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Periodic Monitoring Report for Material Disposal Area C Monitoring Group, November 8–November 28, 2011

Prepared by the Environmental Programs Directorate

EP2012-0100

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May 2012

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EXECUTIVE SUMMARY

This periodic monitoring report (PMR) provides the results of the fiscal year 2012, first quarter, periodic monitoring event (PME) conducted by Los Alamos National Laboratory in the Material Disposal Area C (MDA C) Monitoring Group. This PME was conducted pursuant to the 2011 Interim Facility-Wide Groundwater Monitoring Plan, prepared in accordance with the Compliance Order on Consent.

The PME documented in this report occurred from November 8 to November 28, 2011, and included monitoring of groundwater wells or well screens. This report also includes any results from previous PMEs that were unreported in their respective PMRs because validated laboratory data were not available (in some cases because of data release agreements). Any additional results from sampling that occurred outside the time frame of the current PME are also included in this report.

Water samples collected during this PME were analyzed for target analyte list metals, volatile organic compounds, cyanide, semivolatile organic compounds, pesticides, polychlorinated biphenyls, high explosives, radionuclides, low-level tritium, inorganic chemicals, perchlorate, stable isotopes, and field parameters (alkalinity, dissolved oxygen, pH, specific conductance, temperature, and turbidity).

No surface-water locations are sampled in this monitoring group.

No results from previous sampling of PME monitoring locations reported in this PMR were above applicable screening levels. One result from groundwater samples collected during this PME was above applicable screening levels.

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Acronyms and Abbreviations

AQA	Analytical Quality Associates, Inc.
BCG	Biota Concentration Guide (DOE)
CAS	Chemical Abstracts Service
CFR	Code of Federal Regulations (U.S.)
cfs	cubic feet per second
Consent Order	Compliance Order on Consent
DCG	Derived Concentration Guide (DOE)
DOE	Department of Energy (U.S.)
EPA	Environmental Protection Agency (U.S.)
GW	groundwater
IFGMP	Interim Facility-Wide Groundwater Monitoring Plan
LANL	Los Alamos National Laboratory
MCL	maximum contaminant level (EPA)
MCPA	2-methyl-4-chlorophenoxyacetic acid
MCPP	2-(4-chloro-2-methylphenoxy)propanoic acid
MDA	material disposal area
MDL	method detection limit
NMED	New Mexico Environment Department
NMWQCC	New Mexico Water Quality Control Commission
NTU	nephelometric turbidity unit(s)
PME	periodic monitoring event
PMR	periodic monitoring report
PQL	practical quantitation limit
QC	quality control
RPF	Records Processing Facility
SOP	standard operating procedure
STD	standard
SU	standard unit
TA	technical area
UF	unfiltered

1.0 INTRODUCTION

This periodic monitoring report (PMR) provides documentation of fiscal year 2012, first quarter, quarterly groundwater monitoring conducted by Los Alamos National Laboratory (LANL or the Laboratory) for the Material Disposal Area C (MDA C) Monitoring Group pursuant to the 2011 Interim Facility-Wide Groundwater Monitoring Plan (IFGMP) (LANL 2011, 205231) prepared in accordance with the Compliance Order on Consent (Consent Order). This periodic monitoring event (PME) occurred from November 8 to November 28, 2011, and included sampling at groundwater wells or well ports. This report also includes any results from samples collected during previous PMEs that were unreported in their respective PMRs because validated laboratory data were not available (in some cases because of data release agreements). Any additional results from sampling that occurred outside the time frame of the current PME are also included in this report.

Sections VIII.A and VIII.C of the Consent Order identify New Mexico Water Quality Control Commission (NMWQCC) groundwater and surface-water standards, including alternative abatement standards and U.S. Environmental Protection Agency (EPA) drinking-water maximum contaminant levels (MCLs), as cleanup levels for groundwater when corrective action is implemented. NMWQCC groundwater standards, MCLs, and EPA regional screening levels for tap water are used as screening levels for monitoring data and are provided in this report.

This report presents the following information:

- general background information on the monitoring group
- field-measurement monitoring results
- water-quality monitoring results
- screening analysis results (comparing these PME results with screening levels and results from previous reports)
- a summary based on the data and the screening analysis

Information on radioactive materials and radionuclides, including the results of sampling and analysis of radioactive constituents, is voluntarily provided to the New Mexico Environment Department (NMED) in accordance with U.S. Department of Energy (DOE) policy.

1.1 Background

MDA C is located on Mesita del Buey in Technical Area 50 (TA-50), at the head of Ten Site Canyon. The MDA C Monitoring Group includes nearby regional monitoring wells on the mesa top and in Mortandad Canyon. TA-50 is bounded on the north by Effluent and Mortandad Canyons, on the east by the upper reaches of Ten Site Canyon, on the south by Twomile Canyon, and on the west by TA-55.

MDA C is an inactive 11.8-acre landfill consisting of 7 disposal pits and 108 shafts. Solid low-level radioactive wastes and chemical wastes were disposed of in the landfill between 1948 and 1974. The depths of the seven pits at MDA C range from 12 ft to 25 ft below the original ground surface. The depths of the 108 shafts range from 10 ft to 25 ft below the original ground surface. The original ground surface is defined as beneath the cover that was placed over the site in 1984. The pits and shafts are constructed in the Tshirege Member of the Bandelier Tuff. The regional aquifer is estimated to be approximately 1330 ft deep based on the water level in well R-46 (LANL 2009, 105592). The topography of MDA C is

relatively flat, although the slope steepens to the north where the northeast corner of MDA C abuts the south wall of Ten Site Canyon.

Vapor-phase volatile organic compounds and tritium are present in the upper 500 ft of the unsaturated zone beneath MDA C (LANL 2011, 204370). The primary vapor-phase contaminants beneath MDA C are trichloroethene, tetrachloroethene, and tritium. There is no evidence of groundwater contamination in the regional aquifer. MDA C is located on a mesa top above thick, unsaturated units of the Bandelier Tuff, and therefore, present-day aqueous-phase transport is generally believed to be minimal.

2.0 SCOPE OF ACTIVITIES

The PME for the MDA C Monitoring Group was conducted pursuant to the 2011 IFGMP (LANL 2011, 205231).

Table 2.0-1 provides the location name, port name, updated location name (because of database change), sample collection date, screened interval, top and bottom screen depths, casing volume, purge volume, and purge rate for each of the monitored locations. These locations are shown in Figure 2.0-1.

3.0 MONITORING RESULTS

3.1 Methods and Procedures

All methods and procedures used to perform the field activities associated with the PME are documented in the 2011 IFGMP (LANL 2011, 205231).

3.2 Field Parameter Results

Appendix A contains the field parameter results for this PME and for the four previous PMEs.

3.3 Water-Level Observations

The periodic monitoring water-level data for the previous 3 yr are presented in Appendix B (on CD included with this document). For wells equipped with transducers, the reported water level is the water-level measurement taken earliest on the day of sampling. All manual measurements were recorded immediately before sampling. The groundwater-elevation measurements are shown graphically on Plate 1. No surface-water locations are sampled for this monitoring group.

3.4 Deviations from Planned Scope

Table 3.4-1 describes the fieldwork deviations from the planned scope of the PME. Table 3.4-2 presents a list of analytes for which the practical quantitation limits (PQLs) are greater than screening levels.

4.0 ANALYTICAL DATA RESULTS

4.1 Methods and Procedures

All methods and procedures used to perform the analytical activities of the PMEs are documented in the 2011 IFGMP (LANL 2011, 205231). Purge water is managed and characterized in accordance with waste profile form 39268, a copy of which was included in Appendix F of a previous PMR (LANL 2008, 103737),

and ENV-RCRA-QP-010.2, Land Application of Groundwater. ENV-RCRA-QP-010.2 implements the NMED-approved Notice of Intent Decision Tree for land application of drilling, development, rehabilitation, and sampling purge water.

All sampling, data reviews, and data package validations were conducted using standard operating procedures (SOPs) that are part of a comprehensive quality assurance program. The quality program and procedures are available at http://www.lanl.gov/environment/all/qa.shtml. Completed chain-of-custody forms serve as an analytical request form and include the requester or owner, sample number, program code, date and time of sample collection, total number of bottles, list of analytes to be measured, bottle sizes, and preservatives for each required analysis.

The required analytical laboratory batch quality control (QC) is defined by the analytical method, the analytical statement of work, and generally accepted laboratory practices. The analytical laboratory assigns qualifiers to the data to indicate the quality of the analytical results. The laboratory batch QC was used in the secondary data-validation process to evaluate the quality of individual analytical results, evaluate the appropriateness of the analytical methodologies, and measure the routine performance of the analytical laboratory.

In addition to batch QC performed by laboratories, the Laboratory submitted field QC samples to test the overall sampling and analytical laboratory process and to spot-check for analytical problems. These results were used in secondary validation along with information provided by the analytical laboratory.

After the Laboratory receives the analytical laboratory data packages, the packages receive secondary validation by an independent contractor, Analytical Quality Associates, Inc. (AQA). AQA's reviews follow the guidelines set in the DOE model SOP for data validation, which includes reviewing the data quality and the documentation's correctness and completeness, verifying that holding times were met, and ensuring that analytical laboratory QC measures were applied, documented, and kept within contract requirements. As a result of secondary validation, a second set of qualifiers was assigned to the analytical results.

The Laboratory assigns detection status to the analytical result based on the analytical laboratory and secondary validation qualifiers. A "<" symbol indicates that, based on the qualifiers, the result was a nondetect.

4.2 Analytical Data

Appendix C presents the analytical data from this PME and from the four sampling events at these locations immediately before the PME. The analytical laboratory reports (including chain-of-custody forms and data validation) are provided in Appendix F (on CD included with this document).

Appendix C contains all data collected during the PME (i.e., all data that have been independently reviewed for conformance with Laboratory requirements) with the following constraints.

- All data
    - ❖ Data that are R-qualified (rejected because of noncompliance regarding QC acceptance criteria) during independent validation are considered unusable but are still reported.
    - ❖ Analytical laboratory QC results, including matrix spike and matrix spike duplicates, are not included in the data set.
    - ❖ Field duplicates, reanalyses, field blanks, trip blanks, equipment blanks, and results from different analytical methods are reported.

- Radionuclides
    - ❖ Only cesium-137, cobalt-60, neptunium-237, potassium-40, and sodium-22 are reported (or analyzed) for the gamma spectroscopy suite.
    - ❖ Americium-241 and uranium-235 are reported only by chemical separation alpha spectroscopy. No gamma spectroscopy results are presented for these analytes.
    - ❖ Low-detection-limit tritium results greater than 3 times the 1 standard deviation total propagated analytical uncertainty are considered to be detections.
    - ❖ Otherwise, all results are reported at all locations.
- Nonradionuclides
    - ❖ All results, excluding nondetections, are reported.

The results of data screening for this PMR are presented in Appendix D. These tables show all detected analytical results for perchlorate, radionuclides, and organic compounds and all analytical results greater than half the lowest applicable screening-level values for metals and general inorganic compounds. Because uranium, gross alpha, and gross beta are usually detected in water samples and to focus on the higher measurements, the tables include only occurrences of these measurements above threshold values. (All of the detected results are included in Appendix C.) The threshold levels are 5 µg/L for uranium, 5 pCi/L for gross alpha, and 20 pCi/L for gross beta, which are lower than the respective screening levels (30 µg/L for uranium, 15 pCi/L for gross alpha, and 50 pCi/L for gross beta). The sources of screening levels with which the results are compared are listed in Table 4.2-1.

Data for PMRs are evaluated using the following screening process.

- The base-flow monitoring locations are assigned to one of two screening categories—perennial or ephemeral. Along with a hardness value, this category determines the screening levels used for data at each monitoring location. Hardness-dependent screening levels used to screen data at each base-flow monitoring location are determined using the geometric mean of hardness data (mg/L as calcium carbonate) collected from 2006 to 2010 at each location. Hardness-dependent acute and chronic criteria were used for total aluminum and dissolved cadmium, chromium, copper, lead, manganese, nickel, silver, and zinc in accordance with the requirements of 20 New Mexico Administrative Code 6.4.
- Surface-water and groundwater perchlorate data were compared with the screening level of 4 µg/L established in Section VIII.A.1.a of the Consent Order.
- Other groundwater data are screened to Groundwater Cleanup Levels described in VIII.A.1 of the Consent Order; for an individual substance, the lesser of the EPA MCL or the NMWQCC groundwater standard is used.
- If a NMWQCC standard or an MCL has not been established for a specific substance for which toxicological information is published, the EPA Regional Screening Levels for Tap Water (formerly Region 6 Screening Levels for Tap Water) are used as the Groundwater Cleanup Level. These screening levels are for either a cancer- or noncancer-risk type. The Consent Order specifies screening at a 10^{-5} excess cancer risk. The EPA screening levels are for 10^{-6} excess cancer risk, so 10 times the EPA 10^{-6} screening values are used for screening.

- The NMWQCC groundwater standards apply to the dissolved (filtered) portion of specified contaminants; however, the standards for mercury, organic compounds, and nonaqueous-phase liquids apply to the total unfiltered concentrations of the contaminants. EPA MCLs are applied to both filtered and unfiltered sample results.
- The analytical results for radioactivity are compared with the DOE Biota Concentration Guides (BCGs) for surface water and Derived Concentration Guides (DCGs) for groundwater.

Table 4.2-2 provides groundwater analytical results (by hydrogeologic zone for a specific analytical suite) that are above screening levels. Multiple detections of a particular constituent at a location were counted as one result. For example, if aluminum is detected above a screening level in both a primary sample and a field duplicate, only the highest result is shown.

Graphs in Appendix E display concentration histories of analytes for locations where the analyte was above its screening level at least once during the three most recent PMEs. The concentration of the analyte is plotted for a 3-yr period. If 3 yr of data are not available, then all available results for the analyte are plotted. When shown, the solid red lines depict applicable screening levels.

No analytes from the current PME exceeded their screening level at more than one sampling location, so no concentration maps are included.

4.2.1 Surface Water (Base Flow)

No surface-water locations are included in this monitoring group.

4.2.2 Groundwater

No results from previous PME groundwater samples reported in this PMR were above screening levels.

For the current PME, the bis(2-ethylhexyl)phthalate concentration of 7.48 µg/L at regional aquifer well R-46 was above the 6 µg/L EPA MCL. Concentrations of bis(2-ethylhexyl)phthalate have declined from 96.4 µg/L in 2009; the recent value is the lowest.

4.3 Sampling Program Modifications

No modifications to the periodic monitoring sampling for the MDA C Monitoring Group are proposed at this time.

5.0 SUMMARY

5.1 Monitoring Results

The field parameter monitoring results are presented in Appendix A.

5.2 Analytical Results

5.2.1 Surface Water (Base Flow)

No surface-water locations are included in this monitoring group.

5.2.2 Groundwater

No results from previous PME groundwater samples reported in this PMR were above screening levels. One result from groundwater samples collected during this PME was above screening levels (Table 4.2-2).

For results above screening levels, the types of contaminants detected and their concentrations are consistent with data reported from previous monitoring events in this monitoring group.

5.3 Data Gaps

Table 3.4-1 summarizes the field deviations encountered during this PME. The table provides a detailed account of sampling event deviations.

5.4 Remediation System Monitoring

Remediation system monitoring is not applicable to the MDA C Monitoring Group because no systems are installed in the monitoring group area.

6.0 REFERENCES

The following list includes all documents cited in this report. Parenthetical information following each reference provides the author(s), publication date, and ER ID. This information is also included in text citations. ER IDs are assigned by the Environmental Programs Directorate's Records Processing Facility (RPF) and are used to locate the document at the RPF and, where applicable, in the master reference set.

Copies of the master reference set are maintained at the NMED Hazardous Waste Bureau and the Directorate. The set was developed to ensure that the administrative authority has all material needed to review this document, and it is updated with every document submitted to the administrative authority. Documents previously submitted to the administrative authority are not included.

LANL (Los Alamos National Laboratory), September 2008. "Periodic Monitoring Report for White Rock Watershed, April 23–April 30, 2008," Los Alamos National Laboratory document LA-UR-08-5847, Los Alamos, New Mexico. (LANL 2008, 103737)

LANL (Los Alamos National Laboratory), March 2009. "Completion Report for Regional Aquifer Well R-46," Los Alamos National Laboratory document LA-UR-09-1338, Los Alamos, New Mexico. (LANL 2009, 105592)

LANL (Los Alamos National Laboratory), June 2011. "Phase III Investigation Report for Material Disposal Area C, Solid Waste Management Unit 50-009, at Technical Area 50," Los Alamos National Laboratory document LA-UR-11-3429, Los Alamos, New Mexico. (LANL 2011, 204370)

LANL (Los Alamos National Laboratory), August 2011. "2011 Interim Facility-Wide Groundwater Monitoring Plan," Los Alamos National Laboratory document LA-UR-11-2183, Los Alamos, New Mexico. (LANL 2011, 205231)

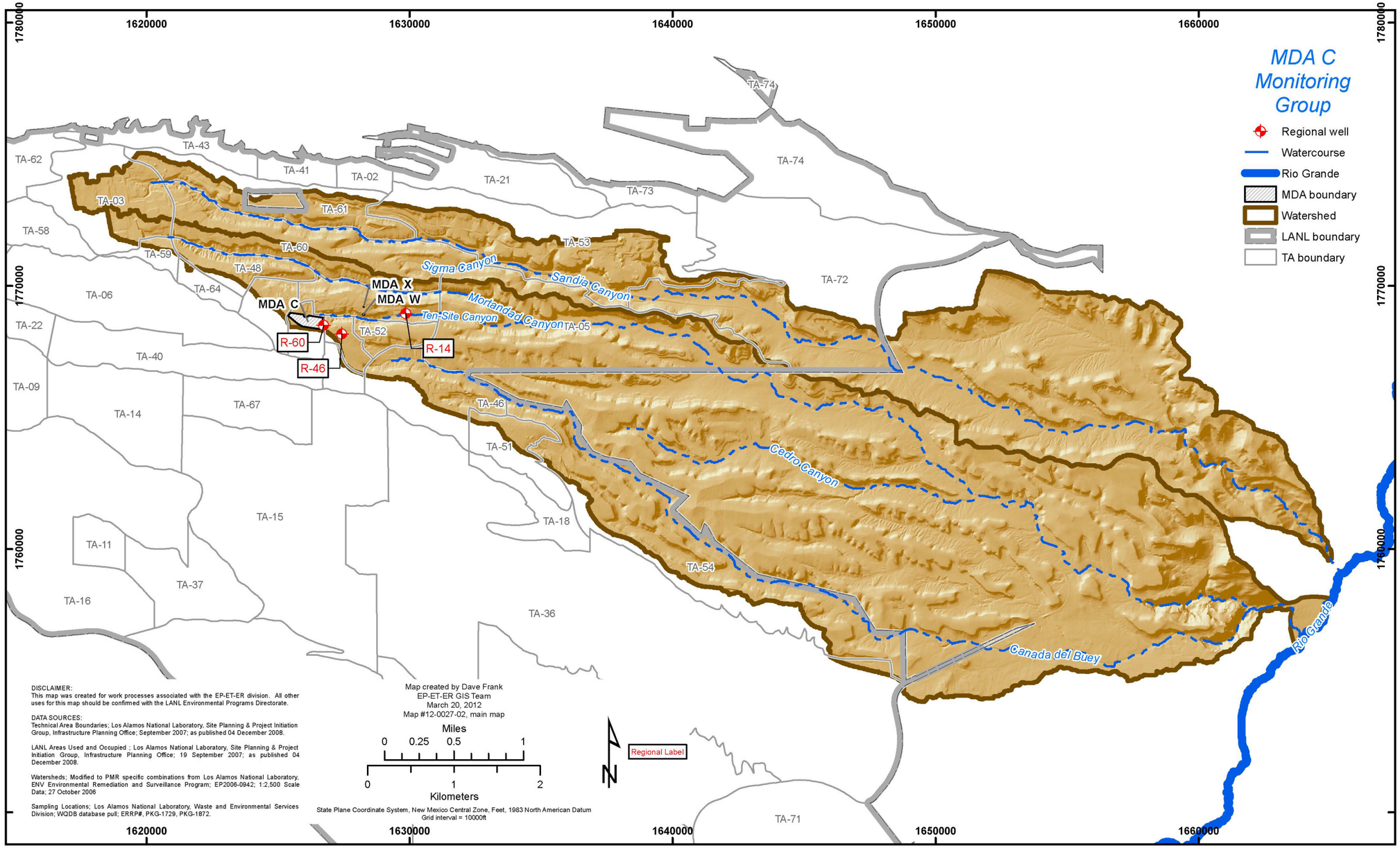


Figure 2.0-1 Locations monitored for this PME. Some locations on this map may not have been sampled (see Table 3.4-1).

Table 2.0-1
MDA C Monitoring Group Locations and General Information

Location Name	Port Name	Updated Location Name	Sample Collection Date	Screened Interval (ft)	Top Screen Depth (ft)	Bottom Screen Depth (ft)	Calculated Single Casing Volume (gal.)	Purge Volume (gal.)	Purge-Rate (cfs*)
R-14	Single	R-14	11/08/11	32.6	1200.6	1233.2	51	179.4	0.0154
R-46	Single	R-46	11/08/11	20.7	1340	1360.7	54.9	165	0.0102
R-60	Single	R-60	11/22/11	20.9	1330	1350.9	42.3	127.6	0.0025

*cfs = Cubic feet per second.

Table 3.4-1
MDA C Monitoring Group PME Observations and Deviations

Location	Deviation	Cause	Comment
n/a*	n/a	n/a	No deviations for this PME

* n/a = Not applicable.

Table 3.4-2
Analytes with PQLs above Screening Levels

Analyte or CAS[a] No.	Analyte Name	MDL[b]	PQL	Screening Level	Unit	Screening-Level Type
Herbicides						
94-74-6	MCPA[c]	12	53	18	µg/L	EPA Regional Tap
93-65-2	MCPP[d]	11	53	37	µg/L	EPA Regional Tap
Metals						
Be	Beryllium	1	5	4	µg/L	EPA MCL
Semivolatile Organic Analytes						
1912-24-9	Atrazine	3	10	3	µg/L	EPA MCL
103-33-3	Azobenzene	2	10	1.3	µg/L	EPA Regional Tap
92-87-5	Benzidine	3	10	0.00094	µg/L	EPA Regional Tap
56-55-3	Benzo(a)anthracene	0.2	1	0.29	µg/L	EPA Regional Tap
50-32-8	Benzo(a)pyrene	0.2	1	0.2	µg/L	EPA MCL
205-99-2	Benzo(b)fluoranthene	0.2	1	0.29	µg/L	EPA Regional Tap
111-44-4	Bis(2-chloroethyl)ether	2	10	0.12	µg/L	EPA Regional Tap
117-81-7	Bis(2-ethylhexyl)phthalate	2	10	6	µg/L	EPA MCL
106-47-8	Chloroaniline[4-]	2	10	3.4	µg/L	EPA Regional Tap
53-70-3	Dibenz(a,h)anthracene	0.2	1	0.029	µg/L	EPA Regional Tap
91-94-1	Dichlorobenzidine[3,3'-]	2	10	1.5	µg/L	EPA Regional Tap
534-52-1	Dinitro-2-methylphenol[4,6-]	3	10	2.9	µg/L	EPA Regional Tap
123-91-1	Dioxane[1,4-]	2	10	6.7	µg/L	EPA Regional Tap
118-74-1	Hexachlorobenzene	2	10	1	µg/L	EPA MCL

Table 3.4-2 (continued)

Analyte or CAS[a] No.	Analyte Name	MDL[b]	PQL	Screening Level	Unit	Screening-Level Type
193-39-5	Indeno(1,2,3-cd)pyrene	0.2	1	0.29	µg/L	EPA Regional Tap
55-18-5	Nitrosodiethylamine[N-]	2	10	0.0014	µg/L	EPA Regional Tap
62-75-9	Nitrosodimethylamine[N-]	2	10	0.0042	µg/L	EPA Regional Tap
924-16-3	Nitroso-di-n-butylamine[N-]	3	10	0.024	µg/L	EPA Regional Tap
621-64-7	Nitroso-di-n-propylamine[N-]	2	10	0.096	µg/L	EPA Regional Tap
930-55-2	Nitrosopyrrolidine[N-]	2	10	0.32	µg/L	EPA Regional Tap
108-60-1	Oxybis(1-chloropropane)[2,2'-]	2	10	3.2	µg/L	EPA Regional Tap
87-86-5	Pentachlorophenol	2	10	1	µg/L	EPA MCL
108-95-2	Phenol	1	10	5	µg/L	NMWQCC GW STD
Volatile Organic Analytes						
107-02-8	Acrolein	1.3	5	0.042	µg/L	EPA Regional Tap
107-13-1	Acrylonitrile	1	5	0.45	µg/L	EPA Regional Tap
126-99-8	Chloro-1,3-butadiene[2-]	0.3	1	0.16	µg/L	EPA Regional Tap
96-12-8	Dibromo-3-Chloropropane[1,2-]	0.3	1	0.2	µg/L	EPA MCL
106-93-4	Dibromoethane[1,2-]	0.25	1	0.05	µg/L	EPA MCL
126-98-7	Methacrylonitrile	1	5	1	µg/L	EPA Regional Tap
75-09-2	Methylene Chloride	3	10	5	µg/L	EPA MCL
96-18-4	Trichloropropane[1,2,3-]	0.3	1	0.0072	µg/L	EPA Regional Tap

Note: This table is applicable to all samples reported in all PMRs.

[a] CAS = Chemical Abstracts Service.

[b] MDL = Method detection limit.

[c] MCPA = 2-Methyl-4-chlorophenoxyacetic acid.

[d] MCPP = 2-(4-Chloro-2-methylphenoxy)propanoic acid.

Table 4.2-1
Sources of Screening Levels for Groundwater and Surface Water at Los Alamos National Laboratory

Standard Source	Standard Type	Groundwater	Surface Water
DOE Order 5400.5	DOE BCGs	n/a[a]	X[b]
DOE Order 5400.5	DOE 100-mrem Public Dose DCG	X	n/a
DOE Order 5400.5	DOE 4-mrem Drinking Water DCG	X	n/a
40 CFR 141[c]	EPA Primary Drinking Water Standard	X	n/a
EPA Regional Screening Levels for Chemical Contaminants at Superfund Sites	EPA Regional Screening Levels for Tap Water	X	n/a
20 NMAC 3.4	New Mexico Environmental Improvement Board Radiation Protection Standards	X	X
20 NMAC 6.2	NMWQCC Groundwater Standard	X	n/a
20 NMAC 6.4	NMWQCC Irrigation Standard	n/a	X
20 NMAC 6.4	NMWQCC Livestock Watering Standard	n/a	X
20 NMAC 6.4	NMWQCC Wildlife Habitat Standard	n/a	X
20 NMAC 6.4	NMWQCC Aquatic Life Standards Acute	n/a	X
20 NMAC 6.4	NMWQCC Aquatic Life Standards Chronic	n/a	X
20 NMAC 6.4	NMWQCC Human Health Standard	n/a	X

[a] n/a = Not applicable.

[b] X = applied to data screen for this report.

[c] CFR = Code of Federal Regulations.

Table 4.2-2
MDA C Monitoring Group Groundwater Results above Screening Levels

Location	Date	Analyte	Field Prep Code	Result	Unit	Screening Level	Screening-Level Type
Regional Aquifer							
R-46	11/08/11	Bis(2-ethylhexyl)phthalate	UF*	7.48	µg/L	6	EPA MCL

* UF = Unfiltered.

Appendix A

Field Parameter Results, Including Results from Previous Four Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Analyte	Result	Unit	Sample
R-14	1200.6	11/08/11	WG[a]	Dissolved Oxygen	5.17	mg/L	CAMO-12-1526
R-14	1200.6	08/03/11	WG	Dissolved Oxygen	5.25	mg/L	CAMO-11-24652
R-14	1200.6	05/18/11	WG	Dissolved Oxygen	5.1	mg/L	CAMO-11-10729
R-14	1200.6	02/22/11	WG	Dissolved Oxygen	4.84	mg/L	CAMO-11-4621
R-14	1200.6	11/12/10	WG	Dissolved Oxygen	4.34	mg/L	CAMO-11-1265
R-14	1200.6	11/08/11	WG	Oxidation Reduction Potential	167.1	mV	CAMO-12-1526
R-14	1200.6	08/03/11	WG	Oxidation Reduction Potential	139.2	mV	CAMO-11-24652
R-14	1200.6	05/18/11	WG	Oxidation Reduction Potential	156	mV	CAMO-11-10729
R-14	1200.6	02/22/11	WG	Oxidation Reduction Potential	115.8	mV	CAMO-11-4621
R-14	1200.6	11/12/10	WG	Oxidation Reduction Potential	430.9	mV	CAMO-11-1265
R-14	1200.6	11/08/11	WG	pH	8.43	SU[b]	CAMO-12-1526
R-14	1200.6	08/03/11	WG	pH	8.37	SU	CAMO-11-24652
R-14	1200.6	05/18/11	WG	pH	8.4	SU	CAMO-11-10729
R-14	1200.6	02/22/11	WG	pH	8.39	SU	CAMO-11-4621
R-14	1200.6	11/12/10	WG	pH	8.12	SU	CAMO-11-1265
R-14	1200.6	11/08/11	WG	Specific Conductance	130	µS/cm	CAMO-12-1526
R-14	1200.6	08/03/11	WG	Specific Conductance	133	µS/cm	CAMO-11-24652
R-14	1200.6	05/18/11	WG	Specific Conductance	131	µS/cm	CAMO-11-10729
R-14	1200.6	02/22/11	WG	Specific Conductance	135	µS/cm	CAMO-11-4621
R-14	1200.6	11/12/10	WG	Specific Conductance	133	µS/cm	CAMO-11-1265
R-14	1200.6	11/08/11	WG	Temperature	23.17	deg C	CAMO-12-1526
R-14	1200.6	08/03/11	WG	Temperature	23.76	deg C	CAMO-11-24652
R-14	1200.6	05/18/11	WG	Temperature	22.87	deg C	CAMO-11-10729
R-14	1200.6	02/22/11	WG	Temperature	23.67	deg C	CAMO-11-4621
R-14	1200.6	11/12/10	WG	Temperature	22.85	deg C	CAMO-11-1265
R-14	1200.6	11/08/11	WG	Turbidity	0.51	NTU[c]	CAMO-12-1526
R-14	1200.6	08/03/11	WG	Turbidity	0.36	NTU	CAMO-11-24652
R-14	1200.6	05/18/11	WG	Turbidity	0.51	NTU	CAMO-11-10729

Location	Depth (ft)	Date	Field Matrix	Analyte	Result	Unit	Sample
R-14	1200.6	02/22/11	WG	Turbidity	0.63	NTU	CAMO-11-4621
R-14	1200.6	11/12/10	WG	Turbidity	0.53	NTU	CAMO-11-1265
R-46	1340	11/08/11	WG	Dissolved Oxygen	6.49	mg/L	CAMO-12-1530
R-46	1340	08/03/11	WG	Dissolved Oxygen	6.39	mg/L	CAMO-11-24656
R-46	1340	05/17/11	WG	Dissolved Oxygen	6.59	mg/L	CAMO-11-10733
R-46	1340	02/17/11	WG	Dissolved Oxygen	6.5	mg/L	CAMO-11-4623
R-46	1340	11/12/10	WG	Dissolved Oxygen	5.49	mg/L	CAMO-11-1285
R-46	1340	11/08/11	WG	Oxidation Reduction Potential	130.4	mV	CAMO-12-1530
R-46	1340	08/03/11	WG	Oxidation Reduction Potential	167.9	mV	CAMO-11-24656
R-46	1340	05/17/11	WG	Oxidation Reduction Potential	105.4	mV	CAMO-11-10733
R-46	1340	02/17/11	WG	Oxidation Reduction Potential	61.5	mV	CAMO-11-4623
R-46	1340	11/12/10	WG	Oxidation Reduction Potential	179.6	mV	CAMO-11-1285
R-46	1340	11/08/11	WG	pH	8.02	SU	CAMO-12-1530
R-46	1340	08/03/11	WG	pH	7.62	SU	CAMO-11-24656
R-46	1340	05/17/11	WG	pH	7.92	SU	CAMO-11-10733
R-46	1340	02/17/11	WG	pH	7.75	SU	CAMO-11-4623
R-46	1340	11/12/10	WG	pH	7.9	SU	CAMO-11-1285
R-46	1340	11/08/11	WG	Specific Conductance	122	µS/cm	CAMO-12-1530
R-46	1340	08/03/11	WG	Specific Conductance	126	µS/cm	CAMO-11-24656
R-46	1340	05/17/11	WG	Specific Conductance	122	µS/cm	CAMO-11-10733
R-46	1340	02/17/11	WG	Specific Conductance	125	µS/cm	CAMO-11-4623
R-46	1340	11/12/10	WG	Specific Conductance	126	µS/cm	CAMO-11-1285
R-46	1340	11/08/11	WG	Temperature	21.41	deg C	CAMO-12-1530
R-46	1340	08/03/11	WG	Temperature	21.52	deg C	CAMO-11-24656
R-46	1340	05/17/11	WG	Temperature	21.12	deg C	CAMO-11-10733
R-46	1340	02/17/11	WG	Temperature	20.44	deg C	CAMO-11-4623
R-46	1340	11/12/10	WG	Temperature	19.77	deg C	CAMO-11-1285
R-46	1340	11/08/11	WG	Turbidity	1.23	NTU	CAMO-12-1530

Location	Depth (ft)	Date	Field Matrix	Analyte	Result	Unit	Sample
R-46	1340	08/03/11	WG	Turbidity	1.51	NTU	CAMO-11-24656
R-46	1340	05/17/11	WG	Turbidity	1.77	NTU	CAMO-11-10733
R-46	1340	02/17/11	WG	Turbidity	1.57	NTU	CAMO-11-4623
R-46	1340	11/12/10	WG	Turbidity	1.56	NTU	CAMO-11-1285
R-60	1330	11/22/11	WG	Dissolved Oxygen	5.23	mg/L	CAMO-12-1522
R-60	1330	07/26/11	WG	Dissolved Oxygen	4.5	mg/L	CAPA-11-14776
R-60	1330	07/26/11	WG	Dissolved Oxygen	4.5	mg/L	CAPA-11-23020
R-60	1330	07/26/11	WG	Dissolved Oxygen	4.56	mg/L	CAPA-11-14774
R-60	1330	07/26/11	WG	Dissolved Oxygen	4.52	mg/L	CAPA-11-14773
R-60	1330	07/26/11	WG	Dissolved Oxygen	4.52	mg/L	CAPA-11-14772
R-60	1330	04/27/11	WG	Dissolved Oxygen	3.34	mg/L	CAPA-11-9591
R-60	1330	11/22/11	WG	Oxidation Reduction Potential	96.2	mV	CAMO-12-1522
R-60	1330	07/26/11	WG	Oxidation Reduction Potential	45.9	mV	CAPA-11-23020
R-60	1330	07/26/11	WG	Oxidation Reduction Potential	45.9	mV	CAPA-11-14776
R-60	1330	07/26/11	WG	Oxidation Reduction Potential	33.7	mV	CAPA-11-14774
R-60	1330	04/27/11	WG	Oxidation Reduction Potential	63.2	mV	CAPA-11-9591
R-60	1330	01/24/11	WG	Oxidation Reduction Potential	206.9	mV	CAPA-11-3055
R-60	1330	11/22/11	WG	pH	8.45	SU	CAMO-12-1522
R-60	1330	07/26/11	WG	pH	8.09	SU	CAPA-11-14776
R-60	1330	07/26/11	WG	pH	8.09	SU	CAPA-11-23020
R-60	1330	07/26/11	WG	pH	8.17	SU	CAPA-11-14774
R-60	1330	07/26/11	WG	pH	8.33	SU	CAPA-11-14773
R-60	1330	07/26/11	WG	pH	8.33	SU	CAPA-11-14772
R-60	1330	04/27/11	WG	pH	8.15	SU	CAPA-11-9591
R-60	1330	11/22/11	WG	Specific Conductance	124	µS/cm	CAMO-12-1522
R-60	1330	07/26/11	WG	Specific Conductance	128	µS/cm	CAPA-11-14776
R-60	1330	07/26/11	WG	Specific Conductance	128	µS/cm	CAPA-11-23020
R-60	1330	07/26/11	WG	Specific Conductance	134	µS/cm	CAPA-11-14774

Location	Depth (ft)	Date	Field Matrix	Analyte	Result	Unit	Sample
R-60	1330	07/26/11	WG	Specific Conductance	133	µS/cm	CAPA-11-14773
R-60	1330	07/26/11	WG	Specific Conductance	133	µS/cm	CAPA-11-14772
R-60	1330	04/27/11	WG	Specific Conductance	142	µS/cm	CAPA-11-9591
R-60	1330	11/22/11	WG	Temperature	22.65	deg C	CAMO-12-1522
R-60	1330	07/26/11	WG	Temperature	24.64	deg C	CAPA-11-23020
R-60	1330	07/26/11	WG	Temperature	24.64	deg C	CAPA-11-14776
R-60	1330	07/26/11	WG	Temperature	24.25	deg C	CAPA-11-14774
R-60	1330	07/26/11	WG	Temperature	22.82	deg C	CAPA-11-14773
R-60	1330	07/26/11	WG	Temperature	22.82	deg C	CAPA-11-14772
R-60	1330	04/27/11	WG	Temperature	22.89	deg C	CAPA-11-9591
R-60	1330	11/22/11	WG	Turbidity	1.82	NTU	CAMO-12-1522
R-60	1330	07/26/11	WG	Turbidity	1.3	NTU	CAPA-11-14776
R-60	1330	07/26/11	WG	Turbidity	1.3	NTU	CAPA-11-23020
R-60	1330	07/26/11	WG	Turbidity	2.73	NTU	CAPA-11-14774
R-60	1330	07/26/11	WG	Turbidity	2.75	NTU	CAPA-11-14773
R-60	1330	07/26/11	WG	Turbidity	2.75	NTU	CAPA-11-14772
R-60	1330	04/27/11	WG	Turbidity	2.54	NTU	CAPA-11-9591

[a] WG = Groundwater.

[b] SU = Standard unit.

[c] NTU = Nephelometric turbidity unit.

Appendix B

Groundwater-Elevation Measurements
(on CD included with this document)

Appendix C

Analytical Chemistry Results, Including Results from Previous Four Monitoring Events if Available

The following pages provide lists of (1) acronyms, abbreviations, symbols, and various analytical codes, (2) analytical laboratory qualifier codes, and (3) secondary validation flag codes that may be used in Appendix C. Please note that these are comprehensive lists, and this periodic monitoring report may not include all of the acronyms, abbreviations, symbols, and codes in the lists.

Acronyms and Abbreviations

Acronym, Abbreviation, or Symbol	Description
Miscellaneous	
%	percent
%D	percent difference
%R	percent recovery
%RSD	percent standard deviation
<	Based on qualifiers, the result was a nondetection.
—	none
4,4'-DDD	4,4'-dichlorodiphenyldichloroethane
4,4'-DDT	4,4'-dichlorodiphenyltrichloroethane
BHC	benzene hexachloride
CB	chlorinated biphenyl
CCB	continuing calibration blank
CCV	continuing calibration verification
CLP	Control Laboratory Program
CRDL	contract-required detection limit
CRI	CDRL check standard
DCG	Derived Concentration Guide (DOE)
DDE	dichlorodiphenyldichloroethylene
DNX	dinitroso-RDX (or hexahydro-1,3-dinitroso-5-nitro-1,3,5-triazine)
DOE	Department of Energy (U.S.)
DQO	data quality objective
EPA	Environmental Protection Agency (U.S.)
GC	gas chromatography
GC/MS	gas chromatograph/mass spectrometer
GFAA	graphite furnace atomic absorption
GFPC	gas-flow proportional counter
GW	groundwater
HH OO	Human Health—Organism Only (NMWQCC standard)
HMX	1,3,5,7-tetranitro-1,3,5,7-tetrazocine
HPLC	high-pressure liquid chromatography
ICAL	initial calibration
ICPAES	inductively coupled plasma atomic (optical) emission spectroscopy
ICV	initial calibration verification
IDL	instrument detection limit

Acronyms and Abbreviations (continued)

Acronym, Abbreviation, or Symbol	Description
Miscellaneous (continued)	
IS	internal standard
LAL	lower acceptance limit
LANL	Los Alamos National Laboratory
LC/MS/MS	liquid chromatography/mass spectrometry/mass spectrometry
LCS	laboratory control sample
LLEE	low-level electrolytic extraction
LOC	level of chlorination
LSC	liquid scintillation counting
Lvl	level
MCL	maximum contaminant level (EPA)
MDA	minimum detectable activity
MDC	minimum detectable concentration
MDL	method detection limit
MNX	mononitroso-RDX (or hexahydro-1-nitroso-3,5-dinitro-1,3,5-triazine)
MS	matrix spike
MSD	matrix spike duplicate
NM	NMWQCC
NMED	New Mexico Environmental Department
NMWQCC	New Mexico Water Quality Control Commission
OPR	ongoing precision recovery
PCB	polychlorinated biphenyl
PCDD	polychlorinated dibenzo-p-dioxin
PCDF	polychlorinated dibenzofuran
PQL	practical quantitation limit
Prelim	preliminary
QC	quality control
RDX	hexahydro-1,3,5-trinitro-1,3,5-triazine
RF	response factor
RL	reporting limit
RPD	relative percent difference
RRF	relative response factor
RRT	relative retention time
RT	retention time
Scr	screening
SDG	sample delivery group
SMO	Sample Management Office
SSC	suspended sediment concentration
SU	standard unit

Acronyms and Abbreviations (continued)

Acronym, Abbreviation, or Symbol	Description
Miscellaneous (continued)	
TCDD	tetrachlorodibenzo-p-dioxin
TCDF	tetrachlorodibenzofuran
TDS	total dissolved solids
TPH-DRO	total petroleum hydrocarbons—diesel range organics
TNX	trinitroso-RDX (or hexahydro-1,3,5-trinitroso-1,3,5-triazine)
TPU	total propagated uncertainty
UAL	upper acceptance limit
Field Matrix Codes	
W	water
WG	groundwater
WM	snowmelt
WP	persistent flow
WS	base flow
WT	storm runoff
Field Prep Codes	
F	filtered
UF	unfiltered
Field QC Type Codes	
EQB	equipment rinsate blank
FB	field blank
FD	field duplicate
FR	field rinsate
FS	field split
FTB	field trip blank
FTR	field triplicate
INB	equipment blank taken during installation and not associated with a sampling event
ITB	trip blank taken during installation and not associated with a sampling event
NA	not applicable
PEB	performance evaluation blank
PEK	performance evaluation known
RES	resample
SS	special sampling event, data unique
SS-EQB	equipment blank of special sampling event, data unique
SS-FB	field blank of special sampling event, data unique
SS-FD	field duplicate of special sampling event, data unique
SS-FTB	field trip blank of special sampling event, data unique

Acronyms and Abbreviations (continued)

Acronym, Abbreviation, or Symbol	Description
Analytical Suite Codes	
ANION	anions
DIOX/FUR, Diox/Fur	dioxins and furans
DRO	diesel range organics
GAMMA, GAMMA_SPEC	gamma spectroscopy
Geninorg, GENINORG	general inorganics
GRO	gasoline range organics
GROSSA	gross alpha
GROSSB	gross beta
HERB	herbicides
HEXP	high explosives
INORGANIC	inorganics
ISOTOPE, Isotope	isotope ratios
METALS, Metals	metals
PCB	polychlorinated biphenyls
PCB_CONG, PCB Cong	PCB congeners
PEST	pesticides
PEST/PCB, PESTPCB	pesticides and PCBs
RAD, Rad	radiochemistry
SVOA	semivolatile organics
SVOC	semivolatile organic compounds
VOA	volatile organics
VOC	volatile organic compounds
Lab Sample Type Codes	
CS	client sample
DL	dilution
DUP	duplicate
RE	reanalysis
REDL	reanalysis dilution
REDP	reanalysis duplicate
RI	reissue
TRP	triplicate
Lab Codes	
ALTC	Alta Analytical Laboratory, Inc., San Diego, CA
ARSL	American Radiation Services–Primary
CFA	Cape Fear Analytical, LLC, Wilmington, NC
C-INC	Isotope and Nuclear Chemistry Division (LANL)
COAST	Coastal Science Laboratories, Austin, TX
CST	Chemical Sciences and Technology Division (LANL)

Acronyms and Abbreviations (continued)

Acronym, Abbreviation, or Symbol	Description
Lab Codes (continued)	
EES6	Hydrology, Geochemistry, and Geology Group (LANL)
ESE	Environmental Sciences & Engineering, Inc., Gainesville, FL
FLD	measurement taken in field
GEL	General Engineering Laboratories, Inc.
GELC	General Engineering Laboratories, Inc., Charleston, SC
GEO	Geochron Laboratories, Boston, MA
HENV	Health and Environmental Laboratory (Johnson Controls, Northern New Mexico)
HUFFMAN	Huffman Laboratories, Inc., Golden, CO
KA	KEMRON Environmental Services, Inc., Vienna, VA
LVLI	Lionville Laboratory, Inc., Philadelphia, PA
PARA	Paragon Analytics, Inc., Salt Lake City, UT
PEC	Pacific Ecorisk Laboratories, Fairfield, CA
QESL	Quanterra Environmental Services, St. Louis, MO
QST	QST Environmental, Newberry, FL
RECRAP	RECRA Labnet, Lionville, PA
RFWC	Roy F. Weston, Inc., West Chester, PA
SGSW	Paradigm Analytical Laboratories, Inc., Wilmington, NC
SILENS	Stable Isotope Laboratory, Woods Hole, MA
STL2, STR	Severn Trent Laboratories, Inc., Richland, WA (historical)
STLA	Severn Trent Laboratories, Inc., Los Angeles, CA
STSL	Severn Trent Laboratories, Inc., St. Louis, MO
SwRI	Southwest Research Institute, San Antonio, TX
UAZ	University of Arizona, Tucson
UIL	University of Illinois, Urbana-Champaign
UMTL	University of Miami Tritium Lab

Analytical Laboratory Qualifier Codes

Code	Description
*	(Inorganic)—Duplicate analysis (relative percent difference [RPD]) not within control limits.
B	(Organic) —Analyte was present in the blank and the sample. (Inorganic) —Reported value was obtained from a reading that was less than the contract-required detection limit (CRDL) but greater than or equal to the instrument detection limit (IDL).
BJ	See B code and see J code.
BJP	See B code, see J code, and see P code.
BPX	(B) (Organic)—This analyte was detected in the associated laboratory method blank and the sample. (B) (Inorganic)—The result for this analyte was greater than the IDL but less than the CRDL. (P) (Pesticides/PCBs)—The quantitative results for this analyte between the primary and secondary gas chromatography (GC) columns were greater than 25% difference. (P) (SW-846 EPA Method 8310, High-Pressure Liquid Chromatography, [HPLC] Results)—The quantitative results for this analyte between the primary and secondary HPLC columns or primary and secondary HPLC detectors were greater than 40% difference. (X) (Organic/Inorganic)—The result for this analyte should be regarded as not detected.
D	The result for this analyte was reported from a dilution.
DJ	See D code and see J code.
DNA	Did not analyze because equipment was broken.
E	(Organic) Analyte exceeded the concentration range. (Inorganic) The serial dilution was exceeded.
E*	See E code and see * code.
EJ	See E code and see J code.
EJ*	See E code, see J code, and see * code.
EJN	(E) (Organic)—The result for this analyte exceeded the upper range of the instrument initial calibration curve. (E) (Inorganic) (inductively coupled plasma atomic [optical] emission spectroscopy [ICPAES])—The result for this analyte in the serial dilution analysis was outside acceptance criteria. (E) (Inorganic) (graphite furnace atomic absorption [GFAA])—The result for this analyte failed one or more Control Laboratory Program (CLP) acceptance criteria as explained in the case narrative. (J) (Organic/General Inorganics)—The result for this analyte was greater than the method detection limit (MDL) but less than the practical quantitation limit (PQL). (N) (Organic)—The reported analyte is a tentatively identified compound (TIC). (N) (Inorganic)—The result for this analyte in the matrix spike (MS) sample was outside acceptance criteria.
EN	See E code and see N code.
EN*	(E) (Organic)—The result for this analyte exceeded the upper range of the instrument initial calibration curve. (E) (Inorganic) (ICPAES)—The result for this analyte in the serial dilution analysis was outside acceptance criteria. (E) (Inorganic) (GFAA)—The result for this analyte failed one or more CLP acceptance criteria as explained in the case narrative. (N) (Organic)—The reported analyte is a TIC. (N) (Inorganic)—The result for this analyte in the MS sample was outside acceptance criteria. * (Inorganic)—The result for this analyte in the laboratory replicate analysis was outside acceptance criteria.
H	(Organic/Inorganic)—The required extraction or analysis holding time for this result was exceeded.

