



DEPARTMENT OF ENERGY
Environmental Management Los Alamos Field Office (EM-LA)
Los Alamos, New Mexico 87544

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August 31, 2020

Mr. Kevin Pierard
Bureau Chief
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87505-6313

Subject: Submittal of the Annual Periodic Monitoring Report for the Technical Area 16 260
Monitoring Group

Dear Mr. Pierard:

Enclosed please find two hard copies with electronic files of the "2020 Annual Periodic Monitoring Report for the Technical Area 16 260 Monitoring Group, Pajarito Canyon and Water Canyon/ Cañon de Valle Watersheds." The report includes results from the sampling campaigns performed during the third and fourth quarters of monitoring year (MY) 2019 and the first quarter of MY 2020. The periodic monitoring event from the second quarter of MY 2020 was canceled because groundwater field crews were unable to access Los Alamos National Laboratory Weapons Facilities Operations areas to complete sampling. This sampling was moved to the fourth quarter of MY 2020, and these samples will be reported in the 2021 annual periodic monitoring report for the Technical Area 16 260 monitoring group.

These reports are submitted in accordance with Appendix E, Section IV, of the June 2016 Compliance Order on Consent, as modified on February 27, 2017.

If you have any questions, please contact Steve Veenis at (505) 309-1362 (steve.veenis@em-la.doe.gov) or Hai Shen at (505) 257-7943 (hai.shen@em.doe.gov).

Sincerely,

Arturo Duran

Digitally signed by Arturo
Duran
Date: 2020.08.31
06:06:02 -06'00'

Arturo Q. Duran
Compliance and Permitting Manager
Environmental Management
Los Alamos Field Office

Enclosures: Two hard copies with electronic files:

1. 2020 Annual Periodic Monitoring Report for the Technical Area 16 260 Monitoring Group, Pajarito Canyon and Water Canyon/Cañon de Valle Watersheds (EM2020-0347)

CC (letter with hard-copy enclosure[s]):

Steve Veenis, N3B

CC (letter with CD/DVD enclosure[s]):

Laurie King, EPA Region 6, Dallas, TX

Raymond Martinez, San Ildefonso Pueblo, NM

Dino Chavarria, Santa Clara Pueblo, NM

Richard Carpenter, City of Santa Fe, NM

Harry Burgess, Los Alamos County, NM (2 copies)

Jack Richardson, Los Alamos County, NM

Michelle Hunter, NMED-GWQB

Chris Catechis, NMED-DOE-OB

Steve Yanicak, NMED-DOE-OB

Cheryl Rodriguez, EM-LA

Hai Shen, EM-LA

emla.docs@em.doe.gov

n3brecords@em-la.doe.gov

Public Reading Room (EPRR)

PRS website

CC (letter emailed without enclosure[s]):

William Alexander, N3B

Emily Day, N3B

Zoe Duran, N3B

David Fellenz, N3B

Cheryl Fountain, N3B

Jeff Holland, N3B

Danny Katzman, N3B

Kim Lebak, N3B

Joseph Legare, N3B

Dana Lindsay, N3B

Pamela Maestas, N3B

Glenn Morgan, N3B

Joseph Murdock, N3B

Dan Pastor, N3B

Bruce Robinson, N3B

M. Lee Bishop, EM-LA

Stephen Hoffman, EM-LA

Kirk D. Lachman, EM-LA

David Nickless, EM-LA

Ben Underwood, EM-LA

August 2020
EM2020-0347

**2020 Annual Periodic Monitoring
Report for the Technical Area 16
260 Monitoring Group,
Pajarito Canyon and
Water Canyon/Cañon de Valle
Watersheds**



Newport News Nuclear BWXT-Los Alamos, LLC (N3B), under the U.S. Department of Energy Office of Environmental Management Contract No. 89303318CEM000007 (the Los Alamos Legacy Cleanup Contract), has prepared this document pursuant to the Compliance Order on Consent, signed June 24, 2016. The Compliance Order on Consent contains requirements for the investigation and cleanup, including corrective action, of contamination at Los Alamos National Laboratory. The U.S. government has rights to use, reproduce, and distribute this document. The public may copy and use this document without charge, provided that this notice and any statement of authorship are reproduced on all copies.

2020 Annual Periodic Monitoring Report for the Technical Area 16 260 Monitoring Group, Pajarito Canyon and Water Canyon/ Cañon de Valle Watersheds

August 2020

Responsible program director:

Bruce Robinson		Program Director	Water Program	8/21/20
Printed Name	Signature	Title	Organization	Date

Responsible N3B representative:

Kim Lebak		Program Manager	N3B Environmental Remediation Program	8/21/20
Printed Name	Signature	Title	Organization	Date

Responsible DOE EM-LA representative:

Arturo Q. Duran	Arturo Duran <small>Digitally signed by Arturo Duran Date: 2020.08.31 06:06:26 -06'00'</small>	Compliance and Permitting Manager	Office of Quality and Regulatory Compliance	
Printed Name	Signature	Title	Organization	Date

EXECUTIVE SUMMARY

This annual periodic monitoring report (PMR) presents results for the Technical Area 16 (TA-16) 260 monitoring group of the Newport News Nuclear BWXT-Los Alamos, LLC, groundwater monitoring program that have not previously been reported. All monitoring work reported in this PMR was conducted pursuant to the “Interim Facility-Wide Groundwater Monitoring Plan for the 2019 Monitoring Year, October 2018–September 2019” (hereafter referred to as the 2019 IFGMP) and the “Interim Facility-Wide Groundwater Monitoring Plan for the 2020 Monitoring Year, October 2019–September 2020” (hereafter referred to as the 2020 IFGMP), both prepared in accordance with the Compliance Order on Consent.

All active monitoring locations in the TA-16 260 monitoring group are located within the Pajarito Canyon and Water Canyon/Cañon de Valle watersheds. The TA-16 260 monitoring group includes the monitoring of surface water, spring, and groundwater well or well screen locations.

This PMR presents monitoring results for four periodic monitoring events (PMEs) conducted during the third and fourth quarters of monitoring year (MY) 2019 and the first and second quarters of MY 2020. In addition to results from the current PMEs, results are reported for the previous four PMEs, as well as earlier TA-16 260 monitoring group PMEs that have not yet been reported because the validated laboratory data were not available at the time of the previous TA-16 260 PMR publications.

Groundwater and surface water samples collected during the PMEs were analyzed for all or some of the following analytical groups as specified in the 2019 IFGMP and 2020 IFGMP: metals; radionuclides, including low-level tritium; semivolatile organic compounds; volatile organic compounds; general inorganic chemicals (including perchlorate); polychlorinated biphenyls; dioxins and furans; high explosives; and per- and polyfluoroalkyl substances. The same samples were also analyzed for field parameters, including dissolved oxygen, flow rate (in gallons per minute), oxidation-reduction potential, pH, specific conductance, temperature, and turbidity.

One surface water analytical result and 30 groundwater analytical results reported in this PMR were detected above applicable screening values.

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Plate

Plate 1	Groundwater elevations
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Acronyms and Abbreviations

bgs	below ground surface
CAS	Chemical Abstracts Service
CdV	Cañon de Valle
CFA	Cape Fear Analytical, LLC, Wilmington, NC
COC	chain of custody
Consent Order	Compliance Order on Consent
CV	casing volume
DOE	Department of Energy (U.S.)
DP	drop pipe
DQO	data quality objective
EDD	electronic data deliverable
EIM	Environmental Information Management (database)
EPA	Environmental Protection Agency (U.S.)
EQB	equipment rinsate blank
F	filtered
FB	field blank
FD	field duplicate
FTB	field trip blank
GELC	GEL Laboratories, LLC, Division of the GEL Group, Charleston, SC
gpm	gallons per minute
HE	high explosives
HMX	Her Majesty's Explosive
IFGMP	Interim Facility-Wide Groundwater Monitoring Plan
LANL	Los Alamos National Laboratory
LCMS/MS	Liquid chromatography mass spectrometry/mass spectrometry
MCL	maximum contaminant level (EPA)
MDA	material disposal area
MDL	method detection limit
MY	monitoring year
N	no (best value flag code)
N3B	Newport News Nuclear BWXT-Los Alamos, LLC
NC	not collected
NMAC	New Mexico Administrative Code
NMED	New Mexico Environment Department
NM HH OO	Human health organism only, New Mexico surface-water standards

NMWQCC	New Mexico Water Quality Control Commission
NQ	not qualified
NTU	nephelometric turbidity unit
OO	organism only
PEB	performance evaluation blank
PED	portable electronic device
PME	periodic monitoring event
PMR	periodic monitoring report
PRB	permeable reactive barrier
PZ	piezometer
Q	quarter
QA	quality assurance
QC	quality control
RDX	Royal Demolition Explosive
S	screen
SMO	Sample Management Office
SOP	standard operating procedure
SU	standard unit
SVOC	semivolatile organic compound
SWSC	Sanitary Wastewater Systems Consolidation (Spring)
TA	technical area
TNT	2,4,6-trinitrotoluene
UF	unfiltered
VOC	volatile organic compound
Y	yes (best value flag code)

1.0 INTRODUCTION

This annual periodic monitoring report (PMR) for the Technical Area 16 (TA-16) 260 monitoring group provides documentation of the following groundwater periodic monitoring events (PMEs) conducted by Newport News Nuclear BWXT-Los Alamos, LLC (N3B):

Watershed	PMEs Reported in this PMR		PME Field Sampling	
	Monitoring Year	Quarter	Begin	End
Pajarito Canyon and Water Canyon/Cañon de Valle	2019	3	05/28/2019	06/13/2019
		4	08/06/2019	08/22/2019
	2020	1	12/03/2019	12/13/2019
		2*	Canceled	Canceled

* The monitoring year (MY) 2020 quarter (Q) 2 Water/Cañon de Valle PME was canceled because groundwater field crews were unable to access Weapons Facilities Operations security areas pending approval of Form 1897 for on-site authorization to use necessary controlled portable electronic devices to complete sampling. These samples were collected in MY 2020 Q4, and will be reported in the 2021 TA-16 260 PMR.

The annual TA-16 260 monitoring group PMR is submitted to the New Mexico Environment Department (NMED) every August. This PMR includes results from the TA-16 260 monitoring group PME performed through the second quarter of monitoring year (MY) 2020. In addition to results from the four PMEs listed in the table above, results are reported for the previous four PMEs, as well as for earlier TA-16 260 monitoring group PMEs that have not yet been reported because the validated laboratory data were not available at the time of the previous TA-16 260 PMR publications.

The PMEs reported in this PMR included sampling of surface water, spring, and groundwater well or well screen locations pursuant to the “Interim Facility-Wide Groundwater Monitoring Plan for the 2019 Monitoring Year, October 2018–September 2019” (hereafter referred to as the 2019 IFGMP) (N3B 2018, 700000) and the “Interim Facility-Wide Groundwater Monitoring Plan for the 2020 Monitoring Year, October 2019–September 2020” (hereafter referred to as the 2020 IFGMP) (N3B 2019, 700451), both prepared in accordance with the 2016 Compliance Order on Consent (Consent Order).

Section IX of the Consent Order describes the role of data screening in the corrective action process. Screening values are used to identify the *potential* for unacceptable risk resulting from the presence of contaminants in groundwater and surface water. Screening values for evaluating IFGMP monitoring data include New Mexico Water Quality Control Commission (NMWQCC) groundwater standards, U.S. Environmental Protection Agency (EPA) maximum contaminant levels (MCLs), NMED screening levels for tap water, and EPA regional screening levels for tap water. Additional risk evaluation is required to determine the potential need for cleanup (corrective action) if results indicate that contaminants are present at concentrations that exceed screening values.

This report presents the following:

- general background information for the TA-16 260 monitoring group;
- scope of activities for the TA-16 260 monitoring group;
- regulatory criteria for screening analysis;
- monitoring results (field parameters, groundwater elevations);
- analytical data results; and
- a summary of the monitoring data and the results of screening analysis.

All information associated with analysis of radionuclides is voluntarily provided to NMED in accordance with U.S. Department of Energy (DOE) policy.

1.1 Background

TA-16 is located in the southwest corner of the Los Alamos National Laboratory (LANL or the Laboratory) and covers 2,410 acres (3.8 mi²). Figure 1.0-1 shows the boundary of TA-16 within the Laboratory. TA-16 is bordered by Bandelier National Monument along NM 4 to the south and by the Santa Fe National Forest along NM 501 to the west. To the north and east, it is bordered by TA-08, TA-09, TA-11, TA-14, TA-15, TA-37, and TA-49. Water Canyon, a 200-ft-deep ravine with steep walls, separates NM 4 from active sites at TA-16. Cañon de Valle forms the northern border of TA-16. A total of 410 solid waste management units and areas of concern are located within TA-16.

The TA-16 260 monitoring group was established for the upper Water Canyon/Cañon de Valle watershed to monitor contaminants released from former Consolidated Unit 16-021(c)-99, which is the TA-16 260 Outfall (hereafter, the 260 Outfall), and other sites at TA-16. TA-16 was established to develop explosive formulations, cast and machine explosive charges, and assemble and test explosive components for the nuclear weapons program. The 260 Outfall is a former high explosives (HE) machining outfall that discharged water containing inorganic chemicals and HE to Cañon de Valle from 1951 through 1996. These discharges contaminated soils, sediments, surface waters, spring waters, and both perched-intermediate and regional groundwater at TA-16.

Results of the 260 Outfall corrective measures evaluation (LANL 2007, 098734) showed that the drainage channel below the outfall and the canyon bottom as well as surface water, alluvial groundwater, and perched-intermediate groundwater were contaminated with explosive compounds, including Royal Demolition Explosive (RDX), Her Majesty's Explosive (HMX), 2,4,6-trinitrotoluene (TNT), and the metal barium.

Two remedial actions performed between 2000 and 2010 removed much of the surficial and near-surface RDX. However, recharge from precipitation has carried RDX down to the perched-intermediate zone and the regional aquifer (N3B 2020, 700925). RDX has been detected in regional groundwater wells R-18, R-48, R-63, R-68, and R-69 screen 1 (S1) and screen 2 (S2).

In addition, the volatile organic compounds (VOCs) tetrachloroethene, trichloroethene, and methyl tert butyl-ether have been detected in a number of locations, including springs, perched-intermediate groundwater and regional groundwater.

The TA-16 260 monitoring group includes surface water (base flow), springs, and alluvial groundwater monitoring wells, as well as groundwater monitoring wells completed in several deeper perched-intermediate groundwater zones and in the regional aquifer. Shallow monitoring locations such as the springs and alluvial wells are included in this monitoring group because they contain HE, barium, and VOC contamination related to past activities at the 260 Outfall and other sites in the area.

2.0 SCOPE OF ACTIVITIES

All active monitoring locations in the TA-16 260 monitoring group are located within the Pajarito Canyon and Water Canyon/Cañon de Valle watersheds. Monitoring locations include 4 base-flow locations, 5 springs, 8 wells completed within the alluvial groundwater, 12 wells completed within the perched-intermediate groundwater, and 10 wells completed within the deep regional aquifer. In addition, water levels are monitored at 2 wells completed within the perched-intermediate groundwater. Four of the 10 wells completed within the deep regional aquifer are on the watch list.

Watch list wells are identified by N3B and NMED as perched-intermediate and regional groundwater monitoring wells for which water-quality data for certain constituents are not representative or are of questionable representativeness. Wells are assigned to the watch list if specific criteria are met. Data examined for the assessment include field parameters monitored during purging before sample collection, field parameters associated with samples at the time of collection, major-ion concentrations, trace-metal concentrations, and detections of organic constituents. The assessments are based on site-specific geochemical criteria.

The following piezometer, wells, and well screens are on the watch list:

- R-26 piezometer 2 (PZ-2) is on the watch list for deep monitoring wells because of limited water volume. Therefore, only a prioritized analytical suite is sampled.
- R-63i is on the watch list for deep monitoring wells because of limited water volume. A prioritized analytical suite is collected and the results are coded as screening level. Therefore, analytical data is not included in the PMR, and only water levels are reported.
- R-25b is on the watch list for deep monitoring wells. Samples collected continue to show the presence of the tracers introduced into the well in November 2015, indicating that sampling and analysis data for R-25b are not representative of surrounding groundwater chemistry. The data are coded as screening level and therefore not included in the PMR.
- CdV-R-37-2 S2 is on the watch list for deep monitoring wells because of water-quality and field-parameter data that indicate the well does not produce representative samples, even with extended purging. Elevated iron and manganese are present in samples, indicating reducing conditions, and therefore sample results from HE, metals, and general inorganics are coded as screening level and therefore not included in this PMR.

Groundwater and surface water samples collected during the PME were analyzed for all or some of the following analytical groups as specified in the 2019 IFGMP and 2020 IFGMP: metals; radionuclides, including low-level tritium; semivolatile organic compounds (SVOCs); VOCs; general inorganic chemicals (including perchlorate); polychlorinated biphenyls (PCBs); dioxins and furans; HE; and per- and polyfluoroalkyl (PFAS) substances. The same samples were also analyzed for field parameters, including dissolved oxygen, flow rate (in gallons per minute), oxidation-reduction potential, pH, specific conductance, temperature, and turbidity.

Purge water is managed and characterized in accordance with the relevant version of the waste characterization strategy form (WCSF) "WCSF-Interim Facility-Wide Groundwater Monitoring" (N3B 2018, 700867). Purge water is stored until characterization is complete, and if requirements are met, the purge water can be land-applied in accordance with the standard operating procedure (SOP) "Land Application of Groundwater" (N3B-EPC-CP-QP-010 Rev 4) and standing order "Land Application of Groundwater" (N3B-SO-ER-0003), which implements the NMED-approved decision tree for land application of drilling, development, rehabilitation, and purge water. Purge water has been consolidated because of new regulatory requirements for chemicals that were not analyzed at the time of sampling. Purge water will be land-applied if all current land application criteria are met.

Table 2.0-1 provides the location name and watershed; the monitoring year and quarter of the sampling event; the sample collection date; each well's screened interval with top and bottom screen depths; and the casing volume, purge volume, and purge or flow rate for each sampling event. Monitoring locations are shown in Figure 2.0-1.

2.1 PME Observations and Deviations from Planned Scope

Table 2.1-1 summarizes the observations and Table 2.1-2 summarizes the deviations from the planned monitoring scope for this annual PMR.

The MY 2020 quarter (Q) 2 Water/Cañon de Valle PME was canceled because groundwater field crews were unable to access Weapons Facilities Operations security areas pending approval of Form 1897 for on-site authorization to use necessary controlled portable electronic devices (PEDs) to complete sampling. These samples were collected in MY 2020 Q4, and will be reported in the 2021 TA-16 260 PMR.

3.0 REGULATORY CRITERIA

Regulatory criteria related to groundwater quality form the basis for the screening values with which groundwater monitoring results are compared in this PMR. These criteria include the NMWQCC groundwater standards, EPA MCLs, NMED screening levels for tap water, and EPA regional screening levels for tap water. These criteria are used to screen results in accordance with the process specified in Section IX of the Consent Order, as listed in Tables 3.0-1 and 3.0-2.

Monitoring data are evaluated using the screening process described below. The sources for standards and screening levels from which specific screening values are established are listed in Tables 3.0-1 and 3.0-2, based on the following criteria:

- For each individual substance, the lower of either the NMWQCC groundwater standard or the EPA MCL is used as the screening value.
- If the NMWQCC groundwater standard or the EPA MCL has not been established for a specific substance for which toxicological information is published, the NMED screening level for tap water is used as the groundwater screening value. NMED screening levels are established for either a cancer- or noncancer-risk type; for the cancer-risk type, screening levels are based on a 10^{-5} excess cancer risk. This report was prepared using the June 2019 NMED Risk Assessment Guidance for Site Investigations and Remediation (NMED 2019, 700550).
- If the NMED screening level for tap water has not been established for a specific substance for which toxicological information is published, the EPA regional screening level for tap water is used as the groundwater screening value. The EPA screening levels are established for either a cancer- or noncancer-risk type. For the cancer-risk type, the Consent Order specifies screening at a 10^{-5} excess cancer risk. The EPA screening levels for tap water are at 10^{-6} excess cancer risk; therefore, 10 times the EPA 10^{-6} screening levels are used in the screening process. This report was prepared using the May 2020 EPA regional screening levels for tap water (<http://www.epa.gov/risk/risk-based-screening-table-generic-tables>).
- 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. For this report, EPA MCLs are applied to both filtered and unfiltered sample results.
- Base-flow monitoring locations are assigned to one of three screening categories based upon hydrology of the water body being monitored—perennial, intermittent or ephemeral as listed in Table 3.0-3. Along with a hardness value, this category determines the screening values used for data at each monitoring location. Each base-flow monitoring location's hardness measurement is an average rounded to the nearest 10 for the PMEs in this PMR. The hardness-dependent screening values used to screen data at each base-flow monitoring location are determined from

the 20.6.4.900 New Mexico Administrative Code (NMAC) Water Quality Standards for Interstate and Intrastate Surface Waters. Hardness acute and chronic aquatic life criteria for metals are calculated using the hardness-dependent equations at 20.6.4.900.I NMAC. Hardness-dependent acute and chronic criteria were used for total recoverable aluminum and dissolved cadmium, chromium, copper, lead, manganese, nickel, silver, and zinc in accordance with the requirements therein.

4.0 MONITORING RESULTS

4.1 Methods and Procedures

All methods and procedures used to perform the field activities associated with the data reported in this PMR are documented in the 2019 IFGMP (N3B 2018, 700000) and 2020 IFGMP (N3B 2019, 700451).

4.2 Comparison of Target Analytes and Method Detection Limits

Several analytes have a range of method detection limits (MDLs). For some of these analytes, the MDL is much lower than for earlier analyses. Table 4.2-1 presents a list of target analytes with MDLs equal to or above screening values. Table 4.2-2 presents a list of analytes where the lower range of MDLs is below the screening value but the upper portion of the range is above the screening value. Target analytes with MDLs entirely below the screening value are not listed. The analytical method and analytical laboratory are included in the tables for reference.

4.3 Field Parameter Results

Appendix A presents field parameter measurements associated with the sampling and analytical data reported in this PMR. The parameters are dissolved oxygen, flow rate, oxidation-reduction potential, pH, specific conductance, temperature, and turbidity. Table 2.1-2 notes any instances where the parameter stabilization requirement could not be met.

4.4 Groundwater Elevations and Base-Flow Observations

The groundwater elevations are measured at each groundwater monitoring location before purging and sampling at that location as required by the Consent Order.

In addition to collecting groundwater-elevation data before purging and sampling, N3B collects groundwater-elevation data “continuously” (e.g., hourly, daily) for most monitoring locations, and these data are voluntarily presented in this PMR. Any gaps in the continuous groundwater-elevation records presented in this PMR are a result of one or more of the following conditions:

- The well is dry.
- The well is not equipped with a pressure (level) transducer.
- The water level is below the transducer.
- The transducer is not functioning properly (including failure).
- The transducer is temporarily removed from the well for maintenance and/or calibration.

Data gaps exist at the following locations:

- The alluvial well FLC-16-25280 has groundwater elevations available through July 8, 2019. Because of suspended fieldwork because of the PED issue, groundwater elevations after this date were unable to be downloaded. The well has a transducer, but is not on telemetry.
- The alluvial well CdV-16-02656 has groundwater elevations available through July 22, 2019. Due to suspended fieldwork because of the PED issue, groundwater elevations after this date were unable to be downloaded. The well has a transducer, but is not on telemetry.
- The alluvial well CdV-16-02657r does not have a transducer; therefore, no water-level data is reported for this period.
- The alluvial well CdV-16-02659 has groundwater elevations available through July 17, 2019. Due to suspended fieldwork because of the PED issue, groundwater elevations after this date were unable to be downloaded. The well has a transducer, but is not on telemetry.
- The alluvial well CdV-16-611923 has groundwater elevations available through July 8, 2019. Due to suspended fieldwork because of the PED issue, groundwater elevations after this date were unable to be downloaded. The well has a transducer, but is not on telemetry.
- The alluvial well CdV-611937 has groundwater elevations available through July 8, 2019. Due to suspended fieldwork because of the PED issue, groundwater elevations after this date were unable to be downloaded. The well has a transducer, but is not on telemetry.
- The alluvial well MSC-16-06293 has groundwater elevations available through June 22, 2019. Due to suspended fieldwork because of the PED issue, groundwater elevations after this date were unable to be downloaded. The well has a transducer, but is not on telemetry.
- The alluvial well MSC-16-06294 has groundwater elevations available through July 10, 2019. Due to suspended fieldwork because of the PED issue, groundwater elevations after this date were unable to be downloaded. The well has a transducer, but is not on telemetry.
- The alluvial well 16-612309 was dry for the entire period of record.
- The transducer at CdV-9-1(i) PZ-1 was removed because of a repeated black buildup, causing continual failure; the last water-level value was reported on April 12, 2018.
- All screens at R-25 are in the process of being plugged and abandoned. Water levels will no longer be reported for this location.

Groundwater-elevation data from the end of the previous PME through the end of the PMEs reported in this report are presented in Appendix B (on CD included with this document).

Groundwater-elevation measurements are shown graphically on Plate 1. For wells equipped with transducers, the reported groundwater elevation was the first groundwater-elevation measurement taken on each day. Figure 4.4-1 shows the elevation of the regional aquifer water surface and flow direction. Regional contours were generated in ArcGIS using average groundwater elevations in December 2019, and supplemented with data from 2014 where the 2019 data extent was limited.

Base-flow measurements are shown graphically in Figure 4.4-2.

5.0 ANALYTICAL DATA RESULTS

5.1 Methods and Procedures

All methods and procedures used to perform PME analytical activities are documented in the 2019 IFGMP (N3B 2018, 700000) and the 2020 IFGMP (N3B 2019, 700451).

Sampling and data validation were conducted using SOPs that are part of a comprehensive quality assurance/quality control (QA/QC) program. SOPs include the most current version of the following:

- “WCSF-Interim Facility-Wide Groundwater Monitoring” (N3B-EP2016-0117)
- “Groundwater Sampling” (N3B-SOP-ER-3003)
- “Groundwater Sampling” (IWD-TPMC-LA-16-049)
- “Wireless Connect/Non-connected Component Plan – Standalone Wireless System Name: Groundwater Monitoring Well Data Acquisition System” (N3B-SD-016-CP-032/L2)
- “Locus Mobile Application for Groundwater Data Collection” (N3B-SOP-ER-20324)
- “Groundwater Sampling and Sample Preservation” (N3B-ER-IWD-20088)
- “Manual Groundwater Level Measurements” (N3B-SOP-ER-3001)
- “Groundwater Level Data Processing, Review, and Validation” (N3B-SOP-ER-3004)
- “Validation of Volatile Organic Compound Analytical Data” (N3B-ER-AP-20309)
- “Validation of Semivolatile Organic Compound Analytical Data” (N3B-ER-AP-20310)
- “Validation of LC-MS/MS High Explosive Analytical Data” (N3B-ER-AP-20316)
- “Validation of Organochlorine Pesticide and Polychlorinated Biphenyl Analytical Data” (N3B-ER AP-20311)
- “Validation of Metals and Cyanide Analytical Data” (N3B-ER-AP-20313)
- “Validation of Gamma Spectroscopy, Chemical Separation Alpha Spectrometry, Gas Proportional Counting, and Liquid Scintillation Analytical Data” (N3B-ER-AP-20314)
- “Validation of General Chemistry Analytical Data” (N3B-ER-AP-20315)
- “Validation of Dioxin and Furan Analytical Data” (N3B-ER-AP-20317)
- “Validation of LC-MS/MS Perchlorate Analytical Data” (N3B-ER-AP-20320)

Samples to be collected are planned using 2019 IFGMP and 2020 IFGMP Tables 1.7-2, 1.8-1, 1.9-1, 1.11-1, and 2.4-1 through 8.3-1 (N3B 2018, 700000; N3B 2019, 700451). Sample plans include additional field collection, transportation, and field QA/QC criteria as identified in the N3B and project data quality objectives and in the Consent Order. A sample collection log is created and printed to serve as a chain-of-custody (COC) document and an analytical request form.

Field QA/QC samples consist of field blanks (FBs), equipment rinsate blanks (EQBs), performance evaluation blanks (PEBs), field trip blanks (FTBs), and field duplicates (FDs). They are used to detect possible field, transportation, or analytical laboratory contamination; PEBs also track analytical laboratory performance. Differences in analytical results between an FD and its regular sample, for example, may indicate the samples were not uniform, or that significant variation in analysis occurred between the two samples. Detection of analytes in deionized water FBs may indicate contamination of the deionized water

source or sample bottles, or contamination from sampling methods, transportation, or the analytical laboratory.

FBs are used to monitor for contamination during sampling. They also can identify contamination from transportation and analysis in associated samples. FBs are collected at a frequency of 10% of all samples collected in a 21-day sampling campaign. FBs are collected by filling sample containers in the field with deionized water to check for sources of sample contamination in the field. FBs are analyzed for the same analytical suites for which primary samples collected in the same trip are analyzed, except for HE compounds.

EQBs are used to detect any contamination resulting from contaminated equipment or poor decontamination techniques. EQBs can also be used identify contamination from transportation and analysis in associated samples. EQBs are collected before a well is sampled with nondedicated equipment (pump). EQBs are prepared by passing deionized water through unused or decontaminated sampling equipment. EQBs are analyzed for organic constituents and PFAS sampled for in the associated well, with the exception of high explosive compounds, which are not analyzed in EQBs.

PEBs are deionized water blanks submitted as regular samples, without any indication they are QC samples. PEBs are used to evaluate contamination from the deionized water used to create the FBs or EQBs (if needed), from sample shipment, or from the analytical laboratory. One PEB is collected per 21-day sampling campaign. PEBs are prepared by collecting reagent-grade deionized water in a sample bottle at the end of the sampling trip, and then adding the PEB to the samples for shipment to the laboratory.

FTBs consist of organic-free deionized water prepared by an independent off-site laboratory and accompany regular samples collected for VOC analyses. FTBs are used to identify potential VOC contamination that may occur during sample collection, handling, shipping, storage, or analysis and are analyzed for VOCs only. A minimum of one FTB is required per cooler containing samples for VOC analysis. However, to facilitate data validation, one FTB may be included with each sample submitted for VOC analysis.

FDs are split samples that provide information about field variation of sampling results as well as analytical laboratory variation. They may reveal poor reproducibility in sampling techniques and processes. FDs are collected at a rate of 10% of all samples collected during a sampling campaign. FDs are distributed proportionally among surface water, alluvial groundwater, and perched-intermediate/regional groundwater according to the relative number of samples collected for each type of water.

Following sample collection, sampling personnel deliver the samples and the field collection log to sample management personnel at the N3B Sample Management Office. An analytical COC is then created, which includes the field sample identification (ID) number, the date and time of field sample collection, the analytical parameters group code, and the number of bottles for each analytical parameters group.

In addition to the field QA/QC samples, laboratory batch QA/QC samples—such as matrix spikes, duplicates, method blanks, and laboratory control samples—are analyzed to monitor laboratory analytical processes. The laboratory QA/QC process is defined in the appropriate analytical method, in N3B's Exhibit D, "Scope of Work and Technical Specifications for Off-Site Analytical Laboratory Services," or in the Consent Order.

N3B data validation is performed externally from the analytical laboratory and end-users of the data. This data validation process applies a defined set of performance-based criteria to analytical data that may result in qualification of that data. Data validation provides a level of assurance, based on this technical

evaluation, of the data quality. N3B validation of chemistry data includes a technical review of the analytical data package, covering the evaluation of both field and laboratory QC samples, the identification and quantitation of analytes, and the effect of QA/QC deficiencies on analytical data, as well as other factors affecting the data quality.

The analytical data are submitted by the analytical laboratory in a pdf data package format and an electronic data deliverable uploaded to the N3B Environmental Information Management (EIM) database. The data are then validated both manually and in the EIM autovalidation process, reviewed by an N3B chemist at the appropriate level, and fully transferred into EIM.

This validation follows processes described in the N3B validation procedures listed above. Validation qualifiers and reason codes applied during this process are also reviewed and approved by an N3B chemist to assess data usability. The EIM data are then made available to the public in the Intellus New Mexico database (<https://intellusnm.com/>).

