	U		0.7	µg/L	0.07	EPA7470	
FSP 04703	114020	U		0.2	µg/L	0.104	EPA7470	
FSP 20403	114018	U		0.2	µg/L	0.104	EPA7470	
FSP 29003	114016	U		0.2	µg/L	0.104	EPA7470	
FSP 29003A	114017	U		0.2	µg/L	0.104	EPA7470	
HSP 00803	114006	U		0.2	µg/L	0.104	EPA7470	
HSP 00803A	114007	U		0.2	µg/L	0.104	EPA7470	
HSP 02903	114014	U		0.2	µg/L	0.104	EPA7470	
HSP 04303	114015	U		0.2	µg/L	0.104	EPA7470	
HSP 06003	114012	U		0.111	µg/L	0.104	EPA7470	V
HSP 06003D	114013	U		0.7	µg/L	0.07	EPA7470	
HSP 06003D	114013	U		0.7	µg/L	0.07	EPA7470	
HSP 09203	114011	U		0.2	µg/L	0.104	EPA7470	

ANALYTE: Neptunium-237

Analytical Group: Radionuclides

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00203	114004	UI		-7.62E-03	pCi/L	1.49E-01	EPIA-032	
FSP 03203	114021	UI		3.27E-02	pCi/L	9.80E-02	EPIA-032	
FSP 20403	114018			1.46E-01	pCi/L	8.80E-02	EPIA-032	
FSP 20403	114018			9.39E-02	pCi/L	8.60E-02	EPIA-032	
HSP 00803	114006			1.21E-01	pCi/L	7.30E-02	EPIA-032	
HSP 02903	114014			3.22E-01	pCi/L	1.28E-01	EPIA-032	
HSP 09203	114011	UI		6.50E-04	pCi/L	1.23E-01	EPIA-032	

ANALYTE: Neptunium-239

Analytical Group: Radionuclides

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003	UI		7.39E+00	pCi/L	2.44E+01	EPIA-013	
BG 00203	114004	UI		-6.40E+00	pCi/L	2.42E+01	EPIA-013	
BG 00303	114005	UI		-3.17E+00	pCi/L	2.30E+01	EPIA-013	
BG 00403	114010	UI		-1.89E+01	pCi/L	3.53E+01	EPIA-013	
FMC001F03	114002	UI		-5.89E+00	pCi/L	2.50E+01	EPIA-013	
FMC001H03	114000	UI		-1.00E+00	pCi/L	2.56E+01	EPIA-013	
FMC002H03	114001	UI		2.37E+00	pCi/L	2.68E+01	EPIA-013	
FSP 01203	114019	UI		2.95E+00	pCi/L	1.95E+01	EPIA-013	
FSP 03203	114021	UI		2.52E+00	pCi/L	2.32E+01	EPIA-013	
FSP 03203	114021	UI		4.00E+00	pCi/L	2.34E+01	EPIA-013	
FSP 04703	114020	UI		-7.51E+00	pCi/L	2.15E+01	EPIA-013	
FSP 20403	114018	UI		6.57E+00	pCi/L	2.25E+01	EPIA-013	
FSP 29003	114016	UI		4.84E+00	pCi/L	1.99E+01	EPIA-013	
FSP 29003A	114017	UI		-6.40E-01	pCi/L	2.22E+01	EPIA-013	
HSP 00803	114006	UI		2.84E+00	pCi/L	1.87E+01	EPIA-013	
HSP 00803A	114007	UI		-2.05E+00	pCi/L	2.36E+01	EPIA-013	
HSP 02903	114014	UI		-6.40E+00	pCi/L	2.66E+01	EPIA-013	
HSP 02903	114014	UI		-1.71E+01	pCi/L	2.33E+01	EPIA-013	
HSP 04303	114015	UI		-1.33E+01	pCi/L	1.97E+01	EPIA-013	
HSP 06003	114012	UI		-1.19E+00	pCi/L	2.67E+01	EPIA-013	
HSP 09203	114011	UI		-4.62E+00	pCi/L	2.46E+01	EPIA-013	

ANALYTE: Nickel

Analytical Group: Metals (total recoverable)

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003	U		5	µg/L	2.27	EPA6010A	
BG 00203	114004	U		5	µg/L	2.27	EPA6010A	
BG 00303	114005	U		5	µg/L	2.27	EPA6010A	
BG 00403	114010	J		3.36	µg/L	2.27	EPA6010A	E
FMC001F03	114002	U		5	µg/L	2.27	EPA6010A	
FMC001H03	114000	U		5	µg/L	2.27	EPA6010A	
FMC002H03	114001	U		5	µg/L	2.27	EPA6010A	
FSP 01203	114019	U		5	µg/L	2.27	EPA6010A	
FSP 03203	114021	U		5	µg/L	2.27	EPA6010A	
FSP 03203D	114022			92.6	µg/L	2.6	EPA6010	
FSP 04703	114020	U		5	µg/L	2.27	EPA6010A	
FSP 20403	114018	J		9.42	µg/L	4.54	EPA6010A	E
FSP 29003	114016	U		5	µg/L	2.27	EPA6010A	

ANALYTE: Nickel (cont.)

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP 29003A	114017	U		5	µg/L	2.27	EPA6010A	
HSP 00803	114006	U		5	µg/L	2.27	EPA6010A	
HSP 00803A	114007	U		5	µg/L	2.27	EPA6010A	
HSP 02903	114014			17.8	µg/L	2.27	EPA6010A	
HSP 04303	114015	U		5	µg/L	2.27	EPA6010A	
HSP 06003	114012	J		3.54	µg/L	2.27	EPA6010A	E
HSP 06003D	114013			85.6	µg/L	2.6	EPA6010	
HSP 09203	114011	J		4	µg/L	2.27	EPA6010A	E

ANALYTE: Nickel-63

Analytical Group: Radionuclides

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP 03203	114021	UI		-1.23E+02	pCi/L	2.53E+02	EPIA-022	
FSP 03203D	114022	UIJ		-3.04E+00	pCi/L	1.27E+01	3500NIEMOD	C
FSP 03203D	114022	UIJ		-5.28E+00	pCi/L	1.25E+01	3500NIEMOD	C
FSP 20403	114018	UI		6.53E+01	pCi/L	2.20E+02	EPIA-022	
HSP 02903	114014	UI		4.07E+01	pCi/L	2.49E+02	EPIA-022	
HSP 02903	114014	UI		1.96E+02	pCi/L	2.55E+02	EPIA-022	
HSP 04303	114015	UI		-2.82E+01	pCi/L	2.33E+02	EPIA-022	

ANALYTE: Nitrate as nitrogen

Analytical Group: Specified Analyses

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003			302	µg/L	6	EPA300.0	V
BG 00103	114003			309	µg/L	6	EPA300.0	V
BG 00203	114004			102	µg/L	6	EPA300.0	V
BG 00303	114005			122	µg/L	6	EPA300.0	V
BG 00403	114010			126	µg/L	6	EPA300.0	V
FMC001F03	114002	J	L	919	µg/L	6	EPA300.0	Q
FMC001H03	114000	J	L	807	µg/L	6	EPA300.0	Q
FMC001H03	114000	J	L	852	µg/L	6	EPA300.0	Q
FMC002H03	114001	J	L	163	µg/L	6	EPA300.0	Q
FSP 01203	114019			237	µg/L	6	EPA300.0	V
FSP 03203	114021			1250	µg/L	6	EPA300.0	V
FSP 03203D	114022	J		1760	µg/L	20	EPA353.2	Q
FSP 04703	114020			440	µg/L	6	EPA300.0	V
FSP 20403	114018			34200	µg/L	600	EPA300.0	V
FSP 29003	114016			206	µg/L	6	EPA300.0	V
FSP 29003	114016			208	µg/L	6	EPA300.0	V
FSP 29003A	114017			266	µg/L	6	EPA300.0	V
HSP 00803	114006			2030	µg/L	6	EPA300.0	V
HSP 00803A	114007			2090	µg/L	6	EPA300.0	V
HSP 02903	114014			994	µg/L	6	EPA300.0	V
HSP 04303	114015			2700	µg/L	6	EPA300.0	V
HSP 06003	114012			325	µg/L	6	EPA300.0	V
HSP 06003	114012			301	µg/L	6	EPA300.0	V
HSP 06003D	114013	J		143	µg/L	2	EPA353.2	Q
HSP 09203	114011			1190	µg/L	6	EPA300.0	V

ANALYTE: Nitrate-nitrite as nitrogen

Analytical Group: Specified Analyses

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003			320	µg/L	7	EPA353.1	
BG 00203	114004			210	µg/L	7	EPA353.1	
BG 00303	114005			90	µg/L	7	EPA353.1	
BG 00403	114010			200	µg/L	7	EPA353.1	
FMC001F03	114002			1020	µg/L	7	EPA353.1	
FMC001H03	114000			80	µg/L	7	EPA353.1	
FMC002H03	114001			170	µg/L	7	EPA353.1	
FSP 01203	114019			11400	µg/L	35	EPA353.1	V
FSP 03203	114021			1470	µg/L	7	EPA353.1	V
FSP 03203D	114022			1500	µg/L	20	EPA353.2	
FSP 04703	114020			500	µg/L	7	EPA353.1	V
FSP 20403	114018			35800	µg/L	175	EPA353.1	V
FSP 29003	114016			280	µg/L	7	EPA353.1	V
FSP 29003A	114017			400	µg/L	7	EPA353.1	V
HSP 00803	114006			2430	µg/L	7	EPA353.1	
HSP 00803A	114007			2790	µg/L	7	EPA353.1	
HSP 02903	114014			1010	µg/L	7	EPA353.1	
HSP 04303	114015			2480	µg/L	7	EPA353.1	
HSP 06003	114012			560	µg/L	7	EPA353.1	
HSP 06003D	114013	J		31	µg/L	4	EPA353.2	E
HSP 09203	114011			1180	µg/L	7	EPA353.1	
HSP 09203	114011			1170	µg/L	7	EPA353.1	

ANALYTE: Nonvolatile beta

Analytical Group: Radionuclides

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003			4.43E+00	pCi/L	1.13E+00	EPIA-001	
BG 00203	114004			1.79E+01	pCi/L	2.88E+00	EPIA-001	
BG 00303	114005	UI		1.12E+00	pCi/L	1.13E+00	EPIA-001	
BG 00403	114010			1.01E+00	pCi/L	9.40E-01	EPIA-001	
FMC001F03	114002			1.74E+01	pCi/L	1.20E+00	EPIA-001	
FMC001H03	114000			3.58E+00	pCi/L	1.06E+00	EPIA-001	
FMC002H03	114001			8.88E+00	pCi/L	1.40E+00	EPIA-001	
FSP 01203	114019			2.94E+01	pCi/L	2.03E+00	EPIA-001	
FSP 03203	114021			7.30E+01	pCi/L	2.05E+00	EPIA-001	
FSP 03203D	114022			7.95E+01	pCi/L	2.61E+00	EPA900.0MOD	X
FSP 04703	114020			3.25E+01	pCi/L	1.97E+00	EPIA-001	
FSP 20403	114018			4.82E+02	pCi/L	2.21E+00	EPIA-001	
FSP 29003	114016			7.61E+00	pCi/L	2.16E+00	EPIA-001	
FSP 29003A	114017			8.59E+00	pCi/L	2.07E+00	EPIA-001	
HSP 00803	114006			3.77E+01	pCi/L	4.81E+00	EPIA-001	
HSP 00803A	114007			6.45E+00	pCi/L	8.36E-01	EPIA-001	
HSP 02903	114014			3.32E+02	pCi/L	9.36E-01	EPIA-001	
HSP 04303	114015			2.33E+02	pCi/L	1.25E+00	EPIA-001	
HSP 06003	114012			3.61E+01	pCi/L	2.13E+00	EPIA-001	
HSP 06003D	114013	J		2.67E+01	pCi/L	1.88E+00	EPA900.0MOD	X
HSP 06003D	114013	J		3.48E+01	pCi/L	1.92E+00	EPA900.0MOD	X
HSP 09203	114011			1.62E+01	pCi/L	2.48E+00	EPIA-001	