Analytical Laboratory Qualifier Codes (continued)

Code	Description
H*	(H) (Organic/Inorganic)—The required extraction or analysis holding time for this result was exceeded. * (Organic) and (Inorganic)—The result for this analyte in the laboratory control sample analysis was outside acceptance criteria.
HJ	See H code and see J code.
HJ*	(H) (Organic/Inorganic)—The required extraction or analysis holding time for this result was exceeded. (J) (Organic/General Inorganics)—The result for this analyte was greater than the MDL but less than the PQL. * (Inorganic)—The result for this analyte in the laboratory replicate analysis was outside acceptance criteria.
INS	(d15N)—The d15N of nitrate is a signature of the nitrate present in a sample. Therefore, nitrate has to be present to have a signature. A d15N value cannot be given to a blank because the blank does not have nitrate. This is different from most analytical methods, where a blank is run with the designator “nondetect” or “detected, but below detection limit.”
J	(Inorganic)—The associated numerical value is an estimated quantity. (Organic)—The associated numerical value is an estimated quantity.
J*	See J code and see * code.
JB	See J code and see B code
JN	See J code and see N code.
JN*	See J code, see N code, and see * code.
JP	See J code and see P code.
N	(Inorganic)—Spiked sample recovery was not within control limits.
N*	See N code and see * code.
N*E	See N code, see * code, and see E code.
NE	See N code and see E code.
P	Percent difference between the results on the two columns during the analysis differed by more than 40%.
PJ	See P code and see J code.
U	The material was analyzed for but was not detected above the level of the associated numeric value.
U*	See U code and see * code.
UD	See U code and see D code.
UE	See U code and see E code.
UE*	See U code, see E code, and see * code.
UEN	See U code, see E code, and see N code.
UH	See U code and see H code.

Analytical Laboratory Qualifier Codes (continued)

UH*	(U) (Organic/Inorganic)—The result for this analyte was not detected at the specified reporting limit. (H) (Organic/Inorganic)—The required extraction or analysis holding time for this result was exceeded. * (Inorganic)—The result for this analyte in the laboratory replicate analysis was outside acceptance criteria.
UI	(Rad) Gamma spectroscopy result should be regarded as an uncertain identification.
UN	EPA flag (Inorganic)—Compound was analyzed for but was not detected. Spiked sample recovery was not within control limits.
UN*	EPA flag (Inorganic)—See U code, see N code, and see * code.
UUI	(Rad) Gamma spectroscopy result should be regarded as an uncertain identification, and the analytical lab assigned these gamma spectroscopy results as not detected.
X	The analytical laboratory suspects the result is a nondetect despite positive quantification results.

Secondary Validation Flag Codes

Code	Description
A	The contractually required supporting documentation for this datum is absent.
I	The calculated sums are considered incomplete because of the lack of one or more congener results.
J	The analyte is classified as detected, but the reported concentration value is expected to be more uncertain than usual.
J-	The analyte is classified as detected, but the reported concentration value is expected to be more uncertain than usual with a potential negative bias.
J+	The analyte is classified as detected, but the reported concentration value is expected to be more uncertain than usual with a potential positive bias.
JN-	Presumptive evidence of the presence of the material is at an estimated quantity with a suspected negative bias.
JN+	Presumptive evidence of the presence of the material is at an estimated quantity with a suspected positive bias.
N	There is presumptive evidence of the presence of the material.
NJ	(Organic) Analyte has been tentatively identified, and the associated numerical value is estimated based upon a 1:1 response factor to the nearest eluting internal standard.
NQ	No validation qualifier flag is associated with this result, and the analyte is classified as detected.
PM	Manual review of raw data is recommended to determine if the observed noncompliances with quality acceptance criteria adversely impact data use.
R	The reported sample result is classified as rejected because of serious noncompliances regarding quality control (QC) acceptance criteria. The presence or absence of the analyte cannot be verified based on routine validation alone.
U	The analyte is classified as not detected.
UJ	The analyte is classified as not detected, with an expectation that the reported result is more uncertain than usual.

Table C-1 MDA C Monitoring Group Previously Unreported Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Symbol	Result	1-sigma TPU	MDA	MDL	Unit	Lab Qual	2nd Qual	Request	Sample	Lab
R-14	1200.6	11/04/09	WG	UF	CS	—	Isotope	Deuterium Ratio	Deuterium Ratio	—	-78.68	—	—	—	permil	—	—	10-351	CAMO-10-3215	EES6
R-14	1200.6	11/04/09	WG	UF	DUP	—	Isotope	Deuterium Ratio	Deuterium Ratio	—	-78.42	—	—	—	permil	—	—	10-351	CAMO-10-3215	EES6
R-14	1200.6	08/07/09	WG	UF	CS	—	Isotope	Deuterium Ratio	Deuterium Ratio	<	-78.50	—	—	2.00E-03	permil	U	—	09-2818	CAMO-09-9571	EES6
R-14	1200.6	05/07/09	WG	UF	CS	—	Isotope	Deuterium Ratio	Deuterium Ratio	—	-78.19	—	—	1.00E-03	permil	—	—	09-1790	CAMO-09-8207	EES6
R-14	1200.6	02/18/09	WG	UF	CS	—	Isotope	Deuterium Ratio	Deuterium Ratio	—	-78.87	—	—	—	permil	—	—	09-939	CAMO-09-2862	EES6
R-14	1200.6	08/20/08	WG	UF	CS	—	Isotope	Deuterium Ratio	Deuterium Ratio	—	-78.38	—	—	—	permil	—	—	08-1729	CAMO-08-14506	EES6
R-14	1200.6	08/20/08	WG	UF	DUP	—	Isotope	Deuterium Ratio	Deuterium Ratio	—	-77.43	—	—	—	permil	—	—	08-1729	CAMO-08-14506	EES6
R-14	1200.6	11/04/09	WG	F	CS	—	Isotope	Nitrogen Ratio	Nitrogen-15/Nitrogen-14 Ratio	—	4.50	—	—	—	permil	—	—	10-351	CAMO-10-3214	EES6
R-14	1200.6	08/07/09	WG	F	DUP	—	Isotope	Nitrogen Ratio	Nitrogen-15/Nitrogen-14 Ratio	—	4.92	—	—	1.00E-02	permil	—	—	09-2818	CAMO-09-9573	EES6
R-14	1200.6	08/07/09	WG	F	CS	—	Isotope	Nitrogen Ratio	Nitrogen-15/Nitrogen-14 Ratio	—	4.70	—	—	1.00E-02	permil	—	—	09-2818	CAMO-09-9573	EES6
R-14	1200.6	05/07/09	WG	F	CS	—	Isotope	Nitrogen Ratio	Nitrogen-15/Nitrogen-14 Ratio	—	5.02	—	—	1.00E-02	permil	—	—	09-1790	CAMO-09-8206	EES6
R-14	1200.6	08/20/08	WG	F	CS	—	Isotope	Nitrogen Ratio	Nitrogen-15/Nitrogen-14 Ratio	—	5.86	—	—	—	permil	—	—	08-1729	CAMO-08-14507	EES6
R-14	1200.6	07/01/10	WG	UF	CS	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio	—	-10.50	—	—	—	permil	—	—	10-3570	CAMO-10-22851	EES6
R-14	1200.6	11/04/09	WG	UF	CS	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio	—	-11.06	—	—	—	permil	—	—	10-351	CAMO-10-3215	EES6
R-14	1200.6	11/04/09	WG	UF	DUP	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio	—	-10.88	—	—	—	permil	—	—	10-351	CAMO-10-3215	EES6
R-14	1200.6	08/07/09	WG	UF	DUP	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio	—	-11.31	—	—	1.00E-03	permil	—	—	09-2818	CAMO-09-9571	EES6
R-14	1200.6	08/07/09	WG	UF	CS	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio	—	-11.36	—	—	1.00E-03	permil	—	—	09-2818	CAMO-09-9571	EES6
R-14	1200.6	05/07/09	WG	UF	CS	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio	<	-10.77	—	—	1.00E-03	permil	U	—	09-1790	CAMO-09-8207	EES6
R-14	1200.6	02/18/09	WG	UF	DUP	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio	—	-10.81	—	—	—	permil	—	—	09-939	CAMO-09-2862	EES6
R-14	1200.6	02/18/09	WG	UF	CS	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio	—	-10.71	—	—	—	permil	—	—	09-939	CAMO-09-2862	EES6
R-14	1200.6	08/20/08	WG	UF	CS	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio	—	-11.32	—	—	—	permil	—	—	08-1729	CAMO-08-14506	EES6
R-14	1200.6	08/20/08	WG	UF	DUP	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio	—	-11.14	—	—	—	permil	—	—	08-1729	CAMO-08-14506	EES6
R-14	1200.6	07/01/10	WG	F	CS	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio from Nitrate	—	-2.81	—	—	—	permil	—	—	10-3570	CAMO-10-22850	EES6
R-14	1200.6	11/04/09	WG	F	CS	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio from Nitrate	—	-4.30	—	—	—	permil	—	—	10-351	CAMO-10-3214	EES6
R-14	1200.6	08/07/09	WG	F	CS	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio from Nitrate	—	-3.26	—	—	—	permil	—	—	09-2818	CAMO-09-9573	EES6
R-14	1200.6	08/07/09	WG	F	DUP	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio from Nitrate	—	-2.89	—	—	—	permil	—	—	09-2818	CAMO-09-9573	EES6
R-14	1200.6	08/20/08	WG	F	CS	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio from Nitrate	—	-3.58	—	—	—	permil	—	—	08-1729	CAMO-08-14507	EES6
R-14	1200.6	08/03/11	WG	UF	CS	—	Rad	LLEE	Tritium	<	-2.30	7.34E-01	2.33E+00	—	pCi/L	U	U	11-3040	CAMO-11-24652	ARSL
R-14	1200.6	05/18/11	WG	UF	CS	—	Rad	LLEE	Tritium	<	1.09	6.71E-01	2.17E+00	—	pCi/L	U	U	11-2440	CAMO-11-10729	ARSL
R-14	1200.6	11/12/10	WG	UF	RE	—	Rad	LLEE	Tritium	<	0.80	7.02E-01	2.33E+00	—	pCi/L	U	U	11-564	CAMO-11-1265	ARSL
R-14	1200.6	02/03/10	WG	UF	CS	—	Rad	LLEE	Tritium	<	-0.26	2.87E-01	2.87E-01	—	pCi/L	U	U	10-1902	CAMO-10-9333	UMTL
R-14	1200.6	11/04/09	WG	UF	CS	—	Rad	LLEE	Tritium	<	0.03	2.87E-01	2.87E-01	—	pCi/L	U	U	10-381	CAMO-10-3215	UMTL
R-14	1200.6	08/07/09	WG	UF	CS	—	Rad	LLEE	Tritium	<	-0.03	2.87E-01	2.87E-01	—	pCi/L	U	U	09-2842	CAMO-09-9571	UMTL
R-14	1200.6	05/07/09	WG	UF	CS	—	Rad	LLEE	Tritium	<	-0.06	2.87E-01	2.87E-01	—	pCi/L	U	U	09-1855	CAMO-09-8207	UMTL
R-46	1340	07/01/10	WG	F	CS	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio from Nitrate	—	-3.91	—	—	—	permil	—	—	10-3570	CAMO-10-22888	EES6
R-46	1340	05/07/10	WG	F	CS	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio from Nitrate	—	-4.86	—	—	—	permil	—	—	10-3100	CAMO-10-16832	EES6
R-46	1340	11/13/09	WG	F	CS	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio from Nitrate	—	-4.20	—	—	—	permil	—	—	10-503	CAMO-10-3235	EES6
R-46	1340	11/13/09	WG	F	DUP	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio from Nitrate	—	-4.11	—	—	—	permil	—	—	10-503	CAMO-10-3235	EES6
R-46	1340	06/17/09	WG	F	CS	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio from Nitrate	—	1.04	—	—	—	permil	—	—	09-2383	CAMO-09-10499	EES6
R-46	1340	05/13/09	WG	F	DUP	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio from Nitrate	—	7.02	—	—	—	permil	—	—	09-1868	CAMO-09-8217	EES6
R-46	1340	03/11/09	WG	F	CS	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio from Nitrate	—	-1.63	—	—	—	permil	—	—	09-1169	CAMO-09-5492	EES6
R-46	1340	08/03/11	WG	UF	CS	—	Rad	LLEE	Tritium	<	-2.27	7.34E-01	2.30E+00	—	pCi/L	U	U	11-3040	CAMO-11-24656	ARSL
R-46	1340	05/17/11	WG	UF	CS	—	Rad	LLEE	Tritium	<	0.57	6.71E-01	2.27E+00	—	pCi/L	U	U	11-2435	CAMO-11-10733	ARSL
R-46	1340	11/12/10	WG	UF	RE	—	Rad	LLEE	Tritium	<	-0.22	7.02E-01	2.43E+00	—	pCi/L	U	U	11-564	CAMO-11-1285	ARSL
R-46	1340	05/07/10	WG	UF	CS	—	Rad	LLEE	Tritium	—	36.75	1.17E+01	6.10E+00	—	pCi/L	—	—	10-3120	CAMO-10-16830	ARSL
R-46	1340	02/05/10	WG	UF	CS	—	Rad	LLEE	Tritium	<	-0.35	2.87E-01	2.87E-01	—	pCi/L	U	U	10-1656	CAMO-10-9358	UMTL
R-46	1340	11/13/09	WG	UF	CS	—	Rad	LLEE	Tritium	<	0.00	2.87E-01	2.87E-01	—	pCi/L	U	U	10-523	CAMO-10-3236	UMTL
R-46	1340	08/10/09	WG	UF	CS	—	Rad	LLEE	Tritium	<	-0.13	2.87E-01	2.87E-01	—	pCi/L	U	U	09-2842	CAMO-09-10260	UMTL
R-60	1330	07/26/11	WG	UF	CS	—	Isotope	Deuterium Ratio	Deuterium Ratio	—	-78.00	—	—	—	permil	—	—	11-2937	CAPA-11-23020	EES6

Table C-1 MDA C Monitoring Group Previously Unreported Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Symbol	Result	1-sigma TPU	MDA	MDL	Unit	Lab Qual	2nd Qual	Request	Sample	Lab
R-60	1330	04/27/11	WG	UF	CS	—	Isotope	Deuterium Ratio	Deuterium Ratio	—	-78.03	—	—	—	permil	—	—	11-2216	CAPA-11-9591	EES6
R-60	1330	01/24/11	WG	UF	CS	—	Isotope	Deuterium Ratio	Deuterium Ratio	—	-78.66	—	—	—	permil	—	—	11-1190	CAPA-11-3055	EES6
R-60	1330	12/16/10	WG	UF	CS	—	Isotope	Deuterium Ratio	Deuterium Ratio	—	-77.11	—	—	—	permil	—	—	11-964	CAPA-11-2810	EES6
R-60	1330	07/26/11	WG	UF	CS	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio	—	-11.24	—	—	—	permil	—	—	11-2937	CAPA-11-23020	EES6
R-60	1330	04/27/11	WG	UF	CS	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio	—	-11.39	—	—	—	permil	—	—	11-2216	CAPA-11-9591	EES6
R-60	1330	01/24/11	WG	UF	CS	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio	—	-11.23	—	—	—	permil	—	—	11-1190	CAPA-11-3055	EES6
R-60	1330	12/16/10	WG	UF	CS	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio	—	-11.22	—	—	—	permil	—	—	11-964	CAPA-11-2810	EES6
R-60	1330	04/27/11	WG	F	CS	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio from Nitrate	—	-9.19	—	—	—	permil	—	—	11-2216	CAPA-11-9589	EES6
R-60	1330	07/26/11	WG	UF	CS	—	Rad	LLEE	Tritium	<	-0.10	7.34E-01	2.52E+00	—	pCi/L	U	U	11-2942	CAPA-11-23020	ARSL
R-60	1330	04/27/11	WG	UF	CS	—	Rad	LLEE	Tritium	<	0.73	6.39E-01	2.04E+00	—	pCi/L	U	U	11-2264	CAPA-11-9591	ARSL
R-60	1330	01/24/11	WG	UF	CS	—	Rad	LLEE	Tritium	<	2.59	6.07E-01	1.47E+00	—	pCi/L	—	R	11-1211	CAPA-11-3055	ARSL
R-60	1330	12/16/10	WG	UF	CS	—	Rad	LLEE	Tritium	<	9.77	5.40E+00	7.41E+00	—	pCi/L	—	R	11-999	CAPA-11-2810	ARSL

Table C-2 MDA C Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Symbol	Result	1-sigma TPU	MDA	MDL	Unit	Lab Qual	2nd Qual	Request	Sample	Lab
R-14	1200.6	11/08/11	WG	F	CS	—	Geninorg	EPA:310.1	Alkalinity-CO3+HCO3	—	71	—	—	7.30E-01	mg/L	—	—	12-296	CAMO-12-1525	GELC
R-14	1200.6	08/03/11	WG	F	CS	—	Geninorg	EPA:310.1	Alkalinity-CO3+HCO3	—	61.7	—	—	7.30E-01	mg/L	—	—	11-3027	CAMO-11-24654	GELC
R-14	1200.6	05/18/11	WG	F	CS	—	Geninorg	EPA:310.1	Alkalinity-CO3+HCO3	—	58	—	—	7.30E-01	mg/L	—	—	11-2454	CAMO-11-10728	GELC
R-14	1200.6	02/22/11	WG	F	CS	—	Geninorg	EPA:310.1	Alkalinity-CO3+HCO3	—	58	—	—	7.30E-01	mg/L	—	—	11-1413	CAMO-11-4620	GELC
R-14	1200.6	11/12/10	WG	F	CS	—	Geninorg	EPA:310.1	Alkalinity-CO3+HCO3	—	57.6	—	—	7.30E-01	mg/L	—	—	11-507	CAMO-11-1264	GELC
R-14	1200.6	11/08/11	WG	F	CS	—	Geninorg	SW-846:6010B	Calcium	—	11.2	—	—	5.00E-02	mg/L	—	—	12-296	CAMO-12-1525	GELC
R-14	1200.6	05/18/11	WG	F	CS	—	Geninorg	SW-846:6010B	Calcium	—	11	—	—	5.00E-02	mg/L	—	—	11-2454	CAMO-11-10728	GELC
R-14	1200.6	11/12/10	WG	F	CS	—	Geninorg	SW-846:6010B	Calcium	—	10.7	—	—	5.00E-02	mg/L	—	—	11-507	CAMO-11-1264	GELC
R-14	1200.6	05/03/10	WG	F	CS	—	Geninorg	SW-846:6010B	Calcium	—	11.3	—	—	5.00E-02	mg/L	—	—	10-3003	CAMO-10-16754	GELC
R-14	1200.6	02/03/10	WG	F	CS	—	Geninorg	SW-846:6010B	Calcium	—	10.9	—	—	5.00E-02	mg/L	—	—	10-1615	CAMO-10-9335	GELC
R-14	1200.6	11/08/11	WG	UF	CS	—	Geninorg	SW-846:6010B	Calcium	—	11.2	—	—	5.00E-02	mg/L	—	—	12-296	CAMO-12-1526	GELC
R-14	1200.6	05/18/11	WG	UF	CS	—	Geninorg	SW-846:6010B	Calcium	—	11.2	—	—	5.00E-02	mg/L	—	—	11-2454	CAMO-11-10729	GELC
R-14	1200.6	11/12/10	WG	UF	CS	—	Geninorg	SW-846:6010B	Calcium	—	10.7	—	—	5.00E-02	mg/L	—	—	11-507	CAMO-11-1265	GELC
R-14	1200.6	05/03/10	WG	UF	CS	—	Geninorg	SW-846:6010B	Calcium	—	11.3	—	—	5.00E-02	mg/L	—	—	10-3003	CAMO-10-16752	GELC
R-14	1200.6	02/03/10	WG	UF	CS	—	Geninorg	SW-846:6010B	Calcium	—	11.3	—	—	5.00E-02	mg/L	—	—	10-1615	CAMO-10-9333	GELC
R-14	1200.6	11/08/11	WG	F	CS	—	Geninorg	EPA:300.0	Chloride	—	1.67	—	—	6.60E-02	mg/L	—	J+	12-296	CAMO-12-1525	GELC
R-14	1200.6	08/03/11	WG	F	CS	—	Geninorg	EPA:300.0	Chloride	—	1.65	—	—	6.60E-02	mg/L	—	—	11-3027	CAMO-11-24654	GELC
R-14	1200.6	05/18/11	WG	F	CS	—	Geninorg	EPA:300.0	Chloride	—	1.64	—	—	6.60E-02	mg/L	—	—	11-2454	CAMO-11-10728	GELC
R-14	1200.6	02/22/11	WG	F	CS	—	Geninorg	EPA:300.0	Chloride	—	1.65	—	—	6.60E-02	mg/L	—	J	11-1413	CAMO-11-4620	GELC
R-14	1200.6	11/12/10	WG	F	CS	—	Geninorg	EPA:300.0	Chloride	—	1.61	—	—	6.60E-02	mg/L	—	J+	11-507	CAMO-11-1264	GELC
R-14	1200.6	11/08/11	WG	F	CS	—	Geninorg	EPA:300.0	Fluoride	—	0.161	—	—	3.30E-02	mg/L	—	—	12-296	CAMO-12-1525	GELC
R-14	1200.6	08/03/11	WG	F	CS	—	Geninorg	EPA:300.0	Fluoride	—	0.161	—	—	3.30E-02	mg/L	—	—	11-3027	CAMO-11-24654	GELC
R-14	1200.6	05/18/11	WG	F	CS	—	Geninorg	EPA:300.0	Fluoride	—	0.192	—	—	3.30E-02	mg/L	—	—	11-2454	CAMO-11-10728	GELC
R-14	1200.6	02/22/11	WG	F	CS	—	Geninorg	EPA:300.0	Fluoride	—	0.166	—	—	3.30E-02	mg/L	—	J-	11-1413	CAMO-11-4620	GELC
R-14	1200.6	11/12/10	WG	F	CS	—	Geninorg	EPA:300.0	Fluoride	—	0.197	—	—	3.30E-02	mg/L	—	—	11-507	CAMO-11-1264	GELC
R-14	1200.6	11/08/11	WG	F	CS	—	Geninorg	SM:A2340B	Hardness	—	42.2	—	—	4.50E-01	mg/L	—	—	12-296	CAMO-12-1525	GELC
R-14	1200.6	05/18/11	WG	F	CS	—	Geninorg	SM:A2340B	Hardness	—	41.5	—	—	4.50E-01	mg/L	—	—	11-2454	CAMO-11-10728	GELC
R-14	1200.6	11/12/10	WG	F	CS	—	Geninorg	SM:A2340B	Hardness	—	40.7	—	—	3.50E-01	mg/L	—	—	11-507	CAMO-11-1264	GELC
R-14	1200.6	05/03/10	WG	F	CS	—	Geninorg	SM:A2340B	Hardness	—	42.9	—	—	3.50E-01	mg/L	—	—	10-3003	CAMO-10-16754	GELC
R-14	1200.6	02/03/10	WG	F	CS	—	Geninorg	SM:A2340B	Hardness	—	41.6	—	—	3.50E-01	mg/L	—	—	10-1615	CAMO-10-9335	GELC
R-14	1200.6	11/08/11	WG	UF	CS	—	Geninorg	SM:A2340B	Hardness	—	42.5	—	—	4.50E-01	mg/L	—	—	12-296	CAMO-12-1526	GELC
R-14	1200.6	05/18/11	WG	UF	CS	—	Geninorg	SM:A2340B	Hardness	—	42.4	—	—	4.50E-01	mg/L	—	—	11-2454	CAMO-11-10729	GELC
R-14	1200.6	11/12/10	WG	UF	CS	—	Geninorg	SM:A2340B	Hardness	—	40.6	—	—	3.50E-01	mg/L	—	—	11-507	CAMO-11-1265	GELC
R-14	1200.6	05/03/10	WG	UF	CS	—	Geninorg	SM:A2340B	Hardness	—	42.6	—	—	3.50E-01	mg/L	—	—	10-3003	CAMO-10-16752	GELC
R-14	1200.6	02/03/10	WG	UF	CS	—	Geninorg	SM:A2340B	Hardness	—	42.1	—	—	3.50E-01	mg/L	—	—	10-1615	CAMO-10-9333	GELC
R-14	1200.6	11/08/11	WG	F	CS	—	Geninorg	SW-846:6010B	Magnesium	—	3.47	—	—	1.10E-01	mg/L	—	—	12-296	CAMO-12-1525	GELC
R-14	1200.6	05/18/11	WG	F	CS	—	Geninorg	SW-846:6010B	Magnesium	—	3.42	—	—	1.10E-01	mg/L	—	—	11-2454	CAMO-11-10728	GELC
R-14	1200.6	11/12/10	WG	F	CS	—	Geninorg	SW-846:6010B	Magnesium	—	3.38	—	—	8.50E-02	mg/L	—	—	11-507	CAMO-11-1264	GELC
R-14	1200.6	05/03/10	WG	F	CS	—	Geninorg	SW-846:6010B	Magnesium	—	3.55	—	—	8.50E-02	mg/L	—	—	10-3003	CAMO-10-16754	GELC
R-14	1200.6	02/03/10	WG	F	CS	—	Geninorg	SW-846:6010B	Magnesium	—	3.48	—	—	8.50E-02	mg/L	—	—	10-1615	CAMO-10-9335	GELC
R-14	1200.6	11/08/11	WG	UF	CS	—	Geninorg	SW-846:6010B	Magnesium	—	3.5	—	—	1.10E-01	mg/L	—	—	12-296	CAMO-12-1526	GELC
R-14	1200.6	05/18/11	WG	UF	CS	—	Geninorg	SW-846:6010B	Magnesium	—	3.49	—	—	1.10E-01	mg/L	—	—	11-2454	CAMO-11-10729	GELC
R-14	1200.6	11/12/10	WG	UF	CS	—	Geninorg	SW-846:6010B	Magnesium	—	3.37	—	—	8.50E-02	mg/L	—	—	11-507	CAMO-11-1265	GELC
R-14	1200.6	05/03/10	WG	UF	CS	—	Geninorg	SW-846:6010B	Magnesium	—	3.52	—	—	8.50E-02	mg/L	—	—	10-3003	CAMO-10-16752	GELC
R-14	1200.6	02/03/10	WG	UF	CS	—	Geninorg	SW-846:6010B	Magnesium	—	3.35	—	—	8.50E-02	mg/L	—	—	10-1615	CAMO-10-9333	GELC
R-14	1200.6	11/08/11	WG	F	CS	—	Geninorg	EPA:353.2	Nitrate-Nitrite as Nitrogen	—	0.37	—	—	5.00E-02	mg/L	—	—	12-296	CAMO-12-1525	GELC
R-14	1200.6	08/03/11	WG	F	CS	—	Geninorg	EPA:353.2	Nitrate-Nitrite as Nitrogen	<	0.372	—	—	5.00E-02	mg/L	—	U	11-3027	CAMO-11-24654	GELC
R-14	1200.6	05/18/11	WG	F	CS	—	Geninorg	EPA:353.2	Nitrate-Nitrite as Nitrogen	—	0.365	—	—	5.00E-02	mg/L	—	—	11-2454	CAMO-11-10728	GELC
R-14	1200.6	02/22/11	WG	F	CS	—	Geninorg	EPA:353.2	Nitrate-Nitrite as Nitrogen	—	0.287	—	—	1.00E-01	mg/L	J	J	11-1413	CAMO-11-4620	GELC
R-14	1200.6	11/12/10	WG	F	CS	—	Geninorg	EPA:353.2	Nitrate-Nitrite as Nitrogen	—	0.311	—	—	5.00E-02	mg/L	—	—	11-507	CAMO-11-1264	GELC

Table C-2 MDA C Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Symbol	Result	1-sigma TPU	MDA	MDL	Unit	Lab Qual	2nd Qual	Request	Sample	Lab
R-14	1200.6	11/08/11	WG	F	CS	—	Geninorg	SW-846:6850	Perchlorate	—	0.315	—	—	5.00E-02	µg/L	—	—	12-296	CAMO-12-1525	GELC
R-14	1200.6	08/03/11	WG	F	CS	—	Geninorg	SW-846:6850	Perchlorate	—	0.321	—	—	5.00E-02	µg/L	—	—	11-3027	CAMO-11-24654	GELC
R-14	1200.6	05/18/11	WG	F	CS	—	Geninorg	SW-846:6850	Perchlorate	—	0.33	—	—	5.00E-02	µg/L	—	—	11-2454	CAMO-11-10728	GELC
R-14	1200.6	02/22/11	WG	F	CS	—	Geninorg	SW-846:6850	Perchlorate	—	0.321	—	—	5.00E-02	µg/L	—	—	11-1413	CAMO-11-4620	GELC
R-14	1200.6	11/12/10	WG	F	CS	—	Geninorg	SW-846:6850	Perchlorate	—	0.309	—	—	5.00E-02	µg/L	—	—	11-507	CAMO-11-1264	GELC
R-14	1200.6	11/08/11	WG	F	CS	—	Geninorg	SW-846:6010B	Potassium	—	2.14	—	—	5.00E-02	mg/L	—	—	12-296	CAMO-12-1525	GELC
R-14	1200.6	05/18/11	WG	F	CS	—	Geninorg	SW-846:6010B	Potassium	—	2.23	—	—	5.00E-02	mg/L	—	J	11-2454	CAMO-11-10728	GELC
R-14	1200.6	11/12/10	WG	F	CS	—	Geninorg	SW-846:6010B	Potassium	—	2.16	—	—	5.00E-02	mg/L	—	—	11-507	CAMO-11-1264	GELC
R-14	1200.6	05/03/10	WG	F	CS	—	Geninorg	SW-846:6010B	Potassium	—	2.21	—	—	5.00E-02	mg/L	—	—	10-3003	CAMO-10-16754	GELC
R-14	1200.6	02/03/10	WG	F	CS	—	Geninorg	SW-846:6010B	Potassium	—	1.98	—	—	5.00E-02	mg/L	—	—	10-1615	CAMO-10-9335	GELC
R-14	1200.6	11/08/11	WG	UF	CS	—	Geninorg	SW-846:6010B	Potassium	—	2.24	—	—	5.00E-02	mg/L	—	—	12-296	CAMO-12-1526	GELC
R-14	1200.6	05/18/11	WG	UF	CS	—	Geninorg	SW-846:6010B	Potassium	—	2.22	—	—	5.00E-02	mg/L	—	J	11-2454	CAMO-11-10729	GELC
R-14	1200.6	11/12/10	WG	UF	CS	—	Geninorg	SW-846:6010B	Potassium	—	2.15	—	—	5.00E-02	mg/L	—	—	11-507	CAMO-11-1265	GELC
R-14	1200.6	05/03/10	WG	UF	CS	—	Geninorg	SW-846:6010B	Potassium	—	2.16	—	—	5.00E-02	mg/L	—	—	10-3003	CAMO-10-16752	GELC
R-14	1200.6	02/03/10	WG	UF	CS	—	Geninorg	SW-846:6010B	Potassium	—	2.06	—	—	5.00E-02	mg/L	—	—	10-1615	CAMO-10-9333	GELC
R-14	1200.6	11/08/11	WG	F	CS	—	Geninorg	SW-846:6010B	Sodium	—	11.1	—	—	1.00E-01	mg/L	—	—	12-296	CAMO-12-1525	GELC
R-14	1200.6	05/18/11	WG	F	CS	—	Geninorg	SW-846:6010B	Sodium	—	10.8	—	—	1.00E-01	mg/L	—	—	11-2454	CAMO-11-10728	GELC
R-14	1200.6	11/12/10	WG	F	CS	—	Geninorg	SW-846:6010B	Sodium	—	10.8	—	—	1.00E-01	mg/L	—	—	11-507	CAMO-11-1264	GELC
R-14	1200.6	05/03/10	WG	F	CS	—	Geninorg	SW-846:6010B	Sodium	—	11.4	—	—	1.00E-01	mg/L	—	—	10-3003	CAMO-10-16754	GELC
R-14	1200.6	02/03/10	WG	F	CS	—	Geninorg	SW-846:6010B	Sodium	—	10.3	—	—	1.00E-01	mg/L	—	—	10-1615	CAMO-10-9335	GELC
R-14	1200.6	11/08/11	WG	UF	CS	—	Geninorg	SW-846:6010B	Sodium	—	11.2	—	—	1.00E-01	mg/L	—	—	12-296	CAMO-12-1526	GELC
R-14	1200.6	05/18/11	WG	UF	CS	—	Geninorg	SW-846:6010B	Sodium	—	10.9	—	—	1.00E-01	mg/L	—	—	11-2454	CAMO-11-10729	GELC
R-14	1200.6	11/12/10	WG	UF	CS	—	Geninorg	SW-846:6010B	Sodium	—	10.8	—	—	1.00E-01	mg/L	—	—	11-507	CAMO-11-1265	GELC
R-14	1200.6	05/03/10	WG	UF	CS	—	Geninorg	SW-846:6010B	Sodium	—	11.5	—	—	1.00E-01	mg/L	—	—	10-3003	CAMO-10-16752	GELC
R-14	1200.6	02/03/10	WG	UF	CS	—	Geninorg	SW-846:6010B	Sodium	—	10.7	—	—	1.00E-01	mg/L	—	—	10-1615	CAMO-10-9333	GELC
R-14	1200.6	11/08/11	WG	F	CS	—	Geninorg	EPA:120.1	Specific Conductance	—	124	—	—	1.00E+00	µS/cm	—	—	12-296	CAMO-12-1525	GELC
R-14	1200.6	08/03/11	WG	F	CS	—	Geninorg	EPA:120.1	Specific Conductance	—	123	—	—	1.00E+00	µS/cm	—	—	11-3027	CAMO-11-24654	GELC
R-14	1200.6	05/18/11	WG	F	CS	—	Geninorg	EPA:120.1	Specific Conductance	—	131	—	—	1.00E+00	µS/cm	—	—	11-2454	CAMO-11-10728	GELC
R-14	1200.6	02/22/11	WG	F	CS	—	Geninorg	EPA:120.1	Specific Conductance	—	125	—	—	1.00E+00	µS/cm	—	—	11-1413	CAMO-11-4620	GELC
R-14	1200.6	11/12/10	WG	F	CS	—	Geninorg	EPA:120.1	Specific Conductance	—	126	—	—	1.00E+00	µS/cm	—	—	11-507	CAMO-11-1264	GELC
R-14	1200.6	11/08/11	WG	F	CS	—	Geninorg	EPA:300.0	Sulfate	—	1.82	—	—	1.00E-01	mg/L	—	—	12-296	CAMO-12-1525	GELC
R-14	1200.6	08/03/11	WG	F	CS	—	Geninorg	EPA:300.0	Sulfate	—	1.81	—	—	1.00E-01	mg/L	—	J+	11-3027	CAMO-11-24654	GELC
R-14	1200.6	05/18/11	WG	F	CS	—	Geninorg	EPA:300.0	Sulfate	—	1.9	—	—	1.00E-01	mg/L	—	—	11-2454	CAMO-11-10728	GELC
R-14	1200.6	02/22/11	WG	F	CS	—	Geninorg	EPA:300.0	Sulfate	—	1.93	—	—	1.00E-01	mg/L	—	—	11-1413	CAMO-11-4620	GELC
R-14	1200.6	11/12/10	WG	F	CS	—	Geninorg	EPA:300.0	Sulfate	—	1.95	—	—	1.00E-01	mg/L	—	—	11-507	CAMO-11-1264	GELC
R-14	1200.6	11/08/11	WG	F	CS	—	Geninorg	EPA:160.1	Total Dissolved Solids	—	140	—	—	3.40E+00	mg/L	—	—	12-296	CAMO-12-1525	GELC
R-14	1200.6	08/03/11	WG	F	CS	—	Geninorg	EPA:160.1	Total Dissolved Solids	—	134	—	—	3.40E+00	mg/L	—	—	11-3027	CAMO-11-24654	GELC
R-14	1200.6	05/18/11	WG	F	CS	—	Geninorg	EPA:160.1	Total Dissolved Solids	—	140	—	—	2.40E+00	mg/L	—	—	11-2454	CAMO-11-10728	GELC
R-14	1200.6	02/22/11	WG	F	CS	—	Geninorg	EPA:160.1	Total Dissolved Solids	—	132	—	—	2.40E+00	mg/L	—	—	11-1413	CAMO-11-4620	GELC
R-14	1200.6	11/12/10	WG	F	CS	—	Geninorg	EPA:160.1	Total Dissolved Solids	—	134	—	—	2.40E+00	mg/L	—	—	11-507	CAMO-11-1264	GELC
R-14	1200.6	11/08/11	WG	UF	CS	—	Geninorg	SW-846:9060	Total Organic Carbon	—	0.334	—	—	3.30E-01	mg/L	J	J	12-296	CAMO-12-1526	GELC
R-14	1200.6	08/03/11	WG	UF	CS	—	Geninorg	SW-846:9060	Total Organic Carbon	<	1	—	—	3.30E-01	mg/L	U	U	11-3026	CAMO-11-24652	GELC
R-14	1200.6	05/18/11	WG	UF	CS	—	Geninorg	SW-846:9060	Total Organic Carbon	—	0.478	—	—	3.30E-01	mg/L	J	J	11-2454	CAMO-11-10729	GELC
R-14	1200.6	02/22/11	WG	UF	CS	—	Geninorg	SW-846:9060	Total Organic Carbon	—	0.736	—	—	3.30E-01	mg/L	J	J	11-1413	CAMO-11-4621	GELC
R-14	1200.6	11/12/10	WG	UF	CS	—	Geninorg	SW-846:9060	Total Organic Carbon	—	0.914	—	—	3.30E-01	mg/L	J	J	11-507	CAMO-11-1265	GELC
R-14	1200.6	11/08/11	WG	F	CS	—	Geninorg	EPA:365.4	Total Phosphate as Phosphorus	—	0.0373	—	—	1.50E-02	mg/L	J	J	12-296	CAMO-12-1525	GELC
R-14	1200.6	08/03/11	WG	F	CS	—	Geninorg	EPA:365.4	Total Phosphate as Phosphorus	—	0.266	—	—	1.50E-02	mg/L	—	J	11-3027	CAMO-11-24654	GELC
R-14	1200.6	05/18/11	WG	F	CS	—	Geninorg	EPA:365.4	Total Phosphate as Phosphorus	<	0.122	—	—	1.50E-02	mg/L	—	U	11-2454	CAMO-11-10728	GELC
R-14	1200.6	02/22/11	WG	F	CS	—	Geninorg	EPA:365.4	Total Phosphate as Phosphorus	<	0.052	—	—	1.50E-02	mg/L	—	U	11-1413	CAMO-11-4620	GELC
R-14	1200.6	11/12/10	WG	F	CS	—	Geninorg	EPA:365.4	Total Phosphate as Phosphorus	—	0.058	—	—	1.50E-02	mg/L	—	—	11-507	CAMO-11-1264	GELC