5.2 Analytical Data

Appendix C presents the analytical results for the four PMEs reported in this PMR and from the previous four sampling events if available. The data were reviewed for conformance with regulatory and N3B requirements, and are reported as follows:

- For all data:
 - ❖ FD results, reanalysis results, and results of the same analytes from the same sample analyzed by different analytical methods are reported.
 - ❖ Data that are R-qualified (rejected because of analytical problems and/or noncompliance with QA/QC criteria during independent validation and thus unusable) are still reported.
 - ❖ Laboratory QA/QC results, FTB data, and FB data are not included in the data set.
 - ❖ Data for certain target analytes from watch list wells that are not representative or are of questionable representativeness are not reported.
 - ❖ All other results are reported at all locations.
- For radionuclide data:
 - ❖ Constituents analyzed and reported for the gamma spectroscopy suite include cesium-137, cobalt-60, neptunium-237, potassium-40, and sodium-22.
 - ❖ Americium-241 and uranium-235 data from chemical separation alpha spectroscopy are reported. Gamma spectroscopy results for these analytes are not presented.
 - ❖ All other radionuclide results are reported at all locations.

Multiple analyses of the same analyte in a sample, including dilutions and reanalyses, create redundant results. These multiple results for the same analyte have the same sample ID, analytical laboratory code, and analytical method. Validation determines the more accurate result, which is marked with a best-value flag of “Y” (yes). The other results for that analyte, which were validated to be of lower quality, are assigned a best-value flag of “N” (no). The best-value flag is included in Appendix C.

The analytical results for radionuclides and radioactivity are voluntarily compared with the DOE Biota Concentration Guides for surface water and Derived Concentration Technical Standards for groundwater but are not reported in Table 5.2-1 or Appendix D.

Appendix D presents each analytical result detected at a concentration greater than half the applicable screening value. Results with a best-value flag of N are included in Appendix D but not discussed in the text.

Table 5.2-1 provides groundwater analytical results for specific analytical suites detected above screening values when applicable. Multiple detections are included except for FD exceedances. For example, if aluminum were detected above its screening value in both a primary sample and a field duplicate, only the primary sample result would be recorded. If aluminum were detected above its screening value in the field duplicate, but not the primary sample, then the field duplicate would be recorded.

For the data reported in this PMR, Figures 5.2-1 and 5.2-2 show the maximum concentrations detected at all locations for the analytes that exceeded their screening values at more than one sampling location. For example, unfiltered RDX was above the NMED tap water screening level (screening value) at more than one well, so all RDX values reported in this PMR are shown in addition to the screening value exceedances, which are displayed in yellow boxes.

Graphs in Appendix E display analyte concentration histories for TA-16 260 monitoring group locations where the analyte was detected above the screening value at least once in the expanded data set that includes this PME as well as the four previous PMEs.

Appendix E may include instances where the analyte data are evaluated using a higher screening value than that used to evaluate previously reported analyte data. For example, the current screening value of 13.8 µg/L for perchlorate is greater than the former screening value of 4 µg/L, which was used to evaluate previously reported analyte data.

If there are exceedances of the current screening value by the data reported in this PMR, the graphs depict the current analyte screening value. If there are no exceedances of current values, but at least one exceedance of the former (lower) screening value by the previously reported analytical data, the graphs depict the former lower screening value. Magenta lines indicate the PMR reporting period. Results with a best-value flag of N are not included in Appendix E.

The analytical laboratory reports, including COC forms and data validation forms, are provided in Appendix F (on CD included with this document).

5.2.1 Surface Water (Base Flow)

Table 5.2-1 shows that one surface-water analytical result reported in this PMR is above applicable screening values. The screening value exceedance is for unfiltered aluminum.

Pajarito below S&N Ancho E Basin Confluence

During the August 14, 2019, sampling event at location Pajarito below S&N Ancho E Basin Confluence, aluminum was detected at 1080 µg/L. This concentration is above the hardness-based NMWQCC aquatic life standard for acute exposure (screening value) of 975 µg/L (based on 40 mg/L hardness).

The previous range of aluminum concentrations detected at Pajarito below S&N Ancho E Basin Confluence from June 2008 to March 2019 was 165 µg/L to 9440 µg/L.

5.2.2 Groundwater

Table 5.2-1 shows that 30 groundwater analytical results reported in this PMR were above applicable screening values. These 30 screening value exceedances were for the following 6 analytes: amino-2,6-dinitrotoluene[4-] (unfiltered), barium (filtered), boron (filtered), iron (filtered), manganese (filtered), and RDX (unfiltered).

Groundwater Springs

16-61439 (PRB Alluvial Seep)

Note: For the MY 2018 IFGMP, this location was identified as an alluvial well; however, it is actually a spring (seep) of alluvial groundwater, and is identified as such in the MY 2019 IFGMP and MY 2020 IFGMP.

For the August 7, 2019, sampling event at location 16-61439 (PRB Alluvial Seep), barium was detected at 3300 µg/L and 3340 µg/L (FD), and RDX was detected at 10.8 µg/L (FD) and 13.0 µg/L. These concentrations exceed the NMWQCC groundwater standard (screening value) of 2000 µg/L for barium and the NMED tap water screening level (screening value) of 9.66 µg/L for RDX.

The previous range of barium concentrations detected at 16-61439 from December 2016 to March 2019 was 2960 µg/L to 4170 µg/L. The previous range of RDX concentrations detected at 16-61439 from December 2016 to March 2019 was 6.89 to 13.1 µg/L.

Martin Spring

For the August 10, 2019, sampling event at Martin Spring, boron was detected at 863 µg/L, and RDX was detected at 71.6 µg/L. These concentrations exceed the NMWQCC groundwater standard (screening value) of 750 µg/L for boron and the NMED tap water screening level (screening value) of 9.66 µg/L for RDX.

The previous range of boron concentrations detected at Martin Spring from April 2008 to March 2019 was 508 µg/L to 1440 µg/L. The previous range of RDX concentrations detected at Martin Spring from April 2008 to March 2019 was 26 µg/L to 143 µg/L.

Alluvial Monitoring Wells

CdV-16-02659

For the August 10, 2019, sampling event at CdV-16-02659, barium was detected at 4620 µg/L (FD) and 4740 µg/L, and RDX was detected at 10 µg/L (FD) and 11.8 µg/L. These concentrations exceed the NMWQCC groundwater standard (screening value) of 2000 µg/L and the NMED tap water screening level (screening value) of 9.66 µg/L.

The previous range of barium concentrations detected at CdV-16-02659 from September 2011 to March 2019 was 3130 µg/L to 13,600 µg/L. The previous range of RDX concentrations detected at CdV-16-02659 from April 2010 to March 2019 was 2.51 µg/L to 18 µg/L.

CdV-16-611923

During the August 9, 2019, sampling event at CdV-16-611923, barium was detected at a concentration of 4950 µg/L, which exceeds the NMWQCC groundwater standard (screening value) of 2000 µg/L for barium.

The previous range of barium concentrations detected at CdV-16-611923 from April 2010 to March 2019 was 5050 µg/L to 49,400 µg/L.

CdV-16-611937

During the August 9, 2019, sampling event at CdV-16-611937, iron was detected at 9360 µg/L, and manganese was detected at 1360 µg/L. These concentrations exceed the NMWQCC groundwater standard (screening value) of 1000 µg/L for iron, and 200 µg/L for manganese.

The previous range of iron concentrations detected at CdV-16-611937 from April 2010 to March 2019 was 486 µg/L to 12,500 µg/L. The previous range of manganese concentrations detected at CdV-16-611937 from April 2010 to March 2019 was 609 µg/L to 3880 µg/L.

Perched-Intermediate Monitoring Wells

CdV-16-1(i)

During the May 31, 2019, sampling event at CdV-16-1(i), RDX was detected at 31.6 µg/L. This concentration exceeds the NMED tap water screening level (screening value) of 9.66 µg/L.

During the August 9, 2019 sampling event at CdV-16-1(i), RDX was detected at 32.9 µg/L. This concentration exceeds the NMED tap water screening level (screening value) of 9.66 µg/L.

During the November 1, 2019 sampling event at CdV-16-1(i), RDX was detected at 35.1 µg/L. This concentration exceeds the NMED tap water screening level (screening value) of 9.66 µg/L.

The previous range of RDX concentrations detected at well CdV-16-1(i) from October 2008 to August 2019 was 22.2 µg/L to 37.4 µg/L.

CdV-16-2(i)r

During the August 12, 2019, sampling event at CdV-16-2(i)r, RDX was detected at 87 µg/L. This concentration exceeds the NMED tap water screening level (screening value) of 9.66 µg/L.

During the December 13, 2019, sampling events at CdV-16-2(i)r, RDX was detected at 122 µg/L. This concentration exceeds the NMED tap water screening level (screening value) of 9.66 µg/L.

The previous range of RDX concentrations detected at well CdV-16-2(i)r from April 2008 to March 2019 was 51.2 µg/L to 128 µg/L.

CdV-16-4(i)p S1

During the May 31, 2019 sampling event at CdV-16-4(i)p S1, amino-2,6-dinitrotoluene[4-] was detected at 1.93 µg/L, which exceeds the EPA tap screening level of 1.9 µg/L. RDX was detected at 116 µg/L and 131 µg/L (FD). These concentrations both exceed the NMED tap screening level of 9.66 µg/L.

During the August 12, 2019, sampling event at CdV-16-4(i)p S1, RDX was detected at 130 µg/L, which exceeds the NMED tap screening level of 9.66 µg/L.

During the December 13, 2019 sampling event at CdV-16-4(i)p S1, RDX was detected at 130 µg/L, which exceeds the NMED tap screening level of 9.66 µg/L.

The previous range of amino-2,6-dinitrotoluene[4-] detected at well CdV-16-4(i)p S1 from August 2010 to December, 2019 was nondetection to 2.67 µg/L

The previous range of RDX concentrations detected at well CdV-16-4(i)p S1 from August 2010 to December, 2019 was 104 µg/L to 265 µg/L.

CdV-9-1(i) S1

During the August 6, 2019 sampling event at CdV-9-1(i) S1, RDX was detected at 14.5 µg/L, and 14.5 µg/L (FD), which exceeds the NMED tap water screening level (screening value) of 9.66 µg/L.

During the December 3, 2019, sampling event at CdV-9-1(i) S1, RDX was detected at 17.4 µg/L and 19.1 µg/L.(FD) These concentrations exceed the NMED tap water screening level (screening value) of 9.66 µg/L.

The previous range of RDX concentrations detected at well CdV-9-1(i) S1 from May 2015 to December 2019 was 8.03 µg/L to 37.3 µg/L.

Regional Monitoring Wells

R-68

During the May 30, 2019 sampling event at R-68, RDX was detected at 14.3 µg/L. This concentration exceeds the NMED tap water screening level (screening value) of 9.66 µg/L for RDX.

During the August 8, 2019 sampling event at R-68, RDX was detected at 14.9 µg/L. This concentration exceeds the NMED tap water screening level (screening value) of 9.66 µg/L for RDX.

During the December 9, 2019 sampling event at R-68, RDX was detected at 15.5 µg/L. This concentration exceeds the NMED tap water screening level (screening value) of 9.66 µg/L for RDX.

The previous range of RDX concentrations detected at R-68 from March 2017 to December 2019 was 8.08 µg/L to 24 µg/L.

R-69 S1

During the June 5, 2019, sampling event at R-69 S1, RDX was detected at 15.0 µg/L. This concentration exceeds the NMED tap water screening level (screening value) of 9.66 µg/L for RDX.

During the August 21, 2019, sampling event at R-69 S1, RDX was detected at 11.8 µg/L. This concentration exceeds the NMED tap water screening level (screening value) of 9.66 µg/L for RDX.

During the December 10, 2019, sampling event at R-69 S1, RDX was detected at 10.6 µg/L and 9.83 µg/L (FD). These concentrations exceed the NMED tap water screening level (screening value) of 9.66 µg/L for RDX.

The previous range of RDX detected at R-69 S1 from January 2019 to March 2019 was 9.83 µg/L to 19.7 µg/L.

R-69 S2

During the June 6, 2019, sampling event at R-69 S2, RDX was detected at 22.1 µg/L. This concentration exceeds the NMED tap water screening level (screening value) of 9.66 µg/L for RDX.

During the August 21, 2019, sampling event at R-69 S2, RDX was detected at 24.2 µg/L. This concentration exceeds the NMED tap water screening level (screening value) of 9.66 µg/L for RDX.

During the December 10, 2019, sampling event at R-69 S2, RDX was detected at 24.2 µg/L. This concentration exceeds the NMED tap water screening level (screening value) of 9.66 µg/L for RDX.

The previous range of RDX concentrations detected at R-69 S2, from November 2018 to March 2019, was 14.7 µg/L to 39.4 µg/L.

5.3 Sampling Program Modifications

No modifications to the currently planned periodic sampling for the TA-16 260 monitoring group are proposed at this time.

6.0 SUMMARY AND INTERPRETATIONS

6.1 Monitoring Results

Appendix A presents the field parameter measurements associated with the sampling and analysis data reported in this PMR.

6.2 Analytical Results

6.2.1 Surface Water (Base Flow)

One surface water analytical result reported in this PMR exceeds applicable screening values (Table 5.2-1). For this exceedance, the contaminant detected and its concentration were consistent with data reported in previous PMRs.

6.2.2 Groundwater

A total of 30 groundwater analytical results reported in this PMR exceed applicable screening values (Table 5.2-1). For these exceedances, the types of contaminants detected and their concentrations are consistent with data reported in previous PMRs for this monitoring group, with the following exceptions.

Groundwater Springs

The unfiltered RDX concentration (6.6 µg/L) from a sample collected on August 17, 2019, at Burning Ground Spring is less than the minimum concentration previously detected (7.5 µg/L) on June 9, 2017.

Alluvial Monitoring Wells

The filtered barium concentration (4950 µg/L) from the sample collected at CdV-16-611923 on August 9, 2019, is less than the minimum concentration previously detected (5050 µg/L) on February 16, 2018.

Perched-Intermediate Monitoring Wells

The unfiltered RDX concentration (1.34 µg/L) detected at CdV-16-2(i)r on June 7, 2019, is less than the minimum concentration previously detected (51.2 µg/L) on September 7, 2010.

The unfiltered RDX concentration (8.03 µg/L) detected at CdV-9-1(i) S1 on May 29, 2019, is less than the minimum concentration previously detected (14.7 µg/L) on December 7, 2016.

Regional Monitoring Wells

The unfiltered RDX concentration (9.83 µg/L) detected at R-69 S1 on December 10, 2019, is less than the minimum concentration previously detected (14.2 µg/L) on March 26, 2019.

6.3 Data Gaps

Table 2.1-1 summarizes the deviations from the planned monitoring scope for this PMR.

6.4 Remediation System Monitoring

The data from select wells within this monitoring group (i.e., monitoring of water quality at SWSC Spring, Burning Ground Spring, Martin Spring, and the PRB alluvial seep [16-61439]; and monitoring of groundwater and surface water [base flow] quality at select locations) are presented in this PMR and provide the basis for reporting in the annual Long-Term Monitoring and Maintenance Reports for Corrective Measures Implementation at Former 260 Outfall Area (LTMM reports). The LTMM reports present the data within the contexts of the objectives of the long-term monitoring pursuant to the NMED-approved LTMM plan included in the “Remedy Completion Report for Corrective Measures Implementation (CMI) at Consolidated Unit 16-021(c)-99 (LANL 2017, 602597).

7.0 REFERENCES

The following reference list includes documents cited in this report. Parenthetical information following each reference provides the author(s), publication date, and Environmental Management Remediation ID (ERID), Environmental Health and Safety ID (ESHID), or Environmental Management ID (EMID). This information is also included in text citations. ERIDs were assigned by the Laboratory’s Associate Directorate for Environmental Management (IDs through 599999); ESHIDs were assigned by the Laboratory’s Associate Directorate for Environment, Safety, and Health (IDs 600000 through 699999); and EMIDs are assigned by N3B (IDs 700000 and above). IDs are used to locate documents in N3B’s Records Management System and in the Master Reference Set. The NMED Hazardous Waste Bureau and N3B maintain copies of the Master Reference Set. The set ensures that NMED has the references to review documents. The set is updated when new references are cited in documents.

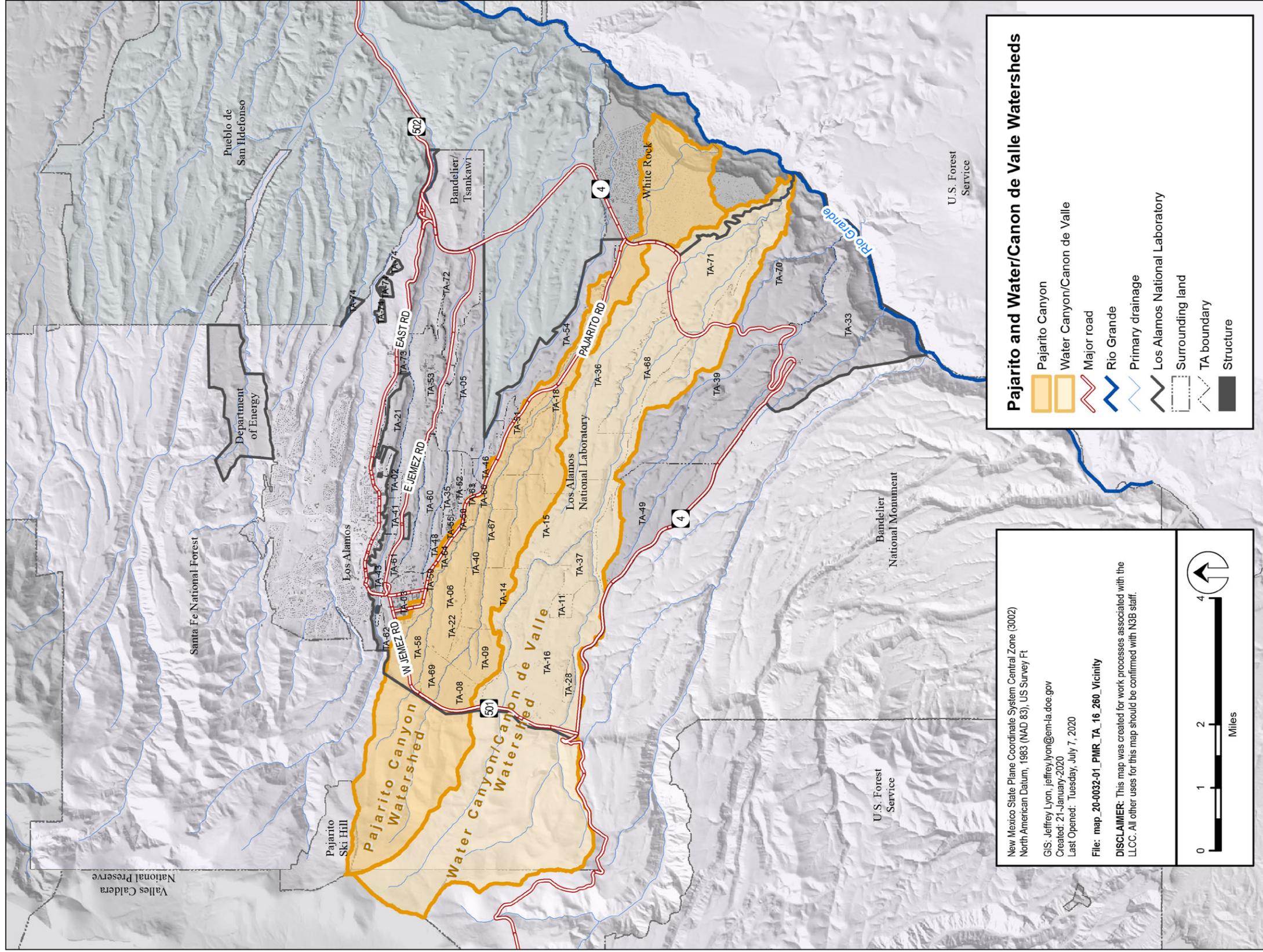
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Pajarito and Water/Canon de Valle Watersheds

- Pajarito Canyon
- Water Canyon/Canon de Valle
- Major road
- Rio Grande
- Primary drainage
- Los Alamos National Laboratory
- Surrounding land
- TA boundary
- Structure

New Mexico State Plane Coordinate System Central Zone (3002)
 North American Datum, 1983 (NAD 83), US Survey Ft.

GIS: Jeffrey Lyon, jeffrey.lyon@em-la.doe.gov
 Created: 21-January-2020
 Last Opened: Tuesday, July 7, 2020

File: map_20-0032-01_PMR_TA_16_260_Vicinity

DISCLAIMER: This map was created for work processes associated with the LLCC. All other uses for this map should be confirmed with NSB staff.

0 1 2 4
 Miles

Figure 1.0-1 TA-16 260 vicinity map

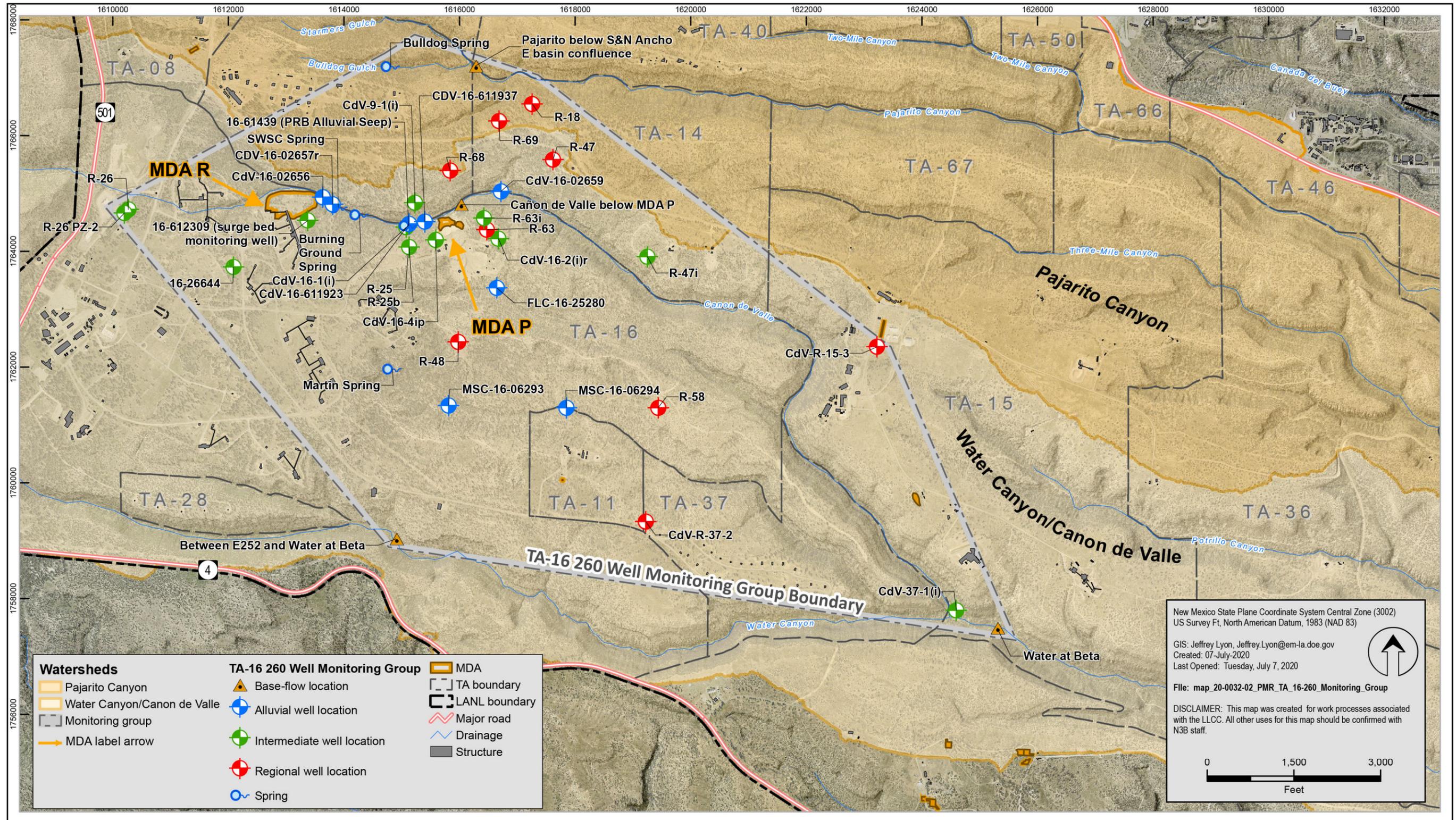
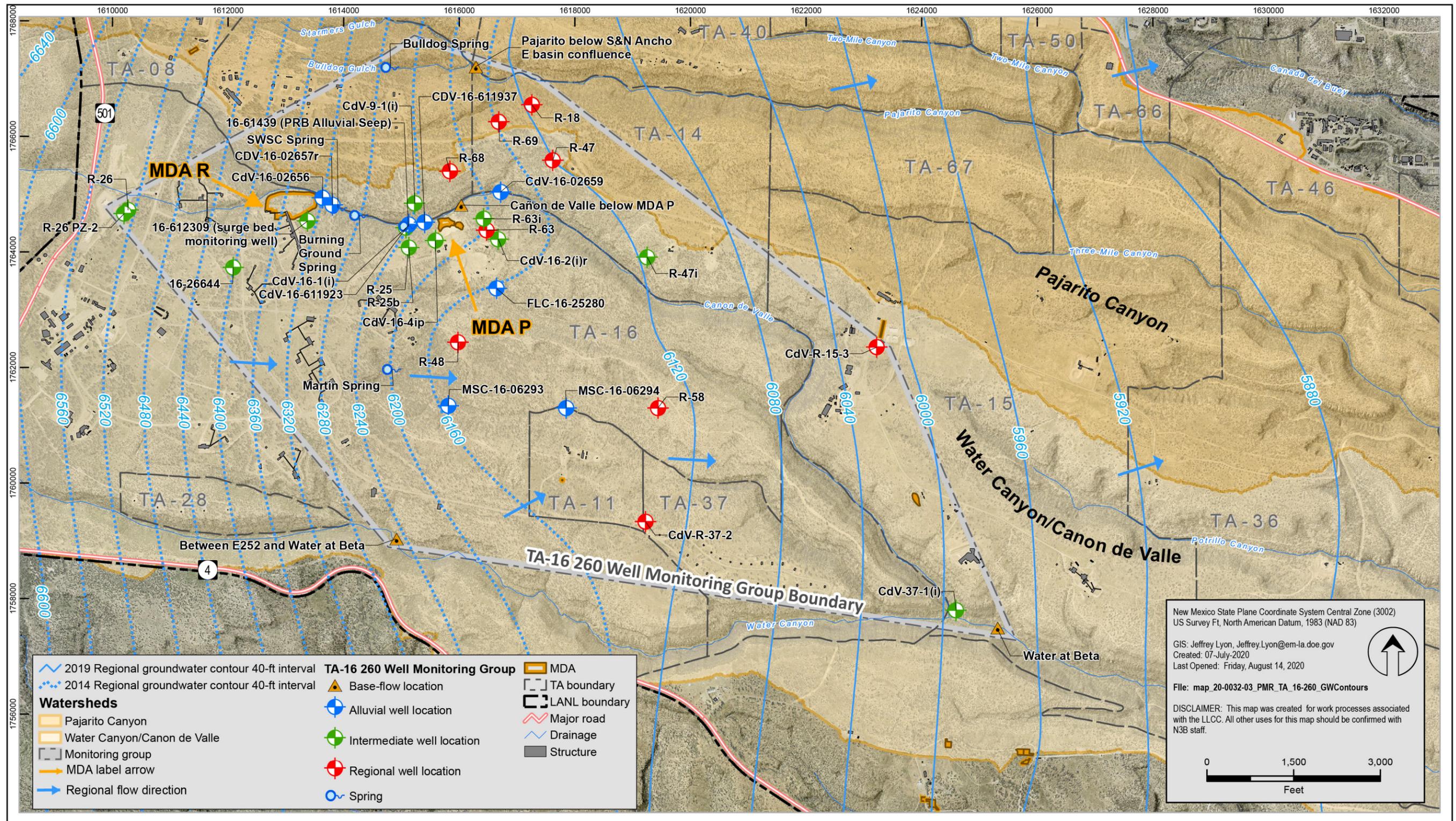


Figure 2.0-1 TA-16 260 monitoring group locations (see also Table 2.0-1)



Note: Groundwater contours are from Figure C-1.2-5 in the "RDX in Deep Groundwater Fate and Transport and Risk Assessment Report" (N3B 2019, 700561), and supplemented with 2019 data plotted in ArcGIS.