ANALYTE: Potassium**Analytical Group:** *Metals (total recoverable)*

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003	J		95.3	µg/L	5.87	EPA6010A	E
BG 00203	114004	J		69.9	µg/L	5.87	EPA6010A	E
BG 00303	114005			146	µg/L	5.87	EPA6010A	
BG 00403	114010			273	µg/L	5.87	EPA6010A	V
FMC001F03	114002			409	µg/L	5.87	EPA6010A	
FMC001H03	114000			297	µg/L	5.87	EPA6010A	
FMC002H03	114001			316	µg/L	5.87	EPA6010A	
FSP 01203	114019			880	µg/L	5.87	EPA6010A	
FSP 03203	114021			128	µg/L	5.87	EPA6010A	
FSP 03203D	114022	J		141	µg/L	18.7	EPA6010	E
FSP 04703	114020	J		37.8	µg/L	5.87	EPA6010A	E
FSP 20403	114018			405	µg/L	11.7	EPA6010A	
FSP 29003	114016			114	µg/L	5.87	EPA6010A	
FSP 29003A	114017			131	µg/L	5.87	EPA6010A	
HSP 00803	114006			169	µg/L	5.87	EPA6010A	
HSP 00803A	114007			151	µg/L	5.87	EPA6010A	
HSP 02903	114014			457	µg/L	5.87	EPA6010A	V
HSP 04303	114015			766	µg/L	5.87	EPA6010A	V
HSP 06003	114012			347	µg/L	5.87	EPA6010A	V
HSP 06003D	114013			296	µg/L	18.7	EPA6010	
HSP 09203	114011			164	µg/L	5.87	EPA6010A	V

ANALYTE: Potassium-40**Analytical Group:** *Radionuclides*

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003	UI		8.24E+00	pCi/L	4.21E+01	EPIA-013	
BG 00203	114004	UI		8.87E-01	pCi/L	4.34E+01	EPIA-013	
BG 00303	114005	UI		4.91E+01	pCi/L	6.86E+01	EPIA-013	
BG 00403	114010			8.89E+01	pCi/L	7.36E+01	EPIA-013	
FMC001F03	114002	UI		2.81E+00	pCi/L	5.06E+01	EPIA-013	
FMC001H03	114000	UI		6.80E+01	pCi/L	7.51E+01	EPIA-013	
FMC002H03	114001	UI		6.57E+01	pCi/L	4.61E+01	EPIA-013	
FSP 01203	114019			6.47E+01	pCi/L	2.68E+01	EPIA-013	
FSP 03203	114021	UI		3.02E+01	pCi/L	4.96E+01	EPIA-013	
FSP 03203	114021	UI		3.16E+01	pCi/L	4.80E+01	EPIA-013	
FSP 03203D	114022	UI		-9.69E+00	pCi/L	3.80E+01	EPA901.1MOD	
FSP 04703	114020	UI		2.93E+01	pCi/L	4.92E+01	EPIA-013	
FSP 20403	114018	UI		1.58E+01	pCi/L	4.17E+01	EPIA-013	
FSP 29003	114016	UI		2.40E+01	pCi/L	2.34E+01	EPIA-013	
FSP 29003A	114017	UI		3.00E+01	pCi/L	4.94E+01	EPIA-013	
HSP 00803	114006	UI		5.77E-01	pCi/L	4.42E+01	EPIA-013	
HSP 00803A	114007	UI		2.49E+01	pCi/L	4.87E+01	EPIA-013	
HSP 02903	114014	UI		4.66E+01	pCi/L	4.64E+01	EPIA-013	
HSP 02903	114014	UI		4.53E+01	pCi/L	6.88E+01	EPIA-013	
HSP 04303	114015	UI		2.74E+01	pCi/L	5.90E+01	EPIA-013	
HSP 06003	114012	UI		8.29E+01	pCi/L	8.45E+01	EPIA-013	
HSP 06003D	114013	UI		-1.63E+01	pCi/L	3.94E+01	EPA901.1MOD	
HSP 06003D	114013	R		7.22E+00	pCi/L	3.44E+01	EPA901.1MOD	4
HSP 09203	114011	UI		1.56E+01	pCi/L	4.79E+01	EPIA-013	

ANALYTE: Promethium-144
Analytical Group: Radionuclides

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003	UI		-1.79E-01	pCi/L	4.22E+00	EPIA-013	
BG 00203	114004	UI		-8.66E-02	pCi/L	4.60E+00	EPIA-013	
BG 00303	114005	UI		1.39E+00	pCi/L	4.38E+00	EPIA-013	
BG 00403	114010	UI		3.40E+00	pCi/L	7.06E+00	EPIA-013	
FMC001F03	114002	UI		9.32E-01	pCi/L	4.29E+00	EPIA-013	
FMC001H03	114000	UI		-1.17E-01	pCi/L	4.51E+00	EPIA-013	
FMC002H03	114001	UI		-3.34E-01	pCi/L	5.39E+00	EPIA-013	
FSP 01203	114019	UI		2.61E-01	pCi/L	2.85E+00	EPIA-013	
FSP 03203	114021	UI		-1.58E-01	pCi/L	3.41E+00	EPIA-013	
FSP 03203	114021	UI		-1.35E+00	pCi/L	3.10E+00	EPIA-013	
FSP 03203D	114022	UI		3.50E-01	pCi/L	3.65E+00	EPA901.1MOD	X
FSP 04703	114020	UI		-3.19E-01	pCi/L	3.56E+00	EPIA-013	
FSP 20403	114018	UI		1.99E+00	pCi/L	3.59E+00	EPIA-013	
FSP 29003	114016	UI		-8.35E-01	pCi/L	2.69E+00	EPIA-013	
FSP 29003A	114017	UI		9.12E-01	pCi/L	3.52E+00	EPIA-013	
HSP 00803	114006	UI		-8.83E-01	pCi/L	3.64E+00	EPIA-013	
HSP 00803A	114007	UI		-1.65E+00	pCi/L	4.34E+00	EPIA-013	
HSP 02903	114014	UI		1.03E+00	pCi/L	4.75E+00	EPIA-013	
HSP 02903	114014	UI		2.07E+00	pCi/L	4.93E+00	EPIA-013	
HSP 04303	114015	UI		1.09E+00	pCi/L	4.28E+00	EPIA-013	
HSP 06003	114012	UI		-2.28E-01	pCi/L	5.34E+00	EPIA-013	
HSP 06003D	114013	J		1.91E+01	pCi/L	3.83E+00	EPA901.1MOD	X
HSP 06003D	114013	UIJ		1.14E+00	pCi/L	4.17E+00	EPA901.1MOD	X
HSP 09203	114011	UI		-5.82E-02	pCi/L	4.54E+00	EPIA-013	

ANALYTE: Promethium-146
Analytical Group: Radionuclides

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003	UI		1.79E+00	pCi/L	6.01E+00	EPIA-013	
BG 00203	114004	UI		-7.85E-01	pCi/L	5.71E+00	EPIA-013	
BG 00303	114005	UI		1.56E+00	pCi/L	5.17E+00	EPIA-013	
BG 00403	114010	UI		1.20E+00	pCi/L	8.83E+00	EPIA-013	
FMC001F03	114002	UI		7.83E-01	pCi/L	5.49E+00	EPIA-013	
FMC001H03	114000	UI		-1.82E+00	pCi/L	5.72E+00	EPIA-013	
FMC002H03	114001	UI		1.41E+00	pCi/L	6.64E+00	EPIA-013	
FSP 01203	114019	UI		2.83E+00	pCi/L	4.24E+00	EPIA-013	
FSP 03203	114021	UI		-5.05E-01	pCi/L	4.57E+00	EPIA-013	
FSP 03203	114021	UI		9.72E-01	pCi/L	4.51E+00	EPIA-013	
FSP 03203D	114022	UI		-5.50E-01	pCi/L	5.73E+00	EPA901.1MOD	
FSP 04703	114020	UI		-8.42E-01	pCi/L	3.99E+00	EPIA-013	
FSP 20403	114018	UI		3.61E-01	pCi/L	4.06E+00	EPIA-013	
FSP 29003	114016	UI		-6.16E-01	pCi/L	3.43E+00	EPIA-013	
FSP 29003A	114017	UI		2.41E-01	pCi/L	4.56E+00	EPIA-013	
HSP 00803	114006	UI		-1.68E+00	pCi/L	4.69E+00	EPIA-013	
HSP 00803A	114007	UI		3.99E-02	pCi/L	5.51E+00	EPIA-013	
HSP 02903	114014	UI		4.30E-01	pCi/L	5.63E+00	EPIA-013	
HSP 02903	114014	UI		-1.73E+00	pCi/L	5.67E+00	EPIA-013	
HSP 04303	114015	UI		-4.72E-01	pCi/L	4.98E+00	EPIA-013	
HSP 06003	114012	UI		-7.81E-01	pCi/L	6.19E+00	EPIA-013	
HSP 06003D	114013	UI		-5.00E-01	pCi/L	6.28E+00	EPA901.1MOD	
HSP 06003D	114013	UI		-2.13E+00	pCi/L	6.50E+00	EPA901.1MOD	
HSP 09203	114011	UI		4.12E-01	pCi/L	5.95E+00	EPIA-013	

ANALYTE: Radium-226**Analytical Group: Radionuclides**

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00203	114004			2.76E+00	pCi/L	4.52E-01	EPIA-008	
BG 00203	114004			3.29E+00	pCi/L	6.13E-01	EPIA-008	
FSP 03203	114021			6.67E-01	pCi/L	4.86E-01	EPIA-008	
FSP 20403	114018			1.48E+01	pCi/L	1.77E-01	EPIA-008	
HSP 00803	114006			6.80E-01	pCi/L	5.01E-01	EPIA-008	
HSP 02903	114014			7.91E+00	pCi/L	7.07E-01	EPIA-008	
HSP 02903	114014			7.29E+00	pCi/L	5.48E-01	EPIA-008	
HSP 09203	114011			1.26E+00	pCi/L	4.04E-01	EPIA-008	