Table C-2 MDA C Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Symbol	Result	1-sigma TPU	MDA	MDL	Unit	Lab Qual	2nd Qual	Request	Sample	Lab
R-14	1200.6	11/08/11	WG	F	CS	—	Geninorg	EPA:150.1	pH	—	8.35	—	—	1.00E-02	SU	H	J-	12-296	CAMO-12-1525	GELC
R-14	1200.6	08/03/11	WG	F	CS	—	Geninorg	EPA:150.1	pH	—	8.12	—	—	1.00E-02	SU	H	J-	11-3027	CAMO-11-24654	GELC
R-14	1200.6	05/18/11	WG	F	CS	—	Geninorg	EPA:150.1	pH	—	7.96	—	—	1.00E-02	SU	H	J-	11-2454	CAMO-11-10728	GELC
R-14	1200.6	02/22/11	WG	F	CS	—	Geninorg	EPA:150.1	pH	—	8.25	—	—	1.00E-02	SU	H	J-	11-1413	CAMO-11-4620	GELC
R-14	1200.6	11/12/10	WG	F	CS	—	Geninorg	EPA:150.1	pH	—	8.25	—	—	1.00E-02	SU	H	J-	11-507	CAMO-11-1264	GELC
R-14	1200.6	11/08/11	WG	UF	CS	—	Isotope	Deuterium Ratio	Deuterium Ratio	—	-77.41	—	—	—	permil	—	—	12-297	CAMO-12-1526	EES6
R-14	1200.6	07/01/10	WG	UF	CS	—	Isotope	Deuterium Ratio	Deuterium Ratio	—	-77.99	—	—	—	permil	—	—	10-3570	CAMO-10-22851	EES6
R-14	1200.6	07/01/10	WG	UF	DUP	—	Isotope	Deuterium Ratio	Deuterium Ratio	—	-77.47	—	—	—	permil	—	—	10-3570	CAMO-10-22851	EES6
R-14	1200.6	11/04/09	WG	UF	CS	—	Isotope	Deuterium Ratio	Deuterium Ratio	—	-78.68	—	—	—	permil	—	—	10-351	CAMO-10-3215	EES6
R-14	1200.6	11/04/09	WG	UF	DUP	—	Isotope	Deuterium Ratio	Deuterium Ratio	—	-78.42	—	—	—	permil	—	—	10-351	CAMO-10-3215	EES6
R-14	1200.6	08/07/09	WG	UF	CS	—	Isotope	Deuterium Ratio	Deuterium Ratio	<	-78.50	—	—	2.00E-03	permil	U	—	09-2818	CAMO-09-9571	EES6
R-14	1200.6	08/07/09	WG	UF	DUP	—	Isotope	Deuterium Ratio	Deuterium Ratio	<	-79.04	—	—	2.00E-03	permil	U	—	09-2818	CAMO-09-9571	EES6
R-14	1200.6	05/07/09	WG	UF	CS	—	Isotope	Deuterium Ratio	Deuterium Ratio	—	-78.19	—	—	1.00E-03	permil	—	—	09-1790	CAMO-09-8207	EES6
R-14	1200.6	11/08/11	WG	F	CS	—	Isotope	Nitrogen Ratio	Nitrogen-15/Nitrogen-14 Ratio	—	4.91	—	—	—	permil	—	—	12-297	CAMO-12-1525	EES6
R-14	1200.6	11/08/11	WG	F	DUP	—	Isotope	Nitrogen Ratio	Nitrogen-15/Nitrogen-14 Ratio	—	3.69	—	—	—	permil	—	—	12-297	CAMO-12-1525	EES6
R-14	1200.6	07/01/10	WG	F	CS	—	Isotope	Nitrogen Ratio	Nitrogen-15/Nitrogen-14 Ratio	—	4.11	—	—	—	permil	—	—	10-3570	CAMO-10-22850	EES6
R-14	1200.6	11/04/09	WG	F	CS	—	Isotope	Nitrogen Ratio	Nitrogen-15/Nitrogen-14 Ratio	—	4.50	—	—	—	permil	—	—	10-351	CAMO-10-3214	EES6
R-14	1200.6	08/07/09	WG	F	CS	—	Isotope	Nitrogen Ratio	Nitrogen-15/Nitrogen-14 Ratio	—	4.70	—	—	1.00E-02	permil	—	—	09-2818	CAMO-09-9573	EES6
R-14	1200.6	08/07/09	WG	F	DUP	—	Isotope	Nitrogen Ratio	Nitrogen-15/Nitrogen-14 Ratio	—	4.92	—	—	1.00E-02	permil	—	—	09-2818	CAMO-09-9573	EES6
R-14	1200.6	05/07/09	WG	F	CS	—	Isotope	Nitrogen Ratio	Nitrogen-15/Nitrogen-14 Ratio	—	5.02	—	—	1.00E-02	permil	—	—	09-1790	CAMO-09-8206	EES6
R-14	1200.6	11/08/11	WG	UF	CS	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio	—	-11.17	—	—	—	permil	—	—	12-297	CAMO-12-1526	EES6
R-14	1200.6	11/08/11	WG	UF	DUP	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio	—	-11.45	—	—	—	permil	—	—	12-297	CAMO-12-1526	EES6
R-14	1200.6	07/01/10	WG	UF	CS	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio	—	-10.50	—	—	—	permil	—	—	10-3570	CAMO-10-22851	EES6
R-14	1200.6	11/04/09	WG	UF	CS	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio	—	-11.06	—	—	—	permil	—	—	10-351	CAMO-10-3215	EES6
R-14	1200.6	11/04/09	WG	UF	DUP	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio	—	-10.88	—	—	—	permil	—	—	10-351	CAMO-10-3215	EES6
R-14	1200.6	08/07/09	WG	UF	CS	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio	—	-11.36	—	—	1.00E-03	permil	—	—	09-2818	CAMO-09-9571	EES6
R-14	1200.6	08/07/09	WG	UF	DUP	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio	—	-11.31	—	—	1.00E-03	permil	—	—	09-2818	CAMO-09-9571	EES6
R-14	1200.6	05/07/09	WG	UF	CS	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio	<	-10.77	—	—	1.00E-03	permil	U	—	09-1790	CAMO-09-8207	EES6
R-14	1200.6	05/07/09	WG	UF	DUP	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio	<	-10.95	—	—	1.00E-03	permil	U	—	09-1790	CAMO-09-8207	EES6
R-14	1200.6	11/08/11	WG	F	CS	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio from Nitrate	—	-4.82	—	—	—	permil	—	—	12-297	CAMO-12-1525	EES6
R-14	1200.6	11/08/11	WG	F	DUP	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio from Nitrate	—	-4.42	—	—	—	permil	—	—	12-297	CAMO-12-1525	EES6
R-14	1200.6	07/01/10	WG	F	CS	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio from Nitrate	—	-2.81	—	—	—	permil	—	—	10-3570	CAMO-10-22850	EES6
R-14	1200.6	11/04/09	WG	F	CS	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio from Nitrate	—	-4.30	—	—	—	permil	—	—	10-351	CAMO-10-3214	EES6
R-14	1200.6	08/07/09	WG	F	CS	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio from Nitrate	—	-3.26	—	—	—	permil	—	—	09-2818	CAMO-09-9573	EES6
R-14	1200.6	08/07/09	WG	F	DUP	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio from Nitrate	—	-2.89	—	—	—	permil	—	—	09-2818	CAMO-09-9573	EES6
R-14	1200.6	08/20/08	WG	F	CS	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio from Nitrate	—	-3.58	—	—	—	permil	—	—	08-1729	CAMO-08-14507	EES6
R-14	1200.6	11/08/11	WG	F	CS	—	Metals	SW-846:6010B	Barium	—	32.9	—	—	1.00E+00	µg/L	—	—	12-296	CAMO-12-1525	GELC
R-14	1200.6	05/18/11	WG	F	CS	—	Metals	SW-846:6010B	Barium	—	33	—	—	1.00E+00	µg/L	—	—	11-2454	CAMO-11-10728	GELC
R-14	1200.6	11/12/10	WG	F	CS	—	Metals	SW-846:6010B	Barium	—	34	—	—	1.00E+00	µg/L	—	—	11-507	CAMO-11-1264	GELC
R-14	1200.6	05/03/10	WG	F	CS	—	Metals	SW-846:6010B	Barium	—	37.6	—	—	1.00E+00	µg/L	—	—	10-3003	CAMO-10-16754	GELC
R-14	1200.6	02/03/10	WG	F	CS	—	Metals	SW-846:6010B	Barium	—	37.4	—	—	1.00E+00	µg/L	—	—	10-1615	CAMO-10-9335	GELC
R-14	1200.6	11/08/11	WG	UF	CS	—	Metals	SW-846:6010B	Barium	—	33.1	—	—	1.00E+00	µg/L	—	—	12-296	CAMO-12-1526	GELC
R-14	1200.6	05/18/11	WG	UF	CS	—	Metals	SW-846:6010B	Barium	—	33.5	—	—	1.00E+00	µg/L	—	—	11-2454	CAMO-11-10729	GELC
R-14	1200.6	11/12/10	WG	UF	CS	—	Metals	SW-846:6010B	Barium	—	34.1	—	—	1.00E+00	µg/L	—	—	11-507	CAMO-11-1265	GELC
R-14	1200.6	05/03/10	WG	UF	CS	—	Metals	SW-846:6010B	Barium	—	37.9	—	—	1.00E+00	µg/L	—	—	10-3003	CAMO-10-16752	GELC
R-14	1200.6	02/03/10	WG	UF	CS	—	Metals	SW-846:6010B	Barium	—	39	—	—	1.00E+00	µg/L	—	—	10-1615	CAMO-10-9333	GELC
R-14	1200.6	11/08/11	WG	F	CS	—	Metals	SW-846:6020	Chromium	—	5.9	—	—	2.00E+00	µg/L	J	J	12-296	CAMO-12-1525	GELC
R-14	1200.6	05/18/11	WG	F	CS	—	Metals	SW-846:6020	Chromium	—	6.98	—	—	2.00E+00	µg/L	J	J	11-2454	CAMO-11-10728	GELC
R-14	1200.6	11/12/10	WG	F	CS	—	Metals	SW-846:6020	Chromium	—	5.7	—	—	2.50E+00	µg/L	J	J	11-507	CAMO-11-1264	GELC
R-14	1200.6	05/03/10	WG	F	CS	—	Metals	SW-846:6020	Chromium	—	5.72	—	—	2.50E+00	µg/L	J	J	10-3003	CAMO-10-16754	GELC

Table C-2 MDA C Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Symbol	Result	1-sigma TPU	MDA	MDL	Unit	Lab Qual	2nd Qual	Request	Sample	Lab
R-14	1200.6	02/03/10	WG	F	CS	—	Metals	SW-846:6020	Chromium	—	5.28	—	—	2.50E+00	µg/L	J	J	10-1615	CAMO-10-9335	GELC
R-14	1200.6	11/08/11	WG	UF	CS	—	Metals	SW-846:6020	Chromium	—	6.52	—	—	2.00E+00	µg/L	J	J	12-296	CAMO-12-1526	GELC
R-14	1200.6	05/18/11	WG	UF	CS	—	Metals	SW-846:6020	Chromium	—	6.73	—	—	2.00E+00	µg/L	J	J	11-2454	CAMO-11-10729	GELC
R-14	1200.6	11/12/10	WG	UF	CS	—	Metals	SW-846:6020	Chromium	—	5.84	—	—	2.50E+00	µg/L	J	J	11-507	CAMO-11-1265	GELC
R-14	1200.6	05/03/10	WG	UF	CS	—	Metals	SW-846:6020	Chromium	—	9.9	—	—	2.50E+00	µg/L	J	J	10-3003	CAMO-10-16752	GELC
R-14	1200.6	02/03/10	WG	UF	CS	—	Metals	SW-846:6020	Chromium	—	5.96	—	—	2.50E+00	µg/L	J	J	10-1615	CAMO-10-9333	GELC
R-14	1200.6	11/08/11	WG	F	CS	—	Metals	SW-846:6010B	Iron	—	53.1	—	—	3.00E+01	µg/L	J	J	12-296	CAMO-12-1525	GELC
R-14	1200.6	05/18/11	WG	F	CS	—	Metals	SW-846:6010B	Iron	<	100	—	—	3.00E+01	µg/L	U	U	11-2454	CAMO-11-10728	GELC
R-14	1200.6	11/12/10	WG	F	CS	—	Metals	SW-846:6010B	Iron	<	100	—	—	3.00E+01	µg/L	U	U	11-507	CAMO-11-1264	GELC
R-14	1200.6	05/03/10	WG	F	CS	—	Metals	SW-846:6010B	Iron	<	100	—	—	3.00E+01	µg/L	U	U	10-3003	CAMO-10-16754	GELC
R-14	1200.6	02/03/10	WG	F	CS	—	Metals	SW-846:6010B	Iron	<	100	—	—	3.00E+01	µg/L	U	U	10-1615	CAMO-10-9335	GELC
R-14	1200.6	05/18/11	WG	UF	CS	—	Metals	SW-846:6010B	Iron	—	32.4	—	—	3.00E+01	µg/L	J	J	11-2454	CAMO-11-10729	GELC
R-14	1200.6	11/12/10	WG	UF	CS	—	Metals	SW-846:6010B	Iron	<	100	—	—	3.00E+01	µg/L	U	U	11-507	CAMO-11-1265	GELC
R-14	1200.6	05/03/10	WG	UF	CS	—	Metals	SW-846:6010B	Iron	<	100	—	—	3.00E+01	µg/L	U	U	10-3003	CAMO-10-16752	GELC
R-14	1200.6	02/03/10	WG	UF	CS	—	Metals	SW-846:6010B	Iron	<	100	—	—	3.00E+01	µg/L	U	U	10-1615	CAMO-10-9333	GELC
R-14	1200.6	11/08/11	WG	F	CS	—	Metals	SW-846:6020	Molybdenum	—	1.17	—	—	1.70E-01	µg/L	—	—	12-296	CAMO-12-1525	GELC
R-14	1200.6	05/18/11	WG	F	CS	—	Metals	SW-846:6020	Molybdenum	—	1.04	—	—	1.70E-01	µg/L	—	J	11-2454	CAMO-11-10728	GELC
R-14	1200.6	11/12/10	WG	F	CS	—	Metals	SW-846:6020	Molybdenum	—	1.18	—	—	1.00E-01	µg/L	—	—	11-507	CAMO-11-1264	GELC
R-14	1200.6	05/03/10	WG	F	CS	—	Metals	SW-846:6020	Molybdenum	—	1.12	—	—	1.00E-01	µg/L	—	—	10-3003	CAMO-10-16754	GELC
R-14	1200.6	02/03/10	WG	F	CS	—	Metals	SW-846:6020	Molybdenum	—	1.11	—	—	1.00E-01	µg/L	—	—	10-1615	CAMO-10-9335	GELC
R-14	1200.6	11/08/11	WG	UF	CS	—	Metals	SW-846:6020	Molybdenum	—	1.16	—	—	1.70E-01	µg/L	—	—	12-296	CAMO-12-1526	GELC
R-14	1200.6	05/18/11	WG	UF	CS	—	Metals	SW-846:6020	Molybdenum	—	1.08	—	—	1.70E-01	µg/L	—	J	11-2454	CAMO-11-10729	GELC
R-14	1200.6	11/12/10	WG	UF	CS	—	Metals	SW-846:6020	Molybdenum	—	1.16	—	—	1.00E-01	µg/L	—	—	11-507	CAMO-11-1265	GELC
R-14	1200.6	05/03/10	WG	UF	CS	—	Metals	SW-846:6020	Molybdenum	—	1.23	—	—	1.00E-01	µg/L	—	—	10-3003	CAMO-10-16752	GELC
R-14	1200.6	02/03/10	WG	UF	CS	—	Metals	SW-846:6020	Molybdenum	—	1.12	—	—	1.00E-01	µg/L	—	—	10-1615	CAMO-10-9333	GELC
R-14	1200.6	11/08/11	WG	F	CS	—	Metals	SW-846:6020	Nickel	—	0.779	—	—	5.00E-01	µg/L	J	J	12-296	CAMO-12-1525	GELC
R-14	1200.6	05/18/11	WG	F	CS	—	Metals	SW-846:6020	Nickel	<	2	—	—	5.00E-01	µg/L	U	U	11-2454	CAMO-11-10728	GELC
R-14	1200.6	11/12/10	WG	F	CS	—	Metals	SW-846:6020	Nickel	—	0.555	—	—	5.00E-01	µg/L	J	J	11-507	CAMO-11-1264	GELC
R-14	1200.6	05/03/10	WG	F	CS	—	Metals	SW-846:6020	Nickel	—	0.531	—	—	5.00E-01	µg/L	J	J	10-3003	CAMO-10-16754	GELC
R-14	1200.6	02/03/10	WG	F	CS	—	Metals	SW-846:6020	Nickel	<	2	—	—	5.00E-01	µg/L	U	U	10-1615	CAMO-10-9335	GELC
R-14	1200.6	11/08/11	WG	UF	CS	—	Metals	SW-846:6020	Nickel	—	0.635	—	—	5.00E-01	µg/L	J	J	12-296	CAMO-12-1526	GELC
R-14	1200.6	05/18/11	WG	UF	CS	—	Metals	SW-846:6020	Nickel	<	2	—	—	5.00E-01	µg/L	U	U	11-2454	CAMO-11-10729	GELC
R-14	1200.6	11/12/10	WG	UF	CS	—	Metals	SW-846:6020	Nickel	<	2	—	—	5.00E-01	µg/L	U	U	11-507	CAMO-11-1265	GELC
R-14	1200.6	05/03/10	WG	UF	CS	—	Metals	SW-846:6020	Nickel	—	2.53	—	—	5.00E-01	µg/L	—	—	10-3003	CAMO-10-16752	GELC
R-14	1200.6	02/03/10	WG	UF	CS	—	Metals	SW-846:6020	Nickel	<	2	—	—	5.00E-01	µg/L	U	U	10-1615	CAMO-10-9333	GELC
R-14	1200.6	11/08/11	WG	F	CS	—	Metals	SW-846:6010B	Silicon Dioxide	—	85.9	—	—	5.30E-02	mg/L	—	—	12-296	CAMO-12-1525	GELC
R-14	1200.6	08/03/11	WG	F	CS	—	Metals	SW-846:6010B	Silicon Dioxide	—	83.8	—	—	5.30E-02	mg/L	—	—	11-3027	CAMO-11-24654	GELC
R-14	1200.6	05/18/11	WG	F	CS	—	Metals	SW-846:6010B	Silicon Dioxide	—	80.7	—	—	5.30E-02	mg/L	—	—	11-2454	CAMO-11-10728	GELC
R-14	1200.6	02/22/11	WG	F	CS	—	Metals	SW-846:6010B	Silicon Dioxide	—	84.7	—	—	5.30E-02	mg/L	—	—	11-1413	CAMO-11-4620	GELC
R-14	1200.6	11/12/10	WG	F	CS	—	Metals	SW-846:6010B	Silicon Dioxide	—	81.4	—	—	5.30E-02	mg/L	—	—	11-507	CAMO-11-1264	GELC
R-14	1200.6	11/08/11	WG	F	CS	—	Metals	SW-846:6010B	Strontium	—	55.1	—	—	1.00E+00	µg/L	—	—	12-296	CAMO-12-1525	GELC
R-14	1200.6	05/18/11	WG	F	CS	—	Metals	SW-846:6010B	Strontium	—	51.8	—	—	1.00E+00	µg/L	—	—	11-2454	CAMO-11-10728	GELC
R-14	1200.6	11/12/10	WG	F	CS	—	Metals	SW-846:6010B	Strontium	—	54	—	—	1.00E+00	µg/L	—	—	11-507	CAMO-11-1264	GELC
R-14	1200.6	05/03/10	WG	F	CS	—	Metals	SW-846:6010B	Strontium	—	58.9	—	—	1.00E+00	µg/L	—	—	10-3003	CAMO-10-16754	GELC
R-14	1200.6	02/03/10	WG	F	CS	—	Metals	SW-846:6010B	Strontium	—	56.2	—	—	1.00E+00	µg/L	—	—	10-1615	CAMO-10-9335	GELC
R-14	1200.6	11/08/11	WG	UF	CS	—	Metals	SW-846:6010B	Strontium	—	55.4	—	—	1.00E+00	µg/L	—	—	12-296	CAMO-12-1526	GELC
R-14	1200.6	05/18/11	WG	UF	CS	—	Metals	SW-846:6010B	Strontium	—	53	—	—	1.00E+00	µg/L	—	—	11-2454	CAMO-11-10729	GELC
R-14	1200.6	11/12/10	WG	UF	CS	—	Metals	SW-846:6010B	Strontium	—	53.8	—	—	1.00E+00	µg/L	—	—	11-507	CAMO-11-1265	GELC
R-14	1200.6	05/03/10	WG	UF	CS	—	Metals	SW-846:6010B	Strontium	—	59	—	—	1.00E+00	µg/L	—	—	10-3003	CAMO-10-16752	GELC
R-14	1200.6	02/03/10	WG	UF	CS	—	Metals	SW-846:6010B	Strontium	—	57.7	—	—	1.00E+00	µg/L	—	—	10-1615	CAMO-10-9333	GELC

Table C-2 MDA C Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Symbol	Result	1-sigma TPU	MDA	MDL	Unit	Lab Qual	2nd Qual	Request	Sample	Lab
R-14	1200.6	11/08/11	WG	F	CS	—	Metals	SW-846:6020	Uranium	—	0.807	—	—	6.70E-02	µg/L	—	—	12-296	CAMO-12-1525	GELC
R-14	1200.6	05/18/11	WG	F	CS	—	Metals	SW-846:6020	Uranium	—	0.713	—	—	6.70E-02	µg/L	—	—	11-2454	CAMO-11-10728	GELC
R-14	1200.6	11/12/10	WG	F	CS	—	Metals	SW-846:6020	Uranium	—	0.952	—	—	5.00E-02	µg/L	—	—	11-507	CAMO-11-1264	GELC
R-14	1200.6	05/03/10	WG	F	CS	—	Metals	SW-846:6020	Uranium	—	0.837	—	—	5.00E-02	µg/L	—	—	10-3003	CAMO-10-16754	GELC
R-14	1200.6	02/03/10	WG	F	CS	—	Metals	SW-846:6020	Uranium	—	0.836	—	—	5.00E-02	µg/L	—	—	10-1615	CAMO-10-9335	GELC
R-14	1200.6	11/08/11	WG	UF	CS	—	Metals	SW-846:6020	Uranium	—	0.799	—	—	6.70E-02	µg/L	—	—	12-296	CAMO-12-1526	GELC
R-14	1200.6	05/18/11	WG	UF	CS	—	Metals	SW-846:6020	Uranium	—	0.715	—	—	6.70E-02	µg/L	—	—	11-2454	CAMO-11-10729	GELC
R-14	1200.6	11/12/10	WG	UF	CS	—	Metals	SW-846:6020	Uranium	—	0.923	—	—	5.00E-02	µg/L	—	—	11-507	CAMO-11-1265	GELC
R-14	1200.6	05/03/10	WG	UF	CS	—	Metals	SW-846:6020	Uranium	—	0.833	—	—	5.00E-02	µg/L	—	—	10-3003	CAMO-10-16752	GELC
R-14	1200.6	02/03/10	WG	UF	CS	—	Metals	SW-846:6020	Uranium	—	0.85	—	—	5.00E-02	µg/L	—	—	10-1615	CAMO-10-9333	GELC
R-14	1200.6	11/08/11	WG	F	CS	—	Metals	SW-846:6010B	Vanadium	—	7.4	—	—	1.00E+00	µg/L	—	—	12-296	CAMO-12-1525	GELC
R-14	1200.6	05/18/11	WG	F	CS	—	Metals	SW-846:6010B	Vanadium	—	7.83	—	—	1.00E+00	µg/L	—	—	11-2454	CAMO-11-10728	GELC
R-14	1200.6	11/12/10	WG	F	CS	—	Metals	SW-846:6010B	Vanadium	—	7.7	—	—	1.00E+00	µg/L	—	—	11-507	CAMO-11-1264	GELC
R-14	1200.6	05/03/10	WG	F	CS	—	Metals	SW-846:6010B	Vanadium	—	8	—	—	1.00E+00	µg/L	—	—	10-3003	CAMO-10-16754	GELC
R-14	1200.6	02/03/10	WG	F	CS	—	Metals	SW-846:6010B	Vanadium	—	8.63	—	—	1.00E+00	µg/L	—	—	10-1615	CAMO-10-9335	GELC
R-14	1200.6	11/08/11	WG	UF	CS	—	Metals	SW-846:6010B	Vanadium	—	7.67	—	—	1.00E+00	µg/L	—	—	12-296	CAMO-12-1526	GELC
R-14	1200.6	05/18/11	WG	UF	CS	—	Metals	SW-846:6010B	Vanadium	—	8.24	—	—	1.00E+00	µg/L	—	—	11-2454	CAMO-11-10729	GELC
R-14	1200.6	11/12/10	WG	UF	CS	—	Metals	SW-846:6010B	Vanadium	—	7.69	—	—	1.00E+00	µg/L	—	—	11-507	CAMO-11-1265	GELC
R-14	1200.6	05/03/10	WG	UF	CS	—	Metals	SW-846:6010B	Vanadium	—	7.99	—	—	1.00E+00	µg/L	—	—	10-3003	CAMO-10-16752	GELC
R-14	1200.6	02/03/10	WG	UF	CS	—	Metals	SW-846:6010B	Vanadium	—	8.74	—	—	1.00E+00	µg/L	—	—	10-1615	CAMO-10-9333	GELC
R-14	1200.6	11/08/11	WG	UF	CS	—	Rad	HASL-300	Americium-241	<	0.0138	2.57E-03	3.10E-02	—	pCi/L	U	U	12-296	CAMO-12-1526	GELC
R-14	1200.6	07/01/10	WG	UF	CS	—	Rad	HASL-300	Americium-241	<	-0.00131	9.33E-04	3.80E-02	—	pCi/L	U	U	10-3544	CAMO-10-22851	GELC
R-14	1200.6	02/03/10	WG	UF	CS	—	Rad	HASL-300	Americium-241	<	-0.00935	2.87E-03	3.40E-02	—	pCi/L	U	U	10-1615	CAMO-10-9333	GELC
R-14	1200.6	11/04/09	WG	UF	CS	—	Rad	HASL-300	Americium-241	<	-0.00114	5.67E-04	3.30E-02	—	pCi/L	U	U	10-370	CAMO-10-3215	GELC
R-14	1200.6	08/07/09	WG	UF	CS	—	Rad	HASL-300	Americium-241	<	-0.00286	1.10E-03	2.80E-02	—	pCi/L	U	U	09-2821	CAMO-09-9571	GELC
R-14	1200.6	11/08/11	WG	UF	CS	—	Rad	EPA:901.1	Cesium-137	<	0.475	4.00E-01	4.60E+00	—	pCi/L	U	U	12-296	CAMO-12-1526	GELC
R-14	1200.6	07/01/10	WG	UF	CS	—	Rad	EPA:901.1	Cesium-137	<	1.91	4.67E-01	5.30E+00	—	pCi/L	U	U	10-3544	CAMO-10-22851	GELC
R-14	1200.6	02/03/10	WG	UF	CS	—	Rad	EPA:901.1	Cesium-137	<	1.79	5.67E-01	5.90E+00	—	pCi/L	U	U	10-1615	CAMO-10-9333	GELC
R-14	1200.6	11/04/09	WG	UF	CS	—	Rad	EPA:901.1	Cesium-137	<	-0.0844	5.00E-01	5.00E+00	—	pCi/L	U	U	10-370	CAMO-10-3215	GELC
R-14	1200.6	08/07/09	WG	UF	CS	—	Rad	EPA:901.1	Cesium-137	<	-1.4	4.00E-01	3.60E+00	—	pCi/L	U	U	09-2821	CAMO-09-9571	GELC
R-14	1200.6	11/08/11	WG	UF	CS	—	Rad	EPA:901.1	Cobalt-60	<	0.0965	4.00E-01	4.50E+00	—	pCi/L	U	U	12-296	CAMO-12-1526	GELC
R-14	1200.6	07/01/10	WG	UF	CS	—	Rad	EPA:901.1	Cobalt-60	<	-1.1	5.33E-01	4.70E+00	—	pCi/L	U	U	10-3544	CAMO-10-22851	GELC
R-14	1200.6	02/03/10	WG	UF	CS	—	Rad	EPA:901.1	Cobalt-60	<	1.54	5.33E-01	5.80E+00	—	pCi/L	U	U	10-1615	CAMO-10-9333	GELC
R-14	1200.6	11/04/09	WG	UF	CS	—	Rad	EPA:901.1	Cobalt-60	<	2.28	5.67E-01	6.10E+00	—	pCi/L	U	U	10-370	CAMO-10-3215	GELC
R-14	1200.6	08/07/09	WG	UF	CS	—	Rad	EPA:901.1	Cobalt-60	<	-0.395	4.00E-01	3.90E+00	—	pCi/L	U	U	09-2821	CAMO-09-9571	GELC
R-14	1200.6	05/07/09	WG	F	CS	—	Rad	EPA:900	Gross alpha	<	1.14	1.43E-01	1.10E+00	—	pCi/L	—	U	09-1789	CAMO-09-8206	GELC
R-14	1200.6	11/08/11	WG	UF	CS	—	Rad	EPA:900	Gross alpha	<	0.923	1.93E-01	1.70E+00	—	pCi/L	U	U	12-296	CAMO-12-1526	GELC
R-14	1200.6	07/01/10	WG	UF	CS	—	Rad	EPA:900	Gross alpha	<	0.616	2.00E-01	2.30E+00	—	pCi/L	U	U	10-3544	CAMO-10-22851	GELC
R-14	1200.6	11/04/09	WG	UF	CS	—	Rad	EPA:900	Gross alpha	<	0.901	1.77E-01	1.60E+00	—	pCi/L	U	U	10-370	CAMO-10-3215	GELC
R-14	1200.6	08/07/09	WG	UF	CS	—	Rad	EPA:900	Gross alpha	<	0.941	1.20E-01	1.10E+00	—	pCi/L	U	U	09-2821	CAMO-09-9571	GELC
R-14	1200.6	05/07/09	WG	UF	CS	—	Rad	EPA:900	Gross alpha	—	2.14	1.97E-01	9.60E-01	—	pCi/L	—	—	09-1789	CAMO-09-8207	GELC
R-14	1200.6	05/07/09	WG	F	CS	—	Rad	EPA:900	Gross beta	<	2.2	3.03E-01	2.70E+00	—	pCi/L	U	U	09-1789	CAMO-09-8206	GELC
R-14	1200.6	11/08/11	WG	UF	CS	—	Rad	EPA:900	Gross beta	—	2.66	2.83E-01	2.30E+00	—	pCi/L	—	—	12-296	CAMO-12-1526	GELC
R-14	1200.6	07/01/10	WG	UF	CS	—	Rad	EPA:900	Gross beta	<	1.5	2.40E-01	2.30E+00	—	pCi/L	U	U	10-3544	CAMO-10-22851	GELC
R-14	1200.6	11/04/09	WG	UF	CS	—	Rad	EPA:900	Gross beta	—	4.96	3.67E-01	2.40E+00	—	pCi/L	—	—	10-370	CAMO-10-3215	GELC
R-14	1200.6	08/07/09	WG	UF	CS	—	Rad	EPA:900	Gross beta	—	4.67	4.67E-01	4.00E+00	—	pCi/L	—	—	09-2821	CAMO-09-9571	GELC
R-14	1200.6	05/07/09	WG	UF	CS	—	Rad	EPA:900	Gross beta	—	5	4.00E-01	2.90E+00	—	pCi/L	—	—	09-1789	CAMO-09-8207	GELC
R-14	1200.6	11/08/11	WG	UF	CS	—	Rad	EPA:901.1	Neptunium-237	<	1.8	7.67E-01	8.80E+00	—	pCi/L	U	U	12-296	CAMO-12-1526	GELC
R-14	1200.6	07/01/10	WG	UF	CS	—	Rad	EPA:901.1	Neptunium-237	<	-2.81	1.00E+00	9.40E+00	—	pCi/L	U	U	10-3544	CAMO-10-22851	GELC
R-14	1200.6	02/03/10	WG	UF	CS	—	Rad	EPA:901.1	Neptunium-237	<	40.6	7.33E+00	4.90E+01	—	pCi/L	U	U	10-1615	CAMO-10-9333	GELC

Table C-2 MDA C Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Symbol	Result	1-sigma TPU	MDA	MDL	Unit	Lab Qual	2nd Qual	Request	Sample	Lab
R-14	1200.6	11/04/09	WG	UF	CS	—	Rad	EPA:901.1	Neptunium-237	<	-21.5	4.00E+00	3.40E+01	—	pCi/L	U	U	10-370	CAMO-10-3215	GELC
R-14	1200.6	08/07/09	WG	UF	CS	—	Rad	EPA:901.1	Neptunium-237	<	-12.3	3.20E+00	3.00E+01	—	pCi/L	U	U	09-2821	CAMO-09-9571	GELC
R-14	1200.6	11/08/11	WG	UF	CS	—	Rad	HASL-300	Plutonium-238	<	0.00245	1.43E-03	2.80E-02	—	pCi/L	U	U	12-296	CAMO-12-1526	GELC
R-14	1200.6	07/01/10	WG	UF	CS	—	Rad	HASL-300	Plutonium-238	<	-0.00447	2.10E-03	3.00E-02	—	pCi/L	U	U	10-3544	CAMO-10-22851	GELC
R-14	1200.6	02/03/10	WG	UF	CS	—	Rad	HASL-300	Plutonium-238	<	0	6.67E-04	3.30E-02	—	pCi/L	U	U	10-1615	CAMO-10-9333	GELC
R-14	1200.6	11/04/09	WG	UF	CS	—	Rad	HASL-300	Plutonium-238	<	-0.00299	1.40E-03	2.50E-02	—	pCi/L	U	U	10-370	CAMO-10-3215	GELC
R-14	1200.6	08/07/09	WG	UF	CS	—	Rad	HASL-300	Plutonium-238	<	-0.00199	1.50E-03	3.20E-02	—	pCi/L	U	U	09-2821	CAMO-09-9571	GELC
R-14	1200.6	11/08/11	WG	UF	CS	—	Rad	HASL-300	Plutonium-239/240	<	0.00736	1.83E-03	3.90E-02	—	pCi/L	U	U	12-296	CAMO-12-1526	GELC
R-14	1200.6	07/01/10	WG	UF	CS	—	Rad	HASL-300	Plutonium-239/240	<	2.66E-10	1.50E-03	3.00E-02	—	pCi/L	U	U	10-3544	CAMO-10-22851	GELC
R-14	1200.6	02/03/10	WG	UF	CS	—	Rad	HASL-300	Plutonium-239/240	<	1E-10	9.33E-04	2.30E-02	—	pCi/L	U	U	10-1615	CAMO-10-9333	GELC
R-14	1200.6	11/04/09	WG	UF	CS	—	Rad	HASL-300	Plutonium-239/240	<	0	7.00E-04	2.50E-02	—	pCi/L	U	U	10-370	CAMO-10-3215	GELC
R-14	1200.6	08/07/09	WG	UF	CS	—	Rad	HASL-300	Plutonium-239/240	<	-0.00199	1.50E-03	3.90E-02	—	pCi/L	U	U	09-2821	CAMO-09-9571	GELC
R-14	1200.6	11/08/11	WG	UF	CS	—	Rad	EPA:901.1	Potassium-40	<	-15.1	4.67E+00	5.40E+01	—	pCi/L	U	U	12-296	CAMO-12-1526	GELC
R-14	1200.6	07/01/10	WG	UF	CS	—	Rad	EPA:901.1	Potassium-40	<	29.9	7.33E+00	7.90E+01	—	pCi/L	U	U	10-3544	CAMO-10-22851	GELC
R-14	1200.6	02/03/10	WG	UF	CS	—	Rad	EPA:901.1	Potassium-40	<	53.2	6.67E+00	8.00E+01	—	pCi/L	U	U	10-1615	CAMO-10-9333	GELC
R-14	1200.6	11/04/09	WG	UF	CS	—	Rad	EPA:901.1	Potassium-40	<	-12.4	6.33E+00	6.40E+01	—	pCi/L	U	U	10-370	CAMO-10-3215	GELC
R-14	1200.6	08/07/09	WG	UF	CS	—	Rad	EPA:901.1	Potassium-40	<	2.14	5.33E+00	5.70E+01	—	pCi/L	U	U	09-2821	CAMO-09-9571	GELC
R-14	1200.6	11/08/11	WG	UF	CS	—	Rad	EPA:903.1	Radium-226	—	0.458	5.00E-02	2.50E-01	—	pCi/L	—	—	12-296	CAMO-12-1526	GELC
R-14	1200.6	02/03/10	WG	UF	CS	—	Rad	EPA:903.1	Radium-226	<	0.411	5.00E-02	3.90E-01	—	pCi/L	—	U	10-1615	CAMO-10-9333	GELC
R-14	1200.6	08/07/09	WG	UF	CS	—	Rad	EPA:903.1	Radium-226	<	0.242	3.33E-02	2.40E-01	—	pCi/L	U	U	09-2821	CAMO-09-9571	GELC
R-14	1200.6	08/20/08	WG	UF	CS	—	Rad	EPA:903.1	Radium-226	<	0.261	4.00E-02	3.50E-01	—	pCi/L	U	U	08-1731	CAMO-08-14506	GELC
R-14	1200.6	11/08/11	WG	UF	CS	—	Rad	EPA:904	Radium-228	—	0.751	7.33E-02	5.60E-01	—	pCi/L	—	—	12-296	CAMO-12-1526	GELC
R-14	1200.6	02/03/10	WG	UF	CS	—	Rad	EPA:904	Radium-228	<	0.183	8.33E-02	8.90E-01	—	pCi/L	U	U	10-1615	CAMO-10-9333	GELC
R-14	1200.6	08/07/09	WG	UF	CS	—	Rad	EPA:904	Radium-228	<	0.736	9.67E-02	8.70E-01	—	pCi/L	U	U	09-2821	CAMO-09-9571	GELC
R-14	1200.6	08/20/08	WG	UF	CS	—	Rad	EPA:904	Radium-228	<	0.427	6.33E-02	5.80E-01	—	pCi/L	U	U	08-1731	CAMO-08-14506	GELC
R-14	1200.6	11/08/11	WG	UF	CS	—	Rad	EPA:901.1	Sodium-22	<	-0.297	4.33E-01	4.90E+00	—	pCi/L	U	U	12-296	CAMO-12-1526	GELC
R-14	1200.6	07/01/10	WG	UF	CS	—	Rad	EPA:901.1	Sodium-22	<	-0.786	5.33E-01	5.10E+00	—	pCi/L	U	U	10-3544	CAMO-10-22851	GELC
R-14	1200.6	02/03/10	WG	UF	CS	—	Rad	EPA:901.1	Sodium-22	<	1.01	6.00E-01	6.20E+00	—	pCi/L	U	U	10-1615	CAMO-10-9333	GELC
R-14	1200.6	11/04/09	WG	UF	CS	—	Rad	EPA:901.1	Sodium-22	<	1.04	5.67E-01	5.80E+00	—	pCi/L	U	U	10-370	CAMO-10-3215	GELC
R-14	1200.6	08/07/09	WG	UF	CS	—	Rad	EPA:901.1	Sodium-22	<	-0.0962	4.33E-01	4.30E+00	—	pCi/L	U	U	09-2821	CAMO-09-9571	GELC
R-14	1200.6	11/08/11	WG	UF	CS	—	Rad	EPA:905.0	Strontium-90	<	0.32	5.00E-02	4.80E-01	—	pCi/L	U	U	12-296	CAMO-12-1526	GELC
R-14	1200.6	07/01/10	WG	UF	CS	—	Rad	EPA:905.0	Strontium-90	<	0.459	5.67E-02	5.00E-01	—	pCi/L	U	U	10-3544	CAMO-10-22851	GELC
R-14	1200.6	02/03/10	WG	UF	CS	—	Rad	EPA:905.0	Strontium-90	<	-0.181	3.67E-02	4.50E-01	—	pCi/L	U	U	10-1615	CAMO-10-9333	GELC
R-14	1200.6	11/04/09	WG	UF	CS	—	Rad	EPA:905.0	Strontium-90	<	0.185	4.67E-02	4.80E-01	—	pCi/L	U	U	10-370	CAMO-10-3215	GELC
R-14	1200.6	08/07/09	WG	UF	CS	—	Rad	EPA:905.0	Strontium-90	<	0.394	5.00E-02	4.90E-01	—	pCi/L	U	U	09-2821	CAMO-09-9571	GELC
R-14	1200.6	11/08/11	WG	UF	CS	—	Rad	LLEE	Tritium	<	-0.62	2.23E-01	2.31E+00	—	pCi/L	U	U	12-300	CAMO-12-1526	ARSL
R-14	1200.6	08/03/11	WG	UF	CS	—	Rad	LLEE	Tritium	<	-2.29896	2.45E-01	2.33E+00	—	pCi/L	U	U	11-3040	CAMO-11-24652	ARSL
R-14	1200.6	05/18/11	WG	UF	CS	—	Rad	LLEE	Tritium	<	1.08562	2.24E-01	2.17E+00	—	pCi/L	U	U	11-2440	CAMO-11-10729	ARSL
R-14	1200.6	11/12/10	WG	UF	CS	—	Rad	LLEE	Tritium	<	30.68473	1.58E+00	2.33E+00	—	pCi/L	—	R	11-564	CAMO-11-1265	ARSL
R-14	1200.6	11/12/10	WG	UF	RE	—	Rad	LLEE	Tritium	<	0.79825	2.34E-01	2.33E+00	—	pCi/L	U	U	11-564	CAMO-11-1265	ARSL
R-14	1200.6	02/03/10	WG	UF	CS	—	Rad	LLEE	Tritium	<	-0.25544	9.58E-02	2.87E-01	—	pCi/L	U	U	10-1902	CAMO-10-9333	UMTL
R-14	1200.6	11/08/11	WG	UF	CS	—	Rad	HASL-300	Uranium-234	—	0.45	1.90E-02	1.20E-01	—	pCi/L	—	J+	12-296	CAMO-12-1526	GELC
R-14	1200.6	07/01/10	WG	UF	CS	—	Rad	HASL-300	Uranium-234	—	0.534	1.73E-02	6.10E-02	—	pCi/L	—	—	10-3544	CAMO-10-22851	GELC
R-14	1200.6	02/03/10	WG	UF	CS	—	Rad	HASL-300	Uranium-234	—	0.51	1.77E-02	7.90E-02	—	pCi/L	—	—	10-1615	CAMO-10-9333	GELC
R-14	1200.6	11/04/09	WG	UF	CS	—	Rad	HASL-300	Uranium-234	—	0.53	1.80E-02	9.30E-02	—	pCi/L	—	—	10-370	CAMO-10-3215	GELC
R-14	1200.6	08/07/09	WG	UF	CS	—	Rad	HASL-300	Uranium-234	—	0.548	1.87E-02	1.10E-01	—	pCi/L	—	—	09-2821	CAMO-09-9571	GELC
R-14	1200.6	11/08/11	WG	UF	CS	—	Rad	HASL-300	Uranium-235/236	<	0.0174	5.00E-03	6.20E-02	—	pCi/L	U	U	12-296	CAMO-12-1526	GELC
R-14	1200.6	07/01/10	WG	UF	CS	—	Rad	HASL-300	Uranium-235/236	<	0.0207	2.63E-03	3.70E-02	—	pCi/L	U	U	10-3544	CAMO-10-22851	GELC
R-14	1200.6	02/03/10	WG	UF	CS	—	Rad	HASL-300	Uranium-235/236	<	0.0313	4.00E-03	4.50E-02	—	pCi/L	U	U	10-1615	CAMO-10-9333	GELC
R-14	1200.6	11/04/09	WG	UF	CS	—	Rad	HASL-300	Uranium-235/236	<	0.00321	2.40E-03	4.70E-02	—	pCi/L	U	U	10-370	CAMO-10-3215	GELC