Figure 4.4-1 TA-16 260 regional aquifer water table map with flow direction

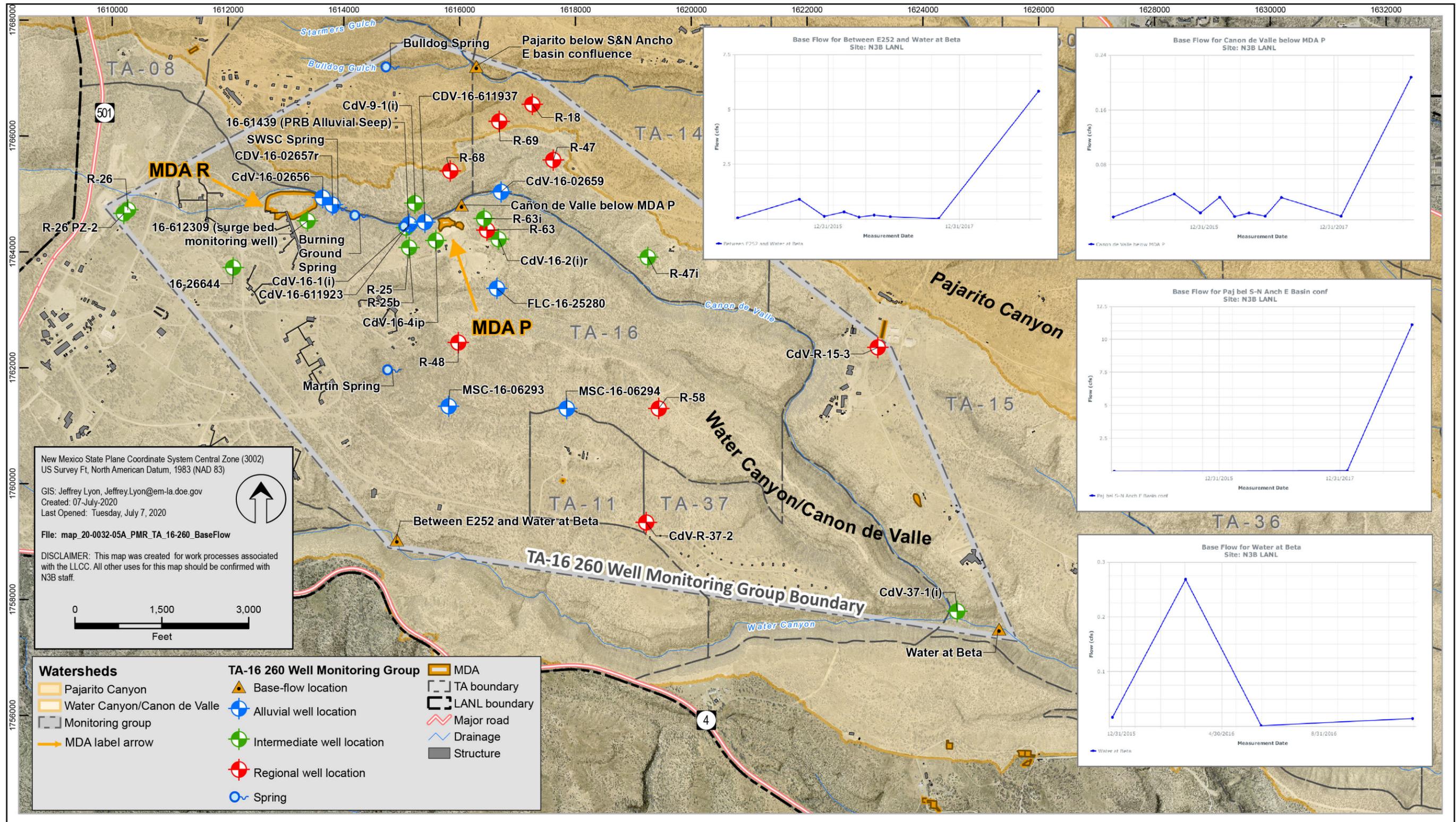
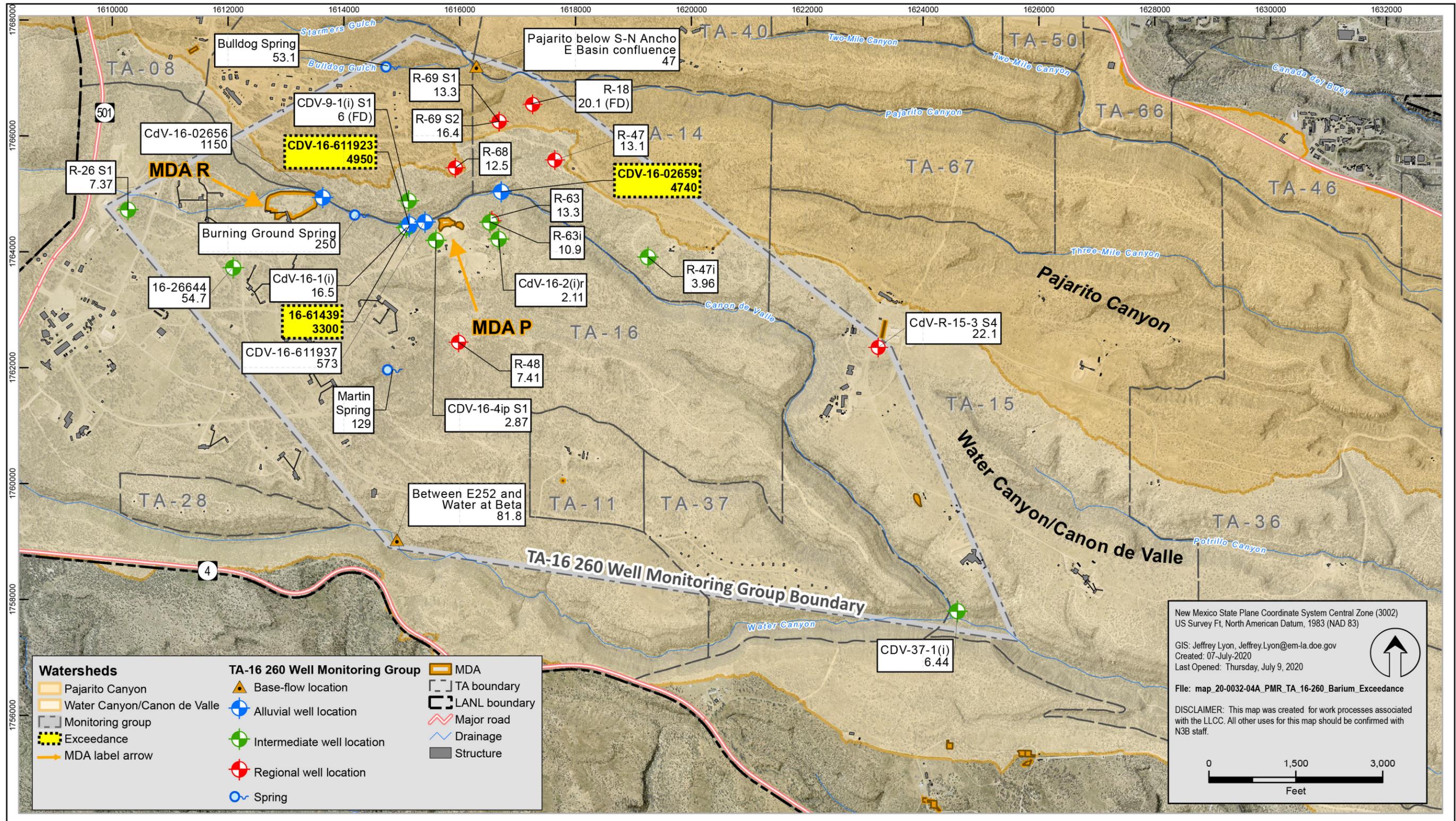
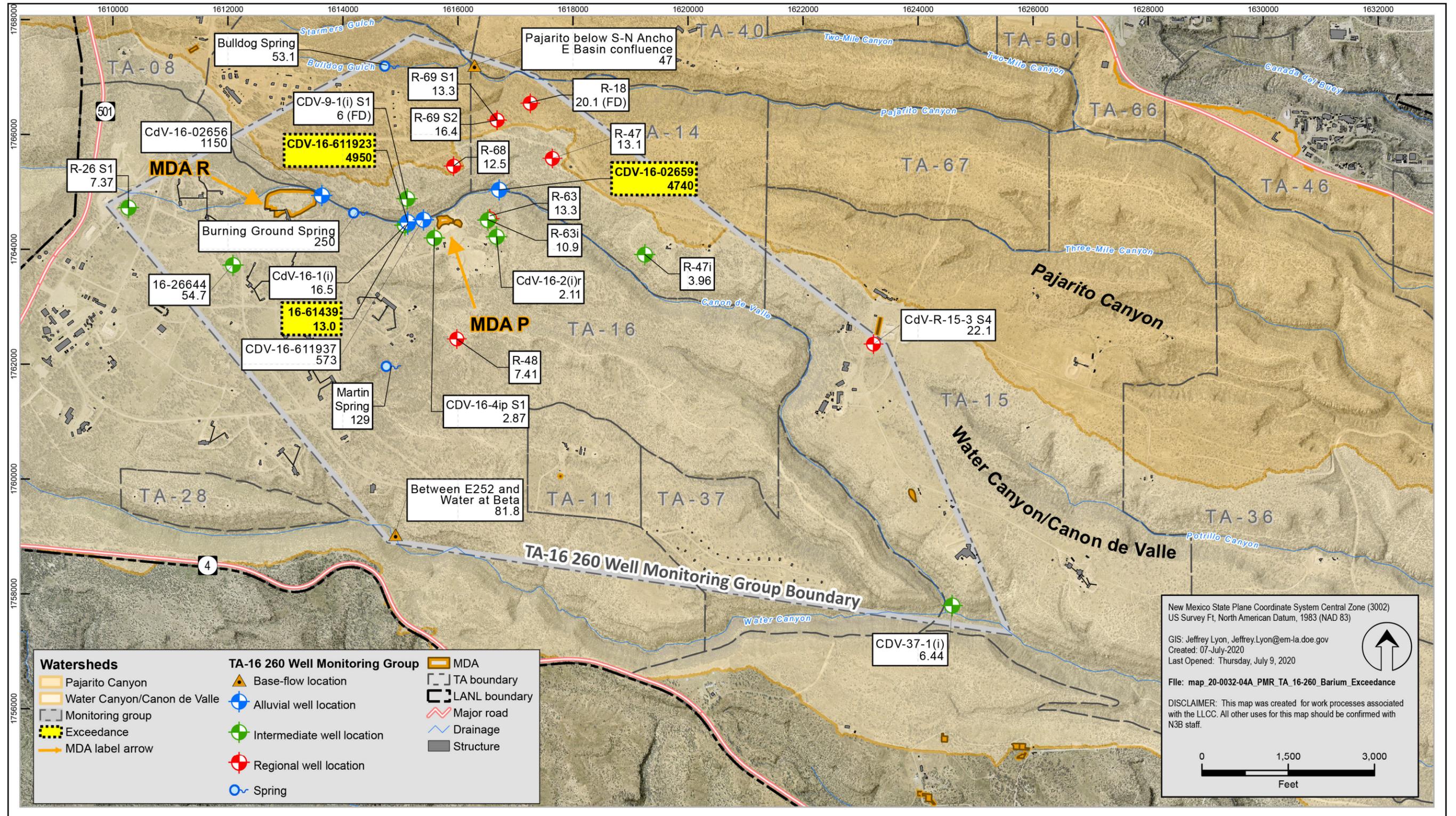


Figure 4.4-2 TA-16 260 base-flow measurements



Note: The NMED tap water screening value for groundwater is 2000 µg/L.

Figure 5.2-1 TA-16 260 monitoring group filtered barium concentrations in µg/L



Note: The NMWQCC screening value for groundwater is 9.66 µg/L.

Figure 5.2-2 TA-16 260 monitoring group unfiltered RDX concentrations in µg/L

**Table 2.0-1
TA-16 260 Monitoring Group Locations and General Information**

Location Name	Watershed	Sampling Event		Sample Collection Date	Screened Interval (ft)	Screen Top Depth (ft bgs ^a)	Screen Bottom Depth (ft bgs)	Calculated Single Casing Volume (gal.)	Purge Volume (gal.)	Purge or Flow Rate (gpm)
		MY	Quarter							
Base Flow										
Between E252 and Water at Beta	Water/CdV ^b	2019	4	08/08/2019	— ^c	—	—	—	—	49.82
Cañon de Valle below MDA ^d P	Water/CdV			Canceled: site was dry	—	—	—	—	—	—
Pajarito below S&N Ancho E Basin Confluence	Pajarito			08/14/2019	—	—	—	—	—	43.54
Water at Beta	Water/CdV			Canceled: site was dry	—	—	—	—	—	—
Between E252 and Water at Beta	Water/CdV	2020	2	Canceled: PED ^e issues	—	—	—	—	—	—
Cañon de Valle below MDA P	Water/CdV			Canceled: PED issues	—	—	—	—	—	—
Pajarito below S&N Ancho E Basin Confluence	Pajarito			Canceled: PED issues	—	—	—	—	—	—
Water at Beta	Water/CdV			Canceled: PED issues	—	—	—	—	—	—
Spring										
Bulldog Spring	Pajarito	2019	4	08/14/2019	—	—	—	—	—	1.84
Burning Ground Spring	Water/CdV			08/17/2019	—	—	—	—	—	7.25
Martin Spring	Water/CdV			08/10/2019	—	—	—	—	—	0.83
PRB Alluvial Seep (16-61439)	Water/CdV			08/07/2019	—	—	—	—	—	0.45
SWSC Spring	Water/CdV			Canceled: site was dry	—	—	—	—	—	—
16-61439 (PRB Alluvial Seep)	Water/CdV	2020	2	Canceled: PED issues	—	—	—	—	—	—
Bulldog Spring	Pajarito			Canceled: PED issues	—	—	—	—	—	—
Burning Ground Spring	Water/CdV			Canceled: PED issues	—	—	—	—	—	—

Table 2.0-1 (continued)

Location Name	Watershed	Sampling Event		Sample Collection Date	Screened Interval (ft)	Screen Top Depth (ft bgs ^a)	Screen Bottom Depth (ft bgs)	Calculated Single Casing Volume (gal.)	Purge Volume (gal.)	Purge or Flow Rate (gpm)
		MY	Quarter							
Martin Spring	Water/CdV	2020 (cont'd)	2 (cont'd)	Canceled: PED issues	—	—	—	—	—	—
SWSC Spring	Water/CdV			Canceled: PED issues	—	—	—	—	—	—
Alluvial										
CdV-16-02656	Water/CdV	2019	4	08/17/2019	5	3	8	0.65	1.33	0.07
CdV-16-02657r	Water/CdV			Canceled: site was dry	2	1.35	3.35	—	—	—
CdV-16-02659	Water/CdV			08/10/2019	5	1.7	6.7	1.11	1.4	0.07
CdV-16-611923	Water/CdV			08/09/2019	5	3.2	8.2	0.58	1.44	0.08
CdV-16-611937	Water/CdV			08/09/2019	5	3	8	0.84	2.73	0.07
FLC-16-25280	Water/CdV			Canceled: insufficient available water	1.6	2.6	4.2	—	—	—
MSC-16-06293	Water/CdV			Canceled: insufficient available water	5	2	7	—	—	—
MSC-16-06294	Water/CdV			Canceled: insufficient available water	4.8	2.5	7.3	—	—	—
CdV-16-02656	Water/CdV	2020	2	Canceled: PED issues	5	3	8	—	—	—
CdV-16-02657r	Water/CdV			Canceled: PED issues	2	1.35	3.35	—	—	—
CdV-16-02659	Water/CdV			Canceled: PED issues	5	1.7	6.7	—	—	—
CdV-16-611923	Water/CdV			Canceled: PED issues	5	3.2	8.2	—	—	—
CdV-16-611937	Water/CdV			Canceled: PED issues	5	3	8	—	—	—

Table 2.0-1 (continued)

Location Name	Watershed	Sampling Event		Sample Collection Date	Screened Interval (ft)	Screen Top Depth (ft bgs ^a)	Screen Bottom Depth (ft bgs)	Calculated Single Casing Volume (gal.)	Purge Volume (gal.)	Purge or Flow Rate (gpm)
		MY	Quarter							
FLC-16-25280	Water/CdV	2020 (cont'd)	2 (cont'd)	Canceled: PED issues	1.6	2.6	4.2	—	—	—
MSC-16-06293	Water/CdV			Canceled: PED issues	5	2	7	—	—	—
MSC-16-06294	Water/CdV			Canceled: PED issues	4.8	2.5	7.3	—	—	—
Perched-Intermediate										
16-26644	Water/CdV	2019	3	06/10/2019	15	129	144	2.38	7.74	0.43
CdV-16-1(i)	Water/CdV			05/31/2019	10	624	634	63.18	190.4	1.12
CdV-16-2(i)r	Water/CdV			06/07/2019	9.7	850	859.7	22.38	70.56	2.94
CdV-16-4(i)p S1	Water/CdV			05/31/2019	63.6	815.6	879.2	85.97	272.7	9.09
CdV-9-1(i) S1	Water/CdV			05/29/2019	55	937.4	992.4	180.93	558.4	3.49
R-25 S1 ^f	Water/CdV			06/12/2019	20.8	737.6	758.4	—	—	—
R-25 S2 ^f	Water/CdV			06/13/2019	10.8	882.6	893.4	—	—	—
R-25 S4 ^f	Water/CdV			06/13/2019	10	1184.6	1194.6	—	—	—
R-47i	Water/CdV			06/03/2019	20.6	840	860.6	32.81	101.4	0.78
16-26644	Water/CdV	2019	4	08/07/2019	15	129	144	1.42	5.25	0.35
16-612309 (Surge Bed Monitoring Well)	Water/CdV			Canceled: site was dry	4	15.56	19.56	—	—	—
CdV-16-1(i)	Water/CdV			08/09/2019	10	624	634	63.07	190.4	1.12
CdV-16-2(i)r	Water/CdV			08/12/2019	9.7	850	859.7	22.24	67.92	2.83
CdV-16-4ip S1	Water/CdV			08/12/2019	63.6	815.6	879.2	84.94	272.7	9.09
CdV-37-1(i)	Water/CdV			08/16/2019	20.5	632	652.5	34	116.4	2.91
CdV-9-1(i) S1	Water/CdV			08/06/2019	55	937.4	992.4	95.83	297.15	2.83
R-25 S1 ^f	Water/CdV			Canceled: ongoing plugging and abandoning (P/A)	20.8	737.6	758.4	—	—	—

Table 2.0-1 (continued)

Location Name	Watershed	Sampling Event		Sample Collection Date	Screened Interval (ft)	Screen Top Depth (ft bgs ^a)	Screen Bottom Depth (ft bgs)	Calculated Single Casing Volume (gal.)	Purge Volume (gal.)	Purge or Flow Rate (gpm)
		MY	Quarter							
R-25 S2 ^f	Water/CdV	2019 (cont'd)	4 (cont'd)	Cancelled: ongoing P/A	10.8	882.6	893.4	—	—	—
R-25 S4 ^f	Water/CdV			Cancelled: ongoing P/A	10	1184.6	1194.6	—	—	—
R-25b ^f	Water/CdV			08/19/2019	20.8	750	770.8	24.13	36.45	0.13
R-26 PZ-2	Water/CdV			08/06/2019	30	150	180	0.33	0.33	NC ^g
R-26 S1	Water/CdV			08/06/2019	18.1	651.8	669.9	73.94	231	3.85
R-47i	Water/CdV			08/19/2019	20.6	840	860.6	32.52	98.4	0.82
R-63i ^g	Water/CdV			08/22/2019	66.5	1122.5	1189	25.60	NC	NC—hand bailed
16-26644	Water/CdV	2020	1	12/03/2019	15	129	144	1.34	7.56	0.42
CdV-16-1(i)	Water/CdV			11/01/2019	10	624	634	62.67	193.75	1.25
CdV-16-2(i)r	Water/CdV			12/13/2019	9.7	850	859.7	22.25	69.84	2.91
CdV-16-4(i)p S1	Water/CdV			12/13/2019	63.6	815.6	879.2	84.97	272.7	9.09
CdV-9-1(i) S1	Water/CdV			12/03/2019	55	937.4	992.4	88.88	268.85	2.83
R-47i	Water/CdV			12/11/2019	20.6	840	860.6	32.42	99.2	0.62
16-26644	Water/CdV			2020	2	Cancelled due to PED issues	15	129	144	—
16-612309 (Surge Bed Monitoring Well)	Water/CdV	Cancelled due to PED issues	4			15.56	19.56	—	—	—
CdV-16-1(i)	Water/CdV	Cancelled due to PED issues	10			624	634	—	—	—
CdV-16-2(i)r	Water/CdV	Cancelled due to PED issues	9.7			850	859.7	—	—	—
CdV-16-4(i)p S1	Water/CdV	Cancelled due to PED issues	63.6			815.6	879.2	—	—	—
CdV-37-1(i)	Water/CdV	Cancelled due to PED issues	20.5			632	652.5	—	—	—
CdV-9-1(i) S1	Water/CdV	Cancelled due to PED issues	55			937.4	992.4	—	—	—

Table 2.0-1 (continued)

Location Name	Watershed	Sampling Event		Sample Collection Date	Screened Interval (ft)	Screen Top Depth (ft bgs ^a)	Screen Bottom Depth (ft bgs)	Calculated Single Casing Volume (gal.)	Purge Volume (gal.)	Purge or Flow Rate (gpm)
		MY	Quarter							
R-25b ^f	Water/CdV	2020	2	Canceled: PED issues	20.8	750	770.8	—	—	—
R-26 PZ-2	Water/CdV			Canceled: PED issues	30	150	180	—	—	—
R-26 S1	Water/CdV			Canceled: PED issues	18.1	651.8	669.9	—	—	—
R-47i	Water/CdV			Canceled: PED issues	20.6	840	860.6	—	—	—
R-63i ^f	Water/CdV			Canceled: PED issues	66.5	1122.5	1189	—	—	—
Regional										
R-18	Pajarito	2019	3	06/04/2019	23	1358	1381	95.63	300.15	6.67
R-25 S5 ^f	Water/CdV			Mechanical issues – sample probe unable to connect to port	10	1294.7	1304.7	—	—	—
R-47	Water/CdV			05/28/2019	21.3	1322	1343.3	51.14	171	3.8
R-48	Water/CdV			06/03/2019	20.6	1500	1520.6	189.22	690	6
R-58	Water/CdV			Canceled because of mechanical problems	20.3	1257	1277.3	—	—	—
R-63	Water/CdV			06/07/2019	20.3	1325	1345.3	104.41	329.4	7.32
R-68	Water/CdV			05/30/2019	20.4	1340	1360.4	45.61	141.12	5.88
R-69 S1	Water/CdV			06/05/2019	20.2	1310.0	1330.2	66.3	556.92	7.14
R-69 S2	Water/CdV			06/06/2019	20.3	1375.5	1395.8	45.9	153.72	7.32

Table 2.0-1 (continued)

Location Name	Watershed	Sampling Event		Sample Collection Date	Screened Interval (ft)	Screen Top Depth (ft bgs ^a)	Screen Bottom Depth (ft bgs)	Calculated Single Casing Volume (gal.)	Purge Volume (gal.)	Purge or Flow Rate (gpm)
		MY	Quarter							
CdV-R-15-3 S4	Water/CdV	2019	4	08/07/2019	43.8	1235.1	1278.9	44.19	150	6.25
R-18	Pajarito			08/21/2019	23	1358	1381	95.54	300.15	6.67
R-25 S5 ^f	Water/CdV			Canceled: ongoing P/A	10	1294.7	1304.7	—	—	—
R-47	Water/CdV			08/20/2019	21.3	1322	1343.3	50.69	171	3.8
R-48	Water/CdV			08/13/2019	20.6	1500	1520.6	189.08	593.88	5.88
R-58	Water/CdV			No samples collected: pump not functional	20.3	1257	1277.3	—	—	—
R-63	Water/CdV			08/22/2019	20.3	1325	1345.3	104.41	321.3	7.14
R-68	Water/CdV			08/08/2019	20.4	1340	1360.4	45.59	144.25	5.77
R-69 S1	Water/CdV			08/21/2019	20.2	1310.0	1330.2	66.14	213.03	7.89
R-69 S2	Water/CdV			08/21/2019	20.3	1375.5	1395.8	45.9	153.72	7.32
R-18	Pajarito	2020	1	12/04/2019	23	1358	1381	95.68	300.15	6.67
R-47	Water/CdV			12/05/2019	21.3	1322	1343.3	51.01	172.8	3.84
R-48	Water/CdV			12/06/2019	20.6	1500	1520.6	189.2	581.4	6.12
R-58	Water/CdV			Canceled: mechanical problems	20.3	1257	1277.3	—	—	—
R-63	Water/CdV			12/12/2019	20.3	1325	1345.3	104.43	321.3	7.14
R-68	Water/CdV			12/09/2019	20.4	1340	1360.4	45.98	141.12	5.88
R-69 S1	Water/CdV			12/10/2019	20.2	1310.0	1330.2	66.39	200.1	6.67
R-69 S2	Water/CdV			12/10/2019	20.3	1375.5	1395.8	45.9	149.94	7.14

Table 2.0-1 (continued)

Location Name	Watershed	Sampling Event		Sample Collection Date	Screened Interval (ft)	Screen Top Depth (ft bgs ^a)	Screen Bottom Depth (ft bgs)	Calculated Single Casing Volume (gal.)	Purge Volume (gal.)	Purge or Flow Rate (gpm)
		MY	Quarter							
CdV-R-15-3 S4	Water/CdV	2020	2	Canceled: PED issues	43.8	1235.1	1278.9	—	—	—
CdV-R-37-2 S2	Water/CdV			Canceled: PED issues	25.1	1188.7	1213.8	—	—	—
R-18	Pajarito			Canceled: PED issues	23	1358	1381	—	—	—
R-47	Water/CdV			Canceled: PED issues	21.3	1322	1343.3	—	—	—
R-48	Water/CdV			Canceled: PED issues	20.6	1500	1520.6	—	—	—
R-58	Water/CdV			Canceled: PED issues	20.3	1257	1277.3	—	—	—
R-63	Water/CdV			Canceled: PED issues	20.3	1325	1345.3	—	—	—
R-68	Water/CdV			Canceled: PED issues	20.4	1340	1360.4	—	—	—
R-69 S1	Water/CdV			Canceled: PED issues	20.2	1310.0	1330.2	—	—	—
R-69 S2	Water/CdV			Canceled: PED issues	20.3	1375.5	1395.8	—	—	—

^a bgs = Below ground surface.

^b CdV = Cañon de Valle.

^c — = Not applicable.

^d MDA = Material disposal area.

^e PED = Portable electronic device.

^f Data are not included in this report as results are coded “screening” per Appendix E (Watch List) of the IFGMP.

^g NC = Not collected.

**Table 2.1-1
TA-16 260 Monitoring Group PME Observations**

Monitoring Location	Watershed	Sampling Event		Observation	Comment
		MY	Quarter		
16-26644	Water/CdV ^a	2019	3	3.25 CVs ^b purged	None
CdV-9-1(i) S1	Water/CdV			3.09 CVs purged	None
CdV-16-1(i)	Water/CdV			3.01 CVs purged	None
CdV-16-2(i)r	Water/CdV			3.15 CVs purged	None
CdV-16-4(i)p S1	Water/CdV			3.17 CVs purged	None
R-18	Pajarito			3.14 CVs purged	None
R-47i	Water/CdV			3.09 CVs purged	Sampled per Attachment 15 of N3B-SOP-ER-3003 at reduced flow rate to prevent drawdown.
R-47	Water/CdV			3.34 CVs purged	None
R-48	Water/CdV			3.65 CVs purged	An extra 0.65 CVs purged to allow for dissolved oxygen to stabilize.
R-63	Water/CdV			3.15 CVs purged	None
R-68	Water/CdV			3.09 CVs purged	None
R-69 S1	Water/CdV			8.40 CVs purged	An extra 5.4 CVs purged due to lightning stand down.
R-69 S2	Water/CdV			3.35 CVs purged	None
16-26644	Water/CdV	2019	4	3.70 CVs purged	An extra 0.7 CVs purged to collect at least two parameters per CVs.
CdV-16-02656	Water/CdV			2.05 CVs purged	An extra 1.05 CVs were purged to allow pH and turbidity to stabilize.
CdV-16-02659	Water/CdV			1.26 CVs purged	None
CdV-16-1(i)	Water/CdV			3.02 CVs purged	None
CdV-16-2(i)r	Water/CdV			3.05 CVs purged	None
CdV-16-4(i)p S1	Water/CdV			3.21 CVs purged	None
CdV-16-611923	Water/CdV			2.48 CVs purged	An extra 1.48 CVs purged to allow turbidity and dissolved oxygen to stabilize.
CdV-16-611937	Water/CdV			3.25 CVs purged	An extra 2.25 CVs purged to allow turbidity and specific conductance to stabilize.

Table 2.1-1 (continued)

Monitoring Location	Watershed	Sampling Event		Observation	Comment
		MY	Quarter		
CdV-9-1(i) S1	Water/CdV	2019 (cont'd)	4 (cont'd)	3.1 CVs purged	None
CdV-37-1(i)	Water/CdV			3.42 CVs purged	None
CdV-R-15-3 S4	Water/CdV			3.39 CVs purged	None
R-18	Pajarito			3.14 CVs purged	None
R-25b	Water/CdV			1.51 CVs purged	Sampled in accordance with Attachment 15 of N3B-SOP-ER-3003. Purge 1.5 CVs + DP volume and sample regardless of stability.
R-26 S1	Water/CdV			3.12 CVs purged	None
R-26 PZ-2	Water/CdV			1.00 CVs purged	Sampled in accordance with Attachment 15 of N3B-SOP-ER-3003. Purge 1 CV (or until dry) and sample regardless of stability.
R-26 S1	Water/CdV			3.12 CVs purged	None
R-47i	Water/CdV			3.03 CVs purged	Purged at a reduced flow rate to minimize drawdown.
R-63i	Water/CdV			Sampled using bailer. Estimated cumulative volumes are based on an assumed bailer volume of 2.0 gal. and the assumption that field parameters were measured for each bailer pull. No water level was collected when bailer was used.	Sampled per directed change order dated 1/8/2018. Well purged by N3B personnel 08/21/2019 prior to sampling. Crew sampled after recharge on 8/22/2019 using stainless steel bailer and Westbay winch.
R-47	Water/CdV			3.37 CVs purged	None
R-48	Water/CdV			3.14 CVs purged	None
R-63	Water/CdV			3.08 CVs purged	None
R-68	Water/CdV			3.16 CVs purged	None
R-69 S1	Water/CdV			3.22 CVs purged	None
R-69 S2	Water/CdV	3.35 CVs purged	None		

Table 2.1-1 (continued)

Monitoring Location	Watershed	Sampling Event		Observation	Comment
		MY	Quarter		
16-26644	Water/CdV	2020	1	5.64 CVs purged	An extra 2.64 CVs purged to get minimum of two parameters per CVs.
CdV-9-1(i)	Water/CdV			3.02 CVs purged	None
CdV-16-1(i)	Water/CdV			3.09 CVs purged	None
CdV-16-2(i)r	Water/CdV			3.14 CVs purged	None
CdV-16-4(i)p S1	Water/CdV			3.21 CVs purged	None
R-18	Pajarito			3.14 CVs purged	None
R-47i	Water/CdV			3.06 CVs purged	None
R-47	Water/CdV			3.38 CVs purged	None
R-48	Water/CdV			3.07 CVs purged	None
R-63	Water/CdV			3.08 CVs purged	None
R-68	Water/CdV			3.07 CVs purged	None
R-69 S1	Water/CdV			3.00 CVs purged	None
R-69 S2	Water/CdV			3.27 CVs purged	None

^a CdV = Cañon de Valle.

^b CV = Casing volume.

^c DP = Drop pipe.

**Table 2.1-2
TA-16 260 Monitoring Group PME Deviations**

Monitoring Location	Watershed	Sampling Event		Deviation	Cause	Comment
		MY	Quarter			
R-25 S5	Water/CdV ^a	2019	3	No field or analytical data will be available for this site.	Canceled: mechanical problems	Canceled: mechanical problems
R-58	Water/CdV			No field or analytical data will be available for this site.	Canceled: mechanical problems	Canceled: mechanical problems
CdV below MDA P	Water/CdV	2019	4	No field or analytical data will be available for this site.	Site was dry	Canceled: site was dry
Water at Beta	Water/CdV			No field or analytical data will be available for this site.	Site was dry	Canceled: site was dry
SWSC Spring	Water/CdV			No field or analytical data will be available for this site.	Site was dry	Canceled: site was dry
FLC-16-25280	Water/CdV			No field or analytical data will be available for this site.	Site was dry	Canceled: site was dry
Cd-16-02657r	Water/CdV			No field or analytical data will be available for this site.	Site was dry	Canceled: site was dry
MSC-16-06293	Water/CdV			No field or analytical data will be available for this site.	Site had insufficient water to sample	Canceled: insufficient water
MSC-16-06294	Water/CdV			No field or analytical data will be available for this site.	Site had insufficient water to sample	Canceled: insufficient water
16-612309 (Surge Bed Monitoring Well)	Water/CdV			No field or analytical data will be available for this site.	Site was dry	Canceled: site was dry
R-58	Water/CdV			No field or analytical data will be available for this site.	Mechanical problem	Canceled: mechanical problems
R-25 S1	Water/CdV			No field or analytical data will be available for this site.	Canceled by project lead	Well undergoing P&A ^b activities
R-25 S2	Water/CdV			No field or analytical data will be available for this site.	Canceled by project lead	Well undergoing P&A activities

Table 2.1-2 (continued)

Monitoring Location	Watershed	Sampling Event		Deviation	Cause	Comment
		MY	Quarter			
R-25 S4	Water/CdV	2019 (cont'd)	4 (cont'd)	No field or analytical data will be available for this site.	Canceled by project lead	Well undergoing P&A activities
R-25 S5	Water/CdV			No field or analytical data will be available for this site.	Canceled by project lead	Well undergoing P&A activities
R-58	Water/CdV			No field or analytical data will be available for this site.	Canceled: mechanical issues	Canceled due to mechanical issues
All locations in this PME ^c	Water/CdV and Pajarito	2020	2	No field or analytical data will be available for any locations for MY 2020 Q2 ^d .	All locations canceled: PED ^e issues	All locations canceled due to PED issues
All sites where SVOCs are analyzed	Water/CdV and Pajarito	2019 and 2020	3, 4 and 1	The 2019 IFGMP and 2020 IFGMP Table B-4.1-1 (N3B 2019, 700451) specifies a requirement to analyze methylphenol[4-], CAS ^f 106-44-5 as part of the SVOC ^g analytical suite by the analytical method SW-846:8270D. Instead, methylphenol[3-,4-] CAS 65794-96-9 is analyzed as part of the SVOC analytical suite by the analytical method SW-846:8270D.	Methylphenol [3-], m-cresol, CAS 108-39-4, and methylphenol[4-], p-cresol CAS 106-44-5, are not independently quantified by SW-846:8270D. The two compounds co-elute and methylphenol[3-,4-],m,p-cresols CAS 65794-96-9 are analyzed by SW-846:8270D. The result for each analyte is a combined concentration. GELC's ^h catalog of services includes m,p-cresols and does not include m-cresol or p-cresol. GELC's certificate of analysis identifies m,p-cresols CAS 65794-96-9.	None

Table 2.1-2 (continued)

Monitoring Location	Watershed	Sampling Event		Deviation	Cause	Comment
		MY	Quarter			
All sites where SVOCs are analyzed	Water/CdV and Pajarito	2019 and 2020	3, 4 and 1	The 2019 IFGMP and 2020 IFGMP Table B-4.1-1 (N3B 2019, 700451) specifies a requirement to analyze azobenzene, CAS 103-33-3 as part of the SVOC analytical suite by the analytical method SW-846:8270D. Instead, diphenylhydrazine[1,2-], CAS 122-66-7 is analyzed as part of the SVOC analytical suite by the analytical method SW846:8270D.	Diphenylhydrazine[1,2-] CAS 122-66-7 decomposes and cannot be separated from azobenzene CAS 103-33-3 using the analytical method SW846:8270D.	None
All sites where SVOCs are analyzed	Water/CdV and Pajarito			The 2019 IFGMP Table B-4.1-1 (N3B 2019, 700451) specifies a requirement to analyze both nitrosodiphenylamine[N-] CAS 86-30-6 and diphenylamine CAS 122-39-4 as part of the SVOC analytical suite by the analytical method SW-846:8270. Instead diphenylamine CAS 122-39-4 is analyzed as part of the SVOC analytical suite by the analytical method SW-846:8270	Nitrosodiphenylamine[N-] CAS 86-30-6 decomposes and cannot be separated from diphenylamine CAS 122-39-4 using the analytical method 8270D. The result for each analyte is combined and reported as diphenylamine CAS 122-39-4.	None

^a CdV = Cañon de Valle.