ANALYTE: Radium-228**Analytical Group: Radionuclides**

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP 03203	114021	UI		1.05E-01	pCi/L	1.02E+00	EPIA-009	
FSP 03203D	114022			3.07E+01	pCi/L	5.75E+00	EPA904.0MOD	
FSP 03203D	114022			2.60E+01	pCi/L	7.77E+00	EPA904.0MOD	
FSP 20403	114018			2.64E+00	pCi/L	1.01E+00	EPIA-009	
HSP 02903	114014	UI		4.50E-02	pCi/L	7.11E-01	EPIA-009	
HSP 02903	114014	UI		-2.06E-01	pCi/L	7.83E-01	EPIA-009	
HSP 04303	114015	UI		2.34E-01	pCi/L	6.74E-01	EPIA-009	

ANALYTE: Ruthenium-106**Analytical Group: Radionuclides**

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003	UI		-1.24E+01	pCi/L	3.75E+01	EPIA-013	
BG 00203	114004	UI		2.19E+00	pCi/L	4.33E+01	EPIA-013	
BG 00303	114005	UI		9.22E+00	pCi/L	4.05E+01	EPIA-013	
BG 00403	114010	UI		2.00E+01	pCi/L	6.46E+01	EPIA-013	
FMC001F03	114002	UI		1.26E+01	pCi/L	4.05E+01	EPIA-013	
FMC001H03	114000	UI		-7.76E+00	pCi/L	4.04E+01	EPIA-013	
FMC002H03	114001	UI		-2.05E+01	pCi/L	5.05E+01	EPIA-013	
FSP 01203	114019	UI		9.89E+00	pCi/L	3.33E+01	EPIA-013	
FSP 03203	114021	UI		9.02E+00	pCi/L	3.29E+01	EPIA-013	
FSP 03203	114021	UI		3.44E+00	pCi/L	3.02E+01	EPIA-013	
FSP 03203D	114022	UI		3.15E+00	pCi/L	3.26E+01	EPA901.1MOD	
FSP 04703	114020	UI		1.56E+00	pCi/L	3.35E+01	EPIA-013	
FSP 20403	114018	UI		-2.65E+00	pCi/L	3.01E+01	EPIA-013	
FSP 29003	114016	UI		-1.21E+00	pCi/L	2.51E+01	EPIA-013	
FSP 29003A	114017	UI		-7.79E+00	pCi/L	3.04E+01	EPIA-013	
HSP 00803	114006	UI		-1.35E+01	pCi/L	3.50E+01	EPIA-013	
HSP 00803A	114007	UI		8.75E+00	pCi/L	3.97E+01	EPIA-013	
HSP 02903	114014	UI		-1.52E+01	pCi/L	3.66E+01	EPIA-013	
HSP 02903	114014	UI		7.08E+00	pCi/L	4.53E+01	EPIA-013	
HSP 04303	114015	UI		-5.92E+00	pCi/L	3.54E+01	EPIA-013	
HSP 06003	114012	UI		5.64E+00	pCi/L	5.02E+01	EPIA-013	
HSP 06003D	114013	UI		-2.54E+00	pCi/L	3.49E+01	EPA901.1MOD	
HSP 06003D	114013	UI		-7.29E+00	pCi/L	3.29E+01	EPA901.1MOD	
HSP 09203	114011	UI		-3.35E+00	pCi/L	4.30E+01	EPIA-013	

ANALYTE: Selenium

Analytical Group: Metals (total recoverable)

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003	U		5	µg/L	1.4	EPA6010A	
BG 00203	114004	U		5	µg/L	1.4	EPA6010A	
BG 00303	114005	U		5	µg/L	1.4	EPA6010A	
BG 00403	114010	U		5	µg/L	1.4	EPA6010A	
FMC001F03	114002	U		5	µg/L	1.4	EPA6010A	
FMC001H03	114000	U		5	µg/L	1.4	EPA6010A	
FMC002H03	114001	U		5	µg/L	1.4	EPA6010A	
FSP 01203	114019	U		5	µg/L	1.4	EPA6010A	
FSP 03203	114021	U		5	µg/L	1.4	EPA6010A	
FSP 03203D	114022	U		66	µg/L	6.6	EPA6010	
FSP 04703	114020	U		5	µg/L	1.4	EPA6010A	
FSP 20403	114018	U		10	µg/L	2.8	EPA6010A	
FSP 29003	114016	U		5	µg/L	1.4	EPA6010A	
FSP 29003A	114017	U		5	µg/L	1.4	EPA6010A	
HSP 00803	114006	U		5	µg/L	1.4	EPA6010A	
HSP 00803A	114007	U		5	µg/L	1.4	EPA6010A	
HSP 02903	114014	U		5	µg/L	1.4	EPA6010A	
HSP 04303	114015	U		5	µg/L	1.4	EPA6010A	
HSP 06003	114012	U		5	µg/L	1.4	EPA6010A	
HSP 06003D	114013	U		66	µg/L	6.6	EPA6010	
HSP 09203	114011	U		5	µg/L	1.4	EPA6010A	

ANALYTE: Silver

Analytical Group: Metals (total recoverable)

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003	U		5	µg/L	0.62	EPA6010A	
BG 00203	114004	U		5	µg/L	0.62	EPA6010A	
BG 00303	114005	U		5	µg/L	0.62	EPA6010A	
BG 00403	114010	U		3.1	µg/L	0.62	EPA6010A	V
FMC001F03	114002	U		5	µg/L	0.62	EPA6010A	
FMC001H03	114000	U		5	µg/L	0.62	EPA6010A	
FMC002H03	114001	U		5	µg/L	0.62	EPA6010A	
FSP 01203	114019	U		5	µg/L	0.62	EPA6010A	
FSP 03203	114021	U		1.38	µg/L	0.62	EPA6010A	V
FSP 03203D	114022	U		5	µg/L	0.5	EPA6010	
FSP 04703	114020	U		1.09	µg/L	0.62	EPA6010A	V
FSP 20403	114018	U		10	µg/L	1.24	EPA6010A	
FSP 29003	114016	U		1.41	µg/L	0.62	EPA6010A	V
FSP 29003A	114017	U		1.14	µg/L	0.62	EPA6010A	V
HSP 00803	114006	U		5	µg/L	0.62	EPA6010A	
HSP 00803A	114007	U		5	µg/L	0.62	EPA6010A	
HSP 02903	114014	U		3.25	µg/L	0.62	EPA6010A	V
HSP 04303	114015	U		3.15	µg/L	0.62	EPA6010A	V
HSP 06003	114012	U		2.96	µg/L	0.62	EPA6010A	V
HSP 06003D	114013	U		5	µg/L	0.5	EPA6010	
HSP 09203	114011	U		2.83	µg/L	0.62	EPA6010A	V

ANALYTE: Sodium**Analytical Group: Metals (total recoverable)**

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003			932	µg/L	29.1	EPA6010A	V
BG 00203	114004			927	µg/L	29.1	EPA6010A	V
BG 00303	114005			1470	µg/L	29.1	EPA6010A	V
BG 00403	114010			1650	µg/L	29.1	EPA6010A	V
FMC001F03	114002			4250	µg/L	29.1	EPA6010A	V
FMC001H03	114000			3630	µg/L	29.1	EPA6010A	V
FMC002H03	114001			3940	µg/L	29.1	EPA6010A	V
FSP 01203	114019			1480	µg/L	29.1	EPA6010A	
FSP 03203	114021			2880	µg/L	29.1	EPA6010A	
FSP 03203D	114022			2620	µg/L	28.5	EPA6010	V
FSP 04703	114020			2720	µg/L	29.1	EPA6010A	
FSP 20403	114018			17600	µg/L	58.2	EPA6010A	
FSP 29003	114016			1900	µg/L	29.1	EPA6010A	
FSP 29003A	114017			1860	µg/L	29.1	EPA6010A	
HSP 00803	114006			13200	µg/L	29.1	EPA6010A	V
HSP 00803A	114007			13300	µg/L	29.1	EPA6010A	V
HSP 02903	114014			4490	µg/L	29.1	EPA6010A	V
HSP 04303	114015			16100	µg/L	29.1	EPA6010A	V
HSP 06003	114012			25400	µg/L	29.1	EPA6010A	V
HSP 06003D	114013			17000	µg/L	28.5	EPA6010	V
HSP 09203	114011			3750	µg/L	29.1	EPA6010A	V

ANALYTE: Sodium-22**Analytical Group: Radionuclides**

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003	UI		-9.05E-02	pCi/L	4.03E+00	EPIA-013	
BG 00203	114004	UI		9.42E-01	pCi/L	5.22E+00	EPIA-013	
BG 00303	114005	UI		2.38E+00	pCi/L	5.30E+00	EPIA-013	
BG 00403	114010	UI		1.96E+00	pCi/L	6.93E+00	EPIA-013	
FMC001F03	114002	UI		1.91E+00	pCi/L	4.91E+00	EPIA-013	
FMC001H03	114000	UI		4.53E-01	pCi/L	5.60E+00	EPIA-013	
FMC002H03	114001	UI		-1.57E+00	pCi/L	5.65E+00	EPIA-013	
FSP 01203	114019	UI		-3.28E-01	pCi/L	3.47E+00	EPIA-013	
FSP 03203	114021	UI		6.74E-03	pCi/L	3.63E+00	EPIA-013	
FSP 03203	114021	UI		1.28E+00	pCi/L	4.11E+00	EPIA-013	
FSP 03203D	114022	UI		-1.19E+00	pCi/L	3.63E+00	EPA901.1MOD	
FSP 04703	114020	UI		-3.79E-01	pCi/L	4.04E+00	EPIA-013	
FSP 20403	114018	UI		-1.57E+00	pCi/L	2.77E+00	EPIA-013	
FSP 29003	114016	UI		-7.35E-01	pCi/L	2.62E+00	EPIA-013	
FSP 29003A	114017	UI		-1.12E-01	pCi/L	3.62E+00	EPIA-013	
HSP 00803	114006	UI		-7.17E-01	pCi/L	4.42E+00	EPIA-013	
HSP 00803A	114007	UI		5.80E-01	pCi/L	4.99E+00	EPIA-013	
HSP 02903	114014	UI		-8.02E-01	pCi/L	4.32E+00	EPIA-013	
HSP 02903	114014	UI		-9.55E-01	pCi/L	4.75E+00	EPIA-013	
HSP 04303	114015	UI		-4.21E-01	pCi/L	4.37E+00	EPIA-013	
HSP 06003	114012	UI		-1.92E+00	pCi/L	5.92E+00	EPIA-013	
HSP 06003D	114013	UI		8.60E-01	pCi/L	5.08E+00	EPA901.1MOD	
HSP 06003D	114013	UI		-5.40E-01	pCi/L	4.38E+00	EPA901.1MOD	
HSP 09203	114011	UI		3.69E-01	pCi/L	4.97E+00	EPIA-013	

ANALYTE: Strontium-90**Analytical Group: Radionuclides**

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP 03203D	114022			2.04E+01	pCi/L	1.94E+00	EMLSR02MOD	
FSP 03203D	114022			1.92E+01	pCi/L	1.73E+00	EMLSR02MOD	