Table C-2 MDA C Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Symbol	Result	1-sigma TPU	MDA	MDL	Unit	Lab Qual	2nd Qual	Request	Sample	Lab
R-14	1200.6	08/07/09	WG	UF	CS	—	Rad	HASL-300	Uranium-235/236	<	0.0278	3.33E-03	5.30E-02	—	pCi/L	U	U	09-2821	CAMO-09-9571	GELC
R-14	1200.6	11/08/11	WG	UF	CS	—	Rad	HASL-300	Uranium-238	—	0.225	1.23E-02	5.30E-02	—	pCi/L	—	J+	12-296	CAMO-12-1526	GELC
R-14	1200.6	07/01/10	WG	UF	CS	—	Rad	HASL-300	Uranium-238	—	0.263	1.03E-02	4.30E-02	—	pCi/L	—	—	10-3544	CAMO-10-22851	GELC
R-14	1200.6	02/03/10	WG	UF	CS	—	Rad	HASL-300	Uranium-238	—	0.335	1.30E-02	5.10E-02	—	pCi/L	—	—	10-1615	CAMO-10-9333	GELC
R-14	1200.6	11/04/09	WG	UF	CS	—	Rad	HASL-300	Uranium-238	—	0.291	1.17E-02	5.70E-02	—	pCi/L	—	—	10-370	CAMO-10-3215	GELC
R-14	1200.6	08/07/09	WG	UF	CS	—	Rad	HASL-300	Uranium-238	—	0.281	1.17E-02	5.30E-02	—	pCi/L	—	—	09-2821	CAMO-09-9571	GELC
R-46	1340	11/08/11	WG	F	CS	—	Geninorg	EPA:310.1	Alkalinity-CO3+HCO3	—	57	—	—	7.30E-01	mg/L	—	—	12-296	CAMO-12-1529	GELC
R-46	1340	08/03/11	WG	F	CS	—	Geninorg	EPA:310.1	Alkalinity-CO3+HCO3	<	530	—	—	7.30E-01	mg/L	—	R	11-3027	CAMO-11-24658	GELC
R-46	1340	05/17/11	WG	F	CS	—	Geninorg	EPA:310.1	Alkalinity-CO3+HCO3	—	54.4	—	—	7.30E-01	mg/L	—	—	11-2424	CAMO-11-10731	GELC
R-46	1340	02/17/11	WG	F	CS	—	Geninorg	EPA:310.1	Alkalinity-CO3+HCO3	—	55	—	—	7.30E-01	mg/L	—	—	11-1384	CAMO-11-4625	GELC
R-46	1340	11/12/10	WG	F	CS	—	Geninorg	EPA:310.1	Alkalinity-CO3+HCO3	—	52.6	—	—	7.30E-01	mg/L	—	—	11-507	CAMO-11-1284	GELC
R-46	1340	11/08/11	WG	F	CS	—	Geninorg	SW-846:6010B	Calcium	—	10.7	—	—	5.00E-02	mg/L	—	—	12-296	CAMO-12-1529	GELC
R-46	1340	05/17/11	WG	F	CS	—	Geninorg	SW-846:6010B	Calcium	—	10.7	—	—	5.00E-02	mg/L	—	—	11-2424	CAMO-11-10731	GELC
R-46	1340	11/12/10	WG	F	CS	—	Geninorg	SW-846:6010B	Calcium	—	10.6	—	—	5.00E-02	mg/L	—	—	11-507	CAMO-11-1284	GELC
R-46	1340	05/07/10	WG	F	CS	—	Geninorg	SW-846:6010B	Calcium	—	9.89	—	—	5.00E-02	mg/L	—	—	10-3098	CAMO-10-16832	GELC
R-46	1340	11/08/11	WG	UF	CS	—	Geninorg	SW-846:6010B	Calcium	—	10.4	—	—	5.00E-02	mg/L	—	—	12-296	CAMO-12-1530	GELC
R-46	1340	05/17/11	WG	UF	CS	—	Geninorg	SW-846:6010B	Calcium	—	10.7	—	—	5.00E-02	mg/L	—	—	11-2424	CAMO-11-10733	GELC
R-46	1340	11/12/10	WG	UF	CS	—	Geninorg	SW-846:6010B	Calcium	—	10.5	—	—	5.00E-02	mg/L	—	—	11-507	CAMO-11-1285	GELC
R-46	1340	05/07/10	WG	UF	CS	—	Geninorg	SW-846:6010B	Calcium	—	10.3	—	—	5.00E-02	mg/L	—	—	10-3098	CAMO-10-16830	GELC
R-46	1340	11/08/11	WG	F	CS	—	Geninorg	EPA:300.0	Chloride	—	1.75	—	—	6.60E-02	mg/L	—	J+	12-296	CAMO-12-1529	GELC
R-46	1340	08/03/11	WG	F	CS	—	Geninorg	EPA:300.0	Chloride	—	1.73	—	—	6.60E-02	mg/L	—	—	11-3027	CAMO-11-24658	GELC
R-46	1340	05/17/11	WG	F	CS	—	Geninorg	EPA:300.0	Chloride	—	1.82	—	—	6.60E-02	mg/L	—	—	11-2424	CAMO-11-10731	GELC
R-46	1340	02/17/11	WG	F	CS	—	Geninorg	EPA:300.0	Chloride	—	1.73	—	—	6.60E-02	mg/L	—	J+	11-1384	CAMO-11-4625	GELC
R-46	1340	11/12/10	WG	F	CS	—	Geninorg	EPA:300.0	Chloride	—	1.65	—	—	6.60E-02	mg/L	—	J+	11-507	CAMO-11-1284	GELC
R-46	1340	11/08/11	WG	F	CS	—	Geninorg	EPA:300.0	Fluoride	—	0.149	—	—	3.30E-02	mg/L	—	—	12-296	CAMO-12-1529	GELC
R-46	1340	08/03/11	WG	F	CS	—	Geninorg	EPA:300.0	Fluoride	—	0.156	—	—	3.30E-02	mg/L	—	—	11-3027	CAMO-11-24658	GELC
R-46	1340	05/17/11	WG	F	CS	—	Geninorg	EPA:300.0	Fluoride	—	0.188	—	—	3.30E-02	mg/L	—	—	11-2424	CAMO-11-10731	GELC
R-46	1340	02/17/11	WG	F	CS	—	Geninorg	EPA:300.0	Fluoride	—	0.162	—	—	3.30E-02	mg/L	—	—	11-1384	CAMO-11-4625	GELC
R-46	1340	11/12/10	WG	F	CS	—	Geninorg	EPA:300.0	Fluoride	—	0.184	—	—	3.30E-02	mg/L	—	—	11-507	CAMO-11-1284	GELC
R-46	1340	11/08/11	WG	F	CS	—	Geninorg	SM:A2340B	Hardness	—	40.6	—	—	4.50E-01	mg/L	—	—	12-296	CAMO-12-1529	GELC
R-46	1340	05/17/11	WG	F	CS	—	Geninorg	SM:A2340B	Hardness	—	41.4	—	—	4.50E-01	mg/L	—	—	11-2424	CAMO-11-10731	GELC
R-46	1340	11/12/10	WG	F	CS	—	Geninorg	SM:A2340B	Hardness	—	40.5	—	—	3.50E-01	mg/L	—	—	11-507	CAMO-11-1284	GELC
R-46	1340	05/07/10	WG	F	CS	—	Geninorg	SM:A2340B	Hardness	—	37.6	—	—	3.50E-01	mg/L	—	—	10-3098	CAMO-10-16832	GELC
R-46	1340	11/08/11	WG	UF	CS	—	Geninorg	SM:A2340B	Hardness	—	39.4	—	—	4.50E-01	mg/L	—	—	12-296	CAMO-12-1530	GELC
R-46	1340	05/17/11	WG	UF	CS	—	Geninorg	SM:A2340B	Hardness	—	40.7	—	—	4.50E-01	mg/L	—	—	11-2424	CAMO-11-10733	GELC
R-46	1340	11/12/10	WG	UF	CS	—	Geninorg	SM:A2340B	Hardness	—	39.9	—	—	3.50E-01	mg/L	—	—	11-507	CAMO-11-1285	GELC
R-46	1340	05/07/10	WG	UF	CS	—	Geninorg	SM:A2340B	Hardness	—	39.2	—	—	3.50E-01	mg/L	—	—	10-3098	CAMO-10-16830	GELC
R-46	1340	11/08/11	WG	F	CS	—	Geninorg	SW-846:6010B	Magnesium	—	3.39	—	—	1.10E-01	mg/L	—	—	12-296	CAMO-12-1529	GELC
R-46	1340	05/17/11	WG	F	CS	—	Geninorg	SW-846:6010B	Magnesium	—	3.6	—	—	1.10E-01	mg/L	—	—	11-2424	CAMO-11-10731	GELC
R-46	1340	11/12/10	WG	F	CS	—	Geninorg	SW-846:6010B	Magnesium	—	3.4	—	—	8.50E-02	mg/L	—	—	11-507	CAMO-11-1284	GELC
R-46	1340	05/07/10	WG	F	CS	—	Geninorg	SW-846:6010B	Magnesium	—	3.15	—	—	8.50E-02	mg/L	—	—	10-3098	CAMO-10-16832	GELC
R-46	1340	11/08/11	WG	UF	CS	—	Geninorg	SW-846:6010B	Magnesium	—	3.29	—	—	1.10E-01	mg/L	—	—	12-296	CAMO-12-1530	GELC
R-46	1340	05/17/11	WG	UF	CS	—	Geninorg	SW-846:6010B	Magnesium	—	3.38	—	—	1.10E-01	mg/L	—	—	11-2424	CAMO-11-10733	GELC
R-46	1340	11/12/10	WG	UF	CS	—	Geninorg	SW-846:6010B	Magnesium	—	3.34	—	—	8.50E-02	mg/L	—	—	11-507	CAMO-11-1285	GELC
R-46	1340	05/07/10	WG	UF	CS	—	Geninorg	SW-846:6010B	Magnesium	—	3.27	—	—	8.50E-02	mg/L	—	—	10-3098	CAMO-10-16830	GELC
R-46	1340	11/08/11	WG	F	CS	—	Geninorg	EPA:353.2	Nitrate-Nitrite as Nitrogen	—	0.405	—	—	5.00E-02	mg/L	—	—	12-296	CAMO-12-1529	GELC
R-46	1340	08/03/11	WG	F	CS	—	Geninorg	EPA:353.2	Nitrate-Nitrite as Nitrogen	<	0.385	—	—	5.00E-02	mg/L	—	U	11-3027	CAMO-11-24658	GELC
R-46	1340	05/17/11	WG	F	CS	—	Geninorg	EPA:353.2	Nitrate-Nitrite as Nitrogen	—	0.445	—	—	5.00E-02	mg/L	—	—	11-2424	CAMO-11-10731	GELC
R-46	1340	02/17/11	WG	F	CS	—	Geninorg	EPA:353.2	Nitrate-Nitrite as Nitrogen	—	0.383	—	—	5.00E-02	mg/L	—	—	11-1384	CAMO-11-4625	GELC
R-46	1340	11/12/10	WG	F	CS	—	Geninorg	EPA:353.2	Nitrate-Nitrite as Nitrogen	—	0.336	—	—	5.00E-02	mg/L	—	—	11-507	CAMO-11-1284	GELC

Table C-2 MDA C Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Symbol	Result	1-sigma TPU	MDA	MDL	Unit	Lab Qual	2nd Qual	Request	Sample	Lab
R-46	1340	11/08/11	WG	F	CS	—	Geninorg	SW-846:6850	Perchlorate	—	0.321	—	—	5.00E-02	µg/L	—	—	12-296	CAMO-12-1529	GELC
R-46	1340	08/03/11	WG	F	CS	—	Geninorg	SW-846:6850	Perchlorate	—	0.345	—	—	5.00E-02	µg/L	—	—	11-3027	CAMO-11-24658	GELC
R-46	1340	05/17/11	WG	F	CS	—	Geninorg	SW-846:6850	Perchlorate	—	0.306	—	—	5.00E-02	µg/L	—	—	11-2424	CAMO-11-10731	GELC
R-46	1340	02/17/11	WG	F	CS	—	Geninorg	SW-846:6850	Perchlorate	—	0.328	—	—	5.00E-02	µg/L	—	—	11-1384	CAMO-11-4625	GELC
R-46	1340	11/12/10	WG	F	CS	—	Geninorg	SW-846:6850	Perchlorate	—	0.297	—	—	5.00E-02	µg/L	—	—	11-507	CAMO-11-1284	GELC
R-46	1340	11/08/11	WG	F	CS	—	Geninorg	SW-846:6010B	Potassium	—	1.96	—	—	5.00E-02	mg/L	—	—	12-296	CAMO-12-1529	GELC
R-46	1340	05/17/11	WG	F	CS	—	Geninorg	SW-846:6010B	Potassium	—	2	—	—	5.00E-02	mg/L	—	J	11-2424	CAMO-11-10731	GELC
R-46	1340	11/12/10	WG	F	CS	—	Geninorg	SW-846:6010B	Potassium	—	1.96	—	—	5.00E-02	mg/L	—	—	11-507	CAMO-11-1284	GELC
R-46	1340	05/07/10	WG	F	CS	—	Geninorg	SW-846:6010B	Potassium	—	1.81	—	—	5.00E-02	mg/L	—	—	10-3098	CAMO-10-16832	GELC
R-46	1340	11/08/11	WG	UF	CS	—	Geninorg	SW-846:6010B	Potassium	—	1.83	—	—	5.00E-02	mg/L	—	—	12-296	CAMO-12-1530	GELC
R-46	1340	05/17/11	WG	UF	CS	—	Geninorg	SW-846:6010B	Potassium	—	1.95	—	—	5.00E-02	mg/L	—	J	11-2424	CAMO-11-10733	GELC
R-46	1340	11/12/10	WG	UF	CS	—	Geninorg	SW-846:6010B	Potassium	—	1.92	—	—	5.00E-02	mg/L	—	—	11-507	CAMO-11-1285	GELC
R-46	1340	05/07/10	WG	UF	CS	—	Geninorg	SW-846:6010B	Potassium	—	1.92	—	—	5.00E-02	mg/L	—	—	10-3098	CAMO-10-16830	GELC
R-46	1340	11/08/11	WG	F	CS	—	Geninorg	SW-846:6010B	Sodium	—	9.91	—	—	1.00E-01	mg/L	—	—	12-296	CAMO-12-1529	GELC
R-46	1340	05/17/11	WG	F	CS	—	Geninorg	SW-846:6010B	Sodium	—	10.2	—	—	1.00E-01	mg/L	—	—	11-2424	CAMO-11-10731	GELC
R-46	1340	11/12/10	WG	F	CS	—	Geninorg	SW-846:6010B	Sodium	—	9.76	—	—	1.00E-01	mg/L	—	—	11-507	CAMO-11-1284	GELC
R-46	1340	05/07/10	WG	F	CS	—	Geninorg	SW-846:6010B	Sodium	—	8.99	—	—	1.00E-01	mg/L	—	—	10-3098	CAMO-10-16832	GELC
R-46	1340	11/08/11	WG	UF	CS	—	Geninorg	SW-846:6010B	Sodium	—	9.64	—	—	1.00E-01	mg/L	—	—	12-296	CAMO-12-1530	GELC
R-46	1340	05/17/11	WG	UF	CS	—	Geninorg	SW-846:6010B	Sodium	—	9.74	—	—	1.00E-01	mg/L	—	—	11-2424	CAMO-11-10733	GELC
R-46	1340	11/12/10	WG	UF	CS	—	Geninorg	SW-846:6010B	Sodium	—	9.59	—	—	1.00E-01	mg/L	—	—	11-507	CAMO-11-1285	GELC
R-46	1340	05/07/10	WG	UF	CS	—	Geninorg	SW-846:6010B	Sodium	—	9.46	—	—	1.00E-01	mg/L	—	—	10-3098	CAMO-10-16830	GELC
R-46	1340	11/08/11	WG	F	CS	—	Geninorg	EPA:120.1	Specific Conductance	—	116	—	—	1.00E+00	µS/cm	—	—	12-296	CAMO-12-1529	GELC
R-46	1340	08/03/11	WG	F	CS	—	Geninorg	EPA:120.1	Specific Conductance	—	118	—	—	1.00E+00	µS/cm	—	—	11-3027	CAMO-11-24658	GELC
R-46	1340	05/17/11	WG	F	CS	—	Geninorg	EPA:120.1	Specific Conductance	—	120	—	—	1.00E+00	µS/cm	—	—	11-2424	CAMO-11-10731	GELC
R-46	1340	02/17/11	WG	F	CS	—	Geninorg	EPA:120.1	Specific Conductance	—	117	—	—	1.00E+00	µS/cm	—	—	11-1384	CAMO-11-4625	GELC
R-46	1340	11/12/10	WG	F	CS	—	Geninorg	EPA:120.1	Specific Conductance	—	121	—	—	1.00E+00	µS/cm	—	—	11-507	CAMO-11-1284	GELC
R-46	1340	11/08/11	WG	F	CS	—	Geninorg	EPA:300.0	Sulfate	—	1.92	—	—	1.00E-01	mg/L	—	—	12-296	CAMO-12-1529	GELC
R-46	1340	08/03/11	WG	F	CS	—	Geninorg	EPA:300.0	Sulfate	—	1.81	—	—	1.00E-01	mg/L	—	J+	11-3027	CAMO-11-24658	GELC
R-46	1340	05/17/11	WG	F	CS	—	Geninorg	EPA:300.0	Sulfate	—	2.11	—	—	1.00E-01	mg/L	—	—	11-2424	CAMO-11-10731	GELC
R-46	1340	02/17/11	WG	F	CS	—	Geninorg	EPA:300.0	Sulfate	—	2.04	—	—	1.00E-01	mg/L	—	J+	11-1384	CAMO-11-4625	GELC
R-46	1340	11/12/10	WG	F	CS	—	Geninorg	EPA:300.0	Sulfate	—	1.9	—	—	1.00E-01	mg/L	—	—	11-507	CAMO-11-1284	GELC
R-46	1340	11/08/11	WG	F	CS	—	Geninorg	EPA:160.1	Total Dissolved Solids	—	124	—	—	3.40E+00	mg/L	—	—	12-296	CAMO-12-1529	GELC
R-46	1340	08/03/11	WG	F	CS	—	Geninorg	EPA:160.1	Total Dissolved Solids	—	137	—	—	3.40E+00	mg/L	—	—	11-3027	CAMO-11-24658	GELC
R-46	1340	05/17/11	WG	F	CS	—	Geninorg	EPA:160.1	Total Dissolved Solids	—	136	—	—	2.40E+00	mg/L	—	—	11-2424	CAMO-11-10731	GELC
R-46	1340	02/17/11	WG	F	CS	—	Geninorg	EPA:160.1	Total Dissolved Solids	—	142	—	—	2.40E+00	mg/L	—	—	11-1384	CAMO-11-4625	GELC
R-46	1340	11/12/10	WG	F	CS	—	Geninorg	EPA:160.1	Total Dissolved Solids	—	135	—	—	2.40E+00	mg/L	—	—	11-507	CAMO-11-1284	GELC
R-46	1340	11/08/11	WG	UF	CS	—	Geninorg	SW-846:9060	Total Organic Carbon	—	1.13	—	—	3.30E-01	mg/L	—	—	12-296	CAMO-12-1530	GELC
R-46	1340	08/03/11	WG	UF	CS	—	Geninorg	SW-846:9060	Total Organic Carbon	—	0.902	—	—	3.30E-01	mg/L	J	J	11-3026	CAMO-11-24656	GELC
R-46	1340	05/17/11	WG	UF	CS	—	Geninorg	SW-846:9060	Total Organic Carbon	—	1.15	—	—	3.30E-01	mg/L	—	—	11-2424	CAMO-11-10733	GELC
R-46	1340	02/17/11	WG	UF	CS	—	Geninorg	SW-846:9060	Total Organic Carbon	—	1.37	—	—	3.30E-01	mg/L	—	—	11-1384	CAMO-11-4623	GELC
R-46	1340	11/12/10	WG	UF	CS	—	Geninorg	SW-846:9060	Total Organic Carbon	—	2.23	—	—	3.30E-01	mg/L	—	—	11-507	CAMO-11-1285	GELC
R-46	1340	11/08/11	WG	F	CS	—	Geninorg	EPA:365.4	Total Phosphate as Phosphorus	—	0.0266	—	—	1.50E-02	mg/L	J	J	12-296	CAMO-12-1529	GELC
R-46	1340	08/03/11	WG	F	CS	—	Geninorg	EPA:365.4	Total Phosphate as Phosphorus	<	0.137	—	—	1.50E-02	mg/L	—	U	11-3027	CAMO-11-24658	GELC
R-46	1340	05/17/11	WG	F	CS	—	Geninorg	EPA:365.4	Total Phosphate as Phosphorus	<	0.0458	—	—	1.50E-02	mg/L	J	U	11-2424	CAMO-11-10731	GELC
R-46	1340	02/17/11	WG	F	CS	—	Geninorg	EPA:365.4	Total Phosphate as Phosphorus	<	0.084	—	—	1.50E-02	mg/L	—	U	11-1384	CAMO-11-4625	GELC
R-46	1340	11/12/10	WG	F	CS	—	Geninorg	EPA:365.4	Total Phosphate as Phosphorus	—	0.051	—	—	1.50E-02	mg/L	—	—	11-507	CAMO-11-1284	GELC
R-46	1340	11/08/11	WG	F	CS	—	Geninorg	EPA:150.1	pH	—	7.88	—	—	1.00E-02	SU	H	J-	12-296	CAMO-12-1529	GELC
R-46	1340	08/03/11	WG	F	CS	—	Geninorg	EPA:150.1	pH	—	7.57	—	—	1.00E-02	SU	H	J-	11-3027	CAMO-11-24658	GELC
R-46	1340	05/17/11	WG	F	CS	—	Geninorg	EPA:150.1	pH	—	7.8	—	—	1.00E-02	SU	H	J-	11-2424	CAMO-11-10731	GELC
R-46	1340	02/17/11	WG	F	CS	—	Geninorg	EPA:150.1	pH	—	7.72	—	—	1.00E-02	SU	H	J-	11-1384	CAMO-11-4625	GELC

Table C-2 MDA C Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Symbol	Result	1-sigma TPU	MDA	MDL	Unit	Lab Qual	2nd Qual	Request	Sample	Lab
R-46	1340	11/12/10	WG	F	CS	—	Geninorg	EPA:150.1	pH	—	7.81	—	—	1.00E-02	SU	H	J-	11-507	CAMO-11-1284	GELC
R-46	1340	11/08/11	WG	UF	CS	—	Isotope	Deuterium Ratio	Deuterium Ratio	—	-77.52	—	—	—	permil	—	—	12-297	CAMO-12-1530	EES6
R-46	1340	07/01/10	WG	UF	CS	—	Isotope	Deuterium Ratio	Deuterium Ratio	—	-78.74	—	—	—	permil	—	—	10-3570	CAMO-10-22890	EES6
R-46	1340	05/07/10	WG	UF	CS	—	Isotope	Deuterium Ratio	Deuterium Ratio	—	-76.04	—	—	—	permil	—	—	10-3100	CAMO-10-16830	EES6
R-46	1340	02/05/10	WG	UF	CS	—	Isotope	Deuterium Ratio	Deuterium Ratio	—	-77.28	—	—	—	permil	—	—	10-1652	CAMO-10-9358	EES6
R-46	1340	11/13/09	WG	UF	CS	—	Isotope	Deuterium Ratio	Deuterium Ratio	—	-79.98	—	—	—	permil	—	—	10-503	CAMO-10-3236	EES6
R-46	1340	11/08/11	WG	F	CS	—	Isotope	Nitrogen Ratio	Nitrogen-15/Nitrogen-14 Ratio	—	5.07	—	—	—	permil	—	—	12-297	CAMO-12-1529	EES6
R-46	1340	11/08/11	WG	F	DUP	—	Isotope	Nitrogen Ratio	Nitrogen-15/Nitrogen-14 Ratio	—	4.34	—	—	—	permil	—	—	12-297	CAMO-12-1529	EES6
R-46	1340	07/01/10	WG	F	CS	—	Isotope	Nitrogen Ratio	Nitrogen-15/Nitrogen-14 Ratio	—	4.44	—	—	—	permil	—	—	10-3570	CAMO-10-22888	EES6
R-46	1340	05/07/10	WG	F	CS	—	Isotope	Nitrogen Ratio	Nitrogen-15/Nitrogen-14 Ratio	—	5.53	—	—	—	permil	—	—	10-3100	CAMO-10-16832	EES6
R-46	1340	02/05/10	WG	F	CS	—	Isotope	Nitrogen Ratio	Nitrogen-15/Nitrogen-14 Ratio	—	5.26	—	—	—	permil	—	—	10-1652	CAMO-10-9360	EES6
R-46	1340	11/13/09	WG	F	CS	—	Isotope	Nitrogen Ratio	Nitrogen-15/Nitrogen-14 Ratio	—	5.65	—	—	—	permil	—	—	10-503	CAMO-10-3235	EES6
R-46	1340	11/13/09	WG	F	DUP	—	Isotope	Nitrogen Ratio	Nitrogen-15/Nitrogen-14 Ratio	—	5.59	—	—	—	permil	—	—	10-503	CAMO-10-3235	EES6
R-46	1340	11/08/11	WG	UF	CS	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio	—	-11.56	—	—	—	permil	—	—	12-297	CAMO-12-1530	EES6
R-46	1340	11/08/11	WG	UF	DUP	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio	—	-11.23	—	—	—	permil	—	—	12-297	CAMO-12-1530	EES6
R-46	1340	07/01/10	WG	UF	CS	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio	—	-11.44	—	—	—	permil	—	—	10-3570	CAMO-10-22890	EES6
R-46	1340	05/07/10	WG	UF	CS	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio	—	-11.34	—	—	—	permil	—	—	10-3100	CAMO-10-16830	EES6
R-46	1340	02/05/10	WG	UF	CS	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio	—	-11.11	—	—	—	permil	—	—	10-1652	CAMO-10-9358	EES6
R-46	1340	11/13/09	WG	UF	CS	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio	—	-10.90	—	—	—	permil	—	—	10-503	CAMO-10-3236	EES6
R-46	1340	11/08/11	WG	F	CS	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio from Nitrate	—	-4.54	—	—	—	permil	—	—	12-297	CAMO-12-1529	EES6
R-46	1340	11/08/11	WG	F	DUP	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio from Nitrate	—	-4.99	—	—	—	permil	—	—	12-297	CAMO-12-1529	EES6
R-46	1340	07/01/10	WG	F	CS	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio from Nitrate	—	-3.91	—	—	—	permil	—	—	10-3570	CAMO-10-22888	EES6
R-46	1340	05/07/10	WG	F	CS	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio from Nitrate	—	-4.86	—	—	—	permil	—	—	10-3100	CAMO-10-16832	EES6
R-46	1340	11/13/09	WG	F	CS	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio from Nitrate	—	-4.20	—	—	—	permil	—	—	10-503	CAMO-10-3235	EES6
R-46	1340	11/13/09	WG	F	DUP	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio from Nitrate	—	-4.11	—	—	—	permil	—	—	10-503	CAMO-10-3235	EES6
R-46	1340	08/10/09	WG	F	CS	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio from Nitrate	—	—	—	—	—	permil	—	—	09-2827	CAMO-09-10259	EES6
R-46	1340	11/08/11	WG	F	CS	—	Metals	SW-846:6020	Antimony	—	3.06	—	—	1.00E+00	µg/L	—	—	12-296	CAMO-12-1529	GELC
R-46	1340	05/17/11	WG	F	CS	—	Metals	SW-846:6020	Antimony	—	3.77	—	—	1.00E+00	µg/L	—	—	11-2424	CAMO-11-10731	GELC
R-46	1340	11/12/10	WG	F	CS	—	Metals	SW-846:6020	Antimony	—	3.78	—	—	5.00E-01	µg/L	—	—	11-507	CAMO-11-1284	GELC
R-46	1340	05/07/10	WG	F	CS	—	Metals	SW-846:6020	Antimony	—	3.46	—	—	5.00E-01	µg/L	—	—	10-3098	CAMO-10-16832	GELC
R-46	1340	11/08/11	WG	UF	CS	—	Metals	SW-846:6020	Antimony	—	3.35	—	—	1.00E+00	µg/L	—	—	12-296	CAMO-12-1530	GELC
R-46	1340	05/17/11	WG	UF	CS	—	Metals	SW-846:6020	Antimony	—	4.25	—	—	1.00E+00	µg/L	—	—	11-2424	CAMO-11-10733	GELC
R-46	1340	11/12/10	WG	UF	CS	—	Metals	SW-846:6020	Antimony	—	4.4	—	—	5.00E-01	µg/L	—	—	11-507	CAMO-11-1285	GELC
R-46	1340	05/07/10	WG	UF	CS	—	Metals	SW-846:6020	Antimony	—	3.92	—	—	5.00E-01	µg/L	—	—	10-3098	CAMO-10-16830	GELC
R-46	1340	11/08/11	WG	F	CS	—	Metals	SW-846:6010B	Barium	—	23.6	—	—	1.00E+00	µg/L	—	—	12-296	CAMO-12-1529	GELC
R-46	1340	05/17/11	WG	F	CS	—	Metals	SW-846:6010B	Barium	—	22.7	—	—	1.00E+00	µg/L	—	—	11-2424	CAMO-11-10731	GELC
R-46	1340	11/12/10	WG	F	CS	—	Metals	SW-846:6010B	Barium	—	23.3	—	—	1.00E+00	µg/L	—	—	11-507	CAMO-11-1284	GELC
R-46	1340	05/07/10	WG	F	CS	—	Metals	SW-846:6010B	Barium	—	22.1	—	—	1.00E+00	µg/L	—	—	10-3098	CAMO-10-16832	GELC
R-46	1340	11/08/11	WG	UF	CS	—	Metals	SW-846:6010B	Barium	—	23.1	—	—	1.00E+00	µg/L	—	—	12-296	CAMO-12-1530	GELC
R-46	1340	05/17/11	WG	UF	CS	—	Metals	SW-846:6010B	Barium	—	23.5	—	—	1.00E+00	µg/L	—	—	11-2424	CAMO-11-10733	GELC
R-46	1340	11/12/10	WG	UF	CS	—	Metals	SW-846:6010B	Barium	—	23	—	—	1.00E+00	µg/L	—	—	11-507	CAMO-11-1285	GELC
R-46	1340	05/07/10	WG	UF	CS	—	Metals	SW-846:6010B	Barium	—	23.5	—	—	1.00E+00	µg/L	—	—	10-3098	CAMO-10-16830	GELC
R-46	1340	11/08/11	WG	F	CS	—	Metals	SW-846:6020	Chromium	—	5.72	—	—	2.00E+00	µg/L	J	J	12-296	CAMO-12-1529	GELC
R-46	1340	05/17/11	WG	F	CS	—	Metals	SW-846:6020	Chromium	—	6.03	—	—	2.00E+00	µg/L	J	J	11-2424	CAMO-11-10731	GELC
R-46	1340	11/12/10	WG	F	CS	—	Metals	SW-846:6020	Chromium	—	5.7	—	—	2.50E+00	µg/L	J	J	11-507	CAMO-11-1284	GELC
R-46	1340	05/07/10	WG	F	CS	—	Metals	SW-846:6020	Chromium	—	5.38	—	—	2.50E+00	µg/L	J	J	10-3098	CAMO-10-16832	GELC
R-46	1340	11/08/11	WG	UF	CS	—	Metals	SW-846:6020	Chromium	—	6.21	—	—	2.00E+00	µg/L	J	J	12-296	CAMO-12-1530	GELC
R-46	1340	05/17/11	WG	UF	CS	—	Metals	SW-846:6020	Chromium	—	7.2	—	—	2.00E+00	µg/L	J	J	11-2424	CAMO-11-10733	GELC
R-46	1340	11/12/10	WG	UF	CS	—	Metals	SW-846:6020	Chromium	—	6.64	—	—	2.50E+00	µg/L	J	J	11-507	CAMO-11-1285	GELC
R-46	1340	05/07/10	WG	UF	CS	—	Metals	SW-846:6020	Chromium	—	5.52	—	—	2.50E+00	µg/L	J	J	10-3098	CAMO-10-16830	GELC

Table C-2 MDA C Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Symbol	Result	1-sigma TPU	MDA	MDL	Unit	Lab Qual	2nd Qual	Request	Sample	Lab
R-46	1340	11/08/11	WG	F	CS	—	Metals	SW-846:6020	Molybdenum	—	1.04	—	—	1.70E-01	µg/L	—	—	12-296	CAMO-12-1529	GELC
R-46	1340	05/17/11	WG	F	CS	—	Metals	SW-846:6020	Molybdenum	—	1.06	—	—	1.70E-01	µg/L	—	—	11-2424	CAMO-11-10731	GELC
R-46	1340	11/12/10	WG	F	CS	—	Metals	SW-846:6020	Molybdenum	—	1.13	—	—	1.00E-01	µg/L	—	—	11-507	CAMO-11-1284	GELC
R-46	1340	05/07/10	WG	F	CS	—	Metals	SW-846:6020	Molybdenum	—	1.13	—	—	1.00E-01	µg/L	—	—	10-3098	CAMO-10-16832	GELC
R-46	1340	11/08/11	WG	UF	CS	—	Metals	SW-846:6020	Molybdenum	—	1.02	—	—	1.70E-01	µg/L	—	—	12-296	CAMO-12-1530	GELC
R-46	1340	05/17/11	WG	UF	CS	—	Metals	SW-846:6020	Molybdenum	—	1.07	—	—	1.70E-01	µg/L	—	J	11-2424	CAMO-11-10733	GELC
R-46	1340	11/12/10	WG	UF	CS	—	Metals	SW-846:6020	Molybdenum	—	1.14	—	—	1.00E-01	µg/L	—	—	11-507	CAMO-11-1285	GELC
R-46	1340	05/07/10	WG	UF	CS	—	Metals	SW-846:6020	Molybdenum	—	1.11	—	—	1.00E-01	µg/L	—	—	10-3098	CAMO-10-16830	GELC
R-46	1340	11/08/11	WG	F	CS	—	Metals	SW-846:6020	Nickel	—	1.02	—	—	5.00E-01	µg/L	J	J	12-296	CAMO-12-1529	GELC
R-46	1340	05/17/11	WG	F	CS	—	Metals	SW-846:6020	Nickel	—	1.6	—	—	5.00E-01	µg/L	J	J	11-2424	CAMO-11-10731	GELC
R-46	1340	11/12/10	WG	F	CS	—	Metals	SW-846:6020	Nickel	—	1.76	—	—	5.00E-01	µg/L	J	J	11-507	CAMO-11-1284	GELC
R-46	1340	05/07/10	WG	F	CS	—	Metals	SW-846:6020	Nickel	—	1.96	—	—	5.00E-01	µg/L	J	J	10-3098	CAMO-10-16832	GELC
R-46	1340	11/08/11	WG	UF	CS	—	Metals	SW-846:6020	Nickel	—	1.11	—	—	5.00E-01	µg/L	J	J	12-296	CAMO-12-1530	GELC
R-46	1340	05/17/11	WG	UF	CS	—	Metals	SW-846:6020	Nickel	—	1.55	—	—	5.00E-01	µg/L	J	J	11-2424	CAMO-11-10733	GELC
R-46	1340	11/12/10	WG	UF	CS	—	Metals	SW-846:6020	Nickel	—	2.38	—	—	5.00E-01	µg/L	—	—	11-507	CAMO-11-1285	GELC
R-46	1340	05/07/10	WG	UF	CS	—	Metals	SW-846:6020	Nickel	—	1.73	—	—	5.00E-01	µg/L	J	J	10-3098	CAMO-10-16830	GELC
R-46	1340	11/08/11	WG	F	CS	—	Metals	SW-846:6010B	Silicon Dioxide	—	76.7	—	—	5.30E-02	mg/L	—	—	12-296	CAMO-12-1529	GELC
R-46	1340	08/03/11	WG	F	CS	—	Metals	SW-846:6010B	Silicon Dioxide	—	76.6	—	—	5.30E-02	mg/L	—	—	11-3027	CAMO-11-24658	GELC
R-46	1340	05/17/11	WG	F	CS	—	Metals	SW-846:6010B	Silicon Dioxide	—	72.3	—	—	5.30E-02	mg/L	—	—	11-2424	CAMO-11-10731	GELC
R-46	1340	02/17/11	WG	F	CS	—	Metals	SW-846:6010B	Silicon Dioxide	—	74.6	—	—	5.30E-02	mg/L	—	—	11-1384	CAMO-11-4625	GELC
R-46	1340	11/12/10	WG	F	CS	—	Metals	SW-846:6010B	Silicon Dioxide	—	74.9	—	—	5.30E-02	mg/L	—	—	11-507	CAMO-11-1284	GELC
R-46	1340	11/08/11	WG	F	CS	—	Metals	SW-846:6010B	Strontium	—	47	—	—	1.00E+00	µg/L	—	—	12-296	CAMO-12-1529	GELC
R-46	1340	05/17/11	WG	F	CS	—	Metals	SW-846:6010B	Strontium	—	45.2	—	—	1.00E+00	µg/L	—	—	11-2424	CAMO-11-10731	GELC
R-46	1340	11/12/10	WG	F	CS	—	Metals	SW-846:6010B	Strontium	—	45.3	—	—	1.00E+00	µg/L	—	—	11-507	CAMO-11-1284	GELC
R-46	1340	05/07/10	WG	F	CS	—	Metals	SW-846:6010B	Strontium	—	43.5	—	—	1.00E+00	µg/L	—	—	10-3098	CAMO-10-16832	GELC
R-46	1340	11/08/11	WG	UF	CS	—	Metals	SW-846:6010B	Strontium	—	45.4	—	—	1.00E+00	µg/L	—	—	12-296	CAMO-12-1530	GELC
R-46	1340	05/17/11	WG	UF	CS	—	Metals	SW-846:6010B	Strontium	—	44	—	—	1.00E+00	µg/L	—	—	11-2424	CAMO-11-10733	GELC
R-46	1340	11/12/10	WG	UF	CS	—	Metals	SW-846:6010B	Strontium	—	44.6	—	—	1.00E+00	µg/L	—	—	11-507	CAMO-11-1285	GELC
R-46	1340	05/07/10	WG	UF	CS	—	Metals	SW-846:6010B	Strontium	—	45.9	—	—	1.00E+00	µg/L	—	—	10-3098	CAMO-10-16830	GELC
R-46	1340	11/08/11	WG	F	CS	—	Metals	SW-846:6020	Uranium	—	0.483	—	—	6.70E-02	µg/L	—	—	12-296	CAMO-12-1529	GELC
R-46	1340	05/17/11	WG	F	CS	—	Metals	SW-846:6020	Uranium	—	0.434	—	—	6.70E-02	µg/L	—	—	11-2424	CAMO-11-10731	GELC
R-46	1340	11/12/10	WG	F	CS	—	Metals	SW-846:6020	Uranium	—	0.604	—	—	5.00E-02	µg/L	—	—	11-507	CAMO-11-1284	GELC
R-46	1340	05/07/10	WG	F	CS	—	Metals	SW-846:6020	Uranium	—	0.45	—	—	5.00E-02	µg/L	—	—	10-3098	CAMO-10-16832	GELC
R-46	1340	11/08/11	WG	UF	CS	—	Metals	SW-846:6020	Uranium	—	0.492	—	—	6.70E-02	µg/L	—	—	12-296	CAMO-12-1530	GELC
R-46	1340	05/17/11	WG	UF	CS	—	Metals	SW-846:6020	Uranium	—	0.486	—	—	6.70E-02	µg/L	—	—	11-2424	CAMO-11-10733	GELC
R-46	1340	11/12/10	WG	UF	CS	—	Metals	SW-846:6020	Uranium	—	0.638	—	—	5.00E-02	µg/L	—	—	11-507	CAMO-11-1285	GELC
R-46	1340	05/07/10	WG	UF	CS	—	Metals	SW-846:6020	Uranium	—	0.449	—	—	5.00E-02	µg/L	—	—	10-3098	CAMO-10-16830	GELC
R-46	1340	11/08/11	WG	F	CS	—	Metals	SW-846:6010B	Vanadium	—	7.81	—	—	1.00E+00	µg/L	—	—	12-296	CAMO-12-1529	GELC
R-46	1340	05/17/11	WG	F	CS	—	Metals	SW-846:6010B	Vanadium	—	7.93	—	—	1.00E+00	µg/L	—	—	11-2424	CAMO-11-10731	GELC
R-46	1340	11/12/10	WG	F	CS	—	Metals	SW-846:6010B	Vanadium	—	8	—	—	1.00E+00	µg/L	—	—	11-507	CAMO-11-1284	GELC
R-46	1340	05/07/10	WG	F	CS	—	Metals	SW-846:6010B	Vanadium	—	7.42	—	—	1.00E+00	µg/L	—	—	10-3098	CAMO-10-16832	GELC
R-46	1340	11/08/11	WG	UF	CS	—	Metals	SW-846:6010B	Vanadium	—	7.77	—	—	1.00E+00	µg/L	—	—	12-296	CAMO-12-1530	GELC
R-46	1340	05/17/11	WG	UF	CS	—	Metals	SW-846:6010B	Vanadium	—	8.35	—	—	1.00E+00	µg/L	—	—	11-2424	CAMO-11-10733	GELC
R-46	1340	11/12/10	WG	UF	CS	—	Metals	SW-846:6010B	Vanadium	—	7.64	—	—	1.00E+00	µg/L	—	—	11-507	CAMO-11-1285	GELC
R-46	1340	05/07/10	WG	UF	CS	—	Metals	SW-846:6010B	Vanadium	—	7.96	—	—	1.00E+00	µg/L	—	—	10-3098	CAMO-10-16830	GELC
R-46	1340	11/08/11	WG	F	CS	—	Metals	SW-846:6010B	Zinc	—	4.13	—	—	3.30E+00	µg/L	J	J	12-296	CAMO-12-1529	GELC
R-46	1340	05/17/11	WG	F	CS	—	Metals	SW-846:6010B	Zinc	—	10.5	—	—	3.30E+00	µg/L	—	—	11-2424	CAMO-11-10731	GELC
R-46	1340	11/12/10	WG	F	CS	—	Metals	SW-846:6010B	Zinc	—	8.56	—	—	3.30E+00	µg/L	J	J	11-507	CAMO-11-1284	GELC
R-46	1340	05/07/10	WG	F	CS	—	Metals	SW-846:6010B	Zinc	—	5.04	—	—	3.30E+00	µg/L	J	J	10-3098	CAMO-10-16832	GELC
R-46	1340	11/08/11	WG	UF	CS	—	Metals	SW-846:6010B	Zinc	—	5.82	—	—	3.30E+00	µg/L	J	J	12-296	CAMO-12-1530	GELC

