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Lawrence Livermore National Security, LLC, Livermore, California 94551

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2018 Annual
Compliance Monitoring Report
Lawrence Livermore National Laboratory
Site 300

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March 2019

***Weiss Associates, Emeryville, California**

Environmental Restoration Department

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1. Introduction

This Compliance Monitoring Report (CMR) summarizes the Lawrence Livermore National Laboratory (LLNL) Site 300 Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Remedial Action compliance monitoring activities performed during January through December 2018. The report is submitted in compliance with the Compliance Monitoring Plan (CMP)/Contingency Plan (CP) for Environmental Restoration at Lawrence Livermore National Laboratory Site 300 (Dibley et al., 2009a) and CMP/CP Addendum (MacQueen et al., 2013). Compliance monitoring activities performed during January through June 2018 were summarized in the First Semester 2018 CMR (Buscheck et al., 2018).

During 2018, approximately 8.3 million gallons (gal) of groundwater and 83 million cubic feet (cf) of soil vapor were treated at Site 300, removing approximately 7.2 kilograms (kg) of volatile organic compounds (VOCs), 72 grams (g) of perchlorate, 1,500 kg of nitrate, 280 g of Research Department Explosive (RDX), 7.9 g of a mixture of tetrabutyl orthosilicate (TBOS) and tetrakis (2-ethylbutyl) silane (TKEBS) and 31 g of uranium (Table Summ-1).

Since remediation began in 1991, approximately 458 million gallons of groundwater and over 1.2 billion cf of soil vapor have been treated, removing approximately 630 kg of VOCs, 1.7 kg of perchlorate, 20,000 kg of nitrate, 2.7 kg of RDX, 9.5 kg of TBOS/TKEBS, and 0.087 kg of uranium (Table Summ-2).

2. Extraction and Treatment System Monitoring and Ground and Surface Water Monitoring Programs

Section 2 presents the monitoring results for the Site 300 remediation systems, groundwater monitoring network, and surface water sampling and analyses. These results are presented and discussed by operable unit (OU) as follows:

- Section 2.1., General Services Area (GSA) (OU 1)
- Section 2.2., Building 834 (OU 2)
- Section 2.3., Pit 6 Landfill (OU 3)
- Section 2.4., High Explosives Process Area (HEPA) (OU 4)
- Section 2.5., Building 850/Pit 7 Complex (OU 5)
- Section 2.6., Building 854 (OU 6)
- Section 2.7., Building 832 Canyon (OU 7)
- Section 2.8., Site-Wide (OU 8) (Building 833, Building 801/Pit 8, Building 845/Pit 9, and Building 851)

The locations of the Site 300 OUs 1 through 8 are shown on Figure 2-1.

Section 3 presents the detection monitoring results and inspection and maintenance summaries for the Pit 2, 3, 4, 5, 6, 7, 8, and 9 Landfills (OU 8).

Treatment facility operations and maintenance issues that occurred during the second semester of 2018 and influent and effluent analytical data collected during the second semester of 2018 are included in this report. Treatment facility pH data collected during the second semester of 2018 are presented in Appendix A. Ground and surface water monitoring analytical data and groundwater elevation measurements for the entire calendar year 2018 are presented in Appendices B and C, respectively.

The completed Institutional Controls Monitoring Checklist for 2018 is presented in Appendix D. Details pertaining to six new wells installed and ten wells decommissioned (closed) during 2018 are presented in Table 2-1. A list of acronyms and abbreviations is located in Section 8 of this report.

Total VOC isoconcentration contour maps were constructed by contouring the sum of the results of the following VOCs: trichloroethene (TCE); tetrachloroethene (PCE); cis-1,2-dichloroethene (cis-1,2-DCE); trans-1,2-dichloroethene (trans-1,2-DCE); carbon tetrachloride (CTET); chloroform (CFORM); 1,1-dichloroethane (1,1-DCA); 1,2-dichloroethane (1,2-DCA); 1,1-dichloroethene (1,1-DCE); 1,1,1-trichloroethane (1,1,1-TCA); trichlorofluoromethane (Freon 11); 1,1,2-trichloro-1,2,2-trifluoroethane (Freon 113); 1,1,2-trichloroethane (1,1,2-TCA); and vinyl chloride. The individual VOCs that make up these total VOC concentrations are also posted on these maps. VOC concentrations presented in the text are the sum total of the VOCs described above unless a specific VOC is cited. Isoconcentration contour maps and post-only maps for the primary contaminants of concern (COCs) were constructed using second semester 2018 data. Isoconcentration contour maps and post-only maps for the secondary COCs were constructed using first semester 2018 data. To create a snapshot in time, hydraulic capture zones and extents of saturation are based on groundwater elevation data collected during the same semester as the COC data. For collocated wells, the highest concentration was used for contouring.

As a result, in some rare instances, the maximum COC concentrations reported in the text might not agree with the value posted on the contour map. The two values would not agree if the annual maximum concentration sample was collected during a different semester. The two values would also not agree if the maximum concentration sample was collected during the same semester, but during a different quarter. All COC and groundwater elevation maps were constructed using a single quarterly sampling data set selected, because it contained the most complete geographic coverage for the six-month reporting period. Specific groundwater monitoring data are discussed within each OU section and (1) all groundwater analytical data are included in the data tables presented in Appendix B and (2) groundwater elevation data are included in the data tables presented in Appendix C.

Hydraulic capture and injection zones are also presented in this report. The capture zones are defined only for extraction and injection wells that were active during the time period when the groundwater elevations were measured. The capture zones are based primarily on the equipotentials for the groundwater elevation contour maps presented in this CMR. These equipotential-based CMR capture zones may also differ from the capture zones presented in the Site-Wide Remediation Evaluation Summary Report (SWESR) (Ferry et al., 2006), because the SWESR capture zones were estimated using computer models such as Winflow or Finite Element subsurface FLOW system. As a general rule, the CMR capture zones were extended to two upgradient groundwater elevation contours. For cases where there were few observation wells located nearby, a Thiem solution for steady-state radial flow in the vicinity of a pumping well was used to control the groundwater elevation contours. In accordance with the 2009 CMP/CP requirements, hydraulic capture and injection zones are displayed on groundwater elevation contour maps, and primary and secondary COC isoconcentration contour maps, in this annual CMR for all OUs where active groundwater remediation was occurring in 2018 (i.e., OU 2, OU 4, OU5, OU 6, and OU 7). Capture zones are not depicted on the OU 1 water elevation and COC contour maps, as no active remediation occurred there in 2018. As previously

mentioned, hydraulic capture zones are based on groundwater elevation data that were collected during the same semester that the COC data were collected

In this report, concentrations for most compounds are reported in micrograms per liter (µg/L). The primary exception is nitrate, which is reported throughout this report in milligrams per liter (mg/L) as NO_3.

2.1. General Services Area (OU 1)

The General Services Area OU consists of the Eastern and Central GSA areas.

Eastern General Services Area

The source of contamination in the Eastern GSA was abandoned debris burial trenches that received craft shop debris. Leaching of solvents in the debris resulted in the release of VOCs to groundwater.

A groundwater extraction and treatment system operated in the Eastern GSA from 1991 to 2007 to remove VOCs from groundwater. VOC-contaminated groundwater was extracted from three wells, W-26R-03, W-25N-01, and W-25N-24, located downgradient of the debris burial trenches at a combined average flow rate of 45 gallons per minute (gpm).

Remediation efforts in the Eastern GSA successfully reduced concentrations of trichloroethene (TCE) and other VOCs in groundwater to below their respective Maximum Contaminant Level (MCL) cleanup standards set in the GSA Record of Decision (ROD) (United States [U.S.] Department of Energy [DOE], 1997). The Eastern GSA groundwater extraction and treatment system was shut off on February 15, 2007 with approval from the U.S. Environmental Protection Agency (EPA), Central Valley Regional Water Quality Control Board (RWQCB), and California Department of Toxic Substances Control (DTSC). As required by the GSA ROD, groundwater monitoring was conducted for five years after treatment facility shutdown to determine if VOC concentrations increased or "rebounded" above MCL cleanup standards. The results of this monitoring indicated that VOC concentrations had remained below MCL cleanup standards during the five-year post-shutdown monitoring period. These results were presented at the February 24, 2012 Remedial Project Managers (RPM) meeting. The regulatory agencies agreed that cleanup of the Eastern GSA was complete, monitoring and reporting could cease, and close-out documentation should be submitted. The final close-out document was submitted to the regulatory agencies on June 26, 2017 (Ferry et al., 2017).

During the second semester of 2018, 11 monitor wells in the Eastern GSA area were decommissioned as part of close-out activities for the Eastern GSA area (Ferry et al., 2017). Details regarding these decommissioned wells are included in Table 2.1. In consultation with the regulatory agencies, the decision was made to sample Eastern GSA monitor well W-25M-01, located downgradient of the former Navy Fire Suppression Area, for flame retardant Per- and Polyfluoroalkyl Substances (PFAS) prior to the well's decommissioning. The well was sampled for PFAS on September 11, 2018. Concentrations of PFAS in the routine and duplicate sample from the well were all well below reporting limits, with two exceptions. Total perfluorooctanoic acid (PFOA) was detected in the routine and duplicate samples at 3.2 and 2.8 parts per trillion (ppt), respectively. Total perfluorohexanesulfonic acid was detected in routine and duplicate samples at 7.6 and 7.8 ppt, respectively. Currently, there are no regulatory levels for perfluorohexanesulfonic acid. None of the nineteen PFAS analytes were detected in rinseate, field blank, or trip blank samples. All PFAS detected

concentrations or reporting limits were below the California Division of Drinking Water notification level of 14 ppt for perfluorooctanoic acid (PFOA) and 13 ppt for perfluorooctanesulfonic acid (PFOS), the California Response Level of 70 ppt total PFOA and PFOS, and the EPA's health advisory level of 70 ppt for total PFOA and PFOS. The results are discussed in detail in Appendix E. Based on these PFAS data, in an e-mail sent to DOE/LLNL on November 9, 2018, the Central Valley RWQCB stated that they had no objection to decommissioning monitor well W-25M-01. The U.S. EPA and DTSC concurred by e-mail on December 4, 2018. Monitor well W-25M-01 and one additional Eastern GSA monitor well are scheduled to be decommissioned during the second semester of 2019.

Central General Services Area

At the Central GSA (CGSA), chlorinated solvents, primarily TCE, were historically used as degreasing agents in craft shops, such as Building 875. Rinse water from these degreasing operations was disposed in dry wells. Typically, the dry wells were gravel-filled borings that measured approximately three to four feet (ft) deep and two ft in diameter. The CGSA dry wells were used until 1982; in 1983 and 1984, these dry wells were decommissioned and excavated.

The CGSA groundwater treatment system (GWTS) has been operating since 1992, removing VOCs from groundwater. The CGSA GWTS has been off line for planned system and wellfield upgrades since December 2016. The upgrades are described in Section 2.1.1.5. Some testing of the system upgrades occured during this reporting period, and the system is expected to be fully operational during the first semester of 2019. The CGSA GWTS normally treats water from the Building 830-Distal South (830-DISS) facility, but since the CGSA GWTS was nonoperational except for testing, the 830-DISS facility only operated for a short period. The current CGSA GWTS configuration includes particulate filtration, air stripping to remove VOCs from extracted water, and granular activated carbon (GAC) to treat vapor effluent from the air stripper. Treated groundwater is discharged to the surrounding natural vegetation using misting towers. A map of the CGSA showing the locations of monitor and extraction wells, and treatment facilities is presented on Figure 2.1-1.

The CGSA soil vapor treatment system (SVTS) began operation in 1994, adjacent to the Building 875 dry well contaminant source area, removing VOCs from soil vapor. The soil vapor extraction (SVE) and treatment system had been off line for system upgrades since December 2016, but became operational in September 2018. The soil vapor extraction wellfield now consists of six wells (W-7I, W-875-07, W-875-08, W-875-09, W-875-11, and W-875-15) with an estimated combined total flow rate of approximately 23 to 28 standard cubic feet per minute (scfm). Extraction well W-7I was taken off line in November, because the well's screen was below the water table, thus preventing vapor extraction. When the CGSA GWTS is operational, simultaneous groundwater extraction in the vicinity lowers the elevation of the water table and maximizes the volume of unsaturated soil influenced by vapor extraction. The SVTS configuration includes a water knockout chamber, a rotary vane blower, and four 140-pound vapor-phase GAC columns arranged in series. Treated vapors are discharged to the atmosphere under a regulatory permit from the San Joaquin Valley Air Pollution Control District (SJVAPCD).

As discussed in the 2016 Annual CMR (Buscheck et al., 2017a), the plan to convert the CGSA-North groundwater extraction and treatment system to an extraction-only system was approved and completed on October 17, 2017. Water at the former CGSA-North GWTS is extracted from the single extraction well, W-CGSA-2708, and collected in a portable tank. When CGSA GWTS upgrades

are complete, the extracted water in the tank will be transferred to the CGSA GWTS for treatment and disposal once the tank becomes full.

2.1.1. GSA Groundwater and Soil Vapor Extraction and Treatment System Operations and Monitoring

This section is organized into five subsections: facility performance assessment; operations and maintenance issues; compliance summary; sampling plan evaluation and modifications; and treatment facility and extraction wellfield modifications.

2.1.1.1. GSA Facility Performance Assessment

The CGSA SVE system only operated for several short periods over four months during this reporting period. However, due to the lack of groundwater extraction, the water table in the vicinity of the soil vapor and dual extraction wells was not lowered, and so vapor extraction could not be maximized. The CGSA-North groundwater extraction and collection system operated as expected. Approximately 132 gallons of groundwater were extracted during the second semester of 2018. Due to extremely low yield from the single extraction well, the system must be shut down and drained when there is any threat of freezing temperatures to prevent freeze damage and potential spills of untreated water. It is also routinely shut down to allow the extraction well to recover for quarterly compliance sample collection. The monthly groundwater volumes extracted and operational hours are summarized in Table 2.1-1. The cumulative volume of groundwater extracted and VOC masses removed are summarized in Table Summ-2. Because the extracted water from GSA-North extraction well W-CGSA-2708 is stored in a tank awaiting treatment, there are no mass removal data reported for that facility for 2018. Analytical results for influent water samples collected are presented in Table 2.1-2. Since no groundwater treatment is conducted at CGSA-North, there are no effluent samples collected and no pH measurements are made.

2.1.1.2. GSA Operations and Maintenance Issues

The CGSA GWTS was operated for several short periods during the reporting period to perform testing and verification (T&V). In September, the system was operated on five occasions for a total of 4.9 hours, extracting 429 gallons. The GWTS was operated once in October for a total of 2.4 hours, extracting 290 gallons. The total volume extracted for the reporting period was 719 gallons, but only a portion of this volume was treated through the air stripper and collected in the effluent batch tank. No effluent compliance samples were collected during the semester, since no water was discharged through the misting system. However, one influent sample was collected in October. The GWTS and associated pipelines were drained and freeze-protected on November 19, and no additional T&V was conducted for the remainder of the semester.

The CGSA SVTS began operations on September 20 upon completion of the planned upgrades, but initially utilized only three of the six extractions wells. Starting in October, all six extraction wells were operated, but one of the wells, W-7I, was shut down on December 18, because the well screen was covered with water, as previously mentioned. The system operated continuously from September 20 through the end of the reporting period, except for several short periods of shutdown to drain condensate water from the knock-out tank.

The CGSA-North groundwater extraction and collection system (see modification discussions below) operated nearly continuously during this reporting period. Maintenance and operational issues that interrupted continuous operations of the CGSA-North extraction and collection system during the second semester of 2018 are listed below.

CGSA-North groundwater treatment system and soil vapor treatment system

- The groundwater extraction and collection system was shut down from June 29 until July 9 to allow for well recovery to facilitate collection of compliance samples.
- The groundwater extraction and collection system was shut down from September 27 until October 8 to allow for well recovery to facilitate collection of compliance samples.
- The groundwater extraction and collection system was shut down from November 8 until November 12 to conduct interlock checks.
- The groundwater extraction and collection system was shut down and drained for freeze protection on November 15, and remained off line for the rest of the reporting period.

2.1.1.3. GSA Compliance Summary

No treated water was discharged from the CGSA GWTS during this reporting period, so no compliance summary discussions are included. The CGSA SVE system operated in compliance with the SJVAPCD permit requirements during the second semester of 2018. The Central-North extraction and collection system has no compliance monitoring requirements.

2.1.1.4. GSA Facility Sampling Plan Evaluation and Modifications

The CGSA treatment facility sampling and analysis plan complies with the monitoring requirements in the CMP/CP. The treatment facility sampling and analysis plan is presented in Table 2.1-3. No modifications were made to the plan during this reporting period. However, as discussed above, CGSA-North now consists of a groundwater extraction and collection system. Therefore, the only sampling that is conducted is associated with the extraction well to track contaminant mass removal.

2.1.1.5. GSA Treatment Facility and Extraction Wellfield Modifications

The complete system upgrade of the CGSA GWTS and SVTS continued during this reporting period. The CGSA GWTS will still be used to treat water extracted at the Building 830-DISS GWTS. New components included an air stripper for the GWTS, a blower for the SVTS, and a Standard Treatment Facility Control System. The wooden deck at the Building 875 pad was removed and all wellheads were rebuilt. Water extraction, vapor extraction, and air-supply pipelines to the Building 875 pad wells were replaced, as well as some additional pipeline sections, where needed. All vapor flow rate monitoring equipment was also replaced.

The only change to the extraction wellfield was the conversion of W-875-10 from an extraction well to a monitor well.

The conversion of the CGSA-North groundwater extraction and treatment system to a groundwater extraction and collection system was completed and the facility began operations on October 17, 2017. All treatment media and pipelines to the former injection well were removed. The concrete pad for the treatment media was extended to allow for the installation of a 500-gallon batch tank outfitted with high-level shut off switches. The water discharge pipeline from extraction well W-CGSA-2708 was

plumbed to the batch tank. Extracted water will be collected until the batch tank is full, at which time water will be transferred to the CGSA GWTS to treat VOCs.

During the second semester of 2018, ten monitor wells in the Eastern GSA area were decommissioned as part of close-out activities for the Eastern GSA area (Ferry et al., 2017): W-25D-01, W-25D-02, W-25M-02, W-25M-03, W-25N-05, W-25N-06, W-25N-15, W-25N-18, W-25N-26, and W-26R-07. Decommissioned well details are further summarized in Table 2-1.

2.1.2. GSA Surface Water and Groundwater Monitoring

The sampling and analysis plan for groundwater monitoring at the CGSA for the entire year is presented in Table 2.1-4. This table explains deviations from the sampling plan. The sampling and analysis plans for the three Eastern GSA off-site water-supply wells and the three Eastern GSA wells retained for CMP monitoring downgradient of the CGSA have been incorporated into Table 2.1-4.

During the reporting period, groundwater monitoring was conducted in accordance with CMP monitoring requirements, with the following exceptions:

- A total of 15 required analyses for ten different wells were not performed, because the wells were dry or there was insufficient water for sample collection.
- A total of four required analyses for three different extraction wells were not performed, because the wells were under construction or there was no access for sampling.

Analytical results and groundwater elevation measurements obtained during 2018 are presented in Appendices B and C, respectively. Additionally, Eastern GSA monitor well W-25M-01 was sampled for PFAS in September 2018. As stated previously, the results of this sampling are presented in Appendix E.

For the Qt-Tnsc$_1$ and Qal-Tnbs$_1$ hydrostratigraphic units (HSUs), a groundwater potentiometric contour map is shown on Figure 2.1-2.

2.1.3. GSA Remediation Progress Analysis

This section is organized into four subsections: mass removal; analysis of contaminant distribution and concentration trends; remediation optimization evaluation; and performance issues.

2.1.3.1. GSA Mass Removal

No VOC mass was removed during the reporting period (Table 2.1-5), as only a small volume of water was extracted from CGSA-North and will be treated at the CGSA GWTS when it resumes operation. Cumulative mass removal estimates are summarized in Table Summ-2.

2.1.3.2. GSA Contaminant Concentrations and Distribution

At the CGSA, VOCs are the only COCs in groundwater and soil vapor. TCE is the most prevalent VOC, comprising approximately 90% of the total VOCs (TVOCs). Other VOC COCs include PCE; cis-1,2-DCE; trans-1,2-DCE; 1,1-DCE; 1,1,1-TCA; Freon 11; benzene; bromodichloromethane; and CFORM. The HSUs in the CGSA are the Qt-Tnsc$_1$ HSU (western part of CGSA), the Qal-Tnbs$_1$ HSU (eastern part of CGSA), and the underlying Upper and Lower Tnbs$_1$ HSUs.

For the Qt-Tnsc$_1$ and Qal-Tnbs$_1$ HSUs, an isoconcentration contour and individual concentration map for TVOCs, based on second semester data, is presented on Figure 2.1-3. Because each CMR map is representative of contaminant concentrations during a particular semester, the maximum

concentrations shown on the CMR map may not match the maximum concentrations for 2018 described in the text.

Dry Well Pad Area

The center of mass of the CGSA VOC plume in the Qt-$Tnsc_1$ and Qal-$Tnbs_1$ HSUs is located in the Building 875 dry well pad area, where the highest VOC and TCE concentrations continue to occur in the Qt-$Tnsc_1$ HSU. All of the wells in this area were sampled, as scheduled, during the reporting period. While most of the VOCs detected in the Building 875 dry well area have consisted of TCE, other VOCs in this area typically detected have included PCE; cis-1,2-DCE; 1,1-DCE; trans-1,2-DCE; 1,1-DCA; and 1,2-DCA. Of these VOCs, typically only TCE, PCE, and cis-1,2-DCE have been present at concentrations that significantly exceed their MCL cleanup standards, while 1,2-DCA has been detected at or near its MCL cleanup standard of 0.5 µg/L. Prior to remediation, the historical maximum total VOC concentration detected in CGSA groundwater was 272,000 µg/L in a bailed groundwater sample that was collected during drilling of the Building 875 dry well pad area dual extraction well (W-875-07) in March 1992. Total VOC concentrations in the Building 875 dry well area have decreased to a maximum of 1,495 µg/L in dual extraction well W-875-07 in March of 2018.

Overall, a decreasing trend of VOC concentrations in groundwater continues in the dry well pad area. For example, TCE concentrations have decreased from a historical maximum of 240,000 µg/L in dual extraction well W-875-07 (1993) to a maximum of 1,300 µg/L (W-875-07, March 2018) in the same well. In dual extraction well W-875-07, PCE concentrations have decreased from a historical maximum of 25,000 µg/L (1993) to a current maximum of 140 µg/L (March 2018). Cis-1,2-DCE and 1,1-DCA concentrations have decreased from the 1993 historical maxima of 16,000 µg/L and 38 µg/L, respectively, both in dual extraction well W-7I, to 38 µg/L (March 2018) and below the 5 µg/L MCL cleanup standard for 1,1-DCA at 1 µg/L (May 2018), both in dual extraction well W-875-07. Concentrations of 1,1-DCE have decreased from a historical maximum of 860 µg/L (W-7I, 1993) to a maximum of 17 µg/L (W-875-07, March 2018) in the most recent samples.

TCE soil vapor concentrations from wells W-7I, W-875-07, W-875-08, W-875-09, W-875-11, and W-875-15 ranged from 0.017 to 4.5 parts per million on a volume per volume basis ($ppm_{v/v}$), with the highest concentration occurring in dual extraction well W-7I. These vapor concentrations have decreased significantly from the historical maximum of 530 $ppm_{v/v}$ detected in extraction well W-875-07 in 1994.

Outside the Dry Well Pad Area

Outside the Building 875 dry well pad area, wells monitor the Qt-$Tnsc_1$, Qal-$Tnbs_1$, Upper $Tnbs_1$, and Lower $Tnbs_1$ HSUs. The overall spatial distribution of VOCs in groundwater downgradient of the Building 875 dry well pad source area did not change significantly during 2018.

Qt-$Tnsc_1$ and Qal-$Tnbs_1$ HSUs

For monitor wells outside of the dry well pad area screened in the Qt-$Tnsc_1$ and the Qal-$Tnbs_1$ HSUs, the historical maximum total VOC concentration was detected in well W-7O (screened in the Qt-$Tnsc_1$ HSU) at 920 µg/L (1994), declining to a maximum total VOC concentration of 200 µg/L (October 2018) in the same well, up from 57 µg/L in 2016. This increase in concentration is most likely due to the CGSA GWTS not operating continuously, since it was taken off line for engineering upgrades in 2017, resulting in some rebounding of VOC concentrations. In addition to TCE, other VOCs detected during the reporting period include PCE; cis-1,2-DCE; trans-1,2-DCE; 1,1-DCE; and

Freon 11. Of these VOCs, only TCE is typically present above its MCL cleanup standard of 5 µg/L. However, in a sample from W-7O, PCE was also detected above its MCL cleanup standard of 5 µg/L (14 µg/L, October).

Upper $Tnbs_1$ HSU

One monitor well, W-873-01, is screened in the Upper $Tnbs_1$ HSU. No VOCs were detected above reporting limits in this well during 2018; however, a total VOC concentration of 13.8 µg/L was detected in a sample taken in December 2017. The total VOC concentration was composed of 11 µg/L TCE and 2.8 µg/L of cis-1,2-DCE. Before this 2017 detection, VOCs had not been detected in W-873-01 above reporting limits since the installation of the well in 1988. VOCs were not detected in samples from the well taken in June or December of 2018, so the December 2017 data are anomalous and potentially spurious. W-873-01 will continue to be monitored closely.

Lower $Tnbs_1$ HSU

Five monitor wells are screened in the deeper Lower $Tnbs_1$ HSU. The historical maximum total VOC concentration was detected in well W-7G at 47 µg/L (mostly TCE, 1989), but VOC concentrations have since declined to below the reporting limit in all five wells, including in all samples taken during 2018. VOCs have not exceeded their respective reporting limits in Lower $Tnbs_1$ CGSA wells since 2001.

South of the Site 300 Boundary

South of the Site 300 boundary, 17 wells monitor the Qt-$Tnsc_1$ HSU, Upper $Tnbs_1$ HSU, and Lower $Tnbs_1$ HSU.

During 2018, total VOC concentrations were detected above the reporting limit in two Qt-$Tnsc_1$ HSU off-site monitor wells, W-35A-01 (63 µg/L, June) and W-35A-10 (19 µg/L, June), composed of TCE and PCE, and TCE and Freon 11, respectively. The historical maximum total VOC concentration observed in Qt-$Tnsc_1$ HSU groundwater south of the Site 300 boundary was detected in 1991 in well W-35A-01 at 545 µg/L (comprised of 510 µg/L TCE, 32 µg/L PCE, and 3 µg/L 1,1-DCE). During the reporting period, no VOCs were detected above their reporting limits in the remaining Qt-$Tnsc_1$ HSU CGSA wells located south of the Site 300 boundary.

Upper $Tnbs_1$ HSU

During 2018, VOCs were not detected in the three monitor wells (W-35A-05, -12, and -13) screened in the Upper $Tnbs_1$ HSU, south of the Site 300 boundary. VOCs were last detected in this HSU south of the Site 300 boundary in 2006 (0.59 µg/L TCE, W-35A-13).

Lower $Tnbs_1$ HSU

VOCs were not detected above their reporting limits in the five Lower $Tnbs_1$ CGSA wells located south of the Site 300 boundary during 2018. VOCs have not been detected south of the Site 300 boundary in this HSU since 2014, when 0.81 µg/L TVOCs were detected at CDF1 (January).

2.1.3.3. GSA Remediation Optimization Evaluation

The CGSA GWTS has been undergoing engineering upgrades and modifications in an effort to optimize both groundwater and soil vapor mass removal and was shut down during the majority of the reporting period; therefore, it did not remove groundwater or contaminant mass. The engineering upgrades and modifications planned for the Central SVTS were completed during the reporting period, and the facility was brought back on line in September 2018. During 2018, 2.9 million cf of soil vapor were extracted during the reporting period In the GSA OU, a total of 106 gallons of water were

extracted at CGSA-North in 2018. Because this small volume of water is stored in a tank awaiting treatment, there was no VOC mass removal reported for 2018 (Table Summ-1). Table Summ-2 lists the mass removed by each individual treatment facility over its operational history. Table 2.1-1 shows that no groundwater was treated and discharged during the reporting period.

Static water levels measured in 2018 were down from those measured in 2017 in GSA groundwater wells, but up from 2016 water levels as a result of both the shutdown of the CGSA GWTS and recharge from rainfall events in early 2018. The water level rise observed in 2017 in wells that are predominantly screened in the Qal (alluvial channel fill), Qt (terrace alluvium), and weathered bedrock) (up to 10 ft in some wells) was not repeated: 2018 water levels in these wells were down approximately five feet from the 2017 levels. The less pronounced water level rise observed in 2017 in wells that are primarily screened in bedrock (e.g. Upper $Tnbs_1$, Lower $Tnbs_1$, $Tnsc_1$; up to 3-5 ft response) was also not observed in 2018.

Although the CGSA GWTS was off line during the current reporting period, over the long term at the CGSA, groundwater extraction continues to capture the highest VOC concentrations in groundwater. Remediation efforts have reduced overall total VOC concentrations in CGSA groundwater from a historical maximum of 272,000 µg/L in a bailed groundwater sample that was collected during drilling of W-875-07 (1992) to a current maximum of 1,495 µg/L (W-875-07, March 2018). At the eastern edge of the VOC plume, VOC concentrations continue to decrease and remain below the 5 µg/L MCL cleanup standard in monitor wells W-26R-06 and W-26R-11.

Groundwater remediation continues to reduce VOC concentrations in two key off-site performance monitor wells, W-35A-01 and W-35A-10, located within 50 and 100 ft of the southern site boundary, respectively. Analysis of recent data from operational extraction wells shows that W-35A-01 may be within the hydraulic capture zone of CGSA extraction well W-875-08. Although well W-35A-10 is likely not within the hydraulic capture zone of the CGSA extraction wellfield, VOC and TCE concentrations continue to exhibit a long-term declining trend due to hydraulic capture of VOCs upgradient of this well. The rebound trend of VOC concentrations at W-35A-01 observed in 2017 (from 60 µg/L in June to 98 µg/L in December) did not continue in 2018. Total VOC concentrations in this well declined from 63 µg/L measured in June to 35 µg/L measured in December 2018. TCE concentrations in W-35A-10 have declined from a historical maximum of 86 µg/L (1994) to 12 µg/L in June 2018. Freon 11 concentrations in the same well have declined from a historical maximum of 46 µg/L (1994) to 7.1 µg/L in June 2018. No other VOCs were detected above their MCL cleanup standards in W-35A-10 during the current reporting period.

2.1.3.4. GSA OU Remedy Performance Issues

The CGSA GWTS was shut down for the majority of the reporting period to accommodate engineering upgrades and maintenance. Otherwise, there were no new issues that affected the performance of the cleanup remedy for the GSA OU. Although some rebound in VOC concentrations was observed within the capture zone in the CGSA while the GWTS was upgraded, the extent of VOCs in excess of MCL drinking water standards did not change. The remedy continues to be effective and protective of human health and the environment, and is making progress toward cleanup.

2.2. Building 834 (OU 2)

The Building 834 Complex has been used to test the stability of weapons and weapon components under various environmental conditions since the 1950s. Past spills and piping leaks in the OU have resulted in soil and groundwater contamination with VOCs, TBOS/TKEBS, and silicate oils that are co-contaminants with TCE. Nitrate concentrations in Building 834 groundwater that exceed the MCL cleanup standard (45 mg/L) are likely caused by a combination of natural sources and septic system leachate. In addition, prior to 1994, a former underground diesel storage tank released diesel to the subsurface; the tank was excavated and removed in 1994.

The Building 834 OU is informally divided into three areas: the core, leachfield (septic system), and distal areas (Figure 2.2-1). The core area generally refers to the vicinity of the buildings and test cells in the center of the Building 834 Complex where the majority of contaminant releases occurred. The leachfield area is located immediately southwest of the core area. The distal (T2) area refers to the area downgradient (south) of the core and leachfield areas. A map of Building 834 OU showing the locations of monitor and extraction wells and treatment facilities is presented on Figure 2.2-1.

The Building 834 GWTS and SVTS began operation in 1995 and 1998, respectively. These systems are located in the Building 834 core area. The groundwater extraction wellfield removes VOCs, nitrate, and TBOS/TKEBS from groundwater within the Tpsg HSU, and the SVTS removes VOCs from soil vapor. Due to the very low groundwater yield from individual extraction wells (<0.1 gpm), the GWTS and SVTS have been operated simultaneously in batch mode. Although the GWTS can be operated alone, the SVTS is typically not operated without concurrent groundwater extraction. If the water table is not sufficiently lowered beneath each dual extraction well screen prior to vapor pumping, the rising groundwater can cover the well screen, hampering vapor flow into the well.

The current extraction wellfield consists of thirteen dual extraction wells for both groundwater and soil vapor. Nine extraction wells (W-834-B2, W-834-B3, W-834-D4, W-834-D6, W-834-D7, W-834-D12, W-834-D13, W-834-J1, and W-834-2001) are located within the core area and four wells (W-834-S1, W-834-S12A, W-834-S13, and W-834-2113) are located within the leachfield area. Groundwater is extracted on a cyclic basis, because the wells cannot sustain continuous pumping. During this reporting period, the GWTS extracted groundwater at an approximate combined total flow rate of <1 gpm, and the SVTS extracted soil vapor at a combined flow rate of approximately 150 scfm. The current GWTS configuration includes floating hydrocarbon adsorption devices to remove floating silicate oil, TBOS/TKEBS, and floating diesel fuel (if present), followed by aqueous-phase GAC to remove VOCs, dissolved-phase TBOS/TKEBS, and diesel fuel from groundwater. Nitrate-bearing treated effluent is then discharged via a misting tower on to the landscape for uptake and utilization of the nitrate by indigenous grasses. The current SVTS configuration includes vapor-phase GAC for VOC removal. Treated vapors are discharged to the atmosphere under an air permit issued by the SJVAPD.

Since 2005, a long-term enhanced *in situ* bioremediation treatability test has been conducted at the distal T2 area. This testing has included biostimulation to transform groundwater from oxidizing to reducing conditions and bioaugmentation with KB-1™, a natural non-pathogenic microbial consortium capable of complete dechlorination of TCE to ethene. This long-term test is summarized in Section 2.2.3.4.

2.2.1. Building 834 OU Groundwater and Soil Vapor Extraction and Treatment System Operations and Monitoring

This section is organized into five subsections: facility performance assessment; operations and maintenance issues; compliance summary; sampling plan evaluation and modifications; and treatment facility and extraction wellfield modifications.

2.2.1.1. Building 834 OU Facility Performance Assessment

The monthly groundwater and soil vapor discharge volumes and operational hours for the second semester of 2018 are summarized in Table 2.2-1. The total volumes of groundwater and vapor extracted and treated, and masses removed during the reporting period are presented in Table Summ-1. The cumulative volume of groundwater and soil vapor treated and discharged, and masses removed are summarized in Table Summ-2. Analytical results for influent and effluent water samples collected during the second semester of 2018 are presented in Tables 2.2-2 through 2.2-4. The pH measurement results are presented in Appendix A.

2.2.1.2. Building 834 OU Operations and Maintenance Issues

The following maintenance and operational issues interrupted continuous operations of the Building 834 GWTS and SVTS during the second semester of 2018:

- The GWTS and SVTS were off line for several hours on August 9 to repair a leak at the extraction well W-834-S13. Approximately 0.5 gallons of untreated water were released to the ground surface.
- Both systems were taken off line for freeze protection on November 19 and remained off line for the remainder of the reporting period.

2.2.1.3. Building 834 OU Compliance Summary

The Building 834 GWTS operated in compliance with the RWQCB substantive requirements for wastewater discharge during the second semester of 2018. The release of 0.5 gallons of untreated water from an extraction well was reported to the Site 300 Environmental Analyst. The Building 834 SVTS also operated in compliance with SJVAPD permit requirements during the second semester of 2018.

2.2.1.4. Building 834 OU Facility Sampling Plan Evaluation and Modifications

The Building 834 treatment facility sampling and analysis plan complies with the monitoring requirements in the CMP/CP. The sampling and analysis plan is presented in Table 2.2-5. No modifications were made to the plan during this reporting period.

2.2.1.5. Building 834 OU Treatment Facility and Extraction Wellfield Modifications

No modifications to the treatment facilities were made during this reporting period.

2.2.2. Building 834 OU Groundwater Monitoring

The sampling and analysis plan for groundwater monitoring for the entire year is presented in Table 2.2-6. This table also explains deviations from the sampling plan.

During the second semester of 2018, groundwater monitoring was conducted in accordance with the CMP monitoring requirements with the following exceptions. A total of 22 required analyses for 22 different wells were not performed because the wells were dry or there was insufficient water to

collect the samples. This is a nearly 50 percent increase from the second semester of 2017 when 15 required analyses for 15 different wells were not performed due to dry conditions or insufficient water to collect the samples.

Analytical results and groundwater elevation measurements obtained during 2018 are presented in Appendices B and C, respectively.

For the Building 834 OU, a groundwater potentiometric surface map for the Tpsg HSU is shown on Figure 2.2-2.

2.2.3. Building 834 OU Remediation Progress Analysis

This section is organized into five subsections: mass removal; analysis of contaminant distribution and concentration trends; remediation optimization evaluation; treatability study; and remedy performance issues.

2.2.3.1. Building 834 OU Mass Removal

The monthly groundwater and soil vapor mass removal estimates for the second semester of 2018 are summarized in Table 2.2-7. The total mass removed during the reporting period and cumulative mass estimates are summarized in Table Summ-1 and Table Summ-2, respectively.

2.2.3.2. Building 834 OU Contaminant Concentrations and Distribution

At the Building 834 OU, VOCs (primarily TCE, but also PCE, cis-1,2-DCE, 1,1,1-TCA, and CFORM) are the primary COCs detected in groundwater. TBOS/TKEBS and nitrate are the secondary COCs. These COCs have been identified in two shallow HSUs: (1) the Tpsg gravel perched water-bearing zone, and (2) the underlying Tps-Tnsc$_2$ perching horizon. Figure 2.2-1 shows the location of wells and treatment facility in the Building 834 OU.

For the Building 834 OU:

- Individual VOC, TBOS/TKEBS and nitrate concentrations for the Tps-Tnsc$_2$ HSU are posted on Figure 2.2-3;
- A map of total VOC isoconcentration contours and posted individual VOC concentrations, based on second semester 2018 data for the Tpsg HSU is presented on Figure 2.2-4;
- First semester 2018 TBOS/TKEBS concentrations for the Tpsg HSU are posted on Figure 2.2-5; and
- First semester 2018 nitrate concentrations for the Tpsg HSU are posted on Figure 2.2-6.

Because each CMR map is representative of contaminant concentrations during a particular semester, the maximum concentration shown on a CMR map may not match the maximum concentration for 2018 described in the text.

2.2.3.2.1. VOCs Concentrations and Distribution

Although the overall extent of VOCs in Building 834 OU groundwater and soil vapor have not changed significantly, the maximum concentrations have decreased by more than one order of magnitude since remediation began in the mid-1990s. The most significant changes in the extent of VOC-contaminated groundwater, especially beneath the core area, have resulted from changes in the extent of saturation. Saturation extent was reduced by earlier drought conditions and dewatering associated with remediation efforts. This was offset by significant rainfall and recharge during the 2016-2017 winter season, followed by some below-average rainfall and less recharge during the

2017-2018 winter season. VOCs detected in Building 834 area groundwater consist primarily of TCE and cis-1,2-DCE. Other VOCs including PCE; 1,1,1-TCA; CFORM; vinyl chloride; 1,1-DCE; 1,1,2-TCA; trans-1,2-DCE; Freon 113; CTET; as well as ethane and ethene have also been detected, albeit at much lower concentrations in recent years. Cis-1,2-DCE; vinyl chloride; ethene; and ethane are the TCE microbial dechlorination breakdown products under anaerobic conditions. The detection of significant concentrations of ethene and ethane in the T2 area indicates complete reduction of TCE by dechlorinating bacteria.

Since 2004 (including 2018), 1,1,1-TCA was not observed above its reporting limit (typically 0.5 µg/L) in any Building 834 OU wells.

Core Area

The Building 834 core area continues to exhibit high VOC concentrations in groundwater and soil vapor. VOC concentrations and distribution in groundwater and soil vapor in the Tpsg and Tps-$Tnsc_2$ HSUs in the Building 834 core area are discussed below.

Tpsg HSU

The Tpsg HSU in the core area has exhibited declining VOC concentration trends since treatment began in 1995. Twenty-six wells (18 monitor and eight dual extraction wells) are screened in the Tpsg HSU, where active remediation has reduced TVOC groundwater concentrations from a historical maximum of 1,100,000 µg/L (monitor well W-834-D5, 1988) to a 2018 maximum of 45,000 µg/L (W-834-C5, August). Well W-834-C5 is located approximately 100 ft south of monitor well W-834-D5. Core area monitor well, W-834-B4, was not sampled due to dryness or insufficient water during 2018. A maximum of 8,100 µg/L of TVOCs were detected in this well in 2017. This concentration is within the range of TVOC concentrations observed in this well since 2008 (1,300 µg/L to 11,900 µg/L). However, to verify the continuation of the long-term decreasing concentration trends observed in most core area wells, DOE recommended in the Fourth Five-Year Review for the Building 834 Operable Unit (Buscheck et al., 2017c) to continue monitoring VOC concentrations in wells W-834-B4 and W-834-C5 during the next five years (2017-2021). Additional actions may be considered if these wells exhibit stable or increasing VOC trends during the next five-year review period. This recommendation is discussed in greater detail in Section 2.2.3.3.

In the core area, cis-1,2-DCE, vinyl chloride, and ethene are microbial dechlorination products of TCE in portions of the HSU that also contain light non-aqueous-phase liquid (LNAPL) silicate oils, TBOS/TKEBS. TBOS/TKEBS have been found to be slow-release anaerobic substrates that support long-term dechlorination of TCE to cis-1,2-DCE, vinyl chloride, and the benign end-product, ethene. TBOS and TKEBS can slowly hydrolyze abiotically to butanol and ethylbutanol, respectively, and ferment biotically to butyrate and ethylbutyrate, respectively. During the fermentation process of these alcohols, hydrogen is produced and provides electrons for microbial dechlorinators. Butyrate functions as an excellent slow-fermenting substrate by producing the hydrogen needed for dehalogenation reactions (Vancheeswaran, 1998; Yu and Semprini, 2002).

TCE concentrations have decreased from a historical maximum of 1,100,000 µg/L in well W-834-D5 (1988) to a 2018 maximum of 25,000 µg/L (August) in monitor well W-834-C5. The highest 2018 cis-1,2-DCE concentrations at 20,000 µg/L were also detected in groundwater from monitor well W-834-C5 (August). This is a significant decrease from maximum core area cis-1,2-DCE concentrations of 540,000 µg/L (W-834-D4) detected in 1990. The occurrence of vinyl chloride at

concentrations of 420 µg/L and 190 µg/L, in core area extraction wells W-834-B3 (July) and W-834-D4 (March), respectively, and 150 µg/L in monitor well W-834-D3 (August), indicate reductive dechlorination is occurring in this area. While many bacteria species are capable of the initial step in reductively dechlorinating TCE to cis-1,2-DCE, so far, only certain anaerobic strains of *Dehalococcoides mccartyi (Dhc)* are capable of dechlorinating cis-1,2-DCE to vinyl chloride and vinyl chloride to innocuous ethene and ethane (Pérez-de-Mora et al., 2018). Other core area Tpsg HSU wells have also yielded one or more vinyl chloride detections, including monitor wells W-834-C5 (8.3 µg/L, August), W-834-D5 (17 µg/L, March), W-834-1709 (5.2 µg/L, February) and W-834-J2 (2.3 µg/L, February) and extraction wells W-834-D6 (0.68 µg/L, March) and W-834-D13 (1.9 µg/L, March). During 2018, these wells were not sampled for light hydrocarbons (dissolved gases ethene, ethane, methane) and volatile fatty acids. However, the most recent sampling for these analytes, conducted in September 2017, indicated ethene concentrations as high as 99 µg/L in monitor well W-834-D3, with lesser concentrations of ethene (ranging from less than the 0.1 µg/L reporting limit to 1.1 µg/L) in the remaining core area wells. Ethane was also detected at a low concentration of 0.47 µg/L in well W-834-D3 but was not detected in the other core area wells. The presence of ethane indicates that strongly reducing (i.e. methanogenic) conditions are occurring in the subsurface surrounding monitor well W-834-D3. These conditions are also indicated by the concentration of 1,200 µg/L of methane in well W-834-D3 (September 2017) and oxidation/reduction potential (ORP) values of -230 millivolts (mV; February 2018) and -218 mV (August 2018). Strongly reducing conditions were also observed in well W-834-C5 where 4,700 µg/L of methane was detected (September 2017). Lower methane concentrations, in the range of 4 µg/L to 240 µg/L, were detected in wells W-834-B2, W-834-B3, W-834-B4, and W-834-C4 (September 2017). These data indicate that complete reductive dechlorination is occurring in portions of the core area. This process is enhanced by the presence of TBOS/TKEBS as an electron donor. In general, wells that contained TBOS/TKEBS exhibited the highest concentrations of cis-1,2-DCE and vinyl chloride, which accumulate under anaerobic conditions when the soil vapor extraction system is not operational, such as during winter freeze protection shutdown periods. Concentrations of cis-1,2-DCE and vinyl chloride decline once the SVE system is restarted and the subsurface becomes more oxygenated in the summer.

PCE concentrations in the core area Tpsg HSU have decreased from a historical maximum of 10,000 µg/L (W-834-D3, 1993) to a 2018 maximum of 110 µg/L (W-834-C5, August). Although 1,1,1-TCA was detected at a historical maximum of 33,000 µg/L in extraction well W-834-J1 (1991), it has not been detected above the reporting limit in this or in any other well in the Building 834 OU since 2012.

During 2018, 1,1-DCE was detected in ten core area Tpsg HSU wells above the reporting limit and in two core area wells above the 6 µg/L MCL cleanup standard, with a 2018 maximum concentration of 54 µg/L in well W-834-C5 (August). Extraction well W-834-B3 also yielded a concentration of 6.6 µg/L in a July sample. The historical maximum 1,1-DCE concentration of 110 µg/L in well W-834-C5 was detected in 2003. During 2018, besides two detections of 1.4 and 1.1 µg/L (August and February, respectively) in well W-834-D3, trans-1,2-DCE was not detected in any core area Tpsg HSU wells above the reporting limit.

During 2018, 1,1,2-TCA was detected in four core area Tpsg HSU wells, but none exceeded the 5 µg/L MCL cleanup standard. Similar to previous years, during 2018, Freon 113 was not detected

above the MCL cleanup standard and was detected in only one core area well, W-834-D6, at very low concentrations (0.67, 1.3, and 0.59 µg/L in March, April, and July, respectively). In 2018, CTET was detected once in extraction well W834-D7 at 1.1 µg/L in October; samples collected from the same well in March, April, and July did not exceed the reporting limit. CTET was not observed in any other core area wells above the 0.5 µg/L reporting limit during 2018, or during 2016 and 2017.

During 2018, TCE soil vapor concentrations in the core area SVE wells ranged from 0.052 to 18 $ppm_{v/v}$. This is a three-order-of-magnitude decrease from a pre-remediation maximum TCE concentration of 3,200 $ppm_{v/v}$ (extraction well W-834-D4, 1989). W-834-D4 is located approximately 10 ft from well W-834-D5, where the historical maximum groundwater VOC concentration in the Tpsg HSU was observed. The current highest TCE concentration (18 $ppm_{v/v}$) is representative of pumping conditions, as it was detected in an extraction well W-834-B2 vapor sample collected on August 16, when treatment facility operations were fully active. A second (duplicate) vapor sample collected from the same well yielded 13 ppm $_{v/v}$ TCE.

Tps-Tnsc$_2$ HSU

In the core area, underlying the Tpsg HSU, the Tps-Tnsc$_2$ HSU continues to contain the highest VOC groundwater concentrations in the Building 834 OU and at Site 300. Five wells (four monitor and one dual extraction) are screened in the Tps-Tnsc$_2$ HSU. TVOC concentrations in this HSU, comprised mostly of TCE, have decreased from a historical maximum of 250,000 µg/L (2002) to a 2018 maximum of 212,000 µg/L (August). PCE concentrations have decreased from a historical maximum of 7,900 µg/L (2001) to a 2018 maximum of 950 µg/L (August). Both TCE and PCE maxima occurred in monitor well W-834-A1; the 2018 maxima were similar to the maxima of recent years. In extraction well W-834-2001, TCE has exhibited a declining trend from a historical maximum concentration of 29,000 µg/L (2006) to a 2018 maximum of 180 µg/L (July), and PCE has declined from a historical maximum concentration of 120 µg/L (2006) to a 2018 maximum of 3.8 µg/L (July). CFORM concentrations have decreased from a historical maximum of 42 µg/L (W-834-A1 and monitor well W-834-U1, 2000) to a 2018 maximum of 23 µg/L (W-834-A1, August), well below the 80 µg/L MCL cleanup standard for total trihalomethanes (THMs). Except for well W-834-U1 (13 µg/L, August), CFORM concentrations in all other wells screened in the Tps-Tnsc$_2$ HSU, did not exceed the reporting limit. The historical maximum cis-1,2-DCE concentration of 11,000 µg/L (W-834-U1, 2009), has declined to a 2018 maximum of 2,700 µg/L in well W-834-U1 (August), while 1,1-DCE in the Tps-Tnsc$_2$ HSU has decreased from a historical maximum of 87 µg/L (W-834-A1, 2002) to 26 µg/L (W-834-U1, August). The historical maximum 1,1,2-TCA concentration of 28 µg/L (W-834-A1, 2000), has declined to a 2018 maximum of 12 µg/L in the same well (August). This was the only 2018 detection of 1,1,2-TCA. During 2018, vinyl chloride; 1,1,1-TCA; CTET; and Freon 113 were not detected above their respective reporting limits in any Tps-Tnsc$_2$ HSU wells in the core area, similar to results from recent years.

During the reporting period, the maximum TCE soil vapor concentrations from the only core area Tps-Tnsc$_2$ HSU SVE well, W-834-2001, ranged from 0.28 to 0.63 $ppm_{v/v}$. The highest concentration of 0.63 $ppm_{v/v}$ is representative of ongoing vapor extraction operations, not rebound conditions, as the sample was collected on March 14, nine days after the resumption of facility operations following the winter shutdown period. The historical maximum TCE vapor concentration from this well was 30 $ppm_{v/v}$ (April 2011) and is representative of rebound conditions following a prolonged period of

treatment facility shutdown. Higher vapor concentrations may be observed after an extended rebound period.

Leachfield Area

VOC concentrations and distribution in groundwater and soil vapor in the Tpsg and Tps-$Tnsc_2$ HSUs in the Building 834 leachfield area are discussed below.

Tpsg HSU

The Tpsg HSU in the leachfield area has exhibited declining VOC trends since treatment began in 1995. Six wells (two monitor and four dual extraction wells) are screened in the Tpsg HSU in the Building 834 OU. TVOCs in this HSU have decreased from a pre-remediation maximum of 179,200 µg/L (mostly TCE, W-834-S1, 1988) to a 2018 maximum of 2,000 µg/L (almost entirely TCE, March) in extraction well W-834-2113, a decline from 49,000 µg/L (almost entirely TCE) detected in 2008. The historical maximum PCE concentration of 6,300 µg/L (W-834-S1, 1986), declined to a 2018 maximum of 23 µg/L (same well, April), which was a decline from the 2017 maximum of 49 µg/L. Concentrations of cis-1,2-DCE have decreased from a historical maximum of 3,900 µg/L (W-834-S13, 2003) to a 2018 maximum of 73 µg/L (W-834-2113, March). The historical maximum CFORM concentration was 3.4 µg/L (W-834-S1, 1989). During 2018, CFORM was detected in two leachfield area Tpsg HSU wells, W-834-S12A at 0.58 µg/L (April) and W-834-2113 at 0.53 µg/L (March). Concentrations of 1,1-DCE were detected above the reporting limit during 2018 in only one well, W-834-2113, at a maximum concentration of 0.59 µg/L (March), a decrease from the historical maximum of 30 µg/L (W-834-S1, 1985). In the Tpsg HSU leachfield area, concentrations of 1,1,1-TCA have not been detected above reporting limits since 1986. CTET, vinyl chloride, and Freon 113 were not detected above reporting limits in any leachfield area Tpsg HSU wells during the reporting period.

During 2018, TCE soil vapor concentrations in the Tpsg HSU leachfield area ranged from 0.23 to 2.3 $ppm_{v/v}$, significantly lower than the 710 $ppm_{v/v}$ maximum pre-remediation concentration measured in 2004 in W-834-S13. The highest concentration (2.3 $ppm_{v/v}$) detected in extraction well W-834-S12A is representative of ongoing vapor extraction operations, not rebound conditions, as it occurred on March 14, nine days after the resumption of facility operations following the winter shutdown period.

Tps-$Tnsc_2$ HSU

In the leachfield area, the Tps-$Tnsc_2$ HSU continues to exhibit overall declining VOC concentrations since monitoring began in 1989. The underlying Tps-$Tnsc_2$ HSU, monitored by two wells, W-834-S8 and W-834-S9, exhibits VOC concentrations significantly lower than in the overlying Tpsg HSU or in the core area. TVOC concentrations in Tps-$Tnsc_2$ HSU groundwater have decreased from a historical maximum of 16,000 µg/L (entirely TCE, W-834-S8, 1992) to a 2018 maximum of 3,400 µg/L (mostly TCE, W-834-S8, August).

PCE concentrations have declined from a historical maximum of 170 µg/L (W-834-S8, 1993) to a 2018 maximum of 42 µg/L (W-834-S8, August). Concentrations of cis-1,2-DCE have decreased from a historical maximum of 130 µg/L (W-834-S8, 1991) to a 2018 maximum of 52 µg/L in the same well (August). Since monitoring began in 1989, 1,1,1-TCA has not been detected above its reporting limit in this HSU. CFORM has decreased from a historical maximum of 6.1 µg/L (W-834-S8, 1993) to a 2018 maximum of 2.2 µg/L in well W-834-S8, similar to the 2017 CFORM maximum of 2.5 µg/L for this well. The historical maximum CTET concentration was 0.94 µg/L (W-834-S8, 2017). CTET was

detected one time in 2018 at 0.67 µg/L, in the same well. The 2018 maximum 1,1-DCE concentration was observed in well W-834-S9 at 1.2 µg/L which represents the historical maximum for the leachfield area Tps-$Tnsc_2$ HSU but is still well below the 6 µg/L MCL. An August sample from well W-834-S8 yielded 0.52 µg/L of 1,1-DCE.

Trans-1,2-DCE, Freon 113, and vinyl chloride were not detected above their reporting limits during 2018 in leachfield area Tps-$Tnsc_2$ HSU wells.

Distal Area

VOC concentrations and distribution in groundwater in the Tpsg, Tps-$Tnsc_2$, and $Tnbs_1$ HSUs in the Building 834 distal area are discussed below.

Tpsg HSU

Since monitoring began in 1989, in the distal area, the Tpsg HSU has continued to exhibit declining VOC concentrations. This distal area includes 20 monitor wells completed in the Tpsg HSU. In the T2 area, this HSU has been the target of a long-term enhanced *in situ* bioremediation treatability study since 2005, as discussed in Section 2.2.3.4 of this report.

TVOC concentrations in this area have decreased from a historical maximum of 86,000 µg/L (entirely TCE, well W-834-T2A, 1988) to a 2018 maximum of 7,000 µg/L (almost entirely TCE, W-834-T2B, February and August). The 2017 maximum TVOC concentration for Tpsg HSU wells in this area also occurred in well W-834-T2B (6,400 µg/L, almost entirely TCE). Prior to 2017, sufficient water for sampling was last present in 2002 when 21,000 µg/L of TVOCs (almost all TCE) were detected.

PCE concentrations have decreased from a historical maximum of 160 µg/L (W-834-S6, 1987) to a 2018 maximum of 21 µg/L (W-834-T2D, August). This represents a slight decrease from the 2017 maximum PCE concentration for Tpsg HSU distal area wells of 25 µg/L (W-834-T2D). Cis-1,2-DCE has decreased from a historical maximum of 6,200 µg/L in W-834-T2 (2008) to a 2018 maximum of 150 µg/L (W-834-1825, August), which represents a significant decrease from the 2017 maximum of 1,100 µg/L (W-834-1824). Trans-1,2-DCE was detected in two distal area Tpsg HSU wells during the reporting period, at 1.8 and 2.7 µg/L (W-834-T2, February and August, respectively) and 1.2 and 0.91 µg/L (W-834-1824, February and August, respectively).

During the reporting period, concentrations of 1,1,2-TCA have decreased from a historical maximum of 200 µg/L (W-834-T2D, 1991) to a 2018 maximum of 1.6 µg/L (W-834-T2B, February). Two other area wells had 1,1,2-TCA concentrations below 1 µg/L. All three concentrations were well below the MCL cleanup standard of 5 µg/L.

CFORM has decreased from a historical maximum concentration of 270 µg/L (W-834-M1, 1999) to a 2018 maximum of 2.4 µg/L (W-834-T2B, August). During the reporting period, four other Tpsg HSU wells in the distal area yielded CFORM in excess of reporting limits, but well below the MCL cleanup standard of 80 µg/L. During 2018, vinyl chloride was only observed in two distal area Tpsg HSU wells at 21 and 39 µg/L (W-834-T2, February and August, respectively) and 9.6 and 1.7 µg/L (W-834-1824, February and August, respectively). During 2017, vinyl chloride concentrations were observed in four T2 area wells ranging from 3.4 µg/L to 180 µg/L. Vinyl chloride concentrations in 2017 and 2018 were within the range observed in these wells in recent years. During 2018, only three distal area wells yielded 1,1-DCE in excess of the reporting limit, W-834-1825 (0.86 µg/L, August), W-834-T2A (0.56 µg/L, February), and W-834-T2B (0.55 and 0.75 µg/L, February and August,

respectively). During this reporting period, Freon 113 and CTET were not detected in any area wells. T2 area wells were not sampled for light hydrocarbon analysis during 2018. However, in May 2016, ethene was detected in T2 area wells W-834-T2 (460 µg/L), W-834-T2A (420 µg/L), and W-834-1824 (2.2 µg/L) and did not exceed the reporting limit in wells W-834-1833, W-834-2117, W-834-2118, W-834-T2D, and W-834-T2D. The presence of ethene and vinyl chloride is a significant indicator of anaerobic dechlorination related to biostimulation and bioaugmentation in the T2 area.

Tps-Tnsc$_2$ HSU

The intermediate depth Tps-Tnsc$_2$ HSU is monitored by well W-834-2119, which yielded a 2018 maximum TVOC concentration of 14,000 µg/L (nearly all TCE, August). TVOC concentrations in well W-834-2119 exhibited an increasing trend from 7,022 µg/L in May 2005, when the well was first sampled, to a historical maximum concentration of 16,700 µg/L in August 2012. Since August 2012, TVOC concentrations have been stable to generally decreasing. Except for maximum concentrations of PCE (16 µg/L, August) and cis-1,2-DCE (36 µg/L, August), no other VOCs were detected above their respective reporting limits in well W-834-2119 during 2018.

Tnbs$_1$ HSU

In the distal area, the deep Tnbs$_1$ HSU is monitored by guard wells W-834-T1 and W-834-T3. TCE and other VOCs were not detected in any of the eight samples collected during this reporting period and have only been detected three times in these wells: once each in 1986 and 1987 when very low concentrations of TCE (less than 4 µg/L) were detected immediately following well installation and were likely caused by some cross-contamination with shallow soil during drilling of W-834-T1, and once in 1994 when 1 µg/L was detected in W-834-T3.

2.2.3.2.2. TBOS/TKEBS Concentrations and Distribution

TBOS/TKEBS is found primarily in the core area, with the highest concentrations observed in the Tpsg HSU. TBOS/TKEBS concentrations in groundwater have decreased from a historical maximum of 7,300,000 µg/L (core area Tpsg HSU monitor well W-834-D3, 1995) to a 2018 maximum concentration of 650 µg/L (core area extraction well, W-834-D4, March). Only 16 of the 34 wells in the Building 834 OU yielded TBOS/TKEBS concentrations above the reporting limit during 2018, ranging from 17 to 650 µg/L. TBOS/TKEBS concentrations often differ significantly from one sampling event to the next. Although several attempts have been made to identify and measure TBOS/TKEBS as a floating product, it was last visually observed in some core area wells in the mid-1990s. Wells where TBOS/TKEBS is a co-contaminant with TCE generally exhibit the highest concentrations of microbial degradation products, such as cis-1,2 DCE and vinyl chloride, accumulating under anaerobic conditions when the SVE system is not operating.

Because TBOS/TKEBS concentrations in Tpsg HSU wells in the leachfield and distal areas have historically been low or below reporting limits, sampling for TBOS/TKEBS in the leachfield and distal areas is performed biennially, with approximately half the wells sampled during even-numbered years and half sampled during odd-numbered years. During 2018, four leachfield area Tpsg HSU wells were sampled for TBOS/TKEBS and two yielded concentrations above reporting limits, at 33 µg/L (W-834-2113, March) and 24 µg/L (W-834-S13, March). During 2018, five distal area Tpsg HSU wells were sampled for TBOS/TKEBS and none yielded concentrations above reporting limits.

The concentrations and extent of TBOS/TKEBS in groundwater are greater in the Tpsg HSU than in the underlying Tps-Tnsc$_2$ HSU, because these compounds exist as a LNAPL and not as a dense,

non-aqueous-phase liquid. The historical maximum TBOS/TKEBS concentration in the Tps-$Tnsc_2$ HSU is 110 µg/L (W-834-U1, 2009). During this reporting period, concentrations of TBOS/TKEBS were below reporting limits in samples collected in February from four core area wells, one leachfield area well, and one distal area well screened in the Tps-$Tnsc_2$ HSU. During the reporting period, TBOS/TKEBS concentrations remained below the reporting limit in February and August samples from guard wells W-834-T1 and W-834-T3.

2.2.3.2.3. Nitrate Concentrations and Distribution

During 2018, nitrate in Tpsg HSU groundwater ranged from below the 0.5 mg/L reporting limit to a maximum concentration of 530 mg/L (distal area monitoring well W-834-T2B, February). The 2017 maximum nitrate concentration was 300 mg/L in distal area well W-834-M1.

In the core area, 2018 nitrate concentrations in the Tpsg HSU varied spatially and temporally. This may be due to the occurrence of denitrification associated with the ongoing intrinsic *in situ* biodegradation of TCE. During 2018, nitrate concentrations in Tpsg HSU groundwater exceeded the 45 mg/L MCL cleanup standard in:

(1) seven core area wells at concentrations ranging from 48 to 330 mg/L,

(2) three leachfield area well at concentrations ranging from 130 to 210 mg/L, and

(3) seven distal area wells at concentrations ranging from 49 to 530 mg/L.

Except for well W-834-T2B, all of these concentrations were within historical ranges observed in these wells since 2006. For well W-834-T2B, a February sample yielded 530 mg/L of nitrate. This well had not been sampled since 2001 and nitrate concentrations ranged from 120 to 214 mg/L between 1996 and 2001. Nitrate concentrations in all other Tpsg HSU wells were below the 45 mg/L MCL cleanup standard and many did not exceed the reporting limit (typically 0.5 mg/L). For core area wells screened in the Tpsg HSU, the number of wells with nitrate concentrations exceeding the 45 mg/L MCL cleanup standard decreased from 11 wells in 2015 to seven wells in 2018. Although both natural (soil) and anthropogenic sources contribute to the nitrate in the perched groundwater, the anthropogenic sources are likely the most significant.

In the underlying Tps-$Tnsc_2$ HSU, 2018 nitrate concentrations in groundwater exceeded the 45 mg/L MCL cleanup standard in:

(1) one core area well (W-834-1711, 81 mg/L, February),

(2) two leachfield area wells (W-834-S8, 120 mg/L, February; and W-834-S9, 78 mg/L, February),

(3) one distal area well (W-834-2119, 110 mg/L, February), and

(4) one well south of the distal area (W-834-T5, 86 mg/L, February).

All of these nitrate concentrations were within the historical range observed in these wells since 2006. Nitrate concentrations in all other Tps-$Tnsc_2$ HSU wells were below the 45 mg/L MCL cleanup standard and many did not exceed the reporting limit (typically 0.5 g/L).

Nitrate concentrations in groundwater have decreased from a historical maximum of 749 mg/L (monitor well W-834-K1A, 2000) to a 2018 maximum of 530 mg/L (W-834-T2B, February). However, the persistence of elevated nitrate indicates that an ongoing source of nitrate to groundwater exists, likely a combination of both natural and anthropogenic sources, including the proximal leachfield septic system. During 2018, nitrate did not exceed the reporting limit in February and August samples collected from guard wells W-834-T1 and W-834-T3.

2.2.3.2.4. Other Contaminant Concentrations and Distribution

The extent of diesel in groundwater in the Building 834 area is limited to the vicinity of a former underground storage tank located beneath the paved portion of the core area. Diesel concentrations have decreased from a historical maximum of 3,900,000 µg/L in well W-834-S8 (2004) to a 2018 maximum of 470 µg/L (March) in Tps-Tnsc$_2$ core area extraction well W-834-2001. A subsequent sample collected from this well in August did not yield diesel concentrations above the reporting limit of 200 µg/L. A second core area well, W-834-U1, sampled in February 2018, did not yield diesel concentrations above the reporting limit. Diesel concentrations measured in groundwater tend to vary from one sampling event to the next, likely due to varying amounts of free-phase product in the subsurface and fluctuating groundwater levels. No floating product was observed in groundwater during 2018.

Perchlorate concentrations well in W-834-2118 have decreased from a historical maximum of 11 µg/L (2005) to a 2018 maximum of 6.1 µg/L (August), slightly exceeding the perchlorate MCL of 6 µg/L. Perchlorate concentrations in this well have fluctuated within a range of 4.0 to 6.1 µg/L since 2007. This well will continue to be monitored for perchlorate.

2.2.3.3. Building 834 OU Remediation Optimization Evaluation

During 2018, substantially more VOC mass was removed by SVE than by groundwater extraction, as has been the case historically. Of the 5,330 g of VOCs removed during 2018, 4,800 g (90%) were removed from the vapor phase. For groundwater and soil vapor combined, an approximate 5% decrease in VOC mass removal occurred during 2018 (5,330 g), compared with 2017 (5,600 g). During 2018, the volume of treated groundwater decreased by approximately 51%, from 162,000 gallons (2017) to 107,000 gallons (2018), and the volume of treated soil vapor increased by 66% from 32,832,000 cf (2017) to 54,661,000 cf (2018). The decrease in treated groundwater volume and increase in treated soil vapor volume was likely due to the decrease of available groundwater from the below average 2017-2018 winter rainfall. The treatment facility operated for approximately 271 days in 2018, approximately 20% more than the 227 days in 2017.

During 2018, the total nitrate mass removed was 41 kg, 124% less than 2017 when 92 kg were removed. The total TBOS/TKEBS mass removed in 2018 was 7.9 g, an increase from 2017 when 3.6 g were removed. Table Summ-1 lists the mass removed by each individual treatment facility during 2018.

Core Area

During the reporting period, no modifications were made to the core area extraction which continues to adequately capture the highest VOC concentrations in groundwater. VOC concentrations in core area monitor wells will continue to be closely monitored to evaluate the performance of active dual extraction, in combination with intrinsic biodegradation during SVE system shutdown periods, when the subsurface becomes oxygen-depleted and reducing. These ongoing dual extraction operations in the core area continued to dewater the Tpsg HSU from 1995 to 2016. During this time, drought conditions reduced replenishment of groundwater. However, significant rainfall during the 2016-2017 winter season recharged the HSU and stabilized groundwater levels in 2017. During 2018, extraction operations and a return of regional drought conditions appear to have dewatered the Tpsg HSU to a limited extent. Active groundwater extraction, SVE, and biodegradation have reduced TVOC

concentrations in groundwater in the Tpsg HSU core from a historical maximum of 1,100,000 µg/L (W-834-D5, 1988) to a 2018 maximum of 45,000 µg/L (W-834-C5, August). The highest TCE concentrations during the reporting period were detected in monitor well W-834-C5 at 25,000 µg/L (August), while the highest concentrations of cis-1,2-DCE, at 20,000 µg/L (August), were detected in the same well. A maximum concentration of 420 µg/L vinyl chloride was also measured in extraction well W-834-B3 in July.

As stated in Section 2.2.3.2.1, TCE biodegradation continues locally within the core area, where a significant mass of TBOS/TKEBS has historically been present and, when hydrolyzed, serves as an electron donor for biodegradation, especially during shutdown of the SVE system. As discussed in Section 2.2.3.2.2, during 2018, TBOS/TKEBs was detected in 14 core area wells. The presence of *Dhc* microorganisms is resulting in significant degradation of TCE to the benign end product ethene in the subsurface surrounding these wells. However, as a result of aerobic conditions introduced during SVE operations, conditions favoring *Dhc* in the core area are not ubiquitous, resulting in cis-1,2-DCE accumulation.

During 2018, nitrate concentrations also continued to show declining trends in Building 834 OU wells. Nitrate concentrations in seven core area Tpsg HSU wells ranged from 48 to 330 mg/L , showing little change from 2017, when five core area Tpsg HSU wells yielded nitrate concentrations ranging from 70 mg/L to 210 mg/L.

As presented in the Fourth Five-Year Review for the Building 834 Operable Unit (Buscheck et al., 2017c), VOC concentrations in Tpsg HSU monitor wells W-834-B4 and W-834-C5 will be monitored during the next five years to verify whether long-term decreasing concentration trends continue in these wells. TVOC concentrations in well W-834-B4 decreased from 9,500 µg/L in 2011 to 8,100 µg/L in 2017 (well was not sampled during 2018), and TVOC concentrations in well W-834-C5 decreased from 53,200 µg/L in 2011 to 45,000 µg/L by the second semester of 2018. If these wells exhibit significant increasing VOC trends during the next five-year period, additional actions, such as installing dual extraction wells in the vicinity of these wells or implementing *in situ* bioremediation, may be considered.

The highest VOC concentrations in the Building 834 OU and at Site 300 have been detected in the Tps-Tnsc$_2$ HSU, a low permeability perching horizon, which underlies the Tpsg HSU in the core area. TVOC concentrations have decreased from a historical maximum of 250,000 µg/L (2001) to a 2018 maximum of 212,000 µg/L (August), both in monitor well W-834-A1, in this Tps-Tnsc$_2$ HSU. Therefore, and as recommended in the Fourth Building 834 Five-Year Review (Buscheck, et al., 2017b), a new dual extraction well (W-834-3301) was drilled near existing well W-834-A1 during the first semester of 2017. This well was screened in the Tps-Tnsc$_2$ HSU to prevent the upward migration of contaminants into overlying Tpsg sediments. The purpose of this new dual extraction well is to test the feasibility of VOC-bearing groundwater and SVE from this low permeability perching horizon. This well had limited available water and was sampled twice in 2018 yielding 2,600 µg/L TVOCs (mostly TCE, February) and 2,100 µg/L TVOCs (mostly TCE, August).

Leachfield Area

In the leachfield area, the extraction wellfield continues to capture portions of the VOC plume in Tpsg HSU groundwater. However, the areas with the highest VOC concentrations (in the vicinity of monitor well W-834-2113) were not fully captured. In accordance with recommendations presented in

the Third Building 834 Five-Year Review (Valett, et al., 2012), an extraction wellfield expansion was completed in August 2017 in the leachfield area by converting W-834-2113 from a monitor well to a dual extraction well. Well W-834-2113 was connected to the Building 834-Source (SRC) treatment system as a fully functioning dual extraction well in August 2017.

TVOCs in the Tpsg HSU have decreased from a pre-remediation maximum of 179,200 µg/L (mostly TCE, W-834-S1, 1988) to a 2018 maximum of 2,000 µg/L (almost entirely TCE, March) in extraction well W-834-2113, a decline from 49,000 µg/L (almost entirely TCE) detected in 2008.

TVOC concentrations in the Tps-$Tnsc_2$ HSU have decreased from a historical maximum of 16,000 µg/L (entirely TCE, W-834-S8, 1992) to a 2018 maximum of 3,400 µg/L (mostly TCE, W-834-S8, August).

VOC concentration trends in the underlying Tps-$Tnsc_2$ HSU in the leachfield area (monitored by two wells, W-834-S8 and -S9) will also continue to be monitored closely. From 2007 to 2016, VOC trends have generally remained stable, with concentrations varying from 1,000 µg/L to 6,000 µg/L. During 2017 and the first semester of 2018, the highest VOC concentrations in both wells decreased by an order of magnitude, then increased again by an order of magnitude during the second semester of 2018. TVOC data will be reviewed and discussed in future CMRs to determine whether this is part of a long-term declining trend or due to short-term testing in 2017 at W-834-2113. Concentrations of TBOS/TKEBS remain below the reporting limit and nitrate remains above the 45 mg/L MCL cleanup standard, as it was detected in two leachfield Tps-$Tnsc_2$ HSU wells during 2018.

VOCs concentrations in groundwater are expected to continue to decrease as remediation progresses. The deep regional Lower $Tnbs_1$ aquifer continues to be free of contaminants, as demonstrated by quarterly analyses of groundwater from guard wells W-834-T1 and W-834-T3.

Distal Area

Since 2005, the distal area has been the target of a long-term enhanced *in situ* bioremediation treatability study, which is described in greater detail in the section below.

Per the recommendations presented in the Fourth Five-Year Review for the Building 834 Operable Unit (Buscheck et al., 2017c), DOE recommended installing a new Tps-$Tnsc_2$ HSU dual groundwater/SVE well in the T2 portion of the distal area near existing monitor well W-834-2119, because:

(1) although VOC concentrations in well W-834-2119 have been stable to slightly decreasing since 2012, overall VOC concentrations have increased in this well since monitoring began in 2005, until VOC concentrations in the well reached a historical maximum in 2012, and

(2) nitrate concentrations have been increasing in well W-834-2119 over the same five-year review period. Due to unexpected drilling issues, this well was completed as a two-inch diameter monitor well screened from 30 to 40 ft below ground surface (bgs) in the Tpsg HSU (instead of the Tps-$Tnsc_2$ HSU).

2.2.3.4. T2 Treatability Study

Since 2005, the distal T2 area has been the target of a long-term enhanced *in situ* bioremediation treatability study in the Tpsg HSU, including biostimulation using sodium lactate (April 2007 to December 2008) and bioaugmentation using KB-1™ (August 2008), a consortium of dechlorinating bacteria that contain *Dhc*. This pilot-scale treatability study includes ongoing post-treatment

monitoring to determine if VOC concentrations will rebound after biostimulation was suspended in January 2009.

The primary objective of this treatability study is to assess the performance of enhanced *in situ* bioremediation of TCE at concentrations greater than 10,000 µg/L in a water-bearing zone typical of TCE contaminant source areas at Site 300. In particular, the T2 area was selected for this *in situ* treatability study because of:

1. The presence of challenging source area remediation conditions, such as low hydraulic conductivity, subsurface heterogeneity, and limited recharge; and
2. The low potential for negatively impacting groundwater with beneficial uses (i.e., the VOCs occur in a perched zone isolated laterally and vertically from any receptors or groundwater of beneficial use). Since 2005, progress on this treatability study has been reported semi-annually and annually in the CMRs and in the Building 834 OU Five-Year Review reports.

Based on the successful implementation of the treatability study, a Draft Final Phase 2 Pilot Study Work Plan for Enhanced *In Situ* Bioremediation at Building 834 was submitted for regulatory review in November 2015 (LLNL, 2015). Regulatory approval of this work plan was received in September 2016. The proposed activities include expansion of the original treatment zone at the T2 area by:

1. Implementing a small-scale recirculation cell to extract groundwater from wells W-834-T2A and W-834-T2D,
2. Continuing to use well W-834-1824 as an injection well for biostimulation with ethyl lactate (rather than sodium lactate) as the electron donor, and
3. Using wells W-834-T2, W-834-1825, and W-834-1833 as performance monitor wells.

Ethyl lactate would replace sodium lactate as the preferred biostimulation agent for this enhanced *in situ* biotreatability study because it is a more effective electron donor and it does not add salt (i.e., sodium) to the groundwater. Water levels declined in several of the T2 area wells in recent years, and in some wells to below the bottom of the well screens, due to the regional drought conditions and the ongoing upgradient dual extraction operations in the Building 834 core and leachfield areas. Thus, sufficient groundwater necessary for the implementation of the small-scale recirculation cell was not available. However, as a result of the above-average precipitation during the 2016-2017 winter season, groundwater levels in T2 area wells have risen approximately five to seven feet since January 2017, creating more favorable hydraulic conditions for implementing the treatability study. A summary of recent chemical and hydraulic data relevant to the treatability study is presented in the 2017 CMR (Buscheck and Loll, 2018x) and recent data are summarized below.

Well W-834-T2

Following the sodium lactate injections into well W-834-1824 in April 2007 and bioaugmentation with KB-1™ into well W-834-1825, TVOC concentrations in W-834-T2 decreased from a baseline concentration of 10,000 µg/L in January 2007 to a 2018 maximum of 191 µg/L (August). In August 2018, TCE and cis-1,2-DCE were detected at concentrations of 88 µg/L and 61 µg/L, respectively, while concentrations of 39 µg/L vinyl chloride confirm that reductive dechlorination is still ongoing in well W-834-T2 and the surrounding subsurface, although sodium lactate injections ceased in December 2008. Depleted nitrate concentrations (less than 1 mg/L reporting limit) and an ORP of -130 mV, measured in February 2018in this well, also indicate that conditions are still conducive for reductive dechlorination.

Well W-834-T2A

Although TCE rebounded to 2,800 µg/L in August 2018, these concentrations are still well below the historical maximum of 86,000 µg/L detected in 1988. Nitrate concentrations of 49 mg/L (February 2018) and an ORP measurement of +53.0 mV in August 2018 suggest that subsurface conditions have locally changed from anoxic to aerobic, limiting the process of reductive dechlorination.

Well W-834-1825

By August 2018 TCE concentrations at well W-834-1825 rebounded to 1,800 µg/L with a detection of 160 µg/L cis-1,2-DCE, while vinyl chloride was not detected above the 0.5 µg/L laboratory reporting limit. Nitrate concentrations of 45 mg/L (February 2018) and an ORP measurements of +211 mV (August 2018) indicate that the subsurface has returned to aerobic conditions.

Well W-834-1833

This performance monitor well has exhibited only limited evidence that it had been significantly impacted by any of the bioremediation treatability study activities. In August 2018, a groundwater sample from W-834-1833 contained 1,500 µg/L TCE and 34 µg/L cis-1,2-DCE. Nitrate concentrations of 98 mg/L (February 2018) and an ORP measurement of +52 mV (August 2018), indicate that conditions surrounding well W-834-1833 are aerobic and not conducive to reductive dechlorination. Subsurface heterogeneity is likely responsible for the poor historical performance of in situ bioremediation at this location.

Well W-834-T2D

TVOC concentrations, primarily TCE, declined from 11,000 µg/L in January 2007 to 5,636 µg/L in August 2018, while cis-1,2-DCE was detected at 15 µg/L and vinyl chloride was not present above the reporting limit of 2.5 µg/L in well W-834-T2D. This performance monitoring well exhibited very little evidence that it had been impacted by any of the bioremediation study activities. As was seen in well W-834-1833, the reduction in TCE concentrations is most likely due to the biotransformation of TCE to ethene occurring in the T2 treatment zone located upgradient.

Well W-834-1824

This well served as the injection well for both the tracer and sodium lactate during the treatability study. In 2018, TCE, cis-1,2-DCE, and vinyl chloride concentrations decreased from past years at 1.2 µg/L, 2.3 µg/L and 1.7 µg/L, respectively, but still indicating that TCE is biotically dechlorinated. An ORP measurements of -96 mV in August 2018, and depleted nitrate concentrations (below the 5 mg/L reporting limit) were also indicative of strongly reducing conditions.

Wells W-834-2117 and W-834-2118

Additionally, TVOC concentrations in upgradient well W-834-2117 declined from a baseline concentration of 20,200 µg/L in June 2005 to 2,621 µg/L by August 2018. This overall decreasing trend, also observed in performance monitoring wells W-834-T2A, W-834-T2D, and W-834-1833, is due to processes such as volatilization, diffusion, and sorption, but also in part to hydraulic capture of TCE by upgradient pumping in the Building 834 OU core and leachfield area. Dissolved TCE concentrations are decreasing over time without any reduction attributable to in situ bioremediation. TVOC concentrations in well W-834-2118, located downgradient of the T2 treatment zone, have similarly decreased from 600 µg/L in 2005 to 130 µg/L in August 2018.

Summary

Addition of electron donor sodium lactate and Dhc microorganisms to the subsurface have established reduction-oxidation reaction (redox) conditions that are conducive to complete reductive dechlorination of TCE in the Tpsg HSU, If Phase 2 of the treatability study occurs, performance will be judged primarily on the distribution of ethene beyond its current extent and the overall reduction in TVOC concentrations in the T2 area. During 2019, DOE/LLNL will continue to evaluate the potential and value in commencing a next phase of the bioremediation treatability study at T2. DOE/LLNL is also evaluating potentially expanding dual phase extraction to the T2 area, as an alternative to continuing the bioremediation treatability study. A recommended approach to enhancing VOC remediation at T2 will be presented to the regulatory agencies in 2019.

2.2.3.5. Building 834 OU Remedy Performance Issues

During the reporting period, there were no new issues that affect the performance of the cleanup remedy for the Building 834 OU. Until the 2016-2017 winter rainfall period, declining water levels related to ongoing drought conditions had been impacting the ability to pump and treat larger masses of groundwater and collect groundwater samples and was delaying the implementation of the second phase of the T2 enhanced *in situ* bioremediation treatability study. Although the 2017-2018 winter season generated below normal rainfall totals, higher than normal rainfall totals during the 2016-2017 winter season created more favorable hydraulic conditions for implementing the treatability study, as described in Section 2.2.3.4 above.

Dual extraction in the Building 834 core area and leachfield area continues to be effective in reducing VOC mass and concentration in both groundwater and vapor. The remedy continues to be effective and protective of human health and the environment and is making progress toward cleanup.

Per the recommendations presented in the Fourth Five-Year Review for Building 834 (Buscheck et al., 2017c), VOC trends are being monitored in Tps-$Tnsc_2$ HSU wells and installation of additional extraction wells in this HSU may increase the effectiveness of remediation of VOCs in the Tps-$Tnsc_2$ HSU beneath the core area. Additionally, DOE will evaluate the feasibility and effectiveness of enhanced *in situ* bioremediation in the core area.

2.3. Pit 6 Landfill (OU 3)

The Pit 6 Landfill covers an area of 2.6 acres near the southern boundary of Site 300. From 1964 to 1973, this landfill was used to bury waste in nine unlined debris trenches and animal pits. The buried waste, which includes shop and laboratory equipment and biomedical waste, is located on or adjacent to the Corral Hollow-Carnegie Fault. Farther east, the fault trends to the south of two nearby water-supply wells, CARNRW1 and CARNRW2 (approximately 200 to 400 ft to the east). These active water-supply wells are located about 1,000 ft east of the Pit 6 Landfill. They provide water for the nearby Carnegie State Vehicular Recreation Area and are monitored on a monthly basis.

The Pit 6 Landfill was capped and closed in 1997 under CERCLA to prevent further leaching of contaminants resulting from percolation of rainwater through the buried waste. The engineered, multi-layer cap is intended to prevent rainwater infiltration into the landfill, mitigate potential damage caused by burrowing animals and vegetation, prevent potential hazards from the collapse of void spaces in the buried waste, and prevent the potential flux of VOC vapors through the soil. Surface water flow

on to the landfill is minimized by a diversion channel on the north side and drainage channels on the east, west, and south sides of the engineered cap.

A map of the Pit 6 Landfill OU showing the locations of monitor and water-supply wells is presented on Figure 2.3-1.

2.3.1. Pit 6 Landfill OU Surface Water and Groundwater Monitoring

The sampling and analysis plan for groundwater and surface water monitoring for 2018 is presented in Table 2.3-1. This table also explains deviations from the sampling plan.

During the second semester of 2018, groundwater monitoring was conducted in accordance with the CMP monitoring and post-closure requirements with the following exceptions: a total of 12 required analyses from four different wells (K6-15, K6-21, K6-24, and K6-32) and one spring (Spring 15) were not performed because the wells or spring were dry or had insufficient water for sampling.

Analytical results and groundwater elevation measurements obtained during 2018 are presented in Appendices B and C, respectively. A map of groundwater potentiometric surface contours is shown on Figure 2.3-2.

2.3.2. Pit 6 Landfill OU Remediation Progress Analysis

This section is organized into three subsections: analysis of contaminant distribution and concentration trends; remediation optimization evaluation; and performance issues.

2.3.2.1. Pit 6 Landfill OU Contaminant Distribution and Concentration

At the Pit 6 Landfill OU, VOCs (CFORM and TCE), perchlorate, and tritium are the primary COCs in groundwater. Nitrate is a secondary COC. These COCs have historically been identified within the Qt-$Tnbs_1$ HSU. The concentrations and activities of COCs in Pit 6 groundwater have significantly declined from their historical maxima, including TCE, which slightly exceeded its MCL cleanup standard in one well (EP6-09) during 2018. Rising groundwater levels observed in some wells in response to seasonal precipitation have resulted in localized vadose zone releases and small concentration increases of TCE and other COCs in 2018.

The Qt-$Tnbs_1$ HSU is divided into the Qt-$Tnbs_1$ North HSU (portion north of the Corral Hollow-Carnegie Fault Zone) and the Qt-$Tnbs_1$ South HSU (portion within the Corral Hollow-Carnegie Fault Zone) due to the difference in saturated thickness and bedding orientation of bedrock strata on either side of this regional fault. Thus, hydraulic response to pumping from the off-site State CARNRW water-supply wells and to seasonal rainfall events is different in the two HSUs. A deeper water-bearing zone ($Tnbs_1$ Deep HSU) occurs beneath a low-permeability confining layer at an approximate depth of 170 ft within the $Tnbs_1$ stratigraphic unit north of the fault zone. Transducers in guard wells K6-34 and W-PIT6-1819 continuously monitor water levels in the Qt-$Tnbs_1$ North HSU. During 2018, water level data from these wells indicated an ongoing hydraulic response to the daily to weekly pumping of nearby off-site water-supply wells CARNRW1 and CARNRW2. Although the pumping of these nearby water-supply wells is not controlled by LLNL, timing of pumping can be inferred from the water level responses in wells W-PIT6-1819 and K6-34. Previous hydraulic responses indicate that the CARNRW wells are pumping at a lower rate now than before 2014.

For the Qt-Tnbs$_1$ HSU: (1) isoconcentration contour and individual concentration maps for TVOCs, based on second semester data, are presented on Figure 2.3-3; and (2) a second semester tritium activity isocontour map is posted on Figure 2.3-4. Because each CMR map is representative of contaminant concentrations during a particular semester, the maximum concentration shown on the CMR map may not match the maximum concentration for 2018 described in the text.

2.3.2.1.1. VOC Concentrations and Distribution

Historically, the primary VOCs of concern in Pit 6 groundwater include TCE and CFORM. Other VOCs detected in groundwater during 2018 include PCE, cis-1,2-DCE, and 1,1-DCA. Currently, TCE is the only VOC that remains above its 5 µg/L MCL cleanup standard.

Qt-Tnbs$_1$ North HSU

Twelve monitor wells and two guard wells are screened in the Qt-Tnbs$_1$ North HSU at Pit 6. During 2018, VOCs were detected above their respective reporting limits in only one Qt-Tnbs$_1$ North HSU monitor well, EP6-08, in samples collected in January, February, April, and July. TCE, PCE, CFORM, and 1,1-DCA were detected at maximum concentrations of 2.3, 4.8, 0.76, and 0.56 µg/L, respectively, all in the April sample. Although these concentrations represent historical maxima for these contaminants (except for CFORM) in this well, none of these concentrations exceeded MCL cleanup standards (5, 5, 80, and 5 µg/L, respectively). VOCs were not detected in guard wells W-PIT6-1819 and K6-34.

Well EP6-08, located immediately east of Pit 6, had been dry between April 2008 and July 2017. When sampled in April 2008, it yielded a TVOC concentration of 1.8 µg/L, including 1.2 µg/L of PCE and 0.62 µg/L of TCE. Because the well had been dry for approximately ten years, it is likely that the approximate 7.5 ft rise in the water level during 2017 and 2018, leached residual VOCs from the vadose zone into the groundwater. The maximum depth of the bottom of the buried waste in Pit 6, immediately west of the well, is approximately 15 ft bgs. During 2018, water levels were a minimum of 39 ft below the bottom of the buried waste in Pit 6. The April depth to groundwater at EP6-08 was approximately 54 ft bgs dropping to 55.5 ft bgs in November. During the 1998 El Niño, water levels in well EP6-08 were approximately 14 ft higher than current levels. Other wells screened in the Qt-Tnbs$_1$ North HSU experienced similar water level rises during 2017 and 2018, but individual VOC concentrations in samples collected from these wells remained below reporting limits.

Qt-Tnbs$_1$ South HSU

Eleven monitor wells and two guard wells are screened in the Qt-Tnbs$_1$ South HSU at Pit 6. During 2018, TCE was detected in groundwater samples from four Pit 6 Landfill Qt-Tnbs$_1$ South HSU monitor wells (EP6-09, K6-16, K6-18, and K6-19) at concentrations ranging from 0.62 to 7.5 µg/L. These TCE concentrations are a significant decrease from the historical maximum of 250 µg/L detected in monitor well K6-19 in 1988. Only the TCE concentrations detected in well EP6-09 of (1) 7.5 µg/L in both routine and duplicate samples collected in July, and (2) 7.1 and 7.4 µg/L, respectively, in the routine and duplicate samples collected in January, slightly exceeded the TCE MCL cleanup standard of 5 µg/L. However, TCE concentrations in well EP6-09 are still well below its historical maximum of 28 µg/L (1995). While no longer a COC, concentrations of cis-1,2-DCE were detected in well K6-01S, located south of the Pit 6 Landfill, at 2.1 µg/L (January) and 2 µg/L (July). These concentrations are consistent with historical results, and well below the 6 µg/L cis-1,2-DCE MCL cleanup standard. The historical maximum cis-1,2-DCE concentration of 9.8 µg/L was detected in well K6-01S in 1992. No

other VOCs, including CFORM, were detected in the Qt-Tnbs$_1$ South HSU during this reporting period, including guard well K6-17. Guard well K6-22, was not sampled as scheduled in January due to low pH of groundwater, a recent issue in this well. The cause of the low pH is under investigation.

Groundwater levels in Qt-Tnbs$_1$ South HSU monitor wells EP6-09, K6-16, and K6-19, have risen between 1.6 ft and 3.3 ft since the first semester of 2016, but remained unchanged in well K6-18. This rise in water levels is likely a response to recharge of the higher than normal 2016-2017 winter season rainfall, and may have leached some residual vadose zone TCE into the groundwater at EP6-09, and to a lesser extent, at K6-16 and K6-19. Well EP6-09 is located at an approximate midpoint along the southern boundary of Pit 6. Well K6-19 is located at the southeast corner of Pit 6. Wells K6-16 and K6-18 are located approximately 200 ft downgradient and southwest of the southeast corner of Pit 6.

TCE concentrations in groundwater at well EP6-09 will continue to be monitored. If TCE concentrations remain at or slightly above the 5 µg/L MCL cleanup standard or decline, DOE/LLNL will continue to monitor the natural attenuation of TCE in this well during the next five-year review period. If TCE concentrations increase significantly above the 5 µg/L MCL cleanup standard, DOE/LLNL may consider remedial measures depending on the magnitude of increase and spatial extent of TCE above the cleanup standard.

Tnbs$_1$ Deep HSU

Well K6-26 monitors groundwater in the Tnbs$_1$ Deep HSU, within the fault zone. No VOCs, including TCE and CFORM, were detected in the Tnbs$_1$ Deep HSU during 2018. Historically, VOCs were only detected in this well twice and most recently in 1991 (0.9 µg/L of 1,1,1-TCA).

Water-Supply Wells

During the reporting period, VOCs were not detected in the two active CARNRW water-supply wells (CARNRW1 and CARNRW2) and two inactive CARNRW water-supply wells (CARNRW3 and CARNRW4).

2.3.2.1.2. Tritium Concentrations and Distribution

Including 2018, tritium has never been detected in Pit 6 Landfill groundwater at activities exceeding the 20,000 picoCuries per liter (pCi/L) MCL cleanup standard. During 2018, tritium was detected above the 100 pCi/L reporting limit in five monitor wells at the Pit 6 Landfill OU, K6-24, K6-33, K6-34, and W-PIT6-1819 screened in the Qt-Tnbs$_1$ North HSU and K6-19 screened in the Qt-Tnbs$_1$ South HSU. This represents a slight increase from 2017 when 2 wells yielded tritium above the 100 pCi/L reporting limit and a significant decline from 2016 when ten wells yielded tritium above the 100 pCi/L reporting limit. All of the tritium activities measured during 2018, 2017, 2016, and in recent years, have been far below the MCL cleanup standard (20,000 pCi/L), did not greatly exceed the 100 pCi/L reporting limit, and were accompanied by large analytical uncertainties, and therefore, are not likely indicative of an increasing trend in tritium activity.

Qt-Tnbs$_1$ North HSU

In the Qt-Tnbs$_1$ North HSU, tritium activities have decreased from a historical maximum of 2,150 pCi/L (well K6-36, 2000) to a 2018 maximum of 162 ±84.9 pCi/L (well K6-24). As mentioned previously, this was one of four wells screened in the Qt-Tnbs$_1$ North HSU, including guard wells K6-34 and W-PIT6-1819, with tritium above the 100 pCi/L reporting limit during 2018. These tritium activities were accompanied by large analytical uncertainties, and therefore are not indicative of

increasing trends in tritium activity or exceedance of background (less than the 100 pCi/L reporting limit).

Guard well W-PIT6-1819 is located approximately 200 ft west of the CARNRW1 and CARNRW2 water-supply wells, and defines the downgradient extent of tritium in Pit 6 groundwater with activities above 100 pCi/L. From July 2016 to July 2018, tritium activities in W-PIT6-1819 did not exceed the 100 pCi/L reporting limit until a July 2018 detection of 110 ±70.5. The tritium activities observed in this sample as well as activities in 2015 and 2016 were accompanied by large analytical uncertainties. Since 2007, tritium activities in W-PIT6-1819 have fluctuated from less than 100 pCi/L to 295 pCi/L, and define an overall decreasing trend. Since monitoring began in 2000, tritium has only been detected three times in guard well K6-34, barely exceeding the 100 pCi/L reporting limit most recently in October 2018 at 107 ±73.9. This tritium activity was also accompanied by a large analytical uncertainty.

Qt-Tnbs$_1$ South HSU

In the Qt-Tnbs$_1$ South HSU, tritium activities have decreased from a historical maximum of 3,420 pCi/L in 2000 (monitor well BC6-13, which monitors SPRING 7) to a 2018 maximum of 177 ±71.1 pCi/L (well K6-19, at the southeast corner of Pit 6) in a routine sample collected in August; the duplicate sample yielded 140 ±65.4 pCi/L of tritium and a January sample yielded 147 ±74.8 pCi/L. Again, all three of these detections were accompanied by large analytical uncertainties and, therefore, are not indicative of an increasing trend in tritium activity. Tritium was not detected above the 100 pCi/L reporting limit in any other Qt-Tnbs$_1$ South HSU wells during 2018.

Tnbs$_1$ Deep HSU

Tritium was not detected above the 100 pCi/L reporting limit in any Tnbs$_1$ Deep HSU wells during 2018. The historical maximum tritium activity in this HSU was 1,680 pCi/L (monitor well K6-26, 1999), well below the 20,000 pCi/L MCL cleanup standard.

Water-Supply Wells

During this reporting period, tritium was not detected above the 100 pCi/L reporting limit in the two active CARNRW water-supply wells (CARNRW1 and CARNRW2) and two inactive CARNRW water-supply wells (CARNRW3 and CARNRW4).

Qal-Tts HSU

In July 2015, tritium was detected in well W-33C-01 (187 ±83.5 pCi/L), located approximately 60 ft south of the Site 300 boundary within the Carnegie State Vehicular Recreation Area (SVRA) and screened in the Qal-Tts stratigraphic unit. Other than the 2015 detection, tritium has not been detected above the reporting limit in well W-33C-01 since monitoring was initiated in 2000, including two samples collected in January and July.

2.3.2.1.3. Perchlorate Concentrations and Distribution

The historical maximum concentration of perchlorate in a Qt-Tnbs$_1$ North HSU well was 14 µg/L (K6-35, 2003). Since 2004, including 2018, perchlorate has not been detected above the reporting limit in any Qt-Tnbs$_1$ North HSU well, including the two guard wells.

Qt-Tnbs$_1$ South HSU

Perchlorate concentrations in Qt-Tnbs$_1$ South HSU wells have decreased from a historical maximum of 65.2 µg/L in 1998 (K6-19) to 2018 maximum concentrations of 11 µg/L (duplicate sample) and 8.7 µg/L

(routine sample) in well K6-18. In 2018, well K6-19 was the only other Qt-$Tnbs_1$ South HSU well where perchlorate was detected, slightly exceeding the 6 µg/L MCL cleanup standard (6.6 µg/L, January). Perchlorate in well K6-19 had not previously been detected in excess of the reporting limit since 2001. Perchlorate in well K6-18 was not detected above the reporting limit between 2010 and 2014. The recent presence of perchlorate at K6-19 is likely due to rising water levels and concurrent leaching of residual vadose zone perchlorate into the groundwater.

At well K6-18, groundwater samples collected in 2012 and 2013 did not contain perchlorate concentrations above the reporting limit. The ORP field measurements were -56 mV and -67 mV when these samples were collected, suggesting that microbial reduction of perchlorate may have reduced concentrations to below reporting limits. In the same well between 2014 and 2018, perchlorate concentrations in the range of 5.1 to 11 µg/L were accompanied by positive ORP measurements greater than +53 mV, indicating conditions not supporting microbial reduction. Similarly, nitrate concentration in well K6-18, as discussed in the next section of this report, also declined to below reporting limits in 2012, then increased to 210 mg/L in 2015, and decreased to 190 mg/L during 2018. It is possible that the decreases and recent increases in the concentrations of perchlorate and nitrate in K6-18 groundwater observed since 2012 resulted from bacterially-motivated reduction of the two constituents, followed by an upgradient influx of oxygen-, perchlorate-, and nitrate-bearing water in 2014 and later. In addition to ORP, DO will be measured in this well to independently determine whether local bacterially-motivated degradation of perchlorate and nitrate is occurring during periods of lower rainfall.

The perchlorate trends in wells K6-18 and K6-19 will continue to be monitored and if elevated concentrations persist, an evaluation will be conducted to better constrain potential sources, including the Building 899 septic system, and the influence of local geochemistry.

$Tnbs_1$ Deep HSU

Perchlorate was not detected above the 4 µg/L reporting limit in any $Tnbs_1$ Deep HSU wells during 2018.

Water-Supply Wells

During this reporting period, perchlorate was not detected above the 4 µg/L reporting limit in the two active CARNRW water-supply wells (CARNRW1 and CARNRW2) and two inactive CARNRW water-supply wells (CARNRW3 and CARNRW4).

2.3.2.1.4. Nitrate Concentrations and Distribution

During 2018, nitrate was detected in groundwater samples collected from wells screened in the Qt-$Tnbs_1$ North and South HSUs.

Qt-$Tnbs_1$ North HSU

In the Qt-$Tnbs_1$ North HSU during 2018, nitrate was detected at a maximum concentration of 46 mg/L in well K6-24 (January), which slightly exceeded the 45 mg/L MCL cleanup standard. Additionally, nitrate was detected in five other wells during this reporting period at concentrations ranging from 1.1 to 11 mg/L, well below the MCL cleanup standard.

From 1998-2006, nitrate concentrations in well K6-24 remained low (less than 2 mg/L). In April 2011, nitrate concentration in the well increased to 63 mg/L. The well went dry during the second semester of 2011. By January 2017, water levels had recovered sufficiently, and the sample collected at that time contained 46 mg/L of nitrate, just in excess of the 45 mg/L MCL cleanup standard. The

2018 sample (January) also contained 46 mg/L of nitrate. Nearby well W-PIT6-2817 yielded only 2.2 mg/L of nitrate during 2018.

During 2018, nitrate was detected in guard well W-PIT6-1819 at very low concentrations of 2.3 mg/L (July) and 1.4 mg/L (January). Historically, nitrate has either not been detected above the 0.5 mg/L reporting limit or been detected at very low concentrations (historical maximum of 8.1 mg/L in 2012) in this well. Nitrate was not detected above the reporting limit during this reporting period in guard well K6-34 or any other well completed in the Qt-Tnbs$_1$ North HSU.

Qt-Tnbs$_1$ South HSU

In the Qt-Tnbs$_1$ South HSU, nitrate was detected during 2018 in six wells. Nitrate concentrations exceeded the MCL cleanup standard of 45 mg/L in two wells, K6-18 (190 and 180 mg/L, January, routine and duplicate samples, respectively) and K6-23 (170 and 160 mg/L, January and August, respectively). Nitrate concentrations declined in well K6-19 from 82 mg/L in January 2017 to 20 mg/L in January 2018.

Since 1998, nitrate concentrations in well K6-23 have ranged from 84 mg/L (June 2014) to 240 mg/L (May 2000), with a recent maximum nitrate concentration of 220 mg/L in July 2017. The current 2018 nitrate concentrations were 170 and 160 mg/L (January and August, respectively). Well K6-23 is located in close proximity to the Building 899 septic system, which is the likely source of the nitrate at this location (Dibley et al., 2013).

Well K6-18, located approximately 240 ft west-northwest and upgradient of well K6-23 and the Building 899 septic system, had exceeded the MCL cleanup standard prior to 2014 only in 1998 (an El Niño year) and in 2009. Nitrate concentrations increased significantly from 16 mg/L in January 2014 to 210 mg/L in January 2015. The 2018 nitrate concentrations occurred in January at 190 mg/L and 180 mg/L (routine and duplicate samples, respectively). Other wells located in the vicinity of K6-18 have neither exhibited a similar (recent) increase in nitrate concentrations nor exceeded the MCL cleanup standard. Well K6-16, located in the vicinity of K6-18, has exhibited a modest increase in nitrate from 10 mg/L in 2016 to 37 mg/L in January 2018, while groundwater levels have remained relatively stable. The source of nitrate recently detected at well K6-18 is unknown. This well will continue to be closely monitored to assess whether the current elevated nitrate concentrations persist at this location and to evaluate the potential source of this nitrate, including the vadose zone beneath the Pit 6 landfill and the Building 899 septic system. As stated in Section 2.3.2.1.3, variations in nitrate (and perchlorate) concentrations observed at this well may correlate with bacterially-motivated redox changes in the groundwater, i.e., nitrate concentrations are low when ORP data indicate anoxic or reducing geochemical conditions. In addition to ORP, DO will be measured in well K6-18 groundwater to determine potential influx of oxygen- and nitrate-bearing water from upgradient areas, during periods of higher rainfall.

Well K6-19, located approximately 400 ft west-northwest and upgradient of K6-23 and the Building 899 septic system at the southeast corner of the Pit 6 Landfill, yielded 20 mg/L of nitrate in January 2018, a decline from 82 mg/L of nitrate in the January 2017 sample from the well. The January 2017 nitrate concentration was the only detection above the MCL cleanup standard since the well was constructed in 1988 and the first above reporting limits since 2002. Other wells located in the vicinity of well K6-19 have not exhibited similar recent rises in nitrate concentrations. The source of nitrate recently detected at well K6-19 is unknown, although the water level in well K6-19 had risen

approximately 1.5 ft from the first semester of 2016 to the first semester of 2017, which may have caused the leaching of some available vadose zone nitrate into the groundwater. The water level then declined in this well approximately 2 ft from the first semester of 2017 to 2018, accompanied by the significant reduction in nitrate from 82 to 20 mg/L. This well will continue to be closely monitored to assess nitrate concentrations at this location and to evaluate the potential source of nitrate detected in this well, including the vadose zone beneath the Pit 6 Landfill.

Well K6-16, located approximately 80 ft south of K6-18 and 225 ft west and upgradient of the Building 899 septic system, contained 36 mg/L of nitrate in January 2018, an increase from 10 mg/L in January 2016. Although this concentration does not exceed the 45 mg/L MCL cleanup standard, nitrate concentration trends will be closely monitored to assess nitrate concentrations at this location and the potential source of nitrate detected in this well, including the vadose zone beneath Pit 6 and the Building 899 septic system.

One other well, EP6-09, completed v in the Qt-$Tnbs_1$ South HSU, yielded a nitrate concentration of 24 mg/L in January 2018, up from 15 mg/L in January 2017. The water level in this well did not change significantly, during this period. Nitrate was not detected in groundwater samples from any other wells completed in the Qt-$Tnbs_1$ South HSU, including guard wells K6-17 and K6-22, at concentrations above the MCL cleanup standard.

Tnbs1 Deep HSU

Including 2018, nitrate has never been detected in groundwater samples from the Tnbs1 Deep HSU above its 45 mg/L MCL cleanup standard.

Water-Supply Wells

During the reporting period, maximum nitrate concentrations were detected in active supply wells CARNRW1 and CARNRW2 at concentrations of 0.82 mg/L (February) and 1.3 mg/L (March), respectively. Nitrate was also detected in inactive water-supply well CARNRW3 (0.8 mg/L [May]) and was not detected above the reporting limit of 0.5 mg/L in inactive water-supply well CARNRW4. All detected nitrate concentrations were well below the 45 mg/L MCL cleanup standard.

2.3.2.2. Pit 6 Landfill OU Remediation Optimization Evaluation

The remedy for tritium and VOCs in groundwater at the Pit 6 Landfill is monitored natural attenuation (MNA). Groundwater levels and contaminant concentrations are monitored on a regular basis to: (1) evaluate the efficacy of natural attenuation in reducing contaminant concentrations, and (2) detect any new chemical releases from the landfill. In general, concentrations of the primary groundwater COCs (the VOCs CFORM and TCE, perchlorate, and tritium) at the Pit 6 Landfill OU continue to decline from historical maximums. During 2018, groundwater levels beneath the landfill ranged from approximately 15 ft (in wells located within the Corral-Hollow-Carnegie Fault Zone) to 40 ft (in wells located north of the Corral-Hollow-Carnegie Fault Zone) below the buried waste.

Overall, VOCs in groundwater near Pit 6 continue to exhibit decreasing trends. Except for a single well with two concentrations slightly above the reporting limit, concentrations of CFORM are below the reporting limit in all Pit 6 Landfill OU wells. Although no longer a COC, cis-1,2-DCE concentrations have remained below the 6 µg/L cleanup standard since 1993. During 2018, except for a detection in one well (EP6-09) that slightly exceeded the 5 µg/L MCL cleanup standard, TCE concentrations in groundwater were below the 5 µg/L MCL cleanup standard in samples from all Pit 6

Landfill OU wells. As discussed previously, TCE concentrations in groundwater at well EP6-09, located along the southern boundary of the Pit 6 Landfill, if TCE concentrations remain at or slightly above the 5 µg/L MCL cleanup standard or decline, DOE/LLNL will continue to monitor the natural attenuation of TCE in this well during the next five-year review period. If TCE concentrations increase significantly above the 5 µg/L MCL cleanup standard, remedial measures may be considered depending on the magnitude of increase and spatial extent of TCE above the cleanup standard. Water levels in well EP6-09 have risen nearly 2.4 ft since the first semester of 2016. This rising groundwater may have leached some available vadose zone TCE into the groundwater. The TCE concentration trend will be closely monitored in this well to determine any future long-term impacts and will be reported in future CMRs.

Tritium activities in groundwater continue to remain far below the 20,000 pCi/L MCL cleanup standard. During 2018, tritium activities remained low, slightly exceeding the 100 pCi/L reporting limit in only three wells: K6-19, K6-24, K6-33, K6-34, and W-PIT6-1819. The very low, but somewhat sporadic, tritium detections in these wells appear to be the result of significant analytical uncertainty and are not indicative of increasing tritium activity trends in groundwater. Accordingly, these results confirm that the MNA remedy for tritium at the Pit 6 Landfill OU continues to be effective. Tritium activities will continue to be monitored to determine any future long-term impacts.

Perchlorate concentrations in Pit 6 Landfill OU area groundwater have decreased from a maximum of 65 µg/L in well K6-19 (following the 1998 El Niño rain event) to below the 4 µg/L perchlorate reporting limit in all but two Pit 6 Landfill OU wells (K6-18, 11 µg/L, January and K6-19, 6.6 µg/L, January). Well K6-18 has shown a consistent decreasing perchlorate trend since 1999. The reason for the observed concentrations of perchlorate in K6-18 and K6-19 is not known, although the water level rise in well K6-19 since the first semester of 2016, may have leached available vadose zone perchlorate into the groundwater. The perchlorate trend in wells K6-18 and K6-19 will continue to be closely monitored. If local perchlorate persists, an evaluation will be conducted to determine whether these perchlorate concentrations are related to the Building 899 septic system or other sources or correlate with temporal variations in bacterially-motivated breakdown of pre-existing perchlorate. Except for these wells, perchlorate concentrations have remained below the reporting limit and the 6 µg/L MCL cleanup standard in all Pit 6 Landfill OU wells since March 2009.

Nitrate continues to be consistently detected in well K6-23 above its 45 mg/L MCL cleanup standard. As stated above, well K6-23 is located near the Building 899 septic system, which is the likely source of the nitrate at this location. The source of recent nitrate concentrations in well K6-18 above the 45 mg/L MCL cleanup standard is not known. Possible causes include the Building 899 septic system, changes in local pre-existing nitrate biodegradation, or rising water levels (encountering vadose zone nitrate) caused by recent rainfall recharge during the 2017-18 winter season. For the second year in a row, nitrate was also detected slightly above the 45 mg/L MCL cleanup standard in Qt-Tnbs$_1$ South HSU well K6-24, likely the result of a 7.5 ft rise in water level in the well since 2016, encountering vadose zone nitrate. These wells will continue to be closely monitored for nitrate.

2.3.2.3. Pit 6 Landfill OU Performance Issues

Currently, the temporal and spatial extent of groundwater in excess of MCL cleanup standards at the Pit 6 Landfill OU is very limited. Based on the preceding discussion, the remedy continues to be effective and protective of human health and the environment while it progresses toward cleanup.

2.4. High Explosives Process Area (OU 4)

The HEPA has been used since the 1950s for the chemical formulation, mechanical pressing, and machining of high explosives (HE) compounds into shaped detonation charges. Surface spills from 1958 to 1986 resulted in the release of contaminants at the former Building 815 steam plant. Subsurface contamination is also attributed to HE wastewater discharges into former unlined rinse water lagoons. Another minor source of contamination in groundwater was leaking contaminated waste stored at the former Building 829 Waste Accumulation Area (WAA) located near Building 829.

Four GWTSs operate in the HEPA: Building 815-Source (815-SRC), Building 815-Proximal (815-PRX), Building 815-Distal Site Boundary (815-DSB), and Building 817-Proximal (817-PRX). Two other GWTSs, Building 817-Source (817-SRC) and Building 829-Source (829-SRC), were converted to extraction and collection systems. Water from both systems is collected in portable tanks and transported to the 815-SRC or the 815-PRX GWTS for treatment. A map of the HEPA OU showing the locations of wells and treatment facilities is presented on Figure 2.4-1.

The 815-SRC GWTS began operation in September 2000, removing VOCs (primarily TCE), HE compounds (RDX and High-Melting Explosive [HMX]), and perchlorate from groundwater. System upgrades were implemented during the first semester of 2017. During the second semester of 2018, groundwater was extracted from wells W-815-02, W-815-04, and W-815-2803 at a combined flow rate of approximately 2.0 gpm. The current GWTS configuration includes a Cuno® filter to remove particulates, two ion-exchange resin columns connected in series for perchlorate removal, and three aqueous-phase GAC canisters (also connected in series) for VOC and HE compound removal. The treated effluent is injected into well W-815-1918 where an *in situ* denitrification process reduces the nitrate to nitrogen in the $Tnbs_2$ HSU.

The 815-PRX GWTS began operation in October 2002, initially removing only TCE and perchlorate from groundwater. However, beginning in 2011, the HE compound RDX began showing up in samples collected from the extraction wells. During the second semester of 2018, groundwater was extracted from wells W-818-08 and W-818-09 at a combined flow rate of approximately 1.9 gpm. The current GWTS configuration includes a Cuno® filter to remove particulates, two ion-exchange resin columns connected in series for perchlorate removal, and three aqueous-phase GAC canisters (also connected in series) for TCE and RDX removal. The treated effluent is injected into well W-815-2134 to undergo *in situ* denitrification in the $Tnbs_2$ HSU.

The 815-DSB GWTS began operation in September 1999, removing low concentrations (less than 10 µg/L) of TCE from groundwater extracted near the Site 300 southern boundary. During the second semester of 2018, groundwater was extracted from wells W-35C-04, W-6ER, and W-815-2608 at a combined flow rate of approximately 2.1 gpm for approximately 60% of the semester. The current GWTS configuration includes a Cuno® filter to remove particulates and three aqueous-phase GAC canisters connected in series for TCE removal. The treated effluent is discharged to an infiltration trench.

The 817-SRC GWTS began operation in September 2003, removing HE compounds (RDX and HMX) and perchlorate from groundwater. This system was converted to an extraction and collection system in April of 2017. Groundwater collected is transferred to the 815-SRC or 815-PRX GWTS for treatment. The single extraction well, W-817-01, extracts groundwater from a very low yield portion of the $Tnbs_2$ aquifer. The 817-SRC extraction system pumped groundwater for the first month of the

second semester of 2018 intermittently using solar power, and extracted a total of 152 gallons. The system was non-operational for the remainder of the semester (see 2.4.1.2 below).

The 817-PRX GWTS began operation in September 2005, removing VOCs, RDX, and perchlorate from groundwater. During the second semester of 2018, groundwater was extracted from wells W-817-03 and W-817-2318 at a combined flow rate of approximately 1.3 gpm, with about 98% of the flow from W-817-03. The current GWTS configuration includes a Cuno® filter to remove particulates, two ion-exchange resin columns connected in series for perchlorate removal, and three aqueous-phase GAC canisters (also connected in series) for removal of VOCs and HE compounds. Treated groundwater containing nitrate is injected into upgradient injection wells W-817-2109 and W-817-02 to undergo *in situ* denitrification in the $Tnbs_2$ HSU.

The 829-SRC GWTS began operation in August 2005, removing VOCs, nitrate and perchlorate from groundwater. Currently, groundwater is extracted from well W-829-06 at a flow rate of approximately 74 gallons per month and transported for treatment to the 815-SRC or 815-PRX GWTS. A total of 382.2 gallons were extracted during this reporting period.

2.4.1. HEPA OU Groundwater Extraction and Treatment System Operations and Monitoring

This section is organized into five subsections: facility performance assessment; operations and maintenance issues; compliance summary; sampling plan evaluation and modifications; and treatment facility and extraction wellfield modifications.

2.4.1.1. HEPA OU Facility Performance Assessment

The monthly groundwater discharge volumes, extraction flow volumes, and operational hours during 2018 are summarized in Tables 2.4-1 through 2.4-6. The total volume of groundwater extracted and treated, and the total contaminant mass removed during the reporting period are presented in Table Summ-1. The historical total volume of groundwater treated and discharged, and the total contaminant mass removed are summarized in Table Summ-2. Analytical results for influent and effluent samples collected during the second semester of 2018 are presented in Tables 2.4-7 through 2.4-9. The pH measurement results are presented in Appendix A.

2.4.1.2. HEPA OU Operations and Maintenance Issues

The following maintenance activities and operational issues occurred at the 815-SRC, 815-PRX, 815-DSB, 817-PRX GWTSs, and the 817-SRC and 829-SRC extraction and collection systems during the second semester of 2018:

815-DSB GWTS

- The 815-DSB GWTS was taken off line on August 9 to repair leaks discovered from extraction well W-815-2608. Approximately ½ gallon of groundwater was released to the ground surface. The system was restarted the same day.
- Extraction well W-815-2608 was taken off line on September 20 due to pressure transducer problems.
- The 815-DSB GWTS was off line from September 22 to the 23rd, and again from September 24 until the 26th due to air relief valve problems.

- The 815-DSB GWTS was operated with all three extraction wells from September 26 to the 27th, at which time extraction well W-815-2608 was again taken off line; the facility operated with the remaining two extraction wells from September 27 to October 3 and operated with all three wells from October 3 through October 4, at which time the entire system was shut down due to continued air relief valve problems.
- The 815-DSB GWTS was restarted on November 13, but again shut down due to another leak encountered at extraction well W-815-2608. Less than a cup of water was released to the ground surface.
- The 815-DSB GWTS was restarted on November 27 to collect compliance samples, shut down after sample collection, and freeze-protected on November 29.
- The 815-DSB GWTS was restarted on December 11 and operated until December 29 when the system aborted due to interlock flow problems. The system remained off line for the remainder of the reporting period.

815-PRX GWTS

- The 815-PRX GWTS was off line from July 25 until July 26 for a complete GAC change-out.
- The 815-PRX GWTS was taken off line for part of the day on August 8 to seal small leaks on two GAC vessels. Since these leaks were on the second and third GAC vessel, only contaminant-free water was released.
- The 815-PRX GWTS was off line from August 21 until September 5 to replace the level transducer in the injection well.
- The 815-PRX GWTS was off line from September 10 until the 11th to transfer groundwater collected at 829-SRC to the influent batch tank.
- The 815-PRX GWTS was secured for interlock checks on October 9. During the checks, a problem occurred with the freeze protection valves, which resulted in the release of approximately 2 gallons of untreated groundwater to the ground surface. The valves were fixed and the system restarted on October 10.

815-SRC GWTS

- The 815-SRC GWTS was off line for several hours on August 8, and again from August 11 until August 13 for scheduled power outages.
- The cyclically-operated extraction well, W-815-2803, was secured and freeze protected on November 19.

817-PRX GWTS

- The 817-PRX GWTS was off line from September 6 until September 18 for change-out of one of the perchlorate ion-exchange resin vessels.
- The cyclically-operated extraction well, W-817-2318, was secured and freeze protected on November 20.

817-SRC Extraction and Collection System

- The system was off line from the start of the reporting period until July 10, and again from July 18 through the remainder of the reporting period due to problems with the OPTO strategy. The system will undergo upgrades to the extraction well and to the control systems.
- 817-SRC was operated in manual mode on November 7 to facilitate compliance sampling of the extraction wells and system influent.

829-SRC Extraction and Collection System

- The system was secured and freeze protected on November 19, and remained off line for the remainder of the reporting period.

2.4.1.3. HEPA OU Compliance Summary

The 815-SRC, 815-PRX, 815-DSB, and 817-PRX GWTSs operated in compliance with the RWQCB substantive requirements for wastewater discharge throughout this reporting period. As discussed above, several leaks occurred during the second semester (at 815-DSB and 815-PRX). The volumes and contaminant masses for each release were reported to the Site 300 Environmental Analyst, Site 300 Management, and to DOE.

The 817-SRC and 829-SRC extraction and collections systems do not have any regulatory discharge component.

2.4.1.4. HEPA OU Facility Sampling Plan Evaluation and Modifications

The HEPA OU facility sampling and analysis plan complies with the monitoring requirements in the CMP/CP. The sampling and analysis plan is presented in Table 2.4-10. However, due to erratic and intermittent operations at the 815-DSB GWTS, collection of the second set of influent samples, normally done in October, was overlooked. All required effluent samples were collected.

2.4.1.5. HEPA OU Treatment Facility and Extraction Wellfield Modifications

No changes were made to any of the HEPA GWTSs or wellfields during the second semester of 2018. Changes will be made to the 817-SRC extraction and collection systems and their associated wellfields within the next year. Upgrades are in progress for both the electronic components at the extraction wells and to the control system.

2.4.2. HEPA OU Groundwater and Surface Water Monitoring

Figure 2.4-1 shows the location of wells in the HEPA OU. The sampling and analysis plan for groundwater and surface water monitoring for the full year is presented in Table 2.4-11. This table also explains deviations from the sampling plan and indicates any additions made to the CMP.

During the second semester of 2018, groundwater monitoring was conducted in accordance with the CMP monitoring requirements with the following exceptions: a total of seven required analyses in six different wells and one spring were not performed because the wells and spring were dry or had insufficient water for sample collection, single required analyses were not performed for both well W-815-01 and well W-815-03 because the well locations were inaccessible due to road damage, and four required analyses were not performed in four wells due to non-operable pumps. Repairs will be made to the pumps of these four wells during 2019.

Analytical results and groundwater elevation measurements obtained during 2018 are presented in Appendices B and C, respectively. Figure 2.4-2 provides groundwater elevations (along with individual contaminant concentrations) for the Tpsg-Tps HSU and Figure 2.4-3 shows the groundwater potentiometric surface map for the $Tnbs_2$ HSU.

2.4.3. HEPA OU Remediation Progress Analysis

This section is organized into four subsections: mass removal; contaminant concentrations and distribution; remediation optimization evaluation; and remedy performance issues.

2.4.3.1. HEPA OU Mass Removal

The monthly groundwater mass removal estimates for the second semester of 2018 are summarized in Tables 2.4-12 through 2.4-17. The total mass removed during the reporting period and cumulative mass estimates are summarized in Table Summ-1 and Table Summ-2, respectively.

2.4.3.2. HEPA OU Contaminant Concentrations and Distribution

At the HEPA OU, VOCs (mainly TCE) are the primary COCs detected in groundwater; RDX, HMX, 4-amino-2,6-dinitrotoluene (4-ADNT), perchlorate, and nitrate are secondary COCs. Most of the groundwater contamination in the HEPA OU occurs in the $Tnbs_2$ HSU. Some COCs (TCE, RDX, HMX, perchlorate, and nitrate) have also been detected in perched groundwater of the Tpsg-Tps HSU in the vicinity of Buildings 815 and 817. Minor concentrations of VOCs, perchlorate, and nitrate are also present in perched groundwater located in the $Tnsc_{1b}$ HSU beneath the former Building 829 WAA. The WAA is located in the northwest portion of the HEPA. No contamination has been detected in the Upper and Lower $Tnbs_1$ HSUs in the HEPA OU.

Within the HEPA OU: (1) Figure 2.4-2 provides groundwater elevations and individual VOC, perchlorate, RDX and nitrate concentrations for the Tpsg-Tps HSU; (2) Figure 2.4-4 depicts a total VOC isoconcentration contour map for the $Tnbs_2$ HSU; (3) Figure 2.4-5 shows a RDX isoconcentration contour map for the $Tnbs_2$ HSU,; (4) Figure 2.4-6 provides a perchlorate isoconcentration contour map for the $Tnbs_2$ HSU; (5) Figure 2.4-7 presents a map showing nitrate concentrations for the $Tnbs_2$ HSU; and (6) Figure 2.4-8 is a Building 829 burn pit site map showing nitrate concentrations for the $Tnbs_2$ HSU.

2.4.3.2.1. VOC Concentrations and Distribution

VOC concentrations and distributions in groundwater in the Tpsg-Tps, $Tnbs_2$, and $Tnsc_{1b}$ HSUs in the HEPA are discussed below.

Tpsg-Tps HSU

VOCs, primarily TCE, but also 1,1-DCE, 1,2-DCA, cis-1,2-DCE, CFORM, and CTET have been detected in the perched water-bearing zones of the Tpsg-Tps HSU. TVOC concentrations in Tpsg-Tps HSU groundwater have decreased from a historical maximum of 450 µg/L (well W-815-01, 1992) to a second semester of 2018 maximum of 19 µg/L, comprised entirely of TCE, in the July and October samples collected from 817-PRX extraction well W-817-2318. VOCs remained below the 0.5 µg/L reporting limit in Tpsg-Tps monitor well W-35C-05, located near the southern site boundary. The lateral extent of the perched Tpsg-Tps HSU is dependent on seasonal recharge and groundwater extraction rates and varies from year to year. For this reason, some wells screened in the Tpsg-Tps HSU were dry or did not produce sufficient volumes of water for sampling during the reporting period.

During the second semester of 2018, VOCs other than TCE, were only detected at concentrations above the 0.5 µg/L reporting limit in monitor wells W-809-01 and W-814-01. Samples collected from monitor well W-809-01 contained 1,1-DCE and CFORM both with maximum concentrations of 1.4 µg/L, well below both of their MCL cleanup standards. Samples collected from monitor well W-814-01 contained 1,2-DCA, cis-1,2-DCE, and CFORM with maximum concentrations of 0.8 µg/L, 1.0 µg/L, and 0.7 µg/L, respectively. The maximum 1,2-DCA concentration was slightly above the 0.5 µg/L MCL cleanup standard. Similar concentrations of the aforementioned VOCs were detected in Tpsg-Tps wells during 2017.

$Tnbs_2$ HSU

In the $Tnbs_2$ HSU, the highest VOC concentrations are found downgradient of Building 815 in the 815-PRX extraction wellfield. TVOC concentrations in $Tnbs_2$ HSU groundwater have decreased from a historical maximum of 110 µg/L in extraction well W-818-08 (1992) to a second semester of 2018 maximum of 32 µg/L (September) in monitor well W-818-11, composed almost entirely of TCE.

During the reporting period, TCE was detected in the $Tnbs_2$ HSU with concentrations exceeding the 5 µg/L MCL cleanup standard in 20 wells. 1,1-DCE was detected in extraction well W-815-02 and monitor well W-818-11 at 0.8 and 0.5 µg/L, respectively (October and September). However, the concentrations in both wells were well below the 6 µg/L MCL cleanup standard. Chloroform was detected in well W-4A at 0.7 µg/L (September), cis-1,2-DCE was detected in three 815-DSB wells at concentrations up to 0.7 µg/L (November, W-6ER), and trans-1,2-DCE was detected in 815-DSB extraction well W-6ER at 0.6 µg/L (November). None of the aforementioned VOCs were detected at concentrations exceeding their MCL cleanup standards. Other VOCs were not detected above reporting limits in the $Tnbs_2$ HSU during the second semester of 2018.

VOCs continue to be detected in $Tnbs_2$ HSU groundwater at the southern end of Building 832 Canyon. This contamination probably originates from sources located in both the Building 832 Canyon and HEPA OUs. Since June 2007, when extraction well W-830-2216 began pumping groundwater, TVOC concentrations have decreased from a historical maximum of 20 µg/L in May 2007 to a second semester of 2018 maximum of 6.2 µg/L (July). A similar decrease in VOC concentrations has been observed in nearby monitor well W-830-13, from 21 µg/L in March 2007 to 4.6 µg/L in August 2018. The slight increase in concentrations in these two wells between 2017 and second semester of 2018 can be attributed to the fact that the 830-DISS groundwater treatment facility has been off line since November of 2016 due to the ongoing CGSA system upgrades, and thus groundwater extraction is not actively occurring in the area. New $Tnbs_2$ well W-830-3409, completed during October 2018, produced a TVOC concentration of 1.7 µg/L during the well's baseline sampling in November 2018.

During the reporting period, TCE was detected at concentrations below the 5 µg/L MCL cleanup standard in two samples from both $Tnbs_2$ on-site guard wells W-815-2110 and W-815-2111, located near the Site 300 southern boundary. The maximum TCE concentrations in these samples were 1.5 µg/L and 1.0 µg/L for guard wells W-815-2110 and W-815-2111 (September), respectively. Similar TCE concentrations, well below the 5 µg/L MCL cleanup standard, were detected in these wells in 2017. VOCs were not detected in any other on-site or off-site HEPA $Tnbs_2$ HSU guard wells during the reporting period. Twenty routine and duplicate samples were collected from off-site

water-supply well GALLO1 during the second semester of 2018. VOCs were not detected above the 0.5 µg/L reporting limit in any of the GALLO1 samples.

Overall, VOC concentration trends in the $Tnbs_2$ HSU remained stable or decreased slightly in individual wells during the second semester of 2018. The 2018 spatial distribution of TVOC concentrations above the 0.5 µg/L reporting limit, 5 µg/L, and 10 µg/L, remains very similar to the 2017 distribution.

$Tnsc_{1b}$ HSU

TVOC concentrations in $Tnsc_{1b}$ HSU groundwater have decreased from a historical maximum of 1,013 µg/L (W-829-06, 1993) to a second semester of 2018 maximum of 28 µg/L in the same well, comprised entirely of TCE (October). VOCs were also detected in monitor well W-829-08 in September (TCE at 1.7 µg/L, and cis-1,2-DCE at 0.6 µg/L). VOCs have never been detected in groundwater from nearby $Tnsc_{1b}$ monitor well W-829-1940, nor in nearby monitor wells screened in the Lower $Tnbs_1$ HSU.

2.4.3.2.2. HE Compound Concentrations and Distribution

HE compound concentrations and distribution in groundwater in the Tpsg-Tps and $Tnbs_2$ HSUs in the HEPA are discussed below.

Tpsg-Tps HSU

During the reporting period, the only HE compound detected at concentrations exceeding reporting limits in wells screened in the Tpsg-Tps HSU was RDX, which was detected in monitor well W-817-2318 in January at 1.2 µg/L, and in monitor well W-817-03A in March at 4.2 µg/L. Monitor wells W-815-1928, in which HMX was detected at 16 µg/L and 4-ADNT was detected at 2.8 µg/L in 2017, and W-815-03, in which HMX was detected at 3.7 µg/L in 2017, were dry during 2018, and so no samples were collected for analysis. No additional HE compounds were detected in the Tpsg-Tps HSU during the reporting period.

$Tnbs_2$ HSU

In the $Tnbs_2$ HSU, historical maximum concentrations of RDX (204 µg/L, 1992) and HMX (57 µg/L, 1995) detected in 817-SRC extraction well W-815-04 have declined to 2018 maximum concentrations of 60 µg/L (September), and 20 µg/L (July) in W-809-03 and W-817-01, respectively. RDX was not detected in guard well W-6H during 2018, where it had been detected in 2017 for the first time ever at a concentration of 1.7 µg/L (March), slightly above the 1 µg/L detection limit. HMX concentrations remain significantly below the Regional Tapwater Screening Level of 1,000 µg/L (U.S. EPA, 2017). 4-ADNT in the $Tnbs_2$ HSU has declined from a historical maximum of 24 µg/L (extraction well W-817-01, 1997) to a 2018 maximum of 5.3 µg/L (extraction well W-815-2803, February). In January 2017, 1,3-dinitrobenzene was detected above the reporting limit in monitor well W-4B for the first time at a concentration of 110 µg/L. This detection was the site-wide historical maximum for 1,3-dinitrobenzene, previously detected at a maximum of 3.1 µg/L in $Tnsc_2$ HSU monitor well W-6CI in March 2016. However, 1,3-dinitrobenzene was not detected above the reporting limit in a confirmatory sample taken in April of 2018. It is likely that the 2017 detection was an anomaly and does not indicate the presence of HE compounds in the vicinity of monitor well W-4B. Nonetheless, monitor well W-4B will continue to be monitored closely.