^b P&A = Plugging and abandonment.

^c Missed samples were collected in MY 2020 Q4.

^d Q = Quarter

^e PED = Portable electronic device

^f CAS = Chemical Abstracts Service.

^h GELC = GEL Laboratories, LLC, Division of the GEL Group, Charleston, SC.

**Table 3.0-1
Sources for Standards and Screening Levels for
Groundwater at Los Alamos National Laboratory**

Standard Type	Standard Source	Description	Groundwater
New Mexico			
Standard	20 6.2.3103 NMAC (NMWQCC groundwater standard)	Groundwater Human Health Standards, other standards for domestic water supply and standards for irrigation use	X ^a
Screening Level	NMED	Tap water screening levels ^b	X
EPA			
Standard	40 Code of Federal Regulations 141	EPA MCLs ^c	X
Risk-Human	EPA generic screening levels	EPA generic screening levels for tap water ^d	x
DOE			
Standard	DOE Order 458.1	DOE 100-mrem public dose derived concentration technical standards	X
Standard	DOE Order 458.1	DOE 4-mrem drinking water derived concentration technical standards	X

^a X = Applied to data screen for this report.

^b Screening levels derived from NMED guidance (NMED 2017, 602274; NMED 2019, 700550).

^c EPA maximum contaminant levels (<https://www.epa.gov/ground-water-and-drinking-water/national-primary-drinking-water-regulations>).

^d EPA generic screening levels (<http://www.epa.gov/risk/risk-based-screening-table-generic-tables>).

**Table 3.0-2
Sources for Standards and Screening Levels for
Surface Water at Los Alamos National Laboratory**

Standard Type	Standard Source	Between E252 and Water at Beta	Cañon de Valle below MDA ^a P	Pajarito below S&N Ancho Basin Confluence	Water at Beta
NMAC-NMWQCC					
Irrigation Standard	20 6.4.900.C NMAC	— ^b	—	—	—
Livestock Watering Standard	20 6.4.900.F NMAC	X ^c	X	X	X
Wildlife Habitat Standard	20 6.4.900.G NMAC	X	X	X	X
Aquatic Life Standards Acute	20 6.4.900.H NMAC	X ^{d, e}	X ^{d, e}	X ^{d, e}	X ^{d, e}
Aquatic Life Standards Chronic	20 6.4.900.H NMAC	—	X ^{d, e}	—	—
Aquatic Life Human Health-Organism Only Standard	20 6.4.900.H NMAC	X ^f	X ^f	X ^f	X ^f

^a MDA = Material disposal area.

^b — = Not applied to data screen for this report.

^c X = Applied to data screen for this report.

^d Hardness-dependent acute and chronic criteria were used for total recoverable aluminum and dissolved cadmium, chromium, copper, lead, manganese, nickel, silver, and zinc.

^e Standard for dissolved chromium(VI) conservatively compared with results for dissolved chromium (<https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables>).

^f Human health-organism only criteria apply only for persistent pollutants unless adopted on a segment-specific basis.

**Table 3.0-3
Base-Flow Location Type and Hardness Assignments Used to Select Screening Values**

Watershed	Location	Assessment Unit	Classification	Stream Type	Hardness (mg/L as CaCO₃)
Water	Between E252 and Water at Beta	Water Canyon (within LANL below Area-A Cyn)	20.6.4.128	Ephemeral	70
Water	Cañon de Valle below MDA P	Canon de Valle (LANL gage E256 to Burning Ground Spring)	20.6.4.126	Perennial	NC*
Pajarito	Pajarito below S&N Ancho E Basin Confluence	Pajarito Canyon (Two Mile Canyon to Arroyo de La Delfe)	20.6.4.128	Intermittent	40
Water	Water at Beta	Water Canyon (within LANL below Area-A Cyn)	20.6.4.128	Ephemeral	50

* NC = Not calculated. Cañon de Valle below Material Disposal Area (MDA) P was dry, and therefore no hardness value was calculated.

**Table 4.2-1
Target Analytes with MDLs Equal to or Above Screening Values**

Analyte Name	MDL	Analytical Method	Screening Value	Unit	Screening-Value Type	Lab ID
Dioxins/Furans						
Tetrachlorodibenzofuran[2,3,7,8-]	0.00000401–0.0000046	SW-846:8290A	0.00000184	µg/L	NMED A1 TAP SCRNLVL ^a	CFA ^b
Metals						
Thallium	0.6	SW-846:6020	0.47	µg/L	NM Human Health OO ^c	GELC ^d
Semivolatile Organic Compounds						
Atrazine	3.0–3.28	SW-846:8270D	3.0	µg/L	NM GW STD ^e	GELC
Azobenzene	3.0–3.28	SW-846:8270D	1.2	µg/L	EPA TAP SCRNLVL ^f	GELC
Benzidine	3.9–4.27	SW-846:8270D	0.00109	µg/L	NMED A1 TAP SCRNLVL	GELC
Benzo(a)anthracene	0.3–0.328	SW-846:8270D	0.12	µg/L	NMED A1 TAP SCRNLVL	GELC
Benzo(a)pyrene	0.3–0.328	SW-846:8270D	0.2	µg/L	NM GW STD	GELC
Bis(2-chloroethyl)ether	3.0–3.28	SW-846:8270D	0.137	µg/L	NMED A1 TAP SCRNLVL	GELC
Dibenz(a,h)anthracene	0.3–0.328	SW-846:8270D	0.0343	µg/L	NMED A1 TAP SCRNLVL	GELC
Dichlorobenzidine[3,3'-]	3.0–3.28	SW-846:8270D	1.25	µg/L	NMED A1 TAP SCRNLVL	GELC
Dinitro-2-methylphenol[4,6-]	3.0–3.28	SW-846:8270D	1.52	µg/L	NMED A1 TAP SCRNLVL	GELC
Dinitrotoluene[2,4-]	3.0–3.28	SW-846:8270D	2.37	µg/L	NMED A1 TAP SCRNLVL	GELC
Dinitrotoluene[2,6-]	3.0–3.28	SW-846:8270D	0.485	µg/L	NMED A1 TAP SCRNLVL	GELC
Hexachlorobenzene	3.0–3.28	SW-846:8270D	1	µg/L	EPA MCL ^g	GELC
Hexachlorobutadiene	3.0–3.28	SW-846:8270D	1.39	µg/L	NMED A1 TAP SCRNLVL	GELC
Nitrobenzene	3.0–3.28	SW-846:8270D	1.4	µg/L	NMED A1 TAP SCRNLVL	GELC
Nitrosodiethylamine[N-]	3.0–3.28	SW-846:8270D	0.00167	µg/L	NMED A1 TAP SCRNLVL	GELC
Nitrosodimethylamine[N-]	3.0–3.28	SW-846:8270D	0.00491	µg/L	NMED A1 TAP SCRNLVL	GELC
Nitroso-di-n-butylamine[N-]	3.0–3.28	SW-846:8270D	0.0273	µg/L	NMED A1 TAP SCRNLVL	GELC
Nitroso-di-n-propylamine[N-]	3.0–3.28	SW-846:8270D	0.11	µg/L	EPA TAP SCRNLVL	GELC
Nitrosopyrrolidine[N-]	3.0–3.28	SW-846:8270D	0.37	µg/L	NMED A1 TAP SCRNLVL	GELC
Pentachlorophenol	3.0–3.28	SW-846:8270D	1	µg/L	NM GW STD	GELC
Tetrachlorobenzene[1,2,4,5]	3.0–3.28	SW-846:8270D	1.66	µg/L	NMED A1 TAP SCRNLVL	GELC

Table 4.2-1 (continued)

Analyte Name	MDL	Analytical Method	Screening Value	Unit	Screening-Value Type	Lab ID
Volatile Organic Compounds						
Acrolein	1.5	SW-846:8260B	0.0415	µg/L	NMED A1 TAP SCRNLVL	GELC
Acrylonitrile	1.5	SW-846:8260B	0.523	µg/L	NMED A1 TAP SCRNLVL	GELC
Chloro-1,3-butadiene[2-]	0.3	SW-846:8260B	0.187	µg/L	NMED A1 TAP SCRNLVL	GELC
Dibromo-3-Chloropropane[1,2-]	0.5	SW-846:8260B	0.2	µg/L	EPA MCL	GELC
Dibromoethane[1,2-]	0.3	SW-846:8260B	0.05	µg/L	NM GW STD	GELC
Dibromomethane	0.3	SW-846:8260B	0.0747	µg/L	NMED A1 TAP SCRNLVL	GELC
Trichloropropane[1,2,3-]	0.3	SW-846:8260B	0.00835	µg/L	NMED A1 TAP SCRNLVL	GELC

Note: This table is applicable to samples reported in this PMR.

^a NMED A1 TAP SCRNLVL = New Mexico Environment Department screening level for tap water.

^b CFA = Cape Fear Analytical, LLC, Wilmington, NC.

^c NM Human Health OO = Human health organism only, New Mexico surface-water standards

^d GELC = GEL Laboratories, LLC, Division of the GEL Group, Charleston, SC.

^e NM GW STD = NMWQCC groundwater standard.

^f EPA TAP SCRNLVL = U.S. Environmental Protection Agency screening level for tap water.

^g EPA maximum contaminant levels (<https://www.epa.gov/ground-water-and-drinking-water/national-primary-drinking-water-regulations>).

**Table 4.2-2
Target Analytes with MDLs Below Screening Values**

Analyte Name	MDL	Analytical Method	Screening Value	Unit	Screening-Value Type	Lab ID
Semivolatile Organic Compounds						
Pentachlorobenzene	3.0–3.28	SW-846:8270D	3.07	µg/L	NMED A1 TAP SCRNLVL ^a	GELC ^b

Note: This table is applicable to samples reported in this PMR. For this table, the lower value of the MDL range is below the screening value, while the upper value is above the screening value.

^a NMED A1 TAP SCRNLVL = New Mexico Environment Department screening level for tap water.

^b GELC = GEL Laboratories, LLC, Division of the GEL Group, Charleston, SC.

**Table 5.2-1
TA-16 260 Monitoring Group Results above Screening Values**

Location	Watershed	Sampling Event		Sample Collection Date	Analyte	Field Prep Code	Result	Unit	Screening Value	Screening Value Source
		MY	Quarter							
Base Flow										
Pajarito below S&N Ancho E Basin Confluence	Pajarito	2019	2	08/14/2019	Aluminum	UF ^a	1080.0	µg/L	975	NMWQCC Aquatic Life Standards Acute based on 40 mg/L hardness ^b
Springs										
Martin Spring	Water/CdV ^c	2019	4	08/10/2019	Boron	F ^d	863.0	µg/L	750	NM GW STD ^e
Martin Spring	Water/CdV	2019	4	08/10/2019	RDX	UF	71.6	µg/L	9.66	NMED A1 TAP SCRNLVL ^f
16-61439	Water/CdV	2019	4	08/07/2019	Barium	F	3300	µg/L	2000	NM GW STD
16-61439	Water/CdV	2019	4	08/07/2019	RDX	UF	13.0	µg/L	9.66	NMED A1 TAP SCRNLVL
Alluvial										
CDV-16-02659	Water/CdV	2019	4	08/10/2019	Barium	F	4740.0	µg/L	2000	NMED A1 TAP SCRNLVL
CDV-16-02659	Water/CdV	2019	4	08/10/2019	RDX	UF	11.8	µg/L	9.66	NMED A1 TAP SCRNLVL
CDV-16-611923	Water/CdV	2019	4	08/09/2019	Barium	F	4950	µg/L	2000	NM GW STD
CDV-16-611937	Water/CdV	2019	4	08/09/2019	Iron	F	9360.0	µg/L	1000	NM GW STD
CDV-16-611937	Water/CdV	2019	4	08/09/2019	Manganese	F	1360.0	µg/L	200	NM GW STD
Perched-Intermediate										
CdV-16-1(i)	Water/CdV	2019	4	05/31/2019	RDX	UF	31.6	µg/L	9.66	NMED A1 TAP SCRNLVL
CdV-16-1(i)	Water/CdV	2019	4	08/09/2019	RDX	UF	32.9	µg/L	9.66	NMED A1 TAP SCRNLVL
CdV-16-1(i)	Water/CdV	2020	1	11/01/2019	RDX	UF	35.1	µg/L	9.66	NMED A1 TAP SCRNLVL
CdV-16-2(i)r	Water/CdV	2019	4	08/12/2019	RDX	UF	87.0	µg/L	9.66	NMED A1 TAP SCRNLVL
CdV-16-2(i)r	Water/CdV	2020	1	12/13/2019	RDX	UF	122.0	µg/L	9.66	NMED A1 TAP SCRNLVL
CDV-16-4(i)p S1	Water/CdV	2019	3	05/31/2019	Amino-2,6-dinitrotoluene[4-]	UF	1.93	µg/L	1.9	EPA TAP SCRNLVL ^g
CDV-16-4(i)p S1	Water/CdV	2019	3	05/31/2019	RDX	UF	116.0	µg/L	9.66	NMED A1 TAP SCRNLVL

Table 5.2-1 (continued)

Location	Watershed	Sampling Event		Sample Collection Date	Analyte	Field Prep Code	Result	Unit	Screening Value	Screening Value Source
		MY	Quarter							
CDV-16-4(i)p S1	Water/CdV	2019	4	08/12/2019	RDX	UF	130.0	µg/L	9.66	NMED A1 TAP SCRNLVL
CDV-16-4(i)p S1	Water/CdV	2020	1	12/13/2019	RDX	UF	130.0	µg/L	9.66	NMED A1 TAP SCRNLVL
CDV-9-1(i) S1	Water/CdV	2019	4	08/06/2019	RDX	UF	14.5	µg/L	9.66	NMED A1 TAP SCRNLVL
CDV-9-1(i) S1	Water/CdV	2020	1	12/03/2019	RDX	UF	17.4	µg/L	9.66	NMED A1 TAP SCRNLVL
Regional										
R-68	Water/CdV	2019	3	05/30/2019	RDX	UF	14.3	µg/L	9.66	NMED A1 TAP SCRNLVL
R-68	Water/CdV	2019	4	08/08/2019	RDX	UF	14.9	µg/L	9.66	NMED A1 TAP SCRNLVL
R-68	Water/CdV	2020	1	12/09/2019	RDX	UF	15.5	µg/L	9.66	NMED A1 TAP SCRNLVL
R-69 S1	Water/CdV	2019	3	06/05/2019	RDX	UF	15.0	µg/L	9.66	NMED A1 TAP SCRNLVL
R-69 S1	Water/CdV	2019	4	08/21/2019	RDX	UF	11.8	µg/L	9.66	NMED A1 TAP SCRNLVL
R-69 S1	Water/CdV	2020	1	12/10/2019	RDX	UF	10.6	µg/L	9.66	NMED A1 TAP SCRNLVL
R-69 S2	Water/CdV	2019	3	06/06/2019	RDX	UF	22.1	µg/L	9.66	NMED A1 TAP SCRNLVL
R-69 S2	Water/CdV	2019	4	08/21/2019	RDX	UF	24.2	µg/L	9.66	NMED A1 TAP SCRNLVL
R-69 S2	Water/CdV	2020	4	12/10/2019	RDX	UF	24.2	µg/L	9.66	NMED A1 TAP SCRNLVL

^a UF = Unfiltered.

^b NMWQCC Aquatic Life Standards Acute = New Mexico Water Quality Control Commission aquatic life standards for acute exposure.

^c CdV = Cañon de Valle.

^d F = Filtered.

^e NM GW STD = NMWQCC groundwater standard.

^f NMED A1 TAP SCRNLVL = New Mexico Environment Department screening level for tap water.

^g EPA TAP SCRNLVL = U.S. Environmental Protection Agency screening level for tap water.

Appendix A

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

Field Measurement Record #	Location ID	Screen Depth (ft bgs)	Measurement Date	PMR Sample Type	Field Parameter	Field Measurement	Measurement Units	Field Sample ID
307707	16-26644	129.0	12/03/2019	WG ^a	Dissolved Oxygen	7.58	mg/L	CAWA-20-190732
288467	16-26644	129.0	08/07/2019	WG	Dissolved Oxygen	7.83	mg/L	CAWA-19-184002
282625	16-26644	129.0	06/10/2019	WG	Dissolved Oxygen	7.61	mg/L	CAWA-19-181312
266063	16-26644	129.0	03/07/2019	WG	Dissolved Oxygen	7.82	mg/L	CAWA-19-167563
258837	16-26644	129.0	12/04/2018	WG	Dissolved Oxygen	7.87	mg/L	CAWA-19-164499
246371	16-26644	129.0	08/23/2018	WG	Dissolved Oxygen	7.89	mg/L	CAWA-18-160293
237038	16-26644	129.0	05/29/2018	WS	Dissolved Oxygen	7.75	mg/L	CAWA-18-1
307706	16-26644	129.0	12/03/2019	WG	Flow (in gpm ^b)	0.42	gpm	CAWA-20-190732
288466	16-26644	129.0	08/07/2019	WG	Flow (in gpm)	0.35	gpm	CAWA-19-184002
282624	16-26644	129.0	06/10/2019	WG	Flow (in gpm)	0.43	gpm	CAWA-19-181312
266062	16-26644	129.0	03/07/2019	WG	Flow (in gpm)	0.44	gpm	CAWA-19-167563
258836	16-26644	129.0	12/04/2018	WG	Flow (in gpm)	0.74	gpm	CAWA-19-164499
246370	16-26644	129.0	08/23/2018	WG	Flow (in gpm)	0.21	gpm	CAWA-18-160293
237037	16-26644	129.0	05/29/2018	WS	Flow (in gpm)	0.42	gpm	CAWA-18-1
307709	16-26644	129.0	12/03/2019	WG	Oxidation-Reduction Potential	126.8	mV ^c	CAWA-20-190732
288415	16-26644	129.0	08/07/2019	WG	Oxidation-Reduction Potential	208.8	mV	CAWA-19-184002
282627	16-26644	129.0	06/10/2019	WG	Oxidation-Reduction Potential	131.9	mV	CAWA-19-181312
266065	16-26644	129.0	03/07/2019	WG	Oxidation-Reduction Potential	184.0	mV	CAWA-19-167563
258839	16-26644	129.0	12/04/2018	WG	Oxidation-Reduction Potential	321.9	mV	CAWA-19-164499
246330	16-26644	129.0	08/23/2018	WG	Oxidation-Reduction Potential	136.8	mV	CAWA-18-160293
237046	16-26644	129.0	05/29/2018	WS	Oxidation-Reduction Potential	250.8	mV	CAWA-18-1
307737	16-26644	129.0	12/03/2019	WG	pH	6.9	SU ^d	CAWA-20-190732
288417	16-26644	129.0	08/07/2019	WG	pH	6.9	SU	CAWA-19-184002
282633	16-26644	129.0	06/10/2019	WG	pH	6.7	SU	CAWA-19-181312
266067	16-26644	129.0	03/07/2019	WG	pH	6.8	SU	CAWA-19-167563
258841	16-26644	129.0	12/04/2018	WG	pH	7.0	SU	CAWA-19-164499
246332	16-26644	129.0	08/23/2018	WG	pH	7.0	SU	CAWA-18-160293

Field Measurement Record #	Location ID	Screen Depth (ft bgs)	Measurement Date	PMR Sample Type	Field Parameter	Field Measurement	Measurement Units	Field Sample ID
237048	16-26644	129.0	05/29/2018	WS	pH	6.9	SU	CAWA-18-1
307739	16-26644	129.0	12/03/2019	WG	Specific Conductance	212.4	µS/cm	CAWA-20-190732
288452	16-26644	129.0	08/07/2019	WG	Specific Conductance	187.8	µS/cm	CAWA-19-184002
282629	16-26644	129.0	06/10/2019	WG	Specific Conductance	145.2	µS/cm	CAWA-19-181312
266100	16-26644	129.0	03/07/2019	WG	Specific Conductance	322.1	µS/cm	CAWA-19-167563
258818	16-26644	129.0	12/04/2018	WG	Specific Conductance	227.9	µS/cm	CAWA-19-164499
246334	16-26644	129.0	08/23/2018	WG	Specific Conductance	206.7	µS/cm	CAWA-18-160293
237050	16-26644	129.0	05/29/2018	WS	Specific Conductance	198.8	µS/cm	CAWA-18-1
307740	16-26644	129.0	12/03/2019	WG	Temperature	11.6	deg C	CAWA-20-190732
288453	16-26644	129.0	08/07/2019	WG	Temperature	12.6	deg C	CAWA-19-184002
282630	16-26644	129.0	06/10/2019	WG	Temperature	11.6	deg C	CAWA-19-181312
266101	16-26644	129.0	03/07/2019	WG	Temperature	11.5	deg C	CAWA-19-167563
258819	16-26644	129.0	12/04/2018	WG	Temperature	11.5	deg C	CAWA-19-164499
246335	16-26644	129.0	08/23/2018	WG	Temperature	13.1	deg C	CAWA-18-160293
237051	16-26644	129.0	05/29/2018	WS	Temperature	12.7	deg C	CAWA-18-1
307742	16-26644	129.0	12/03/2019	WG	Turbidity	3.2	NTU ^e	CAWA-20-190732
288418	16-26644	129.0	08/07/2019	WG	Turbidity	5.1	NTU	CAWA-19-184002
282632	16-26644	129.0	06/10/2019	WG	Turbidity	6.0	NTU	CAWA-19-181312
266103	16-26644	129.0	03/07/2019	WG	Turbidity	13.5	NTU	CAWA-19-167563
258821	16-26644	129.0	12/04/2018	WG	Turbidity	1.2	NTU	CAWA-19-164499
246373	16-26644	129.0	08/23/2018	WG	Turbidity	1.0	NTU	CAWA-18-160293
237040	16-26644	129.0	05/29/2018	WS ^f	Turbidity	7.6	NTU	CAWA-18-1
290145	Burning Ground Spring	— ^g	08/17/2019	WG	Dissolved Oxygen	8.21	mg/L	CAWA-19-183885
267449	Burning Ground Spring	—	03/16/2019	WG	Dissolved Oxygen	8.21	mg/L	CAWA-19-167526
244589	Burning Ground Spring	—	08/11/2018	WG	Dissolved Oxygen	8.32	mg/L	CAWA-18-160246
218317	Burning Ground Spring	—	02/10/2018	WG	Dissolved Oxygen	8.41	mg/L	CAWA-18-10
208285	Burning Ground Spring	—	09/01/2017	WG	Dissolved Oxygen	8.32	mg/L	CAWA-17-142892

Field Measurement Record #	Location ID	Screen Depth (ft bgs)	Measurement Date	PMR Sample Type	Field Parameter	Field Measurement	Measurement Units	Field Sample ID
290144	Burning Ground Spring	—	08/17/2019	WG	Flow (in gpm)	7.25	gpm	CAWA-19-183885
267448	Burning Ground Spring	—	03/16/2019	WG	Flow (in gpm)	30.00	gpm	CAWA-19-167526
244588	Burning Ground Spring	—	08/11/2018	WG	Flow (in gpm)	7.63	gpm	CAWA-18-160246
218316	Burning Ground Spring	—	02/10/2018	WG	Flow (in gpm)	4.28	gpm	CAWA-18-10
290149	Burning Ground Spring	—	08/17/2019	WG	pH	7.7	SU	CAWA-19-183885
267450	Burning Ground Spring	—	03/16/2019	WG	pH	7.3	SU	CAWA-19-167526
244593	Burning Ground Spring	—	08/11/2018	WG	pH	7.2	SU	CAWA-18-160246
218318	Burning Ground Spring	—	02/10/2018	WG	pH	7.6	SU	CAWA-18-10
208290	Burning Ground Spring	—	09/01/2017	WG	pH	7.2	SU	CAWA-17-142892
290146	Burning Ground Spring	—	08/17/2019	WG	Specific Conductance	174.7	µS/cm	CAWA-19-183885
267445	Burning Ground Spring	—	03/16/2019	WG	Specific Conductance	260.4	µS/cm	CAWA-19-167526
244590	Burning Ground Spring	—	08/11/2018	WG	Specific Conductance	249.2	µS/cm	CAWA-18-160246
218319	Burning Ground Spring	—	02/10/2018	WG	Specific Conductance	203.6	µS/cm	CAWA-18-10
208287	Burning Ground Spring	—	09/01/2017	WG	Specific Conductance	193.8	µS/cm	CAWA-17-142892
290147	Burning Ground Spring	—	08/17/2019	WG	Temperature	11.7	deg C	CAWA-19-183885
267446	Burning Ground Spring	—	03/16/2019	WG	Temperature	9.7	deg C	CAWA-19-167526
244591	Burning Ground Spring	—	08/11/2018	WG	Temperature	11.4	deg C	CAWA-18-160246
218320	Burning Ground Spring	—	02/10/2018	WG	Temperature	10.2	deg C	CAWA-18-10
208288	Burning Ground Spring	—	09/01/2017	WG	Temperature	13.1	deg C	CAWA-17-142892
290148	Burning Ground Spring	—	08/17/2019	WG	Turbidity	2.8	NTU	CAWA-19-183885
267447	Burning Ground Spring	—	03/16/2019	WG	Turbidity	26.1	NTU	CAWA-19-167526
244592	Burning Ground Spring	—	08/11/2018	WG	Turbidity	3.8	NTU	CAWA-18-160246
218321	Burning Ground Spring	—	02/10/2018	WG	Turbidity	2.3	NTU	CAWA-18-10
208289	Burning Ground Spring	—	09/01/2017	WG	Turbidity	1.7	NTU	CAWA-17-142892
—	CDV-16-02656	3.0	08/17/2019	WG	Dissolved Oxygen	4.46	mg/L	CAWA-19-183893
267500	CDV-16-02656	3.0	03/16/2019	WG	Dissolved Oxygen	4.69	mg/L	CAWA-19-167541
218982	CDV-16-02656	3.0	02/10/2018	WG	Dissolved Oxygen	6.66	mg/L	CAWA-18-15

Field Measurement Record #	Location ID	Screen Depth (ft bgs)	Measurement Date	PMR Sample Type	Field Parameter	Field Measurement	Measurement Units	Field Sample ID
208291	CDV-16-02656	3.0	09/01/2017	WG	Dissolved Oxygen	1.84	mg/L	CAWA-17-142894
206024	CDV-16-02656	3.0	06/02/2017	WG	Dissolved Oxygen	2.59	mg/L	CAWA-17-133281
—	CDV-16-02656	3.0	08/17/2019	WG	Flow (in gpm)	0.07	gpm	CAWA-19-183893
267499	CDV-16-02656	3.0	03/16/2019	WG	Flow (in gpm)	0.13	gpm	CAWA-19-167541
218981	CDV-16-02656	3.0	02/10/2018	WG	Flow (in gpm)	0.08	gpm	CAWA-18-15
—	CDV-16-02656	3.0	09/01/2017	WG	Flow (in gpm)	0.06	gpm	CAWA-17-142894
—	CDV-16-02656	3.0	06/02/2017	WG	Flow (in gpm)	0.13	gpm	CAWA-17-133281
290150	CDV-16-02656	3.0	08/17/2019	WG	Oxidation-Reduction Potential	211.7	mV	CAWA-19-183893
267518	CDV-16-02656	3.0	03/16/2019	WG	Oxidation-Reduction Potential	161.6	mV	CAWA-19-167541
218878	CDV-16-02656	3.0	02/10/2018	WG	Oxidation-Reduction Potential	189.9	mV	CAWA-18-15
208293	CDV-16-02656	3.0	09/01/2017	WG	Oxidation-Reduction Potential	180.2	mV	CAWA-17-142894
206026	CDV-16-02656	3.0	06/02/2017	WG	Oxidation-Reduction Potential	107.4	mV	CAWA-17-133281
290154	CDV-16-02656	3.0	08/17/2019	WG	pH	6.5	SU	CAWA-19-183893
267520	CDV-16-02656	3.0	03/16/2019	WG	pH	6.5	SU	CAWA-19-167541
218880	CDV-16-02656	3.0	02/10/2018	WG	pH	6.6	SU	CAWA-18-15
208297	CDV-16-02656	3.0	09/01/2017	WG	pH	6.5	SU	CAWA-17-142894
206030	CDV-16-02656	3.0	06/02/2017	WG	pH	6.5	SU	CAWA-17-133281
290151	CDV-16-02656	3.0	08/17/2019	WG	Specific Conductance	157.9	µS/cm	CAWA-19-183893
267521	CDV-16-02656	3.0	03/16/2019	WG	Specific Conductance	281.2	µS/cm	CAWA-19-167541
218983	CDV-16-02656	3.0	02/10/2018	WG	Specific Conductance	169.2	µS/cm	CAWA-18-15
208294	CDV-16-02656	3.0	09/01/2017	WG	Specific Conductance	185.6	µS/cm	CAWA-17-142894
206027	CDV-16-02656	3.0	06/02/2017	WG	Specific Conductance	185.8	µS/cm	CAWA-17-133281
290152	CDV-16-02656	3.0	08/17/2019	WG	Temperature	14.4	deg C	CAWA-19-183893
267522	CDV-16-02656	3.0	03/16/2019	WG	Temperature	6.5	deg C	CAWA-19-167541
218984	CDV-16-02656	3.0	02/10/2018	WG	Temperature	5.4	deg C	CAWA-18-15
208295	CDV-16-02656	3.0	09/01/2017	WG	Temperature	14.5	deg C	CAWA-17-142894
206028	CDV-16-02656	3.0	06/02/2017	WG	Temperature	10.9	deg C	CAWA-17-133281

Field Measurement Record #	Location ID	Screen Depth (ft bgs)	Measurement Date	PMR Sample Type	Field Parameter	Field Measurement	Measurement Units	Field Sample ID
290153	CDV-16-02656	3.0	08/17/2019	WG	Turbidity	15.4	NTU	CAWA-19-183893
267524	CDV-16-02656	3.0	03/16/2019	WG	Turbidity	23.0	NTU	CAWA-19-167541
218986	CDV-16-02656	3.0	02/10/2018	WG	Turbidity	8.7	NTU	CAWA-18-15
208296	CDV-16-02656	3.0	09/01/2017	WG	Turbidity	5.8	NTU	CAWA-17-142894
206029	CDV-16-02656	3.0	06/02/2017	WG	Turbidity	6.0	NTU	CAWA-17-133281
289035	CDV-16-02659	1.7	08/10/2019	WG	Dissolved Oxygen	6.05	mg/L	CAWA-19-183899
266671	CDV-16-02659	1.7	03/11/2019	WG	Dissolved Oxygen	6.53	mg/L	CAWA-19-167547
218429	CDV-16-02659	1.7	02/10/2018	WG	Dissolved Oxygen	8.25	mg/L	CAWA-18-19
208513	CDV-16-02659	1.7	09/14/2017	WG	Dissolved Oxygen	6.12	mg/L	CAWA-17-142895
206582	CDV-16-02659	1.7	06/15/2017	WG	Dissolved Oxygen	5.65	mg/L	CAWA-17-133282
289034	CDV-16-02659	1.7	08/10/2019	WG	Flow (in gpm)	0.07	gpm	CAWA-19-183899
266670	CDV-16-02659	1.7	03/11/2019	WG	Flow (in gpm)	0.09	gpm	CAWA-19-167547
218428	CDV-16-02659	1.7	02/10/2018	WG	Flow (in gpm)	0.08	gpm	CAWA-18-19
—	CDV-16-02659	1.7	09/14/2017	WG	Flow (in gpm)	0.06	gpm	CAWA-17-142895
—	CDV-16-02659	1.7	06/15/2017	WG	Flow (in gpm)	0.07	gpm	CAWA-17-133282
289037	CDV-16-02659	1.7	08/10/2019	WG	Oxidation-Reduction Potential	252.9	mV	CAWA-19-183899
266654	CDV-16-02659	1.7	03/11/2019	WG	Oxidation-Reduction Potential	202.2	mV	CAWA-19-167547
218431	CDV-16-02659	1.7	02/10/2018	WG	Oxidation-Reduction Potential	210.3	mV	CAWA-18-19
208515	CDV-16-02659	1.7	09/14/2017	WG	Oxidation-Reduction Potential	259.5	mV	CAWA-17-142895
206584	CDV-16-02659	1.7	06/15/2017	WG	Oxidation-Reduction Potential	220.1	mV	CAWA-17-133282
289077	CDV-16-02659	1.7	08/10/2019	WG	pH	6.5	SU	CAWA-19-183899
266656	CDV-16-02659	1.7	03/11/2019	WG	pH	6.7	SU	CAWA-19-167547
218433	CDV-16-02659	1.7	02/10/2018	WG	pH	6.7	SU	CAWA-18-19
208519	CDV-16-02659	1.7	09/14/2017	WG	pH	6.6	SU	CAWA-17-142895
206588	CDV-16-02659	1.7	06/15/2017	WG	pH	6.6	SU	CAWA-17-133282
289079	CDV-16-02659	1.7	08/10/2019	WG	Specific Conductance	272.8	µS/cm	CAWA-19-183899
266658	CDV-16-02659	1.7	03/11/2019	WG	Specific Conductance	248.7	µS/cm	CAWA-19-167547