Table C-2 MDA C Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Symbol	Result	1-sigma TPU	MDA	MDL	Unit	Lab Qual	2nd Qual	Request	Sample	Lab
R-46	1340	05/17/11	WG	UF	CS	—	Metals	SW-846:6010B	Zinc	—	9.47	—	—	3.30E+00	µg/L	J	J	11-2424	CAMO-11-10733	GELC
R-46	1340	11/12/10	WG	UF	CS	—	Metals	SW-846:6010B	Zinc	—	10.2	—	—	3.30E+00	µg/L	—	—	11-507	CAMO-11-1285	GELC
R-46	1340	05/07/10	WG	UF	CS	—	Metals	SW-846:6010B	Zinc	—	7.49	—	—	3.30E+00	µg/L	J	J	10-3098	CAMO-10-16830	GELC
R-46	1340	11/08/11	WG	UF	CS	—	Rad	HASL-300	Americium-241	<	0.0118	3.10E-03	4.60E-02	—	pCi/L	U	U	12-296	CAMO-12-1530	GELC
R-46	1340	07/01/10	WG	UF	CS	—	Rad	HASL-300	Americium-241	<	0.00894	1.33E-03	3.30E-02	—	pCi/L	U	U	10-3544	CAMO-10-22890	GELC
R-46	1340	05/07/10	WG	UF	CS	—	Rad	HASL-300	Americium-241	<	0.00537	1.30E-03	2.40E-02	—	pCi/L	U	U	10-3097	CAMO-10-16830	GELC
R-46	1340	02/05/10	WG	UF	CS	—	Rad	HASL-300	Americium-241	<	0.00194	2.10E-03	3.80E-02	—	pCi/L	U	U	10-1655	CAMO-10-9358	GELC
R-46	1340	11/13/09	WG	UF	CS	—	Rad	HASL-300	Americium-241	<	-0.00116	1.03E-03	3.20E-02	—	pCi/L	U	U	10-507	CAMO-10-3236	GELC
R-46	1340	11/08/11	WG	UF	CS	—	Rad	EPA:901.1	Cesium-137	<	-2.4	5.33E-01	5.60E+00	—	pCi/L	U	U	12-296	CAMO-12-1530	GELC
R-46	1340	07/01/10	WG	UF	CS	—	Rad	EPA:901.1	Cesium-137	<	-1.17	4.33E-01	4.10E+00	—	pCi/L	U	U	10-3544	CAMO-10-22890	GELC
R-46	1340	05/07/10	WG	UF	CS	—	Rad	EPA:901.1	Cesium-137	<	-2.73	5.33E-01	4.70E+00	—	pCi/L	U	U	10-3097	CAMO-10-16830	GELC
R-46	1340	02/05/10	WG	UF	CS	—	Rad	EPA:901.1	Cesium-137	<	-2.24	5.67E-01	5.10E+00	—	pCi/L	U	U	10-1655	CAMO-10-9358	GELC
R-46	1340	11/13/09	WG	UF	CS	—	Rad	EPA:901.1	Cesium-137	<	-3.26	4.33E-01	3.70E+00	—	pCi/L	U	U	10-507	CAMO-10-3236	GELC
R-46	1340	11/08/11	WG	UF	CS	—	Rad	EPA:901.1	Cobalt-60	<	0.937	3.30E-01	4.50E+00	—	pCi/L	U	U	12-296	CAMO-12-1530	GELC
R-46	1340	07/01/10	WG	UF	CS	—	Rad	EPA:901.1	Cobalt-60	<	0.17	4.33E-01	4.50E+00	—	pCi/L	U	U	10-3544	CAMO-10-22890	GELC
R-46	1340	05/07/10	WG	UF	CS	—	Rad	EPA:901.1	Cobalt-60	<	-0.678	4.33E-01	4.20E+00	—	pCi/L	U	U	10-3097	CAMO-10-16830	GELC
R-46	1340	02/05/10	WG	UF	CS	—	Rad	EPA:901.1	Cobalt-60	<	1.99	5.00E-01	5.60E+00	—	pCi/L	U	U	10-1655	CAMO-10-9358	GELC
R-46	1340	11/13/09	WG	UF	CS	—	Rad	EPA:901.1	Cobalt-60	<	0.391	4.00E-01	3.90E+00	—	pCi/L	U	U	10-507	CAMO-10-3236	GELC
R-46	1340	11/08/11	WG	UF	CS	—	Rad	EPA:900	Gross alpha	<	0.86	1.93E-01	1.90E+00	—	pCi/L	U	U	12-296	CAMO-12-1530	GELC
R-46	1340	07/01/10	WG	UF	CS	—	Rad	EPA:900	Gross alpha	<	0.766	2.07E-01	2.20E+00	—	pCi/L	U	U	10-3544	CAMO-10-22890	GELC
R-46	1340	05/07/10	WG	UF	CS	—	Rad	EPA:900	Gross alpha	<	0.295	1.97E-01	2.40E+00	—	pCi/L	U	U	10-3097	CAMO-10-16830	GELC
R-46	1340	02/05/10	WG	UF	CS	—	Rad	EPA:900	Gross alpha	<	-0.458	1.77E-01	2.80E+00	—	pCi/L	U	U	10-1655	CAMO-10-9358	GELC
R-46	1340	11/13/09	WG	UF	CS	—	Rad	EPA:900	Gross alpha	<	0.766	2.10E-01	2.20E+00	—	pCi/L	U	U	10-507	CAMO-10-3236	GELC
R-46	1340	11/08/11	WG	UF	CS	—	Rad	EPA:900	Gross beta	<	0.632	2.30E-01	2.40E+00	—	pCi/L	U	U	12-296	CAMO-12-1530	GELC
R-46	1340	07/01/10	WG	UF	CS	—	Rad	EPA:900	Gross beta	<	1.41	2.80E-01	2.70E+00	—	pCi/L	U	U	10-3544	CAMO-10-22890	GELC
R-46	1340	05/07/10	WG	UF	CS	—	Rad	EPA:900	Gross beta	<	2.35	3.13E-01	2.90E+00	—	pCi/L	U	U	10-3097	CAMO-10-16830	GELC
R-46	1340	02/05/10	WG	UF	CS	—	Rad	EPA:900	Gross beta	<	1.58	2.30E-01	2.20E+00	—	pCi/L	U	U	10-1655	CAMO-10-9358	GELC
R-46	1340	11/13/09	WG	UF	CS	—	Rad	EPA:900	Gross beta	—	3.96	4.00E-01	3.50E+00	—	pCi/L	—	—	10-507	CAMO-10-3236	GELC
R-46	1340	11/08/11	WG	UF	CS	—	Rad	EPA:901.1	Neptunium-237	<	-1.15	9.00E-01	9.70E+00	—	pCi/L	U	U	12-296	CAMO-12-1530	GELC
R-46	1340	07/01/10	WG	UF	CS	—	Rad	EPA:901.1	Neptunium-237	<	-0.748	1.00E+00	1.00E+01	—	pCi/L	U	U	10-3544	CAMO-10-22890	GELC
R-46	1340	05/07/10	WG	UF	CS	—	Rad	EPA:901.1	Neptunium-237	<	7.01	9.67E-01	1.00E+01	—	pCi/L	U	U	10-3097	CAMO-10-16830	GELC
R-46	1340	02/05/10	WG	UF	CS	—	Rad	EPA:901.1	Neptunium-237	<	61.9	5.33E+00	4.80E+01	—	pCi/L	UI	R	10-1655	CAMO-10-9358	GELC
R-46	1340	11/13/09	WG	UF	CS	—	Rad	EPA:901.1	Neptunium-237	<	6.37	4.00E+00	3.90E+01	—	pCi/L	U	U	10-507	CAMO-10-3236	GELC
R-46	1340	11/08/11	WG	UF	CS	—	Rad	HASL-300	Plutonium-238	<	-0.00244	2.93E-03	2.80E-02	—	pCi/L	U	U	12-296	CAMO-12-1530	GELC
R-46	1340	07/01/10	WG	UF	CS	—	Rad	HASL-300	Plutonium-238	<	-0.00834	1.70E-03	2.80E-02	—	pCi/L	U	U	10-3544	CAMO-10-22890	GELC
R-46	1340	05/07/10	WG	UF	CS	—	Rad	HASL-300	Plutonium-238	<	-0.00396	1.60E-03	3.10E-02	—	pCi/L	U	U	10-3097	CAMO-10-16830	GELC
R-46	1340	02/05/10	WG	UF	CS	—	Rad	HASL-300	Plutonium-238	<	0	7.00E-04	3.50E-02	—	pCi/L	U	U	10-1655	CAMO-10-9358	GELC
R-46	1340	11/13/09	WG	UF	CS	—	Rad	HASL-300	Plutonium-238	<	0	1.27E-03	3.20E-02	—	pCi/L	U	U	10-507	CAMO-10-3236	GELC
R-46	1340	11/08/11	WG	UF	CS	—	Rad	HASL-300	Plutonium-239/240	<	-0.00732	1.63E-03	3.80E-02	—	pCi/L	U	U	12-296	CAMO-12-1530	GELC
R-46	1340	07/01/10	WG	UF	CS	—	Rad	HASL-300	Plutonium-239/240	<	0.00417	1.70E-03	2.80E-02	—	pCi/L	U	U	10-3544	CAMO-10-22890	GELC
R-46	1340	05/07/10	WG	UF	CS	—	Rad	HASL-300	Plutonium-239/240	<	0.0198	2.30E-03	2.90E-02	—	pCi/L	U	U	10-3097	CAMO-10-16830	GELC
R-46	1340	02/05/10	WG	UF	CS	—	Rad	HASL-300	Plutonium-239/240	<	0.0145	1.83E-03	2.40E-02	—	pCi/L	U	U	10-1655	CAMO-10-9358	GELC
R-46	1340	11/13/09	WG	UF	CS	—	Rad	HASL-300	Plutonium-239/240	<	0	2.03E-03	3.20E-02	—	pCi/L	U	U	10-507	CAMO-10-3236	GELC
R-46	1340	11/08/11	WG	UF	CS	—	Rad	EPA:901.1	Potassium-40	<	13.6	5.33E+00	6.80E+01	—	pCi/L	U	U	12-296	CAMO-12-1530	GELC
R-46	1340	07/01/10	WG	UF	CS	—	Rad	EPA:901.1	Potassium-40	<	24.5	5.67E+00	4.40E+01	—	pCi/L	U	U	10-3544	CAMO-10-22890	GELC
R-46	1340	05/07/10	WG	UF	CS	—	Rad	EPA:901.1	Potassium-40	<	-8.98	6.00E+00	6.00E+01	—	pCi/L	U	U	10-3097	CAMO-10-16830	GELC
R-46	1340	02/05/10	WG	UF	CS	—	Rad	EPA:901.1	Potassium-40	<	-7.8	6.00E+00	6.10E+01	—	pCi/L	U	U	10-1655	CAMO-10-9358	GELC
R-46	1340	11/13/09	WG	UF	CS	—	Rad	EPA:901.1	Potassium-40	<	-10.7	5.33E+00	5.10E+01	—	pCi/L	U	U	10-507	CAMO-10-3236	GELC
R-46	1340	11/08/11	WG	UF	CS	—	Rad	EPA:901.1	Sodium-22	<	-0.00551	3.67E-01	4.40E+00	—	pCi/L	U	U	12-296	CAMO-12-1530	GELC
R-46	1340	07/01/10	WG	UF	CS	—	Rad	EPA:901.1	Sodium-22	<	-0.644	4.67E-01	4.60E+00	—	pCi/L	U	U	10-3544	CAMO-10-22890	GELC

Table C-2 MDA C Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Symbol	Result	1-sigma TPU	MDA	MDL	Unit	Lab Qual	2nd Qual	Request	Sample	Lab
R-46	1340	05/07/10	WG	UF	CS	—	Rad	EPA:901.1	Sodium-22	<	-0.931	4.67E-01	4.30E+00	—	pCi/L	U	U	10-3097	CAMO-10-16830	GELC
R-46	1340	02/05/10	WG	UF	CS	—	Rad	EPA:901.1	Sodium-22	<	-1.22	6.00E-01	5.60E+00	—	pCi/L	U	U	10-1655	CAMO-10-9358	GELC
R-46	1340	11/13/09	WG	UF	CS	—	Rad	EPA:901.1	Sodium-22	<	-0.123	4.67E-01	4.40E+00	—	pCi/L	U	U	10-507	CAMO-10-3236	GELC
R-46	1340	11/08/11	WG	UF	CS	—	Rad	EPA:905.0	Strontium-90	<	0.365	5.00E-02	4.80E-01	—	pCi/L	U	U	12-296	CAMO-12-1530	GELC
R-46	1340	07/01/10	WG	UF	CS	—	Rad	EPA:905.0	Strontium-90	<	-0.104	4.00E-02	4.90E-01	—	pCi/L	U	U	10-3544	CAMO-10-22890	GELC
R-46	1340	05/07/10	WG	UF	CS	—	Rad	EPA:905.0	Strontium-90	<	-0.00173	4.33E-02	4.80E-01	—	pCi/L	U	U	10-3097	CAMO-10-16830	GELC
R-46	1340	02/05/10	WG	UF	CS	—	Rad	EPA:905.0	Strontium-90	<	0.218	4.33E-02	4.20E-01	—	pCi/L	U	U	10-1655	CAMO-10-9358	GELC
R-46	1340	11/13/09	WG	UF	CS	—	Rad	EPA:905.0	Strontium-90	<	0.103	4.33E-02	4.40E-01	—	pCi/L	U	U	10-507	CAMO-10-3236	GELC
R-46	1340	11/08/11	WG	UF	CS	—	Rad	LLEE	Tritium	<	0.76	2.23E-01	2.18E+00	—	pCi/L	U	U	12-300	CAMO-12-1530	ARSL
R-46	1340	08/03/11	WG	UF	CS	—	Rad	LLEE	Tritium	<	-2.26703	2.45E-01	2.30E+00	—	pCi/L	U	U	11-3040	CAMO-11-24656	ARSL
R-46	1340	05/17/11	WG	UF	CS	—	Rad	LLEE	Tritium	<	0.57474	2.24E-01	2.27E+00	—	pCi/L	U	U	11-2435	CAMO-11-10733	ARSL
R-46	1340	11/12/10	WG	UF	CS	—	Rad	LLEE	Tritium	<	24.42645	1.27E+00	2.43E+00	—	pCi/L	—	R	11-564	CAMO-11-1285	ARSL
R-46	1340	11/12/10	WG	UF	RE	—	Rad	LLEE	Tritium	<	-0.22351	2.34E-01	2.43E+00	—	pCi/L	U	U	11-564	CAMO-11-1285	ARSL
R-46	1340	05/07/10	WG	UF	CS	—	Rad	LLEE	Tritium	—	36.75143	3.91E+00	6.10E+00	—	pCi/L	—	—	10-3120	CAMO-10-16830	ARSL
R-46	1340	11/08/11	WG	UF	CS	—	Rad	HASL-300	Uranium-234	—	0.323	1.53E-02	1.10E-01	—	pCi/L	—	J+	12-296	CAMO-12-1530	GELC
R-46	1340	07/01/10	WG	UF	CS	—	Rad	HASL-300	Uranium-234	—	0.364	1.33E-02	6.20E-02	—	pCi/L	—	—	10-3544	CAMO-10-22890	GELC
R-46	1340	05/07/10	WG	UF	CS	—	Rad	HASL-300	Uranium-234	—	0.32	1.23E-02	4.30E-02	—	pCi/L	—	—	10-3097	CAMO-10-16830	GELC
R-46	1340	02/05/10	WG	UF	CS	—	Rad	HASL-300	Uranium-234	—	0.304	1.00E-02	4.60E-02	—	pCi/L	—	—	10-1655	CAMO-10-9358	GELC
R-46	1340	11/13/09	WG	UF	CS	—	Rad	HASL-300	Uranium-234	—	0.29	1.03E-02	6.30E-02	—	pCi/L	—	—	10-507	CAMO-10-3236	GELC
R-46	1340	11/08/11	WG	UF	CS	—	Rad	HASL-300	Uranium-235/236	<	0.0108	2.57E-03	5.80E-02	—	pCi/L	U	U	12-296	CAMO-12-1530	GELC
R-46	1340	07/01/10	WG	UF	CS	—	Rad	HASL-300	Uranium-235/236	<	0.00602	2.83E-03	3.80E-02	—	pCi/L	U	U	10-3544	CAMO-10-22890	GELC
R-46	1340	05/07/10	WG	UF	CS	—	Rad	HASL-300	Uranium-235/236	<	0.0162	2.43E-03	3.90E-02	—	pCi/L	U	U	10-3097	CAMO-10-16830	GELC
R-46	1340	02/05/10	WG	UF	CS	—	Rad	HASL-300	Uranium-235/236	<	0.0182	2.07E-03	2.60E-02	—	pCi/L	U	U	10-1655	CAMO-10-9358	GELC
R-46	1340	11/13/09	WG	UF	CS	—	Rad	HASL-300	Uranium-235/236	<	0.013	2.07E-03	3.20E-02	—	pCi/L	U	U	10-507	CAMO-10-3236	GELC
R-46	1340	11/08/11	WG	UF	CS	—	Rad	HASL-300	Uranium-238	—	0.157	9.67E-03	4.90E-02	—	pCi/L	—	J+	12-296	CAMO-12-1530	GELC
R-46	1340	07/01/10	WG	UF	CS	—	Rad	HASL-300	Uranium-238	—	0.146	7.33E-03	4.30E-02	—	pCi/L	—	—	10-3544	CAMO-10-22890	GELC
R-46	1340	05/07/10	WG	UF	CS	—	Rad	HASL-300	Uranium-238	—	0.165	8.00E-03	3.90E-02	—	pCi/L	—	—	10-3097	CAMO-10-16830	GELC
R-46	1340	02/05/10	WG	UF	CS	—	Rad	HASL-300	Uranium-238	—	0.155	6.33E-03	3.00E-02	—	pCi/L	—	—	10-1655	CAMO-10-9358	GELC
R-46	1340	11/13/09	WG	UF	CS	—	Rad	HASL-300	Uranium-238	—	0.135	6.33E-03	3.90E-02	—	pCi/L	—	—	10-507	CAMO-10-3236	GELC
R-46	1340	11/08/11	WG	UF	CS	—	SVOA	SW-846:8270C	Bis(2-ethylhexyl)phthalate	—	7.48	—	—	3.20E+00	µg/L	J	J	12-296	CAMO-12-1530	GELC
R-46	1340	07/01/10	WG	UF	CS	—	SVOA	SW-846:8270C	Bis(2-ethylhexyl)phthalate	—	13.6	—	—	2.10E+00	µg/L	—	—	10-3543	CAMO-10-22890	GELC
R-46	1340	02/05/10	WG	UF	CS	—	SVOA	SW-846:8270C	Bis(2-ethylhexyl)phthalate	—	35.4	—	—	2.10E+00	µg/L	—	—	10-1654	CAMO-10-9358	GELC
R-46	1340	11/13/09	WG	UF	CS	—	SVOA	SW-846:8270C	Bis(2-ethylhexyl)phthalate	—	32.8	—	—	2.40E+00	µg/L	—	—	10-506	CAMO-10-3236	GELC
R-46	1340	08/10/09	WG	UF	CS	—	SVOA	SW-846:8270C	Bis(2-ethylhexyl)phthalate	—	26	—	—	2.10E+00	µg/L	—	—	09-2829	CAMO-09-10260	GELC
R-60	1330	11/22/11	WG	F	CS	—	Geninorg	EPA:310.1	Alkalinity-CO3+HCO3	—	62	—	—	7.30E-01	mg/L	—	—	12-418	CAMO-12-1524	GELC
R-60	1330	07/26/11	WG	F	CS	—	Geninorg	EPA:310.1	Alkalinity-CO3+HCO3	—	63.8	—	—	7.30E-01	mg/L	—	—	11-2941	CAPA-11-23018	GELC
R-60	1330	04/27/11	WG	F	CS	—	Geninorg	EPA:310.1	Alkalinity-CO3+HCO3	—	61.6	—	—	7.30E-01	mg/L	—	—	11-2219	CAPA-11-9589	GELC
R-60	1330	01/24/11	WG	F	CS	—	Geninorg	EPA:310.1	Alkalinity-CO3+HCO3	—	63.9	—	—	7.30E-01	mg/L	—	—	11-1194	CAPA-11-3054	GELC
R-60	1330	12/16/10	WG	F	CS	—	Geninorg	EPA:310.1	Alkalinity-CO3+HCO3	—	62.9	—	—	7.30E-01	mg/L	—	—	11-968	CAPA-11-2811	GELC
R-60	1330	11/22/11	WG	F	CS	—	Geninorg	SW-846:6010B	Calcium	—	12.7	—	—	5.00E-02	mg/L	—	—	12-418	CAMO-12-1524	GELC
R-60	1330	07/26/11	WG	F	CS	—	Geninorg	SW-846:6010B	Calcium	—	12.5	—	—	5.00E-02	mg/L	—	—	11-2941	CAPA-11-23018	GELC
R-60	1330	04/27/11	WG	F	CS	—	Geninorg	SW-846:6010B	Calcium	—	12.9	—	—	5.00E-02	mg/L	—	—	11-2219	CAPA-11-9589	GELC
R-60	1330	01/24/11	WG	F	CS	—	Geninorg	SW-846:6010B	Calcium	—	10.7	—	—	5.00E-02	mg/L	—	—	11-1194	CAPA-11-3054	GELC
R-60	1330	12/16/10	WG	F	CS	—	Geninorg	SW-846:6010B	Calcium	—	10.8	—	—	5.00E-02	mg/L	E	—	11-968	CAPA-11-2811	GELC
R-60	1330	11/22/11	WG	UF	CS	—	Geninorg	SW-846:6010B	Calcium	—	12.6	—	—	5.00E-02	mg/L	—	—	12-418	CAMO-12-1522	GELC
R-60	1330	07/26/11	WG	UF	CS	—	Geninorg	SW-846:6010B	Calcium	—	12.2	—	—	5.00E-02	mg/L	—	—	11-2941	CAPA-11-23020	GELC
R-60	1330	04/27/11	WG	UF	CS	—	Geninorg	SW-846:6010B	Calcium	—	12.6	—	—	5.00E-02	mg/L	—	—	11-2219	CAPA-11-9591	GELC
R-60	1330	01/24/11	WG	UF	CS	—	Geninorg	SW-846:6010B	Calcium	—	11.2	—	—	5.00E-02	mg/L	—	—	11-1194	CAPA-11-3055	GELC
R-60	1330	12/16/10	WG	UF	CS	—	Geninorg	SW-846:6010B	Calcium	—	10.9	—	—	5.00E-02	mg/L	E	—	11-968	CAPA-11-2810	GELC
R-60	1330	11/22/11	WG	F	CS	—	Geninorg	EPA:300.0	Chloride	—	1.89	—	—	6.60E-02	mg/L	—	—	12-418	CAMO-12-1524	GELC

Table C-2 MDA C Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Symbol	Result	1-sigma TPU	MDA	MDL	Unit	Lab Qual	2nd Qual	Request	Sample	Lab
R-60	1330	07/26/11	WG	F	CS	—	Geninorg	EPA:300.0	Chloride	—	1.9	—	—	6.60E-02	mg/L	—	—	11-2941	CAPA-11-23018	GELC
R-60	1330	04/27/11	WG	F	CS	—	Geninorg	EPA:300.0	Chloride	—	1.99	—	—	6.60E-02	mg/L	—	J+	11-2219	CAPA-11-9589	GELC
R-60	1330	01/24/11	WG	F	CS	—	Geninorg	EPA:300.0	Chloride	—	1.82	—	—	6.60E-02	mg/L	—	—	11-1194	CAPA-11-3054	GELC
R-60	1330	12/16/10	WG	F	CS	—	Geninorg	EPA:300.0	Chloride	—	1.92	—	—	6.60E-02	mg/L	—	—	11-968	CAPA-11-2811	GELC
R-60	1330	11/22/11	WG	F	CS	—	Geninorg	EPA:300.0	Fluoride	—	0.168	—	—	3.30E-02	mg/L	—	—	12-418	CAMO-12-1524	GELC
R-60	1330	07/26/11	WG	F	CS	—	Geninorg	EPA:300.0	Fluoride	—	0.174	—	—	3.30E-02	mg/L	—	—	11-2941	CAPA-11-23018	GELC
R-60	1330	04/27/11	WG	F	CS	—	Geninorg	EPA:300.0	Fluoride	—	0.248	—	—	3.30E-02	mg/L	—	—	11-2219	CAPA-11-9589	GELC
R-60	1330	01/24/11	WG	F	CS	—	Geninorg	EPA:300.0	Fluoride	—	0.151	—	—	3.30E-02	mg/L	—	—	11-1194	CAPA-11-3054	GELC
R-60	1330	12/16/10	WG	F	CS	—	Geninorg	EPA:300.0	Fluoride	—	0.163	—	—	3.30E-02	mg/L	—	—	11-968	CAPA-11-2811	GELC
R-60	1330	11/22/11	WG	F	CS	—	Geninorg	SM:A2340B	Hardness	—	46.9	—	—	4.50E-01	mg/L	—	—	12-418	CAMO-12-1524	GELC
R-60	1330	07/26/11	WG	F	CS	—	Geninorg	SM:A2340B	Hardness	—	47	—	—	4.50E-01	mg/L	—	—	11-2941	CAPA-11-23018	GELC
R-60	1330	04/27/11	WG	F	CS	—	Geninorg	SM:A2340B	Hardness	—	48	—	—	4.50E-01	mg/L	—	—	11-2219	CAPA-11-9589	GELC
R-60	1330	01/24/11	WG	F	CS	—	Geninorg	SM:A2340B	Hardness	—	41.3	—	—	4.50E-01	mg/L	—	—	11-1194	CAPA-11-3054	GELC
R-60	1330	12/16/10	WG	F	CS	—	Geninorg	SM:A2340B	Hardness	—	42.3	—	—	3.50E-01	mg/L	—	—	11-968	CAPA-11-2811	GELC
R-60	1330	11/22/11	WG	UF	CS	—	Geninorg	SM:A2340B	Hardness	—	46.5	—	—	4.50E-01	mg/L	—	—	12-418	CAMO-12-1522	GELC
R-60	1330	07/26/11	WG	UF	CS	—	Geninorg	SM:A2340B	Hardness	—	46	—	—	4.50E-01	mg/L	—	—	11-2941	CAPA-11-23020	GELC
R-60	1330	04/27/11	WG	UF	CS	—	Geninorg	SM:A2340B	Hardness	—	46.7	—	—	4.50E-01	mg/L	—	—	11-2219	CAPA-11-9591	GELC
R-60	1330	01/24/11	WG	UF	CS	—	Geninorg	SM:A2340B	Hardness	—	43.3	—	—	4.50E-01	mg/L	—	—	11-1194	CAPA-11-3055	GELC
R-60	1330	12/16/10	WG	UF	CS	—	Geninorg	SM:A2340B	Hardness	—	42.6	—	—	3.50E-01	mg/L	—	—	11-968	CAPA-11-2810	GELC
R-60	1330	11/22/11	WG	F	CS	—	Geninorg	SW-846:6010B	Magnesium	—	3.69	—	—	1.10E-01	mg/L	—	—	12-418	CAMO-12-1524	GELC
R-60	1330	07/26/11	WG	F	CS	—	Geninorg	SW-846:6010B	Magnesium	—	3.83	—	—	1.10E-01	mg/L	—	—	11-2941	CAPA-11-23018	GELC
R-60	1330	04/27/11	WG	F	CS	—	Geninorg	SW-846:6010B	Magnesium	—	3.82	—	—	1.10E-01	mg/L	—	—	11-2219	CAPA-11-9589	GELC
R-60	1330	01/24/11	WG	F	CS	—	Geninorg	SW-846:6010B	Magnesium	—	3.53	—	—	1.10E-01	mg/L	—	—	11-1194	CAPA-11-3054	GELC
R-60	1330	12/16/10	WG	F	CS	—	Geninorg	SW-846:6010B	Magnesium	—	3.72	—	—	8.50E-02	mg/L	—	—	11-968	CAPA-11-2811	GELC
R-60	1330	11/22/11	WG	UF	CS	—	Geninorg	SW-846:6010B	Magnesium	—	3.67	—	—	1.10E-01	mg/L	—	—	12-418	CAMO-12-1522	GELC
R-60	1330	07/26/11	WG	UF	CS	—	Geninorg	SW-846:6010B	Magnesium	—	3.76	—	—	1.10E-01	mg/L	—	—	11-2941	CAPA-11-23020	GELC
R-60	1330	04/27/11	WG	UF	CS	—	Geninorg	SW-846:6010B	Magnesium	—	3.74	—	—	1.10E-01	mg/L	—	—	11-2219	CAPA-11-9591	GELC
R-60	1330	01/24/11	WG	UF	CS	—	Geninorg	SW-846:6010B	Magnesium	—	3.71	—	—	1.10E-01	mg/L	—	—	11-1194	CAPA-11-3055	GELC
R-60	1330	12/16/10	WG	UF	CS	—	Geninorg	SW-846:6010B	Magnesium	—	3.74	—	—	8.50E-02	mg/L	—	—	11-968	CAPA-11-2810	GELC
R-60	1330	11/22/11	WG	F	CS	—	Geninorg	EPA:353.2	Nitrate-Nitrite as Nitrogen	—	0.382	—	—	5.00E-02	mg/L	—	—	12-418	CAMO-12-1524	GELC
R-60	1330	07/26/11	WG	F	CS	—	Geninorg	EPA:353.2	Nitrate-Nitrite as Nitrogen	—	0.39	—	—	5.00E-02	mg/L	—	—	11-2941	CAPA-11-23018	GELC
R-60	1330	04/27/11	WG	F	CS	—	Geninorg	EPA:353.2	Nitrate-Nitrite as Nitrogen	—	0.276	—	—	1.00E-01	mg/L	J	J	11-2219	CAPA-11-9589	GELC
R-60	1330	01/24/11	WG	F	CS	—	Geninorg	EPA:353.2	Nitrate-Nitrite as Nitrogen	—	0.271	—	—	5.00E-02	mg/L	—	J-	11-1194	CAPA-11-3054	GELC
R-60	1330	12/16/10	WG	F	CS	—	Geninorg	EPA:353.2	Nitrate-Nitrite as Nitrogen	—	0.323	—	—	5.00E-02	mg/L	—	—	11-968	CAPA-11-2811	GELC
R-60	1330	11/22/11	WG	F	CS	—	Geninorg	SW-846:6850	Perchlorate	—	0.326	—	—	5.00E-02	µg/L	—	—	12-418	CAMO-12-1524	GELC
R-60	1330	07/26/11	WG	F	CS	—	Geninorg	SW-846:6850	Perchlorate	—	0.367	—	—	5.00E-02	µg/L	—	—	11-2941	CAPA-11-23018	GELC
R-60	1330	04/27/11	WG	F	CS	—	Geninorg	SW-846:6850	Perchlorate	—	0.277	—	—	5.00E-02	µg/L	—	J+	11-2219	CAPA-11-9589	GELC
R-60	1330	01/24/11	WG	F	CS	—	Geninorg	SW-846:6850	Perchlorate	—	0.28	—	—	5.00E-02	µg/L	—	—	11-1194	CAPA-11-3054	GELC
R-60	1330	12/16/10	WG	F	CS	—	Geninorg	SW-846:6850	Perchlorate	—	0.309	—	—	5.00E-02	µg/L	—	—	11-968	CAPA-11-2811	GELC
R-60	1330	11/22/11	WG	F	CS	—	Geninorg	SW-846:6010B	Potassium	—	1.87	—	—	5.00E-02	mg/L	—	—	12-418	CAMO-12-1524	GELC
R-60	1330	07/26/11	WG	F	CS	—	Geninorg	SW-846:6010B	Potassium	—	2.01	—	—	5.00E-02	mg/L	—	—	11-2941	CAPA-11-23018	GELC
R-60	1330	04/27/11	WG	F	CS	—	Geninorg	SW-846:6010B	Potassium	—	2.1	—	—	5.00E-02	mg/L	—	J	11-2219	CAPA-11-9589	GELC
R-60	1330	01/24/11	WG	F	CS	—	Geninorg	SW-846:6010B	Potassium	—	1.94	—	—	5.00E-02	mg/L	—	—	11-1194	CAPA-11-3054	GELC
R-60	1330	12/16/10	WG	F	CS	—	Geninorg	SW-846:6010B	Potassium	—	1.87	—	—	5.00E-02	mg/L	—	—	11-968	CAPA-11-2811	GELC
R-60	1330	11/22/11	WG	UF	CS	—	Geninorg	SW-846:6010B	Potassium	—	1.75	—	—	5.00E-02	mg/L	—	—	12-418	CAMO-12-1522	GELC
R-60	1330	07/26/11	WG	UF	CS	—	Geninorg	SW-846:6010B	Potassium	—	1.94	—	—	5.00E-02	mg/L	—	—	11-2941	CAPA-11-23020	GELC
R-60	1330	04/27/11	WG	UF	CS	—	Geninorg	SW-846:6010B	Potassium	—	2.06	—	—	5.00E-02	mg/L	—	J	11-2219	CAPA-11-9591	GELC
R-60	1330	01/24/11	WG	UF	CS	—	Geninorg	SW-846:6010B	Potassium	—	2.09	—	—	5.00E-02	mg/L	—	—	11-1194	CAPA-11-3055	GELC
R-60	1330	12/16/10	WG	UF	CS	—	Geninorg	SW-846:6010B	Potassium	—	1.85	—	—	5.00E-02	mg/L	—	—	11-968	CAPA-11-2810	GELC
R-60	1330	11/22/11	WG	F	CS	—	Geninorg	SW-846:6010B	Sodium	—	9.82	—	—	1.00E-01	mg/L	—	—	12-418	CAMO-12-1524	GELC

Table C-2 MDA C Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Symbol	Result	1-sigma TPU	MDA	MDL	Unit	Lab Qual	2nd Qual	Request	Sample	Lab
R-60	1330	07/26/11	WG	F	CS	—	Geninorg	SW-846:6010B	Sodium	—	10.9	—	—	1.00E-01	mg/L	—	—	11-2941	CAPA-11-23018	GELC
R-60	1330	04/27/11	WG	F	CS	—	Geninorg	SW-846:6010B	Sodium	—	12.1	—	—	1.00E-01	mg/L	—	—	11-2219	CAPA-11-9589	GELC
R-60	1330	01/24/11	WG	F	CS	—	Geninorg	SW-846:6010B	Sodium	—	11.6	—	—	1.00E-01	mg/L	—	—	11-1194	CAPA-11-3054	GELC
R-60	1330	12/16/10	WG	F	CS	—	Geninorg	SW-846:6010B	Sodium	—	11.2	—	—	1.00E-01	mg/L	E	—	11-968	CAPA-11-2811	GELC
R-60	1330	11/22/11	WG	UF	CS	—	Geninorg	SW-846:6010B	Sodium	—	9.74	—	—	1.00E-01	mg/L	—	—	12-418	CAMO-12-1522	GELC
R-60	1330	07/26/11	WG	UF	CS	—	Geninorg	SW-846:6010B	Sodium	—	11	—	—	1.00E-01	mg/L	—	—	11-2941	CAPA-11-23020	GELC
R-60	1330	04/27/11	WG	UF	CS	—	Geninorg	SW-846:6010B	Sodium	—	11.8	—	—	1.00E-01	mg/L	—	—	11-2219	CAPA-11-9591	GELC
R-60	1330	01/24/11	WG	UF	CS	—	Geninorg	SW-846:6010B	Sodium	—	12.1	—	—	1.00E-01	mg/L	—	—	11-1194	CAPA-11-3055	GELC
R-60	1330	12/16/10	WG	UF	CS	—	Geninorg	SW-846:6010B	Sodium	—	11	—	—	1.00E-01	mg/L	E	—	11-968	CAPA-11-2810	GELC
R-60	1330	11/22/11	WG	F	CS	—	Geninorg	EPA:120.1	Specific Conductance	—	136	—	—	1.00E+00	µS/cm	—	—	12-418	CAMO-12-1524	GELC
R-60	1330	07/26/11	WG	F	CS	—	Geninorg	EPA:120.1	Specific Conductance	—	131	—	—	1.00E+00	µS/cm	—	—	11-2941	CAPA-11-23018	GELC
R-60	1330	04/27/11	WG	F	CS	—	Geninorg	EPA:120.1	Specific Conductance	—	141	—	—	1.00E+00	µS/cm	—	—	11-2219	CAPA-11-9589	GELC
R-60	1330	11/22/11	WG	F	CS	—	Geninorg	EPA:300.0	Sulfate	—	2.31	—	—	1.00E-01	mg/L	—	—	12-418	CAMO-12-1524	GELC
R-60	1330	07/26/11	WG	F	CS	—	Geninorg	EPA:300.0	Sulfate	—	2.33	—	—	1.00E-01	mg/L	—	—	11-2941	CAPA-11-23018	GELC
R-60	1330	04/27/11	WG	F	CS	—	Geninorg	EPA:300.0	Sulfate	—	3.09	—	—	1.00E-01	mg/L	—	J+	11-2219	CAPA-11-9589	GELC
R-60	1330	01/24/11	WG	F	CS	—	Geninorg	EPA:300.0	Sulfate	—	2.53	—	—	1.00E-01	mg/L	—	—	11-1194	CAPA-11-3054	GELC
R-60	1330	12/16/10	WG	F	CS	—	Geninorg	EPA:300.0	Sulfate	—	2.46	—	—	1.00E-01	mg/L	—	—	11-968	CAPA-11-2811	GELC
R-60	1330	11/22/11	WG	F	CS	—	Geninorg	EPA:160.1	Total Dissolved Solids	—	123	—	—	3.40E+00	mg/L	—	—	12-418	CAMO-12-1524	GELC
R-60	1330	07/26/11	WG	F	CS	—	Geninorg	EPA:160.1	Total Dissolved Solids	—	134	—	—	3.40E+00	mg/L	—	J	11-2941	CAPA-11-23018	GELC
R-60	1330	04/27/11	WG	F	CS	—	Geninorg	EPA:160.1	Total Dissolved Solids	—	134	—	—	2.40E+00	mg/L	—	—	11-2219	CAPA-11-9589	GELC
R-60	1330	01/24/11	WG	F	CS	—	Geninorg	EPA:160.1	Total Dissolved Solids	—	142	—	—	2.40E+00	mg/L	—	—	11-1194	CAPA-11-3054	GELC
R-60	1330	12/16/10	WG	F	CS	—	Geninorg	EPA:160.1	Total Dissolved Solids	—	145	—	—	2.40E+00	mg/L	—	—	11-968	CAPA-11-2811	GELC
R-60	1330	11/22/11	WG	UF	CS	—	Geninorg	SW-846:9060	Total Organic Carbon	—	0.433	—	—	3.30E-01	mg/L	J	J	12-418	CAMO-12-1522	GELC
R-60	1330	07/26/11	WG	UF	CS	—	Geninorg	SW-846:9060	Total Organic Carbon	—	0.735	—	—	3.30E-01	mg/L	J	J	11-2940	CAPA-11-23020	GELC
R-60	1330	04/27/11	WG	UF	CS	—	Geninorg	SW-846:9060	Total Organic Carbon	—	2.19	—	—	3.30E-01	mg/L	—	—	11-2219	CAPA-11-9591	GELC
R-60	1330	01/24/11	WG	UF	CS	—	Geninorg	SW-846:9060	Total Organic Carbon	—	0.47	—	—	3.30E-01	mg/L	J	J	11-1194	CAPA-11-3055	GELC
R-60	1330	12/16/10	WG	UF	CS	—	Geninorg	SW-846:9060	Total Organic Carbon	—	4.52	—	—	3.30E-01	mg/L	—	—	11-968	CAPA-11-2810	GELC
R-60	1330	11/22/11	WG	F	CS	—	Geninorg	EPA:365.4	Total Phosphate as Phosphorus	—	0.0481	—	—	1.50E-02	mg/L	J	J	12-418	CAMO-12-1524	GELC
R-60	1330	07/26/11	WG	F	CS	—	Geninorg	EPA:365.4	Total Phosphate as Phosphorus	—	0.124	—	—	1.50E-02	mg/L	—	J	11-2941	CAPA-11-23018	GELC
R-60	1330	04/27/11	WG	F	CS	—	Geninorg	EPA:365.4	Total Phosphate as Phosphorus	<	0.0747	—	—	1.50E-02	mg/L	—	U	11-2219	CAPA-11-9589	GELC
R-60	1330	01/24/11	WG	F	CS	—	Geninorg	EPA:365.4	Total Phosphate as Phosphorus	—	0.028	—	—	1.50E-02	mg/L	J	J	11-1194	CAPA-11-3054	GELC
R-60	1330	12/16/10	WG	F	CS	—	Geninorg	EPA:365.4	Total Phosphate as Phosphorus	—	0.044	—	—	1.50E-02	mg/L	J	J	11-968	CAPA-11-2811	GELC
R-60	1330	11/22/11	WG	F	CS	—	Geninorg	EPA:150.1	pH	—	8.55	—	—	1.00E-02	SU	H	J-	12-418	CAMO-12-1524	GELC
R-60	1330	07/26/11	WG	F	CS	—	Geninorg	EPA:150.1	pH	—	8.1	—	—	1.00E-02	SU	H	J-	11-2941	CAPA-11-23018	GELC
R-60	1330	04/27/11	WG	F	CS	—	Geninorg	EPA:150.1	pH	—	8.01	—	—	1.00E-02	SU	H	J-	11-2219	CAPA-11-9589	GELC
R-60	1330	11/22/11	WG	UF	CS	—	Isotope	Deuterium Ratio	Deuterium Ratio	—	-75.22	—	—	—	permil	—	—	12-416	CAMO-12-1522	EES6
R-60	1330	07/26/11	WG	UF	CS	—	Isotope	Deuterium Ratio	Deuterium Ratio	—	-78.00	—	—	—	permil	—	—	11-2937	CAPA-11-23020	EES6
R-60	1330	04/27/11	WG	UF	CS	—	Isotope	Deuterium Ratio	Deuterium Ratio	—	-78.03	—	—	—	permil	—	—	11-2216	CAPA-11-9591	EES6
R-60	1330	01/24/11	WG	UF	CS	—	Isotope	Deuterium Ratio	Deuterium Ratio	—	-78.66	—	—	—	permil	—	—	11-1190	CAPA-11-3055	EES6
R-60	1330	12/16/10	WG	UF	CS	—	Isotope	Deuterium Ratio	Deuterium Ratio	—	-77.11	—	—	—	permil	—	—	11-964	CAPA-11-2810	EES6
R-60	1330	11/22/11	WG	F	CS	—	Isotope	Nitrogen Ratio	Nitrogen-15/Nitrogen-14 Ratio	—	5.04	—	—	—	permil	—	—	12-416	CAMO-12-1524	EES6
R-60	1330	07/26/11	WG	F	CS	—	Isotope	Nitrogen Ratio	Nitrogen-15/Nitrogen-14 Ratio	—	—	—	—	—	permil	—	—	11-2937	CAPA-11-23018	EES6
R-60	1330	04/27/11	WG	F	CS	—	Isotope	Nitrogen Ratio	Nitrogen-15/Nitrogen-14 Ratio	—	1.30	—	—	—	permil	—	—	11-2216	CAPA-11-9589	EES6
R-60	1330	04/27/11	WG	F	DUP	—	Isotope	Nitrogen Ratio	Nitrogen-15/Nitrogen-14 Ratio	—	1.56	—	—	—	permil	—	—	11-2216	CAPA-11-9589	EES6
R-60	1330	01/24/11	WG	F	CS	—	Isotope	Nitrogen Ratio	Nitrogen-15/Nitrogen-14 Ratio	—	3.65	—	—	—	permil	—	—	11-1190	CAPA-11-3054	EES6
R-60	1330	12/16/10	WG	F	CS	—	Isotope	Nitrogen Ratio	Nitrogen-15/Nitrogen-14 Ratio	—	1.01	—	—	—	permil	—	—	11-964	CAPA-11-2811	EES6
R-60	1330	11/22/11	WG	UF	CS	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio	—	-11.39	—	—	—	permil	—	—	12-416	CAMO-12-1522	EES6
R-60	1330	11/22/11	WG	UF	DUP	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio	—	-11.32	—	—	—	permil	—	—	12-416	CAMO-12-1522	EES6
R-60	1330	07/26/11	WG	UF	CS	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio	—	-11.24	—	—	—	permil	—	—	11-2937	CAPA-11-23020	EES6
R-60	1330	04/27/11	WG	UF	CS	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio	—	-11.39	—	—	—	permil	—	—	11-2216	CAPA-11-9591	EES6