2.4.3.2.3. Perchlorate Concentrations and Distribution

Perchlorate concentrations and distribution in groundwater in the Tpsg-Tps, $Tnbs_2$, and $Tnsc_{1b}$ HSUs in the HEPA are discussed below.

Tpsg-Tps HSU

During 2018, perchlorate concentrations exceeded the 6 µg/L MCL cleanup standard in samples collected from Tpsg-Tps HSU monitor wells W-6CS (5.1 µg/L, February), W-817-03A (7.0 µg/L, March), and extraction well W-817-2318 (13 µg/L, January). Perchlorate was also detected above cleanup standards in monitor well W-809-01 at 5.7 µg/L in March in a duplicate sample; it was not detected above reporting limits in the routine sample taken from that well. These concentrations represent a decrease from the historical maximum perchlorate concentration in the Tpsg-Tps HSU of 19 µg/L in monitor well W-817-03A (2000).

$Tnbs_2$ HSU

In the $Tnbs_2$ HSU, groundwater perchlorate concentrations exceeding the 6 µg/L MCL cleanup standard were detected in eight wells during the reporting period. Wells with the highest perchlorate concentrations are located in the vicinity of the 817-SRC and 817-PRX treatment facilities. The 2018 maximum perchlorate concentration of 22 µg/L (January) was observed in extraction well W-817-01; this well also yielded the 50 µg/L historical maximum in 1998. Perchlorate has not been detected in any of the $Tnbs_2$ HSU guard wells or other monitor wells located near the Site 300 southern boundary to date.

$Tnsc_{1b}$ HSU

Perchlorate concentrations in the $Tnsc_{1b}$ HSU have decreased from a historical maximum of 29 µg/L (extraction well W-829-06, 2000) to a 2018 maximum of 14 µg/L (January) in the same well. This was the only $Tnsc_{1b}$ HSU well with perchlorate concentrations exceeding the 6 µg/L MCL cleanup standard and 4 µg/L reporting limit during the reporting period.

2.4.3.2.4. Nitrate Concentrations and Distribution

Nitrate concentrations and distribution in groundwater in the Tpsg-Tps, $Tnbs_2$, and $Tnsc_{1b}$ HSUs in the HEPA are discussed below.

Tpsg-Tps HSU

The maximum nitrate concentrations in Tpsg-Tps HSU groundwater remained stable from a historical maximum of 790 mg/L detected in March 2016 in monitor well W-6CS to a 2018 maximum of 790 mg/L in the same well (February). As there are no known nitrate sources associated with Site 300 operations located near this well, it is possible that a sheep ranch that predates Site 300, discovered in a historical photo of the area, may be the source of this localized very elevated nitrate. Other wells screened in the Tpsg-Tps HSU had significantly lower nitrate concentrations, ranging from 100 mg/L in extraction well W-817-2318 to 5.7 mg/L in monitor well W-35C-05.

$Tnbs_2$ HSU

During 2018, nitrate concentrations in groundwater collected from the $Tnbs_2$ HSU ranged from less than the reporting limit (0.5 mg/L) in the vicinity of the Site 300 southern boundary to a maximum of 120 mg/L in monitor wells W-809-02 and W-817-2609. The historical maximum nitrate concentration in the $Tnbs_2$ HSU is 421 mg/L in monitor well W-818-01 (1994). During the reporting period, nitrate was not detected above the reporting limit in 28 routine and duplicate samples collected

from off-site water-supply well GALLO1 and was not detected above the 45 mg/L MCL cleanup standard in groundwater from any of the $Tnbs_2$ HSU guard wells. The 2018 nitrate data from $Tnbs_2$ HSU wells continue to support the interpretation that nitrate is being attenuated *in situ* by natural processes, principally reductive denitrification, consistent with MNA. Nitrate concentrations remain below the 45 mg/L MCL cleanup standard in all wells near the southern site boundary, where groundwater is present under confined or artesian anoxic conditions.

$Tnsc_{1b}$ HSU

Nitrate concentrations in the $Tnsc_{1b}$ HSU have decreased from a historical maximum of 240 mg/L in extraction well W-829-06 (2000) to a 2018 maximum of 77 mg/L (January, same well). Nitrate concentrations for 2018 are similar to those detected in 2017 in wells W-829-06 and W-829-1940. Nitrate was not detected above the reporting limit in monitor well W-829-08 during the reporting period.

2.4.3.3. HEPA OU Remediation Optimization Evaluation

Remediation at the HEPA OU is managed by balancing groundwater extraction at the southern site boundary with upgradient pumping in the source and proximal areas. This strategy is designed to aggressively remediate contaminant source areas while hydraulically capturing the leading edge of the VOC plume near the Site 300 southern boundary and minimizing the migration of multiple, co-mingled plumes from their respective source areas.

Extraction well W-817-2318 pumps groundwater from the Tpsg-Tps HSU in the area of highest VOC and perchlorate concentrations near Spring 5, downgradient of 817-SRC and adjacent to 817-PRX. The total precipitation received during the 2017-2018 water year in the Site 300 area was approximately half of what was received during the 2016-2017 water year. This explains the significant reduction in the volume of groundwater extracted fromW-817-2318. Groundwater extraction from the Tpsg-Tps HSU is hampered by the HSU's low permeability, and the dependence of groundwater elevation and spatial distribution on seasonal recharge. In spite of this, TCE concentrations have declined in extraction well W-817-2318 from a historical maximum of 55 µg/L (2007) and a 2017 maximum of 21 µg/L to a 2018 maximum of 17 µg/L (January and April).

During 2018, 815-PRX extraction wells W-818-08 and W-818-09 continued to hydraulically capture groundwater with the highest VOC concentrations, and extraction wells W-6ER, W-35C-04, and W-815-2608, although they only operated for approximately 60% of the second semester, continued to capture the leading edge of the VOC plume along the southern Site 300 boundary.

815-SRC extraction wells W-815-02, W-815-04, and W-815-2803, and 817-SRC extraction well W-817-01, continue to extract groundwater from the areas with the highest RDX concentrations. During 2018, 815-SRC extraction well W-815-04 yielded the maximum concentration of RDX in OU groundwater. HE concentrations have generally exhibited a decreasing trend over the last five years, with some fluctuations in RDX concentrations observed in the vicinity of 815-SRC, likely related to effluent injections at injection well W-815-1918 and variations in seasonal recharge.

Perchlorate concentrations in the $Tnbs_2$ HSU detected during 2018 are considerably less than concentrations detected in 1998, when monitoring for this COC began. The areas with the highest perchlorate concentrations continue to be located in the vicinity of the 817-SRC and 817-PRX treatment facilities. Perchlorate concentrations in the confined portions of the $Tnbs_2$ HSU near the Site 300 southern boundary continue to be below the reporting limit. Spatial and temporal perchlorate

concentration trends suggest perchlorate is being degraded *in situ* by natural processes similar to those confirmed for nitrate natural attenuation (principally bacterially-motivated reduction).

Nitrate concentrations in the confined portions of the $Tnbs_2$ HSU near the Site 300 southern boundary continue to be near or below the reporting limit, demonstrating the continued effectiveness of MNA of nitrate even under pumping conditions.

Throughout the reporting period, pumping from HEPA extraction wells has been effective in capturing COCs and preventing migration of contaminated groundwater any farther towards the Site 300 boundary. During 2018, VOCs were not detected above reporting limits at off-site water-supply well GALLO1, and VOCs in on-site guard wells W-815-2110 and W-815-2111 remained stable at very low concentrations (only TCE was detected at concentrations of 1.5 µg/L or below). Upgradient and downgradient pumping will continue to be balanced, so that hydraulic capture at the Site 300 southern boundary is maintained without accelerating migration from upgradient sources. Close monitoring of VOC concentrations in the southern site boundary area will also continue, especially near off-site water-supply well GALLO1.

Recent HE compound detections in monitor well W-818-01 and 815-PRX extraction wells suggest an expanded influence due to continued pumping of the 815-PRX extraction wells. The spatial extent of these comingled plumes will be closely monitored, and any necessary modifications will be made to extraction wellfield operations to minimize farther migration of these plumes toward the Site 300 boundary.

During 2018, the total mass removed from all HEPA treatment facilities included 153 g of VOCs, 63 g of perchlorate, and 286 g of RDX. The volume of treated groundwater decreased by approximately 38% from 3,650,000 gal (2017) to 2,262,000 gal (2018). This decrease in volume is due to a decrease in the operational hours of 815-DSB (which only operated for 55% of second semester 2018) and earlier shutdowns of wells for freeze protection (mid-November versus early December. Compared to 2017, increases in VOC (30%), perchlorate (10%), and RDX mass removed (120%) were observed during 2018. The increase in operational hours for all of the HEPA GWTS facilities during January and February led to a significant increase in the total volumes of groundwater extracted, and contaminant mass removed. January was the wettest month of the 2017-2018 winter season, and all facilities were on-line to capture the increase in groundwater elevation. The increase in RDX mass removal was due primarily to the increased operational hours of 815-SRC. The increase in VOC and perchlorate mass removal were due to the increased operational hours and efficiency of 815-PRX and 817-PRX. Table Summ-1 and Tables 2.4-12 through 2.4-17 list the mass removed by each individual HEPA treatment facility. Nitrate in the $Tnbs_2$ HSU continues to undergo *in situ* biotransformation to benign nitrogen gas by anaerobic-denitrifying bacteria.

2.4.3.4. HEPA OU Remedy Performance Issues

There were no new issues that affect the performance of the cleanup remedy for the HEPA OU during this reporting period. The remedy continues to be effective and protective of human health and the environment and is making progress toward cleanup.

2.5. Building 850/Pit 7 Complex (OU 5)

Outdoor high explosives experiments were conducted at the Building 850 Firing Table from the 1950s until 2008. While explosives tests were conducted at Building 850, the firing table was covered

with gravel for shock absorption. The Building 850 Firing Table was routinely rinsed down with water after each experiment to reduce dust. This practice was discontinued in 2004. Infiltrating direct rainfall, runoff, and rinse water mobilized chemicals from the contaminated gravel to the underlying bedrock and groundwater. Until 1989, gravels from the firing table surface were periodically removed and disposed in landfills in the northwest part of Site 300 (the Pit 7 Complex, described below).

In 2009, a Corrective Action Management Unit (CAMU) was constructed adjacent to Building 850 as part of a non-time critical removal action. A total of 27,592 cubic yards of polychlorinated biphenyl- (PCB), dioxin-, and furan-contaminated soil were excavated from the Building 850 Firing Table area, mixed with Portland cement and water, and consolidated and compacted to form the CAMU. Additional information on this removal action is presented in the Building 850 Action Memorandum (Dibley et al., 2008). Design information for the CAMU is presented in the construction subcontractor's 100% design submittal (SCS Engineers, 2009). The inspection and maintenance program for the CAMU program is described in Section 3. A map of the Building 850 area within OU 5 showing the locations of Building 850, the CAMU, wells, and other features is presented on Figure 2.5-1.

An *in situ* bioremediation treatability study to irreversibly transform perchlorate to benign end products in groundwater immediately downgradient of Building 850 commenced in September 2011. Results indicate that the injection of ethyl lactate has resulted in bacterially-motivated reduction of perchlorate and nitrate in the treatment zone to concentrations below reporting limits. A summary of the current status of the treatability study, including rebound monitoring results, is presented in Section 2.5.2.3.

The Pit 7 Complex Area within OU 5 consists of the Pit 3, 4, 5, and 7 Landfills. The Pit 7 Complex landfills were used to dispose firing table debris and gravel. These pits were constructed by excavating soil and alluvial materials to average depths of 15 to 20 ft (Taffet et al., 1989). The majority of the waste in the pits originated at the firing tables at Buildings 850 and 851. The pit waste included wood, plastic, material, and debris from tent structures, pea gravel, and exploded test assemblies, some of which contained tritium and depleted uranium.

When rainfall increased to above-normal levels, such as during El Niño years, the pit waste, vadose zone and underlying Quaternary alluvium/weathered bedrock (Qal/WBR) HSU were often inundated as residual contamination came into contact with shallow groundwater. Groundwater contaminants include tritium, depleted uranium, perchlorate, nitrate, and VOCs.

In 1992, an engineered cap was constructed over the Pit 7 Landfill (referred to as the Pit 7 Cap) in compliance with Resource Conservation and Recovery Act requirements. The design included interceptor trenches and surface water drainage channels, a top vegetative layer to prevent erosion, a biotic barrier layer to minimize animal burrowing, and a clay layer with very low permeability and a gravel-filled trench on the west side to prevent infiltration of precipitation and shallow subsurface interflow, respectively, that could result in leaching of contaminants. The Pit 7 cap also covers 100% of Pit 4 and approximately 30% of Pit 3. The original compacted native soil cover on most of Pit 3 and all of Pit 5 remains intact.

The Pit 7 Drainage Diversion System (DDS), completed in March 2008, was designed to prevent additional releases of COCs from the pits and underlying bedrock to groundwater. There are four components that comprise the DDS:

1. A subsurface drainage network on the western hillslope.
2. Upgraded riprap at the end of the existing north-flowing concrete channel for the Pit 7 Landfill cap.
3. A vegetated surface water diversion swale along the base of the eastern hillslope, along the paved road (Route 4), including several culverts under Route 4 and dirt fire trails.
4. An upgraded surface water-settling basin at the south end of the existing south-flowing concrete channel for the Pit 7 Landfill cap.

Additional information on the Pit 7 cap and DDS design is presented in the Remedial Design (RD) document for the Pit 7 Complex (Taffet et al., 2008). The detection monitoring, inspection, and maintenance program for the Pit 7 Complex Landfills and the inspection and maintenance program for the DDS are described in Section 3. The above average rainfall events of late second semester of 2016 and early first semester of 2017 represent the most significant total rainfall since the Pit 7 DDS was installed in 2008. An update on the ongoing evaluation of the DDS performance in response to these rainfall events is presented in the Draft Second Five Year Review for OU 5 in Taffet et al., 2019.

The Pit 7-Source (PIT7-SRC) GWTS began operation in May 2010. Groundwater has been extracted from Qal/WBR HSU wells NC7-64, W-PIT7-2305, W-PIT7-2306, W-PIT7-2703, W-PIT7-2704, and W-PIT7-2705 and $Tnbs_1/Tnbs_0$ bedrock HSU wells NC7-25 and W-PIT7-2307. The current GWTS configuration includes two anion-exchange resin canisters to remove uranium, followed by one anion-exchange resin canister containing a perchlorate-selective resin. The uranium-selective resin also removes perchlorate, which is the justification for only having one perchlorate-selective resin canister. These resin canisters are followed by one parallel set and two sequential (total of four) anion-exchange resin canisters containing a nitrate-selective resin, and three aqueous-phase GAC canisters in series to remove VOCs. The treated water, which still contains tritium, is discharged to an infiltration trench.

Extraction wells W-PIT7-2306, W-PIT7-2307, and W-PIT7-2704 were only operated during the first quarter of 2018. Due to pump failure these wells have been off line since March 2018. The pump installations for these wells are currently being redesigned to facilitate future repairs.

NC7-25 is completed in the $Tnbs_1/Tnbs_0$ HSU but is pumped only when water levels are below the Qal/WBR HSU in the area of the well to prevent the drawing of depleted uranium-bearing water from the Qal/WBR HSU into the $Tnbs_1/Tnbs_0$ HSU. A deeper replacement extraction well for NC7-25, W-PIT7-3406 was completed in 2018 and will be connected to PIT7-SRC in the near-future.

NC7-64 and NC7-25 were secured in September 2018 following an analysis of tritium and nitrate contributions from individual wells to the PIT7-SRC facility. With NC7-64 and NC7-25 not pumping and the four nitrate-selective resins, PIT7-SRC has maintained nitrate effluent concentrations below discharge limits (45 mg/L) and tritium effluent activities lower than tritium activities in groundwater immediately downgradient of the infiltration trench.

A map of the Pit 7 Complex Area within OU 5 showing the locations of the landfills, DDS, extraction and monitor wells, and the treatment system is presented on Figure 2.5-1.

The Building 850 area of OU 5 is discussed in Sections 2.5.1 and 2.5.2. The Pit 7 Complex Area of OU 5 is discussed in Sections 2.5.3 through 2.5.5.

2.5.1. Building 850 Area of OU 5 Groundwater Monitoring

The sampling and analysis plan for groundwater and surface water monitoring for the entire year is presented in Table 2.5-1. This table also delineates and explains deviations from the sampling plan.

During the second semester of 2018, groundwater monitoring was conducted in accordance with the CMP monitoring requirements with the following exceptions: a total of 43 required analyses from 19 wells and four required analyses from two springs were not performed because the wells or spring were dry or there was insufficient water for sample collection.

Analytical results and groundwater elevation measurements obtained during 2018 are presented in Appendices B and C, respectively.

Groundwater elevation contour maps for the Qal/WBR and $Tnbs_1/Tnbs_0$ HSUs within the OU are presented on Figures 2.5-2 and 2.5-3, respectively. Groundwater elevations in 2018 in both HSUs are generally lower than 2017 levels.

2.5.2. Building 850 Area of OU 5 Remediation Progress Analysis

This section is organized into four subsections: analysis of contaminant distribution and concentration trends; remediation optimization evaluation; enhanced bioremediation treatability study; and remedy performance issues.

2.5.2.1. Building 850 Area of OU 5 Contaminant Concentrations and Distribution

In the Building 850 area of OU 5, tritium and perchlorate are the primary COCs detected in groundwater; depleted uranium and nitrate are secondary COCs. These constituents have been identified within the Qal/WBR and $Tnbs_1/Tnbs_0$ HSUs.

2.5.2.1.1. Tritium Activities and Distribution

Tritium activities in the Building 850 area did not exceed the 20,000 pCi/L MCL cleanup standard. The maximum tritium activities have decreased from a historical maximum of 566,000 pCi/L (monitor well NC7-28, 1985) to a 2018 maximum of 18,900 pCi/L in Qal/WBR HSU monitor well NC7-70 (May). Tritium activities and distribution in groundwater in the Qal/WBR and $Tnbs_1/Tnbs_0$ HSUs in the Building 850 area are discussed below.

Qal/WBR HSU

Tritium activities exceeding the 20,000 pCi/L MCL cleanup standard were not detected in any groundwater samples collected from Qal/WBR HSU monitor wells during 2018. The 2018 maximum tritium activity in groundwater collected from the Qal/WBR HSU was 18,900 pCi/L from well NC7-70 (May), a slight increase from the 2017 maximum tritium activity in groundwater from the Qal/WBR HSU, 18,800 pCi/L from the same well, located near the eastern edge of the Building 850 Firing Table. Overall, tritium activities generally continue to decline in all portions of the Building 850 plume.

Monitor wells W-PIT2-2301 and W-PIT2-2302, located in Elk Ravine downgradient of the Pit 2 Landfill, are monitored to determine the downgradient extent of tritium in the Qal/WBR HSU. In 2018, tritium activities in both monitor wells were within background range and below reporting limits (<100 pCi/L), suggesting tritium transport is not continuous from Building 850 within the shallow Qal/WBR HSU immediately downgradient of the Pit 2 Landfill.

Beginning in 2013, the extent of tritium exceeding the 20,000 pCi/L MCL cleanup standard began to decrease significantly and since the first semester of 2015, tritium activities in groundwater samples

from all Qal/WBR wells have remained below the 20,000 pCi/L MCL cleanup standard, as show on Figure 2.5-4. The highest tritium activities are still detected in wells located immediately downgradient of the Building 850 Firing Table (NC7-70, W-850-2417, W-850-05, NC7-61, and NC7-28).

$Tnbs_1/Tnbs_0$ HSU

During 2018, tritium activities exceeding the 20,000 pCi/L MCL cleanup standard were not detected in any wells screened exclusively in the $Tnbs_1/Tnbs_0$ HSU. The maximum 2018 tritium activity in the $Tnbs_1/Tnbs_0$ HSU was 6,940 pCi/L (June and November) in monitor well W-850-2316, located approximately 3,000 ft downgradient (east) of the Building 850 Firing Table. The maximum 2017 tritium activity of 7,420 pCi/L was detected in a groundwater sample from well NC7-43. Overall, during 2018, tritium activities in most $Tnbs_1/Tnbs_0$ HSU monitor wells are similar to 2017 activities and the extent of groundwater with tritium in excess of background, shown on Figure 2.5-5, is also similar to previous years.

2.5.2.1.2. Uranium Concentrations and Distribution

During 2018, uranium analyses were performed primarily by alpha spectroscopy with selected samples analyzed by Inductively Coupled Plasma - Mass Spectrometry **(**ICP-MS). High precision uranium isotope data (uranium-235/uranium-238 [$^{235}U/^{238}U$] atom ratio) for determining the presence of depleted uranium are only available by ICP-MS analysis. The presence of depleted uranium is indicated by a $^{235}U/^{238}U$ atom ratio of less than 0.007. Historical uranium isotope data indicate that regions of groundwater containing some added depleted uranium extend downgradient about 1,200 ft within the Qal/WBR HSU and 700 ft within the $Tnbs_1/Tnbs_0$ HSU from the Building 850 Firing Table and have remained relatively stable. Uranium activities and distribution in groundwater in the Qal/WBR and $Tnbs_1/Tnbs_0$ HSUs in the Building 850 Area are discussed below.

Qal/WBR HSU

During 2018, total uranium activities exceeding the 20 pCi/L MCL cleanup standard were not detected in any Qal/WBR HSU wells in the Building 850 area. The maximum 2018 total uranium activity was 11 pCi/L (May), detected in monitor well W-850-2417, which is higher than the 2017 maximum activity of 8.2 pCi/L detected in NC7-28. The historical maximum total uranium activity for the Building 850 area is 24 pCi/L (January 2013) in well NC7-28. Overall, uranium activities in Qal/WBR HSU wells within the Building 850 area, shown on Figure 2.5-6, remain similar to those of 2017.

$Tnbs_1/Tnbs_0$ HSU

During 2018, two wells screened in the $Tnbs_1/Tnbs_0$ HSU contained groundwater with a total uranium activity exceeding the 20 pCi/L MCL cleanup standard, as shown on Figure 2.5-7. The total uranium activity in monitor well W-850-2315 was 25.4 pCi/L (May), a decrease from the maximum historical total uranium activity in the HSU, 27 pCi/L in the same well in 2017. Well NC7-29 also exhibited total uranium activities at or above the MCL cleanup standard in 2018: 20.3 pCi/L and 20 pCi/L (May and October, respectively). The maximum total uranium activity in NC7-29 was 21.6 pCi/L (2008). Mass spectrometric data, most recently from 2017 samples from these two wells, have always indicated natural $^{235}U/^{238}U$ atom ratios. Well W-850-2315 and NC7-29 are located approximately 1,400 ft southeast (cross-gradient) of Building 850.

2.5.2.1.3. Nitrate Concentrations and Distribution

Nitrate was detected at concentrations at or above the 45 mg/L MCL cleanup standard in 16 wells in the Building 850 area during 2018. Nitrate concentrations and distribution in groundwater in the Qal/WBR and $Tnbs_1/Tnbs_0$ HSUs in the Building 850 Area are discussed below.

Qal/WBR HSU

During 2018, the maximum nitrate concentration measured in a Qal/WBR HSU well was 53 mg/L (May) from ethyl lactate injection well W-850-2417, located immediately downgradient of Building 850. The maximum historical nitrate concentration in the HSU in the Building 850 area was 186 mg/L in well K2-04S (1993). In 2018 in the vicinity of the Building 850 Firing Table, seven other wells contained nitrate concentrations exceeding the 45 mg/L MCL cleanup standard, as shown on Figure 2.5-8; wells NC7-10, NC7-11, NC7-56, NC7-59, NC7-73, and W-850-2313, located downgradient of the firing table and the *in situ* bioremediation treatment zone, contained 52, 50, 48, 48, 50, and 47 mg/L of nitrate, respectively. Monitor well NC7-44 located upgradient of the firing table contained 51 mg/L.

$Tnbs_1/Tnbs_0$ HSU

The 2018 maximum nitrate concentration in the Building 850 area was 220 mg/L (May) in monitor well NC7-29, located southeast and cross-gradient of Building 850. This 2018 concentration represents a new historical maximum for nitrate in the area, which was previously 200 mg/L (2017) in the same well. The other wells screened exclusively in the $Tnbs_1/Tnbs_0$ HSU with nitrate concentrations exceeding the 45 mg/L MCL cleanup standard are located immediately downgradient of the Building 850 Firing Table (W-850-2417), southeast of the Pit 2 Landfill (NC2-12S, NC2-20), east of the Pit 1 Landfill (W-PIT1-2209), near Pit 2 Landfill (W-PIT2-1934 and W-PIT2-1935), east of Building 850 (NC7-27), and near Pit 8 Landfill (K8-01), as shown on Figure 2.5-9.

Historical data indicate that groundwater nitrate concentrations in the Qal/WBR and $Tnbs_1/Tnbs_0$ HSUs are limited in extent and relatively stable. Overall, except for the *in situ* bioremediation treatment zone, the distribution and concentrations of nitrate in groundwater are generally consistent or have increased slightly from those observed in previous years.

2.5.2.1.4. Perchlorate Concentrations and Distribution

During 2018, perchlorate concentrations exceeding the 6 µg/L MCL cleanup standard were detected in 17 wells located east and south (downgradient) of Building 850, east (downgradient) of Pit 1, and southeast of Pit 2 in Elk Ravine. Perchlorate concentrations are similar to or deviated slightly from 2017 concentrations. The highest perchlorate concentrations in the Building 850 area occurred in wells NC7-28, NC7-61, and W-850-2417, located downgradient of the Building 850 Firing Table, and NC7-29, cross-gradient and southeast of the firing table. Enhanced *in situ* bioremediation treatability testing in the Building 850 source area has significantly reduced perchlorate concentrations within the treatment zone immediately downgradient of the firing table. Perchlorate concentrations and distribution in groundwater in the Qal/WBR, $Tnbs_1/Tnbs_0$, and $Tnsc_0$, and Tmss HSUs in the Building 850 Area are discussed below.

Qal/WBR HSU

Groundwater in the Qal/WBR HSU that contains perchlorate with concentrations in excess of the 6 µg/L MCL cleanup standard extends approximately 1,500 ft downgradient of the Building 850 Firing

Table, as shown on Figure 2.5-10, is similar to previous years. Perchlorate concentrations in Qal/WBR HSU groundwater in the Building 850 area have decreased from a historical maximum of 92 µg/L in monitor well NC7-28 (October 2008) to a 2018 maximum concentration of 50 µg/L (May) in ethyl lactate injection well W-850-2417.

$Tnbs_1$/$Tnbs_0$ HSU

During 2018, the maximum perchlorate concentration detected in a well screened exclusively in the $Tnbs_1$/$Tnbs_0$ HSU in the Building 850 Firing Table area was 7 µg/L (May) at NC7-29 located southeast of the firing table and 7 µg/L (November) at W-850-2145 located east of the Building 850 Firing Table. Other $Tnbs_1$/$Tnbs_0$ HSU wells containing groundwater with perchlorate concentrations exceeding the 6 µg/L MCL cleanup standard during 2018 are located southeast of the Pit 2 Landfill (wells NC2-12I, NC2-12D, NC2-17, and NC2-05), and east of the Pit 1 Landfill (W-PIT1-2620, W-PIT1-2326). The current extent of perchlorate exceeding the 6 µg/L MCL cleanup standard in groundwater east of the Elk Ravine fault, as shown on Figure 2.5-11, has expanded slightly compared to what was observed in 2017.

$Tnsc_0$ and Tmss HSUs

Wells W-850-2416 and NC7-69, located east of the Building 850 Firing Table are screened in the $Tnsc_0$ and Tmss HSUs, respectively, and did not contain perchlorate concentrations in excess of the reporting limit during 2018.

2.5.2.1.5. HE Compound Concentrations and Distribution

During 2018, groundwater samples from 37 wells located in the Building 850 Area were analyzed for HE compounds at a typical reporting limit of 1 µg/L. Only HMX and RDX were detected at concentrations exceeding the reporting limits. The source of HMX and RDX is the Building 850 Firing Table. HE compound concentrations and distribution in groundwater in the Qal/WBR and $Tnbs_1$/$Tnbs_0$ HSUs in the Building 850 Area are discussed below.

Qal/WBR HSU

During 2018, RDX concentrations exceeding the 1 µg/L reporting limit were detected in monitor wells NC7-28, NC7-10, NC7-11, and NC7-61, with concentrations of 2.6, 1.9, 1.1, and 4.2 µg/L respectively, as well as lactate injection well W-850-2417, located immediately downgradient of the firing table, with a concentration of 5.4 µg/L.

During 2018, monitor wells NC7-28, NC7-10, NC7-11, and NC7-61, as well as injection well W-850-2417, yielded HMX concentrations above the reporting limit of 1 µg/L. These concentrations are significantly below the HMX Regional Tapwater Screening Level of 1,000 µg/L (U.S. EPA, May 2016).

During 2018, the extent of HE compounds in Building 850 groundwater was limited to four wells within 900 ft east (downgradient) of the Building 850 Firing Table.

$Tnbs_1$/$Tnbs_0$ HSU

During 2018, HE compounds were not detected above the reporting limit in groundwater from any wells screened in the $Tnbs_1$/$Tnbs_0$ HSU downgradient of Building 850 or from the well screened in the underlying $Tnsc_0$ HSU, W-850-2416.

2.5.2.2. Building 850 Area of OU 5 Remediation Optimization Evaluation

Data collected during 2018 indicate that natural attenuation (dispersion, radioactive decay, and a decreasing source term) continues to be effective in maintaining all tritium activities in groundwater below the 20,000 pCi/L MCL cleanup standard. The highest tritium activities in groundwater continue to be located directly downgradient of the tritium sources at the Building 850 Firing Table and continue to decline. In general, the footprint of the groundwater tritium plume remains stable and activities continue to decline and are significantly below historical highs throughout. The leading edge of the tritium plume is stable within the Site 300 interior and is expected to completely attenuate within the boundaries of Site 300.

During 2018, two wells, W-850-2315 and NC7-29, in the Building 850 area, located approximately 1,400 ft southeast (cross-gradient) from the Building 850 source area, contained groundwater with total uranium activities that exceeded the 20 pCi/L MCL cleanup standard at 25.4 pCi/L and 20.3 pCi/L respectively. The mass spectrometry uranium data from this well have always indicated a natural $^{235}U/^{238}U$ atom ratio. The monitoring-only strategy for uranium at Building 850 continues to be protective given that: (1) total uranium activities in groundwater at and downgradient from Building 850 are below the 20 pCi/L MCL cleanup standard, and (2) the areal extent of depleted uranium has not changed during the period of monitoring. Temporal trends in $^{235}U/^{238}U$ atom ratios have remained relatively stable.

East and west of the Elk Ravine fault, during 2018, the overall extent and maximum concentrations of nitrate and perchlorate in groundwater are similar to those observed in 2017. Within the *in situ* perchlorate bioremediation treatment zone, during 2018, perchlorate and nitrate concentrations in groundwater samples from wells NC7-70 and W-850-2417 were either below reporting limits or below pre-injection concentrations.

2.5.2.3. Building 850 Area of OU 5 Enhanced Bioremediation Treatability Study

The *in situ* perchlorate bioremediation treatability study commenced at Building 850 during the second semester of 2011. The objective of this study is to evaluate the efficacy of *in situ* enhanced bioremediation methods in reducing perchlorate concentrations in the presence of elevated nitrate in Building 850 groundwater. To date, the test has consisted of extracting contaminated groundwater from wells W-850-2417 and NC7-70, mixing this groundwater with dilute ethyl lactate, and injecting this mixture into W-850-2417 (2011 and 2012) and NC7-70 (2013 and 2015) to facilitate the *in situ* bioremediation of perchlorate by indigenous bacteria. While awaiting rebound in perchlorate concentrations, the ethyl lactate mixture was not injected into groundwater during 2016, 2017, or 2018. Bioremediation performance is being evaluated primarily using downgradient performance monitoring wells NC7-28 and NC7-61.

To date, monitoring data indicate that perchlorate concentrations in wells NC7-70, W-850-2417, NC7-28, and NC7-61 decreased from pre-test 2011 concentrations of 45.6, 74, 61.2, and 45 µg/L, respectively, to below the 4 µg/L reporting limit, 44, 20, and 42 µg/L, respectively by the second semester of 2018. The recent data reflect rebound of perchlorate concentrations towards pre-injection levels after nearly three years without adding any ethyl lactate. The persistence of perchlorate below the 4 µg/L reporting limit in injection well NC7-70 is indicative of a diminished upgradient perchlorate source and the longevity of electron donor ethyl lactate in sustaining perchlorate reduction in the presence of multiple electron acceptors, including dissolved oxygen, nitrate, sulfate, and hydrous ferrous oxide reactive mineral surfaces on the solid matrix within the treatment zone.

Although not specifically targeted for bioremediation, nitrate concentrations and uranium activities were also monitored in injection wells W-850-2417 and NC7-70, and performance monitor well NC7-28. Nitrate concentrations in wells W-850-2417, and NC7-70 have changed from pre-injection maximum concentrations of 52 mg/L, and 57 mg/L, respectively, to 53 mg/L and less than 2.5 mg/L during 2018. Although nitrate concentrations remained low in NC7-70, concentrations in W-850-2417 are higher than pre-injection concentrations.

Total uranium activities in W-850-2417, NC7-28, and NC7-70 initially decreased following ethyl lactate injection but fluctuated with some uranium activities exceeding the pre-injection values. Following ethyl lactate injection, decreasing uranium activities appear to result from concurrent reduction of U(VI) species (U^{+6} oxidation state) in groundwater to U(IV) (U^{+4} oxidation state) species, precipitating low solubility mineral solids. Groundwater uranium activity increases observed later likely arose from a combination of dissolution of natural uranium from the rock matrix under low pH conditions and oxidation of reduced uranium minerals and de-sorption from mineral surfaces, coupled with arrival of pre-existing dissolved uranium from upgradient of the treatment area. Increases in uranium activity were observed in two the Building 850 enhanced bioremediation treatability test wells during ongoing rebound monitoring in 2018, where well NC7-28 and W-850-2417 exhibited increasing total uranium activities, from 8.2 pCi/L (2017) to 8.5 pCi/L (May) and 9.3 pCi/L (2016) to 11 pCi/L (May).

2.5.2.4. Building 850 Area of OU 5 Remedy Performance Issues

There were no new issues that affect the performance of the MNA cleanup remedy for tritium in the Building 850 area during this reporting period. The remedy for tritium continues to be effective and protective of human health and the environment. During the 2018 maximum tritium activities remained below the 20,000 pCi/L MCL cleanup standard. Perchlorate, uranium, and RDX concentrations and extent in groundwater downgradient of the Building 850 Firing Table will continue to be closely monitored and reported. Inspections of the Building 850 CAMU are reported in Section 3.7.

2.5.3. Pit 7 Complex Area of OU 5 Groundwater Treatment System Operations and Monitoring

This section is organized into five subsections: facility performance assessment; operations and maintenance issues; compliance summary; facility sampling plan evaluation and modifications; and treatment facility and extraction wellfield modifications.

2.5.3.1. Pit 7 Complex Area of OU 5 Facility Performance Assessment

The PIT7-Source (SRC) GWTS performed as designed during this reporting period. The performance from a groundwater cleanup perspective is discussed below in Section 2.5.5. The monthly groundwater discharge volumes and rates and operational hours for the second semester of 2018 are summarized in Table 2.5-2. The total volume of groundwater extracted and treated, and contaminant masses removed during the reporting period are presented in Table Summ-1. The cumulative volume of groundwater treated and discharged, and masses removed are summarized in Table Summ-2. Analytical results for influent and effluent samples collected during the second semester of 2018 are presented in Tables 2.5-3 through 2.5-6. The pH measurement results are presented in Appendix A.

2.5.3.2. Pit 7 Complex Area of OU 5 Operations and Maintenance Issues

The following maintenance activities and operational issues occurred at the PIT7-SRC GWTS during the second semester of 2018:

- The PIT7-SRC GWTS was shut down from July 30 until August 2 to conduct a nitrate resin change-out.
- The GWTS went off line on August 15 due to a tripped breaker to the compressor. A split airline found on extraction well W-PIT7-2705 was the cause of the power overload. The line was replaced, and the system restarted.
- The GWTS was off line from September 24 until October 1 for a scheduled power outage. Upon restart, a leak was discovered at one of the extraction wells, NC7-64. Approximately one to two gallons was released to the ground surface. The leak was immediately fixed and the well was put back on line. However, compressor problems developed again on October 2, and the system was again shut down for evaluation. The system was restarted on October 24 after identifying the compressor problem.
- Inspection of the Pit 7 Complex Landfill Covers and related concrete lined drainage channels are reported in Section 3.5.
- Inspections of the Pit 7 Complex Drainage Diversion System are reported in Section 3.6

2.5.3.3. Pit 7 Complex Area of OU 5 Compliance Summary

The PIT7-SRC GWTS operated in compliance with the RWQCB substantive requirements for wastewater discharge throughout this reporting period.

2.5.3.4. Pit 7 Complex Area of OU 5 Facility Sampling Plan Evaluation and Modifications

The PIT7-SRC treatment facility sampling and analysis plan complies with the monitoring requirements in the CMP/CP. The treatment facility sampling and analysis plan is presented in Table 2.5-7. No modifications to the plan were made during this reporting period.

2.5.3.5. Pit 7 Complex Area of OU 5 Treatment Facility and Extraction Wellfield Modifications

The wellfield configuration for the PIT7-SRC GWTS has changed several times over the last couple of years. At the start of the second semester of 2018, the GWTS was receiving influent from five of the extraction wells, NC7-25, NC7-64, W-PIT7-2305, W-PIT7-2703, and W-PIT7-2705. In October, NC7-25 and NC7-64 were taken off line to reduce the input of tritium to the system to maintain tritium activities in effluent below the tritium activity in the Qal/WBR HSU immediately downgradient of the injection trench. NC7-25 was also taken off line to reduce the potential for depleted uranium to be drawn into the $Tnbs_1/Tnbs_0$ HSU.

2.5.4. Pit 7 Complex Area of OU 5 Groundwater Monitoring

The sampling and analysis plan for groundwater and surface water monitoring for the entire year of 2018 is presented in Table 2.5-8. This table also delineates and explains deviations from the sampling plan.

During the second semester of 2018, groundwater monitoring was conducted in accordance with the CMP monitoring requirements with the following exceptions: a total of eight required analyses in eight wells were not performed because of insufficient water or dry wells.

Analytical results and groundwater elevation measurements obtained during 2018 are presented in Appendices B and C, respectively.

Groundwater elevation contour maps for the Qal/WBR and $Tnbs_1/Tnbs_0$ HSUs within the OU, based on data collected during the second semester of 2018, are presented on Figures 2.5-2 and 2.5-3, respectively. Groundwater elevations for 2018 in both HSUs are generally lower than 2017 levels.

2.5.5. Pit 7 Complex Area of OU 5 Remediation Progress Analysis

This section is organized into four subsections: mass removal; analysis of contaminant distribution and concentration trends; remediation optimization and performance evaluation; and remedy performance issues.

2.5.5.1. Pit 7 Complex Area of OU 5 Mass Removal

The monthly groundwater mass removal estimates for the second semester of 2018 are summarized in Table 2.5-9. The total mass removed during the reporting period and cumulative mass estimates are summarized in Table Summ-1 and Table Summ-2, respectively.

2.5.5.2. Pit 7 Complex Area of OU 5 Contaminant Concentrations and Distribution

In the Pit 7 Complex Area of OU 5, tritium is the primary COC in groundwater, and uranium, perchlorate, nitrate, and VOCs are secondary COCs. These constituents have been identified within the Qal/WBR and $Tnbs_1/Tnbs_0$ HSUs. The locations of the wells discussed in the following text appear on the Building 850 and Pit 7 Complex Area site map (Figure 2.5-1).

2.5.5.2.1. Tritium Activities and Distribution

Commingled plumes of tritium in groundwater extend from Pit 3 and Pit 5 Landfill sources. The Pit 7 Landfill is not an apparent source of tritium to groundwater, as most of the tritium-bearing experiments at Site 300 were conducted prior to its opening in 1979 (Taffet et al., 2008) and monitor well NC7-48, located directly downgradient of Pit 7 and upgradient of Pit 3, has generally yielded groundwater samples that contain tritium activities within background ranges (below reporting limits). Tritium activities in the groundwater samples collected from well NC7-48 during 2018 were below the 100 pCi/L reporting limit (April). Tritium activities and distribution in groundwater in the Qal/WBR and $Tnbs_1/Tnbs_0$ HSUs in the Pit 7 Complex Area are discussed below.

Qal/WBR HSU

Tritium activities in the Qal/WBR HSU groundwater in the Pit 7 Complex Area have decreased from a historical maximum of 2,660,000 pCi/L (NC7-63, 1998) to a 2018 maximum activity of 251,000 pCi/L (NC7-51) in April. Monitor well NC7-51, located about 40 ft northeast of Pit 5 and 60 ft downgradient (east) of Pit 3, has decreased in tritium activity since 2017. During 2018, the location and magnitude of groundwater tritium activities exceeding the 20,000 pCi/L MCL cleanup standard, shown on Figure 2.5-4, decreased compared to those observed in 2017 from 15 wells to 12 wells.

$Tnbs_1/Tnbs_0$ HSU

In the Pit 7 Complex Area, tritium activities in $Tnbs_1/Tnbs_0$ HSU groundwater have decreased from a historical maximum of 770,000 pCi/L (1999) to a 2018 maximum activity of 177,000 pCi/L

(November). Both the historical and 2018 maximum tritium activities were detected in samples from extraction well NC7-25, located about 250 ft downgradient (northeast) of the Pit 3 Landfill. Within the Pit 7 Complex Area during 2018, groundwater in the $Tnbs_1/Tnbs_0$ HSU with tritium activities in excess of the 20,000 pCi/L MCL cleanup standard extends about 800 ft northeast of Pit 3 and Pit 5, similar to that observed in 2017.

Overall, the spatial extent of tritium in groundwater with activities in excess of the 20,000 pCi/L MCL cleanup standard and the 100 pCi/L background level, shown on Figure 2.5-5, continue to remain stable in 2018 and are similar to that reported in previous CMRs.

2.5.5.2.2. Uranium Concentrations and Distribution

Uranium activities and distribution in groundwater in the Qal/WBR and $Tnbs_1/Tnbs_0$ HSUs in the Pit 7 Complex Area are discussed below.

Qal/WBR HSU

Total uranium activities in Qal/WBR HSU groundwater in the Pit 7 Complex Area have decreased from a historical maximum of 781 pCi/L (monitor well NC7-40, 1998) to a 2018 maximum (November) of 160 pCi/L in extraction well NC7-64 (with a $^{235}U/^{238}U$ atom ratio of 0.004), which is a significant decrease from the 2017 maximum of 465 pCi/L detected in extraction well W-PIT7-2705. NC7-64 is located downgradient (east) of Pit 3 and W-PIT7-2705 is located downgradient (southeast) of the southern end of Pit 5 (see Figure 2.5-1). The long-term uranium activities have exhibited a decreasing trend, reversing significant increases observed in wells immediately downgradient of both Pits 3 and 5 during 2017. Total uranium activities exceeded the 20 pCi/L MCL cleanup standard in 17 Qal/WBR HSU wells during 2018.

The extent of uranium in excess of the MCL cleanup standard in the Qal/WBR HSU continues to be constrained to an area directly east of Pit 3 and immediately southeast of the southern end of Pit 5, as shown on Figure 2.5-6. All of the wells with uranium activities exceeding the 20 pCi/L MCL cleanup standard have historically shown $^{235}U/^{238}U$ atom ratios indicating some depleted uranium in the groundwater. The spatial extent of shallow groundwater impacted with depleted uranium has remained relatively stable for the past two decades. Historically, areas of depleted uranium in groundwater have been bounded by wells that exhibit $^{235}U/^{238}U$ atom ratios indicative of natural uranium. Mass spectrometric analytical data for samples collected to date do not indicate any significant change in the footprint of shallow groundwater impacted by depleted uranium. Sorption and ion-exchange on aquifer mineral surfaces are likely responsible for retarding and attenuating the migration of depleted uranium in groundwater in comparison to conservative contaminants such as tritium.

$Tnbs_1/Tnbs_0$ HSU

In the Pit 7 Complex Area, only one well screened in the $Tnbs_1/Tnbs_0$ HSU (NC7-25) contained groundwater with a total uranium activity in excess of the 20 pCi/L MCL cleanup standard during 2018, as shown on Figure 2.5-7. Groundwater samples collected in April and November from extraction well NC7-25, located east of Pit 3, contained 37 pCi/L of total uranium. The 2018 results represent a decrease from the historical $Tnbs_1/Tnbs_0$ maximum activity of 100 pCi/L (October 2014) also detected in well NC7-25 when it was converted from a monitor well to an extraction well. NC7-25 is the only well exclusively screened in the $Tnbs_1/Tnbs_0$ HSU that has historically and currently yielded groundwater with uranium in excess of the 20 pCi/L MCL cleanup standard.

The maximum uranium activity in W-PIT7-2307, an extraction well screened across both the Qal/WBR and $Tnbs_1/Tnbs_0$ HSUs, during 2018 was 17 pCi/L (April) with a uranium atom ratio of 0.004 $^{235}U/^{238}U$ indicating a depleted source. This is a slight decrease from the 2017 W-PIT7-2307 total uranium result of 24 pCi/L with a uranium atom ratio of 0.005 $^{235}U/^{238}U$.

As was the case for the Building 850 portion of OU 5, total uranium and individual isotope activities were obtained by alpha spectroscopy with selected samples analyzed by ICP-MS for defining total uranium mass/activity and isotope mass/activity and atom ratios in samples from monitoring wells. Additionally, total uranium analyses were performed by Kinetic Phosphorescence Analysis to quantify total uranium concentrations for extraction well mass removal determination.

2.5.5.2.3. Nitrate Concentrations and Distribution

Nitrate concentrations and distribution in groundwater in the Qal/WBR and $Tnbs_1/Tnbs_0$ HSUs in the Pit 7 Complex Area are discussed below.

Qal/WBR HSU

During 2018, groundwater in twelve Qal/WBR HSU wells contained nitrate with concentrations at or above the 45 mg/L MCL cleanup standard. Notable among these twelve wells is Qal/WBR HSU extraction well W-PIT7-2305, which exhibited a significant decrease in nitrate concentration from 140 mg/ in June 2017 to 78 mg/L in February 2018. All other Qal/WBR HSU monitoring wells exhibited similar nitrate concentrations between 2017 and 2018. The Qal/WBR HSU monitor well NC7-63 that exhibited the historical nitrate maximum, 90 mg/L (April 2011), yielded 61 mg/L during the first semester of 2018. Overall the spatial extent of nitrate concentrations above the 45 mg/L MCL in the Pit 7 Complex Area, shown on Figure 2.5-8, stayed the same. However, a notable nitrate increase was observed in NC7-21 a well downgradient of the Pit 7 Infiltration trench, which yielded 63 mg/L in 2018 compared to 41 mg/L in 2017. The increase in nitrate concentration at NC7-21 may be the result of nitrate concentration exceedances in injected treatment facility effluent. The potential for exceedances has been corrected with the augmentation to two sequential (total of four) anion-exchange resin canisters containing a nitrate-selective resin to ensure that effluent concentrations remain below the 45 mg/L discharge limit. Since augmentation, nitrate concentrations in NC7-16 and NC7-22, the two wells located immediately downgradient of the infiltration trench and upgradient of NC7-21, have decreased from 62 mg/L and 88 mg/L, respectively, during 2017 to below 45 mg/L in 2018.

$Tnbs_1/Tnbs_0$ HSU

During 2018, nitrate was detected at concentrations at or above the 45 mg/L MCL cleanup standard in samples from three $Tnbs_1/Tnbs_0$ HSU wells, NC7-25, W-PIT7-13, and NC7-47. This is consistent with the spatial distribution of nitrate concentrations in $Tnbs_1/Tnbs_0$ HSU from previous years. The 2018 maximum nitrate concentration in the Pit 7 Complex Area was 59 mg/L in well W-PIT7-13 (April).

Historical data indicate that nitrate concentrations in Qal/WBR and $Tnbs_1/Tnbs_0$ HSU groundwater are limited in extent and relatively stable. The spatial distribution and concentration of nitrate in $Tnbs_1/Tnbs_0$ HSU groundwater during 2018, shown on Figure 2.5-9, are similar to what was observed in 2017.

2.5.5.2.4. Perchlorate Concentrations and Distribution

During 2018, perchlorate was detected at concentrations at or exceeding the 6 µg/L MCL cleanup standard in 14 wells downgradient (east) of the landfills. Perchlorate concentrations and distribution in groundwater in the Qal/WBR and $Tnbs_1$/$Tnbs_0$ HSUs in the Pit 7 Complex Area are discussed below.

Qal/WBR HSU

Perchlorate concentrations in Qal/WBR HSU groundwater in the Pit 7 Complex Area have exhibited generally stable to decreasing trends from a historical maximum of 40 µg/L in extraction well W-PIT7-2306 (2009) to a 2018 maximum of 21 µg/L in extraction well W-PIT7-2306. Additionally, monitor well NC7-51, which exhibited 22 µg/L of perchlorate in 2017, decreased to 7 µg/L (April) during 2018. Well NC7-34 increased from 6.2 µg/L (2017) to 16 µg/L (April). Perchlorate concentrations in all other Qal/WBR HSU wells in the Pit 7 Complex Area either remained unchanged or decreased slightly. The spatial extent of perchlorate exceeding the 6 µg/L MCL in the Pit 7 Complex Area, shown on Figure 2.5-10, decreased slightly in 2018 compared to 2017.

$Tnbs_1$/$Tnbs_0$ HSU

Perchlorate concentrations in $Tnbs_1$/$Tnbs_0$ HSU groundwater have decreased from a historical maximum of 29 µg/L in monitor well K7-03 (2005) to a 2018 maximum concentration of 12 µg/L in monitor well NC7-25 (April). During 2018, wells NC7-25, NC7-68, W-PIT7-2307, and K7-03 contained perchlorate at concentrations at or exceeding the 6 µg/L MCL cleanup standard. Perchlorate concentrations in NC7-25 and K7-03 increased from 2017 concentrations of 7.9 µg/L and 4.2 µg/L to 12 µg/L (April) and 6.3 µg/L (April) respectively. Perchlorate concentrations in all other $Tnbs_1$/$Tnbs_0$ HSU wells remained stable or decreased slightly. Well NC7-25 is located downgradient of Pit 3, K7-03 is located downgradient of Pit 5, W-PIT7-2307 is located immediately downgradient of Pit 5, and well NC7-68 is located downgradient of Pit 5.

Overall, the extent of perchlorate at concentrations exceeding the 6 µg/L MCL cleanup standard in Pit 7 Complex Area groundwater, shown on Figure 2.5-11, did not change significantly from 2017 to 2018 in the $Tnbs_1$/$Tnbs_0$ HSU.

2.5.5.2.5. VOC Concentrations and Distribution

The VOC COCs in Pit 7 Complex groundwater include TCE and 1,1-DCE. TCE was detected in groundwater samples from five Pit 7 Complex Area wells during 2018. TCE concentrations were below the 5 µg/L MCL cleanup standard in all wells, with the exception of extraction well W-PIT7-2306, 6.5 µg/L (February). 1,1-DCE VOC concentrations and distribution in groundwater in the Qal/WBR and $Tnbs_1$/$Tnbs_0$ HSUs in the Pit 7 Complex Area are discussed below.

Qal/WBR HSU

During 2018, VOCs at concentrations above the 0.5 µg/L reporting limit were detected in four Pit 7 Complex Area Qal/WBR HSU wells, NC7-51, W-PIT7-03, W-PIT7-2306, and W-PIT7-2704, at 0.58 µg/L TCE, 0.77 µg/L TCE, 6.5 µg/L TCE and 1.4 µg/L 1,1-DCE, and 0.83 µg/L TCE, respectively. TVOC concentrations in Qal/WBR HSU groundwater in the Pit 7 Complex Area have decreased from a historical maximum of 21 µg/L in 1995 in performance monitoring well NC7-51, comprised of 15 µg/L TCE and 6.2 µg/L 1,1-DCE to 0.58 µg/L of TCE only in NC7-51 (April). The 2018 maximum TVOC concentration in Qal/WBR HSU groundwater in the Pit 7 Complex Area is

7.9 µg/L in W-PIT7-2306 comprised of 6.5 µg/L TCE and 1.4 µg/L 1,1-DCE. During 2018, concentrations of all other VOCs were below the analytical reporting limit.

$Tnbs_1$/$Tnbs_0$ HSU

During 2018, TCE concentrations above the 0.5 µg/L reporting limit were detected in two Pit 7 Complex Area $Tnbs_1$/$Tnbs_0$ HSU wells. Monitor well K7-03 yielded 1.7 µg/L TCE (April) and extraction well W-PIT7-2307 contained 0.83 µg/L TCE (April). TVOC concentrations in the $Tnbs_1$/$Tnbs_0$ HSU have decreased from the historical maximum of 15.2 µg/L (8.7 µg/L TCE, 4.5 µg/L 1,2-DCE, 0.8 µg/L PCE, and 1.2 µg/L 1,1,1-TCA) measured in a 1985 groundwater sample collected from well K7-03 to 1.7 µg/L (TCE only) in well K7-03 in 2018.

2.5.5.3. Pit 7 Complex Area of OU 5 Remediation Optimization and Performance Evaluation

Groundwater extraction and treatment at the PIT7-SRC facility began in March 2010. During all or portions of 2018, seven wells (NC7-25, NC7-64, W-PIT7-2305, W-PIT7-2306, W-PIT-2307, W-PIT7-2703, and W-PIT7-2705) of the ten PIT7-SRC extraction wells were operating. The volume of groundwater pumped and treated at PIT7-SRC during second semester of 2018 was 18,674 gallons totaling to 69,000 gallons treated for 2018. The mass removal achieved during 2018 for all COCs is summarized in Table Summ-1.

During 2018, the PIT7-SRC effluent compliance samples did not contain nitrate in excess of effluent discharge limitations. Individual extraction well samples yielded decreasing nitrate concentrations, W-PIT7-2305 decreased from 140 mg/L (2017) to 78 mg/L (February) and W-PIT7-2705 decreased from 70 mg/L (2017) to 62 mg/L (February). During 2018 69,000 gal of groundwater were extracted and treated with the removal of 0.23 g of VOCs, 2.2 g of perchlorate, 12 kg of nitrate, and 31 g of uranium. In 2017, 119,000 gal of groundwater were extracted and treated with the removal of 0.8 g of VOCs, 4.7 g of perchlorate, 20 kg of nitrate, and 29 g of uranium. Mass removal and extracted groundwater volumes were lower in 2018 than in 2017, principally due to pump failure in several extraction wells and the need to stop extraction from several wells with higher nitrate concentrations and tritium activities (as described in Section 2.5).

The performance of the DDS could not be evaluated in 2018 as 2017-2018 year was not a high rainfall year. Monitoring data indicate that COCs were not released from the landfills during 2018.

2.5.5.4. Pit 7 Complex Area of OU 5 Remedy Performance Issues

MNA for tritium continues to be effective and protective of human health and the environment. At this time, only wells located within approximately 1,000 ft of the Pit 7 Complex landfills contain tritium that exceeds the 20,000 pCi/L MCL. The overall footprint of tritium above background activities and reporting limits (>100 pCi/L) in the Qal/WBR and $Tnbs_1$/$Tnbs_0$ HSUs has remained stable for decades.

During 2018, tritium activities in treated effluent from PIT7-SRC ranged from 40,900 pCi/L (February) to 74,200 pCi/L (June). Based on samples collected during 2018, tritium activities in performance monitor wells NC7-16 and NC7-21, located directly downgradient of the effluent discharge trench, were consistent with historical tritium activities. The tritium activities in these wells will continue to be closely monitored to assess any negative impacts to the distribution of tritium in groundwater.

As discussed in the RD document for the Pit 7 Complex (Taffet et al., 2008), the Pit 7 DDS design was not intended to capture 100% of the precipitation that falls in the Pit 7 Complex Area. Rather, it was designed to divert excess surface water runoff and shallow subsurface recharge from the hillslopes to the west and east of the Pit 7 Complex landfills during high-intensity storms and periods of extreme rainfall to minimize groundwater contact with the pit waste and underlying contaminated bedrock.

Criteria outlined in the RD document, that if met could indicate that the Pit 7 DDS is not operating as intended include (Taffet et al., 2008):

1. Groundwater elevation responses to rainfall events observed in key monitoring wells are similar to those observed before the installation of the drainage diversion system.
2. Maximum groundwater rises into the pit waste and underlying contaminated bedrock are observed, as indicated by groundwater elevation data.
3. Increasing trends in tritium, uranium, VOCs, or perchlorate activities/concentrations are observed over a period of at least four quarters in groundwater samples from wells downgradient of the landfills.

The following is a summary of local conditions and preliminary results based on an evaluation of groundwater elevation and contaminant activity/concentration data collected from Pit 7 Complex Area wells during the first semester of 2018:

- The Pit 7 Complex DDS did not experience any periods of extreme rainfall during 2017-2018, compared to 2016-2017 and 1997-1998, two periods with relatively extreme rainfall events.
- Groundwater level responses to rainfall events during 2018 were remarkably different from the responses observed during 2017. Groundwater levels in wells NC7-51 (located downgradient of Pit 3) and NC7-34 (located between Pit 3 and Pit 5) increased significantly during 2017 in response to extreme 2016-2017 rainfall events. Groundwater levels in wells NC7-51 and NC7-34 did not increase during 2018 in response to 2017-2018 rainfall events. This difference in relationship between rainfall events and groundwater levels can be attributed to the lower magnitude of the 2017-2018 rainfall events in comparison to those of 2016-2017.
- During 2018, shallow groundwater levels beneath Pit 5 and Pit 3 declined significantly. Nearby monitoring wells W-PIT7-03, NC7-51, NC7-24 and extraction well W-PIT7-2307 exhibited 9.1, 6.8, 3.4, and 9 feet of decline, respectively, from their 2017 maximum groundwater levels to second semester 2018 groundwater levels.
- Temporal and spatial trends for performance and extraction wells indicate that COC concentrations have decreased from 2017 levels.
- Total uranium activities and the $^{235}U/^{238}U$ atom ratios in groundwater downgradient of the landfills remained relatively stable between 2017 and 2018.

A detailed analysis of the effectiveness of the DDS with respect to the criteria outlined in the RD document, was included in the Draft Five-Year Review for the Lawrence Livermore National Laboratory Site 300 East/West Firing Areas (Taffet et al., 2019), the review was limited to data collected from 2013 to 2017. In summary, the performance evaluation presented in the Five-Year Review indicated that the DDS did not prevent groundwater from rising into the landfills and underlying contaminated bedrock and that COCs were released to bedrock and that increasing concentration trends continued for four quarters, satisfying two of the three non-performance criteria, listed above. The evaluation of whether the first criterion, that water elevation responses

to rainfall are less pronounced after than before its installation, may have been satisfied but only limited data were amenable to analysis. The evaluation will continue using hydrological data from future storms. However, despite the recent release of COCs to groundwater, COC concentrations in excess of MCLs continue to be limited and attenuate within less than a thousand feet of the landfills. The migration of uranium, in particular, appears to be limited by sorption to aquifer mineral surfaces. Monitoring will continue to provide data to verify whether the extent of these COCs in excess of MCLs and background remain limited in extent and whether long-term decreasing concentration trends continue.

Concentrations of COCs will continue to be closely monitored in downgradient performance monitor wells. Spatial and temporal COC trends in these wells will continue to be used to determine the relative magnitude and distribution of localized residual vadose zone COC sources within and beneath the pits.

The Pit 7 GWTS continues to effectively and efficiently remove COCs from shallow groundwater beneath and surrounding the Pit 7 Complex. If necessary, modifications to the PIT7-SRC extraction wellfield will be implemented based on future COC concentration trends.

2.6. Building 854 (OU 6)

The Building 854 Complex has been used to test the stability of weapons and weapon components under various environmental condition, as well as, mechanical and thermal stresses. A map of the Building 854 OU showing the locations of monitor and extraction wells and treatment facilities is presented on Figure 2.6-1.

Three GWTSs are currently operated in the Building 854 OU: Building 854-Source (854-SRC); Building 854-Proximal (854-PRX); and Building 854-Distal (854-DIS). One SVTS is also operated at the 854-SRC area.

The 854-SRC GWTS, which began operation in December 1999 to remove VOCs and perchlorate from groundwater, was upgraded in 2016. Operational flow rates have been higher and more consistent following the engineering upgrades. However, over the course of the second semester of 2018, the production for well W-854-2218 showed some decrease from the previous flow rate of 5.5 gpm to an average rate of 3.7 gpm. The flow rate for well W-854-02 ranged from 1.0 gpm to 0.6 gpm. Upgrades also included improvements to the data acquisition system and the programmable logic controller strategy. Despite the engineering upgrades on the treatment facility, the GWTS configuration did not change. The system includes a particulate filtration system, two ion-exchange resin columns connected in series for perchlorate removal, and three aqueous-phase GAC units connected in series for VOC removal. Nitrate-bearing treated effluent also continues to be discharged via a misting tower on to the landscape for uptake and utilization of the nitrate by indigenous grasses.

Soil vapor treatment began at 854-SRC in November 2005. Soil vapor is extracted from one SVE well, W-854-1834, at an approximate flow rate of 46 scfm. This system consists of a rotary-lobe blower to create vacuum at the wellhead and a series of pipes leading to vapor-phase GAC by which VOCs are removed from extracted soil vapor. Treated vapors are discharged to the atmosphere under a permit issued by the SJVAPCD. There were no significant changes to this system performed as part of the upgrade to the groundwater extraction and treatment system.

The 854-PRX GWTS began removing VOCs, nitrate, and perchlorate from groundwater in November 2000. During the second semester of 2018, groundwater was extracted at a flow rate of 3 gpm from a single extraction well, W-854-03, located southeast of the Building 854 complex. The GWTS configuration includes a particulate filtration system, two ion-exchange resin columns connected in series for perchlorate removal, and three aqueous-phase GAC units connected in series for VOC removal. The 2014 upgrades included the addition of a nitrate sensor and bypass valve system to divert water through an available nitrate ion-exchange resin in the event that influent nitrate concentrations increased to nearly 45 mg/L. However, in July 2017, the additional nitrate ion-exchange column was removed, and the system was modified to shut down in the event the nitrate concentrations increased. One new well was installed in 2018 in the 854-PRX area, W-854-3405. This well is screened in the $Tnbs_1Tnsc_0$ HSU and is in response to a recommendation in the OU6 Second Five-Year Review (Valett et. al, 2014). Baseline water quality data from a sample collected November 2018 indicated the presence of VOCs (4.5 µg/L, all TCE), perchlorate (7.4 µg/L), and nitrate (53 mg/L). This well will serve as a performance monitor well for extraction well W-854-03.

The 854-DIS GWTS is solar-powered and began operation in July 2006, removing VOCs and perchlorate from groundwater. Groundwater is extracted from well W-854-2139, which operates cyclically. The operational flow rate ranged from 900 to 1,300 gallons per month during the second semester of 2018. The GWTS configuration includes two ion-exchange resin columns connected in series for perchlorate treatment, followed by three aqueous-phase GAC units connected in series for VOC removal prior to discharge to an infiltration trench. Because of inefficiencies, as presented to the regulatory agencies at the June 14, 2018 RPM meeting, the Building 854-DIS GWTS is currently being converted to an extraction and collection system, similar to the Building 817-SRC and 829-SRC systems. These engineering modifications and upgrades began on October 10, 2018. All treatment media and components have been removed from the system, and a collection tank will be added. Upon startup in 2019, the collected water will be regularly transferred to the 854-SRC GWTS for treatment.

2.6.1. Building 854 OU Groundwater Treatment System Operations and Monitoring

This section is organized into five subsections: facility performance assessment; operations and maintenance issues; compliance summary; sampling plan evaluation and modifications; and treatment facility and extraction wellfield modifications.

2.6.1.1. Building 854 OU Facility Performance Assessment

The Building 854 GWTSs have operated as designed during this reporting period. The cleanup performance assessment is discussed below in Section 2.6.3.3. The monthly groundwater discharge volumes and operational hours for the second semester of 2018 are summarized in Tables 2.6-1 through 2.6-3. The total volume of groundwater treated, and masses removed during the reporting period are presented in Table Summ-1. The cumulative volume of groundwater treated and discharged, and the masses removed are summarized in Table Summ-2. Analytical results for influent and effluent samples collected during the 2018 are presented in Tables 2.6-4 and 2.6-5. The pH measurement results are presented in Appendix A.

2.6.1.2. Building 854 OU Operations and Maintenance Issues

The following maintenance activities and operational issues occurred at the 854-SRC GWTS and SVTS, and 854-PRX and 854-DIS GWTS during the second semester of 2018:

854-SRC GWTS and SVTS

- The 854-SRC GWTS was off line for a short period on August 13 for extraction well W-854-2218 trouble-shooting and for interlock checks.
- The GWTS and SVTS were off line from September 21 until September 24 due to an unplanned power outage.
- The GWTS shut down on September 30 due to a high batch tank interlock. The system was restarted on October 1.
- The GWTS shut down on September 30 due to a high batch tank interlock. Due to a scheduled power outage, the GWTS was left off line, and the SVTS was taken off line. Both systems were restarted on October 8.
- The GWTS and SVTS were off line from October 24 until October 29 due to a scheduled power outage.
- The GWTS was shut down for freeze-protection on November 19, and remained off line for the rest of the reporting period.

854-PRX GWTS

- The GWTS was off line from September 21 until September 24 for an unplanned power outage.
- The GWTS was off line from October 3 until October 8 due to a scheduled power outage.
- The GWTS was taken off line on October 23 for the drilling of a nearby well, W-854-3405. It was restarted on November 13, compliance samples collected on November 14, and again taken off line. The system was secured for freeze-protection on November 19, and remained secured for the rest of the reporting period.

854-DIS GWTS

- The GWTS was off line from September 21 until September 24 due to an unplanned power outage.
- The GWTS was off line from October 3 until October 4 for battery replacement.
- The GWTS was secured from October 10 through the remainder of the reporting period to accommodate engineering upgrades to the facility and associated wells.

2.6.1.3. Building 854 OU Compliance Summary

The 854-SRC GWTS and SVTS operated in compliance with the RWQCB substantive requirements for wastewater discharge and the SJVAPCD permit limitations, respectively, during the second semester of 2018. The 854-PRX and 854-DIS GWTSs also operated in compliance with the RWQCB substantive requirements for wastewater discharge during this reporting period.

2.6.1.4. Building 854 OU Facility Sampling Plan Evaluation and Modifications

The Building 854 OU facility sampling and analysis plan complies with the monitoring requirements in the CMP/CP. The sampling and analysis plan for the entire year is presented in Table 2.6-6. There were no modifications to the plan during this reporting period.

2.6.1.5. Building 854 OU Treatment Facility and Extraction Wellfield Modifications

No treatment facility or extraction wellfield modifications were performed on the 854-SRC GWTS and SVTS or the 854-PRX GWTS during the second semester of 2018. As noted in Section 2.6, the

Building 854-DIS GWTS is currently being converted to an extraction and collection system, similar to the Building 817-SRC and 829-SRC systems. All treatment media and components have been removed, and a collection tank will be added. The collected water will be regularly transferred to the Building 854-SRC GWTS for treatment.

2.6.2. Building 854 OU Groundwater Monitoring

The sampling and analysis plan for groundwater and surface water monitoring for the entire year is presented in Table 2.6-7. This table also explains any deviations from the sampling plan.

During the second semester of 2018, groundwater monitoring was conducted in accordance with the CMP monitoring requirements with the following exceptions:

- A total of one required analysis from one well was not performed because the well was under repair.
- A total of 10 required analyses from five different wells or springs were not performed because the wells were dry, or there was insufficient water to collect the samples.

Analytical results and groundwater elevation measurements obtained during 2018 are presented in Appendices B and C, respectively.

A groundwater elevation contour map for the $Tnbs_1/Tnsc_0$ HSU, based on data collected during the second semester of 2018, is presented on Figure 2.6-2.

2.6.3. Building 854 OU Remediation Progress Analysis

This section is organized into four subsections: mass removal; analysis of contaminant distribution and concentration trends; remediation optimization evaluation; and remedy performance issues.

2.6.3.1. Building 854 OU Mass Removal

The monthly groundwater mass removal estimates for the second semester of 2018 are summarized in Tables 2.6-8 through 2.6-10. The total mass removed during the reporting period and cumulative mass estimates are summarized in Table Summ-1 and Table Summ-2, respectively.

2.6.3.2. Building 854 OU Contaminant Concentrations and Distribution

At the Building 854 OU, TCE and perchlorate are the primary COCs detected in groundwater; nitrate is the secondary COC. These COCs have been detected primarily in the $Tnbs_1/Tnsc_0$ HSU. The locations of the wells discussed in the following text are shown on the Building 854 OU site map (Figure 2.6-1).

A total VOC isoconcentration contour map and individual VOC concentrations for the $Tnbs_1/Tnsc_0$ HSU is shown on Figure 2.6-3. A perchlorate isoconcentration contour map for the $Tnbs_1/Tnsc_0$ HSU is presented on Figure 2.6-4. A map showing nitrate concentrations for the $Tnbs_1/Tnsc_0$ HSU is shown on Figure 2.6-5. Groundwater elevations measured during the second semester of 2017 are posted for the $Qls/Tnbs_1$ HSU on Figure 2.6-6.

2.6.3.2.1. VOC Concentrations and Distribution

In the Building 854 OU, VOCs are present in both the $Tnbs_1/Tnsc_0$ and $Qls/Tnbs_1$ HSUs.

$Qls/Tnbs_1$ HSU

During the reporting period, VOCs were not detected above reporting limits in any well screened in the $Qls/Tnbs_1$ HSU, except well W-854-10. Since 2006, TVOC concentrations in groundwater in

this well have ranged from 1.1 to 60 µg/L, with a second semester of 2018 concentration of 8.3 µg/L (November).

$Tnbs_1/Tnsc_0$ HSU

TVOC concentrations in $Tnbs_1/Tnsc_0$ HSU groundwater have been reduced from a historic pre-remediation maximum of 2,900 µg/L (extraction well W-854-02, 1997) to a 2018 maximum concentration of 84 µg/L in well W-854-02 (April). During 2018, total VOC concentrations above the 0.5 µg/L individual VOC reporting limit were detected in nine additional wells screened in the $Tnbs_1/Tnsc_0$ HSU. During 2018, TCE was the only VOC detected in groundwater in the $Tnbs_1/Tnsc_0$ HSU, except for two wells where cis-1,2-DCE was also detected, W-854-17 and W-854-2139. Of these two wells, only W-854-17 contained cis-1,2-DCE above the 6 µg/L MCL cleanup standard, with a 2018 maximum concentration of 17 µg/L (November).

Two VOC plumes exist in the $Tnbs_1/Tnsc_0$ HSU: a northern plume and a southern plume. The northern plume originates beneath the Building 854-SRC area and extends to the 854-PRX area. The northern plume is separated from the southern plume by a region where two monitor wells, W-854-1902 and W-854-1822, have not yielded detectable VOCs above their respective reporting limits since sampling began in 2002. The high-concentration portion of the southern plume is located in the vicinity of Well 13, a former water-supply well. The southern plume extends south, where TCE concentrations have been sporadically detected since 1982 at Spring 10 at concentrations up to 32 µg/L (2000) and at Spring 11 at concentrations up to 2.6 µg/L (2015). The overall extent of VOCs impacting Building 854 groundwater with concentrations above the 0.5 µg/L reporting limit has remained relatively stable since remediation began. However, the extent of the northern VOC plume with concentrations greater than 50 µg/L has decreased and is currently limited to the immediate vicinity of the Building 854-SRC area. The extent of the southern VOC plume with concentrations greater than 10 µg/L has decreased since remediation began and concentrations generally continue to exhibit a decreasing trend, although monitor well W-854-07 exhibited an increase in TCE concentration from the 2016 maximum of 6.5 µg/L in November 2016 to 23 µg/L in May 2018.

The historical maximum TVOC concentration in soil vapor in the Building 854 source area was detected in 854-SRC SVTS extraction well W-854-1834 (4.4 $ppm_{v/v}$, November 2005, composed entirely of TCE) and was representative of conditions during normal vapor extraction operations. The 2018 maximum TVOC vapor concentration in this well was 0.2 $ppm_{v/v}$ (October); this is representative of diffusion-limited vapor concentrations during continued vacuum extraction operations. Diffusion-limited vapor concentrations in this well have remained below 0.5 $ppm_{v/v}$ since 2008. The overall decline in total VOC vapor concentration indicates progress in remediation of VOCs in this area in the vicinity of this well.

2.6.3.2.2. Perchlorate Concentrations and Distribution

In the Building 854 OU, perchlorate concentrations above the 4 µg/L reporting limit are present in the $Tnbs_1/Tnsc_0$ HSU only.

$Qls/Tnbs_1$ HSU

During the second semester of 2018, perchlorate concentrations did not exceed the 4 µg/L reporting limit in all wells screened in the $Qls/Tnbs_1$ HSU or perched $Tnbs_1$ water-bearing zones.

$Tnbs_1/Tnsc_0$ HSU

The distribution and concentrations of perchlorate in $Tnbs_1/Tnsc_0$ HSU groundwater during the reporting period are generally similar to those observed in previous years. In the 854-PRX area, perchlorate concentrations in $Tnbs_1/Tnsc_0$ HSU groundwater have decreased from a historical maximum of 27 µg/L in monitor well W-854-1823 (2003) to a 2018 maximum of 19 µg/L in well W-854-3308 (May). Perchlorate concentrations have declined slightly in this well since 2003. However, because perchlorate persists at concentrations above the 6 µg/L MCL cleanup standard at this location, a treatability test work plan for an enhanced *in situ* bioremediation treatability study is being prepared. Perchlorate concentrations at 854-PRX area extraction well W-854-03 did not exceed the reporting limit of 4 µg/L during 2018. However, perchlorate was detected in new well W-854-3405 (7.4 µg/L, November), and will continue to be monitored.

At 854-DIS, except for one unusually high result in the July 2017 sample (14 µg/L), perchlorate concentrations in samples from extraction well W-854-2139 have ranged from below reporting limits to 6.6 µg/L (from February 2011 to February 2018). In the Building 858 Drop Tower area, perchlorate in groundwater is not currently being captured by any groundwater extraction wells. Perchlorate concentrations in this area have decreased from a historical maximum of 15.2 µg/L (W-854-45, 2011) to a 2018 maximum of 11 µg/L in new well W-854-3307 (August).

2.6.3.2.3. Nitrate Concentrations and Distribution

The maximum nitrate concentration in Building 854 OU area groundwater is typically found in $Qls/Tnbs_1$ HSU monitor well W-854-14, located near the Building 858 Drop Tower. From 2001 through 2017, nitrate concentrations in this well have ranged from 130 to 270 mg/L. However, during 2018, the nitrate concentration in this well was anomalously low (11 mg/L, May). Nitrate concentrations in well W-854-45, also located in the Building 858 Drop Tower area, exhibit a steadily increasing trend from 2004 (16 mg/L) to a 2018 maximum concentration of 65 mg/L (May). Generally, other wells that contain nitrate above the 45 mg/L cleanup standard have exhibited steady or decreasing nitrate concentrations up to the reporting period. All of the wells containing groundwater with nitrate concentrations exceeding the 45 mg/L MCL cleanup standard are located in the vicinity of the Building 854 Complex or Building 858 (Figure 2.6-1).

2.6.3.3. Building 854 OU Remediation Optimization Evaluation

During 2018, 1.97 million gallons of groundwater were extracted from the 854-SRC GWTS, a decrease of approximately 13 percent from 2017. Total VOC mass removed from groundwater at 854-SRC during 2018 was 140 g. This decrease of 26 percent from 2017 was largely due to lower VOC concentrations in the extracted groundwater and continues a declining trend in VOC mass removal in this area. Total perchlorate mass removed at 854-SRC during 2018 was 5 g, representing a 25 percent decrease from 2017. This decrease arose from lower perchlorate concentrations in the extracted groundwater. Total nitrate mass removed at 854-SRC during 2018 was 380 kg, roughly equal to 2017, resulting from the slight increase in nitrate concentrations balanced by a decrease in extraction flow rate.

The 854-SRC SVTS extracted 22.7 million cubic ft of soil vapor during 2018, a 19 percent increase from 2017 due to the increased operational time. During 2018, 550 g of VOC mass were removed from extracted soil vapor, roughly equal to 2017 VOC mass removed. Despite consistently low VOC vapor

concentrations, substantial VOC mass continues to be removed from the source area due to relatively high vapor flow rates (approximately 48 scfm). This VOC mass is volatilizing from residual TCE in the vadose zone beneath the Building 854 source area and from the dissolved VOC plume in $Tnbs_1/Tnsc_0$ HSU groundwater beneath the SVE well.

During 2018, the 854-PRX GWTS was off line for much of the reporting period; the volume of groundwater treated (687 thousand gallons) and contaminant mass removed from groundwater (12 g of VOC mass, 0 g of perchlorate mass, and 100 kg of nitrate mass) represented between a 40 and 60 percent decrease from 2017, except for perchlorate. No measurable perchlorate mass was removed during 2017 or 2018 because concentrations in 854-PRX extraction well W-854-03 groundwater remained below the reporting limit. The overall decrease in VOC and perchlorate mass removed and increase in nitrate mass removed in recent reporting periods is likely due to increased flow rates at W-854-03 expanding the capture zone of the well to include groundwater with overall lower influent perchlorate and VOC concentrations, but similar concentrations of nitrate.

In order to reduce persistent perchlorate concentrations above the 6 µg/L MCL cleanup standard at well W-854-1823, located several hundred feet downgradient of 854-PRX, an enhanced *in situ* bioremediation treatability test may be implemented utilizing two new wells constructed in 2017: W-854-3308, located approximately 20 ft upgradient of W-854-1823, and W-854-3309, located approximately 20 ft downgradient of W-854-1823. In the proposed enhanced *in situ* bioremediation treatability test, groundwater extracted from W-854-3309 would be mixed with ethyl lactate in a holding tank, then injected into W-854-3308. A detailed work plan will be prepared after the new wells, W-854-3308 and W-854-3309, have been hydraulically tested to determine their viability as injection or extraction wells.

During 2018, the 854-DIS GWTS extracted approximately 8,000 gallons of groundwater, a significant increase from 2017, when approximately 1,000 gallons was extracted. The mass removal from 854-DIS GWTS also increased significantly during the same period, removing 0.67 g of VOCs, 0.17g of perchlorate, and 0.62 kg of nitrate. This higher volume of extracted groundwater and mass removed are back on par with 2006-2013 numbers and are largely due to increased operational up time provided by preventive maintenance and other engineering efforts. However, due to the continued low groundwater extraction volumes and correspondingly low mass removal at 854-DIS relative to other groundwater treatment facilities in the area, as presented to the regulatory agencies at the June 14, 2018 RPM meeting, DOE/LLNL have discontinued treatment of extracted groundwater at 854-DIS, and are now storing the extracted groundwater in a secured holding tank for periodic transfer to either the 854-SRC GWTS for treatment and discharge of effluent.

To reduce persistent perchlorate concentrations above the 6 µg/L MCL cleanup standard at well W-854-45, located near the 858 Drop Tower, an enhanced *in situ* bioremediation project similar to that described above for W-854-1823, has been proposed for this area. The project would utilize three new wells constructed in 2017: W-854-3305, W-854-3306, and W-854-3307. Depending on the results of hydraulic tests , W-854-3305 could potentially be utilized as an electron donor/effluent injection well and W-854-3306 and W-854-3307 could be utilized as extraction and monitor wells, respectively. Prior to implementation, a detailed work plan will be prepared and submitted to the regulatory agencies for approval.

2.6.3.4. Building 854 OU Remedy Performance Issues

There were no new issues that affect the performance of the cleanup remedy for the Building 854 OU during this reporting period. As discussed in Section 2.6.3.3, the ongoing performance issues with 854-SRC extraction well W-854-2218 have been addressed in the engineering evaluation and upgrade of this facility, which was completed during the second semester of 2016. The installation of a data acquisition system to monitor hydraulic response to pumping has allowed for improved performance assessment at this facility.

Perchlorate ion-exchange resin vessels in the 854-PRX treatment facility were replaced following shutdown for freeze protection. Nitrate concentration trends in 854-PRX effluent will be monitored to better constrain nitrate breakthrough curves for this resin. This information will be useful for future remedial performance evaluations. Additionally, new monitor well W-854-3405 will provide data needed to evaluate its capture zone, further optimizing remedial efforts in the area.

Work plans are in progress for the implementation of enhanced *in situ* bioremediation of perchlorate in the 854-SRC area by injection of an electron donor (most likely ethyl lactate) mixed with treated effluent from the facility into proposed injection well W-854-2611. A work plan for this treatability test will be submitted for regulatory review and similar projects are planned for the Building 858 Drop Tower and the W-854-1823 areas.

As stated above, the continued low groundwater extraction volumes and correspondingly low mass removal at 854-DIS render treatment of extracted water there very inefficient. Thus, DOE/LLNL are discontinuing treatment there and will instead periodically transfer and treat the effluent at 854-SRC GWTS.

The overall remedy continues to be effective and protective of human health and the environment, and to make progress toward cleanup.

2.7. Building 832 Canyon (OU 7)

Starting in the late 1950s and early 1960s, facilities in the Building 830 and 832 area were used to test the stability of weapon components under various environmental conditions until 1985. Contaminants were released from Buildings 830 and 832 through piping leaks and surface spills during testing activities at these buildings.

Three GWTSs and two SVTSs are operated in the Building 832 Canyon OU: Building 832-Source (832-SRC), Building 830-Source (830-SRC), and Building 830-Distal South (830-DISS). The 832-SRC and 830-SRC facilities extract and treat both groundwater and soil vapor, while the 830-DISS facility extracts and treats groundwater only. A map of the Building 832 Canyon OU showing the locations of monitor and extraction wells and treatment facilities is presented on Figure 2.7-1.

The 832-SRC GWTS removes VOCs, perchlorate, and nitrate from groundwater, and the SVTS removes VOC mass from soil vapor. The GWTS and SVTS began operation in September and October 1999, respectively. For recent operations, groundwater has been extracted from wells W-832-01, W-832-11, W-832-10, and W-832-25 at a combined flow rate of approximately one-thousand gallons per month. Groundwater and soil vapor have been extracted from wells W-832-12 and W-832-15 at a combined flow rate of less than 0.5 gpm of groundwater and 3.8 scfm of soil vapor. The current GWTS configuration includes two ion-exchange resin columns connected in series to remove perchlorate and three aqueous-phase GAC units (also connected in series) to remove

VOCs. Nitrate-bearing treated effluent is then discharged via a misting tower over the landscape for uptake and utilization of the nitrate by indigenous grasses. A positive displacement rotary lobe blower is used to create a vacuum at selected wellheads through a system of piping manifolds. The contaminated vapors are treated using three vapor-phase GAC units connected in series. Treated soil vapors are then discharged to the atmosphere under a permit issued by the SJVAPCD. Both the 832-SRC groundwater and soil vapor treatment systems are currently shut down for upgrades. These upgrades include connecting W-832-3019 as a dual extraction well and W-832-3020 as a groundwater extraction well (to replace W-832-11), as well as other engineering upgrades to the wellhead designs and data collection capabilities at associated extraction wells. A more complete description of the facility design will be provided after modifications are complete.

The 830-SRC GWTS removes VOCs, perchlorate, and nitrate from groundwater, and the SVTS removes VOCs from soil vapor. The GWTS and SVTS began operation in February and May 2003, respectively. The current system, which was redesigned in 2014 and restarted operations during the second semester of 2015, includes two ion-exchange resin columns connected in series to remove perchlorate and three aqueous-phase GAC units connected in series to remove VOCs. Groundwater is extracted from wells W-830-19, W-830-57, W-830-59, W-830-60, W-830-2214, W-830-2215, and W-830-2701. Both groundwater and soil vapor are extracted from wells W-830-49 and W-830-1807, which operate as dual extraction wells. When operational, these nine wells extract groundwater at a combined flow rate of approximately 11 gpm. A manifold located between the ion-exchange resin columns and the GAC units allows non-perchlorate-bearing influent to bypass perchlorate treatment. Nitrate-bearing treated effluent is then discharged via a misting tower over the landscape for uptake and utilization of the nitrate by indigenous grasses. The SVTS operates by creating a vacuum using a liquid-ring pump, which is connected to two dual extraction wells (W-830-1807 and W-830-49). The two dual extraction wells also extract soil vapor at a combined flow rate of approximately 10 to 14 scfm. The contaminated vapors are treated using three vapor-phase GAC units connected in series. Treated soil vapors are then discharged to the atmosphere under a permit issued by the SJVAPCD.

The 830-DISS GWTS began operation in 2000, removing VOCs, perchlorate, and nitrate from groundwater. When the 830-DISS GWTS is operational, groundwater is extracted from wells W-830-51, W-830-52, W-830-53, and W-830-2216 at a combined flow rate of approximately 2 to 3 gpm. When operating, extracted groundwater flows through ion-exchange canisters to remove perchlorate at the 830-DISS location and the groundwater is piped to the CGSA GWTS for VOC removal. Nitrate-bearing treated effluent from CGSA is then discharged via a misting tower over the landscape for uptake and utilization of the nitrate by indigenous grasses.

2.7.1. Building 832 Canyon OU Groundwater and Soil Vapor Extraction and Treatment System Operations and Monitoring

This section is organized into five subsections: facility performance assessment; operations and maintenance issues; compliance summary; sampling plan evaluation and modifications; and treatment facility and wellfield modifications.

2.7.1.1. Building 832 Canyon OU Facility Performance Assessment

The Building 830-SRC and 832-SRC GWTS operated as designed during the reporting period. Except for a couple of days for testing of the CGSA GWTS, the Building 830-DISS GWTS did not

operate during this period due to construction at the CGSA GWTS. For the second semester of 2018, monthly groundwater and soil vapor discharge volumes and operational hours are summarized in Tables 2.7-1 through 2.7-3. The total volume of groundwater and vapor extracted and treated, and mass removed during the reporting period are presented in Table Summ-1. The cumulative volume of groundwater and soil vapor treated and discharged, and mass removed are summarized in Table Summ-2. Analytical results for influent and effluent samples collected during the second semester of 2018, are presented in Tables 2.7-4 and 2.7-5. The pH measurement results are presented in Appendix A.

2.7.1.2. Building 832 Canyon OU Operations and Maintenance Issues

The following maintenance activities and operational issues occurred at the 832-SRC GWTS and SVTS, 830-SRC GWTS and SVTS, and 830-DISS GWTS during the second semester of 2018:

832-SRC GWTS and SVTS

- Both the GWTS and SVTS were off line the entire reporting period for the planned construction upgrade project.

830-SRC GWTS and SVTS

- Both the GWTS and SVTS were off line from July 5 until July 9 due to an unplanned power outage.
- Both the GWTS and SVTS were shut down on July 19 due to a leak encountered on the pipeline to the south misting tower. The leak was repaired and the systems restarted on July 23. Approximately 10 gallons of partially treated water were released to the ground surface. Because this leak was located in the effluent discharge pipeline, all contaminants had been removed except for nitrate, which at a concentration of 15 mg/L (from sample collected on July 9), is well below the MCL of 45 mg/L.
- On August 1, an inspection of the misting tower areas was conducted by the Environmental Functional Area (EFA) with Environmental Restoration Department (ERD) personnel present. EFA was concerned about the condition of the areas due to extremely saturated conditions under both misting towers. ERD voluntarily changed the operating schedule of the GWTS to reduce the discharge at the two towers. As of August 2, the system is only operated Monday through Thursday. In addition, water is discharged to the south misting towers on Monday and Tuesday, and then discharged to the north tower on Wednesday and Thursday. Although significant improvement was observed over the next few months, additional evaluation is being conducted to attempt to reduce the impact of the discharge on saturating soil beneath the misting towers. A new type of misting heads will be tested, and if not successful, additional modifications may include the installation of a batch tank and discharge pump higher up on the hill to increase the pressure at the misting heads for better atomization and greater distribution of the mist.
- Both the GWTS and SVTS were off line from September 11 until September 12 for pipeline painting.
- Both the GWTS and SVTS were secured and freeze-protected on November 20 and were off line for the remainder of the reporting period.

830-DISS GWTS

- With the exception of two short periods of operations on October 23 and November 1 as part of the testing and verification of the CGSA GWTS, the 830-DISS GWTS was off line for the entire reporting period due to the CGSA GWTS upgrade project. No groundwater was discharged from this facility during this reporting period.

2.7.1.3. Building 832 Canyon OU Compliance Summary

The 832-SRC and 830-SRC GWTSs and SVTSs operated in compliance with RWQCB substantive requirements and with the SJVAPCD permit limitations, respectively. The 830-DISS GWTS also operated in compliance with RWQCB substantive requirements during this reporting period.

2.7.1.4. Building 832 Canyon OU Facility Sampling Plan Evaluation and Modifications

The Building 832 Canyon OU treatment facility sampling and analysis plan complies with the monitoring requirements in the CMP/CP. The sampling and analysis plan for the full year is presented in Table 2.7-6. No modifications were made to any of the plans during this reporting period.

2.7.1.5. Building 832 Canyon OU Treatment Facility and Extraction Wellfield Modifications

The Building 832-SRC GWTS and SVTS were off line from April 23 through the rest of 2018 to continue with the construction upgrade project. Upgrades to the treatment facility will include upgraded instrumentation to the current ERD design standard, which will allow this facility to be integrated into the existing data telemetry system. All new treatment media vessels and associated pipelines are being installed. All extraction wellheads and down-well instrumentation is being updated to the current standard. The wellfield modifications will include the addition of two new extraction wells to the facility, W-832-3020 (to replace extraction well W-832-11) and a new dual extraction well W-832-3019.

During 2018, the misting towers have been utilized for groundwater discharge. DOE/LLNL continue to evaluate long term alternatives for the final disposition of treated effluent. These options include injection into wells W-833-30 and W-830-3101, potential injection into other existing wells, or continuation of misting. Until a final decision is made on the disposition of treated effluent, groundwater will be discharged at the misting towers, as described above. The method for final placement of treated effluent will be presented to the regulatory agencies for concurrence.

No treatment facility modifications were made at the 830-DISS GWTS during 2018. Because this system has been off line for such a long period, all treatment media was changed out and all pipelines were tested for leaks to ensure readiness for operations when the CGSA GWTS becomes operational. During 2018, a new well was installed in the $Tnsc_{1ab}$ HSU, W-830-3410. Baseline sampling was conducted in 2019 and results will be discussed in the 2019 1st Semester Compliance Monitoring Report. This well will serve as a performance monitor well for the 830-DISS GWTS wellfield.

2.7.2. Building 832 Canyon OU Groundwater Monitoring

The sampling and analysis plan for groundwater and surface water monitoring for the entire year is presented in Table 2.7-7. This table explains deviations from the sampling plan and indicates any additions made to the CMP.

During the second semester of 2018, groundwater monitoring was conducted in accordance with the CMP monitoring requirements with the following exceptions:

- A total of 17 analyses from 14 different wells were not performed, because the wells were dry, or there was insufficient water for sample collection.
- A total of 6 analyses from six different wells were not performed, because the well locations were inaccessible or there were mechanical issues at the wellheads' restricting sampling access.

Analytical results and groundwater elevation measurements obtained during 2018 are presented in Appendices B and C, respectively.

Groundwater elevations and flow directions for the Qal/WBR HSU are presented on Figure 2.7-2. Groundwater elevation contour maps including hydraulic capture zones for the $Tnsc_{1ab}$ and Upper $Tnbs_1$ HSUs are presented on Figures 2.7-3 and 2.7-4, respectively.

2.7.3. Building 832 Canyon OU Remediation Progress Analysis

This section is organized into four subsections: mass removal; contaminant concentrations and distribution; remediation optimization evaluation; and remedy performance issues.

2.7.3.1. Building 832 Canyon OU Mass Removal

The monthly groundwater and soil vapor contaminant mass removal estimates for 2018 are summarized in Tables 2.7-8 through 2.7-10. The total masses removed during the reporting period and cumulative mass estimates are summarized in Table Summ-1 and Table Summ-2, respectively.

2.7.3.2. Building 832 Canyon OU Contaminant Concentrations and Distribution

At the Building 832 Canyon OU, VOCs (mostly TCE) are the primary COCs detected in groundwater. The compound cis-1,2-DCE is a COC at both the Building 830 and 832 source areas, and CFORM and PCE are COCs at the Building 830 source area. Perchlorate and nitrate are the secondary COCs. These constituents have been detected primarily in the Qal/WBR and $Tnsc_{1ab}$ HSUs. VOCs and perchlorate have also been detected at relatively low concentrations in the $Tnbs_2$ and Upper $Tnbs_1$ HSUs.

A map showing individual VOC concentrations for the Qal/WBR HSU is shown on Figure 2.7-5. A total VOC isoconcentration contour map and individual VOC concentrations for the $Tnsc_{1ab}$ and Upper $Tnbs_1$ HSUs are presented on Figures 2.7-6 and 2.7-7, respectively. A map showing perchlorate concentrations for the Qal/WBR HSU is shown on Figure 2.7-8. A perchlorate isoconcentration contour map for the $Tnsc_{1ab}$ HSU is presented on Figure 2.7-9. Maps showing nitrate concentrations for the Qal/WBR and $Tnsc_{1ab}$ HSUs are presented on Figures 2.7-10 and 2.7-11, respectively.

2.7.3.2.1. VOC Concentrations and Distribution

At the Building 832 Canyon OU, VOCs (mostly TCE) are the primary COCs detected in groundwater. The compound cis-1,2-DCE is a COC at both the Building 830 and 832 source areas, and CFORM and PCE are COCs at the Building 830 source area. Perchlorate and nitrate are the secondary COCs. These constituents have been detected primarily in the Qal/WBR and $Tnsc_{1ab}$ HSUs. VOCs and perchlorate have also been detected at relatively low concentrations in the $Tnbs_2$ and Upper $Tnbs_1$ HSUs.

2.7.3.2.1. VOC Concentrations and Distribution

VOCs detected in Building 832 area groundwater consist primarily of TCE. During 2018, VOCs other than TCE present above the reporting limit in the Building 832 source area were cis-1,2-DCE,

chloroform, 1,1,2-TCA, and Freon 11. Of these VOCs, only TCE and cis-1,2-DCE were present in the Building 832 area at concentrations above their MCL cleanup standards of 5 µg/L and 6 µg/L, respectively.

VOCs detected in the Building 830 area (including 830-SRC and 830-DISS areas) groundwater consist primarily of TCE. During 2018, the other VOCs present above the reporting limit in the Building 830 area were PCE, cis-1,2-DCE, trans-1,2-DCE, chloroform, and 1,2-DCA. Of these VOCs, only TCE, and 1,2-DCA were detected at concentrations above their MCL cleanup standards of 5 µg/L and 0.5 µg/L, respectively.

VOC concentrations and distribution are discussed by HSU, below.

Qal/WBR HSU

Since remediation began in 1999 in the Building 832 source area, groundwater total VOC concentrations in wells screened in the Qal/WBR HSU have decreased from a historic maximum of 1,800 µg/L in 1998 (well W-832-18) to a 2018 maximum of 220 µg/L in W-832-23 (August). TVOC concentrations in soil vapor are also declining in the Building 832 source area in the Qal/WBR HSU. TVOC concentrations detected in soil vapor have decreased from a historic maximum concentration of 1.8 $ppm_{v/v}$ at W-832-15 (2001) to 2018 maxima of 0.29 $ppm_{v/v}$ in well W-832-12 (November) and 0.76 $ppm_{v/v}$ in well W-832-15 (November), representative of rebound conditions since operations were stopped to accommodate operational maintenance and engineering upgrades at the 832-SRC GWTS. Including results of rebound tests, since 2011, neither well W-832-15 nor well W-832-12 have contained VOC concentrations greater than 0.76 $ppm_{v/v}$. Rainfall events in late 2016 and early 2017 increased static water levels by 4 to 8 ft in this HSU in the 832-SRC and 830-SRC areas, but generally, the water levels declined through the rest of 2017 and through 2018.

Since remediation began in 2000 in the Building 830 source area, TVOC concentrations in Qal/WBR HSU groundwater near 830-SRC have decreased from a historic maximum of 10,000 µg/L in 2003 (well SVI-830-035) to a 2018 maximum of 840 µg/L in the same well (entirely TCE, April). Concentrations in soil vapor in the Qal/WBR HSU at 830-SRC area have remained stable compared to previous reporting periods in extraction well W-830-1807. During the reporting period, TVOC concentrations in soil vapor varied from 0.23 $ppm_{v/v}$ (March) to 0.62 $ppm_{v/v}$ (July) and are representative of operational conditions.

Near the 830-DISS area, during 2018, concentrations of TVOCs in groundwater from SPRING3 were 15 µg/L (March, all TCE). VOC concentrations had previously been below the 5 µg/L cleanup level for TCE since 2011. The SPRING3 sampling location is a shallow hand-augered piezometer installed to collect water from Spring 3. There was insufficient water available for a follow-up sample at SPRING3 during September. Additionally, concentrations of TVOCs in groundwater from W-832-SC3 have been rising since early 2017 from 2.4 µg/L in March 2017 to a 2018 maximum of 15.52 µg/L (March, 15 µg/L TCE and 0.52 µg/L cis-1,2-DCE). These recent increases in VOC concentrations in the area may be related to the shutdown of 830-DISS to accommodate engineering upgrades at CGSA-GWTS. The facility will be operational again during the next reporting period. During 2018, TVOC concentrations in four groundwater samples taken from Qal/WBR HSU guard well W-880-02, located south of the Building 832 Canyon OU near the Site 300 southern boundary, were below the 0.5 µg/L reporting limit (March, June, September, and December).

$Tnbs_2$ HSU

Well W-830-2216 extracts groundwater from the $Tnbs_2$ HSU. The presence of COCs in this well is likely due to releases from several source areas in the HEPA and Building 832 Canyon OUs. Since extraction began in 2007, TVOC concentrations in well W-830-2216 have declined from a historic maximum of 20 µg/L (2007) to a 2018 maximum of 6.6 µg/L (June). When both facilities are operational, extracted groundwater from W-830-2216 bypasses the perchlorate treatment at the 830-DISS GWTS and is treated for VOCs at the CGSA GWTS.

While these $Tnbs_2$ HSU wells are technically located within the bounds of the Building 832 Canyon OU, the performance of these wells is discussed in more detail in the HEPA OU section. The bounds of the HEPA OU overlap the Building 832 Canyon OU in this area. However, the discussion of the performance of the remedy for the entire $Tnbs_2$ HSU is presented in the HEPA OU section, rather than being split up and partially discussed in detail here.

$Tnsc_{1ab}$ HSU

Since remediation of the $Tnsc_{1ab}$ HSU began in 2000, TVOC concentrations in groundwater at the Building 832-SRC area have generally decreased from the historic maximum of 1,700 µg/L in 1998 (monitor well W-830-27). However, with the installation of well W-832-3019 in 2015, VOCs have been detected between 860 µg/L (April 2018) and 1,900 µg/L (August 2016), a new historical maximum for TVOCs in 832-SRC area groundwater. The 2018 maximum TVOC concentration in the current reporting period at W-832-3019 was 1,700 µg/L (February and July). Well W-832-3019 is currently being connected to the 832-SRC GWTS and SVTS as a dual extraction well as part of the ongoing operational maintenance and engineering upgrades at this location. Until that time, W-830-3019 will continue to function as a monitor well. Concentrations of TVOCs measured in other $Tnsc_{1ab}$ HSU wells during the reporting period were generally similar to concentrations from recent reporting periods.

Since remediation began in 2000 in the Building 830-SRC area, TVOC groundwater concentrations in the $Tnsc_{1ab}$ HSU have decreased from a historic maximum of 13,000 µg/L (extraction well W-830-49, 2003) to a 2018 maximum of 2,000 µg/L in extraction well W-830-49 (October). Concentrations of TVOCs in other $Tnsc_{1ab}$ HSU wells in this area during the reporting period were generally similar to those from recent reporting periods. Concentrations in soil vapor in the $Tnsc_{1ab}$ HSU at 830-SRC area have remained stable compared to previous reporting periods in extraction well W-830-49. During this time, concentrations varied in this well from 1.0 $ppm_{v/v}$ (July) to 3.4 $ppm_{v/v}$ (March), representative of operational conditions.

In the 830-DISS area, TVOC concentrations in $Tnsc_{1ab}$ HSU wells have decreased from a historic maximum of 170 µg/L (extraction well W-830-52, 2002) to a 2018 maximum of 57 µg/L in monitor well W-830-2311 (August). Most wells exhibited recent increases in TVOC concentrations and remained higher through 2018. This is likely due to the pause in extraction in this area to accommodate engineering upgrades and modifications at the CGSA GWTS. Farther south along Building 832 Canyon, the leading edge of the $Tnsc_{1ab}$ VOC plume continues to be contained within the Site 300 boundary based on TVOC concentrations below the 0.5 µg/L reporting limit in guard wells W-880-03, W-830-1730, and W-4C.

Upper $Tnbs_1$ HSU

Since remediation began in the Upper $Tnbs_1$ HSU, TVOC concentrations in groundwater have decreased from a historic maximum of 100 µg/L in 1998 (monitor well W-830-28) to a 2018 maximum of 29 µg/L (extraction well W-830-2215, October). At the Building 830-SRC area, monitor well W-830-18, which serves as the performance monitor well for extraction well W-830-2215, has exhibited an increasing trend in TVOC concentrations since extraction well W-830-2215 pumping began in 2006. This increasing trend in well W-830-18 indicates the plume is being captured by the adjacent extraction well. In Upper $Tnbs_1$ guard wells W-830-15 and W-832-2112, VOCs have not exceeded their reporting limits since the wells were installed in 1995 and 2005, respectively.

2.7.3.2.2. HE Compound Concentrations and Distribution

Including 2018, HE compounds have never been detected in groundwater in any Building 832 Canyon OU well. The HE compound HMX is a COC in surface and subsurface soil in the Building 832 Canyon OU 832-SRC area.

2.7.3.2.3. Perchlorate Concentrations and Distribution

In the Building 832 Canyon OU, perchlorate has historically been detected in the Qal/WBR and $Tnsc_{1ab}$ HSUs.

Qal/WBR HSU

Perchlorate concentrations in the Qal/WBR HSU have decreased in the Building 830 and 832 source areas from a historic maximum of 51 µg/L (monitor well W-830-34, 1998) to a 2018 maximum of 6.7 µg/L (monitor well W-832-13, February). Several wells that previously yielded perchlorate at higher concentrations than the 2018 maximum have not contained sufficient groundwater for sampling for the last few years (i.e. wells W-832-18 and W-832-21) and again were not successfully sampled in 2018 due to continued low water levels. During 2018, perchlorate was not detected in this HSU above the 4 µg/L reporting limit in the 830-DISS area, or in Qal/WBR HSU guard wells W-35B-01 and W-880-02.

$Tnbs_2$ HSU

The observed perchlorate in Building 832 Canyon area $Tnbs_2$ wells is from the downgradient portion of the perchlorate plume originating in the HEPA. Generally, perchlorate concentrations in the $Tnbs_2$ HSU in the Building 832 Canyon OU have historically been below the 4 µg/L reporting limit, except for concentrations in W-830-05 and W-830-017 and sporadic detections in extraction well W-830-2216 (4.2 µg/L, 2007), and in nearby monitor well W-830-13 (4.1 µg/L, 2004 and 4.7 µg/L, 2006). During 2018, the only $Tnbs_2$ HSU monitor well in Building 832 Canyon OU containing concentrations of perchlorate in groundwater above the 4 µg/L reporting limit was W-830-10 (4.9 µg/L, March).

$Tnsc_{1ab}$ HSU

In the Building 830 and 832 source areas, a new historical maximum perchlorate concentration in this HSU and OU was detected in well W-832-3019 during 2017 (38 µg/L, February), above the 6 µg/L MCL cleanup standard. In 2018, this well again contained the maximum concentrations of perchlorate in groundwater in the 832-SRC area (13 µg/L, February and July), albeit lower than in 2017. Perchlorate concentrations in other portions of the 832-SRC and 830-SRC areas remained approximately the same as in previous reporting periods.

In the 830-DISS area, perchlorate concentrations have remained between below reporting limits and 5.3 µg/L, relatively steady from previous reporting periods. Including 2018, perchlorate has never been detected in $Tnsc_{1ab}$ guard wells W-830-1730 and W-4C.

Upper $Tnbs_1$ HSU

Including 2018, perchlorate concentrations in the Upper $Tnbs_1$ HSU have not exceeded the 4 µg/L reporting limit since 2005, except for likely analytical laboratory errors.

2.7.3.2.4. Nitrate Concentrations and Distribution

During this reporting period, maximum nitrate concentrations in groundwater remained high both in the vicinity of the Buildings 832 and 830 source areas and in the shallow Qal/WBR HSU, and low or below the 0.5 mg/L reporting limit in the downgradient, deeper parts of all Building 832 Canyon HSUs. Concentration trends in the various HSUs are discussed below. Spatial and temporal nitrate concentration trends in all HSUs in the 832 Canyon OU continue to support the interpretation that nitrate is naturally attenuating in the groundwater.

Qal/WBR HSU

During 2018, concentrations of nitrate in Qal/WBR HSU groundwater in all areas ranged from a high of 130 mg/L in 832-SRC monitor well W-832-13 (February) to 21 mg/L in 832-SRC monitor well W-832-SC3 (March). Generally, nitrate concentrations followed a decreasing trend downgradient from the 832-SRC area to the 830-DISS area. Additionally, nitrate concentrations remained below the 1 mg/L reporting limit in guard well W-35B-01 and W-880-02, which are located near the Site 300 boundary.

$Tnsc_{1ab}$ HSU

During 2018, nitrate concentrations in the $Tnsc_{1ab}$ HSU generally remained moderate to high, but stable (between less than 2.5 mg/L and 140 mg/L), near the Buildings 830 and 832 source areas. They continue to exhibit a significant decreasing trend in the area downgradient and toward the Site 300 boundary, where the groundwater is under confined hydraulic conditions that are conducive to microbial denitrification. Since 2011, nitrate concentrations in downgradient $Tnsc_{1ab}$ guard wells W-830-1730 and W-4C were generally less 0.5 mg/L and never exceeded 3.1 mg/L (W-830-1730, 2013), indicating that nitrate continues to naturally attenuate on site.

Upper $Tnbs_1$ HSU

Historically, the highest nitrate concentration in the Upper $Tnbs_1$ HSU in the Building 832 Canyon OU was 21 mg/L in 1997 (monitor well W-830-28). The 2018 maximum groundwater nitrate concentration for the Buildings 830 and 832 areas was 7.4 mg/L (extraction well W-830-57, July), significantly below the 45 mg/L MCL cleanup standard. During the reporting period, nitrate was not detected in guard wells W-830-15 or W-832-2112 above 2.5 mg/L. The very low nitrate concentrations in the downgradient areas and the absence of detectable nitrate in the southern site boundary guard wells are consistent with the interpretation that nitrate is naturally attenuating due to *in situ* microbial denitrification in the Upper $Tnbs_1$ and other Neroly bedrock HSUs.

2.7.3.3. Building 832 Canyon OU Remediation Optimization Evaluation

Even with the recent shutdown of several groundwater and soil vapor treatment facilities, data indicate that overall there is still remediation progress preventing off-site plume migration, reducing source area concentrations, and removing contaminant mass. During 2017 and 2018 groundwater yield

from many 832-SRC and 830-SRC extraction wells increased from previous reporting periods, though yields were still very low (<0.5 gpm). However, hydraulic capture remains difficult to assess in some areas, because these wells cannot maintain continuous pumping. The low well yields are due to a combination of geologic materials with low hydraulic conductivity and dewatering due to ongoing remediation activities.

Qal/WBR HSU

In the Qal/WBR and $Tnsc_{1ab}$ HSUs, the extraction wellfields target the highest VOC plume concentrations emanating from the Building 832 and Building 830 source areas, but steep terrain and unstable canyon bottom soil conditions limit the availability of sites for new wells. In recent years, groundwater extraction has been further constrained by limited recharge and declining water levels in both source areas.

$Tnbs_2$ HSU

In the $Tnbs_2$ HSU in Building 832 Canyon, pumping will resume at extraction well W-830-2216 when engineering upgrades are completed at the CGSA GWTS. The contamination in this area likely arises from a combination of sources located in both the HEPA and the Building 832 Canyon area. Decreasing VOC concentration trends in this extraction well and nearby monitor well W-830-13 suggest that remediation has been effective in removing mass in this area.

$Tnsc_{1ab}$ HSU

Active remediation of the $Tnsc_{1ab}$ HSU began in 2000 and the extraction wellfield currently consists of ten groundwater extraction wells and four dual extraction wells. Water levels continue to decline in both the 830-SRC and 832-SRC areas, limiting continuous extraction from the $Tnsc_{1b}$ and $Tnsc_{1a}$ stratigraphic intervals that make up the $Tnsc_{1ab}$ HSU. Plans are in place to upgrade existing 832-SRC extraction wells to increase operational time and increase mass removal, as well as connect additional groundwater and dual extraction wells, W-832-3020 and W-832-3019, to the GWTS.

Upper $Tnbs_1$ HSU

Extraction wells in the Upper $Tnbs_1$ HSU target areas with the highest total VOC concentrations. Since remediation began in this HSU, the overall extent of VOCs has also decreased significantly and concentrations in monitor well W-830-1832 have been below reporting limits since March 2010. Groundwater in Upper $Tnbs_1$ guard wells W-830-15 and W-832-2112, located downgradient of well W-830-1832 and upgradient of water-supply Well 20, continues to yield concentrations below reporting limits for all COCs except nitrate concentrations, which were significantly below the 45 mg/L MCL cleanup standard.

Mass Removal

In the Building 832-SRC area, concentration trends in extraction wells have remained stable for several years, as declining water levels and low yields limit groundwater extraction. During 2018, all extraction wells were taken off line for much of the reporting period to accommodate operational maintenance and engineering upgrades. No groundwater or soil vapor was extracted during the second semester of 2018. During all of 2018, the 832-SRC GWTS only operated 18 percent of the year compared to 70 percent in 2017. Despite the relatively low groundwater volume extracted during 2018 (22,000 gallons), mass removal remained stable from previous reporting periods with similar operational run time, with 6 g of VOCs, 0.32 g of perchlorate, and 8.4 kg of nitrate removed from groundwater in the 832-SRC area before the system was shut down for upgrades. The volume of treated

soil vapor at 832-SRC during 2018 (380,000 cubic feet) remained steady relative to previous reporting periods with similar operational run time. Mass removal from soil vapor remains very low with only 5.5 g of VOCs removed. The planned addition of dual extraction well W-832-3019, other engineering upgrades, and facility rebuild in the near future will increase mass removal rates in this area for both soil vapor and groundwater. The additional data acquisition capabilities as part of these planned upgrades will also provide data needed to better optimize mass removal from existing wells in this area.

At the 830-SRC area, during 2018, 2.02 million gallons of groundwater and 1.91 million cubic feet of soil vapor were extracted, far greater than in 2017 due to shutdowns to accommodate injection testing setup at W-833-30 and W-830-3101. During 2017, the 830-SRC GWTS and SVTS operated only approximately one percent of the year while in 2018, approximately 38 percent. During 2018, a total of 530 g of VOCs were removed from groundwater and 290 g removed from soil vapor, consistent with recent removal rates for similar operational time post-upgrades. A total of 1.3 g of perchlorate, and 66 kg of nitrate were also removed from groundwater during the 2018 reporting period. As noted in Section 2.7.1.2, both the 830-SRC groundwater and soil vapor treatment facilities were off line for much of the reporting period to accommodate alternation of misting and rest periods because the ground was becoming oversaturated. Operational maintenance and engineering upgrades are planned for the misting towers to increase operational uptime and the efficacy of the misting discharge process. As noted in section 2.7.1.5, DOE/LLNL continue to evaluate long term alternatives for the final disposition of treated effluent. These options include injection into wells W-833-30 and W-830-3101, into other wells, or continuation of misting. Until a final decision is made on the disposition of treated effluent, groundwater will be discharged at the misting towers, as described above. The method for final placement of treated effluent will be presented to the regulatory agencies for concurrence.

The 830-DISS GWTS was shut down for the entire 2018 reporting period to accommodate engineering upgrades at the CGSA GWTS. Extraction and treatment at 830-DISS GWTS will resume as soon as these upgrades are complete. During the reporting period, limited groundwater was extracted at the 830-DISS area for purging wells for sampling and treated as purged sampling water at 830-SRC GWTS. This resulted in negligible mass of VOCs, perchlorate, and nitrate removed from the area.

As remediation proceeds from the 832-SRC, 830-SRC, and 830-DISS extraction wells, concentrations in all Building 832 Canyon HSUs are expected to continue to decline. The anticipated long-term decline in water levels will have an impact on long-term performance of extraction wells. VOC concentration trends in the Upper $Tnbs_1$ HSU continue to be monitored closely because the pumping of water-supply Well 20 and backup water-supply Well 18 has the potential to hydraulically influence the vertical distribution of contaminants.

2.7.3.4. Building 832 Canyon OU Remedy Performance Issues

No other new issues were identified during this reporting period that could impact the long-term performance of the cleanup remedy for the Building 832 Canyon OU. The remedy continues to make progress toward cleanup, and to be protective of human health and the environment.

2.8. Site 300 Site-Wide (OU 8)

The Site 300 Site-Wide OU is comprised of release sites for which no significant impacts to groundwater, and no unacceptable risk to human health or the environment, are present. For this reason, a monitoring interim remedy was selected for these release sites in the Site-Wide Record of Decision (U.S. DOE, 2008). The monitoring conducted during the reporting period for these release sites is discussed below.

2.8.1. Building 801 and Pit 8 Landfill

The Building 801 Firing Table was used for outdoor explosives testing until it was discontinued in 1998, and the firing table gravel and some underlying soil were removed. Waste fluid discharges to the Building 801D dry well from the late 1950s to 1984 resulted in VOC contamination of the soil and groundwater. Debris from the firing table was buried in the nearby Pit 8 Landfill until 1974. A map of the Building 801 and Pit 8 Landfill area showing the locations of the buildings, firing table, landfill, and monitor wells is presented on Figure 2.8-1.

2.8.1.1. Building 801 and Pit 8 Landfill Groundwater Monitoring

Wells K8-01, -02B, -03B, -04, and -05, and wells W-PIT8-3201, -3202, and -3203, installed in 2016, monitor groundwater for contaminants that may have been released from the Building 801 firing table and facilities or the Building 801D dry well. Monitor wells K8-02B, K8-04, and K8-05. and W-PIT8-3201, -3202, and -3203, are also used to detect potential chemical releases from the Pit 8 Landfill. Detection monitoring of this landfill, which is discussed in Section 3.3, is conducted to determine if releases have occurred.

The sampling and analysis plan for groundwater monitoring for the entire year is presented in Table 2.8-1.

During the second. semester of 2018, groundwater monitoring was conducted in accordance with the CMP monitoring requirements for all wells in this subarea.

2.8.1.2. Building 801 and Pit 8 Landfill Contaminant Concentrations and Distribution

At Building 801, the VOCs CFORM, 1,2-DCA, and TCE are the primary COCs detected in groundwater; perchlorate and nitrate are the secondary COCs. There are no COCs in groundwater attributable to the Pit 8 Landfill. The results of the detection monitoring of the Pit 8 Landfill are discussed in Section 3.3.

In the Building 801/Pit 8 Landfill area, eight monitor wells are screened in the $Tnbs_1/Tnbs_0$ HSU. Wells K8-01, -02B, -03B, and -04; and W-PIT8-3201, -3202, and -3203 were successfully sampled, as scheduled, during the second semester of 2018. Well K8-05, scheduled to be sampled during odd years, has been dry since it was installed in 1988.

Groundwater elevations and COC concentrations for 2018 are shown on Figure 2.8-1.

TVOC concentrations in groundwater in the vicinity of Building 801 and the Pit 8 Landfill have been relatively stable to decreasing over time. In the $Tnbs_1/Tnbs_0$ HSU, TVOC concentrations have decreased from a historical maximum of 10 µg/L (monitor well K8-01, 1990) to a 2018 maximum of 5.1 µg/L (same well, May) comprised of 3.5 µg/L TCE and 1.6 µg/L 1,2-DCA in the routine sample. The duplicate sample yielded 4.7 µg/L of TVOCs, comprised of 3.3 µg/L TCE and 1.4 µg/L 1,2-DCA. A sample collected in November yielded very similar concentrations of TCE and 1,2-DCA. These

concentrations are well within the range observed since 1990. None of the three wells installed in 2016 yielded any VOC concentrations in excess of individual reporting limits (0.5 µg/L).

Of the groundwater COCs, only 1,2-DCA was detected above its MCL cleanup standard and reporting limit (both 0.5 µg/L) during 2018, in two wells, K8-01 (1.6 µg/L and 1.4 µg/L, May, in the routine and duplicate samples, respectively, and 1.5 µg/L and 1.4 µg/L, November, in the routine and duplicate samples, respectively) and K8-04 (1.0 µg/L and 0.98 µg/L, May, in the duplicate and routine samples, respectively). 1,2-DCA was not detected above the 0.5 µg/L reporting limit in samples from the remaining wells, including W-PIT8-3203, which yielded 0.72 µg/L of 1,2-DCA in August 2016. During 2018, TCE was not detected above its 5 µg/L MCL cleanup standard and CFORM was not detected above its 0.5 µg/L reporting limit in any Building 801/Pit 8 monitoring well samples. Overall, TVOC concentrations detected in groundwater samples collected from wells downgradient of Building 801 have decreased since 1990.

During 2018, perchlorate was detected twice, slightly above its 4 µg/L reporting limit in groundwater from W-PIT8-3203 at 4.7 µg/L (July) and 4.0 µg/L (May). The perchlorate concentration was below the 4 µg/L reporting limit in a sample collected in November from this well. Perchlorate was also detected in a duplicate sample from well K8-04 at 4.1 µg/L in May. However, perchlorate did not exceed the 4 µg/L reporting limit in the routine May sample. These were the only detections of perchlorate in excess of its reporting limit in 2018 at Building 801/Pit 8; all were below the 6 µg/L MCL cleanup standard.

Nitrate concentrations in groundwater in the Building 801/Pit 8 Landfill area have been relatively stable over time. The 2018 maximum nitrate concentration was 70 mg/L in both the routine and duplicate samples from well K8-04 (May). The historical maximum nitrate concentration was 80 mg/L in well K8-04 in 2015. Since 2004, nitrate concentrations in this well have ranged from 51 to 80 mg/L. Nitrate was also detected in two other wells, slightly above and below the 45 mg/L MCL cleanup standard, at 46 µg/L and 44 µg/L (well K8-01, May, routine and duplicate samples, respectively) and at 58 mg/L and 56 mg/L (well W-PIT8-3203, May and November). The nitrate concentration in well W-PIT8-3203 is consistent with previous results, which have ranged from 46 mg/L to 61 mg/L since 2016. Nitrate concentrations in other Pit 8 area wells did not exceed the 45 mg/L MCL cleanup standard during 2018. Nitrate concentrations detected in groundwater during 2018 at the Building 801/Pit 8 Landfill area are generally similar to previous years.

Nitrate and 1,2-DCA are the only COCs with concentrations above their MCL cleanup standards at the Building 801/Pit 8 Landfill area.

2.8.2. Building 833

TCE was used as a heat-exchange fluid at Building 833 from 1959 to 1982, and was released through spills and rinse water disposal, resulting in TCE contamination of soil and shallow perched groundwater. A map showing the locations of the building and monitor wells is presented on Figure 2.8-2.

2.8.2.1. Building 833 Groundwater Monitoring

The sampling and analysis plan for groundwater monitoring for the entire year is presented in Table 2.8-2.

During the second semester of 2018, there were CMP monitoring requirements for wells in this subarea. All groundwater monitoring is scheduled for the first semester.

2.8.2.2. Building 833 Contaminant Concentrations and Distribution

At Building 833, the VOCs TCE and cis-1,2-DCE are the primary COCs in shallow, perched groundwater; there are no secondary COCs. The Tpsg HSU is an ephemeral, perched water-bearing zone equivalent to the contaminated HSU in the Building 834 OU. During heavy rainfall periods, this HSU may become more extensively saturated. Quarterly monitoring of Tpsg HSU wells from 1993 to present has shown this variable saturation, indicated by many wells that are now dry (W-833-03, -12, -18, -22, -28, -34, and -43) but have yielded water in the recent past. When saturated conditions exist, monitoring conducted since 1988 has shown a significant decline in VOC concentrations in Tpsg HSU groundwater compared to the highest concentrations, which were observed in the early 1990s.

In the Building 833 area, eight monitor wells are screened in the Tpsg HSU, one well (W-841-01) is screened in the Upper $Tnbs_1$ HSU, and two wells (W-833-30 and W-840-01) are screened in the Lower $Tnbs_1$ HSU. As discussed in Section 2.7 of this report, well W-833-30 was temporarily converted from a monitor well to an effluent injection well for the 830-SRC GWTS, for testing purposes during 2017.

Groundwater elevations and contaminant concentrations for 2018 are shown on Figure 2.8-2.

The historical maximum concentration of TVOCs measured in the Tpsg HSU in the Building 833 area is 2,100 µg/L (entirely TCE) detected in monitor well W-833-03 in 1992. This well has not been sampled, due to insufficient water, since June 2000 when 20 µg/L of TVOCs (entirely TCE) was detected. During 2018, the only Tpsg HSU well with sufficient groundwater to collect a sample was W-833-33, which yielded (1) 83 µg/L and 79 µg/L TVOCs (entirely TCE, February) in the routine and duplicate sample, respectively, and (2) 78 µg/L TVOCs (entirely TCE, August). This represents a modest decline from previous years when this well yielded TVOCs (entirely TCE) at 91 µg/L (2017), 110 µg/L (2016), 130 µg/L (2015), and 110 µg/L (in both 2014 and 2013). The historical maximum TVOC concentration detected in well W-833-33 was 170 µg/L (entirely TCE) in 2008.

The other primary COC, cis-1,2-DCE, was not detected above its 0.5 µg/L reporting limit in any Building 833 area well during 2018. This compound has been detected in only one Building 833 well, W-833-12, five times and most recently in 1993, when 58 µg/L was measured, which represents the historical maximum cis-1,2-DCE concentration in the area.

During 2018, VOCs were not detected above reporting limits in the March groundwater sample successfully collected from Lower $Tnbs_1$ HSU well W-840-01. Lower $Tnbs_1$ HSU well W-833-30 was temporarily converted to an effluent injection well during 2017 for testing and verification of the 830-SRC GWTS. Thus, the well was also not sampled during 2018 nor in 2017. In March 2016, when last sampled, VOCs were not detected in either the routine or duplicate groundwater samples from monitor well W-833-30. These data, along with the recent March 2018 result from monitor well W-840-01, indicate that VOC contamination continues to be confined to the shallow Tpsg perched water-bearing zone.

During 2018, VOCs were not detected in the March groundwater sample from Upper $Tnbs_1$ HSU monitor well W-841-01. This sample (and samples collected in March 2017 and 2016, both of which

contained TVOCs below individual reporting limits) was the third time the well was successfully sampled since 1991, During other historical sampling attempts, there had been insufficient water.

TCE is the only COC remaining above its cleanup standard (5 µg/L) at Building 833 in Tpsg HSU groundwater.

2.8.3. Building 845 Firing Table and Pit 9 Landfill

The Building 845 Firing Table was used from 1958 until 1963 to conduct explosives experiments. Leaching from firing table debris resulted in minor contamination of subsurface soil, with depleted uranium and HMX detected in samples collected from boreholes drilled in 1989. A map showing the locations of the building, landfill, and monitor wells is presented on Figure 2.8-3.

2.8.3.1. Building 845 and Pit 9 Landfill Groundwater Monitoring

No groundwater COCs have been identified for the Building 845/Pit 9 Landfill area. Seven wells (K9-01, -02, -03, and -04; and three wells installed in 2016, W-PIT9-3204, -3205, and -3206) monitor area groundwater to:

- Detect any potential future releases from the Pit 9 Landfill, and
- Detect any potential impacts to groundwater from HMX and uranium in subsurface soil and rock.

These monitor wells are screened in the Lower Neroly Formation $Tnbs_1/Tnbs_0$ HSU. Detection monitoring of the Pit 9 Landfill is discussed in Section 3.4.

The sampling and analysis plan for groundwater monitoring for the entire year is presented in Table 2.8-3.

During the first semester of 2018, groundwater monitoring was not conducted in accordance with scheduled CMP monitoring requirements for all wells in this subarea. No samples could be collected from the eight wells for the total 63 scheduled analyses because the entire area was inaccessible due to wildlife access restrictions related to burrowing owl nesting. All of the required analyses scheduled for the first semester of 2018 were rescheduled for the second semester (fourth quarter) of 2018 and with the exception of well K9-03 (all analyses) and wells K9-01, -02, -04, and W-PIT9-3204, were completed in October. Well K9-03 was not sampled for all nine scheduled analyses due to an inoperable pump which has been replaced and VOC results for wells K9-01, -02, -04, and W-PIT9-3204 were rejected due to quality control issues with the laboratory data.

2.8.3.2. Building 845 and Pit 9 Landfill Contaminant Concentrations and Distribution

In the Building 845 and Pit 9 Landfill area, seven landfill detection monitor wells are screened in the $Tnbs_1/Tnbs_0$ HSU. There are no groundwater COCs at the Building 845 and the Pit 9 Landfill. None of the scheduled analyses for the detection monitoring constituents VOCs, nitrate, tritium, perchlorate, HE compounds, uranium isotopes, Title 22 metals, lithium, and fluoride were performed during the first semester of 2018 but except for well K9-03 (nine analyses) and wells K9-01, -02, -04, and W-PIT9-3204 (VOCs), all were performed in the second semester of 2018.

The detection monitoring constituents nitrate, tritium, perchlorate, HE compounds, uranium isotopes, Title 22 metals, lithium, and fluoride concentrations/activities in samples collected during the second semester of 2018 were either below reporting limits or within the range of background concentrations. VOCs were below reporting limits in the samples from wells W-PIT9-3205 and

W-PIT9-3206. Because uranium and the HE compound HMX were identified as COCs in subsurface soil at Building 845/Pit 9 Landfill, groundwater in this area is monitored for these constituents.

During the second semester of 2018, HMX concentrations in Pit 9 groundwater samples remained below the 1 µg/L reporting limit. Historically, HMX has not been detected above its reporting limit since 1989, when the first monitor wells were installed.

During the second semester of 2018, uranium activities in groundwater samples from the three wells sampled remained very low (<0.45 pCi/L) and $^{235}U/^{238}U$ atom ratios indicated the presence of only natural uranium, except for well K9-04, which indicated the addition of a very small mass of depleted uranium (0.0070) within the historical range of $^{235}U/^{238}U$ atom ratios observed for this well. Furthermore, the total uranium activity was 0.210 pCi/L, well below the 20 pCi/L MCL cleanup standard for total uranium and background activities. The results of detection monitoring of the Pit 9 Landfill are discussed in Section 3.4.

Groundwater elevations and contaminant concentrations/activities for 2018 are shown on Figure 2.8-3.

2.8.4. Building 851 Firing Table

The Building 851 Firing Table has been used since 1962 to conduct explosives experiments. Some of the experiments conducted prior to 2008 on the Building 851 Firing Table contained depleted uranium. A map depicting the locations of the firing table and monitor wells is presented on Figure 2.8-4.

2.8.4.1. Building 851 Groundwater Monitoring

The sampling and analysis plan for groundwater monitoring for the entire year is presented in Table 2.8-4. During 2018, groundwater monitoring was conducted in accordance with the scheduled CMP monitoring requirements for all wells in this subarea. Additionally, during the second semester, samples from all six wells in the study area were analyzed for VOCs, nitrate, perchlorate, metals, and HE compounds.

2.8.4.2. Building 851 Contaminant Concentrations and Distribution

In the Building 851 Firing Table area, six monitor wells (W-851-05, -06, -07, and -08; and W-851-3207 and -3208) are screened in the Tmss HSU. Two of these wells (-3207 and -3208) were installed during 2016. Uranium is the primary and only COC detected in groundwater; there are no secondary COCs. It is a groundwater COC, because historical mass spectrometric analysis confirmed the presence of some anthropogenic depleted uranium in groundwater samples.

Uranium activities in Tmss HSU groundwater in the Building 851 Firing Table area have always been well below the 20 pCi/L MCL cleanup standard and within the range of background. Although background uranium activity at Site 300 may vary based on groundwater age, major-ion chemistry, and aquifer lithology, single-digit uranium activities are clearly within the range of Site 300 background. However, groundwater continues to be monitored to detect any impacts to groundwater from depleted uranium in surface and subsurface soil and rock.

Groundwater elevations and uranium activities for 2018 are shown on Figure 2.8-4.

During 2018, the maximum total uranium activity detected in the Building 851 area was 3.9 pCi/L in well W-851-3207 (May). The historical maximum uranium activity in Tmss HSU groundwater was 7.9 pCi/L, detected in the same well in October 2016. Both activities are well below the 20 pCi/L MCL

cleanup standard for uranium. As stated below, the $^{235}U/^{238}U$ atom ratio for this sample, as measured by mass spectrometry, indicates a natural source.

Samples from the five remaining wells contained uranium activities that were 0.88 pCi/L or less or did not exceed the 0.0627 pCi/L reporting limit, as measured by mass spectrometry.

During 2018, $^{235}U/^{238}U$ atom ratio in the May sample from well W-851-06 indicated the addition of some depleted uranium but was within the historical range of $^{235}U/^{238}U$ atom ratios observed for this well. However, the total uranium activity was 0.089 pCi/L, an extremely small fraction of 20 pCi/L, the MCL cleanup standard for uranium. The uranium atom ratios for the remaining five wells were natural.