ANALYTE: Thallium**Analytical Group: Metals (total recoverable)**

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003	U		10	µg/L	2.63	EPA6010A	
BG 00203	114004	U		10	µg/L	2.63	EPA6010A	
BG 00303	114005	U		10	µg/L	2.63	EPA6010A	
BG 00403	114010	U		10	µg/L	2.63	EPA6010A	
FMC001F03	114002	U		10	µg/L	2.63	EPA6010A	
FMC001H03	114000	U		10	µg/L	2.63	EPA6010A	
FMC002H03	114001	U		10	µg/L	2.63	EPA6010A	
FSP 01203	114019	U		10	µg/L	2.63	EPA6010A	
FSP 03203	114021	U		10	µg/L	2.63	EPA6010A	
FSP 03203D	114022	U		55	µg/L	5.5	EPA6010	
FSP 04703	114020	U		10	µg/L	2.63	EPA6010A	
FSP 20403	114018	U		20	µg/L	5.26	EPA6010A	
FSP 29003	114016	U		10	µg/L	2.63	EPA6010A	
FSP 29003A	114017	U		10	µg/L	2.63	EPA6010A	
HSP 00803	114006	U		10	µg/L	2.63	EPA6010A	
HSP 00803A	114007	U		10	µg/L	2.63	EPA6010A	
HSP 02903	114014	U		10	µg/L	2.63	EPA6010A	
HSP 04303	114015	U		10	µg/L	2.63	EPA6010A	
HSP 06003	114012	U		10	µg/L	2.63	EPA6010A	
HSP 06003D	114013	U		55	µg/L	5.5	EPA6010	
HSP 09203	114011	U		10	µg/L	2.63	EPA6010A	

ANALYTE: Tin**Analytical Group: Metals (total recoverable)**

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003	U		10	µg/L	2.94	EPA6010A	
BG 00203	114004	U		10	µg/L	2.94	EPA6010A	
BG 00303	114005	U		10	µg/L	2.94	EPA6010A	
BG 00403	114010	U		10	µg/L	2.94	EPA6010A	
FMC001F03	114002	U		10	µg/L	2.94	EPA6010A	
FMC001H03	114000	U		10	µg/L	2.94	EPA6010A	
FMC002H03	114001	U		10	µg/L	2.94	EPA6010A	
FSP 01203	114019	U		10	µg/L	2.94	EPA6010A	
FSP 03203	114021	U		10	µg/L	2.94	EPA6010A	
FSP 03203D	114022	U		70	µg/L	7	EPA6010	
FSP 04703	114020	U		10	µg/L	2.94	EPA6010A	
FSP 20403	114018	U		20	µg/L	5.88	EPA6010A	
FSP 29003	114016	U		10	µg/L	2.94	EPA6010A	
FSP 29003A	114017	U		10	µg/L	2.94	EPA6010A	
HSP 00803	114006	U		10	µg/L	2.94	EPA6010A	
HSP 00803A	114007	U		10	µg/L	2.94	EPA6010A	
HSP 02903	114014	U		10	µg/L	2.94	EPA6010A	
HSP 04303	114015	U		10	µg/L	2.94	EPA6010A	

ANALYTE: Tin (cont.)

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
HSP 06003	114012	U		10	µg/L	2.94	EPA6010A	
HSP 06003D	114013	U		70	µg/L	7	EPA6010	
HSP 09203	114011	U		10	µg/L	2.94	EPA6010A	

ANALYTE: Tin-113**Analytical Group: Radionuclides**

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003	UI		1.32E+00	pCi/L	5.70E+00	EPIA-013	
BG 00203	114004	UI		3.04E+00	pCi/L	6.23E+00	EPIA-013	
BG 00303	114005	UI		3.15E+00	pCi/L	5.40E+00	EPIA-013	
BG 00403	114010	UI		2.49E-01	pCi/L	8.32E+00	EPIA-013	
FMC001F03	114002	UI		-3.40E+00	pCi/L	5.28E+00	EPIA-013	
FMC001H03	114000	UI		-3.79E-01	pCi/L	6.35E+00	EPIA-013	
FMC002H03	114001	UI		-2.44E+00	pCi/L	6.58E+00	EPIA-013	
FSP 01203	114019	UI		1.81E+00	pCi/L	4.11E+00	EPIA-013	
FSP 03203	114021	UI		2.92E-01	pCi/L	4.52E+00	EPIA-013	
FSP 03203	114021	UI		1.65E+00	pCi/L	4.67E+00	EPIA-013	
FSP 03203D	114022	UI		1.89E+00	pCi/L	4.51E+00	EPA901.1MOD	
FSP 04703	114020	UI		-1.68E+00	pCi/L	4.29E+00	EPIA-013	
FSP 20403	114018	UI		-1.02E-01	pCi/L	4.19E+00	EPIA-013	
FSP 29003	114016	UI		1.56E+00	pCi/L	3.52E+00	EPIA-013	
FSP 29003A	114017	UI		-1.22E+00	pCi/L	4.07E+00	EPIA-013	
HSP 00803	114006	UI		2.76E+00	pCi/L	5.30E+00	EPIA-013	
HSP 00803A	114007	UI		-4.21E+00	pCi/L	5.47E+00	EPIA-013	
HSP 02903	114014	UI		-2.99E+00	pCi/L	5.17E+00	EPIA-013	
HSP 02903	114014	UI		2.06E+00	pCi/L	6.61E+00	EPIA-013	
HSP 04303	114015	UI		-1.26E+00	pCi/L	4.77E+00	EPIA-013	
HSP 06003	114012	UI		-7.35E-01	pCi/L	6.34E+00	EPIA-013	
HSP 06003D	114013	UI		-1.03E+00	pCi/L	4.55E+00	EPA901.1MOD	
HSP 06003D	114013	UI		1.69E+00	pCi/L	4.90E+00	EPA901.1MOD	
HSP 09203	114011	UI		3.95E+00	pCi/L	6.25E+00	EPIA-013	

ANALYTE: Tritium**Analytical Group: Radionuclides**

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003			4.15E+00	pCi/mL	5.65E-01	EPA906.0	
BG 00203	114004			7.34E-01	pCi/mL	6.40E-01	EPA906.0	
BG 00303	114005			2.26E+00	pCi/mL	5.74E-01	EPA906.0	
BG 00403	114010			1.32E+00	pCi/mL	6.20E-01	EPA906.0	
FMC001F03	114002			2.42E+02	pCi/mL	5.72E-01	EPA906.0	
FMC001H03	114000			6.66E+00	pCi/mL	5.72E-01	EPA906.0	
FMC002H03	114001			3.35E+01	pCi/mL	5.67E-01	EPA906.0	
FSP 01203	114019			4.49E+01	pCi/mL	6.00E-01	EPA906.0	
FSP 03203	114021			8.82E+01	pCi/mL	6.12E-01	EPA906.0	
FSP 03203D	114022			1.04E+02	pCi/mL	6.10E-01	EPA906.0MOD	
FSP 04703	114020			2.31E+01	pCi/mL	6.08E-01	EPA906.0	
FSP 20403	114018			1.62E+03	pCi/mL	2.92E+00	EPA906.0	
FSP 29003	114016			5.48E+01	pCi/mL	6.35E-01	EPA906.0	
FSP 29003A	114017			5.26E+01	pCi/mL	6.35E-01	EPA906.0	
HSP 00803	114006			8.90E+01	pCi/mL	6.06E-01	EPA906.0	

ANALYTE: Tritium (cont.)

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
HSP 00803A	114007			9.36E+01	pCi/mL	5.97E-01	EPA906.0	
HSP 02903	114014			2.66E+01	pCi/mL	5.88E-01	EPA906.0	
HSP 04303	114015			1.72E+03	pCi/mL	3.07E+00	EPA906.0	
HSP 06003	114012			2.27E+02	pCi/mL	1.05E+00	EPA906.0	
HSP 06003D	114013			3.29E+02	pCi/mL	5.80E-01	EPA906.0MOD	
HSP 06003D	114013			3.82E+02	pCi/mL	6.80E-01	EPA906.0MOD	
HSP 09203	114011			1.66E+02	pCi/mL	8.47E-01	EPA906.0	

ANALYTE: Uranium-233/234**Analytical Group:** Radionuclides

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00203	114004			1.29E+00	pCi/L	3.17E-01	EPIA-011	
FSP 03203	114021			2.67E-01	pCi/L	8.91E-02	EPIA-011	
FSP 03203	114021			2.38E-01	pCi/L	1.43E-01	EPIA-011	
FSP 20403	114018			2.81E+00	pCi/L	1.83E-01	EPIA-011	
HSP 00803	114006			2.18E-01	pCi/L	7.28E-02	EPIA-011	
HSP 02903	114014			5.34E-01	pCi/L	2.37E-01	EPIA-011	
HSP 09203	114011			3.47E-01	pCi/L	1.04E-01	EPIA-011	

ANALYTE: Uranium-235**Analytical Group:** Radionuclides

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00203	114004	UI		2.53E-01	pCi/L	2.85E-01	EPIA-011	
FSP 03203	114021	UI		5.25E-02	pCi/L	1.57E-01	EPIA-011	
FSP 03203	114021	UI		1.09E-03	pCi/L	2.06E-01	EPIA-011	
FSP 20403	114018	UI		8.13E-02	pCi/L	1.56E-01	EPIA-011	
HSP 00803	114006	UI		1.85E-02	pCi/L	1.28E-01	EPIA-011	
HSP 02903	114014	UI		1.97E-01	pCi/L	2.18E-01	EPIA-011	
HSP 09203	114011	UI		6.97E-02	pCi/L	1.05E-01	EPIA-011	

ANALYTE: Uranium-238**Analytical Group:** Radionuclides

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00203	114004			9.87E-01	pCi/L	4.66E-01	EPIA-011	
FSP 03203	114021			4.61E-01	pCi/L	1.85E-01	EPIA-011	
FSP 03203	114021	UI		1.09E-03	pCi/L	2.05E-01	EPIA-011	
FSP 20403	114018			2.64E+00	pCi/L	1.55E-01	EPIA-011	
HSP 00803	114006			1.70E-01	pCi/L	7.28E-02	EPIA-011	
HSP 02903	114014	UI		4.01E-02	pCi/L	2.18E-01	EPIA-011	
HSP 09203	114011			2.08E-01	pCi/L	1.04E-01	EPIA-011	