Field Measurement Record #	Location ID	Screen Depth (ft bgs)	Measurement Date	PMR Sample Type	Field Parameter	Field Measurement	Measurement Units	Field Sample ID
218382	CDV-16-02659	1.7	02/10/2018	WG	Specific Conductance	229.1	µS/cm	CAWA-18-19
208516	CDV-16-02659	1.7	09/14/2017	WG	Specific Conductance	302.0	µS/cm	CAWA-17-142895
206585	CDV-16-02659	1.7	06/15/2017	WG	Specific Conductance	252.9	µS/cm	CAWA-17-133282
289080	CDV-16-02659	1.7	08/10/2019	WG	Temperature	12.0	deg C	CAWA-19-183899
266673	CDV-16-02659	1.7	03/11/2019	WG	Temperature	3.6	deg C	CAWA-19-167547
218383	CDV-16-02659	1.7	02/10/2018	WG	Temperature	6.4	deg C	CAWA-18-19
208517	CDV-16-02659	1.7	09/14/2017	WG	Temperature	13.2	deg C	CAWA-17-142895
206586	CDV-16-02659	1.7	06/15/2017	WG	Temperature	10.7	deg C	CAWA-17-133282
289082	CDV-16-02659	1.7	08/10/2019	WG	Turbidity	3.4	NTU	CAWA-19-183899
266675	CDV-16-02659	1.7	03/11/2019	WG	Turbidity	7.7	NTU	CAWA-19-167547
218385	CDV-16-02659	1.7	02/10/2018	WG	Turbidity	2.8	NTU	CAWA-18-19
208518	CDV-16-02659	1.7	09/14/2017	WG	Turbidity	1.6	NTU	CAWA-17-142895
206587	CDV-16-02659	1.7	06/15/2017	WG	Turbidity	0.8	NTU	CAWA-17-133282
302308	CdV-16-1(i)	624.0	11/01/2019	WG	Dissolved Oxygen	5.90	mg/L	CAWA-20-189352
288917	CdV-16-1(i)	624.0	08/09/2019	WG	Dissolved Oxygen	5.59	mg/L	CAWA-19-183914
280845	CdV-16-1(i)	624.0	05/31/2019	WG	Dissolved Oxygen	5.77	mg/L	CAWA-19-181315
244452	CdV-16-1(i)	624.0	08/13/2018	WG	Dissolved Oxygen	5.80	mg/L	CAWA-18-160304
220409	CdV-16-1(i)	624.0	02/16/2018	WG	Dissolved Oxygen	6.30	mg/L	CAWA-18-35
212756	CdV-16-1(i)	624.0	12/08/2017	WG	Dissolved Oxygen	6.22	mg/L	CAWA-18-148902
208532	CdV-16-1(i)	624.0	09/15/2017	WG	Dissolved Oxygen	6.15	mg/L	CAWA-17-142896
302307	CdV-16-1(i)	624.0	11/01/2019	WG	Flow (in gpm)	1.25	gpm	CAWA-20-189352
288916	CdV-16-1(i)	624.0	08/09/2019	WG	Flow (in gpm)	1.12	gpm	CAWA-19-183914
280844	CdV-16-1(i)	624.0	05/31/2019	WG	Flow (in gpm)	1.12	gpm	CAWA-19-181315
244451	CdV-16-1(i)	624.0	08/13/2018	WG	Flow (in gpm)	0.92	gpm	CAWA-18-160304
220408	CdV-16-1(i)	624.0	02/16/2018	WG	Flow (in gpm)	0.96	gpm	CAWA-18-35
212755	CdV-16-1(i)	624.0	12/08/2017	WG	Flow (in gpm)	1.06	gpm	CAWA-18-148902
—	CdV-16-1(i)	624.0	09/15/2017	WG	Flow (in gpm)	0.92	gpm	CAWA-17-142896

Field Measurement Record #	Location ID	Screen Depth (ft bgs)	Measurement Date	PMR Sample Type	Field Parameter	Field Measurement	Measurement Units	Field Sample ID
302382	CdV-16-1(i)	624.0	11/01/2019	WG	Oxidation-Reduction Potential	174.1	mV	CAWA-20-189352
288938	CdV-16-1(i)	624.0	08/09/2019	WG	Oxidation-Reduction Potential	315.4	mV	CAWA-19-183914
280786	CdV-16-1(i)	624.0	05/31/2019	WG	Oxidation-Reduction Potential	162.4	mV	CAWA-19-181315
244407	CdV-16-1(i)	624.0	08/13/2018	WG	Oxidation-Reduction Potential	241.1	mV	CAWA-18-160304
220432	CdV-16-1(i)	624.0	02/16/2018	WG	Oxidation-Reduction Potential	207.7	mV	CAWA-18-35
212758	CdV-16-1(i)	624.0	12/08/2017	WG	Oxidation-Reduction Potential	234.7	mV	CAWA-18-148902
208534	CdV-16-1(i)	624.0	09/15/2017	WG	Oxidation-Reduction Potential	302.5	mV	CAWA-17-142896
302384	CdV-16-1(i)	624.0	11/01/2019	WG	pH	6.8	SU	CAWA-20-189352
288940	CdV-16-1(i)	624.0	08/09/2019	WG	pH	6.8	SU	CAWA-19-183914
280788	CdV-16-1(i)	624.0	05/31/2019	WG	pH	6.7	SU	CAWA-19-181315
244409	CdV-16-1(i)	624.0	08/13/2018	WG	pH	6.7	SU	CAWA-18-160304
220434	CdV-16-1(i)	624.0	02/16/2018	WG	pH	6.8	SU	CAWA-18-35
212764	CdV-16-1(i)	624.0	12/08/2017	WG	pH	6.8	SU	CAWA-18-148902
208538	CdV-16-1(i)	624.0	09/15/2017	WG	pH	6.8	SU	CAWA-17-142896
302386	CdV-16-1(i)	624.0	11/01/2019	WG	Specific Conductance	179.0	µS/cm	CAWA-20-189352
288942	CdV-16-1(i)	624.0	08/09/2019	WG	Specific Conductance	178.8	µS/cm	CAWA-19-183914
280790	CdV-16-1(i)	624.0	05/31/2019	WG	Specific Conductance	182.0	µS/cm	CAWA-19-181315
244411	CdV-16-1(i)	624.0	08/13/2018	WG	Specific Conductance	179.9	µS/cm	CAWA-18-160304
220436	CdV-16-1(i)	624.0	02/16/2018	WG	Specific Conductance	178.5	µS/cm	CAWA-18-35
212760	CdV-16-1(i)	624.0	12/08/2017	WG	Specific Conductance	178.0	µS/cm	CAWA-18-148902
208535	CdV-16-1(i)	624.0	09/15/2017	WG	Specific Conductance	179.8	µS/cm	CAWA-17-142896
302387	CdV-16-1(i)	624.0	11/01/2019	WG	Temperature	11.4	deg C	CAWA-20-189352
288943	CdV-16-1(i)	624.0	08/09/2019	WG	Temperature	12.8	deg C	CAWA-19-183914
280847	CdV-16-1(i)	624.0	05/31/2019	WG	Temperature	12.5	deg C	CAWA-19-181315
244453	CdV-16-1(i)	624.0	08/13/2018	WG	Temperature	13.8	deg C	CAWA-18-160304
220437	CdV-16-1(i)	624.0	02/16/2018	WG	Temperature	8.8	deg C	CAWA-18-35
212761	CdV-16-1(i)	624.0	12/08/2017	WG	Temperature	10.2	deg C	CAWA-18-148902

Field Measurement Record #	Location ID	Screen Depth (ft bgs)	Measurement Date	PMR Sample Type	Field Parameter	Field Measurement	Measurement Units	Field Sample ID
208536	CdV-16-1(i)	624.0	09/15/2017	WG	Temperature	12.4	deg C	CAWA-17-142896
302311	CdV-16-1(i)	624.0	11/01/2019	WG	Turbidity	1.8	NTU	CAWA-20-189352
288920	CdV-16-1(i)	624.0	08/09/2019	WG	Turbidity	1.2	NTU	CAWA-19-183914
280849	CdV-16-1(i)	624.0	05/31/2019	WG	Turbidity	1.2	NTU	CAWA-19-181315
244455	CdV-16-1(i)	624.0	08/13/2018	WG	Turbidity	1.9	NTU	CAWA-18-160304
220411	CdV-16-1(i)	624.0	02/16/2018	WG	Turbidity	1.3	NTU	CAWA-18-35
212763	CdV-16-1(i)	624.0	12/08/2017	WG	Turbidity	1.2	NTU	CAWA-18-148902
208537	CdV-16-1(i)	624.0	09/15/2017	WG	Turbidity	0.8	NTU	CAWA-17-142896
309940	CdV-16-2(i)r	850.0	12/13/2019	WG	Dissolved Oxygen	6.87	mg/L	CAWA-20-190735
289373	CdV-16-2(i)r	850.0	08/12/2019	WG	Dissolved Oxygen	6.79	mg/L	CAWA-19-183917
281951	CdV-16-2(i)r	850.0	06/07/2019	WG	Dissolved Oxygen	6.87	mg/L	CAWA-19-181317
267333	CdV-16-2(i)r	850.0	03/15/2019	WG	Dissolved Oxygen	6.73	mg/L	CAWA-19-167576
259431	CdV-16-2(i)r	850.0	12/14/2018	WG	Dissolved Oxygen	6.86	mg/L	CAWA-19-164504
245144	CdV-16-2(i)r	850.0	08/17/2018	WG	Dissolved Oxygen	6.86	mg/L	CAWA-18-160308
237001	CdV-16-2(i)r	850.0	05/25/2018	WG	Dissolved Oxygen	6.58	mg/L	CAWA-18-10
309939	CdV-16-2(i)r	850.0	12/13/2019	WG	Flow (in gpm)	2.91	gpm	CAWA-20-190735
208237	CdV-16-2(i)r	850.0	08/12/2019	WG	Flow (in gpm)	2.83	gpm	CAWA-19-183917
281950	CdV-16-2(i)r	850.0	06/07/2019	WG	Flow (in gpm)	2.94	gpm	CAWA-19-181317
267332	CdV-16-2(i)r	850.0	03/15/2019	WG	Flow (in gpm)	2.94	gpm	CAWA-19-167576
259430	CdV-16-2(i)r	850.0	12/14/2018	WG	Flow (in gpm)	2.85	gpm	CAWA-19-164504
245143	CdV-16-2(i)r	850.0	08/17/2018	WG	Flow (in gpm)	2.83	gpm	CAWA-18-160308
237000	CdV-16-2(i)r	850.0	05/25/2018	WG	Flow (in gpm)	2.83	gpm	CAWA-18-10
309883	CdV-16-2(i)r	850.0	12/13/2019	WG	Oxidation-Reduction Potential	156.3	mV	CAWA-20-190735
289374	CdV-16-2(i)r	850.0	08/12/2019	WG	Oxidation-Reduction Potential	217.3	mV	CAWA-19-183917
281904	CdV-16-2(i)r	850.0	06/07/2019	WG	Oxidation-Reduction Potential	179.3	mV	CAWA-19-181317
267296	CdV-16-2(i)r	850.0	03/15/2019	WG	Oxidation-Reduction Potential	164.7	mV	CAWA-19-167576
259433	CdV-16-2(i)r	850.0	12/14/2018	WG	Oxidation-Reduction Potential	327.7	mV	CAWA-19-164504

Field Measurement Record #	Location ID	Screen Depth (ft bgs)	Measurement Date	PMR Sample Type	Field Parameter	Field Measurement	Measurement Units	Field Sample ID
245146	CdV-16-2(i)r	850.0	08/17/2018	WG	Oxidation-Reduction Potential	248.9	mV	CAWA-18-160308
237003	CdV-16-2(i)r	850.0	05/25/2018	WG	Oxidation-Reduction Potential	227.3	mV	CAWA-18-10
309885	CdV-16-2(i)r	850.0	12/13/2019	WG	pH	6.9	SU	CAWA-20-190735
289380	CdV-16-2(i)r	850.0	08/12/2019	WG	pH	6.8	SU	CAWA-19-183917
281906	CdV-16-2(i)r	850.0	06/07/2019	WG	pH	6.9	SU	CAWA-19-181317
267298	CdV-16-2(i)r	850.0	03/15/2019	WG	pH	7.1	SU	CAWA-19-167576
259437	CdV-16-2(i)r	850.0	12/14/2018	WG	pH	7.0	SU	CAWA-19-164504
245196	CdV-16-2(i)r	850.0	08/17/2018	WG	pH	6.9	SU	CAWA-18-160308
237018	CdV-16-2(i)r	850.0	05/25/2018	WG	pH	7.0	SU	CAWA-18-10
309887	CdV-16-2(i)r	850.0	12/13/2019	WG	Specific Conductance	120.8	µS/cm	CAWA-20-190735
289376	CdV-16-2(i)r	850.0	08/12/2019	WG	Specific Conductance	121.0	µS/cm	CAWA-19-183917
281952	CdV-16-2(i)r	850.0	06/07/2019	WG	Specific Conductance	121.0	µS/cm	CAWA-19-181317
267300	CdV-16-2(i)r	850.0	03/15/2019	WG	Specific Conductance	121.3	µS/cm	CAWA-19-167576
259434	CdV-16-2(i)r	850.0	12/14/2018	WG	Specific Conductance	120.7	µS/cm	CAWA-19-164504
245198	CdV-16-2(i)r	850.0	08/17/2018	WG	Specific Conductance	121.9	µS/cm	CAWA-18-160308
237020	CdV-16-2(i)r	850.0	05/25/2018	WG	Specific Conductance	122.9	µS/cm	CAWA-18-10
309942	CdV-16-2(i)r	850.0	12/13/2019	WG	Temperature	11.9	deg C	CAWA-20-190735
289377	CdV-16-2(i)r	850.0	08/12/2019	WG	Temperature	12.8	deg C	CAWA-19-183917
281953	CdV-16-2(i)r	850.0	06/07/2019	WG	Temperature	12.7	deg C	CAWA-19-181317
267311	CdV-16-2(i)r	850.0	03/15/2019	WG	Temperature	12.1	deg C	CAWA-19-167576
259435	CdV-16-2(i)r	850.0	12/14/2018	WG	Temperature	11.9	deg C	CAWA-19-164504
245199	CdV-16-2(i)r	850.0	08/17/2018	WG	Temperature	12.8	deg C	CAWA-18-160308
237021	CdV-16-2(i)r	850.0	05/25/2018	WG	Temperature	12.8	deg C	CAWA-18-10
309944	CdV-16-2(i)r	850.0	12/13/2019	WG	Turbidity	1.2	NTU	CAWA-20-190735
289379	CdV-16-2(i)r	850.0	08/12/2019	WG	Turbidity	2.3	NTU	CAWA-19-183917
281955	CdV-16-2(i)r	850.0	06/07/2019	WG	Turbidity	5.1	NTU	CAWA-19-181317
267313	CdV-16-2(i)r	850.0	03/15/2019	WG	Turbidity	2.4	NTU	CAWA-19-167576

Field Measurement Record #	Location ID	Screen Depth (ft bgs)	Measurement Date	PMR Sample Type	Field Parameter	Field Measurement	Measurement Units	Field Sample ID
259436	CdV-16-2(i)r	850.0	12/14/2018	WG	Turbidity	1.2	NTU	CAWA-19-164504
245201	CdV-16-2(i)r	850.0	08/17/2018	WG	Turbidity	0.4	NTU	CAWA-18-160308
237004	CdV-16-2(i)r	850.0	05/25/2018	WG	Turbidity	4.1	NTU	CAWA-18-10
309751	CDV-16-4ip S1	815.6	12/13/2019	WG	Dissolved Oxygen	7.08	mg/L	CAWA-20-190736
289382	CDV-16-4ip S1	815.6	08/12/2019	WG	Dissolved Oxygen	7.03	mg/L	CAWA-19-183920
280689	CDV-16-4ip S1	815.6	05/31/2019	WG	Dissolved Oxygen	7.05	mg/L	CAWA-19-181319
268408	CDV-16-4ip S1	815.6	03/15/2019	WG	Dissolved Oxygen	7.72	mg/L	CAWA-19-167582
259439	CDV-16-4ip S1	815.6	12/14/2018	WG	Dissolved Oxygen	7.39	mg/L	CAWA-19-164507
245261	CDV-16-4ip S1	815.6	08/17/2018	WG	Dissolved Oxygen	7.47	mg/L	CAWA-18-160340
237081	CDV-16-4ip S1	815.6	05/25/2018	WG	Dissolved Oxygen	7.04	mg/L	CAWA-18-13
309750	CDV-16-4ip S1	815.6	12/13/2019	WG	Flow (in gpm)	9.09	gpm	CAWA-20-190736
289381	CDV-16-4ip S1	815.6	08/12/2019	WG	Flow (in gpm)	9.09	gpm	CAWA-19-183920
280688	CDV-16-4ip S1	815.6	05/31/2019	WG	Flow (in gpm)	9.09	gpm	CAWA-19-181319
268407	CDV-16-4ip S1	815.6	03/15/2019	WG	Flow (in gpm)	7.89	gpm	CAWA-19-167582
259438	CDV-16-4ip S1	815.6	12/14/2018	WG	Flow (in gpm)	9.09	gpm	CAWA-19-164507
245260	CDV-16-4ip S1	815.6	08/17/2018	WG	Flow (in gpm)	9.38	gpm	CAWA-18-160340
237076	CDV-16-4ip S1	815.6	05/25/2018	WG	Flow (in gpm)	9.09	gpm	CAWA-18-13
309814	CDV-16-4ip S1	815.6	12/13/2019	WG	Oxidation-Reduction Potential	191.9	mV	CAWA-20-190736
289383	CDV-16-4ip S1	815.6	08/12/2019	WG	Oxidation-Reduction Potential	210.8	mV	CAWA-19-183920
280691	CDV-16-4ip S1	815.6	05/31/2019	WG	Oxidation-Reduction Potential	162.4	mV	CAWA-19-181319
268410	CDV-16-4ip S1	815.6	03/15/2019	WG	Oxidation-Reduction Potential	170.0	mV	CAWA-19-167582
259441	CDV-16-4ip S1	815.6	12/14/2018	WG	Oxidation-Reduction Potential	349.5	mV	CAWA-19-164507
245263	CDV-16-4ip S1	815.6	08/17/2018	WG	Oxidation-Reduction Potential	226.5	mV	CAWA-18-160340
237083	CDV-16-4ip S1	815.6	05/25/2018	WG	Oxidation-Reduction Potential	335.7	mV	CAWA-18-13
309816	CDV-16-4ip S1	815.6	12/13/2019	WG	pH	7.0	SU	CAWA-20-190736
289389	CDV-16-4ip S1	815.6	08/12/2019	WG	pH	7.1	SU	CAWA-19-183920
280639	CDV-16-4ip S1	815.6	05/31/2019	WG	pH	7.0	SU	CAWA-19-181319

Field Measurement Record #	Location ID	Screen Depth (ft bgs)	Measurement Date	PMR Sample Type	Field Parameter	Field Measurement	Measurement Units	Field Sample ID
268416	CDV-16-4ip S1	815.6	03/15/2019	WG	pH	7.1	SU	CAWA-19-167582
259445	CDV-16-4ip S1	815.6	12/14/2018	WG	pH	6.9	SU	CAWA-19-164507
245300	CDV-16-4ip S1	815.6	08/17/2018	WG	pH	7.0	SU	CAWA-18-160340
237085	CDV-16-4ip S1	815.6	05/25/2018	WG	pH	7.0	SU	CAWA-18-13
309818	CDV-16-4ip S1	815.6	12/13/2019	WG	Specific Conductance	123.6	µS/cm	CAWA-20-190736
289385	CDV-16-4ip S1	815.6	08/12/2019	WG	Specific Conductance	123.8	µS/cm	CAWA-19-183920
280641	CDV-16-4ip S1	815.6	05/31/2019	WG	Specific Conductance	125.5	µS/cm	CAWA-19-181319
268412	CDV-16-4ip S1	815.6	03/15/2019	WG	Specific Conductance	124.2	µS/cm	CAWA-19-167582
259442	CDV-16-4ip S1	815.6	12/14/2018	WG	Specific Conductance	123.4	µS/cm	CAWA-19-164507
245302	CDV-16-4ip S1	815.6	08/17/2018	WG	Specific Conductance	124.4	µS/cm	CAWA-18-160340
237087	CDV-16-4ip S1	815.6	05/25/2018	WG	Specific Conductance	123.9	µS/cm	CAWA-18-13
309752	CDV-16-4ip S1	815.6	12/13/2019	WG	Temperature	11.2	deg C	CAWA-20-190736
289386	CDV-16-4ip S1	815.6	08/12/2019	WG	Temperature	12.7	deg C	CAWA-19-183920
280642	CDV-16-4ip S1	815.6	05/31/2019	WG	Temperature	11.8	deg C	CAWA-19-181319
268413	CDV-16-4ip S1	815.6	03/15/2019	WG	Temperature	11.2	deg C	CAWA-19-167582
259443	CDV-16-4ip S1	815.6	12/14/2018	WG	Temperature	11.2	deg C	CAWA-19-164507
245303	CDV-16-4ip S1	815.6	08/17/2018	WG	Temperature	11.8	deg C	CAWA-18-160340
237066	CDV-16-4ip S1	815.6	05/25/2018	WG	Temperature	12.2	deg C	CAWA-18-13
309754	CDV-16-4ip S1	815.6	12/13/2019	WG	Turbidity	3.6	NTU	CAWA-20-190736
289388	CDV-16-4ip S1	815.6	08/12/2019	WG	Turbidity	1.6	NTU	CAWA-19-183920
280693	CDV-16-4ip S1	815.6	05/31/2019	WG	Turbidity	3.9	NTU	CAWA-19-181319
268415	CDV-16-4ip S1	815.6	03/15/2019	WG	Turbidity	0.8	NTU	CAWA-19-167582
259444	CDV-16-4ip S1	815.6	12/14/2018	WG	Turbidity	0.6	NTU	CAWA-19-164507
245264	CDV-16-4ip S1	815.6	08/17/2018	WG	Turbidity	0.6	NTU	CAWA-18-160340
237068	CDV-16-4ip S1	815.6	05/25/2018	WG	Turbidity	1.9	NTU	CAWA-18-13
288812	CDV-16-611923	3.2	08/09/2019	WG	Dissolved Oxygen	1.50	mg/L	CAWA-19-183901
266701	CDV-16-611923	3.2	03/11/2019	WG	Dissolved Oxygen	6.87	mg/L	CAWA-19-167550

Field Measurement Record #	Location ID	Screen Depth (ft bgs)	Measurement Date	PMR Sample Type	Field Parameter	Field Measurement	Measurement Units	Field Sample ID
244595	CDV-16-611923	3.2	08/11/2018	WG	Dissolved Oxygen	1.68	mg/L	CAWA-18-160282
220497	CDV-16-611923	3.2	02/16/2018	WG	Dissolved Oxygen	2.88	mg/L	CAWA-18-21
206339	CDV-16-611923	3.2	06/06/2017	WG	Dissolved Oxygen	0.76	mg/L	CAWA-17-133286
288811	CDV-16-611923	3.2	08/09/2019	WG	Flow (in gpm)	0.08	gpm	CAWA-19-183901
266700	CDV-16-611923	3.2	03/11/2019	WG	Flow (in gpm)	0.09	gpm	CAWA-19-167550
244594	CDV-16-611923	3.2	08/11/2018	WG	Flow (in gpm)	0.12	gpm	CAWA-18-160282
220496	CDV-16-611923	3.2	02/16/2018	WG	Flow (in gpm)	0.08	gpm	CAWA-18-21
206340	CDV-16-611923	3.2	06/06/2017	WG	Flow (in gpm)	0.14	gpm	CAWA-17-133286
288843	CDV-16-611923	3.2	08/09/2019	WG	Oxidation-Reduction Potential	185.8	mV	CAWA-19-183901
266691	CDV-16-611923	3.2	03/11/2019	WG	Oxidation-Reduction Potential	209.0	mV	CAWA-19-167550
244597	CDV-16-611923	3.2	08/11/2018	WG	Oxidation-Reduction Potential	248.3	mV	CAWA-18-160282
220529	CDV-16-611923	3.2	02/16/2018	WG	Oxidation-Reduction Potential	55.6	mV	CAWA-18-21
206341	CDV-16-611923	3.2	06/06/2017	WG	Oxidation-Reduction Potential	12.5	mV	CAWA-17-133286
288845	CDV-16-611923	3.2	08/09/2019	WG	pH	6.1	SU	CAWA-19-183901
266693	CDV-16-611923	3.2	03/11/2019	WG	pH	6.6	SU	CAWA-19-167550
244603	CDV-16-611923	3.2	08/11/2018	WG	pH	6.4	SU	CAWA-18-160282
220531	CDV-16-611923	3.2	02/16/2018	WG	pH	6.6	SU	CAWA-18-21
206345	CDV-16-611923	3.2	06/06/2017	WG	pH	6.6	SU	CAWA-17-133286
288847	CDV-16-611923	3.2	08/09/2019	WG	Specific Conductance	269.0	µS/cm	CAWA-19-183901
266712	CDV-16-611923	3.2	03/11/2019	WG	Specific Conductance	347.0	µS/cm	CAWA-19-167550
244599	CDV-16-611923	3.2	08/11/2018	WG	Specific Conductance	288.1	µS/cm	CAWA-18-160282
220499	CDV-16-611923	3.2	02/16/2018	WG	Specific Conductance	203.7	µS/cm	CAWA-18-21
206342	CDV-16-611923	3.2	06/06/2017	WG	Specific Conductance	249.4	µS/cm	CAWA-17-133286
288848	CDV-16-611923	3.2	08/09/2019	WG	Temperature	12.9	deg C	CAWA-19-183901
266713	CDV-16-611923	3.2	03/11/2019	WG	Temperature	3.7	deg C	CAWA-19-167550
244600	CDV-16-611923	3.2	08/11/2018	WG	Temperature	14.2	deg C	CAWA-18-160282
220500	CDV-16-611923	3.2	02/16/2018	WG	Temperature	5.1	deg C	CAWA-18-21

Field Measurement Record #	Location ID	Screen Depth (ft bgs)	Measurement Date	PMR Sample Type	Field Parameter	Field Measurement	Measurement Units	Field Sample ID
206343	CDV-16-611923	3.2	06/06/2017	WG	Temperature	9.6	deg C	CAWA-17-133286
288814	CDV-16-611923	3.2	08/09/2019	WG	Turbidity	5.8	NTU	CAWA-19-183901
266715	CDV-16-611923	3.2	03/11/2019	WG	Turbidity	7.0	NTU	CAWA-19-167550
244602	CDV-16-611923	3.2	08/11/2018	WG	Turbidity	16.9	NTU	CAWA-18-160282
220564	CDV-16-611923	3.2	02/16/2018	WG	Turbidity	9.5	NTU	CAWA-18-21
206344	CDV-16-611923	3.2	06/06/2017	WG	Turbidity	2.1	NTU	CAWA-17-133286
288880	CDV-16-611937	3.0	08/09/2019	WG	Dissolved Oxygen	0.50	mg/L	CAWA-19-183907
266791	CDV-16-611937	3.0	03/11/2019	WG	Dissolved Oxygen	2.31	mg/L	CAWA-19-167561
244605	CDV-16-611937	3.0	08/11/2018	WG	Dissolved Oxygen	0.46	mg/L	CAWA-18-160291
208352	CDV-16-611937	3.0	09/12/2017	WG	Dissolved Oxygen	0.76	mg/L	CAWA-17-142900
206346	CDV-16-611937	3.0	06/06/2017	WG	Dissolved Oxygen	2.51	mg/L	CAWA-17-133287
288879	CDV-16-611937	3.0	08/09/2019	WG	Flow (in gpm)	0.07	gpm	CAWA-19-183907
266790	CDV-16-611937	3.0	03/11/2019	WG	Flow (in gpm)	0.08	gpm	CAWA-19-167561
244604	CDV-16-611937	3.0	08/11/2018	WG	Flow (in gpm)	0.08	gpm	CAWA-18-160291
208353	CDV-16-611937	3.0	09/12/2017	WG	Flow (in gpm)	0.78	gpm	CAWA-17-142900
288882	CDV-16-611937	3.0	08/09/2019	WG	Oxidation-Reduction Potential	-6.2	mV	CAWA-19-183907
266793	CDV-16-611937	3.0	03/11/2019	WG	Oxidation-Reduction Potential	177.7	mV	CAWA-19-167561
244607	CDV-16-611937	3.0	08/11/2018	WG	Oxidation-Reduction Potential	-62.4	mV	CAWA-18-160291
208354	CDV-16-611937	3.0	09/12/2017	WG	Oxidation-Reduction Potential	-8.4	mV	CAWA-17-142900
206348	CDV-16-611937	3.0	06/06/2017	WG	Oxidation-Reduction Potential	143.5	mV	CAWA-17-133287
288884	CDV-16-611937	3.0	08/09/2019	WG	pH	6.1	SU	CAWA-19-183907
266799	CDV-16-611937	3.0	03/11/2019	WG	pH	5.3	SU	CAWA-19-167561
244613	CDV-16-611937	3.0	08/11/2018	WG	pH	6.6	SU	CAWA-18-160291
208358	CDV-16-611937	3.0	09/12/2017	WG	pH	6.5	SU	CAWA-17-142900
206352	CDV-16-611937	3.0	06/06/2017	WG	pH	6.1	SU	CAWA-17-133287
288862	CDV-16-611937	3.0	08/09/2019	WG	Specific Conductance	277.2	µS/cm	CAWA-19-183907
266795	CDV-16-611937	3.0	03/11/2019	WG	Specific Conductance	271.0	µS/cm	CAWA-19-167561