The inability to quantify $^{235}U/^{238}U$ atom ratios for some groundwater samples from the Building 851 area arises regularly, because the low uranium concentrations result in ^{235}U concentrations that are often mass spectrometry reporting limits. In this report, these atom ratios are quantified as "<" values due to the "<" value in the numerator. For correctness, these ratios should be reported as non-quantifiable (NQ). ERD is working to correct the reporting of these $^{235}U/^{238}U$ atom ratios in the near-future. Overall, uranium activities in groundwater during 2018 are similar to previous years and remain well below the 20 pCi/L MCL cleanup standard.

As stated previously, in October 2018, discretionary groundwater samples were collected from the six monitoring wells in the study area and analyzed for VOCs, nitrate, perchlorate, metals, and HE compounds. No VOCs were detected in excess of the 0.5 µg/L individual compound reporting limit. Nitrate and perchlorate were not detected in any sample in excess of their respective 1 mg/L and 4 µg/L reporting limits. Of the metals, only barium and zinc were detected in excess of their reporting limits; concentrations were well within natural background ranges. HE compounds were not detected in any samples from the six wells in excess of individual compound reporting limits. These analytical results indicated no impact to groundwater from any of these constituents.

3. Detection Monitoring, Inspection, and Maintenance Program for the Pits 2, 3, 4, 5, 6, 7, 8, and 9 Landfills and Inspection and Maintenance Program for the Drainage Diversion System and Building 850 CAMU

The Detection Monitoring Program is designed to detect any future releases of contaminants from the Pits 2, 3, 4, 5, 6, 7, 8, and 9 Landfills. This section presents the results for groundwater detection monitoring of these landfills, and any landfill inspections or maintenance conducted during the reporting period. This section also includes any inspection and maintenance activities conducted for the Pit 7 DDS and Building 850 CAMU during the reporting period.

3.1. Pit 2 Landfill

The Pit 2 Landfill was used from 1956 until 1960 to dispose firing table debris from Buildings 801 and 802. Groundwater data indicate that a past discharge of potable water to support a red-legged frog habitat located upgradient from the landfill may have leached depleted uranium from the buried waste. The frogs were relocated, and the water discharge was discontinued, thereby removing the leaching mechanism. No contaminants of concern were identified in surface or subsurface soil at the Pit 2 Landfill, although the landfill contains waste from explosives experiments conducted at Site 300 firing tables. No risk to human or ecological receptors has been identified at the Pit 2 Landfill.

3.1.1. Sampling and Analysis Plan Modifications

Detection monitoring of wells located downgradient of the Pit 2 Landfill is conducted annually for VOCs, nitrate, tritium, perchlorate, HE compounds, uranium isotopes, Title 22 metals, lithium, and fluoride. Detection monitoring wells for the Pit 2 Landfill include W-PIT2-1934, W-PIT2-1935, K2-01C, and NC2-08.

The sampling and analysis plan for the Pit 2 Landfill groundwater detection monitoring program is presented in Table 3.1-1.

During 2018, groundwater monitoring was conducted in accordance with CMP monitoring requirements.

3.1.2. Contaminant Detection Monitoring Results

A map showing monitor wells locations and the Pit 2 Landfill is presented on Figure 2.5-1. Depth to groundwater within the $Tnbs_1/Tnbs_0$ HSU beneath the Pit 2 Landfill currently ranges from over 45 ft to over 70 ft.

The 2018 maximum tritium activity within the $Tnbs_1/Tnbs_0$ HSU in the area immediately south of the Pit 2 Landfill was 2,880 pCi/L in a May groundwater sample collected from detection monitor well NC2-08 a slight increase from the 2017 maximum of 1,790 pCi/L in the same well. The historic maximum tritium activity of 49,100 pCi/L was detected in groundwater samples collected from detection monitor well K2-01C in 1986. Overall, tritium activities in the Pit 2 Landfill detection monitor wells are stable.

The 2018 maximum uranium activity in the Pit 2 area was 4.9 pCi/L (May) detected in groundwater collected from detection monitor well W-PIT2-1934, is below the 20 pCi/L MCL cleanup standard and within the range of natural background (Ferry et al., 1999). Uranium activities in the Pit 2 area continue to decrease from the 27.4 pCi/L maximum historic uranium activity measured in a 1994 groundwater sample collected from well K2-01C. Prior to 2005, as stated previously, to maintain a wetland habitat for red-legged frogs (a federally-listed endangered species), potable water was discharged within a drainage channel that extends south and along the northern and eastern margin of the Pit 2 Landfill. While this discharge occurred, increased uranium activities in Pit 2 area wells were observed. The $^{235}U/^{238}U$ atom ratios in groundwater collected from wells K2-01C, W-PIT2-1934, and W-PIT2-1935 indicated the presence of depleted uranium, as determined by mass spectrometry. Release of depleted uranium from Pit 2 appears to have occurred as a result of this discharge. This discharge was discontinued in 2005 and since then, total uranium activities in groundwater collected from the Pit 2 detection monitor wells have decreased and $^{235}U/^{238}U$ atom ratios continue an increasing trend toward a natural $^{235}U/^{238}U$ atom ratio (approximately 0.0072). During 2018, $^{235}U/^{238}U$ atom ratios in groundwater collected from well NC2-08 indicated only natural uranium, and $^{235}U/^{238}U$ atom ratios in wells K2-01C, W-PIT2-1935, and W-PIT2-1934 (0.0065, 0.0065, and 0.0067, respectively) indicated the presence of some depleted uranium, but continued an increasing trend toward a natural ratio with the exception of W-PIT2-1935 which showed a slightly lower atom ratio than 2017.

During 2018, perchlorate was detected at concentrations exceeding the 4 µg/L reporting limit in only one of the Pit 2 detection monitor wells, NC2-08 4.8 µg/L (May). NC2-08 was sampled again in November and perchlorate was not detected above the 4 µg/L reporting

limit. In 2018, none of the Pit 2 detection monitor wells exhibited groundwater concentrations above the perchlorate 6 µg/L MCL.

During 2018, nitrate concentrations increased slightly in all of the Pit 2 detection monitoring wells and exceeded the 45 mg/L MCL in two Pit 2 detection monitoring wells; W-PIT2-1934 and W-PIT2-1935 contained nitrate concentrations of 51 mg/L (May) and 46 mg/L (May), respectively. This is an increase from 2017 when nitrate concentrations in only monitor well, W-PIT2-1934 (47 mg/L), slightly exceeded the 45 mg/L MCL cleanup standard.

Concentrations of the other detection monitoring constituents, such as VOCs, HE compounds, Title 22 metals, lithium, and fluoride, in samples collected during 2018 were either below reporting limits or within the range of background (Ferry et al., 1999). There was no evidence of new contaminant releases from the Pit 2 Landfill indicated by the 2017 groundwater detection monitoring data.

3.1.3. Landfill Inspection Results

During the second semester of 2018, the Pit 2 Landfill was inspected on October 25th. No maintenance issues were identified.

3.1.4. Annual Subsidence Monitoring Results

Annual subsidence monitoring was conducted during the second semester of 2018. No evidence of subsidence was detected.

3.1.5. Maintenance

No maintenance was necessary or conducted on Pit 2 during 2018.

3.2. Pit 6 Landfill

The Pit 6 Landfill was used from 1964 to 1973 to bury waste in nine unlined debris trenches and animal pits, including shop and laboratory equipment and biomedical waste. The Pit 6 Landfill was capped and closed in 1997 to prevent further leaching of contaminants that likely resulted from percolation of rainwater through the buried waste. Detection monitoring of the Pit 6 Landfill is conducted to identify any future releases to groundwater in accordance with the requirements of the Pit 6 Post-Closure Plan (Campbell and Taffet, 2007).

3.2.1. Sampling and Analysis Plan Modifications

Detection monitoring of wells located downgradient of the Pit 6 Landfill (EP6-06, EP6-08, EP6-09, K6-01S, K6-19, and K6-36) is conducted semi-annually for VOCs and tritium and annually for aromatic VOCs (benzene, toluene, ethylbenzene, and xylenes), beryllium, mercury, total uranium, gross alpha/beta, perchlorate, and nitrate. When detection monitor well K6-01S is dry, deeper well K6-01 serves as an alternate detection monitor well and is sampled for the same constituents. Well K6-01S had available groundwater for sampling during the reporting period and thus, well K6-01 was not needed to serve as an alternate detection monitor well.

During the past several years, wells EP6-08 and K6-36 have been dry. Beginning in 2013, when EP6-08 and K6-36 are dry, nearby wells EP6-07 (near EP6-08) and K6-35 (near K6-36) were designated to serve as detection monitor wells and have been sampled for the same constituents. During this period, well EP6-08 contained water and was sampled; however, well K6-36 was again dry and well K6-35 was sampled.

The sampling and analysis plan for the Pit 6 Landfill groundwater detection monitoring program is presented in Table 2.3-1.

During the second semester of 2018, groundwater monitoring was conducted in accordance with CMP requirements.

3.2.2. Contaminant Detection Monitoring Results

A map showing the locations of monitor wells at the Pit 6 Landfill is presented on Figure 2.3-1. The groundwater elevation contour map for the Qt-Tnbs$_1$ HSU is presented on Figure 2.3-2. The distribution of TVOCs and tritium in the Qt-Tnbs$_1$ HSU is presented on Figures 2.3-3 and 2.3-4, respectively. Statistical limits (SLs) and groundwater analytical results for 2018 are summarized in Appendix B, Table 3.06 and physical parameters measured during 2018 sampling are included in Appendix B, Table 3.07. There was no evidence of a new contaminant release from the Pit 6 Landfill, as indicated by the 2018 groundwater detection monitoring data. One well that had been dry for nine years, EP6-08, yielded water for the second consecutive year, in 2018. The July sample from the well yielded small concentrations of three VOCs, all below MCLs. These concentrations are likely a result of rising groundwater encountering residual VOCs in the vadose zone. Because EP6-08 was dry for many years, updated SLs do not exist for the well. DOE/LLNL intends to recalculate the SLs for this well. During 2018, groundwater levels beneath the Pit 6 Landfill ranged from approximately no less than 12 ft (in wells located within the Corral-Hollow-Carnegie Fault Zone) to 36 ft (in wells located north of the Corral-Hollow-Carnegie Fault Zone) below the buried waste.

Chemical data collected during the second semester of 2018 did not differ significantly from the previous semester's data. Well K6-36 was once again dry and was not sampled. Well K6-35 had available groundwater and was sampled for the required detection monitoring constituents, effectively replacing well K6-36. Also, well K6-01S contained groundwater and was successfully sampled for the required detection monitoring constituents.

Tritium and VOCs were released to groundwater from the landfill prior to its capping in 1998 and have been detected in Pit 6 Landfill detection monitor wells. Except for well K6-19, tritium activities for all detection monitoring wells were below reporting limits (<100 pCi/L) and therefore, did not exceed SLs in 2018 groundwater samples. In 2018, tritium in well K6-19 was detected at 182 ±80.9 pCi/L (January), 177 ±71.1 and 240 ±65.4 pCi/L (August, routine and duplicate samples, respectively) but did not exceed the SL of 317 pCi/L for this well. The SL for tritium in well K6-19 was revised from 100 pCi/L to 317 pCi/L, following a statistical analysis conducted in September 2013 (MacQueen et al., 2013). Tritium activities in well K6-19 have dropped since October 1999, when the historic maximum activity of 2,520 pCi/L was detected. Since then, tritium activities in this well have generally decreased to below the reporting limit and have always been well below the 20,000 pCi/L MCL cleanup standard (Campbell et al., 2007; Blake et al., 2011).

During 2017, water was present in well EP6-08 for the first time after having been dry for nine years. The analyte concentrations/activities in samples collected in July 2017, and in January, March, April, and July 2018 respectively, from EP6-08 were:

- total uranium (no sample, 23.92, 19.19, 17.85, and 17.01 pCi/L),
- gross alpha radioactivity (no sample, 23.4, 21.4, 14.6, and 8.42 pCi/L),
- gross beta radioactivity (no sample, 16.3, 11.9, 15.8, and 16.8 pCi/L),

- TCE (1.4, 1.4, 1.1, 2.3, and 2 µg/L),
- PCE (2.8, 3.1, 3.6, 4.8, and 3.7 µg/L,
- chloroform (1.3, 0.66, <0.5, 0.76, and <0.5 µg/L)

The analytical results for samples from well EP6-08 during 2018 are summarized below. As stated previously, there are no current SLs for this well.

- Total uranium was detected in well EP6-08 at 23.92 pCi/L (January) exceeding the 20 pCi/L MCL cleanup standard and historically the highest activity ever detected but declined slightly to 19.19 pCi/L (March), 17.85 pCi/L (April), and 17.01 pCi/L (July). The previous historical maximum for uranium was 9.65 pCi/L in 1997. The April 2008 sample yielded a $^{235}U/^{238}U$ atom ratio, as determined by mass spectrometry, indicative of natural uranium. No other historical mass spectrometry data are available for this well.
- Gross alpha radioactivity was detected in well EP6-08 at 23.4 ±4.82 pCi/L (January), 21.4 ±4.46 pCi/L (March), 14.6 ±3.32 pCi/L (April), and 8.42 ±2.41 (July). The January and July activities exceeded the MCL cleanup standard of 15 pCi/L.
- Gross beta radioactivity was detected in well EP6-08 at 16.3 ±3.2 pCi/L (January), 11.9 ±2.53 pCi/L (March), 15.8 ±3.19 pCi/L (April), and 16.8 ±3.32 (July); none of these data exceeded the MCL cleanup standard of 50 pCi/L. The historical maximum for gross beta radioactivity in well EP6-08 was 27.3 pCi/L in 1996 and the second highest maximum detection was in 2006 at 18.9 pCi/L.
- TCE was also detected four times in well EP6-08 during the reporting period at 1.4 µg/L (January), 1.1 µg/L (February), 2.3 µg/L (April), and 2 µg/L (July), all well below the TCE MCL cleanup standard (5 µg/L).
- In 2018, PCE was detected in well EP6-08 at concentrations of 3.1 µg/L (January), 3.6 µg/L (February), 4.8 µg/L (April), and 3.7 µg/L (July). All four detections were below the PCE MCL cleanup standard (5 µg/L). However, these data represent the four highest historical concentrations of PCE at well EP6-08. The previous maximum concentration was 2.8 µg/L in July 2017 and 1.7 µg/L in 2007. The January concentration prompted a second confirmatory sampling round in February which verified the January result.
- In 2018, tritium activities in well EP6-08 did not exceed the reporting limit of 100 pCi/L in January and July.

Because groundwater samples from well EP6-08 could not be collected for over nine years, DOE/LLNL recommended in the 2017 Annual CMR that revised SLs be calculated after at least four quarters of recent baseline data for all detection monitoring constituents are available (Buscheck, et al. 2018a). Thus, the sampling frequency for this well has been increased to quarterly. The uranium activities, gross alpha and beta radioactivities, and VOC concentrations detected in the 2017 and 2018 samples from this well suggest mobilization of residual contamination in the vadose zone beneath Pit 6 adjacent to EP6-08, as water levels rose approximately 4 ft since the April 2008 sampling episode. Water levels at well EP6-08 are over 37 ft below the bottom of the buried waste in the landfill and do not suggest a new release from the landfill.

A summary of COCs in other Pit 6 Landfill detection monitor wells is provided below.

Total uranium was detected in well K6-19 at 9.89 pCi/L (January), 8.93 pCi/L (March), 8.25 pCi/L April, and 7.73 and 7.79 pCi/L (August, routine and duplicate samples, respectively), slightly less than

the historical maximum of 10.3 pCi/L (January 2017) which was an increase from the 3.17 ±0.298 pCi/L detected in January 2016. The water level in this well declined approximately 2 ft, from 26.5 ft bgs (January 2016), to 27.1 ft bgs (January 2017) to 28.6 ft bgs (January 2018) then rose approximately 1.5 ft to 26.0 ft bgs (March and April 2018) to 26.3 ft (August 2018). The previous historical maximum total uranium activity in this well was 4.72 pCi/L in 1996. Historical $^{235}U/^{238}U$ atom ratios indicate the presence of only natural uranium, in samples collected in 2000 and October 2018 (0.0073). The total uranium activity of 9.89 pCi/L is less than one-half the MCL cleanup standard of 20 pCi/L. Despite the increase from 2016, this activity is not indicative of a release from the landfill because the water level in the well at the time of the sampling was at least 12 ft (or more) below the bottom of the buried waste in the landfill which is at its deepest, approximately 14 ft below ground surface. Total uranium activities will continue to be closely monitored.

During 2018, gross alpha radioactivity was detected in one well above its SL (9.2 pCi/L) in well K6-19 at 9.4 ±3.35 pCi/L (April) and in a routine sample at 9.61 ±3.09 pCi/L (August), which represents the historical maximum for this well. The duplicate sample yielded 7.98 ±2.56 pCi/L. The earlier gross alpha activities in this well were 8.68 ±3.64 pCi/L (January) and 6.76 ±2.41 pCi/L (March). Following the January detection, the well was resampled in March, to verify results, and again in April. Prior to 2018, the historical maximum gross alpha activity in K6-19 was 8.9 pCi/L in 1997. As described in the previous paragraph, the water level in this well dropped 1.5 ft from January 2017 to January 2018, then rose approximately 2.5 ft in March, and remained unchanged through the end of the year. Throughout 2018, water levels in the well were never less than 12 ft below the bottom of the buried waste in the landfill. Gross alpha activities will continue to be closely monitored in this well. None of the current or historical gross alpha activities in well K6-19 have exceeded the MCL cleanup standard of 15 pCi/L. Gross alpha activities did not exceed SLs or the MCL cleanup standard in other Pit 6 Landfill detection monitor wells during 2018.

During 2018, gross beta radioactivity was detected in well K6-01S at 20.2 ±5.32 pCi/L (January), and was the highest activity in a Pit 6 Landfill detection monitor well. This activity did not exceed the SL of 57.7 pCi/L for this well, nor the MCL cleanup standard of 50 pCi/L.

During 2018, VOCs were not detected in Pit 6 Landfill detection monitor wells above their applicable SLs. TCE was detected in well EP6-09 in January at 7.4 µg/L (duplicate sample) and 7.1 µg/L (routine sample) and in July at 7.5 µg/L (in both routine and duplicate samples). These four concentrations on two dates were slightly above the MCL cleanup standard (5 µg/L), but far below the SL of 17 µg/L for this well. TCE was also detected in well K6-19 at 3.3 µg/L (January), 2.8 µg/L and 3.2 µg/L (August, routine and duplicate samples, respectively) all of which are below the 5 µg/L MCL cleanup standard and the SL of 13 µg/L for this well. The historical maximum TCE concentration in Pit 6 monitor wells was 250 µg/L, detected in well K6-19 in 1988. Further discussion of VOC distribution at Pit 6 is presented in Section 2.3.2.1.1 of this CMR.

In terms of other VOCs encountered during 2018 detection monitoring, only detections of 2.1 and 2 µg/L of cis-1,2-DCE were reported in the January and July samples from well K6-01S, well below its MCL cleanup standard (6 µg/L) and the SL for this well (7 µg/L). Concentrations of the other detection monitoring constituents in samples collected from the other detection monitor wells during 2018 did not exceed reporting limits or were within historical background ranges.

There was no evidence of new contaminant releases from the Pit 6 Landfill indicated by the 2018 groundwater detection monitoring data.

To address 2018 first semester activities of total uranium and gross alpha and beta radioactivity in wells EP6-08, EP6-09, K6-01, K6-19, K6-35, and replacement well K6-01, samples from these wells will be collected and analyzed for uranium isotopes by alpha spectrometry and gross alpha and beta radioactivity during the next six consecutive quarters to evaluate activity trends. In response to the January 2018 detection of TCE in well EP6-08, it will be sampled for VOCs for the next six consecutive quarters. These data will be used to recalculate existing SLs, or to calculate new SLs, where needed.

3.2.3. Landfill Inspection Results

Abri Engineering conducted the Pit 6 Landfill Annual Engineering Inspection during the first semester on April 9, 2018. Inspection results were summarized in a May 2018 engineering inspection report (Abri Environmental Engineering, 2018a). The report identified some vegetative debris in the concrete-lined drainage ditch; no other maintenance issues were reported.

On September 24, 2018, Site 300 Labor Shop personnel mitigated weeds along the edges of the pit cap, removed some vegetative debris and dirt in the concrete-lined drainage ditch, and some of the joints were resealed. No other maintenance issues were reported.

3.2.4. Annual Subsidence Monitoring Results

The annual subsidence monitoring inspection was conducted during the second semester of 2018 and indicated the survey point elevations were stable and that the pit cap is not subsiding.

3.2.5. Maintenance

Visual maintenance inspections performed by DOE/LLNL staff during the second semester confirmed the continued functional and structural integrity of the cap, vegetative cover, and drainage system.

3.3. Pit 8 Landfill

The Pit 8 Landfill received debris from the Building 801 Firing Table until 1974, when it was covered with compacted soil. Other than low concentrations of perchlorate observed in two wells immediately downgradient of the landfill, there is no evidence of historical contaminant releases from the landfill.

3.3.1. Sampling and Analysis Plan Modifications

Detection monitoring of wells located downgradient of the Pit 8 Landfill is conducted annually for VOCs, nitrate, tritium, perchlorate, HE compounds, uranium isotopes, Title 22 metals, lithium, and fluoride. Detection monitoring is performed in downgradient wells K8-02B, K8-04, K8-05, and W-PIT8-3203. Data from monitor wells K8-01, W-PIT8-3202, W-PIT8-3201, and K8-03B, located upgradient of the Pit 8 Landfill and downgradient of the Building 801 area, are also used for comparative purposes.

The sampling and analysis plan for the Pit 8 Landfill Groundwater Detection Monitoring Program is presented in Table 2.8-1.

During the second semester of 2018, groundwater monitoring was conducted in accordance with the CMP monitoring requirements.

3.3.2. Contaminant Detection Monitoring Results

A map of the Building 801 Firing Table and Pit 8 Landfill area showing buildings, the former location of the Building 801 firing table, Pit 8, and monitor well locations is shown as Figure 2.8-1.

Historic and current data indicate that VOCs detected in groundwater in the Pit 8 Landfill area are the result of VOCs released from the former Building 801D dry well, which have migrated downgradient from Building 801 to the area beneath the landfill. During 2018, VOCs were detected in groundwater samples from wells in the vicinity of the Pit 8 Landfill. The 2018 maximum total VOC concentration of 5.1 µg/L (comprised of 3.5 µg/L of TCE and 1.6 µg/L of 1,2-DCA) was detected in the May sample from well K8-01, located upgradient of Pit 8 and downgradient of Building 801. The duplicate sample from this May episode yielded 4.7 µg/L (3.3 µg/L of TCE and 1.4 µg/L of 1,2-DCA). November samples from the same well yielded 4.5 µg of TVOCs in both routine and duplicate samples comprised of nearly identical TCE and 1,2-DCA concentrations as the May sample. The historical maximum total VOC concentration is 10 µg/L, was also detected four times in samples from well K8-01 between 1988 and 1990 (the most recent, collected in February 1990), was comprised of 6 µg/L of TCE and 4 µg/L 1,2-DCA). As in the past, the presence of VOCs in the Pit 8 Landfill area wells appears to be a continuation of the VOC plume originating at the Building 801 dry well and is not indicative of a release from the Pit 8 Landfill.

Groundwater nitrate concentrations in Pit 8 Landfill area wells K8-01, K8-04, and W-PIT8-3203 exceeded the 45 mg/L MCL cleanup standard during 2018; the maximum 2018 nitrate concentration was 70 mg/L in the May routine and duplicate samples collected from downgradient detection monitor well K8-04. The historical maximum Pit 8 Landfill area nitrate concentration of 80 mg/L was detected in the first semester of 2015 in well K8-04. In 2017, the maximum nitrate concentration was 75 mg/L also detected in well K8-04. Overall, area nitrate concentrations are similar to historical results and are not indicative of a new release from the Pit 8 Landfill.

The 2018 maximum tritium activity detected in groundwater collected from wells in the Pit 8 and Landfill area was 243 ±97.9 and 208 ±56.0 pCi/L routine and duplicate samples collected in November samples from well K8-01. A May duplicate and routine sample from the same well yielded 216 ±76 and 168 ±77.2 pCi/L, respectively. Except for a November sample from well W-PIT8-3201 with 105 ±82.6 pCi/L, tritium activities in other wells in the Pit 8 Landfill area were below the reporting limit during 2018. In 2017, the maximum tritium activity was 178 mg/L ±70 pCi/L in well K8-04. When the error of measurement is considered, the tritium activities detected in groundwater samples from well K8-01 are slightly higher than background. These recent tritium activities above the reporting limit at K8-01, which is upgradient of the Pit 8 Landfill, appear to represent the leading edge of the tritium plume that originated at the Building 850 Firing Table.

During 2018, perchlorate concentrations in two Pit 8 Landfill area wells, both immediately downgradient of Pit 8, exceeded or matched the 4 µg/L reporting limit in two wells, W-PIT8-3203 (4.7 µg/L, July and 4 µg/L, May) and K8-04 (4.1 µg/L, May). Perchlorate concentrations in all other samples collected from Pit 8 Landfill area wells were below the 4 µg/L reporting limit. The 2017 maximum perchlorate concentration of 4.6 µg/L was detected in K8-04. Perchlorate was first detected in K8-04 groundwater in May 2015 at 4.2 µg/L. It has been detected in the well, all just above the 4 µg/L reporting limit, three times since 2015. The detections of perchlorate in well W-PIT8-3203 in May and July 2018 are the first. Perchlorate was not detected in excess of the 4 µg/L reporting limit in

samples from wells K8-04 and W-PIT8-3203 in November 2018 or the duplicate May sample from K8-04. The temporal distribution of these very low concentrations of perchlorate suggest a minor past release from the landfill. At Pit 8, perchlorate has never been detected in excess of the 6 µg/L MCL cleanup standard. Perchlorate concentrations in all area wells will continue to be closely monitored.

During 2018, W-PIT8-3203 was the only area well to yield total uranium activities exceeding the 20 pCi/L MCL cleanup standard, at 26 pCi/L (May). Total uranium activities in W-PIT8-3203 have decreased since the maximum total uranium activity in 2017 (31 pCi/L was also detected in W-PIT8-3203, in 2017). Uranium concentrations in all other Pit 8 Landfill area wells were below the 20 pCi/L MCL cleanup standard. The $^{235}U/^{238}U$ atom ratio (0.0073) for the May sample from well W-PIT8-3203 indicated a natural uranium provenance and was consistent with the ratio observed in 2017.

The concentrations of the other detection monitoring constituents, including HE compounds, Title 22 metals, lithium, and fluoride, in samples collected during 2018 from wells upgradient/cross-gradient and downgradient of the Pit 8 Landfill were either below the cleanup standards, below the reporting limits, or within the range of background concentrations.

Of the constituents monitored during 2018 as part of the detection monitoring program in $Tnbs_1/Tnbs_0$ HSU groundwater from Pit 8 Landfill area wells, only 1,2-DCA, nitrate, and naturally-occurring uranium exceeded their applicable MCL cleanup standards.

There was no evidence of a new contaminant release from the Pit 8 Landfill indicated by the 2018 groundwater detection monitoring data.

3.3.3. Landfill Inspection Results

During the second semester of 2018, the Pit 8 Landfill was inspected on July 18 and October 25. No maintenance issues were identified.

3.3.4. Annual Subsidence Monitoring Results

Annual subsidence monitoring was conducted during the second semester of 2018. No evidence of subsidence was detected.

3.3.5. Maintenance

No maintenance was necessary at Pit 8 during 2018.

3.5. Pit 7 Complex Landfills

The Pits 3, 4, 5, and 7 landfills are collectively designated the Pit 7 Landfill Complex. Firing table debris containing tritium, depleted uranium, and metals was placed in the pits in the 1950s through the 1980s. The Pit 4 and 7 landfills, and about 30% of Pit 3, were capped in 1992. During years of above-average rainfall (e.g., the 1997-1998 El Niño), groundwater rose into the bottom of the landfills and the underlying contaminated bedrock resulting in the release of tritium, uranium, VOCs, perchlorate, and nitrate to groundwater. In addition to these COCs, groundwater samples from Pit 7 Complex detection monitor wells are also analyzed for metals, HE compounds, and polychlorinated biphenyls (PCBs), as these constituents may exist in the firing table gravels placed in the landfills.

3.5.1. Sampling and Analysis Plan Modifications

Detection monitoring is conducted annually in wells located downgradient of the Pit 7 Landfill Complex for VOCs, nitrate, tritium, perchlorate, HE compounds, uranium isotopes, Title 22 metals, lithium, fluoride, and PCBs.

The sampling and analysis plan for the Pit 7 Complex Landfill groundwater detection monitoring program is presented in Table 2.5-8.

During the reporting period, groundwater monitoring was conducted in accordance with CMP monitoring requirements, with the exception of 15 analyses from three wells that were not performed due to the wells being dry.

3.5.2. Contaminant Detection Monitoring Results

A map showing the locations of detection monitoring wells and the Pit 7 Complex Landfill is presented on Figure 2.5-1. Wells K7-01, K7-03, K7-06, K7-09, K7-10, NC7-26, NC7-47, and NC7-48 comprise the current detection monitoring well network for the Pit 7 Complex; wells K7-01, K7-03 and NC7-26 are located downgradient of Pit 5 and Pit 7; well K7-06 is upgradient of Pit 7; wells K7-09 and K7-10 are cross-gradient of Pits 3, 5 and 7; and well NC7-48 is immediately downgradient of Pit 7; and well NC7-47 is far downgradient of Pits 3 and 7.

The detection monitor wells are screened in the following HSUs:

- NC7-48: Qal/WBR HSU.
- K7-01 and K7-06: Qal/WBR and $Tnbs_1$/$Tnbs_0$ HSUs.
- K7-03, K7-10, NC7-26 and NC7-47: $Tnbs_1$/$Tnbs_0$ HSU.
- K7-09: $Tnsc_0$ HSU.

3.5.2.1. Tritium

The Pits 3 and 5 landfills have been identified as the sources of previous releases of tritium to groundwater. The Pit 7 landfill is not an apparent source of tritium in groundwater, as most of the tritium-bearing experiments conducted at Site 300 occurred prior to its opening in 1979 (Taffet et al., 2008).

During 2018, tritium activities in routine and duplicate groundwater samples collected from Pit 7 Complex detection monitor well K7-03 exceeded the 20,000 pCi/L MCL cleanup standard, with a maximum activity of 47,600 pCi/L (April). K7-01 exhibited a decrease from 22,700 pCi/L in 2017 to 15,300 pCi/L (April) in 2018. Overall tritium activities in the Pit 7 Complex detection monitor wells have remained stable.

Tritium activities in all samples collected during 2018 from upgradient well K7-06, cross-gradient wells K7-09 and K7-10, immediately downgradient well NC7-48, and far downgradient well NC7-47 were all below the 100 pCi/L reporting limit/background activity.

In general, tritium activities in the $Tnbs_1$/$Tnbs_0$ and Qal/WBR HSUs in the Pit 7 Complex Area are consistent with those observed in 2017, and tritium activities continue to decrease. No new release of tritium from the landfills is indicated by the 2018 groundwater tritium data.

A discussion of tritium previously released to groundwater from the Pit 7 Complex landfills is presented in Section 2.5.5.2.1.

3.5.2.2. Uranium

Depleted uranium was previously released to groundwater from sources in Pits 3, 5 and 7 (Taffet et al., 2008). None of the Pit 7 Detection monitoring wells exhibited uranium activities in groundwater above the 20 pCi/L MCL cleanup standard. Uranium activities in NC7-48, which were above the MCL in 2017, have declined in 2018 to 5.7 pCi/L (April).

The extent of uranium in Qal/WBR and $Tnbs_1/Tnbs_0$ HSU groundwater is similar to recent years. A discussion of uranium that was previously released to groundwater from the Pit 7 Complex Landfills is presented in Section 2.5.5.2.2.

3.5.2.3. Nitrate

Groundwater samples collected during 2018 from Pit 7 Complex detection monitoring wells K7-01 and NC7-47 exceeded the 45 mg/L MCL cleanup standard at concentrations of 57 mg/L (April) and 53 mg/L (October), respectively. Groundwater samples from well NC7-47 have never contained any other COCs in excess of background concentrations. Overall, nitrate concentrations in the detection monitoring wells have remained stable since 2017. A discussion of nitrate previously released to groundwater from the Pit 7 Complex Landfills is presented in Section 2.5.5.2.3.

3.5.2.4. Perchlorate

Wells K7-01 (screened in the Qal/WBR and $Tnbs_1/Tnbs_0$ HSUs) and K7-03 (screened in the $Tnbs_1/Tnbs_0$ HSU) are the only detection monitor wells from which groundwater samples have historically yielded perchlorate at concentrations in excess of the 4 µg/L reporting limit. Perchlorate concentrations in samples from these wells have decreased from the historic maximum of 25 µg/L at well K7-01 (July 2006) and 29 µg/L at well K7-03 (April 2005) to the 2018 maximum concentrations of 5.3 µg/L (April) and 6.3 µg/L (April), respectively, with K7-03 exceeding the 6 µg/L MCL cleanup standard. A discussion of perchlorate previously released to groundwater from the Pit 7 Complex landfills is presented in Section 2.5.5.2.4.

3.5.2.5. Volatile Organic Compounds

During 2018, VOCs were detected in samples from a single detection monitor well at concentrations above reporting limits. Monitor well K7-03 exhibited 1.7 µg/L TCE (May) in groundwater. The historical maximum VOC concentration in samples from monitor well K7-03 was 15.2 µg/L (1985). VOC concentrations have generally been declining in samples from these wells since these 1985 maxima. The 2018 data do not indicate any new releases of VOCs from any of the landfills or underlying vadose zone. A discussion of VOCs previously released to groundwater from the Pit 7 Complex Landfills is presented in Section 2.5.5.2.5.

3.5.2.6. Title 22 Metals and Lithium

During 2018, Title 22 metals (antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, mercury, molybdenum, nickel, selenium, silver, thallium, vanadium, and zinc) and lithium were not detected in groundwater samples from the Pit 7 Complex Area detection monitoring wells at concentrations in excess of background. The 2018 data do not indicate a release of metals from any of the landfills during the reporting period.

3.5.2.7. High Explosives Compounds

During 2018, HE compounds were not detected in groundwater samples from the Pit 7 Complex Area detection monitoring wells at concentrations in excess of individual compound detection limits of 1 to 2.5 µg/L. The 2018 data are not indicative of a release of HE compounds from any of the landfills or underlying vadose zone during the reporting period.

3.5.2.8. Polychlorinated Biphenyls

During 2018, PCB compounds were not detected in groundwater samples from the Pit 7 Complex Area detection monitoring wells at concentrations in excess of the individual compound detection limits of approximately 0.5 µg/L. The data indicate no release of PCBs from any of the landfills or underlying vadose zone during the 2018.

3.5.3. Landfill Inspection Results

Abri Engineering conducted the Pit 7 Landfill Cap Annual Engineering Inspection on April 30, 2018. Inspection results were summarized in a May 2018 engineering inspection report (Abri Environmental Engineering, 2018b). Other than observing some small animal burrows, no maintenance issues were reported. Inspections of landfill covers for Pit 3 and Pit 5 were not performed during 2018 but were performed in early 2019. Results from inspections conducted on January 29, 2019 indicate that the landfill covers for Pit 3 and Pit 5 are in good condition.

3.5.4. Annual Subsidence Monitoring Results

Annual subsidence monitoring was conducted during the second semester of 2018. No evidence of subsidence was detected. Pit 7 has experienced a maximum subsidence of 0.29 feet since 1995 and an average subsidence across all benchmarks of 0.1 feet.

3.5.5. Maintenance

Animal burrows observed in the Pit 7 cap were filled by LLNL, and the completed work was inspected and approved on April 23, 2018, prior to the engineering inspection. No other maintenance was required at the Pit 7 Complex landfill covers or cap during 2018.

3.6. Pit 7 Complex Drainage Diversion System

A DDS was constructed in the Pit 7 Complex area of OU 5 in 2007-2008 (Section 2.5). The Pit 7 DDS is inspected and maintained per the requirements of the inspection and maintenance plan (Taffet et al., 2008).

3.6.1. Drainage Diversion System Inspection Results

Monthly rainy season and post-storm inspections were performed routinely during the second semester of 2017. The DDS was inspected on January 15, February 15, March 15, April 15, and December 12, 2018. All inspected areas were determined to be satisfactory.

3.6.2. Drainage Diversion System Maintenance

Activities included removing tumbleweeds from the southern settling basin area, southern rip-rap, several culverts, the vegetated swale, and the northern rip-rap.

3.7. Building 850 CAMU

A CAMU was constructed in the Building 850 area of OU 5 in 2009 as part of the Building 850 Removal Action (Section 2.5). The Building 850 CAMU is inspected and maintained per the requirements of the inspection and maintenance plan (SCS Engineers, 2010).

3.7.1. Building 850 CAMU Inspection Results

During the second semester of 2018, the CAMU and associated drainage structures were inspected on October 17. Signs of erosion on the CAMU side slopes were observed with unconsolidated material accumulating at the base of the CAMU. A crack about 20" long was observed on the CAMU top surface. Sun-dried vegetation was observed on the CAMU top and side slopes. A substantial number of animal burrows in excess of 3 inches in diameter and 7 inches or more in depth were found at the base of the CAMU, principally on the western slope. Some burrows were also observed on the eastern slope. A considerably smaller number were found at the base of CAMU. Some vegetation requiring removal was also observed on the CAMU.

ERD is currently working with the LLNL Wildlife Biologist, ERD Management, and other LLNL departments to develop and implement a plan to address items requiring maintenance to ensure the long term integrity of the CAMU.

3.7.2. Building 850 CAMU Maintenance

Maintenance on the Building 850 CAMU was not required during 2018. ERD is working with the biologists to allow for the use of herbicides to provide vegetation control. Most of the animal burrows observed during the October 17, 2018 inspection were sealed naturally without active maintenance being performed. The burrows likely sealed as a result of rain and the weight of the overburden.

4. Risk and Hazard Management Program

The goal of the Site 300 Risk and Hazard Management Program is to protect human health and the environment by controlling exposure to contaminants during remediation. Risk and hazard management is conducted in areas of Site 300 where the exposure point risk exceeded 1×10^{-6} or the hazard index exceeded 1 in the baseline risk assessment. Land use controls have been implemented to manage risks. The CMP/CP requires that the institutional controls in place at Site 300 be evaluated annually (Appendix D).

4.1. Human Health Risk and Hazard Management

The CMP/CP requires that the risk and hazard associated with volatile contaminants in the subsurface, that could migrate upward into indoor and outdoor ambient air and be inhaled by workers, be reevaluated annually using current data, where the risk exceeds 1×10^{-6} and hazard index exceed 1.

The on-site worker inhalation risk associated with vapor intrusion from the subsurface into indoor and outdoor air is discussed in Section 4.1.1. The on-site worker inhalation risk associated with springs is discussed in Section 4.1.2.

4.1.1. Annual Inhalation Risk Evaluation

Inhalation risk reevaluation for VOCs migrating from the subsurface into indoor ambient air following the newest EPA guidance was initiated in 2017 following the discussions that occurred during the comment response process for several Draft and Draft-Final Five-Year Review documents

for Site 300. As a result, several Five-Year Review documents were issued with a deferred protectiveness statement due to pending vapor intrusion analysis following the U.S. EPA guidance released in 2015. DOE/LLNL provided a prioritized list of buildings to the regulatory agencies in December 2017.

The following list describes the major steps used by DOE/LLNL in developing the prioritized building list:

- Using EPA's Vapor Intrusion Screening Level (VISL) Calculator, develop site-specific screening levels for volatile contaminants that are present at Site 300 and Livermore Site.
- Identify buildings where the subsurface contamination to indoor air pathway is complete, or can potentially become complete in the future.
- Perform a buffer zone analysis for each building to evaluate the presence of volatile contaminants beneath each building.
- Develop a ranking criterion to prioritize all buildings.

Addenda will be submitted for all the Site 300 Five-Year Reviews published since 2017 that have a deferred protectiveness statement with regard to vapor intrusion from soil and groundwater contamination, once each vapor intrusion-related protectiveness determination is complete.

On May 10, 2018, EPA and the DTSC visited the top five buildings on the priority list developed using the above criteria. DOE/LLNL submitted indoor air sampling workplans for each building to the regulatory agencies based on the guidance provided during the visit. DOE/LLNL agreed to collect indoor air samples in each building under both summer and winter conditions to account for seasonal variations in climate and varying building occupancy, and to ensure that related risk management decisions are based upon a reasonable maximum vapor intrusion condition for a given building.

Each sampling plan includes indoor and outdoor sample locations, as well as crawl space, confined space, preferential pathway, and well samples where applicable. Duplicate samples are also collected for quality assurance. A complete report detailing each sampling event will be included in the addendum for each applicable Five-Year Review document. The following is a summary of each sampling event conducted in 2018:

- Building 830 - This building is not occupied ('cold and dark') and decommissioning is planned. During the May 10, 2018 site visit, U.S. EPA and DTSC concurred that indoor air sampling is not necessary for Building 830. This is the only structure in the area designed for occupancy.
- Building 832E - The indoor, outdoor, and well samples collected on September 27, 2018 are interpreted to be representative of summer conditions. No analytes were detected in the indoor air samples above background levels or screening levels.
- Building 833 - The indoor, outdoor, and well samples collected on June 15, 2018, are interpreted to be representative of summer conditions. No analytes were detected in the indoor air samples above background levels or screening levels, except for TCE in the Room 101 (Conference Room) sample. The levels of TCE in this room were above the U.S. EPA Region Urgent Response Action Levels. On July 11, occupants of Building 833 were temporarily relocated to prevent any exposure and to enable further investigations in the building. Between July 12 and July 18, the HVAC system for the building was evaluated and the air exchange rate was increased. Also, all potential indoor air sources for

VOCs were removed from the building in preparation for a comprehensive sampling event. On July 19, samples from all nine rooms in Building 833, an outdoor ambient air sample, and soil vapor samples from six nearby wells were collected. No analytes were detected in the indoor air samples above background levels or screening levels, except for TCE in Rooms 101A and 104 and the corridor samples. The levels of TCE in all three rooms were above the vapor intrusion screening levels for TCE, however all were below the U.S. EPA Region 9 Action Levels. DOE/LLNL agreed to keep the occupants relocated until mitigation actions are completed and indoor air sampling results indicate no further risk to occupants. DOE/LLNL initiated testing of a sub-slab depressurization system using shallow wells located immediately next to Building 833. Once the system is active, another comprehensive sampling event will be conducted in 2019.

- Buildings 834A and 834D -Building 834D is not occupied ('cold and dark'). During the May 10, 2018 site visit, U.S. EPA and DTSC concurred that indoor air sampling is not necessary for Building 834D. DOE/LLNL agreed to sample Building 834A instead, which is occasionally occupied. The indoor, outdoor, and preferential pathway samples in Building 834A collected on June 15, 2018, are interpreted to be representative of summer conditions. No analytes were detected in the indoor air samples above background levels or screening levels.
- Building 875 - The indoor and outdoor air samples collected on September 27, 2018, are interpreted to be representative of summer conditions. No analytes were detected in the indoor air samples above background levels or screening levels.

Detections of carbon tetrachloride, Freon 11, and Freon 113 in most samples (indoor and outdoor) are interpreted to represent background conditions. Carbon tetrachloride background concentrations, which are uniform throughout the world, are higher than the screening level. DOE/LLNL will perform winter sampling of Buildings 832E, 833, 834A, 834D, and 875 in 2019. In addition, DOE/LLNL plans to conduct winter and summer sampling events in fifteen additional buildings at Site 300 during 2019.

4.1.2. Spring Ambient Air Inhalation Risk Evaluation

4.1.2.1. VOC-Contaminated Springs

The CMP requires annual sampling of outdoor air above VOC-contaminated surface water, when present, to determine VOC concentrations.

An unacceptable risk or hazard was identified during the baseline risk assessment (Webster- Scholten, 1994) for the inhalation of VOCs at four locations:

1. Spring 3 (Building 832 Canyon OU) - Cumulative risk 7×10^{-5}, hazard index 2.3 due to TCE and PCE.
2. Spring 5 (HEPA OU) - Cumulative risk 1×10^{-5}, due to 1,1-DCE and TCE.
3. Spring 7 (Pit 6 Landfill OU) - Cumulative risk 4×10^{-5}, hazard index 1.5 due to TCE, PCE 1,2-DCA, and chloroform.
4. The Carnegie State Vehicular Recreation Area pond (off site, east of the Pit 6 Landfill) - Cumulative risk 3×10^{-6} (hypothetical) due to TCE.

A water sample from Spring 3 was obtained in 2018. Unfortunately, ambient air samples were not obtained due to the inconsistent flow of water from the spring and access limitations to protect wildlife

and habitat. DOE/LLNL plan to collect an air sample from Spring 3 in 2019 if surface water is present. The 2018 Spring 3 water sample contained 15 µg/L of TCE. However, Site 300 remains a restricted access, experimental test site and spring water is not used for drinking water at the site.

No surface water or green hydrophilic vegetation were present at Springs 5 and 7 during 2018; therefore, no ambient air VOC sampling was performed. Springs 5 and 7 have been devoid of surface water or green hydrophilic vegetation since monitoring began in 2003. These springs will be monitored for the presence of surface water or green hydrophilic vegetation in 2019 and air samples will be collected if water is present.

Water-supply well CARNRW2 is used to fill the Carnegie SVRA pond. The baseline risk assessment (Webster- Scholten, 1994) conservatively indicated that if the VOC source in the Pit 6 Landfill OU was not controlled, contaminated groundwater could migrate to well CARNRW2 and result in an unacceptable risk from inhaling VOC vapors volatilizing from the pond. However, an engineered cap was placed over the Pit 6 Landfill preventing infiltration of precipitation and further releases of contaminants from the landfill. The VOC plume originating from the Pit 6 Landfill has not impacted CARNRW2 or any groundwater beyond Site 300. No unacceptable risk or hazard exists.

4.1.2.2. Tritium-Contaminated Springs

An unacceptable cumulative risk of 1 x 10^{-3} was identified in the baseline risk assessment for the inhalation of tritium at the Well 8 Spring in the Building 850 area. This risk was based on the maximum historical tritium activity (770,000 pCi/L, 1972) observed in the spring. Tritium activities in Well 8 Spring have steadily declined over the decades. The 2009 CMP/CP indicated that the inhalation risk associated with tritium in surface water volatilizing to outdoor ambient air would be reevaluated annually when surface water is present. The surface water is sampled and analyzed for tritium semi-annually.

The 2017 maximum activity in Well 8 Spring was compared to the current tritium Preliminary Remediation Goal (PRG) for tap water using the PRG calculator, as described in regulatory guidance (US EPA, 1991). This risk reevaluation was performed in 2017 and used the October 2017 tritium activity of 6,230 pCi/L in Well 8 Spring water. There is no current tritium vapor screening level PRG defined by the EPA for tap water for an outdoor worker. However, the PRG calculator was used to determine a screening level for the inhalation pathway of tritium in tap water using the residential scenario and making site-specific modifications to the exposure parameters in the calculator to determine a PRG for tritium in an on-site spring. This exposure scenario is for an on-site worker that collects a quarterly sample of water at the spring, as this sampler would spend the maximum time at the spring of any individual. The exposure parameters were modified as follows:

1) removing any child exposure scenarios by using a value of zero for child exposure duration, frequency, and time;

2) setting the exposure parameters for an adult to a duration of 25 years, a frequency of 4 days a year, and an exposure time of 1 hour per day;

3) defining an inhalation rate for an adult of 60 m^3/hr;

4) defining zero for the number of water intake and bathing events; and

5) defining zero for ingestion of produce grown in the vicinity of the spring.

The current activity of tritium in the Well 8 Spring is below the site-specific PRG calculator-derived activity of 9,440 pCi/L for the inhalation pathway of tritium in tap water and well

below the MCL drinking water standard of 20,000 pCi/L. In 2018, Well 8 Spring was dry during the year and no water samples were collected. Sampling and risk reevaluation will again be conducted in 2019 if surface water is present. Workers will not occupy the site in the near-future, site use restrictions will be maintained, and the annual sampling will continue until the tritium activity remains below acceptable levels for at least two years.

4.2. Ecological Risk and Hazard Management

4.2.1. Ecological Risk and Hazard Management Measures and Contingency Plan Actions Required by the 2009 Compliance Monitoring Report/Contingency Plan

The ecological risk and hazard management measures described in the 2009 CMP/CP (Dibley et al., 2009a) were developed to meet the remedial action objectives for environmental protection. These objectives are designed to:

1. Ensure ecological receptors important at the individual level of ecological organization (special-status species; i.e., State of California or federally-listed threatened or endangered species or State of California species of special concern) do not reside in areas where relevant hazard indices exceed 1.
2. Ensure changes in contaminant conditions do not threaten wildlife populations and vegetation communities.

The ecological risk and hazard management measures required by the 2009 CMP/CP include:

- Periodically evaluating available biological survey data from the Building 801 area, Building 851 area, and the HEPA to determine potential population-level impacts to ground squirrel and deer exposed to cadmium in surface soil in these areas, as well as reevaluating the ecological hazard associated with cadmium in surface soil in these areas. Subsequent evaluations reported on the 2011 and 2012 Annual CMRs showed the presence of cadmium to no longer be a potential ecological hazard to the deer and ground squirrel populations, or to burrowing or ground-dwelling special-status species. Therefore, cadmium is no longer considered an ecological contaminant of concern in these areas and has been dropped from further consideration.
- Ensuring the integrity of the Pit 7 Complex landfill caps to prevent exposure to burrowing animals from uranium.
- Evaluating changes in existing contaminant and ecological conditions in OUs 1 through 8 every five years, including reevaluating VOCs in burrow air in the event that groundwater VOC concentrations increase to levels that previously posed a risk to burrowing animals.

This report, and subsequent CMRs prepared during the reporting periods in which the 2009 CMP/CP is active, will continue to provide updates on ecological risk and hazard management measures, and ecological contingency plan actions required by the 2009 CMP/CP.

As part of the contingency plan presented in the 2009 CMP/CP, periodic review of available biological survey data (e.g., biological data collected when surveying ground-disturbing programmatic activities, biological monitoring data, surveys conducted for environmental impact statement [EIS] or environmental impact report [EIR] preparation, etc.) for the presence of new special-status species is required. Any new special-status species identified is to be evaluated for potential impact from the presence of contamination, using the process described in the 2009 CMP/CP. The results of periodic reviews are reported on in the annual CMRs.

As described above, the 2009 CMP/CP requires an evaluation of changes in contaminant and ecological conditions in OUs 1 through 8 every five years. Five-year ecological reviews were conducted in 2008

(reported on in Dibley et al., 2009b; referred to as the 2008 Five-Year Ecological Review), and 2013 (reported on in Dibley et al., 2014; referred to as the 2013 Five-Year Ecological review). The 2008 Five-Year Ecological Review evaluated chemical data collected from January 1, 1999 through December 31, 2007, and ecological data collected from January 1, 1999 through December 31, 2008. The 2013 Five-Year Ecological Review evaluated chemical data collected from January 1, 2008 through December 31, 2012, and biological data collected between January 1, 2009 and December 31, 2012 (four years of biological data). The 2018 Five-Year Ecological Review is presented in this report in Section 4.2.4, and evaluates chemical and biological data collected between January 1, 2013 and December 31, 2017.

The 2008 Five-Year Ecological Review identified several new constituents in surface water for which ecological hazard could not be adequately evaluated due to either a limited data set or the lack of background data. Most of these constituents have been addressed and reported in CMRs subsequent to the 2008 Five-Year Ecological Review. The remaining constituents were also noted in the 2013 Five-Year Ecological Review and are further discussed below in the 2018 Five-Year Ecological review.

4.2.2. Uranium in Subsurface Soil within the Pit 7 Complex Landfills

The 2009 CMP/CP requires the Pit 7 Complex landfills to be inspected. Any burrows or holes in the cover must be filled to prevent unacceptable exposure of animals to uranium in the pit waste. This is done as part of the inspection and maintenance program for the Pit 7 Complex. Section 3.5.3 describes the landfill annual engineering inspection results, Section 3.5.4 describes the annual subsidence monitoring results, and Section 3.5.5 describes any maintenance performed. The annual engineering inspection of the Pit 7 cap conducted by Abri Environmental Engineering on April 9, 2018 (Abri Environmental Engineering, Inc., 2018b), found the cap to be in good condition with a thick vegetation cover. Relatively shallow burrowing animal holes were observed. The burrows were also observed during inspection and subsidence monitoring of the Pit 7 cap conducted by LLNL on April 16, 2018. The burrows were filled by LLNL, and the completed work was inspected and approved on April 23, 2018.

4.2.3. Identification and Evaluation of New Special-Status Species

Contingency actions described in the 2009 CMP/CP include periodically evaluating available biological survey data (e.g., pre-construction survey data, biological monitoring data, surveys conducted for EIR/EIS preparation) for the presence of new special-status species and reporting the results of the evaluation in the annual CMRs. The results of biological surveys and any changes in the regulatory status of species occurring at Site 300 in 2018 as determined by wildlife biologists from the LLNL Environmental Functional Area are discussed below.

In 2018, routine monitoring surveys were conducted at Site 300 for California red-legged frogs, California tiger salamanders, western burrowing owls, tricolored blackbirds, and rare plants. These species continue to occur in areas and habitat as described below in Section 4.2.4 (2018 Five-Year Ecological Review). California red-legged frogs were able to successfully reproduce in the wetlands that are supported by perennial springs. Seasonal pools that provide breeding habitat for the California tiger salamander and California red-legged frog at Site 300 did not fill in 2018. Year to year variations in the suitability of Site 300 seasonal pools for California tiger salamander and California red-legged frog breeding is normal. Western burrowing owls were successful in 2018, with 25 nesting pairs of western burrowing owls observed throughout areas at Site 300 previously used by this species.

Non-routine surveys were also conducted for three species listed under the federal or California Endangered Species Acts. Valley elderberry longhorn beetle and Swainson's hawk surveys were

conducted in as part of pre-activity surveys at specific project sites. San Joaquin kit fox surveys were conducted as part of periodic monitoring for this species.

Elderberry plants within the Corral Hollow Ecological Reserve provide habitat for the federally threatened valley elderberry longhorn beetle. LLNL maintains fire trails within the Ecological Reserve to allow for fire control, emergency egress from Site 300, and access to monitoring wells. LLNL conducted elderberry trimming within the Corral Hollow Ecological Reserve on March 5 and 6, 2018. The trimming and associated valley elderberry longhorn beetle surveys were conducted at the northern boundary of the Central and Eastern General Service Areas (OU1). Although no individual valley elderberry longhorn beetles, eggs, larvae, or pupae were observed during vegetation pruning conducted in 2018, eleven pruned elderberry stem segments were observed that had exit holes that were potentially created by valley elderberry longhorn beetles or their close relative the California elderberry longhorn beetle (GANDA, 2018a). Valley elderberry longhorn beetle surveys were conducted at Site 300 and in the Corral Hollow Ecological Reserve in the spring of 2002. During those surveys, two adult elderberry longhorn beetles that exhibited markings characteristic of the valley elderberry longhorn beetle were observed at Site 300, approximately two miles northwest of the Ecological Reserve. Emergence holes consistent with valley elderberry longhorn beetle were also observed at Site 300 and within the Ecological Reserve during the 2002 surveys (Arnold, 2002).

Nesting raptor surveys were conducted within the Corral Hollow Creek riparian corridor in the spring and summer of 2018, prior to the start of Eastern General Service Area well decommissioning. This survey area included portions of the Central and Eastern General Service Areas (OU1). No Swainson's hawks were observed during these surveys (GANDA, 2018b). Although no Swainson's hawks were observed during these surveys, this species is occasionally observed by LLNL biologists when it is foraging at Site 300, especially during the summer months. Other species of raptors observed during the 2018 surveys included red-tailed hawk, red-shouldered hawk, American kestrel, and turkey vulture. Five stick nests were observed and recorded during the surveys, one of which was occupied by a red-tailed hawk pair that reared three fledglings. No breeding activity was observed during the surveys at the other four nests identified.

San Joaquin kit fox surveys were conducted at Site 300 using scat detection dogs in November of 2018 (Woollett, 2019a). Approximately 33 kilometers of transect legs were searched covering 810 acres at Site 300 and the adjacent Corral Hollow Ecological Reserve. Site 300 surveys included the areas most likely to support San Joaquin kit fox (along the perimeter of the northern half of Site 300). Results of the scat detection dog surveys, and subsequent DNA analysis do not support the presence of kit foxes on Site 300 or the Corral Hollow Ecological Reserve. One scat was located by a dog during the Site 300 surveys. This scat was sent for DNA analysis and was determined to be from a feral dog.

4.2.4. 2018 Five-Year Ecological Review

As required by the 2009 CMP/CP, a five-year ecological review was conducted to evaluate changes in contaminant and ecological conditions in OUs 1 through 8. The purpose of this review is to determine if contaminant or ecological conditions have changed sufficiently to warrant reevaluating the conclusions reached in previous ecological risk assessments. The current five-year ecological review reported here was conducted as outlined in the 2009 CMP/CP. Section 6.2.3 of the 2009 CMP/CP describes the process for evaluating changes in contaminant and ecological conditions.

Section 10.1.4 of the 2009 CMP/CP describes the process for evaluating the presence of new contaminants.

Table 4.2-1 shows the COCs in the eight operable units covered by the 2009 CMP/CP. As required by the 2009 CMP/CP, for COCs historically present in ecologically relevant media (surface water, surface soil, and subsurface soil to a depth of 6 ft), hazard indices are to be recalculated for COCs whose current maxima exceed either: (1) the historical maxima by 50%, or (2) the concentrations used in the most recent hazard reevaluation for ecological receptors identified for the specific OU. COCs with hazard indices greater than one are to be added to the ecological risk and hazard management process. In addition, the hazard index for the inhalation of VOCs in burrow air is to be re-calculated in the event that groundwater VOC concentrations increase to levels that previously posed a risk to burrowing animals.

As required by the 2009 CMP/CP, for newly identified constituents in ecologically relevant media, a literature review is to be conducted and the areal extent evaluated to determine if the presence of the constituent is ecologically significant. If found to be potentially ecologically significant, the maximum concentration of the constituent is to be compared to relevant federal or state ecological screening levels, as well as Site 300 background levels. If concentrations of these newly identified constituents exceed the ecological screening levels and Site 300 background levels, hazard indices are to be calculated for potentially impacted species in the OU in which the new constituent was detected. Toxicity quotients are to be calculated for any new ecologically significant constituent identified in surface water from springs that exceed Site 300 background and relevant ecological screening levels. Constituents with hazard indices or toxicity quotients greater than 1 are to be added to the ecological risk and hazard management process. For constituents whose concentrations did not exceed ecological soil screening levels or if hazard indices and toxicity quotients are less than 1, it is assumed that the constituent does not pose a risk to ecological receptors and that no ecological risk and hazard management are necessary. Figure 4.2-1 shows the process used to evaluate new constituents in ecologically relevant media.

Analytical data used in the current ecological review consists of data collected by ERD as part of the Site 300 environmental investigations and compliance monitoring. While other LLNL organizations also collect environmental data (primarily the Environmental Functional Area), these data are collected for specific programs and reported to regulatory agencies as required, and thus are not used in the five-year ecological reviews. The cut-off date for chemical data for the current ecological review period is December 31, 2017. The cut-off date for chemical data in the 2013 Five-Year Ecological Review was December 31, 2012. Thus, the current review period consists of chemical data collected between January 1, 2013 and December 31, 2017.

All biological survey data (e.g., biological data collected when surveying ground-disturbing programmatic activities, biological monitoring data, surveys conducted for various regulatory reports) collected in and around OUs 1 through 8 were evaluated for changes in the presence and abundance of special-status species, as well as for non-special-status species for which data were available. For completeness, changes in the presence and abundance of special-status species in OUs and areas not covered by the 2009 CMP/CP (such as the Building 812 OU [OU 9]), are also discussed, but clearly identified as not occurring in an OU covered by the 2009 CMP/CP. Any significant changes were considered in determining whether changes to the ecological risk and hazard management process were

necessary. As with the chemical data, the cut-off date for biological data used in the 2013 Five-Year Ecological Review was December 31, 2012. Therefore, biological data collected between January 1, 2013 and December 31, 2017 were evaluated for this biological review. Figure 4.2-2 shows the process used to evaluate new special-status species.

4.2.4.1. Evaluation of Changes in Biological Conditions

To evaluate potential changes in biological conditions in OUs 1 through 8, all available biological survey data for Site 300 obtained over the current biological review period (January 1, 2013 to December 31, 2017) were reviewed. This included:

- Evaluating available biological survey data (such as surveys conducted for ground-disturbing programmatic activities, biological monitoring data, and surveys conducted for various regulatory reports) to identify the presence of newly identified species at Site 300;
- Evaluating available biological survey data for changes in the presence and abundance of species over time; and
- Determining the locations and OUs in which newly identified species are likely to reside, as well as those species in which changes in presence or abundance have been observed.

Specifically, the evaluation focused on special-status species, defined as:

- Plant or animal species classified as candidate, threatened, or endangered under the federal or California Endangered Species Acts (ESA/CESA);
- U.S. Fish and Wildlife Service (U.S. FWS) Bird Species of Conservation Concern (BCC) (U.S. FWS, 2008);
- California Fully Protected Species (CAFPS);
- California Species of Special Concern (CASSC) (California Department of Fish and Wildlife [CDFW], 2018a);
- Bald and Golden Eagle Protection Act (BGEPA);
- Western Bat Working Group high-priority species (WBWGH) (WBWG, 1998); and
- Rare plants with a California Rare Plant Rank (CRPR) of 1 or 2 (California Native Plant Society [CNPS], 2018).

If sufficient data were available, potential changes in the relative abundance were analyzed. This analysis included both special-status species and more common species, when information was available.

Habitats and species that were present, or species expected to occur or breed (e.g., suitable habitat present) in OUs 1 through 8 at the completion of the 2013 Five-Year Ecological Review were considered to comprise the baseline. Data used to develop this baseline came from the 1994 Site-Wide Remedial Investigation (SWRI) report (Webster-Scholten, 1994), the 1999 Site-Wide Feasibility Study (Ferry et al., 1999), studies conducted in 2002 for the Final Site-Wide Environmental Impact Statement (SWEIS) (U.S. DOE, 2005a), as well as internal reviews of biological data collected from 1999 through 2012 conducted in support of the 2008 Five-Year Ecological Review (Paterson et al., 2009) and the 2013 Five-Year Ecological Review (Paterson and Woollett, 2014). The internal biological reviews included an evaluation of data presented in the above-mentioned documents, as well as data and observations collected by LLNL wildlife biologists.

Biological data collected during the current review period included routine resource monitoring as reported in the Site Annual Environmental Reports (LLNL, 2014a, 2015a, 2016, 2017a and 2018), wildlife monitoring conducted by LLNL biologist (Paterson et al., 2019), rare plant management and monitoring (LLNL, 2017b; Carlsen et al., 2018), surveys conducted for ground-disturbing programmatic activities, and focused, programmatic-specific surveys (LLNL, 2014b; GANDA, 2014; GANDA, 2015; LLNL, 2015b; Woollett, 2015; GANDA, 2016a; GANDA, 2106b; Walther, 2016). Changes in special-status species were evaluated annually and reported on in the annual Compliance Monitoring Reports (Buscheck and Ferry, 2015; Buscheck and Ferry, 2016; Buscheck and Loll, 2017; Buscheck et al., 2018).

Current biological conditions in OUs 1 through 8 through 2017 are summarized below and compared to the ecological conditions that existed through 2012. For completeness, changes in the presence or relative abundance of special-status species that are not within the boundaries of OUs covered by the 2009 CMP/CP are also discussed and clearly identified as not occurring in OUs covered by the 2009 CMP/CP.

4.2.4.1.1. Vegetation Communities

The most recent comprehensive vegetation surveys of Site 300 were conducted in 2002. Vegetation communities were mapped and categorized (Jones and Stokes, 2002a), and wetlands were delineated (Jones and Stokes, 2002b). The vegetation mapping recognized six major plant-type categories, based primarily on the classification in the List of California Terrestrial Natural Communities (recognized by the California Natural Diversity Data Base [CNDDB]). These were:

(1) scrub and chaparral,
(2) grass and herb dominated communities,
(3) bog and marsh,
(4) riparian and bottomland habitat,
(5) broad-leafed upland tree dominated, and
(6) coniferous upland forest and woodland.

These major communities were further divided into the following vegetation types: coastal scrub, undifferentiated chaparral scrubs, native grassland, nonnative grassland, vernal pools, meadows and seeps not dominated by grasses, marsh, riparian forest and woodland, low to high elevation riparian scrub, oak woodlands and forests, and juniper woodlands. Some of these vegetation types were further subdivided, for example, the native grassland community was divided into a purple needlegrass and one-sided blue grass communities. Seasonal ponds, disturbed habitat, and urban habitat were identified as separate categories but were not included in the classification scheme. Forty-six wetlands were identified, with a total area of ~3.5 hectares (8.7 acres) during the sitewide wetland delineation conducted in 2002 (Jones and Stokes, 2002b). Wetlands included vernal pools, freshwater seeps, and seasonal ponds. Of these wetland areas, approximately 1.8 hectares (4.4 acres) appeared to be under the jurisdiction of the federal Clean Water Act (jurisdictional wetlands). Sitewide wetlands mapping or delineation has not been conducted since 2002.

The most recent published list of plant species was prepared for the Draft Focused Remedial Investigation/Feasibility Study for Perchlorate at the Building 850 Area (Verce et al., 2018). This list incorporated species identified by Jones and Stokes (2002a), species reported in earlier surveys

conducted by BioSystems (BioSystems, 1986a and 1986b), as well as information from ongoing surveys by LLNL plant biologists. A total of 405 plant species have been identified at Site 300.

Changes in vegetation communities that occurred during the current review period included changes associated with remediation activities, ongoing habitat enhancement activities, wildfires, and changes in the Site 300 prescribed burn regime. No changes in vegetation communities were associated with changes in contaminant conditions. Remediation activities that resulted in changes in vegetation communities included the use of misting towers to discharge treated groundwater in the Building 854, Building 832 Canyon and GSA OUs. The misting towers at Building 854 and Building 830-SRC resulted in increased hydrophytic vegetation in the immediate vicinity of the towers. While this hydrophytic vegetation does not meet the regulatory definition of a wetland as it developed as a result of an artificial water source, it could attract amphibians (including special-status species) from nearby wetlands and provide a refuge for these species. No specific surveys for amphibians have been done in these areas.

Habitat enhancement activities included ongoing habitat restoration efforts at Pool M3 (located on the northern boundary of the GSA OU [OU 1]) and Pools M1a and M1b (located in the Building 812 area [OU 9], not covered by the 2009 CMP/CP) occurred during the current review period (Figure 4.2-3). The success of habitat restoration efforts at Pool M2, Pools M1a and M1b, and Pool HC1 (located near the western perimeter of the site outside of any OU, Figure 4.2-3), where habitat enhancements were conducted in the previous review period, was monitored throughout the current review period.

Pool M3 was enhanced as mitigation for loss of upland California tiger salamander and California red-legged frog habitat (both special-status amphibian species, see Section 4.2.4.1.5 below) as a result of the Building 850 removal action (Dibley et al., 2010). In the fall of 2014, LLNL completed the formal set aside of 48.5 acres of upland habitat and enhancement of the Pool M3 breeding site for California tiger salamanders. The Pool M3 habitat enhancement project included the removal of accumulated sediment from the existing pool, development of an upstream sediment basin, and re-vegetation of the pool with native species. In 2015 and 2016, the pool held water long enough for California tiger salamander larvae to successfully mature. In 2017, California tiger salamander eggs were observed at Pool M3, but the pool did not hold water for long enough for salamander larva to mature despite above average rainfall during the 2016/2017 rainy season. In the summer of 2017, the clay liner at Pool M3 was enhanced in an effort to increase the hydroperiod of this pool.

Enhancement of Pool HC1 began in 2006 to repair a nearby eroding fire-trail and improve habitat to benefit special-status amphibian species. Additional enhancement occurred in 2012 to further improve the habitat value of the pool to amphibians and reduce infiltration through the pool bottom. No enhancement occurred at Pool HC1 during the current review period. In 2016, Pool HC1 filled completely and California tiger salamander eggs and larvae were observed in the pool. In 2017, Pool HC1 initially filled but the pool did not hold water long enough for salamander larva to successfully mature.

In late August 2005, LLNL implemented a habitat enhancement project at Pools M1a and M1b for California red-legged frogs at Site 300 in accordance with a 2002 U.S. FWS biological opinion. California red-legged frogs (*Rana draytonii*) were translocated to the new habitat enhancement pools in Elk Ravine in February and March 2006. In the summer of 2014, both pools were dredged to remove extra sediment thus increasing the depths to the original 8-10 feet improving the value of this habitat for California red-legged frog breeding. During dredging operations, overgrown vegetation (including cattails, nettles and willows) was also removed to increase breeding habitat suitability. Vegetation in

Pool M1a and M1b continued to recover from a wildfire that occurred in early June of 2015. No impacts to California red-legged frog breeding were observed as a result of this wildfire. Monitoring demonstrated that California red-legged frogs successfully reproduced in these pools in 2013 through 2017.

Wetland surveys were conducted at Pools M3 and HC1 during the previous review period to more fully delineate wetlands at these pools. In 2010, no jurisdictional wetlands were identified at Pool M3, although 0.17 acres of jurisdictional waters (Waters of the U.S.) were identified at this site (Paterson and Woollett, 2014). This area of jurisdictional waters was not identified in the 2002 wetland study (Jones and Stokes, 2002b). In 2011, 0.12 acres of potential jurisdictional wetlands and 0.10 acres of Other Waters were identified at Pool HC1. In 2002, 0.20 acres of potential wetlands were identified at this site. The decrease in wetland acreage at this location in 2011 compared to 2002 is most likely the result different study methodologies used between 2002 and 2011 (Paterson and Woollett, 2014), as well as changes in upstream (off-site) hydrology. One additional wetland survey was conducted during the previous review period in the Building 812 area. Two wetland communities were delineated in a small ravine (approximately 1.7 acres) located east of Pool CR and northwest of Pools M1a and M1b (Figure 4.2-3) known as the Building 812 Canyon. These two wetland communities covered 0.12 acres (Paterson and Woollett, 2014). An additional 0.04 acres downstream of the wetland habitat are considered non-wetland jurisdictional areas (Other Waters). The Building 812 Canyon was not studied as part of the 2002 wetland delineation. No additional wetland surveys were conducted during the current review period.

Prescribed burns are conducted annually at Site 300, typically in early June, to protect programmatic areas from uncontrolled wildfires. Fire has a significant potential to control vegetation at Site 300. At Site 300, areas of perennial grasslands are most common where prescribed burns occur annually, and coastal scrub habitat does not typically occur where fires are too frequent (although this habitat type is adapted to periodic fires). During the current review period, two large wildfires occurred at Site 300. In 2017, a wildfire burned approximate 175 acres located within and adjacent to the western edge of the High Explosives Process Area (OU 4), and in 2015, approximately 110 acres within and adjacent to the Building 812 area. Also, in June 2017, a prescribed burn was conducted in the area east of Building 801 (OU 8) to improve the success of big tarplant (*Blepharizonia plumosa*, a special-status plant species, see Section 4.2.4.1.2 below) in this area. This area is not typically burned as part of the annual programmatic prescribed burns. The success of the big tarplant in response to this prescribed burn will be measured in the upcoming years.

4.2.4.1.2. Special-Status Plants

Four special-status plant species are known to occur at Site 300 (Table 4.2-2, Figure 4.2-4). All four-the large-flowered fiddleneck (*Amsinckia grandiflora*), the big tarplant (*Blepharizonia pumosa*), the diamond-petaled California poppy (*Eschscholzia rhombipetala*), and the adobe navarretia (*Navarretia nigelliformis* ssp. *radians*)-were known to occur at Site 300 during the 2013 Five-Year Ecological Review. These species all have a CRPR of 1B (CNPS, 2018), indicating they are rare and endangered throughout their range. In addition, the large-flowered fiddleneck is a California and federal endangered species. At the time of the 2013 Five-Year Ecological Review, a fifth species, the round-leaved filaree (*California macrophylla*), also had a CRPR of 1B. However, in 2017, this species was downgraded to CBR (Considered But Rejected), as the species was “too common statewide:

counties that contain small, localized populations under severe threat should track *C. macrophylla* as a species of local concern".

Three uncommon plant species, California androsace (*Androsace elongata* subsp. *acuta*), stinkbells (*Fritillaria agrestis*), and hogwallow starfish (*Hesperevax caulescens*), occur in isolated locations at Site 300. These plants have a CRPR of 4 (CNPS, 2018). CRPR 4 includes plants of limited distribution that are not considered rare or endangered.

Large-flowered fiddleneck

The large-flowered fiddleneck is currently known to exist naturally in only two locations—at Site 300 at a site known as the Drop Tower and on nearby conservation property owned by the Contra Costa Water District. The Site 300 Drop Tower site is located in the southeast portion of the Building 854 OU (OU 6), outside of the immediate Building 854 area and near Building 858 (Figure 4.2-4). A second Site 300 population occurs in Draney Canyon (a canyon in the southwestern portion of the site, outside of any OU), but no large-flowered fiddleneck have been observed at this location since a landslide that occurred at the population site in 1997. The Drop Tower native population has contained no large-flowered fiddleneck plants since 2008. This population had been in decline since 1997.

An experimental population of the large-flowered fiddleneck was established at the Site 300 Drop Tower site beginning in the early 1990s. The Drop Tower experimental population is maintained by periodically planting large-flowered fiddleneck seeds or seedlings in established plots within the population. The size of the Drop Tower experimental population fluctuates as a result of these seed bank enhancement efforts. In January of 2017, fourteen seedlings were planted in each of twenty plots, for a total of 280 seedlings. A total of 132 plants were recorded in the spring of 2017 (Carlsen and Paterson, 2018). These plants were primarily survivors of the January planting, with some contribution from seeds produced from plants from previous seed bank enhancement efforts.

Big tarplant

Populations of big tarplant at Site 300 are widespread, particularly in the northern and southeastern portion of Site 300. While this species is extremely rare throughout its range, it can be abundant at Site 300, especially in or near areas where periodic prescribed burns or wildfires have occurred. The distribution of big tarplant was mapped at Site 300 each fall from 2013 through 2017 (Carlsen and Paterson, 2018). As is typical with annual plant species, the abundance of big tarplant varies greatly between years depending on environmental conditions. For example, in 2013, the Site 300 big tarplant population was estimated to contain up to 158,810 individual plants, while the maximum populations size was estimated to be 1,727 in 2017. The distribution and abundance of big tarplant between 2013 and 2017 is similar to what was observed prior to 2013. Big tarplant is abundant surrounding Building 851 (OU 8), within and surrounding the Building 834 complex (OU 2), in the Building 832 Canyon (OU 7), and surrounding Building 801 (OU 8).

Diamond-petaled California poppy

Although the diamond-petaled California poppy is not listed under the federal or California Endangered Species Acts, it is extremely rare and is currently known to occur only at Site 300 and in a few locations in Contra Costa and San Luis Obispo Counties. Four isolated populations of this species are known to occur at Site 300. All four populations occur in undeveloped areas near the western perimeter of Site 300 and do not occur within any OU. As with the big tarplant and other annual plants,

the number of diamond-petaled California poppy plants varies considerably from year to year as a result of changing environmental conditions. A spring census of the three largest populations has been conducted annually since 1998, with the fourth population censused depending on available resources. The largest number of diamond-petaled California poppies ever recorded at Site 300 was observed during both the previous and current review periods. In the previous review period, between 20,000 and 45,000 diamond-petaled California poppies were observed in 2012. In the current review period, 45,994 plants were observed in 2015. The lowest number of diamond-petaled California poppies ever recorded was also observed during the current review period, in 2017, when a total of only 3 plants were observed across all three sites that were censused. The relatively large numbers of diamond-petaled California poppies in both 2012 and 2015 were likely attributable to the low annual grass cover in both years, which was much less than typical as a result of low rainfall both years.

Adobe navarretia

During the previous review period, an herbarium specimen collected at Site 300 in 1986 was re-identified as the rare species, adobe navarretia *(Navarretia nigelliformis* ssp. *radians).* As a result, the Site 300 population of navarretia was entered into the CNDDB as adobe navarretia. Adobe navarretia is a spring flowering annual plant with a CRPR of 1B. A more common subspecies of *Navarretia nigelliformis* ssp. *nigelliformis* was previously thought to occur at Site 300. Based on recorded observations of the Site 300 navarretia species (now considered to be the rare subspecies) in 1986 (BioSystems, 1986a) and 2002 (Jones and Stokes, 2002a), adobe navarretia is expected to occur in one location in the northwest corner of Site 300, outside of any OU. One population of adobe navarretia located near the northwestern corner of Site 300 was censused in 2015 when approximately 4,500 plants were observed in this one population. Sitewide surveys for adobe navarretia have not been conducted at Site 300 since 2002.

4.2.4.1.3. Special-Status Vertebrate and Invertebrate Wildlife Species

Special-status vertebrate and invertebrate wildlife species known to occur at Site 300, including state and federally listed species and other species of special concern, are listed in Table 4.2-3. Figure 4.2-3 shows the distribution of pools and wetlands at Site 300 that are known and potential habitat for aquatic invertebrates and amphibians. Figure 4.2-5 shows the distribution of selected special-status terrestrial invertebrate and vertebrate species. Figure 4.2-6 shows avian point count survey locations and incidental raptor observations and (other than burrowing owl observations, which are shown on Figure 4.2-7) at Site 300 that were mapped during the current review period.

4.2.4.1.4. Special-Status Invertebrates

Branchiopods

Branchiopod surveys of Site 300 pools were initially conducted in 2002 and 2003 in support of the SWEIS (Weber, 2002 and 2003). These surveys did not detect any special-status branchiopods. Two branchiopod species that are not special-status, the California fairy shrimp (*Linderiella occidentalis*) and the California clam shrimp (*Cyzicus californicus*) were found in Pool A and several smaller pools located in the northwest corner of Site 300, outside any OUs (Figure 4.2-3). During the 2013 review period, surveys for special-status branchiopods were conducted in the 2009-2010 wet season at the overflow area of Pool A, and at Pool M3 (located on the northern boundary of the GSA OU ([OU 1]). California linderiella was the only branchiopod observed, and it was only observed in the Pool A

overflow (Paterson and Woollett, 2014). In 2016, wet and dry season surveys for special-status branchiopods were conducted in six Site 300 pools: Pools A, H, M2, HC1, D, and Lower D (Figure 4.2-3). During wet season surveys, California linderiella were observed in Pool D, Pool A, Pool H and Pool M2. Cysts belonging to the California linderiella were found in Pool D, Lower D, A, and H during dry season survey. The California linderiella is fairly common and widespread in California and has not state or federal status. No special status branchiopods were observed at Site 300 during the 2016 surveys (Walther, 2016).

Valley elderberry longhorn beetle

The only special-status invertebrate species known to occur at Site 300 is the federally threatened valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*). This species was known at Site 300 at the time of the 2013 Five-Year Ecological Review. The presence of valley elderberry longhorn beetles was identified during surveys in 2002 for the SWEIS. Valley elderberry longhorn beetles were observed on-site in riparian habitat in the east central portion of Site 300 (in the Building 812 area), and off site adjacent to the GSA OU (OU 1). No additional surveys for valley elderberry longhorn beetle were conducted during the current review period. In addition to Building 812 and off site adjacent to OU 1, elderberry trees occur within the HEPA OU (OU 4), west of the Building 854 OU (OU 6), and in the southeastern portion of the Building 854 OU (OU 6) (Figure 4.2-5).

The valley elderberry longhorn beetle was proposed for delisting in October 2012. In September 2014, the U.S. FWS withdrew its proposal to delist the valley elderberry longhorn beetle. After a review of information, the Service concluded that the information used in the October 2012 delisting proposal was not strong enough to warrant the removing the valley elderberry longhorn beetle from the Federal List of Threatened and Endangered Species (79 FR 55873).

4.2.4.1.5. Special-Status Amphibians

Eight species of amphibians have been observed at Site 300 (LLNL, 2018). Three special-status amphibian species are known to occur at Site 300, including the federally threatened California red-legged frog, the federal and state threatened California tiger salamander (*Ambystoma californiense*), and the California Species of Special Concern Western spadefoot toad (*Spea hammondii*) (Table 4.2-3). All three were known to occur at Site 300 at the time of the 2013 Five-Year Ecological Review. A fourth species, the Coast Range newt (*Taricha torosa*), was considered a California Species of Special Concern during the 2013 Five-Year Ecological Review, but this status was removed during the current review period. Currently, only coastal populations of the Coast Range newt found south of the Monterey Bay are considered a California Species of Special Concern (CDFW, 2018b). In 2017, the foothill yellow-legged frog (*Rana boylii*) became a candidate for listing as threatened under the CESA. This listing is still under consideration. Although the foothill yellow-legged frog has been observed in Corral Hollow Creek adjacent to the GSA OU (Figure 4.2-3), this species has not been observed at Site 300.

Three conservation areas are maintained at Site 300 as compensation for projects included in previous U.S. FWS consultations: the Western Conservation Area (including Pools M2 and HC1), the Central Conservation Area (including Pools M1a and b), and the Eastern Conservation Area (including Pool M3) (Figure 4.2-3). These conservation areas support breeding habitat for special-status amphibian species at Site 300 and were established or enhanced for the following purposes:

- The Central Conservation Area includes approximately two acres encompassing a perennial spring within the Elk Ravine Creek. The Central Conservation Area (which includes aquatic breeding and non-breeding areas for the California red-legged frog) was established as compensation for terminating artificial cooling tower water releases to ground. Portions of the Central Conservation Area are located in the Building 812 OU (OU 9, not covered by the 2009 CMP).
- The Eastern Conservation Area includes 48.5 acres near the Site 300 southeastern boundary. This conservation area was established in 2014 as compensation for the Building 850 PCB-bearing soil remediation project. This conservation area includes breeding and upland habitat for the California red-legged frog and the California tiger salamander at Pool M3. A portion of the Eastern Conservation Area is located within the Central and Eastern General Services Area OU (OU 1).
- Pool HC1, located in the Western Conservation Area, was enhanced in the summer of 2006 as an aquatic conservation site for listed amphibians and in part as compensation for culvert repairs. This pool provides aquatic breeding and non-breeding areas for the California red-legged frog and the California tiger salamander. Pool HC1 is located at the western perimeter of the site outside of any OU.
- Pool M2, also located in the Western Conservation Area, was enhanced as compensation for potential impacts to California tiger salamanders that occurred as a result of the closure of surface impoundments located within the Site 300 High Explosives Process Area (OU 4). This pool provides aquatic breeding and non-breeding areas for the California red-legged frog and the California tiger salamander. Pool M2 is outside of any OU and west of the Pit 7 Complex portion of OU 5. A small corner of the Western Conservation Area overlaps with the Building 854 Area (OU 6).

California red-legged frog

The distribution of California red-legged frog upland habitat, aquatic non-breeding habitat, and aquatic breeding habitat is similar to the distributions of these habitat types during the 2013 review period, and California red-legged frog occurrence in these habitats is expected to be similar to that of the 2013 review period.

All of Site 300 is within the 2010 California red-legged frog critical habitat designation, and, based on definitions presented in the 2010 critical habitat designation, upland dispersal habitat for the California red-legged frog occurs throughout Site 300 (75 CFR 12816). In addition, all on-site pools and wetlands provide potential aquatic habitat for this species, and aquatic breeding habitat for California red-legged frogs is known to occur at five locations at or adjacent to Site 300 (Pool M1a and M1b, CR, CP, A, and SVRA) (Figure 4.2-3). Pools CR, M1a, and M1b are located in the Building 812 OU (OU 9, which is not covered by the 2009 CMP/CP), Pool CP is located outside of any OU and just west of the High Explosives Process Area (OU 4), Pool SVRA is located immediately east of the Pit 6 Landfill (OU 3), and Pool A is located outside of an OU in the northwest corner of Site 300.

At Pools M1a and M1b, surveys were conducted each rainy season during the current review period to determine if California red-legged frogs were breeding at the pools. These pools annually supported California red-legged frog breeding throughout the current review period. California red-legged frog

eggs masses were observed each winter at both Pool M1a and M1b during the current review period, and California red-legged frog tadpoles were also frequently observed. Adult red-legged frogs are found in these pools year-round in this location (Woollett, 2015; Paterson et al., 2019). This is consistent with the abundance of California red-legged frog at this location observed during the previous review period. A habitat enhancement project conducted at this location during the summer of 2014 helped to maintain habitat suitability in this location for California red-legged frog breeding.

During the previous review period, additional pools that were observed to support successful California red-legged frog reproduction during at least one breeding season were Pools A, SVRA, CR and CP (Paterson and Woollett, 2014). These locations continue to support potential aquatic breeding habitat for the California red-legged frog. Regular surveys were not conducted at Pools CR and CP during the current review period. Wildlife biologists at the Carnegie State Vehicular Recreation Area (SVRA) reported California red-legged frog breeding in Pool SVRA in 2012 and 2014 (de Silva, 2015). Although adult and subadult California red-legged frogs were observed at Pool A during the current review period, no California red-legged frog breeding was detected. Although no evidence of California red-legged frog breeding was detected during the current review period, this pool continued to support habitat suitable for red-legged frog breeding. Because of breeding observations during the previous review period, presence of adult California red-legged frogs at this location during the current review period, and the suitability of this habitat for California red-legged frog breeding, Pool A continues to be considered red-legged frog breeding habitat.

Sitewide breeding amphibian surveys were not conducted during the 2012-2013 and 2013-2014 rainfall seasons because most amphibian seasonal breeding pools at Site 300 did not fill during these years due to lower than average rainfall. Although sitewide breeding amphibian surveys were not conducted during the 2014-2015 rainfall season, one adult and two subadult California red-legged frogs were observed at Pool M2 during a nocturnal survey conducted during the 2014-2015 rainfall season. (Paterson et al., 2019)

Breeding amphibian surveys were conducted during the 2015-2016 rainy season, in conjunction with branchiopod surveys, at six Site 300 pools (Pool A, H, M2, D, Lower D, and HC1) and separately at Pool M3. During these surveys, one subadult California red-legged frog was observed at Pool A. No California red-legged frog egg masses were observed in these seven Site 300 pools during the 2015/2016 rainy season.

During the 2016-2017 rainy season, breeding amphibian surveys were conducted at nine Site 300 pools (Pool A, H, M3, D, Lower D, HC1, S, M3 and OS) in addition to Pools M1a and M1b. No California red-legged frog egg masses were observed during these surveys outside of Pools M1a and M1b, but one subadult California red-legged frog was observed at Pool M2.

Several Site 300 pools that previously supported breeding populations of California red-legged frogs during the 2008 review period failed to support breeding during the 2013 review period (pools SG, S, OS, D, H M3, OS, O and J, [Paterson and Woollett, 2014]). Pools SG, S, OS, D, H, O and J were also not thought to provide potential California red-legged frog aquatic breeding habitat during the current review period. Pool S typically requires an above-average annual rainfall year to fill. Pool S filled once during the current review period. Late in the 2016-2017 rainy season, Pool S became inundated and remained inundated through May 2017. Despite the presence of water, neither California red-legged frogs nor their eggs masses were observed during breeding amphibian surveys conducted

at this location (Paterson et al., 2019). Pool OS continues to be in a heavily developed area with generally insufficient rainfall input, and Pool D and Pool H continue to be too small and shallow to support California red-legged frog breeding.

Pool SG, located in the Building 850/Pit 7 Complex OU (OU 5) just west of Building 865, supported California red-legged frog during the 2008 review period, but this spring-fed wetland did not produce enough water during the 2013 review period or the current review period to support California red-legged frog breeding. Pool O and Pool J supported California red-legged frog breeding during the 2008 review period but did not support breeding in the 2013 review period largely due to loss of the pool depth (as a result of sedimentation and pig grubbing). Pools O and J continued have a shallow depth and were unsuitable for California red-legged frog breeding during current review period. Amphibian surveys were not conducted at during the current review period at Pools SG, O and J.

Pool M3 (located on the northern boundary of the GSA OU [OU 1]) did not provide suitable potential breeding habitat for the California red-legged frog during the 2013 review period because the pool was very shallow due to accumulated sediment. The habitat enhancement project conducted at Pool M3 in 2014 increased pool depth and the suitability of this location for California red-legged frog breeding. Despite the increased suitability of this pool as California red-legged frog aquatic breeding and non-breeding habitat, there were no observations of California red-legged frogs or their egg masses during surveys in the current review period (Paterson et al., 2019).

California tiger salamander

As in the previous review period, the California tiger salamander is known to successfully breed and utilize associated upland habitat in the southeastern and northwestern portions of Site 300 (Figure 4.2-3). These areas include portions of the Building 850/Pit 7 Complex OU (OU 5), the HEPA OU (OU 4), the Building 832 Canyon OU (OU 7), the GSA OU (OU 1), and the very southern portion of the Building 834 OU (OU 2). Although upland and breeding habitat for this species occurs at Site 300, the current (2005) critical habitat designation for California tiger salamander does not include any portion of Site 300 (70 FR 49380).

Adult California tiger salamanders spend most of the lives in small mammal burrows in upland grassland habitat and migrate to breeding pools during periods of wet weather. The 2005 critical habitat designation defines California tiger salamander upland dispersal habitat as areas within 1,100 meters of breeding pools (70 FR 49380). Several seasonal pools at Site 300 support California tiger salamander breeding. The amount of water contained in these pools varies from year to year depending on annual rainfall amounts. These pools often fill in the late fall or early winter with the onset of winter rains and continue to be inundated into the summer. On years with less than average rainfall, most pools do not fill to the depth or duration required to support amphibian breeding.

During the current review period, Pools A, H, and M2 continued to supported California tiger salamander breeding. Three additional pools that were not considered suitable for California tiger salamander breeding during the previous review period supported California tiger salamander breeding during the current review period: Pool HC1, OS and M3. Restoration projects at Pool HC1 and Pool M3 improved the suitability of these sites for California tiger salamander breeding during the current review period, and California tiger salamander breeding was observed in Pool OS despite the developed nature of this location. California tiger salamander breeding was first observed at Pool HC1

during the current review period. Because of the addition of this location as a California tiger salamander breeding pool in the current review period, the area within 1,100 meters of Pool HC1 is also now considered potential upland habitat for the California tiger salamander. This represents an increase in the area of California tiger salamander upland habitat compared to the previous review period.

Site 300 California tiger salamander breeding pools did not fill during the 2012-2013 and 2013-2014 rainfall seasons due to low rainfall. For the remaining three years of the current review period, rainfall amounts were high enough to allow for California tiger salamander breeding success at several locations at Site 300.

Sitewide California tiger salamander survey results were not recorded during the 2014-2015 rainfall season, but successful California tiger salamander breeding was observed at Pool A, H, M2 and M3 in 2015. Breeding amphibian surveys were conducted in conjunction with branchiopod surveys during the 2015/2016 rainy season at six Site 300 pools (Pool A, H, M2, D, Lower D, and HC1). Separate breeding amphibian surveys were conducted at Pool M3 during the 2015/2016 rainy season. During the 2015/2016 rainy season, California tiger salamander eggs and larvae were observed in Pool A, H, M2, HC1, and M3. California tiger salamander larvae were expected to reach maturity at these location in 2016 due to the duration of inundation. During the 2016-2017 rainfall season, breeding amphibian surveys were conducted at nine Site 300 pools (Pool A, H, M3, D, Lower D, HC1, S, M3 and OS). During the 2016-2017 rainfall season, California tiger salamander eggs were observed in Pools A, H, M2, OS and M3. Pools HC1 and M3 did not remain inundated for long enough in 2017 to allow for California tiger salamander larvae to successfully mature, but successful California tiger salamander breeding was expected at Pools A, H, M2, and OS.

Foothill yellow-legged frog

Although foothill yellow-legged frogs have been known to occur in Corral Hollow Creek at Carnegie SVRA, southwest of Site 300 and within the California Department of Fish and Wildlife Ecological Reserve east of Site 300, this species has not been observed at Site 300 during extensive amphibian monitoring conducted since the 1980s. The California Natural Diversity Database (CNDDB) contains a record of a foothill yellow-legged frog observations in Corral Hollow Creek at the Corral Hollow Ecological Reserve adjacent to Site 300 from the 1970s (CNDDB, 2018). Amphibian surveys of this area were not conducted by LLNL biologists during the current or 2013 review periods. More recently, a foothill yellow-legged frog was observed in Corral Hollow Creek approximately 2.4 miles upstream (southwest) of Site 300 in 2014 (de Silvia, 2015).

Western spadefoot

At the time of the 2008 Five-Year Ecological Review, western spadefoot toads (a California Species of Special Concern) had been observed in pools located along the southern boundary of Site 300. No breeding surveys for western spadefoot toads were conducted during the 2013 review period. Western spadefoot toads were observed in Pool M3, located on the northern boundary of the GSA OU (OU 1), during branchiopods surveys conducted in 2010. In 2010, eggs were observed in February, tadpoles were observed in March, and metamorphs were observed in May. Western spadefoot toad eggs were also observed during the current review period at Pool M3. Western spadefoot toad eggs were observed at Pool M3 in February of 2017, but the pool did not contain surface water for long enough for any spadefoot toad tadpoles to survive to maturity. Western spadefoot toads

were observed in pools along Corral Hollow Creek south of Site 300 by Carnegie SVRA biologist during the winter of 2015 (de Silva, 2015)

4.2.4.1.6. Special-Status Reptiles

Twenty-one species of reptiles have been observed at Site 300 (LLNL, 2018). Of these, five are special-status species. These are the state and federally threatened Alameda whipsnake (*Masticophis lateralis euryxanthus*), and the California Species of Special Concern Coast horned lizard (*Phrynosoma blainvillii*), San Joaquin coachwhip (*Masticophis flagellum ruddocki*), Northern California legless lizard (*Anniella pulchra pulchra*), and the Western pond turtle (*Emys marmorata*) (Table 4.2-3). All five species were known to occur at Site 300 at the time of the 2013 Five-Year Ecological Review.

Alameda whipsnake

The Alameda whipsnake is one of two subspecies of California whipsnake. The other subspecies, the chaparral whipsnake (*M. l. lateralis*), also occurs at Site 300. The range of both subspecies' overlap on site and a federally protected intergrade species with morphological traits of each parent species occurs. The intergrade species was trapped as part of a study on the effects of prescribed burning beginning in 2002 during the previous review period (Paterson et al., 2009). The study area overlapped with the western perimeter of the Building 854 OU (OU 6).

No surveys for Alameda whipsnakes were conducted during the current review period. Suitable Alameda whipsnake habitat continues to be present within the southwestern corner of Site 300. The southwestern corner of Site 300 is designated as critical habitat for the Alameda whipsnake and includes the constituent elements of habitat suitable for the Alameda whipsnake (71 FR 58175) (Figure 4.2-5). All of the Pit 6 (OU 3) and Building 854 (OU 6) operable units, and the Building 851 portion of OU 8 are located within this critical habitat. The very southwestern corner of the Building 850 OU is also located within the whipsnake critical habitat. This species is most likely to occur within the larger patches of coastal sage scrub with rock outcrops and grassland adjacent to these coastal sage scrub patches, which is the snake's primary habitat (Figure 4.2-5). Much of the Building 854 OU is located within the 150-meter buffer surrounding the coastal scrub habitat, as is the HE Burn Pit portion of OU 4.

Coast horned lizard

The Coast horned lizard (a California Species of Special Concern) has also been observed throughout Site 300, typically observed during the annual fire trail and rare plant surveys conducted in the late spring, as this time period corresponds with the spring activity period of the species. During the 2013 review period, the Coast horned lizard was observed during spring rare plant surveys in northwest portion of Site 300, northwest of the Building 850/Pit 7 Complex OU (OU 5). Additional incidental Coast horned lizard observations were also made during fire trail and other routine surveys in the current review period, but their locations have not been mapped. The distribution of Coast horned lizard is expected to be similar to that reported in the 2013 Five-Year Ecological Review. Four incidental observations of Coast horned lizards were recorded during the current review period. One Coast horned lizard was observed immediately west of Building 851 (within the Building 851 portion of OU 8) during a pre-activity wildlife survey conducted in 2014. In 2015, a young of the year Coast horned lizard was observed northwest of Building 851 beyond the boundary of the Building 851 portion

of OU 8. Two Coast horned lizards were observed near the eastern perimeter of the site outside of any OU during the 2017 fire trail survey.

San Joaquin coachwhip

As with the Coast horned lizard, the San Joaquin coachwhip (a California Species of Special Concern) has been observed throughout Site 300, typically observed during the fire trail surveys conducted annually in the late spring. The species was recorded along the southern boundary of the site in the GSA (OU 1) and near the boundaries of the Pit 6 (OU 3) and HEPA (OU 4) operable units, as well within the Building 854 OU (OU 6) and near Pit 2 (OU 8) during the previous review period. The majority of the observations were within grassland and coastal sage scrub habitats. No additional observations of the species were made during the current review period.

Silvery legless lizard

During the 2008 review period, the California legless lizard (a California Species of Special Concern) was observed during trapping for the Alameda whipsnake conducted between 2002 and 2006 in coastal sage scrub habitat within the Building 854 OU (OU 6). Although no additional observations have been made since this time, this reclusive species is likely to occur within areas of coastal sage scrub.

Pacific pond turtle

The pacific pond turtle (a California Species of Special Concern) was observed at Pool O during the 2008 review period. This pool is in the southwestern portion of Site 300 outside any of the OUs. No incidental observations of this species were made during the current review period. This species is found in a variety of aquatic habitats throughout its range including pools, lake, artificial water bodies, and rivers (Paterson and Woollett, 2014).

4.2.4.1.7. Special-Status Birds

Of the one hundred and nineteen bird species observed at Site 300, the majority (114 species) are protected under the Migratory Bird Treaty Act (LLNL, 2018; GANDA 2016a). This act primarily protects bird species from collection, hunting, or other harassment, and includes species that are not necessarily rare. Twenty-one bird species are also included on various state and federal special-status species lists due to a decline in their numbers, and are, or are in danger of, becoming threatened or endangered (Table 4.2-3).

Three special-status bird species that have not been previously noted in Five-Year Ecological Reviews or Site Annual Environmental Reports were observed at Site 300 during the current review period: the long-billed curlew (a federal Bird Species of Conservation Concern); the American pelican (a California Species of Special Concern); and the Peregrine falcon (a California Fully Protected Species and federal Bird Species of Conservation Concern). The American pelican and long-billed curlew were not previously reported at Site 300. Peregrine falcons were not reported in previous Five-Year Ecological Reviews, but historically, there have been very infrequent observations of the species at Site 300 (Woollett, 2019). Although uncommon in the Site 300 area, all three species are known to occur regionally, and observations of these birds are not unexpected. One bird species that did not have any regulatory status in 2013, the long-eared owl, was reclassified as a California Species of Special Concern during the current review period.

Although no bird species protected by the federal Endangered Species Act are known to occur at Site 300, two bird species that are protected under the California Endangered Species Act are regularly

observed at Site 300: the tricolored blackbird and the Swainson's hawk. A third species protected by the California Endangered Species Act, the willow flycatcher, was observed once at Site 300 during the 2008 Five-Year Ecological review period, and is expected to be an uncommon visitor to the site. Two species that are California Fully Protect Species, the golden eagle and the white-tailed kite, are also known from Site 300. The golden eagle is common at Site 300, and the white-tailed kite is a regularly but infrequently observed at Site 300.

Eight bird species that have been observed at Site 300 are California Species of Special Concern (CDFW, 2018a), including the long-eared owl and American pelican. Of these eight species, three, the northern harrier, burrowing owl, and the loggerhead shrike, are frequently observed at Site 300 and are also known to nest at Site 300.

Fifteen bird species that have been observed at Site 300 are considered federal Bird Species of Conservation Concern (U.S. FWS, 2008). Bird Species of Conservation Concern includes species that without conservation actions are likely to become candidates for listing under the Federal ESA. These species are not considered special-status species; instead this list is considered a watch list of uncommon species.

Avian surveys conducted during the current review period include multi-species point count surveys for large and small birds, large bird migration surveys, eagle territory use and occupancy assessments, nesting burrowing owl surveys, and nesting tricolored blackbird surveys. Most of the species observed during these surveys (particularly the raptors) are expected to be wide-ranging. Information on the location of observations is provided below when available. Except for burrowing owl and tricolored blackbird surveys, sitewide nesting bird surveys have not been conducted during the current review period. The location of nesting raptors was recorded when observed during sitewide fire trail surveys conducted in 2017, and other incidental observation were recorded in 2013.

Large Birds

Ten special-status raptor species are known to occur at Site 300. All were known to occur at Site 300 at the time of the 2013 Five-Year Ecological Review except for the peregrine falcon which was not reported in previous documents.

Two types of point count surveys were performed from 2014 to 2016 at Site 300: 800-meter radius surveys for birds larger than crow-sized and 100-meter radius surveys for birds smaller than crow-sized (Figure 4.2-6, GANDA, 2016a). Twelve species were observed during the large bird point counts. The most common species observed based on minutes of activity (min) observed in the survey area across both years were common raven (5,610 min), red-tailed hawk (2,432 min), turkey vulture (285 min), northern harrier (160 min), rough-legged hawk (134 min), golden eagle (132 min) and prairie falcon (23 min). There were a few minutes of activity and observations of Cooper's hawk (6 min), ferruginous hawk (3 min), sharp-shinned hawk (1 min), Swainson's hawk (1 min), and western gull (1 min). Raptor migration surveys were also conducted during the fall of 2014 and 2015. A total of 19 fall migration surveys were conducted including over 307 surveys hours. During migration surveys, several special status raptors were observed. One peregrine falcon, 3 ferruginous hawks, and eight prairie falcons were observed during these surveys. Much more common raptor observation included red-tailed hawks (114 observations) and golden eagles (58 observations). One Swainson's hawk was also observed during point count surveys. Point count and migration survey data have not been analyzed by individual

survey location (Figure 4.2-6), and thus bird species observed within the corresponding OU is not available (GANDA, 2016a).

During the previous review period, a nesting attempt by a Swainson's hawk pair occurred in the southern part of Paper Canyon in 2009. The nest site was located in an area southwest of the HE Burn Pit (OU 4) and northeast of Pit 6 (OU 3), outside of any OU. The timing of the nesting attempt overlapped with Site 300's annual prescribed burns designed to reduce grassland fuels around key facilities and protect infrastructure from dry season wildfire incidents. As a result, the Paper Canyon burn, serving as the western flank of fire protection to the HEPA, was not burned in 2009. Despite these protective measures, the Swainson's hawk nest attempt was observed to have failed (no recorded eggs laid) and the nest site soon abandoned (Paterson and Woollett, 2014). There have been no known Swainson's hawk nesting attempts at Site 300 since 2009, but this species is regularly but infrequently observed foraging at Site 300 especially during the summer. Swainson's hawks were observed during both point count and migration surveys described above (GANDA, 2016a), and there were incidental observations of adult and fledgling Swainson's hawks foraging over the northern perimeter in July of 2017 (Paterson et al., 2019).

In 2014, a bald and golden eagle territory-use and occupancy assessment identified 42 occupied golden eagle territories and one bald eagle territory within 10 miles of Site 300 (GANDA, 2014). In 2015, utilization and distribution surveys refined the understanding of the boundary and use of the occupied golden eagle territory that was found to overlap with Site 300. These assessments determined that a territorial pair of golden eagles' nest off-site to the west of Site 300 and use Site 300 primarily for hunting (GANDA, 2015). The territory of this nesting pair included most of the Building 850/Pit 7 Complex OU (OU 5), all the Building 854 OU (OU 6), all of the Pit 2, Building 801, Building 851 areas of OU 8, and a portion of the Pit 6 OU (OU 3). Golden eagles were also commonly observed during migration and point count surveys described above. (GANDA, 2016a)

Burrowing owls are of particular interest, as they nest in the ground, and thus have a higher potential for exposure to contaminants compared to other raptors. Burrowing owls occupy breeding territories in grasslands located in the northern portion of Site 300. Sitewide nesting burrowing owl surveys were conducted in 2014, 2015 and 2017. The location of nesting burrowing owl pairs was recorded during 2014 and 2015 surveys, but nest success was not tracked. Four nesting pairs were observed in 2014 (LLNL, 2014b), and six nesting pairs were observed in 2015 (LLNL, 2015b). In 2017, nesting burrowing owl surveys were conducted from April through July and nesting success was recorded. In 2017, 14 nesting burrowing owl pairs were observed at Site 300 primarily in grasslands that are annually burned as part of the Site 300 prescribed burn. Nesting burrowing owls at Site 300 were very successful in 2017. Thirteen of the 14 nesting burrowing owl pairs observed reared at least one fledgling, and these 13 pairs reared 60 fledglings (Paterson et al., 2019) (Figure 4.2-7**)**. The population of nesting burrowing owls in 2017 represents an increase from what was observed during the previous review period (Paterson and Woollett, 2014). Burrowing owls are frequently observed throughout the Building 850/Pit 7 Complex OU (OU 5) and have been observed in the Building 854 OU (OU 6) and near the Building 851, Building 845, Building 801, and Pit 2 areas of OU 8.

Ferruginous hawks often make stops at Site 300 during migration and can be winter residents at Site 300. During the fall and winter, ferruginous hawks are often observed in the open grasslands found in the north half of Site 300. Prairie falcons are known to nest to the east and south of Site 300 and

have been occasionally observed foraging on-site. One short-eared owl was observed in 2016 near the northern perimeter of Site 300 during fall rare plant surveys for big tarplant.

The white-tailed kite (a California Fully Protected Species) established a nest during the previous review period in 2011 in the southern portion of the HEPA OU (OU 4) near the Site 300 boundary (Paterson and Woollett, 2014). No white-tailed kite nesting attempts were observed during the current review period. Although this species was not observed during 2014-2016 point count or migration surveys, this species is known to occur regional and is expected to occasionally occur at Site 300.

Incidental observations of red-tail hawk and great-horned owl nests from 2013 and 2017 are shown on Figure 4.2-6. Red-tailed hawk nest locations were not recorded in 2014, 2015, and 2016. Red-tailed hawk nests were observed in the Building 854 OU (OU 6) and the Building 812 OU (OU 9, this OU is not covered by the 2009 CMP/CP). One red-legged hawk nest was also observed at the southern perimeter of Site 300 west of Pit 6 (OU 3). The location of two great-horned owl nests was recorded in 2017. One of these nest sites was located within the Building 854 OU. Three short-eared owls were observed just west of Pit 7 by an LLNL biologist while traveling to Pool M2 for amphibian surveys during the winter of 2017.

Other Bird Species

Twenty-eight bird species were observed during the small bird point count surveys conducted from 2014 to 2016. The most common species by minutes of bird activity across both years were white-crowned sparrow (1,532 minutes), savannah sparrow (633 minutes), Brewer's blackbird (405 minutes), western meadowlark (116 minutes), rock wren (270 minutes), horned lark (158 minutes), and Say's phoebe (149 minutes).

Two special status-species, the loggerhead shrike and the tricolored blackbird, were observed less frequently during point count surveys. Loggerhead shrikes continue to be regularly observed throughout Site 300 particularly near coast scrub, juniper scrub, oak woodland, and riparian habitats. One nesting pair of loggerhead shrikes was observed in riparian habitat within the Building 812 OU (OU 9, this OU is not covered by the 2009 CMP/CP) during 2017 tricolored blackbird surveys.

Annual surveys were conducted during the current and 2013 review period to determine the nesting success of the known tricolored blackbird colony located in the east central portion of the site within the Building 812 area (Figure 4.2-5). Tricolored blackbirds were observed to successfully nest in this colony in 2009, 2010 and 2011 during the previous review period (Paterson and Woollett, 2014) and in 2013, 2014, 2016 and 2017 (Paterson et al., 2019).

Point count surveys conducted during the current review for small birds were all located within grassland habitat and did not occur within shrub for tree dominated habitats preferred by the three special-status hummingbird species, Nuttall's woodpecker, oak titmouse, willow flycatcher, or yellow warbler. The distribution of these special-status species at Site 300 is expected to be similar to the previous review period. Although the grasshopper sparrow, a grassland species, was not observed during point count surveys during the current review period, this species is expected to infrequently occur within Site 300 grasslands. Grasshopper sparrows were observed in localized groups in the northern third of the site during previous review period.

The willow flycatcher was captured in the 2008 review period during mist-netting in riparian habitat in the east central portion of the site in the Building 812 OU (OU 9, this OU is not covered by the 2009 CMP/CP). It is not known to nest at Site 300. Yellow warblers also occur in riparian habitat,

with confirmed observations during the 2008 review period outside of the OUs covered by the 2009 CMP/CP.

Mammals

Thirty-three species of mammals have been observed at Site 300 (LLNL, 2018). Three special-status mammal species are known to occur at Site 300, the American badger *(Taxidea taxus),* pallid bat *(Antrozous pallidus*), and Western red bat *(Lasiurus blossevillii*). All are California Species of Special Concern. Potential dens and suitable habitat for the federally endangered San Joaquin kit fox *(Vulpes macrotis mutica)* occurs at Site 300, but this species has not been detected at Site 300 despite numerous surveys at the site and in the immediate vicinity. The American badger, the pallid bat, and the Western red bat were known to occur at Site 300 at the time of the 2013 Five-Year Ecological Review.

The American badger was observed in grasslands throughout the site during site-wide mesocarnivore studies conducted in 2002 (Clark et al., 2002). Badgers were observed during night spotlight surveys in the Building 850/Pit 7 OU (OU 5), the Building 854 OU (OU 6), west of the HEPA OU (OU 4), and north of the Pit 6 OU (OU 3), as well as throughout grasslands within OU 8 and outside of the OUs. A total of 10 badger sightings were made, and the authors concluded that Site 300 is supporting a healthy population of badgers. Mesocarnivore surveys were not conducted during the current review period. Incidental observations of American badgers and their burrows were made throughout the current review period. For example, American badgers and their burrows were observed near the northeastern corner of the site, outside any OU, in 2017 during Site 300 fire trail surveys (Paterson et al., 2019). This species is expected to have been wide ranging throughout grassland habitat at Site 300 during the current review period.

The calls of two bat species which are California Species of Special Concern were detected during active acoustic surveys conducted throughout Site 300 in 2002: the pallid bat (*Antrozous pallidus*) and the western red bat (*Lasiurus blossevillii*). No bats were captured in mist nets deployed in several locations throughout Site 300 during this study, and no roosting bats or bat sign indicating roosting were observed when examining examples of structures at Site 300 both day and night (Rainey and Pierson, 2004). The call of the pallid bat was detected in the GSA OU (OU 1), northwest of Pit 2 (OU 8) just north of the Building 850 OU boundary (OU 5), and in the riparian area in the east-central portion of the site (within OU 9, this OU is not covered by the 2009 CMP/CP). The call of the Western red bat was detected in the GSA OU (OU 1), and northwest of Pit 2 (OU 8) just north of the Building 850 OU boundary (OU 5).

Passive acoustic monitoring to identify bat species was conducted in 2015 and 2016 at the Site 300 meteorological tower, near the western perimeter of the Building 850 OU (OU 5). During this monitoring, 1,012 bat calls were recorded. Although the calls of the pallid bat and western red bat were not detected in 2015 or 2016, these findings do not demonstrate a change from 2002. Differences in survey location, timing, and equipment are likely to account for the change in detections compared to 2002 surveys (GANDA, 2016b).

4.2.4.1.8. Summary of Changes in Biological Conditions and Regulatory Status

The distribution of special-status plant and animal species at Site 300 during the current review period was not significantly different from those observed in the 2013 Five-Year Ecological Review. The status of several species previously known to occur at Site 300 changed during the current review

period, and surveys for special-status plant and animal species confirmed previous conclusions about the distribution and abundance or rare and protect plants and animals at Site 300 except as noted below.

The status of one rare plant species, the round-leaved filaree, that was considered rare during the previous review period was downgrading from CRPR 1B to CBR (Consider But Rejected). This species is no longer considered rare.

No listed branchiopods were observed during surveys conducted in 2016. This is consistent with findings during the 2008 and 2013 review periods.

Extensive avian surveys were conducted at Site 300 during the current review period. The results of these surveys confirmed that several special-status bird species regularly occur at Site 300 including the northern harrier, golden eagle, burrowing owl, tricolored blackbird, Swainson's hawk, ferruginous hawk, and loggerhead shrike. Several additional special-status bird species are occasionally to infrequently observed at Site 300.

The population of nesting burrowing owls, a California Species of Special Concern, steadily increased during the current review period. This represents an expanded abundance and distribution of nesting burrowing owls compared to the 2013 review period but is not significantly different from historical burrowing owl population trends at Site 300. Nesting burrowing owls were regularly observed in the Building 850/Pit 7 Complex OU (within OU 5), near Building 845 (within OU 8), and west and south of Building 851 (outside of OU 8) during the current review period, consistent with previous review periods.

Three special-status bird species were first reported at Site 300 during the current review period: the peregrine falcon, American pelican, and long-billed curlew. The peregrine falcon is a California Fully Protect Species, the American pelican is a California Species of Special Concern, and the long-billed curlew is on the U.S. FWS Birds of Conservation Concern list (U.S. FWS, 2008). One bird species, the long-eared owl, did not have any regulatory status in 2013 and was reclassified as a California Species of Special Concern during the current review period. In addition, during the current review period, the California Fish and Game Commission adopted a finding to list the tricolored blackbird as threatened.

California red-legged frog and California tiger salamanders were both able to successfully breed at Site 300 locations that were able to sustain the longest period of inundation. Enough rainfall was received during three of the five rainy seasons within the current review period to allow seasonal pools at Site 300 to fill and provide suitable conditions for California tiger salamander breeding. Habitat restoration at three amphibian breeding pools, Pool HC1, M2, and Pool M3 have improved the suitability of these pools for California tiger salamander breeding. California tiger salamander breeding was observed at Pool HC1 and Pool M3. In addition, California tiger salamander breeding was observed breeding in Pool OS which was unsuitable for California tiger salamander breeding during the 2013 review period. This is a change from the previous review period.

One amphibian species, the Coast Range newt, was considered a California Species of Special Concern in 2013, but this regulatory status was dropped during the current review period.

The distribution of two special-status bat species and the American Badger, all California Species of Special Concern, is expected to be similar to the distribution of these species observed during the previous review period.

4.2.4.2. Evaluation of Changes in Chemical Conditions

Analytical data from surface soil, subsurface soil to 6 ft, and surface water samples collected by ERD between January 1, 2013 and December 31, 2017 were reviewed. The surface and subsurface soil analytical data were grouped as follows for the review: 1) Contaminants of concern identified in the 2009 CMP/CP, 2) other analytes evaluated in previous review periods for an OU, but in samples collected from new locations within an OU, and 3) new analytes not previously evaluated.

4.2.4.2.1. Surface Soil

Surface soil samples were collected from the Buildings 801, 802, 804, 845, and 851 areas within OU 8 during the current review period. A total of 12 surface soil samples (14 samples including duplicate samples) were collected from the northeast corner of Site 300 to reevaluate Site 300 background concentrations of metals and radionuclides and were included in this evaluation. For the purposes of this ecological review, although farther northeast, these sample locations were considered to reside within the Building 801 area of OU 8. A total of 46 surface soil samples including duplicate samples (with 50 samples including duplicate samples collected for uranium 238) were collected from the Building 851 firing table area. Of these, surface soil samples were collected from forty locations (44 samples including duplicates) as part of an investigation into the presence of uranium isotopes, metals, HE compounds, and perchlorate in the Building 851 area. Surface soil samples were also collected from two pilot boreholes for two new wells in the Building 851 area, for a total of 46 surface soil samples. At the request of the regulatory agencies, surface soil samples were collected from four areas within OU 8 (Building 802, 804, 845, and 851firing table areas) to evaluate the potential presence of PCBs. A total of 28 surface soil samples were collected from each area with the exception of the Building 802 area, where 29 surface soil samples were collected.

Table 4.2-4 shows the maximum concentration of analytes in surface soil samples collected during the current review period that are considered human health or ecological COCs in the 2009 CMP (Table 4.2-1). The maximum concentration of cadmium in surface soil samples from the Building 801 area, and the maximum concentration of cadmium, copper, zinc and high-explosives in surface soil samples from the Building 851 were lower than during the previous review period. These COCs continue to pose no ecological hazard. Only cadmium was considered an ecological COC in these areas, and subsequent evaluations have concluded cadmium in these areas do not pose an ecological hazard (Dibley et al., 2012; Dibley et al., 2013).

Uranium activities and concentrations in surface soil samples collected from the Building 851 area exceeded those observed in the previous review period by more the 50%. In addition, the maximum concentration exceeded the ESL for inorganic uranium established for the Building 812 investigation (Carlsen et al., 2012). An investigation of uranium and other potential chemicals of concern in soil at Building 851 will recommence after firing table operations cease there. In addition, as also mentioned above, Site 300 background levels are currently being reevaluated. The preliminary ecological hazard posed by uranium in the surface soil at Building 851 will be determined by comparison to screening levels after the conclusion of these activities.

In addition to the COCs listed in Table 4.2-1, analyses were performed on the surface soil samples collected from the Building 801 and Building 851 areas in new locations for analytes that had been evaluated in previous review periods in these areas. To evaluate these analytes, in addition to

comparing the maximum concentration (or maximum reported value in cases were an analyte was not detected) in the current review period to the maximum concentration detected in the previous review period for that specific area, the maximum concentration (or the maximum reported value) was compared to available ecological soil screening levels (ESLs). ESLs were selected from the U.S. EPA (Ecological Soil Screening Levels, or Eco-SSLs, U.S. EPA, 2019), Los Alamos National Laboratory ECORISK Database Release 4.1 (LANL, 2017), U.S. EPA Region 4 Ecological Risk Assessment Supplemental Guidance (U.S. EPA, 2018b), San Francisco Water Quality Control Board Environmental Screening Levels (San Francisco Bay RWQCB, 2016), and Oak Ridge National Laboratory (ORNL) Preliminary Remediation Goals for Ecological Endpoints (Efroymson et. al, 1997). The soil ESLs were given the following priority. First priority was given to the U.S. EPA Eco-SSLs (U.S. EPA, 2019). These ESLs were developed by a multi-stakeholder workgroup consisting of federal, state, consulting, industrial, and academic experts using a rigorous peer review process. ESLs from LANL's ECORISK database (LANL, 2017) were developed for ecological receptors most similar to those found at Site 300 and are regularly updated. These ESLs were given the next highest priority. Third priority was given to ESLs developed by U.S. EPA Region 4 (U.S. EPA, 2018b), which are also regularly updated and incorporate the Eco-SSLs as well as ESLs developed specifically for Region 4. Fourth priority was given to the San Francisco Water Quality Control Board Interim Final Shallow Soil Screening Levels for Urban Area Ecotoxicity. These values were included in the 2013 Interim Final Environmental Screening Levels document (San Francisco Bay RWQCB, 2013), but were not included in the final 2016 document (San Francisco Bay RWQCB, 2016). Fifth priority was given to the preliminary remediation goals for ecological receptors developed by ONRL in 1997 (Efroymson et. al, 1997).

Table 4.2-5 summarizes the evaluation of analytes in surface soil samples collected during the current review period that have been previously evaluated in surface soil for each specific OU area but in samples collected from new locations. As previously mentioned, surface soil sampling was conducted northeast of the Building 801 area with the goal of developing a new background concentration dataset for Site 300 soil. This effort is still ongoing. As can be seen in Table 4.2-5, most of the results from the current review period are within the range of the results observed in the previous review period, and are generally lower than observed in the previous review period. While some maximum concentrations and maximum reported values exceed available ESLs, generally the concentrations are within a range that would be acceptable for ecological receptors found at Site 300. However, additional evaluation, including a comparison to background concentrations pending the availability of accepted updated background concentrations for Site 300 surface soil, is needed before a conclusion about ecological hazard from these constituents can be finalized.

Similarly, additional evaluation is required for analytes detected in surface soil collected from the Building 851 area during the current review period before a conclusion can be reached concerning the potential ecological hazard from these constituents. The maximum concentration of most of metals detected during the current review period was generally less than that observed during the previous review period and less than available ESLs. However, the maximum uranium activity and concentration detected in the Building 851 surface soil during the current review period exceeded the previous review period by more than 50%. In addition, the maximum activity exceeded the ESL established for Building 812 (Carlsen et al., 2012). The potential ecological hazard from these analytes

in these Building 851 surface soil samples will be determined in a screening level risk assessment after reevaluation of Site 300 background levels, is complete.

Table 4.2-6 summarizes the evaluation of new analytes detected in surface soil samples collected during the current review period. These analytes were not sampled for during the previous review period, and thus have no historical values with which to compare. The maximum concentration or maximum reported value was compared to the available ESLs identified above.

Surface soil samples from the Buildings 802, 804, 845 and 851 areas of OU 8 were collected and analyzed for PCBs in 2013 at the request of the regulatory agencies. The only PCBs detected were PCB 1254 (2 detections out of 29 samples) and PCB 1260 (4 detections of 29 samples) in surface soil samples from the Building 802 area. The U.S. EPA elected not to develop numerical Eco-SSLs for PCBs, but instructed risk assessors to consider all detections to be site related, and to evaluate the potential ecological impact on a site by site basis (U.S. EPA, 2005i). ESLs for PCBs were developed by LANL (LANL, 2017), and while the maximum detected concentration of PCB 1254 was above the avian insectivore ESL (developed for the robin, which is not found in the East and West Firing Areas of Site 300), it only slightly exceeded the ESL for the deer mouse, which is found at Site 300 and is used as an ecological receptor in Site 300 ecological risk assessments. Due to the small number of detections, the areal extent of any PCBs in the Building 802 soil would be limited. Therefore, the detections of PCBs in the Building 802 surface soil is not ecologically significant, and there is no ecological hazard from PCBs in the 802, 804, 845 and 851 area surface soil.

Surface soil from the Building 851 area was analyzed for twelve new HE compounds (Table 4.2-6). Out of 46 samples, there was only a single detection of 2-amino-4,6-dinitrotoluene (2-ADNT) at 0.163 mg/kg. While there is no U.S. EPA Eco-SSL or LANL ESL, this single detection is below the U.S. EPA Region 4 developed lowest ESL (14 mg/kg). As there was only a single detection, the areal extent in surface soil would also be quite limited. The detection of 2-ADNT is not ecologically significant, and there is no ecological hazard from the new HE compounds analyzed for in surface soil samples from the Building 851 area. A number of new metals and radionuclides were also detected in the Building 801 and Building 851 area surface soil (Table 4.2-6). As with the metals and radionuclides that had been detected in previous review periods (Table 4.2-5), the completion of the reevaluation of Site 300 background levels is required before ecological hazard from metals and radionuclides in surface soil from these recent samples can be determined.

4.2.4.2.2. Subsurface Soil

Subsurface soil samples (>0.5 to 6 ft) were collected from the following five areas: The Eastern General Services Area (OU 1), the Building 850 area (OU 5), the Building 832 OU (OU 7), northeast of the Building 801 area (OU 8), and the Building 851 area (OU 8). Twenty-one samples were collected from thirteen boreholes in the Eastern General Services Area from one depth from seven boreholes (4.5 or 5 ft) and from two depths from six boreholes. Three samples were collected from three boreholes in the Building 850 area (OU 5) from one depth (5 ft). Four samples were collected from four boreholes in the Building 832 area (OU 7) from a depth of 3 feet. Four samples were collected from two boreholes drilled in the Building 851 area (OU 8) from a depth of 2.5 and 5 feet. Forty samples were collected from twelve boreholes drilled northeast of the Building 801 area (OU 8) from three depths (1, 2.5 and 5 ft) with four duplicates samples.

Table 4.2-7 shows the results of the evaluation of analytes considered COCs in subsurface soil in the 2009 CMP (Table 4.2-1). A broad definition of COC was used to identify the analytes included in Table 4.2-1. For example, if the 2009 CMP indicted "High Explosives" to be a COC, then any high-explosive-related compound that also had results from the previous review period was included in Table 4.2-7. Generally, the reporting limits during the current review period were higher than those in the previous review period. In this case, when the analyte was not detected in both review periods, percent differences were not calculated. The maximum concentration or maximum reporting limit was compared to available ESLs.

Subsurface soil samples from the Building 850 area were analyzed for three HE compounds (Table 4.2-7). Subsurface soil samples from the Building 832 OU were analyzed for VOCs. There were no detections of any of these analytes. While some of the reporting limits exceeded available ESLs (bromomethane, cis-1,3-dichloropropene, trans-1,3-dichloropropene), most were below available ESLs, or there was no ESL. It is reasonable to conclude there is no ecological hazard from these analytes.

Subsurface soil samples from the Building 851 area were analyzed for uranium and vinyl chloride during the current review period (Table 4.2-7). While vinyl chloride was not detected, the reporting limit during the current review period was greater than the previous review period. However, the reporting limit was below ESLs established by LANL, and thus there is no ecological hazard from vinyl chloride in the Building 851 subsurface soil. Maximum concentrations and activities of uranium isotopes in the current review period were less than that observed during the previous review period. However, the estimated total uranium concentration exceeds the uranium ESL established for Building 812 (Carlsen et al., 2012). As discussed above for surface soil, the ecological hazard from uranium in the Building 851 area soil will be determined after the development of updated Site 300 soil background levels.

Table 4.2-8 summarizes the results of the evaluation of new analytes in subsurface soil samples collected during the current review period that were not analyzed for in the previous review period. SVOC, PAHs and PCBs were evaluated for ecological hazard as part of the Fourth Five-Year Review for the General Services Area OU (Villarreal et al., 2017). The review concluded that the limited detections of PCBs in the subsurface soil did not pose an ecological hazard due to the types of terrestrial species found in the Eastern GSA and the expected limited areal extent of PCBs in the subsurface soil in the vicinity of the burial debris trenches.

Three subsurface soil samples from the Building 850 area were analyzed for new HE compounds and perchlorate. These analytes were not detected, and reporting limits were all below available ESLs. Four subsurface soil samples from the Building 832 OU were analyzed for seven new VOCs. These analytes were not detected, and RLs were below available ESLs. It is reasonable to conclude there is no ecological hazard from these analytes.

The forty subsurface soil samples collected from twelve boreholes northeast of the Building 801 area were analyzed for a variety of metals and radionuclides as part of the project to reevaluate Site 300 background levels in soil (Table 4.2-8). The maximum concentration of the new metals detected in these subsurface soil samples was generally less than the ESLs. The maximum activities of the various uranium isotopes were also below ESLs established by LANL, thus it is reasonable to conclude there is no potential ecological hazard from uranium as a radioisotope. However, total uranium

concentration exceeds the ESL established for Building 812 (Carlsen et al., 2012). Analytical data from these subsurface soil samples will comprise a portion of the background data set.

Four subsurface soil samples from the Building 851 area were analyzed for new HE compounds, as well as various metals and radionuclides, as part of the well drilling and borehole sampling in this area (Table 4.2-8). No new HE compounds were detected, and while some reporting limits exceeded ESLs, if a release of HE compounds had happened, there would be an expectation of at least one positive detection. Therefore, it is reasonable to conclude that these HE compounds pose no ecological hazard. The maximum concentration of new metals detected in the Building 851 subsurface soil was generally less than ESLs. However, as with surface soil, the ecological hazard of metals in the Building 851 subsurface soil will be determined once updated Site 300 soil background levels are available.

4.2.4.2.3. Surface Water

Surface water was sampled during the current ecological review period from four springs located within OUs covered by the 2009 CMP/CP. The four springs were Spring 3 (Building 832 Canyon OU [OU 7], Figure 2.7-1), Well 8 Spring (Building 850 Area [OU 5], Figure 2.5-1), Spring 11 (Building 854 OU [OU 6], Figure 2.6-1), and Spring 14 (HEPA OU [OU 4], Figure 2.4-1). The following springs were dry or otherwise inaccessible during the current review period, and thus surface water samples were not collected: Springs 4, 10, 11 and 16. Two additional springs in the Building 812 area (Springs 6 and 17) and surface water associated with area drainages were also sampled during the current ecological review period as part of the Building 812 remedial investigation. As the Building 812 OU (OU 9) is not covered by the 2009 CMP/CP, and these samples were collected from within an area of active investigation, they are not considered here.

COCs evaluated in the springs were not limited to surface water COCs listed in Table 4.2-9. As groundwater, surface soil, and subsurface soil COCs all have the potential to impact surface water, they were also included in the surface water evaluation. Table 4.2-9 shows the maximum concentration of COCs in surface water samples collected during the current review period compared to the concentration of these COCs in surface water samples collected in the previous review period. Comparisons to relevant ESLs and Site 300 background levels are also discussed in the notes section.

Nitrate and TCE continue to be detected in Spring 3 (located in the Building 832 Canyon, Figure 2.7-1) at concentrations within historical ranges (Table 4.2-9). While nitrate concentration is above the U.S. EPA ambient water quality criteria (U.S. EPA, 2000), it is within Site 300 background for groundwater and springs (Ferry et al., 1999). TCE concentrations in Spring 3 are below the San Francisco Bay RWQCB fresh water habitat goal (San Francisco Bay RWQCB, 2016), as well as the LANL ESL for aquatic community organisms (LANL, 2017). Thus, there is no ecological concern for these analytes in Spring 3 water.

HMX, perchlorate, RDX, and tritium were detected in three samples collected from Well 8 Spring (located in the Building 850 OU, Figure 2.5-1) during the current review period. HMX was detected for the first time in the last sample collected in the previous review period (October 20, 2010) at 2 µg/L, and was detected during the current review period at concentrations ranging from 1.8 to 2.7 µg/L. RDX was detected for the first time, during the current review period, at concentrations ranging from 1.7 to 3.1 µg/L. Reporting limits for these two analytes were greater than 5 µg/L prior to 2009. Maximum concentrations for both compounds are below ESLs developed by LANL (LANL, 2017). Thus, while there has been an increase in the concentration of theses COCs in Well 8 Spring over the

last review period by 50%, they do not currently pose an ecological hazard. Tritium activities in Well 8 Spring continue to decline, and remain well below the ecological hazard level developed in the baseline risk assessment (Webster-Scholten, 1994). The maximum perchlorate concentration detected in Well 8 Spring during the current review period was less than that detected in the previous review period, but is greater than the ESL developed in the Building 850 focused RIFS for perchlorate for the aquatic life-stage of amphibians (Verce et al., 2018). Thus, there is a potential hazard to special-status amphibians that may use Well 8 Spring for breeding. While water is present at this spring, it currently does not provide suitable breeding habitat for amphibians. A monitoring program has been developed (Verce et al., 2018) and will be added to the ecological risk and hazard management program.