ANALYTE: Vanadium**Analytical Group:** *Metals (total recoverable)*

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003	U		5	µg/L	0.427	EPA6010A	
BG 00203	114004	U		5	µg/L	0.427	EPA6010A	
BG 00303	114005	U		5	µg/L	0.427	EPA6010A	
BG 00403	114010	J		1.57	µg/L	0.427	EPA6010A	E
FMC001F03	114002	U		5	µg/L	0.427	EPA6010A	
FMC001H03	114000	U		5	µg/L	0.427	EPA6010A	
FMC002H03	114001	U		5	µg/L	0.427	EPA6010A	
FSP 01203	114019	J		1.27	µg/L	0.427	EPA6010A	E
FSP 03203	114021	U		5	µg/L	0.427	EPA6010A	
FSP 03203D	114022	U		6.9	µg/L	0.69	EPA6010	
FSP 04703	114020	J		1.55	µg/L	0.427	EPA6010A	E
FSP 20403	114018	U		10	µg/L	0.854	EPA6010A	
FSP 29003	114016	J		0.977	µg/L	0.427	EPA6010A	E
FSP 29003A	114017	J		0.721	µg/L	0.427	EPA6010A	E
HSP 00803	114006	J		4.59	µg/L	0.427	EPA6010A	E
HSP 00803A	114007	J		4.22	µg/L	0.427	EPA6010A	E
HSP 02903	114014			9.07	µg/L	0.427	EPA6010A	
HSP 04303	114015	J		1.46	µg/L	0.427	EPA6010A	E
HSP 06003	114012			18.4	µg/L	0.427	EPA6010A	
HSP 06003D	114013			10.8	µg/L	0.69	EPA6010	
HSP 09203	114011	J		4.29	µg/L	0.427	EPA6010A	E

ANALYTE: Yttrium-88**Analytical Group:** *Radionuclides*

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003	UI		-8.84E-01	pCi/L	4.85E+00	EPIA-013	
BG 00203	114004	UI		4.76E-01	pCi/L	6.54E+00	EPIA-013	
BG 00303	114005	UI		-2.29E-01	pCi/L	5.25E+00	EPIA-013	
BG 00403	114010	UI		8.35E-01	pCi/L	8.03E+00	EPIA-013	
FMC001F03	114002	UI		-2.57E+00	pCi/L	4.79E+00	EPIA-013	
FMC001H03	114000	UI		7.94E-01	pCi/L	5.76E+00	EPIA-013	
FMC002H03	114001	UI		1.40E+00	pCi/L	7.36E+00	EPIA-013	
FSP 01203	114019	UI		-1.39E+00	pCi/L	3.87E+00	EPIA-013	
FSP 03203	114021	UI		9.57E-01	pCi/L	4.72E+00	EPIA-013	
FSP 03203	114021	UI		7.71E-01	pCi/L	4.87E+00	EPIA-013	
FSP 03203D	114022	UI		-2.60E-01	pCi/L	3.56E+00	EPA901.1MOD	
FSP 04703	114020	UI		4.73E-01	pCi/L	3.84E+00	EPIA-013	
FSP 20403	114018	UI		1.83E-02	pCi/L	4.53E+00	EPIA-013	
FSP 29003	114016	UI		7.67E-01	pCi/L	3.95E+00	EPIA-013	
FSP 29003A	114017	UI		7.38E-01	pCi/L	4.85E+00	EPIA-013	
HSP 00803	114006	UI		2.48E-01	pCi/L	5.91E+00	EPIA-013	
HSP 00803A	114007	UI		1.99E+00	pCi/L	5.86E+00	EPIA-013	
HSP 02903	114014	UI		-1.71E+00	pCi/L	4.74E+00	EPIA-013	
HSP 02903	114014	UI		3.17E-01	pCi/L	6.60E+00	EPIA-013	
HSP 04303	114015	UI		-1.77E+00	pCi/L	5.16E+00	EPIA-013	
HSP 06003	114012	UI		4.73E-01	pCi/L	7.29E+00	EPIA-013	
HSP 06003D	114013	UI		-1.35E+00	pCi/L	4.75E+00	EPA901.1MOD	
HSP 06003D	114013	UI		0.00E+00	pCi/L	4.72E+00	EPA901.1MOD	
HSP 09203	114011	UI		2.07E+00	pCi/L	6.54E+00	EPIA-013	

ANALYTE: Zinc**Analytical Group:** *Metals (total recoverable)*

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003	U		3.68	µg/L	0.966	EPA6010A	V
BG 00203	114004	U		4.03	µg/L	0.966	EPA6010A	V
BG 00303	114005	U		4.9	µg/L	0.966	EPA6010A	V
BG 00403	114010			5.88	µg/L	0.966	EPA6010A	V
FMC001F03	114002			11.9	µg/L	0.966	EPA6010A	
FMC001H03	114000			8.53	µg/L	0.966	EPA6010A	
FMC002H03	114001			8.73	µg/L	0.966	EPA6010A	
FSP 01203	114019			35.7	µg/L	0.966	EPA6010A	
FSP 03203	114021			32.3	µg/L	0.966	EPA6010A	
FSP 03203D	114022	J		35.8	µg/L	5.3	EPA6010	E
FSP 04703	114020			18.2	µg/L	0.966	EPA6010A	
FSP 20403	114018			25.1	µg/L	1.93	EPA6010A	
FSP 29003	114016			12.1	µg/L	0.966	EPA6010A	
FSP 29003A	114017			18.1	µg/L	0.966	EPA6010A	
HSP 00803	114006	U		3.53	µg/L	0.966	EPA6010A	V
HSP 00803A	114007	U		2.01	µg/L	0.966	EPA6010A	V
HSP 02903	114014			27.8	µg/L	0.966	EPA6010A	V
HSP 04303	114015	U		1.45	µg/L	0.966	EPA6010A	V
HSP 06003	114012			15.9	µg/L	0.966	EPA6010A	V
HSP 06003D	114013	J		8.9	µg/L	5.3	EPA6010	E
HSP 09203	114011	U		4.65	µg/L	0.966	EPA6010A	V

ANALYTE: Zinc-65**Analytical Group:** *Radionuclides*

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003	UI		-1.48E+00	pCi/L	1.01E+01	EPIA-013	
BG 00203	114004	UI		1.05E+00	pCi/L	9.64E+00	EPIA-013	
BG 00303	114005	UI		2.60E+00	pCi/L	8.77E+00	EPIA-013	
BG 00403	114010	UI		2.43E+00	pCi/L	1.36E+01	EPIA-013	
FMC001F03	114002	UI		-2.08E+00	pCi/L	8.98E+00	EPIA-013	
FMC001H03	114000	UI		3.80E+00	pCi/L	1.11E+01	EPIA-013	
FMC002H03	114001	UI		3.03E-01	pCi/L	1.31E+01	EPIA-013	
FSP 01203	114019	UI		-1.14E+00	pCi/L	6.93E+00	EPIA-013	
FSP 03203	114021	UI		-3.40E+00	pCi/L	6.55E+00	EPIA-013	
FSP 03203	114021	UI		3.36E+00	pCi/L	8.02E+00	EPIA-013	
FSP 03203D	114022	UI		-4.50E-01	pCi/L	7.15E+00	EPA901.1MOD	
FSP 04703	114020	UI		-2.68E+00	pCi/L	7.51E+00	EPIA-013	
FSP 20403	114018	UI		-4.73E+00	pCi/L	6.39E+00	EPIA-013	
FSP 29003	114016	UI		-2.98E+00	pCi/L	5.67E+00	EPIA-013	
FSP 29003A	114017	UI		1.08E+00	pCi/L	7.14E+00	EPIA-013	
HSP 00803	114006	UI		-1.49E+00	pCi/L	7.85E+00	EPIA-013	
HSP 00803A	114007	UI		-1.14E+00	pCi/L	9.94E+00	EPIA-013	
HSP 02903	114014	UI		-2.10E+00	pCi/L	1.10E+01	EPIA-013	
HSP 02903	114014	UI		-3.92E+00	pCi/L	1.11E+01	EPIA-013	
HSP 04303	114015	UI		-1.97E+00	pCi/L	8.81E+00	EPIA-013	
HSP 06003	114012	UI		3.22E-01	pCi/L	1.15E+01	EPIA-013	
HSP 06003D	114013	UI		-3.22E+00	pCi/L	7.45E+00	EPA901.1MOD	
HSP 06003D	114013	UI		-9.00E-02	pCi/L	8.18E+00	EPA901.1MOD	
HSP 09203	114011	UI		-1.11E+00	pCi/L	1.03E+01	EPIA-013	

ANALYTE: Zirconium-95

Analytical Group: Radionuclides

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
BG 00103	114003	UI		2.87E+00	pCi/L	9.73E+00	EPIA-013	
BG 00203	114004	UI		-2.02E+00	pCi/L	8.45E+00	EPIA-013	
BG 00303	114005	UI		1.01E+00	pCi/L	8.63E+00	EPIA-013	
BG 00403	114010	UI		-4.78E+00	pCi/L	1.16E+01	EPIA-013	
FMC001F03	114002	UI		-3.84E-01	pCi/L	8.38E+00	EPIA-013	
FMC001H03	114000	UI		-1.34E+00	pCi/L	9.23E+00	EPIA-013	
FMC002H03	114001	UI		-4.67E+00	pCi/L	1.00E+01	EPIA-013	
FSP 01203	114019	UI		-1.39E+00	pCi/L	5.87E+00	EPIA-013	
FSP 03203	114021	UI		2.26E+00	pCi/L	7.28E+00	EPIA-013	
FSP 03203	114021	UI		-4.65E-01	pCi/L	6.35E+00	EPIA-013	
FSP 03203D	114022	UI		2.13E+00	pCi/L	7.33E+00	EPA901.1MOD	
FSP 04703	114020	UI		9.74E-01	pCi/L	6.76E+00	EPIA-013	
FSP 20403	114018	UI		-2.23E+00	pCi/L	5.80E+00	EPIA-013	
FSP 29003	114016	UI		1.33E+00	pCi/L	6.20E+00	EPIA-013	
FSP 29003A	114017	UI		1.85E+00	pCi/L	6.93E+00	EPIA-013	
HSP 00803	114006	UI		-8.69E-01	pCi/L	7.82E+00	EPIA-013	
HSP 00803A	114007	UI		-7.48E-01	pCi/L	8.49E+00	EPIA-013	
HSP 02903	114014	UI		3.43E+00	pCi/L	8.73E+00	EPIA-013	
HSP 02903	114014	UI		-3.87E+00	pCi/L	9.79E+00	EPIA-013	
HSP 04303	114015	UI		-9.78E-01	pCi/L	7.88E+00	EPIA-013	
HSP 06003	114012	UI		-2.41E+00	pCi/L	9.59E+00	EPIA-013	
HSP 06003D	114013	UI		2.53E+00	pCi/L	1.01E+01	EPA901.1MOD	
HSP 06003D	114013	UI		1.93E+00	pCi/L	8.72E+00	EPA901.1MOD	
HSP 09203	114011	UI		8.68E+00	pCi/L	9.83E+00	EPIA-013	

Table D.12 Blank Results Sorted by Analyte

ANALYTE: Actinium-228

Analytical Group: Radionuclides

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP FB02C	114009	UI		1.18E+01	pCi/L	1.94E+01	EPIA-013	
HSP FB02C	114008	UI		2.67E+00	pCi/L	1.88E+01	EPIA-013	

ANALYTE: Aluminum

Analytical Group: Metals (total recoverable)

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP FB02C	114009	J		42.4	µg/L	37.6	EPA6010A	E
HSP FB02C	114008	J		43.2	µg/L	37.6	EPA6010A	E