Table C-2 MDA C Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Symbol	Result	1-sigma TPU	MDA	MDL	Unit	Lab Qual	2nd Qual	Request	Sample	Lab
R-60	1330	01/24/11	WG	UF	CS	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio	—	-11.23	—	—	—	permil	—	—	11-1190	CAPA-11-3055	EES6
R-60	1330	12/16/10	WG	UF	CS	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio	—	-11.22	—	—	—	permil	—	—	11-964	CAPA-11-2810	EES6
R-60	1330	11/22/11	WG	F	CS	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio from Nitrate	—	-5.02	—	—	—	permil	—	—	12-416	CAMO-12-1524	EES6
R-60	1330	07/26/11	WG	F	CS	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio from Nitrate	—	—	—	—	—	permil	—	—	11-2937	CAPA-11-23018	EES6
R-60	1330	04/27/11	WG	F	CS	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio from Nitrate	—	-9.19	—	—	—	permil	—	—	11-2216	CAPA-11-9589	EES6
R-60	1330	04/27/11	WG	F	DUP	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio from Nitrate	—	-8.89	—	—	—	permil	—	—	11-2216	CAPA-11-9589	EES6
R-60	1330	01/24/11	WG	F	CS	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio from Nitrate	—	-4.39	—	—	—	permil	—	—	11-1190	CAPA-11-3054	EES6
R-60	1330	12/16/10	WG	F	CS	—	Isotope	Oxygen Ratio	Oxygen-18/Oxygen-16 Ratio from Nitrate	—	-6.87	—	—	—	permil	—	—	11-964	CAPA-11-2811	EES6
R-60	1330	11/22/11	WG	F	CS	—	Metals	SW-846:6010B	Barium	—	28.8	—	—	1.00E+00	µg/L	—	—	12-418	CAMO-12-1524	GELC
R-60	1330	07/26/11	WG	F	CS	—	Metals	SW-846:6010B	Barium	—	30.2	—	—	1.00E+00	µg/L	—	—	11-2941	CAPA-11-23018	GELC
R-60	1330	04/27/11	WG	F	CS	—	Metals	SW-846:6010B	Barium	—	32.7	—	—	1.00E+00	µg/L	—	—	11-2219	CAPA-11-9589	GELC
R-60	1330	01/24/11	WG	F	CS	—	Metals	SW-846:6010B	Barium	—	28.1	—	—	1.00E+00	µg/L	—	—	11-1194	CAPA-11-3054	GELC
R-60	1330	12/16/10	WG	F	CS	—	Metals	SW-846:6010B	Barium	—	26.3	—	—	1.00E+00	µg/L	—	—	11-968	CAPA-11-2811	GELC
R-60	1330	11/22/11	WG	UF	CS	—	Metals	SW-846:6010B	Barium	—	28.6	—	—	1.00E+00	µg/L	—	—	12-418	CAMO-12-1522	GELC
R-60	1330	07/26/11	WG	UF	CS	—	Metals	SW-846:6010B	Barium	—	29.5	—	—	1.00E+00	µg/L	—	—	11-2941	CAPA-11-23020	GELC
R-60	1330	04/27/11	WG	UF	CS	—	Metals	SW-846:6010B	Barium	—	31.4	—	—	1.00E+00	µg/L	—	—	11-2219	CAPA-11-9591	GELC
R-60	1330	01/24/11	WG	UF	CS	—	Metals	SW-846:6010B	Barium	—	30.1	—	—	1.00E+00	µg/L	—	—	11-1194	CAPA-11-3055	GELC
R-60	1330	12/16/10	WG	UF	CS	—	Metals	SW-846:6010B	Barium	—	29.1	—	—	1.00E+00	µg/L	—	—	11-968	CAPA-11-2810	GELC
R-60	1330	11/22/11	WG	F	CS	—	Metals	SW-846:6020	Chromium	—	5.86	—	—	2.00E+00	µg/L	J	J	12-418	CAMO-12-1524	GELC
R-60	1330	07/26/11	WG	F	CS	—	Metals	SW-846:6020	Chromium	<	8.06	—	—	2.00E+00	µg/L	J	U	11-2941	CAPA-11-23018	GELC
R-60	1330	04/27/11	WG	F	CS	—	Metals	SW-846:6020	Chromium	—	2.32	—	—	2.00E+00	µg/L	J	J	11-2219	CAPA-11-9589	GELC
R-60	1330	01/24/11	WG	F	CS	—	Metals	SW-846:6020	Chromium	—	4.09	—	—	2.00E+00	µg/L	J	J	11-1194	CAPA-11-3054	GELC
R-60	1330	12/16/10	WG	F	CS	—	Metals	SW-846:6020	Chromium	—	3.9	—	—	2.50E+00	µg/L	J	J	11-968	CAPA-11-2811	GELC
R-60	1330	11/22/11	WG	UF	CS	—	Metals	SW-846:6020	Chromium	—	6.58	—	—	2.00E+00	µg/L	J	J	12-418	CAMO-12-1522	GELC
R-60	1330	07/26/11	WG	UF	CS	—	Metals	SW-846:6020	Chromium	<	8.06	—	—	2.00E+00	µg/L	J	U	11-2941	CAPA-11-23020	GELC
R-60	1330	04/27/11	WG	UF	CS	—	Metals	SW-846:6020	Chromium	—	3.08	—	—	2.00E+00	µg/L	J	J	11-2219	CAPA-11-9591	GELC
R-60	1330	01/24/11	WG	UF	CS	—	Metals	SW-846:6020	Chromium	—	6.52	—	—	2.00E+00	µg/L	J	J	11-1194	CAPA-11-3055	GELC
R-60	1330	12/16/10	WG	UF	CS	—	Metals	SW-846:6020	Chromium	—	7.91	—	—	2.50E+00	µg/L	J	J	11-968	CAPA-11-2810	GELC
R-60	1330	07/26/11	WG	F	CS	—	Metals	SW-846:6010B	Iron	<	100	—	—	3.00E+01	µg/L	U	U	11-2941	CAPA-11-23018	GELC
R-60	1330	04/27/11	WG	F	CS	—	Metals	SW-846:6010B	Iron	—	91.5	—	—	3.00E+01	µg/L	J	J	11-2219	CAPA-11-9589	GELC
R-60	1330	01/24/11	WG	F	CS	—	Metals	SW-846:6010B	Iron	—	46.1	—	—	3.00E+01	µg/L	J	J	11-1194	CAPA-11-3054	GELC
R-60	1330	12/16/10	WG	F	CS	—	Metals	SW-846:6010B	Iron	—	75	—	—	3.00E+01	µg/L	J	J	11-968	CAPA-11-2811	GELC
R-60	1330	11/22/11	WG	UF	CS	—	Metals	SW-846:6010B	Iron	—	37.4	—	—	3.00E+01	µg/L	J	J	12-418	CAMO-12-1522	GELC
R-60	1330	07/26/11	WG	UF	CS	—	Metals	SW-846:6010B	Iron	—	63.3	—	—	3.00E+01	µg/L	J	J	11-2941	CAPA-11-23020	GELC
R-60	1330	04/27/11	WG	UF	CS	—	Metals	SW-846:6010B	Iron	—	111	—	—	3.00E+01	µg/L	—	—	11-2219	CAPA-11-9591	GELC
R-60	1330	01/24/11	WG	UF	CS	—	Metals	SW-846:6010B	Iron	—	201	—	—	3.00E+01	µg/L	—	—	11-1194	CAPA-11-3055	GELC
R-60	1330	12/16/10	WG	UF	CS	—	Metals	SW-846:6010B	Iron	—	472	—	—	3.00E+01	µg/L	—	—	11-968	CAPA-11-2810	GELC
R-60	1330	11/22/11	WG	F	CS	—	Metals	SW-846:6020	Molybdenum	—	1.19	—	—	1.70E-01	µg/L	—	—	12-418	CAMO-12-1524	GELC
R-60	1330	07/26/11	WG	F	CS	—	Metals	SW-846:6020	Molybdenum	—	1.91	—	—	1.70E-01	µg/L	—	—	11-2941	CAPA-11-23018	GELC
R-60	1330	04/27/11	WG	F	CS	—	Metals	SW-846:6020	Molybdenum	—	2.82	—	—	1.70E-01	µg/L	—	—	11-2219	CAPA-11-9589	GELC
R-60	1330	01/24/11	WG	F	CS	—	Metals	SW-846:6020	Molybdenum	—	3.21	—	—	1.70E-01	µg/L	—	—	11-1194	CAPA-11-3054	GELC
R-60	1330	12/16/10	WG	F	CS	—	Metals	SW-846:6020	Molybdenum	—	2.69	—	—	1.00E-01	µg/L	—	—	11-968	CAPA-11-2811	GELC
R-60	1330	11/22/11	WG	UF	CS	—	Metals	SW-846:6020	Molybdenum	—	1.18	—	—	1.70E-01	µg/L	—	—	12-418	CAMO-12-1522	GELC
R-60	1330	07/26/11	WG	UF	CS	—	Metals	SW-846:6020	Molybdenum	—	1.87	—	—	1.70E-01	µg/L	—	—	11-2941	CAPA-11-23020	GELC
R-60	1330	04/27/11	WG	UF	CS	—	Metals	SW-846:6020	Molybdenum	—	2.76	—	—	1.70E-01	µg/L	—	—	11-2219	CAPA-11-9591	GELC
R-60	1330	01/24/11	WG	UF	CS	—	Metals	SW-846:6020	Molybdenum	—	3.79	—	—	1.70E-01	µg/L	—	—	11-1194	CAPA-11-3055	GELC
R-60	1330	12/16/10	WG	UF	CS	—	Metals	SW-846:6020	Molybdenum	—	2.77	—	—	1.00E-01	µg/L	—	—	11-968	CAPA-11-2810	GELC
R-60	1330	11/22/11	WG	F	CS	—	Metals	SW-846:6020	Nickel	—	1.25	—	—	5.00E-01	µg/L	J	J	12-418	CAMO-12-1524	GELC
R-60	1330	07/26/11	WG	F	CS	—	Metals	SW-846:6020	Nickel	—	3.17	—	—	5.00E-01	µg/L	—	—	11-2941	CAPA-11-23018	GELC
R-60	1330	04/27/11	WG	F	CS	—	Metals	SW-846:6020	Nickel	—	2.27	—	—	5.00E-01	µg/L	—	—	11-2219	CAPA-11-9589	GELC

Table C-2 MDA C Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Symbol	Result	1-sigma TPU	MDA	MDL	Unit	Lab Qual	2nd Qual	Request	Sample	Lab
R-60	1330	01/24/11	WG	F	CS	—	Metals	SW-846:6020	Nickel	<	3.16	—	—	5.00E-01	µg/L	—	U	11-1194	CAPA-11-3054	GELC
R-60	1330	12/16/10	WG	F	CS	—	Metals	SW-846:6020	Nickel	—	1.56	—	—	5.00E-01	µg/L	J	J	11-968	CAPA-11-2811	GELC
R-60	1330	11/22/11	WG	UF	CS	—	Metals	SW-846:6020	Nickel	—	1.65	—	—	5.00E-01	µg/L	J	J	12-418	CAMO-12-1522	GELC
R-60	1330	07/26/11	WG	UF	CS	—	Metals	SW-846:6020	Nickel	—	3.14	—	—	5.00E-01	µg/L	—	—	11-2941	CAPA-11-23020	GELC
R-60	1330	04/27/11	WG	UF	CS	—	Metals	SW-846:6020	Nickel	—	2.7	—	—	5.00E-01	µg/L	—	—	11-2219	CAPA-11-9591	GELC
R-60	1330	01/24/11	WG	UF	CS	—	Metals	SW-846:6020	Nickel	<	4.1	—	—	5.00E-01	µg/L	—	U	11-1194	CAPA-11-3055	GELC
R-60	1330	12/16/10	WG	UF	CS	—	Metals	SW-846:6020	Nickel	—	3.59	—	—	5.00E-01	µg/L	—	—	11-968	CAPA-11-2810	GELC
R-60	1330	11/22/11	WG	F	CS	—	Metals	SW-846:6010B	Silicon Dioxide	—	70.5	—	—	5.30E-02	mg/L	—	—	12-418	CAMO-12-1524	GELC
R-60	1330	07/26/11	WG	F	CS	—	Metals	SW-846:6010B	Silicon Dioxide	—	76.3	—	—	5.30E-02	mg/L	—	—	11-2941	CAPA-11-23018	GELC
R-60	1330	04/27/11	WG	F	CS	—	Metals	SW-846:6010B	Silicon Dioxide	—	71.1	—	—	5.30E-02	mg/L	—	—	11-2219	CAPA-11-9589	GELC
R-60	1330	01/24/11	WG	F	CS	—	Metals	SW-846:6010B	Silicon Dioxide	—	72.9	—	—	5.30E-02	mg/L	—	—	11-1194	CAPA-11-3054	GELC
R-60	1330	12/16/10	WG	F	CS	—	Metals	SW-846:6010B	Silicon Dioxide	—	69	—	—	5.30E-02	mg/L	E	—	11-968	CAPA-11-2811	GELC
R-60	1330	11/22/11	WG	F	CS	—	Metals	SW-846:6010B	Strontium	—	56.4	—	—	1.00E+00	µg/L	—	—	12-418	CAMO-12-1524	GELC
R-60	1330	07/26/11	WG	F	CS	—	Metals	SW-846:6010B	Strontium	—	56.9	—	—	1.00E+00	µg/L	—	—	11-2941	CAPA-11-23018	GELC
R-60	1330	04/27/11	WG	F	CS	—	Metals	SW-846:6010B	Strontium	—	58.3	—	—	1.00E+00	µg/L	—	—	11-2219	CAPA-11-9589	GELC
R-60	1330	01/24/11	WG	F	CS	—	Metals	SW-846:6010B	Strontium	—	50.9	—	—	1.00E+00	µg/L	—	—	11-1194	CAPA-11-3054	GELC
R-60	1330	12/16/10	WG	F	CS	—	Metals	SW-846:6010B	Strontium	—	52	—	—	1.00E+00	µg/L	E	—	11-968	CAPA-11-2811	GELC
R-60	1330	11/22/11	WG	UF	CS	—	Metals	SW-846:6010B	Strontium	—	56.4	—	—	1.00E+00	µg/L	—	—	12-418	CAMO-12-1522	GELC
R-60	1330	07/26/11	WG	UF	CS	—	Metals	SW-846:6010B	Strontium	—	55.4	—	—	1.00E+00	µg/L	—	—	11-2941	CAPA-11-23020	GELC
R-60	1330	04/27/11	WG	UF	CS	—	Metals	SW-846:6010B	Strontium	—	56.9	—	—	1.00E+00	µg/L	—	—	11-2219	CAPA-11-9591	GELC
R-60	1330	01/24/11	WG	UF	CS	—	Metals	SW-846:6010B	Strontium	—	53.6	—	—	1.00E+00	µg/L	—	—	11-1194	CAPA-11-3055	GELC
R-60	1330	12/16/10	WG	UF	CS	—	Metals	SW-846:6010B	Strontium	—	52.7	—	—	1.00E+00	µg/L	E	—	11-968	CAPA-11-2810	GELC
R-60	1330	11/22/11	WG	F	CS	—	Metals	SW-846:6020	Uranium	—	0.533	—	—	6.70E-02	µg/L	—	—	12-418	CAMO-12-1524	GELC
R-60	1330	07/26/11	WG	F	CS	—	Metals	SW-846:6020	Uranium	<	0.688	—	—	6.70E-02	µg/L	—	U	11-2941	CAPA-11-23018	GELC
R-60	1330	04/27/11	WG	F	CS	—	Metals	SW-846:6020	Uranium	—	0.724	—	—	6.70E-02	µg/L	—	—	11-2219	CAPA-11-9589	GELC
R-60	1330	01/24/11	WG	F	CS	—	Metals	SW-846:6020	Uranium	—	0.618	—	—	6.70E-02	µg/L	—	—	11-1194	CAPA-11-3054	GELC
R-60	1330	12/16/10	WG	F	CS	—	Metals	SW-846:6020	Uranium	—	0.728	—	—	5.00E-02	µg/L	—	—	11-968	CAPA-11-2811	GELC
R-60	1330	11/22/11	WG	UF	CS	—	Metals	SW-846:6020	Uranium	—	0.633	—	—	6.70E-02	µg/L	—	—	12-418	CAMO-12-1522	GELC
R-60	1330	07/26/11	WG	UF	CS	—	Metals	SW-846:6020	Uranium	<	0.693	—	—	6.70E-02	µg/L	—	U	11-2941	CAPA-11-23020	GELC
R-60	1330	04/27/11	WG	UF	CS	—	Metals	SW-846:6020	Uranium	—	0.739	—	—	6.70E-02	µg/L	—	—	11-2219	CAPA-11-9591	GELC
R-60	1330	01/24/11	WG	UF	CS	—	Metals	SW-846:6020	Uranium	—	0.719	—	—	6.70E-02	µg/L	—	—	11-1194	CAPA-11-3055	GELC
R-60	1330	12/16/10	WG	UF	CS	—	Metals	SW-846:6020	Uranium	—	0.895	—	—	5.00E-02	µg/L	—	—	11-968	CAPA-11-2810	GELC
R-60	1330	11/22/11	WG	F	CS	—	Metals	SW-846:6010B	Vanadium	—	9.24	—	—	1.00E+00	µg/L	—	—	12-418	CAMO-12-1524	GELC
R-60	1330	07/26/11	WG	F	CS	—	Metals	SW-846:6010B	Vanadium	—	9.04	—	—	1.00E+00	µg/L	—	—	11-2941	CAPA-11-23018	GELC
R-60	1330	04/27/11	WG	F	CS	—	Metals	SW-846:6010B	Vanadium	—	7.33	—	—	1.00E+00	µg/L	—	—	11-2219	CAPA-11-9589	GELC
R-60	1330	01/24/11	WG	F	CS	—	Metals	SW-846:6010B	Vanadium	—	6.14	—	—	1.00E+00	µg/L	—	—	11-1194	CAPA-11-3054	GELC
R-60	1330	12/16/10	WG	F	CS	—	Metals	SW-846:6010B	Vanadium	—	5.67	—	—	1.00E+00	µg/L	—	—	11-968	CAPA-11-2811	GELC
R-60	1330	11/22/11	WG	UF	CS	—	Metals	SW-846:6010B	Vanadium	—	7.87	—	—	1.00E+00	µg/L	—	—	12-418	CAMO-12-1522	GELC
R-60	1330	07/26/11	WG	UF	CS	—	Metals	SW-846:6010B	Vanadium	—	8.89	—	—	1.00E+00	µg/L	—	—	11-2941	CAPA-11-23020	GELC
R-60	1330	04/27/11	WG	UF	CS	—	Metals	SW-846:6010B	Vanadium	—	7.35	—	—	1.00E+00	µg/L	—	—	11-2219	CAPA-11-9591	GELC
R-60	1330	01/24/11	WG	UF	CS	—	Metals	SW-846:6010B	Vanadium	—	6.32	—	—	1.00E+00	µg/L	—	—	11-1194	CAPA-11-3055	GELC
R-60	1330	12/16/10	WG	UF	CS	—	Metals	SW-846:6010B	Vanadium	—	5.94	—	—	1.00E+00	µg/L	—	—	11-968	CAPA-11-2810	GELC
R-60	1330	11/22/11	WG	UF	CS	—	Rad	HASL-300	Americium-241	<	-0.00429	1.73E-03	3.90E-02	—	pCi/L	U	U	12-418	CAMO-12-1522	GELC
R-60	1330	07/26/11	WG	UF	CS	—	Rad	HASL-300	Americium-241	<	0.00762	3.33E-03	1.40E-02	—	pCi/L	U	U	11-2941	CAPA-11-23020	GELC
R-60	1330	04/27/11	WG	UF	CS	—	Rad	HASL-300	Americium-241	<	0.00725	1.20E-03	3.70E-02	—	pCi/L	U	U	11-2219	CAPA-11-9591	GELC
R-60	1330	01/24/11	WG	UF	CS	—	Rad	HASL-300	Americium-241	<	0.00204	1.00E-03	2.40E-02	—	pCi/L	U	U	11-1194	CAPA-11-3055	GELC
R-60	1330	12/16/10	WG	UF	CS	—	Rad	HASL-300	Americium-241	<	-0.00227	1.23E-03	3.80E-02	—	pCi/L	U	U	11-968	CAPA-11-2810	GELC
R-60	1330	11/22/11	WG	UF	CS	—	Rad	EPA:901.1	Cesium-137	<	3.08	5.67E-01	6.80E+00	—	pCi/L	U	U	12-418	CAMO-12-1522	GELC
R-60	1330	07/26/11	WG	UF	CS	—	Rad	EPA:901.1	Cesium-137	<	-1.44	4.33E-01	3.80E+00	—	pCi/L	U	U	11-2941	CAPA-11-23020	GELC
R-60	1330	04/27/11	WG	UF	CS	—	Rad	EPA:901.1	Cesium-137	<	2.52	4.00E-01	4.40E+00	—	pCi/L	U	U	11-2219	CAPA-11-9591	GELC

Table C-2 MDA C Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Symbol	Result	1-sigma TPU	MDA	MDL	Unit	Lab Qual	2nd Qual	Request	Sample	Lab
R-60	1330	01/24/11	WG	UF	CS	—	Rad	EPA:901.1	Cesium-137	<	-1.54	5.33E-01	5.00E+00	—	pCi/L	U	U	11-1194	CAPA-11-3055	GELC
R-60	1330	12/16/10	WG	UF	CS	—	Rad	EPA:901.1	Cesium-137	<	2.06	6.33E-01	6.60E+00	—	pCi/L	U	U	11-968	CAPA-11-2810	GELC
R-60	1330	11/22/11	WG	UF	CS	—	Rad	EPA:901.1	Cobalt-60	<	-1.77	6.33E-01	6.60E+00	—	pCi/L	U	U	12-418	CAMO-12-1522	GELC
R-60	1330	07/26/11	WG	UF	CS	—	Rad	EPA:901.1	Cobalt-60	<	-1.34	5.33E-01	4.80E+00	—	pCi/L	U	U	11-2941	CAPA-11-23020	GELC
R-60	1330	04/27/11	WG	UF	CS	—	Rad	EPA:901.1	Cobalt-60	<	0.465	3.33E-01	3.70E+00	—	pCi/L	U	U	11-2219	CAPA-11-9591	GELC
R-60	1330	01/24/11	WG	UF	CS	—	Rad	EPA:901.1	Cobalt-60	<	-0.232	3.67E-01	3.60E+00	—	pCi/L	U	U	11-1194	CAPA-11-3055	GELC
R-60	1330	12/16/10	WG	UF	CS	—	Rad	EPA:901.1	Cobalt-60	<	-1.29	5.67E-01	5.20E+00	—	pCi/L	U	U	11-968	CAPA-11-2810	GELC
R-60	1330	11/22/11	WG	UF	CS	—	Rad	EPA:900	Gross alpha	—	3.61	3.67E-01	2.40E+00	—	pCi/L	—	—	12-418	CAMO-12-1522	GELC
R-60	1330	07/26/11	WG	UF	CS	—	Rad	EPA:900	Gross alpha	<	0.263	1.70E-01	2.20E+00	—	pCi/L	U	U	11-2941	CAPA-11-23020	GELC
R-60	1330	04/27/11	WG	UF	CS	—	Rad	EPA:900	Gross alpha	<	0.796	2.63E-01	2.90E+00	—	pCi/L	U	U	11-2219	CAPA-11-9591	GELC
R-60	1330	01/24/11	WG	UF	CS	—	Rad	EPA:900	Gross alpha	<	1.97	3.30E-01	2.70E+00	—	pCi/L	U	U	11-1194	CAPA-11-3055	GELC
R-60	1330	12/16/10	WG	UF	CS	—	Rad	EPA:900	Gross alpha	<	2.34	3.33E-01	2.90E+00	—	pCi/L	U	U	11-968	CAPA-11-2810	GELC
R-60	1330	11/22/11	WG	UF	CS	—	Rad	EPA:900	Gross beta	<	1.77	2.50E-01	2.30E+00	—	pCi/L	U	U	12-418	CAMO-12-1522	GELC
R-60	1330	07/26/11	WG	UF	CS	—	Rad	EPA:900	Gross beta	<	0.76	2.37E-01	2.40E+00	—	pCi/L	U	U	11-2941	CAPA-11-23020	GELC
R-60	1330	04/27/11	WG	UF	CS	—	Rad	EPA:900	Gross beta	—	3.52	3.20E-01	2.80E+00	—	pCi/L	—	—	11-2219	CAPA-11-9591	GELC
R-60	1330	01/24/11	WG	UF	CS	—	Rad	EPA:900	Gross beta	—	4.91	3.67E-01	2.30E+00	—	pCi/L	—	—	11-1194	CAPA-11-3055	GELC
R-60	1330	12/16/10	WG	UF	CS	—	Rad	EPA:900	Gross beta	—	2.81	2.93E-01	2.30E+00	—	pCi/L	—	—	11-968	CAPA-11-2810	GELC
R-60	1330	11/22/11	WG	UF	CS	—	Rad	EPA:901.1	Neptunium-237	<	2.15	1.07E+00	1.20E+01	—	pCi/L	U	U	12-418	CAMO-12-1522	GELC
R-60	1330	07/26/11	WG	UF	CS	—	Rad	EPA:901.1	Neptunium-237	<	5.48	8.33E-01	9.20E+00	—	pCi/L	U	U	11-2941	CAPA-11-23020	GELC
R-60	1330	04/27/11	WG	UF	CS	—	Rad	EPA:901.1	Neptunium-237	<	-1.35	8.33E-01	8.20E+00	—	pCi/L	U	U	11-2219	CAPA-11-9591	GELC
R-60	1330	01/24/11	WG	UF	CS	—	Rad	EPA:901.1	Neptunium-237	<	-2.72	1.10E+00	1.10E+01	—	pCi/L	U	U	11-1194	CAPA-11-3055	GELC
R-60	1330	12/16/10	WG	UF	CS	—	Rad	EPA:901.1	Neptunium-237	<	-1.77	9.33E-01	9.20E+00	—	pCi/L	U	U	11-968	CAPA-11-2810	GELC
R-60	1330	11/22/11	WG	UF	CS	—	Rad	HASL-300	Plutonium-238	<	0.00461	1.10E-03	2.80E-02	—	pCi/L	U	U	12-418	CAMO-12-1522	GELC
R-60	1330	07/26/11	WG	UF	CS	—	Rad	HASL-300	Plutonium-238	<	0	2.23E-03	3.10E-02	—	pCi/L	U	U	11-2941	CAPA-11-23020	GELC
R-60	1330	04/27/11	WG	UF	CS	—	Rad	HASL-300	Plutonium-238	<	-0.00822	1.33E-03	2.60E-02	—	pCi/L	U	U	11-2219	CAPA-11-9591	GELC
R-60	1330	01/24/11	WG	UF	CS	—	Rad	HASL-300	Plutonium-238	<	-0.00243	1.40E-03	2.70E-02	—	pCi/L	U	U	11-1194	CAPA-11-3055	GELC
R-60	1330	12/16/10	WG	UF	CS	—	Rad	HASL-300	Plutonium-238	<	0	8.67E-04	2.90E-02	—	pCi/L	U	U	11-968	CAPA-11-2810	GELC
R-60	1330	11/22/11	WG	UF	CS	—	Rad	HASL-300	Plutonium-239/240	<	0.00461	1.90E-03	2.90E-02	—	pCi/L	U	U	12-418	CAMO-12-1522	GELC
R-60	1330	07/26/11	WG	UF	CS	—	Rad	HASL-300	Plutonium-239/240	<	0.00537	1.33E-03	4.40E-02	—	pCi/L	U	U	11-2941	CAPA-11-23020	GELC
R-60	1330	04/27/11	WG	UF	CS	—	Rad	HASL-300	Plutonium-239/240	<	-0.00164	1.23E-03	4.20E-02	—	pCi/L	U	U	11-2219	CAPA-11-9591	GELC
R-60	1330	01/24/11	WG	UF	CS	—	Rad	HASL-300	Plutonium-239/240	<	0	2.57E-03	4.40E-02	—	pCi/L	U	U	11-1194	CAPA-11-3055	GELC
R-60	1330	12/16/10	WG	UF	CS	—	Rad	HASL-300	Plutonium-239/240	<	0.00255	2.23E-03	5.30E-02	—	pCi/L	U	U	11-968	CAPA-11-2810	GELC
R-60	1330	11/22/11	WG	UF	CS	—	Rad	EPA:901.1	Potassium-40	<	-26.6	6.67E+00	7.40E+01	—	pCi/L	U	U	12-418	CAMO-12-1522	GELC
R-60	1330	07/26/11	WG	UF	CS	—	Rad	EPA:901.1	Potassium-40	<	-29	5.33E+00	4.70E+01	—	pCi/L	U	U	11-2941	CAPA-11-23020	GELC
R-60	1330	04/27/11	WG	UF	CS	—	Rad	EPA:901.1	Potassium-40	<	6.9	6.00E+00	3.80E+01	—	pCi/L	U	U	11-2219	CAPA-11-9591	GELC
R-60	1330	01/24/11	WG	UF	CS	—	Rad	EPA:901.1	Potassium-40	<	-31.6	7.00E+00	7.10E+01	—	pCi/L	U	U	11-1194	CAPA-11-3055	GELC
R-60	1330	12/16/10	WG	UF	CS	—	Rad	EPA:901.1	Potassium-40	<	11.4	6.67E+00	6.90E+01	—	pCi/L	U	U	11-968	CAPA-11-2810	GELC
R-60	1330	11/22/11	WG	UF	CS	—	Rad	EPA:903.1	Radium-226	<	0.0605	2.60E-02	2.90E-01	—	pCi/L	U	U	12-418	CAMO-12-1522	GELC
R-60	1330	11/22/11	WG	UF	CS	—	Rad	EPA:904	Radium-228	—	0.764	6.33E-02	4.10E-01	—	pCi/L	—	—	12-418	CAMO-12-1522	GELC
R-60	1330	11/22/11	WG	UF	CS	—	Rad	EPA:901.1	Sodium-22	<	-1.12	5.33E-01	5.70E+00	—	pCi/L	U	U	12-418	CAMO-12-1522	GELC
R-60	1330	07/26/11	WG	UF	CS	—	Rad	EPA:901.1	Sodium-22	<	0.444	3.33E-01	3.50E+00	—	pCi/L	U	U	11-2941	CAPA-11-23020	GELC
R-60	1330	04/27/11	WG	UF	CS	—	Rad	EPA:901.1	Sodium-22	<	2.35	3.33E-01	4.20E+00	—	pCi/L	U	U	11-2219	CAPA-11-9591	GELC
R-60	1330	01/24/11	WG	UF	CS	—	Rad	EPA:901.1	Sodium-22	<	1.61	6.00E-01	6.20E+00	—	pCi/L	U	U	11-1194	CAPA-11-3055	GELC
R-60	1330	12/16/10	WG	UF	CS	—	Rad	EPA:901.1	Sodium-22	<	0.0816	6.33E-01	6.00E+00	—	pCi/L	U	U	11-968	CAPA-11-2810	GELC
R-60	1330	11/22/11	WG	UF	CS	—	Rad	EPA:905.0	Strontium-90	<	0.0155	4.67E-02	4.80E-01	—	pCi/L	U	U	12-418	CAMO-12-1522	GELC
R-60	1330	07/26/11	WG	UF	CS	—	Rad	EPA:905.0	Strontium-90	<	0.323	5.00E-02	4.90E-01	—	pCi/L	U	U	11-2941	CAPA-11-23020	GELC
R-60	1330	04/27/11	WG	UF	CS	—	Rad	EPA:905.0	Strontium-90	<	0.249	5.00E-02	5.00E-01	—	pCi/L	U	U	11-2219	CAPA-11-9591	GELC
R-60	1330	01/24/11	WG	UF	CS	—	Rad	EPA:905.0	Strontium-90	<	0.369	5.33E-02	4.80E-01	—	pCi/L	U	U	11-1194	CAPA-11-3055	GELC
R-60	1330	12/16/10	WG	UF	CS	—	Rad	EPA:905.0	Strontium-90	<	-0.0252	5.00E-02	5.20E-01	—	pCi/L	U	U	11-968	CAPA-11-2810	GELC
R-60	1330	11/22/11	WG	UF	CS	—	Rad	LLEE	Tritium	<	-1.03	2.20E-01	2.26E+00	—	pCi/L	U	U	12-419	CAMO-12-1522	ARSL

Table C-2 MDA C Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Symbol	Result	1-sigma TPU	MDA	MDL	Unit	Lab Qual	2nd Qual	Request	Sample	Lab
R-60	1330	07/26/11	WG	UF	CS	—	Rad	LLEE	Tritium	<	-0.09579	2.45E-01	2.52E+00	—	pCi/L	U	U	11-2942	CAPA-11-23020	ARSL
R-60	1330	04/27/11	WG	UF	CS	—	Rad	LLEE	Tritium	<	0.73439	2.13E-01	2.04E+00	—	pCi/L	U	U	11-2264	CAPA-11-9591	ARSL
R-60	1330	01/24/11	WG	UF	CS	—	Rad	LLEE	Tritium	<	2.58633	2.02E-01	1.47E+00	—	pCi/L	—	R	11-1211	CAPA-11-3055	ARSL
R-60	1330	01/24/11	WG	UF	RE	—	Rad	LLEE	Tritium	<	0.51088	1.49E-01	1.47E+00	—	pCi/L	U	U	11-1211	CAPA-11-3055	ARSL
R-60	1330	12/16/10	WG	UF	CS	—	Rad	LLEE	Tritium	<	9.77058	1.80E+00	7.41E+00	—	pCi/L	—	R	11-999	CAPA-11-2810	ARSL
R-60	1330	12/16/10	WG	UF	RE	—	Rad	LLEE	Tritium	<	1.08562	2.34E-01	2.30E+00	—	pCi/L	U	U	11-999	CAPA-11-2810	ARSL
R-60	1330	11/22/11	WG	UF	CS	—	Rad	HASL-300	Uranium-234	—	0.526	1.63E-02	5.10E-02	—	pCi/L	—	—	12-418	CAMO-12-1522	GELC
R-60	1330	07/26/11	WG	UF	CS	—	Rad	HASL-300	Uranium-234	—	0.505	1.53E-02	3.70E-02	—	pCi/L	—	—	11-2941	CAPA-11-23020	GELC
R-60	1330	04/27/11	WG	UF	CS	—	Rad	HASL-300	Uranium-234	—	0.441	1.77E-02	1.00E-01	—	pCi/L	—	—	11-2219	CAPA-11-9591	GELC
R-60	1330	01/24/11	WG	UF	CS	—	Rad	HASL-300	Uranium-234	—	0.468	1.70E-02	5.50E-02	—	pCi/L	—	—	11-1194	CAPA-11-3055	GELC
R-60	1330	12/16/10	WG	UF	CS	—	Rad	HASL-300	Uranium-234	—	0.555	1.77E-02	5.00E-02	—	pCi/L	—	—	11-968	CAPA-11-2810	GELC
R-60	1330	11/22/11	WG	UF	CS	—	Rad	HASL-300	Uranium-235/236	<	0.012	2.13E-03	2.80E-02	—	pCi/L	U	U	12-418	CAMO-12-1522	GELC
R-60	1330	07/26/11	WG	UF	CS	—	Rad	HASL-300	Uranium-235/236	<	0.0177	2.37E-03	2.30E-02	—	pCi/L	U	U	11-2941	CAPA-11-23020	GELC
R-60	1330	04/27/11	WG	UF	CS	—	Rad	HASL-300	Uranium-235/236	<	0.0337	4.33E-03	7.80E-02	—	pCi/L	U	U	11-2219	CAPA-11-9591	GELC
R-60	1330	01/24/11	WG	UF	CS	—	Rad	HASL-300	Uranium-235/236	<	0.00338	2.53E-03	4.00E-02	—	pCi/L	U	U	11-1194	CAPA-11-3055	GELC
R-60	1330	12/16/10	WG	UF	CS	—	Rad	HASL-300	Uranium-235/236	—	0.0356	3.67E-03	3.30E-02	—	pCi/L	—	—	11-968	CAPA-11-2810	GELC
R-60	1330	11/22/11	WG	UF	CS	—	Rad	HASL-300	Uranium-238	—	0.206	8.33E-03	2.80E-02	—	pCi/L	—	—	12-418	CAMO-12-1522	GELC
R-60	1330	07/26/11	WG	UF	CS	—	Rad	HASL-300	Uranium-238	—	0.209	8.33E-03	2.80E-02	—	pCi/L	—	—	11-2941	CAPA-11-23020	GELC
R-60	1330	04/27/11	WG	UF	CS	—	Rad	HASL-300	Uranium-238	—	0.218	1.10E-02	5.30E-02	—	pCi/L	—	—	11-2219	CAPA-11-9591	GELC
R-60	1330	01/24/11	WG	UF	CS	—	Rad	HASL-300	Uranium-238	—	0.211	9.67E-03	3.90E-02	—	pCi/L	—	—	11-1194	CAPA-11-3055	GELC
R-60	1330	12/16/10	WG	UF	CS	—	Rad	HASL-300	Uranium-238	—	0.3	1.13E-02	3.30E-02	—	pCi/L	—	—	11-968	CAPA-11-2810	GELC

Appendix D

Analytical Chemistry Screening Results

The following pages provide lists of (1) acronyms, abbreviations, symbols, and various analytical codes, (2) analytical laboratory qualifier codes, (3) secondary validation flag codes, and (4) secondary validation reason codes that may be used in Appendix D. Please note that these are comprehensive lists, and this periodic monitoring report may not include all of the acronyms, abbreviations, symbols, and codes in the lists.

The secondary data validation summary is provided in Appendix F.

Acronyms and Abbreviations

Acronym, Abbreviation, or Symbol	Description
Miscellaneous	
%	percent
%D	percent difference
%R	percent recovery
%RSD	percent standard deviation
<	Based on qualifiers, the result was a nondetection.
—	none
4,4'-DDD	4,4'-dichlorodiphenyldichloroethane
4,4'-DDT	4,4'-dichlorodiphenyltrichloroethane
BHC	benzene hexachloride
CB	chlorinated biphenyl
CCB	continuing calibration blank
CCV	continuing calibration verification
CLP	Control Laboratory Program
CRDL	contract-required detection limit
CRI	CDRL check standard
DCG	Derived Concentration Guide (DOE)
DDE	dichlorodiphenyldichloroethylene
DNX	dinitroso-RDX (or hexahydro-1,3-dinitroso-5-nitro-1,3,5-triazine)
DOE	Department of Energy (U.S.)
DQO	data quality objective
EPA	Environmental Protection Agency (U.S.)
GC	gas chromatography
GC/MS	gas chromatograph/mass spectrometer
GFAA	graphite furnace atomic absorption
GFPC	gas-flow proportional counter
GW	groundwater
HH OO	Human Health—Organism Only (NMWQCC standard)
HMX	1,3,5,7-tetranitro-1,3,5,7-tetrazocine
HPLC	high-pressure liquid chromatography
ICAL	initial calibration
ICPAES	inductively coupled plasma atomic (optical) emission spectroscopy
ICV	initial calibration verification
IDL	instrument detection limit
IS	internal standard
LAL	lower acceptance limit

Acronyms and Abbreviations (continued)

Acronym, Abbreviation, or Symbol	Description
Miscellaneous (continued)	
LANL	Los Alamos National Laboratory
LC/MS/MS	liquid chromatography/mass spectrometry/mass spectrometry
LCS	laboratory control sample
LLEE	low-level electrolytic extraction
LOC	level of chlorination
LSC	liquid scintillation counting
Lvl	level
MCL	maximum contaminant level (EPA)
MDA	minimum detectable activity
MDC	minimum detectable concentration
MDL	method detection limit
MNX	mononitroso-RDX (or hexahydro-1-nitroso-3,5-dinitro-1,3,5-triazine)
MS	matrix spike
MSD	matrix spike duplicate
NM	NMWQCC
NMED	New Mexico Environment Department
NMWQCC	New Mexico Water Quality Control Commission
OPR	ongoing precision recovery
PCB	polychlorinated biphenyl
PCDD	polychlorinated dibenzo-p-dioxin
PCDF	polychlorinated dibenzofuran
PQL	practical quantitation limit
Prelim	preliminary
QC	quality control
RDX	hexahydro-1,3,5-trinitro-1,3,5-triazine
RF	response factor
RL	reporting limit
RPD	relative percent difference
RRF	relative response factor
RRT	relative retention time
RT	retention time
Scr	screening
SDG	sample delivery group
SMO	Sample Management Office
SSC	suspended sediment concentration
SU	standard unit
TCDD	tetrachlorodibenzo-p-dioxin
TCDF	tetrachlorodibenzofuran
TDS	total dissolved solids

Acronyms and Abbreviations (continued)

Acronym, Abbreviation, or Symbol	Description
Miscellaneous (continued)	
TPH-DRO	total petroleum hydrocarbons—diesel range organics
TNX	trinitroso-RDX (or hexahydro-1,3,5-trinitroso-1,3,5-triazine)
TPU	total propagated uncertainty
UAL	upper acceptance limit
Field Matrix Codes	
W	water
WG	groundwater
WM	snowmelt
WP	persistent flow
WS	base flow
WT	storm runoff
Field Prep Codes	
F	filtered
UF	unfiltered
Field QC Type Codes	
EQB	equipment rinsate blank
FB	field blank
FD	field duplicate
FR	field rinsate
FS	field split
FTB	field trip blank
FTR	field triplicate
INB	equipment blank taken during installation and not associated with a sampling event
ITB	trip blank taken during installation and not associated with a sampling event
NA	not applicable
PEB	performance evaluation blank
PEK	performance evaluation known
RES	resample
SS	special sampling event, data unique
SS-EQB	equipment blank of special sampling event, data unique
SS-FB	field blank of special sampling event, data unique
SS-FD	field duplicate of special sampling event, data unique
SS-FTB	field trip blank of special sampling event, data unique
Analytical Suite Codes	
ANION	anions
DIOX/FUR, Diox/Fur	dioxins and furans
DRO	diesel range organics
GAMMA, GAMMA_SPEC	gamma spectroscopy
Geninorg, GENINORG	general inorganics

Acronyms and Abbreviations (continued)

Acronym, Abbreviation, or Symbol	Description
Analytical Suite Codes (continued)	
GRO	gasoline range organics
GROSSA	gross alpha
GROSSB	gross beta
HERB	herbicides
HEXP	high explosives
INORGANIC	inorganics
ISOTOPE, Isotope	isotope ratios
METALS, Metals	metals
PCB	polychlorinated biphenyls
PCB_CONG, PCB Cong	PCB congeners
PEST	pesticides
PEST/PCB, PESTPCB	pesticides and PCBs
RAD, Rad	radiochemistry (not gamma)
SVOA	semivolatile organics
SVOC	semivolatile organic compounds
VOA	volatile organics
VOC	volatile organic compounds
Lab Sample Type Codes	
CS	client sample
DL	dilution
DUP	duplicate
RE	reanalysis
REDL	reanalysis dilution
REDP	reanalysis duplicate
RI	reissue
TRP	triplicate
Lab Codes	
ALTC	Alta Analytical Laboratory, Inc., San Diego, CA
ARSL	American Radiation Services–Primary
CFA	Cape Fear Analytical, LLC, Wilmington, NC
C-INC	Isotope and Nuclear Chemistry Division (LANL)
COAST	Coastal Science Laboratories, Austin, TX
CST	Chemical Sciences and Technology Division (LANL)
EES6	Hydrology, Geochemistry, and Geology Group (LANL)
ESE	Environmental Sciences & Engineering, Inc., Gainesville, FL
FLD	measurement taken in field
GEL	General Engineering Laboratories, Inc.
GELC	General Engineering Laboratories, Inc., Charleston, SC
GEO	Geochron Laboratories, Boston, MA
HENV	Health and Environmental Laboratory (Johnson Controls, Northern New Mexico)

Acronyms and Abbreviations (continued)

Acronym, Abbreviation, or Symbol	Description
Lab Codes (continued)	
HUFFMAN	Huffman Laboratories, Inc., Golden, CO
KA	KEMRON Environmental Services, Inc., Vienna, VA
LVLI	Lionville Laboratory, Inc., Philadelphia, PA
PARA	Paragon Analytics, Inc., Salt Lake City, UT
PEC	Pacific Ecorisk Laboratories, Fairfield, CA
QESL	Quanterra Environmental Services, St. Louis, MO
QST	QST Environmental, Newberry, FL
RECRAP	RECRA Labnet, Lionville, PA
RFWC	Roy F. Weston, Inc., West Chester, PA
SGSW	Paradigm Analytical Laboratories, Inc., Wilmington, NC
SILENS	Stable Isotope Laboratory, Woods Hole, MA
STL2, STR	Severn Trent Laboratories, Inc., Richland, WA (historical)
STLA	Severn Trent Laboratories, Inc., Los Angeles, CA
STSL	Severn Trent Laboratories, Inc., St. Louis, MO
SwRI	Southwest Research Institute, San Antonio, TX
UAZ	University of Arizona, Tucson
UIL	University of Illinois, Urbana-Champaign
UMTL	University of Miami Tritium Lab

Analytical Laboratory Qualifier Codes

Code	Description
*	(Inorganic)—Duplicate analysis (relative percent difference [RPD]) not within control limits.
B	(Organic) —Analyte was present in the blank and the sample. (Inorganic) —Reported value was obtained from a reading that was less than the contract-required detection limit (CRDL) but greater than or equal to the instrument detection limit (IDL).
BJ	See B code and see J code.
BJP	See B code, see J code, and see P code.
BPX	(B) (Organic)—This analyte was detected in the associated laboratory method blank and the sample. (B) (Inorganic)—The result for this analyte was greater than the IDL but less than the CRDL. (P) (Pesticides/PCBs)—The quantitative results for this analyte between the primary and secondary gas chromatography (GC) columns were greater than 25% difference. (P) (SW-846 EPA Method 8310, High-Pressure Liquid Chromatography, [HPLC] Results)—The quantitative results for this analyte between the primary and secondary HPLC columns or primary and secondary HPLC detectors were greater than 40% difference. (X) (Organic/Inorganic)—The result for this analyte should be regarded as not detected.
D	The result for this analyte was reported from a dilution.
DJ	See D code and see J code.
DNA	Did not analyze because equipment was broken.
E	(Organic) Analyte exceeded the concentration range. (Inorganic) The serial dilution was exceeded.
E*	See E code and see * code.
EJ	See E code and see J code.
EJ*	See E code, see J code, and see * code.
EJN	(E) (Organic)—The result for this analyte exceeded the upper range of the instrument initial calibration curve. (E) (Inorganic) (inductively coupled plasma atomic [optical] emission spectroscopy [ICPAES])—The result for this analyte in the serial dilution analysis was outside acceptance criteria. (E) (Inorganic) (graphite furnace atomic absorption [GFAA])—The result for this analyte failed one or more Control Laboratory Program (CLP) acceptance criteria as explained in the case narrative. (J) (Organic/General Inorganics)—The result for this analyte was greater than the method detection limit (MDL) but less than the practical quantitation limit (PQL). (N) (Organic)—The reported analyte is a tentatively identified compound (TIC). (N) (Inorganic)—The result for this analyte in the matrix spike (MS) sample was outside acceptance criteria.
EN	See E code and see N code.
EN*	(E) (Organic)—The result for this analyte exceeded the upper range of the instrument initial calibration curve. (E) (Inorganic) (ICPAES)—The result for this analyte in the serial dilution analysis was outside acceptance criteria. (E) (Inorganic) (GFAA)—The result for this analyte failed one or more CLP acceptance criteria as explained in the case narrative. (N) (Organic)—The reported analyte is a TIC. (N) (Inorganic)—The result for this analyte in the MS sample was outside acceptance criteria. * (Inorganic)—The result for this analyte in the laboratory replicate analysis was outside acceptance criteria.
H	(Organic/Inorganic)—The required extraction or analysis holding time for this result was exceeded.
H*	(H) (Organic/Inorganic)—The required extraction or analysis holding time for this result was exceeded. * (Organic) and (Inorganic)—The result for this analyte in the laboratory control sample analysis was outside acceptance criteria.

Analytical Laboratory Qualifier Codes (continued)

Code	Description
HJ	See H code and see J code.
HJ*	(H) (Organic/Inorganic)—The required extraction or analysis holding time for this result was exceeded. (J) (Organic/General Inorganics)—The result for this analyte was greater than the MDL but less than the PQL. * (Inorganic)—The result for this analyte in the laboratory replicate analysis was outside acceptance criteria.
INS	(d15N)—The d15N of nitrate is a signature of the nitrate present in a sample. Therefore, nitrate has to be present to have a signature. A d15N value cannot be given to a blank because the blank does not have nitrate. This is different from most analytical methods, where a blank is run with the designator “nondetect” or “detected, but below detection limit.”
J	(Inorganic)—The associated numerical value is an estimated quantity. (Organic)—The associated numerical value is an estimated quantity.
J*	See J code and see * code.
JB	See J code and see B code
JN	See J code and see N code.
JN*	See J code, see N code, and see * code.
JP	See J code and see P code.
N	(Inorganic)—Spiked sample recovery was not within control limits.
N*	See N code and see * code.
N*E	See N code, see * code, and see E code.
NE	See N code and see E code.
P	Percent difference between the results on the two columns during the analysis differed by more than 40%.
PJ	See P code and see J code.
U	The material was analyzed for but was not detected above the level of the associated numeric value.
U*	See U code and see * code.
UD	See U code and see D code.
UE	See U code and see E code.
UE*	See U code, see E code, and see * code.
UEN	See U code, see E code, and see N code.
UH	See U code and see H code.
UH*	(U) (Organic/Inorganic)—The result for this analyte was not detected at the specified reporting limit. (H) (Organic/Inorganic)—The required extraction or analysis holding time for this result was exceeded. * (Inorganic)—The result for this analyte in the laboratory replicate analysis was outside acceptance criteria.