While the maximum concentrations of total-1,2-DCE in Spring 11 (located in the Building 854 OU, Figure 2.6-1) during the current review period exceeded the previous review period by more than 50%, they remain below ecological screening levels. Maximum concentrations of trans-1,2-DCE and TCE did not exceed the previous review period by more than 50% and remain below ecological screening levels. The maximum nitrate concentration in Spring 11 during the current review period was lower than that observed in the previous review period, but is higher than the U.S. EPA ambient water quality criteria (U.S. EPA, 2000). However, nitrate concentrations in this spring remain lower than the Site 300 background concentration for nitrate in surface water. No ecological hazard exists due to the presence of these COCs in Spring 11.

Uranium in Springs 11 and 12 was identified in the 2013 Five-year Ecological Review as a constituent for which data were not sufficient to determine potential ecological hazard. While uranium activities in Spring 11 were not more than 50% greater than activities detected in previous review periods, they were greater than the Site 300 background level, and uranium concentrations (as mg/L) were greater than the ecological screening level established for the Building 812 ecological risk assessment (Carlsen et al., 2012). The maximum total uranium concentration in Spring 10 and Spring 11 exceeded the Site 300 background concentration in the June 2002 (Spring 11) and the June 2003 (Spring 10) samples. Both samples were analyzed for uranium isotopes using mass spectrometry, and results from both springs showed a $^{235}U/^{238}U$ atom ratio of 0.0072. This is the natural ratio for these uranium isotopes and indicates no added depleted uranium was present. Spring 11 was sampled for uranium in August 2012. Spring 10 was dry at that time, (and has remained dry through the current review period). Spring 11 again showed high concentrations of uranium (0.074 mg/L) compared to the Site 300 maximum background concentration (0.028 mg/L detected in Spring 16). The $^{235}U/^{238}U$ atom ratio was again 0.0072. Uranium concentrations will be periodically monitored in these springs.

The maximum concentration of nitrate in Spring 14 (located in the HEPA OU, Figure 2.4-1) during the current review period was less than that in the previous review period (Table 4.2-9). While this concentration is above the U.S. EPA ambient water quality criteria (U.S. EPA, 2000) it is below Site 300 background, and thus does not pose an ecological hazard. Chloride in Spring 14 was identified in the 2013 Five-year Ecological Review as a constituent for which data were not sufficient to determine potential ecological hazard. The historical chloride concentrations detected in Spring 14 in samples collected through May 2001 (ranging from 160 to 420 mg/L) periodically exceeded the maximum concentration observed in Site 300 background springs (210 mg/L). However, the chloride concentrations in the two most recent samples (collected in December 2003 and March 2013) contained chloride concentrations at or below this background level (170 and 210 mg/L, respectively).

While it appears that chloride in Spring 14 is not of ecological concern, chloride concentrations in this spring will be periodically monitored when water is available to verify that concentrations remain within background levels. This spring was inaccessible in 2017 and has been dry since 2015.

The 2013 Five-Year Ecological Review also identified total phosphorus (as P) and ammonia nitrogen in Spring 4 (located in the Building 832 Canyon OU, Figure 2.7-1) as constituents for which data were not sufficient to determine potential ecological hazard. The single sample from Spring 4 analyzed for total phosphorus (4 mg/L, June 2000) exceeded the maximum concentration of total phosphorus observed in the Site 300 background springs (0.3 mg/L). The maximum concentration of ammonia nitrogen (8.7 mg/L) in Spring 4 was also detected in the June 2000 sample, which is the most recent sample available that was analyzed for this constituent. Spring 17, a Site 300 background spring, was sampled for ammonia nitrogen during the review period for the 2013 Five-Year Ecological Review (August 2012). Ammonia nitrogen was detected in this spring at a concentration of 0.52 mg/L. Spring 4 will be periodically sampled for ammonia nitrogen and total phosphorus when water is available to provide additional data on these constituents (this spring was dry in 2017 and has been dry since 2007).

4.2.4.2.4. Contaminants of Concern in Groundwater Potentially Contributing to VOCs in Burrow Air

The baseline ecological risk assessment (Webster-Scholten, 1994) identified TCE and PCE in burrow air in the Building 834 and Pit 6 areas as a potential risk to burrowing animals. This evaluation was conducted by modeling VOC concentrations in burrow air using VOC concentrations in subsurface soil samples collected to a depth of 12 ft. The effect of VOC concentrations in groundwater on burrow air was not evaluated.

Burrow air in the Building 834 and Pit 6 areas was sampled quarterly for TCE and PCE between September 2003 and June of 2004 (Dibley et al., 2004). The areas sampled were selected based on the availability of burrows. In the Building 834 area, burrows were sampled in the vicinity of Building 834J (near wells W-834-J1 and W-834-J2), Building B834G (the closest wells W-834-C2 and W-834-C4), and between Buildings 834B and 834F (the closest wells W-834-B2 and W-834-B3) (Figure 2.2-1). In the Pit 6 area, burrows were sampled in the vicinity of wells EP6-09, K6-01S, K6-01 and K6-19 (Figure 2.3-1). TCE and PCE was detected in burrow air in both areas, but at concentrations significantly below that predicted in the SWRI, and well below that necessary to result in a hazard quotient greater than 1 (Dibley et al., 2004).

Although groundwater concentrations were not specifically used in the SWRI modeling to estimate burrow air concentrations of VOCs, VOCs in groundwater would have contributed to the VOC concentrations measured in the burrow air during the burrow air sampling. Table 4.2-10 shows the maximum concentrations of TCE and PCE in groundwater in the Building 834 and Pit 6 wells in the vicinity of the sampled burrows between 2003 and 2004, and the maximum, minimum, and most recent concentration of these VOCs during the current review period. Concentrations of TCE and PCE have generally declined or remained stable between these two periods in both areas. Therefore, TCE and PCE in groundwater in the Building 834 and Pit 6 areas does not pose a threat to burrowing animals in these areas.

4.2.4.2.5. Summary of Ecologically Significant Changes in Contaminant Conditions

There have been no ecologically significant changes in contaminant conditions in surface or subsurface soil in the Building 834, Pit 6 Landfill, HE Process Area, Pit 7 Complex, Building 854 or Building 832 OUs that would pose new ecological hazards. Low levels of PCBs were detected in surface soil samples collected from the Building 802 area of OU 8 (Table 4.2-6), and in subsurface soil samples collected from the Eastern GSA area of OU 1 (Table 4.2-8). These detections were not considered ecologically significant due to the low concentrations, limited number of detections (indicative of a limited areal extent in surface and subsurface soil), and types of ecological receptors found in these areas.

The ecological hazard from metals and radionuclides detected in surface and subsurface soil samples collected from the Building 851 and northeast of the Building 801 area of OU8 during the current review period remains to be determined. Sampling was conducted in the Building 801 area as part of the reevaluation of background levels in Site 300 surface and subsurface soil. This project is ongoing. Surface and subsurface soil samples were collected at the Building 851 area as part of the characterization of uranium and other analytes in the surface soil and borehole sampling and analysis during well installation. Several ESLs were exceeded in surface and subsurface soil samples from both areas. Once new Site 300 soil background levels are developed, the ecological hazard posed by the metals and radionuclides detected in the recent soil samples from these areas will be determined.

With the exception of Well 8 Spring, there have been no significant changes in COC concentrations detected in the Site 300 springs located in the OUs covered by the 2009 CMP/CP during the current review period (Table 4.2-9). Concentrations of detected COCs were either below ecological screening levels (ESLs) and/or below Site 300 background levels, and do not pose an ecological hazard. During the current review period, perchlorate in Well 8 Spring was found to pose a hazard to the aquatic life stages of amphibians. Monitoring of this spring for the presence of amphibian breeding habitat and the presence of special-status amphibian species will be added to the ecological risk and hazard management program. In the last review period, uranium in Springs 10 and 11 in the Building 854 OU was detected at concentrations in excess of Site 300 background and greater than the ESL established for the Building 812 ecological risk assessment (Carlsen et al., 2012). Natural isotopic ratios suggest a natural source for uranium concentrations in these springs. Both springs have either been dry or inaccessible during the current review period, and were not sampled for uranium. Uranium will be monitored in these springs when water is present.

TCE and PCE concentrations in groundwater in areas where burrow air was sampled for these COCs and shown not to be an ecological hazard (Building 834 and Pit 6) have generally decreased (Table 4.2-10). Therefore, TCE and PCE in burrow air continue to pose no ecological hazard.

4.2.4.3. 2018 Five-Year Ecological Review Findings

Table 4.2-11 summarizes the current status of potential ecological hazards at Site 300. The findings of the current five-year ecological review are summarized below.

The distribution of special-status plant and animal species at Site 300 during the current review period is not significantly different from that observed in the 2013 Five-Year Ecological Review. The regulatory status of several species previously known to occur at Site 300 changed during the current review period, and surveys for special-status plant and animal species generally confirmed previous

conclusions about the distribution and abundance or rare and protected plants and animals at Site 300. While changes in abundance has been observed in California red-legged frogs, California tiger salamander and burrowing owls, these are a result of changing environmental conditions, and not a result of changes in contaminant conditions.

With the exception of northeast of the Building 801 area and the Building 851 areas of OU 8, there have been no ecologically significant changes in contaminant conditions in surface or subsurface soil during the current review period. Low levels of PCBs detected in subsurface soil collected from the Eastern GSA area of OU 1 and the Building 802 area of OU 8 during the current review period were not ecologically significant due to the low levels, small number of detections, and types of ecological receptors present in these areas. Ecological Screening Levels were exceeded for several metals and radionuclides present in surface and/or subsurface soil samples collected from northeast of the Building 801 area and the Building 851 area. Sampling was conducted in northeast of the Building 801 area as part of the reevaluation of Site 300 soil background levels, and sampling was conducted in the Building 851 area as part of characterization of uranium and other analytes in surface soil and borehole drilling for well installation. The soil background study is ongoing. Ecological hazard from metals and radionuclides in these soil samples after updated soil background levels are complete.

With the exception of perchlorate in Well 8 Spring, there have been no significant changes in COC concentrations detected in the Site 300 springs located in the OUs covered by the 2009 CMP/CP during the current review period. During the current review period, perchlorate in Well 8 Spring was found to pose a risk to the aquatic life stage of amphibian species. While the spring does not currently support breeding habitat for amphibians, it is located in an area utilized by special-status amphibian species (California tiger salamander and California red-legged frog). Therefore, monitoring of Well 8 spring for the presence of amphibian breeding habitat and special-status amphibians will be added to the ecological risk and hazard management program.

TCE and PCE concentrations in groundwater in areas where burrow air was sampled for these COCs and shown not to be an ecological hazard (Building 834 and Pit 6) continue to be at levels that will not impact burrow air.

5. Data Management Program

The management of data collected during the second semester of 2018 was subject to the ERD data management process and standard operating procedures (SOPs) (Goodrich and Lorega, 2016). This data management process tracks sample and analytical information, from the initial sampling plan through data storage, in a relational database. As part of the SOPs for data quality, this process includes sample planning, chain of custody tracking, sample collection history, electronic and hard copy analytical results receipt, strict data validation and verification, data quality control procedures, and data retrieval and presentation. Data management and data retrieval is facilitated by a web-based system known as Total Environmental Information Management System. The use of this system promotes and provides a consistent data set of known quality. Quality assurance and quality control (QA/QC) are performed consistently on all data.

5.1. Modifications to Existing Procedures

The relational database software used to maintain the data for the CMR continued to be Oracle version 12.1.0.2. The Linux operating system is RHEL 7.4. General maintenance and refinements

continued in both the database and the web application programming. Improvements and additions to the ERD data management process are continuously implemented in an ongoing effort to automate and upgrade the applications, including adding new data-upload verifications, modifying Self-Monitoring Reporting (SMR) tools to improve data entry capabilities, updating e-mail notifications, and modifying the Treatment Facility Real-Time data-driven web pages to display soil vapor flow on mobile devices.

5.2. New Procedures

The process of re-architecting existing computer programs that generate web pages continues, with the dual goals of improving maintainability and user efficiency. Foundational infrastructure code is being updated from the programming language Perl to Python, and the user interface and webpage capabilities are being improved. Several more commonly used read-only webpages have been converted. Revised interactive data-entry webpages are under construction. Before formal release to all users, these web tools are beta-tested and undergo a period of use in parallel with the pre-existing web tool to ensure appropriate functionality.

6. Quality Assurance/Quality Control Program

Lawrence Livermore National Security (LLNS) conducted all compliance monitoring in accordance with the ERD Quality Assurance Project Plan (QAPP) (ERD, 2018) requirements for planning, performing, documenting, and verifying the quality of activities and data. The QAPP was prepared for CERCLA compliance and ensures that the precision, accuracy, completeness, and representativeness of project data are known and are of acceptable quality. The QAPP is used in conjunction with the LLNL Livermore Site and Site 300 Environmental Restoration Project SOPs (Goodrich and Lorega, 2016), operations and maintenance manuals, work plans, sampling plans, and LLNL Integrated Safety Management System (ISMS) processes. Assessments and inspections, analytical and field quality control, and contract analytical laboratory services are discussed in this section.

6.1. Assessments and Inspections

ERD conducts self-assessments, both formal and informal, to evaluate work activities to procedural, QA, management, and ISMS practices. External regulatory agencies and management also perform frequent assessments, verifications, and inspections of ERD work activities. A total of 24 assessments consisting of Management Observations, a Storm Water Pollution Prevention Program inspection, and regulatory inspections were conducted for the Site 300 CERCLA program during 2018. Issues and deficiencies observed during assessments are tracked from inception to resolution using the institutional Issues Tracking System. There were no deficiencies associated with the assessments performed for the Site 300 program during this reporting period.

6.2. Analytical Quality Control

Data review, validation, and verification are conducted on 100% of the incoming analytical data in accordance with ERD SOP 4.6: Validation and Verification of Radiological and Non-radiological Data Generated by Analytical Laboratories. Contract analytical laboratories are contractually required to provide internal QC checks in the form of method blanks, laboratory control samples, matrix spikes, and matrix spike or sample duplicate results with every analysis. During the data validation process, the analytical QC data and associated QC acceptance criteria (control limits) are reviewed. Data

qualifier flags (definitions included in the Tables section of this report) are assigned to analytical data that fall outside the QC acceptance criteria. The qualifier flags, when they exist, appear next to the analytical data presented in the tables of this report. Because rejected data are not used for decision-making, the rejected analytical data are not displayed in the tables, only the "R" flag is presented. Data are qualified as rejected only when there is a serious deficiency in the ability to analyze the sample and meet QC criteria.

With the exception of some analytical QC results noted below, there were no off-normal occurrences to report in relation to data validation and verification performed during 2018. There were several instances in the fourth quarter of 2018 where failing and/or incomplete analytical QC data for VOC analyses were received. The results for the associated samples were rejected and assigned "R" qualifier flags. The laboratory reported that additional training had been conducted to ensure that future analytical QC data issues were addressed appropriately by their staff. When possible, new samples were collected by ERD from the locations affected by the analytical QC data issues.

6.3. Field Quality Control

There were no issues with field QC samples to report during 2018.

6.4. Contract Analytical Laboratory Services

During 2018, four of the environmental analytical laboratories under contract with LLNS, GEL Laboratories (Charleston, South Carolina), ALS Environmental (Fort Collins, Colorado), TestAmerica Laboratories (West Sacramento, California), and BC Laboratories (Bakersfield, California) were assessed by accrediting bodies (AB) for the Department of Energy Consolidated Audit Program - Accreditation Program (DOECAP-AP):

- The American Association for Laboratory Accreditation (A2LA), an AB for the DOECAP-AP, conducted an assessment of GEL Laboratories, Charleston, South Carolina, during June 19-21, 2018. During the assessment, all previously noted deficiencies were closed, several new deficiencies were noted, and A2LA issued GEL a certificate for technical competence in the field of environmental testing.
- Perry Johnson Laboratory Accreditation, Inc. (PJLA), an AB for the DOECAP-AP, conducted an assessment of the ALS Environmental, Fort Collins, Colorado during August 20-22, 2018. There were several deficiencies noted but, overall, the PJLA team reported that "the laboratory has a well-documented quality system, the technical staff interviewed were knowledgeable, cooperative, and proficient in their area of responsibility."
- The ANSI-ASQ National Accreditation Board (ANAB), an AB for the DOECAP-AP, conducted an assessment of TestAmerica Laboratories, West Sacramento, California during October 18-19, 2018. All previous deficiencies were closed, new deficiencies were noted, but the ANAB found that "in general the laboratory demonstrated excellent technical expertise and was generally in compliance with the accreditation standards."
- Perry Johnson Laboratory Accreditation, Inc., an AB for the DOECAP-AP, conducted an assessment of BC Laboratories, Bakersfield, California during April 30-May 2, 2018, with a revisit July 30-31, 2018, and another revisit October 8-9, 2018. The three separate site visits served "to assess, assist, and educate the laboratory on the requirements associated with

DOECAP-AP accreditation." BC Laboratories was successful in acquiring accreditation and was issued an accreditation certificate for technical competence in environmental testing by PJLA. A follow-up visit was scheduled for January 2019 to verify continued compliance.

Effective October 31, 2018, TestAmerica Environmental Services, LLC, the parent company of TestAmerica Environmental Laboratories Incorporated, was acquired by Eurofins Scientific, a global provider of analytical services headquartered in Brussels, Belgium. The operating company, TestAmerica Environmental Laboratories Incorporated will remain a U.S. based company, the company names are unchanged, the current management team will continue to lead the business, and all contracts will continue with the current company. TestAmerica Sacramento will retain the same name and certification identification.

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8. Acronyms and Abbreviations

1,1-DCA	1,1-dichloroethane
1,2-DCA	1,2-dichloroethane
1,1-DCE	1,1-dichloroethene
1,2-DCE	1,2-dichloroethene (total)
1,1,1-TCA	1,1,1-trichloroethane
1,1,2-TCA	1,1,2-trichloroethane
2-ADNT	2-amino-4,6-dinitrotoluene
4-ADNT	4-amino-2,6-dinitrotoluene
815	Building 815
817	Building 817
829	Building 829
830	Building 830
832	Building 832
834	Building 834
845	Building 845
850	Building 850
851	Building 851
854	Building 854
ANAB	ANSI-ASQ National Accreditation Board
A2LA	American Association for Laboratory Accreditation
bgs	Below ground surface
°C	Degrees Celsius
CAMU	Corrective Action Management Unit
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
cf	Cubic feet
CFORM	Chloroform
CGSA	Central General Services Area
CHC	Corral Hollow Creek
cis-1,2-DCE	cis-1,2-dichloroethene
CMP/CP	Compliance Monitoring Plan/Contingency Plan
CMR	Compliance Monitoring Report
CO_2	Carbon dioxide
COC	Contaminants of Concern
CTET	Carbon tetrachloride
DDS	Drainage Diversion System
DISS	Distal south
DOE	Department of Energy
DOECAP-AP	Department of Energy Consolidated Audit Program - Accreditation Program
DSB	Distal Site Boundary
DTSC	Department of Toxic Substances Control
DUP	Duplicate or collocated QC sample
E	Effluent (acronym found in Treatment Facility Sampling Plan Tables)
E	Sample to be collected during even numbered years (i.e., 2016) (acronym found in Sampling Plan Tables)
EFA	Environmental Functional Area
EGSA	Eastern General Services Area
EIS/EIR	Environmental Impact Statement/Environmental Impact Report
EPA	Environmental Protection Agency

ERD	Environmental Restoration Department
Freon 11	Trichlorofluoromethane
Freon 113	1,1,2-trichloro-1,2,2-trifluoroethane
ft	Feet
cf	Cubic feet
g	Gram(s)
GAC	Granular activated carbon
gal	Gallon(s)
GIS	Geographic Information Systems
gpd	Gallons per day
gpm	Gallons per minute
GSA	General Services Area
GTU	Groundwater Treatment Unit.
GWTS	Groundwater Treatment System
HE	High Explosives
HEPA	High Explosives Process Area
HMX	High-Melting Explosive
HSU	Hydrostratigraphic unit
I	Influent
ICP-MS	Inductively Coupled Plasma - Mass Spectrometry
ISMS	Integrated Safety Management System
K-40	Potassium-40
KB-1™	A consortium of dechlorinating bacteria that contain *Dehalococcoides ethenogenes*
kg	Kilograms
LCS	Laboratory Control Sample
LLNL	Lawrence Livermore National Laboratory
LLNS	Lawrence Livermore National Security
LNAPL	Light non-aqueous-phase liquid
µg/L	Micrograms per liter
M	Monthly
MCL	Maximum Contaminant Level
Mgal	Millions of gallons
mg/L	Milligrams per liter
MNA	Monitored Natural Attenuation
mV	Millivolts
N	No
N_2	Nitrogen
NO_3	Nitrate
NA	Not applicable
O	Sample to be collected during odd numbered years (i.e., 2015)
ORP	Oxidation/reduction potential
OU	Operable unit
P/PO_4	Phosphorus
PCBs	Polychlorinated biphenyls
PCE	Tetrachloroethene
pCi/L	PicoCuries per liter
pH	A measure of the acidity or alkalinity of an aqueous solution
PJLA	Perry Johnson Laboratory Accreditation
ppb_v	Parts per billion by volume

$ppm_{v/v}$	Parts per million on a volume-to-volume basis
PRG	Preliminary Remediation Goal
PRX	Proximal
PRXN	Proximal north
Qal/WBR	Quaternary alluvium/weathered bedrock
QAPP	Quality Assurance Project Plan
QA/QC	Quality assurance/quality control
RD	Remedial Design
RDX	Research Department explosive
Redox	Reduction-oxidation reaction
ROD	Record of Decision
RPM	Remedial Project Manager
RWQCB	Regional Water Quality Control Board
SJVAPCD	San Joaquin County Air Pollution Control District
scfm	Standard cubic feet per minute
SLs	Statistical Limits
SOP	Standard Operating Procedure
SPR	Spring
SRC	Source
SVE	Soil Vapor Extraction
SVTS	Soil Vapor Treatment System
SVI	Soil Vapor Influent
SVRA	State Vehicular Recreation Area (Carnegie)
SWEIS	Site-Wide Environmental Impact Statement
SWESR	Site-Wide Remediation Evaluation Summary Report
SWRI	Site-Wide Remedial Investigation
T2	Study Area Within the Distal Area of Building 834
T&V	Testing and verification
TBOS	Tetrabutyl orthosilicate
TCE	Trichloroethene
TEIMS	Total Environmental Information Management System
THMs	Trihalomethanes
TKEBS	Tetrakis (2-ethylbutyl) silane
TNB	Trinitrobenzene
Total-1,2-DCE	1,2-dichloroethene (total)
Trans-1,2-DCE	trans-1,2-dichloroethene
TRV	Toxicity Reference Value
TVOC	Total volatile organic compounds
t-1,2-DCE	trans-1,2-dichloroethene
$^{235}U/^{238}U$	Atom ratio of the isotopes uranium-235 and uranium-238
U.S.	United States
VC	Vinyl chloride
VISL	Vapor Intrusion Screening Level
VOC	Volatile organic compound
WAA	Waste accumulation area
WBR	Weathered bedrock

Figures

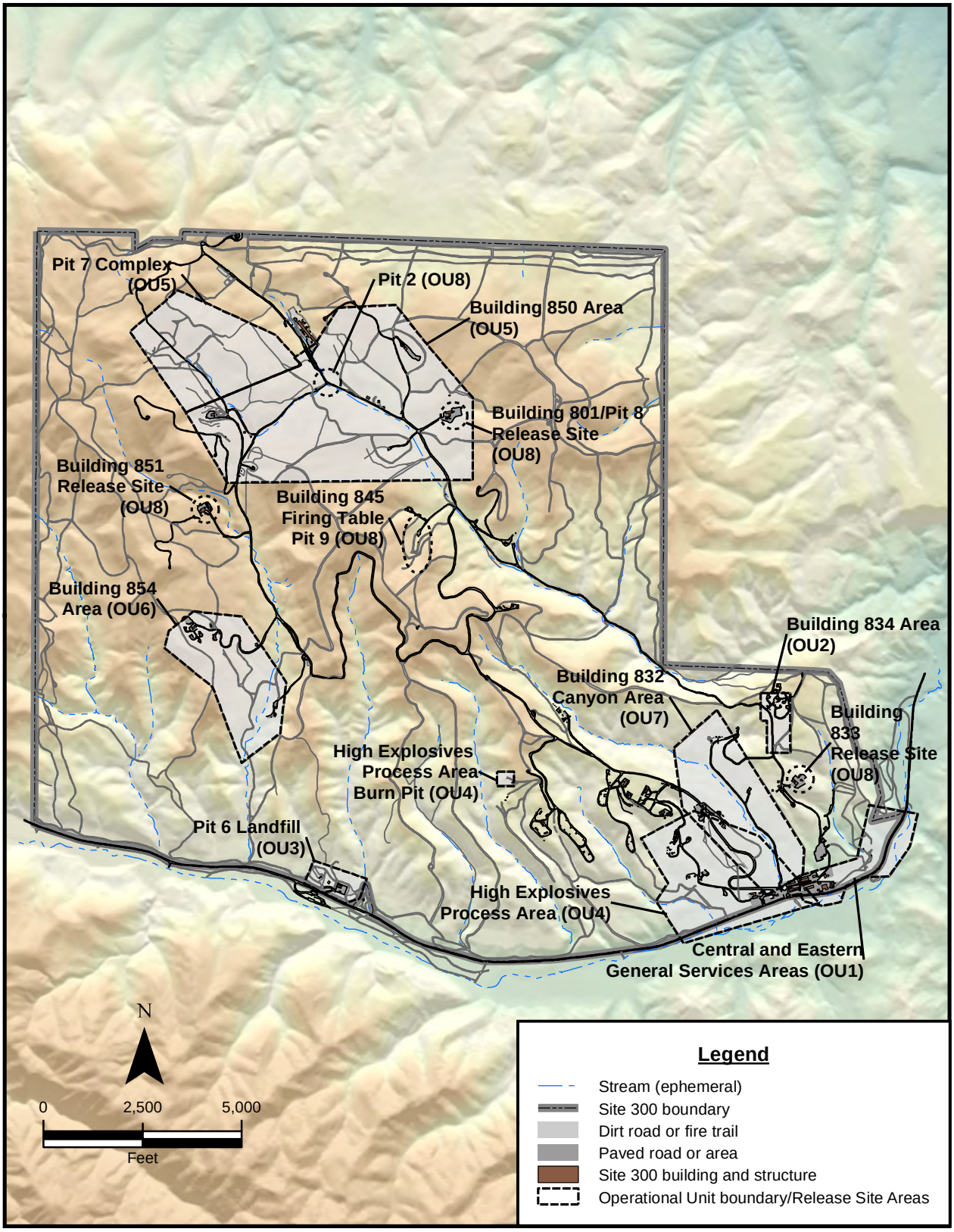


Figure 2-1. Site 300 map showing Operable Unit locations.

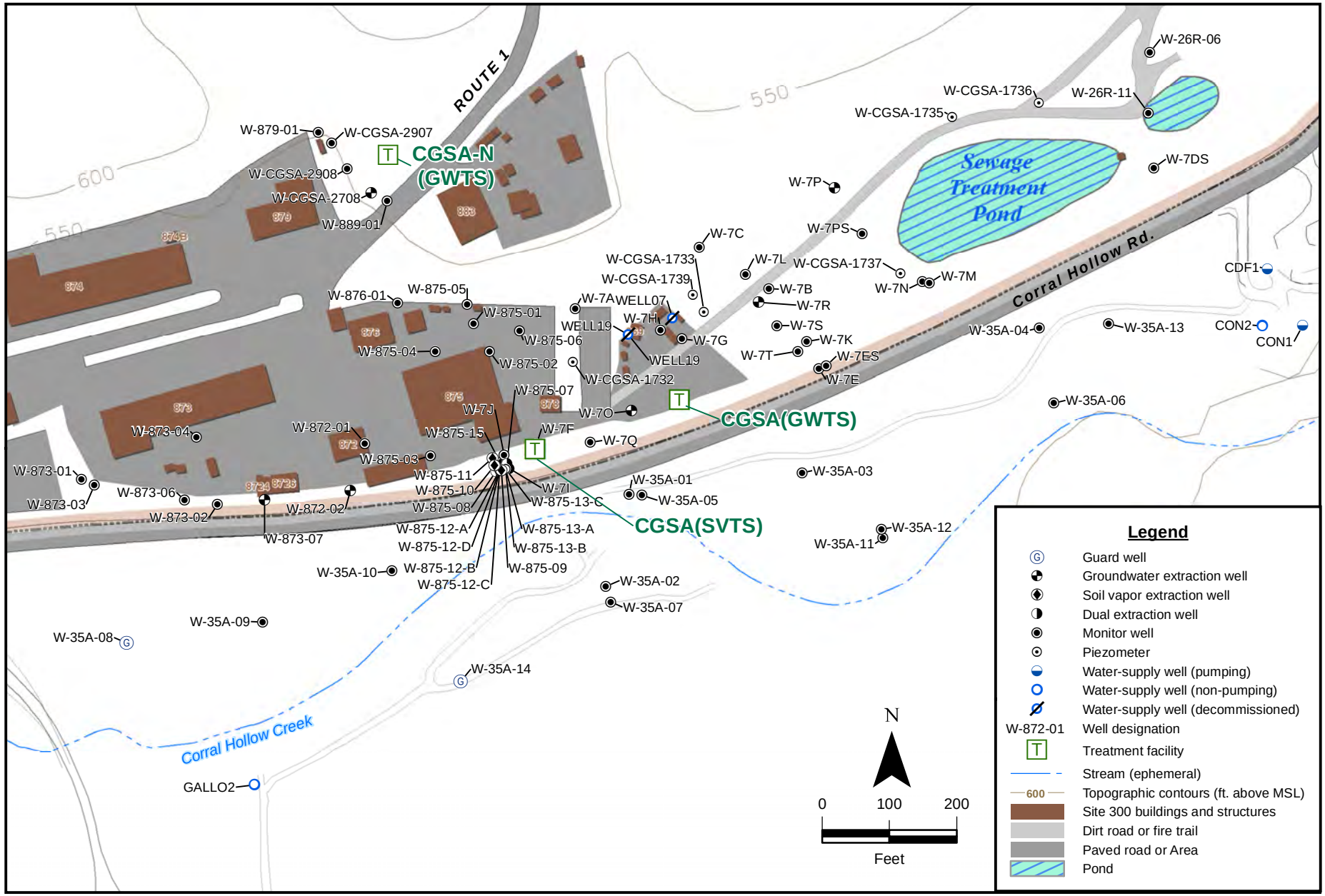


Figure 2.1-1. Central General Services Area Operable Unit site map showing monitor, extraction and water-supply wells, and treatment facilities, second semester 2018.

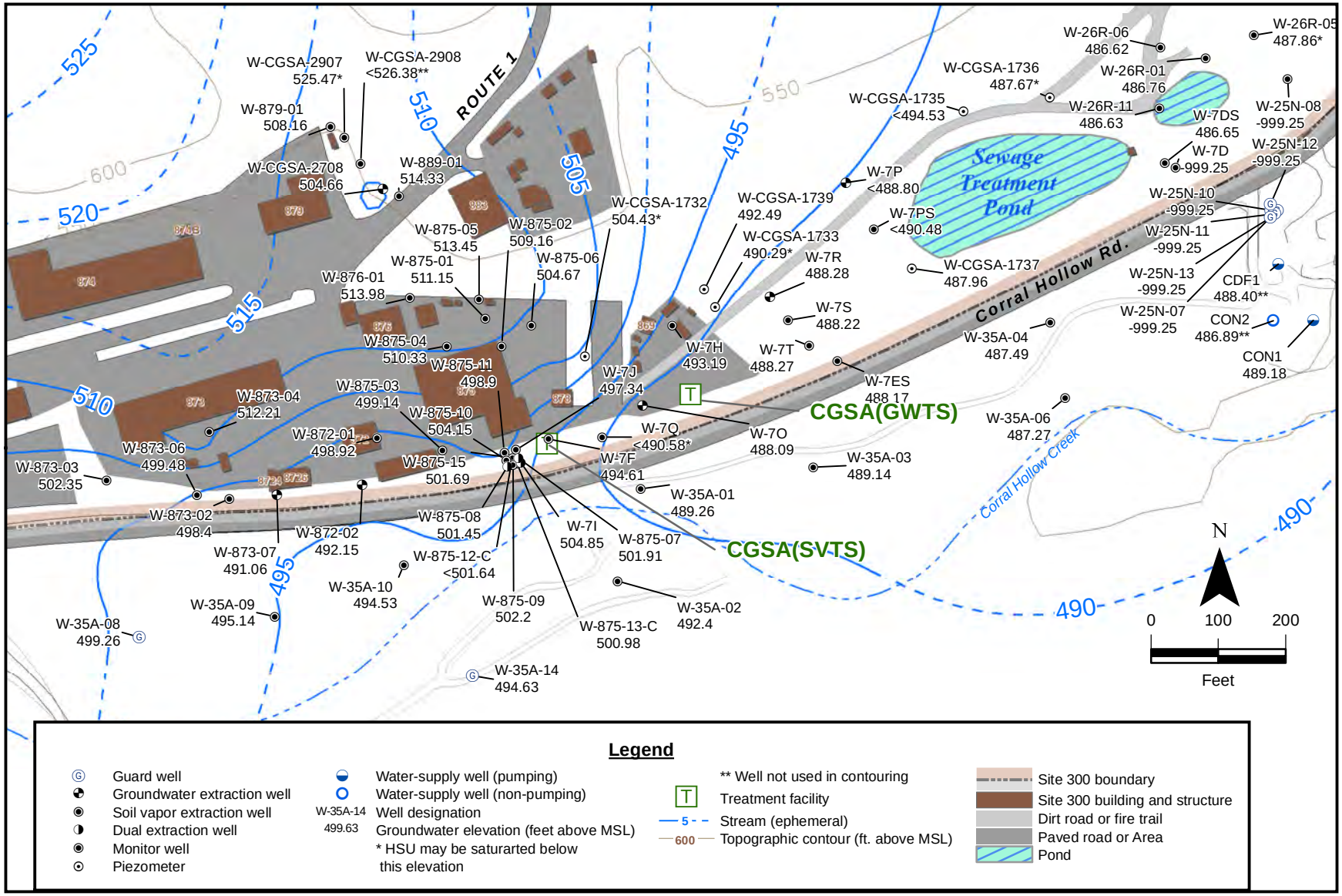


Figure 2.1-2. Central General Services Area Operable Unit groundwater potentiometric surface map for the Qt-Tnsc$_1$ and Qal-Tnbs$_1$ hydrostratigraphic units, second semester 2018.

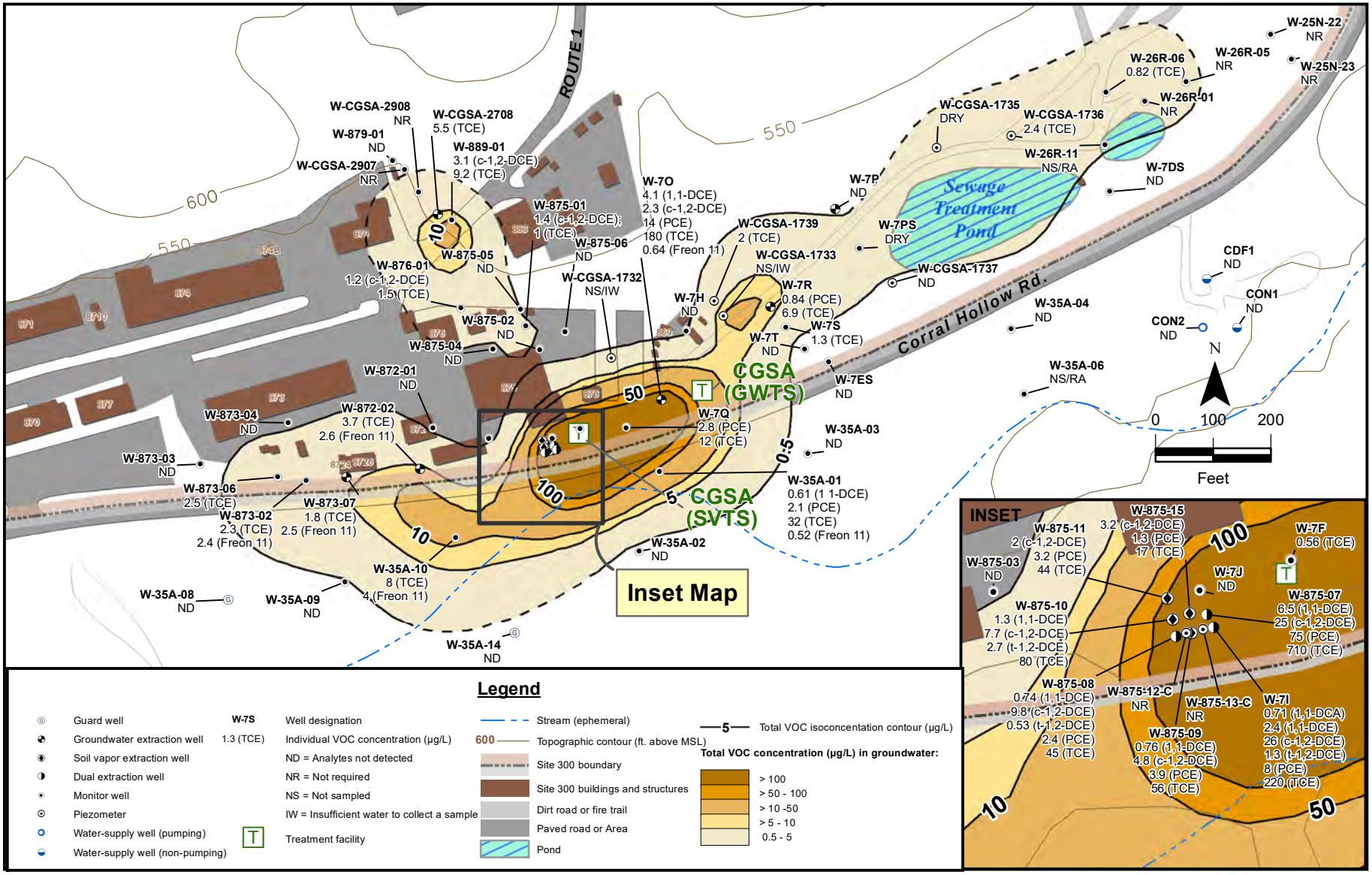


Figure 2.1-3 Central General Services Area Operable Unit total VOC isoconcentration contour map and individual VOC concentrations for the Qt-Tnsc$_1$ and Qal-Tnbs$_1$ hydrostratigraphic units, second semester 2018.

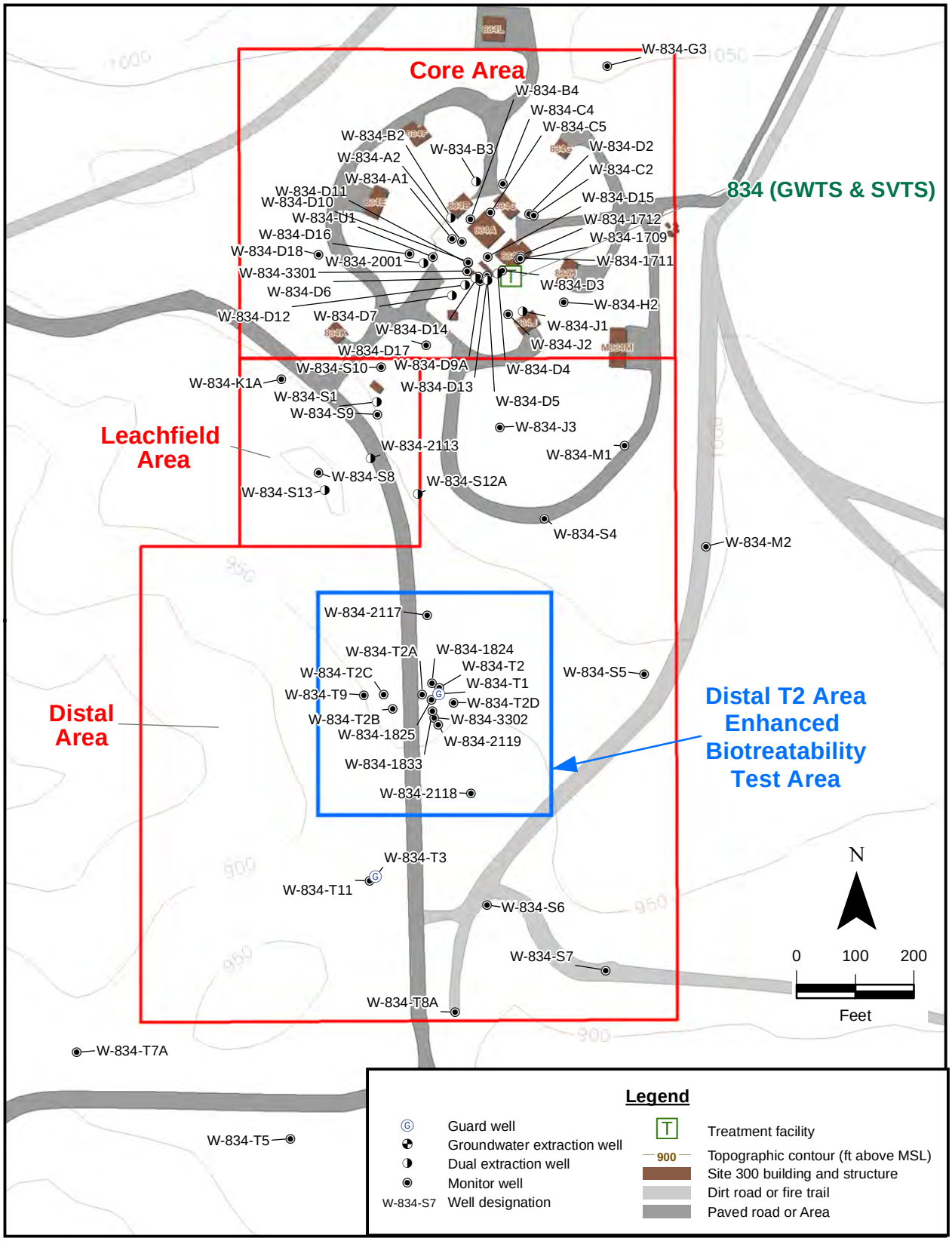


Figure 2.2-1. Building 834 Operable Unit site map showing monitor, extraction, and guard wells, and treatment facility, second semester 2018.

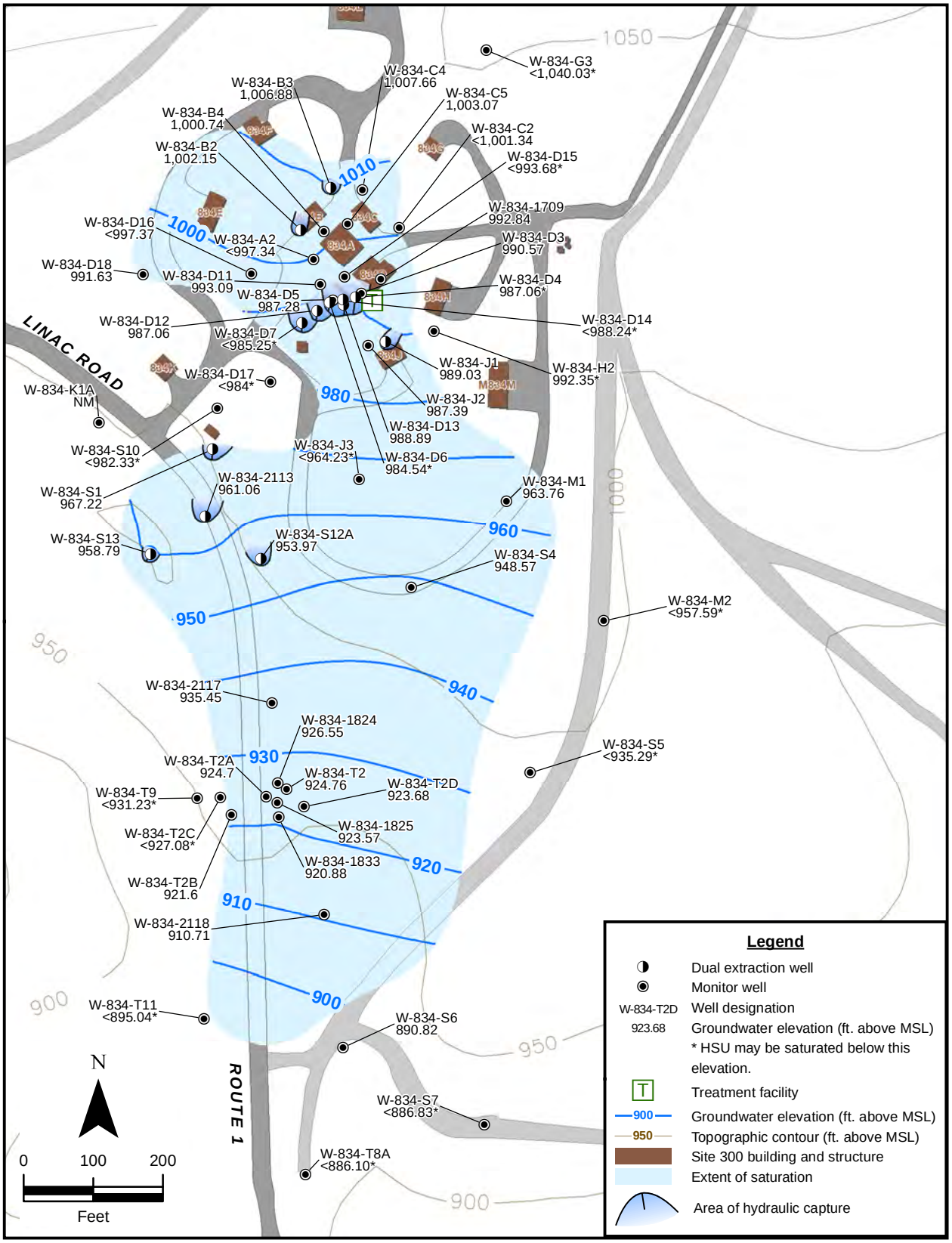


Figure 2.2-2. Building 834 Operable Unit groundwater potentiometric surface map for the Tpsg perched water-bearing zone, second semester 2018.

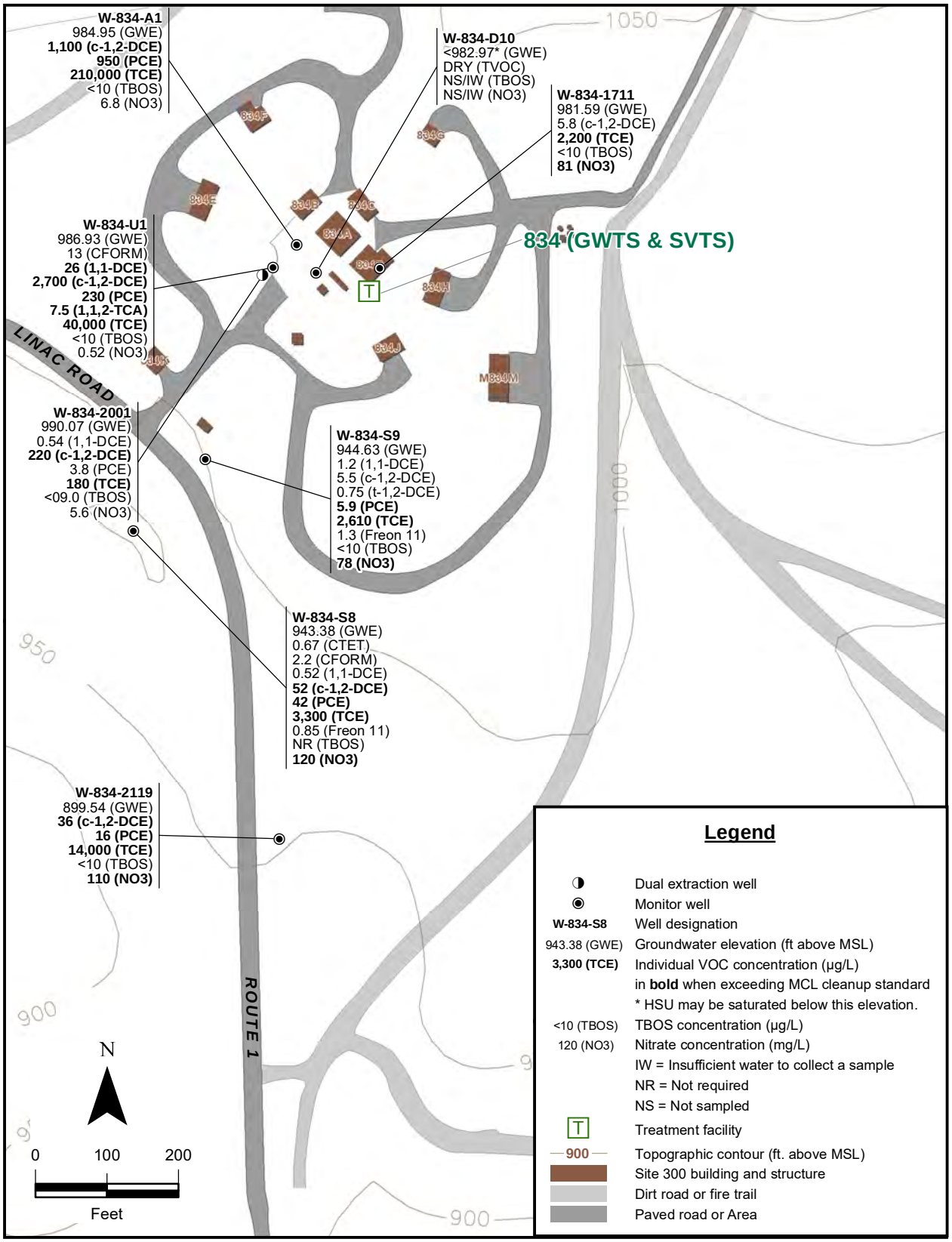


Figure 2.2-3. Building 834 Operable Unit map showing groundwater elevations, and individual VOC, TBOS/TKEBS, and nitrate concentrations for the Tps-Tnsc$_2$ hydrostratigraphic unit, second semester 2018.

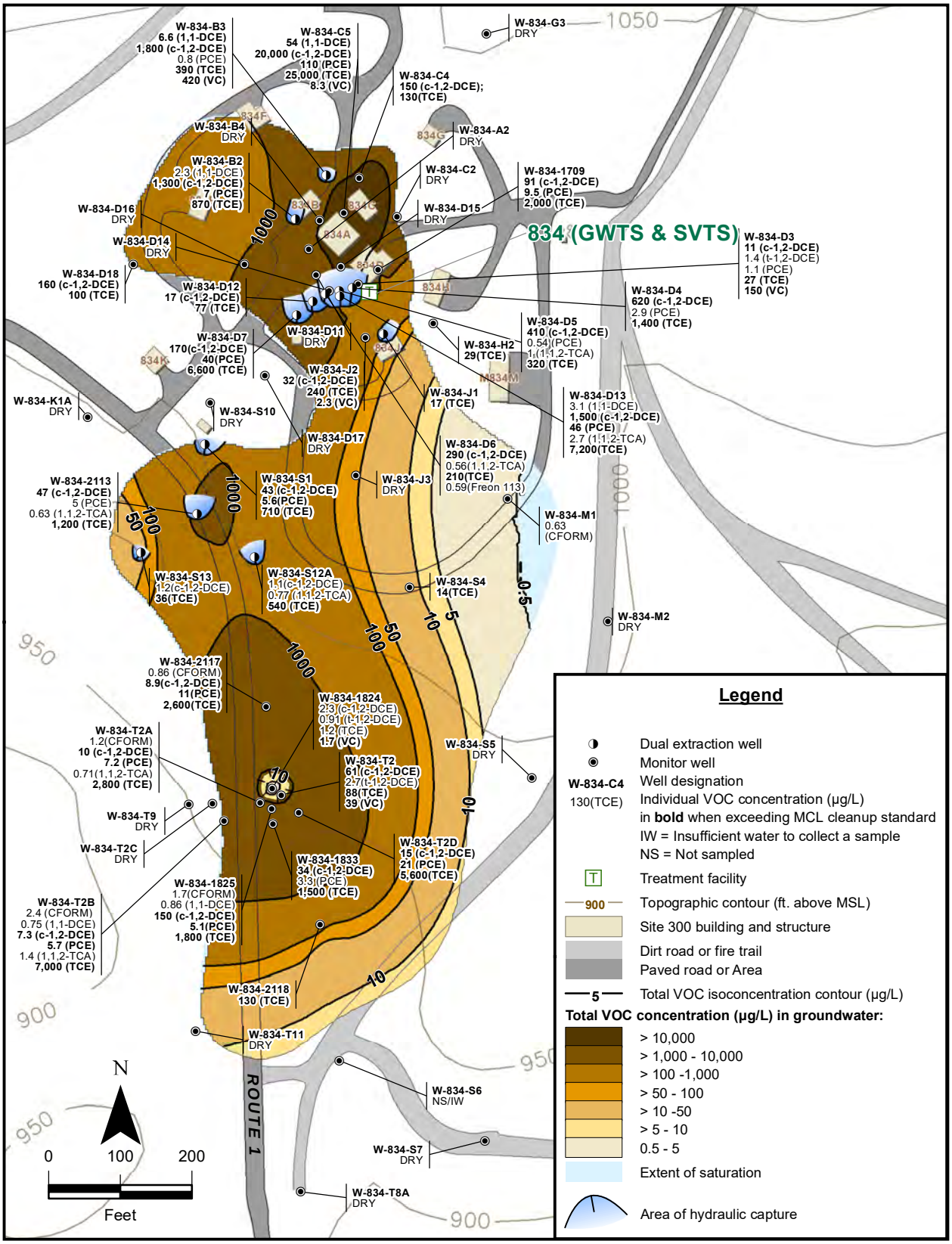


Figure 2.2-4. Building 834 Operable Unit total VOC isoconcentration contour map and individual VOC concentrations for the Tpsg perched water-bearing zone, second semester 2018.

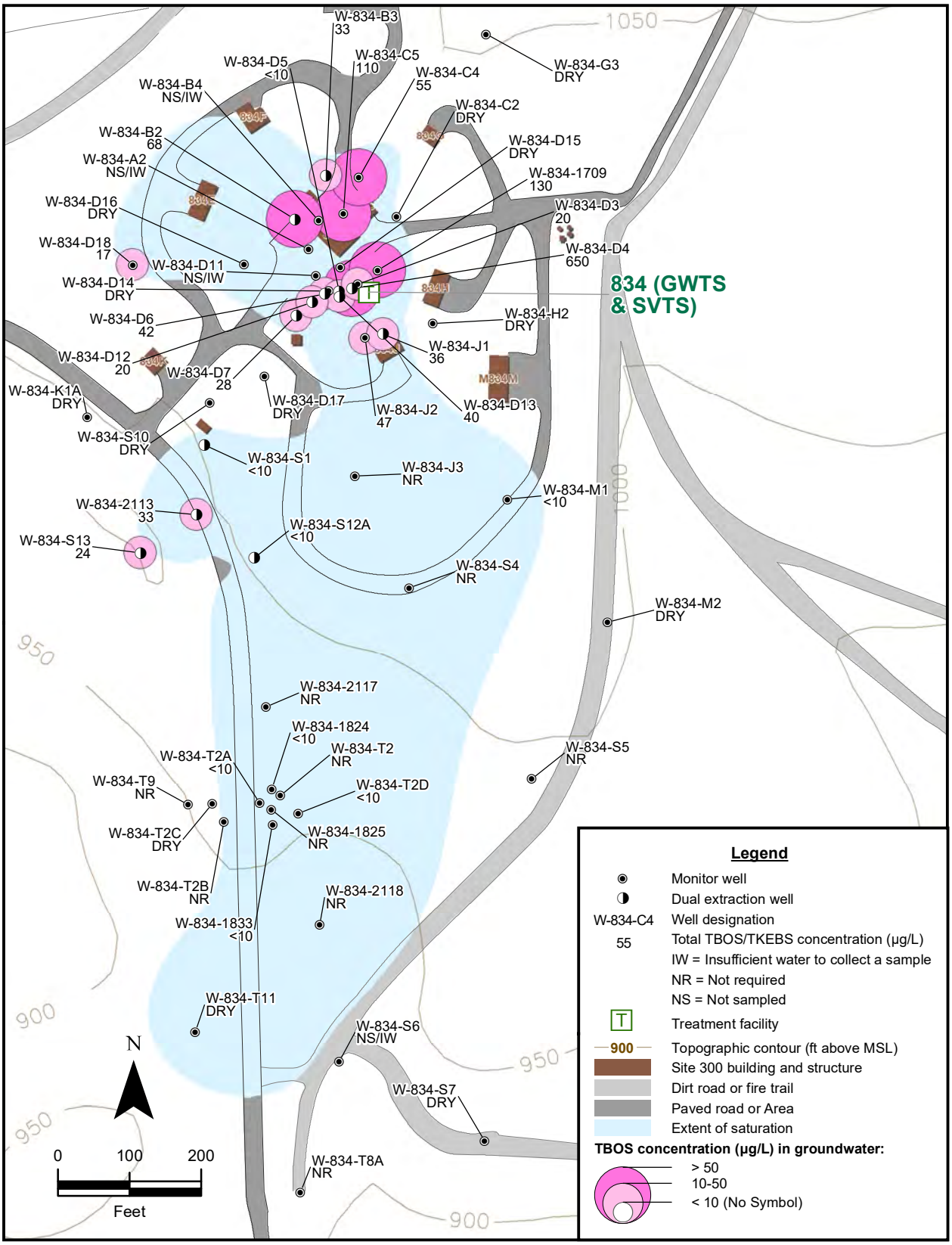


Figure 2.2-5. Building 834 Operable Unit map showing TBOS/TKEBS concentrations for the Tpsg perched water-bearing zone, first semester 2018.

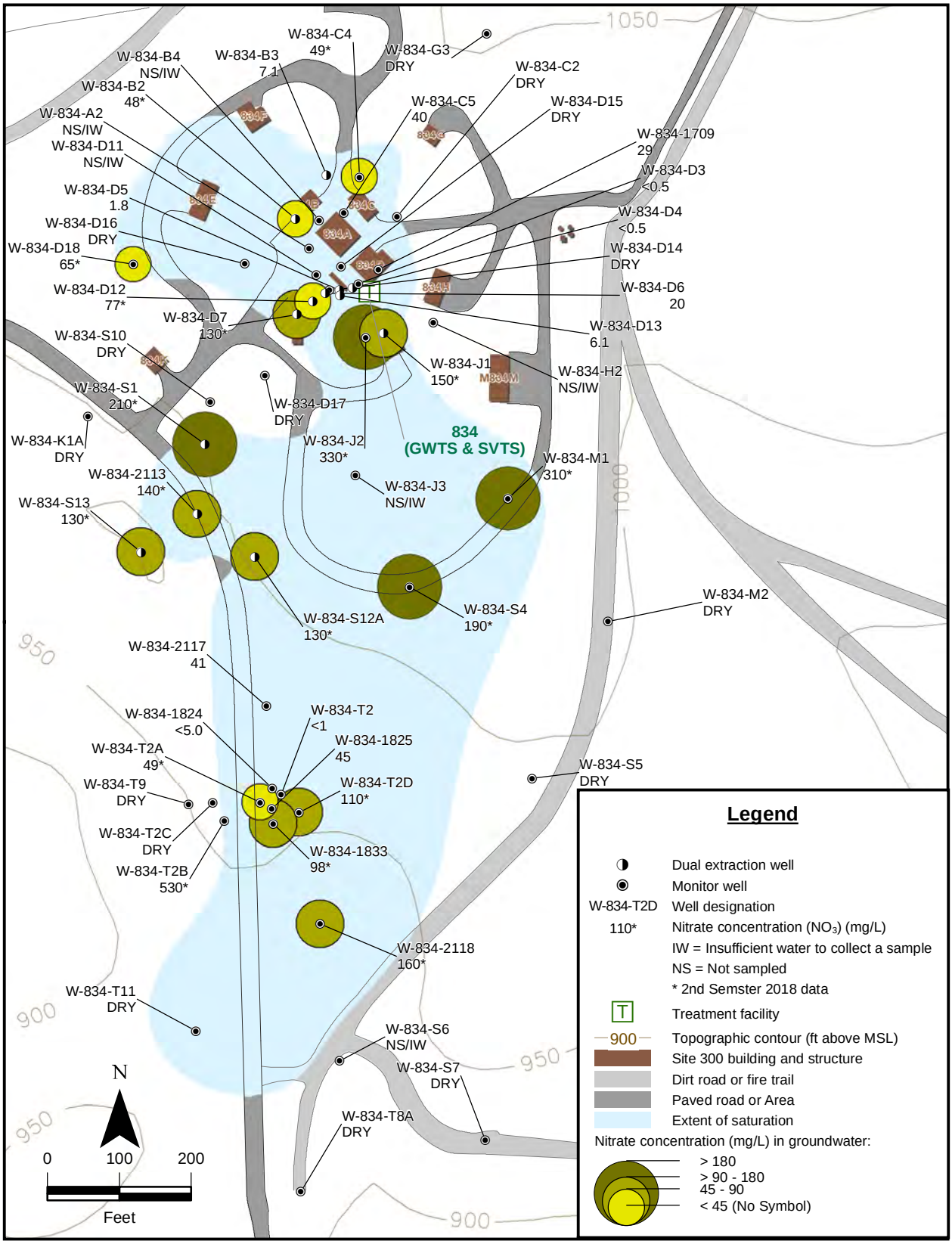


Figure 2.2-6. Building 834 Operable Unit map showing nitrate concentrations for the Tpsg perched water-bearing zone, first semester 2018.

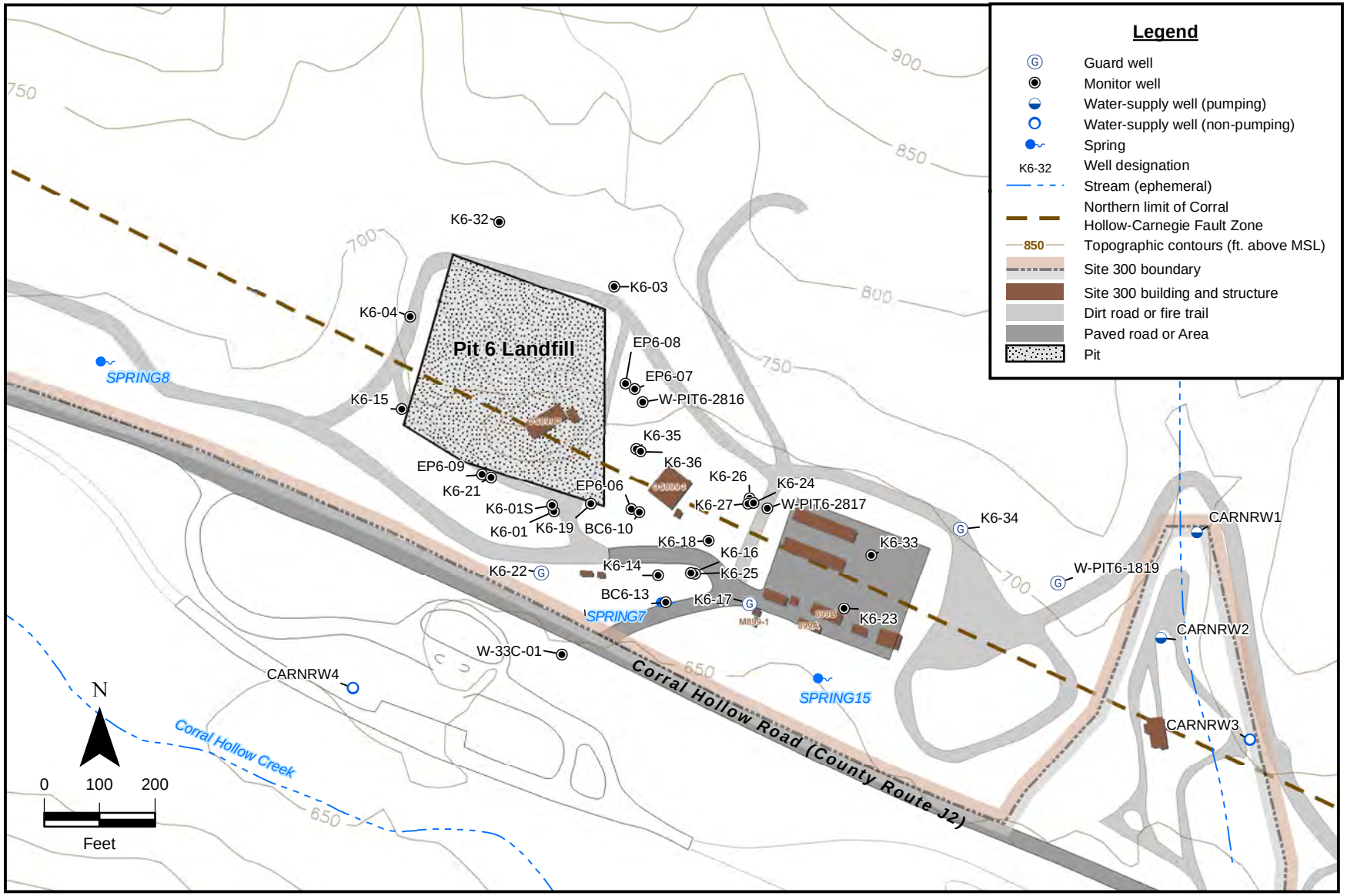


Figure 2.3-1. Pit 6 Landfill Operable Unit site map showing monitor and water-supply wells, second semester 2018.

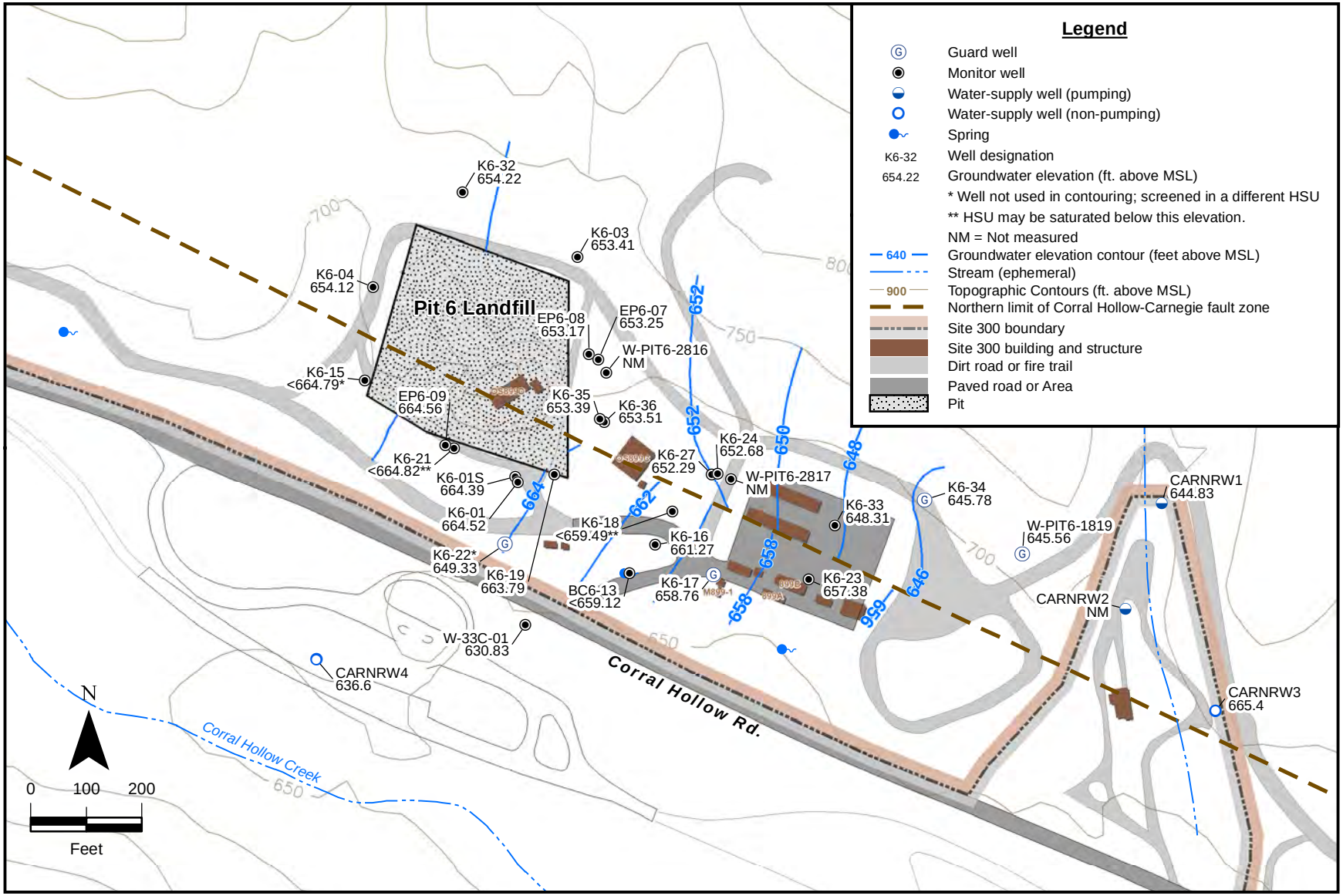


Figure 2.3-2. Pit 6 Landfill Operable Unit groundwater potentiometric surface map for the Qt-Tnbs$_1$ hydrostratigraphic unit, second semester 2018.

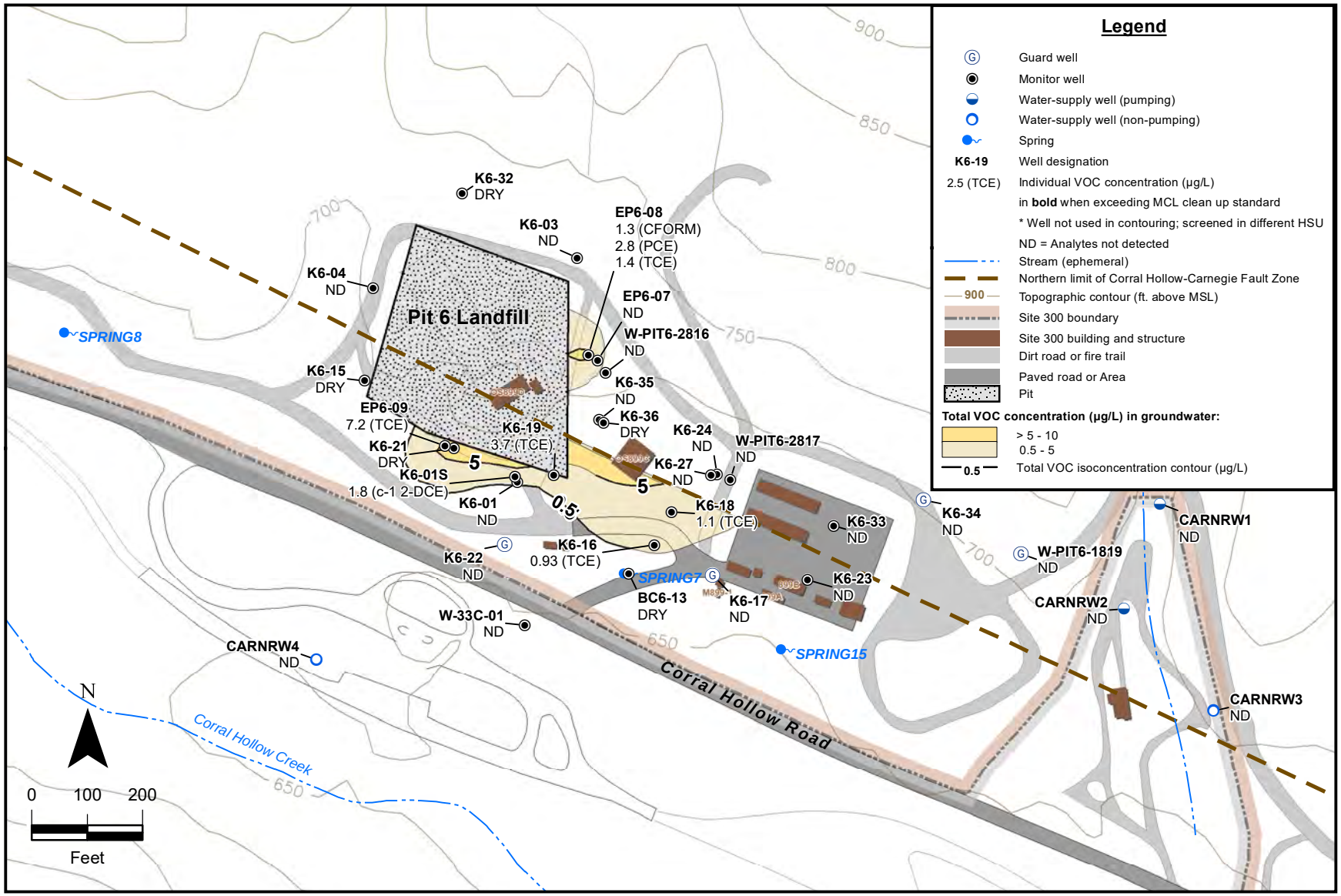


Figure 2.3-3. Pit 6 Landfill Operable Unit total VOC isoconcentration contour map and individual VOC concentrations for the Qt-Tnbs$_1$ hydrostratigraphic unit, second semester 2018.

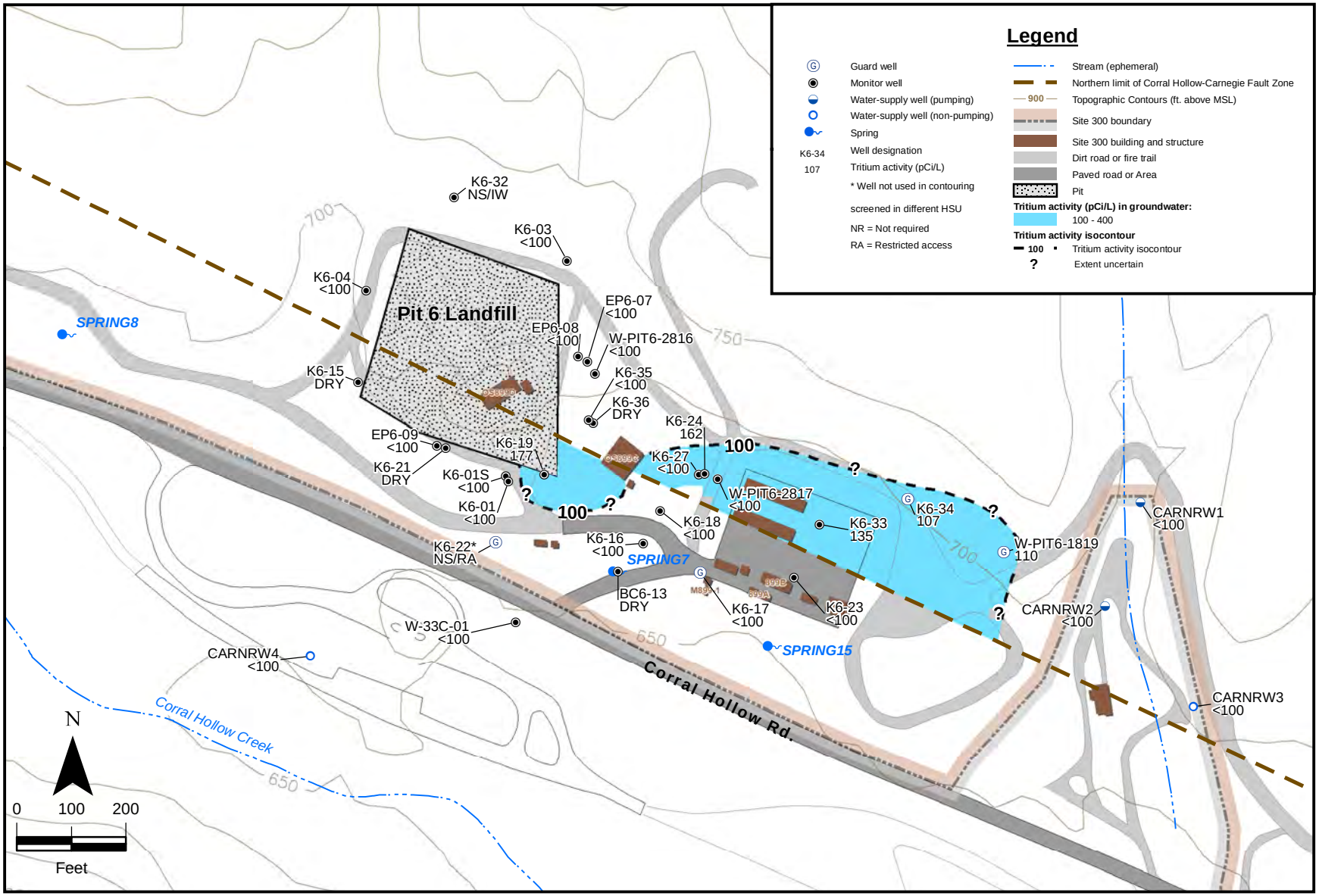


Figure 2.3-4. Pit 6 Landfill Operable Unit tritium activity isocontour map for the Qt-Tnbs$_1$ hydrostratigraphic unit, second semester 2018.

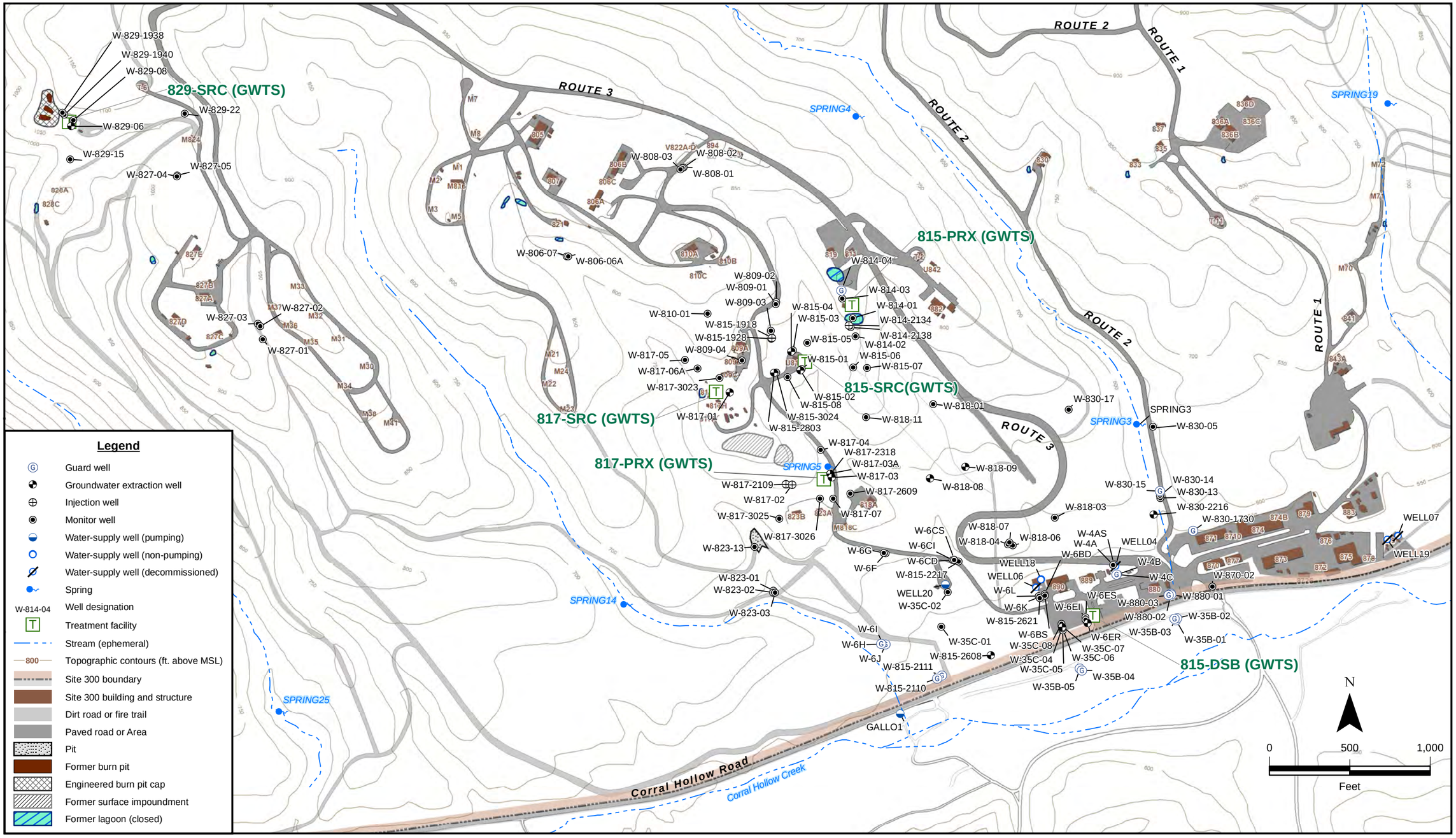


Figure 2.4-1. High Explosives Process Area Operable Unit site map showing monitor, extraction, injection and water-supply wells, and treatment facilities, second semester 2018.

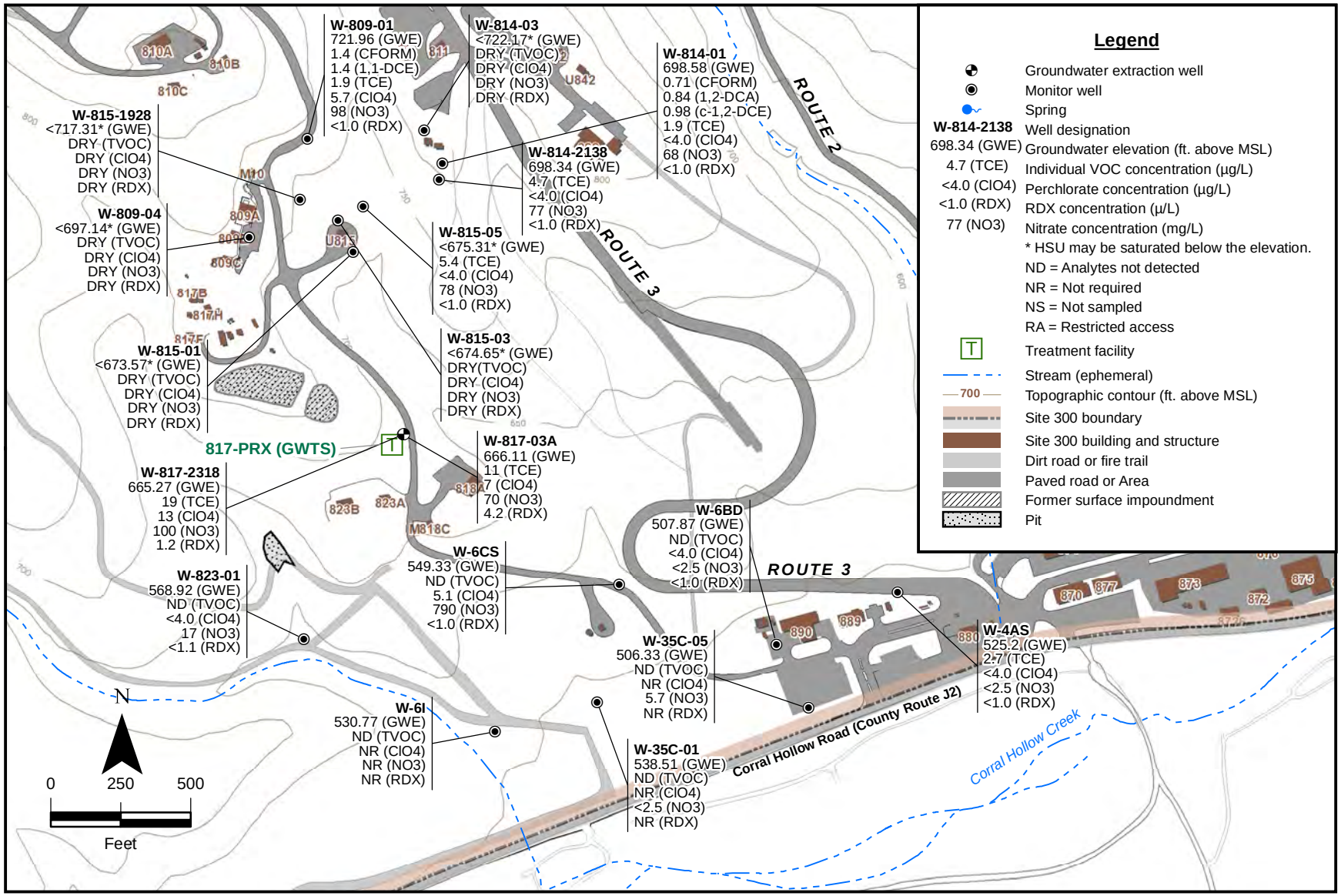


Figure 2.4-2. High Explosives Process Area Operable Unit map showing groundwater elevations and individual VOC, perchlorate, RDX, and nitrate concentrations for the Tpsg-Tps hydrostratigraphic unit, first and second semesters 2018.

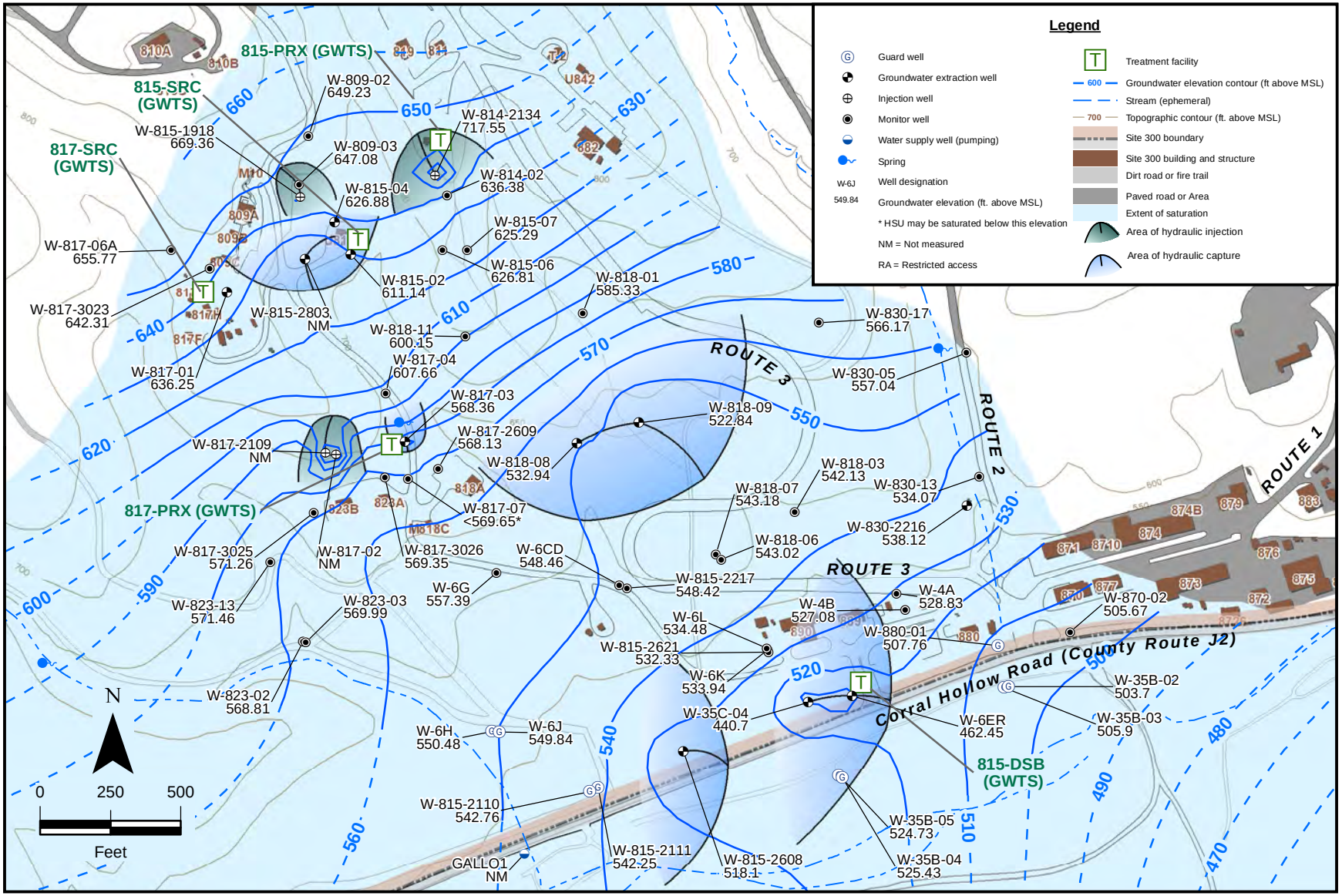


Figure 2.4-3. High Explosives Process Area Operable Unit groundwater potentiometric surface map for the Tnbs$_2$ hydrostratigraphic unit, second semester 2018.

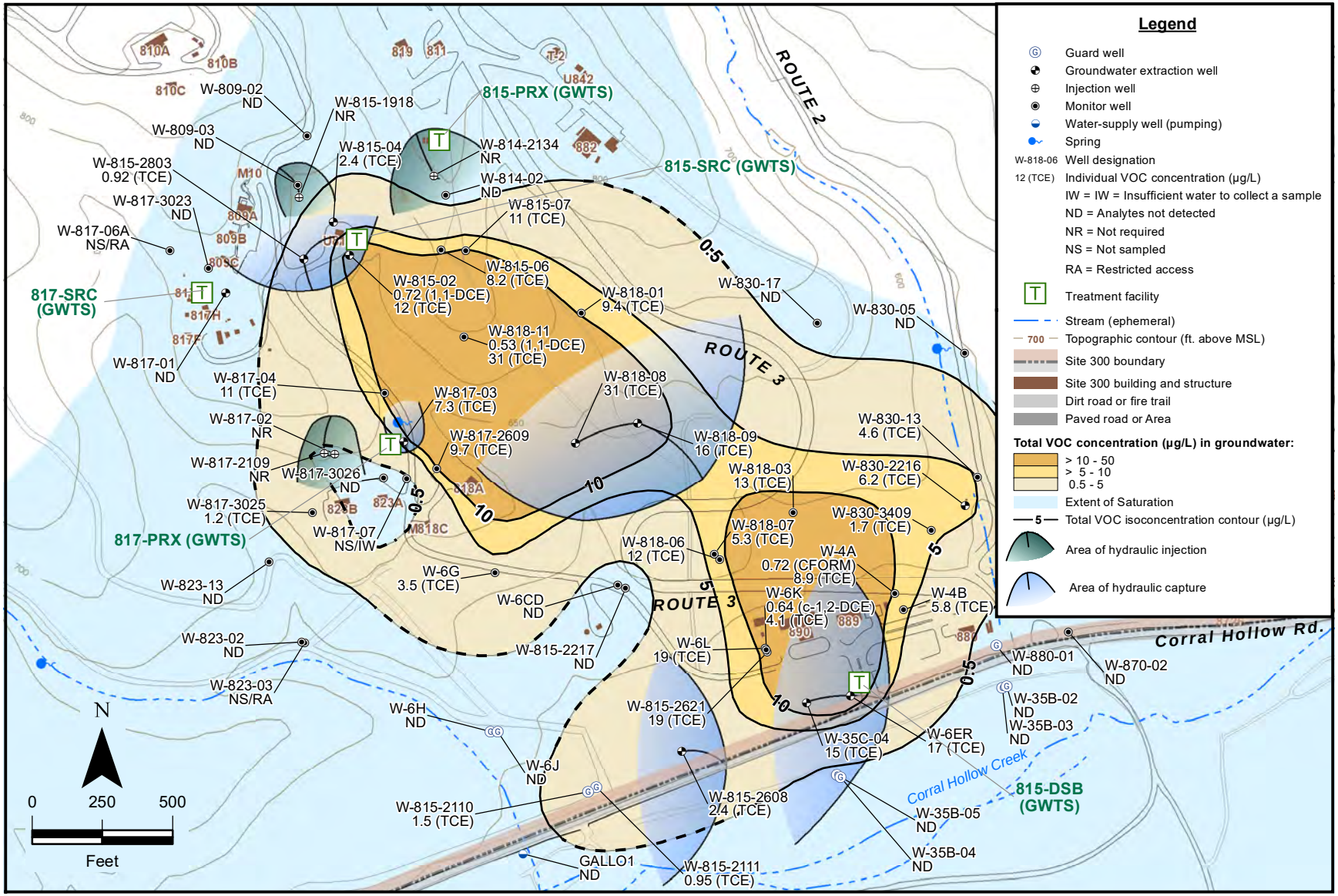


Figure 2.4-4. High Explosives Process Area Operable Unit total VOC isoconcentration contour map for the Tnbs$_2$ hydrostratigraphic unit, second semester 2018.

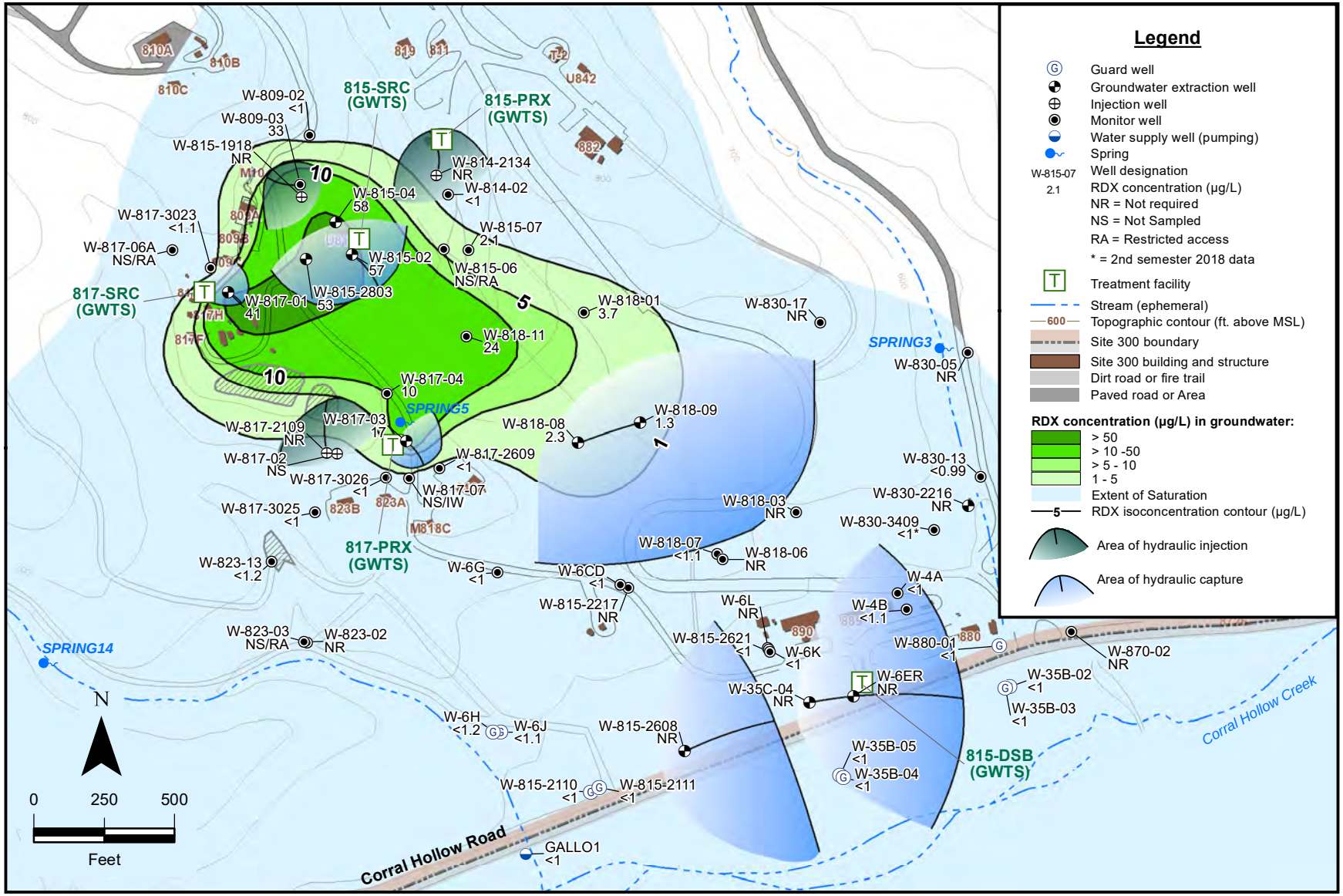


Figure 2.4-5. High Explosives Process Area Operable Unit RDX isoconcentration contour map for the $Tnbs_2$ hydrostratigraphic unit, first semester 2018.

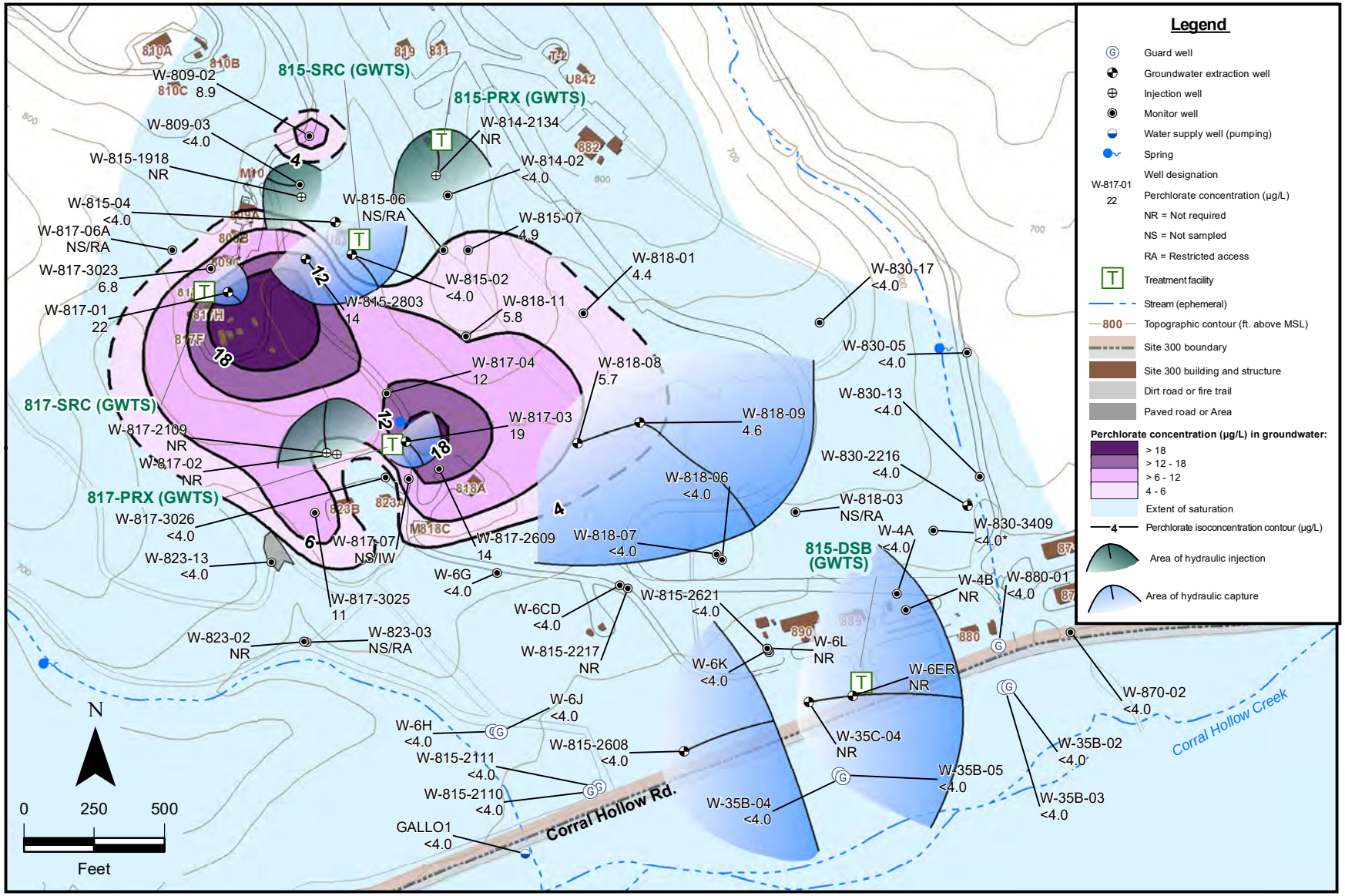


Figure 2.4-6. High Explosives Process Area Operable Unit perchlorate isoconcentration contour map for the $Tnbs_2$ hydrostratigraphic unit, first semester 2018.

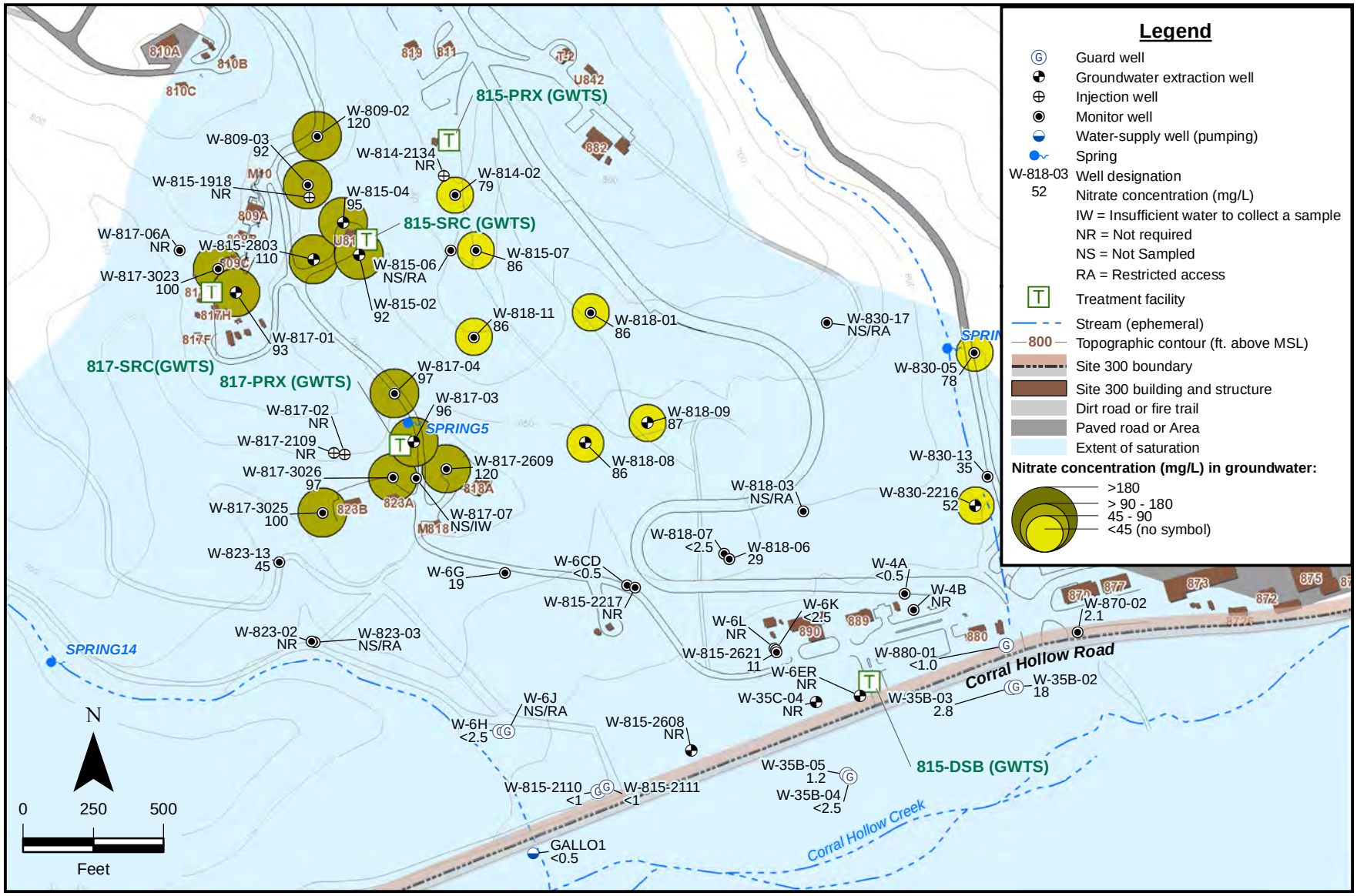


Figure 2.4-7. High Explosives Process Area Operable Unit map showing nitrate concentrations for the $Tnbs_2$ hydrostratigraphic unit, first semester 2018.

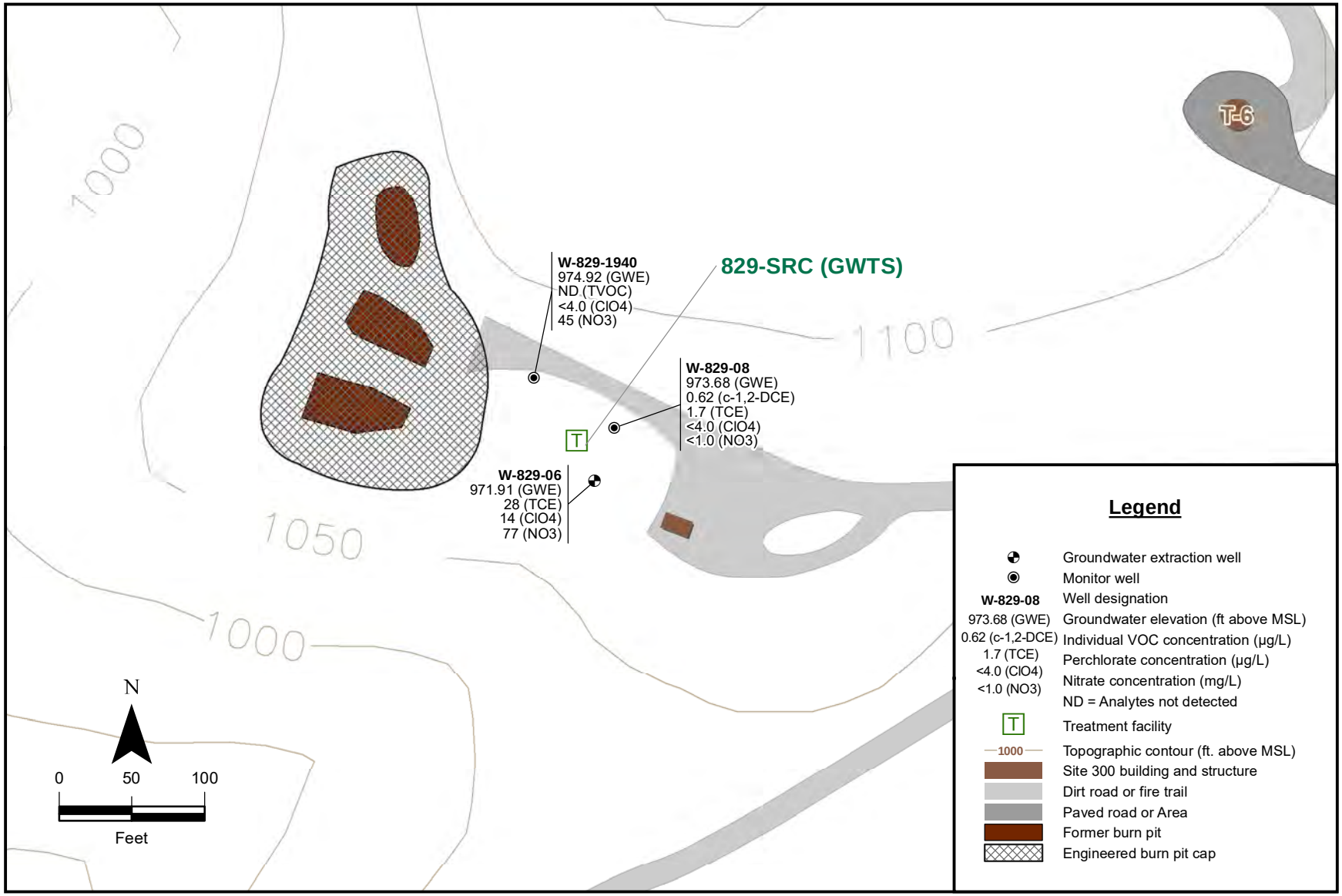


Figure 2.4-8. Building 829 burn pit site map showing monitor and extraction wells; groundwater elevations; and individual VOC, perchlorate, and nitrate concentrations for the $Tnsc_{1b}$ hydrostratigraphic unit, first and second semesters 2018.

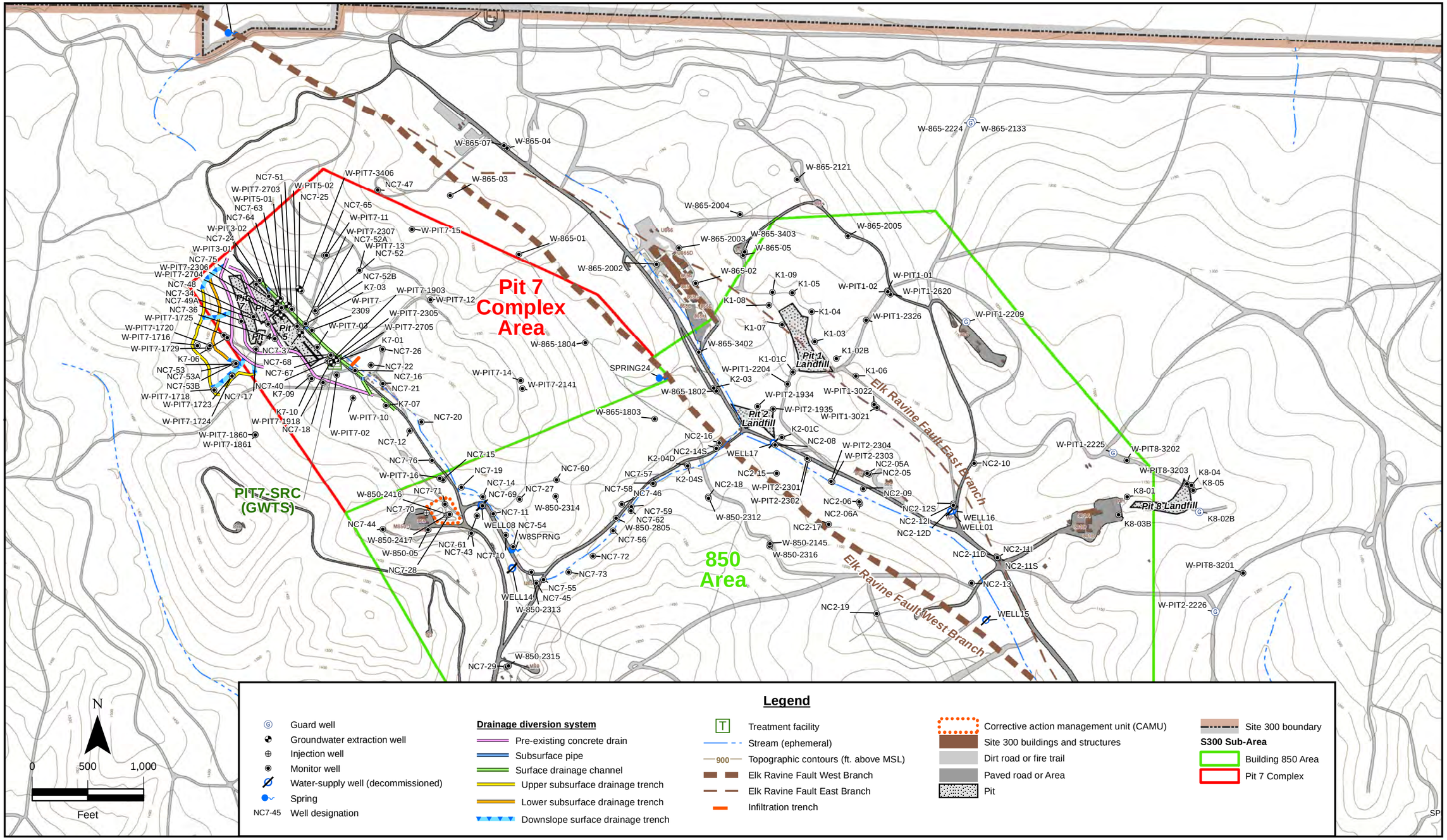


Figure 2.5-1. Building 850 and Pit 7 Complex area site map showing monitor, extraction, and injection wells, treatment facility, and other remediation features, second semester 2018.

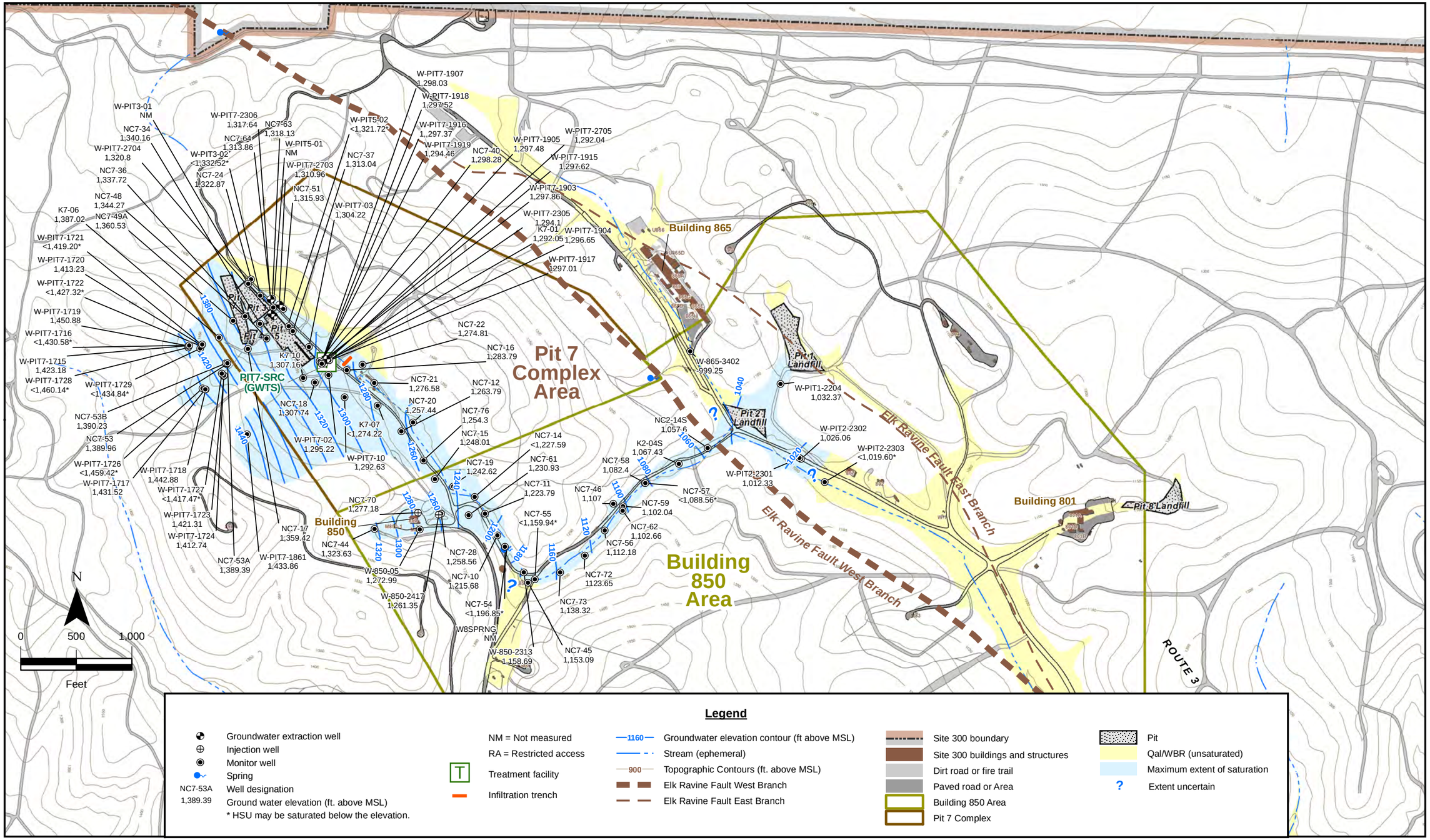


Figure 2.5-2. Building 850 and Pit 7 Complex area groundwater potentiometric surface map for the Qal/WBR hydrostratigraphic unit, second semester 2018.

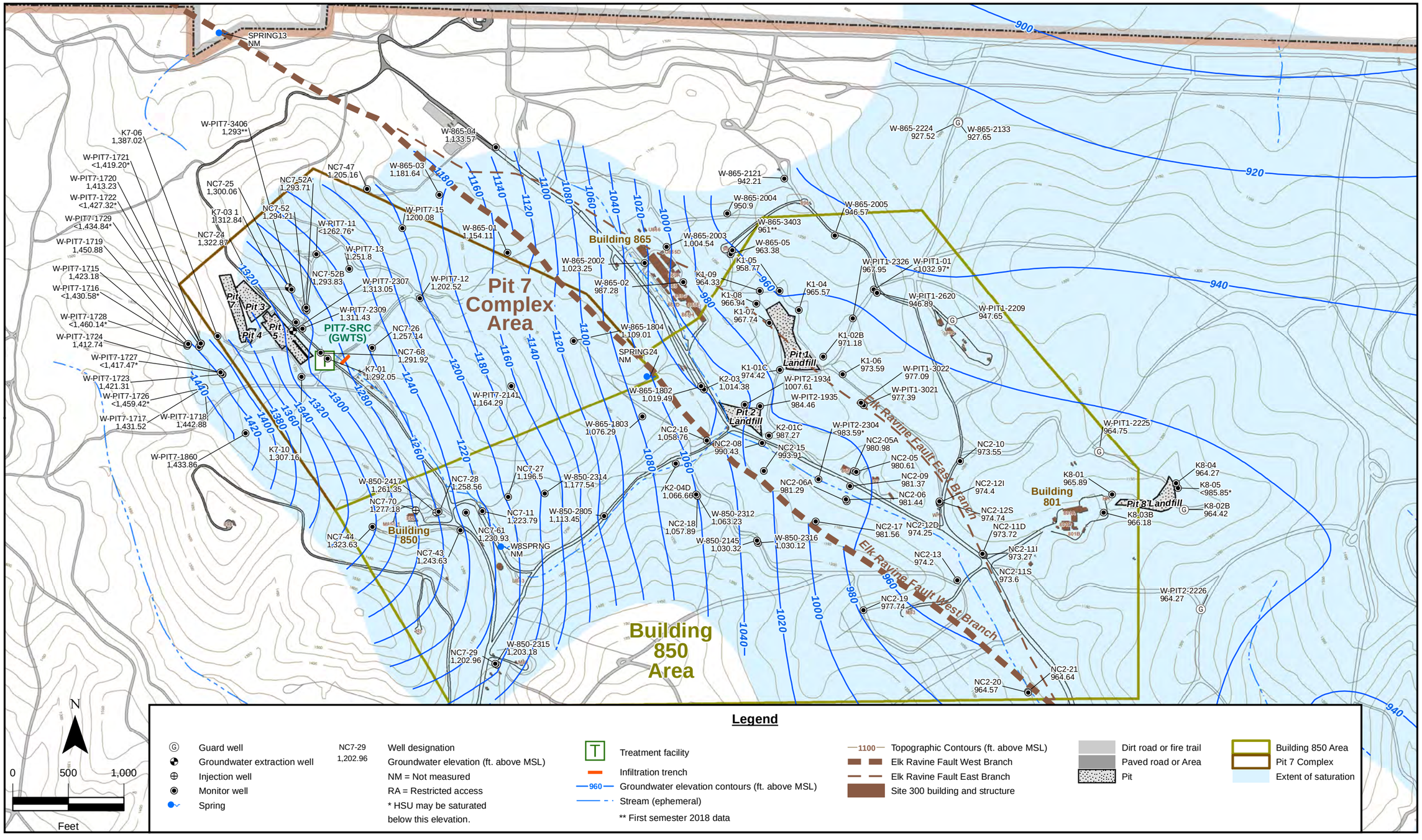


Figure 2.5-3. Building 850 and Pit 7 Complex area groundwater potentiometric surface map for the $Tnbs_1/Tnbs_0$ hydrostratigraphic unit, second semester 2018.

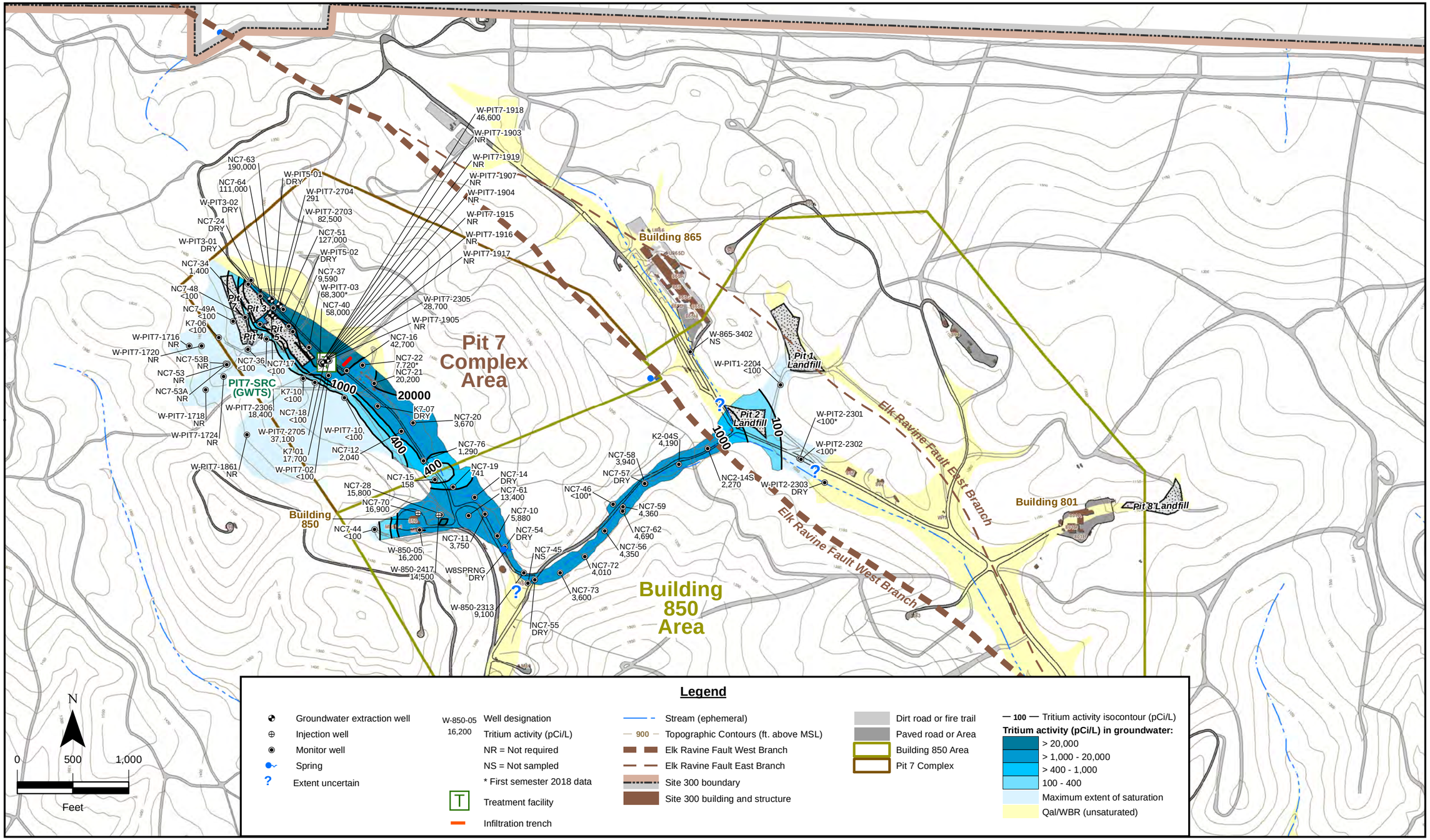


Figure 2.5-4. Building 850 and Pit 7 Complex area tritium activity isocontour map for the Qal/WBR hydrostratigraphic unit, second semester 2018.

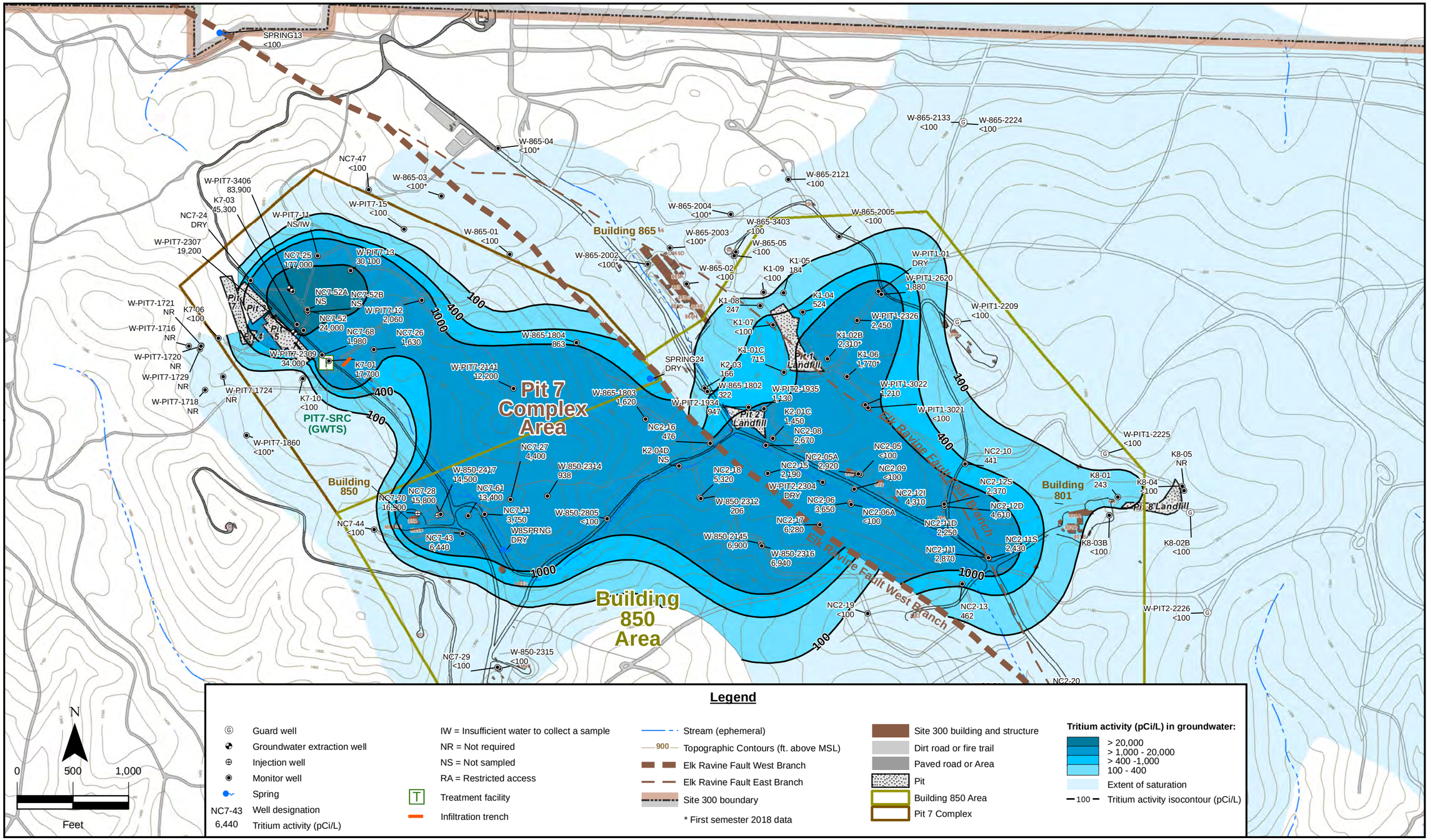


Figure 2.5-5. Building 850 and Pit 7 Complex area tritium activity isocontour map for the $Tnbs_1/Tnbs_0$ hydrostratigraphic unit, second semester 2018.

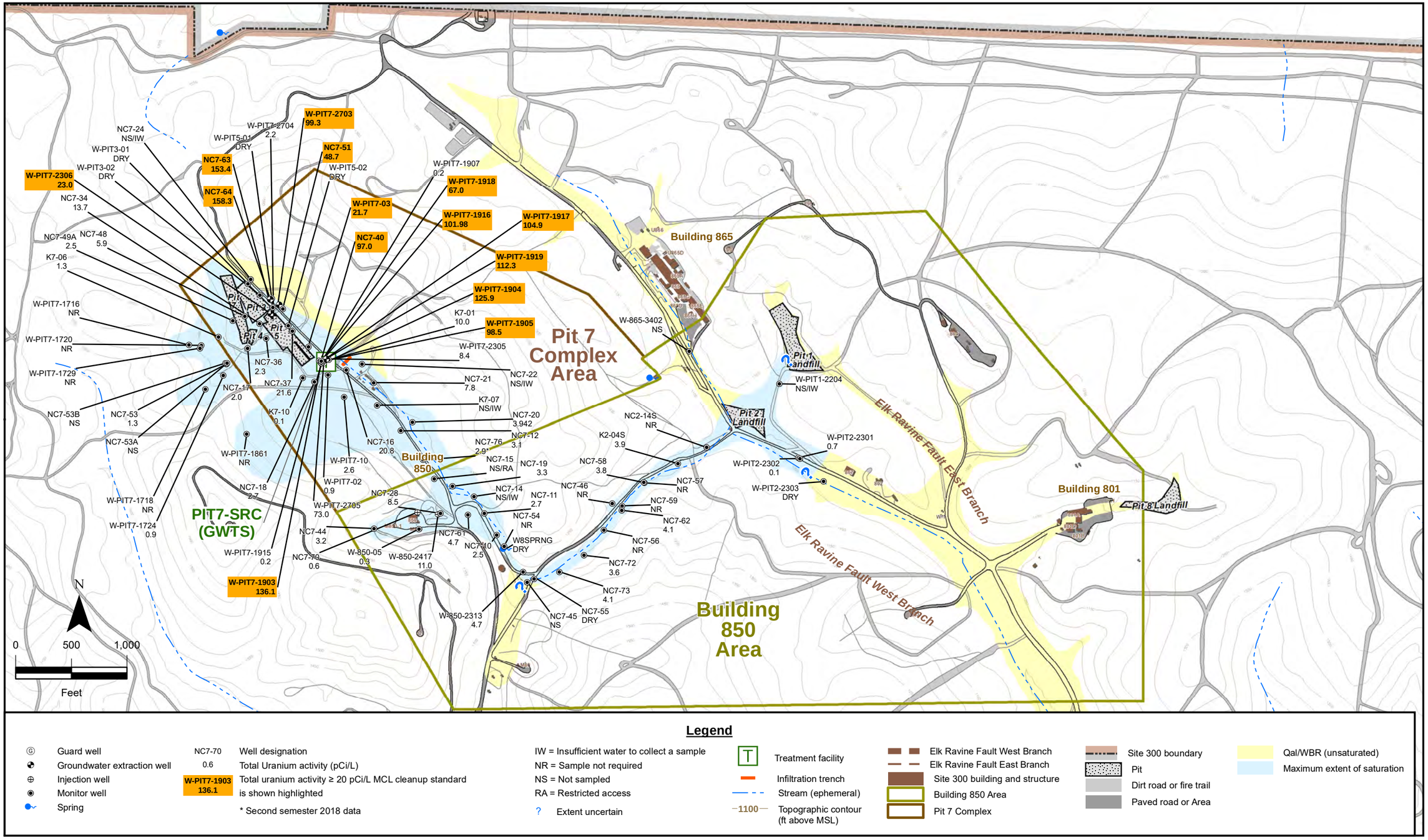


Figure 2.5-6. Building 850 and Pit 7 Complex area map showing groundwater uranium activities for the Qal/WBR hydrostratigraphic unit, first semester 2018.