Field Measurement Record #	Location ID	Screen Depth (ft bgs)	Measurement Date	PMR Sample Type	Field Parameter	Field Measurement	Measurement Units	Field Sample ID
244609	CDV-16-611937	3.0	08/11/2018	WG	Specific Conductance	248.2	µS/cm	CAWA-18-160291
208355	CDV-16-611937	3.0	09/12/2017	WG	Specific Conductance	221.8	µS/cm	CAWA-17-142900
206349	CDV-16-611937	3.0	06/06/2017	WG	Specific Conductance	174.8	µS/cm	CAWA-17-133287
288863	CDV-16-611937	3.0	08/09/2019	WG	Temperature	12.2	deg C	CAWA-19-183907
266796	CDV-16-611937	3.0	03/11/2019	WG	Temperature	3.0	deg C	CAWA-19-167561
244610	CDV-16-611937	3.0	08/11/2018	WG	Temperature	11.5	deg C	CAWA-18-160291
208356	CDV-16-611937	3.0	09/12/2017	WG	Temperature	12.9	deg C	CAWA-17-142900
206350	CDV-16-611937	3.0	06/06/2017	WG	Temperature	9.4	deg C	CAWA-17-133287
288865	CDV-16-611937	3.0	08/09/2019	WG	Turbidity	6.14	NTU	CAWA-19-183907
266798	CDV-16-611937	3.0	03/11/2019	WG	Turbidity	17.3	NTU	CAWA-19-167561
244612	CDV-16-611937	3.0	08/11/2018	WG	Turbidity	6.7	NTU	CAWA-18-160291
208357	CDV-16-611937	3.0	09/12/2017	WG	Turbidity	4.9	NTU	CAWA-17-142900
206351	CDV-16-611937	3.0	06/06/2017	WG	Turbidity	35.6	NTU	CAWA-17-133287
289740	CDV-37-1(i)	632.0	08/16/2019	WG	Dissolved Oxygen	7.72	mg/L	CAWA-19-183923
268418	CDV-37-1(i)	632.0	03/15/2019	WG	Dissolved Oxygen	7.82	mg/L	CAWA-19-167591
245365	CDV-37-1(i)	632.0	08/17/2018	WG	Dissolved Oxygen	7.74	mg/L	CAWA-18-160344
218819	CDV-37-1(i)	632.0	02/09/2018	WG	Dissolved Oxygen	7.78	mg/L	CAWA-18-45
208318	CDV-37-1(i)	632.0	09/08/2017	WG	Dissolved Oxygen	7.77	mg/L	CAWA-17-142901
289739	CDV-37-1(i)	632.0	08/16/2019	WG	Flow (in gpm)	2.91	gpm	CAWA-19-183923
268417	CDV-37-1(i)	632.0	03/15/2019	WG	Flow (in gpm)	2.42	gpm	CAWA-19-167591
245364	CDV-37-1(i)	632.0	08/17/2018	WG	Flow (in gpm)	2.47	gpm	CAWA-18-160344
218818	CDV-37-1(i)	632.0	02/09/2018	WG	Flow (in gpm)	3.19	gpm	CAWA-18-45
208319	CDV-37-1(i)	632.0	09/08/2017	WG	Flow (in gpm)	2.5	gpm	CAWA-17-142901
289742	CDV-37-1(i)	632.0	08/16/2019	WG	Oxidation-Reduction Potential	150.8	mV	CAWA-19-183923
268420	CDV-37-1(i)	632.0	03/15/2019	WG	Oxidation-Reduction Potential	99.8	mV	CAWA-19-167591
245367	CDV-37-1(i)	632.0	08/17/2018	WG	Oxidation-Reduction Potential	103.7	mV	CAWA-18-160344
218821	CDV-37-1(i)	632.0	02/09/2018	WG	Oxidation-Reduction Potential	104.0	mV	CAWA-18-45

Field Measurement Record #	Location ID	Screen Depth (ft bgs)	Measurement Date	PMR Sample Type	Field Parameter	Field Measurement	Measurement Units	Field Sample ID
208320	CDV-37-1(i)	632.0	09/08/2017	WG	Oxidation-Reduction Potential	141.0	mV	CAWA-17-142901
289688	CDV-37-1(i)	632.0	08/16/2019	WG	pH	7.1	SU	CAWA-19-183923
268426	CDV-37-1(i)	632.0	03/15/2019	WG	pH	7.1	SU	CAWA-19-167591
245425	CDV-37-1(i)	632.0	08/17/2018	WG	pH	7.0	SU	CAWA-18-160344
218864	CDV-37-1(i)	632.0	02/09/2018	WG	pH	7.1	SU	CAWA-18-45
208324	CDV-37-1(i)	632.0	09/08/2017	WG	pH	6.7	SU	CAWA-17-142901
289690	CDV-37-1(i)	632.0	08/16/2019	WG	Specific Conductance	106.0	µS/cm	CAWA-19-183923
268422	CDV-37-1(i)	632.0	03/15/2019	WG	Specific Conductance	106.0	µS/cm	CAWA-19-167591
245427	CDV-37-1(i)	632.0	08/17/2018	WG	Specific Conductance	107.2	µS/cm	CAWA-18-160344
218866	CDV-37-1(i)	632.0	02/09/2018	WG	Specific Conductance	105.6	µS/cm	CAWA-18-45
208321	CDV-37-1(i)	632.0	09/08/2017	WG	Specific Conductance	107.8	µS/cm	CAWA-17-142901
289691	CDV-37-1(i)	632.0	08/16/2019	WG	Temperature	14.8	deg C	CAWA-19-183923
268423	CDV-37-1(i)	632.0	03/15/2019	WG	Temperature	12.9	deg C	CAWA-19-167591
245428	CDV-37-1(i)	632.0	08/17/2018	WG	Temperature	13.8	deg C	CAWA-18-160344
218867	CDV-37-1(i)	632.0	02/09/2018	WG	Temperature	14.0	deg C	CAWA-18-45
208322	CDV-37-1(i)	632.0	09/08/2017	WG	Temperature	13.7	deg C	CAWA-17-142901
289744	CDV-37-1(i)	632.0	08/16/2019	WG	Turbidity	0.9	NTU	CAWA-19-183923
268425	CDV-37-1(i)	632.0	03/15/2019	WG	Turbidity	5.4	NTU	CAWA-19-167591
245368	CDV-37-1(i)	632.0	08/17/2018	WG	Turbidity	4.7	NTU	CAWA-18-160344
218869	CDV-37-1(i)	632.0	02/09/2018	WG	Turbidity	3.1	NTU	CAWA-18-45
208323	CDV-37-1(i)	632.0	09/08/2017	WG	Turbidity	1.4	NTU	CAWA-17-142901
307448	CDV-9-1(i) S1	937.4	12/03/2019	WG	Dissolved Oxygen	5.89	mg/L	CAWA-20-190733
288148	CDV-9-1(i) S1	937.4	08/06/2019	WG	Dissolved Oxygen	6.73	mg/L	CAWA-19-183911
280283	CDV-9-1(i) S1	937.4	05/29/2019	WG	Dissolved Oxygen	7.04	mg/L	CAWA-19-181313
266028	CDV-9-1(i) S1	937.4	03/05/2019	WG	Dissolved Oxygen	6.51	mg/L	CAWA-19-167570
258844	CDV-9-1(i) S1	937.4	12/04/2018	WG	Dissolved Oxygen	6.47	mg/L	CAWA-19-164500
244785	CDV-9-1(i) S1	937.4	08/15/2018	WG	Dissolved Oxygen	5.87	mg/L	CAWA-18-160299

Field Measurement Record #	Location ID	Screen Depth (ft bgs)	Measurement Date	PMR Sample Type	Field Parameter	Field Measurement	Measurement Units	Field Sample ID
237101	CDV-9-1(i) S1	937.4	05/29/2018	WG	Dissolved Oxygen	5.55	mg/L	CAWA-18-6
217783	CDV-9-1(i) S1	937.4	02/06/2018	WG	Dissolved Oxygen	5.59	mg/L	CAWA-18-33
307447	CDV-9-1(i) S1	937.4	12/03/2019	WG	Flow (in gpm)	2.83	gpm	CAWA-20-190733
288147	CDV-9-1(i) S1	937.4	08/06/2019	WG	Flow (in gpm)	2.83	gpm	CAWA-19-183911
280282	CDV-9-1(i) S1	937.4	05/29/2019	WG	Flow (in gpm)	3.49	gpm	CAWA-19-181313
266027	CDV-9-1(i) S1	937.4	03/05/2019	WG	Flow (in gpm)	2.78	gpm	CAWA-19-167570
258843	CDV-9-1(i) S1	937.4	12/04/2018	WG	Flow (in gpm)	2.75	gpm	CAWA-19-164500
244784	CDV-9-1(i) S1	937.4	08/15/2018	WG	Flow (in gpm)	2.72	gpm	CAWA-18-160299
237100	CDV-9-1(i) S1	937.4	05/29/2018	WG	Flow (in gpm)	2.72	gpm	CAWA-18-6
—	CDV-9-1(i) S1	937.4	02/06/2018	WG	Flow (in gpm)	2.75	gpm	CAWA-18-33
307453	CDV-9-1(i) S1	937.4	12/03/2019	WG	Oxidation-Reduction Potential	127.3	mV	CAWA-20-190733
288150	CDV-9-1(i) S1	937.4	08/06/2019	WG	Oxidation-Reduction Potential	276.5	mV	CAWA-19-183911
280349	CDV-9-1(i) S1	937.4	05/29/2019	WG	Oxidation-Reduction Potential	160.6	mV	CAWA-19-181313
266029	CDV-9-1(i) S1	937.4	03/05/2019	WG	Oxidation-Reduction Potential	161.0	mV	CAWA-19-167570
244730	CDV-9-1(i) S1	937.4	08/15/2018	WG	Oxidation-Reduction Potential	199.3	mV	CAWA-18-160299
237103	CDV-9-1(i) S1	937.4	05/29/2018	WG	Oxidation-Reduction Potential	302.8	mV	CAWA-18-6
217785	CDV-9-1(i) S1	937.4	02/06/2018	WG	Oxidation-Reduction Potential	145.7	mV	CAWA-18-33
307455	CDV-9-1(i) S1	937.4	12/03/2019	WG	pH	6.9	SU	CAWA-20-190733
288215	CDV-9-1(i) S1	937.4	08/06/2019	WG	pH	7.0	SU	CAWA-19-183911
280351	CDV-9-1(i) S1	937.4	05/29/2019	WG	pH	6.9	SU	CAWA-19-181313
266033	CDV-9-1(i) S1	937.4	03/05/2019	WG	pH	6.9	SU	CAWA-19-167570
258851	CDV-9-1(i) S1	937.4	12/04/2018	WG	pH	7.0	SU	CAWA-19-164500
244732	CDV-9-1(i) S1	937.4	08/15/2018	WG	pH	7.0	SU	CAWA-18-160299
237124	CDV-9-1(i) S1	937.4	05/29/2018	WG	pH	6.9	SU	CAWA-18-6
217794	CDV-9-1(i) S1	937.4	02/06/2018	WG	pH	7.0	SU	CAWA-18-33
307457	CDV-9-1(i) S1	937.4	12/03/2019	WG	Specific Conductance	195.7	µS/cm	CAWA-20-190733
288217	CDV-9-1(i) S1	937.4	08/06/2019	WG	Specific Conductance	193.3	µS/cm	CAWA-19-183911

Field Measurement Record #	Location ID	Screen Depth (ft bgs)	Measurement Date	PMR Sample Type	Field Parameter	Field Measurement	Measurement Units	Field Sample ID
280353	CDV-9-1(i) S1	937.4	05/29/2019	WG	Specific Conductance	183.6	µS/cm	CAWA-19-181313
266030	CDV-9-1(i) S1	937.4	03/05/2019	WG	Specific Conductance	193.3	µS/cm	CAWA-19-167570
258847	CDV-9-1(i) S1	937.4	12/04/2018	WG	Specific Conductance	187.3	µS/cm	CAWA-19-164500
244734	CDV-9-1(i) S1	937.4	08/15/2018	WG	Specific Conductance	190.2	µS/cm	CAWA-18-160299
237126	CDV-9-1(i) S1	937.4	05/29/2018	WG	Specific Conductance	189.4	µS/cm	CAWA-18-6
217796	CDV-9-1(i) S1	937.4	02/06/2018	WG	Specific Conductance	184.4	µS/cm	CAWA-18-33
307450	CDV-9-1(i) S1	937.4	12/03/2019	WG	Temperature	13.0	deg C	CAWA-20-190733
288218	CDV-9-1(i) S1	937.4	08/06/2019	WG	Temperature	14.4	deg C	CAWA-19-183911
280354	CDV-9-1(i) S1	937.4	05/29/2019	WG	Temperature	12.8	deg C	CAWA-19-181313
266031	CDV-9-1(i) S1	937.4	03/05/2019	WG	Temperature	12.6	deg C	CAWA-19-167570
258848	CDV-9-1(i) S1	937.4	12/04/2018	WG	Temperature	11.7	deg C	CAWA-19-164500
244787	CDV-9-1(i) S1	937.4	08/15/2018	WG	Temperature	13.6	deg C	CAWA-18-160299
237127	CDV-9-1(i) S1	937.4	05/29/2018	WG	Temperature	14.1	deg C	CAWA-18-6
217797	CDV-9-1(i) S1	937.4	02/06/2018	WG	Temperature	12.9	deg C	CAWA-18-33
307452	CDV-9-1(i) S1	937.4	12/03/2019	WG	Turbidity	6.2	NTU	CAWA-20-190733
288220	CDV-9-1(i) S1	937.4	08/06/2019	WG	Turbidity	3.0	NTU	CAWA-19-183911
280286	CDV-9-1(i) S1	937.4	05/29/2019	WG	Turbidity	2.2	NTU	CAWA-19-181313
266032	CDV-9-1(i) S1	937.4	03/05/2019	WG	Turbidity	8.4	NTU	CAWA-19-167570
258850	CDV-9-1(i) S1	937.4	12/04/2018	WG	Turbidity	11.4	NTU	CAWA-19-164500
244789	CDV-9-1(i) S1	937.4	08/15/2018	WG	Turbidity	4.3	NTU	CAWA-18-160299
237104	CDV-9-1(i) S1	937.4	05/29/2018	WG	Turbidity	3.2	NTU	CAWA-18-6
217770	CDV-9-1(i) S1	937.4	02/06/2018	WG	Turbidity	1.5	NTU	CAWA-18-33
288490	CdV-R-15-3 S4	1235.1	08/07/2019	WG	Dissolved Oxygen	6.89	mg/L	CAWA-19-183948
266216	CdV-R-15-3 S4	1235.1	03/07/2019	WG	Dissolved Oxygen	6.81	mg/L	CAWA-19-167630
246215	CdV-R-15-3 S4	1235.1	08/23/2018	WG	Dissolved Oxygen	6.86	mg/L	CAWA-18-160377
221728	CdV-R-15-3 S4	1235.1	02/22/2018	WG	Dissolved Oxygen	6.90	mg/L	CAWA-18-66
208520	CdV-R-15-3 S4	1235.1	09/14/2017	WG	Dissolved Oxygen	6.83	mg/L	CAWA-17-142903

Field Measurement Record #	Location ID	Screen Depth (ft bgs)	Measurement Date	PMR Sample Type	Field Parameter	Field Measurement	Measurement Units	Field Sample ID
288489	CdV-R-15-3 S4	1235.1	08/07/2019	WG	Flow (in gpm)	6.25	gpm	CAWA-19-183948
266215	CdV-R-15-3 S4	1235.1	03/07/2019	WG	Flow (in gpm)	6.00	gpm	CAWA-19-167630
246214	CdV-R-15-3 S4	1235.1	08/23/2018	WG	Flow (in gpm)	6.00	gpm	CAWA-18-160377
221727	CdV-R-15-3 S4	1235.1	02/22/2018	WG	Flow (in gpm)	6.25	gpm	CAWA-18-66
208521	CdV-R-15-3 S4	1235.1	09/14/2017	WG	Flow (in gpm)	6.25	gpm	CAWA-17-142903
288558	CdV-R-15-3 S4	1235.1	08/07/2019	WG	Oxidation-Reduction Potential	234.5	mV	CAWA-19-183948
266168	CdV-R-15-3 S4	1235.1	03/07/2019	WG	Oxidation-Reduction Potential	152.7	mV	CAWA-19-167630
246217	CdV-R-15-3 S4	1235.1	08/23/2018	WG	Oxidation-Reduction Potential	128.9	mV	CAWA-18-160377
221679	CdV-R-15-3 S4	1235.1	02/22/2018	WG	Oxidation-Reduction Potential	141.6	mV	CAWA-18-66
208522	CdV-R-15-3 S4	1235.1	09/14/2017	WG	Oxidation-Reduction Potential	152.7	mV	CAWA-17-142903
288560	CdV-R-15-3 S4	1235.1	08/07/2019	WG	pH	8.0	SU	CAWA-19-183948
266170	CdV-R-15-3 S4	1235.1	03/07/2019	WG	pH	8.0	SU	CAWA-19-167630
246265	CdV-R-15-3 S4	1235.1	08/23/2018	WG	pH	8.0	SU	CAWA-18-160377
221681	CdV-R-15-3 S4	1235.1	02/22/2018	WG	pH	8.0	SU	CAWA-18-66
208526	CdV-R-15-3 S4	1235.1	09/14/2017	WG	pH	7.6	SU	CAWA-17-142903
288492	CdV-R-15-3 S4	1235.1	08/07/2019	WG	Specific Conductance	121.8	µS/cm	CAWA-19-183948
266172	CdV-R-15-3 S4	1235.1	03/07/2019	WG	Specific Conductance	123.0	µS/cm	CAWA-19-167630
246267	CdV-R-15-3 S4	1235.1	08/23/2018	WG	Specific Conductance	123.8	µS/cm	CAWA-18-160377
221729	CdV-R-15-3 S4	1235.1	02/22/2018	WG	Specific Conductance	122.6	µS/cm	CAWA-18-66
208523	CdV-R-15-3 S4	1235.1	09/14/2017	WG	Specific Conductance	122.9	µS/cm	CAWA-17-142903
288493	CdV-R-15-3 S4	1235.1	08/07/2019	WG	Temperature	16.4	deg C	CAWA-19-183948
266218	CdV-R-15-3 S4	1235.1	03/07/2019	WG	Temperature	16.2	deg C	CAWA-19-167630
246268	CdV-R-15-3 S4	1235.1	08/23/2018	WG	Temperature	16.7	deg C	CAWA-18-160377
221730	CdV-R-15-3 S4	1235.1	02/22/2018	WG	Temperature	15.9	deg C	CAWA-18-66
208524	CdV-R-15-3 S4	1235.1	09/14/2017	WG	Temperature	16.4	deg C	CAWA-17-142903
288530	CdV-R-15-3 S4	1235.1	08/07/2019	WG	Turbidity	1.8	NTU	CAWA-19-183948
266220	CdV-R-15-3 S4	1235.1	03/07/2019	WG	Turbidity	1.8	NTU	CAWA-19-167630

Field Measurement Record #	Location ID	Screen Depth (ft bgs)	Measurement Date	PMR Sample Type	Field Parameter	Field Measurement	Measurement Units	Field Sample ID
246270	CdV-R-15-3 S4	1235.1	08/23/2018	WG	Turbidity	3.2	NTU	CAWA-18-160377
221732	CdV-R-15-3 S4	1235.1	02/22/2018	WG	Turbidity	1.5	NTU	CAWA-18-66
208525	CdV-R-15-3 S4	1235.1	09/14/2017	WG	Turbidity	2.0	NTU	CAWA-17-142903
289012	Martin Spring	—	08/10/2019	WG	Dissolved Oxygen	7.38	mg/L	CAWA-19-183887
266253	Martin Spring	—	03/06/2019	WG	Dissolved Oxygen	7.31	mg/L	CAWA-19-167531
246137	Martin Spring	—	08/22/2018	WG	Dissolved Oxygen	7.42	mg/L	CAWA-18-160248
221745	Martin Spring	—	02/23/2018	WG	Dissolved Oxygen	7.91	mg/L	CAWA-18-11
208230	Martin Spring	—	08/29/2017	WG	Dissolved Oxygen	7.34	mg/L	CAWA-17-142905
289011	Martin Spring	—	08/10/2019	WG	Flow (in gpm)	0.83	gpm	CAWA-19-183887
266252	Martin Spring	—	03/06/2019	WG	Flow (in gpm)	8.90	gpm	CAWA-19-167531
246136	Martin Spring	—	08/22/2018	WG	Flow (in gpm)	0.44	gpm	CAWA-18-160248
221744	Martin Spring	—	02/23/2018	WG	Flow (in gpm)	0.82	gpm	CAWA-18-11
289013	Martin Spring	—	08/10/2019	WG	pH	7.8	SU	CAWA-19-183887
266254	Martin Spring	—	03/06/2019	WG	pH	7.2	SU	CAWA-19-167531
246139	Martin Spring	—	08/22/2018	WG	pH	7.4	SU	CAWA-18-160248
221740	Martin Spring	—	02/23/2018	WG	pH	6.9	SU	CAWA-18-11
208235	Martin Spring	—	08/29/2017	WG	pH	7.4	SU	CAWA-17-142905
289014	Martin Spring	—	08/10/2019	WG	Specific Conductance	319.9	µS/cm	CAWA-19-183887
266255	Martin Spring	—	03/06/2019	WG	Specific Conductance	256.1	µS/cm	CAWA-19-167531
246140	Martin Spring	—	08/22/2018	WG	Specific Conductance	332.3	µS/cm	CAWA-18-160248
221741	Martin Spring	—	02/23/2018	WG	Specific Conductance	350.8	µS/cm	CAWA-18-11
208232	Martin Spring	—	08/29/2017	WG	Specific Conductance	329.9	µS/cm	CAWA-17-142905
289015	Martin Spring	—	08/10/2019	WG	Temperature	12.7	deg C	CAWA-19-183887
266256	Martin Spring	—	03/06/2019	WG	Temperature	10.4	deg C	CAWA-19-167531
246141	Martin Spring	—	08/22/2018	WG	Temperature	12.6	deg C	CAWA-18-160248
221742	Martin Spring	—	02/23/2018	WG	Temperature	7.8	deg C	CAWA-18-11
208233	Martin Spring	—	08/29/2017	WG	Temperature	18.7	deg C	CAWA-17-142905

Field Measurement Record #	Location ID	Screen Depth (ft bgs)	Measurement Date	PMR Sample Type	Field Parameter	Field Measurement	Measurement Units	Field Sample ID
289010	Martin Spring	—	08/10/2019	WG	Turbidity	5.7	NTU	CAWA-19-183887
266257	Martin Spring	—	03/06/2019	WG	Turbidity	49.3	NTU	CAWA-19-167531
246143	Martin Spring	—	08/22/2018	WG	Turbidity	8.7	NTU	CAWA-18-160248
221743	Martin Spring	—	02/23/2018	WG	Turbidity	3.1	NTU	CAWA-18-11
208234	Martin Spring	—	08/29/2017	WG	Turbidity	6.4	NTU	CAWA-17-142905
307654	R-18	1358.0	12/04/2019	WG	Dissolved Oxygen	5.45	mg/L	CAPA-20-190754
290484	R-18	1358.0	08/21/2019	WG	Dissolved Oxygen	5.46	mg/L	CAPA-19-183950
281191	R-18	1358.0	06/04/2019	WG	Dissolved Oxygen	5.40	mg/L	CAPA-19-181349
266738	R-18	1358.0	03/12/2019	WG	Dissolved Oxygen	5.47	mg/L	CAPA-19-167675
258853	R-18	1358.0	12/05/2018	WG	Dissolved Oxygen	5.49	mg/L	CAPA-19-164817
244568	R-18	1358.0	08/14/2018	WG	Dissolved Oxygen	5.30	mg/L	CAPA-18-160409
219201	R-18	1358.0	02/13/2018	WG	Dissolved Oxygen	5.41	mg/L	CAPA-18-3
307653	R-18	1358.0	12/04/2019	WG	Flow (in gpm)	6.67	gpm	CAPA-20-190754
290483	R-18	1358.0	08/21/2019	WG	Flow (in gpm)	6.67	gpm	CAPA-19-183950
281257	R-18	1358.0	06/04/2019	WG	Flow (in gpm)	6.67	gpm	CAPA-19-181349
266767	R-18	1358.0	03/12/2019	WG	Flow (in gpm)	6.67	gpm	CAPA-19-167675
258852	R-18	1358.0	12/05/2018	WG	Flow (in gpm)	6.66	gpm	CAPA-19-164817
244567	R-18	1358.0	08/14/2018	WG	Flow (in gpm)	6.82	gpm	CAPA-18-160409
219200	R-18	1358.0	02/13/2018	WG	Flow (in gpm)	6.52	gpm	CAPA-18-3
307656	R-18	1358.0	12/04/2019	WG	Oxidation-Reduction Potential	74.0	mV	CAPA-20-190754
290422	R-18	1358.0	08/21/2019	WG	Oxidation-Reduction Potential	273.7	mV	CAPA-19-183950
281193	R-18	1358.0	06/04/2019	WG	Oxidation-Reduction Potential	105.6	mV	CAPA-19-181349
266740	R-18	1358.0	03/12/2019	WG	Oxidation-Reduction Potential	151.7	mV	CAPA-19-167675
258855	R-18	1358.0	12/05/2018	WG	Oxidation-Reduction Potential	321.6	mV	CAPA-19-164817
244570	R-18	1358.0	08/14/2018	WG	Oxidation-Reduction Potential	181.1	mV	CAPA-18-160409
219203	R-18	1358.0	02/13/2018	WG	Oxidation-Reduction Potential	137.9	mV	CAPA-18-3
307658	R-18	1358.0	12/04/2019	WG	pH	7.68	SU	CAPA-20-190754

Field Measurement Record #	Location ID	Screen Depth (ft bgs)	Measurement Date	PMR Sample Type	Field Parameter	Field Measurement	Measurement Units	Field Sample ID
290424	R-18	1358.0	08/21/2019	WG	pH	7.7	SU	CAPA-19-183950
281195	R-18	1358.0	06/04/2019	WG	pH	7.7	SU	CAPA-19-181349
266742	R-18	1358.0	03/12/2019	WG	pH	7.7	SU	CAPA-19-167675
258861	R-18	1358.0	12/05/2018	WG	pH	7.8	SU	CAPA-19-164817
244572	R-18	1358.0	08/14/2018	WG	pH	7.7	SU	CAPA-18-160409
219144	R-18	1358.0	02/13/2018	WG	pH	7.7	SU	CAPA-18-3
307623	R-18	1358.0	12/04/2019	WG	Specific Conductance	113.3	µS/cm	CAPA-20-190754
290447	R-18	1358.0	08/21/2019	WG	Specific Conductance	114.2	µS/cm	CAPA-19-183950
281259	R-18	1358.0	06/04/2019	WG	Specific Conductance	114.2	µS/cm	CAPA-19-181349
266745	R-18	1358.0	03/12/2019	WG	Specific Conductance	113.8	µS/cm	CAPA-19-167675
258857	R-18	1358.0	12/05/2018	WG	Specific Conductance	114.2	µS/cm	CAPA-19-164817
244508	R-18	1358.0	08/14/2018	WG	Specific Conductance	115.3	µS/cm	CAPA-18-160409
219146	R-18	1358.0	02/13/2018	WG	Specific Conductance	113.3	µS/cm	CAPA-18-3
307624	R-18	1358.0	12/04/2019	WG	Temperature	15.1	deg C	CAPA-20-190754
290448	R-18	1358.0	08/21/2019	WG	Temperature	16.3	deg C	CAPA-19-183950
281260	R-18	1358.0	06/04/2019	WG	Temperature	16.6	deg C	CAPA-19-181349
266746	R-18	1358.0	03/12/2019	WG	Temperature	15.6	deg C	CAPA-19-167675
258858	R-18	1358.0	12/05/2018	WG	Temperature	15.3	deg C	CAPA-19-164817
244509	R-18	1358.0	08/14/2018	WG	Temperature	16.5	deg C	CAPA-18-160409
219147	R-18	1358.0	02/13/2018	WG	Temperature	15.6	deg C	CAPA-18-3
307678	R-18	1358.0	12/04/2019	WG	Turbidity	0.5	NTU	CAPA-20-190754
290450	R-18	1358.0	08/21/2019	WG	Turbidity	0.3	NTU	CAPA-19-183950
281262	R-18	1358.0	06/04/2019	WG	Turbidity	0.2	NTU	CAPA-19-181349
266748	R-18	1358.0	03/12/2019	WG	Turbidity	0.2	NTU	CAPA-19-167675
258860	R-18	1358.0	12/05/2018	WG	Turbidity	0.2	NTU	CAPA-19-164817
244511	R-18	1358.0	08/14/2018	WG	Turbidity	0.3	NTU	CAPA-18-160409
219205	R-18	1358.0	02/13/2018	WG	Turbidity	5.1	NTU	CAPA-18-3

Field Measurement Record #	Location ID	Screen Depth (ft bgs)	Measurement Date	PMR Sample Type	Field Parameter	Field Measurement	Measurement Units	Field Sample ID
288381	R-26 S1	651.8	08/06/2019	WG	Dissolved Oxygen	6.79	mg/L	CAWA-19-183935
266042	R-26 S1	651.8	03/05/2019	WG	Dissolved Oxygen	6.76	mg/L	CAWA-19-167604
243712	R-26 S1	651.8	08/07/2018	WG	Dissolved Oxygen	6.80	mg/L	CAWA-18-160357
221368	R-26 S1	651.8	02/21/2018	WG	Dissolved Oxygen	6.77	mg/L	CAWA-18-55
208278	R-26 S1	651.8	08/31/2017	WG	Dissolved Oxygen	6.83	mg/L	CAWA-17-142916
288306	R-26 S1	651.8	08/06/2019	WG	Flow (in gpm)	3.85	gpm	CAWA-19-183935
266041	R-26 S1	651.8	03/05/2019	WG	Flow (in gpm)	3.90	gpm	CAWA-19-167604
243711	R-26 S1	651.8	08/07/2018	WG	Flow (in gpm)	3.95	gpm	CAWA-18-160357
221367	R-26 S1	651.8	02/21/2018	WG	Flow (in gpm)	4.00	gpm	CAWA-18-55
208279	R-26 S1	651.8	08/31/2017	WG	Flow (in gpm)	4.00	gpm	CAWA-17-142916
288383	R-26 S1	651.8	08/06/2019	WG	Oxidation-Reduction Potential	255.4	mV	CAWA-19-183935
266043	R-26 S1	651.8	03/05/2019	WG	Oxidation-Reduction Potential	94.5	mV	CAWA-19-167604
243714	R-26 S1	651.8	08/07/2018	WG	Oxidation-Reduction Potential	257.5	mV	CAWA-18-160357
221353	R-26 S1	651.8	02/21/2018	WG	Oxidation-Reduction Potential	132.4	mV	CAWA-18-55
208280	R-26 S1	651.8	08/31/2017	WG	Oxidation-Reduction Potential	252.2	mV	CAWA-17-142916
288385	R-26 S1	651.8	08/06/2019	WG	pH	7.5	SU	CAWA-19-183935
266049	R-26 S1	651.8	03/05/2019	WG	pH	7.6	SU	CAWA-19-167604
243716	R-26 S1	651.8	08/07/2018	WG	pH	7.5	SU	CAWA-18-160357
221355	R-26 S1	651.8	02/21/2018	WG	pH	7.5	SU	CAWA-18-55
208284	R-26 S1	651.8	08/31/2017	WG	pH	7.6	SU	CAWA-17-142916
288387	R-26 S1	651.8	08/06/2019	WG	Specific Conductance	99.0	µS/cm	CAWA-19-183935
266045	R-26 S1	651.8	03/05/2019	WG	Specific Conductance	99.2	µS/cm	CAWA-19-167604
243640	R-26 S1	651.8	08/07/2018	WG	Specific Conductance	100.5	µS/cm	CAWA-18-160357
221357	R-26 S1	651.8	02/21/2018	WG	Specific Conductance	99.3	µS/cm	CAWA-18-55
208281	R-26 S1	651.8	08/31/2017	WG	Specific Conductance	100.2	µS/cm	CAWA-17-142916
288307	R-26 S1	651.8	08/06/2019	WG	Temperature	16.1	deg C	CAWA-19-183935
266046	R-26 S1	651.8	03/05/2019	WG	Temperature	15.6	deg C	CAWA-19-167604