ANALYTE: Antimony

Analytical Group: Metals (total recoverable)

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP FB02C	114009	J		1.89	µg/L	1.64	EPA6010A	E
HSP FB02C	114008	J		2.32	µg/L	1.64	EPA6010A	E

ANALYTE: Antimony-124

Analytical Group: Radionuclides

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP FB02C	114009	UI		1.31E+00	pCi/L	5.42E+00	EPIA-013	
HSP FB02C	114008	UI		1.58E+00	pCi/L	5.44E+00	EPIA-013	

ANALYTE: Antimony-125

Analytical Group: Radionuclides

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP FB02C	114009	UI		-5.35E+00	pCi/L	1.02E+01	EPIA-013	
HSP FB02C	114008	UI		-3.24E+00	pCi/L	1.06E+01	EPIA-013	

ANALYTE: Arsenic

Analytical Group: Metals (total recoverable)

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP FB02C	114009	U		5	µg/L	2.98	EPA6010A	
HSP FB02C	114008	J		3.81	µg/L	2.98	EPA6010A	E

ANALYTE: Barium**Analytical Group:** *Metals (total recoverable)*

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP FB02C	114009	U		5	µg/L	0.332	EPA6010A	
HSP FB02C	114008	J		0.597	µg/L	0.332	EPA6010A	E

ANALYTE: Barium-133**Analytical Group:** *Radionuclides*

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP FB02C	114009	UI		-3.10E+00	pCi/L	5.20E+00	EPIA-013	
HSP FB02C	114008	UI		-1.50E+00	pCi/L	5.34E+00	EPIA-013	

ANALYTE: Beryllium**Analytical Group:** *Metals (total recoverable)*

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP FB02C	114009	U		5	µg/L	0.223	EPA6010A	
HSP FB02C	114008	U		5	µg/L	0.223	EPA6010A	

ANALYTE: Cadmium**Analytical Group:** *Metals (total recoverable)*

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP FB02C	114009	U		5	µg/L	0.208	EPA6010A	
HSP FB02C	114008	U		5	µg/L	0.208	EPA6010A	

ANALYTE: Calcium**Analytical Group:** *Metals (total recoverable)*

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP FB02C	114009	U		16.6	µg/L	15.4	EPA6010A	V
HSP FB02C	114008	U		17.6	µg/L	15.4	EPA6010A	V

ANALYTE: Cerium-144**Analytical Group:** *Radionuclides*

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP FB02C	114009	UI		-7.78E+00	pCi/L	2.68E+01	EPIA-013	
HSP FB02C	114008	UI		2.23E+01	pCi/L	2.86E+01	EPIA-013	

ANALYTE: Cesium-134**Analytical Group:** Radionuclides

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP FB02C	114009	UI		-9.63E-02	pCi/L	4.17E+00	EPIA-013	
HSP FB02C	114008	UI		-6.04E-01	pCi/L	4.13E+00	EPIA-013	

ANALYTE: Cesium-137**Analytical Group:** Radionuclides

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP FB02C	114009	UI		-1.03E+00	pCi/L	3.92E+00	EPIA-013	
HSP FB02C	114008	UI		-8.34E-01	pCi/L	4.03E+00	EPIA-013	

ANALYTE: Chromium**Analytical Group:** Metals (total recoverable)

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP FB02C	114009	U		5	µg/L	0.729	EPA6010A	
HSP FB02C	114008	U		5	µg/L	0.729	EPA6010A	

ANALYTE: Cobalt**Analytical Group:** Metals (total recoverable)

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP FB02C	114009	U		5	µg/L	0.671	EPA6010A	
HSP FB02C	114008	U		5	µg/L	0.671	EPA6010A	

ANALYTE: Cobalt-57**Analytical Group:** Radionuclides

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP FB02C	114009	UI		-1.11E+00	pCi/L	3.33E+00	EPIA-013	
HSP FB02C	114008	UI		7.11E-03	pCi/L	3.59E+00	EPIA-013	

ANALYTE: Cobalt-58**Analytical Group:** Radionuclides

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP FB02C	114009	UI		3.08E+00	pCi/L	5.50E+00	EPIA-013	
HSP FB02C	114008	UI		2.70E-01	pCi/L	4.94E+00	EPIA-013	

ANALYTE: Cobalt-60**Analytical Group:** Radionuclides

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP FB02C	114009	UI		1.01E+00	pCi/L	5.04E+00	EPIA-013	
HSP FB02C	114008	UI		-2.80E-01	pCi/L	4.87E+00	EPIA-013	

ANALYTE: Copper**Analytical Group:** Metals (total recoverable)

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP FB02C	114009	U		5	µg/L	1.32	EPA6010A	
HSP FB02C	114008	U		5	µg/L	1.32	EPA6010A	

ANALYTE: Cyanide**Analytical Group:** Specified Analyses

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP FB02C	114009	UJ	L	10	µg/L	3.34	EPA335.3	I
FSP FB02C	114009	UJ	L	10	µg/L	3.34	EPA335.3	I
HSP FB02C	114008	UJ	L	10	µg/L	3.34	EPA335.3	I

ANALYTE: Europium-152**Analytical Group:** Radionuclides

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP FB02C	114009	UI		-2.69E+00	pCi/L	1.20E+01	EPIA-013	
HSP FB02C	114008	UI		1.91E+00	pCi/L	1.22E+01	EPIA-013	

ANALYTE: Europium-154**Analytical Group:** Radionuclides

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP FB02C	114009	UI		4.21E+00	pCi/L	1.34E+01	EPIA-013	
HSP FB02C	114008	UI		-7.51E-01	pCi/L	1.17E+01	EPIA-013	

ANALYTE: Europium-155**Analytical Group:** Radionuclides

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP FB02C	114009	UI		5.79E+00	pCi/L	1.44E+01	EPIA-013	
HSP FB02C	114008	UI		-7.24E-01	pCi/L	1.42E+01	EPIA-013	

ANALYTE: Gross alpha**Analytical Group:** Radionuclides

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP FB02C	114009	UI		2.00E-01	pCi/L	4.22E-01	EPIA-001	
HSP FB02C	114008	UI		-7.22E-02	pCi/L	5.37E-01	EPIA-001	

ANALYTE: Iron**Analytical Group:** Metals (total recoverable)

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP FB02C	114009	U		50	µg/L	8.63	EPA6010A	
HSP FB02C	114008	U		50	µg/L	8.63	EPA6010A	

ANALYTE: Lead**Analytical Group:** Metals (total recoverable)

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP FB02C	114009	U		5	µg/L	0.678	EPA6010A	
HSP FB02C	114008	U		1.25	µg/L	0.678	EPA6010A	V

ANALYTE: Lead-212**Analytical Group:** Radionuclides

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP FB02C	114009	UI		1.82E+00	pCi/L	8.77E+00	EPIA-013	
HSP FB02C	114008	UI		5.83E+00	pCi/L	8.97E+00	EPIA-013	

ANALYTE: Magnesium**Analytical Group:** Metals (total recoverable)

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP FB02C	114009	U		10	µg/L	3.33	EPA6010A	
HSP FB02C	114008	U		10	µg/L	3.33	EPA6010A	

ANALYTE: Manganese**Analytical Group:** Metals (total recoverable)

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP FB02C	114009	U		10	µg/L	0.903	EPA6010A	
HSP FB02C	114008	U		10	µg/L	0.903	EPA6010A	

ANALYTE: Manganese-54**Analytical Group:** Radionuclides

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP FB02C	114009	UI		2.26E+00	pCi/L	4.87E+00	EPIA-013	
HSP FB02C	114008	UI		-1.69E+00	pCi/L	4.29E+00	EPIA-013	

ANALYTE: Mercury**Analytical Group:** Metals (total recoverable)

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP FB02C	114009	U		0.2	µg/L	0.104	EPA7470	
HSP FB02C	114008	U		0.2	µg/L	0.104	EPA7470	

ANALYTE: Neptunium-239**Analytical Group:** Radionuclides

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP FB02C	114009	UI		-6.16E+00	pCi/L	2.38E+01	EPIA-013	
HSP FB02C	114008	UI		3.33E+00	pCi/L	2.69E+01	EPIA-013	

ANALYTE: Nickel**Analytical Group:** Metals (total recoverable)

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP FB02C	114009	U		5	µg/L	2.27	EPA6010A	
HSP FB02C	114008	U		5	µg/L	2.27	EPA6010A	

ANALYTE: Nonvolatile beta**Analytical Group:** Radionuclides

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP FB02C	114009	UI		-2.19E-01	pCi/L	1.09E+00	EPIA-001	
HSP FB02C	114008	UI		5.81E-01	pCi/L	1.10E+00	EPIA-001	

ANALYTE: Potassium**Analytical Group:** Metals (total recoverable)

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP FB02C	114009	U		17.2	µg/L	5.87	EPA6010A	V
HSP FB02C	114008	U		12.8	µg/L	5.87	EPA6010A	V

ANALYTE: Potassium-40**Analytical Group:** Radionuclides

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP FB02C	114009	UI		1.18E+01	pCi/L	4.09E+01	EPIA-013	
HSP FB02C	114008	UI		4.94E+01	pCi/L	6.52E+01	EPIA-013	

ANALYTE: Promethium-144**Analytical Group:** Radionuclides

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP FB02C	114009	UI		2.45E+00	pCi/L	4.69E+00	EPIA-013	
HSP FB02C	114008	UI		1.48E+00	pCi/L	4.46E+00	EPIA-013	

ANALYTE: Promethium-146**Analytical Group:** Radionuclides

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP FB02C	114009	UI		-1.03E+00	pCi/L	5.05E+00	EPIA-013	
HSP FB02C	114008	UI		-4.82E-01	pCi/L	5.15E+00	EPIA-013	

ANALYTE: Ruthenium-106**Analytical Group:** Radionuclides

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP FB02C	114009	UI		3.22E+01	pCi/L	3.63E+01	EPIA-013	
HSP FB02C	114008	UI		2.53E+00	pCi/L	3.77E+01	EPIA-013	

ANALYTE: Selenium**Analytical Group:** Metals (total recoverable)

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP FB02C	114009	U		5	µg/L	1.4	EPA6010A	
HSP FB02C	114008	U		5	µg/L	1.4	EPA6010A	

ANALYTE: Silver**Analytical Group:** Metals (total recoverable)

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP FB02C	114009	U		2.58	µg/L	0.62	EPA6010A	V
HSP FB02C	114008	U		2.55	µg/L	0.62	EPA6010A	V

ANALYTE: Sodium**Analytical Group: Metals (total recoverable)**

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP FB02C	114009	U		41.4	µg/L	29.1	EPA6010A	V
HSP FB02C	114008	U		37.8	µg/L	29.1	EPA6010A	V

ANALYTE: Sodium-22**Analytical Group: Radionuclides**

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP FB02C	114009	UI		1.51E+00	pCi/L	4.22E+00	EPIA-013	
HSP FB02C	114008	UI		-7.84E-01	pCi/L	4.21E+00	EPIA-013	