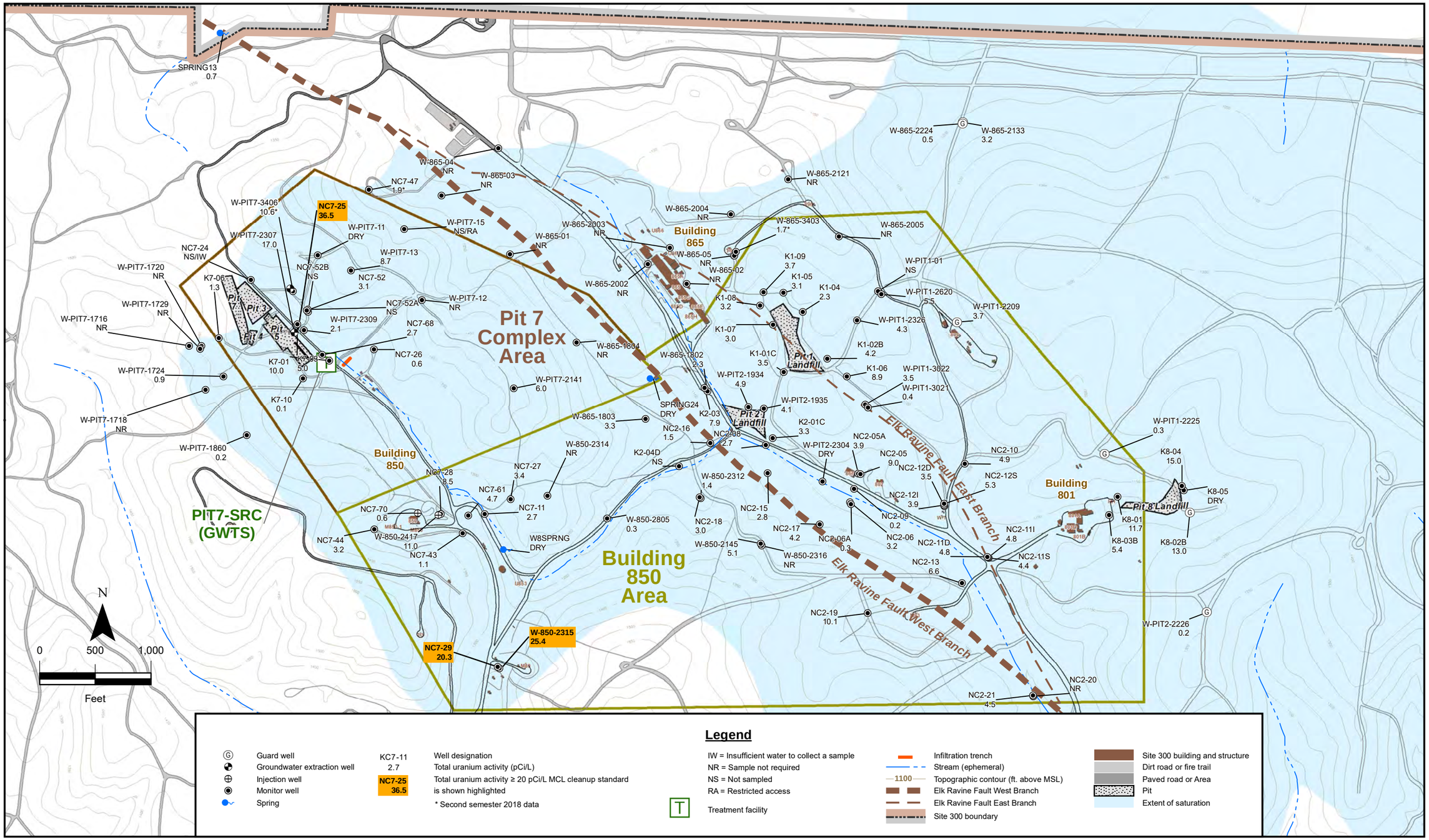


Figure 2.5-7. Building 850 and Pit 7 Complex area map showing groundwater uranium activities for the $Tnbs_1/Tnbs_0$ hydrostratigraphic unit, first semester 2018.

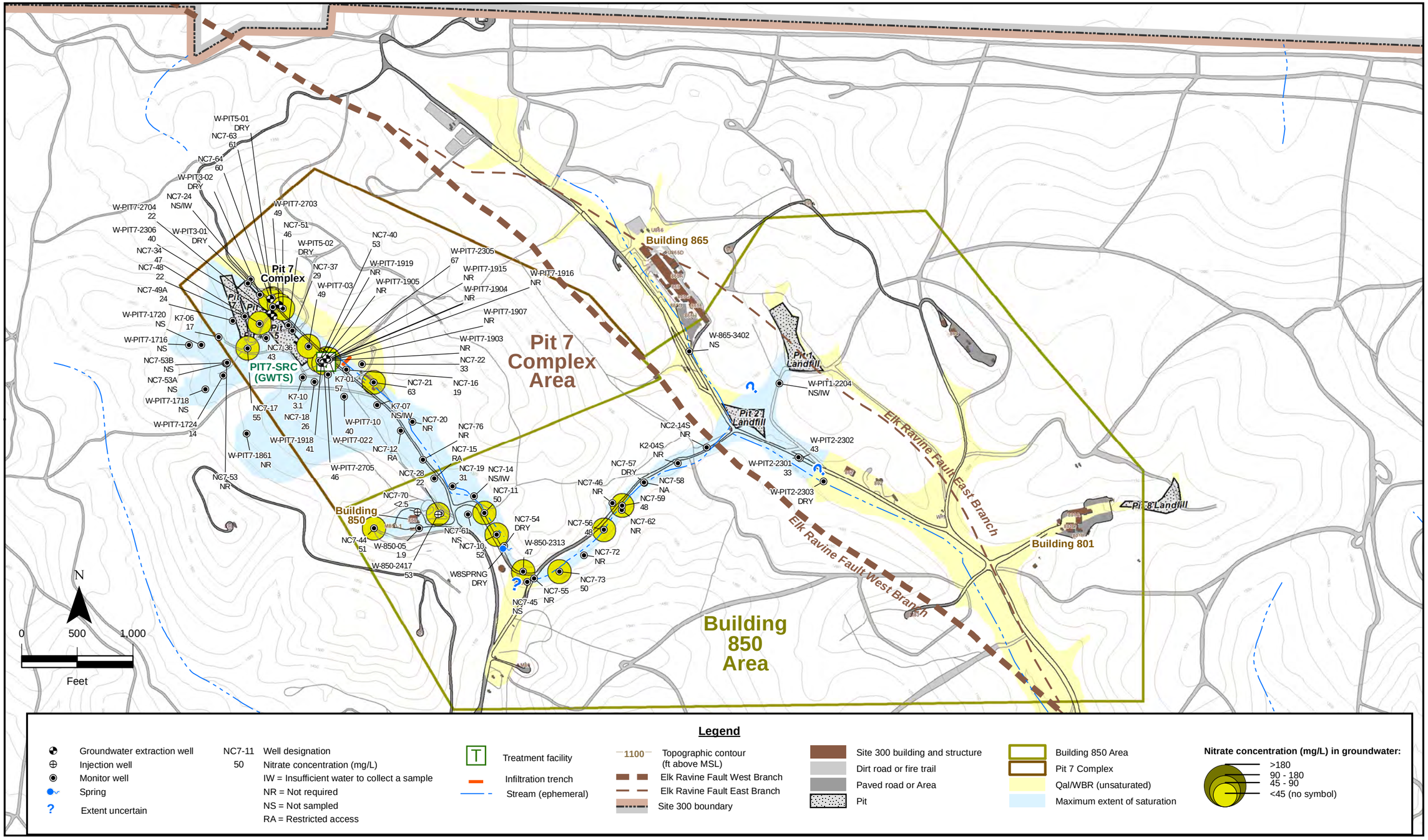


Figure 2.5-8. Building 850 and Pit 7 Complex area map showing nitrate concentrations for the Qal/WBR hydrostratigraphic unit, first semester 2018.

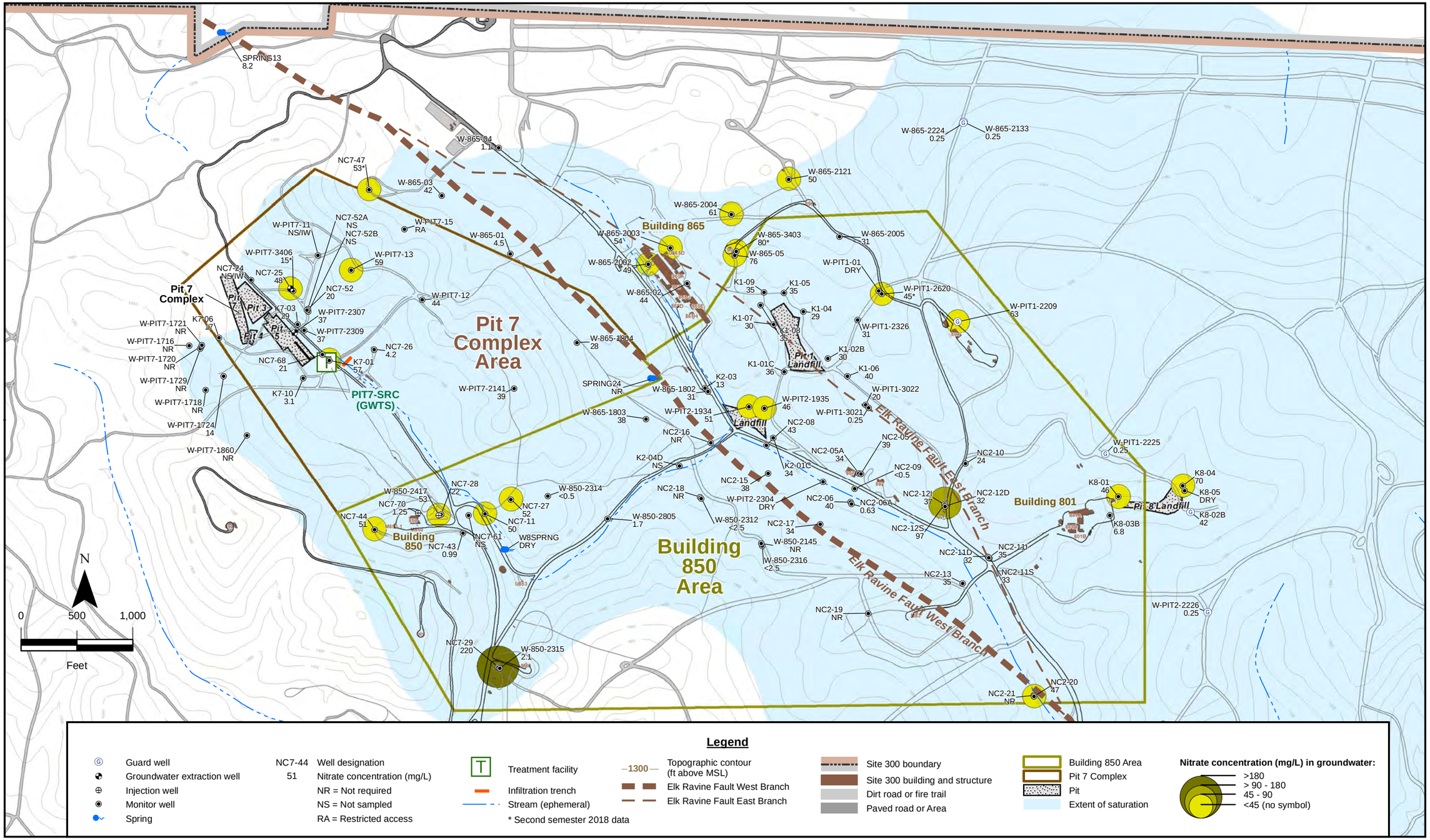


Figure 2.5-9. Building 850 and Pit 7 Complex area map showing nitrate concentrations for the $Tnbs_1/Tnbs_0$ hydrostratigraphic unit, first semester 2018.

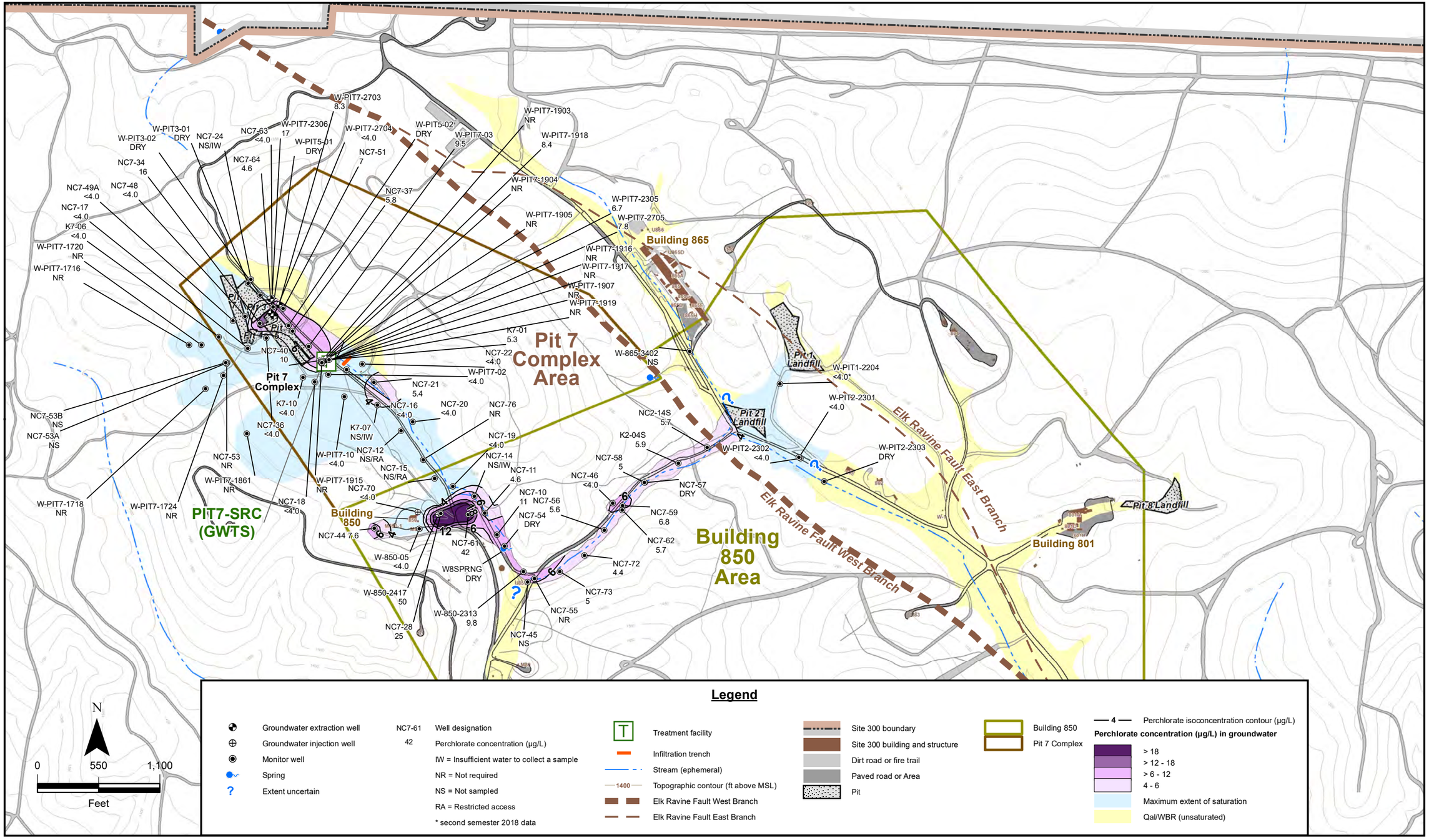


Figure 2.5-10. Building 850 and Pit 7 Complex area perchlorate isoconcentration contour map for the Qal/WBR hydrostratigraphic unit, first semester 2018.

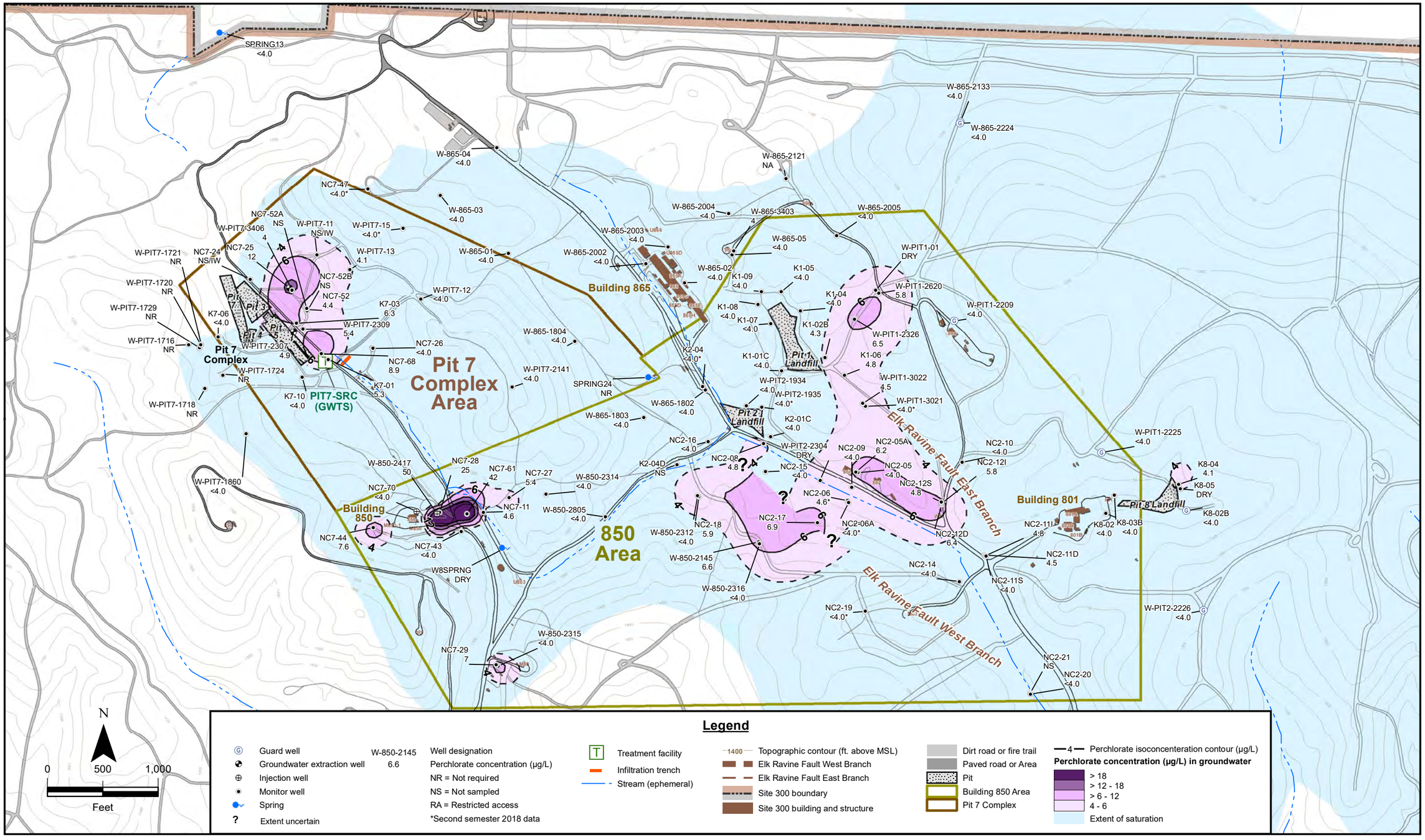


Figure 2.5-11. Building 850 and Pit 7 Complex area perchlorate isoconcentration contour map for the $Tnbs_1/Tnbs_0$ hydrostratigraphic unit, first semester 2018.

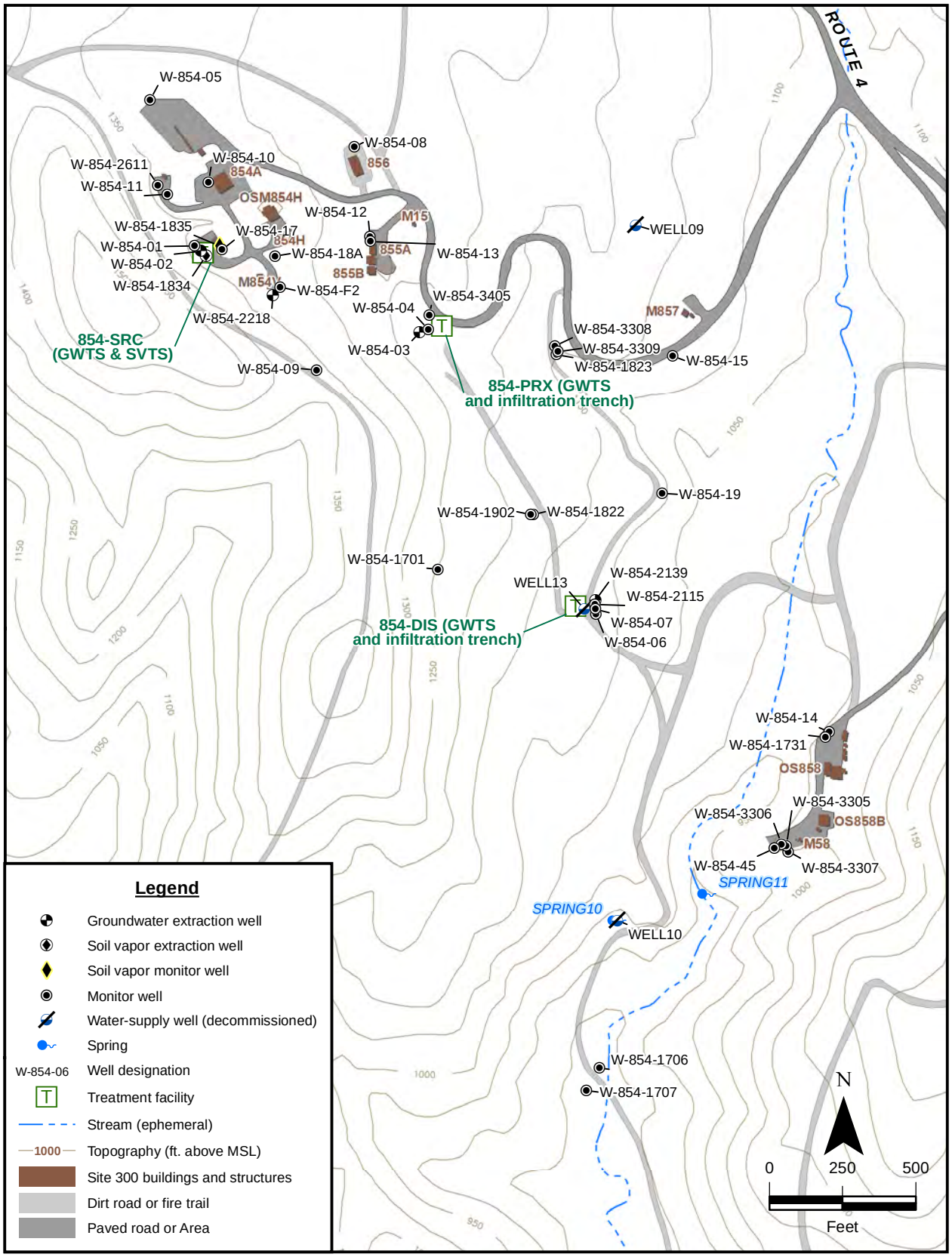


Figure 2.6-1. Building 854 Operable Unit site map showing monitor and extraction wells, and treatment facilities, second semester 2018.

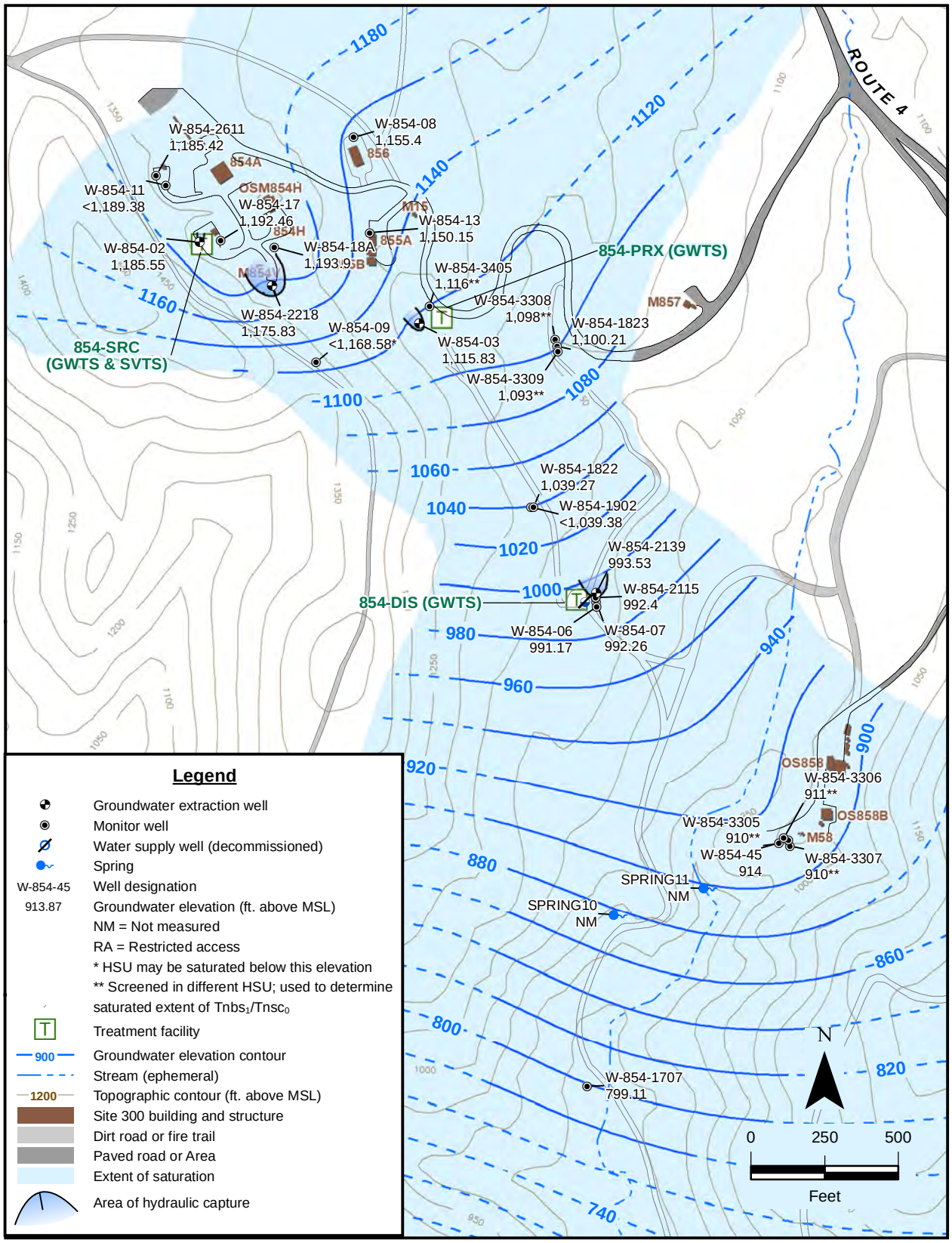


Figure 2.6-2. Building 854 Operable Unit groundwater potentiometric surface map for the $Tnbs_1/Tnsc_0$ hydrostratigraphic unit, second semester 2018.

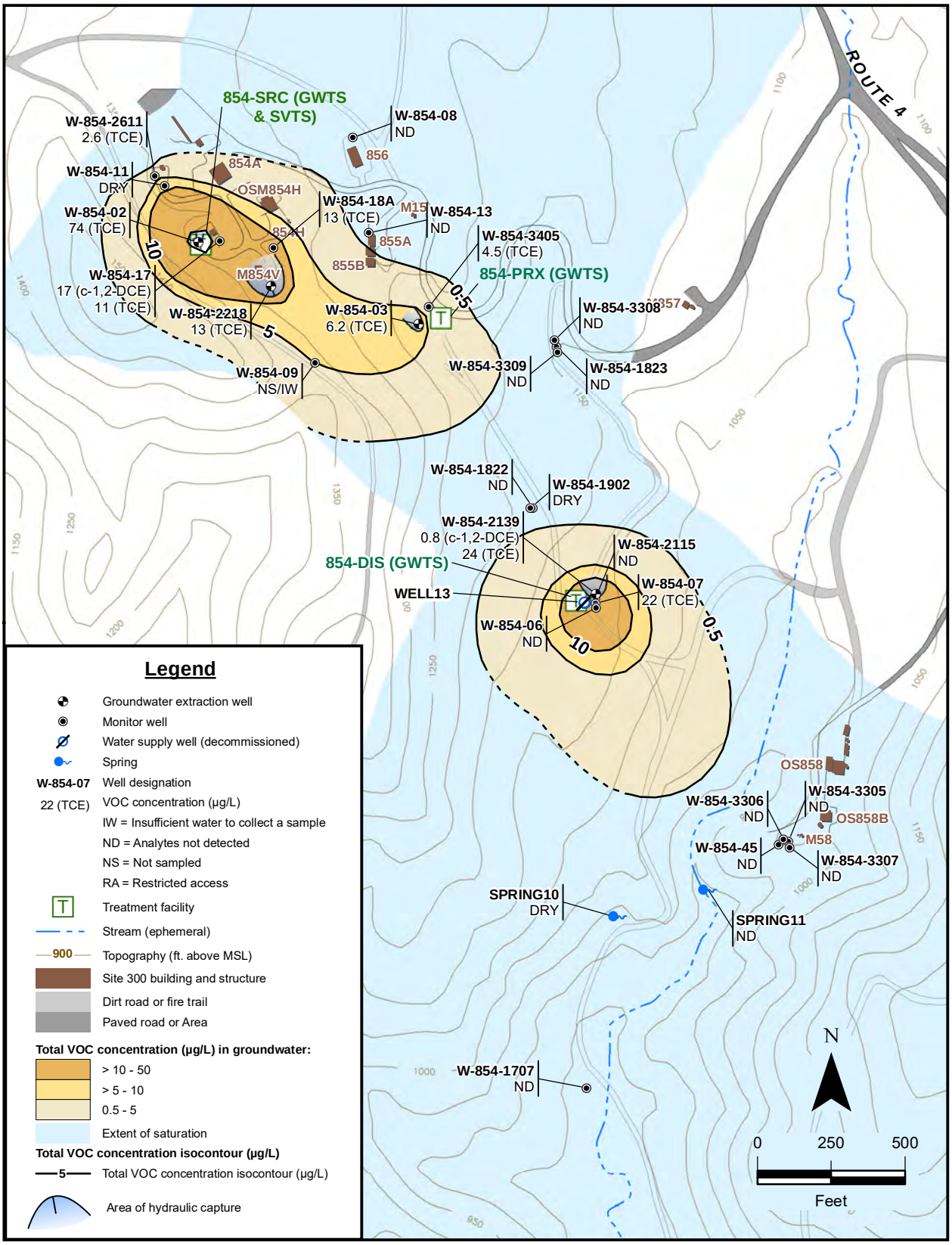


Figure 2.6-3. Building 854 Operable Unit total VOC isoconcentration contour map and individual VOC concentrations for the $Tnbs_1/Tnsc_0$ hydrostratigraphic unit, second semester 2018.

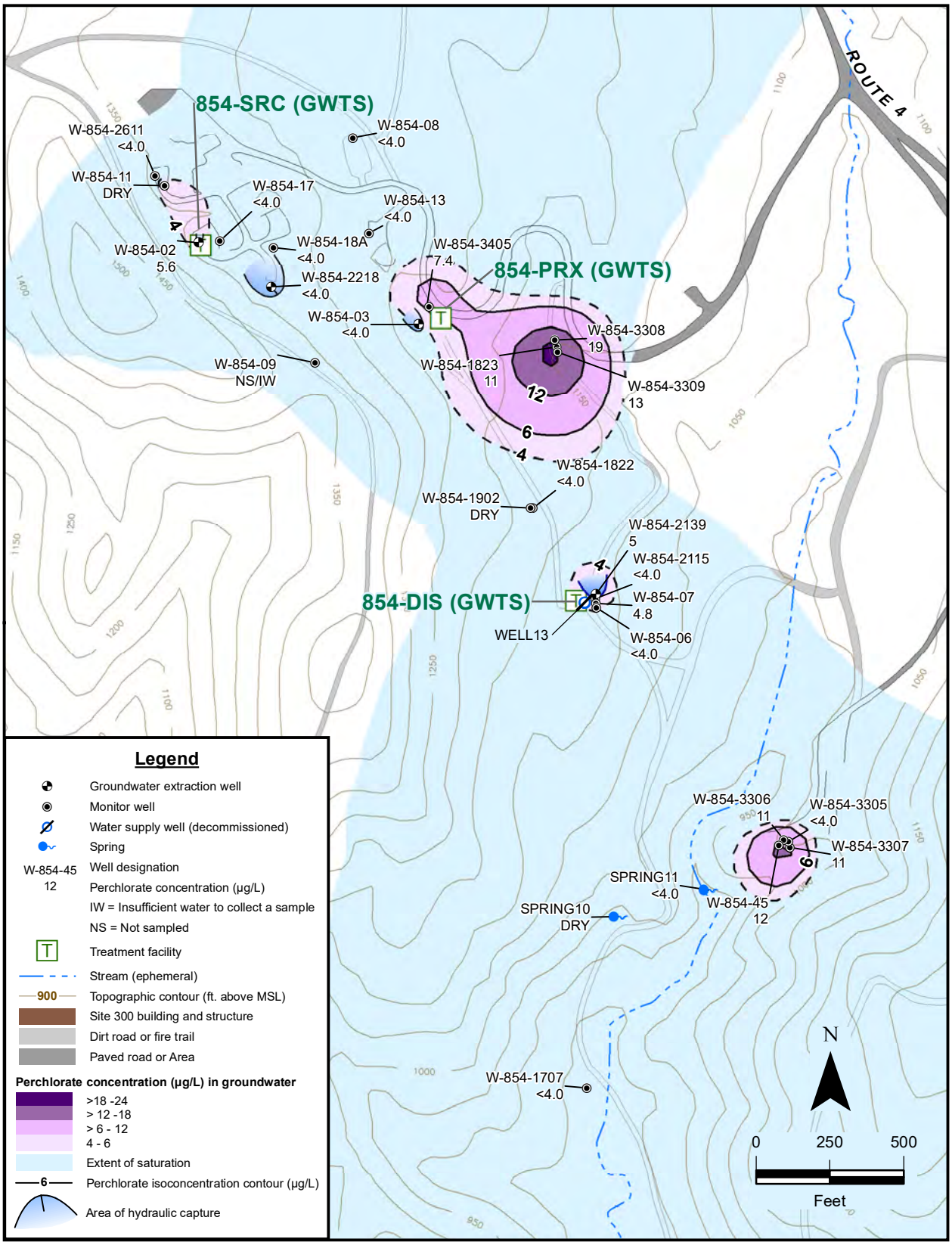


Figure 2.6-4. Building 854 Operable Unit perchlorate isoconcentration contour map for the $Tnbs_1/Tnsc_0$ hydrostratigraphic unit, second semester 2018.

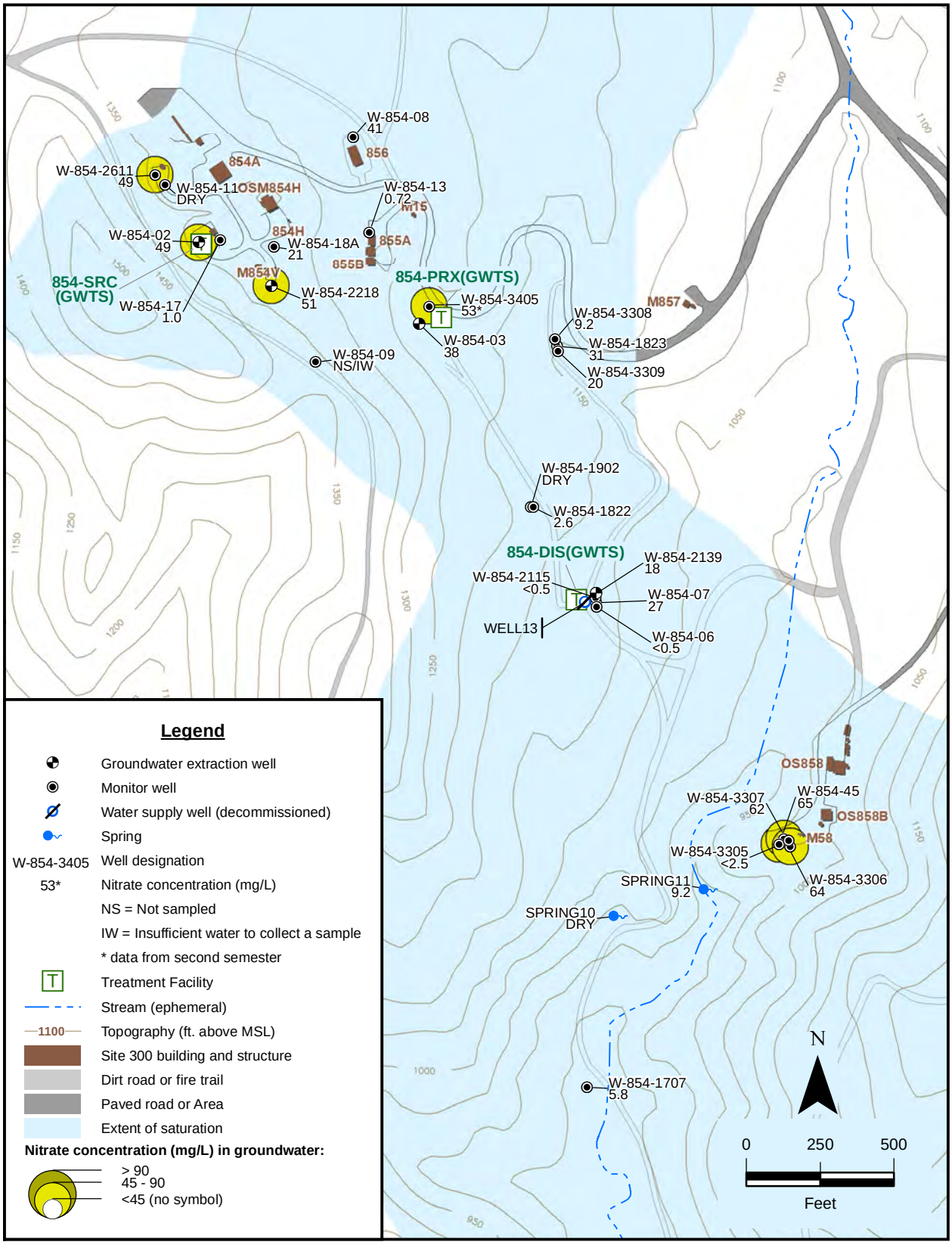


Figure 2.6-5. Building 854 Operable Unit map showing nitrate concentrations for the $Tnbs_1/Tnsc_0$ hydrostratigraphic unit, first semester 2018.

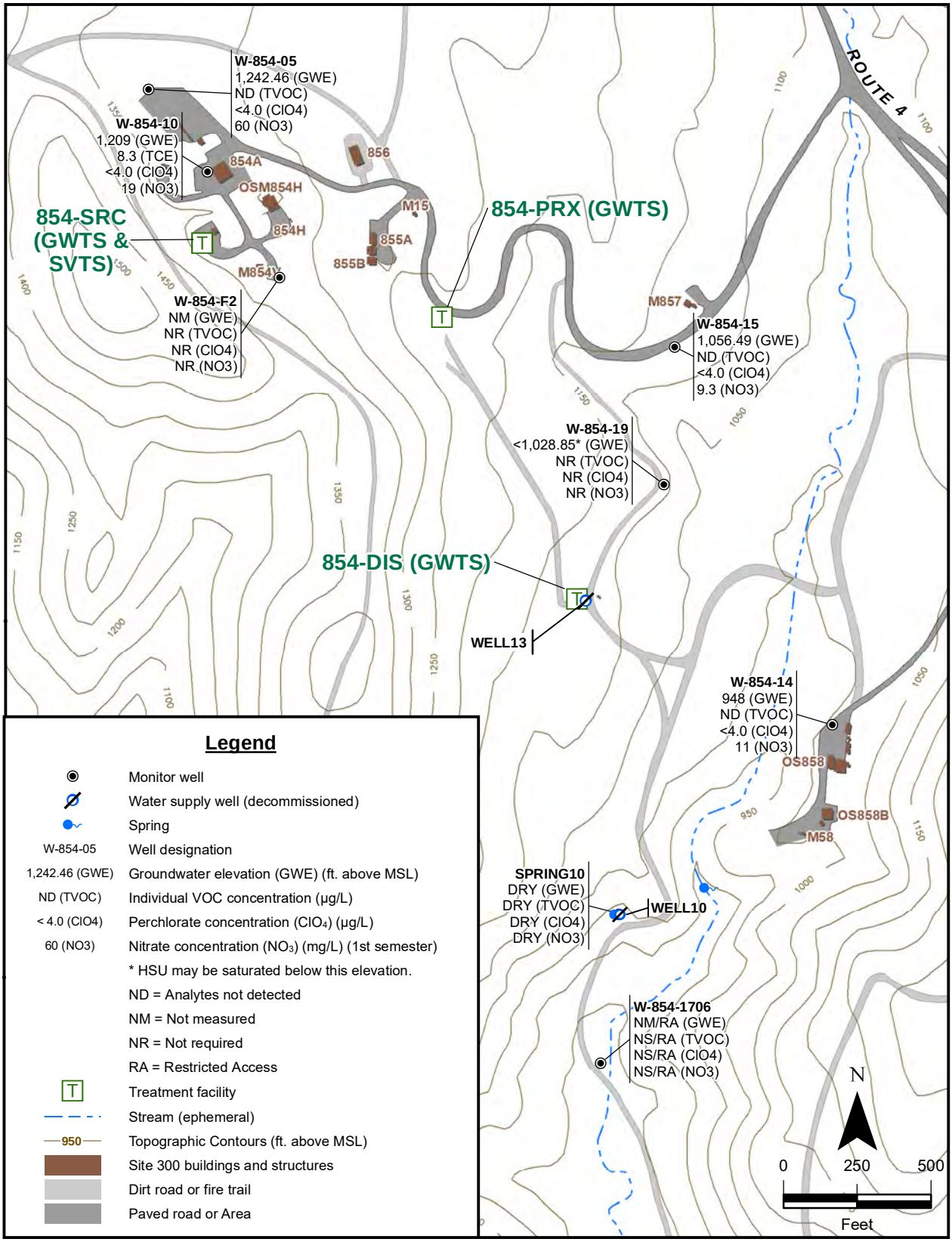


Figure 2.6-6. Building 854 Operable Unit map showing groundwater elevations, individual VOC, perchlorate, and nitrate concentrations for the combined Qls and $Tnbs_1$ hydrostratigraphic units, first and second semesters 2018.

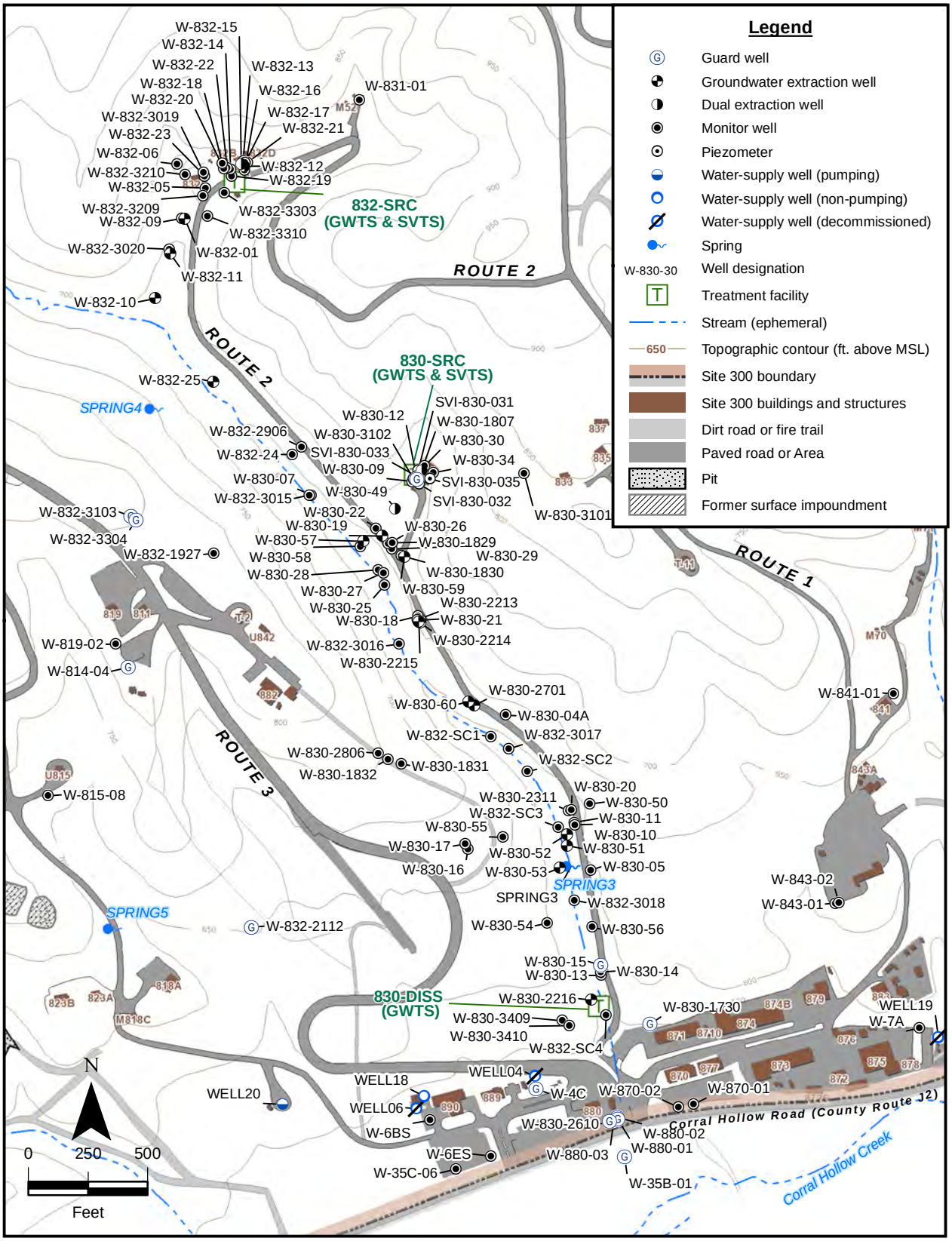


Figure 2.7-1. Building 832 Canyon Operable Unit site map showing monitor, extraction and water-supply wells, and treatment facilities, second semester 2018.

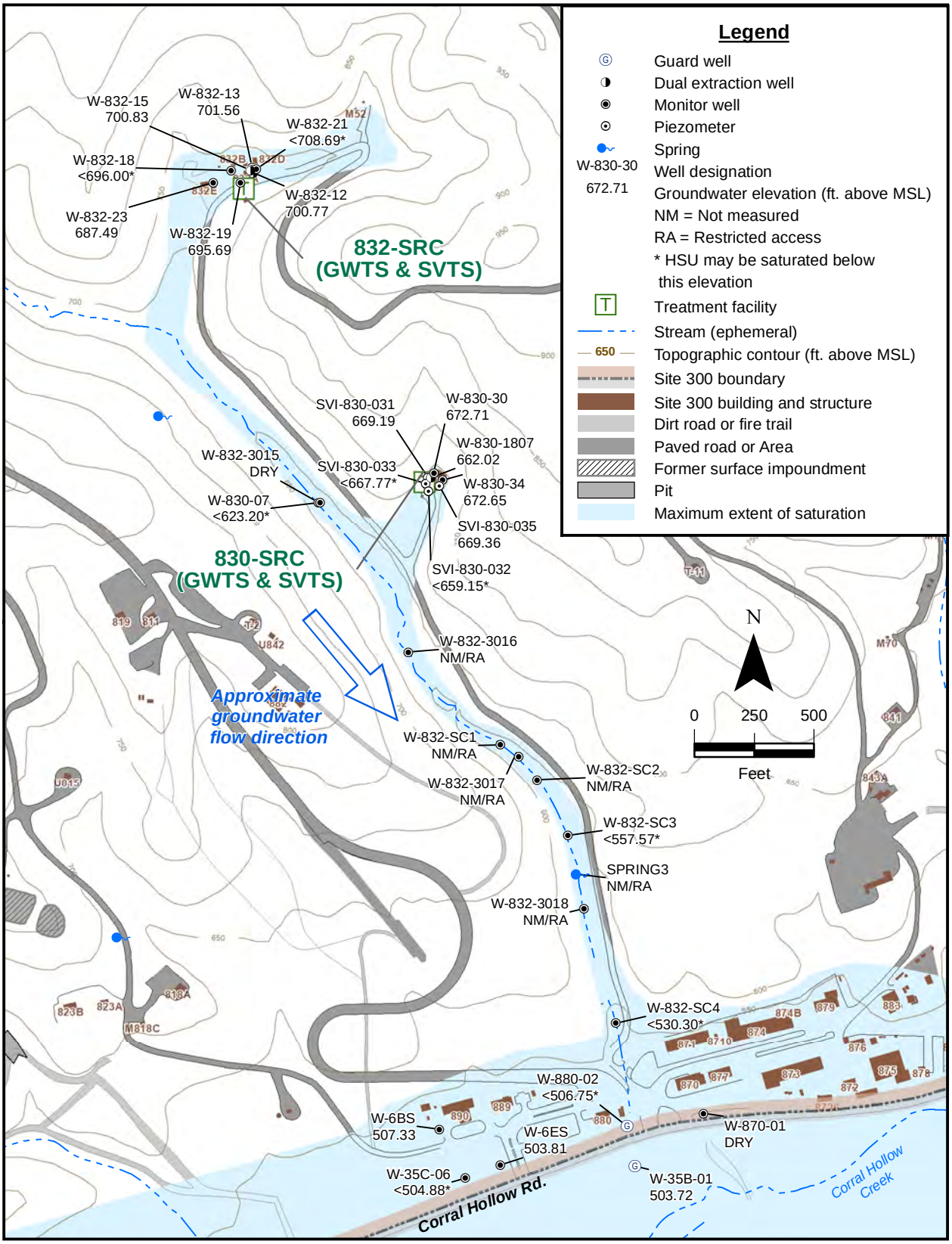


Figure 2.7-2. Building 832 Canyon Operable Unit map showing groundwater elevations and groundwater flow direction for the Qal/WBR hydrostratigraphic unit, second semester 2018.

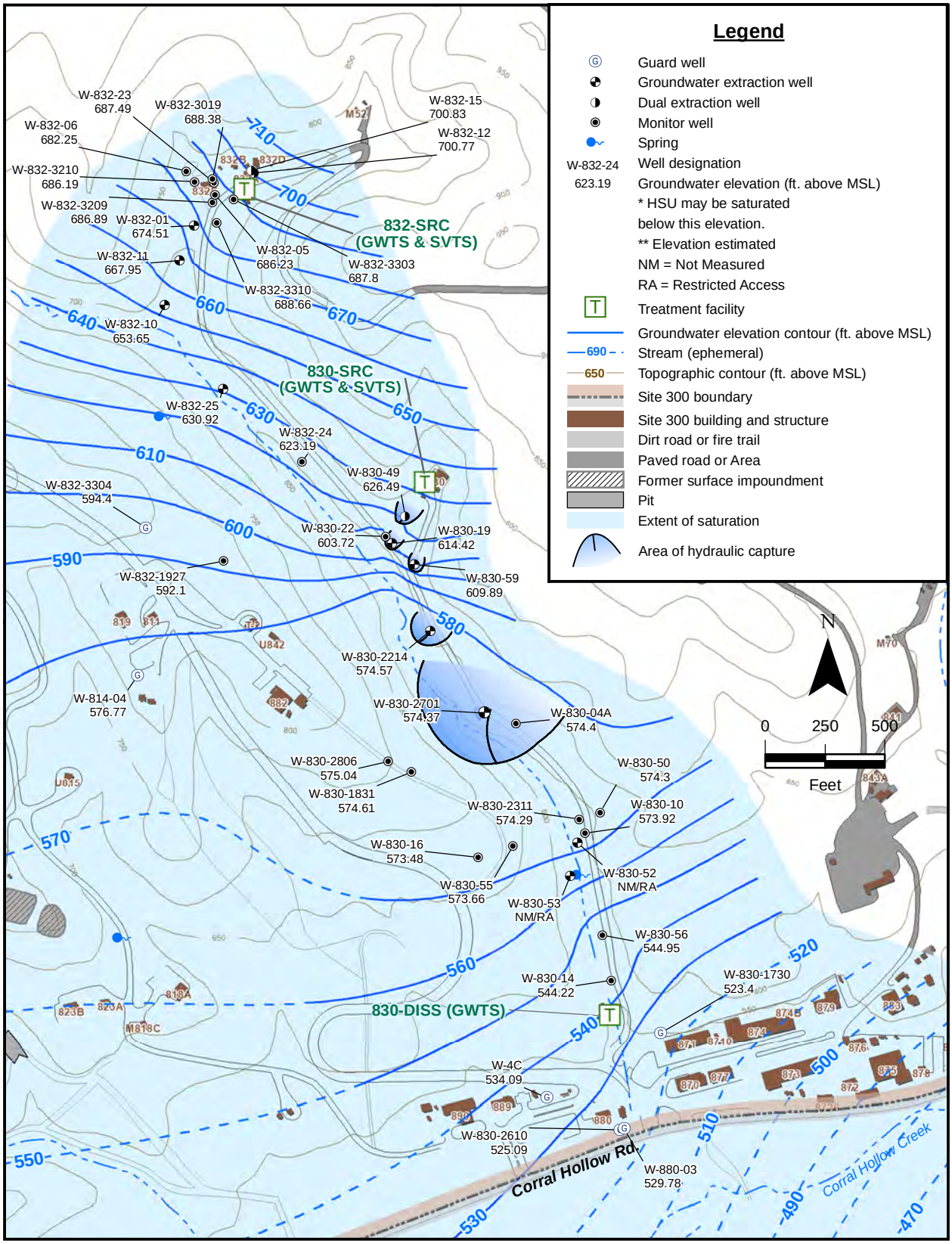


Figure 2.7-3. Building 832 Canyon Operable Unit groundwater potentiometric surface map for the $Tnsc_{1a/b}$ hydrostratigraphic unit, second semester 2018.

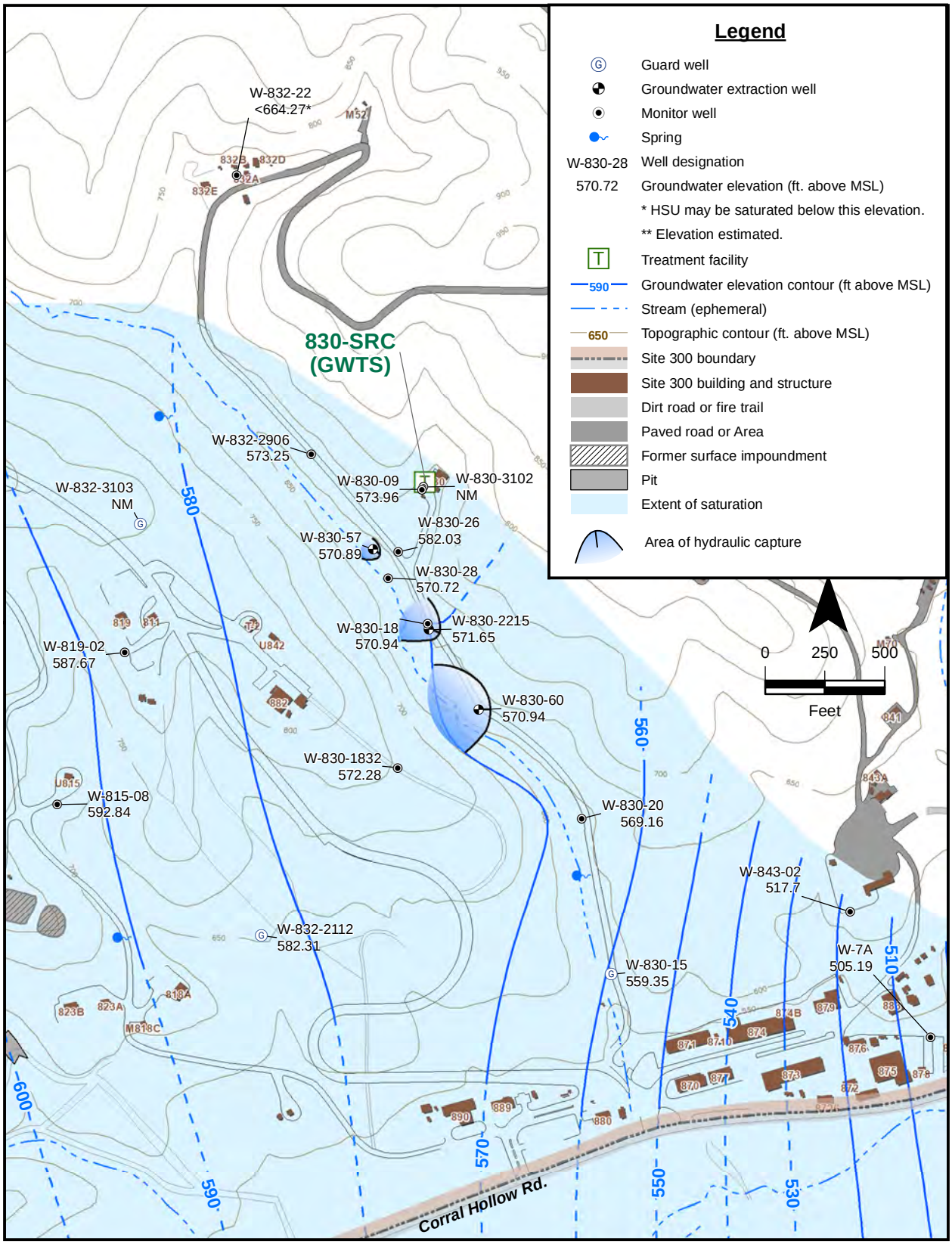


Figure 2.7-4. Building 832 Canyon Operable Unit groundwater potentiometric surface map for the Upper $Tnbs_1$ hydrostratigraphic unit, second semester 2018.

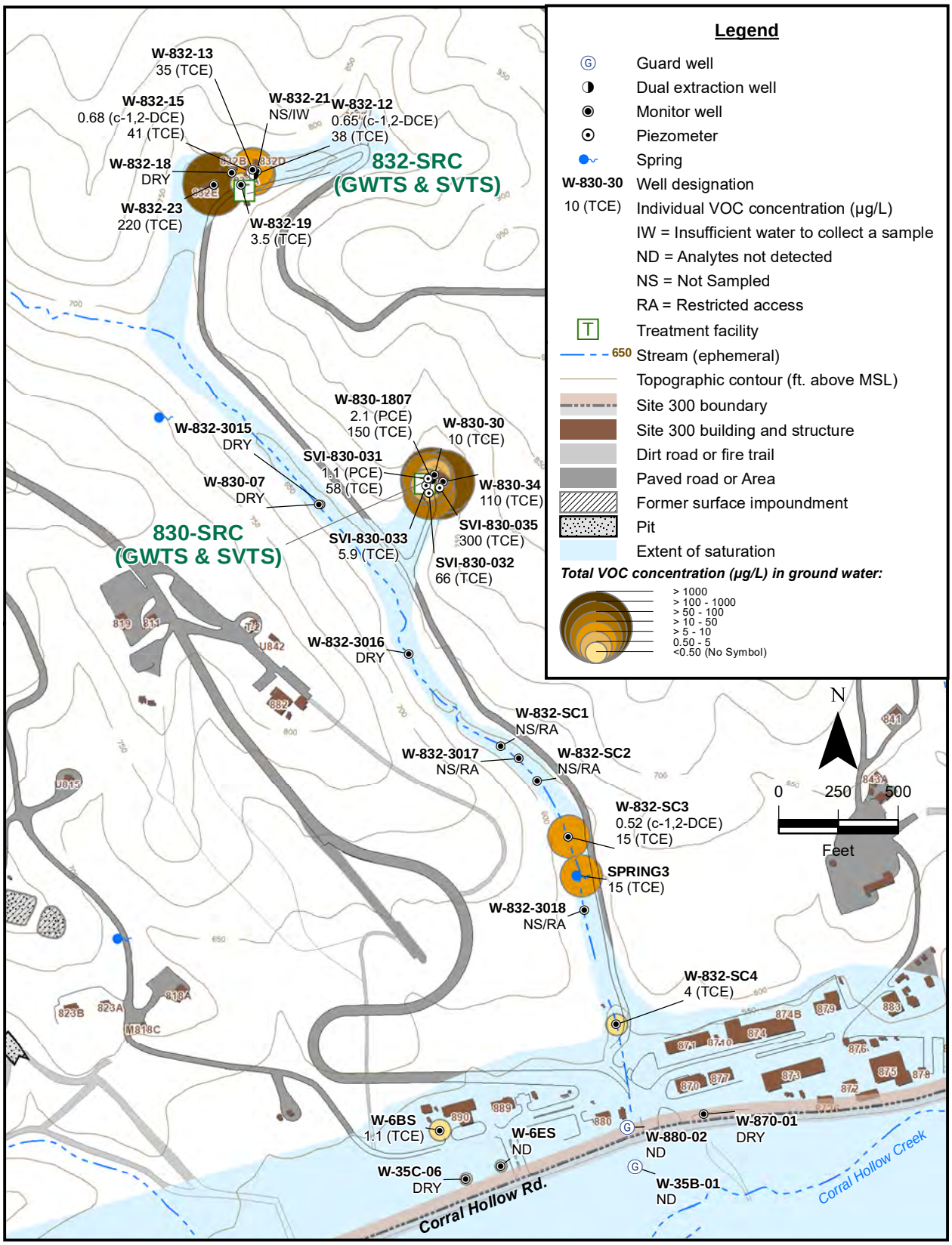


Figure 2.7-5. Building 832 Canyon Operable Unit map showing individual VOC concentrations for the Qal/WBR hydrostratigraphic unit, second semester 2018.

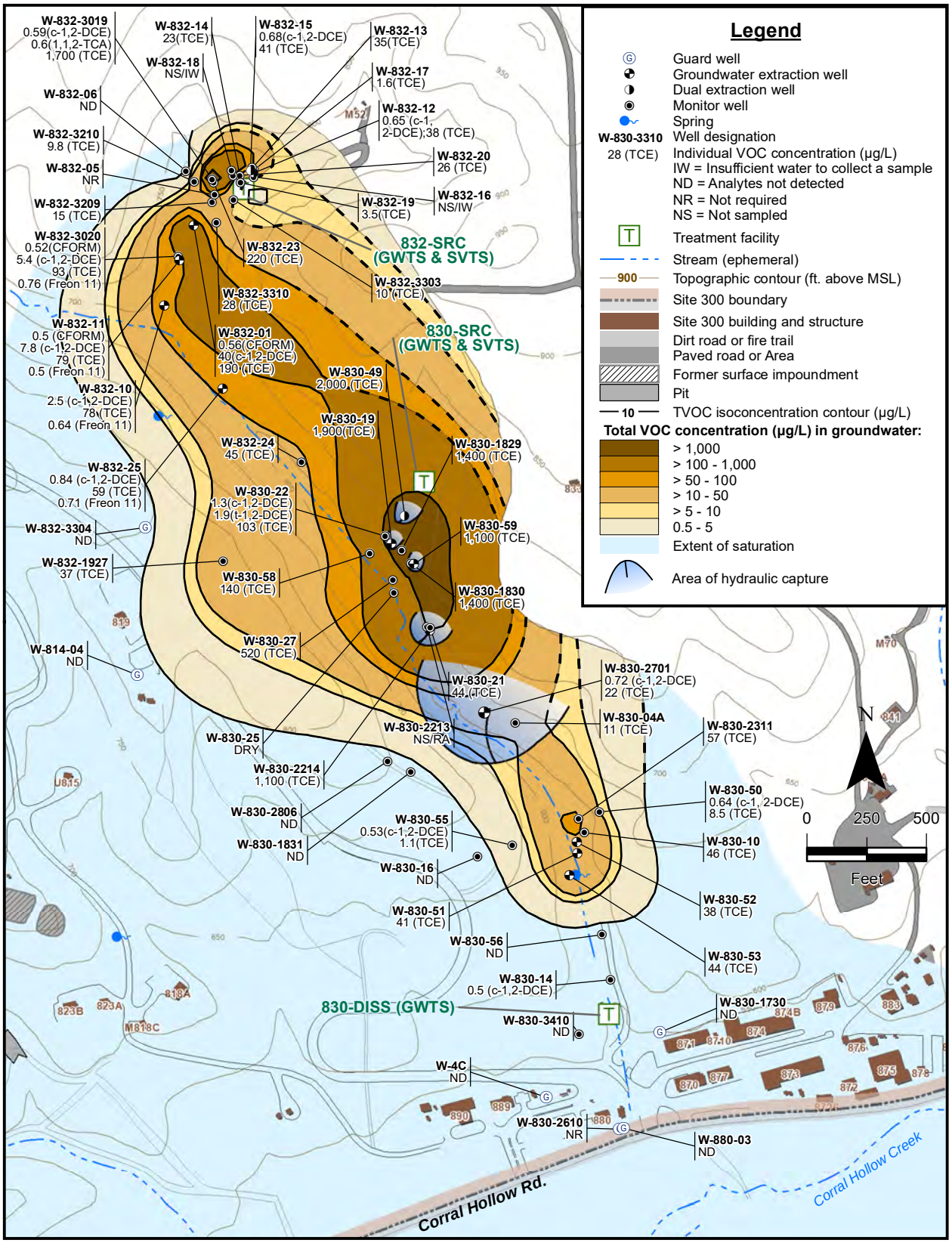


Figure 2.7-6. Building 832 Canyon Operable Unit total VOC isoconcentration contour map and individual VOC concentrations for the $Tnsc_{1a/b}$ hydrostratigraphic unit, second semester 2018.

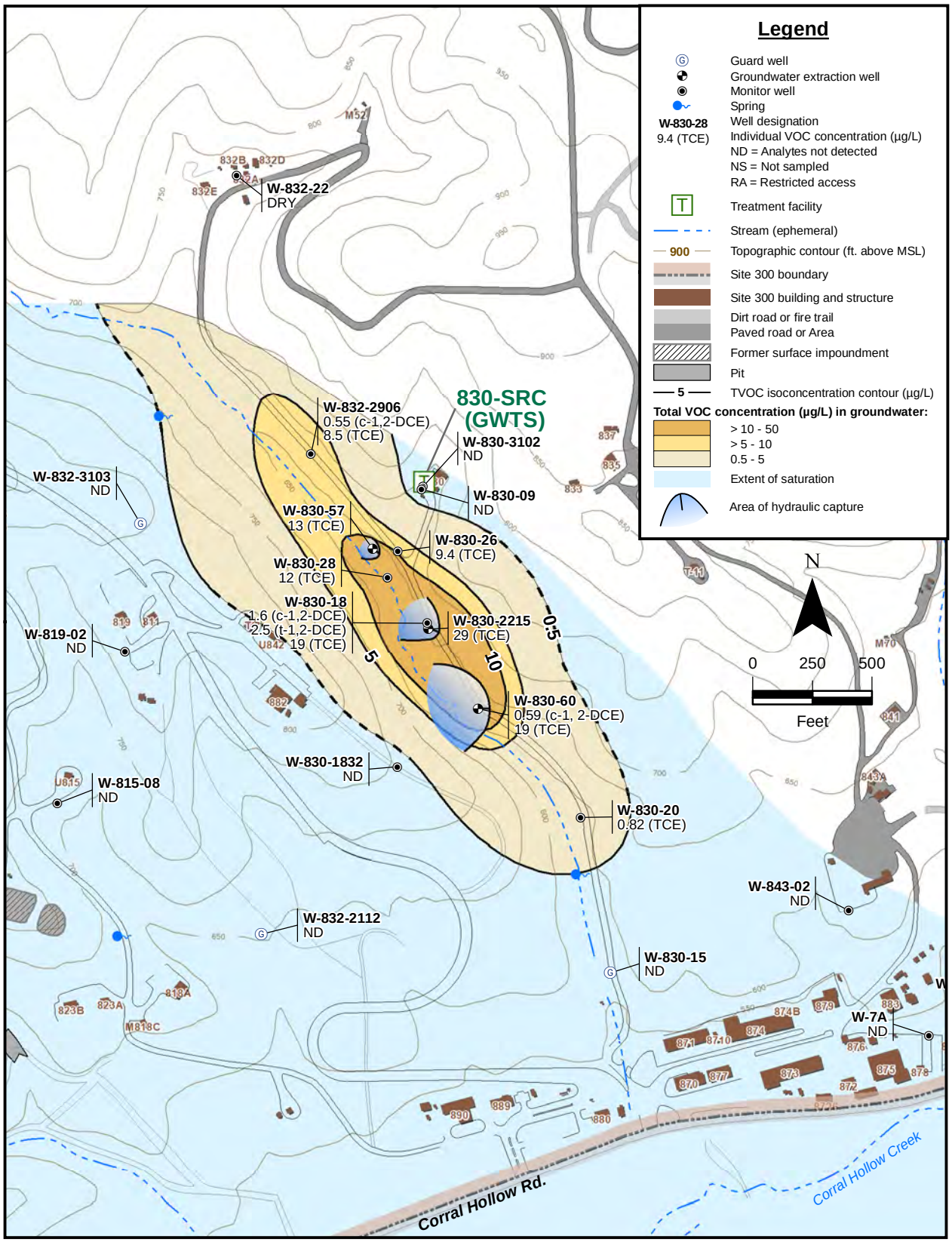


Figure 2.7-7. Building 832 Canyon Operable Unit total VOC isoconcentration contour map and individual VOC concentrations for the Upper $Tnbs_1$ hydrostratigraphic unit, second semester 2018.

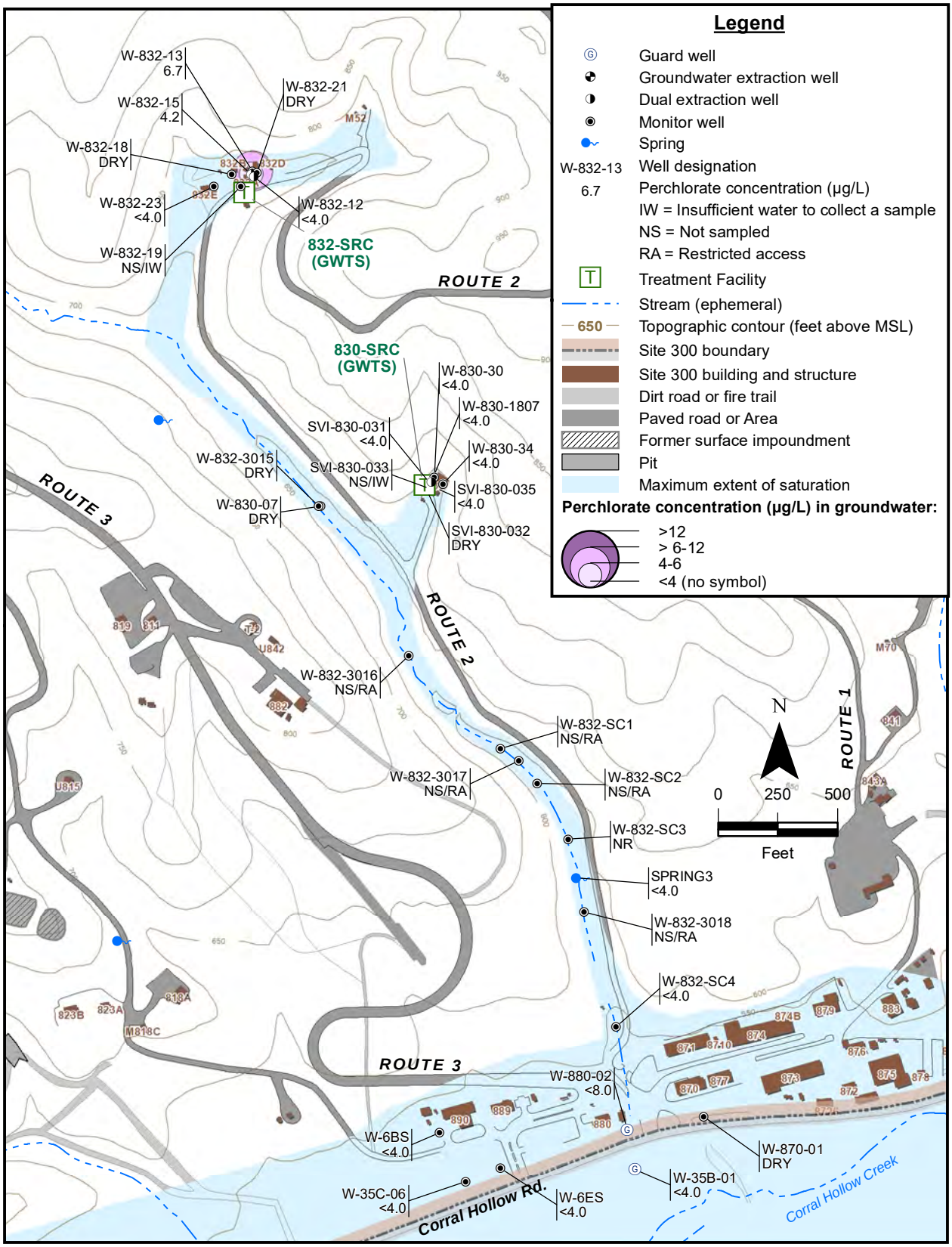


Figure 2.7-8. Building 832 Canyon Operable Unit map showing perchlorate concentrations for the Qal/WBR hydrostratigraphic unit, first semester 2018.

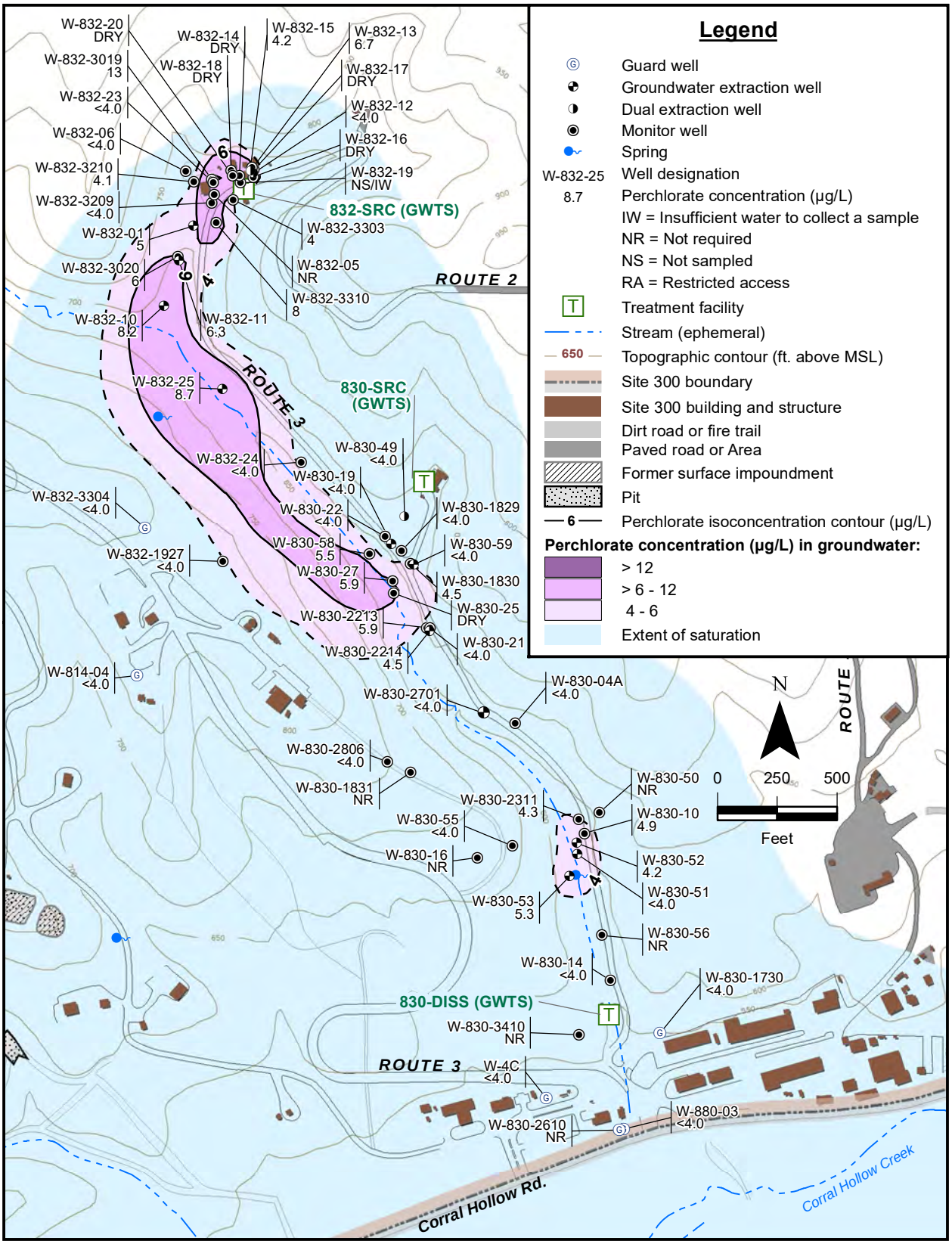


Figure 2.7-9. Building 832 Canyon Operable Unit perchlorate isoconcentration contour map for the $Tnsc_{1a/b}$ hydrostratigraphic unit, first semester 2018.

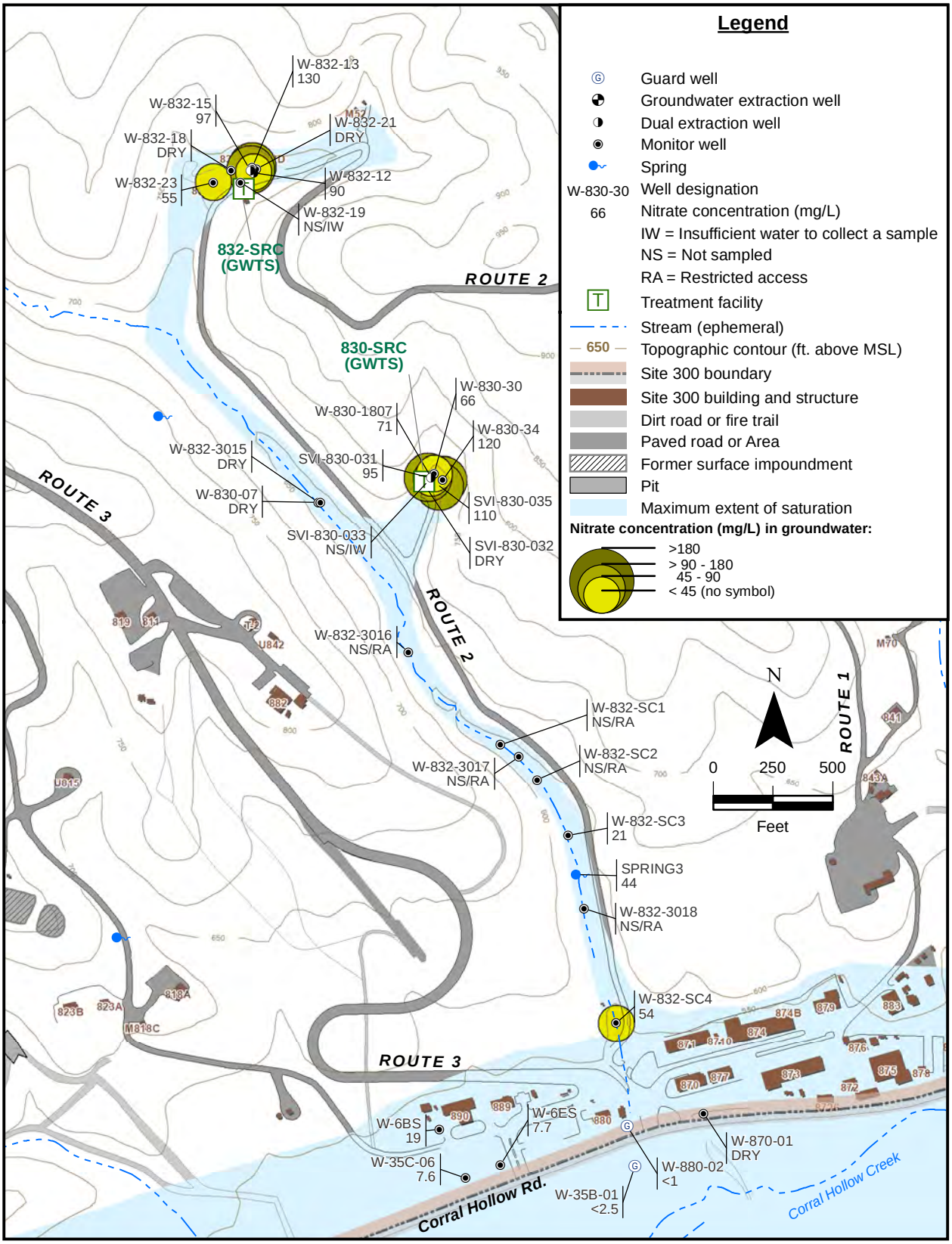


Figure 2.7-10. Building 832 Canyon Operable Unit map showing nitrate concentrations for the Qal/WBR hydrostratigraphic unit, first semester 2018.

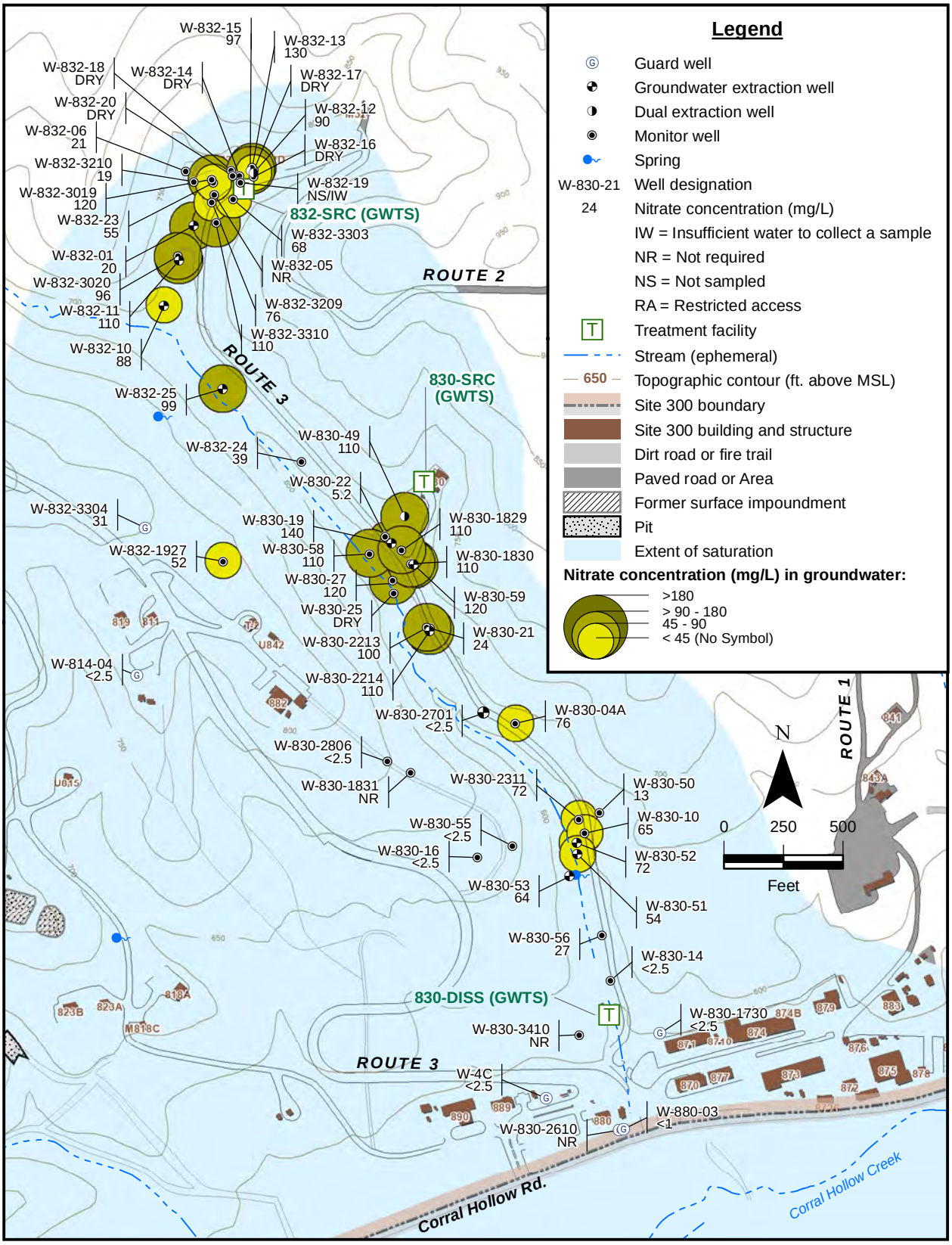
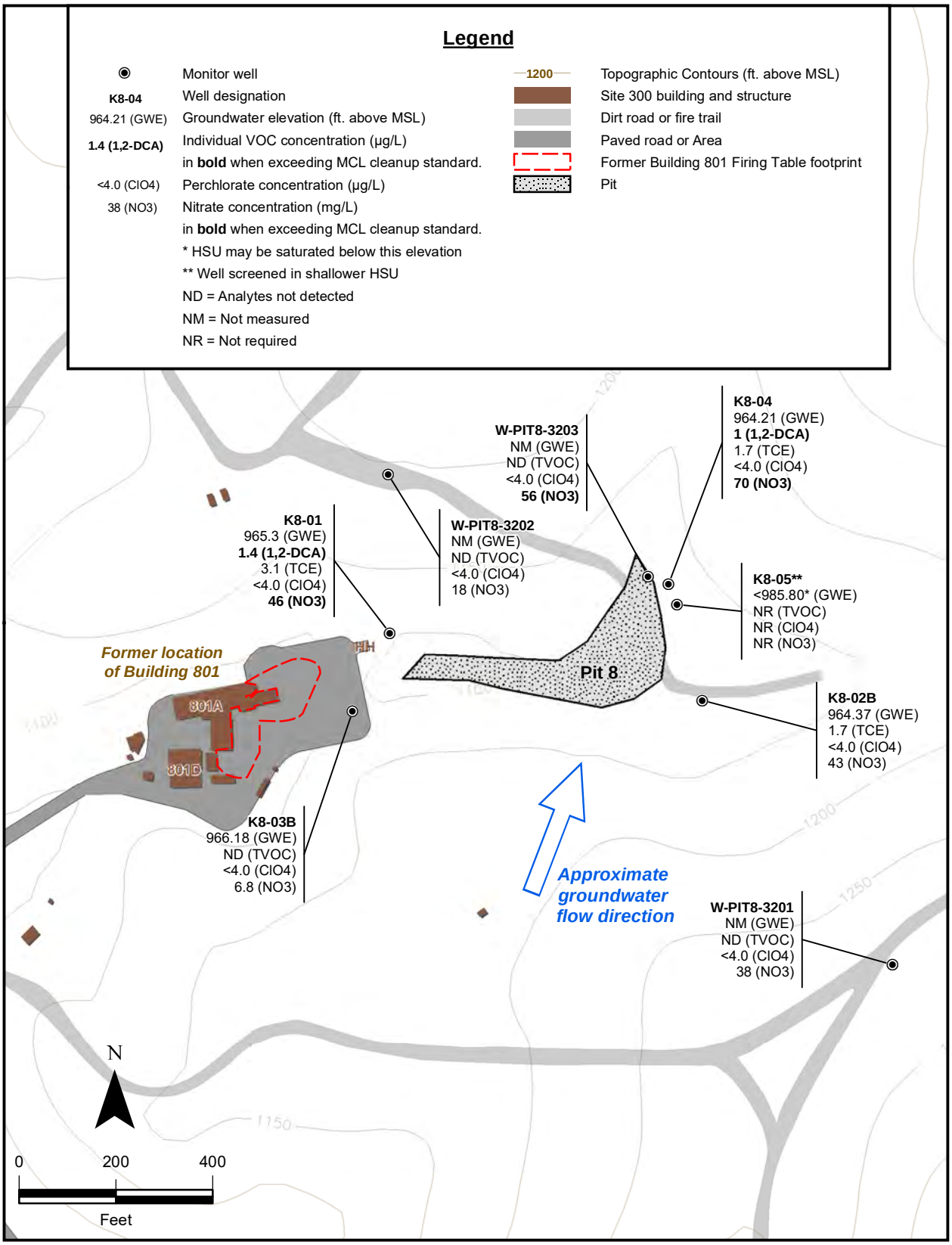


Figure 2.7-11. Building 832 Canyon Operable Unit map showing nitrate concentrations for the $Tnsc_{1a/b}$ hydrostratigraphic unit, first semester 2018.



2.8-1. Building 801 Firing Table and Pit 8 Landfill site map showing monitor well locations, groundwater elevations, approximate groundwater flow direction, and nitrate, perchlorate, and individual VOC concentrations for the $Tnbs_1/Tnbs_0$ hydrostratigraphic unit, first and second semesters 2018.

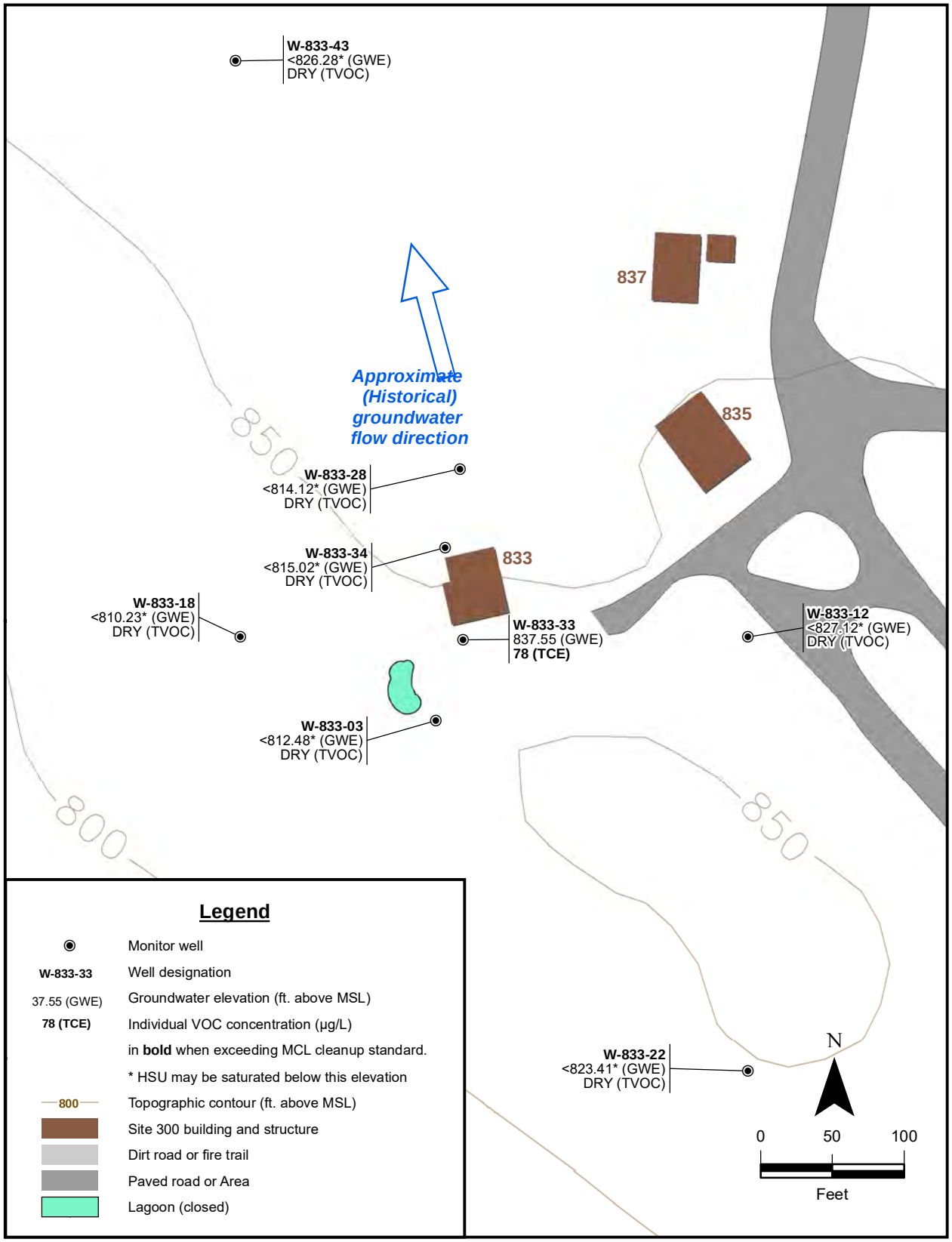


Figure 2.8-2. Building 833 site map showing monitor well locations, groundwater elevations, approximate groundwater flow direction, and individual VOC concentrations for the Tpsg hydrostratigraphic unit, first and second semesters 2018.

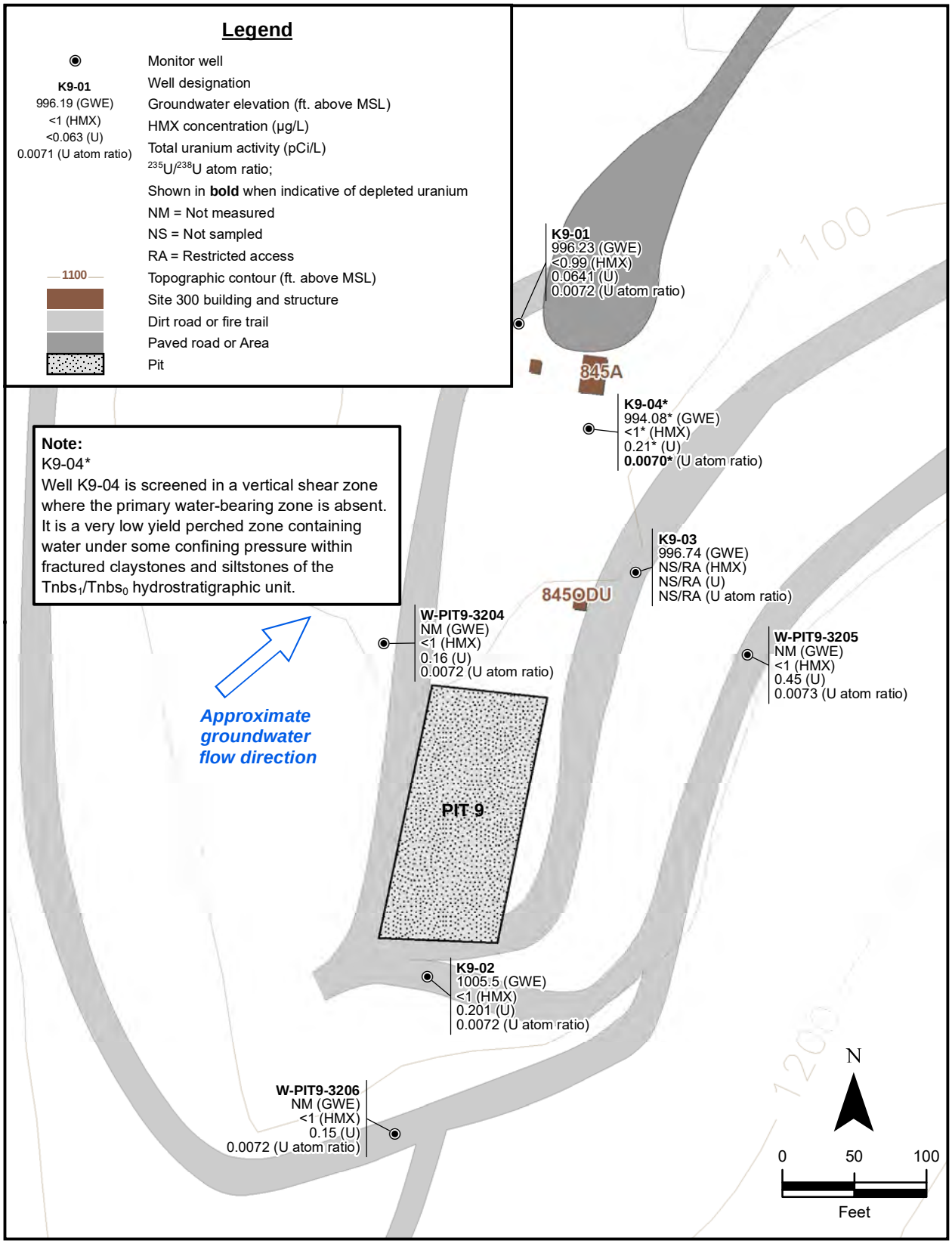


Figure 2.8-3. Building 845 Firing Table and Pit 9 Landfill site map showing monitor well locations, groundwater elevations, approximate groundwater flow direction, and High Melting Point Explosive concentrations, uranium activities, and $^{235}U/^{238}U$ isotope atom ratios for the $Tnbs_1/Tnbs_0$ hydrostratigraphic unit, first and second semesters 2018.

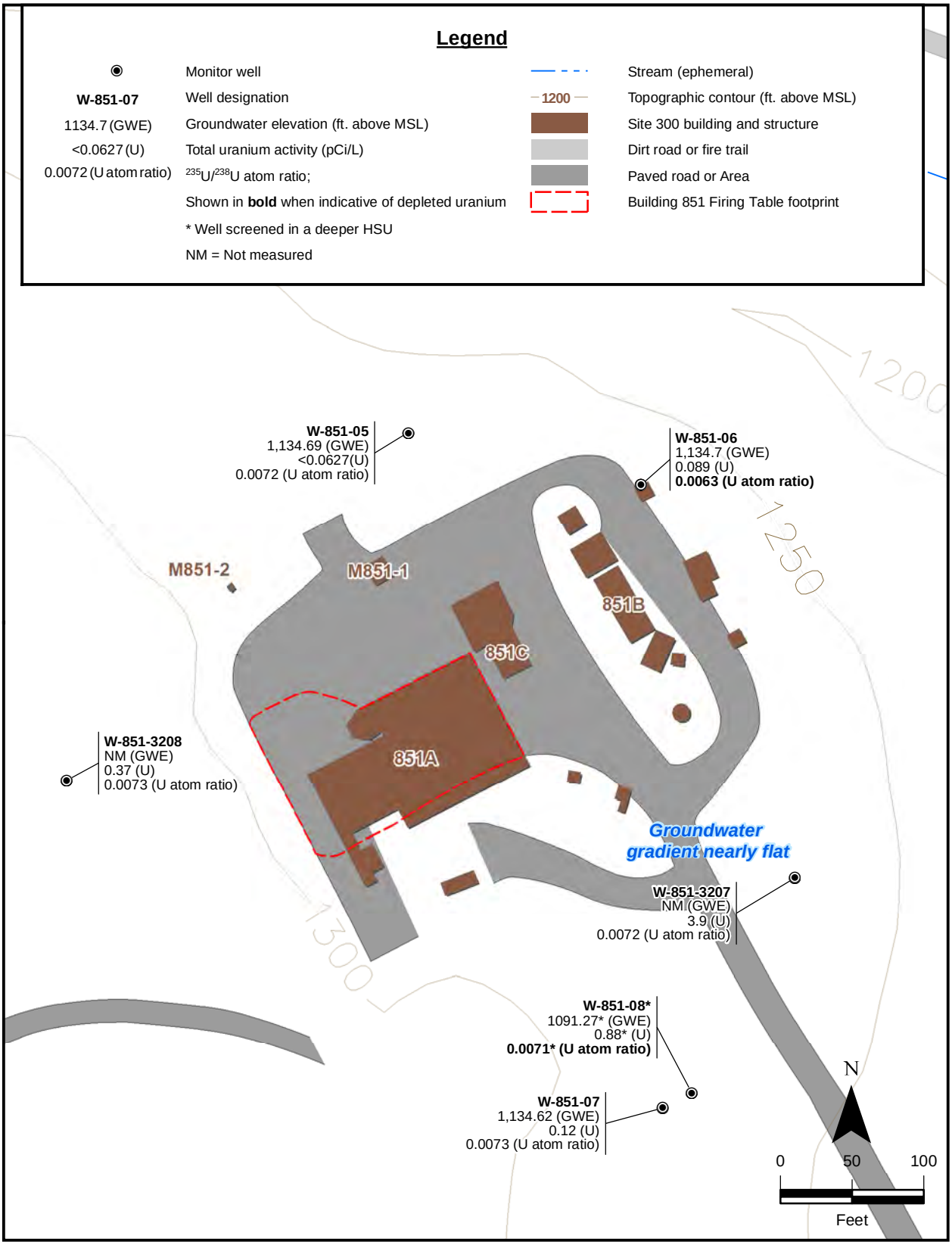
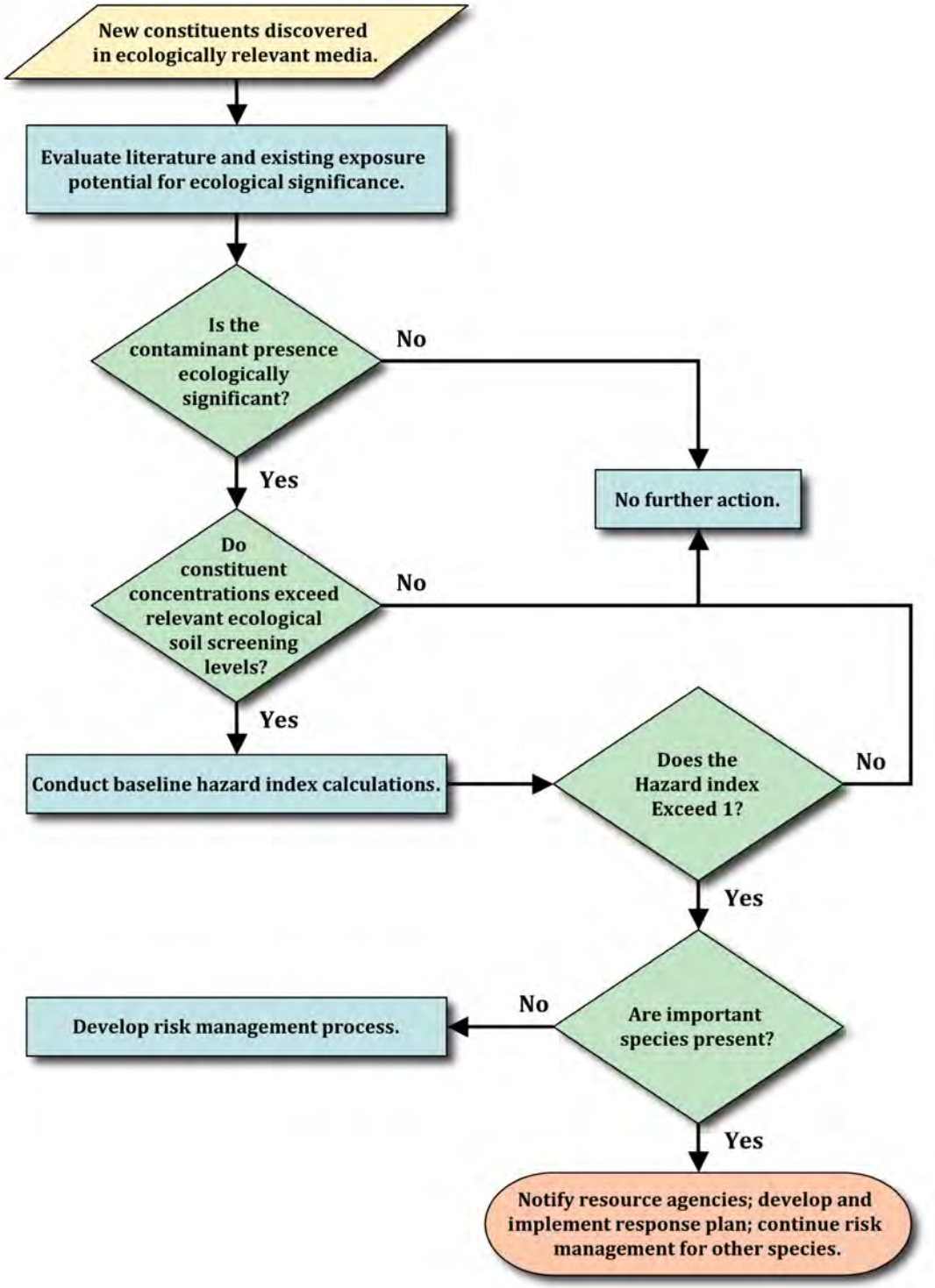
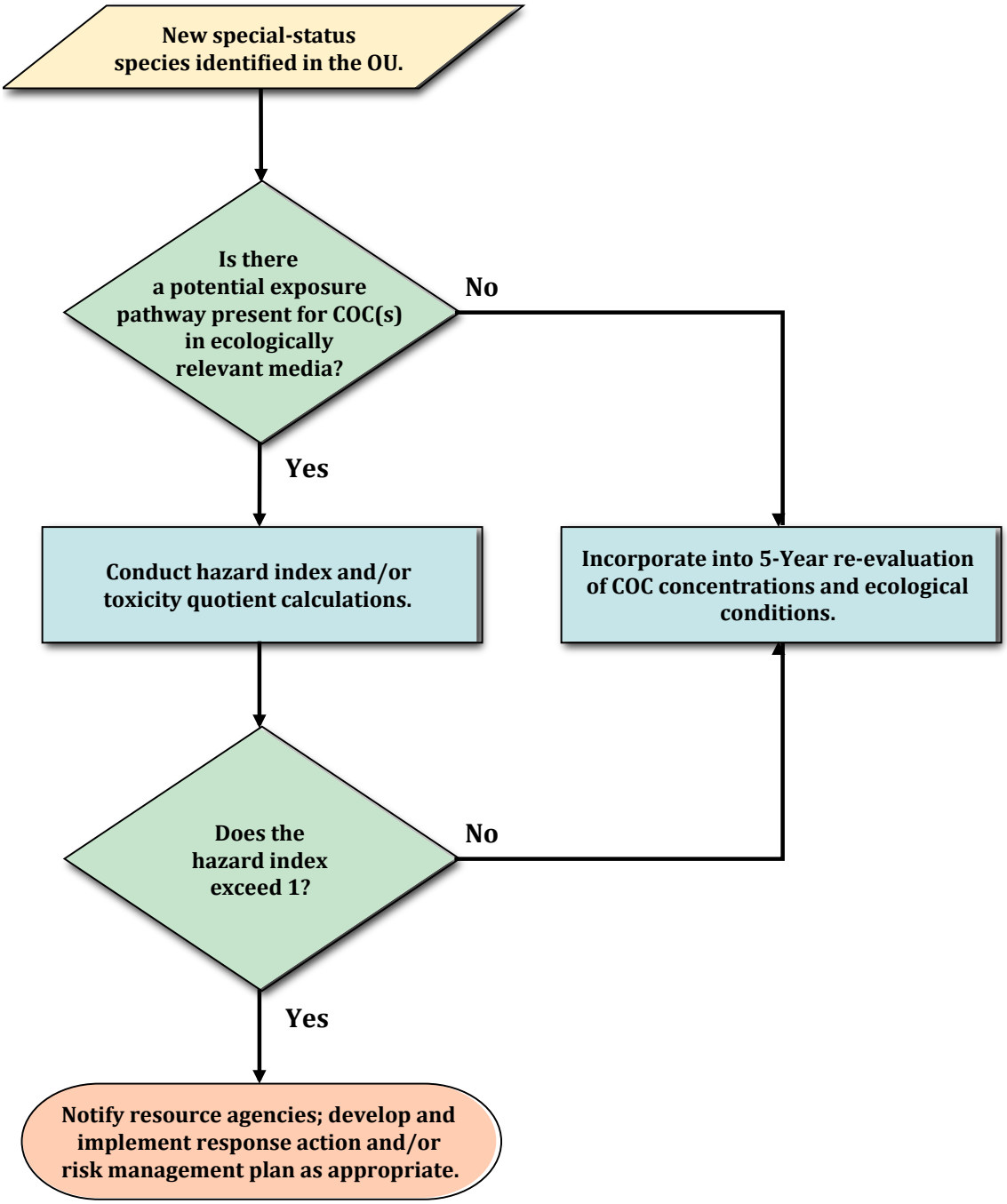


Figure 2.8-4. Building 851 Firing Table site map showing monitor well locations, groundwater elevations, approximate groundwater flow direction, uranium activities, and $^{235}U/^{238}U$ isotope atom ratios for the Tmss hydrostratigraphic unit, first and second semesters 2018.



Source: (Dibley et al., 2009a)

Figure 4.2-1. Process outlined in the 2009 Compliance Monitoring Plan/Contingency Plan to evaluate new contaminants in ecologically relevant media.



Source: (Dibley et al., 2009a)

Figure 4.2-2. Process outlined in the 2009 Compliance Monitoring Plan/Contingency Plan to evaluate new special-status species.

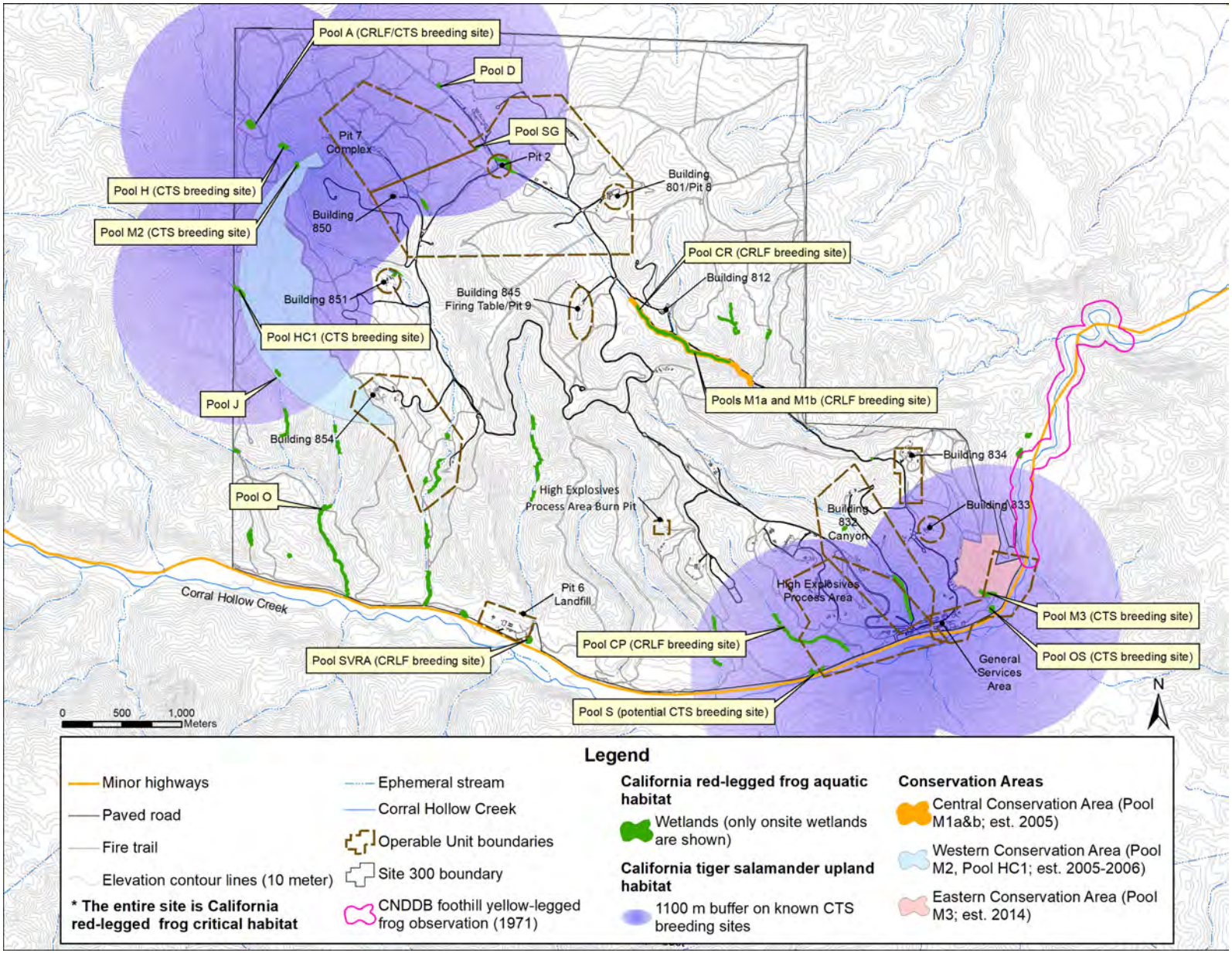


Figure 4.2-3. Distribution of wetlands, pools (potential California tiger salamander and California red-legged frog breeding sites), California red-legged frog critical habitat, California tiger salamander upland habitat, and conservation areas at Site 300.

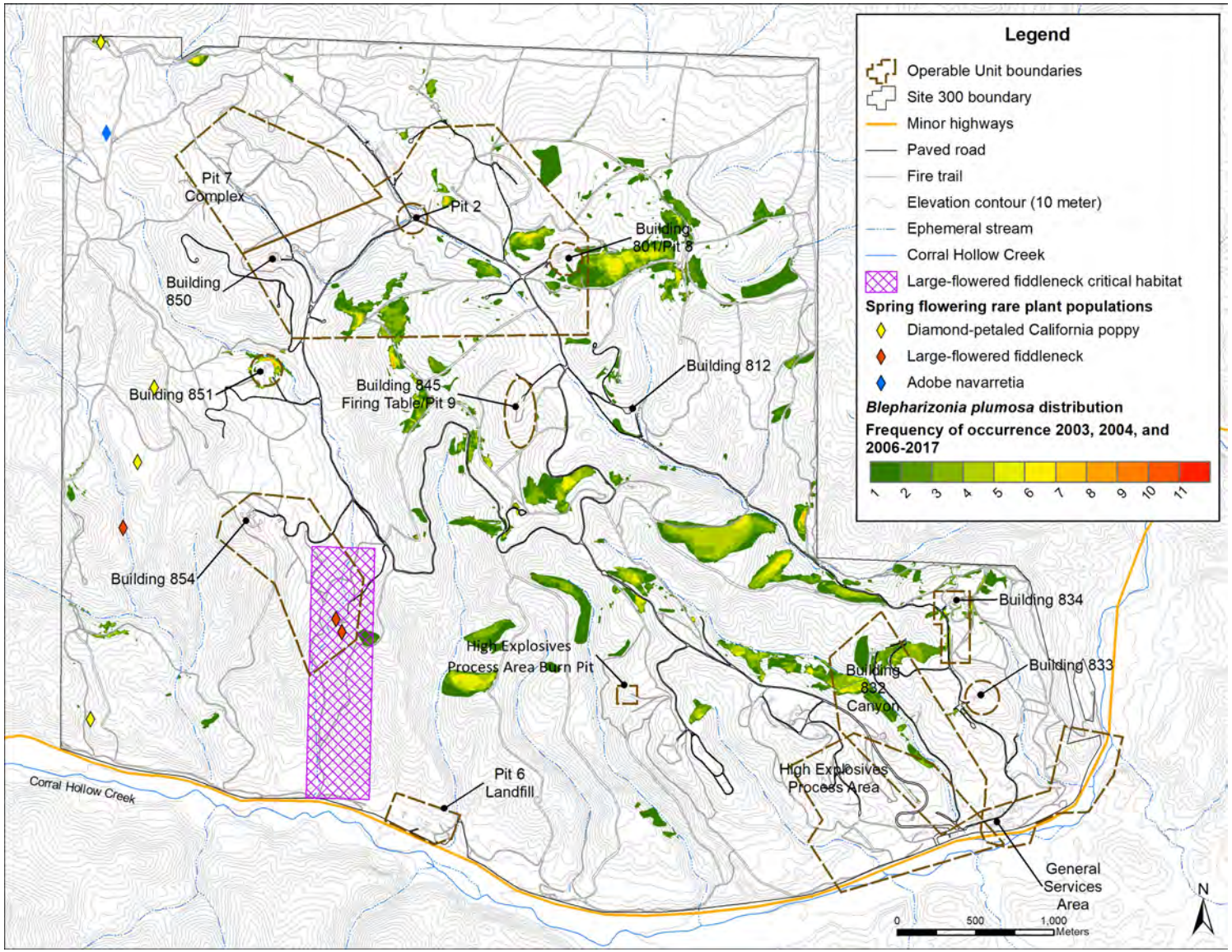


Figure 4.2-4. Distribution of special-status plant species at Site 300.

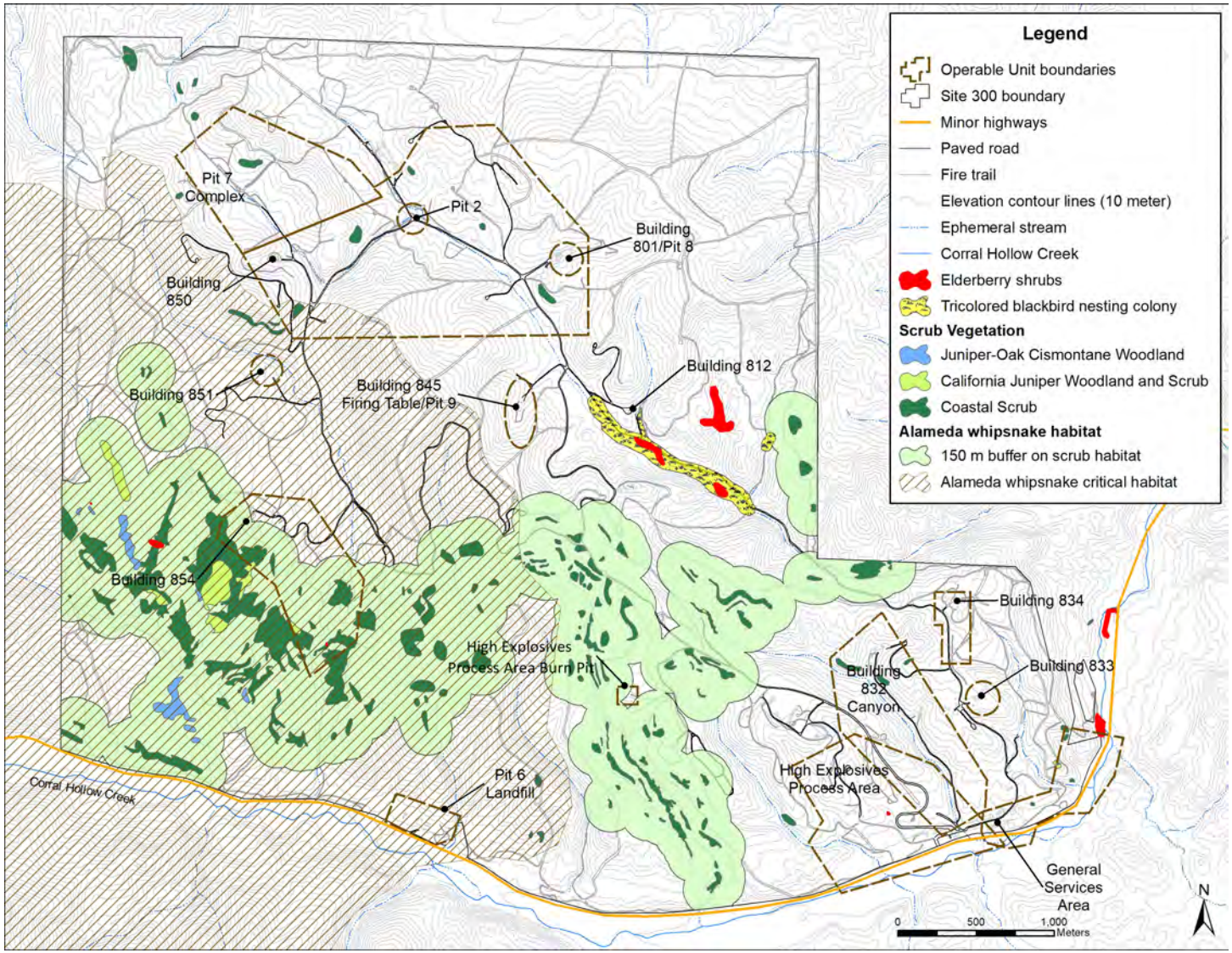


Figure 4.2-5. Distribution of Alameda whipsnake habitat (coastal scrub) and critical habitat, Valley elderberry longhorn beetle habitat (elderberry shrubs), and tricolored blackbird nesting colonies at Site 300.

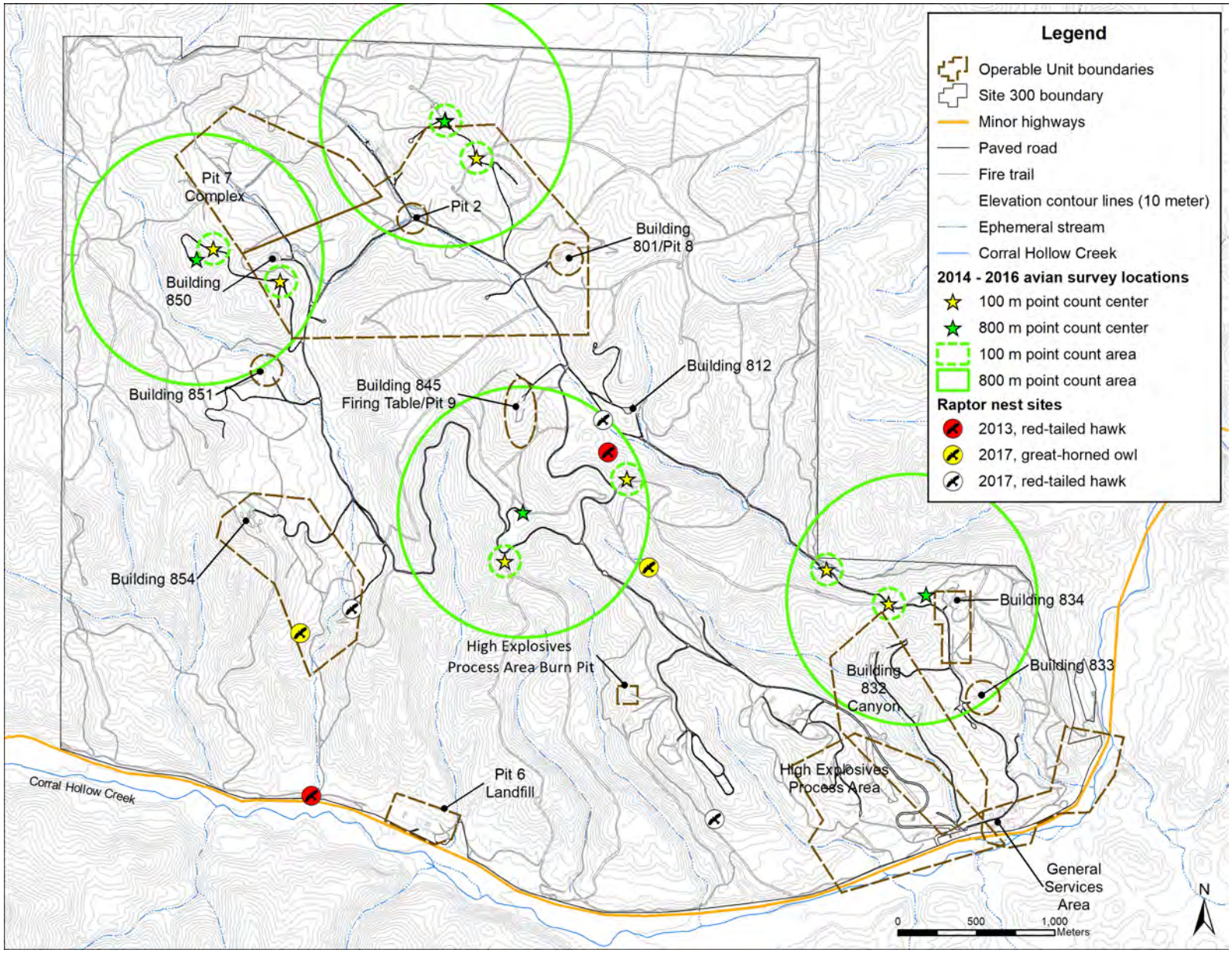


Figure 4.2-6. Locations of avian point count surveys and incidental raptor observations at Site 300 conducted or made (respectively) during the current review period (January 1, 2013 through December 31, 2017).

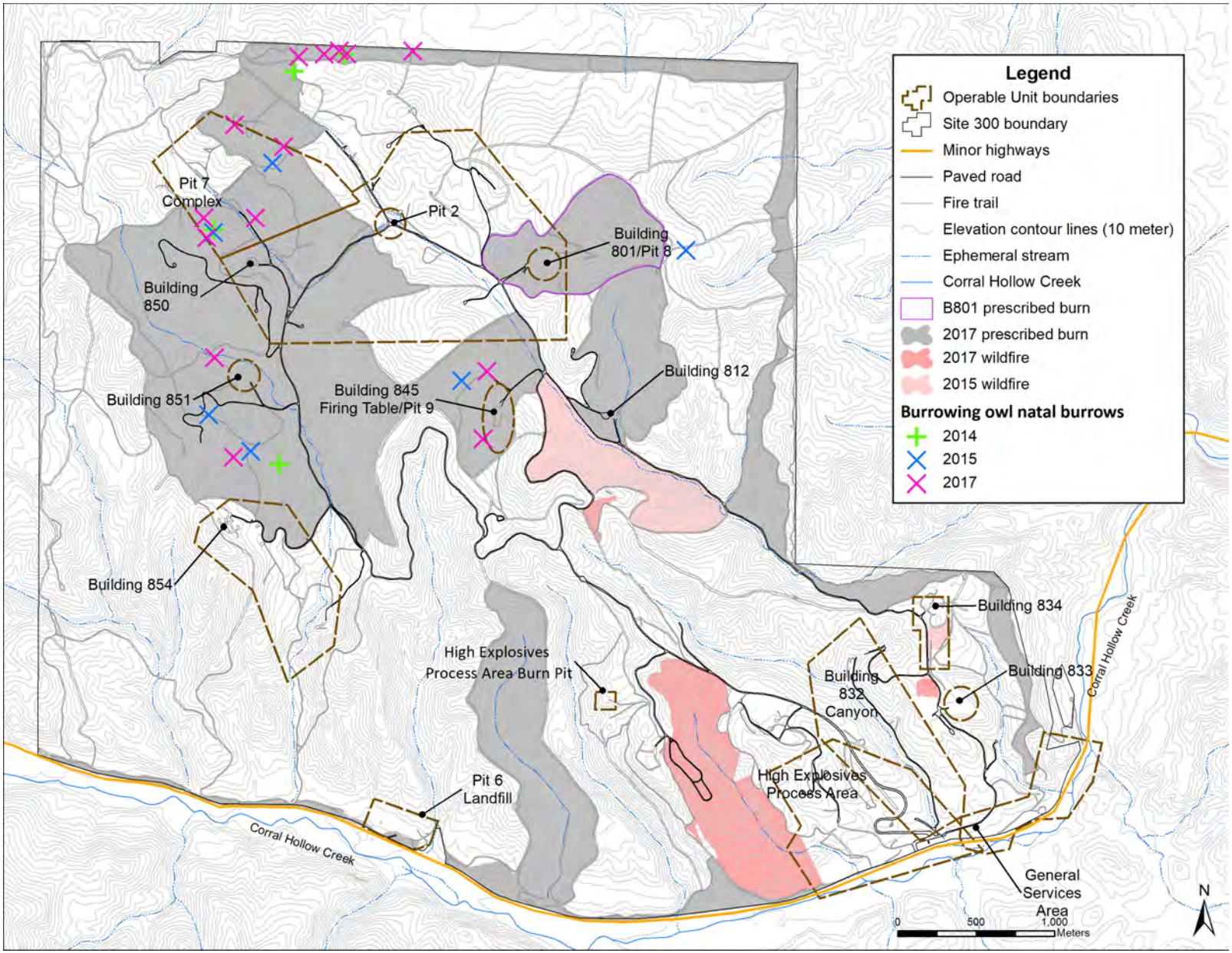


Figure 4.2-7. Locations of burrowing owl natal burrows observed at Site 300 during the current review period (January 1, 2013 through December 31, 2017).

Tables

Table Summ-1. Mass removed, January through December 2018.