Field Measurement Record #	Location ID	Screen Depth (ft bgs)	Measurement Date	PMR Sample Type	Field Parameter	Field Measurement	Measurement Units	Field Sample ID
243641	R-26 S1	651.8	08/07/2018	WG	Temperature	16.4	deg C	CAWA-18-160357
221358	R-26 S1	651.8	02/21/2018	WG	Temperature	15.3	deg C	CAWA-18-55
208282	R-26 S1	651.8	08/31/2017	WG	Temperature	16.6	deg C	CAWA-17-142916
288309	R-26 S1	651.8	08/06/2019	WG	Turbidity	1.5	NTU	CAWA-19-183935
266048	R-26 S1	651.8	03/05/2019	WG	Turbidity	0.8	NTU	CAWA-19-167604
243643	R-26 S1	651.8	08/07/2018	WG	Turbidity	0.5	NTU	CAWA-18-160357
221370	R-26 S1	651.8	02/21/2018	WG	Turbidity	0.5	NTU	CAWA-18-55
208283	R-26 S1	651.8	08/31/2017	WG	Turbidity	0.5	NTU	CAWA-17-142916
307776	R-47	1322.0	12/05/2019	WG	Dissolved Oxygen	5.93	mg/L	CAWA-20-190739
290723	R-47	1322.0	08/20/2019	WG	Dissolved Oxygen	6.07	mg/L	CAWA-19-183945
280243	R-47	1322.0	05/28/2019	WG	Dissolved Oxygen	5.94	mg/L	CAWA-19-181324
265957	R-47	1322.0	03/06/2019	WG	Dissolved Oxygen	6.07	mg/L	CAWA-19-167619
258863	R-47	1322.0	12/06/2018	WG	Dissolved Oxygen	6.18	mg/L	CAWA-19-164762
244982	R-47	1322.0	08/16/2018	WG	Dissolved Oxygen	6.08	mg/L	CAWA-18-160372
237987	R-47	1322.0	06/06/2018	WG	Dissolved Oxygen	6.11	mg/L	CAWA-18-22
219052	R-47	1322.0	02/13/2018	WG	Dissolved Oxygen	6.26	mg/L	CAWA-18-63
307775	R-47	1322.0	12/05/2019	WG	Flow (in gpm)	3.84	gpm	CAWA-20-190739
—	R-47	1322.0	08/20/2019	WG	Flow (in gpm)	3.80	gpm	CAWA-19-183945
280242	R-47	1322.0	05/28/2019	WG	Flow (in gpm)	3.80	gpm	CAWA-19-181324
265956	R-47	1322.0	03/06/2019	WG	Flow (in gpm)	3.85	gpm	CAWA-19-167619
—	R-47	1322.0	12/06/2018	WG	Flow (in gpm)	3.84	gpm	CAWA-19-164762
244981	R-47	1322.0	08/16/2018	WG	Flow (in gpm)	3.85	gpm	CAWA-18-160372
237986	R-47	1322.0	06/06/2018	WG	Flow (in gpm)	3.90	gpm	CAWA-18-22
219051	R-47	1322.0	02/13/2018	WG	Flow (in gpm)	3.95	gpm	CAWA-18-63
307778	R-47	1322.0	12/05/2019	WG	Oxidation-Reduction Potential	195.5	mV	CAWA-20-190739
290725	R-47	1322.0	08/20/2019	WG	Oxidation-Reduction Potential	304.5	mV	CAWA-19-183945
280183	R-47	1322.0	05/28/2019	WG	Oxidation-Reduction Potential	168.6	mV	CAWA-19-181324

Field Measurement Record #	Location ID	Screen Depth (ft bgs)	Measurement Date	PMR Sample Type	Field Parameter	Field Measurement	Measurement Units	Field Sample ID
266008	R-47	1322.0	03/06/2019	WG	Oxidation-Reduction Potential	296.5	mV	CAWA-19-167619
258865	R-47	1322.0	12/06/2018	WG	Oxidation-Reduction Potential	358.8	mV	CAWA-19-164762
244984	R-47	1322.0	08/16/2018	WG	Oxidation-Reduction Potential	189.5	mV	CAWA-18-160372
237989	R-47	1322.0	06/06/2018	WG	Oxidation-Reduction Potential	199.9	mV	CAWA-18-22
219054	R-47	1322.0	02/13/2018	WG	Oxidation-Reduction Potential	195.6	mV	CAWA-18-63
307843	R-47	1322.0	12/05/2019	WG	pH	7.0	SU	CAWA-20-190739
290731	R-47	1322.0	08/20/2019	WG	pH	7.0	SU	CAWA-19-183945
280185	R-47	1322.0	05/28/2019	WG	pH	7.0	SU	CAWA-19-181324
266010	R-47	1322.0	03/06/2019	WG	pH	7.1	SU	CAWA-19-167619
258869	R-47	1322.0	12/06/2018	WG	pH	7.1	SU	CAWA-19-164762
244914	R-47	1322.0	08/16/2018	WG	pH	7.0	SU	CAWA-18-160372
237974	R-47	1322.0	06/06/2018	WG	pH	7.0	SU	CAWA-18-22
219040	R-47	1322.0	02/13/2018	WG	pH	7.2	SU	CAWA-18-63
307845	R-47	1322.0	12/05/2019	WG	Specific Conductance	106.2	µS/cm	CAWA-20-190739
290727	R-47	1322.0	08/20/2019	WG	Specific Conductance	107.1	µS/cm	CAWA-19-183945
280187	R-47	1322.0	05/28/2019	WG	Specific Conductance	108.5	µS/cm	CAWA-19-181324
266012	R-47	1322.0	03/06/2019	WG	Specific Conductance	107.1	µS/cm	CAWA-19-167619
258866	R-47	1322.0	12/06/2018	WG	Specific Conductance	107.4	µS/cm	CAWA-19-164762
244916	R-47	1322.0	08/16/2018	WG	Specific Conductance	108.9	µS/cm	CAWA-18-160372
237976	R-47	1322.0	06/06/2018	WG	Specific Conductance	108.4	µS/cm	CAWA-18-22
219042	R-47	1322.0	02/13/2018	WG	Specific Conductance	107.4	µS/cm	CAWA-18-63
307846	R-47	1322.0	12/05/2019	WG	Temperature	13.2	deg C	CAWA-20-190739
290728	R-47	1322.0	08/20/2019	WG	Temperature	14.7	deg C	CAWA-19-183945
280245	R-47	1322.0	05/28/2019	WG	Temperature	14.1	deg C	CAWA-19-181324
266013	R-47	1322.0	03/06/2019	WG	Temperature	13.9	deg C	CAWA-19-167619
258867	R-47	1322.0	12/06/2018	WG	Temperature	13.9	deg C	CAWA-19-164762
244917	R-47	1322.0	08/16/2018	WG	Temperature	15.1	deg C	CAWA-18-160372

Field Measurement Record #	Location ID	Screen Depth (ft bgs)	Measurement Date	PMR Sample Type	Field Parameter	Field Measurement	Measurement Units	Field Sample ID
237977	R-47	1322.0	06/06/2018	WG	Temperature	15.2	deg C	CAWA-18-22
219043	R-47	1322.0	02/13/2018	WG	Temperature	14.1	deg C	CAWA-18-63
307848	R-47	1322.0	12/05/2019	WG	Turbidity	0.8	NTU	CAWA-20-190739
290730	R-47	1322.0	08/20/2019	WG	Turbidity	0.8	NTU	CAWA-19-183945
280247	R-47	1322.0	05/28/2019	WG	Turbidity	0.9	NTU	CAWA-19-181324
265959	R-47	1322.0	03/06/2019	WG	Turbidity	4.8	NTU	CAWA-19-167619
258868	R-47	1322.0	12/06/2018	WG	Turbidity	1.2	NTU	CAWA-19-164762
244986	R-47	1322.0	08/16/2018	WG	Turbidity	1.3	NTU	CAWA-18-160372
237991	R-47	1322.0	06/06/2018	WG	Turbidity	1.0	NTU	CAWA-18-22
219099	R-47	1322.0	02/13/2018	WG	Turbidity	1.4	NTU	CAWA-18-63
308553	R-47i	840.0	12/11/2019	WG	Dissolved Oxygen	6.66	mg/L	CAWA-20-190738
290060	R-47i	840.0	08/19/2019	WG	Dissolved Oxygen	6.34	mg/L	CAWA-19-183937
280976	R-47i	840.0	06/03/2019	WG	Dissolved Oxygen	6.34	mg/L	CAWA-19-181322
268566	R-47i	840.0	03/25/2019	WG	Dissolved Oxygen	6.21	mg/L	CAWA-19-167609
258871	R-47i	840.0	12/06/2018	WG	Dissolved Oxygen	6.48	mg/L	CAWA-19-164759
246176	R-47i	840.0	08/22/2018	WG	Dissolved Oxygen	6.49	mg/L	CAWA-18-160368
218261	R-47i	840.0	02/08/2018	WG	Dissolved Oxygen	6.27	mg/L	CAWA-18-57
308552	R-47i	840.0	12/11/2019	WG	Flow (in gpm)	0.62	gpm	CAWA-20-190738
290059	R-47i	840.0	08/19/2019	WG	Flow (in gpm)	0.82	gpm	CAWA-19-183937
280975	R-47i	840.0	06/03/2019	WG	Flow (in gpm)	0.78	gpm	CAWA-19-181322
268565	R-47i	840.0	03/25/2019	WG	Flow (in gpm)	0.62	gpm	CAWA-19-167609
258870	R-47i	840.0	12/06/2018	WG	Flow (in gpm)	0.89	gpm	CAWA-19-164759
246175	R-47i	840.0	08/22/2018	WG	Flow (in gpm)	0.64	gpm	CAWA-18-160368
218260	R-47i	840.0	02/08/2018	WG	Flow (in gpm)	0.80	gpm	CAWA-18-57
308555	R-47i	840.0	12/11/2019	WG	Oxidation-Reduction Potential	153.1	mV	CAWA-20-190738
290125	R-47i	840.0	08/19/2019	WG	Oxidation-Reduction Potential	321.3	mV	CAWA-19-183937
280978	R-47i	840.0	06/03/2019	WG	Oxidation-Reduction Potential	187.3	mV	CAWA-19-181322

Field Measurement Record #	Location ID	Screen Depth (ft bgs)	Measurement Date	PMR Sample Type	Field Parameter	Field Measurement	Measurement Units	Field Sample ID
268568	R-47i	840.0	03/25/2019	WG	Oxidation-Reduction Potential	195.6	mV	CAWA-19-167609
258872	R-47i	840.0	12/06/2018	WG	Oxidation-Reduction Potential	353.7	mV	CAWA-19-164759
246178	R-47i	840.0	08/22/2018	WG	Oxidation-Reduction Potential	220.6	mV	CAWA-18-160368
218309	R-47i	840.0	02/08/2018	WG	Oxidation-Reduction Potential	217.0	mV	CAWA-18-57
308601	R-47i	840.0	12/11/2019	WG	pH	7.2	SU	CAWA-20-190738
290127	R-47i	840.0	08/19/2019	WG	pH	7.2	SU	CAWA-19-183937
280980	R-47i	840.0	06/03/2019	WG	pH	7.2	SU	CAWA-19-181322
268574	R-47i	840.0	03/25/2019	WG	pH	6.9	SU	CAWA-19-167609
258878	R-47i	840.0	12/06/2018	WG	pH	7.2	SU	CAWA-19-164759
246157	R-47i	840.0	08/22/2018	WG	pH	6.8	SU	CAWA-18-160368
218311	R-47i	840.0	02/08/2018	WG	pH	7.3	SU	CAWA-18-57
308603	R-47i	840.0	12/11/2019	WG	Specific Conductance	115.4	µS/cm	CAWA-20-190738
290136	R-47i	840.0	08/19/2019	WG	Specific Conductance	117.5	µS/cm	CAWA-19-183937
280933	R-47i	840.0	06/03/2019	WG	Specific Conductance	116.7	µS/cm	CAWA-19-181322
268570	R-47i	840.0	03/25/2019	WG	Specific Conductance	116.1	µS/cm	CAWA-19-167609
258874	R-47i	840.0	12/06/2018	WG	Specific Conductance	118.5	µS/cm	CAWA-19-164759
246159	R-47i	840.0	08/22/2018	WG	Specific Conductance	119.5	µS/cm	CAWA-18-160368
218313	R-47i	840.0	02/08/2018	WG	Specific Conductance	118.6	µS/cm	CAWA-18-57
308604	R-47i	840.0	12/11/2019	WG	Temperature	12.4	deg C	CAWA-20-190738
290061	R-47i	840.0	08/19/2019	WG	Temperature	17.0	deg C	CAWA-19-183937
280934	R-47i	840.0	06/03/2019	WG	Temperature	16.1	deg C	CAWA-19-181322
268571	R-47i	840.0	03/25/2019	WG	Temperature	14.6	deg C	CAWA-19-167609
258875	R-47i	840.0	12/06/2018	WG	Temperature	13.6	deg C	CAWA-19-164759
246160	R-47i	840.0	08/22/2018	WG	Temperature	14.9	deg C	CAWA-18-160368
218314	R-47i	840.0	02/08/2018	WG	Temperature	14.4	deg C	CAWA-18-57
308556	R-47i	840.0	12/11/2019	WG	Turbidity	0.8	NTU	CAWA-20-190738
290063	R-47i	840.0	08/19/2019	WG	Turbidity	0.9	NTU	CAWA-19-183937

Field Measurement Record #	Location ID	Screen Depth (ft bgs)	Measurement Date	PMR Sample Type	Field Parameter	Field Measurement	Measurement Units	Field Sample ID
280936	R-47i	840.0	06/03/2019	WG	Turbidity	0.8	NTU	CAWA-19-181322
268573	R-47i	840.0	03/25/2019	WG	Turbidity	0.8	NTU	CAWA-19-167609
258877	R-47i	840.0	12/06/2018	WG	Turbidity	0.8	NTU	CAWA-19-164759
246180	R-47i	840.0	08/22/2018	WG	Turbidity	2.5	NTU	CAWA-18-160368
218263	R-47i	840.0	02/08/2018	WG	Turbidity	0.6	NTU	CAWA-18-57
307922	R-48	1500.0	12/06/2019	WG	Dissolved Oxygen	7.02	mg/L	CAWA-20-190741
289672	R-48	1500.0	08/13/2019	WG	Dissolved Oxygen	7.09	mg/L	CAWA-19-183979
281134	R-48	1500.0	06/03/2019	WG	Dissolved Oxygen	6.61	mg/L	CAWA-19-181328
267620	R-48	1500.0	03/18/2019	WG	Dissolved Oxygen	8.33	mg/L	CAWA-19-167637
275214	R-48	1500.0	12/12/2018	WG	Dissolved Oxygen	6.77	mg/L	CAWA-19-164771
245501	R-48	1500.0	08/20/2018	WG	Dissolved Oxygen	7.25	mg/L	CAWA-18-160383
218114	R-48	1500.0	02/07/2018	WG	Dissolved Oxygen	7.05	mg/L	CAWA-18-71
307921	R-48	1500.0	12/06/2019	WG	Flow (in gpm)	6.12	gpm	CAWA-20-190741
—	R-48	1500.0	08/13/2019	WG	Flow (in gpm)	5.88	gpm	CAWA-19-183979
281133	R-48	1500.0	06/03/2019	WG	Flow (in gpm)	6.00	gpm	CAWA-19-181328
267619	R-48	1500.0	03/18/2019	WG	Flow (in gpm)	6.12	gpm	CAWA-19-167637
275213	R-48	1500.0	12/12/2018	WG	Flow (in gpm)	6.12	gpm	CAWA-19-164771
245500	R-48	1500.0	08/20/2018	WG	Flow (in gpm)	6.00	gpm	CAWA-18-160383
218113	R-48	1500.0	02/07/2018	WG	Flow (in gpm)	6.12	gpm	CAWA-18-71
308002	R-48	1500.0	12/06/2019	WG	Oxidation-Reduction Potential	154.0	mV	CAWA-20-190741
289674	R-48	1500.0	08/13/2019	WG	Oxidation-Reduction Potential	297.0	mV	CAWA-19-183979
281136	R-48	1500.0	06/03/2019	WG	Oxidation-Reduction Potential	141.6	mV	CAWA-19-181328
267622	R-48	1500.0	03/18/2019	WG	Oxidation-Reduction Potential	187.1	mV	CAWA-19-167637
275216	R-48	1500.0	12/12/2018	WG	Oxidation-Reduction Potential	343.4	mV	CAWA-19-164771
245503	R-48	1500.0	08/20/2018	WG	Oxidation-Reduction Potential	166.0	mV	CAWA-18-160383
218160	R-48	1500.0	02/07/2018	WG	Oxidation-Reduction Potential	168.1	mV	CAWA-18-71
308004	R-48	1500.0	12/06/2019	WG	pH	8.2	SU	CAWA-20-190741

Field Measurement Record #	Location ID	Screen Depth (ft bgs)	Measurement Date	PMR Sample Type	Field Parameter	Field Measurement	Measurement Units	Field Sample ID
289679	R-48	1500.0	08/13/2019	WG	pH	8.2	SU	CAWA-19-183979
281029	R-48	1500.0	06/03/2019	WG	pH	8.1	SU	CAWA-19-181328
267560	R-48	1500.0	03/18/2019	WG	pH	8.2	SU	CAWA-19-167637
275222	R-48	1500.0	12/12/2018	WG	pH	8.2	SU	CAWA-19-164771
245458	R-48	1500.0	08/20/2018	WG	pH	8.1	SU	CAWA-18-160383
218162	R-48	1500.0	02/07/2018	WG	pH	8.2	SU	CAWA-18-71
307983	R-48	1500.0	12/06/2019	WG	Specific Conductance	122.3	µS/cm	CAWA-20-190741
289676	R-48	1500.0	08/13/2019	WG	Specific Conductance	124.2	µS/cm	CAWA-19-183979
281031	R-48	1500.0	06/03/2019	WG	Specific Conductance	122.3	µS/cm	CAWA-19-181328
267562	R-48	1500.0	03/18/2019	WG	Specific Conductance	123.1	µS/cm	CAWA-19-167637
275218	R-48	1500.0	12/12/2018	WG	Specific Conductance	123.6	µS/cm	CAWA-19-164771
245460	R-48	1500.0	08/20/2018	WG	Specific Conductance	122.3	µS/cm	CAWA-18-160383
218164	R-48	1500.0	02/07/2018	WG	Specific Conductance	123.0	µS/cm	CAWA-18-71
307984	R-48	1500.0	12/06/2019	WG	Temperature	19.0	deg C	CAWA-20-190741
289677	R-48	1500.0	08/13/2019	WG	Temperature	21.7	deg C	CAWA-19-183979
281032	R-48	1500.0	06/03/2019	WG	Temperature	21.0	deg C	CAWA-19-181328
267563	R-48	1500.0	03/18/2019	WG	Temperature	20.0	deg C	CAWA-19-167637
275219	R-48	1500.0	12/12/2018	WG	Temperature	19.2	deg C	CAWA-19-164771
245461	R-48	1500.0	08/20/2018	WG	Temperature	21.0	deg C	CAWA-18-160383
218165	R-48	1500.0	02/07/2018	WG	Temperature	18.4	deg C	CAWA-18-71
307986	R-48	1500.0	12/06/2019	WG	Turbidity	1.2	NTU	CAWA-20-190741
289678	R-48	1500.0	08/13/2019	WG	Turbidity	1.4	NTU	CAWA-19-183979
281138	R-48	1500.0	06/03/2019	WG	Turbidity	1.2	NTU	CAWA-19-181328
267624	R-48	1500.0	03/18/2019	WG	Turbidity	0.6	NTU	CAWA-19-167637
275221	R-48	1500.0	12/12/2018	WG	Turbidity	1.6	NTU	CAWA-19-164771
245505	R-48	1500.0	08/20/2018	WG	Turbidity	1.7	NTU	CAWA-18-160383
218116	R-48	1500.0	02/07/2018	WG	Turbidity	5.8	NTU	CAWA-18-71

Field Measurement Record #	Location ID	Screen Depth (ft bgs)	Measurement Date	PMR Sample Type	Field Parameter	Field Measurement	Measurement Units	Field Sample ID
309624	R-63	1325.0	12/12/2019	WG	Dissolved Oxygen	5.79	mg/L	CAWA-20-190745
290811	R-63	1325.0	08/22/2019	WG	Dissolved Oxygen	5.75	mg/L	CAWA-19-183985
281800	R-63	1325.0	06/07/2019	WG	Dissolved Oxygen	5.74	mg/L	CAWA-19-181334
267909	R-63	1325.0	03/19/2019	WG	Dissolved Oxygen	5.77	mg/L	CAWA-19-167648
259447	R-63	1325.0	12/14/2018	WG	Dissolved Oxygen	5.84	mg/L	CAWA-19-164779
245636	R-63	1325.0	08/20/2018	WG	Dissolved Oxygen	5.61	mg/L	CAWA-18-160392
237870	R-63	1325.0	06/04/2018	WG	Dissolved Oxygen	5.58	mg/L	CAWA-18-29
309677	R-63	1325.0	12/12/2019	WG	Flow (in gpm)	7.14	gpm	CAWA-20-190745
290810	R-63	1325.0	08/22/2019	WG	Flow (in gpm)	7.14	gpm	CAWA-19-183985
281799	R-63	1325.0	06/07/2019	WG	Flow (in gpm)	7.32	gpm	CAWA-19-181334
267908	R-63	1325.0	03/19/2019	WG	Flow (in gpm)	7.32	gpm	CAWA-19-167648
259446	R-63	1325.0	12/14/2018	WG	Flow (in gpm)	7.50	gpm	CAWA-19-164779
245635	R-63	1325.0	08/20/2018	WG	Flow (in gpm)	7.32	gpm	CAWA-18-160392
237869	R-63	1325.0	06/04/2018	WG	Flow (in gpm)	7.31	gpm	CAWA-18-29
309626	R-63	1325.0	12/12/2019	WG	Oxidation-Reduction Potential	176.2	mV	CAWA-20-190745
290813	R-63	1325.0	08/22/2019	WG	Oxidation-Reduction Potential	257.7	mV	CAWA-19-183985
281846	R-63	1325.0	06/07/2019	WG	Oxidation-Reduction Potential	185.0	mV	CAWA-19-181334
267911	R-63	1325.0	03/19/2019	WG	Oxidation-Reduction Potential	151.9	mV	CAWA-19-167648
259449	R-63	1325.0	12/14/2018	WG	Oxidation-Reduction Potential	329.1	mV	CAWA-19-164779
245638	R-63	1325.0	08/20/2018	WG	Oxidation-Reduction Potential	226.7	mV	CAWA-18-160392
237887	R-63	1325.0	06/04/2018	WG	Oxidation-Reduction Potential	157.7	mV	CAWA-18-29
309628	R-63	1325.0	12/12/2019	WG	pH	7.4	SU	CAWA-20-190745
290770	R-63	1325.0	08/22/2019	WG	pH	7.4	SU	CAWA-19-183985
281848	R-63	1325.0	06/07/2019	WG	pH	7.1	SU	CAWA-19-181334
267930	R-63	1325.0	03/19/2019	WG	pH	7.5	SU	CAWA-19-167648
259453	R-63	1325.0	12/14/2018	WG	pH	7.4	SU	CAWA-19-164779
245582	R-63	1325.0	08/20/2018	WG	pH	7.2	SU	CAWA-18-160392

Field Measurement Record #	Location ID	Screen Depth (ft bgs)	Measurement Date	PMR Sample Type	Field Parameter	Field Measurement	Measurement Units	Field Sample ID
237889	R-63	1325.0	06/04/2018	WG	pH	7.5	SU	CAWA-18-29
309679	R-63	1325.0	12/12/2019	WG	Specific Conductance	105.4	µS/cm	CAWA-20-190745
290772	R-63	1325.0	08/22/2019	WG	Specific Conductance	105.7	µS/cm	CAWA-19-183985
281850	R-63	1325.0	06/07/2019	WG	Specific Conductance	105.5	µS/cm	CAWA-19-181334
267932	R-63	1325.0	03/19/2019	WG	Specific Conductance	105.4	µS/cm	CAWA-19-167648
259450	R-63	1325.0	12/14/2018	WG	Specific Conductance	105.8	µS/cm	CAWA-19-164779
245584	R-63	1325.0	08/20/2018	WG	Specific Conductance	105.5	µS/cm	CAWA-18-160392
237891	R-63	1325.0	06/04/2018	WG	Specific Conductance	106.1	µS/cm	CAWA-18-29
309680	R-63	1325.0	12/12/2019	WG	Temperature	12.6	deg C	CAWA-20-190745
290773	R-63	1325.0	08/22/2019	WG	Temperature	14.6	deg C	CAWA-19-183985
281801	R-63	1325.0	06/07/2019	WG	Temperature	14.0	deg C	CAWA-19-181334
267933	R-63	1325.0	03/19/2019	WG	Temperature	13.6	deg C	CAWA-19-167648
259451	R-63	1325.0	12/14/2018	WG	Temperature	13.0	deg C	CAWA-19-164779
245585	R-63	1325.0	08/20/2018	WG	Temperature	14.6	deg C	CAWA-18-160392
237892	R-63	1325.0	06/04/2018	WG	Temperature	14.2	deg C	CAWA-18-29
309682	R-63	1325.0	12/12/2019	WG	Turbidity	2.8	NTU	CAWA-20-190745
290843	R-63	1325.0	08/22/2019	WG	Turbidity	0.4	NTU	CAWA-19-183985
281803	R-63	1325.0	06/07/2019	WG	Turbidity	0.5	NTU	CAWA-19-181334
267912	R-63	1325.0	03/19/2019	WG	Turbidity	0.4	NTU	CAWA-19-167648
259452	R-63	1325.0	12/14/2018	WG	Turbidity	0.6	NTU	CAWA-19-164779
245640	R-63	1325.0	08/20/2018	WG	Turbidity	0.6	NTU	CAWA-18-160392
237873	R-63	1325.0	06/04/2018	WG	Turbidity	0.5	NTU	CAWA-18-29
308265	R-68	1340.0	12/09/2019	WG	Dissolved Oxygen	5.73	mg/L	CAWA-20-190746
288641	R-68	1340.0	08/08/2019	WG	Dissolved Oxygen	5.67	mg/L	CAWA-19-183988
280453	R-68	1340.0	05/30/2019	WG	Dissolved Oxygen	5.66	mg/L	CAWA-19-181336
268299	R-68	1340.0	03/19/2019	WG	Dissolved Oxygen	5.67	mg/L	CAWA-19-167655
260082	R-68	1340.0	12/19/2018	WG	Dissolved Oxygen	5.67	mg/L	CAWA-19-164781

Field Measurement Record #	Location ID	Screen Depth (ft bgs)	Measurement Date	PMR Sample Type	Field Parameter	Field Measurement	Measurement Units	Field Sample ID
244712	R-68	1340.0	08/15/2018	WG	Dissolved Oxygen	5.59	mg/L	CAWA-18-160396
237936	R-68	1340.0	06/05/2018	WG	Dissolved Oxygen	5.32	mg/L	CAWA-18-31
308264	R-68	1340.0	12/09/2019	WG	Flow (in gpm)	5.88	gpm	CAWA-20-190746
288689	R-68	1340.0	08/08/2019	WG	Flow (in gpm)	5.77	gpm	CAWA-19-183988
280410	R-68	1340.0	05/30/2019	WG	Flow (in gpm)	5.88	gpm	CAWA-19-181336
268298	R-68	1340.0	03/19/2019	WG	Flow (in gpm)	5.88	gpm	CAWA-19-167655
260081	R-68	1340.0	12/19/2018	WG	Flow (in gpm)	6	gpm	CAWA-19-164781
244711	R-68	1340.0	08/15/2018	WG	Flow (in gpm)	5.88	gpm	CAWA-18-160396
237935	R-68	1340.0	06/05/2018	WG	Flow (in gpm)	5.76	gpm	CAWA-18-31
308267	R-68	1340.0	12/09/2019	WG	Oxidation-Reduction Potential	29.3	mV	CAWA-20-190746
288643	R-68	1340.0	08/08/2019	WG	Oxidation-Reduction Potential	213.8	mV	CAWA-19-183988
280455	R-68	1340.0	05/30/2019	WG	Oxidation-Reduction Potential	80.1	mV	CAWA-19-181336
268301	R-68	1340.0	03/19/2019	WG	Oxidation-Reduction Potential	78.8	mV	CAWA-19-167655
260084	R-68	1340.0	12/19/2018	WG	Oxidation-Reduction Potential	260.5	mV	CAWA-19-164781
244647	R-68	1340.0	08/15/2018	WG	Oxidation-Reduction Potential	103.4	mV	CAWA-18-160396
237938	R-68	1340.0	06/05/2018	WG	Oxidation-Reduction Potential	43.3	mV	CAWA-18-31
308202	R-68	1340.0	12/09/2019	WG	pH	7.4	SU	CAWA-20-190746
288645	R-68	1340.0	08/08/2019	WG	pH	7.5	SU	CAWA-19-183988
280457	R-68	1340.0	05/30/2019	WG	pH	7.4	SU	CAWA-19-181336
268307	R-68	1340.0	03/19/2019	WG	pH	7.4	SU	CAWA-19-167655
260090	R-68	1340.0	12/19/2018	WG	pH	7.6	SU	CAWA-19-164781
244649	R-68	1340.0	08/15/2018	WG	pH	7.5	SU	CAWA-18-160396
237940	R-68	1340.0	06/05/2018	WG	pH	7.5	SU	CAWA-18-31
308204	R-68	1340.0	12/09/2019	WG	Specific Conductance	113.0	µS/cm	CAWA-20-190746
288691	R-68	1340.0	08/08/2019	WG	Specific Conductance	113.6	µS/cm	CAWA-19-183988
280411	R-68	1340.0	05/30/2019	WG	Specific Conductance	114.9	µS/cm	CAWA-19-181336
268303	R-68	1340.0	03/19/2019	WG	Specific Conductance	113.4	µS/cm	CAWA-19-167655

Field Measurement Record #	Location ID	Screen Depth (ft bgs)	Measurement Date	PMR Sample Type	Field Parameter	Field Measurement	Measurement Units	Field Sample ID
260086	R-68	1340.0	12/19/2018	WG	Specific Conductance	113.9	µS/cm	CAWA-19-164781
244651	R-68	1340.0	08/15/2018	WG	Specific Conductance	114.5	µS/cm	CAWA-18-160396
237919	R-68	1340.0	06/05/2018	WG	Specific Conductance	114.3	µS/cm	CAWA-18-31
308205	R-68	1340.0	12/09/2019	WG	Temperature	13.0	deg C	CAWA-20-190746
288692	R-68	1340.0	08/08/2019	WG	Temperature	15.2	deg C	CAWA-19-183988
280412	R-68	1340.0	05/30/2019	WG	Temperature	13.8	deg C	CAWA-19-181336
268304	R-68	1340.0	03/19/2019	WG	Temperature	13.8	deg C	CAWA-19-167655
260087	R-68	1340.0	12/19/2018	WG	Temperature	13.4	deg C	CAWA-19-164781
244652	R-68	1340.0	08/15/2018	WG	Temperature	14.4	deg C	CAWA-18-160396
237920	R-68	1340.0	06/05/2018	WG	Temperature	15.7	deg C	CAWA-18-31
308207	R-68	1340.0	12/09/2019	WG	Turbidity	4.7	NTU	CAWA-20-190746
288694	R-68	1340.0	08/08/2019	WG	Turbidity	2.5	NTU	CAWA-19-183988
280414	R-68	1340.0	05/30/2019	WG	Turbidity	2.0	NTU	CAWA-19-181336
268306	R-68	1340.0	03/19/2019	WG	Turbidity	1.9	NTU	CAWA-19-167655
260089	R-68	1340.0	12/19/2018	WG	Turbidity	3.2	NTU	CAWA-19-164781
244675	R-68	1340.0	08/15/2018	WG	Turbidity	6.7	NTU	CAWA-18-160396
237922	R-68	1340.0	06/05/2018	WG	Turbidity	4.0	NTU	CAWA-18-31
—	R-69 S1	1310.0	12/10/2019	WG	Dissolved Oxygen	6.87	mg/L	CAMO-20-190683
—	R-69 S1	1310.0	11/19/2019	WG	Dissolved Oxygen	6.94	mg/L	CAMO-20-189180
301894	R-69 S1	1310.0	10/30/2019	WG	Dissolved Oxygen	6.77	mg/L	CAMO-20-188402
295769	R-69 S1	1310.0	09/30/2019	WG	Dissolved Oxygen	6.58	mg/L	CAWA-19-188270
290630	R-69 S1	1310.0	08/21/2019	WG	Dissolved Oxygen	6.97	mg/L	CAWA-19-183991
288067	R-69 S1	1310.0	07/29/2019	WG	Dissolved Oxygen	6.93	mg/L	CAWA-19-182850
281271	R-69 S1	1310.0	06/05/2019	WG	Dissolved Oxygen	7.12	mg/L	CAWA-19-181339
280060	R-69 S1	1310.0	05/22/2019	WG	Dissolved Oxygen	6.71	mg/L	CAWA-19-175207
275934	R-69 S1	1310.0	04/26/2019	WG	Dissolved Oxygen	7.08	mg/L	CAWA-19-171788
268509	R-69 S1	1310.0	03/26/2019	WG	Dissolved Oxygen	7.08	mg/L	CAWA-19-167658