Analytical Laboratory Qualifier Codes (continued)

Code	Description
UI	(Rad) Gamma spectroscopy result should be regarded as an uncertain identification.
UN	EPA flag (Inorganic)—Compound was analyzed for but was not detected. Spiked sample recovery was not within control limits.
UN*	EPA flag (Inorganic)—See U code, see N code, and see * code.
UUI	(Rad) Gamma spectroscopy result should be regarded as an uncertain identification, and the analytical lab assigned these gamma spectroscopy results as not detected.
X	The analytical laboratory suspects the result is a nondetect despite positive quantification results.

Secondary Validation Flag Codes

Code	Description
A	The contractually required supporting documentation for this datum is absent.
I	The calculated sums are considered incomplete because of the lack of one or more congener results.
J	The analyte is classified as detected, but the reported concentration value is expected to be more uncertain than usual.
J-	The analyte is classified as detected, but the reported concentration value is expected to be more uncertain than usual with a potential negative bias.
J+	The analyte is classified as detected, but the reported concentration value is expected to be more uncertain than usual with a potential positive bias.
JN-	Presumptive evidence of the presence of the material is at an estimated quantity with a suspected negative bias.
JN+	Presumptive evidence of the presence of the material is at an estimated quantity with a suspected positive bias.
N	There is presumptive evidence of the presence of the material.
NJ	(Organic) Analyte has been tentatively identified, and the associated numerical value is estimated based upon a 1:1 response factor to the nearest eluting internal standard.
NQ	No validation qualifier flag is associated with this result, and the analyte is classified as detected.
PM	Manual review of raw data is recommended to determine if the observed noncompliances with quality acceptance criteria adversely impact data use.
R	The reported sample result is classified as rejected because of serious noncompliances regarding quality control (QC) acceptance criteria. The presence or absence of the analyte cannot be verified based on routine validation alone.
U	The analyte is classified as not detected.
UJ	The analyte is classified as not detected, with an expectation that the reported result is more uncertain than usual.

Secondary Validation Reason Codes

Code	Description
12a	Metals interference check sample percent recovery (%R) value is ≥50% and <80%.
CB0	The absolute retention time (RT) of chlorinated biphenyl congener (CB) 209 must be ≥55 min if the SPB-Octyl column is used. If a GC column or column system alternate to the SPB-Octyl column is used, the absolute RT of CB 209 must be ≥ the laboratory-established minimum RT for CB 209. If the laboratory has not established a minimum RT value for CB 209, the RT for CB 209 must be ≥55 min. If an SPB-Octyl column was used and the absolute RT of CB 209 is <55 min, qualify all associated results as R. If a GC column or column systems alternate to the SPB-Octyl column was used and the absolute RT is < the laboratory established minimum RT for CB 209, or <55 min if the laboratory has not established a minimum RT, qualify all associated results as R. The absolute RTs of the Labeled Toxics/LOC/window defining standard congeners in the verification test must be within ±15 s of the respective RTs in the calibration or, if an alternate column or column system is employed, within ±15 s of the respective RTs in the calibration for the alternate column or column system. The relative retention times (RRTs) of native CBs and labeled compounds in the verification test must be within their respective RRT limits or, if an alternate column or column system is employed, within their respective RRT limits for the alternate column or column system. If the RT or RRT of any compound is not within the limits specified, the GC is not performing properly. In this event, adjust the GC and repeat the verification test or recalibrate, or replace the GC column and either verify calibration or recalibrate. The RRT of each CB must be within ±0.5% of the mean RRT determined from the initial calibration or ±0.5% of the RRT from the most recent calibration verification standard. If the RRT of any CB is outside of the RRT window, qualify all associated results as R. If the RT criteria are not met, qualify all associated results as R.
CB0b	Required RT documentation is missing. Data may not be acceptable for use. Contact the Sample Management Office (SMO) or external laboratory for information.
CB3	To assess method performance on the sample matrix, the laboratory must spike all samples with the Labeled Toxics/LOC/Window defining standard spiking solution and all sample extracts with the labeled cleanup standard spiking solution. The recovery of each labeled compound must be within the limits listed in Table 6 of the U.S. Environmental Protection Agency (EPA) Method 1668A. If the recovery of any Labeled Toxics/LOC/Window defining standard compound is <10%, qualify all not detected results as R and all detected results as J-.
CB3a	The labeled compound is < the lower acceptance limit (LAL) but ≥10% R. The recovery of each labeled compound must be within the limits in Table 6 of EPA Method 1668A. If the recovery of any Labeled Toxics/LOC/Window defining standard compound is below acceptance limits, qualify all detects for that sample fraction as J and all nondetects for that sample fraction as UJ if the recovery is ≥10%.
CB3b	The labeled compound is > the upper acceptance limit (UAL). The recovery of each labeled compound must be within the limits listed in Table 6 of EPA Method 1668A. If the recovery of any Labeled Toxics/LOC/Window defining standard compound is above acceptance limits, qualify all detects for that sample fraction as J and all nondetects for that sample fraction as UJ.
CB3d	Required labeled compound information is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.
CB4	The sample result is ≤5 times the concentration of the related analyte in the method blank, which indicates the reported detection is considered indistinguishable from contamination in the blank.
CB4a	The affected analytes are considered estimated and biased high because this analyte was identified in the method blank but was >5 times.

Secondary Validation Reason Codes (continued)

Code	Description
CB4d	The sample result is ≤5 times the concentration of the related analyte in the trip blank, rinsate blank, and equipment blank, which indicates the reported detection is considered indistinguishable from contamination in the blank.
CB4e	Required method blank information is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.
CB7	The affected results were not analyzed with a valid 5-point calibration curve and/or a standard at the reporting limit.
CB7a	Isotope dilution shall be used for calibration of the toxics and beginning and ending level of chlorination (LOC) CBs. A 5- or 6-point calibration is prepared for each native congener. The relative response factor (RRF) percent standard deviation (%RSD) for all native toxins/LOC CBs must be <20%. If a linear curve is used for initial calibration, the r^2 of the curve must be >0.99. 1. If the %RSD for any target compound is >20% but ≤40%, qualify all associated detects as J and, if any other calibration criteria have been exceeded for that compound, qualify all associated nondetects as UJ. 2. If the %RSD for any target compound is >40% but ≤60%, qualify all associated detects as J and all associated nondetects as UJ. 3. If the %RSD for any target compound is >60%, qualify all associated detects as J and all associated nondetects as R. 4. If the r^2 for any target compound is <0.99 but ≥0.90, qualify all associated detects as J and, if any other calibration criteria have been exceeded for that compound, qualify all associated nondetects as UJ. 5. If the r^2 for any target compound is <0.90 but ≥0.80, qualify all associated detects as J and all associated nondetects as UJ. 6. If the r^2 for any target compound is <0.80, qualify all associated detects as J and all associated nondetects as R.
CB7b	The affected analytes did not meet the ion abundance ratios criteria in the initial calibration and/or continuing calibration verification (CCV). Calibration using internal standards is used for determination of native CBs for which a labeled compound is not available. For these CBs, calibration is performed at a single point. Compounds should be quantitated using the appropriate reference internal standard listed in Table 2 of EPA Method 1668A. Ion abundance ratios must meet the criteria in Attachment 4, Theoretical Ion Abundance Ratios and QC Limits for EPA Method 1668A, of this procedure or must be within 15% of the theoretical ratio of the ion monitored. If the ion abundance criteria are not met, qualify all detected results for that analyte as R.
CB7c	The ICV and/or CCV were recovered outside the method limits (see CB7a for initial calibration [ICAL] specifications). At the beginning of each 12-h period during which analysis is performed, calibration is verified for all native CBs and labeled compounds. The ion abundance ratios for all CBs must be within the limits in Attachment 4, and all compounds must meet the calibration verification recovery limits listed in Attachment 5, QA Acceptance Criteria for CBs in Calibration Verification, Initial Precision and Recovery, OPR, and Samples for EPA Method 1668A. RRTs of native CBs and labeled compounds in the calibration verification must be within ±0.5% of the mean RRT determined from the initial calibration or most recent calibration verification standard. The diluted combined 209 congener solution must be analyzed as a final step in the calibration verification and must meet the minimum analysis and resolution specifications of the method. If the ion abundance ratio for any calibration verification compound is outside of the method limits, qualify all associated detects as J and all associated nondetects as UJ. If the verification limits are not met for any calibration verification compound and the recovery is above the verification limits, qualify all associated detects as J+. If the verification limits are not met for any calibration verification compound and the recovery is below the verification limits, qualify all associated detects as J- and all associated nondetects as UJ if the recovery is ≥10% and as R if the recovery is <10%. If the RRT of any compound is outside of the RRT window, qualify all associated results as R.

Secondary Validation Reason Codes (continued)

Code	Description
CB7d	The ICV and/or CCV were not analyzed at the appropriate method frequency. At the beginning of each 12-h period during which analysis is performed, calibration is verified for all native CBs and labeled compounds. Use professional judgment based on when ICVs and CCVs were analyzed (also, see CB7f).
CB7f	Required calibration information is missing or samples were analyzed on an expired calibration. Contact the SMO or external laboratory for information.
CB8	The affected analyte is considered rejected because ion abundance ratios did not meet specifications. For identification of any CB or labeled compound, the ion abundance ratios must be within the limits specified in Attachment 4, or ±15% of the calibration verification standard. If ion abundance ratio criteria were not met for any compound, qualify all associated results as R.
CB8a	The ion ratio documentation is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.
CB9	The extraction/analytical holding time was exceeded by less than 2 times the published method for holding times. There are no demonstrated maximum holding times associated with the CBs in EPA Method 1668, aqueous, solid, semisolid, tissues, or other sample matrices. If stored in the dark at 0–4ºC and preserved as given above (if required), aqueous samples may be stored for up to 1 yr. Similarly, if stored in the dark at <−10ºC, solid semisolid, multiphase, and tissue samples may be stored for up to 1 yr. Store sample extracts in the dark at <−10ºC until analyzed. If stored in the dark at <−10ºC, sample extracts may be stored for up to 1 yr.
CB9a	The extraction/analytical holding time was exceeded by more than 2 times the published method for holding times. There are no demonstrated maximum holding times associated with the CBs in EPA Method 1668, aqueous, solid, semisolid, tissues, or other sample matrices. If stored in the dark at 0–4ºC and preserved as given above (if required), aqueous samples may be stored for up to 1 yr. Similarly, if stored in the dark at <−10ºC, solid, semisolid, multiphase, and tissue samples may be stored for up to 1 yr. Store sample extracts in the dark at<−10ºC until analyzed. If stored in the dark at <−10ºC, sample extracts may be stored for up to 1 yr.
CB12	The ongoing precision recovery (OPR) %R was less than 10%. OPR is a method blank spiked with known quantities of analytes. The OPR is analyzed exactly like a sample. Its purpose is to assure that the results produced by the laboratory remain within the limits specified in this EPA method for precision and recovery. OPR must be established for every batch of samples extracted and analyzed and must meet the recovery and %RSD limits listed in Attachment 5. If the OPR criteria are not met and reanalysis was not performed, the laboratory performance and method accuracy are in question: 1. If the OPR recovery is <10%, qualify all detects as J- and all associated nondetects as R. 2. If recoveries of more than half of the compounds in the OPR analysis are below 10%, qualify all associated defects as J- and all associated nondetects as R. NOTE: If recoveries for more than half of the compounds in the OPR analysis are below the acceptance range, the laboratory has not shown that it can actually meet program-required detection limits.
CB12a	The OPR sample %R was < the LAL but >10%. If the OPR recovery is < the LAL, qualify all associated detects as J- and all associated nondetects as “UJ” if the recovery is ≥10%.
CB12b	The OPR sample %R was > the UAL. If the OPR recovery is > the UAL, qualify all associated detects as J+. If recoveries of more than half of the compounds in the OPR analysis are above the acceptance range, qualify all associated detects as J+.
CB12c	The OPR sample documentation is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.

Secondary Validation Reason Codes (continued)

Code	Description
CB12d	If recoveries of more than half of the compounds in the OPR analysis exceed the acceptance range, both above and below, qualify all associated detects as J and all associated nondetects as UJ.
CB15	The affected analytes are considered suspect because the sample was diluted without any target analytes identified because of matrix interference. (Qualify as R if the analytical laboratory cannot provide proof for matrix interference.)
CB16	Gas chromatograph/mass spectrometer (GC/MS) instrument performance checks are performed to ensure mass resolution, identification, and to some degree, sensitivity. These criteria are not sample-specific. Conformance is determined using standard materials; therefore, these criteria should be met in all circumstances. Failure to meet either the resolution or the retention window criteria invalidates all calibration or sample data collected during the 12-h time window. If mass spectrometer performance was not evaluated at the required frequency or if method criteria were not met, qualify all associated detects and nondetects as R.
CB16c	The required instrument performance sample information is missing. Contact the SMO or external laboratory for information.
CB19	The project chemist identified quality deficiencies in the reported data that require further qualification. This code can only be used under advisement by the project chemist.
CB88	Duplicate, dilution, or reanalysis.
DF0	The internal standard (IS) RT and qualitative criteria for target compound identification were not met. For 2,3,7,8-substituted compounds that have an isotopically labeled IS or recovery standard present in the sample extract, the RT must be −1 to +3 seconds of the isotopically labeled standard. For 2,3,7,8-substituted compounds that do not have an isotopically labeled IS or recovery standard present in the sample extract, the RT must fall within 0.005 RRT units of the RRT measured in the continuing calibration. For non-2,3,7,8-substituted compounds, the RT must be within the corresponding homologous RT windows established by analyzing the column performance check solution. If the RT of any compound is outside of the RT window, qualify all associated results as R.
DF0b	RRT documentation is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.
DF1d	Required IS information is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.
DF4	The sample result is ≤5 times the concentration of the related analyte in the method blank. The criteria for the frequency of extraction and analysis of method blanks as stated in Section 9.5 of Method 1613B shall be followed and demonstrated in the documented data. The maximum amount of polychlorinated dibenzo-p-dioxin (PCDD) and polychlorinated dibenzofuran (PCDF) isomer contamination in method blanks is stated in Table 2 of Method 1613B. The method blank must be measured on each GC/MS system that is used to measure a group of samples. This requirement includes measuring method blanks on a second GC column if confirmatory analysis of sample extracts on a second column is required by the method or by the laboratory statement of work. Any PCDD or PCDF measurement in a sample that is also measured in any associated blank is qualified with a U flag if the sample concentration is <5 times the blank concentration.

Secondary Validation Reason Codes (continued)

Code	Description
DF4a	The affected analytes are considered estimated and biased high because this analyte was identified in the method blank but was >5 times. The criteria for the frequency of extraction and analysis of method blanks as stated in Section 9.5 of Method 1613B shall be followed and demonstrated in the documented data. The maximum amount of PCDD and PCDF isomer contamination in method blanks is stated in Table 2 of Method 1613B. The method blank must be measured on each GC/MS system that is used to measure a group of samples. This requirement includes measuring method blanks on a second GC column if confirmatory analysis of sample extracts on a second column is required by the method or by the laboratory statement of work. If the maximum contamination requirements of specific tetrachlorodibenzo-p-dioxin (TCDD) and tetrachlorodibenzofuran (TCDF) isomers stated in Table 2 of Method 1613B are not met, then all isomers in all samples associated with a method blank shall be qualified with a J flag.
DF4d	The sample result is ≤5 times the concentration of the related analyte in the trip blank, rinsate blank, or equipment blank. Any PCDD or PCDF measurement in a sample that is also measured in any associated blank is qualified with a U flag if the sample concentration is less than 5 times the blank concentration.
DF4e	Required method blank information is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information. If the frequency of measuring method blanks is not met by the laboratory in the data submitted, then the results of all samples that do not meet the frequency of extraction and measurement of method blanks shall be qualified with an R flag.
DF7	The affected results were not analyzed with a valid 5-point calibration curve and/or a standard at the reporting limit. There shall be an initial calibration curve consisting of five points for each analyte. The initial calibration curve shall be determined < 30 d from the time the first samples of a sample delivery group (SDG) are measured by the laboratory. The laboratory shall use the same calibration standards with the same lot number for all internal standards and for all labeled standards used in measuring the initial calibration curve, verification standards, field samples, and method blanks on both the primary GC column and the secondary confirmation GC column.
DF7a	The affected analytes were analyzed with an initial calibration curve that exceeded the %RSD criteria. A 5-point calibration is prepared for each labeled and unlabeled compound. The RRF %RSD for the unlabeled standards must be ≤30%. Ion abundance ratios must meet the criteria listed in Attachment 4. If the %RSD is >20% for any unlabeled calibration standard, or >30% for any labeled calibration standard, but ≤40%, qualify all associated detects as J and, if any other calibration criteria have been exceeded for that compound, qualify all associated nondetects as UJ. If the %RSD is >40% but ≤60% for either a labeled or unlabeled calibration standard, qualify all associated detects as J and all associated nondetects as UJ. If the %RSD is >60% for either a labeled or unlabeled calibration standard, qualify all associated detects as J and all associated nondetects as R. If the ion abundance criteria were not met for any calibration compound, qualify all associated detects as J and all associated nondetects as UJ. If the affected results were not analyzed with a valid 5-point calibration curve and/or a standard at the reporting limit, qualify the results as not detected. Ion abundance must meet the criteria in Attachment 4.
DF7b	The affected analytes were analyzed with an out-of-range ion abundance in the initial calibration and/or CCV. Ion abundance must meet the criteria in Attachment 4. If the ion abundance criteria are not met, qualify results for that analyte as R.

Secondary Validation Reason Codes (continued)

Code	Description
DF7c	The ICV and/or CCV were recovered outside the method-specific limits. See DF7a for ICAL specifications. The ion abundance must be within the limits in Attachment 4. For the calibration verification analyzed at the beginning of a 12-h period, the effect on data quality of a standard that does not meet criteria must be assessed using professional judgment. Guidance is provided in Section 7.7.4.4 of EPA Method 8290. For the calibration verification analyzed at the end of a 12-h period, a percent difference (%D) of 25% for unlabeled compounds and 35% for labeled compounds is acceptable; however, in this instance, the mean response factors (RFs) obtained from the beginning and ending daily calibration runs are used to calculate analyte concentrations instead of the RFs obtained from the initial calibration. If the %D of the ending calibration is >25% for any unlabeled compound and/or >35% for any labeled compound, then successful performance of another initial calibration must be analyzed within 2 h of sample analysis for the data to be acceptable. In this case, the mean RFs from the beginning and ending daily calibration runs are still used to calculate analyte concentrations. 1. If the ion abundance ratio for any compound is outside of the method limits, qualify all associated detects as J and all associated nondetects as UJ. 2. If the %D criteria were not met for any CCV compound at the beginning of a 12-h period and the %D is positive, qualify all associated detects as J+. 3. If the %D criteria were not met for any CCV compound at the beginning of a 12-h period and the %D is negative, qualify all associated detects as J- and, if any other calibration criteria have been exceeded for that compound, qualify all associated nondetects as UJ. 4. If the %D criteria were not met for any compound at the end of a 12-h period, a new initial calibration was analyzed within 2 h of sample analysis, and the %D is positive, qualify all associated detects as J+. 5. If the %D criteria were not met for any compound at the end of a 12-h period, a new initial calibration was analyzed within 2 h of sample analysis, and the %D is negative, qualify all associated detects as J- and, if any other calibration criteria have been exceeded for that compound, qualify all associated nondetects as UJ. 6. If the %D criteria were not met for any compound at the end of a 12-h period and a new initial calibration was not analyzed within 2 h of sample analysis, qualify all sample data analyzed during that 12-h period as R.
DF7d	The ICV and/or CCV were not analyzed at the appropriate method frequency. Note that EPA Contract Laboratory Program protocol DFLM01.1 requires that the GC/MS system be calibrated based upon a daily calibration check standard, whereas EPA Methods 1613B and 8290 require that the GC/MS system criteria of a daily calibration verification standard be met with each 12-h batch of samples measured and that response factors for native target compounds are derived from the 5-point initial calibration.
DF7f	Required calibration information is missing or samples were analyzed on an expired calibration. Contact the SMO or external laboratory for information.
DF8	The affected analyte is considered rejected because the ion abundances did not meet specifications. For identification of any compound, the ion abundance ratios must be within the limits specified in Attachment 4. If ion abundance ratio criteria were not met for any compound, qualify all associated results as R. If the RT of any compound is outside of the RT window, qualify all associated results as R.
DF8a	The ion abundance documentation is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.
DF8b	The GC column performance solution is used for defining the homologous GC RT windows and to document the chromatographic resolution. Column performance must be evaluated at the beginning of each analytical period and must meet method acceptance criteria (see Section 8.2 of EPA Method 8290) before sample analysis may begin. If GC column performance was not evaluated at the required frequency or if method criteria were not met, qualify all associated detects as J and all associated nondetects as UJ.

Secondary Validation Reason Codes (continued)

Code	Description
DF8c	The DB-5 GC column generally used for PCDD and PCDF analyses does not adequately separate 2,3,7,8-TCDF from its closest eluting isomer. If 2,3,7,8-TCDF is detected in a sample, the result must be confirmed on a second column capable of separating 2,3,7,8-TCDF from all other TCDF homologues (as proven by successful analysis of the GC column performance column mix with <25% valley between 2,3,7,8-TCDF and its closest eluting isomer). If 2,3,7,8-TCDF was detected in a sample and the result was not confirmed on a second column with successful analysis of the GC column performance mix, qualify all associated detects as U.
DF9	The extraction/analytical holding time was exceeded by <2 times the published method for holding times. Regulations require that water samples be preserved by neutralizing any chlorine residual with 0.008% sodium thiosulfate and cooling to 4ºC using a holding time of 7 d from day of collection to day of extraction of the sample. In addition, the maximum holding time of extracts is 40 d from day of extraction to day of injection of the extract. The holding time and preservation requirements of 2,3,7,8-TCDD and of other measured PCDD and PCDF isomers in nonwater matrixes have not been promulgated by EPA. Therefore, the data validator should use the holding time specified in EPA Method 8290, which specifies that all samples, except fish and adipose tissue samples, must be stored at 4ºC in the dark, extracted within 30 d, and completely analyzed within 45 d of extraction. Fish and adipose samples must be stored at −20ºC in the dark, extracted within 30 d, and completely analyzed within 45 d of collection (see Section 6.4 of EPA Method 8290). EPA Method 1613B does not set holding times for PCDD or PCDF isomers. The EPA method does state that water samples that contain a chlorine residual should be treated with 80 mg of sodium thiosulfate per liter of water, samples should be maintained at 4ºC in the dark, and extracts should be analyzed within 40 d of extraction.
DF9a	The extraction/analytical holding time was exceeded by >2 times the published method for holding times.
DF12	The laboratory control sample (LCS) %R was <10%.
DF12a	The LCS %R was < the LAL but >10%. Follow the external laboratory limits.
DF12b	The LCS %R was > the UAL. Follow the external laboratory limits.
DF12c	The LCS documentation is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.
DF12d	The MS/matrix spike duplicate (MS/MSD) %R was <10%.
DF12e	The MS/MSD %R was >10% but <70%.
DF12f	The MS/MSD %R was >130%.
DF12g	The MS/MSD RPD was >30%.
DF12h	The laboratory must spike all samples with the sample fortification solution and all sample extracts with recovery standard solution. The recovery acceptance criteria for each compound are 40% to 135%. The fortification sample %R was <10%.
DF12i	The laboratory must spike all samples with the sample fortification solution and all sample extracts with recovery standard solution. The recovery acceptance criteria for each compound are 40% to 135%. The fortification sample %R was <40% but >10%
DF12j	The laboratory must spike all samples with the sample fortification solution and all sample extracts with recovery standard solution. The recovery acceptance criteria for each compound are 40% to 135%. The fortification sample %R was >135%.
DF12k	The fortification sample documentation is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.

Secondary Validation Reason Codes (continued)

Code	Description
DF15	The affected analytes have elevated detection limits and may not meet project data quality objectives (DQOs) because the sample was diluted without any target analytes identified because of matrix interference. (Qualify nondetected results as rejected if the analytical laboratory cannot provide proof for matrix interference.)
DF15a	Sample cleanup was not performed. If run log notations, spectral data, and/or IS or labeled compound recoveries indicate interferences and extract cleanup was not performed, qualify all associated detects as J and all nondetects as UJ.
DF16	The instrument performance sample did not pass method acceptance criteria.
DF16c	The required instrument performance sample information is missing. Contact the SMO or external laboratory for information.
DF19	The project chemist identified quality deficiencies in the reported data that require further qualification. This code can only be used under advisement by the project chemist.
DF88	Duplicate, dilution, or reanalysis.
DR0	The retention time criteria were not met.
DR0b	Required retention time documentation is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.
DR3	The surrogate is < 10 %R, which indicates the potential for a severely low bias in the results. Follow the external laboratory limits.
DR3a	The surrogate is < the LAL but ≥10%R, which indicates the potential for a low bias in the results. Follow the external laboratory limits.
DR3b	The surrogate %R value is > the UAL, which indicates a potential for a high bias in the results and a potential for false positive results. Follow the external laboratory limits.
DR3d	Required surrogate information is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.
DR4	The sample result is ≤ 5 times the concentration of the related analyte in the method blank, which indicates the reported detection is considered indistinguishable from contamination in the blank.
DR4a	The affected analytes are considered estimated and biased high because this analyte was identified in the method blank but was > 5 times.
DR4d	The sample result is ≤ 5 times the concentration of the related analyte in the trip blank, rinsate blank, or equipment blank, which indicates the reported detection is considered indistinguishable from contamination in the blank.
DR4e	Required method blank information is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.
DR7	The affected results were not analyzed with a valid 5-point calibration curve and/or a standard at the reporting limit.
DR7a	The affected analytes were analyzed with an initial calibration curve that exceeded the %RSD criteria, and/or the associated multipoint calibration correlation coefficient is less than 0.995.
DR7c	The ICV and/or CCV were recovered outside the method-specific limits.
DR7d	The ICV and/or CCV were not analyzed at the appropriate method frequency.
DR7f	Required calibration information is missing or samples were analyzed on an expired calibration. Contact the SMO or external laboratory for information.

Secondary Validation Reason Codes (continued)

Code	Description
DR9	The extraction/analytical holding time was > 1 times and ≤ 2 times the applicable holding time requirement.
DR9a	The extraction/analytical holding times were exceeded by more than 2 times the published method for holding times.
DR12	The LCS %R was less than 10%. Follow the external laboratory limits.
DR12a	The LCS %R was less than the LAL but greater than or equal to 10%. Follow the external laboratory limits.
DR12b	The LCS %R was greater than the UAL. Follow the external laboratory limits.
DR12c	The LCS documentation is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.
DR12d	The MS/MSD %R was <10%.
DR12e	The MS/MSD %R was ≥10% but <70%.
DR12f	The MS/MSD %R was >130%.
DR12g	The MS/MSD RPD was >30%.
DR15	The affected analytes have elevated detection limits and may not meet project DQOs because the sample was diluted without any target analytes identified because of matrix interference. (Qualify as R if the analytical laboratory cannot provide proof for matrix interference.)
DR19	The project chemist identified quality deficiencies in the reported data that require further qualification. This code can only be used under advisement by the project chemist.
DR88	Duplicate, dilution, or reanalysis.
GR0	The retention time criteria were not met.
GR0b	Required retention time documentation is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.
GR3	The surrogate is <10%R, which indicates the potential for a severely low bias in the results. Follow the external laboratory limits.
GR3a	The surrogate is < the LAL but ≥10%R, which indicates the potential for a low bias in the results. Follow the external laboratory limits.
GR3b	The surrogate %R value is > the UAL, which indicates a potential for a high bias in the results and a potential for false positive results. Follow the external laboratory limits.
GR3d	Required surrogate information is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.
GR4	The sample result is ≤ 5 times the concentration of the related analyte in the method blank, which indicates the reported detection is considered indistinguishable from contamination in the blank.
GR4a	The affected analytes are considered estimated and biased high because this analyte was identified in the method blank but was >5 times.
GR4d	The sample result is ≤ 5 times the concentration of the related analyte in the trip blank, rinsate blank, or equipment blank, which indicates the reported detection is considered indistinguishable from contamination in the blank.
GR4e	Required method blank information is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.
GR7	The affected results were not analyzed with a valid 5-point calibration curve and/or a standard at the reporting limit.

Secondary Validation Reason Codes (continued)

Code	Description
GR7a	The affected analytes were analyzed with an initial calibration curve that exceeded the %RSD criteria, and/or the associated multipoint calibration correlation coefficient is less than 0.995.
GR7c	The ICV and/or CCV were recovered outside the method-specific limits.
GR7d	The ICV and/or CCV were not analyzed at the appropriate method frequency.
GR7f	Required calibration information is missing or samples were analyzed on an expired calibration. Contact the SMO or external laboratory for information.
GR9	The extraction/analytical holding time was > 1 times and ≤ 2 times the applicable holding time requirement.
GR9a	The extraction/analytical holding times were exceeded by more than 2 times the published method for holding times.
GR12	The LCS %R was less than 10%. Follow the external laboratory limits.
GR12a	The LCS %R was less than the LAL but greater than or equal to 10%. Follow the external laboratory limits.
GR12b	The LCS %R was greater than the UAL. Follow the external laboratory limits.
GR12c	The LCS documentation is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.
GR12d	The MS/MSD %R was <10%.
GR12e	The MS/MSD %R was ≥10% but <70%.
GR12f	The MS/MSD %R was >130%.
GR12g	The MS/MSD RPD was >30%.
GR15	The affected analytes have elevated detection limits and may not meet project DQOs because the sample was diluted without any target analytes identified because of matrix interference. (Qualify as R if the analytical laboratory cannot provide proof for matrix interference.)
GR19	The project chemist identified quality deficiencies in the reported data that require further qualification. This code can only be used under advisement by the project chemist.
GR88	Duplicate, dilution, or reanalysis.
H0	The analyte RT shifted by more than 0.05 min from the midlevel standard of the initial calibration. Reject nondetects for HPLC.
H0a	Analyte is positively confirmed but outside the RT window; however, spectral matches must be provided (HEXP–diode array detector).
H0b	Required RT documentation is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.
H12	The LCS %R was <10%. Follow external laboratory limits located within the associated data package.
H12a	The LCS %R was < the LAL but >10%. Follow external laboratory limits located within the associated data package.
H12b	The LCS %R was > the UAL. Follow the external laboratory limits located within the associated data package.
H12c	The LCS documentation is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.

Secondary Validation Reason Codes (continued)

Code	Description
H15	The affected analytes have elevated detection limits and may not meet project DQOs because the sample was diluted without any target analytes identified because of matrix interference. Qualify as R if the analytical laboratory cannot provide proof for cleanup or matrix interference.
H19	The Los Alamos National Laboratory (LANL) project chemist identified quality deficiencies in the reported data that require further qualification. This code can ONLY be used by the project chemist or under advisement of the project chemist.
H3	The surrogate is <10%R, which indicates the potential for a severely low bias in the results. Follow external laboratory limits located within the associated data package.
H3a	The surrogate is < the LAL but ≥10%R, which indicates the potential for a low bias in the results. Follow the external laboratory limits located within the associated data package.
H3b	The surrogate %R value is > the UAL, which indicates a potential for a high bias in the results and a potential for false positive results. Follow the external laboratory limits located within the associated data package.
H3c	At least one surrogate is > the UAL and one surrogate is < the LAL, which indicates a greater than normal degree of uncertainty in the result. Follow external laboratory limits located within the associated data package.
H3d	Required surrogate information is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.
H4	The sample result is ≤5 times the concentration of the related analyte in the method blank, which indicates the reported detection is considered indistinguishable from contamination in the blank.
H4a	The affected analytes are considered estimated and biased high because this analyte was identified in the method blank but was >5 times.
H4d	The sample result is ≤5 times the concentration of the related analyte in the trip blank, rinsate blank, or equipment blank, which indicates the reported detection is considered indistinguishable from contamination in the blank.
H4e	Required method blank information is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.
H7	The affected results were not analyzed with a valid 5-point calibration curve and/or a standard at the reporting limit.
H7a	The affected analytes were analyzed with an initial calibration curve that exceeded the %RSD criteria, and/or the associated multipoint calibration correlation coefficient is <0.995.
H7c	The ICV and/or CCV were recovered outside the method-specific limits.
H7d	The ICV and/or CCV were not analyzed at the appropriate method frequency.
H7f	Required calibration information is missing or samples were analyzed on an expired calibration. Contact the SMO or external laboratory for information.
H8	The analyte was not confirmed on a second dissimilar column, or diode array spectrums do not match library.
H8a	The required second dissimilar column or diode array documentation is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.
H9	The extraction/analytical holding time was exceeded by < 2 times the published method for holding times.
H9a	The extraction/analytical holding time was exceeded by >2 times the published method for holding times.

Secondary Validation Reason Codes (continued)

Code	Description
H9b	The affected analytes are regarded as rejected because the analytical holding time was exceeded.
H88	Duplicate, dilution, or reanalysis.
HE0	The IS retention time has shifted by >30 s.
HE0b	Required retention time documentation is missing. Data may not be acceptable for use. Contact the SMO and external laboratory for information.
HE1a	The quantitating IS area count is <25% of the expected value, which indicates increased potential for false negative results and other possible problems with sample quantitation. Follow the method-specific windows. Qualify data as R if the IS area count is <25%.
HE1b	If the IS was used for quantification and its area count is <70% but >25% of the average of that obtained from the calibration standards, qualify all associated detects as J+ and all associated nondetects as UJ.
HE1c	The IS area counts must not vary by >70% to 130% from the average of those obtained from the calibration standards or from the midlevel calibration standard. If the internal standard was used for quantification and its area count is >130% of the average of that obtained from the calibration standards, qualify all associated detects as J- and all associated nondetects as UJ.
HE1d	Required IS information is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.
HE3	The surrogate is <10% recovery, which indicates the potential for a severely low bias in the results. Follow the external laboratory limits. Qualify nondetected results as R and detected results as J-. Also, if an initial dilution was performed on any sample and surrogate recovery is <10% recovery and all results are nondetect, qualify all sample results as R.
HE3a	The surrogate is < the LAL but ≥10% recovery, which indicates the potential for a low bias in the results. Follow the external laboratory limits. Qualify nondetected results as UJ and detected results as J-. Also, if an initial dilution was performed on any sample and at least one surrogate recovery is < the LAL but ≥10%, or all surrogate recoveries are <10% and the results for one or more compounds are > the PQL, qualify nondetected results as UJ and detected results as J-.
HE3b	The surrogate %R value is > the UAL, which indicates the potential for a high bias in the results and a potential for false positive results. Follow the external laboratory limits.
HE3c	At least one surrogate is > the UAL and one surrogate is < the LAL, which indicates a greater than normal degree of uncertainty in the result. Follow the external laboratory limits.
HE3d	Required surrogate information is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information. Sample and blank surrogate recoveries must be within limits specified by the laboratory. Surrogate compound recoveries shall be calculated using the procedure described in SW-846 EPA Method 8000B. Reported recoveries shall be accompanied by the applicable acceptance limits. Results from spiked or replicate QC samples that have surrogate recoveries <10% cannot be used to evaluate associated sample results.
HE4	The sample result is ≤ 5 times the concentration of the related analyte in the method blank, which indicates the reported detection is considered indistinguishable from contamination in the blank.
HE4a	The affected analytes are considered estimates and biased high because this analyte was identified in the method blank but was > 5 times.
HE4d	The sample result is ≤ 5 times the concentration of the related analyte in the trip blank, rinsate blank, and equipment blank, which indicates the reported detection is considered indistinguishable from contamination in the blank.

Secondary Validation Reason Codes (continued)

Code	Description
HE4e	Required method blank information is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.
HE4f	The absence of sample carryover must be determined and verified. If examination of the run logs indicates that any samples in the analytical run of interest required dilution and there is no documentation of a rinse or blank analysis immediately following the original undiluted analysis, then sample carryover may be suspected in the subsequent sample. If any target analyte found in the sample requiring dilution exceeded the high calibration standard and was also found in the following sample at a concentration < 5 times the PQL, qualify the result for that analyte in the second sample as R. If no data are available for the sample that required dilution, the laboratory has not documented that carryover was evaluated, and any analyte was also found in the following sample as a concentration <5 times the PQL, qualify the result for that analyte in the second sample as N.
HE7	The affected results were not analyzed with a valid 5-point calibration curve and/or a standard at the reporting limit. The liquid chromatography/mass spectrometry/mass spectrometry (LC/MS/MS) instrument calibration shall be performed using a minimum of five (5) calibration standards. The lowest point of the curve must be at or below the reporting limit. If calibration curves are used, five (5) standards are required for a linear (first-order) calibration model, six (6) standards are required for a quadratic (second-order) model, and seven (7) standards are required for a third-order polynomial. Higher-order curves should not normally be used. If the laboratory uses a higher-order equation to establish a calibration curve, it should be evaluated for the appropriate application. If an insufficient number of calibration standards was used, the PQLs were incorrect, or all points were not analyzed within a 24-h period, qualify all associated detects as J and all associated nondetects as UJ.
HE7a	The affected analytes were analyzed with an initial calibration curve that exceeded the %RSD criteria, and/or the associated multipoint calibration coefficient is <0.99.
HE7b	The affected analytes were analyzed with an RRF of <0.05 in the initial calibration and/or CCV. If the average RF for any target analyte is < the specified minimum RF, or <0.05 if no minimum is specified, qualify all associated detects as J. Qualify all associated nondetects as UJ if the RF is ≥0.01 or as R if the RF is <0.01.
HE7c	The ICV and/or CCV were recovered outside the method limits. The %D between the ICV and CCV standard concentrations and their true values shall be calculated according to the formula in Attachment 4 and must be ≤20%. The evaluation of CCV data applies to all CCVs that bracket samples of interest. If the %D was reported with the wrong sign (e.g., +%D for negative bias), document the occurrence in the data validation report and assess any infractions using the correct sign. 1. If the %D between a measured ICV and/or CCV concentration and its true value for any analyte is >20%, qualify all associated detects as J+. 2. If the %D between a measured ICV and/or CCV concentration and its true value for any analyte is >20% but ≤40% and negative (low bias), qualify all associated detects as J- and, if any other calibration criteria have been exceeded for that compound, qualify all associated nondetects as UJ. 3. If the %D between a measured ICV and/or CCV concentration and its true value for any analyte is >40% but ≤60% and negative, qualify all associated detects as J and all associated nondetects as UJ. 4. If the %D between a measured ICV and/or CCV concentration and its true value for any analyte is >60% and is negative, qualify all associated detects as J- and all associated nondetects as R.

Secondary Validation Reason Codes (continued)

Code	Description
HE7d	The ICV and/or CCV were not analyzed at the appropriate method frequency. An ICV standard is analyzed immediately following an initial calibration. For high-explosive analysis, the ICV standard analysis results are not required to be reported in the data package unless the samples in the SDG were analyzed after the initial calibration but before a CCV standard analysis was performed. In this case, the ICV %D is assessed according to the calibration verification criteria described below for the associated samples. If a CCV is analyzed before samples and ICV data are also reported in the package, both the ICV %D and the appropriate CCV %D are to be assessed as described below. If both ICV %D and CCV %D infractions occur, the worst infraction should be evaluated for result qualification. A CCV must be analyzed in the following instances: • at the beginning of each analytical run; • at least once every 10 samples; and • at the end of each analytical run. If multiple CCVs were analyzed to obtain a passing CCV, the calibration is not verified and the calibration frequency is not met. If the ICV and CCV standards were not analyzed at the proper frequency, or if either a required ICV or CCV was not analyzed, or if all target compounds were not present in any ICV or CCV standard, qualify all associated detects as J and all associated nondetects as UJ. If all required ICVs and CCVs were not analyzed, qualify all associated detects as J and all associated nondetects as R.
HE7f	Required calibration information is missing or samples were analyzed on an expired calibration. Contact the SMO or external laboratory for information.
HE8a	The mass spectral documentation is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.
HE9	The extraction/analytical holding time was exceeded by < 2 times the published method for holding times.
HE9a	The extraction/analytical holding time was exceeded by > 2 times the published method for holding times.
HE12	An LCS should be analyzed at a frequency of once per data package, once per matrix, or once per 20 analytical samples, whichever is most frequent. The LCS must meet all sample acceptance criteria and all method-specific LCS requirements. The LCS for high explosives must meet laboratory-derived acceptance criteria. If surrogate and IS recovery acceptance criteria are not met for the LCS analysis, the LCS must be reanalyzed. If the recovery acceptance criteria are not reported in the analytical data package, recovery limits of 70% to 130% should be used as the criteria. If, based on professional judgment, the laboratory's internal acceptance criteria are excessively wide or acceptable recoveries are significantly biased, notify the program manager. The LCS %R was <10%. Qualify detected results as J- and not detected results as R.
HE12a	The LCS %R was < the LAL but >10%. Follow the external laboratory limits. Qualify detected results as J- and not detected results as UJ.
HE12b	The LCS %R was > the UAL. Follow the external laboratory limits. Qualify detected results as J+.
HE12c	The LCS documentation is missing. Data may not be acceptable for use. Contact the SMO or the external laboratory for information.

Secondary Validation Reason Codes (continued)

Code	Description
HE12d	The MS/MSD %R was <10%. The MS/MSD data shall not be used to evaluate associated field sample results unless the MS/MSD sample was from the same client and of similar matrix. If the acceptance criteria are not reported, recovery limits are 70% to 130%. The MS and MSD %R must be within the limits unless the sample concentration is > 4 times the spike concentration. The MS and MSD results may be used in conjunction with other QC results to determine the need for qualification of the data. An effort to determine to what extent the results of the MS/MSD affect the associated data should first be made. This determination should be made considering the MS/MSD sample matrix, the surrogate and internal standard recoveries, and the LCS results. Professional judgment should be used to determine if MS/MSD failure warrants qualification of only the results for the failed compounds or if the compounds associated with the failed MS compound are affected. Generally, unless evidence exists to warrant qualification of other compounds, only the compounds in the MS spiking mixture shall be qualified. If the surrogate, internal standard, and LCS recoveries are within the required acceptance criteria and either the MS or MSD recovery for any target analyte is <10%, qualify results as R.
HE12e	If the MS/MSD %R was >10%, but <70%, qualify all detects as J and all nondetects as UJ.
HE12f	If the MS/MSD %R was >130%, qualify all associated detects as J+.
HE12g	If the MS/MSD RPD was >30%, and the acceptance criteria are not reported, recovery limits of 70% to 130% and an RPD of ≤30% should be used as the criteria. For solid and waste samples, it may be appropriate to accept an RPD of up to 40% based on professional judgment.
HE15	If the affected analytes are considered suspect because the sample was diluted without any target analytes identified because of matrix interference, qualify as R if the analytical laboratory cannot provide proof for matrix interference.
HE15a	The PQLs must be adjusted to reflect all sample dilutions, concentrations, splits, cleanup activities, and dry weight factors that are not accounted for by the method. Samples must be diluted and reanalyzed when any analyte exceeds the calibration range. Data from the original sample analysis should be included when any sample requires dilution because of one or more analytes exceeding the calibration range. The original undiluted results document the actual MDLs for nondetects. If the PQLs have not been properly adjusted, request an amended report from the laboratory. If an initial dilution was required because of expected high concentrations of nontarget analytes or because one or more target analytes were expected to greatly exceed the instrument working range and the laboratory was not able to analyze the undiluted sample, note the dilution and elevated MDLs in the data validation report. If any target analyte exceeded the calibration range and the original undiluted sample result was reported, qualify all detects from the undiluted analysis that exceeded the calibration range as J. If any target analyte exceeded the calibration range and the sample was diluted and reanalyzed and the diluted sample data were reported, qualify all nondetects from the diluted analysis as UJ. If any target analyte exceeded the calibration range and the original undiluted sample analysis was not reported, request this information from the laboratory. If data from the original sample analysis are unavailable, refer to HEXP3 and HEXP3a for assessment of initially diluted samples with low surrogate recovery. The laboratory shall strive to make dilutions in such a way that the final concentration is measured in the midrange of the calibration curve and that results are not reported from measurements below the lowest concentration standard. If the instrument response (reported result/dilution factor) for a diluted sample is less than that of the lowest concentration standard, qualify all associated detects from the diluted analysis as J.