	Volume treated		Estimated total mass removed					
Treatment Facility	**Groundwater (Kgal)**	**Soil vapor (Kcf)**	**VOC (g)**	**Perchlorate (g)**	**Nitrate (kg)**	**RDX (g)**	**TBOS/TKEBS (g)**	**Uranium (g)**
CGSA GWTS	<1	-	0	-	-	-	-	-
CGSA SVTS	-	2,889	94	-	-	-	-	-
834 GWTS	107	-	530	-	41	-	7.9	-
834 SVTS	-	54,661	4,800	-	-	-	-	-
815-SRC GWTS	1,116	-	34	4.8	400	240	-	-
815-PRX GWTS	910	-	74	17	300	4.4	-	-
815-DSB GWTS	688	-	25	-	-	-	-	-
817-SRC GWTS	2	-	0	0.15	0.7	0.3	-	-
817-PRX GWTS	661	-	20	41	240	41	-	-
829-SRC GWTS	<1	-	0.08	0.044	0.23	-	-	-
PIT7-SRC GWTS	69	-	0.23	2.2	12	-	-	31
854-SRC GWTS	1,967	-	140	5.4	380	-	-	-
854-SRC SVTS	-	22,681	550	-	-	-	-	-
854-PRX GWTS	687	-	12	0	100	-	-	-
854-DIS GWTS	8	-	0.67	0.17	0.62	-	-	-
832-SRC GWTS	22	-	6.0	0.32	8.4	-	-	-
832-SRC SVTS	-	380	5.5	-	-	-	-	-
830-SRC GWTS	2,019	-	530	1.3	66	-	-	-
830-SRC SVTS	-	1,914	290	-	-	-	-	-
830-DISS GWTS	<1	-	0.019	0.0008	0.047	-	-	-
TOTAL	**8,259**	**82,525**	**7,200**	**72**	**1,500**	**280**	**7.9**	**31**

Table Summ-1. Mass removed, January through December 2018.

Acronyms and Abbreviations:
- = Not applicable
CGSA = Central General Services Area
DIS = Distal
DISS = Distal south
DSB = Distal site boundary
EGSA = Eastern General Services Area
GWTS = Groundwater treatment system
Kcf = Thousands of cubic feet
Kgal = Thousands of gallons
PRX = Proximal
PRXN = Proximal North
RDX = Research Department Explosive
SRC = Source
SVTS = Soil vapor treatment system
TBOS = Tetra 2-ethylbutylorthosilicate
TKEBS = Tetrakis (2-ethylbutyl) silane
VOC = Volatile organic compound
g = Grams
kg = Kilograms

Nitrate re-injected into the Tnbs2 HSU undergoes in-situ biotransformation to benign N_2 gas by anaerobic denitrifying bacteria. Nitrate mass removal is calculated assuming complete removal of nitrate from treated groundwater. At Pit7, re-injected effluent may contain nitrate concentrations below the discharge limit but above the detection limit. Thus, nitrate mass removal calculations at Pit7 are overestimated.

Table Summ-2. Summary cumulative remediation through December 2018.

	Volume treated		Estimated total mass removed					
Treatment Facility	**Groundwater (Kgal)**	**Soil vapor (Mcf)**	**VOC (kg)**	**Perchlorate (g)**	**Nitrate (kg)**	**RDX (kg)**	**TBOS/TKEBS (kg)**	**Uranium (kg)**
EGSA GWTS	309,379	-	7.6	-	-	-	-	-
CGSA GWTS	29,205	-	27	-	-	-	-	-
CGSA SVTS	-	237	78	-	-	-	-	-
834 GWTS	1,635	-	48	-	550	-	9.5	-
834 SVTS	-	657	370	-	-	-	-	-
815-SRC GWTS	10,617	-	0.27	300	3,800	2.4	-	-
815-PRX GWTS	11,764	-	1.2	270	3,500	0.017	-	-
815-DSB GWTS	24,820	-	0.81	-	-	-	-	-
817-SRC GWTS	73	-	0	7.5	24	0.012	-	-
817-PRX GWTS	7,818	-	0.28	620	2,800	0.27	-	-
829-SRC GWTS	12	-	0.00088	0.49	3.3	0	-	-
PIT7-SRC GWTS	411	-	0.0036	17	64	-	-	0.087
854-SRC GWTS	18,330	-	6.5	190	3,400	-	-	-
854-SRC SVTS	-	205	15	-	-	-	-	-
854-PRX GWTS	9,989	-	0.85	180	1,500	-	-	-
854-DIS GWTS	86	-	0.01	1.4	6.6	-	-	-
832-SRC GWTS	1,183	-	0.37	29	460	-	-	-
832-SRC SVTS	-	31	2.2	-	-	-	-	-
830-SRC GWTS	19,850	-	10.0	30	1,200	-	-	-
830-SRC SVTS	-	90	55	-	-	-	-	-
830-PRXN GWTS	1,949	-	0.26	-	22	-	-	-
830-DISS GWTS	11,100	-	1.7	88	2,700	-	-	-
TOTAL	**458,222**	**1,220**	**630**	**1,700**	**20,000**	**2.7**	**9.5**	**0.087**

Table Summ-2. Summary cumulative remediation through December 2018.

Acronyms and Abbreviations:
- = Not applicable
CGSA = Central General Services Area
DIS = Distal
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DSB = Distal site boundary
EGSA = Eastern General Services Area
GWTS = Groundwater treatment system
Kgal = Thousands of gallons
Mcf = Millions of cubic feet
PRX = Proximal
PRXN = Proximal North
RDX = Research Department Explosive
SRC = Source
SVTS = Soil vapor treatment system
TBOS = Tetra 2-ethylbutylorthosilicate
TKEBS = Tetrakis (2-ethylbutyl) silane
VOC = Volatile organic compound
g = Grams
kg = Kilograms

Nitrate re-injected into the Tnbs2 HSU undergoes in-situ biotransformation to benign N_2 gas by anaerobic denitrifying bacteria. Nitrate mass removal is calculated assuming complete removal of nitrate from treated groundwater. At Pit7, re-injected effluent may contain nitrate concentrations below the discharge limit but above the detection limit. Thus, nitrate mass removal calculations at Pit7 are overestimated.

Table 2-1. Wells installed and closed during 2018.

Wells Installed

Well name	Planned well type	Operable Unit	Well installation date	HSU	Drill Depth (ft-bgs)	Casing depth (ft-bgs)	Screened interval (ft-bgs)	Primary COCs	Primary COC sampling frequency	Secondary COCs	Secondary COC sampling frequency
W-865-3402	PTMW	Unassigned	7/10/18	Qal/WBR	20	13.5	5-13.5	None	Semi-annually	None	Annually
W-865-3403	PTMW	Unassigned	9/11/18	$Tnbs_1/Tnbs_0$	300	286.6	266-286	None	Semi-annually	None	Annually
W-830-3409	PTMW	7	10/2/18	$Tnbs_2$	100	83.6	63-83	VOCs	Semi-annually	Perchlorate, Nitrate	Annually
W-PIT7-3406	PTMW	5	10/22/18	$Tnbs_1/Tnbs_0$	76	75.7	65-75	Tritium	Semi-annually	Uranium, Perchlorate, Nitrate, and VOCs	Annually
W-854-3405	PTMW	6	11/17/18	$Tnbs_1/Tnsc_0$	157	142.7	122-142	VOCs, Perchlorate	Semi-annually	Nitrate	Annually
W-830-3410	PTMW	7	12/18/18	$Tnsc_{1ab}$	190	173.8	163-173	VOCs	Semi-annually	Perchlorate, Nitrate	Annually

Wells Closed

Well name	Well type	Operable Unit	Well closure date	HSU	Drill Depth (ft-bgs)	Casing depth (ft-bgs)	Screened interval (ft-bgs)	Method of closure
W-25N-15	Monitor	1 (EGSA)	8/6/18	Qal	30	28.2	18.2-28.2	Overdrill and grout
W-25N-06	Monitor	1 (EGSA)	9/12/18	Qal	35	32.3	17.3-32.3	Overdrill and grout
W-25M-02	Monitor	1 (EGSA)	9/12/18	Qal	26.2	24	9-24	Overdrill and grout
W-25M-03	Monitor	1 (EGSA)	9/17/18	Qal	29.6	25.7	15.3-25.3	Overdrill and grout
W-25D-02	Monitor	1 (EGSA)	9/19/18	Qal	26	22.2	14.2-22.2	Overdrill and grout
W-25D-01	Monitor	1 (EGSA)	9/21/18	Qal	43.5	41.9	32.9-41.9	Overdrill and grout
W-25N-05	Monitor	1 (EGSA)	9/25/18	$Tnbs_1$	39.4	20.2	15.1-20.1	Overdrill and grout
W-25N-26	Monitor	1 (EGSA)	10/2/18	$Tnbs_1$	192	68	57-67	Overdrill and grout
W-25N-18	Monitor	1 (EGSA)	10/9/18	$Tnbs_1$	96.4	68	38-68	Overdrill and grout
W-26R-07	Monitor	1 (EGSA)	10/15/18	$Qal\text{-}Tnsc_0$	75	73.6	64-74.3	Overdrill and grout

Table 2-1. Wells installed and closed during 2018.

Wells Closed

Well name	Well type	Operable Unit	Well closure date	HSU	Drill Depth (ft-bgs)	Casing depth (ft-bgs)	Screened interval (ft-bgs)	Method of closure

Acronyms and Abbreviations:

bgs	=	Below ground surface
CGSA	=	Central General Services Area
COCs	=	Contaminants of concern
DIS	=	Distal
DISS	=	Distal south
DSB	=	Distal site boundary
EGSA	=	Eastern General Services Area
ft	=	Feet
GWTS	=	Groundwater treatment system
HSU	=	Hydrostratigraphic unit
Kgal	=	Thousands of gallons
Mcf	=	Millions of cubic feet
PRX	=	Proximal
PRXN	=	Proximal North
PTMW	=	Plume Tracking Monitor Well
RDX	=	Research Department Explosive
SRC	=	Source
SVTS	=	Soil vapor treatment system
TBOS	=	Tetra 2-ethylbutylorthosilicate
TKEBS	=	Tetrakis (2-ethylbutyl) silane
VOCs	=	Volatile organic compounds
g	=	Grams
kg	=	Kilograms

Table 2.1-1. Central General Services Area volumes of groundwater and soil vapor extracted and discharged, July 1, 2018 through December 31, 2018.

Treatment facility	Month	SVTS Operation hours	GWTS Operational hours	Volume of vapor extracted (thousands of cf)	Volume of groundwater discharged (gal)
CGSA	July	0	0	0	0
	August	0	0	0	0
	September	169	0	229	0
	October	797	0	1,248	0
	November	382	0	540	0
	December	586	0	872	0
Total		1,934	0	2,889	0

Acronyms and Abbreviations:

-	=	Not applicable
bgs	=	Below ground surface
CGSA	=	Central General Services Area
COCs	=	Contaminants of concern
DIS	=	Distal
DISS	=	Distal south
DSB	=	Distal site boundary
EGSA	=	Eastern General Services Area
ft	=	Feet
g	=	Grams
GWTS	=	Groundwater treatment system
HSU	=	Hydrostratigraphic unit
Kcf	=	Thousands of cubic feet
kg	=	Kilograms
Kgal	=	Thousands of gallons
Mcf	=	Millions of cubic feet
PRX	=	Proximal
PRXN	=	Proximal North
PTMW	=	Plume Tracking Monitor Well
RDX	=	Research Department Explosive
SRC	=	Source
SVTS	=	Soil vapor treatment system
TBOS	=	Tetra 2-ethylbutylorthosilicate
TKEBS	=	Tetrakis (2-ethylbutyl) silane
VOC	=	Volatile organic compound

Table 2.1-2. General Services Area Operable Unit volatile organic compounds in groundwater extraction and treatment system influent and effluent.

Location	Date	TCE (µg/L)	PCE (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	Carbon tetrachloride (µg/L)	Chloroform (µg/L)	1,1-DCA (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	1,1,1-TCA (µg/L)	1,1,2-TCA (µg/L)	Freon 11 (µg/L)	Freon 113 (µg/L)	Vinyl chloride (µg/L)
Central GSA[a]															
CGSA-I	10/23/18	120 D	4.7	22	0.95	<0.5	<0.5	<0.5	<0.5	1.5	<0.5	<0.5	<0.5	<0.5	<0.5
CGSA-E	10/23/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Central GSA-North[b]															
CGSA-N-I	7/9/18	5.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CGSA-N-I	10/8/18	4.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CGSA-N-I	10/8/18 DUP	5.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Analyte detected but not reported in main table.

Location	Date	Detection frequency	1,2-Dichloroethene (total) (µg/L)
Central GSA[a]			
CGSA-I	10/23/18	1 of 18	22
CGSA-E	10/23/18	0 of 18	-
Central GSA-North[b]			
CGSA-N-I	7/9/18	0 of 18	-
CGSA-N-I	10/8/18	0 of 18	-
CGSA-N-I	10/8/18 DUP	0 of 18	-

[a] Only one set of samples collected. System operated only under Testing and Verificationg during the semester.

[b] Only influent samples collected; extracted water to be treated at Central GSA.

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g	=	Grams
GWTS	=	Groundwater treatment system
HSU	=	Hydrostratigraphic unit
Kcf	=	Thousands of cubic feet
kg	=	Kilograms
Kgal	=	Thousands of gallons
Mcf	=	Millions of cubic feet
PRX	=	Proximal
PRXN	=	Proximal North
PTMW	=	Plume Tracking Monitor Well
RDX	=	Research Department Explosive
SRC	=	Source
SVTS	=	Soil vapor treatment system
TBOS	=	Tetra 2-ethylbutylorthosilicate
TKEBS	=	Tetrakis (2-ethylbutyl) silane
VOC	=	Volatile organic compound

Table 2.1-3. Central General Services Area Operable Unit treatment facility sampling and analysis plans.

Sample location	Sample identification	Parameter	Frequency
CGSA GWTS			
Influent Port	**CGSA-I**	**VOCs**	**Quarterly**
Effluent Port	**CGSA-E**	**VOCs**	**Monthly**
		pH	**Monthly**
CGSA SVTS			
Influent Port	**CGSA-VI**	**No Monitoring Requirements**	
Effluent Port	**CGSA-VE**	**VOCs**	**Weekly[a]**
Intermediate GAC	**CGSA-VCF2I**	**VOCs**	**Weekly[a]**
CGSA-North GWTS[b]			
Influent Port	**W-CGSA-2708-CGSA-N-I**	**VOCs**	**Quarterly**
	W-CGSA-2708-CGSA-N-I	**Nitrates**	**Quarterly**

[a] Weekly monitoring for VOCs will consist of the use of a flame-ionization detector, photo-ionization detector, or other District-approved VOC detection device.

[b] Only treatment system influent monitoring required

Notes:
One duplicate and one blank (given fictitious labels) shall be taken for every 12 samples.
See Acronyms and Abbreviations in the Tables section of this report for acronym and abbreviation definitions.

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-	=	Not applicable
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ft	=	Feet
g	=	Grams
GWTS	=	Groundwater treatment system
HSU	=	Hydrostratigraphic unit
Kcf	=	Thousands of cubic feet
kg	=	Kilograms
Kgal	=	Thousands of gallons
Mcf	=	Millions of cubic feet
PRX	=	Proximal
PRXN	=	Proximal North
PTMW	=	Plume Tracking Monitor Well
RDX	=	Research Department Explosive
SRC	=	Source
SVTS	=	Soil vapor treatment system
TBOS	=	Tetra 2-ethylbutylorthosilicate
TKEBS	=	Tetrakis (2-ethylbutyl) silane
VOC	=	Volatile organic compound

Table 2.1-4. General Services Area Operable Unit groundwater sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
CDF1	WS	LTnbs1	A	WGMG	E524.2MOD:ALL	1	Y	
CDF1	WS	LTnbs1	M	CMP	E624MOD:ALL	1	Y	
CDF1	WS	LTnbs1	M	CMP	E624MOD:ALL	1	Y	
CDF1	WS	LTnbs1	M	CMP	E624MOD:ALL	1	Y	
CDF1	WS	LTnbs1	M	CMP	E624MOD:ALL	2	Y	
CDF1	WS	LTnbs1	M	CMP	E624MOD:ALL	2	Y	
CDF1	WS	LTnbs1	M	CMP	E624MOD:ALL	2	Y	
CDF1	WS	LTnbs1	M	CMP	E624MOD:ALL	3	Y	
CDF1	WS	LTnbs1	M	CMP	E624MOD:ALL	3	Y	
CDF1	WS	LTnbs1	M	CMP	E624MOD:ALL	3	Y	
CDF1	WS	LTnbs1	M	CMP	E624MOD:ALL	4	Y	
CDF1	WS	LTnbs1	M	CMP	E624MOD:ALL	4	Y	
CDF1	WS	LTnbs1	M	CMP	E624MOD:ALL	4	Y	
CON1	WS	LTnbs1	A	WGMG	E524.2MOD:ALL	1	Y	
CON1	WS	LTnbs1	M	CMP	E624MOD:ALL	1	Y	
CON1	WS	LTnbs1	M	CMP	E624MOD:ALL	1	Y	
CON1	WS	LTnbs1	M	CMP	E624MOD:ALL	1	Y	
CON1	WS	LTnbs1	M	CMP	E624MOD:ALL	2	Y	
CON1	WS	LTnbs1	M	CMP	E624MOD:ALL	2	Y	
CON1	WS	LTnbs1	M	CMP	E624MOD:ALL	2	Y	
CON1	WS	LTnbs1	M	CMP	E624MOD:ALL	3	Y	
CON1	WS	LTnbs1	M	CMP	E624MOD:ALL	3	Y	
CON1	WS	LTnbs1	M	CMP	E624MOD:ALL	3	Y	
CON1	WS	LTnbs1	M	CMP	E624MOD:ALL	4	Y	
CON1	WS	LTnbs1	M	CMP	E624MOD:ALL	4	Y	
CON1	WS	LTnbs1	M	CMP	E624MOD:ALL	4	Y	
CON2	WS	LTnbs1	A	WGMG	E624MOD:ALL	1	Y	
CON2	WS	LTnbs1	M	CMP	E624MOD:ALL	1	Y	
CON2	WS	LTnbs1	M	CMP	E624MOD:ALL	1	Y	
CON2	WS	LTnbs1	M	CMP	E624MOD:ALL	2	Y	
CON2	WS	LTnbs1	M	CMP	E624MOD:ALL	2	Y	
CON2	WS	LTnbs1	M	CMP	E624MOD:ALL	2	Y	
CON2	WS	LTnbs1	M	CMP	E624MOD:ALL	3	Y	
CON2	WS	LTnbs1	M	CMP	E624MOD:ALL	3	Y	
CON2	WS	LTnbs1	M	CMP	E624MOD:ALL	3	Y	
CON2	WS	LTnbs1	M	CMP	E624MOD:ALL	4	Y	
CON2	WS	LTnbs1	M	CMP	E624MOD:ALL	4	Y	

Table 2.1-4. General Services Area Operable Unit groundwater sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
CON2	WS	LTnbs1	M	CMP	E624MOD:ALL	4	Y	
W-26R-06	PTMW	Qal-Tnbs1	S	CMP	E624MOD:ALL	2	Y	
W-26R-06	PTMW	Qal-Tnbs1	S	CMP	E624MOD:ALL	4	Y	
W-35A-01	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	2	Y	
W-35A-01	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	4	Y	
W-35A-02	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	2	Y	
W-35A-02	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	4	Y	
W-35A-03	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	2	Y	
W-35A-03	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	4	Y	
W-35A-04	PTMW	Qt-Tnsc1	A	WGMG	E524.2MOD:ALL	4	Y	
W-35A-04	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	2	Y	
W-35A-04	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	4	Y	
W-35A-05	PTMW	UTnbs1	S	CMP	E624MOD:ALL	2	Y	
W-35A-05	PTMW	UTnbs1	S	CMP	E624MOD:ALL	4	Y	
W-35A-06	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	2	N	Inoperable equipment
W-35A-06	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	4	N	Inoperable equipment
W-35A-07	PTMW	LTnbs1	S	CMP	E624MOD:ALL	2	Y	
W-35A-07	PTMW	LTnbs1	S	CMP	E624MOD:ALL	4	Y	
W-35A-08	GW	Qt-Tnsc1	Q	CMP	E624MOD:ALL	1	Y	
W-35A-08	GW	Qt-Tnsc1	Q	CMP	E624MOD:ALL	2	Y	
W-35A-08	GW	Qt-Tnsc1	Q	CMP	E624MOD:ALL	3	Y	
W-35A-08	GW	Qt-Tnsc1	Q	CMP	E624MOD:ALL	4	Y	
W-35A-09	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	2	Y	
W-35A-09	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	4	Y	
W-35A-10	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	2	Y	
W-35A-10	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	4	Y	
W-35A-11	PTMW	LTnbs1	S	CMP	E624MOD:ALL	2	Y	
W-35A-11	PTMW	LTnbs1	S	CMP	E624MOD:ALL	4	Y	
W-35A-12	PTMW	UTnbs1	S	CMP	E624MOD:ALL	2	Y	
W-35A-12	PTMW	UTnbs1	S	CMP	E624MOD:ALL	4	Y	
W-35A-13	PTMW	UTnbs1	S	CMP	E624MOD:ALL	2	Y	
W-35A-13	PTMW	UTnbs1	S	CMP	E624MOD:ALL	4	Y	
W-35A-14	GW	Qt-Tnsc1	Q	CMP	E624MOD:ALL	1	Y	
W-35A-14	GW	Qt-Tnsc1	Q	CMP	E624MOD:ALL	2	Y	
W-35A-14	GW	Qt-Tnsc1	Q	CMP	E624MOD:ALL	3	Y	
W-35A-14	GW	Qt-Tnsc1	Q	CMP	E624MOD:ALL	4	Y	
W-7A	PTMW	UTnbs1	E	CMP	E300.0:NO3	1	Y	

Table 2.1-4. General Services Area Operable Unit groundwater sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-7A	PTMW	UTnbs1	E	CMP	E300.0:PERC	1	Y	
W-7A	PTMW	UTnbs1	S	CMP	E624MOD:ALL	2	Y	
W-7A	PTMW	UTnbs1	S	CMP	E624MOD:ALL	4	Y	
W-7B	PTMW	UTnbs1	S	CMP	E624MOD:ALL	2	Y	
W-7B	PTMW	UTnbs1	S	CMP	E624MOD:ALL	4	Y	
W-7C	PTMW	UTnbs1	S	CMP	E624MOD:ALL	2	Y	
W-7C	PTMW	UTnbs1	S	CMP	E624MOD:ALL	4	Y	
W-7DS	PTMW	Qal-Tnbs1	S	CMP	E624MOD:ALL	2	N	Inoperable equipment
W-7DS	PTMW	Qal-Tnbs1	S	CMP	E624MOD:ALL	4	Y	
W-7E	PTMW	UTnbs1	S	CMP	E624MOD:ALL	2	Y	
W-7E	PTMW	UTnbs1	S	CMP	E624MOD:ALL	4	Y	
W-7ES	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	2	Y	
W-7ES	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	4	Y	
W-7F	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	2	Y	
W-7F	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	4	Y	
W-7G	PTMW	LTnbs1	S	CMP	E624MOD:ALL	2	Y	
W-7G	PTMW	LTnbs1	S	CMP	E624MOD:ALL	4	Y	
W-7H	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	2	Y	
W-7H	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	4	Y	
W-7I	EW	Qt-Tnsc1	S	DIS-TF	E624MOD:ALL	1	Y	
W-7I	EW	Qt-Tnsc1	S	CMP-TF	E624MOD:ALL	2	Y	
W-7I	EW	Qt-Tnsc1	S	DIS-TF	E624MOD:ALL	3	Y	
W-7I	EW	Qt-Tnsc1	S	CMP-TF	E624MOD:ALL	4	N	Insufficient water
W-7J	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	2	Y	
W-7J	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	4	Y	
W-7K	PTMW	LTnbs1	S	CMP	E624MOD:ALL	2	Y	
W-7K	PTMW	LTnbs1	S	CMP	E624MOD:ALL	4	Y	
W-7L	PTMW	UTnbs1	S	CMP	E624MOD:ALL	2	Y	
W-7L	PTMW	UTnbs1	S	CMP	E624MOD:ALL	4	Y	
W-7M	PTMW	LTnbs1	S	CMP	E624MOD:ALL	2	Y	
W-7M	PTMW	LTnbs1	S	CMP	E624MOD:ALL	4	Y	
W-7N	PTMW	UTnbs1	S	CMP	E624MOD:ALL	2	Y	
W-7N	PTMW	UTnbs1	S	CMP	E624MOD:ALL	4	Y	
W-7O	EW	Qt-Tnsc1	S	DIS-TF	E624MOD:ALL	1	Y	
W-7O	EW	Qt-Tnsc1	S	CMP-TF	E624MOD:ALL	2	Y	
W-7O	EW	Qt-Tnsc1	S	DIS-TF	E624MOD:ALL	3	Y	
W-7O	EW	Qt-Tnsc1	S	CMP-TF	E624MOD:ALL	4	Y	

Table 2.1-4. General Services Area Operable Unit groundwater sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-7P	EW	Qal-Tnbs1	S	DIS-TF	E624MOD:ALL	1	Y	
W-7P	EW	Qal-Tnbs1	S	CMP-TF	E624MOD:ALL	2	N	Insufficient water
W-7P	EW	Qal-Tnbs1	S	DIS-TF	E624MOD:ALL	3	N	
W-7P	EW	Qal-Tnbs1	S	CMP-TF	E624MOD:ALL	4	N	Insufficient water
W-7PS	PTMW	Qal-Tnbs1	S	CMP	E624MOD:ALL	2	N	DRY
W-7PS	PTMW	Qal-Tnbs1	S	CMP	E624MOD:ALL	4	N	DRY
W-7Q	PTMW	Qt-Tnsc1	S	DIS	E624MOD:ALL	2	Y	
W-7Q	PTMW	Qt-Tnsc1	S	DIS	E624MOD:ALL	4	Y	
W-7R	EW	Qt-Tnsc1	S	DIS-TF	E624MOD:ALL	1	Y	
W-7R	EW	Qt-Tnsc1	S	CMP-TF	E624MOD:ALL	2	N	Insufficient water
W-7R	EW	Qt-Tnsc1	S	DIS-TF	E624MOD:ALL	3	N	
W-7R	EW	Qt-Tnsc1	S	CMP-TF	E624MOD:ALL	4	N	
W-7S	PTMW	Qt-Tnsc1	S	DIS	E624MOD:ALL	2	Y	
W-7S	PTMW	Qt-Tnsc1	S	DIS	E624MOD:ALL	4	Y	
W-7T	PTMW	Qt-Tnsc1	S	DIS	E624MOD:ALL	2	Y	
W-7T	PTMW	Qt-Tnsc1	S	DIS	E624MOD:ALL	4	Y	
W-843-01	PTMW	LTnbs1	S	CMP	E624MOD:ALL	2	Y	
W-843-01	PTMW	LTnbs1	S	CMP	E624MOD:ALL	4	Y	
W-843-02	PTMW	UTnbs1	S	CMP	E624MOD:ALL	2	Y	
W-843-02	PTMW	UTnbs1	S	CMP	E624MOD:ALL	4	Y	
W-872-01	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	2	Y	
W-872-01	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	4	Y	
W-872-02	EW	Qt-Tnsc1	S	DIS-TF	E624MOD:ALL	1	Y	
W-872-02	EW	Qt-Tnsc1	S	CMP-TF	E624MOD:ALL	2	Y	
W-872-02	EW	Qt-Tnsc1	S	DIS-TF	E624MOD:ALL	3	Y	
W-872-02	EW	Qt-Tnsc1	S	CMP-TF	E624MOD:ALL	4	N	Insufficient water
W-873-01	PTMW	LTnbs1	S	CMP	E624MOD:ALL	2	Y	
W-873-01	PTMW	LTnbs1	S	CMP	E624MOD:ALL	4	Y	
W-873-02	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	2	Y	
W-873-02	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	4	Y	
W-873-03	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	2	Y	
W-873-03	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	4	Y	
W-873-04	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	2	Y	
W-873-04	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	4	Y	
W-873-06	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	2	Y	
W-873-06	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	4	Y	
W-873-07	EW	Qt-Tnsc1	S	DIS-TF	E624MOD:ALL	1	Y	

Table 2.1-4. General Services Area Operable Unit groundwater sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-873-07	EW	Qt-Tnsc1	S	CMP-TF	E624MOD:ALL	2	Y	
W-873-07	EW	Qt-Tnsc1	S	DIS-TF	E624MOD:ALL	3	Y	
W-873-07	EW	Qt-Tnsc1	S	CMP-TF	E624MOD:ALL	4	Y	
W-875-01	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	2	Y	
W-875-01	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	4	Y	
W-875-02	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	2	Y	
W-875-02	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	4	Y	
W-875-03	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	2	Y	
W-875-03	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	4	Y	
W-875-04	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	2	Y	
W-875-04	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	4	Y	
W-875-05	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	2	Y	
W-875-05	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	4	Y	
W-875-06	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	2	Y	
W-875-06	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	4	Y	
W-875-07	EW	Qt-Tnsc1	S	DIS-TF	E624MOD:ALL	1	Y	
W-875-07	EW	Qt-Tnsc1	S	CMP-TF	E624MOD:ALL	2	Y	
W-875-07	EW	Qt-Tnsc1	S	DIS-TF	E624MOD:ALL	3	Y	
W-875-07	EW	Qt-Tnsc1	S	CMP-TF	E624MOD:ALL	4	Y	
W-875-08	EW	Qt-Tnsc1	S	DIS-TF	E624MOD:ALL	1	Y	
W-875-08	EW	Qt-Tnsc1	S	CMP-TF	E624MOD:ALL	2	Y	
W-875-08	EW	Qt-Tnsc1	S	DIS-TF	E624MOD:ALL	3	Y	
W-875-08	EW	Qt-Tnsc1	S	CMP-TF	E624MOD:ALL	4	Y	
W-875-09	EW	Qt-Tnsc1	S	DIS-TF	E624MOD:ALL	1	Y	
W-875-09	EW	Qt-Tnsc1	S	CMP-TF	E624MOD:ALL	2	Y	
W-875-09	EW	Qt-Tnsc1	S	DIS-TF	E624MOD:ALL	3	Y	
W-875-09	EW	Qt-Tnsc1	S	CMP-TF	E624MOD:ALL	4	Y	
W-875-10	EW	Qt-Tnsc1	S	DIS	E624MOD:ALL	1	Y	
W-875-10	EW	Qt-Tnsc1	S	CMP	E624MOD:ALL	2	Y	
W-875-10	EW	Qt-Tnsc1	S	DIS	E624MOD:ALL	3	Y	
W-875-10	EW	Qt-Tnsc1	S	CMP	E624MOD:ALL	4	N	Insufficient water
W-875-11	EW	Qt-Tnsc1	S	DIS-TF	E624MOD:ALL	1	Y	
W-875-11	EW	Qt-Tnsc1	S	CMP-TF	E624MOD:ALL	2	Y	
W-875-11	EW	Qt-Tnsc1	S	DIS-TF	E624MOD:ALL	3	Y	
W-875-11	EW	Qt-Tnsc1	S	CMP-TF	E624MOD:ALL	4	Y	
W-875-15	EW	Qt-Tnsc1	S	DIS-TF	E624MOD:ALL	1	Y	
W-875-15	EW	Qt-Tnsc1	S	CMP-TF	E624MOD:ALL	2	Y	

Table 2.1-4. General Services Area Operable Unit groundwater sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-875-15	EW	Qt-Tnsc1	S	DIS-TF	E624MOD:ALL	3	Y	
W-875-15	EW	Qt-Tnsc1	S	CMP-TF	E624MOD:ALL	4	Y	
W-876-01	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	2	Y	
W-876-01	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	4	Y	
W-879-01	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	2	Y	
W-879-01	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	4	Y	
W-889-01	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	2	Y	
W-889-01	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	4	Y	
W-CGSA-1732	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	2	N	Insufficient water
W-CGSA-1732	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	4	N	Insufficient water
W-CGSA-1733	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	2	N	Insufficient water
W-CGSA-1733	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	4	N	DRY
W-CGSA-1735	PTMW	Qal-Tnbs1	S	CMP	E624MOD:ALL	2	N	DRY
W-CGSA-1735	PTMW	Qal-Tnbs1	S	CMP	E624MOD:ALL	4	N	DRY
W-CGSA-1736	PTMW	Qal-Tnbs1	S	CMP	E624MOD:ALL	2	Y	
W-CGSA-1736	PTMW	Qal-Tnbs1	S	CMP	E624MOD:ALL	4	N	Insufficient water
W-CGSA-1737	PTMW	Qal-Tnbs1	S	CMP	E624MOD:ALL	2	Y	
W-CGSA-1737	PTMW	Qal-Tnbs1	S	CMP	E624MOD:ALL	4	Y	
W-CGSA-1739	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	2	Y	
W-CGSA-1739	PTMW	Qt-Tnsc1	S	CMP	E624MOD:ALL	4	Y	
W-CGSA-2708	PTMW	Qt-Tnsc1	Q	DIS-TF	E300.0:NO3	1	Y	
W-CGSA-2708	PTMW	Qt-Tnsc1	Q	DIS-TF	E300.0:NO3	2	Y	
W-CGSA-2708	PTMW	Qt-Tnsc1	Q	DIS-TF	E300.0:NO3	3	Y	
W-CGSA-2708	PTMW	Qt-Tnsc1	Q	DIS-TF	E300.0:NO3	4	Y	
W-CGSA-2708	PTMW	Qt-Tnsc1	Q	DIS-TF	E624MOD:ALL	1	Y	
W-CGSA-2708	PTMW	Qt-Tnsc1	Q	DIS-TF	E624MOD:ALL	2	Y	
W-CGSA-2708	PTMW	Qt-Tnsc1	Q	DIS-TF	E624MOD:ALL	3	Y	
W-CGSA-2708	PTMW	Qt-Tnsc1	Q	DIS-TF	E624MOD:ALL	4	Y	

Acronyms and Abbreviations:

- = Not applicable
bgs = Below ground surface
CGSA = Central General Services Area
COCs = Contaminants of concern
DIS = Distal
DISS = Distal south
DSB = Distal site boundary
EGSA = Eastern General Services Area
ft = Feet
g = Grams
GWTS = Groundwater treatment system
HSU = Hydrostratigraphic unit
Kcf = Thousands of cubic feet
kg = Kilograms
Kgal = Thousands of gallons
Mcf = Millions of cubic feet
PRX = Proximal
PRXN = Proximal North
PTMW = Plume Tracking Monitor Well
RDX = Research Department Explosive
SRC = Source
SVTS = Soil vapor treatment system
TBOS = Tetra 2-ethylbutylorthosilicate
TKEBS = Tetrakis (2-ethylbutyl) silane
VOC = Volatile organic compound

Table 2.1-5. Central General Services Area mass removed, July 1, 2018 through December 31, 2018.

Treatment facility	Month	SVTS VOC mass removed (g)	GWTS VOC mass removed (g)	Perchlorate mass removed (g)	Nitrate mass removed (kg)	TBOS/TKEBS RDX mass removed (g)	TBOS/TKEBS mass removed (g)
CGSA	July	0	0	-	-	-	-
	August	0	0	-	-	-	-
	September	11	0	-	-	-	-
	October	39	0	-	-	-	-
	November	17	0	-	-	-	-
	December	28	0	-	-	-	-
Total		94	0	-	-	-	-

Acronyms and Abbreviations:

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DIS = Distal
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EGSA = Eastern General Services Area
ft = Feet
g = Grams
GWTS = Groundwater treatment system
HSU = Hydrostratigraphic unit
Kcf = Thousands of cubic feet
kg = Kilograms
Kgal = Thousands of gallons
Mcf = Millions of cubic feet
PRX = Proximal
PRXN = Proximal North
PTMW = Plume Tracking Monitor Well
RDX = Research Department Explosive
SRC = Source
SVTS = Soil vapor treatment system
TBOS = Tetra 2-ethylbutylorthosilicate
TKEBS = Tetrakis (2-ethylbutyl) silane
VOC = Volatile organic compound

Table 2.2-1. Building 834 volumes of groundwater and soil vapor extracted and discharged, July 1, 2018 through December 31, 2018.

Treatment facility	Month	SVTS Operational hours	GWTS Operational hours	Volume of vapor extracted (thousands of cf)	Volume of groundwater discharged (gal)
834	July	816	816	6,884	12,287
	August	672	672	5,699	8,862
	September	672	672	5,704	9,304
	October	840	840	7,067	10,530
	November	504	504	4,316	6,442
	December	0	0	0	0
Total		3,504	3,504	29,670	47,425

Acronyms and Abbreviations:

-	=	Not applicable
bgs	=	Below ground surface
CGSA	=	Central General Services Area
COCs	=	Contaminants of concern
DIS	=	Distal
DISS	=	Distal south
DSB	=	Distal site boundary
EGSA	=	Eastern General Services Area
ft	=	Feet
g	=	Grams
GWTS	=	Groundwater treatment system
HSU	=	Hydrostratigraphic unit
Kcf	=	Thousands of cubic feet
kg	=	Kilograms
Kgal	=	Thousands of gallons
Mcf	=	Millions of cubic feet
PRX	=	Proximal
PRXN	=	Proximal North
PTMW	=	Plume Tracking Monitor Well
RDX	=	Research Department Explosive
SRC	=	Source
SVTS	=	Soil vapor treatment system
TBOS	=	Tetra 2-ethylbutylorthosilicate
TKEBS	=	Tetrakis (2-ethylbutyl) silane
VOC	=	Volatile organic compound

Table 2.2-2. Building 834 Operable Unit volatile organic compounds in groundwater extraction and treatment system influent and effluent.

Location	Date	TCE (µg/L)	PCE (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	Carbon tetrachloride (µg/L)	Chloroform (µg/L)	1,1-DCA (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	1,1,1-TCA (µg/L)	1,1,2-TCA (µg/L)	Freon 11 (µg/L)	Freon 113 (µg/L)	Vinyl chloride (µg/L)
834-I	7/9/18	1,100 D	5.8	130 D	<25 D	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
834-I	10/4/18	1,400 D	7.3	130 D	<25 D	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
834-I	10/4/18 DUP	1,140 DH	7.1	104 DH	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
834-E	7/9/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
834-E	8/6/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
834-E	9/4/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
834-E	10/4/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
834-E	11/1/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Analyte detected but not reported in main table.

Location	Date	Detection frequency	1,2-Dichloroethene (total) (µg/L)
834-I	7/9/18	1 of 18	130 D
834-I	10/4/18	1 of 18	130 D
834-I	10/4/18 DUP	1 of 18	105
834-E	7/9/18	0 of 18	-
834-E	8/6/18	0 of 18	-
834-E	9/4/18	0 of 18	-
834-E	10/4/18	0 of 18	-
834-E	11/1/18	0 of 18	-

Notes: No samples collected in December. System was off line for freeze protection

Acronyms and Abbreviations:

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CGSA	=	Central General Services Area
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DISS	=	Distal south
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EGSA	=	Eastern General Services Area
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GWTS	=	Groundwater treatment system
HSU	=	Hydrostratigraphic unit
Kcf	=	Thousands of cubic feet
kg	=	Kilograms
Kgal	=	Thousands of gallons
Mcf	=	Millions of cubic feet
PRX	=	Proximal
PRXN	=	Proximal North
PTMW	=	Plume Tracking Monitor Well
RDX	=	Research Department Explosive
SRC	=	Source
SVTS	=	Soil vapor treatment system
TBOS	=	Tetra 2-ethylbutylorthosilicate
TKEBS	=	Tetrakis (2-ethylbutyl) silane
VOC	=	Volatile organic compound

Table 2.2-3. Building 834 Operable Unit diesel range organic compounds in groundwater extraction and treatment system influent and effluent.

Location	Date	Diesel Range Organics (C12-C24) (µg/L)
834-I	7/9/18	<200
834-I	10/4/18	<200 O
834-E	7/9/18	<200
834-E	8/6/18	<200
834-E	9/4/18	<200
834-E	10/4/18	<200 O
834-E	11/1/18	<200

Notes:

No samples collected in December. System was off line for freeze protection

Acronyms and Abbreviations:

-	=	Not applicable
bgs	=	Below ground surface
CGSA	=	Central General Services Area
COCs	=	Contaminants of concern
DIS	=	Distal
DISS	=	Distal south
DSB	=	Distal site boundary
EGSA	=	Eastern General Services Area
ft	=	Feet
g	=	Grams
GWTS	=	Groundwater treatment system
HSU	=	Hydrostratigraphic unit
Kcf	=	Thousands of cubic feet
kg	=	Kilograms
Kgal	=	Thousands of gallons
Mcf	=	Millions of cubic feet
PRX	=	Proximal
PRXN	=	Proximal North
PTMW	=	Plume Tracking Monitor Well
RDX	=	Research Department Explosive
SRC	=	Source
SVTS	=	Soil vapor treatment system
TBOS	=	Tetra 2-ethylbutylorthosilicate
TKEBS	=	Tetrakis (2-ethylbutyl) silane
VOC	=	Volatile organic compound

Table 2.2-4. Building 834 Operable Unit tetrabutyl orthosilicate/tetrakis silane in groundwater extraction and treatment system influent and effluent.

Location	Date	TBOS/TKEBS (µg/L)
834-I	7/9/18	<10
834-I	10/4/18	<10
834-E	7/9/18	<10
834-E	8/6/18	<10
834-E	9/4/18	<10
834-E	10/4/18	<10
834-E	11/1/18	<10

Notes:

No samples collected in December. System was off line for freeze protection.

Acronyms and Abbreviations:

-	=	Not applicable
bgs	=	Below ground surface
CGSA	=	Central General Services Area
COCs	=	Contaminants of concern
DIS	=	Distal
DISS	=	Distal south
DSB	=	Distal site boundary
EGSA	=	Eastern General Services Area
ft	=	Feet
g	=	Grams
GWTS	=	Groundwater treatment system
HSU	=	Hydrostratigraphic unit
Kcf	=	Thousands of cubic feet
kg	=	Kilograms
Kgal	=	Thousands of gallons
Mcf	=	Millions of cubic feet
PRX	=	Proximal
PRXN	=	Proximal North
PTMW	=	Plume Tracking Monitor Well
RDX	=	Research Department Explosive
SRC	=	Source
SVTS	=	Soil vapor treatment system
TBOS	=	Tetra 2-ethylbutylorthosilicate
TKEBS	=	Tetrakis (2-ethylbutyl) silane
VOC	=	Volatile organic compound

Table 2.2-5. Building 834 Operable Unit treatment facility sampling and analysis plan.

Sample location	Sample identification	Parameter	Frequency
834 GWTS			
Influent Port	**834-I**	**VOCs**	**Quarterly**
		TBOS/TKEBS	**Quarterly**
		Diesel	**Quarterly**
Effluent Port	**834-E**	**VOCs**	**Monthly**
		TBOS/TKEBS	**Monthly**
		Diesel	**Monthly**
		pH	**Monthly**
834 SVTS			
Influent Port	**834-VI**	**No Monitoring Requirements**	
Effluent Port	**834-VE**	**VOCs**	**Weekly[a]**
Intermediate GAC	**834-VCF4I**	**VOCs**	**Weekly[a]**

[a] Weekly monitoring for VOCs will consist of the use of a flame-ionization detector, photo-ionization detector, or other District-approved VOC detection device.

Notes:
One duplicate and one blank (given fictitious labels) shall be taken for every 12 samples.

Acronyms and Abbreviations:

-	=	Not applicable
bgs	=	Below ground surface
CGSA	=	Central General Services Area
COCs	=	Contaminants of concern
DIS	=	Distal
DISS	=	Distal south
DSB	=	Distal site boundary
EGSA	=	Eastern General Services Area
ft	=	Feet
g	=	Grams
GWTS	=	Groundwater treatment system
HSU	=	Hydrostratigraphic unit
Kcf	=	Thousands of cubic feet
kg	=	Kilograms
Kgal	=	Thousands of gallons
Mcf	=	Millions of cubic feet
PRX	=	Proximal
PRXN	=	Proximal North
PTMW	=	Plume Tracking Monitor Well
RDX	=	Research Department Explosive
SRC	=	Source
SVTS	=	Soil vapor treatment system
TBOS	=	Tetra 2-ethylbutylorthosilicate
TKEBS	=	Tetrakis (2-ethylbutyl) silane
VOC	=	Volatile organic compound

Table 2.2-6. Building 834 Operable Unit groundwater sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-834-1709	PTMW	Tpsg	A	CMP	E300.0:NO3	1	Y	
W-834-1709	PTMW	Tpsg	S	CMP	E624MOD:ALL	1	Y	
W-834-1709	PTMW	Tpsg	S	CMP	E624MOD:ALL	3	Y	
W-834-1709	PTMW	Tpsg	A	CMP	TBOS:ALL	1	Y	
W-834-1711	PTMW	Tps-Tnsc2	A	CMP	E300.0:NO3	1	Y	
W-834-1711	PTMW	Tps-Tnsc2	S	CMP	E624MOD:ALL	1	Y	
W-834-1711	PTMW	Tps-Tnsc2	S	CMP	E624MOD:ALL	3	Y	
W-834-1711	PTMW	Tps-Tnsc2	A	CMP	TBOS:ALL	1	Y	
W-834-1824	PTMW	Tpsg	A	DIS	E200.7:FE	1	Y	
W-834-1824	PTMW	Tpsg	A	DIS	E200.8:MN	1	Y	
W-834-1824	PTMW	Tpsg	A	CMP	E300.0:NO3	1	Y	
W-834-1824	PTMW	Tpsg	S	CMP	E624MOD:ALL	1	Y	
W-834-1824	PTMW	Tpsg	S	CMP	E624MOD:ALL	3	Y	
W-834-1824	PTMW	Tpsg	E	CMP	TBOS:ALL	1	Y	
W-834-1825	PTMW	Tpsg	A	DIS	E200.7:FE	1	Y	
W-834-1825	PTMW	Tpsg	A	DIS	E200.8:MN	1	Y	
W-834-1825	PTMW	Tpsg	A	CMP	E300.0:NO3	1	Y	
W-834-1825	PTMW	Tpsg	S	CMP	E624MOD:ALL	1	Y	
W-834-1825	PTMW	Tpsg	S	CMP	E624MOD:ALL	3	Y	
W-834-1825	PTMW	Tpsg	O	CMP	TBOS:ALL	1	N	To be sampled in 2019
W-834-1833	PTMW	Tpsg	A	DIS	E200.7:FE	1	Y	
W-834-1833	PTMW	Tpsg	A	DIS	E200.8:MN	1	Y	
W-834-1833	PTMW	Tpsg	A	CMP	E300.0:NO3	1	Y	
W-834-1833	PTMW	Tpsg	S	CMP	E624MOD:ALL	1	Y	
W-834-1833	PTMW	Tpsg	S	CMP	E624MOD:ALL	3	Y	
W-834-1833	PTMW	Tpsg	E	CMP	TBOS:ALL	1	Y	
W-834-2001	EW	Tps-Tnsc2	A	CMP-TF	E300.0:NO3	1	Y	
W-834-2001	EW	Tps-Tnsc2	S	DIS-TF	E624:ALL	2	Y	
W-834-2001	EW	Tps-Tnsc2	S	DIS-TF	E624:ALL	4	Y	
W-834-2001	EW	Tps-Tnsc2	S	CMP-TF	E624MOD:ALL	1	Y	
W-834-2001	EW	Tps-Tnsc2	S	CMP-TF	E624MOD:ALL	3	Y	
W-834-2001	EW	Tps-Tnsc2	S	DIS-TF	EM8015:DIESEL	1	Y	
W-834-2001	EW	Tps-Tnsc2	S	DIS-TF	EM8015:DIESEL	3	Y	
W-834-2001	EW	Tps-Tnsc2	A	CMP-TF	TBOS:ALL	1	Y	
W-834-2113	PTMW	Tpsg	A	CMP-TF	E300.0:NO3	1	Y	
W-834-2113	PTMW	Tpsg	S	CMP-TF	E624MOD:ALL	1	Y	
W-834-2113	PTMW	Tpsg	S	DIS-TF	E624MOD:ALL	2	Y	

Table 2.2-6. Building 834 Operable Unit groundwater sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-834-2113	PTMW	Tpsg	S	CMP-TF	E624MOD:ALL	3	Y	
W-834-2113	PTMW	Tpsg	S	DIS-TF	E624MOD:ALL	4	Y	
W-834-2113	PTMW	Tpsg	A	CMP-TF	TBOS:ALL	1	Y	
W-834-2113	PTMW	Tpsg	A	DIS-TF	TBOS:ALL	3	Y	
W-834-2117	PTMW	Tpsg	A	CMP	E300.0:NO3	1	Y	
W-834-2117	PTMW	Tpsg	S	CMP	E624MOD:ALL	1	Y	
W-834-2117	PTMW	Tpsg	S	CMP	E624MOD:ALL	3	Y	
W-834-2117	PTMW	Tpsg	O	CMP	TBOS:ALL	1	N	To be sampled in 2019
W-834-2118	PTMW	Tpsg	A	CMP	E300.0:NO3	1	Y	
W-834-2118	PTMW	Tpsg	S	DIS	E300.0:PERC	1	Y	
W-834-2118	PTMW	Tpsg	S	DIS	E300.0:PERC	3	Y	
W-834-2118	PTMW	Tpsg	S	CMP	E624MOD:ALL	1	Y	
W-834-2118	PTMW	Tpsg	S	CMP	E624MOD:ALL	3	Y	
W-834-2118	PTMW	Tpsg	O	CMP	TBOS:ALL	1	N	To be sampled in 2019
W-834-2119	PTMW	Tps-Tnsc2	A	CMP	E300.0:NO3	1	Y	
W-834-2119	PTMW	Tps-Tnsc2	S	CMP	E624MOD:ALL	1	Y	
W-834-2119	PTMW	Tps-Tnsc2	S	CMP	E624MOD:ALL	3	Y	
W-834-2119	PTMW	Tps-Tnsc2	E	CMP	TBOS:ALL	1	Y	
W-834-3301	EW	Tps/Tnsc2	A	CMP	E300.0:NO3	1	Y	
W-834-3301	EW	Tps/Tnsc2	S	CMP	E624MOD:ALL	1	Y	
W-834-3301	EW	Tps/Tnsc2	S	CMP	E624MOD:ALL	3	Y	
W-834-3301	EW	Tps/Tnsc2	E	CMP	TBOS:ALL	1	Y	
W-834-3302	PTMW	Tpsg	A	CMP	E300.0:NO3	1	Y	
W-834-3302	PTMW	Tpsg	S	CMP	E624MOD:ALL	1	Y	
W-834-3302	PTMW	Tpsg	S	CMP	E624MOD:ALL	3	Y	
W-834-3302	PTMW	Tpsg	E	CMP	TBOS:ALL	1	Y	
W-834-A1	PTMW	Tps-Tnsc2	A	CMP	E300.0:NO3	1	Y	
W-834-A1	PTMW	Tps-Tnsc2	S	CMP	E624MOD:ALL	1	Y	
W-834-A1	PTMW	Tps-Tnsc2	S	CMP	E624MOD:ALL	3	Y	
W-834-A1	PTMW	Tps-Tnsc2	E	DIS	EM8015:DRANGE	1	Y	
W-834-A1	PTMW	Tps-Tnsc2	A	CMP	TBOS:ALL	1	Y	
W-834-A2	PTMW	Tpsg	A	CMP	E300.0:NO3	1	N	Insufficient water
W-834-A2	PTMW	Tpsg	S	CMP	E624MOD:ALL	1	N	Insufficient water
W-834-A2	PTMW	Tpsg	S	CMP	E624MOD:ALL	3	N	DRY
W-834-A2	PTMW	Tpsg	A	CMP	TBOS:ALL	1	N	Insufficient water
W-834-B2	EW	Tpsg	A	CMP-TF	E300.0:NO3	1	Y	
W-834-B2	EW	Tpsg	S	CMP-TF	E624MOD:ALL	1	Y	

Table 2.2-6. Building 834 Operable Unit groundwater sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-834-B2	EW	Tpsg	S	DIS-TF	E624MOD:ALL	2	Y	
W-834-B2	EW	Tpsg	S	CMP-TF	E624MOD:ALL	3	Y	
W-834-B2	EW	Tpsg	S	DIS-TF	E624MOD:ALL	4	Y	
W-834-B2	EW	Tpsg	A	CMP-TF	TBOS:ALL	1	Y	
W-834-B2	EW	Tpsg	A	DIS-TF	TBOS:ALL	3	Y	
W-834-B3	EW	Tpsg	A	CMP-TF	E300.0:NO3	1	Y	
W-834-B3	EW	Tpsg	S	CMP-TF	E624MOD:ALL	1	Y	
W-834-B3	EW	Tpsg	S	DIS-TF	E624MOD:ALL	2	Y	
W-834-B3	EW	Tpsg	S	CMP-TF	E624MOD:ALL	3	Y	
W-834-B3	EW	Tpsg	S	DIS-TF	E624MOD:ALL	4	Y	
W-834-B3	EW	Tpsg	A	CMP-TF	TBOS:ALL	1	Y	
W-834-B3	EW	Tpsg	A	DIS-TF	TBOS:ALL	3	Y	
W-834-B4	PTMW	Tpsg	A	CMP	E300.0:NO3	1	N	Insufficient water
W-834-B4	PTMW	Tpsg	S	CMP	E624MOD:ALL	1	N	Insufficient water
W-834-B4	PTMW	Tpsg	S	CMP	E624MOD:ALL	3	N	DRY
W-834-B4	PTMW	Tpsg	A	CMP	TBOS:ALL	1	N	Insufficient water
W-834-C2	PTMW	Tpsg	A	CMP	E300.0:NO3	1	N	DRY
W-834-C2	PTMW	Tpsg	S	CMP	E624MOD:ALL	1	N	DRY
W-834-C2	PTMW	Tpsg	S	CMP	E624MOD:ALL	3	N	DRY
W-834-C2	PTMW	Tpsg	A	CMP	TBOS:ALL	1	N	DRY
W-834-C4	PTMW	Tpsg	A	CMP	E300.0:NO3	1	Y	
W-834-C4	PTMW	Tpsg	S	CMP	E624MOD:ALL	1	Y	
W-834-C4	PTMW	Tpsg	S	CMP	E624MOD:ALL	3	Y	
W-834-C4	PTMW	Tpsg	A	CMP	TBOS:ALL	1	Y	
W-834-C5	PTMW	Tpsg	A	CMP	E300.0:NO3	1	Y	
W-834-C5	PTMW	Tpsg	S	CMP	E624MOD:ALL	1	Y	
W-834-C5	PTMW	Tpsg	S	CMP	E624MOD:ALL	3	Y	
W-834-C5	PTMW	Tpsg	A	CMP	TBOS:ALL	1	Y	
W-834-D2	PTMW	LTnbs1	A	CMP	E300.0:NO3	1	N	DRY
W-834-D2	PTMW	LTnbs1	A	CMP	E624MOD:ALL	1	N	DRY
W-834-D2	PTMW	LTnbs1	A	CMP	TBOS:ALL	1	N	DRY
W-834-D3	PTMW	Tpsg	A	CMP	E300.0:NO3	1	Y	
W-834-D3	PTMW	Tpsg	S	CMP	E624MOD:ALL	1	Y	
W-834-D3	PTMW	Tpsg	S	CMP	E624MOD:ALL	3	Y	
W-834-D3	PTMW	Tpsg	A	CMP	TBOS:ALL	1	Y	
W-834-D4	EW	Tpsg	A	CMP-TF	E300.0:NO3	1	Y	
W-834-D4	EW	Tpsg	S	CMP-TF	E624MOD:ALL	1	Y	

Table 2.2-6. Building 834 Operable Unit groundwater sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-834-D4	EW	Tpsg	S	DIS-TF	E624MOD:ALL	2	Y	
W-834-D4	EW	Tpsg	S	CMP-TF	E624MOD:ALL	3	Y	
W-834-D4	EW	Tpsg	S	DIS-TF	E624MOD:ALL	4	Y	
W-834-D4	EW	Tpsg	A	CMP-TF	TBOS:ALL	1	Y	
W-834-D4	EW	Tpsg	A	DIS-TF	TBOS:ALL	3	Y	
W-834-D5	PTMW	Tpsg	A	CMP-TF	E300.0:NO3	1	Y	
W-834-D5	PTMW	Tpsg	S	CMP-TF	E624MOD:ALL	1	Y	
W-834-D5	PTMW	Tpsg	S	CMP-TF	E624MOD:ALL	3	Y	
W-834-D5	PTMW	Tpsg	A	CMP-TF	TBOS:ALL	1	Y	
W-834-D6	EW	Tpsg	A	CMP-TF	E300.0:NO3	1	Y	
W-834-D6	EW	Tpsg	S	CMP-TF	E624MOD:ALL	1	Y	
W-834-D6	EW	Tpsg	S	DIS-TF	E624MOD:ALL	2	Y	
W-834-D6	EW	Tpsg	S	CMP-TF	E624MOD:ALL	3	Y	
W-834-D6	EW	Tpsg	S	DIS-TF	E624MOD:ALL	4	Y	
W-834-D6	EW	Tpsg	A	CMP-TF	TBOS:ALL	1	Y	
W-834-D6	EW	Tpsg	A	DIS-TF	TBOS:ALL	3	Y	
W-834-D7	EW	Tpsg	A	CMP-TF	E300.0:NO3	1	Y	
W-834-D7	EW	Tpsg	S	CMP-TF	E624MOD:ALL	1	Y	
W-834-D7	EW	Tpsg	S	DIS-TF	E624MOD:ALL	2	Y	
W-834-D7	EW	Tpsg	S	CMP-TF	E624MOD:ALL	3	Y	
W-834-D7	EW	Tpsg	S	DIS-TF	E624MOD:ALL	4	Y	
W-834-D7	EW	Tpsg	A	CMP-TF	TBOS:ALL	1	Y	
W-834-D7	EW	Tpsg	A	DIS-TF	TBOS:ALL	3	Y	
W-834-D9A	PTMW	Tnbs2	A	CMP	E300.0:NO3	1	N	DRY
W-834-D9A	PTMW	Tnbs2	A	CMP	E624MOD:ALL	1	N	DRY
W-834-D9A	PTMW	Tnbs2	A	CMP	TBOS:ALL	1	N	DRY
W-834-D10	PTMW	Tps-Tnsc2	A	CMP	E300.0:NO3	1	N	Insufficient water
W-834-D10	PTMW	Tps-Tnsc2	S	CMP	E624MOD:ALL	1	N	Insufficient water
W-834-D10	PTMW	Tps-Tnsc2	S	CMP	E624MOD:ALL	3	N	DRY
W-834-D10	PTMW	Tps-Tnsc2	A	CMP	TBOS:ALL	1	N	Insufficient water
W-834-D11	PTMW	Tpsg	A	CMP	E300.0:NO3	1	N	Insufficient water
W-834-D11	PTMW	Tpsg	S	CMP	E624MOD:ALL	1	N	Insufficient water
W-834-D11	PTMW	Tpsg	S	CMP	E624MOD:ALL	3	N	DRY
W-834-D11	PTMW	Tpsg	A	CMP	TBOS:ALL	1	N	Insufficient water
W-834-D12	EW	Tpsg	A	CMP-TF	E300.0:NO3	1	Y	
W-834-D12	EW	Tpsg	S	CMP-TF	E624MOD:ALL	1	Y	
W-834-D12	EW	Tpsg	S	DIS-TF	E624MOD:ALL	2	Y	

Table 2.2-6. Building 834 Operable Unit groundwater sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-834-D12	EW	Tpsg	S	CMP-TF	E624MOD:ALL	3	Y	
W-834-D12	EW	Tpsg	S	DIS-TF	E624MOD:ALL	4	Y	
W-834-D12	EW	Tpsg	A	CMP-TF	TBOS:ALL	1	Y	
W-834-D12	EW	Tpsg	A	DIS-TF	TBOS:ALL	3	Y	
W-834-D13	EW	Tpsg	A	CMP-TF	E300.0:NO3	1	Y	
W-834-D13	EW	Tpsg	S	CMP-TF	E624MOD:ALL	1	Y	
W-834-D13	EW	Tpsg	S	DIS-TF	E624MOD:ALL	2	Y	
W-834-D13	EW	Tpsg	S	CMP-TF	E624MOD:ALL	3	Y	
W-834-D13	EW	Tpsg	S	DIS-TF	E624MOD:ALL	4	Y	
W-834-D13	EW	Tpsg	A	CMP-TF	TBOS:ALL	1	Y	
W-834-D13	EW	Tpsg	A	DIS-TF	TBOS:ALL	3	Y	
W-834-D14	PTMW	Tpsg	A	CMP	E300.0:NO3	1	N	DRY
W-834-D14	PTMW	Tpsg	S	CMP	E624MOD:ALL	1	N	DRY
W-834-D14	PTMW	Tpsg	S	CMP	E624MOD:ALL	3	N	DRY
W-834-D14	PTMW	Tpsg	A	CMP	TBOS:ALL	1	N	DRY
W-834-D15	PTMW	Tpsg	A	CMP	E300.0:NO3	1	N	DRY
W-834-D15	PTMW	Tpsg	S	CMP	E624MOD:ALL	1	N	DRY
W-834-D15	PTMW	Tpsg	S	CMP	E624MOD:ALL	3	N	DRY
W-834-D15	PTMW	Tpsg	A	CMP	TBOS:ALL	1	N	DRY
W-834-D16	PTMW	Tpsg	A	CMP	E300.0:NO3	1	N	DRY
W-834-D16	PTMW	Tpsg	S	CMP	E624MOD:ALL	1	N	DRY
W-834-D16	PTMW	Tpsg	S	CMP	E624MOD:ALL	3	N	DRY
W-834-D16	PTMW	Tpsg	A	CMP	TBOS:ALL	1	N	DRY
W-834-D17	PTMW	Tpsg	A	CMP	E300.0:NO3	1	N	DRY
W-834-D17	PTMW	Tpsg	S	CMP	E624MOD:ALL	1	N	DRY
W-834-D17	PTMW	Tpsg	S	CMP	E624MOD:ALL	3	N	DRY
W-834-D17	PTMW	Tpsg	A	CMP	TBOS:ALL	1	N	DRY
W-834-D18	PTMW	Tpsg	A	CMP	E300.0:NO3	1	Y	
W-834-D18	PTMW	Tpsg	S	CMP	E624MOD:ALL	1	Y	
W-834-D18	PTMW	Tpsg	S	CMP	E624MOD:ALL	3	Y	
W-834-D18	PTMW	Tpsg	A	CMP	TBOS:ALL	1	Y	
W-834-G3	PTMW	Tpsg	A	CMP	E300.0:NO3	1	N	DRY
W-834-G3	PTMW	Tpsg	A	CMP	E624MOD:ALL	1	N	DRY
W-834-G3	PTMW	Tpsg	A	CMP	TBOS:ALL	1	N	DRY
W-834-H2	PTMW	Tpsg	A	CMP	E300.0:NO3	1	N	Insufficient water
W-834-H2	PTMW	Tpsg	S	CMP	E624MOD:ALL	1	N	Insufficient water
W-834-H2	PTMW	Tpsg	S	CMP	E624MOD:ALL	3	Y	

Table 2.2-6. Building 834 Operable Unit groundwater sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-834-H2	PTMW	Tpsg	A	CMP	TBOS:ALL	1	N	Insufficient water
W-834-J1	EW	Tpsg	A	CMP-TF	E300.0:NO3	1	Y	
W-834-J1	EW	Tpsg	S	CMP-TF	E624MOD:ALL	1	Y	
W-834-J1	EW	Tpsg	S	DIS-TF	E624MOD:ALL	2	Y	
W-834-J1	EW	Tpsg	S	CMP-TF	E624MOD:ALL	3	Y	
W-834-J1	EW	Tpsg	S	DIS-TF	E624MOD:ALL	4	Y	
W-834-J1	EW	Tpsg	A	CMP-TF	TBOS:ALL	1	Y	
W-834-J1	EW	Tpsg	A	DIS-TF	TBOS:ALL	3	Y	
W-834-J2	PTMW	Tpsg	A	CMP	E300.0:NO3	1	Y	
W-834-J2	PTMW	Tpsg	S	CMP	E624MOD:ALL	1	Y	
W-834-J2	PTMW	Tpsg	S	CMP	E624MOD:ALL	3	Y	
W-834-J2	PTMW	Tpsg	A	CMP	TBOS:ALL	1	Y	
W-834-J3	PTMW	Tpsg	A	CMP	E300.0:NO3	1	N	Insufficient water
W-834-J3	PTMW	Tpsg	S	CMP	E624MOD:ALL	1	N	Insufficient water
W-834-J3	PTMW	Tpsg	S	CMP	E624MOD:ALL	3	N	DRY
W-834-J3	PTMW	Tpsg	O	CMP	TBOS:ALL	1	N	To be sampled in 2019
W-834-K1A	PTMW	Tpsg	A	CMP	E300.0:NO3	1	N	DRY
W-834-K1A	PTMW	Tpsg	S	CMP	E624MOD:ALL	1	N	DRY
W-834-K1A	PTMW	Tpsg	S	CMP	E624MOD:ALL	3	N	DRY
W-834-K1A	PTMW	Tpsg	A	CMP	TBOS:ALL	1	N	DRY
W-834-M1	PTMW	Tpsg	A	CMP	E300.0:NO3	1	Y	
W-834-M1	PTMW	Tpsg	S	CMP	E624MOD:ALL	1	Y	
W-834-M1	PTMW	Tpsg	S	CMP	E624MOD:ALL	3	Y	
W-834-M1	PTMW	Tpsg	E	CMP	TBOS:ALL	1	Y	
W-834-M2	PTMW	Tpsg	A	CMP	E300.0:NO3	1	N	DRY
W-834-M2	PTMW	Tpsg	S	CMP	E624MOD:ALL	1	N	DRY
W-834-M2	PTMW	Tpsg	S	CMP	E624MOD:ALL	3	N	DRY
W-834-M2	PTMW	Tpsg	E	CMP	TBOS:ALL	1	N	DRY
W-834-S1	EW	Tpsg	A	CMP-TF	E300.0:NO3	1	Y	
W-834-S1	EW	Tpsg	S	CMP-TF	E624MOD:ALL	1	Y	
W-834-S1	EW	Tpsg	S	DIS-TF	E624MOD:ALL	2	Y	
W-834-S1	EW	Tpsg	S	CMP-TF	E624MOD:ALL	3	Y	
W-834-S1	EW	Tpsg	S	DIS-TF	E624MOD:ALL	4	Y	
W-834-S1	EW	Tpsg	A	CMP-TF	TBOS:ALL	1	Y	
W-834-S1	EW	Tpsg	A	DIS-TF	TBOS:ALL	3	Y	
W-834-S10	PTMW	Tpsg	A	CMP	E300.0:NO3	1	N	DRY
W-834-S10	PTMW	Tpsg	S	CMP	E624MOD:ALL	1	N	DRY

Table 2.2-6. Building 834 Operable Unit groundwater sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-834-S10	PTMW	Tpsg	S	CMP	E624MOD:ALL	3	N	Insufficient water
W-834-S10	PTMW	Tpsg	A	CMP	TBOS:ALL	1	N	DRY
W-834-S12A	EW	Tpsg	A	CMP-TF	E300.0:NO3	1	Y	
W-834-S12A	EW	Tpsg	S	CMP-TF	E624MOD:ALL	1	Y	
W-834-S12A	EW	Tpsg	S	DIS-TF	E624MOD:ALL	2	Y	
W-834-S12A	EW	Tpsg	S	CMP-TF	E624MOD:ALL	3	Y	
W-834-S12A	EW	Tpsg	S	DIS-TF	E624MOD:ALL	4	Y	
W-834-S12A	EW	Tpsg	A	CMP-TF	TBOS:ALL	1	Y	
W-834-S12A	EW	Tpsg	A	DIS-TF	TBOS:ALL	3	Y	
W-834-S13	EW	Tpsg	A	CMP-TF	E300.0:NO3	1	Y	
W-834-S13	EW	Tpsg	S	CMP-TF	E624MOD:ALL	1	Y	
W-834-S13	EW	Tpsg	S	DIS-TF	E624MOD:ALL	2	Y	
W-834-S13	EW	Tpsg	S	CMP-TF	E624MOD:ALL	3	Y	
W-834-S13	EW	Tpsg	S	DIS-TF	E624MOD:ALL	4	Y	
W-834-S13	EW	Tpsg	A	CMP-TF	TBOS:ALL	1	Y	
W-834-S13	EW	Tpsg	A	DIS-TF	TBOS:ALL	3	Y	
W-834-S4	PTMW	Tpsg	A	CMP	E300.0:NO3	1	Y	
W-834-S4	PTMW	Tpsg	S	CMP	E624MOD:ALL	1	Y	
W-834-S4	PTMW	Tpsg	S	CMP	E624MOD:ALL	3	Y	
W-834-S4	PTMW	Tpsg	O	CMP	TBOS:ALL	1	N	To be sampled in 2019
W-834-S5	PTMW	Tpsg	A	CMP	E300.0:NO3	1	N	DRY
W-834-S5	PTMW	Tpsg	S	CMP	E624MOD:ALL	1	N	DRY
W-834-S5	PTMW	Tpsg	S	CMP	E624MOD:ALL	3	N	DRY
W-834-S5	PTMW	Tpsg	O	CMP	TBOS:ALL	1	N	To be sampled in 2019
W-834-S6	PTMW	Tpsg	A	CMP	E300.0:NO3	1	N	Insufficient water
W-834-S6	PTMW	Tpsg	S	CMP	E624MOD:ALL	1	N	Insufficient water
W-834-S6	PTMW	Tpsg	S	CMP	E624MOD:ALL	3	N	Insufficient water
W-834-S6	PTMW	Tpsg	E	CMP	TBOS:ALL	1	N	Insufficient water
W-834-S7	PTMW	Tpsg	A	CMP	E300.0:NO3	1	N	DRY
W-834-S7	PTMW	Tpsg	S	CMP	E624MOD:ALL	1	N	DRY
W-834-S7	PTMW	Tpsg	S	CMP	E624MOD:ALL	3	N	DRY
W-834-S7	PTMW	Tpsg	E	CMP	TBOS:ALL	1	N	DRY
W-834-S8	PTMW	Tps-Tnsc2	A	CMP	E300.0:NO3	1	Y	
W-834-S8	PTMW	Tps-Tnsc2	S	CMP	E624MOD:ALL	1	Y	
W-834-S8	PTMW	Tps-Tnsc2	S	CMP	E624MOD:ALL	3	Y	
W-834-S8	PTMW	Tps-Tnsc2	O	CMP	TBOS:ALL	1	N	To be sampled in 2019
W-834-S9	PTMW	Tps-Tnsc2	A	CMP	E300.0:NO3	1	Y	

Table 2.2-6. Building 834 Operable Unit groundwater sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-834-S9	PTMW	Tps-Tnsc2	S	CMP	E624MOD:ALL	1	Y	
W-834-S9	PTMW	Tps-Tnsc2	S	CMP	E624MOD:ALL	3	Y	
W-834-S9	PTMW	Tps-Tnsc2	E	DIS	EM8015:DRANGE	1	Y	
W-834-S9	PTMW	Tps-Tnsc2	E	CMP	TBOS:ALL	1	Y	
W-834-T1	GW	LTnbs1	S	CMP	E300.0:NO3	1	Y	
W-834-T1	GW	LTnbs1	S	CMP	E300.0:NO3	3	Y	
W-834-T1	GW	LTnbs1	Q	CMP	E624MOD:ALL	1	Y	
W-834-T1	GW	LTnbs1	Q	CMP	E624MOD:ALL	2	Y	
W-834-T1	GW	LTnbs1	Q	CMP	E624MOD:ALL	3	Y	
W-834-T1	GW	LTnbs1	Q	CMP	E624MOD:ALL	4	Y	
W-834-T1	GW	LTnbs1	S	CMP	TBOS:ALL	1	Y	
W-834-T1	GW	LTnbs1	S	CMP	TBOS:ALL	3	Y	
W-834-T11	PTMW	Tpsg	A	CMP	E300.0:NO3	1	N	DRY
W-834-T11	PTMW	Tpsg	S	CMP	E624MOD:ALL	1	N	DRY
W-834-T11	PTMW	Tpsg	S	CMP	E624MOD:ALL	3	N	DRY
W-834-T11	PTMW	Tpsg	E	CMP	TBOS:ALL	1	N	DRY
W-834-T2	PTMW	Tpsg	A	DIS	E200.7:FE	1	Y	
W-834-T2	PTMW	Tpsg	A	DIS	E200.8:MN	1	Y	
W-834-T2	PTMW	Tpsg	A	CMP	E300.0:NO3	1	Y	
W-834-T2	PTMW	Tpsg	S	CMP	E624MOD:ALL	1	Y	
W-834-T2	PTMW	Tpsg	S	CMP	E624MOD:ALL	3	Y	
W-834-T2	PTMW	Tpsg	O	CMP	TBOS:ALL	1	N	To be sampled in 2019
W-834-T2A	PTMW	Tpsg	A	CMP	E300.0:NO3	1	Y	
W-834-T2A	PTMW	Tpsg	S	CMP	E624MOD:ALL	1	Y	
W-834-T2A	PTMW	Tpsg	S	CMP	E624MOD:ALL	3	Y	
W-834-T2A	PTMW	Tpsg	E	CMP	TBOS:ALL	1	Y	
W-834-T2B	PTMW	Tpsg	A	CMP	E300.0:NO3	1	Y	
W-834-T2B	PTMW	Tpsg	S	CMP	E624MOD:ALL	1	Y	
W-834-T2B	PTMW	Tpsg	S	CMP	E624MOD:ALL	3	Y	
W-834-T2B	PTMW	Tpsg	O	CMP	TBOS:ALL	1	N	To be sampled in 2019
W-834-T2C	PTMW	Tpsg	A	CMP	E300.0:NO3	1	N	DRY
W-834-T2C	PTMW	Tpsg	S	CMP	E624MOD:ALL	1	N	DRY
W-834-T2C	PTMW	Tpsg	S	CMP	E624MOD:ALL	3	N	Insufficient water
W-834-T2C	PTMW	Tpsg	E	CMP	TBOS:ALL	1	N	DRY
W-834-T2D	PTMW	Tpsg	A	CMP	E300.0:NO3	1	Y	
W-834-T2D	PTMW	Tpsg	S	CMP	E624MOD:ALL	1	Y	
W-834-T2D	PTMW	Tpsg	S	CMP	E624MOD:ALL	3	Y	

Table 2.2-6. Building 834 Operable Unit groundwater sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-834-T2D	PTMW	Tpsg	E	CMP	TBOS:ALL	1	Y	
W-834-T3	GW	LTnbs1	S	CMP	E300.0:NO3	1	Y	
W-834-T3	GW	LTnbs1	S	CMP	E300.0:NO3	3	Y	
W-834-T3	GW	LTnbs1	Q	CMP	E624MOD:ALL	1	Y	
W-834-T3	GW	LTnbs1	Q	CMP	E624MOD:ALL	2	Y	
W-834-T3	GW	LTnbs1	Q	CMP	E624MOD:ALL	3	Y	
W-834-T3	GW	LTnbs1	Q	CMP	E624MOD:ALL	4	Y	
W-834-T3	GW	LTnbs1	S	CMP	TBOS:ALL	1	Y	
W-834-T3	GW	LTnbs1	S	CMP	TBOS:ALL	3	Y	
W-834-T5	PTMW	Tps-Tnsc2	A	CMP	E300.0:NO3	1	Y	
W-834-T5	PTMW	Tps-Tnsc2	S	CMP	E624MOD:ALL	1	Y	
W-834-T5	PTMW	Tps-Tnsc2	S	CMP	E624MOD:ALL	3	Y	
W-834-T5	PTMW	Tps-Tnsc2	E	CMP	TBOS:ALL	1	Y	
W-834-T7A	PTMW	Tps-Tnsc2	A	CMP	E300.0:NO3	1	N	DRY
W-834-T7A	PTMW	Tps-Tnsc2	S	CMP	E624MOD:ALL	1	N	DRY
W-834-T7A	PTMW	Tps-Tnsc2	S	CMP	E624MOD:ALL	3	N	Insufficient water
W-834-T7A	PTMW	Tps-Tnsc2	O	CMP	TBOS:ALL	1	N	To be sampled in 2019
W-834-T8A	PTMW	Tpsg	A	CMP	E300.0:NO3	1	N	DRY
W-834-T8A	PTMW	Tpsg	S	CMP	E624MOD:ALL	1	N	DRY
W-834-T8A	PTMW	Tpsg	S	CMP	E624MOD:ALL	3	N	DRY
W-834-T8A	PTMW	Tpsg	O	CMP	TBOS:ALL	1	N	To be sampled in 2019
W-834-T9	PTMW	Tpsg	A	CMP	E300.0:NO3	1	N	DRY
W-834-T9	PTMW	Tpsg	S	CMP	E624MOD:ALL	1	N	DRY
W-834-T9	PTMW	Tpsg	S	CMP	E624MOD:ALL	3	N	DRY
W-834-T9	PTMW	Tpsg	O	CMP	TBOS:ALL	1	N	To be sampled in 2019
W-834-U1	PTMW	Tps-Tnsc2	A	CMP	E300.0:NO3	1	Y	
W-834-U1	PTMW	Tps-Tnsc2	S	CMP	E624MOD:ALL	1	Y	
W-834-U1	PTMW	Tps-Tnsc2	S	CMP	E624MOD:ALL	3	Y	
W-834-U1	PTMW	Tps-Tnsc2	A	DIS	EM8015:DIESEL	1	Y	
W-834-U1	PTMW	Tps-Tnsc2	A	CMP	TBOS:ALL	1	Y	

Acronyms and Abbreviations:

- = Not applicable
bgs = Below ground surface
CGSA = Central General Services Area
COCs = Contaminants of concern
DIS = Distal
DISS = Distal south
DSB = Distal site boundary
EGSA = Eastern General Services Area
ft = Feet
g = Grams
GWTS = Groundwater treatment system
HSU = Hydrostratigraphic unit
Kcf = Thousands of cubic feet
kg = Kilograms
Kgal = Thousands of gallons
Mcf = Millions of cubic feet
PRX = Proximal
PRXN = Proximal North
PTMW = Plume Tracking Monitor Well
RDX = Research Department Explosive
SRC = Source
SVTS = Soil vapor treatment system
TBOS = Tetra 2-ethylbutylorthosilicate
TKEBS = Tetrakis (2-ethylbutyl) silane
VOC = Volatile organic compound

Table 2.2-7. Building 834 mass removed, July 1, 2018 through December 31, 2018.

Treatment facility	Month	SVTS VOC mass removed (g)	GWTS VOC mass removed (g)	Perchlorate mass removed (g)	Nitrate mass removed (kg)	RDX mass removed (g)	TBOS/TKEBS mass removed (g)
834	July	530	54	NA	4.4	NA	0.082
	August	450	38	NA	3.2	NA	0.067
	September	450	38	NA	3.7	NA	0.058
	October	780	55	NA	4.0	NA	0.059
	November	470	33	NA	2.6	NA	0.038
	December	0	0	NA	0	NA	0
Total		2,700	220	NA	18	NA	0.30

Acronyms and Abbreviations:

-	=	Not applicable
bgs	=	Below ground surface
CGSA	=	Central General Services Area
COCs	=	Contaminants of concern
DIS	=	Distal
DISS	=	Distal south
DSB	=	Distal site boundary
EGSA	=	Eastern General Services Area
ft	=	Feet
g	=	Grams
GWTS	=	Groundwater treatment system
HSU	=	Hydrostratigraphic unit
Kcf	=	Thousands of cubic feet
kg	=	Kilograms
Kgal	=	Thousands of gallons
Mcf	=	Millions of cubic feet
PRX	=	Proximal
PRXN	=	Proximal North
PTMW	=	Plume Tracking Monitor Well
RDX	=	Research Department Explosive
SRC	=	Source
SVTS	=	Soil vapor treatment system
TBOS	=	Tetra 2-ethylbutylorthosilicate
TKEBS	=	Tetrakis (2-ethylbutyl) silane
VOC	=	Volatile organic compound

Table 2.3-1. Pit 6 Landfill Operable Unit ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
BC6-10	PTMW	LTnbs1	A	CMP	E300.0:NO3	1	Y	
BC6-10	PTMW	LTnbs1	A	CMP	E300.0:PERC	1	Y	
BC6-10	PTMW	LTnbs1	S	CMP	E624MOD:ALL	1	Y	
BC6-10	PTMW	LTnbs1	S	CMP	E624MOD:ALL	3	Y	
BC6-10	PTMW	LTnbs1	S	CMP	E906:ALL	1	Y	
BC6-10	PTMW	LTnbs1	S	CMP	E906:ALL	3	Y	
BC6-13	PTMW	Qt-Tnbs1	E	CMP	E300.0:NO3	1	N	DRY
BC6-13	PTMW	Qt-Tnbs1	E	CMP	E300.0:PERC	1	N	DRY
BC6-13	PTMW	Qt-Tnbs1	E	CMP	E624MOD:ALL	1	N	DRY
BC6-13	PTMW	Qt-Tnbs1	E	CMP	E906:ALL	1	N	DRY
CARNRW1	WS	Qt-Tnbs1	M	CMP	E300.0:NO3	1	Y	
CARNRW1	WS	Qt-Tnbs1	M	CMP	E300.0:NO3	1	Y	
CARNRW1	WS	Qt-Tnbs1	M	CMP	E300.0:NO3	1	Y	
CARNRW1	WS	Qt-Tnbs1	M	CMP	E300.0:NO3	2	Y	
CARNRW1	WS	Qt-Tnbs1	M	CMP	E300.0:NO3	2	Y	
CARNRW1	WS	Qt-Tnbs1	M	CMP	E300.0:NO3	2	Y	
CARNRW1	WS	Qt-Tnbs1	M	CMP	E300.0:NO3	3	Y	
CARNRW1	WS	Qt-Tnbs1	M	CMP	E300.0:NO3	3	Y	
CARNRW1	WS	Qt-Tnbs1	M	CMP	E300.0:NO3	3	Y	
CARNRW1	WS	Qt-Tnbs1	M	CMP	E300.0:NO3	4	Y	
CARNRW1	WS	Qt-Tnbs1	M	CMP	E300.0:NO3	4	Y	
CARNRW1	WS	Qt-Tnbs1	M	CMP	E300.0:NO3	4	Y	
CARNRW1	WS	Qt-Tnbs1	M	CMP	E300.0:PERC	1	Y	
CARNRW1	WS	Qt-Tnbs1	M	CMP	E300.0:PERC	1	Y	
CARNRW1	WS	Qt-Tnbs1	M	CMP	E300.0:PERC	1	Y	
CARNRW1	WS	Qt-Tnbs1	M	CMP	E300.0:PERC	2	Y	
CARNRW1	WS	Qt-Tnbs1	M	CMP	E300.0:PERC	2	Y	
CARNRW1	WS	Qt-Tnbs1	M	CMP	E300.0:PERC	2	Y	
CARNRW1	WS	Qt-Tnbs1	M	CMP	E300.0:PERC	3	Y	
CARNRW1	WS	Qt-Tnbs1	M	CMP	E300.0:PERC	3	Y	
CARNRW1	WS	Qt-Tnbs1	M	CMP	E300.0:PERC	3	Y	
CARNRW1	WS	Qt-Tnbs1	M	CMP	E300.0:PERC	4	Y	
CARNRW1	WS	Qt-Tnbs1	M	CMP	E300.0:PERC	4	Y	
CARNRW1	WS	Qt-Tnbs1	M	CMP	E300.0:PERC	4	Y	
CARNRW1	WS	Qt-Tnbs1	Q	WGMG	E624:ALL	1	Y	
CARNRW1	WS	Qt-Tnbs1	M	CMP	E624MOD:ALL	1	Y	
CARNRW1	WS	Qt-Tnbs1	M	CMP	E624MOD:ALL	1	Y	
CARNRW1	WS	Qt-Tnbs1	M	CMP	E624MOD:ALL	1	Y	
CARNRW1	WS	Qt-Tnbs1	M	CMP	E624MOD:ALL	2	Y	
CARNRW1	WS	Qt-Tnbs1	M	CMP	E624MOD:ALL	2	Y	
CARNRW1	WS	Qt-Tnbs1	M	CMP	E624MOD:ALL	2	Y	
CARNRW1	WS	Qt-Tnbs1	M	CMP	E624MOD:ALL	3	Y	
CARNRW1	WS	Qt-Tnbs1	M	CMP	E624MOD:ALL	3	Y	

Table 2.3-1. Pit 6 Landfill Operable Unit ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
CARNRW1	WS	Qt-Tnbs1	M	CMP	E624MOD:ALL	3	Y	
CARNRW1	WS	Qt-Tnbs1	M	CMP	E624MOD:ALL	4	Y	
CARNRW1	WS	Qt-Tnbs1	M	CMP	E624MOD:ALL	4	Y	
CARNRW1	WS	Qt-Tnbs1	M	CMP	E624MOD:ALL	4	Y	
CARNRW1	WS	Qt-Tnbs1	Q	WGMG	E8330:R+H	1	Y	
CARNRW1	WS	Qt-Tnbs1	Q	WGMG	E8330:R+H	2	Y	
CARNRW1	WS	Qt-Tnbs1	Q	WGMG	E8330:R+H	3	Y	
CARNRW1	WS	Qt-Tnbs1	Q	WGMG	E8330:R+H	4	Y	
CARNRW1	WS	Qt-Tnbs1	Q	WGMG	E900:ALL	1	Y	
CARNRW1	WS	Qt-Tnbs1	Q	WGMG	E900:ALL	2	Y	
CARNRW1	WS	Qt-Tnbs1	Q	WGMG	E900:ALL	3	Y	
CARNRW1	WS	Qt-Tnbs1	Q	WGMG	E900:ALL	4	Y	
CARNRW1	WS	Qt-Tnbs1	M	CMP	E906:ALL	1	Y	
CARNRW1	WS	Qt-Tnbs1	M	CMP	E906:ALL	1	Y	
CARNRW1	WS	Qt-Tnbs1	M	CMP	E906:ALL	1	Y	
CARNRW1	WS	Qt-Tnbs1	M	CMP	E906:ALL	2	Y	
CARNRW1	WS	Qt-Tnbs1	M	CMP	E906:ALL	2	Y	
CARNRW1	WS	Qt-Tnbs1	M	CMP	E906:ALL	2	Y	
CARNRW1	WS	Qt-Tnbs1	M	CMP	E906:ALL	3	Y	
CARNRW1	WS	Qt-Tnbs1	M	CMP	E906:ALL	3	Y	
CARNRW1	WS	Qt-Tnbs1	M	CMP	E906:ALL	3	Y	
CARNRW1	WS	Qt-Tnbs1	M	CMP	E906:ALL	4	Y	
CARNRW1	WS	Qt-Tnbs1	M	CMP	E906:ALL	4	Y	
CARNRW1	WS	Qt-Tnbs1	M	CMP	E906:ALL	4	Y	
CARNRW1	WS	Qt-Tnbs1	Q	WGMG	WGMGMET3:ALL	1	Y	
CARNRW1	WS	Qt-Tnbs1	Q	WGMG	WGMGMET3:ALL	2	Y	
CARNRW1	WS	Qt-Tnbs1	Q	WGMG	WGMGMET3:ALL	3	Y	
CARNRW1	WS	Qt-Tnbs1	Q	WGMG	WGMGMET3:ALL	4	Y	
CARNRW2	WS	Qt-Tnbs1	Q	WGMG	AS:UISO	1	Y	
CARNRW2	WS	Qt-Tnbs1	Q	WGMG	AS:UISO	2	Y	
CARNRW2	WS	Qt-Tnbs1	Q	WGMG	AS:UISO	3	Y	
CARNRW2	WS	Qt-Tnbs1	Q	WGMG	AS:UISO	4	Y	
CARNRW2	WS	Qt-Tnbs1	M	CMP	E300.0:NO3	1	Y	
CARNRW2	WS	Qt-Tnbs1	M	CMP	E300.0:NO3	1	Y	
CARNRW2	WS	Qt-Tnbs1	M	CMP	E300.0:NO3	1	Y	
CARNRW2	WS	Qt-Tnbs1	M	CMP	E300.0:NO3	2	Y	
CARNRW2	WS	Qt-Tnbs1	M	CMP	E300.0:NO3	2	Y	
CARNRW2	WS	Qt-Tnbs1	M	CMP	E300.0:NO3	2	Y	
CARNRW2	WS	Qt-Tnbs1	M	CMP	E300.0:NO3	3	Y	
CARNRW2	WS	Qt-Tnbs1	M	CMP	E300.0:NO3	3	Y	
CARNRW2	WS	Qt-Tnbs1	M	CMP	E300.0:NO3	3	Y	
CARNRW2	WS	Qt-Tnbs1	M	CMP	E300.0:NO3	4	Y	
CARNRW2	WS	Qt-Tnbs1	M	CMP	E300.0:NO3	4	Y	

Table 2.3-1. Pit 6 Landfill Operable Unit ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
CARNRW2	WS	Qt-Tnbs1	M	CMP	E300.0:NO3	4	Y	
CARNRW2	WS	Qt-Tnbs1	M	CMP	E300.0:PERC	1	Y	
CARNRW2	WS	Qt-Tnbs1	M	CMP	E300.0:PERC	1	Y	
CARNRW2	WS	Qt-Tnbs1	M	CMP	E300.0:PERC	1	Y	
CARNRW2	WS	Qt-Tnbs1	M	CMP	E300.0:PERC	2	Y	
CARNRW2	WS	Qt-Tnbs1	M	CMP	E300.0:PERC	2	Y	
CARNRW2	WS	Qt-Tnbs1	M	CMP	E300.0:PERC	2	Y	
CARNRW2	WS	Qt-Tnbs1	M	CMP	E300.0:PERC	3	Y	
CARNRW2	WS	Qt-Tnbs1	M	CMP	E300.0:PERC	3	Y	
CARNRW2	WS	Qt-Tnbs1	M	CMP	E300.0:PERC	3	Y	
CARNRW2	WS	Qt-Tnbs1	M	CMP	E300.0:PERC	4	Y	
CARNRW2	WS	Qt-Tnbs1	M	CMP	E300.0:PERC	4	Y	
CARNRW2	WS	Qt-Tnbs1	M	CMP	E300.0:PERC	4	Y	
CARNRW2	WS	Qt-Tnbs1	Q	WGMG	E524.2MOD:ALL	1	Y	
CARNRW2	WS	Qt-Tnbs1	M	CMP	E624MOD:ALL	1	Y	
CARNRW2	WS	Qt-Tnbs1	M	CMP	E624MOD:ALL	1	Y	
CARNRW2	WS	Qt-Tnbs1	M	CMP	E624MOD:ALL	1	Y	
CARNRW2	WS	Qt-Tnbs1	M	CMP	E624MOD:ALL	2	Y	
CARNRW2	WS	Qt-Tnbs1	M	CMP	E624MOD:ALL	2	Y	
CARNRW2	WS	Qt-Tnbs1	M	CMP	E624MOD:ALL	2	Y	
CARNRW2	WS	Qt-Tnbs1	M	CMP	E624MOD:ALL	3	Y	
CARNRW2	WS	Qt-Tnbs1	M	CMP	E624MOD:ALL	3	Y	
CARNRW2	WS	Qt-Tnbs1	M	CMP	E624MOD:ALL	3	Y	
CARNRW2	WS	Qt-Tnbs1	M	CMP	E624MOD:ALL	4	Y	
CARNRW2	WS	Qt-Tnbs1	M	CMP	E624MOD:ALL	4	Y	
CARNRW2	WS	Qt-Tnbs1	M	CMP	E624MOD:ALL	4	Y	
CARNRW2	WS	Qt-Tnbs1	Q	WGMG	E8330:R+H	1	Y	
CARNRW2	WS	Qt-Tnbs1	Q	WGMG	E8330:R+H	2	Y	
CARNRW2	WS	Qt-Tnbs1	Q	WGMG	E8330:R+H	3	Y	
CARNRW2	WS	Qt-Tnbs1	Q	WGMG	E8330:R+H	4	Y	
CARNRW2	WS	Qt-Tnbs1	Q	WGMG	E900:ALL	1	Y	
CARNRW2	WS	Qt-Tnbs1	Q	WGMG	E900:ALL	2	Y	
CARNRW2	WS	Qt-Tnbs1	Q	WGMG	E900:ALL	3	Y	
CARNRW2	WS	Qt-Tnbs1	Q	WGMG	E900:ALL	4	Y	
CARNRW2	WS	Qt-Tnbs1	M	CMP	E906:ALL	1	Y	
CARNRW2	WS	Qt-Tnbs1	M	CMP	E906:ALL	1	Y	
CARNRW2	WS	Qt-Tnbs1	M	CMP	E906:ALL	1	Y	
CARNRW2	WS	Qt-Tnbs1	M	CMP	E906:ALL	2	Y	
CARNRW2	WS	Qt-Tnbs1	M	CMP	E906:ALL	2	Y	
CARNRW2	WS	Qt-Tnbs1	M	CMP	E906:ALL	2	Y	
CARNRW2	WS	Qt-Tnbs1	M	CMP	E906:ALL	3	Y	
CARNRW2	WS	Qt-Tnbs1	M	CMP	E906:ALL	3	Y	
CARNRW2	WS	Qt-Tnbs1	M	CMP	E906:ALL	3	Y	

Table 2.3-1. Pit 6 Landfill Operable Unit ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
CARNRW2	WS	Qt-Tnbs1	M	CMP	E906:ALL	4	Y	
CARNRW2	WS	Qt-Tnbs1	M	CMP	E906:ALL	4	Y	
CARNRW2	WS	Qt-Tnbs1	M	CMP	E906:ALL	4	Y	
CARNRW2	WS	Qt-Tnbs1	Q	WGMG	WGMGMET3:ALL	1	Y	
CARNRW2	WS	Qt-Tnbs1	Q	WGMG	WGMGMET3:ALL	2	Y	
CARNRW2	WS	Qt-Tnbs1	Q	WGMG	WGMGMET3:ALL	3	Y	
CARNRW2	WS	Qt-Tnbs1	Q	WGMG	WGMGMET3:ALL	4	Y	
CARNRW3	WS	Qt-Tnbs1	M	CMP	E300.0:NO3	1	Y	
CARNRW3	WS	Qt-Tnbs1	M	CMP	E300.0:NO3	1	Y	
CARNRW3	WS	Qt-Tnbs1	M	CMP	E300.0:NO3	1	Y	
CARNRW3	WS	Qt-Tnbs1	M	CMP	E300.0:NO3	2	Y	
CARNRW3	WS	Qt-Tnbs1	M	CMP	E300.0:NO3	2	Y	
CARNRW3	WS	Qt-Tnbs1	M	CMP	E300.0:NO3	2	Y	
CARNRW3	WS	Qt-Tnbs1	M	CMP	E300.0:NO3	3	Y	
CARNRW3	WS	Qt-Tnbs1	M	CMP	E300.0:NO3	3	Y	
CARNRW3	WS	Qt-Tnbs1	M	CMP	E300.0:NO3	3	Y	
CARNRW3	WS	Qt-Tnbs1	M	CMP	E300.0:NO3	4	Y	
CARNRW3	WS	Qt-Tnbs1	M	CMP	E300.0:NO3	4	Y	
CARNRW3	WS	Qt-Tnbs1	M	CMP	E300.0:NO3	4	Y	
CARNRW3	WS	Qt-Tnbs1	M	CMP	E300.0:PERC	1	Y	
CARNRW3	WS	Qt-Tnbs1	M	CMP	E300.0:PERC	1	Y	
CARNRW3	WS	Qt-Tnbs1	M	CMP	E300.0:PERC	1	Y	
CARNRW3	WS	Qt-Tnbs1	M	CMP	E300.0:PERC	2	Y	
CARNRW3	WS	Qt-Tnbs1	M	CMP	E300.0:PERC	2	Y	
CARNRW3	WS	Qt-Tnbs1	M	CMP	E300.0:PERC	2	Y	
CARNRW3	WS	Qt-Tnbs1	M	CMP	E300.0:PERC	3	Y	
CARNRW3	WS	Qt-Tnbs1	M	CMP	E300.0:PERC	3	Y	
CARNRW3	WS	Qt-Tnbs1	M	CMP	E300.0:PERC	3	Y	
CARNRW3	WS	Qt-Tnbs1	M	CMP	E300.0:PERC	4	Y	
CARNRW3	WS	Qt-Tnbs1	M	CMP	E300.0:PERC	4	Y	
CARNRW3	WS	Qt-Tnbs1	M	CMP	E300.0:PERC	4	Y	
CARNRW3	WS	Qt-Tnbs1	M	CMP	E624MOD:ALL	1	Y	
CARNRW3	WS	Qt-Tnbs1	M	CMP	E624MOD:ALL	1	Y	
CARNRW3	WS	Qt-Tnbs1	M	CMP	E624MOD:ALL	1	Y	
CARNRW3	WS	Qt-Tnbs1	M	CMP	E624MOD:ALL	2	Y	
CARNRW3	WS	Qt-Tnbs1	M	CMP	E624MOD:ALL	2	Y	
CARNRW3	WS	Qt-Tnbs1	M	CMP	E624MOD:ALL	2	Y	
CARNRW3	WS	Qt-Tnbs1	M	CMP	E624MOD:ALL	3	Y	
CARNRW3	WS	Qt-Tnbs1	M	CMP	E624MOD:ALL	3	Y	
CARNRW3	WS	Qt-Tnbs1	M	CMP	E624MOD:ALL	3	Y	
CARNRW3	WS	Qt-Tnbs1	M	CMP	E624MOD:ALL	4	Y	
CARNRW3	WS	Qt-Tnbs1	M	CMP	E624MOD:ALL	4	Y	
CARNRW3	WS	Qt-Tnbs1	M	CMP	E624MOD:ALL	4	Y	

Table 2.3-1. Pit 6 Landfill Operable Unit ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
CARNRW3	WS	Qt-Tnbs1	M	CMP	E906:ALL	1	Y	
CARNRW3	WS	Qt-Tnbs1	M	CMP	E906:ALL	1	Y	
CARNRW3	WS	Qt-Tnbs1	M	CMP	E906:ALL	1	Y	
CARNRW3	WS	Qt-Tnbs1	M	CMP	E906:ALL	2	Y	
CARNRW3	WS	Qt-Tnbs1	M	CMP	E906:ALL	2	Y	
CARNRW3	WS	Qt-Tnbs1	M	CMP	E906:ALL	2	Y	
CARNRW3	WS	Qt-Tnbs1	M	CMP	E906:ALL	3	Y	
CARNRW3	WS	Qt-Tnbs1	M	CMP	E906:ALL	3	Y	
CARNRW3	WS	Qt-Tnbs1	M	CMP	E906:ALL	3	Y	
CARNRW3	WS	Qt-Tnbs1	M	CMP	E906:ALL	4	Y	
CARNRW3	WS	Qt-Tnbs1	M	CMP	E906:ALL	4	Y	
CARNRW3	WS	Qt-Tnbs1	M	CMP	E906:ALL	4	Y	
CARNRW4	WS	Qt-Tnbs1	M	CMP	E300.0:NO3	1	Y	
CARNRW4	WS	Qt-Tnbs1	M	CMP	E300.0:NO3	1	Y	
CARNRW4	WS	Qt-Tnbs1	M	CMP	E300.0:NO3	1	Y	
CARNRW4	WS	Qt-Tnbs1	M	CMP	E300.0:NO3	2	Y	
CARNRW4	WS	Qt-Tnbs1	M	CMP	E300.0:NO3	2	Y	
CARNRW4	WS	Qt-Tnbs1	M	CMP	E300.0:NO3	2	Y	
CARNRW4	WS	Qt-Tnbs1	M	CMP	E300.0:NO3	3	Y	
CARNRW4	WS	Qt-Tnbs1	M	CMP	E300.0:NO3	3	Y	
CARNRW4	WS	Qt-Tnbs1	M	CMP	E300.0:NO3	3	Y	
CARNRW4	WS	Qt-Tnbs1	M	CMP	E300.0:NO3	4	Y	
CARNRW4	WS	Qt-Tnbs1	M	CMP	E300.0:NO3	4	Y	
CARNRW4	WS	Qt-Tnbs1	M	CMP	E300.0:NO3	4	Y	
CARNRW4	WS	Qt-Tnbs1	M	CMP	E300.0:PERC	1	Y	
CARNRW4	WS	Qt-Tnbs1	M	CMP	E300.0:PERC	1	Y	
CARNRW4	WS	Qt-Tnbs1	M	CMP	E300.0:PERC	1	Y	
CARNRW4	WS	Qt-Tnbs1	M	CMP	E300.0:PERC	2	Y	
CARNRW4	WS	Qt-Tnbs1	M	CMP	E300.0:PERC	2	Y	
CARNRW4	WS	Qt-Tnbs1	M	CMP	E300.0:PERC	2	Y	
CARNRW4	WS	Qt-Tnbs1	M	CMP	E300.0:PERC	3	Y	
CARNRW4	WS	Qt-Tnbs1	M	CMP	E300.0:PERC	3	Y	
CARNRW4	WS	Qt-Tnbs1	M	CMP	E300.0:PERC	3	Y	
CARNRW4	WS	Qt-Tnbs1	M	CMP	E300.0:PERC	4	Y	
CARNRW4	WS	Qt-Tnbs1	M	CMP	E300.0:PERC	4	Y	
CARNRW4	WS	Qt-Tnbs1	M	CMP	E300.0:PERC	4	Y	
CARNRW4	WS	Qt-Tnbs1	M	CMP	E624MOD:ALL	1	Y	
CARNRW4	WS	Qt-Tnbs1	M	CMP	E624MOD:ALL	1	Y	
CARNRW4	WS	Qt-Tnbs1	M	CMP	E624MOD:ALL	1	Y	
CARNRW4	WS	Qt-Tnbs1	M	CMP	E624MOD:ALL	2	Y	
CARNRW4	WS	Qt-Tnbs1	M	CMP	E624MOD:ALL	2	Y	
CARNRW4	WS	Qt-Tnbs1	M	CMP	E624MOD:ALL	2	Y	
CARNRW4	WS	Qt-Tnbs1	M	CMP	E624MOD:ALL	3	Y	

Table 2.3-1. Pit 6 Landfill Operable Unit ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
CARNRW4	WS	Qt-Tnbs1	M	CMP	E624MOD:ALL	3	Y	
CARNRW4	WS	Qt-Tnbs1	M	CMP	E624MOD:ALL	3	Y	
CARNRW4	WS	Qt-Tnbs1	M	CMP	E624MOD:ALL	4	Y	
CARNRW4	WS	Qt-Tnbs1	M	CMP	E624MOD:ALL	4	Y	
CARNRW4	WS	Qt-Tnbs1	M	CMP	E624MOD:ALL	4	Y	
CARNRW4	WS	Qt-Tnbs1	M	CMP	E906:ALL	1	Y	
CARNRW4	WS	Qt-Tnbs1	M	CMP	E906:ALL	1	Y	
CARNRW4	WS	Qt-Tnbs1	M	CMP	E906:ALL	1	Y	
CARNRW4	WS	Qt-Tnbs1	M	CMP	E906:ALL	2	Y	
CARNRW4	WS	Qt-Tnbs1	M	CMP	E906:ALL	2	Y	
CARNRW4	WS	Qt-Tnbs1	M	CMP	E906:ALL	2	Y	
CARNRW4	WS	Qt-Tnbs1	M	CMP	E906:ALL	3	Y	
CARNRW4	WS	Qt-Tnbs1	M	CMP	E906:ALL	3	Y	
CARNRW4	WS	Qt-Tnbs1	M	CMP	E906:ALL	3	Y	
CARNRW4	WS	Qt-Tnbs1	M	CMP	E906:ALL	4	Y	
CARNRW4	WS	Qt-Tnbs1	M	CMP	E906:ALL	4	Y	
CARNRW4	WS	Qt-Tnbs1	M	CMP	E906:ALL	4	Y	
EP6-06	DMW	LTnbs1	A	WGMG	AS:UISO	1	Y	
EP6-06	DMW	LTnbs1	A	WGMG	E210.2:ALL	1	Y	
EP6-06	DMW	LTnbs1	A	WGMG	E300.0:NO3	1	Y	
EP6-06	DMW	LTnbs1	A	WGMG	E300.0:PERC	1	Y	
EP6-06	DMW	LTnbs1	A	WGMG	E602:ALL	1	Y	
EP6-06	DMW	LTnbs1	S	WGMG	E624MOD:ALL	1	Y	
EP6-06	DMW	LTnbs1	S	WGMG	E624MOD:ALL	3	Y	
EP6-06	DMW	LTnbs1	A	WGMG	E900:ALL	1	Y	
EP6-06	DMW	LTnbs1	S	WGMG	E906:ALL	1	Y	
EP6-06	DMW	LTnbs1	S	WGMG	E906:ALL	3	Y	
EP6-07	PTMW	Qt-Tnbs1	A	WGMG	AS:UISO	1	Y	
EP6-07	PTMW	Qt-Tnbs1	Q	CMP	AS:UISO	2	Y	
EP6-07	PTMW	Qt-Tnbs1	Q	CMP	AS:UISO	3	Y	
EP6-07	PTMW	Qt-Tnbs1	A	WGMG	E210.2:ALL	1	Y	
EP6-07	PTMW	Qt-Tnbs1	A	CMP	E300.0:NO3	1	Y	
EP6-07	PTMW	Qt-Tnbs1	A	CMP	E300.0:PERC	1	Y	
EP6-07	PTMW	Qt-Tnbs1	A	WGMG	E602:ALL	1	Y	
EP6-07	PTMW	Qt-Tnbs1	S	CMP	E624MOD:ALL	1	Y	
EP6-07	PTMW	Qt-Tnbs1	S	CMP	E624MOD:ALL	3	Y	
EP6-07	PTMW	Qt-Tnbs1	A	WGMG	E900:ALL	1	Y	
EP6-07	PTMW	Qt-Tnbs1	Q	CMP	E900:ALL	2	Y	
EP6-07	PTMW	Qt-Tnbs1	Q	CMP	E900:ALL	3	Y	
EP6-07	PTMW	Qt-Tnbs1	S	CMP	E906:ALL	1	Y	
EP6-07	PTMW	Qt-Tnbs1	S	CMP	E906:ALL	3	Y	
EP6-08	DMW	Qt-Tnbs1	A	WGMG	AS:UISO	1	Y	
EP6-08	DMW	Qt-Tnbs1	Q	CMP	AS:UISO	2	Y	

Table 2.3-1. Pit 6 Landfill Operable Unit ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
EP6-08	DMW	Qt-Tnbs1	Q	CMP	AS:UISO	3	Y	
EP6-08	DMW	Qt-Tnbs1	A	WGMG	E210.2:ALL	1	Y	
EP6-08	DMW	Qt-Tnbs1	A	WGMG	E300.0:NO3	1	Y	
EP6-08	DMW	Qt-Tnbs1	A	WGMG	E300.0:PERC	1	Y	
EP6-08	DMW	Qt-Tnbs1	A	WGMG	E602:ALL	1	Y	
EP6-08	DMW	Qt-Tnbs1	S	WGMG	E624MOD:ALL	1	Y	
EP6-08	DMW	Qt-Tnbs1	Q	DIS	E624MOD:ALL	2	Y	
EP6-08	DMW	Qt-Tnbs1	Q	DIS	E624MOD:ALL	3	Y	
EP6-08	DMW	Qt-Tnbs1	A	WGMG	E900:ALL	1	Y	
EP6-08	DMW	Qt-Tnbs1	Q	CMP	E900:ALL	2	Y	
EP6-08	DMW	Qt-Tnbs1	Q	CMP	E900:ALL	3	Y	
EP6-08	DMW	Qt-Tnbs1	S	WGMG	E906:ALL	1	Y	
EP6-08	DMW	Qt-Tnbs1	S	WGMG	E906:ALL	3	Y	
EP6-09	DMW	Qt-Tnbs1	A	WGMG	AS:UISO	1	Y	
EP6-09	DMW	Qt-Tnbs1	Q	CMP	AS:UISO	2	Y	
EP6-09	DMW	Qt-Tnbs1	Q	CMP	AS:UISO	3	Y	
EP6-09	DMW	Qt-Tnbs1	A	WGMG	E210.2:ALL	1	Y	
EP6-09	DMW	Qt-Tnbs1	A	WGMG	E300.0:NO3	1	Y	
EP6-09	DMW	Qt-Tnbs1	A	WGMG	E300.0:PERC	1	Y	
EP6-09	DMW	Qt-Tnbs1	A	WGMG	E602:ALL	1	Y	
EP6-09	DMW	Qt-Tnbs1	S	WGMG	E624MOD:ALL	1	Y	
EP6-09	DMW	Qt-Tnbs1	S	WGMG	E624MOD:ALL	3	Y	
EP6-09	DMW	Qt-Tnbs1	A	WGMG	E900:ALL	1	Y	
EP6-09	DMW	Qt-Tnbs1	Q	CMP	E900:ALL	2	Y	
EP6-09	DMW	Qt-Tnbs1	Q	CMP	E900:ALL	3	Y	
EP6-09	DMW	Qt-Tnbs1	S	WGMG	E906:ALL	1	Y	
EP6-09	DMW	Qt-Tnbs1	S	WGMG	E906:ALL	3	Y	
K6-01	DMW	Qt-Tnbs1	A	WGMG	AS:UISO	1	Y	
K6-01	DMW	Qt-Tnbs1	Q	CMP	AS:UISO	2	Y	
K6-01	DMW	Qt-Tnbs1	Q	CMP	AS:UISO	3	Y	
K6-01	DMW	Qt-Tnbs1	A	WGMG	E210.2:ALL	1	Y	
K6-01	DMW	Qt-Tnbs1	A	CMP	E300.0:NO3	1	Y	
K6-01	DMW	Qt-Tnbs1	A	CMP	E300.0:PERC	1	Y	
K6-01	DMW	Qt-Tnbs1	A	WGMG	E602:ALL	1	Y	
K6-01	DMW	Qt-Tnbs1	S	CMP	E624MOD:ALL	1	Y	
K6-01	DMW	Qt-Tnbs1	S	CMP	E624MOD:ALL	3	Y	
K6-01	DMW	Qt-Tnbs1	A	WGMG	E900:ALL	1	Y	
K6-01	DMW	Qt-Tnbs1	Q	CMP	E900:ALL	2	Y	
K6-01	DMW	Qt-Tnbs1	Q	CMP	E900:ALL	3	Y	
K6-01	DMW	Qt-Tnbs1	S	CMP	E906:ALL	1	Y	
K6-01	DMW	Qt-Tnbs1	S	CMP	E906:ALL	3	Y	
K6-01S	DMW	Qt-Tnbs1	A	WGMG	AS:UISO	1	Y	
K6-01S	DMW	Qt-Tnbs1	A	WGMG	E210.2:ALL	1	Y	

Table 2.3-1. Pit 6 Landfill Operable Unit ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
K6-01S	DMW	Qt-Tnbs1	A	WGMG	E300.0:NO3	1	Y	
K6-01S	DMW	Qt-Tnbs1	A	WGMG	E300.0:PERC	1	Y	
K6-01S	DMW	Qt-Tnbs1	A	WGMG	E602:ALL	1	Y	
K6-01S	DMW	Qt-Tnbs1	S	WGMG	E624MOD:ALL	1	Y	
K6-01S	DMW	Qt-Tnbs1	S	WGMG	E624MOD:ALL	3	Y	
K6-01S	DMW	Qt-Tnbs1	A	WGMG	E900:ALL	1	Y	
K6-01S	DMW	Qt-Tnbs1	S	WGMG	E906:ALL	1	Y	
K6-01S	DMW	Qt-Tnbs1	S	WGMG	E906:ALL	3	Y	
K6-03	PTMW	Qt-Tnbs1	A	CMP	E300.0:NO3	1	Y	
K6-03	PTMW	Qt-Tnbs1	A	CMP	E300.0:PERC	1	Y	
K6-03	PTMW	Qt-Tnbs1	S	CMP	E624MOD:ALL	1	Y	
K6-03	PTMW	Qt-Tnbs1	S	CMP	E624MOD:ALL	3	Y	
K6-03	PTMW	Qt-Tnbs1	S	CMP	E906:ALL	1	Y	
K6-03	PTMW	Qt-Tnbs1	S	CMP	E906:ALL	3	Y	
K6-04	PTMW	Qt-Tnbs1	A	CMP	E300.0:NO3	1	Y	
K6-04	PTMW	Qt-Tnbs1	A	CMP	E300.0:PERC	1	Y	
K6-04	PTMW	Qt-Tnbs1	S	CMP	E624MOD:ALL	1	Y	
K6-04	PTMW	Qt-Tnbs1	S	CMP	E624MOD:ALL	3	Y	
K6-04	PTMW	Qt-Tnbs1	S	CMP	E906:ALL	1	Y	
K6-04	PTMW	Qt-Tnbs1	S	CMP	E906:ALL	3	Y	
K6-14	PTMW	LTnbs1	A	CMP	E300.0:NO3	1	Y	
K6-14	PTMW	LTnbs1	A	CMP	E300.0:PERC	1	Y	
K6-14	PTMW	LTnbs1	S	CMP	E624MOD:ALL	1	Y	
K6-14	PTMW	LTnbs1	S	CMP	E624MOD:ALL	3	Y	
K6-14	PTMW	LTnbs1	S	CMP	E906:ALL	1	Y	
K6-14	PTMW	LTnbs1	S	CMP	E906:ALL	3	Y	
K6-15	PTMW	Qt-Tnbs1	A	CMP	E300.0:NO3	1	N	DRY
K6-15	PTMW	Qt-Tnbs1	A	CMP	E300.0:PERC	1	N	DRY
K6-15	PTMW	Qt-Tnbs1	S	CMP	E624MOD:ALL	1	N	DRY
K6-15	PTMW	Qt-Tnbs1	S	CMP	E624MOD:ALL	3	N	DRY
K6-15	PTMW	Qt-Tnbs1	S	CMP	E906:ALL	1	N	DRY
K6-15	PTMW	Qt-Tnbs1	S	CMP	E906:ALL	3	N	DRY
K6-16	PTMW	Qt-Tnbs1	A	CMP	E300.0:NO3	1	Y	
K6-16	PTMW	Qt-Tnbs1	A	CMP	E300.0:PERC	1	Y	
K6-16	PTMW	Qt-Tnbs1	S	CMP	E624MOD:ALL	1	Y	
K6-16	PTMW	Qt-Tnbs1	S	CMP	E624MOD:ALL	3	Y	
K6-16	PTMW	Qt-Tnbs1	S	CMP	E906:ALL	1	Y	
K6-16	PTMW	Qt-Tnbs1	S	CMP	E906:ALL	3	Y	
K6-17	GW	Qt-Tnbs1	S	CMP	E300.0:NO3	1	Y	
K6-17	GW	Qt-Tnbs1	S	CMP	E300.0:NO3	3	Y	
K6-17	GW	Qt-Tnbs1	S	CMP	E300.0:PERC	1	Y	
K6-17	GW	Qt-Tnbs1	S	CMP	E300.0:PERC	3	Y	
K6-17	GW	Qt-Tnbs1	Q	CMP	E624MOD:ALL	1	Y	

Table 2.3-1. Pit 6 Landfill Operable Unit ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
K6-17	GW	Qt-Tnbs1	Q	CMP	E624MOD:ALL	2	Y	
K6-17	GW	Qt-Tnbs1	Q	CMP	E624MOD:ALL	3	Y	
K6-17	GW	Qt-Tnbs1	Q	CMP	E624MOD:ALL	4	Y	
K6-17	GW	Qt-Tnbs1	Q	CMP	E906:ALL	1	Y	
K6-17	GW	Qt-Tnbs1	Q	CMP	E906:ALL	2	Y	
K6-17	GW	Qt-Tnbs1	Q	CMP	E906:ALL	3	Y	
K6-17	GW	Qt-Tnbs1	Q	CMP	E906:ALL	4	Y	
K6-17	GW	Qt-Tnbs1	S	WGMG	SM9221:ALL	1	Y	
K6-17	GW	Qt-Tnbs1	S	WGMG	SM9221:ALL	3	Y	
K6-18	PTMW	Qt-Tnbs1	A	CMP	E300.0:NO3	1	Y	
K6-18	PTMW	Qt-Tnbs1	A	CMP	E300.0:PERC	1	Y	
K6-18	PTMW	Qt-Tnbs1	S	CMP	E624MOD:ALL	1	Y	
K6-18	PTMW	Qt-Tnbs1	S	CMP	E624MOD:ALL	3	Y	
K6-18	PTMW	Qt-Tnbs1	S	CMP	E906:ALL	1	Y	
K6-18	PTMW	Qt-Tnbs1	S	CMP	E906:ALL	3	Y	
K6-19	DMW	Qt-Tnbs1	A	WGMG	AS:UISO	1	Y	
K6-19	DMW	Qt-Tnbs1	Q	CMP	AS:UISO	2	Y	
K6-19	DMW	Qt-Tnbs1	Q	CMP	AS:UISO	3	Y	
K6-19	DMW	Qt-Tnbs1	A	WGMG	E210.2:ALL	1	Y	
K6-19	DMW	Qt-Tnbs1	A	WGMG	E300.0:NO3	1	Y	
K6-19	DMW	Qt-Tnbs1	A	WGMG	E300.0:PERC	1	Y	
K6-19	DMW	Qt-Tnbs1	A	WGMG	E602:ALL	1	Y	
K6-19	DMW	Qt-Tnbs1	S	WGMG	E624MOD:ALL	1	Y	
K6-19	DMW	Qt-Tnbs1	S	WGMG	E624MOD:ALL	3	Y	
K6-19	DMW	Qt-Tnbs1	A	WGMG	E900:ALL	1	Y	
K6-19	DMW	Qt-Tnbs1	Q	CMP	E900:ALL	2	Y	
K6-19	DMW	Qt-Tnbs1	Q	CMP	E900:ALL	3	Y	
K6-19	DMW	Qt-Tnbs1	S	WGMG	E906:ALL	1	Y	
K6-19	DMW	Qt-Tnbs1	S	WGMG	E906:ALL	3	Y	
K6-19	DMW	Qt-Tnbs1	Q	DIS	MS:UISO	4	Y	
K6-21	PTMW	LTnbs1	A	CMP	E300.0:NO3	1	N	Insufficient water
K6-21	PTMW	LTnbs1	S	CMP	E300.0:NO3	3	N	DRY
K6-21	PTMW	LTnbs1	A	CMP	E300.0:PERC	1	N	Insufficient water
K6-21	PTMW	LTnbs1	S	CMP	E300.0:PERC	3	N	DRY
K6-21	PTMW	LTnbs1	A	CMP	E624MOD:ALL	1	N	Insufficient water
K6-21	PTMW	LTnbs1	S	CMP	E624MOD:ALL	3	N	DRY
K6-21	PTMW	LTnbs1	A	CMP	E906:ALL	1	N	Insufficient water
K6-21	PTMW	LTnbs1	S	CMP	E906:ALL	3	N	DRY
K6-22	GW	Qt-Tnbs1	A	CMP	E300.0:NO3	1	N	No well access for sampling or measurement
K6-22	GW	Qt-Tnbs1	A	CMP	E300.0:PERC	1	N	No well access for sampling or measurement
K6-22	GW	Qt-Tnbs1	A	CMP	E624MOD:ALL	1	N	No well access for sampling or measurement
K6-22	GW	Qt-Tnbs1	A	CMP	E906:ALL	1	N	No well access for sampling or measurement
K6-23	PTMW	Qt-Tnbs1	S	CMP	E300.0:NO3	1	Y	

Table 2.3-1. Pit 6 Landfill Operable Unit ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
K6-23	PTMW	Qt-Tnbs1	S	CMP	E300.0:NO3	3	Y	
K6-23	PTMW	Qt-Tnbs1	A	CMP	E300.0:PERC	1	Y	
K6-23	PTMW	Qt-Tnbs1	S	CMP	E624MOD:ALL	1	Y	
K6-23	PTMW	Qt-Tnbs1	S	CMP	E624MOD:ALL	3	Y	
K6-23	PTMW	Qt-Tnbs1	S	CMP	E906:ALL	1	Y	
K6-23	PTMW	Qt-Tnbs1	S	CMP	E906:ALL	3	Y	
K6-23	PTMW	Qt-Tnbs1	S	WGMG	SM9221:ALL	1	Y	
K6-23	PTMW	Qt-Tnbs1	S	WGMG	SM9221:ALL	3	Y	
K6-24	PTMW	Qt-Tnbs1	A	CMP	E300.0:NO3	1	Y	
K6-24	PTMW	Qt-Tnbs1	A	CMP	E300.0:PERC	1	Y	
K6-24	PTMW	Qt-Tnbs1	S	CMP	E624MOD:ALL	1	Y	
K6-24	PTMW	Qt-Tnbs1	S	CMP	E624MOD:ALL	3	N	DRY
K6-24	PTMW	Qt-Tnbs1	S	CMP	E906:ALL	1	Y	
K6-24	PTMW	Qt-Tnbs1	S	CMP	E906:ALL	3	N	DRY
K6-25	PTMW	Tmss	A	CMP	E300.0:NO3	1	Y	
K6-25	PTMW	Tmss	A	CMP	E300.0:PERC	1	Y	
K6-25	PTMW	Tmss	S	CMP	E624MOD:ALL	1	Y	
K6-25	PTMW	Tmss	S	CMP	E624MOD:ALL	3	Y	
K6-25	PTMW	Tmss	S	CMP	E906:ALL	1	Y	
K6-25	PTMW	Tmss	S	CMP	E906:ALL	3	Y	
K6-26	PTMW	LTnbs1	A	CMP	E300.0:NO3	1	Y	
K6-26	PTMW	LTnbs1	A	CMP	E300.0:PERC	1	Y	
K6-26	PTMW	LTnbs1	S	CMP	E624MOD:ALL	1	Y	
K6-26	PTMW	LTnbs1	S	CMP	E624MOD:ALL	3	Y	
K6-26	PTMW	LTnbs1	S	CMP	E906:ALL	1	Y	
K6-26	PTMW	LTnbs1	S	CMP	E906:ALL	3	Y	
K6-27	PTMW	Qt-Tnbs1	A	CMP	E300.0:NO3	1	Y	
K6-27	PTMW	Qt-Tnbs1	A	CMP	E300.0:PERC	1	Y	
K6-27	PTMW	Qt-Tnbs1	S	CMP	E624MOD:ALL	1	Y	
K6-27	PTMW	Qt-Tnbs1	S	CMP	E624MOD:ALL	3	Y	
K6-27	PTMW	Qt-Tnbs1	S	CMP	E906:ALL	1	Y	
K6-27	PTMW	Qt-Tnbs1	S	CMP	E906:ALL	3	Y	
K6-32	PTMW	Qt-Tnbs1	A	CMP	E300.0:NO3	1	N	Insufficient water
K6-32	PTMW	Qt-Tnbs1	A	CMP	E300.0:PERC	1	N	Insufficient water
K6-32	PTMW	Qt-Tnbs1	S	CMP	E624MOD:ALL	1	N	Insufficient water
K6-32	PTMW	Qt-Tnbs1	S	CMP	E624MOD:ALL	3	N	Insufficient water
K6-32	PTMW	Qt-Tnbs1	S	CMP	E906:ALL	1	N	Insufficient water
K6-32	PTMW	Qt-Tnbs1	S	CMP	E906:ALL	3	N	Insufficient water
K6-33	PTMW	Qt-Tnbs1	A	CMP	E300.0:NO3	1	Y	
K6-33	PTMW	Qt-Tnbs1	A	CMP	E300.0:PERC	1	Y	
K6-33	PTMW	Qt-Tnbs1	S	CMP	E624MOD:ALL	1	Y	
K6-33	PTMW	Qt-Tnbs1	S	CMP	E624MOD:ALL	3	Y	
K6-33	PTMW	Qt-Tnbs1	S	CMP	E906:ALL	1	Y	

Table 2.3-1. Pit 6 Landfill Operable Unit ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
K6-33	PTMW	Qt-Tnbs1	S	CMP	E906:ALL	3	Y	
K6-34	GW	Qt-Tnbs1	S	CMP	E300.0:NO3	1	Y	
K6-34	GW	Qt-Tnbs1	S	CMP	E300.0:NO3	3	Y	
K6-34	GW	Qt-Tnbs1	S	CMP	E300.0:PERC	1	Y	
K6-34	GW	Qt-Tnbs1	S	CMP	E300.0:PERC	3	Y	
K6-34	GW	Qt-Tnbs1	Q	CMP	E624MOD:ALL	1	Y	
K6-34	GW	Qt-Tnbs1	Q	CMP	E624MOD:ALL	2	Y	
K6-34	GW	Qt-Tnbs1	Q	CMP	E624MOD:ALL	3	Y	
K6-34	GW	Qt-Tnbs1	Q	CMP	E624MOD:ALL	4	Y	
K6-34	GW	Qt-Tnbs1	Q	CMP	E906:ALL	1	Y	
K6-34	GW	Qt-Tnbs1	Q	CMP	E906:ALL	2	Y	
K6-34	GW	Qt-Tnbs1	Q	CMP	E906:ALL	3	Y	
K6-34	GW	Qt-Tnbs1	Q	CMP	E906:ALL	4	Y	
K6-35	PTMW	Qt-Tnbs1	A	WGMG	AS:UISO	1	Y	
K6-35	PTMW	Qt-Tnbs1	Q	CMP	AS:UISO	2	Y	
K6-35	PTMW	Qt-Tnbs1	Q	CMP	AS:UISO	3	Y	
K6-35	PTMW	Qt-Tnbs1	A	WGMG	E210.2:ALL	1	Y	
K6-35	PTMW	Qt-Tnbs1	A	CMP	E300.0:NO3	1	Y	
K6-35	PTMW	Qt-Tnbs1	A	CMP	E300.0:PERC	1	Y	
K6-35	PTMW	Qt-Tnbs1	A	WGMG	E602:ALL	1	Y	
K6-35	PTMW	Qt-Tnbs1	S	CMP	E624MOD:ALL	1	Y	
K6-35	PTMW	Qt-Tnbs1	S	CMP	E624MOD:ALL	3	Y	
K6-35	PTMW	Qt-Tnbs1	A	WGMG	E900:ALL	1	Y	
K6-35	PTMW	Qt-Tnbs1	Q	CMP	E900:ALL	2	Y	
K6-35	PTMW	Qt-Tnbs1	Q	CMP	E900:ALL	3	Y	
K6-35	PTMW	Qt-Tnbs1	S	CMP	E906:ALL	1	Y	
K6-35	PTMW	Qt-Tnbs1	S	CMP	E906:ALL	3	Y	
K6-36	DMW	Qt-Tnbs1	A	WGMG	AS:UISO	1	N	Insufficient water
K6-36	DMW	Qt-Tnbs1	A	WGMG	E210.2:ALL	1	N	Insufficient water
K6-36	DMW	Qt-Tnbs1	A	WGMG	E300.0:NO3	1	N	Insufficient water
K6-36	DMW	Qt-Tnbs1	A	WGMG	E300.0:PERC	1	N	Insufficient water
K6-36	DMW	Qt-Tnbs1	A	WGMG	E602:ALL	1	N	Insufficient water
K6-36	DMW	Qt-Tnbs1	S	WGMG	E624MOD:ALL	1	N	Insufficient water
K6-36	DMW	Qt-Tnbs1	S	WGMG	E624MOD:ALL	3	N	DRY
K6-36	DMW	Qt-Tnbs1	A	WGMG	E900:ALL	1	N	Insufficient water
K6-36	DMW	Qt-Tnbs1	S	WGMG	E906:ALL	1	N	Insufficient water
K6-36	DMW	Qt-Tnbs1	S	WGMG	E906:ALL	3	N	DRY
W-33C-01	PTMW	Tts	A	CMP	E300.0:NO3	1	Y	
W-33C-01	PTMW	Tts	A	CMP	E300.0:PERC	1	Y	
W-33C-01	PTMW	Tts	S	CMP	E624MOD:ALL	1	Y	
W-33C-01	PTMW	Tts	S	CMP	E624MOD:ALL	3	Y	
W-33C-01	PTMW	Tts	S	CMP	E906:ALL	1	Y	
W-33C-01	PTMW	Tts	S	CMP	E906:ALL	3	Y	

Table 2.3-1. Pit 6 Landfill Operable Unit ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
SPRING15	SPR	Qt-Tnbs1	O	CMP	E300.0:NO3	1	N	To be sampled in 2019
SPRING15	SPR	Qt-Tnbs1	O	CMP	E300.0:PERC	1	N	To be sampled in 2019
SPRING15	SPR	Qt-Tnbs1	O	CMP	E624MOD:ALL	1	N	To be sampled in 2019
SPRING15	SPR	Qt-Tnbs1	O	CMP	E906:ALL	1	N	To be sampled in 2019
SPRING15	SPR	Qt-Tnbs1	Q	WGMG	NUTRIENTS:ALL	1	N	DRY
SPRING15	SPR	Qt-Tnbs1	Q	WGMG	NUTRIENTS:ALL	2	N	DRY
SPRING15	SPR	Qt-Tnbs1	Q	WGMG	NUTRIENTS:ALL	3	N	DRY
SPRING15	SPR	Qt-Tnbs1	Q	WGMG	NUTRIENTS:ALL	4	N	DRY
W-PIT6-1819	GW	Qt-Tnbs1	S	CMP	E300.0:NO3	1	Y	
W-PIT6-1819	GW	Qt-Tnbs1	S	CMP	E300.0:NO3	3	Y	
W-PIT6-1819	GW	Qt-Tnbs1	S	CMP	E300.0:PERC	1	Y	
W-PIT6-1819	GW	Qt-Tnbs1	S	CMP	E300.0:PERC	3	Y	
W-PIT6-1819	GW	Qt-Tnbs1	Q	CMP	E624MOD:ALL	1	Y	
W-PIT6-1819	GW	Qt-Tnbs1	Q	CMP	E624MOD:ALL	2	Y	
W-PIT6-1819	GW	Qt-Tnbs1	Q	CMP	E624MOD:ALL	3	Y	
W-PIT6-1819	GW	Qt-Tnbs1	Q	CMP	E624MOD:ALL	4	Y	
W-PIT6-1819	GW	Qt-Tnbs1	Q	CMP	E906:ALL	1	Y	
W-PIT6-1819	GW	Qt-Tnbs1	Q	CMP	E906:ALL	2	Y	
W-PIT6-1819	GW	Qt-Tnbs1	Q	CMP	E906:ALL	3	Y	
W-PIT6-1819	GW	Qt-Tnbs1	Q	CMP	E906:ALL	4	Y	
W-PIT6-2816	PTMW	Qt-Tnbs1	A	CMP	E300.0:NO3	1	Y	
W-PIT6-2816	PTMW	Qt-Tnbs1	A	CMP	E300.0:PERC	1	Y	
W-PIT6-2816	PTMW	Qt-Tnbs1	S	CMP	E624MOD:ALL	1	Y	
W-PIT6-2816	PTMW	Qt-Tnbs1	S	CMP	E624MOD:ALL	3	Y	
W-PIT6-2816	PTMW	Qt-Tnbs1	S	CMP	E906:ALL	1	Y	
W-PIT6-2816	PTMW	Qt-Tnbs1	S	CMP	E906:ALL	3	Y	
W-PIT6-2817	PTMW	Qt-Tnbs1	A	CMP	E300.0:NO3	1	Y	
W-PIT6-2817	PTMW	Qt-Tnbs1	A	CMP	E300.0:PERC	1	Y	
W-PIT6-2817	PTMW	Qt-Tnbs1	S	CMP	E624MOD:ALL	1	Y	
W-PIT6-2817	PTMW	Qt-Tnbs1	S	CMP	E624MOD:ALL	3	Y	
W-PIT6-2817	PTMW	Qt-Tnbs1	S	CMP	E906:ALL	1	Y	
W-PIT6-2817	PTMW	Qt-Tnbs1	S	CMP	E906:ALL	3	Y	

Acronyms and Abbreviations:

-	=	Not applicable	g	=	Grams	PRXN	=	Proximal North
bgs	=	Below ground surface	GWTS	=	Groundwater treatment system	PTMW	=	Plume Tracking Monitor Well
CGSA	=	Central General Services Area	HSU	=	Hydrostratigraphic unit	RDX	=	Research Department Explosive
COCs	=	Contaminants of concern	Kcf	=	Thousands of cubic feet	SRC	=	Source
DIS	=	Distal	kg	=	Kilograms	SVTS	=	Soil vapor treatment system
DISS	=	Distal south	Kgal	=	Thousands of gallons	TBOS	=	Tetra 2-ethylbutylorthosilicate
DSB	=	Distal site boundary	Mcf	=	Millions of cubic feet	TKEBS	=	Tetrakis (2-ethylbutyl) silane
EGSA	=	Eastern General Services Area	PRX	=	Proximal	VOC	=	Volatile organic compound
ft	=	Feet						

Table 2.4-1. Building 815-Source volumes of groundwater and soil vapor extracted and discharged, July 1, 2018 through December 31, 2018.