Field Measurement Record #	Location ID	Screen Depth (ft bgs)	Measurement Date	PMR Sample Type	Field Parameter	Field Measurement	Measurement Units	Field Sample ID
264954	R-69 S1	1310.0	01/31/2019	WG	Dissolved Oxygen	7.17	mg/L	CACV-19-166501
—	R-69 S1	1310.0	12/10/2019	WG	Flow (in gpm)	6.67	gpm	CAMO-20-190683
—	R-69 S1	1310.0	11/19/2019	WG	Flow (in gpm)	6.98	gpm	CAMO-20-189180
301893	R-69 S1	1310.0	10/30/2019	WG	Flow (in gpm)	7.14	gpm	CAMO-20-188402
295768	R-69 S1	1310.0	09/30/2019	WG	Flow (in gpm)	6.98	gpm	CAWA-19-188270
290629	R-69 S1	1310.0	08/21/2019	WG	Flow (in gpm)	7.89	gpm	CAWA-19-183991
288066	R-69 S1	1310.0	07/29/2019	WG	Flow (in gpm)	7.50	gpm	CAWA-19-182850
281270	R-69 S1	1310.0	06/05/2019	WG	Flow (in gpm)	7.14	gpm	CAWA-19-181339
280059	R-69 S1	1310.0	05/22/2019	WG	Flow (in gpm)	7.89	gpm	CAWA-19-175207
275933	R-69 S1	1310.0	04/26/2019	WG	Flow (in gpm)	7.89	gpm	CAWA-19-171788
268508	R-69 S1	1310.0	03/26/2019	WG	Flow (in gpm)	7.69	gpm	CAWA-19-167658
264953	R-69 S1	1310.0	01/31/2019	WG	Flow (in gpm)	7.50	gpm	CACV-19-166501
—	R-69 S1	1310.0	12/10/2019	WG	Oxidation-Reduction Potential	145.7	mV	CAMO-20-190683
—	R-69 S1	1310.0	11/19/2019	WG	Oxidation-Reduction Potential	200.7	mV	CAMO-20-189180
301896	R-69 S1	1310.0	10/30/2019	WG	Oxidation-Reduction Potential	131.7	mV	CAMO-20-188402
295771	R-69 S1	1310.0	09/30/2019	WG	Oxidation-Reduction Potential	101.6	mV	CAWA-19-188270
290632	R-69 S1	1310.0	08/21/2019	WG	Oxidation-Reduction Potential	257	mV	CAWA-19-183991
288069	R-69 S1	1310.0	07/29/2019	WG	Oxidation-Reduction Potential	249.1	mV	CAWA-19-182850
281273	R-69 S1	1310.0	06/05/2019	WG	Oxidation-Reduction Potential	163.1	mV	CAWA-19-181339
280062	R-69 S1	1310.0	05/22/2019	WG	Oxidation-Reduction Potential	93.5	mV	CAWA-19-175207
275936	R-69 S1	1310.0	04/26/2019	WG	Oxidation-Reduction Potential	100.0	mV	CAWA-19-171788
268531	R-69 S1	1310.0	03/26/2019	WG	Oxidation-Reduction Potential	124.7	mV	CAWA-19-167658
264956	R-69 S1	1310.0	01/31/2019	WG	Oxidation-Reduction Potential	203.4	mV	CACV-19-166501
—	R-69 S1	1310.0	12/10/2019	WG	pH	7.57	SU	CAMO-20-190683
—	R-69 S1	1310.0	11/19/2019	WG	pH	7.41	SU	CAMO-20-189180
301898	R-69 S1	1310.0	10/30/2019	WG	pH	7.44	SU	CAMO-20-188402
295731	R-69 S1	1310.0	09/30/2019	WG	pH	7.58	SU	CAWA-19-188270

Field Measurement Record #	Location ID	Screen Depth (ft bgs)	Measurement Date	PMR Sample Type	Field Parameter	Field Measurement	Measurement Units	Field Sample ID
290675	R-69 S1	1310.0	08/21/2019	WG	pH	7.5	SU	CAWA-19-183991
288075	R-69 S1	1310.0	07/29/2019	WG	pH	7.6	SU	CAWA-19-182850
281275	R-69 S1	1310.0	06/05/2019	WG	pH	7.5	SU	CAWA-19-181339
280092	R-69 S1	1310.0	05/22/2019	WG	pH	7.5	SU	CAWA-19-175207
275938	R-69 S1	1310.0	04/26/2019	WG	pH	7.6	SU	CAWA-19-171788
268533	R-69 S1	1310.0	03/26/2019	WG	pH	7.6	SU	CAWA-19-167658
264901	R-69 S1	1310.0	01/31/2019	WG	pH	7.5	SU	CACV-19-166501
—	R-69 S1	1310.0	12/10/2019	WG	Specific Conductance	116.4	µS/cm	CAMO-20-190683
—	R-69 S1	1310.0	11/19/2019	WG	Specific Conductance	111.4	µS/cm	CAMO-20-189180
301941	R-69 S1	1310.0	10/30/2019	WG	Specific Conductance	117.1	µS/cm	CAMO-20-188402
295733	R-69 S1	1310.0	09/30/2019	WG	Specific Conductance	115.5	µS/cm	CAWA-19-188270
290677	R-69 S1	1310.0	08/21/2019	WG	Specific Conductance	116.8	µS/cm	CAWA-19-183991
288071	R-69 S1	1310.0	07/29/2019	WG	Specific Conductance	117.5	µS/cm	CAWA-19-182850
281403	R-69 S1	1310.0	06/05/2019	WG	Specific Conductance	117.6	µS/cm	CAWA-19-181339
280094	R-69 S1	1310.0	05/22/2019	WG	Specific Conductance	117.4	µS/cm	CAWA-19-175207
275876	R-69 S1	1310.0	04/26/2019	WG	Specific Conductance	118.0	µS/cm	CAWA-19-171788
268511	R-69 S1	1310.0	03/26/2019	WG	Specific Conductance	118.8	µS/cm	CAWA-19-167658
264903	R-69 S1	1310.0	01/31/2019	WG	Specific Conductance	119.2	µS/cm	CACV-19-166501
—	R-69 S1	1310.0	12/10/2019	WG	Temperature	14.4	deg C	CAMO-20-190683
—	R-69 S1	1310.0	11/19/2019	WG	Temperature	14.9	deg C	CAMO-20-189180
301942	R-69 S1	1310.0	10/30/2019	WG	Temperature	14.5	deg C	CAMO-20-188402
295734	R-69 S1	1310.0	09/30/2019	WG	Temperature	15.2	deg C	CAWA-19-188270
290678	R-69 S1	1310.0	08/21/2019	WG	Temperature	15.8	deg C	CAWA-19-183991
288072	R-69 S1	1310.0	07/29/2019	WG	Temperature	15.1	deg C	CAWA-19-182850
281404	R-69 S1	1310.0	06/05/2019	WG	Temperature	15.5	deg C	CAWA-19-181339
280095	R-69 S1	1310.0	05/22/2019	WG	Temperature	14.7	deg C	CAWA-19-175207
275877	R-69 S1	1310.0	04/26/2019	WG	Temperature	14.5	deg C	CAWA-19-171788

Field Measurement Record #	Location ID	Screen Depth (ft bgs)	Measurement Date	PMR Sample Type	Field Parameter	Field Measurement	Measurement Units	Field Sample ID
268534	R-69 S1	1310.0	03/26/2019	WG	Temperature	15.1	deg C	CAWA-19-167658
264904	R-69 S1	1310.0	01/31/2019	WG	Temperature	14.3	deg C	CACV-19-166501
—	R-69 S1	1310.0	12/10/2019	WG	Turbidity	0.7	NTU	CAMO-20-190683
—	R-69 S1	1310.0	11/19/2019	WG	Turbidity	0.6	NTU	CAMO-20-189180
301944	R-69 S1	1310.0	10/30/2019	WG	Turbidity	0.8	NTU	CAMO-20-188402
295773	R-69 S1	1310.0	09/30/2019	WG	Turbidity	0.7	NTU	CAWA-19-188270
290705	R-69 S1	1310.0	08/21/2019	WG	Turbidity	0.6	NTU	CAWA-19-183991
288074	R-69 S1	1310.0	07/29/2019	WG	Turbidity	0.4	NTU	CAWA-19-182850
281406	R-69 S1	1310.0	06/05/2019	WG	Turbidity	0.5	NTU	CAWA-19-181339
280097	R-69 S1	1310.0	05/22/2019	WG	Turbidity	0.4	NTU	CAWA-19-175207
275879	R-69 S1	1310.0	04/26/2019	WG	Turbidity	1.9	NTU	CAWA-19-171788
268536	R-69 S1	1310.0	03/26/2019	WG	Turbidity	1.6	NTU	CAWA-19-167658
264958	R-69 S1	1310.0	01/31/2019	WG	Turbidity	0.6	NTU	CACV-19-166501
308424	R-69 S2	1375.5	12/10/2019	WG	Dissolved Oxygen	6.65	mg/L	CAWA-20-190751
295820	R-69 S2	1375.5	09/30/2019		Dissolved Oxygen	6.02	mg/L	CAWA-19-188271
290556	R-69 S2	1375.5	08/21/2019	WG	Dissolved Oxygen	5.96	mg/L	CAWA-19-183975
288077	R-69 S2	1375.5	07/29/2019	WG	Dissolved Oxygen	6.23	mg/L	CAWA-19-182851
281618	R-69 S2	1375.5	06/06/2019	WG	Dissolved Oxygen	6.64	mg/L	CAWA-19-181343
279992	R-69 S2	1375.5	05/22/2019	WG	Dissolved Oxygen	5.62	mg/L	CAWA-19-175208
275955	R-69 S2	1375.5	04/26/2019	WG	Dissolved Oxygen	5.65	mg/L	CAWA-19-171791
268488	R-69 S2	1375.5	03/26/2019	WG	Dissolved Oxygen	6.10	mg/L	CAWA-19-167663
265750	R-69 S2	1375.5	02/13/2019	WG	Dissolved Oxygen	5.69	mg/L	CACV-19-166844
257055	R-69 S2	1375.5	11/12/2018	WG	Dissolved Oxygen	2.99	mg/L	CACV-19-164732
257061	R-69 S2	1375.5	11/12/2018	WG	Dissolved Oxygen	3.06	mg/L	CACV-19-164733
295819	R-69 S2	1375.5	09/30/2019	WG	Flow (in gpm)	6.98	gpm	CAWA-19-188271
290555	R-69 S2	1375.5	08/21/2019	WG	Flow (in gpm)	7.32	gpm	CAWA-19-183975
288076	R-69 S2	1375.5	07/29/2019	WG	Flow (in gpm)	7.50	gpm	CAWA-19-182851

Field Measurement Record #	Location ID	Screen Depth (ft bgs)	Measurement Date	PMR Sample Type	Field Parameter	Field Measurement	Measurement Units	Field Sample ID
281617	R-69 S2	1375.5	06/06/2019	WG	Flow (in gpm)	7.32	gpm	CAWA-19-181343
280017	R-69 S2	1375.5	05/22/2019	WG	Flow (in gpm)	7.50	gpm	CAWA-19-175208
275954	R-69 S2	1375.5	04/26/2019	WG	Flow (in gpm)	7.50	gpm	CAWA-19-171791
268468	R-69 S2	1375.5	03/26/2019	WG	Flow (in gpm)	7.50	gpm	CAWA-19-167663
295855	R-69 S2	1375.5	09/30/2019	WG	Oxidation-Reduction Potential	99.9	mV	CAWA-19-188271
308426	R-69 S2	1375.5	12/10/2019	WG	Oxidation-Reduction Potential	151.1	mV	CAWA-20-190751
290558	R-69 S2	1375.5	08/21/2019	WG	Oxidation-Reduction Potential	283.4	mV	CAWA-19-183975
288079	R-69 S2	1375.5	07/29/2019	WG	Oxidation-Reduction Potential	259.1	mV	CAWA-19-182851
281620	R-69 S2	1375.5	06/06/2019	WG	Oxidation-Reduction Potential	175.9	mV	CAWA-19-181343
279994	R-69 S2	1375.5	05/22/2019	WG	Oxidation-Reduction Potential	96.6	mV	CAWA-19-175208
275999	R-69 S2	1375.5	04/26/2019	WG	Oxidation-Reduction Potential	94.5	mV	CAWA-19-171791
268490	R-69 S2	1375.5	03/26/2019	WG	Oxidation-Reduction Potential	79.4	mV	CAWA-19-167663
265752	R-69 S2	1375.5	02/13/2019	WG	Oxidation-Reduction Potential	197.7	mV	CACV-19-166844
257056	R-69 S2	1375.5	11/12/2018	WG	Oxidation-Reduction Potential	281.3	mV	CACV-19-164732
257062	R-69 S2	1375.5	11/12/2018	WG	Oxidation-Reduction Potential	274.4	mV	CACV-19-164733
295857	R-69 S2	1375.5	09/30/2019	WG	pH	7.6	SU	CAWA-19-188271
308427	R-69 S2	1375.5	12/10/2019	WG	pH	7.6	SU	CAWA-20-190751
290601	R-69 S2	1375.5	08/21/2019	WG	pH	7.6	SU	CAWA-19-183975
288085	R-69 S2	1375.5	07/29/2019	WG	pH	7.6	SU	CAWA-19-182851
281579	R-69 S2	1375.5	06/06/2019	WG	pH	7.5	SU	CAWA-19-181343
279996	R-69 S2	1375.5	05/22/2019	WG	pH	7.5	SU	CAWA-19-175208
276001	R-69 S2	1375.5	04/26/2019	WG	pH	7.6	SU	CAWA-19-171791
268470	R-69 S2	1375.5	03/26/2019	WG	pH	7.6	SU	CAWA-19-167663
265756	R-69 S2	1375.5	02/13/2019	WG	pH	7.6	SU	CACV-19-166844
257060	R-69 S2	1375.5	11/12/2018	WG	pH	7.7	SU	CACV-19-164732
257066	R-69 S2	1375.5	11/12/2018	WG	pH	7.8	SU	CACV-19-164733
295821	R-69 S2	1375.5	09/30/2019	WG	Specific Conductance	119.3	µS/cm	CAWA-19-188271

Field Measurement Record #	Location ID	Screen Depth (ft bgs)	Measurement Date	PMR Sample Type	Field Parameter	Field Measurement	Measurement Units	Field Sample ID
308428	R-69 S2	1375.5	12/10/2019	WG	Specific Conductance	118.5	µS/cm	CAWA-20-190751
290603	R-69 S2	1375.5	08/21/2019	WG	Specific Conductance	119.5	µS/cm	CAWA-19-183975
288081	R-69 S2	1375.5	07/29/2019	WG	Specific Conductance	119.8	µS/cm	CAWA-19-182851
281581	R-69 S2	1375.5	06/06/2019	WG	Specific Conductance	119.4	µS/cm	CAWA-19-181343
280033	R-69 S2	1375.5	05/22/2019	WG	Specific Conductance	119.9	µS/cm	CAWA-19-175208
276003	R-69 S2	1375.5	04/26/2019	WG	Specific Conductance	120.5	µS/cm	CAWA-19-171791
268491	R-69 S2	1375.5	03/26/2019	WG	Specific Conductance	120.9	µS/cm	CAWA-19-167663
265753	R-69 S2	1375.5	02/13/2019	WG	Specific Conductance	119.9	µS/cm	CACV-19-166844
257057	R-69 S2	1375.5	11/12/2018	WG	Specific Conductance	118.8	µS/cm	CACV-19-164732
257063	R-69 S2	1375.5	11/12/2018	WG	Specific Conductance	118.8	µS/cm	CACV-19-164733
295822	R-69 S2	1375.5	09/30/2019	WG	Temperature	15.6	deg C	CAWA-19-188271
308429	R-69 S2	1375.5	12/10/2019	WG	Temperature	13.8	deg C	CAWA-20-190751
290604	R-69 S2	1375.5	08/21/2019	WG	Temperature	15.6	deg C	CAWA-19-183975
288082	R-69 S2	1375.5	07/29/2019	WG	Temperature	15.5	deg C	CAWA-19-182851
281582	R-69 S2	1375.5	06/06/2019	WG	Temperature	15.3	deg C	CAWA-19-181343
280034	R-69 S2	1375.5	05/22/2019	WG	Temperature	15.1	deg C	CAWA-19-175208
276004	R-69 S2	1375.5	04/26/2019	WG	Temperature	15.0	deg C	CAWA-19-171791
268492	R-69 S2	1375.5	03/26/2019	WG	Temperature	15.3	deg C	CAWA-19-167663
265754	R-69 S2	1375.5	02/13/2019	WG	Temperature	15.1	deg C	CACV-19-166844
257058	R-69 S2	1375.5	11/12/2018	WG	Temperature	14.8	deg C	CACV-19-164732
257064	R-69 S2	1375.5	11/12/2018	WG	Temperature	14.8	deg C	CACV-19-164733
295824	R-69 S2	1375.5	09/30/2019	WG	Turbidity	0.3	NTU	CAWA-19-188271
308430	R-69 S2	1375.5	12/10/2019	WG	Turbidity	0.6	NTU	CAWA-20-190751
290559	R-69 S2	1375.5	08/21/2019	WG	Turbidity	0.5	NTU	CAWA-19-183975
288084	R-69 S2	1375.5	07/29/2019	WG	Turbidity	0.3	NTU	CAWA-19-182851
281622	R-69 S2	1375.5	06/06/2019	WG	Turbidity	0.6	NTU	CAWA-19-181343
280036	R-69 S2	1375.5	05/22/2019	WG	Turbidity	0.7	NTU	CAWA-19-175208

Field Measurement Record #	Location ID	Screen Depth (ft bgs)	Measurement Date	PMR Sample Type	Field Parameter	Field Measurement	Measurement Units	Field Sample ID
275958	R-69 S2	1375.5	04/26/2019	WG	Turbidity	0.5	NTU	CAWA-19-171791
268472	R-69 S2	1375.5	03/26/2019	WG	Turbidity	0.9	NTU	CAWA-19-167663
265755	R-69 S2	1375.5	02/13/2019	WG	Turbidity	92.9	NTU	CACV-19-166844
257059	R-69 S2	1375.5	11/12/2018	WG	Turbidity	0.7	NTU	CACV-19-164732
257065	R-69 S2	1375.5	11/12/2018	WG	Turbidity	0.8	NTU	CACV-19-164733

^a WG = Groundwater.

^b gpm = Gallons per minute.

^c mV = Millivolt.

^d SU = Standard unit.

^e NTU = Nephelometric turbidity unit.

^f WS = Base flow surface water.

^g — = Not applicable. Missing field measurement record numbers were not assigned for flow, dissolved oxygen, oxidation-reduction potential, pH, specific conductance, temperature, or turbidity field parameters at this location. Data are from the field notes.

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 (4) background value sources 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 terms in the lists.

Acronyms and Abbreviations

Acronym, Abbreviation, or Symbol	Description
Miscellaneous	
%	percent
%D	percent difference
%R	percent recovery
%RSD	percent relative 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	Contract Laboratory Program
CRDL	contract-required detection limit
CRI	CDRL check standard
DCG	Derived Concentration Guide (DOE)
DDE	dichlorodiphenyldichloroethylene
DNX	dinitroso-RDX
DOE	Department of Energy (U.S.)
DQO	data quality objective
EPA	Environmental Protection Agency (U.S.)
GC	gas chromatography
GC/MS	gas chromatography/mass spectrometry
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
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
MS	matrix spike
MSD	matrix spike duplicate
N3B	Newport News Nuclear BWXT-Los Alamos, LLC
NM	New Mexico
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	Royal Demolition Explosive
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
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
Lab Sample Type Codes	
CS	client sample
DL	dilution
DUP	duplicate
INIT	initial
RE	reanalysis
REDL	reanalysis dilution
REDP	reanalysis duplicate
RI	reissue
TRP	triplicate
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

Acronyms and Abbreviations (continued)

Acronym, Abbreviation, or Symbol	Description
Field QC Type Codes (continued)	
PEB	performance evaluation blank
PEK	performance evaluation known
REG	regular
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	
DIOX/FUR, Diox/Fur	dioxins and furans
DRO	diesel range organics
Geninorg, GENINORG, General Chemistry	general inorganics
GRO	gasoline range organics
HERB	herbicides
HEXP	high explosives
INORGANIC	inorganics
ISOTOPE, Isotope	isotope ratios
LCMS/MS	liquid chromatography mass spectrometry/mass spectrometry
METALS, Metals	metals
PEST/PCB, PESTPCB	pesticides and PCBs
RAD, Rad	radiochemistry
SVOC, SVOA	semivolatile organic compounds
VOC, VOA	volatile organic compounds
Detect Flag and Best Value Flag Codes	
N	no
Y	yes
Lab Codes	
ALTC	Alta Analytical Laboratory, Inc., San Diego, CA
ARSL	American Radiation Services, Inc.
CFA	Cape Fear Analytical, LLC, Wilmington, NC, Division of the GEL Group, Inc., Charleston SC
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

Acronyms and Abbreviations (continued)

Acronym, Abbreviation, or Symbol	Description
Lab Codes (continued)	
GELC	General Engineering Laboratories, LLC, Division of the GEL Group, Inc., Charleston, SC (used in Environmental Information Management data base)
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

Note: A combination of analytical laboratory qualifier codes means that several codes apply.

Analytical Laboratory Qualifiers

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 Qualifiers (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.
JQ	See J code and see Q 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.
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or data exception report.
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 Qualifiers (continued)

Code	Description
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	Consult case narrative, data summary package, or project manager concerning the qualifier.

Validation Qualifiers

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.

Background Values

Symbol	Background Values
—	No background values available
*i	Intermediate 95% background level reported in the “Groundwater Background Investigation Report, Revision 5” (LANL 2016, 601920)
*r	Regional 95% background level reported in the “Groundwater Background Investigation Report, Revision 5” (LANL 2016, 601920)

Note: Background values in Table C-1 are upper tolerance limits reported in the “Groundwater Background Investigation Report, Revision 5” (LANL 2016, 601920) unless otherwise noted.

REFERENCE

The following reference list includes documents cited in this appendix. Parenthetical information following each reference provides the author(s), publication date, and ERID, ESHID, or EMID. This information is also included in text citations. ERIDs were assigned by Los Alamos National Laboratory (LANL) Associate Directorate for Environmental Management (IDs through 599999); ESHIDs were assigned by the Laboratory’s Associate Directorate for Environment, Safety, and Health (IDs 600000 through 699999); and EMIDs are assigned by N3B (IDs 700000 and above). IDs are used to locate documents in N3B’s Records Management System and in the Master Reference Set. The New Mexico Environment Department (NMED) Hazardous Waste Bureau and N3B maintain copies of the Master Reference Set. The set ensures that NMED has the references to review documents. The set is updated when new references are cited in documents.

LANL (Los Alamos National Laboratory), October 27, 2016. “Groundwater Background Investigation Report, Revision 5,” Los Alamos National Laboratory document LA-UR-16-27907, Los Alamos, New Mexico. (LANL 2016, 601920)

Table C-1 Analytical Results from the Periodic Monitoring Events Reported in this Periodic Monitoring Report

Table with 24 columns: Location ID, Screen Depth (ft), Sample Date, Field Matrix, Field Preparation Code, Analysis Type Code, Field Quality Control Code, Analysis Suite, Lab Method, Parameter Name, Parameter Code, Detected, Report Result, Uncertainty, Screening Value, Background, Report Unit, Report MDA, Report MDL, Best Value, Lab Qualifier, Validation Qualifier, COC #, Field Sample ID, Lab. Rows include data for various locations like 16-61439 and Bulldog Spring, covering parameters such as VOCs, inorganics, and explosives.

Table C-1 Analytical Results from the Periodic Monitoring Events Reported in this Periodic Monitoring Report

Table with 24 columns: Location ID, Screen Depth (ft), Sample Date, Field Matrix, Field Preparation Code, Analysis Type Code, Field Quality Control Code, Analysis Suite, Lab Method, Parameter Name, Parameter Code, Detected, Report Result, Uncertainty, Screening Value, Background, Report Unit, Report MDA, Report MDL, Best Value, Lab Qualifier, Validation Qualifier, COC #, Field Sample ID, Lab. The table lists numerous analytical results for various parameters such as VOCs, explosives, and metals across multiple samples.

Table C-1 Analytical Results from the Periodic Monitoring Events Reported in this Periodic Monitoring Report

Table with 23 columns: Location ID, Screen Depth (ft), Sample Date, Field Matrix, Field Preparation Code, Analysis Type Code, Field Quality Control Code, Analysis Suite, Lab Method, Parameter Name, Parameter Code, Detected, Report Result, Uncertainty, Screening Value, Background, Report Unit, Report MDA, Report MDL, Best Value, Lab Qualifier, Validation Qualifier, COC #, Field Sample ID, Lab. The table contains 75 rows of analytical data for various chemical parameters across multiple monitoring events.

Table C-1 Analytical Results from the Periodic Monitoring Events Reported in this Periodic Monitoring Report

Table with 25 columns: Location ID, Screen Depth (ft), Sample Date, Field Matrix, Field Preparation Code, Analysis Type Code, Field Quality Control Code, Analysis Suite, Lab Method, Parameter Name, Parameter Code, Detected, Report Result, Uncertainty, Screening Value, Background, Report Unit, Report MDA, Report MDL, Best Value, Lab Qualifier, Validation, COC #, Field Sample ID, Lab. Rows include various chemical analyses such as Chloride, VOCs, Inorganics, and Explosives.

Table C-1 Analytical Results from the Periodic Monitoring Events Reported in this Periodic Monitoring Report

Table with 23 columns: Location ID, Screen Depth (ft), Sample Date, Field Matrix, Field Preparation Code, Analysis Type Code, Field Quality Control Code, Analysis Suite, Lab Method, Parameter Name, Parameter Code, Detected, Report Result, Uncertainty, Screening Value, Background, Report Unit, Report MDA, Report MDL, Best Value, Lab Qualifier, Validation Qualifier, COC #, Field Sample ID, Lab. The table contains 100 rows of analytical data for various parameters like VOCs, Inorganics, and Explosives.

Table C-1 Analytical Results from the Periodic Monitoring Events Reported in this Periodic Monitoring Report

Table with 24 columns: Location ID, Screen Depth (ft), Sample Date, Field Matrix, Field Preparation Code, Analysis Type Code, Field Quality Control Code, Analysis Suite, Lab Method, Parameter Name, Parameter Code, Detected, Report Result, Uncertainty, Screening Value, Background, Report Unit, Report MDA, Report MDL, Best Value, Lab Qualifier, Validation Qualifier, COC #, Field Sample ID, Lab. Rows include data for various parameters like explosives, PFAS, and VOCs.

Table C-1 Analytical Results from the Periodic Monitoring Events Reported in this Periodic Monitoring Report

Table with 24 columns: Location ID, Screen Depth (ft), Sample Date, Field Matrix, Field Preparation Code, Analysis Type Code, Field Quality Control Code, Analysis Suite, Lab Method, Parameter Name, Parameter Code, Detected, Report Result, Uncertainty, Screening Value, Background, Report Unit, Report MDA, Report MDL, Best Value, Lab Qualifier, Validation Qualifier, COC #, Field Sample ID, Lab. Rows include various chemical analyses such as VOCs, explosives, and metals.

Table C-1 Analytical Results from the Periodic Monitoring Events Reported in this Periodic Monitoring Report

Table with 25 columns: Location ID, Screen Depth (ft), Sample Date, Field Matrix, Field Preparation Code, Analysis Type Code, Field Quality Control Code, Analysis Suite, Lab Method, Parameter Name, Parameter Code, Detected, Report Result, Uncertainty, Screening Value, Background, Report Unit, Report MDA, Report MDL, Best Value, Lab Qualifier, Validation Qualifier, COC #, Field Sample ID, Lab. Rows include various VOCs, Inorganics, and Chlorinated compounds.

Table C-1 Analytical Results from the Periodic Monitoring Events Reported in this Periodic Monitoring Report

Table with 25 columns: Location ID, Screen Depth (ft), Sample Date, Field Matrix, Field Preparation Code, Analysis Type Code, Field Quality Control Code, Analysis Suite, Lab Method, Parameter Name, Parameter Code, Detected, Report Result, Uncertainty, Screening Value, Background, Report Unit, Report MDA, Report MDL, Best Value, Lab Qualifier, Validation Qualifier, COC #, Field Sample ID, Lab. Rows include various chemical analysis results for VOCs, explosives, and inorganics.

Table C-1 Analytical Results from the Periodic Monitoring Events Reported in this Periodic Monitoring Report

Table with 24 columns: Location ID, Screen Depth (ft), Sample Date, Field Matrix, Field Preparation Code, Analysis Type Code, Field Quality Control Code, Analysis Suite, Lab Method, Parameter Name, Parameter Code, Detected, Report Result, Uncertainty, Screening Value, Background, Report Unit, Report MDA, Report MDL, Best Value, Lab Qualifier, Validation Qualifier, COC #, Field Sample ID, Lab. Rows include various chemical analyses such as Alkalinity-CO3, Ammonia as Nitrogen, Antimony, Arsenic, Barium, Benzene, Beryllium, Boron, Bromide, Bromobenzene, Bromochloromethane, Bromodichloromethane, Bromoform, Bromomethane, Butanol, Butanone, Butylbenzene, Cadmium, Calcium, Carbon Disulfide, Carbon Tetrachloride, Chloride, Chloro-1,3-butadiene, Chloro-1-propene, and Chlorobenzene.

Table C-1 Analytical Results from the Periodic Monitoring Events Reported in this Periodic Monitoring Report

Table with 24 columns: Location ID, Screen Depth (ft), Sample Date, Field Matrix, Field Preparation Code, Analysis Type Code, Field Quality Control Code, Analysis Suite, Lab Method, Parameter Name, Parameter Code, Detected, Report Result, Uncertainty, Screening Value, Background, Report Unit, Report MDA, Report MDL, Best Value, Lab Qualifier, Validation Qualifier, COC #, Field Sample ID, Lab. Rows include various chemical analyses such as Tris (o-cresyl) phosphate, Vinyl acetate, Vinyl Chloride, Xylene, 2,4-Diamino-6-nitrotoluene, 2,6-Diamino-4-nitrotoluene, 3,5-Dinitroaniline, Acenaphthene, Acenaphthylene, Acetone, Acetonitrile, Acidity or Alkalinity of a solution, Acrolein, Acrylonitrile, Alkalinity-CO3, Alkalinity-CO3+HCO3, Aluminum, Amino-2,6-dinitrotoluene, Amino-4,6-dinitrotoluene, Ammonia as Nitrogen, Aniline, Anthracene, Antimony, Arsenic, Atrazine, Azobenzene, Barium, Benzene, Benzidine, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, Benzoic Acid, Benzyl Alcohol, Beryllium, Bis(2-chloroethoxy)methane, Bis(2-chloroethyl)ether, Bis(2-ethylhexyl)phthalate, Boron, Bromide, Bromobenzene, Bromochloromethane, Bromodichloromethane, Bromoform, Bromomethane, Bromophenyl-phenylether, Butanol[1-], Butanone[2-], Butylbenzene[n-], Butylbenzene[sec-], Butylbenzene[tert-], Butylbenzylphthalate, Cadmium, Calcium, Carbon Disulfide, Carbon Tetrachloride.

Table C-1 Analytical Results from the Periodic Monitoring Events Reported in this Periodic Monitoring Report

Table with 24 columns: Location ID, Screen Depth (ft), Sample Date, Field Matrix, Field Preparation Code, Analysis Type Code, Field Quality Control Code, Analysis Suite, Lab Method, Parameter Name, Parameter Code, Detected, Report Result, Uncertainty, Screening Value, Background, Report Unit, Report MDA, Report MDL, Best Value, Lab Qualifier, Validation Qualifier, COC #, Field Sample ID, Lab. The table contains 100 rows of analytical data.

Table C-1 Analytical Results from the Periodic Monitoring Events Reported in this Periodic Monitoring Report

Table with 25 columns: Location ID, Screen Depth (ft), Sample Date, Field Matrix, Field Preparation Code, Analysis Type Code, Field Quality Control Code, Analysis Suite, Lab Method, Parameter Name, Parameter Code, Detected, Report Result, Uncertainty, Screening Value, Background, Report Unit, Report MDA, Report MDL, Best Value, Lab Qualifier, Validation Qualifier, COC #, Field Sample ID, Lab. Rows include data for various chemical parameters like Ammonia as Nitrogen, Aroclor, Benzene, and others.