Secondary Validation Reason Codes (continued)

Code	Description
HE16	The contract-required detection limit (CDRL) check standard (CRI) sample did not pass method-acceptance criteria. CRI analysis recoveries for high explosives analysis must be within limits specified by the Laboratory. If acceptance criteria are not reported, the recovery acceptance range shall be 70% to 130%. 1. If frequency criteria were not met, qualify all detects < 5 times the PQL as J and all nondetects as UJ. 2. If the recovery is > the UAL, qualify all associated detects < 5 times the PQL as J+. 3. If the recovery is < the LAL but ≥30%, qualify all associated detects < 5 times the PQL as J- and all associated nondetects as UJ. 4. If the recovery is <30%, qualify all associated detects < 5 times the PQL as J- and all associated nondetects as R.
HE16c	The required CRI sample information is missing. Contact the SMO or the external laboratory for information.
HE19	The project chemist identified quality deficiencies in the reported data that require further qualification. This code can ONLY be used by the project chemist or under advisement of the project chemist.
HE88	Duplicate, dilution, or reanalysis.
HE99	Duplicate, dilution, or reanalysis.
I1	The sample result was reported as detected between the IDL and the estimated detection limit.
I1a	The quantitating IS area count is <10% for metals window in relation to the initial calibration blank. Follow method-specific windows.
I1b	The IS area count for the quantitating IS is <60% but >10% for metals window in relation to the initial calibration blank. Follow method-specific windows.
I1c	The IS area count for the quantitating IS is >125% in relation to the metals initial calibration blank. Follow method-specific windows.
I1d	Required IS information is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.
I2	Metals interference check sample %R value is <50%.
I2a	Metals interference check sample %R value is ≥50% and <80%.
I2b	Metals interference check sample %R value is >120%.
I2c	Metals interference check sample was not analyzed with the samples.
I4	The sample result is ≤ 5 times the concentration of the related analyte in the method blank, which indicates the reported detection is considered indistinguishable from contamination in the blank.
I4a	The affected analytes are considered estimated and biased high because this analyte was identified in the method blank but was >5 times.
I4b	The sample result is ≤ 5 times the concentration of the related analyte in the instrument blank and continuing calibration blank (CCB), which indicates the reported detection is considered indistinguishable from contamination in the blank.
I4c	CCBs were not analyzed at the appropriate method frequency.
I4d	The sample result is ≤ 5 times the concentration of the related analyte in the trip blank, rinsate blank, or equipment blank, which indicates the reported detection is considered indistinguishable from contamination in the blank.

Secondary Validation Reason Codes (continued)

Code	Description
14e	Required method blank information is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.
I6	The associated MS recovery was <10%. Follow the external laboratory limits located within the associated data package.
I6a	The associated MS recovery was < the LAL but >10%. Follow the external laboratory limits located within the associated data package.
I6b	The associated MS recovery was > the UAL. Follow the external laboratory limits located within the associated data package.
I6c	Required MS information is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information. If LCS information is present, do not qualify as R. Qualify data based on LCS information.
I7	The affected results were not analyzed with a valid 5-point calibration curve and/or a standard at the reporting limit.
I7a	The affected analytes were analyzed with an initial calibration curve that exceeded the %RSD criteria, and/or the associated multipoint calibration correlation coefficient is <0.995.
I7c	The ICV and/or CCV were recovered outside the method-specific limits.
I7d	The ICV and/or CCV were not analyzed at the appropriate method frequency.
I7f	Required calibration information is missing or samples were analyzed on an expired calibration. Contact the SMO or external laboratory for information.
I9	The extraction holding time was exceeded by < 2 times the published method for holding times.
I9a	The extraction holding time was exceeded by > 2 times the published method for holding times.
I9b	The affected analytes are regarded as rejected because the analytical holding time was exceeded.
I10a	The sample and the duplicate sample results were ≥ 5 times the RL, and the duplicate RPD was > 20% for water samples and > 35% for soil samples.
I10d	The duplicate sample was not prepared and/or analyzed with the samples for unspecified reasons. The duplicate information is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.
I12	The LCS %R was <10%. Follow the external laboratory limits located within the associated data package.
I12a	The LCS %R was < the LAL but >10%. Follow the external laboratory limits located within the associated data package.
I12b	The LCS %R was > the UAL. Follow the external laboratory limits located within the associated data package.
I12c	The LCS documentation is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information. Do not qualify as R if MS/MSD information is present. Qualify according to MS/MSD criteria.
I16	The instrument performance sample did not pass the method acceptance criteria.
I16a	The mass calibration is not within 0.1 atomic mass unit, or %RSD exceeds 5% for any isotope (Be, Mg, Co, In, Pb).
I16b	Samples were analyzed outside specific method tune time criteria.
I16c	The required instrument performance sample information is missing. Contact the SMO or external laboratory for information.

Secondary Validation Reason Codes (continued)

Code	Description
I18	Serial dilution sample RPD was >10% and the sample results was > 50 times the MDL (> 100 times the MDL for inductively coupled plasma mass spectrometry). Qualify ONLY the sample used for the serial dilution.
I18a	Serial dilution sample was not analyzed with the samples.
I19	The project chemist identified quality deficiencies in the reported data that require further qualification. This code can ONLY be used by the project chemist or under advisement of the project chemist.
I88	Duplicate, dilution, or reanalysis.
J_LAB	Qualification of data via data validation did not occur based on QC requirements in this procedure. Adhere to the external laboratory qualifiers found within the Form I analytical data summary sheets generated by the external laboratory.
NQ	Qualification of data via data validation did not occur based on QC requirements in this procedure. Adhere to the external laboratory qualifiers found within the Form I analytical data summary sheets generated by the external laboratory.
P0	The analyte RT shifted by >0.05 min from the midlevel standard of the initial calibration.
P0b	Required RT documentation is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.
P3	The surrogate is <10%R, which indicates the potential for a severely low bias in the results. Follow the external laboratory limits located within the associated data package.
P3a	The surrogate is < the LAL but ≥10%R, which indicates the potential for a low bias in the results. Follow the external laboratory limits.
P3b	The surrogate %R value is > the UAL, which indicates a potential for a high bias in the results and a potential for false positive results. Follow the external laboratory limits located within the associated data package.
P3c	At least one surrogate is > the UAL and one surrogate is < the LAL, which indicates a greater than normal degree of uncertainty in the result. Follow the external laboratory limits located within the associated data package.
P3d	Required surrogate information is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.
P4	The sample result is ≤ 5 times the concentration of the related analyte in the method blank, which indicates the reported detection is considered indistinguishable from contamination in the blank.
P4a	The affected analytes are considered estimated and biased high because this analyte was identified in the method blank but was > 5 times.
P4b	The sample result is ≤ 5 times the concentration of the related analyte in the instrument and CCB, which indicates the reported detection is considered indistinguishable from contamination in the blank.
P4d	The sample result is ≤ 5 times the concentration of the related analyte in the trip blank, rinsate blank, or equipment blank, which indicates the reported detection is considered indistinguishable from contamination in the blank.
P4e	Required blank information is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.
P7	The affected results were not analyzed with a valid 5-point calibration curve and/or a standard at the reporting limit.
P7a	The affected analytes were analyzed with an initial calibration curve that exceeded the %RSD criteria, and/or the associated multipoint calibration correlation coefficient is <0.995.

Secondary Validation Reason Codes (continued)

Code	Description
P7c	The ICV and/or CCV were recovered outside the method-specific limits.
P7d	The ICV and/or CCV were not analyzed at the appropriate method frequency.
P7e	The multicomponent standard was not analyzed within 72 h of the initial analysis.
P7f	Required calibration information is missing or samples were analyzed on an expired calibration. Contact the SMO or external laboratory for information.
P8	The analyte was not confirmed on a second dissimilar column.
P8a	The required dissimilar column documentation is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.
P9	The extraction/analytical holding time was exceeded by < 2 times the published method for holding times.
P9a	The extraction/analytical holding time was exceeded by > 2 times the published method for holding times.
P9b	The affected analytes are regarded as rejected because the analytical holding time was exceeded.
P12	The LCS %R was <10%. Follow the external laboratory limits located within the associated data package.
P12a	The LCS %R was < the LAL but >10%. Follow the external laboratory limits located within the associated data package.
P12b	The LCS %R was > the UAL. Follow the external laboratory limits located within the associated data package.
P12c	The LCS documentation is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information located within the associated data package.
P13	The breakdown criteria have been exceeded. This can cause low bias in reported results. If compound is detected, qualify as J-. If compounds are not present, but breakdown products are present, qualify as R. If compounds and no breakdown products are present, qualify as UJ (4,4'-DDT and endrin).
P13a	The breakdown criteria have been exceeded. This can cause high bias in the reported results and potential false positive results for the breakdown products endrin ketone, endrin aldehyde, DDD, and DDE (dichlorodiphenyldichloroethylene).
P13b	The breakdown documentation is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.
P15	The affected analytes have elevated detection limits and may not meet project DQOs because the sample was diluted without any target analytes identified because of matrix interference. Qualify as R if the analytical laboratory cannot provide proof for cleanup or matrix interference.
P19	The project chemist identified quality deficiencies in the reported data that require further qualification. This code can ONLY be used by the project chemist or under advisement of the project chemist.
P88	Duplicate, dilution, or reanalysis.
PE0	The perchlorate RRT is outside the acceptance range of 0.98 to 1.02 s.
PE0b	Required RT documentation is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.

Secondary Validation Reason Codes (continued)

Code	Description
PE1a	This IS area count is <25% of the expected value. If the IS is used only as a RT check (perchlorate analysis), the RRT of the IS must fall within the acceptance range of 0.98 to 1.02, and the IS recovery should be evaluated using the surrogate criteria. If recovery acceptance limits are not reported in the data package, recovery should be evaluated based on reported MS acceptance limits.
PE1b	If the IS area count is <70% but >25% of the average of that obtained from the calibration standards, qualify all associated detects as J and all associated nondetects as UJ. If the IS is used only as a RT check (perchlorate analysis), the RRT of the IS must fall within the acceptance range of 0.98 to 1.02, and the IS recovery should be evaluated using the surrogate criteria. If recovery acceptance limits are not reported in the data package, recovery should be evaluated based on reported MS acceptance limits.
PE1c	If the IS is >130% of the average of that obtained from the calibration standards, qualify all associated detects as J and all associated nondetects as UJ. If the IS is used only as a RT check (perchlorate analysis), the RRT of the IS must fall within the acceptance range of 0.98 to 1.02, and the IS recovery should be evaluated using the surrogate criteria. If recovery acceptance limits are not reported in the data package, recovery should be evaluated based on reported MS acceptance limits.
PE1d	Required IS information is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.
PE4	The sample result is ≤ 5 times the concentration of the related analyte in the method blank, which indicates the reported detection is considered indistinguishable from contamination in the blank.
PE4a	The affected analytes are considered estimated and biased high because this analyte was identified in the method blank but was > 5 times.
PE4d	The sample result is ≤ 5 times the concentration of the related analyte in the trip blank, rinsate blank, and equipment blank, which indicates the reported detection is considered indistinguishable from contamination in the blank.
PE4e	Required method blank information is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.
PE7	The affected results were not analyzed with a valid 5-point calibration curve and/or a standard at the reporting limit. LC/MS/MS instrument calibration shall be performed using a minimum of five (5) calibration standards. The lowest point of the curve must be at or below the reporting limit. If calibration curves are used, five (5) standards are required for a linear (first-order) calibration model, six (6) standards are required for a quadratic (second-order) model, and seven (7) standards are required for a third-order polynomial. Higher-order curves should not normally be used. If the laboratory uses a higher-order equation to establish a calibration curve, it should be evaluated for the appropriate application. If an insufficient number of calibration standards was used, the PQLs were incorrect, or all points were not analyzed within a 24-h period, qualify all associated detects as J and all associated nondetects as UJ.
PE7a	The affected analytes were analyzed with an initial calibration curve that exceeded the %RSD criteria, and/or the associated multipoint calibration coefficient is <0.99.

Secondary Validation Reason Codes (continued)

Code	Description
PE7c	The ICV and/or CCV were recovered outside the method limits. The %D between the ICV and CCV standard concentrations and their true values must be ≤15%. The evaluation of CCV data applies to all CCVs that bracket samples of interest. If the %D was reported with the wrong sign (e.g., +%D for negative bias), document the occurrence in the data validation report and assess any infractions using the correct sign. 1. If the %D between a measured ICV and/or CCV concentration and its true value for any analyte is >15%, qualify all associated detects as J+. 2. If the %D between a measured ICV and/or CCV concentration and its true value for any analyte is >15% but ≤40% and negative (low bias), qualify all associated detects as J- and, if any other calibration criteria have been exceeded for that compound, qualify all associated nondetects as UJ. 3. If the %D between a measured ICV and/or CCV concentration and its true value for any analyte is >40% but ≤60% and negative, qualify all associated detects as J- and all associated nondetects as UJ. 4. If the %D between a measured ICV and/or CCV concentration and its true value for any analyte is >60% and is negative, qualify all associated detects as J- and all associated nondetects as R.
PE7d	The ICV and/or CCV were not analyzed at the appropriate method frequency. An ICV standard is analyzed immediately following an initial calibration. The ICV standard analysis results are not required to be reported in the data package unless the samples in the SDG were analyzed after the initial calibration but before a CCV standard analysis was performed. In this case, the ICV %D is assessed according to the calibration verification criteria described below for the associated samples. If a CCV is analyzed before samples and ICV data are also reported in the package, both the ICV %D and the appropriate CCV %D are to be assessed as described below. If both %D and CCV %D infractions occur, the worst infraction should be evaluated for result qualification. A CCV must be analyzed in the following instances: • at the beginning of each analytical run; • at least once every 10 samples; and • at the end of each analytical run. If multiple CCVs were analyzed to obtain a passing CCV, the calibration is not verified and the calibration frequency is not met. If the ICV and CCV standards were not analyzed at the proper frequency, or if either a required ICV or CCV was not analyzed, or if all target compounds were not present in any ICV or CCV standard, qualify all associated detects as J and all associated nondetects as UJ. If all required ICVs and CCVs were not analyzed, qualify all associated detects as J and all associated nondetects as R.
PE7f	Required calibration information is missing or samples were analyzed on an expired calibration. Contact the SMO or external laboratory for information.
PE8	The affected analyte is considered not detected because ion abundance ratios did not meet specifications. The natural isotopic abundances for the chlorine isotopes give a 35Cl/37Cl ratio of approximately 3.08. Laboratories must statistically derive isotope ratio acceptance criteria to be used as an additional confirmation of analyte identity. When the laboratory does not specify acceptance criteria, the mean of the ratio population shall not deviate by more than 10% from the 3.08 theoretical value and the standard deviation shall not significantly exceed 0.2. Between the MDL and the PQL, the individual sample isotope acceptance limits shall be near the population mean ±20% (approximately 3 sigma). Above the PQL, the individual sample isotope ratio acceptance limits shall be near the population mean ±15% (approximately 2 sigma). When isotope ratio acceptance criteria are not met, the laboratory must provide supporting data and explanatory case narrative comments in the data package. If the isotope ratios were not reported, calculate the ratio if the raw data were supplied or request an amended report from the laboratory if the raw data were not supplied. If an isotope ratio is outside the acceptance limits, qualify the detect results as J or R based on professional judgment.
PE8a	The ion ratio documentation is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.

Secondary Validation Reason Codes (continued)

Code	Description
PE9	The extraction/analytical holding time was exceeded by < 2 times the published method for holding times.
PE9a	The extraction/analytical holding time was exceeded by < 2 times the published method for holding times.
PE12	An LCS should be analyzed at a frequency of once per data package, once per matrix, or once per 20 analytical samples, whichever is most frequent. The LCS must meet all sample acceptance criteria and all method-specific LCS requirements. The LCS for perchlorate must meet laboratory-derived acceptance criteria. If IS recovery acceptance criteria are not met for the LCS analysis, the LCS must be reanalyzed. If the recovery acceptance criteria are not reported in the analytical data package, recovery limits of 85% to 115% (perchlorate limits) should be used as the criteria. The LCS percent recovery was <10%. Qualify detected results as J- and not detected results as R.
PE12a	The LCS percent recovery was < the LAL but >10%. Follow the external laboratory limits. Qualify detected results as J- and not detected results as UJ.
PE12b	The LCS percent recovery was > the UAL. Follow the external laboratory limits. Qualify detected results as J+.
PE12c	The LCS documentation is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.
PE12d	The MS/MSD %R was <10%. The MS/MSD data shall not be used to evaluate associated field sample results unless the MS/MSD sample was from the same client and of similar matrix. For perchlorate, the MS/MSD recovery acceptance criteria are 75% to 125% with an RPD of ≤20%. For solid and waste samples, it may be appropriate to accept an RPD of up to 30% based on professional judgment. The MS and MSD %R must be within the limits unless the sample concentration is > 4 times the spike concentration. The MS and MSD results may be used in conjunction with other QC results to determine the need for qualification of the data. An effort to determine to what extent the results of the MS/MSD affect the associated data should first be made. This determination should be made considering the MS/MSD sample matrix, the surrogate and internal standard recoveries, and the LCS results. Professional judgment should be used to determine if MS/MSD failure warrants qualification of only the results for the failed compounds or if results for all compounds associated with the failed MS compound are affected. Generally, unless evidence exists to warrant qualification of other compounds, only the compounds in the MS spiking mixture shall be qualified. If the surrogate, internal standard, and LCS recoveries are within the required acceptance criteria and either the MS or MSD recovery for any target analyte is <10%, qualify results as R.
PE12e	The MS/MSD %R was >10% but <75%. Qualify all detects as J and all nondetects as UJ.
PE12f	The MS/MSD %R was >125%. Qualify all associated detects as J+.
PE12g	The MS/MSD RPD was >20%. If the acceptance criteria are not reported, recovery limits of 75% to 125% and an RPD of 20% should be used as the criteria. For solid and waste samples, it may be appropriate to accept an RPD of up to 30% based on professional judgment.
PE15	The affected analytes are considered suspect because the sample was diluted without any target analytes identified because of matrix interference. Qualify as R if the analytical laboratory cannot provide proof for matrix interference.

Secondary Validation Reason Codes (continued)

Code	Description
PE15a	The sample was diluted because target analytes were greater than the initial verification calibration. The PQLs must be adjusted to reflect all sample dilutions, concentrations, splits, cleanup activities, and dry weight factors that are not accounted for by the method. Samples must be diluted and reanalyzed when any analyte exceeds the calibration range. Data from the original sample analysis should be included when any sample requires dilution because of one or more analytes exceeding the calibration range. The original undiluted results document the actual MDLs for nondetects. If the PQLs have not been properly adjusted, request an amended report from the laboratory. If an initial dilution was required because of expected high concentrations of nontarget analytes or because one or more target analytes were expected to greatly exceed the instrument working range and the laboratory was not able to analyze the undiluted sample, note the dilution and elevated MDLs in the data validation report. If any target analyte exceeded the calibration range and the original undiluted sample result was reported, qualify all detects from the undiluted analysis that exceeded the calibration range as J. If any target analyte exceeded the calibration range and the sample was diluted and reanalyzed and the diluted sample data were reported, qualify all nondetects from the diluted analysis as UJ. If any target analyte exceeded the calibration range and the original undiluted sample analysis was not reported, request this information from the laboratory. The laboratory shall strive to make dilutions in such a way that the final concentration is measured in the midrange of the calibration curve and that results are not reported from measurements below the lowest concentration standard. If the instrument response (reported result/dilution factor) for a diluted sample is less than that of the lowest concentration standard, qualify all associated detects from the diluted analysis as J.
PE16	The CRI sample did not pass method-acceptance criteria. CRI analysis recoveries for perchlorate analysis must be within limits specified by the Laboratory. If acceptance criteria are not reported, the recovery acceptance range shall be 70% to 130%. 1. If frequency criteria were not met, qualify all detects < 5 times the PQL as J and all nondetects as UJ. 2. If the recovery is > the UAL, qualify all associated detects < 5 times the PQL as J+. 3. If the recovery is < the LAL but ≥30%, qualify all associated detects < 5 times the PQL as J- and all associated nondetects as UJ. 4. If the recovery is <30%, qualify all associated detects < 5 times the PQL as J- and all associated nondetects as R.
PE16a	The interference check sample recovery was not within ±20% of the known value. The laboratory shall analyze an interference check sample from a matrix containing 500 ppm each of chloride, sulfate, carbonate, and bicarbonate in every batch. The concentration of this standard will be at the PQL. To determine that perchlorate is adequately isolated and recovered under the specific conditions used, this standard should recover within ±20% of the known value. If frequency criteria were not met, note the deficiency in the data validation report. If the recovery is not within ±20% of the known value, note the deficiency in the data validation report. Qualify not detected results as UJ and detected results as J.
PE16c	The required CRI sample information is missing. Contact the SMO or external laboratory for information.
PE19	The project chemist identified quality deficiencies in the reported data that require further qualification. This code can ONLY be used by the project chemist or under advisement of the project chemist.
PE88	Duplicate, dilution, or reanalysis.
R3	The tracer is <10%R. Follow the external laboratory limits located within the associated data package. Tracer %R is not applicable for gamma spectroscopy.
R3a	The tracer is < the LAL but ≥10%R. Follow the external laboratory limits located within the associated data package. Tracer %R is not applicable for gamma spectroscopy.
R3b	The tracer %R value is > the UAL. Follow the external laboratory limits located within the associated data package. Tracer %R is not applicable for gamma spectroscopy.

Secondary Validation Reason Codes (continued)

Code	Description
R3d	Required tracer information is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information. Tracer% R is not applicable for gamma spectroscopy.
R4	The sample result is ≤ 5 times the concentration of the related analyte in the method blank.
R4a	The affected analytes are considered estimated and biased high because this analyte was identified in the method blank but was > 5 times.
R4d	The sample result is ≤ 5 times the concentration of the related analyte in the trip blank, rinsate blank, or equipment blank.
R4e	Required method blank information is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.
R5	The results for the affected analytes are considered not detected (U) because the associated sample concentration was less than or equal to the minimum detectable concentration (MDC).
R5a	The analyte should be regarded as rejected because spectral interferences prevent positive identification of the analytes.
R5b	The MDC and/or total propagated uncertainty (TPU) documentation is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.
R6	The duplicate sample was not prepared and/or analyzed with the samples for unspecified reasons. The duplicate information is missing.
R6a	The associated MS recovery was <10%. Follow the external laboratory limits. MS/MSD is not applicable to gamma spectroscopy.
R6b	The associated MS recovery was above the UAL. Follow the external laboratory limits. MS/MSD is not applicable to gamma spectroscopy.
R6c	Required MS information is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information. If LCS information is present, do not qualify as R. Qualify data based on LCS information. MS/MSD is not applicable to gamma spectroscopy.
R9	The holding time was > 1 and ≤ 2 times the applicable holding time requirement.
R9a	The holding time was > 2 times the applicable holding time requirement.
R10	Associated duplicate sample has a duplicate error ratio or relative error ratio greater than the analytical laboratory's acceptance limits.
R10d	The duplicate sample was not prepared and/or analyzed with the samples for unspecified reasons. The duplicate information is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.
R11	The results for the affected analytes should be regarded as not detected (U) because the associated sample concentration was less than 3 times the 1 sigma TPU.
R12	The LCS %R was <10%. Follow the external laboratory limits located within the associated data package.
R12a	The LCS %R was < the LAL but >10%. Follow the external laboratory limits located within the associated data package.
R12b	The LCS %R was > the UAL. Follow the external laboratory limits located within the associated data package.
R12c	The LCS documentation is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.
R19	The LANL project chemist identified quality deficiencies in the reported data that require further qualification. This code can ONLY be used by the LANL project chemist or under advisement of the LANL project chemist.
R88	Duplicate, dilution, or reanalysis.

Secondary Validation Reason Codes (continued)

Code	Description
SV0	The IS RT has shifted by >30 s.
SV0a	Analyte is positively confirmed but outside the IS retention window; however, spectral matches must be provided.
SV0b	Required RT documentation is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.
SV1a	The quantitating IS area count is <10% of the expected value. Follow the method-specific windows.
SV1b	The IS area count for the quantitating IS is <50% but >10% for the organics window relative to the previous continuing calibration. Follow the method-specific windows.
SV1c	The IS area count for the quantitating IS is >200% of the area count for the previous organic continuing calibration. Follow the method-specific windows.
SV1d	Required IS information is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.
SV3	The surrogate is <10%R, which indicates the potential for a severely low bias in the results. Follow the external laboratory limits located within the associated data package.
SV3a	The surrogate is < the LAL but ≥ 10%R, which indicates the potential for a low bias in the results. Follow the external laboratory limits.
SV3b	The surrogate %R value is > the UAL, which indicates a potential for a high bias in the results and a potential for false positive results. Follow the external laboratory limits located within the associated data package.
SV3c	At least one surrogate is > the UAL and one surrogate is < the LAL, which indicates a greater than normal degree of uncertainty in the result. Follow the external laboratory limits located within the associated data package.
SV3d	Required surrogate/tracer information is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.
SV4	The sample result is ≤ 5 times (10 times for common organic laboratory contaminants) the concentration of the related analyte in the method blank, which indicates the reported detection is considered indistinguishable from contamination in the blank.
SV4a	The affected analytes are considered estimated and biased high because this analyte was identified in the method blank but was > 5 times (10 times for common laboratory contaminants).
SV4d	The sample result is ≤ 5 times the concentration of the related analyte in the trip blank, rinsate blank, or equipment blank, which indicates the reported detection is considered indistinguishable from contamination in the blank.
SV4e	Required method blank information is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.
SV7	The affected results were not analyzed with a valid 5-point calibration curve and/or a standard at the reporting limit.
SV7a	The affected analytes were analyzed with an initial calibration curve that exceeded the %RSD criteria, and/or the associated multipoint calibration correlation coefficient is <0.995.
SV7b	The affected analytes were analyzed with an RRF of <0.05 in the initial calibration and/or CCV.
SV7c	The ICV and/or CCV were recovered outside the method-specific limits.
SV7d	The ICV and/or CCV were not analyzed at the appropriate method frequency.

Secondary Validation Reason Codes (continued)

Code	Description
SV7f	Required calibration information is missing or samples were analyzed on an expired calibration. Contact the SMO or external laboratory for information.
SV8	The affected analyte is considered not detected because mass spectrum did not meet specifications.
SV8a	The mass spectrum column documentation is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.
SV9	The extraction holding time is exceeded by < 2 times the published method for holding times.
SV9a	The extraction holding time was exceeded by > 2 times the published method for holding times.
SV9b	The affected analytes are regarded as rejected because the analytical holding time was exceeded.
SV12	The LCS %R was <10%. Follow the external laboratory limits located within the associated data package.
SV12a	The LCS %R was < the LAL but >10%. Follow the external laboratory limits located within the associated data package.
SV12b	The LCS %R was > the UAL. Follow the external laboratory limits located within the associated data package.
SV12c	The LCS documentation is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information located within the associated data package.
SV15	The affected analytes have elevated detection limits and may not meet project DQOs because the sample was diluted without any target analytes identified because of matrix interference. Qualify as R if the analytical laboratory cannot provide proof for matrix interference.
SV16	The instrument performance sample did not pass the method acceptance criteria.
SV16b	Samples were analyzed outside specific method tune time criteria.
SV16c	The required instrument performance sample information is missing. Contact the SMO or external laboratory for information.
SV19	The project chemist identified quality deficiencies in the reported data that requires further qualification. This code can ONLY be used by the project chemist or under advisement of the project chemist.
SV88	Duplicate, dilution, or reanalysis.
U_LAB	Qualification of data via data validation did not occur based on QC requirements in this procedure. Adhere to the external laboratory qualifiers found within the Form I analytical data summary sheets generated by the external laboratory.
V0	The IS RT has shifted by >30 s.
V0a	Analyte is positively confirmed but outside the IS retention window; however, spectral matches must be provided.
V0b	Required RT documentation is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.
V1a	The quantitating IS area count is <10% of the expected value. Follow the method-specific windows.
V1b	The IS area count for the quantitating IS is <50% but >10% for the organics window relative to the previous continuing calibration. Follow the method-specific windows.

Secondary Validation Reason Codes (continued)

Code	Description
V1c	The IS area count for the quantitating IS is >200% of the area count for the previous organic continuing calibration. Follow the method-specific windows.
V1d	Required IS information is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.
V3	The surrogate is <10%R, which indicates the potential for a severely low bias in the results. Follow the external laboratory limits located within the associated data package.
V3a	The surrogate is < the LAL but ≥10%R, which indicates the potential for a low bias in the results. Follow the external laboratory limits.
V3b	The surrogate %R value is > the UAL, which indicates a potential for a high bias in the results and a potential for false positive results. Follow the external laboratory limits located within the associated data package.
V3c	At least one surrogate is > the UAL and one surrogate is < the LAL, which indicates a greater than normal degree of uncertainty in the result. Follow the external laboratory limits located within the associated data package.
V3d	Required surrogate/tracer information is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.
V4	The sample result is ≤ 5 times (10 times for common organic laboratory contaminants) the concentration of the related analyte in the method blank, which indicates the reported detection is considered indistinguishable from contamination in the blank.
V4a	The affected analytes are considered estimated and biased high because this analyte was identified in the method blank but was > 5 times (10 times for common laboratory contaminants).
V4d	The sample result is ≤ 5 times the concentration of the related analyte in the trip blank, rinsate blank, or equipment blank, which indicates the reported detection is considered indistinguishable from contamination in the blank.
V4e	Required method blank information is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.
V7	The affected results were not analyzed with a valid 5-point calibration curve and/or a standard at the reporting limit.
V7a	The affected analytes were analyzed with an initial calibration curve that exceeded the %RSD criteria, and/or the associated multipoint calibration correlation coefficient is <0.995.
V7b	The affected analytes were analyzed with an RRF of < 0.05 in the initial calibration and/or CCV.
V7c	The ICV and/or CCV were recovered outside the method-specific limits.
V7d	The ICV and/or CCV were not analyzed at the appropriate method frequency.
V7f	Required calibration information is missing or samples were analyzed on an expired calibration. Contact the SMO or external laboratory for information.
V8	The affected analyte is considered not detected because mass spectrum did not meet specifications.
V8a	The mass spectrum column documentation is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.
V9	The extraction/analytical holding time is exceeded by < 2 times the published method for holding times.
V9a	The extraction/analytical holding time was exceeded by >2 times the published method for holding times.

Secondary Validation Reason Codes (continued)

Code	Description
V12	The LCS %R was <10%. Follow the external laboratory limits located within the associated data package.
V12a	The LCS %R was < the LAL but >10%. Follow the external laboratory limits located within the associated data package.
V12b	The LCS %R was > the UAL. Follow the external laboratory limits located within the associated data package.
V12c	The IS area count for the quantitating IS is >200% of the area count for the previous organic continuing calibration. Follow the method-specific windows.
V15	The affected analytes have elevated detection limits and may not meet project DQOs because the sample was diluted without any target analytes identified because of matrix interference. Qualify as R if the analytical laboratory cannot provide proof for matrix interference.
V16	The instrument performance sample did not pass the method acceptance criteria.
V16b	Samples were analyzed outside specific method tune time criteria.
V16c	The required instrument performance sample information is missing. Contact the SMO or external laboratory for information.
V19	The project chemist identified quality deficiencies in the reported data that require further qualification. This code can ONLY be used under advisement by the project chemist.
V88	Duplicate, dilution, or reanalysis.

Table D-1
Previously Unreported MDA C Monitoring Group Groundwater Tritium

Zone	Location	Well Class	Depth (ft)	Date	Analyte	Field Preparation Code	Lab Sample Type Code	Field QC Type Code	Symbol	Result	Uncertainty	MDA	MDL	Unit	Analytical Method Code	Lab Code	Lab Qualifier Code	Secondary Validation Flag Code	Secondary Validation Reason Code
Regional	R-60	SINGLE	1330	07/26/11	H-3	UF	CS	—*	<	−0.10	0.73	2.52247	—	pCi/L	Generic:Low_Level_Tritium	ARSL	U	U	R5
Regional	R-46	SINGLE	1340	11/12/10	H-3	UF	RE	—	<	−0.22	0.70	2.42668	—	pCi/L	Generic:Low_Level_Tritium	ARSL	U	U	R5
Regional	R-46	SINGLE	1340	08/03/11	H-3	UF	CS	—	<	−2.27	0.73	2.29896	—	pCi/L	Generic:Low_Level_Tritium	ARSL	U	U	R5
Regional	R-14	SINGLE	1200.6	11/12/10	H-3	UF	RE	—	<	0.80	0.70	2.33089	—	pCi/L	Generic:Low_Level_Tritium	ARSL	U	U	R5
Regional	R-14	SINGLE	1200.6	08/03/11	H-3	UF	CS	—	<	−2.30	0.73	2.33089	—	pCi/L	Generic:Low_Level_Tritium	ARSL	U	U	R5

*— = None.

Table D-2
MDA C Monitoring Group Groundwater Radioactivity

Zone	Location	Well Class	Depth (ft)	Date	Analyte	Field Preparation Code	Lab Sample Type Code	Field QC Type Code	Symbol	Result	Uncertainty	MDA	Unit	Lab Code	Analytical Method Code	Lab Qualifier Code	Secondary Validation Flag Code	Secondary Validation Reason Code	DOE DCG	Ratio (Result/Screening Level)	DOE Drinking Water DCG Screening Level	Ratio (Result/Screening Level)	EPA MCL	Ratio (Result/Screening Level)	NMWQCC Groundwater Standard	Ratio (Result/Screening Level)
Regional	R-60	SINGLE	1330	11/22/11	Ra-228	UF	CS	—*	—	0.764	0.19	0.41	pCi/L	GELC	EPA:904	—	—	—	100	0.01	4	0.19	5	0.15	30	0.03
Regional	R-14	SINGLE	1200.6	11/08/11	Ra-226	UF	CS	—	—	0.458	0.15	0.25	pCi/L	GELC	EPA:903.1	—	—	—	100	—	4	0.11	5	0.09	30	0.02
Regional	R-14	SINGLE	1200.6	11/08/11	Ra-228	UF	CS	—	—	0.751	0.22	0.56	pCi/L	GELC	EPA:904	—	—	—	100	0.01	4	0.19	5	0.15	30	0.03

*— = None.

Table D-3
MDA C Monitoring Group Groundwater Tritium

Zone	Location	Well Class	Depth (ft)	Date	Analyte	Field Preparation Code	Lab Sample Type Code	Field QC Type Code	Symbol	Result	Uncertainty	MDA	MDL	Unit	Analytical Method Code	Lab Code	Lab Qualifier Code	Secondary Validation Flag Code	Secondary Validation Reason Code
Regional	R-60	SINGLE	1330	11/22/11	H-3	UF	CS	—*	<	−1.03	0.66	2.26	—	pCi/L	Generic:Low_Level_Tritium	ARSL	U	U	R5
Regional	R-46	SINGLE	1340	11/08/11	H-3	UF	CS	—	<	0.76	0.67	2.18	—	pCi/L	Generic:Low_Level_Tritium	ARSL	U	U	R5
Regional	R-14	SINGLE	1200.6	11/08/11	H-3	UF	CS	—	<	−0.62	0.67	2.31	—	pCi/L	Generic:Low_Level_Tritium	ARSL	U	U	R5

*— = None.

Table D-4
MDA C Monitoring Group Groundwater Perchlorate

Zone	Location	Well Class	Depth (ft)	Date	Field QC Type Code	Field Preparation Code	Lab Sample Type Code	Analyte	Analytical Method Code	Symbol	Result	MDL	Unit	Dilution Factor	Lab Qualifier Code	Secondary Validation Flag Code	Secondary Validation Reason Code	Lab Code
Regional	R-60	SINGLE	1330	11/22/11	—*	F	CS	ClO4	SW-846:6850	—	0.326	0.05	µg/L	1	—	—	—	GELC
Regional	R-46	SINGLE	1340	11/08/11	—	F	CS	ClO4	SW-846:6850	—	0.321	0.05	µg/L	1	—	—	—	GELC
Regional	R-14	SINGLE	1201	11/08/11	—	F	CS	ClO4	SW-846:6850	—	0.315	0.05	µg/L	1	—	—	—	GELC

*— = None.

Table D-5
MDA C Monitoring Group Groundwater Metals

Zone	Location	Well Class	Depth (ft)	Date	Analyte	Field Preparation Code	Lab Sample Type Code	Field QC Type Code	Symbol	Result	MDL	Unit	Lab Code	Lab Qualifier Code	Secondary Validation Flag Code	Secondary Validation Reason Code	Analytical Method Code	EPA MCL	Ratio (Result/Screening Level)
Regional	R-46	SINGLE	1340	11/08/11	Sb	F	CS	—*	—	3.06	1	µg/L	GELC	—	—	—	SW-846:6020	6	0.51
Regional	R-46	SINGLE	1340	11/08/11	Sb	UF	CS	—	—	3.35	1	µg/L	GELC	—	—	—	SW-846:6020	6	0.56

*— = None.

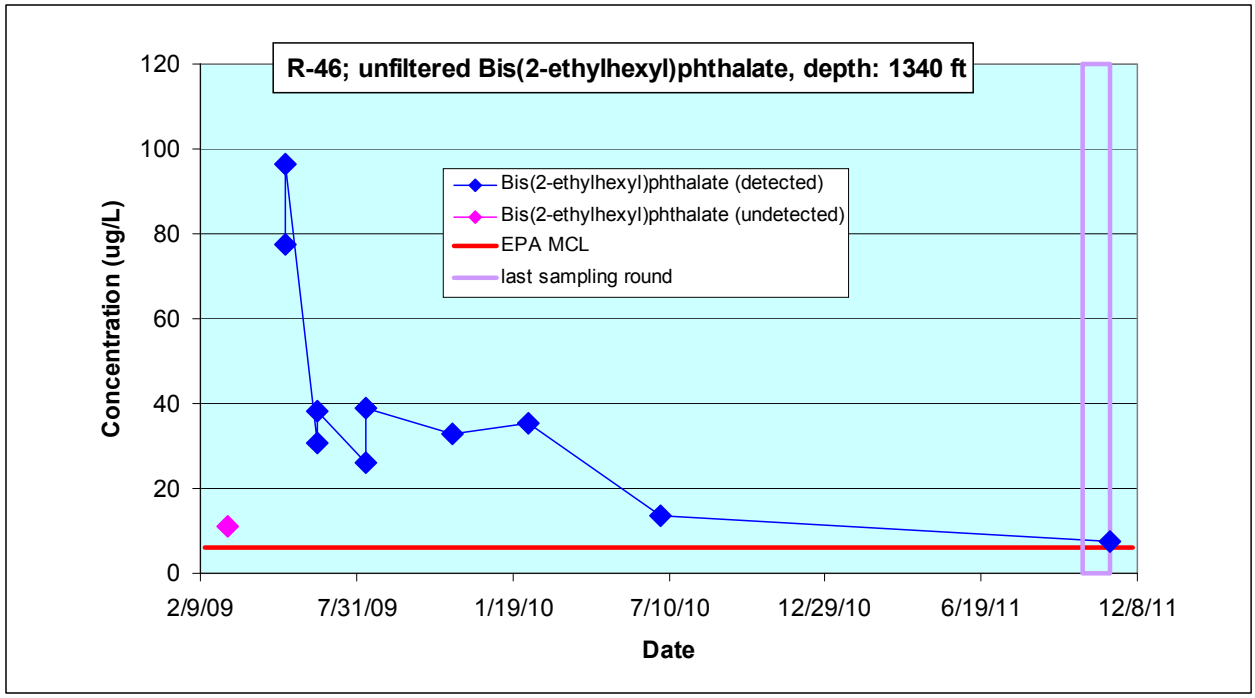
Table D-6
MDA C Monitoring Group Groundwater Organic Chemistry

Zone	Location	Well Class	Depth (ft)	Date	Field QC Type Code	Field Preparation Code	Lab Sample Type Code	Analytical Suite Code	Analyte	Analyte	Symbol	Result	MDL	Unit	Dilution Factor	Lab Qualifier Code	Secondary Validation Flag Code	Secondary Validation Reason Code	Analytical Method Code	Lab Code	EPA MCL	Ratio (Result/Screening Level)	EPA Regional Tap Screening Level	Ratio (Result/Screening Level)
Regional	R-46	SINGLE	1340	11/08/11	—*	UF	CS	SVOA	Bis(2-ethylhexyl)phthalate	117-81-7	—	7.48	3.2	µg/L	1	J	J	J_LAB	SW-846:8270C	GELC	6	1.25	48	0.16

*— = None.

Appendix E

Analytical Chemistry Graphs of Screening-Level Exceedances


R-46; unfiltered Bis(2-ethylhexyl)phthalate, depth: 1340 ft
Bis(2-ethylhexyl)phthalate (detected)
Bis(2-ethylhexyl)phthalate (undetected)
EPA MCL
last sampling round
Concentration (ug/L)
120
100
80
60
40
20
0
2/9/09
7/31/09
1/19/10
7/10/10
12/29/10
6/19/11
12/8/11
Date

Appendix F

Analytical Reports
(on CD included with this document)

CD Table of Contents

Request	Suite	Lab	Sample	Date	Location	Depth (ft)
12-296	GENINORG[a]	GELC[b]	CAMO-12-1525	11/08/11	R-14	1200.6
12-296	GENINORG	GELC	CAMO-12-1526	11/08/11	R-14	1200.6
12-296	GENINORG	GELC	CAMO-12-1529	11/08/11	R-46	1340
12-296	GENINORG	GELC	CAMO-12-1530	11/08/11	R-46	1340
12-296	METALS	GELC	CAMO-12-1525	11/08/11	R-14	1200.6
12-296	METALS	GELC	CAMO-12-1526	11/08/11	R-14	1200.6
12-296	METALS	GELC	CAMO-12-1529	11/08/11	R-46	1340
12-296	METALS	GELC	CAMO-12-1530	11/08/11	R-46	1340
12-296	RAD[c]	GELC	CAMO-12-1526	11/08/11	R-14	1200.6
12-296	RAD	GELC	CAMO-12-1530	11/08/11	R-46	1340
12-296	SVOA[d]	GELC	CAMO-12-1526	11/08/11	R-14	1200.6
12-296	SVOA	GELC	CAMO-12-1530	11/08/11	R-46	1340
12-296	VOA[e]	GELC	CAMO-12-1526	11/08/11	R-14	1200.6
12-296	VOA	GELC	CAMO-12-1527	11/08/11	R-14	1200.6
12-296	VOA	GELC	CAMO-12-1528	11/08/11	R-46	1340
12-296	VOA	GELC	CAMO-12-1530	11/08/11	R-46	1340
12-297	ISOTOPE	EES6[f]	CAMO-12-1525	11/08/11	R-14	1200.6
12-297	ISOTOPE	EES6	CAMO-12-1526	11/08/11	R-14	1200.6
12-297	ISOTOPE	EES6	CAMO-12-1529	11/08/11	R-46	1340
12-297	ISOTOPE	EES6	CAMO-12-1530	11/08/11	R-46	1340
12-300	RAD	ARSL[g]	CAMO-12-1526	11/08/11	R-14	1200.6
12-300	RAD	ARSL	CAMO-12-1530	11/08/11	R-46	1340
12-416	ISOTOPE	EES6	CAMO-12-1522	11/22/11	R-60	1330
12-416	ISOTOPE	EES6	CAMO-12-1524	11/22/11	R-60	1330
12-417	DIOX/FUR[h]	CFA[i]	CAMO-12-1522	11/22/11	R-60	1330
12-418	GENINORG	GELC	CAMO-12-1522	11/22/11	R-60	1330
12-418	GENINORG	GELC	CAMO-12-1524	11/22/11	R-60	1330
12-418	HEXP[j]	GELC	CAMO-12-1522	11/22/11	R-60	1330
12-418	METALS	GELC	CAMO-12-1522	11/22/11	R-60	1330
12-418	METALS	GELC	CAMO-12-1524	11/22/11	R-60	1330
12-418	PEST/PCB[k]	GELC	CAMO-12-1522	11/22/11	R-60	1330
12-418	RAD	GELC	CAMO-12-1522	11/22/11	R-60	1330
12-418	SVOA	GELC	CAMO-12-1522	11/22/11	R-60	1330
12-418	VOA	GELC	CAMO-12-1522	11/22/11	R-60	1330
12-418	VOA	GELC	CAMO-12-1523	11/22/11	R-60	1330
12-419	RAD	ARSL	CAMO-12-1522	11/22/11	R-60	1330

[a] GENINORG = General inorganics.

[b] GELC = General Engineering Laboratories, Inc., Charleston, SC.

[c] RAD = Radiochemistry (not gamma).

[d] SVOA = Semivolatile organic analysis.

[e] VOA = Volatile organic analysis.

[f] EES6 = Hydrology, Geochemistry, and Geology Group (Los Alamos National Laboratory).

[g] ARSL = American Radiation Services–Primary.

[h] DIOX/FUR = Dioxins and furans.

[i] CFA = Cape Fear Analytical, LLC.

[j] HEXP = High explosives.

[k] PEST/PCB = Pesticides/polychlorinated biphenyls.