Treatment facility	Month	SVTS Operational hours	GWTS Operational hours	Volume of vapor extracted (thousands of cf)	Volume of groundwater discharged (gal)
815-SRC	July	NA	792	NA	107,865
	August	NA	670	NA	90,100
	September	NA	720	NA	91,677
	October	NA	743	NA	90,638
	November	NA	672	NA	77,565
	December	NA	696	NA	73,154
Total		NA	4,293	NA	530,999

Acronyms and Abbreviations:

- = Not applicable
bgs = Below ground surface
CGSA = Central General Services Area
COCs = Contaminants of concern
DIS = Distal
DISS = Distal south
DSB = Distal site boundary
EGSA = Eastern General Services Area
ft = Feet
g = Grams
GWTS = Groundwater treatment system
HSU = Hydrostratigraphic unit
Kcf = Thousands of cubic feet
kg = Kilograms
Kgal = Thousands of gallons
Mcf = Millions of cubic feet
PRX = Proximal
PRXN = Proximal North
PTMW = Plume Tracking Monitor Well
RDX = Research Department Explosive
SRC = Source
SVTS = Soil vapor treatment system
TBOS = Tetra 2-ethylbutylorthosilicate
TKEBS = Tetrakis (2-ethylbutyl) silane
VOC = Volatile organic compound

Table 2.4-2. Building 815-Proximal volumes of groundwater and soil vapor extracted and discharged, July 1, 2018 through December 31, 2018.

Treatment facility	Month	SVTS Operational hours	GWTS Operational hours	Volume of vapor extracted (thousands of cf)	Volume of groundwater discharged (gal)
815-PRX	July	NA	768	NA	82,856
	August	NA	494	NA	52,646
	September	NA	516	NA	62,299
	October	NA	796	NA	90,354
	November	NA	697	NA	78,512
	December	NA	672	NA	72,291
Total			3,943	NA	438,958

Acronyms and Abbreviations:

-	=	Not applicable
bgs	=	Below ground surface
CGSA	=	Central General Services Area
COCs	=	Contaminants of concern
DIS	=	Distal
DISS	=	Distal south
DSB	=	Distal site boundary
EGSA	=	Eastern General Services Area
ft	=	Feet
g	=	Grams
GWTS	=	Groundwater treatment system
HSU	=	Hydrostratigraphic unit
Kcf	=	Thousands of cubic feet
kg	=	Kilograms
Kgal	=	Thousands of gallons
Mcf	=	Millions of cubic feet
PRX	=	Proximal
PRXN	=	Proximal North
PTMW	=	Plume Tracking Monitor Well
RDX	=	Research Department Explosive
SRC	=	Source
SVTS	=	Soil vapor treatment system
TBOS	=	Tetra 2-ethylbutylorthosilicate
TKEBS	=	Tetrakis (2-ethylbutyl) silane
VOC	=	Volatile organic compound

Table 2.4-3. Building 815-Distal Site Boundary volumes of groundwater and soil vapor extracted and discharged, July 1, 2018 through December 31, 2018.

Treatment facility	Month	SVTS Operational hours	GWTS Operational hours	Volume of vapor extracted (thousands of cf)	Volume of groundwater discharged (gal)
815-DSB	July	NA	792	NA	99,630
	August	NA	719	NA	89,473
	September	NA	577	NA	67,632
	October	NA	154	NA	11,416
	November	NA	2	NA	397
	December	NA	394	NA	50,867
Total			2,638	NA	319,415

Acronyms and Abbreviations:

-	=	Not applicable
bgs	=	Below ground surface
CGSA	=	Central General Services Area
COCs	=	Contaminants of concern
DIS	=	Distal
DISS	=	Distal south
DSB	=	Distal site boundary
EGSA	=	Eastern General Services Area
ft	=	Feet
g	=	Grams
GWTS	=	Groundwater treatment system
HSU	=	Hydrostratigraphic unit
Kcf	=	Thousands of cubic feet
kg	=	Kilograms
Kgal	=	Thousands of gallons
Mcf	=	Millions of cubic feet
PRX	=	Proximal
PRXN	=	Proximal North
PTMW	=	Plume Tracking Monitor Well
RDX	=	Research Department Explosive
SRC	=	Source
SVTS	=	Soil vapor treatment system
TBOS	=	Tetra 2-ethylbutylorthosilicate
TKEBS	=	Tetrakis (2-ethylbutyl) silane
VOC	=	Volatile organic compound

Table 2.4-4. Building 817-Source volumes of groundwater and soil vapor extracted and discharged, July 1, 2018 through December 31, 2018.

Treatment facility	Month	SVTS Operational hours	GWTS Operational hours	Volume of vapor extracted (thousands of cf)	Volume of groundwater discharged (gal)
817-SRC	July	NA	2	NA	152
	August	NA	0	NA	0
	September	NA	0	NA	0
	October	NA	0	NA	0
	November	NA	0	NA	0
	December	NA	0	NA	0
Total			2	NA	152

Acronyms and Abbreviations:

- = Not applicable
bgs = Below ground surface
CGSA = Central General Services Area
COCs = Contaminants of concern
DIS = Distal
DISS = Distal south
DSB = Distal site boundary
EGSA = Eastern General Services Area
ft = Feet
g = Grams
GWTS = Groundwater treatment system
HSU = Hydrostratigraphic unit
Kcf = Thousands of cubic feet
kg = Kilograms
Kgal = Thousands of gallons
Mcf = Millions of cubic feet
PRX = Proximal
PRXN = Proximal North
PTMW = Plume Tracking Monitor Well
RDX = Research Department Explosive
SRC = Source
SVTS = Soil vapor treatment system
TBOS = Tetra 2-ethylbutylorthosilicate
TKEBS = Tetrakis (2-ethylbutyl) silane
VOC = Volatile organic compound

Table 2.4-5. Building 817-Proximal volumes of groundwater and soil vapor extracted and discharged, July 1, 2018 through December 31, 2018.

Treatment facility	Month	SVTS Operational hours	GWTS Operational hours	Volume of vapor extracted (thousands of cf)	Volume of groundwater discharged (gal)
817-PRX	July	NA	799	NA	64,601
	August	NA	709	NA	56,822
	September	NA	559	NA	45,609
	October	NA	825	NA	63,234
	November	NA	680	NA	49,040
	December	NA	533	NA	36,982
Total			4,105	NA	316,288

Acronyms and Abbreviations:

- = Not applicable
bgs = Below ground surface
CGSA = Central General Services Area
COCs = Contaminants of concern
DIS = Distal
DISS = Distal south
DSB = Distal site boundary
EGSA = Eastern General Services Area
ft = Feet
g = Grams
GWTS = Groundwater treatment system
HSU = Hydrostratigraphic unit
Kcf = Thousands of cubic feet
kg = Kilograms
Kgal = Thousands of gallons
Mcf = Millions of cubic feet
PRX = Proximal
PRXN = Proximal North
PTMW = Plume Tracking Monitor Well
RDX = Research Department Explosive
SRC = Source
SVTS = Soil vapor treatment system
TBOS = Tetra 2-ethylbutylorthosilicate
TKEBS = Tetrakis (2-ethylbutyl) silane
VOC = Volatile organic compound

Table 2.4-6. Building 829-Source volumes of groundwater and soil vapor extracted and discharged, July 1, 2018 through December 31, 2018.

Treatment facility	Month	SVTS Operational hours	GWTS Operational hours	Volume of vapor extracted (thousands of cf)	Volume of groundwater discharged (gal)
829-SRC	July	NA	793	NA	103
	August	NA	696	NA	95
	September	NA	696	NA	84
	October	NA	816	NA	68
	November	NA	463	NA	32
	December	NA	0	NA	0
Total		NA	3,464	NA	382

Acronyms and Abbreviations:

- = Not applicable
bgs = Below ground surface
CGSA = Central General Services Area
COCs = Contaminants of concern
DIS = Distal
DISS = Distal south
DSB = Distal site boundary
EGSA = Eastern General Services Area
ft = Feet
g = Grams
GWTS = Groundwater treatment system
HSU = Hydrostratigraphic unit
Kcf = Thousands of cubic feet
kg = Kilograms
Kgal = Thousands of gallons
Mcf = Millions of cubic feet
PRX = Proximal
PRXN = Proximal North
PTMW = Plume Tracking Monitor Well
RDX = Research Department Explosive
SRC = Source
SVTS = Soil vapor treatment system
TBOS = Tetra 2-ethylbutylorthosilicate
TKEBS = Tetrakis (2-ethylbutyl) silane
VOC = Volatile organic compound

Table 2.4-7. High Explosives Process Area Operable Unit volatile organic compounds (VOCs) in groundwater extraction and treatment system influent and effluent.

Location	Date	TCE (µg/L)	PCE (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	Carbon tetrachloride (µg/L)	Chloroform (µg/L)	1,1-DCA (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	1,1,1-TCA (µg/L)	1,1,2-TCA (µg/L)	Freon 11 (µg/L)	Freon 113 (µg/L)	Vinyl chloride (µg/L)
Building 815-Distal Site Boundary[a,b]															
815-DSB-I	7/11/18	9.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
815-DSB-E	7/11/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
815-DSB-E	8/6/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
815-DSB-E	9/4/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
815-DSB-E	11/27/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
815-DSB-E	12/12/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Building 815-Proximal															
815-PRX-I	7/9/18	23	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
815-PRX-I	10/11/18	20	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
815-PRX-I	10/11/18 DUP	21	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
815-PRX-E	7/9/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
815-PRX-E	8/6/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
815-PRX-E	9/5/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
815-PRX-E	10/11/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
815-PRX-E	11/5/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
815-PRX-E	12/3/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Building 815-Source															
815-SRC-I	7/9/18	8.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5
815-SRC-I	10/1/18	5.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
815-SRC-I	10/1/18 DUP	5.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
815-SRC-E	7/9/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
815-SRC-E	8/7/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
815-SRC-E	9/4/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
815-SRC-E	10/1/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
815-SRC-E	11/1/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
815-SRC-E	12/3/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Building 817-Proximal															
817-PRX-I	7/9/18	7.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
817-PRX-I	10/8/18	7.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
817-PRX-I	10/8/18 DUP	7.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
817-PRX-E	7/9/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
817-PRX-E	8/6/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
817-PRX-E	9/4/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
817-PRX-E	10/8/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
817-PRX-E	11/1/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
817-PRX-E	12/4/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Building 817-Source[c]															
817-SRC-I	7/10/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
817-SRC-I	11/7/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
817-SRC-I	11/7/18 DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Building 829-Source[c]															
829-SRC-I	7/10/18	26	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
829-SRC-I	10/2/18	27	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
829-SRC-I	10/2/18 DUP	28	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Table 2.4-7 Analyte detected but not reported in main table.

Location	Date	Detection frequency
Building 815-Distal Site Boundary[a,b]		
815-DSB-I	7/11/18	0 of 18
815-DSB-E	7/11/18	0 of 18
815-DSB-E	8/6/18	0 of 18
815-DSB-E	9/4/18	0 of 18
815-DSB-E	11/27/18	0 of 18
815-DSB-E	12/12/18	0 of 18
Building 815-Proximal		
815-PRX-I	7/9/18	0 of 18
815-PRX-I	10/11/18	0 of 18
815-PRX-I	10/11/18 DUP	0 of 18
815-PRX-E	7/9/18	0 of 18
815-PRX-E	8/6/18	0 of 18
815-PRX-E	9/5/18	0 of 18
815-PRX-E	10/11/18	0 of 18
815-PRX-E	11/5/18	0 of 18
815-PRX-E	12/3/18	0 of 18
Building 815-Source		
815-SRC-I	7/9/18	0 of 18
815-SRC-I	10/1/18	0 of 18
815-SRC-I	10/1/18 DUP	0 of 18
815-SRC-E	7/9/18	0 of 18
815-SRC-E	8/7/18	0 of 18
815-SRC-E	9/4/18	0 of 18
815-SRC-E	10/1/18	0 of 18
815-SRC-E	11/1/18	0 of 18
815-SRC-E	12/3/18	0 of 18
Building 817-Proximal		
817-PRX-I	7/9/18	0 of 18
817-PRX-I	10/8/18	0 of 18
817-PRX-I	10/8/18 DUP	0 of 18
817-PRX-E	7/9/18	0 of 18
817-PRX-E	8/6/18	0 of 18
817-PRX-E	9/4/18	0 of 18
817-PRX-E	10/8/18	0 of 18
817-PRX-E	11/1/18	0 of 18
817-PRX-E	12/4/18	0 of 18
Building 817-Source[c]		
817-SRC-I	7/10/18	0 of 18
817-SRC-I	11/7/18	0 of 18
817-SRC-I	11/7/18 DUP	0 of 18
Building 829-Source[c]		
829-SRC-I	7/10/18	0 of 18
829-SRC-I	10/2/18	0 of 18
829-SRC-I	10/2/18 DUP	0 of 18

[a] The fourth quarter influent sample was inadvertantly missed.

[b] Only influent samples collected; extracted water treated at 815-SRC.

[c] Only influent samples collected; extracted water treated at 815-SRC.

Acronyms and Abbreviations:

-	=	Not applicable
bgs	=	Below ground surface
CGSA	=	Central General Services Area
COCs	=	Contaminants of concern
DIS	=	Distal
DISS	=	Distal south
DSB	=	Distal site boundary
EGSA	=	Eastern General Services Area
ft	=	Feet
g	=	Grams
GWTS	=	Groundwater treatment system
HSU	=	Hydrostratigraphic unit
Kcf	=	Thousands of cubic feet
kg	=	Kilograms
Kgal	=	Thousands of gallons
Mcf	=	Millions of cubic feet
PRX	=	Proximal
PRXN	=	Proximal North
PTMW	=	Plume Tracking Monitor Well
RDX	=	Research Department Explosive
SRC	=	Source
SVTS	=	Soil vapor treatment system
TBOS	=	Tetra 2-ethylbutylorthosilicate
TKEBS	=	Tetrakis (2-ethylbutyl) silane
VOC	=	Volatile organic compound

Table 2.4-8. High Explosives Process Area Operable Unit nitrate and perchlorate in groundwater extraction and treatment system influent and effluent.

Location	Date	Nitrate as NO3 (mg/L)	Perchlorate (µg/L)
Building 815-Distal Site Boundary			
815-DSB-I	7/11/18	<0.5	-
Building 815-Proximal			
815-PRX-I	7/9/18	-	5.1
815-PRX-I	10/11/18	-	5.3
815-PRX-I	10/11/18 DUP	-	5.5
815-PRX-E	7/9/18	-	<4
815-PRX-E	8/6/18	-	<4
815-PRX-E	9/5/18	-	<4
815-PRX-E	10/11/18	-	<4
815-PRX-E	11/5/18	-	<4
815-PRX-E	12/3/18	-	<4
Building 815-Source			
815-SRC-I	7/9/18	91 D	<4
815-SRC-I	10/1/18	94 D	6.4
815-SRC-I	10/1/18 DUP	94 D	4.4
815-SRC-E	7/9/18	-	<4
815-SRC-E	8/7/18	-	<4
815-SRC-E	9/4/18	-	<4
815-SRC-E	10/1/18	-	<4
815-SRC-E	11/1/18	-	<4
815-SRC-E	12/3/18	-	<4
Building 817-Proximal			
817-PRX-I	7/9/18	-	19
817-PRX-I	10/8/18	-	19 D
817-PRX-I	10/8/18 DUP	-	19 D
817-PRX-E	7/9/18	-	<4
817-PRX-E	8/6/18	-	<4
817-PRX-E	9/4/18	-	<4
817-PRX-E	10/8/18	-	<4
817-PRX-E	11/1/18	-	<4
817-PRX-E	12/4/18	-	<4
Building 817-Source			
817-SRC-I	7/10/18	-	25 D
817-SRC-I	11/7/18	-	23 D
817-SRC-I	11/7/18 DUP	-	24 D
Building 829-Source			
829-SRC-I	7/10/18	71 D	14
829-SRC-I	10/2/18	75 D	17
829-SRC-I	10/2/18 DUP	49 D	13

Table 2.4-8. High Explosives Process Area Operable Unit nitrate and perchlorate in groundwater extraction and treatment system influent and effluent.

Location	Date	Nitrate as NO3 (mg/L)	Perchlorate (µg/L)

Acronyms and Abbreviations:

-	=	Not applicable
bgs	=	Below ground surface
CGSA	=	Central General Services Area
COCs	=	Contaminants of concern
DIS	=	Distal
DISS	=	Distal south
DSB	=	Distal site boundary
EGSA	=	Eastern General Services Area
ft	=	Feet
g	=	Grams
GWTS	=	Groundwater treatment system
HSU	=	Hydrostratigraphic unit
Kcf	=	Thousands of cubic feet
kg	=	Kilograms
Kgal	=	Thousands of gallons
Mcf	=	Millions of cubic feet
PRX	=	Proximal
PRXN	=	Proximal North
PTMW	=	Plume Tracking Monitor Well
RDX	=	Research Department Explosive
SRC	=	Source
SVTS	=	Soil vapor treatment system
TBOS	=	Tetra 2-ethylbutylorthosilicate
TKEBS	=	Tetrakis (2-ethylbutyl) silane
VOC	=	Volatile organic compound

Table 2.4-9. High Explosives Process Area Operable Unit high explosive compounds in groundwater extraction and treatment system influent and effluent.

Location	Date	1,3,5-Trinitrobenzene (µg/L)	1,3-Dinitrobenzene (µg/L)	2,4-Dinitrotoluene (µg/L)	2,6-Dinitrotoluene (µg/L)	2-Amino-4,6-dinitrotoluene (µg/L)	2-Nitrotoluene (µg/L)	3-Nitrotoluene (µg/L)	4-Amino-2,6-dinitrotoluene (µg/L)	4-Nitrotoluene (µg/L)	HMX (µg/L)	Nitrobenzene (µg/L)	RDX (µg/L)	TNT (µg/L)
Building 815-Distal Site Boundary[a]		–	–	–	–	–	–	–	–	–	–	–	–	–
Building 815-Proximal														
815-PRX-I	7/9/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
815-PRX-I	10/11/18	<2	<2	<2	<2.1	<2	<2.6	<2	<2	<2.5	<1	<2	1.5	<2
815-PRX-I	10/11/18 DUP	<2	<2	<2	<2.1	<2	<2.6	<2	<2	<2.5	<1	<2	1.6	<2
815-PRX-E	7/9/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
815-PRX-E	8/6/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
815-PRX-E	9/5/18	<2	<2	<2	<2.1	<2	<2.6	<2	<2	<2.5	<1	<2	<1	<2
815-PRX-E	10/11/18	<2	<2	<2	<2.1	<2	<2.6	<2	<2	<2.5	<1	<2	<1	<2
815-PRX-E	11/5/18	<2	<2	<2	<2.1	<2	<2.6	<2	<2	<2.5	<1	<2	<1	<2
815-PRX-E	12/3/18	<2	<2	<2	<2.1	<2	<2.6	<2	<2	<2.5	<1	<2	<1	<2
Building 815-Source														
815-SRC-I	7/9/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	4.9	<2	36	<2
815-SRC-I	10/1/18	<2	<2	<2	<2.1	<2	<2.6	<2	<2	<2.5	7.5	<2	40	<2
815-SRC-I	10/1/18 DUP	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	4.3	<2.1	6.7	<2.1	54 D	<2.1
815-SRC-E	7/9/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
815-SRC-E	8/7/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
815-SRC-E	9/4/18	<2	<2	<2	<2.1	<2	<2.6	<2	<2	<2.5	<1	<2	<1	<2
815-SRC-E	10/1/18	<2	<2	<2	<2.1	<2	<2.6	<2	<2	<2.5	<1	<2	<1	<2
815-SRC-E	11/1/18	<2	<2	<2	<2.1	<2	<2.6	<2	<2	<2.5	<1	<2	<1	<2
815-SRC-E	12/3/18	<2	<2	<2	<2.1	<2	<2.6	<2	<2	<2.5	<1	<2	<1	<2
Building 817-Proximal														
817-PRX-I	7/9/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	12	<2
817-PRX-I	10/8/18	<2	<2	<2	<2.1	<2	<2.6	<2	<2	<2.5	<1	<2	12	<2
817-PRX-I	10/8/18 DUP	<2	<2	<2	<2.1	<2	<2.6	<2	<2	<2.5	<1	<2	12	<2
817-PRX-E	7/9/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
817-PRX-E	8/6/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
817-PRX-E	9/4/18	<2	<2	<2	<2.1	<2	<2.6	<2	<2	<2.5	<1	<2	<1	<2
817-PRX-E	10/8/18	<2	<2	<2	<2.1	<2	<2.6	<2	<2	<2.5	<1	<2	<1	<2
817-PRX-E	11/1/18	<2	<2	<2	<2.1	<2	<2.6	<2	<2	<2.5	<1	<2	<1	<2
817-PRX-E	12/4/18	<2	<2	<2	<2.1	<2	<2.6	<2	<2	<2.5	<1	<2	<1	<2
Building 817-Source[b]														
817-SRC-I	7/10/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	20	<2	40	<2
817-SRC-I	11/7/18	<2	<2	<2	<2.1	<2	<2.6	<2	<2	<2.5	15	<2	42	<2
817-SRC-I	11/7/18 DUP	<2	<2	<2	<2.1	<2	<2.6	<2	<2	<2.5	14	<2	40	<2
Building 829-Source[a]		–	–	–	–	–	–	–	–	–	–	–	–	–

[a] High explosive compound monitoring not required.

[b] Only influent samples collected; extracted water treated at 815-SRC.

Acronyms and Abbreviations:

-	=	Not applicable
bgs	=	Below ground surface
CGSA	=	Central General Services Area
COCs	=	Contaminants of concern
DIS	=	Distal
DISS	=	Distal south
DSB	=	Distal site boundary
EGSA	=	Eastern General Services Area
ft	=	Feet
g	=	Grams
GWTS	=	Groundwater treatment system
HSU	=	Hydrostratigraphic unit
Kcf	=	Thousands of cubic feet
kg	=	Kilograms
Kgal	=	Thousands of gallons
Mcf	=	Millions of cubic feet
PRX	=	Proximal
PRXN	=	Proximal North
PTMW	=	Plume Tracking Monitor Well
RDX	=	Research Department Explosive
SRC	=	Source
SVTS	=	Soil vapor treatment system
TBOS	=	Tetra 2-ethylbutylorthosilicate
TKEBS	=	Tetrakis (2-ethylbutyl) silane
VOC	=	Volatile organic compound

Table 2.4-10. High Explosives Process Area Operable Unit treatment facility sampling and analysis plan.

Sample location	Sample identification	Parameter	Frequency
815-SRC GWTS			
Influent Port	**815-SRC-I**	**VOCs**	**Quarterly**
		HE Compounds	**Quarterly**
		Perchlorate	**Quarterly**
Effluent Port	**815-SRC-E**	**VOCs**	**Monthly**
		HE Compounds	**Monthly**
		Perchlorate	**Monthly**
		pH	**Monthly**
815-PRX GWTS			
Influent Port	**815-PRX-I**	**VOCs**	**Quarterly**
		HE Compounds	
		Perchlorate	**Quarterly**
Effluent Port	**815-PRX-E**	**VOCs**	**Monthly**
		HE Compounds	**Quarterly**
		Perchlorate	**Monthly**
		pH	**Monthly**
815-DSB GWTS			
Influent Port	**815-DSB-I**	**VOCs**	**Quarterly**
Effluent Port	**815-DSB-E**	**VOCs**	**Monthly**
		pH	**Monthly**
817-SRC GWTS			
Influent Port	**W-817-01-817-SRC-I**	**VOCs**	**Quarterly**
		HE Compounds	**Quarterly**
		Perchlorate	**Quarterly**
Effluent Port[a]	**817-SRC-E**	**NA**	**NA**

Table 2.4-10 High Explosives Process Area Operable Unit treatment facility sampling and analysis plan.

Sample location	Sample identification	Parameter	Frequency
817-PRX GWTS			
Influent Port	**817-PRX-I**	**VOCs**	**Quarterly**
		HE Compounds	**Quarterly**
		Perchlorate	**Quarterly**
Effluent Port	**817-PRX-E**	**VOCs**	**Monthly**
		HE Compounds	**Monthly**
		Perchlorate	**Monthly**
		pH	**Monthly**
829-SRC GWTS			
Influent Port	**W-829-06-829-SRC-I**	**VOCs**	**Quarterly**
		Perchlorate	**Quarterly**
		Nitrate	**Quarterly**
Effluent Port[a]	**829-SRC-E**	**NA**	**NA**

Notes:
a
Effluent monitoring no longer required due to extracted water being treated at 815-SRC GWTS.
One duplicate and one blank (given fictitious labels) shall be taken for every 12 samples.

Acronyms and Abbreviations:

-	=	Not applicable
bgs	=	Below ground surface
CGSA	=	Central General Services Area
COCs	=	Contaminants of concern
DIS	=	Distal
DISS	=	Distal south
DSB	=	Distal site boundary
EGSA	=	Eastern General Services Area
ft	=	Feet
g	=	Grams
GWTS	=	Groundwater treatment system
HSU	=	Hydrostratigraphic unit
Kcf	=	Thousands of cubic feet
kg	=	Kilograms
Kgal	=	Thousands of gallons
Mcf	=	Millions of cubic feet
PRX	=	Proximal
PRXN	=	Proximal North
PTMW	=	Plume Tracking Monitor Well
RDX	=	Research Department Explosive
SRC	=	Source
SVTS	=	Soil vapor treatment system
TBOS	=	Tetra 2-ethylbutylorthosilicate
TKEBS	=	Tetrakis (2-ethylbutyl) silane
VOC	=	Volatile organic compound

Table 2.4-11. High Explosives Process Area Operable Unit ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
GALLO1	WS	Tnbs2	M	CMP	E300.0:NO3	1	Y	
GALLO1	WS	Tnbs2	M	CMP	E300.0:NO3	1	Y	
GALLO1	WS	Tnbs2	M	CMP	E300.0:NO3	1	Y	
GALLO1	WS	Tnbs2	M	CMP	E300.0:NO3	2	Y	
GALLO1	WS	Tnbs2	M	CMP	E300.0:NO3	2	Y	
GALLO1	WS	Tnbs2	M	CMP	E300.0:NO3	2	Y	
GALLO1	WS	Tnbs2	M	CMP	E300.0:NO3	3	Y	
GALLO1	WS	Tnbs2	M	CMP	E300.0:NO3	3	Y	
GALLO1	WS	Tnbs2	M	CMP	E300.0:NO3	3	Y	
GALLO1	WS	Tnbs2	M	CMP	E300.0:NO3	4	Y	
GALLO1	WS	Tnbs2	M	CMP	E300.0:NO3	4	Y	
GALLO1	WS	Tnbs2	M	CMP	E300.0:NO3	4	Y	
GALLO1	WS	Tnbs2	M	CMP	E300.0:PERC	1	Y	
GALLO1	WS	Tnbs2	M	CMP	E300.0:PERC	1	Y	
GALLO1	WS	Tnbs2	M	CMP	E300.0:PERC	1	Y	
GALLO1	WS	Tnbs2	M	CMP	E300.0:PERC	2	Y	
GALLO1	WS	Tnbs2	M	CMP	E300.0:PERC	2	Y	
GALLO1	WS	Tnbs2	M	CMP	E300.0:PERC	2	Y	
GALLO1	WS	Tnbs2	M	CMP	E300.0:PERC	3	Y	
GALLO1	WS	Tnbs2	M	CMP	E300.0:PERC	3	Y	
GALLO1	WS	Tnbs2	M	CMP	E300.0:PERC	3	Y	
GALLO1	WS	Tnbs2	M	CMP	E300.0:PERC	4	Y	
GALLO1	WS	Tnbs2	M	CMP	E300.0:PERC	4	Y	
GALLO1	WS	Tnbs2	M	CMP	E300.0:PERC	4	Y	
GALLO1	WS	Tnbs2	Q	WGMG	E524.2MOD:ALL	1	Y	
GALLO1	WS	Tnbs2	Q	WGMG	E524.2MOD:ALL	2	Y	
GALLO1	WS	Tnbs2	Q	WGMG	E524.2MOD:ALL	3	Y	
GALLO1	WS	Tnbs2	Q	WGMG	E524.2MOD:ALL	4	Y	
GALLO1	WS	Tnbs2	M	CMP	E624MOD:ALL	1	Y	
GALLO1	WS	Tnbs2	M	CMP	E624MOD:ALL	1	Y	
GALLO1	WS	Tnbs2	M	CMP	E624MOD:ALL	1	Y	
GALLO1	WS	Tnbs2	M	CMP	E624MOD:ALL	2	Y	
GALLO1	WS	Tnbs2	M	CMP	E624MOD:ALL	2	Y	
GALLO1	WS	Tnbs2	M	CMP	E624MOD:ALL	2	Y	
GALLO1	WS	Tnbs2	M	CMP	E624MOD:ALL	3	Y	
GALLO1	WS	Tnbs2	M	CMP	E624MOD:ALL	3	Y	
GALLO1	WS	Tnbs2	M	CMP	E624MOD:ALL	3	Y	
GALLO1	WS	Tnbs2	M	CMP	E624MOD:ALL	4	Y	
GALLO1	WS	Tnbs2	M	CMP	E624MOD:ALL	4	Y	
GALLO1	WS	Tnbs2	M	CMP	E624MOD:ALL	4	Y	
GALLO1	WS	Tnbs2	M	CMP	E8330LOW:ALL	1	Y	
GALLO1	WS	Tnbs2	M	CMP	E8330LOW:ALL	1	Y	
GALLO1	WS	Tnbs2	M	CMP	E8330LOW:ALL	1	Y	

Table 2.4-11. High Explosives Process Area Operable Unit ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
GALLO1	WS	Tnbs2	M	CMP	E8330LOW:ALL	2	Y	
GALLO1	WS	Tnbs2	M	CMP	E8330LOW:ALL	2	Y	
GALLO1	WS	Tnbs2	M	CMP	E8330LOW:ALL	2	Y	
GALLO1	WS	Tnbs2	M	CMP	E8330LOW:ALL	3	Y	
GALLO1	WS	Tnbs2	M	CMP	E8330LOW:ALL	3	Y	
GALLO1	WS	Tnbs2	M	CMP	E8330LOW:ALL	3	Y	
GALLO1	WS	Tnbs2	M	CMP	E8330LOW:ALL	4	Y	
GALLO1	WS	Tnbs2	M	CMP	E8330LOW:ALL	4	Y	
GALLO1	WS	Tnbs2	M	CMP	E8330LOW:ALL	4	Y	
SPRING14	SPR	Tpsg-Tps	O	CMP	E300.0:NO3	1	N	To be sampled in 2019
SPRING14	SPR	Tpsg-Tps	O	CMP	E300.0:PERC	1	N	To be sampled in 2019
SPRING14	SPR	Tpsg-Tps	O	CMP	E624MOD:ALL	1	N	To be sampled in 2019
SPRING14	SPR	Tpsg-Tps	O	CMP	E8330LOW:ALL	1	N	To be sampled in 2019
SPRING5	SPR	Tpsg-Tps	A	CMP	E300.0:NO3	1	N	DRY
SPRING5	SPR	Tpsg-Tps	A	CMP	E300.0:PERC	1	N	DRY
SPRING5	SPR	Tpsg-Tps	S	CMP	E624MOD:ALL	1	N	DRY
SPRING5	SPR	Tpsg-Tps	S	CMP	E624MOD:ALL	3	N	DRY
SPRING5	SPR	Tpsg-Tps	A	CMP	E8330LOW:ALL	1	N	DRY
W-35B-01	GW	Qal/WBR	S	CMP	E300.0:NO3	1	Y	
W-35B-01	GW	Qal/WBR	S	CMP	E300.0:NO3	3	Y	
W-35B-01	GW	Qal/WBR	S	CMP	E300.0:PERC	1	Y	
W-35B-01	GW	Qal/WBR	S	CMP	E300.0:PERC	3	Y	
W-35B-01	GW	Qal/WBR	Q	CMP	E624MOD:ALL	1	Y	
W-35B-01	GW	Qal/WBR	Q	CMP	E624MOD:ALL	2	Y	
W-35B-01	GW	Qal/WBR	Q	CMP	E624MOD:ALL	3	Y	
W-35B-01	GW	Qal/WBR	Q	CMP	E624MOD:ALL	4	Y	
W-35B-01	GW	Qal/WBR	S	CMP	E8330LOW:ALL	1	Y	
W-35B-01	GW	Qal/WBR	S	CMP	E8330LOW:ALL	3	Y	
W-35B-02	GW	Tnbs2	S	CMP	E300.0:NO3	1	Y	
W-35B-02	GW	Tnbs2	S	CMP	E300.0:NO3	3	Y	
W-35B-02	GW	Tnbs2	S	CMP	E300.0:PERC	1	Y	
W-35B-02	GW	Tnbs2	S	CMP	E300.0:PERC	3	Y	
W-35B-02	GW	Tnbs2	Q	CMP	E624MOD:ALL	1	Y	
W-35B-02	GW	Tnbs2	Q	CMP	E624MOD:ALL	2	Y	
W-35B-02	GW	Tnbs2	Q	CMP	E624MOD:ALL	3	Y	
W-35B-02	GW	Tnbs2	Q	CMP	E624MOD:ALL	4	Y	
W-35B-02	GW	Tnbs2	S	CMP	E8330LOW:ALL	1	Y	
W-35B-02	GW	Tnbs2	S	CMP	E8330LOW:ALL	3	Y	
W-35B-03	GW	Tnbs2	S	CMP	E300.0:NO3	1	Y	
W-35B-03	GW	Tnbs2	S	CMP	E300.0:NO3	3	Y	
W-35B-03	GW	Tnbs2	S	CMP	E300.0:PERC	1	Y	
W-35B-03	GW	Tnbs2	S	CMP	E300.0:PERC	3	Y	
W-35B-03	GW	Tnbs2	Q	CMP	E624MOD:ALL	1	Y	

Table 2.4-11. High Explosives Process Area Operable Unit ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-35B-03	GW	Tnbs2	Q	CMP	E624MOD:ALL	2	Y	
W-35B-03	GW	Tnbs2	Q	CMP	E624MOD:ALL	3	Y	
W-35B-03	GW	Tnbs2	Q	CMP	E624MOD:ALL	4	Y	
W-35B-03	GW	Tnbs2	S	CMP	E8330LOW:ALL	1	Y	
W-35B-03	GW	Tnbs2	S	CMP	E8330LOW:ALL	3	Y	
W-35B-04	GW	Tnbs2	S	CMP	E300.0:NO3	1	Y	
W-35B-04	GW	Tnbs2	S	CMP	E300.0:NO3	3	Y	
W-35B-04	GW	Tnbs2	S	CMP	E300.0:PERC	1	Y	
W-35B-04	GW	Tnbs2	S	CMP	E300.0:PERC	3	Y	
W-35B-04	GW	Tnbs2	Q	CMP	E624MOD:ALL	1	Y	
W-35B-04	GW	Tnbs2	Q	CMP	E624MOD:ALL	2	Y	
W-35B-04	GW	Tnbs2	Q	CMP	E624MOD:ALL	3	Y	
W-35B-04	GW	Tnbs2	Q	CMP	E624MOD:ALL	4	Y	
W-35B-04	GW	Tnbs2	S	CMP	E8330LOW:ALL	1	Y	
W-35B-04	GW	Tnbs2	S	CMP	E8330LOW:ALL	3	Y	
W-35B-05	GW	Tnbs2	S	CMP	E300.0:NO3	1	Y	
W-35B-05	GW	Tnbs2	S	CMP	E300.0:NO3	3	Y	
W-35B-05	GW	Tnbs2	S	CMP	E300.0:PERC	1	Y	
W-35B-05	GW	Tnbs2	S	CMP	E300.0:PERC	3	Y	
W-35B-05	GW	Tnbs2	Q	CMP	E624MOD:ALL	1	Y	
W-35B-05	GW	Tnbs2	Q	CMP	E624MOD:ALL	2	Y	
W-35B-05	GW	Tnbs2	Q	CMP	E624MOD:ALL	3	Y	
W-35B-05	GW	Tnbs2	Q	CMP	E624MOD:ALL	4	Y	
W-35B-05	GW	Tnbs2	S	CMP	E8330LOW:ALL	1	Y	
W-35B-05	GW	Tnbs2	S	CMP	E8330LOW:ALL	3	Y	
W-35C-01	PTMW	Tpsg-Tps	A	CMP	E300.0:NO3	1	Y	
W-35C-01	PTMW	Tpsg-Tps	O	CMP	E300.0:PERC	1	N	To be sampled in 2019
W-35C-01	PTMW	Tpsg-Tps	S	CMP	E624MOD:ALL	1	Y	
W-35C-01	PTMW	Tpsg-Tps	S	CMP	E624MOD:ALL	3	Y	
W-35C-01	PTMW	Tpsg-Tps	O	CMP	E8330LOW:ALL	1	N	To be sampled in 2019
W-35C-02	PTMW	Tnbs1	O	CMP	E300.0:NO3	1	N	To be sampled in 2019
W-35C-02	PTMW	Tnbs1	O	CMP	E300.0:PERC	1	N	To be sampled in 2019
W-35C-02	PTMW	Tnbs1	S	CMP	E624MOD:ALL	1	Y	
W-35C-02	PTMW	Tnbs1	S	CMP	E624MOD:ALL	3	Y	
W-35C-02	PTMW	Tnbs1	A	CMP	E8330LOW:ALL	1	Y	
W-35C-04	EW	Tnbs2	O	CMP-TF	E300.0:NO3	1	N	To be sampled in 2019
W-35C-04	EW	Tnbs2	O	CMP-TF	E300.0:PERC	1	N	To be sampled in 2019
W-35C-04	EW	Tnbs2	S	CMP-TF	E624MOD:ALL	1	Y	
W-35C-04	EW	Tnbs2	S	DIS-TF	E624MOD:ALL	2	Y	
W-35C-04	EW	Tnbs2	S	CMP-TF	E624MOD:ALL	3	Y	
W-35C-04	EW	Tnbs2	S	DIS-TF	E624MOD:ALL	4	Y	
W-35C-04	EW	Tnbs2	O	CMP-TF	E8330LOW:ALL	1	N	To be sampled in 2019
W-35C-05	PTMW	Tpsg-Tps	A	CMP	E300.0:NO3	1	Y	

Table 2.4-11. High Explosives Process Area Operable Unit ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-35C-05	PTMW	Tpsg-Tps	O	CMP	E300.0:PERC	1	N	To be sampled in 2019
W-35C-05	PTMW	Tpsg-Tps	S	CMP	E624MOD:ALL	1	Y	
W-35C-05	PTMW	Tpsg-Tps	S	CMP	E624MOD:ALL	3	Y	
W-35C-05	PTMW	Tpsg-Tps	O	CMP	E8330LOW:ALL	1	N	To be sampled in 2019
W-35C-06	PTMW	Qal/WBR	E	CMP	E300.0:NO3	1	Y	
W-35C-06	PTMW	Qal/WBR	E	CMP	E300.0:PERC	1	Y	
W-35C-06	PTMW	Qal/WBR	S	CMP	E624MOD:ALL	1	Y	
W-35C-06	PTMW	Qal/WBR	S	CMP	E624MOD:ALL	3	N	DRY
W-35C-06	PTMW	Qal/WBR	E	CMP	E8330LOW:ALL	1	Y	
W-35C-07	PTMW	Tnsc2	E	CMP	E300.0:NO3	1	Y	
W-35C-07	PTMW	Tnsc2	E	CMP	E300.0:PERC	1	Y	
W-35C-07	PTMW	Tnsc2	S	CMP	E624MOD:ALL	1	Y	
W-35C-07	PTMW	Tnsc2	S	CMP	E624MOD:ALL	3	Y	
W-35C-07	PTMW	Tnsc2	E	CMP	E8330LOW:ALL	1	Y	
W-35C-08	PTMW	Tnsc2	A	CMP	E300.0:NO3	1	Y	
W-35C-08	PTMW	Tnsc2	A	CMP	E300.0:PERC	1	Y	
W-35C-08	PTMW	Tnsc2	S	CMP	E624MOD:ALL	1	Y	
W-35C-08	PTMW	Tnsc2	S	CMP	E624MOD:ALL	3	Y	
W-35C-08	PTMW	Tnsc2	O	CMP	E8330LOW:ALL	1	N	To be sampled in 2019
W-4A	PTMW	Tnbs2	E	CMP	E300.0:NO3	1	Y	
W-4A	PTMW	Tnbs2	E	CMP	E300.0:PERC	1	Y	
W-4A	PTMW	Tnbs2	S	CMP	E624MOD:ALL	1	Y	
W-4A	PTMW	Tnbs2	S	CMP	E624MOD:ALL	3	Y	
W-4A	PTMW	Tnbs2	E	CMP	E8330LOW:ALL	1	Y	
W-4AS	PTMW	Tpsg-Tps	A	CMP	E300.0:NO3	1	Y	
W-4AS	PTMW	Tpsg-Tps	E	CMP	E300.0:PERC	1	Y	
W-4AS	PTMW	Tpsg-Tps	S	CMP	E624MOD:ALL	1	Y	
W-4AS	PTMW	Tpsg-Tps	S	CMP	E624MOD:ALL	3	Y	
W-4AS	PTMW	Tpsg-Tps	E	CMP	E8330LOW:ALL	1	Y	
W-4B	PTMW	Tnbs2	O	CMP	E300.0:NO3	1	N	To be sampled in 2019
W-4B	PTMW	Tnbs2	O	CMP	E300.0:PERC	1	N	To be sampled in 2019
W-4B	PTMW	Tnbs2	S	CMP	E624MOD:ALL	1	Y	
W-4B	PTMW	Tnbs2	S	CMP	E624MOD:ALL	3	Y	
W-4B	PTMW	Tnbs2	O	CMP	E8330LOW:ALL	1	N	To be sampled in 2019
W-4C	GW	Tnsc1b	S	CMP	E300.0:NO3	1	Y	
W-4C	GW	Tnsc1b	S	CMP	E300.0:NO3	3	Y	
W-4C	GW	Tnsc1b	S	CMP	E300.0:PERC	1	Y	
W-4C	GW	Tnsc1b	S	CMP	E300.0:PERC	3	Y	
W-4C	GW	Tnsc1b	Q	CMP	E624MOD:ALL	1	Y	
W-4C	GW	Tnsc1b	Q	CMP	E624MOD:ALL	2	Y	
W-4C	GW	Tnsc1b	Q	CMP	E624MOD:ALL	3	Y	
W-4C	GW	Tnsc1b	Q	CMP	E624MOD:ALL	4	Y	
W-6BD	PTMW	Tpsg-Tps	A	CMP	E300.0:NO3	1	Y	

Table 2.4-11. High Explosives Process Area Operable Unit ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-6BD	PTMW	Tpsg-Tps	E	CMP	E300.0:PERC	1	Y	
W-6BD	PTMW	Tpsg-Tps	S	CMP	E624MOD:ALL	1	Y	
W-6BD	PTMW	Tpsg-Tps	S	CMP	E624MOD:ALL	3	Y	
W-6BD	PTMW	Tpsg-Tps	E	CMP	E8330LOW:ALL	1	Y	
W-6BS	PTMW	Qal/WBR	A	CMP	E300.0:NO3	1	Y	
W-6BS	PTMW	Qal/WBR	E	CMP	E300.0:PERC	1	Y	
W-6BS	PTMW	Qal/WBR	S	CMP	E624MOD:ALL	1	Y	
W-6BS	PTMW	Qal/WBR	S	CMP	E624MOD:ALL	3	Y	
W-6BS	PTMW	Qal/WBR	E	CMP	E8330LOW:ALL	1	Y	
W-6CD	PTMW	Tnbs2	E	CMP	E300.0:NO3	1	Y	
W-6CD	PTMW	Tnbs2	E	CMP	E300.0:PERC	1	Y	
W-6CD	PTMW	Tnbs2	S	CMP	E624MOD:ALL	1	Y	
W-6CD	PTMW	Tnbs2	S	CMP	E624MOD:ALL	3	Y	
W-6CD	PTMW	Tnbs2	E	CMP	E8330LOW:ALL	1	Y	
W-6CI	PTMW	Tnsc2	A	CMP	E300.0:NO3	1	Y	
W-6CI	PTMW	Tnsc2	A	CMP	E300.0:PERC	1	Y	
W-6CI	PTMW	Tnsc2	S	CMP	E624MOD:ALL	1	Y	
W-6CI	PTMW	Tnsc2	S	CMP	E624MOD:ALL	3	Y	
W-6CI	PTMW	Tnsc2	A	CMP	E8330LOW:ALL	1	Y	
W-6CS	PTMW	Tpsg-Tps	A	CMP	E300.0:NO3	1	Y	
W-6CS	PTMW	Tpsg-Tps	A	CMP	E300.0:PERC	1	Y	
W-6CS	PTMW	Tpsg-Tps	S	CMP	E624MOD:ALL	1	Y	
W-6CS	PTMW	Tpsg-Tps	S	CMP	E624MOD:ALL	3	Y	
W-6CS	PTMW	Tpsg-Tps	A	CMP	E8330LOW:ALL	1	Y	
W-6EI	PTMW	Tnsc2	A	CMP	E300.0:NO3	1	N	No well access for sampling or measurement
W-6EI	PTMW	Tnsc2	A	CMP	E300.0:PERC	1	N	No well access for sampling or measurement
W-6EI	PTMW	Tnsc2	S	CMP	E624MOD:ALL	1	N	No well access for sampling or measurement
W-6EI	PTMW	Tnsc2	S	CMP	E624MOD:ALL	3	N	Inoperable equipment
W-6EI	PTMW	Tnsc2	A	CMP	E8330LOW:ALL	1	N	No well access for sampling or measurement
W-6ER	EW	Tnbs2	O	CMP-TF	E300.0:NO3	1	N	To be sampled in 2019
W-6ER	EW	Tnbs2	O	CMP-TF	E300.0:PERC	1	N	To be sampled in 2019
W-6ER	EW	Tnbs2	S	CMP-TF	E624MOD:ALL	1	Y	
W-6ER	EW	Tnbs2	S	DIS-TF	E624MOD:ALL	2	Y	
W-6ER	EW	Tnbs2	S	CMP-TF	E624MOD:ALL	3	Y	
W-6ER	EW	Tnbs2	S	DIS-TF	E624MOD:ALL	4	Y	
W-6ER	EW	Tnbs2	O	CMP-TF	E8330LOW:ALL	1	N	To be sampled in 2019
W-6ES	PTMW	Qal/WBR	E	CMP	E300.0:NO3	1	Y	
W-6ES	PTMW	Qal/WBR	E	CMP	E300.0:PERC	1	Y	
W-6ES	PTMW	Qal/WBR	S	CMP	E624MOD:ALL	1	Y	
W-6ES	PTMW	Qal/WBR	S	CMP	E624MOD:ALL	3	Y	
W-6ES	PTMW	Qal/WBR	E	CMP	E8330LOW:ALL	1	Y	
W-6G	PTMW	Tnbs2	A	CMP	E300.0:NO3	1	Y	
W-6G	PTMW	Tnbs2	A	CMP	E300.0:PERC	1	Y	

Table 2.4-11. High Explosives Process Area Operable Unit ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-6G	PTMW	Tnbs2	S	CMP	E624MOD:ALL	1	Y	
W-6G	PTMW	Tnbs2	S	CMP	E624MOD:ALL	3	Y	
W-6G	PTMW	Tnbs2	A	CMP	E8330LOW:ALL	1	Y	
W-6H	GW	Tnbs2	S	CMP	E300.0:NO3	1	Y	
W-6H	GW	Tnbs2	S	CMP	E300.0:NO3	3	Y	
W-6H	GW	Tnbs2	S	CMP	E300.0:PERC	1	Y	
W-6H	GW	Tnbs2	S	CMP	E300.0:PERC	3	Y	
W-6H	GW	Tnbs2	Q	CMP	E624MOD:ALL	1	Y	
W-6H	GW	Tnbs2	Q	CMP	E624MOD:ALL	2	Y	
W-6H	GW	Tnbs2	Q	CMP	E624MOD:ALL	3	Y	
W-6H	GW	Tnbs2	Q	CMP	E624MOD:ALL	4	Y	
W-6H	GW	Tnbs2	S	CMP	E8330LOW:ALL	1	Y	
W-6H	GW	Tnbs2	S	CMP	E8330LOW:ALL	3	Y	
W-6I	PTMW	Tpsg-Tps	O	CMP	E300.0:NO3	1	N	To be sampled in 2019
W-6I	PTMW	Tpsg-Tps	O	CMP	E300.0:PERC	1	N	To be sampled in 2019
W-6I	PTMW	Tpsg-Tps	S	CMP	E624MOD:ALL	1	Y	
W-6I	PTMW	Tpsg-Tps	S	CMP	E624MOD:ALL	3	Y	
W-6I	PTMW	Tpsg-Tps	O	CMP	E8330LOW:ALL	1	N	To be sampled in 2019
W-6J	GW	Tnbs2	S	CMP	E300.0:NO3	1	Y	
W-6J	GW	Tnbs2	S	CMP	E300.0:NO3	3	Y	
W-6J	GW	Tnbs2	S	CMP	E300.0:PERC	1	Y	
W-6J	GW	Tnbs2	S	CMP	E300.0:PERC	3	Y	
W-6J	GW	Tnbs2	Q	CMP	E624MOD:ALL	1	Y	
W-6J	GW	Tnbs2	Q	CMP	E624MOD:ALL	2	N	Inoperable equipment
W-6J	GW	Tnbs2	Q	CMP	E624MOD:ALL	3	Y	
W-6J	GW	Tnbs2	Q	CMP	E624MOD:ALL	4	N	Inoperable equipment
W-6J	GW	Tnbs2	S	CMP	E8330LOW:ALL	1	Y	
W-6J	GW	Tnbs2	S	CMP	E8330LOW:ALL	3	Y	
W-6K	PTMW	Tnbs2	E	CMP	E300.0:NO3	1	Y	
W-6K	PTMW	Tnbs2	E	CMP	E300.0:PERC	1	Y	
W-6K	PTMW	Tnbs2	S	CMP	E624MOD:ALL	1	Y	
W-6K	PTMW	Tnbs2	S	CMP	E624MOD:ALL	3	Y	
W-6K	PTMW	Tnbs2	E	CMP	E8330LOW:ALL	1	Y	
W-6L	PTMW	Tnbs2	O	CMP	E300.0:NO3	1	N	To be sampled in 2019
W-6L	PTMW	Tnbs2	O	CMP	E300.0:PERC	1	N	To be sampled in 2019
W-6L	PTMW	Tnbs2	S	CMP	E624MOD:ALL	1	Y	
W-6L	PTMW	Tnbs2	S	CMP	E624MOD:ALL	3	Y	
W-6L	PTMW	Tnbs2	O	CMP	E8330LOW:ALL	1	N	To be sampled in 2019
W-806-06A	PTMW	Tnsc1b	O	CMP	E300.0:NO3	1	N	To be sampled in 2019
W-806-06A	PTMW	Tnsc1b	O	CMP	E300.0:PERC	1	N	To be sampled in 2019
W-806-06A	PTMW	Tnsc1b	O	CMP	E624MOD:ALL	1	N	To be sampled in 2019
W-806-06A	PTMW	Tnsc1b	O	CMP	E8330LOW:ALL	1	N	To be sampled in 2019
W-806-07	PTMW	Tnbs2	O	CMP	E300.0:NO3	1	N	To be sampled in 2019

Table 2.4-11. High Explosives Process Area Operable Unit ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-806-07	PTMW	Tnbs2	O	CMP	E300.0:PERC	1	N	To be sampled in 2019
W-806-07	PTMW	Tnbs2	O	CMP	E624MOD:ALL	1	N	To be sampled in 2019
W-806-07	PTMW	Tnbs2	O	CMP	E8330LOW:ALL	1	N	To be sampled in 2019
W-808-01	PTMW	Tpsg-Tps	A	CMP	E300.0:NO3	1	Y	
W-808-01	PTMW	Tpsg-Tps	A	CMP	E300.0:PERC	1	Y	
W-808-01	PTMW	Tpsg-Tps	S	CMP	E624MOD:ALL	1	Y	
W-808-01	PTMW	Tpsg-Tps	S	CMP	E624MOD:ALL	3	Y	
W-808-01	PTMW	Tpsg-Tps	O	CMP	E8330LOW:ALL	1	N	To be sampled in 2019
W-808-02	PTMW	Tpsg-Tps	A	CMP	E300.0:NO3	1	Y	
W-808-02	PTMW	Tpsg-Tps	A	CMP	E300.0:PERC	1	Y	
W-808-02	PTMW	Tpsg-Tps	S	CMP	E624MOD:ALL	1	Y	
W-808-02	PTMW	Tpsg-Tps	S	CMP	E624MOD:ALL	3	Y	
W-808-02	PTMW	Tpsg-Tps	O	CMP	E8330LOW:ALL	1	N	To be sampled in 2019
W-808-03	PTMW	UTnbs1	A	CMP	E300.0:NO3	1	Y	
W-808-03	PTMW	UTnbs1	A	CMP	E300.0:PERC	1	Y	
W-808-03	PTMW	UTnbs1	S	CMP	E624MOD:ALL	1	Y	
W-808-03	PTMW	UTnbs1	S	CMP	E624MOD:ALL	3	Y	
W-808-03	PTMW	UTnbs1	O	CMP	E8330LOW:ALL	1	N	To be sampled in 2019
W-809-01	PTMW	Tpsg-Tps	A	CMP	E300.0:NO3	1	Y	
W-809-01	PTMW	Tpsg-Tps	A	CMP	E300.0:PERC	1	Y	
W-809-01	PTMW	Tpsg-Tps	S	CMP	E624MOD:ALL	1	Y	
W-809-01	PTMW	Tpsg-Tps	S	CMP	E624MOD:ALL	3	Y	
W-809-01	PTMW	Tpsg-Tps	A	CMP	E8330LOW:ALL	1	Y	
W-809-02	PTMW	Tnbs2	A	CMP	E300.0:NO3	1	Y	
W-809-02	PTMW	Tnbs2	A	CMP	E300.0:PERC	1	Y	
W-809-02	PTMW	Tnbs2	A	DIS	E300.0:PERC	3	Y	
W-809-02	PTMW	Tnbs2	S	CMP	E624MOD:ALL	1	Y	
W-809-02	PTMW	Tnbs2	S	CMP	E624MOD:ALL	3	Y	
W-809-02	PTMW	Tnbs2	A	CMP	E8330LOW:ALL	1	Y	
W-809-03	PTMW	Tnbs2	A	CMP	E300.0:NO3	1	Y	
W-809-03	PTMW	Tnbs2	A	CMP	E300.0:PERC	1	Y	
W-809-03	PTMW	Tnbs2	A	DIS	E300.0:PERC	3	Y	
W-809-03	PTMW	Tnbs2	S	CMP	E624MOD:ALL	1	Y	
W-809-03	PTMW	Tnbs2	S	CMP	E624MOD:ALL	3	Y	
W-809-03	PTMW	Tnbs2	A	CMP	E8330LOW:ALL	1	Y	
W-809-03	PTMW	Tnbs2	A	DIS	E8330LOW:ALL	3	Y	
W-809-04	PTMW	Tpsg-Tps	A	CMP	E300.0:NO3	1	N	DRY
W-809-04	PTMW	Tpsg-Tps	A	CMP	E300.0:PERC	1	N	DRY
W-809-04	PTMW	Tpsg-Tps	S	CMP	E624MOD:ALL	1	N	DRY
W-809-04	PTMW	Tpsg-Tps	S	CMP	E624MOD:ALL	3	N	DRY
W-809-04	PTMW	Tpsg-Tps	A	CMP	E8330LOW:ALL	1	N	DRY
W-810-01	PTMW	UTnbs1	A	CMP	E300.0:NO3	1	Y	
W-810-01	PTMW	UTnbs1	A	CMP	E300.0:PERC	1	Y	

Table 2.4-11. High Explosives Process Area Operable Unit ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-810-01	PTMW	UTnbs1	S	CMP	E624MOD:ALL	1	Y	
W-810-01	PTMW	UTnbs1	S	CMP	E624MOD:ALL	3	Y	
W-810-01	PTMW	UTnbs1	A	CMP	E8330LOW:ALL	1	Y	
W-814-01	PTMW	Tpsg-Tps	A	CMP	E300.0:NO3	1	Y	
W-814-01	PTMW	Tpsg-Tps	A	CMP	E300.0:PERC	1	Y	
W-814-01	PTMW	Tpsg-Tps	S	CMP	E624MOD:ALL	1	Y	
W-814-01	PTMW	Tpsg-Tps	S	CMP	E624MOD:ALL	3	Y	
W-814-01	PTMW	Tpsg-Tps	A	CMP	E8330LOW:ALL	1	Y	
W-814-02	PTMW	Tnbs2	A	CMP	E300.0:NO3	1	Y	
W-814-02	PTMW	Tnbs2	A	CMP	E300.0:PERC	1	Y	
W-814-02	PTMW	Tnbs2	S	CMP	E624MOD:ALL	1	Y	
W-814-02	PTMW	Tnbs2	S	CMP	E624MOD:ALL	3	Y	
W-814-02	PTMW	Tnbs2	A	CMP	E8330LOW:ALL	1	Y	
W-814-03	PTMW	Tpsg-Tps	A	CMP	E300.0:NO3	1	N	DRY
W-814-03	PTMW	Tpsg-Tps	A	CMP	E300.0:PERC	1	N	DRY
W-814-03	PTMW	Tpsg-Tps	S	CMP	E624MOD:ALL	1	N	DRY
W-814-03	PTMW	Tpsg-Tps	S	CMP	E624MOD:ALL	3	N	DRY
W-814-03	PTMW	Tpsg-Tps	A	CMP	E8330LOW:ALL	1	N	DRY
W-814-04	GW	Tnsc1b	S	CMP	E300.0:NO3	1	Y	
W-814-04	GW	Tnsc1b	S	CMP	E300.0:NO3	3	Y	
W-814-04	GW	Tnsc1b	S	CMP	E300.0:PERC	1	Y	
W-814-04	GW	Tnsc1b	S	CMP	E300.0:PERC	3	Y	
W-814-04	GW	Tnsc1b	Q	CMP	E624MOD:ALL	1	Y	
W-814-04	GW	Tnsc1b	Q	CMP	E624MOD:ALL	2	Y	
W-814-04	GW	Tnsc1b	Q	CMP	E624MOD:ALL	3	Y	
W-814-04	GW	Tnsc1b	Q	CMP	E624MOD:ALL	4	Y	
W-814-2138	PTMW	Tpsg-Tps	A	CMP	E300.0:NO3	1	Y	
W-814-2138	PTMW	Tpsg-Tps	A	CMP	E300.0:PERC	1	Y	
W-814-2138	PTMW	Tpsg-Tps	S	CMP	E624MOD:ALL	1	Y	
W-814-2138	PTMW	Tpsg-Tps	S	CMP	E624MOD:ALL	3	Y	
W-814-2138	PTMW	Tpsg-Tps	A	CMP	E8330LOW:ALL	1	Y	
W-815-01	PTMW	Tpsg-Tps	A	CMP	E300.0:NO3	1	N	DRY
W-815-01	PTMW	Tpsg-Tps	A	CMP	E300.0:PERC	1	N	DRY
W-815-01	PTMW	Tpsg-Tps	S	CMP	E624MOD:ALL	1	N	DRY
W-815-01	PTMW	Tpsg-Tps	S	CMP	E624MOD:ALL	3	N	No access to well location
W-815-01	PTMW	Tpsg-Tps	A	CMP	E8330LOW:ALL	1	N	DRY
W-815-02	EW	Tnbs2	A	CMP-TF	E300.0:NO3	1	Y	
W-815-02	EW	Tnbs2	A	CMP-TF	E300.0:PERC	1	Y	
W-815-02	EW	Tnbs2	A	DIS-TF	E300.0:PERC	3	Y	
W-815-02	EW	Tnbs2	S	CMP-TF	E624MOD:ALL	1	Y	
W-815-02	EW	Tnbs2	S	DIS-TF	E624MOD:ALL	2	Y	
W-815-02	EW	Tnbs2	S	CMP-TF	E624MOD:ALL	3	Y	
W-815-02	EW	Tnbs2	S	DIS-TF	E624MOD:ALL	4	Y	

Table 2.4-11. High Explosives Process Area Operable Unit ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-815-02	EW	Tnbs2	A	CMP-TF	E8330LOW:ALL	1	Y	
W-815-02	EW	Tnbs2	A	DIS-TF	E8330LOW:ALL	3	Y	
W-815-03	PTMW	Tpsg-Tps	A	CMP	E300.0:NO3	1	N	DRY
W-815-03	PTMW	Tpsg-Tps	A	CMP	E300.0:PERC	1	N	DRY
W-815-03	PTMW	Tpsg-Tps	S	CMP	E624MOD:ALL	1	N	DRY
W-815-03	PTMW	Tpsg-Tps	S	CMP	E624MOD:ALL	3	N	No access to well location
W-815-03	PTMW	Tpsg-Tps	A	CMP	E8330LOW:ALL	1	N	DRY
W-815-04	EW	Tnbs2	A	CMP-TF	E300.0:NO3	1	Y	
W-815-04	EW	Tnbs2	A	CMP-TF	E300.0:PERC	1	Y	
W-815-04	EW	Tnbs2	A	DIS-TF	E300.0:PERC	3	Y	
W-815-04	EW	Tnbs2	S	CMP-TF	E624MOD:ALL	1	Y	
W-815-04	EW	Tnbs2	S	DIS-TF	E624MOD:ALL	2	Y	
W-815-04	EW	Tnbs2	S	CMP-TF	E624MOD:ALL	3	Y	
W-815-04	EW	Tnbs2	S	DIS-TF	E624MOD:ALL	4	Y	
W-815-04	EW	Tnbs2	A	CMP-TF	E8330LOW:ALL	1	Y	
W-815-04	EW	Tnbs2	A	DIS-TF	E8330LOW:ALL	3	Y	
W-815-06	PTMW	Tnbs2	A	CMP	E300.0:NO3	1	N	No well access for sampling or measurement
W-815-06	PTMW	Tnbs2	A	CMP	E300.0:PERC	1	N	No well access for sampling or measurement
W-815-06	PTMW	Tnbs2	S	CMP	E624MOD:ALL	1	N	No well access for sampling or measurement
W-815-06	PTMW	Tnbs2	S	CMP	E624MOD:ALL	3	Y	
W-815-06	PTMW	Tnbs2	A	CMP	E8330LOW:ALL	1	N	No well access for sampling or measurement
W-815-07	PTMW	Tnbs2	A	CMP	E300.0:NO3	1	Y	
W-815-07	PTMW	Tnbs2	A	CMP	E300.0:PERC	1	Y	
W-815-07	PTMW	Tnbs2	S	CMP	E624MOD:ALL	1	Y	
W-815-07	PTMW	Tnbs2	S	CMP	E624MOD:ALL	3	Y	
W-815-07	PTMW	Tnbs2	A	CMP	E8330LOW:ALL	1	Y	
W-815-08	PTMW	UTnbs1	E	CMP	E300.0:NO3	1	Y	
W-815-08	PTMW	UTnbs1	E	CMP	E300.0:PERC	1	Y	
W-815-08	PTMW	UTnbs1	A	CMP	E624MOD:ALL	1	Y	
W-815-08	PTMW	UTnbs1	E	CMP	E8330LOW:ALL	1	Y	
W-815-1928	PTMW	Tpsg-Tps	A	CMP	E300.0:NO3	1	N	DRY
W-815-1928	PTMW	Tpsg-Tps	A	CMP	E300.0:PERC	1	N	DRY
W-815-1928	PTMW	Tpsg-Tps	S	CMP	E624MOD:ALL	1	N	DRY
W-815-1928	PTMW	Tpsg-Tps	S	CMP	E624MOD:ALL	3	N	DRY
W-815-1928	PTMW	Tpsg-Tps	A	CMP	E8330LOW:ALL	1	N	DRY
W-815-2110	GW	Tnbs2	S	CMP	E300.0:NO3	1	Y	
W-815-2110	GW	Tnbs2	S	CMP	E300.0:NO3	3	Y	
W-815-2110	GW	Tnbs2	S	CMP	E300.0:PERC	1	Y	
W-815-2110	GW	Tnbs2	S	CMP	E300.0:PERC	3	Y	
W-815-2110	GW	Tnbs2	Q	CMP	E624MOD:ALL	1	Y	
W-815-2110	GW	Tnbs2	Q	CMP	E624MOD:ALL	2	Y	
W-815-2110	GW	Tnbs2	Q	CMP	E624MOD:ALL	3	Y	
W-815-2110	GW	Tnbs2	Q	CMP	E624MOD:ALL	4	Y	

Table 2.4-11. High Explosives Process Area Operable Unit ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-815-2110	GW	Tnbs2	S	CMP	E8330LOW:ALL	1	Y	
W-815-2110	GW	Tnbs2	S	CMP	E8330LOW:ALL	3	Y	
W-815-2111	GW	Tnbs2	S	CMP	E300.0:NO3	1	Y	
W-815-2111	GW	Tnbs2	S	CMP	E300.0:NO3	3	Y	
W-815-2111	GW	Tnbs2	S	CMP	E300.0:PERC	1	Y	
W-815-2111	GW	Tnbs2	S	CMP	E300.0:PERC	3	Y	
W-815-2111	GW	Tnbs2	Q	CMP	E624MOD:ALL	1	Y	
W-815-2111	GW	Tnbs2	Q	CMP	E624MOD:ALL	2	Y	
W-815-2111	GW	Tnbs2	Q	CMP	E624MOD:ALL	3	Y	
W-815-2111	GW	Tnbs2	Q	CMP	E624MOD:ALL	4	Y	
W-815-2111	GW	Tnbs2	S	CMP	E8330LOW:ALL	1	Y	
W-815-2111	GW	Tnbs2	S	CMP	E8330LOW:ALL	3	Y	
W-815-2217	PTMW	Tnbs2	O	CMP	E300.0:NO3	1	N	To be sampled in 2019
W-815-2217	PTMW	Tnbs2	O	CMP	E300.0:PERC	1	N	To be sampled in 2019
W-815-2217	PTMW	Tnbs2	S	CMP	E624MOD:ALL	1	Y	
W-815-2217	PTMW	Tnbs2	S	CMP	E624MOD:ALL	3	Y	
W-815-2217	PTMW	Tnbs2	O	CMP	E8330LOW:ALL	1	N	To be sampled in 2019
W-815-2608	EW	Tnbs2	O	CMP-TF	E300.0:NO3	1	N	To be sampled in 2019
W-815-2608	EW	Tnbs2	A	CMP-TF	E300.0:PERC	1	Y	
W-815-2608	EW	Tnbs2	S	CMP-TF	E624MOD:ALL	1	Y	
W-815-2608	EW	Tnbs2	S	DIS-TF	E624MOD:ALL	2	Y	
W-815-2608	EW	Tnbs2	S	CMP-TF	E624MOD:ALL	3	Y	
W-815-2608	EW	Tnbs2	S	DIS-TF	E624MOD:ALL	4	Y	
W-815-2608	EW	Tnbs2	O	CMP-TF	E8330LOW:ALL	1	N	To be sampled in 2019
W-815-2621	PTMW	Tnbs2	A	CMP	E300.0:NO3	1	Y	
W-815-2621	PTMW	Tnbs2	A	CMP	E300.0:PERC	1	Y	
W-815-2621	PTMW	Tnbs2	S	CMP	E624MOD:ALL	1	Y	
W-815-2621	PTMW	Tnbs2	S	CMP	E624MOD:ALL	3	Y	
W-815-2621	PTMW	Tnbs2	A	CMP	E8330LOW:ALL	1	Y	
W-815-2803	EW	Tnbs2	A	CMP-TF	E300.0:NO3	1	Y	
W-815-2803	EW	Tnbs2	A	CMP-TF	E300.0:PERC	1	Y	
W-815-2803	EW	Tnbs2	A	DIS-TF	E300.0:PERC	3	Y	
W-815-2803	EW	Tnbs2	S	CMP-TF	E624MOD:ALL	1	Y	
W-815-2803	EW	Tnbs2	S	DIS-TF	E624MOD:ALL	2	Y	
W-815-2803	EW	Tnbs2	S	CMP-TF	E624MOD:ALL	3	Y	
W-815-2803	EW	Tnbs2	S	DIS-TF	E624MOD:ALL	4	Y	
W-815-2803	EW	Tnbs2	A	CMP-TF	E8330LOW:ALL	1	Y	
W-815-2803	EW	Tnbs2	A	DIS-TF	E8330LOW:ALL	3	Y	
W-817-01	EW	Tnbs2	A	DIS-TF	E300.0:NO3	1	Y	
W-817-01	EW	Tnbs2	Q	DIS-TF	E300.0:PERC	1	Y	
W-817-01	EW	Tnbs2	Q	DIS-TF	E300.0:PERC	2	Y	
W-817-01	EW	Tnbs2	Q	DIS-TF	E300.0:PERC	3	Y	
W-817-01	EW	Tnbs2	Q	DIS-TF	E300.0:PERC	4	Y	

Table 2.4-11. High Explosives Process Area Operable Unit ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-817-01	EW	Tnbs2	Q	DIS-TF	E624MOD:ALL	1	Y	
W-817-01	EW	Tnbs2	Q	DIS-TF	E624MOD:ALL	2	Y	
W-817-01	EW	Tnbs2	Q	DIS-TF	E624MOD:ALL	3	Y	
W-817-01	EW	Tnbs2	Q	DIS-TF	E624MOD:ALL	4	Y	
W-817-01	EW	Tnbs2	Q	DIS-TF	E8330LOW:ALL	1	Y	
W-817-01	EW	Tnbs2	Q	DIS-TF	E8330LOW:ALL	2	Y	
W-817-01	EW	Tnbs2	Q	DIS-TF	E8330LOW:ALL	3	Y	
W-817-01	EW	Tnbs2	Q	DIS-TF	E8330LOW:ALL	4	Y	
W-817-03	EW	Tnbs2	A	CMP-TF	E300.0:NO3	1	Y	
W-817-03	EW	Tnbs2	A	CMP-TF	E300.0:PERC	1	Y	
W-817-03	EW	Tnbs2	A	DIS-TF	E300.0:PERC	3	Y	
W-817-03	EW	Tnbs2	S	CMP-TF	E624MOD:ALL	1	Y	
W-817-03	EW	Tnbs2	S	DIS-TF	E624MOD:ALL	2	Y	
W-817-03	EW	Tnbs2	S	CMP-TF	E624MOD:ALL	3	Y	
W-817-03	EW	Tnbs2	S	DIS-TF	E624MOD:ALL	4	Y	
W-817-03	EW	Tnbs2	A	CMP-TF	E8330LOW:ALL	1	Y	
W-817-03	EW	Tnbs2	A	DIS-TF	E8330LOW:ALL	3	Y	
W-817-03A	PTMW	Tpsg-Tps	A	CMP	E300.0:NO3	1	Y	
W-817-03A	PTMW	Tpsg-Tps	A	CMP	E300.0:PERC	1	Y	
W-817-03A	PTMW	Tpsg-Tps	S	CMP	E624MOD:ALL	1	Y	
W-817-03A	PTMW	Tpsg-Tps	S	CMP	E624MOD:ALL	3	Y	
W-817-03A	PTMW	Tpsg-Tps	A	CMP	E8330LOW:ALL	1	Y	
W-817-04	PTMW	Tnbs2	A	CMP	E300.0:NO3	1	Y	
W-817-04	PTMW	Tnbs2	A	CMP	E300.0:PERC	1	Y	
W-817-04	PTMW	Tnbs2	S	CMP	E624MOD:ALL	1	Y	
W-817-04	PTMW	Tnbs2	S	CMP	E624MOD:ALL	3	Y	
W-817-04	PTMW	Tnbs2	A	CMP	E8330LOW:ALL	1	Y	
W-817-05	PTMW	Tnsc1b	A	CMP	E300.0:NO3	1	Y	
W-817-05	PTMW	Tnsc1b	A	CMP	E300.0:PERC	1	Y	
W-817-05	PTMW	Tnsc1b	S	CMP	E624MOD:ALL	1	Y	
W-817-05	PTMW	Tnsc1b	S	CMP	E624MOD:ALL	3	Y	
W-817-05	PTMW	Tnsc1b	A	CMP	E8330LOW:ALL	1	Y	
W-817-07	PTMW	Tnbs2	A	CMP	E300.0:NO3	1	N	Insufficient water
W-817-07	PTMW	Tnbs2	A	CMP	E300.0:PERC	1	N	Insufficient water
W-817-07	PTMW	Tnbs2	S	CMP	E624MOD:ALL	1	N	Insufficient water
W-817-07	PTMW	Tnbs2	S	CMP	E624MOD:ALL	3	N	Insufficient water
W-817-07	PTMW	Tnbs2	A	CMP	E8330LOW:ALL	1	N	Insufficient water
W-817-2318	EW	Tpsg-Tps	A	CMP-TF	E300.0:NO3	1	Y	
W-817-2318	EW	Tpsg-Tps	A	CMP-TF	E300.0:PERC	1	Y	
W-817-2318	EW	Tpsg-Tps	A	DIS-TF	E300.0:PERC	3	Y	
W-817-2318	EW	Tpsg-Tps	S	CMP-TF	E624MOD:ALL	1	Y	
W-817-2318	EW	Tpsg-Tps	S	DIS-TF	E624MOD:ALL	2	Y	
W-817-2318	EW	Tpsg-Tps	S	CMP-TF	E624MOD:ALL	3	Y	

Table 2.4-11. High Explosives Process Area Operable Unit ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-817-2318	EW	Tpsg-Tps	S	DIS-TF	E624MOD:ALL	4	Y	
W-817-2318	EW	Tpsg-Tps	A	CMP-TF	E8330LOW:ALL	1	Y	
W-817-2318	EW	Tpsg-Tps	A	DIS-TF	E8330LOW:ALL	3	Y	
W-817-2609	PTMW	Tnbs2	A	CMP	E300.0:NO3	1	Y	
W-817-2609	PTMW	Tnbs2	A	CMP	E300.0:PERC	1	Y	
W-817-2609	PTMW	Tnbs2	S	CMP	E624MOD:ALL	1	Y	
W-817-2609	PTMW	Tnbs2	S	CMP	E624MOD:ALL	3	Y	
W-817-2609	PTMW	Tnbs2	A	CMP	E8330LOW:ALL	1	Y	
W-817-3023	PTMW	Tnbs2	A	CMP	E300.0:NO3	1	Y	
W-817-3023	PTMW	Tnbs2	A	CMP	E300.0:PERC	1	Y	
W-817-3023	PTMW	Tnbs2	S	CMP	E624MOD:ALL	1	Y	
W-817-3023	PTMW	Tnbs2	S	CMP	E624MOD:ALL	3	Y	
W-817-3023	PTMW	Tnbs2	A	CMP	E8330LOW:ALL	1	Y	
W-817-3025	PTMW	Tnbs2	A	CMP	E300.0:NO3	1	Y	
W-817-3025	PTMW	Tnbs2	A	CMP	E300.0:PERC	1	Y	
W-817-3025	PTMW	Tnbs2	S	CMP	E624MOD:ALL	1	Y	
W-817-3025	PTMW	Tnbs2	S	CMP	E624MOD:ALL	3	Y	
W-817-3025	PTMW	Tnbs2	A	CMP	E8330LOW:ALL	1	Y	
W-817-3026	PTMW	Tnbs2	A	CMP	E300.0:NO3	1	Y	
W-817-3026	PTMW	Tnbs2	A	CMP	E300.0:PERC	1	Y	
W-817-3026	PTMW	Tnbs2	S	CMP	E624MOD:ALL	1	Y	
W-817-3026	PTMW	Tnbs2	S	CMP	E624MOD:ALL	3	Y	
W-817-3026	PTMW	Tnbs2	A	CMP	E8330LOW:ALL	1	Y	
W-818-01	PTMW	Tnbs2	A	CMP	E300.0:NO3	1	Y	
W-818-01	PTMW	Tnbs2	A	CMP	E300.0:PERC	1	Y	
W-818-01	PTMW	Tnbs2	S	CMP	E624MOD:ALL	1	Y	
W-818-01	PTMW	Tnbs2	S	CMP	E624MOD:ALL	3	Y	
W-818-01	PTMW	Tnbs2	A	CMP	E8330LOW:ALL	1	Y	
W-818-03	PTMW	Tnbs2	A	CMP	E300.0:NO3	1	N	No access to well location
W-818-03	PTMW	Tnbs2	A	CMP	E300.0:PERC	1	N	No access to well location
W-818-03	PTMW	Tnbs2	S	CMP	E624MOD:ALL	1	N	No access to well location
W-818-03	PTMW	Tnbs2	S	CMP	E624MOD:ALL	3	Y	
W-818-03	PTMW	Tnbs2	O	CMP	E8330LOW:ALL	1	N	To be sampled in 2019
W-818-04	PTMW	Tnsc2	A	CMP	E300.0:NO3	1	Y	
W-818-04	PTMW	Tnsc2	A	CMP	E300.0:PERC	1	Y	
W-818-04	PTMW	Tnsc2	S	CMP	E624MOD:ALL	1	Y	
W-818-04	PTMW	Tnsc2	S	CMP	E624MOD:ALL	3	Y	
W-818-04	PTMW	Tnsc2	A	CMP	E8330LOW:ALL	1	Y	
W-818-06	PTMW	Tnbs2	A	CMP	E300.0:NO3	1	Y	
W-818-06	PTMW	Tnbs2	A	CMP	E300.0:PERC	1	Y	
W-818-06	PTMW	Tnbs2	S	CMP	E624MOD:ALL	1	Y	
W-818-06	PTMW	Tnbs2	S	CMP	E624MOD:ALL	3	Y	
W-818-06	PTMW	Tnbs2	O	CMP	E8330LOW:ALL	1	N	To be sampled in 2019

Table 2.4-11. High Explosives Process Area Operable Unit ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-818-07	PTMW	Tnbs2	A	CMP	E300.0:NO3	1	Y	
W-818-07	PTMW	Tnbs2	A	CMP	E300.0:PERC	1	Y	
W-818-07	PTMW	Tnbs2	S	CMP	E624MOD:ALL	1	Y	
W-818-07	PTMW	Tnbs2	S	CMP	E624MOD:ALL	3	Y	
W-818-07	PTMW	Tnbs2	E	CMP	E8330LOW:ALL	1	Y	
W-818-08	EW	Tnbs2	A	CMP-TF	E300.0:NO3	1	Y	
W-818-08	EW	Tnbs2	A	CMP-TF	E300.0:PERC	1	Y	
W-818-08	EW	Tnbs2	A	DIS-TF	E300.0:PERC	3	Y	
W-818-08	EW	Tnbs2	S	CMP-TF	E624MOD:ALL	1	Y	
W-818-08	EW	Tnbs2	S	DIS-TF	E624MOD:ALL	2	Y	
W-818-08	EW	Tnbs2	S	CMP-TF	E624MOD:ALL	3	Y	
W-818-08	EW	Tnbs2	S	DIS-TF	E624MOD:ALL	4	Y	
W-818-08	EW	Tnbs2	A	CMP-TF	E8330LOW:ALL	1	Y	
W-818-08	EW	Tnbs2	S	DIS-TF	E8330LOW:ALL	2	Y	
W-818-08	EW	Tnbs2	S	DIS-TF	E8330LOW:ALL	4	Y	
W-818-09	EW	Tnbs2	A	CMP-TF	E300.0:NO3	1	Y	
W-818-09	EW	Tnbs2	A	CMP-TF	E300.0:PERC	1	Y	
W-818-09	EW	Tnbs2	A	DIS-TF	E300.0:PERC	3	Y	
W-818-09	EW	Tnbs2	S	CMP-TF	E624MOD:ALL	1	Y	
W-818-09	EW	Tnbs2	S	DIS-TF	E624MOD:ALL	2	Y	
W-818-09	EW	Tnbs2	S	CMP-TF	E624MOD:ALL	3	Y	
W-818-09	EW	Tnbs2	S	DIS-TF	E624MOD:ALL	4	Y	
W-818-09	EW	Tnbs2	A	CMP-TF	E8330LOW:ALL	1	Y	
W-818-09	EW	Tnbs2	S	DIS-TF	E8330LOW:ALL	2	Y	
W-818-09	EW	Tnbs2	S	DIS-TF	E8330LOW:ALL	4	Y	
W-818-11	PTMW	Tnbs2	A	CMP	E300.0:NO3	1	Y	
W-818-11	PTMW	Tnbs2	A	CMP	E300.0:PERC	1	Y	
W-818-11	PTMW	Tnbs2	S	CMP	E624MOD:ALL	1	Y	
W-818-11	PTMW	Tnbs2	S	CMP	E624MOD:ALL	3	Y	
W-818-11	PTMW	Tnbs2	A	CMP	E8330LOW:ALL	1	Y	
W-819-02	PTMW	UTnbs1	A	CMP	E300.0:NO3	1	Y	
W-819-02	PTMW	UTnbs1	A	CMP	E300.0:PERC	1	Y	
W-819-02	PTMW	UTnbs1	S	CMP	E624MOD:ALL	1	Y	
W-819-02	PTMW	UTnbs1	S	CMP	E624MOD:ALL	3	Y	
W-819-02	PTMW	UTnbs1	A	CMP	E8330LOW:ALL	1	Y	
W-823-01	PTMW	Tpsg-Tps	A	CMP	E300.0:NO3	1	Y	
W-823-01	PTMW	Tpsg-Tps	A	CMP	E300.0:PERC	1	Y	
W-823-01	PTMW	Tpsg-Tps	S	CMP	E624MOD:ALL	1	Y	
W-823-01	PTMW	Tpsg-Tps	S	CMP	E624MOD:ALL	3	Y	
W-823-01	PTMW	Tpsg-Tps	A	CMP	E8330LOW:ALL	1	Y	
W-823-02	PTMW	Tnbs2	O	CMP	E300.0:NO3	1	N	To be sampled in 2019
W-823-02	PTMW	Tnbs2	O	CMP	E300.0:PERC	1	N	To be sampled in 2019
W-823-02	PTMW	Tnbs2	S	CMP	E624MOD:ALL	1	Y	

Table 2.4-11. High Explosives Process Area Operable Unit ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-823-02	PTMW	Tnbs2	S	CMP	E624MOD:ALL	3	Y	
W-823-02	PTMW	Tnbs2	O	CMP	E8330LOW:ALL	1	N	To be sampled in 2019
W-823-03	PTMW	Tnbs2	A	CMP	E300.0:NO3	1	N	No well access for sampling or measurement
W-823-03	PTMW	Tnbs2	E	CMP	E300.0:PERC	1	N	No well access for sampling or measurement
W-823-03	PTMW	Tnbs2	S	CMP	E624MOD:ALL	1	N	No well access for sampling or measurement
W-823-03	PTMW	Tnbs2	S	CMP	E624MOD:ALL	3	N	Inoperable equipment
W-823-03	PTMW	Tnbs2	E	CMP	E8330LOW:ALL	1	N	No well access for sampling or measurement
W-823-13	PTMW	Tnbs2	A	CMP	E300.0:NO3	1	Y	
W-823-13	PTMW	Tnbs2	A	CMP	E300.0:PERC	1	Y	
W-823-13	PTMW	Tnbs2	S	CMP	E624MOD:ALL	1	Y	
W-823-13	PTMW	Tnbs2	S	CMP	E624MOD:ALL	3	Y	
W-823-13	PTMW	Tnbs2	A	CMP	E8330LOW:ALL	1	Y	
W-823-13	PTMW	Tnbs2	A	DIS	EM8015:DIESEL	3	Y	
W-827-01	PTMW	Tnbs2	O	CMP	E300.0:NO3	1	N	To be sampled in 2019
W-827-01	PTMW	Tnbs2	O	CMP	E300.0:PERC	1	N	To be sampled in 2019
W-827-01	PTMW	Tnbs2	O	CMP	E624MOD:ALL	1	N	To be sampled in 2019
W-827-01	PTMW	Tnbs2	O	CMP	E8330LOW:ALL	1	N	To be sampled in 2019
W-827-02	PTMW	Tnsc1	O	CMP	E300.0:NO3	1	N	To be sampled in 2019
W-827-02	PTMW	Tnsc1	O	CMP	E300.0:PERC	1	N	To be sampled in 2019
W-827-02	PTMW	Tnsc1	O	CMP	E624MOD:ALL	1	N	To be sampled in 2019
W-827-02	PTMW	Tnsc1	O	CMP	E8330LOW:ALL	1	N	To be sampled in 2019
W-827-03	PTMW	UTnbs1	O	CMP	E300.0:NO3	1	N	To be sampled in 2019
W-827-03	PTMW	UTnbs1	O	CMP	E300.0:PERC	1	N	To be sampled in 2019
W-827-03	PTMW	UTnbs1	O	CMP	E624MOD:ALL	1	N	To be sampled in 2019
W-827-03	PTMW	UTnbs1	O	CMP	E8330LOW:ALL	1	N	To be sampled in 2019
W-827-04	PTMW	LTnbs1	A	CMP	E300.0:NO3	1	N	Insufficient water
W-827-04	PTMW	LTnbs1	A	CMP	E300.0:PERC	1	N	Insufficient water
W-827-04	PTMW	LTnbs1	S	CMP	E624MOD:ALL	1	N	Insufficient water
W-827-04	PTMW	LTnbs1	S	CMP	E624MOD:ALL	3	N	DRY
W-827-04	PTMW	LTnbs1	A	CMP	E8330LOW:ALL	1	N	Insufficient water
W-827-05	PTMW	LTnbs1	A	CMP	E300.0:NO3	1	Y	
W-827-05	PTMW	LTnbs1	A	CMP	E300.0:PERC	1	Y	
W-827-05	PTMW	LTnbs1	S	CMP	E624MOD:ALL	1	Y	
W-827-05	PTMW	LTnbs1	S	CMP	E624MOD:ALL	3	N	Inoperable equipment
W-827-05	PTMW	LTnbs1	A	CMP	E8330LOW:ALL	1	Y	
W-829-06	EW	Tnsc1b	Q	DIS-TF	E300.0:NO3	1	Y	
W-829-06	EW	Tnsc1b	Q	DIS-TF	E300.0:NO3	2	Y	
W-829-06	EW	Tnsc1b	Q	DIS-TF	E300.0:NO3	3	Y	
W-829-06	EW	Tnsc1b	Q	DIS-TF	E300.0:NO3	4	Y	
W-829-06	EW	Tnsc1b	Q	DIS-TF	E300.0:PERC	1	Y	
W-829-06	EW	Tnsc1b	Q	DIS-TF	E300.0:PERC	2	Y	
W-829-06	EW	Tnsc1b	Q	DIS-TF	E300.0:PERC	3	Y	
W-829-06	EW	Tnsc1b	Q	DIS-TF	E300.0:PERC	4	Y	

Table 2.4-11. High Explosives Process Area Operable Unit ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-829-06	EW	Tnsc1b	Q	DIS-TF	E624MOD:ALL	1	Y	
W-829-06	EW	Tnsc1b	Q	DIS-TF	E624MOD:ALL	2	Y	
W-829-06	EW	Tnsc1b	Q	DIS-TF	E624MOD:ALL	3	Y	
W-829-06	EW	Tnsc1b	Q	DIS-TF	E624MOD:ALL	4	Y	
W-829-06	EW	Tnsc1b	A	DIS-TF	E8330LOW:ALL	1	Y	
W-829-08	PTMW	Tnsc1b	A	CMP	E300.0:NO3	1	Y	
W-829-08	PTMW	Tnsc1b	A	CMP	E300.0:PERC	1	Y	
W-829-08	PTMW	Tnsc1b	S	CMP	E624MOD:ALL	1	Y	
W-829-08	PTMW	Tnsc1b	S	CMP	E624MOD:ALL	3	Y	
W-829-08	PTMW	Tnsc1b	A	CMP	E8330LOW:ALL	1	Y	
W-829-15	DMW	LTnbs1	A	WGMG	E300.0:PERC	2	Y	
W-829-15	DMW	LTnbs1	A	WGMG	E624:ALL	2	Y	
W-829-15	DMW	LTnbs1	A	WGMG	E8330:R+H	2	Y	
W-829-15	DMW	LTnbs1	A	WGMG	E8330:TNT	2	Y	
W-829-1938	DMW	LTnbs1	A	WGMG	E300.0:PERC	2	Y	
W-829-1938	DMW	LTnbs1	A	WGMG	E624:ALL	2	Y	
W-829-1938	DMW	LTnbs1	A	WGMG	E8330:R+H	2	Y	
W-829-1938	DMW	LTnbs1	A	WGMG	E8330:TNT	2	Y	
W-829-1940	PTMW	Tnsc1b	A	CMP	E300.0:NO3	1	Y	
W-829-1940	PTMW	Tnsc1b	A	CMP	E300.0:PERC	1	Y	
W-829-1940	PTMW	Tnsc1b	S	CMP	E624MOD:ALL	1	Y	
W-829-1940	PTMW	Tnsc1b	S	CMP	E624MOD:ALL	3	Y	
W-829-1940	PTMW	Tnsc1b	A	CMP	E8330LOW:ALL	1	Y	
W-829-22	DMW	LTnbs1	A	WGMG	E300.0:PERC	2	Y	
W-829-22	DMW	LTnbs1	A	WGMG	E624:ALL	2	Y	
W-829-22	DMW	LTnbs1	A	WGMG	E8330:R+H	2	Y	
W-829-22	DMW	LTnbs1	A	WGMG	E8330:TNT	2	Y	
WELL18	WS	Tnbs1	M	CMP	E300.0:NO3	1	Y	
WELL18	WS	Tnbs1	M	CMP	E300.0:NO3	1	Y	
WELL18	WS	Tnbs1	M	CMP	E300.0:NO3	1	Y	
WELL18	WS	Tnbs1	M	CMP	E300.0:NO3	2	Y	
WELL18	WS	Tnbs1	M	CMP	E300.0:NO3	2	Y	
WELL18	WS	Tnbs1	M	CMP	E300.0:NO3	2	Y	
WELL18	WS	Tnbs1	M	CMP	E300.0:NO3	3	Y	
WELL18	WS	Tnbs1	M	CMP	E300.0:NO3	3	Y	
WELL18	WS	Tnbs1	M	CMP	E300.0:NO3	3	Y	
WELL18	WS	Tnbs1	M	CMP	E300.0:NO3	4	Y	
WELL18	WS	Tnbs1	M	CMP	E300.0:NO3	4	Y	
WELL18	WS	Tnbs1	M	CMP	E300.0:NO3	4	Y	
WELL18	WS	Tnbs1	M	CMP	E300.0:PERC	1	Y	
WELL18	WS	Tnbs1	M	CMP	E300.0:PERC	1	Y	
WELL18	WS	Tnbs1	M	CMP	E300.0:PERC	1	Y	
WELL18	WS	Tnbs1	M	CMP	E300.0:PERC	2	Y	

Table 2.4-11. High Explosives Process Area Operable Unit ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
WELL18	WS	Tnbs1	M	CMP	E300.0:PERC	2	Y	
WELL18	WS	Tnbs1	M	CMP	E300.0:PERC	2	Y	
WELL18	WS	Tnbs1	M	CMP	E300.0:PERC	3	Y	
WELL18	WS	Tnbs1	M	CMP	E300.0:PERC	3	Y	
WELL18	WS	Tnbs1	M	CMP	E300.0:PERC	3	Y	
WELL18	WS	Tnbs1	M	CMP	E300.0:PERC	4	Y	
WELL18	WS	Tnbs1	M	CMP	E300.0:PERC	4	Y	
WELL18	WS	Tnbs1	M	CMP	E300.0:PERC	4	Y	
WELL18	WS	Tnbs1	M	CMP	E624MOD:ALL	1	Y	
WELL18	WS	Tnbs1	M	CMP	E624MOD:ALL	1	Y	
WELL18	WS	Tnbs1	M	CMP	E624MOD:ALL	1	Y	
WELL18	WS	Tnbs1	M	CMP	E624MOD:ALL	2	Y	
WELL18	WS	Tnbs1	M	CMP	E624MOD:ALL	2	Y	
WELL18	WS	Tnbs1	M	CMP	E624MOD:ALL	2	Y	
WELL18	WS	Tnbs1	M	CMP	E624MOD:ALL	3	Y	
WELL18	WS	Tnbs1	M	CMP	E624MOD:ALL	3	Y	
WELL18	WS	Tnbs1	M	CMP	E624MOD:ALL	3	Y	
WELL18	WS	Tnbs1	M	CMP	E624MOD:ALL	4	Y	
WELL18	WS	Tnbs1	M	CMP	E624MOD:ALL	4	Y	
WELL18	WS	Tnbs1	M	CMP	E624MOD:ALL	4	Y	
WELL18	WS	Tnbs1	M	CMP	E8330LOW:ALL	1	Y	
WELL18	WS	Tnbs1	M	CMP	E8330LOW:ALL	1	Y	
WELL18	WS	Tnbs1	M	CMP	E8330LOW:ALL	1	Y	
WELL18	WS	Tnbs1	M	CMP	E8330LOW:ALL	2	Y	
WELL18	WS	Tnbs1	M	CMP	E8330LOW:ALL	2	Y	
WELL18	WS	Tnbs1	M	CMP	E8330LOW:ALL	2	Y	
WELL18	WS	Tnbs1	M	CMP	E8330LOW:ALL	3	Y	
WELL18	WS	Tnbs1	M	CMP	E8330LOW:ALL	3	Y	
WELL18	WS	Tnbs1	M	CMP	E8330LOW:ALL	3	Y	
WELL18	WS	Tnbs1	M	CMP	E8330LOW:ALL	4	Y	
WELL18	WS	Tnbs1	M	CMP	E8330LOW:ALL	4	Y	
WELL18	WS	Tnbs1	M	CMP	E8330LOW:ALL	4	Y	
WELL20	WS	Tnbs1	M	CMP	E300.0:NO3	1	Y	
WELL20	WS	Tnbs1	M	CMP	E300.0:NO3	1	Y	
WELL20	WS	Tnbs1	M	CMP	E300.0:NO3	1	Y	
WELL20	WS	Tnbs1	M	CMP	E300.0:NO3	2	Y	
WELL20	WS	Tnbs1	M	CMP	E300.0:NO3	2	Y	
WELL20	WS	Tnbs1	M	CMP	E300.0:NO3	2	Y	
WELL20	WS	Tnbs1	M	CMP	E300.0:NO3	3	Y	
WELL20	WS	Tnbs1	M	CMP	E300.0:NO3	3	Y	
WELL20	WS	Tnbs1	M	CMP	E300.0:NO3	3	Y	
WELL20	WS	Tnbs1	M	CMP	E300.0:NO3	4	Y	
WELL20	WS	Tnbs1	M	CMP	E300.0:NO3	4	Y	

Table 2.4-11. High Explosives Process Area Operable Unit ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
WELL20	WS	Tnbs1	M	CMP	E300.0:NO3	4	Y	
WELL20	WS	Tnbs1	M	CMP	E300.0:PERC	1	Y	
WELL20	WS	Tnbs1	M	CMP	E300.0:PERC	1	Y	
WELL20	WS	Tnbs1	M	CMP	E300.0:PERC	1	Y	
WELL20	WS	Tnbs1	M	CMP	E300.0:PERC	2	Y	
WELL20	WS	Tnbs1	M	CMP	E300.0:PERC	2	Y	
WELL20	WS	Tnbs1	M	CMP	E300.0:PERC	2	Y	
WELL20	WS	Tnbs1	M	CMP	E300.0:PERC	3	Y	
WELL20	WS	Tnbs1	M	CMP	E300.0:PERC	3	Y	
WELL20	WS	Tnbs1	M	CMP	E300.0:PERC	3	Y	
WELL20	WS	Tnbs1	M	CMP	E300.0:PERC	4	Y	
WELL20	WS	Tnbs1	M	CMP	E300.0:PERC	4	Y	
WELL20	WS	Tnbs1	M	CMP	E300.0:PERC	4	Y	
WELL20	WS	Tnbs1	M	WGMG	E524.2MOD:ALL	1	Y	
WELL20	WS	Tnbs1	M	WGMG	E524.2MOD:ALL	1	Y	
WELL20	WS	Tnbs1	M	WGMG	E524.2MOD:ALL	1	Y	
WELL20	WS	Tnbs1	M	WGMG	E524.2MOD:ALL	2	Y	
WELL20	WS	Tnbs1	M	WGMG	E524.2MOD:ALL	2	Y	
WELL20	WS	Tnbs1	M	WGMG	E524.2MOD:ALL	2	Y	
WELL20	WS	Tnbs1	M	WGMG	E524.2MOD:ALL	3	Y	
WELL20	WS	Tnbs1	M	WGMG	E524.2MOD:ALL	3	Y	
WELL20	WS	Tnbs1	M	WGMG	E524.2MOD:ALL	3	Y	
WELL20	WS	Tnbs1	M	WGMG	E524.2MOD:ALL	4	Y	
WELL20	WS	Tnbs1	M	WGMG	E524.2MOD:ALL	4	Y	
WELL20	WS	Tnbs1	M	WGMG	E524.2MOD:ALL	4	Y	
WELL20	WS	Tnbs1	M	CMP	E8330LOW:ALL	1	Y	
WELL20	WS	Tnbs1	M	CMP	E8330LOW:ALL	1	Y	
WELL20	WS	Tnbs1	M	CMP	E8330LOW:ALL	1	Y	
WELL20	WS	Tnbs1	M	CMP	E8330LOW:ALL	2	Y	
WELL20	WS	Tnbs1	M	CMP	E8330LOW:ALL	2	Y	
WELL20	WS	Tnbs1	M	CMP	E8330LOW:ALL	2	Y	
WELL20	WS	Tnbs1	M	CMP	E8330LOW:ALL	3	Y	
WELL20	WS	Tnbs1	M	CMP	E8330LOW:ALL	3	Y	
WELL20	WS	Tnbs1	M	CMP	E8330LOW:ALL	3	Y	
WELL20	WS	Tnbs1	M	CMP	E8330LOW:ALL	4	Y	
WELL20	WS	Tnbs1	M	CMP	E8330LOW:ALL	4	Y	
WELL20	WS	Tnbs1	M	CMP	E8330LOW:ALL	4	Y	

Acronyms and Abbreviations:

- = Not applicable
bgs = Below ground surface
CGSA = Central General Services Area
COCs = Contaminants of concern
DIS = Distal
DISS = Distal south
DSB = Distal site boundary
EGSA = Eastern General Services Area
ft = Feet
g = Grams
GWTS = Groundwater treatment system
HSU = Hydrostratigraphic unit
Kcf = Thousands of cubic feet
kg = Kilograms
Kgal = Thousands of gallons
Mcf = Millions of cubic feet
PRX = Proximal
PRXN = Proximal North
PTMW = Plume Tracking Monitor Well
RDX = Research Department Explosive
SRC = Source
SVTS = Soil vapor treatment system
TBOS = Tetra 2-ethylbutylorthosilicate
TKEBS = Tetrakis (2-ethylbutyl) silane

Table 2.4-12. Building 815-Source mass removed, July 1, 2018 through December 31, 2018.

Treatment facility	Month	SVTS VOC mass removed (g)	GWTS VOC mass removed (g)	Perchlorate mass removed (g)	Nitrate mass removed (kg)	RDX mass removed (g)	TBOS/TKEBS mass removed (g)
815-SRC	July	-	3.1	0.63	39	23	-
	August	-	2.6	0.55	32	19	-
	September	-	2.7	0.55	33	19	-
	October	-	2.7	0.54	32	19	-
	November	-	2.4	0.31	28	16	-
	December	-	2.4	0	26	16	-
Total		-	16	2.6	190	110	-

Notes:

***Nitrate re-injected into the Tnbs$_2$ HSU undergoes in-situ biotransformation to benign N_2 gas by anaerobic denitrifying bacteria.**

Acronyms and Abbreviations:

- = Not applicable
bgs = Below ground surface
CGSA = Central General Services Area
COCs = Contaminants of concern
DIS = Distal
DISS = Distal south
DSB = Distal site boundary
EGSA = Eastern General Services Area
ft = Feet
g = Grams
GWTS = Groundwater treatment system
HSU = Hydrostratigraphic unit
Kcf = Thousands of cubic feet
kg = Kilograms
Kgal = Thousands of gallons
Mcf = Millions of cubic feet
PRX = Proximal
PRXN = Proximal North
PTMW = Plume Tracking Monitor Well
RDX = Research Department Explosive
SRC = Source
SVTS = Soil vapor treatment system
TBOS = Tetra 2-ethylbutylorthosilicate
TKEBS = Tetrakis (2-ethylbutyl) silane
VOC = Volatile organic compound

Table 2.4-13. Building 815-Proximal mass removed, July 1, 2018 through December 31, 2018.

Treatment facility	Month	SVTS VOC mass removed (g)	GWTS VOC mass removed (g)	Perchlorate mass removed (g)	Nitrate mass removed (kg)	RDX mass removed (g)	TBOS/TKEBS mass removed (g)
815-PRX	July	-	6.6	1.4	27	0.54	-
	August	-	4.2	0.91	17	0.34	-
	September	-	4.9	1.1	20	0.40	-
	October	-	7.7	1.6	30	0.59	-
	November	-	6.7	1.4	26	0.52	-
	December	-	6.1	1.3	24	0.47	-
Total		-	36	7.6	140	2.9	-

Notes:
Nitrate re-injected into the Tnbs2 HSU undergoes in-situ biotransformation to benign N2 gas by anaerobic denitrifying bacteria

Acronyms and Abbreviations:

- = Not applicable
bgs = Below ground surface
CGSA = Central General Services Area
COCs = Contaminants of concern
DIS = Distal
DISS = Distal south
DSB = Distal site boundary
EGSA = Eastern General Services Area
ft = Feet
g = Grams
GWTS = Groundwater treatment system
HSU = Hydrostratigraphic unit
Kcf = Thousands of cubic feet
kg = Kilograms
Kgal = Thousands of gallons
Mcf = Millions of cubic feet
PRX = Proximal
PRXN = Proximal North
PTMW = Plume Tracking Monitor Well
RDX = Research Department Explosive
SRC = Source
SVTS = Soil vapor treatment system
TBOS = Tetra 2-ethylbutylorthosilicate
TKEBS = Tetrakis (2-ethylbutyl) silane
VOC = Volatile organic compound

Table 2.4-14. Building 815-Distal Site Boundary mass removed, July 1, 2018 through December 31, 2018.

Treatment facility	Month	SVTS VOC mass removed (g)	GWTS VOC mass removed (g)	Perchlorate mass removed (g)	Nitrate mass removed (kg)	RDX mass removed (g)	TBOS/TKEBS mass removed (g)
815-DSB	July	-	3.7	-	-	-	-
	August	-	3.2	-	-	-	-
	September	-	2.5	-	-	-	-
	October	-	0.63	-	-	-	-
	November	-	0.012	-	-	-	-
	December	-	1.6	-	-	-	-
Total		-	12	-	-	-	-

Acronyms and Abbreviations:

- = Not applicable
bgs = Below ground surface
CGSA = Central General Services Area
COCs = Contaminants of concern
DIS = Distal
DISS = Distal south
DSB = Distal site boundary
EGSA = Eastern General Services Area
ft = Feet
g = Grams
GWTS = Groundwater treatment system
HSU = Hydrostratigraphic unit
Kcf = Thousands of cubic feet
kg = Kilograms
Kgal = Thousands of gallons
Mcf = Millions of cubic feet
PRX = Proximal
PRXN = Proximal North
PTMW = Plume Tracking Monitor Well
RDX = Research Department Explosive
SRC = Source
SVTS = Soil vapor treatment system
TBOS = Tetra 2-ethylbutylorthosilicate
TKEBS = Tetrakis (2-ethylbutyl) silane
VOC = Volatile organic compound

Table 2.4-15. Building 817-Source mass removed, July 1, 2018 through December 31, 2018.

Treatment facility	Month	SVTS VOC mass removed (g)	GWTS VOC mass removed (g)	Perchlorate mass removed (g)	Nitrate mass removed (kg)	RDX mass removed (g)	TBOS/TKEBS mass removed (g)
817-SRC	July	-	0	0.014	0.054	0.023	-
	August	-	0	0	0	0	-
	September	-	0	0	0	0	-
	October	-	0	0	0	0	-
	November	-	0	0	0	0	-
	December	-	0	0	0	0	-
Total		-	0	0.014	0.054	0.023	-

Notes: * Nitrate re-injected into the Tnbs2 HSU undergoes in-situ biotransformation to benign N2 gas by anaerobic denitrifying bacteria.

Acronyms and Abbreviations:

- = Not applicable
bgs = Below ground surface
CGSA = Central General Services Area
COCs = Contaminants of concern
DIS = Distal
DISS = Distal south
DSB = Distal site boundary
EGSA = Eastern General Services Area
ft = Feet
g = Grams
GWTS = Groundwater treatment system
HSU = Hydrostratigraphic unit
Kcf = Thousands of cubic feet
kg = Kilograms
Kgal = Thousands of gallons
Mcf = Millions of cubic feet
PRX = Proximal
PRXN = Proximal North
PTMW = Plume Tracking Monitor Well
RDX = Research Department Explosive
SRC = Source
SVTS = Soil vapor treatment system
TBOS = Tetra 2-ethylbutylorthosilicate
TKEBS = Tetrakis (2-ethylbutyl) silane
VOC = Volatile organic compound

Table 2.4-16. Building 817-Proximal mass removed, July 1, 2018 through December 31, 2018.

Treatment facility	Month	SVTS VOC mass removed (g)	GWTS VOC mass removed (g)	Perchlorate mass removed (g)	Nitrate mass removed (kg)	RDX mass removed (g)	TBOS/TKEBS mass removed (g)
817-PRX	July	-	1.9	3.4	23	4.0	-
	August	-	1.6	3.0	21	3.6	-
	September	-	1.3	2.4	17	2.9	-
	October	-	2.0	3.3	23	4.0	-
	November	-	1.6	2.6	18	3.1	-
	December	-	1.2	2.0	13	2.4	-
Total		-	9.5	17	110	20	-

Notes: *Nitrate re-injected into the Tnbs2 HSU undergoes in-situ biotransformation to benign N2 gas by anaerobic denitrifying bacteria.

Acronyms and Abbreviations:

-	=	Not applicable
bgs	=	Below ground surface
CGSA	=	Central General Services Area
COCs	=	Contaminants of concern
DIS	=	Distal
DISS	=	Distal south
DSB	=	Distal site boundary
EGSA	=	Eastern General Services Area
ft	=	Feet
g	=	Grams
GWTS	=	Groundwater treatment system
HSU	=	Hydrostratigraphic unit
Kcf	=	Thousands of cubic feet
kg	=	Kilograms
Kgal	=	Thousands of gallons
Mcf	=	Millions of cubic feet
PRX	=	Proximal
PRXN	=	Proximal North
PTMW	=	Plume Tracking Monitor Well
RDX	=	Research Department Explosive
SRC	=	Source
SVTS	=	Soil vapor treatment system
TBOS	=	Tetra 2-ethylbutylorthosilicate
TKEBS	=	Tetrakis (2-ethylbutyl) silane
VOC	=	Volatile organic compound

Table 2.4-17. Building 829-Source mass removed, July 1, 2018 through December 31, 2018.

Treatment facility	Month	SVTS VOC mass removed (g)	GWTS VOC mass removed (g)	Perchlorate mass removed (g)	Nitrate mass removed (kg)	RDX mass removed (g)	TBOS/TKEBS mass removed (g)
829-SRC	July	-	0.010	0.0055	0.028	-	-
	August	-	0.0094	0.0050	0.026	-	-
	September	-	0.0083	0.0045	0.023	-	-
	October	-	0.0072	0.0044	0.019	-	-
	November	-	0.0034	0.0021	0.0091	-	-
	December	-	0	0	0	-	-
Total		-	0.038	0.021	0.10	-	-

Acronyms and Abbreviations:

- = Not applicable
bgs = Below ground surface
CGSA = Central General Services Area
COCs = Contaminants of concern
DIS = Distal
DISS = Distal south
DSB = Distal site boundary
EGSA = Eastern General Services Area
ft = Feet
g = Grams
GWTS = Groundwater treatment system
HSU = Hydrostratigraphic unit
Kcf = Thousands of cubic feet
kg = Kilograms
Kgal = Thousands of gallons
Mcf = Millions of cubic feet
PRX = Proximal
PRXN = Proximal North
PTMW = Plume Tracking Monitor Well
RDX = Research Department Explosive
SRC = Source
SVTS = Soil vapor treatment system
TBOS = Tetra 2-ethylbutylorthosilicate
TKEBS = Tetrakis (2-ethylbutyl) silane
VOC = Volatile organic compound

Table 2.5-1. Building 850 Area of Operable Unit 5 ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
K1-01C	DMW	Tnbs1-Tnbs0	Q	WGMG	AS:UISO	1	Y	
K1-01C	DMW	Tnbs1-Tnbs0	Q	WGMG	AS:UISO	2	Y	
K1-01C	DMW	Tnbs1-Tnbs0	Q	WGMG	AS:UISO	3	Y	
K1-01C	DMW	Tnbs1-Tnbs0	Q	WGMG	AS:UISO	4	Y	
K1-01C	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:NO3	1	Y	
K1-01C	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:NO3	2	Y	
K1-01C	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:NO3	3	Y	
K1-01C	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:NO3	4	Y	
K1-01C	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:PERC	1	Y	
K1-01C	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:PERC	2	Y	
K1-01C	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:PERC	3	Y	
K1-01C	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:PERC	4	Y	
K1-01C	DMW	Tnbs1-Tnbs0	Q	WGMG	E8260:ALL	1	Y	
K1-01C	DMW	Tnbs1-Tnbs0	Q	WGMG	E8260:ALL	2	Y	
K1-01C	DMW	Tnbs1-Tnbs0	Q	WGMG	E8260:ALL	3	Y	
K1-01C	DMW	Tnbs1-Tnbs0	Q	WGMG	E8260:ALL	4	Y	
K1-01C	DMW	Tnbs1-Tnbs0	Q	WGMG	E8330:R+H	1	Y	
K1-01C	DMW	Tnbs1-Tnbs0	Q	WGMG	E8330:R+H	2	Y	
K1-01C	DMW	Tnbs1-Tnbs0	Q	WGMG	E8330:R+H	3	Y	
K1-01C	DMW	Tnbs1-Tnbs0	Q	WGMG	E8330:R+H	4	Y	
K1-01C	DMW	Tnbs1-Tnbs0	Q	WGMG	E906:ALL	1	Y	
K1-01C	DMW	Tnbs1-Tnbs0	Q	WGMG	E906:ALL	2	Y	
K1-01C	DMW	Tnbs1-Tnbs0	Q	WGMG	E906:ALL	3	Y	
K1-01C	DMW	Tnbs1-Tnbs0	Q	WGMG	E906:ALL	4	Y	
K1-02B	DMW	Tnbs1-Tnbs0	Q	WGMG	AS:UISO	1	Y	
K1-02B	DMW	Tnbs1-Tnbs0	O	CMP	AS:UISO	1	N	To be sampled in 2019
K1-02B	DMW	Tnbs1-Tnbs0	Q	WGMG	AS:UISO	2	Y	
K1-02B	DMW	Tnbs1-Tnbs0	Q	WGMG	AS:UISO	3	N	Inoperable equipment
K1-02B	DMW	Tnbs1-Tnbs0	Q	WGMG	AS:UISO	4	N	Inoperable equipment
K1-02B	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:NO3	1	Y	
K1-02B	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:NO3	2	Y	
K1-02B	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:NO3	3	N	Inoperable equipment
K1-02B	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:NO3	4	N	Inoperable equipment
K1-02B	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:PERC	1	Y	
K1-02B	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:PERC	2	Y	
K1-02B	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:PERC	3	N	Inoperable equipment
K1-02B	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:PERC	4	N	Inoperable equipment
K1-02B	DMW	Tnbs1-Tnbs0	Q	WGMG	E8260:ALL	1	Y	
K1-02B	DMW	Tnbs1-Tnbs0	Q	WGMG	E8260:ALL	2	Y	
K1-02B	DMW	Tnbs1-Tnbs0	Q	WGMG	E8260:ALL	3	N	Inoperable equipment
K1-02B	DMW	Tnbs1-Tnbs0	Q	WGMG	E8260:ALL	4	N	Inoperable equipment
K1-02B	DMW	Tnbs1-Tnbs0	Q	WGMG	E8330:R+H	1	Y	
K1-02B	DMW	Tnbs1-Tnbs0	Q	WGMG	E8330:R+H	2	Y	
K1-02B	DMW	Tnbs1-Tnbs0	Q	WGMG	E8330:R+H	3	N	Inoperable equipment
K1-02B	DMW	Tnbs1-Tnbs0	Q	WGMG	E8330:R+H	4	N	Inoperable equipment

Table 2.5-1. Building 850 Area of Operable Unit 5 ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
K1-02B	DMW	Tnbs1-Tnbs0	Q	WGMG	E906:ALL	1	Y	
K1-02B	DMW	Tnbs1-Tnbs0	Q	WGMG	E906:ALL	2	Y	
K1-02B	DMW	Tnbs1-Tnbs0	Q	WGMG	E906:ALL	3	N	Inoperable equipment
K1-02B	DMW	Tnbs1-Tnbs0	Q	WGMG	E906:ALL	4	N	Inoperable equipment
K1-02B	DMW	Tnbs1-Tnbs0	Q	WGMG	MS:UISO	4	N	Inoperable equipment
K1-04	DMW	Tnbs1-Tnbs0	Q	WGMG	AS:UISO	1	Y	
K1-04	DMW	Tnbs1-Tnbs0	Q	WGMG	AS:UISO	2	Y	
K1-04	DMW	Tnbs1-Tnbs0	Q	WGMG	AS:UISO	3	Y	
K1-04	DMW	Tnbs1-Tnbs0	Q	WGMG	AS:UISO	4	Y	
K1-04	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:NO3	1	Y	
K1-04	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:NO3	2	Y	
K1-04	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:NO3	3	Y	
K1-04	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:NO3	4	Y	
K1-04	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:PERC	1	Y	
K1-04	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:PERC	2	Y	
K1-04	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:PERC	3	Y	
K1-04	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:PERC	4	Y	
K1-04	DMW	Tnbs1-Tnbs0	Q	WGMG	E8260:ALL	1	Y	
K1-04	DMW	Tnbs1-Tnbs0	Q	WGMG	E8260:ALL	2	Y	
K1-04	DMW	Tnbs1-Tnbs0	Q	WGMG	E8260:ALL	3	Y	
K1-04	DMW	Tnbs1-Tnbs0	Q	WGMG	E8260:ALL	4	Y	
K1-04	DMW	Tnbs1-Tnbs0	Q	WGMG	E8330:R+H	1	Y	
K1-04	DMW	Tnbs1-Tnbs0	Q	WGMG	E8330:R+H	2	Y	
K1-04	DMW	Tnbs1-Tnbs0	Q	WGMG	E8330:R+H	3	Y	
K1-04	DMW	Tnbs1-Tnbs0	Q	WGMG	E8330:R+H	4	Y	
K1-04	DMW	Tnbs1-Tnbs0	Q	WGMG	E906:ALL	1	Y	
K1-04	DMW	Tnbs1-Tnbs0	Q	WGMG	E906:ALL	2	Y	
K1-04	DMW	Tnbs1-Tnbs0	Q	WGMG	E906:ALL	3	Y	
K1-04	DMW	Tnbs1-Tnbs0	Q	WGMG	E906:ALL	4	Y	
K1-04	DMW	Tnbs1-Tnbs0	Q	WGMG	MS:UISO	4	Y	
K1-05	DMW	Tnbs1-Tnbs0	Q	WGMG	AS:UISO	1	Y	
K1-05	DMW	Tnbs1-Tnbs0	O	CMP	AS:UISO	1	N	To be sampled in 2019
K1-05	DMW	Tnbs1-Tnbs0	Q	WGMG	AS:UISO	2	Y	
K1-05	DMW	Tnbs1-Tnbs0	Q	WGMG	AS:UISO	3	Y	
K1-05	DMW	Tnbs1-Tnbs0	Q	WGMG	AS:UISO	4	Y	
K1-05	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:NO3	1	Y	
K1-05	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:NO3	2	Y	
K1-05	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:NO3	3	Y	
K1-05	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:NO3	4	Y	
K1-05	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:PERC	1	Y	
K1-05	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:PERC	2	Y	
K1-05	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:PERC	3	Y	
K1-05	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:PERC	4	Y	
K1-05	DMW	Tnbs1-Tnbs0	Q	WGMG	E8260:ALL	1	Y	
K1-05	DMW	Tnbs1-Tnbs0	Q	WGMG	E8260:ALL	2	Y	

Table 2.5-1. Building 850 Area of Operable Unit 5 ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
K1-05	DMW	Tnbs1-Tnbs0	Q	WGMG	E8260:ALL	3	Y	
K1-05	DMW	Tnbs1-Tnbs0	Q	WGMG	E8260:ALL	4	Y	
K1-05	DMW	Tnbs1-Tnbs0	Q	WGMG	E8330:R+H	1	Y	
K1-05	DMW	Tnbs1-Tnbs0	Q	WGMG	E8330:R+H	2	Y	
K1-05	DMW	Tnbs1-Tnbs0	Q	WGMG	E8330:R+H	3	Y	
K1-05	DMW	Tnbs1-Tnbs0	Q	WGMG	E8330:R+H	4	Y	
K1-05	DMW	Tnbs1-Tnbs0	Q	WGMG	E906:ALL	1	Y	
K1-05	DMW	Tnbs1-Tnbs0	Q	WGMG	E906:ALL	2	Y	
K1-05	DMW	Tnbs1-Tnbs0	Q	WGMG	E906:ALL	3	Y	
K1-05	DMW	Tnbs1-Tnbs0	Q	WGMG	E906:ALL	4	Y	
K1-05	DMW	Tnbs1-Tnbs0	Q	WGMG	MS:UISO	4	Y	
K1-06	PTMW	Tnbs1-Tnbs0	A	CMP	AS:UISO	2	Y	
K1-06	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:NO3	2	Y	
K1-06	PTMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:PERC	1	Y	
K1-06	PTMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:PERC	2	Y	
K1-06	PTMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:PERC	3	N	DRY
K1-06	PTMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:PERC	4	N	Insufficient water
K1-06	PTMW	Tnbs1-Tnbs0	Q	WGMG	E906:ALL	1	Y	
K1-06	PTMW	Tnbs1-Tnbs0	Q	WGMG	E906:ALL	2	Y	
K1-06	PTMW	Tnbs1-Tnbs0	Q	WGMG	E906:ALL	3	N	DRY
K1-06	PTMW	Tnbs1-Tnbs0	Q	WGMG	E906:ALL	4	N	Insufficient water
K1-07	DMW	Tnbs1-Tnbs0	Q	WGMG	AS:UISO	1	Y	
K1-07	DMW	Tnbs1-Tnbs0	Q	WGMG	AS:UISO	2	Y	
K1-07	DMW	Tnbs1-Tnbs0	Q	WGMG	AS:UISO	3	Y	
K1-07	DMW	Tnbs1-Tnbs0	Q	WGMG	AS:UISO	4	Y	
K1-07	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:NO3	1	Y	
K1-07	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:NO3	2	Y	
K1-07	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:NO3	3	Y	
K1-07	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:NO3	4	Y	
K1-07	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:PERC	1	Y	
K1-07	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:PERC	2	Y	
K1-07	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:PERC	3	Y	
K1-07	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:PERC	4	Y	
K1-07	DMW	Tnbs1-Tnbs0	Q	WGMG	E8260:ALL	1	Y	
K1-07	DMW	Tnbs1-Tnbs0	Q	WGMG	E8260:ALL	2	Y	
K1-07	DMW	Tnbs1-Tnbs0	Q	WGMG	E8260:ALL	3	Y	
K1-07	DMW	Tnbs1-Tnbs0	Q	WGMG	E8260:ALL	4	Y	
K1-07	DMW	Tnbs1-Tnbs0	Q	WGMG	E8330:R+H	1	Y	
K1-07	DMW	Tnbs1-Tnbs0	Q	WGMG	E8330:R+H	2	Y	
K1-07	DMW	Tnbs1-Tnbs0	Q	WGMG	E8330:R+H	3	Y	
K1-07	DMW	Tnbs1-Tnbs0	Q	WGMG	E8330:R+H	4	Y	
K1-07	DMW	Tnbs1-Tnbs0	Q	WGMG	E906:ALL	1	Y	
K1-07	DMW	Tnbs1-Tnbs0	Q	WGMG	E906:ALL	2	Y	
K1-07	DMW	Tnbs1-Tnbs0	Q	WGMG	E906:ALL	3	Y	
K1-07	DMW	Tnbs1-Tnbs0	Q	WGMG	E906:ALL	4	Y	

Table 2.5-1. Building 850 Area of Operable Unit 5 ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
K1-07	DMW	Tnbs1-Tnbs0	A	DIS	MS:UISO	2	Y	
K1-08	DMW	Tnbs1-Tnbs0	Q	WGMG	AS:UISO	1	Y	
K1-08	DMW	Tnbs1-Tnbs0	O	CMP	AS:UISO	1	N	To be sampled in 2019
K1-08	DMW	Tnbs1-Tnbs0	Q	WGMG	AS:UISO	2	Y	
K1-08	DMW	Tnbs1-Tnbs0	Q	WGMG	AS:UISO	3	Y	
K1-08	DMW	Tnbs1-Tnbs0	Q	WGMG	AS:UISO	4	Y	
K1-08	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:NO3	1	Y	
K1-08	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:NO3	2	Y	
K1-08	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:NO3	3	Y	
K1-08	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:NO3	4	Y	
K1-08	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:PERC	1	Y	
K1-08	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:PERC	2	Y	
K1-08	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:PERC	3	Y	
K1-08	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:PERC	4	Y	
K1-08	DMW	Tnbs1-Tnbs0	Q	WGMG	E8260:ALL	1	Y	
K1-08	DMW	Tnbs1-Tnbs0	Q	WGMG	E8260:ALL	2	Y	
K1-08	DMW	Tnbs1-Tnbs0	Q	WGMG	E8260:ALL	3	Y	
K1-08	DMW	Tnbs1-Tnbs0	Q	WGMG	E8260:ALL	4	Y	
K1-08	DMW	Tnbs1-Tnbs0	Q	WGMG	E8330:R+H	1	Y	
K1-08	DMW	Tnbs1-Tnbs0	Q	WGMG	E8330:R+H	2	Y	
K1-08	DMW	Tnbs1-Tnbs0	Q	WGMG	E8330:R+H	3	Y	
K1-08	DMW	Tnbs1-Tnbs0	Q	WGMG	E8330:R+H	4	Y	
K1-08	DMW	Tnbs1-Tnbs0	Q	WGMG	E906:ALL	1	Y	
K1-08	DMW	Tnbs1-Tnbs0	Q	WGMG	E906:ALL	2	Y	
K1-08	DMW	Tnbs1-Tnbs0	Q	WGMG	E906:ALL	3	Y	
K1-08	DMW	Tnbs1-Tnbs0	Q	WGMG	E906:ALL	4	Y	
K1-09	DMW	Tnbs1-Tnbs0	Q	WGMG	AS:UISO	1	Y	
K1-09	DMW	Tnbs1-Tnbs0	Q	WGMG	AS:UISO	2	Y	
K1-09	DMW	Tnbs1-Tnbs0	Q	WGMG	AS:UISO	3	Y	
K1-09	DMW	Tnbs1-Tnbs0	Q	WGMG	AS:UISO	4	Y	
K1-09	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:NO3	1	Y	
K1-09	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:NO3	2	Y	
K1-09	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:NO3	3	Y	
K1-09	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:NO3	4	Y	
K1-09	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:PERC	1	Y	
K1-09	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:PERC	2	Y	
K1-09	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:PERC	3	Y	
K1-09	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:PERC	4	Y	
K1-09	DMW	Tnbs1-Tnbs0	Q	WGMG	E8260:ALL	1	Y	
K1-09	DMW	Tnbs1-Tnbs0	Q	WGMG	E8260:ALL	2	Y	
K1-09	DMW	Tnbs1-Tnbs0	Q	WGMG	E8260:ALL	3	Y	
K1-09	DMW	Tnbs1-Tnbs0	Q	WGMG	E8260:ALL	4	Y	
K1-09	DMW	Tnbs1-Tnbs0	Q	WGMG	E8330:R+H	1	Y	
K1-09	DMW	Tnbs1-Tnbs0	Q	WGMG	E8330:R+H	2	Y	
K1-09	DMW	Tnbs1-Tnbs0	Q	WGMG	E8330:R+H	3	Y	

Table 2.5-1. Building 850 Area of Operable Unit 5 ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
K1-09	DMW	Tnbs1-Tnbs0	Q	WGMG	E8330:R+H	4	Y	
K1-09	DMW	Tnbs1-Tnbs0	Q	WGMG	E906:ALL	1	Y	
K1-09	DMW	Tnbs1-Tnbs0	Q	WGMG	E906:ALL	2	Y	
K1-09	DMW	Tnbs1-Tnbs0	Q	WGMG	E906:ALL	3	Y	
K1-09	DMW	Tnbs1-Tnbs0	Q	WGMG	E906:ALL	4	Y	
K2-03	PTMW	Tnbs1-Tnbs0	A	CMP	AS:UISO	2	Y	
K2-03	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:NO3	2	Y	
K2-03	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	2	Y	
K2-03	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	4	Y	
K2-03	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	Y	
K2-03	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	Y	
K2-04S	PTMW	Qal/WBR	E	CMP	AS:UISO	2	Y	
K2-04S	PTMW	Qal/WBR	O	CMP	E300.0:NO3	2	N	To be sampled in 2019
K2-04S	PTMW	Qal/WBR	A	WGMG	E300.0:PERC	2	Y	
K2-04S	PTMW	Qal/WBR	S	CMP	E300.0:PERC	4	Y	
K2-04S	PTMW	Qal/WBR	S	CMP	E906:ALL	2	Y	
K2-04S	PTMW	Qal/WBR	S	CMP	E906:ALL	4	Y	
NC2-05	PTMW	Tnbs1-Tnbs0	A	CMP	AS:UISO	2	Y	
NC2-05	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:NO3	2	Y	
NC2-05	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	2	Y	
NC2-05	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	4	Y	
NC2-05	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	Y	
NC2-05	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	Y	
NC2-05A	PTMW	Tnbs1-Tnbs0	A	CMP	AS:UISO	2	Y	
NC2-05A	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:NO3	2	Y	
NC2-05A	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	2	Y	
NC2-05A	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	4	Y	
NC2-05A	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	Y	
NC2-05A	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	Y	
NC2-06	PTMW	Tnbs1-Tnbs0	A	CMP	AS:UISO	2	Y	
NC2-06	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:NO3	2	Y	
NC2-06	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	2	Y	
NC2-06	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	4	Y	
NC2-06	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	Y	
NC2-06	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	Y	
NC2-06A	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:NO3	2	Y	
NC2-06A	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	2	Y	
NC2-06A	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	4	Y	
NC2-06A	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	Y	
NC2-06A	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	Y	
NC2-06A	PTMW	Tnbs1-Tnbs0	A	CMP	MS:UISO	2	Y	
NC2-09	PTMW	Tnbs1-Tnbs0	A	CMP	AS:UISO	2	Y	
NC2-09	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:NO3	2	Y	
NC2-09	PTMW	Tnbs1-Tnbs0	A	DIS	E300.0:PERC	2	Y	
NC2-09	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	Y	

Table 2.5-1. Building 850 Area of Operable Unit 5 ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
NC2-09	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	Y	
NC2-10	PTMW	Tnbs1-Tnbs0	A	CMP	AS:UISO	2	Y	
NC2-10	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:NO3	2	Y	
NC2-10	PTMW	Tnbs1-Tnbs0	A	DIS	E300.0:PERC	2	Y	
NC2-10	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	Y	
NC2-10	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	Y	
NC2-11D	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:NO3	2	Y	
NC2-11D	PTMW	Tnbs1-Tnbs0	S	WGMG	E300.0:PERC	2	Y	
NC2-11D	PTMW	Tnbs1-Tnbs0	S	WGMG	E300.0:PERC	4	Y	
NC2-11D	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	Y	
NC2-11D	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	Y	
NC2-11D	PTMW	Tnbs1-Tnbs0	A	CMP	MS:UISO	2	Y	
NC2-11I	PTMW	Tnbs1-Tnbs0	A	CMP	AS:UISO	2	Y	
NC2-11I	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:NO3	2	Y	
NC2-11I	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	2	Y	
NC2-11I	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	4	Y	
NC2-11I	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	Y	
NC2-11I	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	Y	
NC2-11S	PTMW	Tnbs1-Tnbs0	A	CMP	AS:UISO	2	Y	
NC2-11S	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:NO3	2	Y	
NC2-11S	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	2	Y	
NC2-11S	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	4	Y	
NC2-11S	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	Y	
NC2-11S	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	Y	
NC2-12D	PTMW	Tnbs1-Tnbs0	A	CMP	AS:UISO	2	Y	
NC2-12D	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:NO3	2	Y	
NC2-12D	PTMW	Tnbs1-Tnbs0	A	WGMG	E300.0:PERC	2	Y	
NC2-12D	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	4	Y	
NC2-12D	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	Y	
NC2-12D	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	Y	
NC2-12I	PTMW	Tnbs1-Tnbs0	A	CMP	AS:UISO	2	Y	
NC2-12I	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:NO3	2	Y	
NC2-12I	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	2	Y	
NC2-12I	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	4	Y	
NC2-12I	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	Y	
NC2-12I	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	Y	
NC2-12S	PTMW	Tnbs1-Tnbs0	A	CMP	AS:UISO	2	Y	
NC2-12S	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:NO3	2	Y	
NC2-12S	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	2	Y	
NC2-12S	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	4	Y	
NC2-12S	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	Y	
NC2-12S	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	Y	
NC2-13	PTMW	Tnbs1-Tnbs0	A	CMP	AS:UISO	2	Y	
NC2-13	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:NO3	2	Y	
NC2-13	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	2	Y	