ANALYTE: Thallium**Analytical Group: Metals (total recoverable)**

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP FB02C	114009	U		10	µg/L	2.63	EPA6010A	
HSP FB02C	114008	U		10	µg/L	2.63	EPA6010A	

ANALYTE: Tin**Analytical Group: Metals (total recoverable)**

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP FB02C	114009	U		10	µg/L	2.94	EPA6010A	
HSP FB02C	114008	U		10	µg/L	2.94	EPA6010A	

ANALYTE: Tin-113**Analytical Group: Radionuclides**

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP FB02C	114009	UI		4.48E+00	pCi/L	6.05E+00	EPIA-013	
HSP FB02C	114008	UI		8.46E-01	pCi/L	5.49E+00	EPIA-013	

ANALYTE: Vanadium**Analytical Group: Metals (total recoverable)**

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP FB02C	114009	U		5	µg/L	0.427	EPA6010A	
HSP FB02C	114008	U		5	µg/L	0.427	EPA6010A	

ANALYTE: Yttrium-88**Analytical Group:** Radionuclides

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP FB02C	114009	UI		-2.96E+00	pCi/L	5.29E+00	EPIA-013	
HSP FB02C	114008	UI		4.61E-01	pCi/L	6.02E+00	EPIA-013	

ANALYTE: Zinc**Analytical Group:** Metals (total recoverable)

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP FB02C	114009	U		2.49	µg/L	0.966	EPA6010A	V
HSP FB02C	114008	U		2.43	µg/L	0.966	EPA6010A	V

ANALYTE: Zinc-65**Analytical Group:** Radionuclides

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP FB02C	114009	UI		8.16E-01	pCi/L	9.10E+00	EPIA-013	
HSP FB02C	114008	UI		-3.41E-01	pCi/L	9.31E+00	EPIA-013	

ANALYTE: Zirconium-95**Analytical Group:** Radionuclides

Survey ID	Sample ID	RQ	B	Result	Unit	ssMDL	Method	AQ
FSP FB02C	114009	UI		5.53E+00	pCi/L	9.94E+00	EPIA-013	
HSP FB02C	114008	UI		1.72E+00	pCi/L	8.60E+00	EPIA-013	

Appendix E: Data Management/Administrative Files

This section discusses the generation, processing, and storage of paper and computer records produced during the completion of this project. The processing of the materials follows methodology prescribed by EGG EPD/EMS.

EGG establishes administrative files for each project that are maintained as permanent SRS records. The following materials are placed in the administrative files:

- Bound sample-collection logbooks
- Original copies of the chain-of-custody forms
- Case narratives from the laboratories
- Data-validation logbooks
- Data-entry cover sheets for data files created by EGG
- Copies of all correspondence between data validation personnel and the laboratories

EGG generates computer data files from paper records using double-entry methods to ensure a low transcription error rate. Computer data files for analytical data also are received from the laboratories. Changes to the data are recorded in the data-validation logbook, approved by the project technical manager, and confirmed through a computer program by comparing the modified and original data files. EGG stores the final computer data files, original source files, and computer listings of all changes made to the original files in the administrative files.

Access to the administrative files remains with the manager of EGG. Paper materials eventually will be transferred to permanent box storage; however, EGG plans to make the final data files available to SRS computer users indefinitely. Please contact the manager of EGG to obtain access to this data.

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Appendix F: Glossary

Acceptance limits: The range of acceptable analytical results established by a laboratory for spike recovery, duplicate precision, and contamination levels.

Accuracy: The closeness of agreement between an observed value and an accepted reference value.

Activity: The rate of decay of a radioactive source at a given time.

Advisory range: The limits of acceptable analytical results established by the provider of certified quality control standards.

Aliquot: A measured portion of a sample taken for analysis.

Analysis: The separation and determination of the component parts or a specific property or element contained within a sample. The determination of the concentration or activity of an analyte contained within a sample.

Analysis date/time: The date and military time (24-hour clock) of the start of analysis on a prepared sample.

Analysis qualifier (AQ): See **Qualifier**.

Analyte: The specific compound, element, isotope, or radionuclide of interest that an analyst seeks to determine.

Analytical batch: A group of samples of the same matrix analyzed together using the same method and containing the required number of method blanks, matrix spike samples, laboratory control samples, and duplicate samples.

Analytical narrative: A portion of the data package that includes laboratory, contract, and sample identification. The analytical narrative also contains descriptive documentation of any problems encountered in processing the samples, along with corrective action taken and problems resolved.

Analytical sample: Any solution or medium introduced into an instrument on which an analysis is performed, excluding instrument calibration standards, calibration verification standards, and calibration blanks.

Appendix IX analytes: The list of analytes specified in Appendix IX of the *Code of Federal Regulations, Title 40, Part 264* that is required by the Resource Conservation and Recovery Act.

Aquifer: A geologic formation, group of formations, or part of a formation capable of yielding groundwater to wells or springs.

Associated sample: Any sample that is related to another sample or quality control sample. Some examples are the parent sample of a matrix spike, a sample in a preparation batch, a split sample, a duplicate sample, and a sample related to a blank.

Batch: A group of samples prepared at the same time, in the same location, using the same method.

Bias qualifier (BQ): See **Qualifier**.

Blank: An artificial sample designed to monitor the introduction of artifacts into the measurement process. For aqueous samples, deionized water is used as the blank matrix. A universal matrix does not exist for solid samples; therefore, no matrix blank is routinely used. There are several types of blanks that monitor a variety of processes. They are

- A *Field Blank for Soils* consists of DI water or dry quartz sand placed in a stainless steel bowl and exposed to the atmosphere while the associated sample is being taken. The field blank is shipped to the laboratory with the samples. The field blank measures contamination introduced during sample collection.
- A *Field Blank for Groundwater* is a sample container filled with DI water and capped in the WSRC well building. It is taken to the field during sampling, but is not opened. It is shipped to the laboratory with the samples to be analyzed.
- A *Rinsate or Equipment Blank* is deionized water poured over or through sample collection devices that tests for cleanliness of sampling equipment.
- A *Trip Blank* is shipped to the laboratory in the same cooler with the sample containers for volatile organic analytes. It provides a test for contamination from sample preservation and transport as well as sample storage, preparation, and analysis.
- A *Method Blank* is prepared in the laboratory and analyzed exactly as the samples it accompanies. It is a test for contamination in laboratory sample preparation and analyses.

These blanks are handled by the laboratory as actual samples; however, they are not to be used for matrix spike or duplicate samples.

Blank spike (BS): See **Laboratory Control Sample**.

Calibration: The establishment of an instrument response curve or mathematical correlation based on the measured response of known concentrations of an analyte or group of analytes.

Calibration blank: A volume of deionized water in the same matrix as the calibration standards, an empty planchet, or the instrument geometry that is analyzed to establish the instrument accuracy at the low end of the calibration curve.

Calibration verification: The periodic analysis of one or more standards independent of the calibration standards to verify the accuracy and stability of the initial instrument calibration.

Cation exchange capacity: The sum of exchangeable cations a soil can absorb expressed in milli-equivalents per 100 grams of soil. The cation exchange capacity is determined by sampling to the depth of solid waste placement and analyzing by the summation method for distinctly acid soils or the sodium acetate method for neutral, calcareous, or saline soils.

Certified value: The known concentration of an analyte in a reference sample as affirmed by the preparer.

Chain-of-custody (COC) form: A document designed to trace the custody of a sample(s) from the point of origin to final disposition, with the intent of legally proving that custody remained intact and that tampering or substitutions were precluded.

Coefficient of variation (CV): The standard deviation as a percent of the arithmetic mean.

Comparability: The degree of confidence with which one set of data can be compared to a related set of data.

Completeness: A measure of the amount of valid data obtained from a measurement system relative to the amount that was expected to be obtained under current, normal conditions.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA): A federal law passed in 1980 and periodically modified by the Superfund Amendments and Reauthorization Acts passed by the U.S. Congress. The acts created a special tax that goes into a trust fund, commonly known as Superfund, to investigate and clean up abandoned or uncontrolled hazardous waste sites. Under the program, the EPA has the following options:

- pay for the site cleanup when parties responsible for the contamination cannot be located or are unwilling or unable to perform the work
- take legal action to force parties responsible for site contamination to clean up the site or repay the federal government for the cost of the cleanup

Concentration: The relative fraction of one substance in another, normally expressed in weight percent, in volume percent, as a weight per volume ratio, or as a weight per weight ratio.

Confidence limits: The limits within which, at some specified level of probability, the true value of a result lies.

Confined aquifer: An aquifer bounded above and below by impermeable beds or by beds of distinctly lower permeability than the aquifer itself. Also, an aquifer containing confined groundwater.

Congener: Any one particular member of a class of chemical substances. A specific congener is denoted by a unique chemical structure e.g., 2,3,7,8-tetrachlorodibenzofuran.

Contaminant: A chemical or biological substance that is harmful if it is incorporated into, onto, or ingested by organisms, consumers of organisms, or users of the environment.

Continuing calibration blank (CCB): A blank analyzed periodically during an analytical run to detect carryover contamination.

Continuing calibration verification (CCV): The periodic analysis of one or more standards during an analytical run to verify that the initial calibration continues to be valid.

Contract-required quantitation limit (CRQL): The lowest required concentration of an analyte the laboratory may report for a specific contract. The contract-required quantitation limit is usually greater than the method detection limit.

Control limits: A range within which specified measurement results must fall to be compliant. Control limits may be mandatory, requiring corrective action if exceeded, or advisory, requiring that noncompliant data be flagged.

Correlation coefficient (r): A numeric value (r) that indicates the degree of dependence between two variables (concentration vs. response). The more dependent they are, the closer the value is to one. The correlation coefficient is determined on the basis of the least squares function.

Custody: Immediate charge, control, or possession exercised by a competent authority on a sample.

Data quality objectives: The objectives for precision, accuracy, representativeness, completeness, comparability, and detection levels that are required to support the intended use of the data.

Definitive data: Data for which the accuracy of the concentration level and the identity of the analyte of interest are assessed. Definitive data are determined for samples considered essential in the decision-making process.

Deionized (DI) water: Water from which all charged species or ionizable organic and inorganic salts are removed by means of ion exchange.

Detection: The act of measuring the quantity of a property, compound, or element contained in a sample.

Dilution factor: The mathematical factor by which a sample is diluted to bring the concentration of an analyte in the sample within the analytical range of the instrument (e.g., 1 mL of sample + 9 mL of solvent = 1:10 dilution, or a dilution factor of 10).

Dry weight: The weight of a sample based on percent solids or the weight after drying in an oven for a specified time period at a specified temperature.

Electronic data deliverable (EDD): The summary of analytical results on machine-readable media received from a laboratory.

Estimated quantitation limit (EQL): The minimum concentration of a substance that can be reliably measured and reported within specified limits of precision and accuracy during routine laboratory operating conditions.

Field blank: See Blank.

Field duplicate: A second sample taken at the same time as the primary sample and sent to the laboratory for analysis as an unknown. The field duplicate is used to determine the precision of the entire sampling and analytical process.

Field sample: The material received at the laboratory to be analyzed that is contained in single or multiple containers and identified by a unique WSRC sample identification number.

Frequency: The specified intervals between samples in which quality control samples or standards must be analyzed during an analytical run.

Groundwater: Water in a saturated zone or stratum beneath the surface of land.

Half-life: The time required for one-half of the initial number of radioactive nuclei of a specific isotopic species to undergo radioactive decay.

Holding time: The maximum amount of time allowed for samples to be held from sample collection to laboratory analysis.

Independent standard: A laboratory-prepared standard solution that is composed of analytes from a different source than those used in the standards for the initial calibration.

Initial calibration: The analysis of standards containing varying concentration levels of the analytes of interest in order to establish the ratio of concentration vs. response across the working range of the analytical technique. The initial calibration is used to define the linearity and dynamic range of response of the detector to the target analytes.

Initial calibration blank (ICB): A blank analyzed immediately after the initial calibration verification but before the analytical run to detect carryover contamination.

Initial calibration verification (ICV): The analysis of one or more standards immediately after the initial calibration but before the analytical run to verify that the initial calibration was valid.

Instrument detection limit (IDL): The minimum concentration of an analyte that can be measured and reported with 99% confidence that the analyte concentration is greater than zero. It is determined from analysis of a deionized water blank containing the analyte.

Interference check sample (ICS): Two solutions, one consisting of interferences only (ICSA) and one consisting of interferences mixed with the analytes (ICSAB), that are analyzed consecutively to verify the interference and background correction factors for inductively coupled plasma metal analyses.

Interferences: Substances that affect the analysis for the element of interest.

Interlaboratory comparison: The comparison of results from split samples analyzed by two laboratories.

Internal standard: A chemically inert compound not expected to occur in an environmental sample that is added to a sample prior to analysis; it is used as an instrument response check.

Intralaboratory comparison: The comparison of duplicate results from a single sample analyzed by a laboratory.

Isomer: One of two or more chemical substances having the same elementary percentage composition and molecular weight but differing in structure and properties.

Isotope: One of a number of specific atoms with identical atomic numbers but with discrete atomic weights, or similarly specific atoms whose nuclei have the same number of protons but different numbers of neutrons.

Laboratory control sample (LCS): A control sample of known composition. Aqueous and solid laboratory control samples are analyzed using the same sample preparation, reagents, and analytical methods employed for the samples received.

Laboratory data records review (LDRR): The investigation of technical data validation issues that are not adequately addressed by the computer checking of EDDs, the review of the analytical narratives, and the review of the COC forms. The review is conducted at the laboratory using the laboratory's instrument logs, raw analytical data, and other pertinent documentation.

Laboratory duplicate: A second aliquot of a homogenized sample that is analyzed as an individual sample, using the same procedure. This duplicate is used to determine the precision of the method.

Laboratory ID: The identifier assigned by the laboratory for its internal use during the analytical process.

Linear range, linear dynamic range: The concentration range over which the calibration curve remains linear.

Lowest practical quantitation limit (LPQL): The lowest concentration of an analyte that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions.

Matrix: The predominant material of which the sample to be analyzed is composed. For the purpose of this document, a sample matrix is either water or soil/sediment.

Matrix interference: The influence of the sample matrix or sample components upon the ability to quantitatively measure compounds in environmental samples.

Matrix spike/matrix spike duplicate: A first and second aliquot of a matrix fortified (spiked) with a known quantity of analyte(s) and subjected to the entire analytical procedure in order to determine the appropriateness of the method for the matrix by measuring accuracy (recovery) and precision (relative percent difference).

Maximum contaminant level (MCL): The maximum permissible level of a contaminant in a specified medium.

Mean relative difference (MRD): The average of the absolute difference of the results from two laboratories for the i^{th} sample that is expressed as a percentage of the mean of both laboratories.

Method blank: See Blank.

Method detection limit (MDL): The minimum concentration of an analyte that can be measured and reported with 99% confidence that the analyte concentration is greater than zero. It is determined from analysis of a sample in a given matrix containing the analyte.

Minimum detectable activity (MDA): The smallest quantity of a radionuclide that can be detected in a sample with a 95% confidence level.

Nuclide: General term applied to all isotopes of all elements including stable and radioactive forms. Nuclides are not considered isotopes; rather, a given nuclide is characterized by the number of neutrons and protons contained in the atomic nuclei of that species.

Null hypothesis: A statement that can be tested statistically to determine if there is a significant difference between duplicate/split results.

Parts per billion (ppb)/Parts per million (ppm): Units commonly used to express low concentrations of contaminants. For example, 5 micrograms of benzene in 1 kilogram of soil is 5 ppb; 3 milligrams of nitrate in 1 liter of water is 3 ppm.

Percent moisture: An approximation of the amount of water in a soil/sediment sample determined by drying an aliquot of sample at a specified temperature until constant weight is achieved.

Percent recovery: A measure of recovery that is calculated as the measured value relative to the true value, expressed as a percent.

Percent solids: The proportion of solid in a soil/sediment sample determined by the percent moisture procedure.

Performance evaluation sample: A sample of known composition that may be provided by the EPA or WSRC for laboratory analysis that is used to evaluate laboratory performance.

PicoCurie (pCi): The unit of radiation equivalent to 3.7×10^{-2} disintegrations per second.

Precision: The agreement or repeatability of a set of replicate results among themselves, usually expressed in terms of the deviation of a set of results from the arithmetic mean. Precision may be qualified in terms of possible sources of variability, replicability, repeatability, and reproducibility.

Preparation log: An official record of the sample preparation.

Preservative: A chemical compound added to a sample or a physical process (such as cooling) to prevent or slow decomposition or degradation of a target analyte. Physical and chemical preservation may be used in tandem to prevent sample deterioration.

Primary laboratory: The laboratory having a contract with WSRC to perform a specific set of analyses for field-generated samples, duplicates, and blanks. A primary laboratory may subcontract this work to other laboratories.

Qualifier: A code used to convey additional information about an analytical result. See the following examples.

- A *Result Qualifier* is used to indicate the usability of the result for regulatory purposes.

- An *Analysis Qualifier* is used to describes analytical conditions which apply to the datum. Analysis qualifiers are included for information only.
- A *Bias Qualifier* is a code used to indicate whether a result may overestimate or underestimate the true value. It also may be used to indicate poor precision.

See *Appendix D* for additional information and the specific qualifiers used.

Qualitative analysis: An analysis to determine the presence or absence of a target analyte.

Quality assurance plan: The documented data quality objectives and the actions to be performed to meet those objectives.

Quality control (QC): The performance of actions that provide a way to control and measure the characteristics of measurement equipment and processes to meet the established data quality objectives.

Quantitative analysis: An analysis to measure or determine the amount of a target compound or analyte within the limits of defined precision and accuracy requirements.

Radionuclide: Any radioactive isotope of an element.

Range: The difference between the maximum and minimum values within a set of values.

RCRA Facility Investigation/Remedial Investigation (RFI/RI) program: The EPA-regulated investigation of a solid-waste management site, including CERCLA and hazardous-substance regulations, with regard to its potential impact on the environment.

Recovery: A determination of accuracy of the analytical procedure made by comparing measured values for a reference or fortified (spiked) sample against the known true reference or spike values.

Reference detection limit (RDL): The detection limit chosen to allow comparison of multiple analyses with different detection limits. For this report, the individual detection limits of at least 90% of the analyses are less than the reference detection limit.

Relative percent difference (RPD): A measure of precision that is calculated as the absolute value of the difference between two results, relative to their arithmetic mean, expressed as a percent.

Reporting limit: The value reported in the result field when an analyte is not detected.

Reproducibility: The precision of measurements of the same sample at different laboratories using the same protocols.

Resolution: The degree to which two signal peaks are separated. Resolution is calculated by dividing the height of the valley between the peaks by the height of the peak being resolved, multiplied by 100.

Resource Conservation and Recovery Act (RCRA): A 1976 federal law that established a regulatory system to define and track hazardous wastes from the time of generation to disposal. The law requires safe and secure procedures to be used in treating, transporting, storing, and disposing of hazardous substances.

Rinsate blank: See **Blank**.

Run: A continuous analytical sequence consisting of prepared samples and all associated quality control measurements.

Sample: A portion of material to be analyzed that is contained in single or multiple containers and identified by a unique sample number.

Sample ID: A unique identification number designated by WSRC for each sample. The WSRC sample ID appears on the sample chain of custody that documents information on that sample.

Sample matrix: All of the chemical components and physical characteristics of a sample other than the parameter of interest.

Sample-specific estimated quantitation limit (ssEQL): The estimated quantitation limit multiplied by factors of concentration, dilution, aliquot size, and percent solids.

Sediment: The unconsolidated inorganic and organic material that is suspended in and being transported by surface water or that has settled out and has deposited into beds.

Self-absorption: The internal absorption of radiation by material in which radioactive atoms are located.

Sensitivity: The ability of a measurement system to detect and accurately quantitate a parameter at a critical level within a specific sample matrix. The critical level may be a regulatory maximum contaminant level (MCL), MDA, or risk-based exposure level.

Significance of probability: The probability of observing a statistical value as significant as, or even more significant than, the value actually observed.

Soil: All unconsolidated materials normally found on or near the surface of the earth including, but not limited to, silts, clays, sands, gravel, and small rocks.

Solvent: Liquid that is capable of dissolving another substance.

Split sample: A second aliquot of a sample, generated in the field, that is sent to a secondary laboratory for analysis; a split sample serves as a quality control check.

Standard deviation: The measurement of dispersion about a mean value of a series of observations expressed in the same units as the mean value.

Surface water: All water that is open to the atmosphere and subject to surface runoff.

Surrogate: A chemically inert organic compound similar in composition and test performance to an analyte of interest added to samples prior to analysis as a quality control check.

Surrogate recovery: A quality control measurement to monitor unusual matrix effects, gross sample processing errors, etc. It is evaluated for acceptance by determining whether the measured concentration falls within the statistical acceptance limits established by the laboratory.

Target analyte list (TAL): The list of inorganic analytes required by CERCLA.

Target compound list (TCL): The list of organic analytes required by CERCLA.

Technical holding time: The storage time allowed between sample collection and sample analysis when designated preservation and storage techniques are employed. This is determined by the elapsed time in days from the date and time of collection to the date and time of sample preparation and analysis.

- Technical holding time = (sample analysis date and time – sample collection date and time).

Tentatively identified compound (TIC): Chromatographic peak in volatile and semivolatile fraction analysis that is not a target analyte, surrogate, or internal standard.

Time: When required to record time on any deliverable item, time is expressed as military time, i.e., on a 24-hour clock.

Toxicity characteristic leaching procedure (TCLP): An analytical extraction procedure used to determine the mobility of both inorganic and organic analytes present in solid, liquid, and multiphasic wastes.

Tracer: A quantity of a unique radioisotope of the same element added to a sample, chemically prepared, or separated and counted. The quantity of tracer measured is compared to the quantity of target radioactive element measured, and the target quantity is calculated on the basis of unity with the tracer concentration.

Trip blank: See Blank.

Wet weight: The weight of a sample aliquot including moisture (undried).