Table 2.5-1. Building 850 Area of Operable Unit 5 ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
NC2-13	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	4	Y	
NC2-13	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	Y	
NC2-13	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	Y	
NC2-14S	PTMW	Qal/WBR	O	CMP	AS:UISO	2	N	To be sampled in 2019
NC2-14S	PTMW	Qal/WBR	O	CMP	E300.0:NO3	2	N	To be sampled in 2019
NC2-14S	PTMW	Qal/WBR	S	CMP	E300.0:PERC	1	Y	
NC2-14S	PTMW	Qal/WBR	S	CMP	E300.0:PERC	3	Y	
NC2-14S	PTMW	Qal/WBR	S	CMP	E906:ALL	2	Y	
NC2-14S	PTMW	Qal/WBR	S	CMP	E906:ALL	4	Y	
NC2-15	PTMW	Tnbs1-Tnbs0	A	CMP	AS:UISO	2	Y	
NC2-15	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:NO3	2	Y	
NC2-15	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	2	Y	
NC2-15	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	4	Y	
NC2-15	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	Y	
NC2-15	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	Y	
NC2-16	PTMW	Tnbs1-Tnbs0	E	CMP	AS:UISO	2	Y	
NC2-16	PTMW	Tnbs1-Tnbs0	O	CMP	E300.0:NO3	2	N	To be sampled in 2019
NC2-16	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	1	Y	
NC2-16	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	3	Y	
NC2-16	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	Y	
NC2-16	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	Y	
NC2-17	PTMW	Tnbs1-Tnbs0	A	CMP	AS:UISO	2	Y	
NC2-17	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:NO3	2	Y	
NC2-17	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	2	Y	
NC2-17	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	4	Y	
NC2-17	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	Y	
NC2-17	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	Y	
NC2-18	PTMW	Tnbs1-Tnbs0	S	CMP	AS:UISO	2	Y	
NC2-18	PTMW	Tnbs1-Tnbs0	S	CMP	AS:UISO	4	Y	
NC2-18	PTMW	Tnbs1-Tnbs0	O	CMP	E300.0:NO3	2	N	To be sampled in 2019
NC2-18	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	2	Y	
NC2-18	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	4	Y	
NC2-18	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	Y	
NC2-18	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	Y	
NC2-19	PTMW	Tnbs1-Tnbs0	E	CMP	AS:UISO	2	Y	
NC2-19	PTMW	Tnbs1-Tnbs0	O	CMP	E300.0:NO3	2	N	To be sampled in 2019
NC2-19	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	2	Y	
NC2-19	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	4	Y	
NC2-19	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	Y	
NC2-19	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	Y	
NC2-20	PTMW	Tnbs1-Tnbs0	O	CMP	AS:UISO	2	N	To be sampled in 2019
NC2-20	PTMW	Tnbs1-Tnbs0	E	CMP	E300.0:NO3	2	Y	
NC2-20	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:PERC	2	Y	
NC2-20	PTMW	Tnbs1-Tnbs0	A	CMP	E906:ALL	2	Y	
NC2-21	PTMW	Tnbs1-Tnbs0	E	CMP	AS:UISO	2	Y	

Table 2.5-1. Building 850 Area of Operable Unit 5 ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
NC2-21	PTMW	Tnbs1-Tnbs0	O	CMP	E300.0:NO3	2	N	To be sampled in 2019
NC2-21	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:PERC	2	Y	
NC2-21	PTMW	Tnbs1-Tnbs0	A	CMP	E906:ALL	2	Y	
NC7-10	PTMW	Qal/WBR	A	CMP	E300.0:NO3	2	Y	
NC7-10	PTMW	Qal/WBR	S	DIS	E300.0:PERC	1	Y	
NC7-10	PTMW	Qal/WBR	S	DIS	E300.0:PERC	3	Y	
NC7-10	PTMW	Qal/WBR	S	DIS	E8330LOW:ALL	2	Y	
NC7-10	PTMW	Qal/WBR	S	DIS	E8330LOW:ALL	4	Y	
NC7-10	PTMW	Qal/WBR	S	CMP	E906:ALL	2	Y	
NC7-10	PTMW	Qal/WBR	S	CMP	E906:ALL	4	Y	
NC7-10	PTMW	Qal/WBR	A	CMP	MS:UISO	2	Y	
NC7-11	PTMW	Qal/WBR	A	CMP	AS:UISO	2	N	Insufficient water
NC7-11	PTMW	Qal/WBR	A	CMP	E300.0:NO3	2	N	Insufficient water
NC7-11	PTMW	Qal/WBR	S	CMP	E300.0:PERC	2	N	Insufficient water
NC7-11	PTMW	Qal/WBR	S	CMP	E300.0:PERC	4	Y	
NC7-11	PTMW	Qal/WBR	S	DIS	E8330LOW:ALL	4	Y	
NC7-11	PTMW	Qal/WBR	S	CMP	E906:ALL	2	N	Insufficient water
NC7-11	PTMW	Qal/WBR	S	CMP	E906:ALL	4	Y	
NC7-14	PTMW	Qal/WBR	A	CMP	AS:UISO	2	N	Insufficient water
NC7-14	PTMW	Qal/WBR	A	CMP	E300.0:NO3	2	N	Insufficient water
NC7-14	PTMW	Qal/WBR	S	CMP	E300.0:PERC	2	N	Insufficient water
NC7-14	PTMW	Qal/WBR	S	CMP	E300.0:PERC	4	N	DRY
NC7-14	PTMW	Qal/WBR	S	CMP	E906:ALL	2	N	Insufficient water
NC7-14	PTMW	Qal/WBR	S	CMP	E906:ALL	4	N	DRY
NC7-15	PTMW	Qal/WBR	O	CMP	AS:UISO	2	N	To be sampled in 2019
NC7-15	PTMW	Qal/WBR	E	CMP	E300.0:NO3	2	N	No access to well location
NC7-15	PTMW	Qal/WBR	A	CMP	E300.0:PERC	2	N	No access to well location
NC7-15	PTMW	Qal/WBR	S	DIS	E8330LOW:ALL	4	Y	
NC7-15	PTMW	Qal/WBR	S	CMP	E906:ALL	2	N	No access to well location
NC7-15	PTMW	Qal/WBR	S	CMP	E906:ALL	4	Y	
NC7-19	PTMW	Qal/WBR	E	CMP	AS:UISO	2	Y	
NC7-19	PTMW	Qal/WBR	A	CMP	E300.0:NO3	2	Y	
NC7-19	PTMW	Qal/WBR	S	CMP	E300.0:PERC	2	Y	
NC7-19	PTMW	Qal/WBR	S	CMP	E300.0:PERC	4	Y	
NC7-19	PTMW	Qal/WBR	S	DIS	E8330LOW:ALL	2	Y	
NC7-19	PTMW	Qal/WBR	S	DIS	E8330LOW:ALL	4	Y	
NC7-19	PTMW	Qal/WBR	S	CMP	E906:ALL	2	Y	
NC7-19	PTMW	Qal/WBR	S	CMP	E906:ALL	4	Y	
NC7-27	PTMW	Tnbs1-Tnbs0	A	CMP	AS:UISO	2	Y	
NC7-27	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:NO3	2	Y	
NC7-27	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	2	Y	
NC7-27	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	4	Y	
NC7-27	PTMW	Tnbs1-Tnbs0	S	DIS	E8330LOW:ALL	2	Y	
NC7-27	PTMW	Tnbs1-Tnbs0	S	DIS	E8330LOW:ALL	4	Y	
NC7-27	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	Y	

Table 2.5-1. Building 850 Area of Operable Unit 5 ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
NC7-27	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	Y	
NC7-28	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:NO3	2	Y	
NC7-28	PTMW	Tnbs1-Tnbs0	A	DIS	E300.0:NO3	4	Y	
NC7-28	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	2	Y	
NC7-28	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	4	Y	
NC7-28	PTMW	Tnbs1-Tnbs0	E	DIS	E8082A:ALL	2	Y	
NC7-28	PTMW	Tnbs1-Tnbs0	S	DIS	E8330LOW:ALL	2	Y	
NC7-28	PTMW	Tnbs1-Tnbs0	S	DIS	E8330LOW:ALL	4	Y	
NC7-28	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	Y	
NC7-28	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	Y	
NC7-28	PTMW	Tnbs1-Tnbs0	A	CMP	MS:UISO	2	Y	
NC7-28	PTMW	Tnbs1-Tnbs0	A	DIS	MS:UISO	4	Y	
NC7-29	PTMW	Tnbs1-Tnbs0	A	CMP	AS:UISO	2	Y	
NC7-29	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:NO3	2	Y	
NC7-29	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	2	Y	
NC7-29	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	4	Y	
NC7-29	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	Y	
NC7-29	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	Y	
NC7-29	PTMW	Tnbs1-Tnbs0	A	DIS	MS:UISO	4	Y	
NC7-43	PTMW	Tnbs1-Tnbs0	A	CMP	AS:UISO	2	Y	
NC7-43	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:NO3	2	Y	
NC7-43	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	2	Y	
NC7-43	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	4	Y	
NC7-43	PTMW	Tnbs1-Tnbs0	S	DIS	E8330LOW:ALL	2	Y	
NC7-43	PTMW	Tnbs1-Tnbs0	S	DIS	E8330LOW:ALL	4	Y	
NC7-43	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	Y	
NC7-43	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	Y	
NC7-44	PTMW	Tnbs1-Tnbs0	A	CMP	AS:UISO	2	Y	
NC7-44	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:NO3	2	Y	
NC7-44	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	2	Y	
NC7-44	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	4	Y	
NC7-44	PTMW	Tnbs1-Tnbs0	E	DIS	E8082A:ALL	2	Y	
NC7-44	PTMW	Tnbs1-Tnbs0	S	DIS	E8330LOW:ALL	2	Y	
NC7-44	PTMW	Tnbs1-Tnbs0	S	DIS	E8330LOW:ALL	4	Y	
NC7-44	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	Y	
NC7-44	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	Y	
NC7-46	PTMW	Qal/WBR	O	CMP	AS:UISO	2	N	To be sampled in 2019
NC7-46	PTMW	Qal/WBR	O	CMP	E300.0:NO3	2	N	To be sampled in 2019
NC7-46	PTMW	Qal/WBR	A	CMP	E300.0:PERC	2	Y	
NC7-46	PTMW	Qal/WBR	A	CMP	E906:ALL	2	Y	
NC7-54	PTMW	Qal/WBR	A	CMP	E300.0:NO3	2	N	DRY
NC7-54	PTMW	Qal/WBR	S	CMP	E300.0:PERC	2	N	DRY
NC7-54	PTMW	Qal/WBR	S	CMP	E300.0:PERC	4	N	DRY
NC7-54	PTMW	Qal/WBR	S	CMP	E906:ALL	2	N	DRY
NC7-54	PTMW	Qal/WBR	S	CMP	E906:ALL	4	N	DRY

Table 2.5-1. Building 850 Area of Operable Unit 5 ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
NC7-55	PTMW	Qal/WBR	A	CMP	AS:UISO	2	N	DRY
NC7-55	PTMW	Qal/WBR	O	CMP	E300.0:NO3	2	N	To be sampled in 2019
NC7-55	PTMW	Qal/WBR	S	CMP	E300.0:PERC	2	N	DRY
NC7-55	PTMW	Qal/WBR	S	CMP	E300.0:PERC	4	N	DRY
NC7-55	PTMW	Qal/WBR	S	CMP	E906:ALL	2	N	DRY
NC7-55	PTMW	Qal/WBR	S	CMP	E906:ALL	4	N	DRY
NC7-56	PTMW	Qal/WBR	O	CMP	AS:UISO	2	N	To be sampled in 2019
NC7-56	PTMW	Qal/WBR	E	CMP	E300.0:NO3	2	Y	
NC7-56	PTMW	Qal/WBR	S	CMP	E300.0:PERC	2	Y	
NC7-56	PTMW	Qal/WBR	S	CMP	E300.0:PERC	4	Y	
NC7-56	PTMW	Qal/WBR	S	DIS	E8330LOW:ALL	2	Y	
NC7-56	PTMW	Qal/WBR	S	DIS	E8330LOW:ALL	4	Y	
NC7-56	PTMW	Qal/WBR	S	CMP	E906:ALL	2	Y	
NC7-56	PTMW	Qal/WBR	S	CMP	E906:ALL	4	Y	
NC7-57	PTMW	Qal/WBR	O	CMP	AS:UISO	2	N	To be sampled in 2019
NC7-57	PTMW	Qal/WBR	E	CMP	E300.0:NO3	2	N	DRY
NC7-57	PTMW	Qal/WBR	S	CMP	E300.0:PERC	2	N	DRY
NC7-57	PTMW	Qal/WBR	S	CMP	E300.0:PERC	4	N	DRY
NC7-57	PTMW	Qal/WBR	S	CMP	E906:ALL	2	N	DRY
NC7-57	PTMW	Qal/WBR	S	CMP	E906:ALL	4	N	DRY
NC7-58	PTMW	Qal/WBR	E	CMP	AS:UISO	2	Y	
NC7-58	PTMW	Qal/WBR	O	CMP	E300.0:NO3	2	N	To be sampled in 2019
NC7-58	PTMW	Qal/WBR	S	CMP	E300.0:PERC	2	Y	
NC7-58	PTMW	Qal/WBR	S	CMP	E300.0:PERC	4	Y	
NC7-58	PTMW	Qal/WBR	S	CMP	E906:ALL	2	Y	
NC7-58	PTMW	Qal/WBR	S	CMP	E906:ALL	4	Y	
NC7-59	PTMW	Qal/WBR	O	CMP	AS:UISO	2	N	To be sampled in 2019
NC7-59	PTMW	Qal/WBR	E	CMP	E300.0:NO3	2	Y	
NC7-59	PTMW	Qal/WBR	S	CMP	E300.0:PERC	2	Y	
NC7-59	PTMW	Qal/WBR	S	CMP	E300.0:PERC	4	Y	
NC7-59	PTMW	Qal/WBR	S	CMP	E906:ALL	2	Y	
NC7-59	PTMW	Qal/WBR	S	CMP	E906:ALL	4	Y	
NC7-60	PTMW	Tnsc0	E	CMP	AS:UISO	2	Y	
NC7-60	PTMW	Tnsc0	A	CMP	E300.0:NO3	2	Y	
NC7-60	PTMW	Tnsc0	S	CMP	E300.0:PERC	1	Y	
NC7-60	PTMW	Tnsc0	S	CMP	E300.0:PERC	3	Y	
NC7-60	PTMW	Tnsc0	S	DIS	E8330LOW:ALL	2	Y	
NC7-60	PTMW	Tnsc0	S	DIS	E8330LOW:ALL	4	Y	
NC7-60	PTMW	Tnsc0	S	CMP	E906:ALL	2	Y	
NC7-60	PTMW	Tnsc0	S	CMP	E906:ALL	4	Y	
NC7-61	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:NO3	2	N	Inadvertently missed and to be sampled in 2019
NC7-61	PTMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:PERC	1	Y	
NC7-61	PTMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:PERC	2	Y	
NC7-61	PTMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:PERC	3	Y	
NC7-61	PTMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:PERC	4	Y	

Table 2.5-1. Building 850 Area of Operable Unit 5 ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
NC7-61	PTMW	Tnbs1-Tnbs0	S	DIS	E8330LOW:ALL	2	Y	
NC7-61	PTMW	Tnbs1-Tnbs0	S	DIS	E8330LOW:ALL	4	Y	
NC7-61	PTMW	Tnbs1-Tnbs0	S	WGMG	E906:ALL	2	Y	
NC7-61	PTMW	Tnbs1-Tnbs0	S	WGMG	E906:ALL	4	Y	
NC7-61	PTMW	Tnbs1-Tnbs0	A	CMP	MS:UISO	2	Y	
NC7-62	PTMW	Qal/WBR	E	CMP	AS:UISO	2	Y	
NC7-62	PTMW	Qal/WBR	O	CMP	E300.0:NO3	2	N	To be sampled in 2019
NC7-62	PTMW	Qal/WBR	S	CMP	E300.0:PERC	2	Y	
NC7-62	PTMW	Qal/WBR	S	CMP	E300.0:PERC	4	Y	
NC7-62	PTMW	Qal/WBR	S	CMP	E906:ALL	2	Y	
NC7-62	PTMW	Qal/WBR	S	CMP	E906:ALL	4	Y	
NC7-69	PTMW	Tmss	A	CMP	AS:UISO	2	Y	
NC7-69	PTMW	Tmss	A	CMP	E300.0:NO3	2	Y	
NC7-69	PTMW	Tmss	S	CMP	E300.0:PERC	2	Y	
NC7-69	PTMW	Tmss	S	CMP	E300.0:PERC	4	Y	
NC7-69	PTMW	Tmss	S	DIS	E8330LOW:ALL	2	Y	
NC7-69	PTMW	Tmss	S	DIS	E8330LOW:ALL	4	Y	
NC7-69	PTMW	Tmss	S	CMP	E906:ALL	2	Y	
NC7-69	PTMW	Tmss	S	CMP	E906:ALL	4	Y	
NC7-70	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:NO3	2	Y	
NC7-70	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	2	Y	
NC7-70	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	4	Y	
NC7-70	PTMW	Tnbs1-Tnbs0	S	DIS	E8330LOW:ALL	2	Y	
NC7-70	PTMW	Tnbs1-Tnbs0	S	DIS	E8330LOW:ALL	4	Y	
NC7-70	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	Y	
NC7-70	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	Y	
NC7-70	PTMW	Tnbs1-Tnbs0	A	CMP	MS:UISO	2	Y	
NC7-70	PTMW	Tnbs1-Tnbs0	A	DIS	MS:UISO	4	Y	
NC7-71	PTMW	Qal/WBR	A	CMP	E300.0:NO3	2	Y	
NC7-71	PTMW	Qal/WBR	S	CMP	E300.0:PERC	2	Y	
NC7-71	PTMW	Qal/WBR	S	CMP	E300.0:PERC	4	Y	
NC7-71	PTMW	Qal/WBR	S	DIS	E8330LOW:ALL	2	Y	
NC7-71	PTMW	Qal/WBR	S	DIS	E8330LOW:ALL	4	Y	
NC7-71	PTMW	Qal/WBR	S	CMP	E906:ALL	2	Y	
NC7-71	PTMW	Qal/WBR	S	CMP	E906:ALL	4	Y	
NC7-71	PTMW	Qal/WBR	A	CMP	MS:UISO	2	Y	
NC7-71	PTMW	Qal/WBR	A	DIS	MS:UISO	4	Y	
NC7-72	PTMW	Qal/WBR	E	CMP	AS:UISO	2	Y	
NC7-72	PTMW	Qal/WBR	O	CMP	E300.0:NO3	2	N	To be sampled in 2019
NC7-72	PTMW	Qal/WBR	S	CMP	E300.0:PERC	2	Y	
NC7-72	PTMW	Qal/WBR	S	CMP	E300.0:PERC	4	Y	
NC7-72	PTMW	Qal/WBR	S	DIS	E8330LOW:ALL	2	Y	
NC7-72	PTMW	Qal/WBR	S	DIS	E8330LOW:ALL	4	Y	
NC7-72	PTMW	Qal/WBR	S	CMP	E906:ALL	2	Y	
NC7-72	PTMW	Qal/WBR	S	CMP	E906:ALL	4	Y	

Table 2.5-1. Building 850 Area of Operable Unit 5 ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
NC7-73	PTMW	Qal/WBR	A	CMP	AS:UISO	2	Y	
NC7-73	PTMW	Qal/WBR	E	CMP	E300.0:NO3	2	Y	
NC7-73	PTMW	Qal/WBR	S	CMP	E300.0:PERC	2	Y	
NC7-73	PTMW	Qal/WBR	S	CMP	E300.0:PERC	4	Y	
NC7-73	PTMW	Qal/WBR	S	DIS	E8330LOW:ALL	2	Y	
NC7-73	PTMW	Qal/WBR	S	DIS	E8330LOW:ALL	4	Y	
NC7-73	PTMW	Qal/WBR	S	CMP	E906:ALL	2	Y	
NC7-73	PTMW	Qal/WBR	S	CMP	E906:ALL	4	Y	
SPRING24	SPR	Tnbs1-Tnbs0	E	CMP	AS:UISO	2	N	DRY
SPRING24	SPR	Tnbs1-Tnbs0	O	CMP	E300.0:NO3	2	N	To be sampled in 2019
SPRING24	SPR	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	2	N	DRY
SPRING24	SPR	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	4	N	DRY
SPRING24	SPR	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	N	DRY
SPRING24	SPR	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	N	DRY
W-850-05	PTMW	Qal/WBR	A	CMP	AS:UISO	2	Y	
W-850-05	PTMW	Qal/WBR	A	CMP	E300.0:NO3	2	Y	
W-850-05	PTMW	Qal/WBR	S	CMP	E300.0:PERC	2	Y	
W-850-05	PTMW	Qal/WBR	S	CMP	E300.0:PERC	4	Y	
W-850-05	PTMW	Qal/WBR	S	DIS	E8330LOW:ALL	2	Y	
W-850-05	PTMW	Qal/WBR	S	DIS	E8330LOW:ALL	4	Y	
W-850-05	PTMW	Qal/WBR	S	CMP	E906:ALL	2	Y	
W-850-05	PTMW	Qal/WBR	S	CMP	E906:ALL	4	Y	
W-850-05	PTMW	Qal/WBR	A	DIS	MS:UISO	4	Y	
W-850-2145	PTMW	Tnbs1-Tnbs0	E	CMP	AS:UISO	2	Y	
W-850-2145	PTMW	Tnbs1-Tnbs0	O	CMP	E300.0:NO3	2	N	To be sampled in 2019
W-850-2145	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	2	Y	
W-850-2145	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	4	Y	
W-850-2145	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	Y	
W-850-2145	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	Y	
W-850-2312	PTMW	Tnbs1-Tnbs0	E	CMP	AS:UISO	2	Y	
W-850-2312	PTMW	Tnbs1-Tnbs0	E	CMP	E300.0:NO3	2	Y	
W-850-2312	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	2	Y	
W-850-2312	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	4	Y	
W-850-2312	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	Y	
W-850-2312	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	Y	
W-850-2313	PTMW	Qal/WBR	A	CMP	AS:UISO	2	Y	
W-850-2313	PTMW	Qal/WBR	E	CMP	E300.0:NO3	2	Y	
W-850-2313	PTMW	Qal/WBR	S	CMP	E300.0:PERC	2	Y	
W-850-2313	PTMW	Qal/WBR	S	CMP	E300.0:PERC	4	Y	
W-850-2313	PTMW	Qal/WBR	S	DIS	E8330LOW:ALL	2	Y	
W-850-2313	PTMW	Qal/WBR	S	DIS	E8330LOW:ALL	4	Y	
W-850-2313	PTMW	Qal/WBR	S	CMP	E906:ALL	2	Y	
W-850-2313	PTMW	Qal/WBR	S	CMP	E906:ALL	4	Y	
W-850-2313	PTMW	Qal/WBR	A	DIS	MS:UISO	2	Y	
W-850-2314	PTMW	Tnbs1-Tnbs0	O	CMP	AS:UISO	2	N	To be sampled in 2019

Table 2.5-1. Building 850 Area of Operable Unit 5 ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-850-2314	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:NO3	2	Y	
W-850-2314	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	2	Y	
W-850-2314	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	4	Y	
W-850-2314	PTMW	Tnbs1-Tnbs0	S	DIS	E8330LOW:ALL	2	Y	
W-850-2314	PTMW	Tnbs1-Tnbs0	S	DIS	E8330LOW:ALL	4	Y	
W-850-2314	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	Y	
W-850-2314	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	Y	
W-850-2315	PTMW	Tnbs1-Tnbs0	A	CMP	AS:UISO	2	Y	
W-850-2315	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:NO3	2	Y	
W-850-2315	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	2	Y	
W-850-2315	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	4	Y	
W-850-2315	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	Y	
W-850-2315	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	Y	
W-850-2315	PTMW	Tnbs1-Tnbs0	A	DIS	MS:UISO	4	Y	
W-850-2316	PTMW	Tnbs1-Tnbs0	O	CMP	AS:UISO	2	N	To be sampled in 2019
W-850-2316	PTMW	Tnbs1-Tnbs0	E	CMP	E300.0:NO3	2	Y	
W-850-2316	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	2	Y	
W-850-2316	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	4	Y	
W-850-2316	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	Y	
W-850-2316	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	Y	
W-850-2416	PTMW	Tnsc0	A	CMP	E300.0:NO3	2	Y	
W-850-2416	PTMW	Tnsc0	S	CMP	E300.0:PERC	2	Y	
W-850-2416	PTMW	Tnsc0	S	CMP	E300.0:PERC	4	Y	
W-850-2416	PTMW	Tnsc0	S	DIS	E8330LOW:ALL	2	Y	
W-850-2416	PTMW	Tnsc0	S	DIS	E8330LOW:ALL	4	Y	
W-850-2416	PTMW	Tnsc0	S	CMP	E906:ALL	2	Y	
W-850-2416	PTMW	Tnsc0	S	CMP	E906:ALL	4	Y	
W-850-2416	PTMW	Tnsc0	A	CMP	MS:UISO	2	Y	
W-850-2416	PTMW	Tnsc0	A	DIS	MS:UISO	4	Y	
W-850-2417	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:NO3	2	Y	
W-850-2417	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	2	Y	
W-850-2417	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	4	Y	
W-850-2417	PTMW	Tnbs1-Tnbs0	S	DIS	E8330LOW:ALL	2	Y	
W-850-2417	PTMW	Tnbs1-Tnbs0	S	DIS	E8330LOW:ALL	4	Y	
W-850-2417	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	Y	
W-850-2417	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	Y	
W-850-2417	PTMW	Tnbs1-Tnbs0	A	DIS	MS:UISO	2	Y	
W-850-2805	PTMW	Tnbs1/Tnbs0	A	CMP	AS:UISO	2	Y	
W-850-2805	PTMW	Tnbs1/Tnbs0	A	CMP	E300.0:NO3	2	Y	
W-850-2805	PTMW	Tnbs1/Tnbs0	S	CMP	E300.0:PERC	2	Y	
W-850-2805	PTMW	Tnbs1/Tnbs0	S	CMP	E300.0:PERC	4	Y	
W-850-2805	PTMW	Tnbs1/Tnbs0	S	CMP	E906:ALL	2	Y	
W-850-2805	PTMW	Tnbs1/Tnbs0	S	CMP	E906:ALL	4	Y	
W-865-02	PTMW	Tnbs1-Tnbs0	S	DIS	E300.0:NO3	1	Y	
W-865-02	PTMW	Tnbs1-Tnbs0	S	DIS	E300.0:NO3	3	Y	

Table 2.5-1. Building 850 Area of Operable Unit 5 ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-865-02	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:PERC	1	Y	
W-865-02	PTMW	Tnbs1-Tnbs0	S	DIS	E624MOD:ALL	1	Y	
W-865-02	PTMW	Tnbs1-Tnbs0	S	DIS	E624MOD:ALL	3	Y	
W-865-02	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	1	Y	
W-865-02	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	3	Y	
W-865-02	PTMW	Tnbs1-Tnbs0	A	DIS	T26METALS:ALL	1	Y	
W-865-05	PTMW	Tnbs1-Tnbs0	S	DIS	E300.0:NO3	1	Y	
W-865-05	PTMW	Tnbs1-Tnbs0	S	DIS	E300.0:NO3	3	Y	
W-865-05	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:PERC	1	Y	
W-865-05	PTMW	Tnbs1-Tnbs0	S	DIS	E624MOD:ALL	1	Y	
W-865-05	PTMW	Tnbs1-Tnbs0	S	DIS	E624MOD:ALL	3	Y	
W-865-05	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	1	Y	
W-865-05	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	3	Y	
W-865-05	PTMW	Tnbs1-Tnbs0	A	DIS	T26METALS:ALL	1	Y	
W-865-1802	PTMW	Tnbs1-Tnbs0	A	CMP	AS:UISO	2	Y	
W-865-1802	PTMW	Tnbs1-Tnbs0	A	DIS	E300.0:NO3	2	Y	
W-865-1802	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:PERC	2	Y	
W-865-1802	PTMW	Tnbs1-Tnbs0	S	DIS	E624MOD:ALL	1	Y	
W-865-1802	PTMW	Tnbs1-Tnbs0	S	DIS	E624MOD:ALL	3	Y	
W-865-1802	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	Y	
W-865-1802	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	Y	
W-865-1803	PTMW	Tnbs1-Tnbs0	E	CMP	AS:UISO	2	Y	
W-865-1803	PTMW	Tnbs1-Tnbs0	E	CMP	E300.0:NO3	2	Y	
W-865-1803	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	2	Y	
W-865-1803	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	4	Y	
W-865-1803	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	Y	
W-865-1803	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	Y	
W-865-2005	PTMW	Tnbs1-Tnbs0	S	DIS	E300.0:NO3	1	Y	
W-865-2005	PTMW	Tnbs1-Tnbs0	S	DIS	E300.0:NO3	3	Y	
W-865-2005	PTMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:PERC	1	Y	
W-865-2005	PTMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:PERC	2	Y	
W-865-2005	PTMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:PERC	3	Y	
W-865-2005	PTMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:PERC	4	Y	
W-865-2005	PTMW	Tnbs1-Tnbs0	S	DIS	E624MOD:ALL	1	Y	
W-865-2005	PTMW	Tnbs1-Tnbs0	S	DIS	E624MOD:ALL	3	Y	
W-865-2005	PTMW	Tnbs1-Tnbs0	Q	WGMG	E906:ALL	1	Y	
W-865-2005	PTMW	Tnbs1-Tnbs0	Q	WGMG	E906:ALL	2	Y	
W-865-2005	PTMW	Tnbs1-Tnbs0	Q	WGMG	E906:ALL	3	Y	
W-865-2005	PTMW	Tnbs1-Tnbs0	Q	WGMG	E906:ALL	4	Y	
W-865-2005	PTMW	Tnbs1-Tnbs0	A	DIS	T26METALS:ALL	1	Y	
W-865-2121	PTMW	Tnbs1-Tnbs0	S	DIS	E300.0:NO3	1	Y	
W-865-2121	PTMW	Tnbs1-Tnbs0	S	DIS	E300.0:NO3	3	Y	
W-865-2121	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:PERC	1	Y	
W-865-2121	PTMW	Tnbs1-Tnbs0	S	DIS	E624MOD:ALL	1	Y	
W-865-2121	PTMW	Tnbs1-Tnbs0	S	DIS	E624MOD:ALL	3	Y	

Table 2.5-1. Building 850 Area of Operable Unit 5 ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-865-2121	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	Y	
W-865-2121	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	Y	
W-865-2121	PTMW	Tnbs1-Tnbs0	A	DIS	T26METALS:ALL	1	Y	
W-865-2133	GW	Tnbs1-Tnbs0	S	CMP	AS:UISO	1	Y	
W-865-2133	GW	Tnbs1-Tnbs0	S	CMP	AS:UISO	3	Y	
W-865-2133	GW	Tnbs1-Tnbs0	S	DIS	E300.0:NO3	1	Y	
W-865-2133	GW	Tnbs1-Tnbs0	S	DIS	E300.0:NO3	3	Y	
W-865-2133	GW	Tnbs1-Tnbs0	Q	CMP	E300.0:PERC	1	Y	
W-865-2133	GW	Tnbs1-Tnbs0	Q	CMP	E300.0:PERC	2	Y	
W-865-2133	GW	Tnbs1-Tnbs0	Q	CMP	E300.0:PERC	3	Y	
W-865-2133	GW	Tnbs1-Tnbs0	Q	CMP	E300.0:PERC	4	Y	
W-865-2133	GW	Tnbs1-Tnbs0	S	DIS	E624MOD:ALL	1	Y	
W-865-2133	GW	Tnbs1-Tnbs0	S	DIS	E624MOD:ALL	3	Y	
W-865-2133	GW	Tnbs1-Tnbs0	Q	CMP	E906:ALL	1	Y	
W-865-2133	GW	Tnbs1-Tnbs0	Q	CMP	E906:ALL	2	Y	
W-865-2133	GW	Tnbs1-Tnbs0	Q	CMP	E906:ALL	3	Y	
W-865-2133	GW	Tnbs1-Tnbs0	Q	CMP	E906:ALL	4	Y	
W-865-2133	GW	Tnbs1-Tnbs0	A	DIS	T26METALS:ALL	1	Y	
W-865-2224	GW	Tnbs1-Tnbs0	S	CMP	AS:UISO	2	Y	
W-865-2224	GW	Tnbs1-Tnbs0	S	CMP	AS:UISO	4	Y	
W-865-2224	GW	Tnbs1-Tnbs0	S	CMP	E300.0:NO3	2	Y	
W-865-2224	GW	Tnbs1-Tnbs0	S	CMP	E300.0:NO3	4	Y	
W-865-2224	GW	Tnbs1-Tnbs0	Q	CMP	E300.0:PERC	1	Y	
W-865-2224	GW	Tnbs1-Tnbs0	Q	CMP	E300.0:PERC	2	Y	
W-865-2224	GW	Tnbs1-Tnbs0	Q	CMP	E300.0:PERC	3	Y	
W-865-2224	GW	Tnbs1-Tnbs0	Q	CMP	E300.0:PERC	4	Y	
W-865-2224	GW	Tnbs1-Tnbs0	S	DIS	E624MOD:ALL	2	Y	
W-865-2224	GW	Tnbs1-Tnbs0	S	DIS	E624MOD:ALL	4	Y	
W-865-2224	GW	Tnbs1-Tnbs0	Q	CMP	E906:ALL	1	Y	
W-865-2224	GW	Tnbs1-Tnbs0	Q	CMP	E906:ALL	2	Y	
W-865-2224	GW	Tnbs1-Tnbs0	Q	CMP	E906:ALL	3	Y	
W-865-2224	GW	Tnbs1-Tnbs0	Q	CMP	E906:ALL	4	Y	
W-865-3403	PTMW	Tnbs1/Tnbs0	1	CMP	DWMETALS:ALL	4	Y	
W-865-3403	PTMW	Tnbs1/Tnbs0	1	CMP	E200.7:SI	4	Y	
W-865-3403	PTMW	Tnbs1/Tnbs0	1	CMP	E300.0:PERC	4	Y	
W-865-3403	PTMW	Tnbs1/Tnbs0	1	CMP	E624B:ALL	4	Y	
W-865-3403	PTMW	Tnbs1/Tnbs0	1	CMP	E8330LOW:ALL	4	Y	
W-865-3403	PTMW	Tnbs1/Tnbs0	1	CMP	E900:ALL	4	Y	
W-865-3403	PTMW	Tnbs1/Tnbs0	1	CMP	E906:ALL	4	Y	
W-865-3403	PTMW	Tnbs1/Tnbs0	1	CMP	GENMIN:ALL	4	Y	
W-865-3403	PTMW	Tnbs1/Tnbs0	1	CMP	MS:UISO	4	Y	
W-865-3403	PTMW	Tnbs1/Tnbs0	1	CMP	TBOS:ALL	4	Y	
W-PIT1-01	PTMW	Tnbs1-Tnbs0	O	CMP	AS:UISO	1	N	To be sampled in 2019
W-PIT1-01	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	1	N	DRY
W-PIT1-01	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	3	N	DRY

Table 2.5-1. Building 850 Area of Operable Unit 5 ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-PIT1-01	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	1	N	DRY
W-PIT1-01	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	3	N	DRY
W-PIT1-2204	PTMW	Qal/WBR	A	CMP	AS:UISO	2	N	Insufficient water
W-PIT1-2204	PTMW	Qal/WBR	A	CMP	E300.0:NO3	2	N	Insufficient water
W-PIT1-2204	PTMW	Qal/WBR	S	CMP	E300.0:PERC	2	N	Insufficient water
W-PIT1-2204	PTMW	Qal/WBR	S	CMP	E300.0:PERC	4	Y	
W-PIT1-2204	PTMW	Qal/WBR	S	CMP	E906:ALL	2	N	Insufficient water
W-PIT1-2204	PTMW	Qal/WBR	S	CMP	E906:ALL	4	Y	
W-PIT1-2209	GW	Tnbs1-Tnbs0	S	CMP	AS:UISO	2	Y	
W-PIT1-2209	GW	Tnbs1-Tnbs0	S	CMP	AS:UISO	4	Y	
W-PIT1-2209	GW	Tnbs1-Tnbs0	S	CMP	E300.0:NO3	2	Y	
W-PIT1-2209	GW	Tnbs1-Tnbs0	S	CMP	E300.0:NO3	4	Y	
W-PIT1-2209	GW	Tnbs1-Tnbs0	Q	WGMG	E300.0:PERC	1	Y	
W-PIT1-2209	GW	Tnbs1-Tnbs0	Q	WGMG	E300.0:PERC	2	Y	
W-PIT1-2209	GW	Tnbs1-Tnbs0	Q	WGMG	E300.0:PERC	3	Y	
W-PIT1-2209	GW	Tnbs1-Tnbs0	Q	WGMG	E300.0:PERC	4	Y	
W-PIT1-2209	GW	Tnbs1-Tnbs0	S	DIS	E624MOD:ALL	2	Y	
W-PIT1-2209	GW	Tnbs1-Tnbs0	S	DIS	E624MOD:ALL	4	Y	
W-PIT1-2209	GW	Tnbs1-Tnbs0	Q	WGMG	E906:ALL	1	Y	
W-PIT1-2209	GW	Tnbs1-Tnbs0	Q	WGMG	E906:ALL	2	Y	
W-PIT1-2209	GW	Tnbs1-Tnbs0	Q	WGMG	E906:ALL	3	Y	
W-PIT1-2209	GW	Tnbs1-Tnbs0	Q	WGMG	E906:ALL	4	Y	
W-PIT1-2225	GW	Tnbs1-Tnbs0	S	CMP	AS:UISO	2	Y	
W-PIT1-2225	GW	Tnbs1-Tnbs0	S	CMP	AS:UISO	4	Y	
W-PIT1-2225	GW	Tnbs1-Tnbs0	S	CMP	E300.0:NO3	2	Y	
W-PIT1-2225	GW	Tnbs1-Tnbs0	S	CMP	E300.0:NO3	4	Y	
W-PIT1-2225	GW	Tnbs1-Tnbs0	Q	CMP	E300.0:PERC	1	Y	
W-PIT1-2225	GW	Tnbs1-Tnbs0	Q	CMP	E300.0:PERC	2	Y	
W-PIT1-2225	GW	Tnbs1-Tnbs0	Q	CMP	E300.0:PERC	3	Y	
W-PIT1-2225	GW	Tnbs1-Tnbs0	Q	CMP	E300.0:PERC	4	Y	
W-PIT1-2225	GW	Tnbs1-Tnbs0	Q	CMP	E906:ALL	1	Y	
W-PIT1-2225	GW	Tnbs1-Tnbs0	Q	CMP	E906:ALL	2	Y	
W-PIT1-2225	GW	Tnbs1-Tnbs0	Q	CMP	E906:ALL	3	Y	
W-PIT1-2225	GW	Tnbs1-Tnbs0	Q	CMP	E906:ALL	4	Y	
W-PIT1-2326	DMW	Tnbs1-Tnbs0	Q	WGMG	AS:UISO	1	Y	
W-PIT1-2326	DMW	Tnbs1-Tnbs0	Q	WGMG	AS:UISO	2	Y	
W-PIT1-2326	DMW	Tnbs1-Tnbs0	Q	WGMG	AS:UISO	3	Y	
W-PIT1-2326	DMW	Tnbs1-Tnbs0	Q	WGMG	AS:UISO	4	Y	
W-PIT1-2326	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:NO3	1	Y	
W-PIT1-2326	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:NO3	2	Y	
W-PIT1-2326	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:NO3	3	Y	
W-PIT1-2326	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:NO3	4	Y	
W-PIT1-2326	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:PERC	1	Y	
W-PIT1-2326	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:PERC	2	Y	
W-PIT1-2326	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:PERC	3	Y	

Table 2.5-1. Building 850 Area of Operable Unit 5 ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-PIT1-2326	DMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:PERC	4	Y	
W-PIT1-2326	DMW	Tnbs1-Tnbs0	Q	WGMG	E8260:ALL	1	Y	
W-PIT1-2326	DMW	Tnbs1-Tnbs0	Q	WGMG	E8260:ALL	2	Y	
W-PIT1-2326	DMW	Tnbs1-Tnbs0	Q	WGMG	E8260:ALL	3	Y	
W-PIT1-2326	DMW	Tnbs1-Tnbs0	Q	WGMG	E8260:ALL	4	Y	
W-PIT1-2326	DMW	Tnbs1-Tnbs0	Q	WGMG	E8330:R+H	1	Y	
W-PIT1-2326	DMW	Tnbs1-Tnbs0	Q	WGMG	E8330:R+H	2	Y	
W-PIT1-2326	DMW	Tnbs1-Tnbs0	Q	WGMG	E8330:R+H	3	Y	
W-PIT1-2326	DMW	Tnbs1-Tnbs0	Q	WGMG	E8330:R+H	4	Y	
W-PIT1-2326	DMW	Tnbs1-Tnbs0	Q	WGMG	E906:ALL	1	Y	
W-PIT1-2326	DMW	Tnbs1-Tnbs0	Q	WGMG	E906:ALL	2	Y	
W-PIT1-2326	DMW	Tnbs1-Tnbs0	Q	WGMG	E906:ALL	3	Y	
W-PIT1-2326	DMW	Tnbs1-Tnbs0	Q	WGMG	E906:ALL	4	Y	
W-PIT1-2326	DMW	Tnbs1-Tnbs0	Q	WGMG	MS:UISO	4	Y	
W-PIT1-2620	PTMW	Tnbs1-Tnbs0	E	CMP	AS:UISO	2	Y	
W-PIT1-2620	PTMW	Tnbs1-Tnbs0	A	DIS	DWMETALS:ALL	2	Y	
W-PIT1-2620	PTMW	Tnbs1-Tnbs0	A	DIS	E300.0:NO3	2	Y	
W-PIT1-2620	PTMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:PERC	1	Y	
W-PIT1-2620	PTMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:PERC	2	Y	
W-PIT1-2620	PTMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:PERC	3	Y	
W-PIT1-2620	PTMW	Tnbs1-Tnbs0	Q	WGMG	E300.0:PERC	4	Y	
W-PIT1-2620	PTMW	Tnbs1-Tnbs0	S	DIS	E624MOD:ALL	2	Y	
W-PIT1-2620	PTMW	Tnbs1-Tnbs0	S	DIS	E624MOD:ALL	4	Y	
W-PIT1-2620	PTMW	Tnbs1-Tnbs0	Q	WGMG	E906:ALL	1	Y	
W-PIT1-2620	PTMW	Tnbs1-Tnbs0	Q	WGMG	E906:ALL	2	Y	
W-PIT1-2620	PTMW	Tnbs1-Tnbs0	Q	WGMG	E906:ALL	3	Y	
W-PIT1-2620	PTMW	Tnbs1-Tnbs0	Q	WGMG	E906:ALL	4	Y	
W-PIT1-3021	PTMW	Tnbs1/Tnbs0	A	CMP	AS:UISO	2	Y	
W-PIT1-3021	PTMW	Tnbs1/Tnbs0	A	CMP	E300.0:NO3	2	Y	
W-PIT1-3021	PTMW	Tnbs1/Tnbs0	S	CMP	E300.0:PERC	2	Y	
W-PIT1-3021	PTMW	Tnbs1/Tnbs0	S	CMP	E300.0:PERC	4	Y	
W-PIT1-3021	PTMW	Tnbs1/Tnbs0	A	CMP	E624MOD:ALL	2	Y	
W-PIT1-3021	PTMW	Tnbs1/Tnbs0	S	CMP	E906:ALL	2	Y	
W-PIT1-3021	PTMW	Tnbs1/Tnbs0	S	CMP	E906:ALL	4	Y	
W-PIT1-3022	PTMW	Tnbs1/Tnbs0	A	CMP	AS:UISO	2	Y	
W-PIT1-3022	PTMW	Tnbs1/Tnbs0	A	CMP	E300.0:NO3	2	Y	
W-PIT1-3022	PTMW	Tnbs1/Tnbs0	S	CMP	E300.0:PERC	2	Y	
W-PIT1-3022	PTMW	Tnbs1/Tnbs0	S	CMP	E300.0:PERC	4	Y	
W-PIT1-3022	PTMW	Tnbs1/Tnbs0	A	CMP	E624MOD:ALL	2	Y	
W-PIT1-3022	PTMW	Tnbs1/Tnbs0	S	CMP	E906:ALL	2	Y	
W-PIT1-3022	PTMW	Tnbs1/Tnbs0	S	CMP	E906:ALL	4	Y	
W-PIT7-16	PTMW	Tnsc0	A	CMP	AS:UISO	2	N	No access to well location
W-PIT7-16	PTMW	Tnsc0	A	CMP	E300.0:NO3	2	N	No access to well location
W-PIT7-16	PTMW	Tnsc0	S	CMP	E300.0:PERC	2	N	No access to well location
W-PIT7-16	PTMW	Tnsc0	S	CMP	E300.0:PERC	4	Y	

Table 2.5-1. Building 850 Area of Operable Unit 5 ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-PIT7-16	PTMW	Tnsc0	S	DIS	E8330LOW:ALL	4	Y	
W-PIT7-16	PTMW	Tnsc0	S	CMP	E906:ALL	2	N	No access to well location
W-PIT7-16	PTMW	Tnsc0	S	CMP	E906:ALL	4	Y	
W-PIT7-3406	PTMW	Tnbs1/Tnbs0	1	CMP	DWMETALS:ALL	4	Y	
W-PIT7-3406	PTMW	Tnbs1/Tnbs0	1	CMP	E200.7:SI	4	Y	
W-PIT7-3406	PTMW	Tnbs1/Tnbs0	1	CMP	E300.0:PERC	3	Y	
W-PIT7-3406	PTMW	Tnbs1/Tnbs0	1	CMP	E300.0:PERC	4	Y	
W-PIT7-3406	PTMW	Tnbs1/Tnbs0	1	CMP	E624B:ALL	3	Y	
W-PIT7-3406	PTMW	Tnbs1/Tnbs0	1	CMP	E624B:ALL	4	Y	
W-PIT7-3406	PTMW	Tnbs1/Tnbs0	1	CMP	E8330LOW:ALL	4	Y	
W-PIT7-3406	PTMW	Tnbs1/Tnbs0	1	CMP	E900:ALL	4	Y	
W-PIT7-3406	PTMW	Tnbs1/Tnbs0	1	CMP	E906:ALL	3	Y	
W-PIT7-3406	PTMW	Tnbs1/Tnbs0	1	CMP	E906:ALL	4	Y	
W-PIT7-3406	PTMW	Tnbs1/Tnbs0	1	CMP	GENMIN:ALL	4	Y	
W-PIT7-3406	PTMW	Tnbs1/Tnbs0	1	CMP	KPA:UTOT	3	Y	
W-PIT7-3406	PTMW	Tnbs1/Tnbs0	1	CMP	TBOS:ALL	4	Y	
W8SPRNG	SPR	Tnbs1-Tnbs0	A	CMP	AS:UISO	2	N	DRY
W8SPRNG	SPR	Tnbs1-Tnbs0	A	CMP	E300.0:NO3	2	N	DRY
W8SPRNG	SPR	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	2	N	DRY
W8SPRNG	SPR	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	4	N	DRY
W8SPRNG	SPR	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	N	DRY
W8SPRNG	SPR	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	N	DRY

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EGSA = Eastern General Services Area
ft = Feet
g = Grams
GWTS = Groundwater treatment system
HSU = Hydrostratigraphic unit
Kcf = Thousands of cubic feet
kg = Kilograms
Kgal = Thousands of gallons
Mcf = Millions of cubic feet
PRX = Proximal
PRXN = Proximal North
PTMW = Plume Tracking Monitor Well
RDX = Research Department Explosive
SRC = Source
SVTS = Soil vapor treatment system
TBOS = Tetra 2-ethylbutylorthosilicate
TKEBS = Tetrakis (2-ethylbutyl) silane
VOC = Volatile organic compound

Table 2.5-2. PIT7-Source volumes of groundwater and soil vapor extracted and discharged, July 1, 2018 through December 31, 2018.

Treatment facility	Month	SVTS Operational hours	GWTS Operational hours	Volume of vapor extracted (thousands of cf)	Volume of groundwater discharged (gal)
PIT7-SRC	July	-	791	-	3,276
	August	-	652	-	3,909
	September	-	608	-	3,944
	October	-	245	-	1,262
	November	-	691	-	3,389
	December	-	648	-	2,894
Total		-	3,635	-	18,674

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Table 2.5-3. PIT7-Source volatile organic compounds in groundwater extraction and treatment system influent and effluent.

Location	Date	TCE (µg/L)	PCE (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	Carbon tetrachloride (µg/L)	Chloroform (µg/L)	1,1-DCA (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	1,1,1-TCA (µg/L)	1,1,2-TCA (µg/L)	Freon 11 (µg/L)	Freon 113 (µg/L)	Vinyl chloride (µg/L)
PIT7-SRC-I	7/9/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
PIT7-SRC-I	10/29/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
PIT7-SRC-I	10/29/18 DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
PIT7-SRC-E	7/9/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
PIT7-SRC-E	8/7/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
PIT7-SRC-E	9/4/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
PIT7-SRC-E	10/29/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
PIT7-SRC-E	11/5/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
PIT7-SRC-E	12/3/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Analyte detected but not reported in main table.

Location	Date	Detection frequency
PIT7-SRC-I	7/9/18	0 of 18
PIT7-SRC-I	10/29/18	0 of 18
PIT7-SRC-I	10/29/18 DUP	0 of 18
PIT7-SRC-E	7/9/18	0 of 18
PIT7-SRC-E	8/7/18	0 of 18
PIT7-SRC-E	9/4/18	0 of 18
PIT7-SRC-E	10/29/18	0 of 18
PIT7-SRC-E	11/5/18	0 of 18
PIT7-SRC-E	12/3/18	0 of 18

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- g = Grams
- GWTS = Groundwater treatment system
- HSU = Hydrostratigraphic unit
- Kcf = Thousands of cubic feet
- kg = Kilograms
- Kgal = Thousands of gallons
- Mcf = Millions of cubic feet
- PRX = Proximal
- PRXN = Proximal North
- PTMW = Plume Tracking Monitor Well
- RDX = Research Department Explosive
- SRC = Source
- SVTS = Soil vapor treatment system
- TBOS = Tetra 2-ethylbutylorthosilicate
- TKEBS = Tetrakis (2-ethylbutyl) silane
- VOC = Volatile organic compound

Table 2.5-4. PIT7-Source nitrate and perchlorate in groundwater extraction and treatment system influent and effluent.

Location	Date	Nitrate as NO3 (mg/L)	Perchlorate (µg/L)
PIT7-SRC-I[a]	7/9/18	49	8.3
PIT7-SRC-I[a]	8/7/18	47	-
PIT7-SRC-I[a]	9/4/18	54	-
PIT7-SRC-I	10/29/18	50	9.5
PIT7-SRC-I	10/29/18 DUP	50	9.2
PIT7-SRC-I[a]	11/5/18	49	-
PIT7-SRC-I[a]	11/5/18 DUP	50	-
PIT7-SRC-I[a]	12/3/18	49	-
PIT7-SRC-I[a]	12/3/18 DUP	49	-
PIT7-SRC-E	7/9/18	<0.5	<4
PIT7-SRC-E	8/7/18	2.8	<4
PIT7-SRC-E	9/4/18	<0.5	<4
PIT7-SRC-E	10/29/18	<0.5	<4
PIT7-SRC-E	11/5/18	<0.5	<4
PIT7-SRC-E	12/3/18	<0.5	<4

[a] Extra nitrate monitoring conducted for trend analysis.

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HSU = Hydrostratigraphic unit
Kcf = Thousands of cubic feet
kg = Kilograms
Kgal = Thousands of gallons
Mcf = Millions of cubic feet
PRX = Proximal
PRXN = Proximal North
PTMW = Plume Tracking Monitor Well
RDX = Research Department Explosive
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TBOS = Tetra 2-ethylbutylorthosilicate
TKEBS = Tetrakis (2-ethylbutyl) silane
VOC = Volatile organic compound

Table 2.5-5. PIT7-Source total uranium in groundwater extraction and treatment system influent and effluent.

Location	Date	Uranium 234 and 233 (in activity) (pCi/L)	Uranium 235 and 236 (in activity) (pCi/L)	Uranium 238 (in activity) (pCi/L)	Total Uranium (calculated) (pCi/L)
PIT7-SRC-I	7/9/18	28.3 ± 3.57	2.17 ± 0.392	52.8 ± 6.54	83.3 ± 7.46
PIT7-SRC-I	10/29/18	13.5 ± 1.55	0.948 ± 0.188	26.3 ± 2.93	40.7 ± 3.32
PIT7-SRC-I	10/29/18 DUP	13.4 ± 2.21	0.977 ± 0.307	26.6 ± 4.21	41.0 ± 4.76
PIT7-SRC-E	7/9/18	<0.1	<0.1	<0.1	<0.3
PIT7-SRC-E	8/7/18	<0.1	<0.1	<0.1	<0.3
PIT7-SRC-E	9/4/18	<0.1	<0.1	<0.1	<0.3
PIT7-SRC-E	10/29/18	<0.1	<0.1	<0.1	<0.3
PIT7-SRC-E	11/5/18	<0.1	<0.1	<0.1	<0.3
PIT7-SRC-E	12/3/18	<0.1	<0.1	<0.1	<0.3

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kg = Kilograms
Kgal = Thousands of gallons
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VOC = Volatile organic compound

Table 2.5-6. PIT7-Source tritium in groundwater extraction and treatment system influent and effluent.

Location	Date	Tritium (pCi/L)
PIT7-SRC-I	7/9/18	61100 ± 11900
PIT7-SRC-I	10/29/18	30800 ± 5980
PIT7-SRC-I	10/29/18 DUP	31400 ± 6110
PIT7-SRC-E	7/9/18	69500 ± 13500
PIT7-SRC-E	8/7/18	63800 ± 12400
PIT7-SRC-E	9/4/18	47300 ± 9180
PIT7-SRC-E	10/29/18	31600 ± 6150
PIT7-SRC-E	11/5/18	32800 ± 6370
PIT7-SRC-E	12/3/18	32300 ± 6280

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DSB	=	Distal site boundary
EGSA	=	Eastern General Services Area
ft	=	Feet
g	=	Grams
GWTS	=	Groundwater treatment system
HSU	=	Hydrostratigraphic unit
Kcf	=	Thousands of cubic feet
kg	=	Kilograms
Kgal	=	Thousands of gallons
Mcf	=	Millions of cubic feet
PRX	=	Proximal
PRXN	=	Proximal North
PTMW	=	Plume Tracking Monitor Well
RDX	=	Research Department Explosive
SRC	=	Source
SVTS	=	Soil vapor treatment system
TBOS	=	Tetra 2-ethylbutylorthosilicate
TKEBS	=	Tetrakis (2-ethylbutyl) silane
VOC	=	Volatile organic compound

Table 2.5-7. PIT7-Source treatment facility sampling and analysis plan.

Sample location	Sample identification	Parameter	Frequency
PIT7-SRC GWTS			
Influent Port	**PIT7-SRC-I**	**VOCs**	**Quarterly**
		Uranium	**Quarterly**
		Perchlorate	**Quarterly**
		Nitrate	**Quarterly**
		Tritium[a]	**Quarterly**
Effluent Port	**PIT7-SRC-E**	**VOCs**	**Monthly**
		Uranium	**Monthly**
		Perchlorate	**Monthly**
		Nitrate	**Monthly**
		Tritium[a]	**Monthly**
		pH	**Monthly**

[a] Although tritium is not treated/removed by the PIT7-SRC GWTS, tritium activities will be monitored to determine levels that are being discharged to the infiltration trench.

Notes:
One duplicate and one blank (given fictitious labels) shall be taken for every 12 samples.

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ft	=	Feet
g	=	Grams
GWTS	=	Groundwater treatment system
HSU	=	Hydrostratigraphic unit
Kcf	=	Thousands of cubic feet
kg	=	Kilograms
Kgal	=	Thousands of gallons
Mcf	=	Millions of cubic feet
PRX	=	Proximal
PRXN	=	Proximal North
PTMW	=	Plume Tracking Monitor Well
RDX	=	Research Department Explosive
SRC	=	Source
SVTS	=	Soil vapor treatment system
TBOS	=	Tetra 2-ethylbutylorthosilicate
TKEBS	=	Tetrakis (2-ethylbutyl) silane
VOC	=	Volatile organic compound

Table 2.5-8. Pit 7 Complex Area of Operable Unit 5 ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
K7-01	DMW	Tnbs1-Tnbs0	A	CMP	ANIONS:FL	2	Y	
K7-01	DMW	Tnbs1-Tnbs0	A	CMP	E200.7:LI	2	Y	
K7-01	DMW	Tnbs1-Tnbs0	A	CMP	E300.0:NO3	2	Y	
K7-01	DMW	Tnbs1-Tnbs0	A	CMP	E300.0:PERC	2	Y	
K7-01	DMW	Tnbs1-Tnbs0	A	CMP	E624MOD:ALL	2	Y	
K7-01	DMW	Tnbs1-Tnbs0	A	CMP	E8082A:ALL	2	Y	
K7-01	DMW	Tnbs1-Tnbs0	A	CMP	E8330LOW:ALL	2	Y	
K7-01	DMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	Y	
K7-01	DMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	Y	
K7-01	DMW	Tnbs1-Tnbs0	A	CMP	MS:UISO	2	Y	
K7-01	DMW	Tnbs1-Tnbs0	A	CMP	T26METALS:ALL	2	Y	
K7-03	DMW	Tnbs1-Tnbs0	A	CMP	ANIONS:FL	2	Y	
K7-03	DMW	Tnbs1-Tnbs0	A	CMP	E200.7:LI	2	Y	
K7-03	DMW	Tnbs1-Tnbs0	A	CMP	E300.0:NO3	2	Y	
K7-03	DMW	Tnbs1-Tnbs0	A	CMP	E300.0:PERC	2	Y	
K7-03	DMW	Tnbs1-Tnbs0	A	CMP	E624MOD:ALL	2	Y	
K7-03	DMW	Tnbs1-Tnbs0	A	CMP	E8082A:ALL	2	Y	
K7-03	DMW	Tnbs1-Tnbs0	A	CMP	E8330LOW:ALL	2	Y	
K7-03	DMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	Y	
K7-03	DMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	Y	
K7-03	DMW	Tnbs1-Tnbs0	A	CMP	MS:UISO	2	Y	
K7-03	DMW	Tnbs1-Tnbs0	A	CMP	T26METALS:ALL	2	Y	
K7-06	DMW	Tnbs1-Tnbs0	A	CMP	ANIONS:FL	2	Y	
K7-06	DMW	Tnbs1-Tnbs0	A	CMP	AS:UISO	2	Y	
K7-06	DMW	Tnbs1-Tnbs0	A	CMP	E200.7:LI	2	Y	
K7-06	DMW	Tnbs1-Tnbs0	A	CMP	E300.0:NO3	2	Y	
K7-06	DMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	2	Y	
K7-06	DMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	4	Y	
K7-06	DMW	Tnbs1-Tnbs0	A	CMP	E624MOD:ALL	2	Y	
K7-06	DMW	Tnbs1-Tnbs0	A	CMP	E8082A:ALL	2	Y	
K7-06	DMW	Tnbs1-Tnbs0	A	CMP	E8330LOW:ALL	2	Y	
K7-06	DMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	Y	
K7-06	DMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	Y	
K7-06	DMW	Tnbs1-Tnbs0	A	CMP	T26METALS:ALL	2	Y	

Table 2.5-8. Pit 7 Complex Area of Operable Unit 5 ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
K7-07	PTMW	Qal/WBR	A	CMP	AS:UISO	2	N	Insufficient water
K7-07	PTMW	Qal/WBR	E	CMP	E300.0:NO3	2	N	Insufficient water
K7-07	PTMW	Qal/WBR	A	CMP	E300.0:PERC	2	N	Insufficient water
K7-07	PTMW	Qal/WBR	A	CMP	E624MOD:ALL	2	N	Insufficient water
K7-07	PTMW	Qal/WBR	S	CMP	E906:ALL	2	N	Insufficient water
K7-07	PTMW	Qal/WBR	S	CMP	E906:ALL	4	N	DRY
K7-09	DMW	Tnsc0	A	CMP	ANIONS:FL	2	Y	
K7-09	DMW	Tnsc0	A	CMP	AS:UISO	2	Y	
K7-09	DMW	Tnsc0	A	CMP	E200.7:LI	2	Y	
K7-09	DMW	Tnsc0	A	CMP	E300.0:NO3	2	Y	
K7-09	DMW	Tnsc0	S	CMP	E300.0:PERC	2	Y	
K7-09	DMW	Tnsc0	S	CMP	E300.0:PERC	4	Y	
K7-09	DMW	Tnsc0	A	CMP	E624MOD:ALL	2	Y	
K7-09	DMW	Tnsc0	A	CMP	E8082A:ALL	2	Y	
K7-09	DMW	Tnsc0	A	CMP	E8330LOW:ALL	2	Y	
K7-09	DMW	Tnsc0	S	CMP	E906:ALL	2	Y	
K7-09	DMW	Tnsc0	S	CMP	E906:ALL	4	Y	
K7-09	DMW	Tnsc0	A	CMP	T26METALS:ALL	2	Y	
K7-10	DMW	Tnbs1-Tnbs0	A	CMP	ANIONS:FL	2	Y	
K7-10	DMW	Tnbs1-Tnbs0	A	CMP	AS:UISO	2	Y	
K7-10	DMW	Tnbs1-Tnbs0	A	CMP	E200.7:LI	2	Y	
K7-10	DMW	Tnbs1-Tnbs0	A	CMP	E300.0:NO3	2	Y	
K7-10	DMW	Tnbs1-Tnbs0	A	CMP	E300.0:PERC	2	Y	
K7-10	DMW	Tnbs1-Tnbs0	A	CMP	E624MOD:ALL	2	Y	
K7-10	DMW	Tnbs1-Tnbs0	A	CMP	E8082A:ALL	2	Y	
K7-10	DMW	Tnbs1-Tnbs0	A	CMP	E8330LOW:ALL	2	Y	
K7-10	DMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	Y	
K7-10	DMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	Y	
K7-10	DMW	Tnbs1-Tnbs0	A	CMP	T26METALS:ALL	2	Y	
NC7-12	PTMW	Qal/WBR	A	CMP	AS:UISO	2	N	No access to well location
NC7-12	PTMW	Qal/WBR	E	CMP	E300.0:NO3	2	N	No access to well location
NC7-12	PTMW	Qal/WBR	A	CMP	E300.0:PERC	2	N	No access to well location
NC7-12	PTMW	Qal/WBR	A	CMP	E624MOD:ALL	2	N	No access to well location
NC7-12	PTMW	Qal/WBR	S	CMP	E906:ALL	2	N	No access to well location

Table 2.5-8. Pit 7 Complex Area of Operable Unit 5 ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
NC7-12	PTMW	Qal/WBR	S	CMP	E906:ALL	4	Y	
NC7-16	PTMW	Qal/WBR	A	CMP	E300.0:NO3	2	Y	
NC7-16	PTMW	Qal/WBR	A	CMP	E300.0:PERC	2	Y	
NC7-16	PTMW	Qal/WBR	A	CMP	E624MOD:ALL	2	Y	
NC7-16	PTMW	Qal/WBR	S	DIS	E906:ALL	1	Y	
NC7-16	PTMW	Qal/WBR	S	CMP	E906:ALL	2	Y	
NC7-16	PTMW	Qal/WBR	S	DIS	E906:ALL	3	Y	
NC7-16	PTMW	Qal/WBR	S	CMP	E906:ALL	4	Y	
NC7-16	PTMW	Qal/WBR	Q	DIS	MS:UISO	1	Y	
NC7-16	PTMW	Qal/WBR	A	CMP	MS:UISO	2	Y	
NC7-16	PTMW	Qal/WBR	Q	DIS	MS:UISO	2	Y	
NC7-16	PTMW	Qal/WBR	Q	DIS	MS:UISO	3	Y	
NC7-16	PTMW	Qal/WBR	Q	DIS	MS:UISO	4	Y	
NC7-17	PTMW	Qal/WBR	A	CMP	AS:UISO	2	N	Insufficient water
NC7-17	PTMW	Qal/WBR	A	CMP	E300.0:NO3	2	N	Insufficient water
NC7-17	PTMW	Qal/WBR	E	CMP	E300.0:PERC	2	N	Insufficient water
NC7-17	PTMW	Qal/WBR	A	CMP	E624MOD:ALL	2	N	Insufficient water
NC7-17	PTMW	Qal/WBR	S	CMP	E906:ALL	2	N	Insufficient water
NC7-17	PTMW	Qal/WBR	S	CMP	E906:ALL	4	Y	
NC7-18	PTMW	Qal/WBR	A	CMP	AS:UISO	2	Y	
NC7-18	PTMW	Qal/WBR	A	CMP	E300.0:NO3	2	Y	
NC7-18	PTMW	Qal/WBR	A	CMP	E300.0:PERC	2	Y	
NC7-18	PTMW	Qal/WBR	A	CMP	E624MOD:ALL	2	Y	
NC7-18	PTMW	Qal/WBR	S	CMP	E906:ALL	2	Y	
NC7-18	PTMW	Qal/WBR	S	CMP	E906:ALL	4	Y	
NC7-20	PTMW	Qal/WBR	A	CMP	AS:UISO	2	Y	
NC7-20	PTMW	Qal/WBR	O	CMP	E300.0:NO3	2	N	To be sampled in 2019
NC7-20	PTMW	Qal/WBR	A	CMP	E300.0:PERC	2	Y	
NC7-20	PTMW	Qal/WBR	A	CMP	E624MOD:ALL	2	Y	
NC7-20	PTMW	Qal/WBR	S	CMP	E906:ALL	2	Y	
NC7-20	PTMW	Qal/WBR	S	CMP	E906:ALL	4	Y	
NC7-21	PTMW	Qal/WBR	A	CMP	AS:UISO	2	Y	
NC7-21	PTMW	Qal/WBR	A	CMP	E300.0:NO3	2	Y	
NC7-21	PTMW	Qal/WBR	A	CMP	E300.0:PERC	2	Y	

Table 2.5-8. Pit 7 Complex Area of Operable Unit 5 ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
NC7-21	PTMW	Qal/WBR	A	CMP	E624MOD:ALL	2	Y	
NC7-21	PTMW	Qal/WBR	S	CMP	E906:ALL	2	Y	
NC7-21	PTMW	Qal/WBR	S	CMP	E906:ALL	4	Y	
NC7-22	PTMW	Qal/WBR	A	CMP	AS:UISO	2	N	Insufficient water
NC7-22	PTMW	Qal/WBR	A	CMP	E300.0:NO3	2	N	Insufficient water
NC7-22	PTMW	Qal/WBR	A	CMP	E300.0:PERC	2	N	Insufficient water
NC7-22	PTMW	Qal/WBR	A	CMP	E624MOD:ALL	2	N	Insufficient water
NC7-22	PTMW	Qal/WBR	S	CMP	E906:ALL	2	N	Insufficient water
NC7-22	PTMW	Qal/WBR	S	CMP	E906:ALL	4	N	DRY
NC7-24	PTMW	Qal/WBR	A	CMP	AS:UISO	2	N	Insufficient water
NC7-24	PTMW	Qal/WBR	A	CMP	E300.0:NO3	2	N	Insufficient water
NC7-24	PTMW	Qal/WBR	A	CMP	E300.0:PERC	2	N	Insufficient water
NC7-24	PTMW	Qal/WBR	S	CMP	E906:ALL	2	N	Insufficient water
NC7-24	PTMW	Qal/WBR	S	CMP	E906:ALL	4	N	DRY
NC7-25	EW	Tnbs1-Tnbs0	A	CMP-TF	AS:UISO	2	Y	
NC7-25	EW	Tnbs1-Tnbs0	S	CMP-TF	AS:UISO	4	Y	
NC7-25	EW	Tnbs1-Tnbs0	A	CMP-TF	E300.0:NO3	2	Y	
NC7-25	EW	Tnbs1-Tnbs0	A	CMP-TF	E300.0:PERC	2	Y	
NC7-25	EW	Tnbs1-Tnbs0	A	DIS-TF	E300.0:PERC	4	Y	
NC7-25	EW	Tnbs1-Tnbs0	A	CMP-TF	E624MOD:ALL	2	Y	
NC7-25	EW	Tnbs1-Tnbs0	A	DIS-TF	E624MOD:ALL	4	Y	
NC7-25	EW	Tnbs1-Tnbs0	S	CMP-TF	E906:ALL	2	Y	
NC7-25	EW	Tnbs1-Tnbs0	S	CMP-TF	E906:ALL	4	Y	
NC7-25	EW	Tnbs1-Tnbs0	S	DIS-TF	KPA:UTOT	2	Y	
NC7-25	EW	Tnbs1-Tnbs0	A	DIS-TF	MS:UISO	4	Y	
NC7-26	DMW	Tnbs1-Tnbs0	A	CMP	ANIONS:FL	2	Y	
NC7-26	DMW	Tnbs1-Tnbs0	A	CMP	E200.7:LI	2	Y	
NC7-26	DMW	Tnbs1-Tnbs0	A	CMP	E300.0:NO3	2	Y	
NC7-26	DMW	Tnbs1-Tnbs0	A	CMP	E300.0:PERC	2	Y	
NC7-26	DMW	Tnbs1-Tnbs0	A	DIS	E300.0:PERC	4	Y	
NC7-26	DMW	Tnbs1-Tnbs0	A	CMP	E624MOD:ALL	2	Y	
NC7-26	DMW	Tnbs1-Tnbs0	A	CMP	E8082A:ALL	2	Y	
NC7-26	DMW	Tnbs1-Tnbs0	A	CMP	E8330LOW:ALL	2	Y	
NC7-26	DMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	Y	

Table 2.5-8. Pit 7 Complex Area of Operable Unit 5 ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
NC7-26	DMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	Y	
NC7-26	DMW	Tnbs1-Tnbs0	A	CMP	MS:UISO	2	Y	
NC7-26	DMW	Tnbs1-Tnbs0	A	CMP	T26METALS:ALL	2	Y	
NC7-34	PTMW	Qal/WBR	A	CMP	AS:UISO	2	Y	
NC7-34	PTMW	Qal/WBR	A	CMP	E300.0:NO3	2	Y	
NC7-34	PTMW	Qal/WBR	A	CMP	E300.0:PERC	2	Y	
NC7-34	PTMW	Qal/WBR	A	CMP	E624MOD:ALL	2	Y	
NC7-34	PTMW	Qal/WBR	S	CMP	E906:ALL	2	Y	
NC7-34	PTMW	Qal/WBR	S	CMP	E906:ALL	4	Y	
NC7-36	PTMW	Tnbs1-Tnbs0	A	CMP	AS:UISO	2	Y	
NC7-36	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:NO3	2	Y	
NC7-36	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:PERC	2	Y	
NC7-36	PTMW	Tnbs1-Tnbs0	A	CMP	E624MOD:ALL	2	Y	
NC7-36	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	Y	
NC7-36	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	Y	
NC7-37	PTMW	Qal/WBR	A	CMP	AS:UISO	2	Y	
NC7-37	PTMW	Qal/WBR	A	CMP	E300.0:NO3	2	Y	
NC7-37	PTMW	Qal/WBR	A	CMP	E300.0:PERC	2	Y	
NC7-37	PTMW	Qal/WBR	A	CMP	E624MOD:ALL	2	Y	
NC7-37	PTMW	Qal/WBR	S	CMP	E906:ALL	2	Y	
NC7-37	PTMW	Qal/WBR	S	CMP	E906:ALL	4	Y	
NC7-40	PTMW	Qal/WBR	A	CMP	E300.0:NO3	2	Y	
NC7-40	PTMW	Qal/WBR	A	CMP	E300.0:PERC	2	Y	
NC7-40	PTMW	Qal/WBR	A	CMP	E624MOD:ALL	2	Y	
NC7-40	PTMW	Qal/WBR	S	DIS	E906:ALL	1	Y	
NC7-40	PTMW	Qal/WBR	S	CMP	E906:ALL	2	Y	
NC7-40	PTMW	Qal/WBR	S	DIS	E906:ALL	3	Y	
NC7-40	PTMW	Qal/WBR	S	CMP	E906:ALL	4	Y	
NC7-40	PTMW	Qal/WBR	Q	DIS	MS:UISO	1	Y	
NC7-40	PTMW	Qal/WBR	Q	DIS	MS:UISO	2	Y	
NC7-40	PTMW	Qal/WBR	Q	DIS	MS:UISO	3	Y	
NC7-40	PTMW	Qal/WBR	Q	DIS	MS:UISO	4	Y	
NC7-47	DMW	Tnbs1-Tnbs0	A	CMP	ANIONS:FL	2	N	No access to well location
NC7-47	DMW	Tnbs1-Tnbs0	A	CMP	AS:UISO	2	N	No access to well location

Table 2.5-8. Pit 7 Complex Area of Operable Unit 5 ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
NC7-47	DMW	Tnbs1-Tnbs0	A	CMP	E200.7:LI	2	N	No access to well location
NC7-47	DMW	Tnbs1-Tnbs0	A	CMP	E300.0:NO3	2	N	No access to well location
NC7-47	DMW	Tnbs1-Tnbs0	A	CMP	E300.0:PERC	2	N	No access to well location
NC7-47	DMW	Tnbs1-Tnbs0	A	CMP	E624MOD:ALL	2	N	No access to well location
NC7-47	DMW	Tnbs1-Tnbs0	A	CMP	E8082A:ALL	2	N	No access to well location
NC7-47	DMW	Tnbs1-Tnbs0	A	CMP	E8330LOW:ALL	2	N	No access to well location
NC7-47	DMW	Tnbs1-Tnbs0	A	CMP	E906:ALL	2	N	No access to well location
NC7-47	DMW	Tnbs1-Tnbs0	A	CMP	T26METALS:ALL	2	N	No access to well location
NC7-48	DMW	Qal/WBR	A	CMP	ANIONS:FL	2	Y	
NC7-48	DMW	Qal/WBR	A	CMP	E200.7:LI	2	Y	
NC7-48	DMW	Qal/WBR	A	CMP	E300.0:NO3	2	Y	
NC7-48	DMW	Qal/WBR	A	CMP	E300.0:PERC	2	Y	
NC7-48	DMW	Qal/WBR	A	CMP	E624MOD:ALL	2	Y	
NC7-48	DMW	Qal/WBR	A	CMP	E8082A:ALL	2	Y	
NC7-48	DMW	Qal/WBR	A	CMP	E8330LOW:ALL	2	Y	
NC7-48	DMW	Qal/WBR	S	CMP	E906:ALL	2	Y	
NC7-48	DMW	Qal/WBR	S	CMP	E906:ALL	4	Y	
NC7-48	DMW	Qal/WBR	A	CMP	MS:UISO	2	Y	
NC7-48	DMW	Qal/WBR	A	CMP	T26METALS:ALL	2	Y	
NC7-49A	PTMW	Qal/WBR	A	CMP	AS:UISO	2	Y	
NC7-49A	PTMW	Qal/WBR	E	CMP	E300.0:NO3	2	Y	
NC7-49A	PTMW	Qal/WBR	E	CMP	E300.0:PERC	2	Y	
NC7-49A	PTMW	Qal/WBR	S	CMP	E906:ALL	2	Y	
NC7-49A	PTMW	Qal/WBR	S	CMP	E906:ALL	4	Y	
NC7-50	MWB	Tmss	E	DIS	AS:UISO	2	Y	
NC7-51	PTMW	Qal/WBR	A	CMP	E300.0:NO3	2	Y	
NC7-51	PTMW	Qal/WBR	A	CMP	E300.0:PERC	2	Y	
NC7-51	PTMW	Qal/WBR	A	CMP	E624MOD:ALL	2	Y	
NC7-51	PTMW	Qal/WBR	S	DIS	E906:ALL	1	Y	
NC7-51	PTMW	Qal/WBR	S	CMP	E906:ALL	2	Y	
NC7-51	PTMW	Qal/WBR	S	DIS	E906:ALL	3	Y	
NC7-51	PTMW	Qal/WBR	S	CMP	E906:ALL	4	Y	
NC7-51	PTMW	Qal/WBR	Q	DIS	MS:UISO	1	Y	
NC7-51	PTMW	Qal/WBR	A	CMP	MS:UISO	2	Y	

Table 2.5-8. Pit 7 Complex Area of Operable Unit 5 ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
NC7-51	PTMW	Qal/WBR	Q	DIS	MS:UISO	3	Y	
NC7-51	PTMW	Qal/WBR	Q	DIS	MS:UISO	4	Y	
NC7-52	PTMW	Tnbs1-Tnbs0	A	CMP	AS:UISO	2	Y	
NC7-52	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:NO3	2	Y	
NC7-52	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:PERC	2	Y	
NC7-52	PTMW	Tnbs1-Tnbs0	A	CMP	E624MOD:ALL	2	Y	
NC7-52	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	1	Y	
NC7-52	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	3	Y	
NC7-53	PTMW	Qal/WBR	A	DIS	AS:UISO	2	Y	
NC7-53	PTMW	Qal/WBR	O	CMP	E300.0:NO3	2	N	To be sampled in 2019
NC7-53	PTMW	Qal/WBR	O	CMP	E300.0:PERC	2	N	To be sampled in 2019
NC7-63	PTMW	Qal/WBR	A	CMP	E300.0:NO3	2	Y	
NC7-63	PTMW	Qal/WBR	A	CMP	E300.0:PERC	2	Y	
NC7-63	PTMW	Qal/WBR	A	CMP	E624MOD:ALL	2	Y	
NC7-63	PTMW	Qal/WBR	S	CMP	E906:ALL	2	Y	
NC7-63	PTMW	Qal/WBR	S	CMP	E906:ALL	4	Y	
NC7-63	PTMW	Qal/WBR	A	CMP	MS:UISO	2	Y	
NC7-64	EW	Qal/WBR	A	CMP-TF	AS:UISO	2	Y	
NC7-64	EW	Qal/WBR	S	CMP-TF	AS:UISO	4	Y	
NC7-64	EW	Qal/WBR	A	CMP-TF	E300.0:NO3	2	Y	
NC7-64	EW	Qal/WBR	A	CMP-TF	E300.0:PERC	2	Y	
NC7-64	EW	Qal/WBR	A	DIS-TF	E300.0:PERC	4	Y	
NC7-64	EW	Qal/WBR	A	CMP-TF	E624MOD:ALL	2	Y	
NC7-64	EW	Qal/WBR	A	DIS-TF	E624MOD:ALL	4	Y	
NC7-64	EW	Qal/WBR	S	CMP-TF	E906:ALL	2	Y	
NC7-64	EW	Qal/WBR	S	CMP-TF	E906:ALL	4	Y	
NC7-64	EW	Qal/WBR	S	DIS-TF	KPA:UTOT	2	Y	
NC7-64	EW	Qal/WBR	A	DIS-TF	MS:UISO	4	Y	
NC7-65	PTMW	Tnsc0	A	CMP	AS:UISO	2	Y	
NC7-65	PTMW	Tnsc0	A	CMP	E300.0:NO3	2	Y	
NC7-65	PTMW	Tnsc0	A	CMP	E300.0:PERC	2	Y	
NC7-65	PTMW	Tnsc0	A	CMP	E624MOD:ALL	2	Y	
NC7-65	PTMW	Tnsc0	S	CMP	E906:ALL	2	Y	
NC7-65	PTMW	Tnsc0	S	CMP	E906:ALL	4	Y	

Table 2.5-8. Pit 7 Complex Area of Operable Unit 5 ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
NC7-65	PTMW	Tnsc0	A	DIS	MS:UISO	2	Y	
NC7-67	PTMW	Tnsc0	A	CMP	AS:UISO	2	Y	
NC7-67	PTMW	Tnsc0	A	CMP	E300.0:NO3	2	Y	
NC7-67	PTMW	Tnsc0	A	CMP	E300.0:PERC	2	Y	
NC7-67	PTMW	Tnsc0	A	CMP	E624MOD:ALL	2	Y	
NC7-67	PTMW	Tnsc0	S	CMP	E906:ALL	2	Y	
NC7-67	PTMW	Tnsc0	S	CMP	E906:ALL	4	Y	
NC7-68	PTMW	Tnbs1-Tnbs0	A	DIS	AS:UISO	2	Y	
NC7-68	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:NO3	2	Y	
NC7-68	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:PERC	2	Y	
NC7-68	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	Y	
NC7-68	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	Y	
NC7-75	PTMW	Tnsc0	A	CMP	AS:UISO	2	Y	
NC7-75	PTMW	Tnsc0	A	CMP	E300.0:NO3	2	Y	
NC7-75	PTMW	Tnsc0	S	CMP	E300.0:PERC	2	Y	
NC7-75	PTMW	Tnsc0	S	CMP	E300.0:PERC	4	Y	
NC7-75	PTMW	Tnsc0	A	CMP	E624MOD:ALL	2	Y	
NC7-75	PTMW	Tnsc0	S	CMP	E906:ALL	2	Y	
NC7-75	PTMW	Tnsc0	S	CMP	E906:ALL	4	Y	
NC7-76	PTMW	Qal/WBR	A	CMP	AS:UISO	2	N	No access to well location
NC7-76	PTMW	Qal/WBR	O	CMP	E300.0:NO3	2	N	To be sampled in 2019
NC7-76	PTMW	Qal/WBR	A	CMP	E300.0:PERC	2	N	No access to well location
NC7-76	PTMW	Qal/WBR	S	CMP	E906:ALL	2	N	No access to well location
NC7-76	PTMW	Qal/WBR	S	CMP	E906:ALL	4	Y	
W-865-01	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:NO3	1	Y	
W-865-01	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:PERC	1	Y	
W-865-01	PTMW	Tnbs1-Tnbs0	S	DIS	E624MOD:ALL	1	Y	
W-865-01	PTMW	Tnbs1-Tnbs0	S	DIS	E624MOD:ALL	3	Y	
W-865-01	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	1	Y	
W-865-01	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	3	Y	
W-865-01	PTMW	Tnbs1-Tnbs0	A	DIS	T26METALS:ALL	1	Y	
W-865-03	PTMW	Tnbs1-Tnbs0	A	DIS	E300.0:NO3	1	Y	
W-865-03	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:PERC	1	Y	
W-865-03	PTMW	Tnbs1-Tnbs0	A	DIS	E906:ALL	1	Y	

Table 2.5-8. Pit 7 Complex Area of Operable Unit 5 ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-865-1804	PTMW	Tnbs1-Tnbs0	E	CMP	E300.0:NO3	1	Y	
W-865-1804	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:PERC	1	Y	
W-865-1804	PTMW	Tnbs1-Tnbs0	A	DIS	E300.0:PERC	3	Y	
W-865-1804	PTMW	Tnbs1-Tnbs0	S	DIS	E624MOD:ALL	1	Y	
W-865-1804	PTMW	Tnbs1-Tnbs0	S	DIS	E624MOD:ALL	3	Y	
W-865-1804	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	1	Y	
W-865-1804	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	3	Y	
W-PIT3-01	PTMW	Qal/WBR	A	CMP	E300.0:NO3	2	N	DRY
W-PIT3-01	PTMW	Qal/WBR	A	CMP	E300.0:PERC	2	N	DRY
W-PIT3-01	PTMW	Qal/WBR	S	CMP	E906:ALL	2	N	DRY
W-PIT3-01	PTMW	Qal/WBR	S	CMP	E906:ALL	4	N	DRY
W-PIT3-01	PTMW	Qal/WBR	A	CMP	MS:UISO	2	N	DRY
W-PIT3-02	PTMW	Qal/WBR	A	CMP	AS:UISO	2	N	DRY
W-PIT3-02	PTMW	Qal/WBR	A	CMP	E300.0:NO3	2	N	DRY
W-PIT3-02	PTMW	Qal/WBR	A	CMP	E300.0:PERC	2	N	DRY
W-PIT3-02	PTMW	Qal/WBR	S	CMP	E906:ALL	2	N	DRY
W-PIT3-02	PTMW	Qal/WBR	S	CMP	E906:ALL	4	N	DRY
W-PIT5-01	PTMW	Qal/WBR	A	CMP	AS:UISO	2	N	DRY
W-PIT5-01	PTMW	Qal/WBR	A	CMP	E300.0:NO3	2	N	DRY
W-PIT5-01	PTMW	Qal/WBR	A	CMP	E300.0:PERC	2	N	DRY
W-PIT5-01	PTMW	Qal/WBR	S	CMP	E906:ALL	2	N	DRY
W-PIT5-01	PTMW	Qal/WBR	S	CMP	E906:ALL	4	N	DRY
W-PIT5-02	PTMW	Qal/WBR	A	CMP	AS:UISO	2	N	DRY
W-PIT5-02	PTMW	Qal/WBR	A	CMP	E300.0:NO3	2	N	DRY
W-PIT5-02	PTMW	Qal/WBR	A	CMP	E300.0:PERC	2	N	DRY
W-PIT5-02	PTMW	Qal/WBR	S	CMP	E906:ALL	2	N	DRY
W-PIT5-02	PTMW	Qal/WBR	S	CMP	E906:ALL	4	N	DRY
W-PIT7-02	PTMW	Qal/WBR	A	CMP	AS:UISO	2	Y	
W-PIT7-02	PTMW	Qal/WBR	A	CMP	E300.0:NO3	2	Y	
W-PIT7-02	PTMW	Qal/WBR	A	CMP	E300.0:PERC	2	Y	
W-PIT7-02	PTMW	Qal/WBR	S	CMP	E906:ALL	1	Y	
W-PIT7-02	PTMW	Qal/WBR	S	CMP	E906:ALL	3	Y	
W-PIT7-03	PTMW	Qal/WBR	A	CMP	AS:UISO	2	Y	
W-PIT7-03	PTMW	Qal/WBR	A	CMP	E300.0:NO3	2	Y	

Table 2.5-8. Pit 7 Complex Area of Operable Unit 5 ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-PIT7-03	PTMW	Qal/WBR	A	CMP	E300.0:PERC	2	Y	
W-PIT7-03	PTMW	Qal/WBR	S	CMP	E624MOD:ALL	2	Y	
W-PIT7-03	PTMW	Qal/WBR	S	CMP	E624MOD:ALL	4	Y	
W-PIT7-03	PTMW	Qal/WBR	A	CMP	E906:ALL	1	Y	
W-PIT7-10	PTMW	Qal/WBR	A	CMP	AS:UISO	2	Y	
W-PIT7-10	PTMW	Qal/WBR	A	CMP	E300.0:NO3	2	Y	
W-PIT7-10	PTMW	Qal/WBR	A	CMP	E300.0:PERC	2	Y	
W-PIT7-10	PTMW	Qal/WBR	A	CMP	E624MOD:ALL	2	Y	
W-PIT7-10	PTMW	Qal/WBR	S	CMP	E906:ALL	2	Y	
W-PIT7-10	PTMW	Qal/WBR	S	CMP	E906:ALL	4	Y	
W-PIT7-11	PTMW	Tnbs1-Tnbs0	A	CMP	AS:UISO	2	N	Insufficient water
W-PIT7-11	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:NO3	2	N	Insufficient water
W-PIT7-11	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:PERC	2	N	Insufficient water
W-PIT7-11	PTMW	Tnbs1-Tnbs0	A	CMP	E624MOD:ALL	2	N	Insufficient water
W-PIT7-11	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	N	Insufficient water
W-PIT7-11	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	N	Insufficient water
W-PIT7-12	PTMW	Tnbs1-Tnbs0	O	CMP	AS:UISO	2	N	To be sampled in 2019
W-PIT7-12	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:NO3	2	Y	
W-PIT7-12	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:PERC	2	Y	
W-PIT7-12	PTMW	Tnbs1-Tnbs0	A	DIS	E300.0:PERC	4	Y	
W-PIT7-12	PTMW	Tnbs1-Tnbs0	A	CMP	E624MOD:ALL	2	Y	
W-PIT7-12	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	Y	
W-PIT7-12	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	Y	
W-PIT7-13	PTMW	Tnbs1-Tnbs0	A	CMP	AS:UISO	2	Y	
W-PIT7-13	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:NO3	2	Y	
W-PIT7-13	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:PERC	2	Y	
W-PIT7-13	PTMW	Tnbs1-Tnbs0	A	CMP	E624MOD:ALL	2	Y	
W-PIT7-13	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	Y	
W-PIT7-13	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	Y	
W-PIT7-14	PTMW	Tnsc0	A	CMP	E300.0:PERC	2	Y	
W-PIT7-14	PTMW	Tnsc0	A	CMP	E906:ALL	2	Y	
W-PIT7-14	PTMW	Tnsc0	A	DIS	MS:UISO	2	Y	
W-PIT7-15	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:NO3	2	N	No access to well location
W-PIT7-15	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:PERC	2	N	No access to well location

Table 2.5-8. Pit 7 Complex Area of Operable Unit 5 ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-PIT7-15	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	N	No access to well location
W-PIT7-15	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	Y	
W-PIT7-15	PTMW	Tnbs1-Tnbs0	A	CMP	MS:UISO	2	N	No access to well location
W-PIT7-1860	PTMW	Tnbs1-Tnbs0	E	DIS	AS:UISO	2	Y	
W-PIT7-1860	PTMW	Tnbs1-Tnbs0	E	CMP	E300.0:PERC	2	Y	
W-PIT7-1860	PTMW	Tnbs1-Tnbs0	E	CMP	E906:ALL	2	Y	
W-PIT7-1861	PTMW	Qal/WBR	O	CMP	AS:UISO	2	N	To be sampled in 2019
W-PIT7-1861	PTMW	Qal/WBR	O	CMP	E300.0:NO3	2	N	To be sampled in 2019
W-PIT7-1861	PTMW	Qal/WBR	O	CMP	E300.0:PERC	2	N	To be sampled in 2019
W-PIT7-1861	PTMW	Qal/WBR	O	CMP	E906:ALL	2	N	To be sampled in 2019
W-PIT7-1903	PTMW	Qal/WBR	A	DIS	AS:UISO	2	Y	
W-PIT7-1903	PTMW	Qal/WBR	A	DIS	E300.0:O-PO2	2	Y	
W-PIT7-1904	PTMW	Qal/WBR	A	DIS	AS:UISO	2	Y	
W-PIT7-1904	PTMW	Qal/WBR	A	DIS	E300.0:O-PO2	2	Y	
W-PIT7-1905	PTMW	Qal/WBR	A	DIS	AS:UISO	2	Y	
W-PIT7-1905	PTMW	Qal/WBR	A	DIS	E300.0:O-PO2	2	Y	
W-PIT7-1907	PTMW	Qal/WBR	A	DIS	AS:UISO	2	Y	
W-PIT7-1907	PTMW	Qal/WBR	A	DIS	E300.0:O-PO2	2	Y	
W-PIT7-1915	PTMW	Qal/WBR	A	DIS	AS:UISO	2	Y	
W-PIT7-1915	PTMW	Qal/WBR	A	DIS	E300.0:O-PO2	2	Y	
W-PIT7-1916	PTMW	Qal/WBR	A	DIS	AS:UISO	2	Y	
W-PIT7-1916	PTMW	Qal/WBR	A	DIS	E300.0:O-PO2	2	Y	
W-PIT7-1917	PTMW	Qal/WBR	A	DIS	AS:UISO	2	Y	
W-PIT7-1917	PTMW	Qal/WBR	A	DIS	E300.0:O-PO2	2	Y	
W-PIT7-1918	PTMW	Qal/WBR	A	CMP	E300.0:NO3	2	Y	
W-PIT7-1918	PTMW	Qal/WBR	A	DIS	E300.0:O-PO2	2	Y	
W-PIT7-1918	PTMW	Qal/WBR	A	CMP	E300.0:PERC	2	Y	
W-PIT7-1918	PTMW	Qal/WBR	A	DIS	E300.0:PERC	4	Y	
W-PIT7-1918	PTMW	Qal/WBR	A	CMP	E624MOD:ALL	2	Y	
W-PIT7-1918	PTMW	Qal/WBR	A	DIS	E624MOD:ALL	4	Y	
W-PIT7-1918	PTMW	Qal/WBR	S	CMP	E906:ALL	2	Y	
W-PIT7-1918	PTMW	Qal/WBR	S	CMP	E906:ALL	4	Y	
W-PIT7-1918	PTMW	Qal/WBR	A	CMP	MS:UISO	2	Y	
W-PIT7-1919	PTMW	Qal/WBR	A	DIS	AS:UISO	2	Y	

Table 2.5-8. Pit 7 Complex Area of Operable Unit 5 ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-PIT7-1919	PTMW	Qal/WBR	A	DIS	E300.0:O-PO2	2	Y	
W-PIT7-2141	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:NO3	2	Y	
W-PIT7-2141	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	2	Y	
W-PIT7-2141	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	4	Y	
W-PIT7-2141	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	Y	
W-PIT7-2141	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	Y	
W-PIT7-2141	PTMW	Tnbs1-Tnbs0	A	CMP	MS:UISO	2	Y	
W-PIT7-2305	EW	Qal/WBR	A	CMP-TF	AS:UISO	2	Y	
W-PIT7-2305	EW	Qal/WBR	S	CMP-TF	AS:UISO	4	Y	
W-PIT7-2305	EW	Qal/WBR	A	CMP-TF	E300.0:NO3	2	Y	
W-PIT7-2305	EW	Qal/WBR	A	CMP-TF	E300.0:PERC	2	Y	
W-PIT7-2305	EW	Qal/WBR	A	DIS-TF	E300.0:PERC	4	Y	
W-PIT7-2305	EW	Qal/WBR	A	CMP-TF	E624MOD:ALL	2	Y	
W-PIT7-2305	EW	Qal/WBR	A	DIS-TF	E624MOD:ALL	4	Y	
W-PIT7-2305	EW	Qal/WBR	S	CMP-TF	E906:ALL	2	Y	
W-PIT7-2305	EW	Qal/WBR	S	CMP-TF	E906:ALL	4	Y	
W-PIT7-2305	EW	Qal/WBR	S	DIS-TF	KPA:UTOT	2	Y	
W-PIT7-2305	EW	Qal/WBR	A	DIS-TF	MS:UISO	4	Y	
W-PIT7-2306	EW	Qal/WBR	A	CMP-TF	AS:UISO	2	Y	
W-PIT7-2306	EW	Qal/WBR	S	CMP-TF	AS:UISO	4	Y	
W-PIT7-2306	EW	Qal/WBR	A	CMP-TF	E300.0:NO3	2	Y	
W-PIT7-2306	EW	Qal/WBR	A	CMP-TF	E300.0:PERC	2	Y	
W-PIT7-2306	EW	Qal/WBR	A	DIS-TF	E300.0:PERC	4	Y	
W-PIT7-2306	EW	Qal/WBR	A	CMP-TF	E624MOD:ALL	2	Y	
W-PIT7-2306	EW	Qal/WBR	A	DIS-TF	E624MOD:ALL	4	Y	
W-PIT7-2306	EW	Qal/WBR	S	CMP-TF	E906:ALL	2	Y	
W-PIT7-2306	EW	Qal/WBR	S	CMP-TF	E906:ALL	4	Y	
W-PIT7-2306	EW	Qal/WBR	A	DIS-TF	KPA:UTOT	3	Y	
W-PIT7-2306	EW	Qal/WBR	A	DIS-TF	MS:UISO	4	Y	
W-PIT7-2307	EW	Qal/WBR	A	CMP-TF	AS:UISO	2	Y	
W-PIT7-2307	EW	Qal/WBR	S	CMP-TF	AS:UISO	4	Y	
W-PIT7-2307	EW	Qal/WBR	A	CMP-TF	E300.0:NO3	2	Y	
W-PIT7-2307	EW	Qal/WBR	A	CMP-TF	E300.0:PERC	2	Y	
W-PIT7-2307	EW	Qal/WBR	A	DIS-TF	E300.0:PERC	4	Y	

Table 2.5-8. Pit 7 Complex Area of Operable Unit 5 ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-PIT7-2307	EW	Qal/WBR	A	CMP-TF	E624MOD:ALL	2	Y	
W-PIT7-2307	EW	Qal/WBR	A	DIS-TF	E624MOD:ALL	4	Y	
W-PIT7-2307	EW	Qal/WBR	S	CMP-TF	E906:ALL	2	Y	
W-PIT7-2307	EW	Qal/WBR	S	CMP-TF	E906:ALL	4	Y	
W-PIT7-2307	EW	Qal/WBR	A	DIS-TF	KPA:UTOT	3	Y	
W-PIT7-2307	EW	Qal/WBR	A	DIS-TF	MS:UISO	4	Y	
W-PIT7-2309	PTMW	Qal/WBR	A	CMP	E300.0:NO3	2	Y	
W-PIT7-2309	PTMW	Qal/WBR	A	CMP	E300.0:PERC	2	Y	
W-PIT7-2309	PTMW	Qal/WBR	A	CMP	E624MOD:ALL	2	Y	
W-PIT7-2309	PTMW	Qal/WBR	S	CMP	E906:ALL	2	Y	
W-PIT7-2309	PTMW	Qal/WBR	S	CMP	E906:ALL	4	Y	
W-PIT7-2309	PTMW	Qal/WBR	A	CMP	MS:UISO	2	Y	
W-PIT7-2703	PTMW	Qal/WBR	A	CMP-TF	AS:UISO	2	Y	
W-PIT7-2703	PTMW	Qal/WBR	S	CMP-TF	AS:UISO	4	Y	
W-PIT7-2703	PTMW	Qal/WBR	A	CMP-TF	E300.0:NO3	2	Y	
W-PIT7-2703	PTMW	Qal/WBR	A	CMP-TF	E300.0:PERC	2	Y	
W-PIT7-2703	PTMW	Qal/WBR	A	DIS-TF	E300.0:PERC	4	Y	
W-PIT7-2703	PTMW	Qal/WBR	A	CMP-TF	E624MOD:ALL	2	Y	
W-PIT7-2703	PTMW	Qal/WBR	A	DIS-TF	E624MOD:ALL	4	Y	
W-PIT7-2703	PTMW	Qal/WBR	S	CMP-TF	E906:ALL	2	Y	
W-PIT7-2703	PTMW	Qal/WBR	S	CMP-TF	E906:ALL	4	Y	
W-PIT7-2703	PTMW	Qal/WBR	S	CMP-TF	KPA:UTOT	2	Y	
W-PIT7-2703	PTMW	Qal/WBR	A	DIS-TF	MS:UISO	4	Y	
W-PIT7-2704	PTMW	Qal/WBR	A	CMP-TF	AS:UISO	2	Y	
W-PIT7-2704	PTMW	Qal/WBR	S	CMP-TF	AS:UISO	4	Y	
W-PIT7-2704	PTMW	Qal/WBR	A	CMP-TF	E300.0:NO3	2	Y	
W-PIT7-2704	PTMW	Qal/WBR	A	CMP-TF	E300.0:PERC	2	Y	
W-PIT7-2704	PTMW	Qal/WBR	A	DIS-TF	E300.0:PERC	4	Y	
W-PIT7-2704	PTMW	Qal/WBR	A	CMP-TF	E624MOD:ALL	2	Y	
W-PIT7-2704	PTMW	Qal/WBR	A	DIS-TF	E624MOD:ALL	4	Y	
W-PIT7-2704	PTMW	Qal/WBR	S	CMP-TF	E906:ALL	2	Y	
W-PIT7-2704	PTMW	Qal/WBR	S	CMP-TF	E906:ALL	4	Y	
W-PIT7-2704	PTMW	Qal/WBR	A	CMP-TF	KPA:UTOT	3	Y	
W-PIT7-2704	PTMW	Qal/WBR	A	DIS-TF	MS:UISO	4	Y	

Table 2.5-8. Pit 7 Complex Area of Operable Unit 5 ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-PIT7-2705	PTMW	Qal/WBR	A	CMP-TF	AS:UISO	2	Y	
W-PIT7-2705	PTMW	Qal/WBR	S	CMP-TF	AS:UISO	4	Y	
W-PIT7-2705	PTMW	Qal/WBR	A	CMP-TF	E300.0:NO3	2	Y	
W-PIT7-2705	PTMW	Qal/WBR	A	CMP-TF	E300.0:PERC	2	Y	
W-PIT7-2705	PTMW	Qal/WBR	A	DIS-TF	E300.0:PERC	4	Y	
W-PIT7-2705	PTMW	Qal/WBR	A	CMP-TF	E624MOD:ALL	2	Y	
W-PIT7-2705	PTMW	Qal/WBR	A	DIS-TF	E624MOD:ALL	4	Y	
W-PIT7-2705	PTMW	Qal/WBR	S	CMP-TF	E906:ALL	2	Y	
W-PIT7-2705	PTMW	Qal/WBR	S	CMP-TF	E906:ALL	4	Y	
W-PIT7-2705	PTMW	Qal/WBR	S	CMP-TF	KPA:UTOT	2	Y	
W-PIT7-2705	PTMW	Qal/WBR	A	DIS-TF	MS:UISO	4	Y	

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ft = Feet
g = Grams
GWTS = Groundwater treatment system
HSU = Hydrostratigraphic unit
Kcf = Thousands of cubic feet
kg = Kilograms
Kgal = Thousands of gallons
Mcf = Millions of cubic feet
PRX = Proximal
PRXN = Proximal North
PTMW = Plume Tracking Monitor Well
RDX = Research Department Explosive
SRC = Source
SVTS = Soil vapor treatment system
TBOS = Tetra 2-ethylbutylorthosilicate
TKEBS = Tetrakis (2-ethylbutyl) silane
VOC = Volatile organic compound

Table 2.5-9. PIT7-Source mass removed, July 1, 2018 through December 31, 2018.

Treatment facility	Month	SVTS VOC mass removed (g)	GWTS VOC mass removed (g)	Perchlorate mass removed (g)	Nitrate mass removed (kg)	Total Uranium mass removed (g)
PIT7-SRC	July	-	< 0.0001	0.096	0.61	1.9
	August	-	0	0.11	0.80	1.6
	September	-	0	0.11	0.84	1.3
	October	-	0	0.035	0.27	0.38
	November	-	0	0.092	0.72	0.94
	December	-	0	0.099	0.62	0.80
Total		-	< 0.0001	0.54	3.9	6.8

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- DSB = Distal site boundary
- EGSA = Eastern General Services Area
- ft = Feet
- g = Grams
- GWTS = Groundwater treatment system
- HSU = Hydrostratigraphic unit
- Kcf = Thousands of cubic feet
- kg = Kilograms
- Kgal = Thousands of gallons
- Mcf = Millions of cubic feet
- PRX = Proximal
- PRXN = Proximal North
- PTMW = Plume Tracking Monitor Well
- RDX = Research Department Explosive
- SRC = Source
- SVTS = Soil vapor treatment system
- TBOS = Tetra 2-ethylbutylorthosilicate
- TKEBS = Tetrakis (2-ethylbutyl) silane
- VOC = Volatile organic compound

Table 2.6-1. Building 854-Source volumes of groundwater and soil vapor extracted and discharged, July 1, 2018 through December 31, 2018.

Treatment facility	Month	SVTS Operational hours	GWTS Operational hours	Volume of vapor extracted (thousands of cf)	Volume of groundwater discharged (gal)
854-SRC	July	794	792	2,188	308,208
	August	696	692	1,926	164,655
	September	594	602	1,649	91,493
	October	610	574	1,693	135,437
	November	688	448	1,897	125,870
	December	647	0	1,774	0
Total		4,029	3,108	11,127	825,663

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EGSA = Eastern General Services Area
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g = Grams
GWTS = Groundwater treatment system
HSU = Hydrostratigraphic unit
Kcf = Thousands of cubic feet
kg = Kilograms
Kgal = Thousands of gallons
Mcf = Millions of cubic feet
PRX = Proximal
PRXN = Proximal North
PTMW = Plume Tracking Monitor Well
RDX = Research Department Explosive
SRC = Source
SVTS = Soil vapor treatment system
TBOS = Tetra 2-ethylbutylorthosilicate
TKEBS = Tetrakis (2-ethylbutyl) silane
VOC = Volatile organic compound

Table 2.6-2. Building 854-Proximal volumes of groundwater and soil vapor extracted and discharged, July 1, 2018 through December 31, 2018.

Treatment facility	Month	SVTS Operational hours	GWTS Operational hours	Volume of vapor extracted (thousands of cf)	Volume of groundwater discharged (gal)
854-PRX	July	-	792	-	142,489
	August	-	696	-	125,250
	September	-	602	-	106,742
	October	-	519	-	93,324
	November	-	23	-	4,120
	December	-	0	-	0
Total		-	2,632	-	471,925

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EGSA = Eastern General Services Area
ft = Feet
g = Grams
GWTS = Groundwater treatment system
HSU = Hydrostratigraphic unit
Kcf = Thousands of cubic feet
kg = Kilograms
Kgal = Thousands of gallons
Mcf = Millions of cubic feet
PRX = Proximal
PRXN = Proximal North
PTMW = Plume Tracking Monitor Well
RDX = Research Department Explosive
SRC = Source
SVTS = Soil vapor treatment system
TBOS = Tetra 2-ethylbutylorthosilicate
TKEBS = Tetrakis (2-ethylbutyl) silane
VOC = Volatile organic compound

Table 2.6-3. Building 854-Distal volumes of groundwater and soil vapor extracted and discharged, July 1, 2018 through December 31, 2018.

Treatment facility	Month	SVTS Operational hours	GWTS Operational hours	Volume of vapor extracted (thousands of cf)	Volume of groundwater discharged (gal)
854-DIS	July	-	20	-	1,321
	August	-	15	-	988
	September	-	14	-	878
	October	-	6	-	383
	November	-	0	-	0
	December	-	0	-	0
Total		-	55	-	3,570

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EGSA = Eastern General Services Area
ft = Feet
g = Grams
GWTS = Groundwater treatment system
HSU = Hydrostratigraphic unit
Kcf = Thousands of cubic feet
kg = Kilograms
Kgal = Thousands of gallons
Mcf = Millions of cubic feet
PRX = Proximal
PRXN = Proximal North
PTMW = Plume Tracking Monitor Well
RDX = Research Department Explosive
SRC = Source
SVTS = Soil vapor treatment system
TBOS = Tetra 2-ethylbutylorthosilicate
TKEBS = Tetrakis (2-ethylbutyl) silane
VOC = Volatile organic compound

Table 2.6-4. Building 854 Operable Unit volatile organic compounds (VOCs) in groundwater extraction and treatment system influent and effluent.

Location	Date	TCE (µg/L)	PCE (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	Carbon tetrachloride (µg/L)	Chloroform (µg/L)	1,1-DCA (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	1,1,1-TCA (µg/L)	1,1,2-TCA (µg/L)	Freon 11 (µg/L)	Freon 113 (µg/L)	Vinyl chloride (µg/L)
Building 854-Distal[a]															
854-DIS-I	7/10/18	20	<0.5	0.72	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
854-DIS-I	10/1/18	23	<0.5	0.74	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
854-DIS-I	10/1/18 DUP	24	<0.5	0.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
854-DIS-E	7/10/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
854-DIS-E	8/7/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
854-DIS-E	9/4/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
854-DIS-E	10/1/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Building 854-Proximal[b]															
854-PRX-I	7/10/18	5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
854-PRX-I	10/1/18	5.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
854-PRX-I	10/1/18 DUP	6.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
854-PRX-E	7/10/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
854-PRX-E	8/7/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
854-PRX-E	9/4/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
854-PRX-E	10/1/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
854-PRX-E	11/14/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Building 854-Source[b]															
854-SRC-I	7/9/18	22	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
854-SRC-I	10/2/18	14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
854-SRC-I	10/2/18 DUP	14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
854-SRC-E	7/9/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
854-SRC-E	8/7/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
854-SRC-E	9/4/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
854-SRC-E	10/2/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
854-SRC-E	11/1/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

[a] No samples collected in November or December; system dismantelled for conversion to extraction only system.

[b] No samples collected in December; system offline for freeze protection.

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HSU	=	Hydrostratigraphic unit
Kcf	=	Thousands of cubic feet
kg	=	Kilograms
Kgal	=	Thousands of gallons
Mcf	=	Millions of cubic feet
PRX	=	Proximal
PRXN	=	Proximal North
PTMW	=	Plume Tracking Monitor Well
RDX	=	Research Department Explosive
SRC	=	Source
SVTS	=	Soil vapor treatment system
TBOS	=	Tetra 2-ethylbutylorthosilicate
TKEBS	=	Tetrakis (2-ethylbutyl) silane
VOC	=	Volatile organic compound

Table 2.6-4 Analyte detected but not reported in main table.

Location	Date	Detection frequency
Building 854-Distal[a]		
854-DIS-I	7/10/18	0 of 18
854-DIS-I	10/1/18	0 of 18
854-DIS-I	10/1/18 DUP	0 of 18
854-DIS-E	7/10/18	0 of 18
854-DIS-E	8/7/18	0 of 18
854-DIS-E	9/4/18	0 of 18
854-DIS-E	10/1/18	0 of 18
Building 854-Proximal[b]		
854-PRX-I	7/10/18	0 of 18
854-PRX-I	10/1/18	0 of 18
854-PRX-I	10/1/18 DUP	0 of 18
854-PRX-E	7/10/18	0 of 18
854-PRX-E	8/7/18	0 of 18
854-PRX-E	9/4/18	0 of 18
854-PRX-E	10/1/18	0 of 18
854-PRX-E	11/14/18	0 of 18
Building 854-Source[b]		
854-SRC-I	7/9/18	0 of 18
854-SRC-I	10/2/18	0 of 18
854-SRC-I	10/2/18 DUP	0 of 18
854-SRC-E	7/9/18	0 of 18
854-SRC-E	8/7/18	0 of 18
854-SRC-E	9/4/18	0 of 18
854-SRC-E	10/2/18	0 of 18
854-SRC-E	11/1/18	0 of 18

[a] No samples collected in November or December; system dismantelled for conversion to extraction only system.

[b] No samples collected in December; system off line for freeze protection.

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kg = Kilograms
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PRX = Proximal
PRXN = Proximal North
PTMW = Plume Tracking Monitor Well
RDX = Research Department Explosive
SRC = Source
SVTS = Soil vapor treatment system
TBOS = Tetra 2-ethylbutylorthosilicate
TKEBS = Tetrakis (2-ethylbutyl) silane
VOC = Volatile organic compound

Table 2.6-5. Building 854 Operable Unit nitrate and perchlorate in groundwater extraction and treatment system influent and effluent.

Location	Date	Nitrate as NO3 (mg/L)	Perchlorate (µg/L)
Building 854-Distal[a]			
854-DIS-I	7/10/18	20	5
854-DIS-I	10/1/18	22	4.4
854-DIS-I	10/1/18 DUP	21	5
854-DIS-E	7/10/18	17	<4
854-DIS-E	8/7/18	15	<4
854-DIS-E	9/4/18	14	<4
854-DIS-E	10/1/18	13	<4
Building 854-Proximal[b]			
854-PRX-I	7/10/18	38	<4
854-PRX-I[c]	8/7/18	39	-
854-PRX-I[c]	9/4/18	39	-
854-PRX-I	10/1/18	39	<4
854-PRX-I	10/1/18 DUP	36 D	<4
854-PRX-I[c]	11/14/18	39	-
854-PRX-I[c]	11/14/18 DUP	36 D	-
854-PRX-E	7/10/18	40	<4
854-PRX-E	8/7/18	39	<4
854-PRX-E	9/4/18	40	<4
854-PRX-E	10/1/18	40	<4
854-PRX-E	11/14/18	37	<4
Building 854-Source[b,d]			
854-SRC-I	7/9/18	53	<4
854-SRC-I	10/2/18	51	<4
854-SRC-I	10/2/18 DUP	71 D	<4
854-SRC-E	7/9/18	-	<4
854-SRC-E	8/7/18	-	<4
854-SRC-E	9/4/18	-	<4
854-SRC-E	10/2/18	-	<4
854-SRC-E	11/1/18	-	<4

[a] No samples collected in November or December; system dismantelled for conversion to extraction only system.

[b] No samples collected in December; system off line for freeze protection.

[c] Extra nitrate monitoring conducted for trend ananysis.

[d] Effluent nitrate monitoring not required due to misting discharge.

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Kcf	=	Thousands of cubic feet
kg	=	Kilograms
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PRX	=	Proximal
PRXN	=	Proximal North
PTMW	=	Plume Tracking Monitor Well
RDX	=	Research Department Explosive
SRC	=	Source
SVTS	=	Soil vapor treatment system
TBOS	=	Tetra 2-ethylbutylorthosilicate
TKEBS	=	Tetrakis (2-ethylbutyl) silane
VOC	=	Volatile organic compound

Table 2.6-6. Building 854 Operable Unit treatment facility sampling and analysis plan.

Sample location	Sample identification	Parameter	Frequency
854-SRC GWTS			
Influent Port	**854-SRC-I**	**VOCs**	**Quarterly**
		Perchlorate	**Quarterly**
Effluent Port	**854-SRC-E**	**VOCs**	**Monthly**
		Perchlorate	**Monthly**
		pH	**Monthly**
854-SRC SVTS			
Influent Port	**W-854-1834-854-SRC-VI**	**No Monitoring Requirements**	
Effluent Port	**854-SRC-VE**	**VOCs**	**Weekly[a]**
Intermediate GAC	**854-SRC-VCF3I**	**VOCs**	**Weekly[a]**
854-PRX GWTS			
Influent Port	**W-854-03-854-PRX-I**	**VOCs**	**Quarterly**
		Perchlorate	**Quarterly**
		Nitrate	**Quarterly**
Effluent Port	**854-PRX-E**	**VOCs**	**Monthly**
		Perchlorate	**Monthly**
		Nitrate	**Monthly**
		pH	**Monthly**
854-DIS GWTS			
Influent Port	**W-854-2139-854-DIS-I**	**VOCs**	**Quarterly**
		Perchlorate	**Quarterly**
		Nitrate	**Quarterly**
Effluent Port[b]	**854-DIS-E**	**NA**	**NA**

[a] Weekly monitoring for VOCs will consist of the use of a flame-ionization detector, photo-ionization detector, or other District-approved VOC detection device.

[b] Effluent monitoring no longer required due to extracted water being treated at 854-SRC GWTS.

Notes:
One duplicate and one blank (given fictitious labels) shall be taken for every 12 samples.

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ft	=	Feet
g	=	Grams
GWTS	=	Groundwater treatment system
HSU	=	Hydrostratigraphic unit
Kcf	=	Thousands of cubic feet
kg	=	Kilograms
Kgal	=	Thousands of gallons
Mcf	=	Millions of cubic feet
PRX	=	Proximal
PRXN	=	Proximal North
PTMW	=	Plume Tracking Monitor Well
RDX	=	Research Department Explosive
SRC	=	Source
SVTS	=	Soil vapor treatment system
TBOS	=	Tetra 2-ethylbutylorthosilicate
TKEBS	=	Tetrakis (2-ethylbutyl) silane
VOC	=	Volatile organic compound

Table 2.6-7. Building 854 Operable Unit ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-854-01	PTMW	Tnsc0	A	CMP	E300.0:NO3	2	Y	
W-854-01	PTMW	Tnsc0	S	CMP	E300.0:PERC	2	Y	
W-854-01	PTMW	Tnsc0	S	CMP	E300.0:PERC	4	Y	
W-854-01	PTMW	Tnsc0	S	CMP	E624MOD:ALL	2	Y	
W-854-01	PTMW	Tnsc0	S	CMP	E624MOD:ALL	4	Y	
W-854-02	EW	Tnbs1-Tnsc0	A	CMP-TF	E300.0:NO3	2	Y	
W-854-02	EW	Tnbs1-Tnsc0	S	DIS-TF	E300.0:PERC	1	Y	
W-854-02	EW	Tnbs1-Tnsc0	S	CMP-TF	E300.0:PERC	2	Y	
W-854-02	EW	Tnbs1-Tnsc0	S	DIS-TF	E300.0:PERC	3	Y	
W-854-02	EW	Tnbs1-Tnsc0	S	CMP-TF	E300.0:PERC	4	Y	
W-854-02	EW	Tnbs1-Tnsc0	S	DIS-TF	E624MOD:ALL	1	Y	
W-854-02	EW	Tnbs1-Tnsc0	S	CMP-TF	E624MOD:ALL	2	Y	
W-854-02	EW	Tnbs1-Tnsc0	S	DIS-TF	E624MOD:ALL	3	Y	
W-854-02	EW	Tnbs1-Tnsc0	S	CMP-TF	E624MOD:ALL	4	Y	
W-854-03	EW	Tnbs1-Tnsc0	M	DIS-TF	E300.0:NO3	1	Y	
W-854-03	EW	Tnbs1-Tnsc0	M	DIS-TF	E300.0:NO3	1	N	Well location under construction
W-854-03	EW	Tnbs1-Tnsc0	M	DIS-TF	E300.0:NO3	1	N	Well location under construction
W-854-03	EW	Tnbs1-Tnsc0	M	DIS-TF	E300.0:NO3	2	N	Well location under construction
W-854-03	EW	Tnbs1-Tnsc0	M	DIS-TF	E300.0:NO3	2	Y	
W-854-03	EW	Tnbs1-Tnsc0	M	DIS-TF	E300.0:NO3	2	Y	
W-854-03	EW	Tnbs1-Tnsc0	M	DIS-TF	E300.0:NO3	3	Y	
W-854-03	EW	Tnbs1-Tnsc0	M	DIS-TF	E300.0:NO3	3	Y	
W-854-03	EW	Tnbs1-Tnsc0	M	DIS-TF	E300.0:NO3	3	Y	
W-854-03	EW	Tnbs1-Tnsc0	M	DIS-TF	E300.0:NO3	4	Y	
W-854-03	EW	Tnbs1-Tnsc0	M	DIS-TF	E300.0:NO3	4	Y	
W-854-03	EW	Tnbs1-Tnsc0	M	DIS-TF	E300.0:NO3	4	N	
W-854-03	EW	Tnbs1-Tnsc0	Q	DIS-TF	E300.0:PERC	1	Y	
W-854-03	EW	Tnbs1-Tnsc0	Q	DIS-TF	E300.0:PERC	2	N	Well location under construction
W-854-03	EW	Tnbs1-Tnsc0	Q	DIS-TF	E300.0:PERC	3	Y	
W-854-03	EW	Tnbs1-Tnsc0	Q	DIS-TF	E300.0:PERC	4	Y	
W-854-03	EW	Tnbs1-Tnsc0	Q	DIS-TF	E624MOD:ALL	1	Y	
W-854-03	EW	Tnbs1-Tnsc0	Q	DIS-TF	E624MOD:ALL	2	N	Well location under construction
W-854-03	EW	Tnbs1-Tnsc0	Q	DIS-TF	E624MOD:ALL	3	Y	
W-854-03	EW	Tnbs1-Tnsc0	Q	DIS-TF	E624MOD:ALL	4	Y	
W-854-04	PTMW	Tmss	A	CMP	E300.0:NO3	2	Y	
W-854-04	PTMW	Tmss	S	CMP	E300.0:PERC	2	Y	
W-854-04	PTMW	Tmss	S	CMP	E300.0:PERC	4	Y	
W-854-04	PTMW	Tmss	S	CMP	E624MOD:ALL	2	Y	
W-854-04	PTMW	Tmss	S	CMP	E624MOD:ALL	4	Y	

Table 2.6-7. Building 854 Operable Unit ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-854-05	PTMW	Qls-Tnbs1	A	CMP	E300.0:NO3	2	Y	
W-854-05	PTMW	Qls-Tnbs1	S	CMP	E300.0:PERC	2	Y	
W-854-05	PTMW	Qls-Tnbs1	S	CMP	E300.0:PERC	4	Y	
W-854-05	PTMW	Qls-Tnbs1	S	CMP	E624MOD:ALL	2	Y	
W-854-05	PTMW	Qls-Tnbs1	S	CMP	E624MOD:ALL	4	Y	
W-854-06	PTMW	Tnbs1-Tnsc0	A	CMP	E300.0:NO3	2	Y	
W-854-06	PTMW	Tnbs1-Tnsc0	S	CMP	E300.0:PERC	2	Y	
W-854-06	PTMW	Tnbs1-Tnsc0	S	CMP	E300.0:PERC	4	Y	
W-854-06	PTMW	Tnbs1-Tnsc0	S	CMP	E624MOD:ALL	2	Y	
W-854-06	PTMW	Tnbs1-Tnsc0	S	CMP	E624MOD:ALL	4	Y	
W-854-07	PTMW	Tnbs1-Tnsc0	A	CMP	E300.0:NO3	2	Y	
W-854-07	PTMW	Tnbs1-Tnsc0	S	CMP	E300.0:PERC	2	Y	
W-854-07	PTMW	Tnbs1-Tnsc0	S	CMP	E300.0:PERC	4	Y	
W-854-07	PTMW	Tnbs1-Tnsc0	S	CMP	E624MOD:ALL	2	Y	
W-854-07	PTMW	Tnbs1-Tnsc0	S	CMP	E624MOD:ALL	4	Y	
W-854-08	PTMW	Tnbs1-Tnsc0	A	CMP	E300.0:NO3	2	Y	
W-854-08	PTMW	Tnbs1-Tnsc0	S	CMP	E300.0:PERC	2	Y	
W-854-08	PTMW	Tnbs1-Tnsc0	S	CMP	E300.0:PERC	4	Y	
W-854-08	PTMW	Tnbs1-Tnsc0	S	CMP	E624MOD:ALL	2	Y	
W-854-08	PTMW	Tnbs1-Tnsc0	S	CMP	E624MOD:ALL	4	Y	
W-854-09	PTMW	Tnbs1-Tnsc0	A	CMP	E300.0:NO3	2	N	Insufficient water
W-854-09	PTMW	Tnbs1-Tnsc0	S	CMP	E300.0:PERC	2	N	Insufficient water
W-854-09	PTMW	Tnbs1-Tnsc0	S	CMP	E300.0:PERC	4	N	Insufficient water
W-854-09	PTMW	Tnbs1-Tnsc0	S	CMP	E624MOD:ALL	2	N	Insufficient water
W-854-09	PTMW	Tnbs1-Tnsc0	S	CMP	E624MOD:ALL	4	N	Insufficient water
W-854-10	PTMW	Qls-Tnbs1	A	CMP	E300.0:NO3	2	Y	
W-854-10	PTMW	Qls-Tnbs1	S	CMP	E300.0:PERC	2	Y	
W-854-10	PTMW	Qls-Tnbs1	S	CMP	E300.0:PERC	4	Y	
W-854-10	PTMW	Qls-Tnbs1	S	CMP	E624MOD:ALL	2	Y	
W-854-10	PTMW	Qls-Tnbs1	S	CMP	E624MOD:ALL	4	Y	
W-854-11	PTMW	Tnbs1-Tnsc0	A	CMP	E300.0:NO3	2	N	DRY
W-854-11	PTMW	Tnbs1-Tnsc0	S	CMP	E300.0:PERC	2	N	DRY
W-854-11	PTMW	Tnbs1-Tnsc0	S	CMP	E300.0:PERC	4	N	DRY
W-854-11	PTMW	Tnbs1-Tnsc0	S	CMP	E624MOD:ALL	2	N	DRY
W-854-11	PTMW	Tnbs1-Tnsc0	S	CMP	E624MOD:ALL	4	N	DRY
W-854-12	PTMW	Tmss	A	CMP	E300.0:NO3	2	N	Insufficient water
W-854-12	PTMW	Tmss	S	CMP	E300.0:PERC	2	N	Insufficient water
W-854-12	PTMW	Tmss	S	CMP	E300.0:PERC	4	N	Insufficient water
W-854-12	PTMW	Tmss	S	CMP	E624MOD:ALL	2	N	Insufficient water

Table 2.6-7. Building 854 Operable Unit ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-854-12	PTMW	Tmss	S	CMP	E624MOD:ALL	4	N	Insufficient water
W-854-13	PTMW	Tnbs1-Tnsc0	A	CMP	E300.0:NO3	2	Y	
W-854-13	PTMW	Tnbs1-Tnsc0	S	CMP	E300.0:PERC	2	Y	
W-854-13	PTMW	Tnbs1-Tnsc0	S	CMP	E300.0:PERC	4	Y	
W-854-13	PTMW	Tnbs1-Tnsc0	S	CMP	E624MOD:ALL	2	Y	
W-854-13	PTMW	Tnbs1-Tnsc0	S	CMP	E624MOD:ALL	4	Y	
W-854-14	PTMW	Qls-Tnbs1	A	CMP	E300.0:NO3	2	Y	
W-854-14	PTMW	Qls-Tnbs1	S	CMP	E300.0:PERC	2	Y	
W-854-14	PTMW	Qls-Tnbs1	S	CMP	E300.0:PERC	4	Y	
W-854-14	PTMW	Qls-Tnbs1	S	CMP	E624MOD:ALL	2	Y	
W-854-14	PTMW	Qls-Tnbs1	S	CMP	E624MOD:ALL	4	Y	
W-854-15	PTMW	Qls-Tnbs1	A	CMP	E300.0:NO3	2	Y	
W-854-15	PTMW	Qls-Tnbs1	S	CMP	E300.0:PERC	2	Y	
W-854-15	PTMW	Qls-Tnbs1	S	CMP	E300.0:PERC	4	Y	
W-854-15	PTMW	Qls-Tnbs1	S	CMP	E624MOD:ALL	2	Y	
W-854-15	PTMW	Qls-Tnbs1	S	CMP	E624MOD:ALL	4	Y	
W-854-17	PTMW	Tnbs1-Tnsc0	A	CMP	E300.0:NO3	2	Y	
W-854-17	PTMW	Tnbs1-Tnsc0	S	CMP	E300.0:PERC	2	Y	
W-854-17	PTMW	Tnbs1-Tnsc0	S	CMP	E300.0:PERC	4	Y	
W-854-17	PTMW	Tnbs1-Tnsc0	S	CMP	E624MOD:ALL	2	Y	
W-854-17	PTMW	Tnbs1-Tnsc0	S	CMP	E624MOD:ALL	4	Y	
W-854-18A	PTMW	Tnbs1-Tnsc0	A	CMP	E300.0:NO3	2	Y	
W-854-18A	PTMW	Tnbs1-Tnsc0	S	CMP	E300.0:PERC	2	Y	
W-854-18A	PTMW	Tnbs1-Tnsc0	S	CMP	E300.0:PERC	4	Y	
W-854-18A	PTMW	Tnbs1-Tnsc0	S	CMP	E624MOD:ALL	2	Y	
W-854-18A	PTMW	Tnbs1-Tnsc0	S	CMP	E624MOD:ALL	4	Y	
W-854-19	PTMW	Qls-Tnbs1	O	CMP	E300.0:NO3	2	N	To be sampled in 2019
W-854-19	PTMW	Qls-Tnbs1	O	CMP	E300.0:PERC	2	N	To be sampled in 2019
W-854-19	PTMW	Qls-Tnbs1	O	CMP	E624MOD:ALL	2	N	To be sampled in 2019
W-854-45	PTMW	Tnbs1-Tnsc0	A	CMP	E300.0:NO3	2	Y	
W-854-45	PTMW	Tnbs1-Tnsc0	S	CMP	E300.0:PERC	2	Y	
W-854-45	PTMW	Tnbs1-Tnsc0	S	CMP	E300.0:PERC	4	Y	
W-854-45	PTMW	Tnbs1-Tnsc0	S	CMP	E624MOD:ALL	2	Y	
W-854-45	PTMW	Tnbs1-Tnsc0	S	CMP	E624MOD:ALL	4	Y	
W-854-1701	PTMW	Tnsc0	A	CMP	E300.0:NO3	2	Y	
W-854-1701	PTMW	Tnsc0	S	CMP	E300.0:PERC	2	Y	
W-854-1701	PTMW	Tnsc0	S	CMP	E300.0:PERC	4	Y	
W-854-1701	PTMW	Tnsc0	S	CMP	E624MOD:ALL	2	Y	
W-854-1701	PTMW	Tnsc0	S	CMP	E624MOD:ALL	4	Y	

Table 2.6-7. Building 854 Operable Unit ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-854-1707	PTMW	Tnbs1-Tnsc0	A	CMP	E300.0:NO3	2	Y	
W-854-1707	PTMW	Tnbs1-Tnsc0	S	CMP	E300.0:PERC	2	Y	
W-854-1707	PTMW	Tnbs1-Tnsc0	S	CMP	E300.0:PERC	4	Y	
W-854-1707	PTMW	Tnbs1-Tnsc0	S	CMP	E624MOD:ALL	2	Y	
W-854-1707	PTMW	Tnbs1-Tnsc0	S	CMP	E624MOD:ALL	4	Y	
W-854-1731	PTMW	Tnsc0	A	CMP	E300.0:NO3	2	Y	
W-854-1731	PTMW	Tnsc0	S	CMP	E300.0:PERC	2	Y	
W-854-1731	PTMW	Tnsc0	S	CMP	E300.0:PERC	4	Y	
W-854-1731	PTMW	Tnsc0	S	CMP	E624MOD:ALL	2	Y	
W-854-1731	PTMW	Tnsc0	S	CMP	E624MOD:ALL	4	Y	
W-854-1822	PTMW	Tnbs1-Tnsc0	A	CMP	E300.0:NO3	2	Y	
W-854-1822	PTMW	Tnbs1-Tnsc0	S	CMP	E300.0:PERC	2	Y	
W-854-1822	PTMW	Tnbs1-Tnsc0	S	CMP	E300.0:PERC	4	Y	
W-854-1822	PTMW	Tnbs1-Tnsc0	S	CMP	E624MOD:ALL	2	Y	
W-854-1822	PTMW	Tnbs1-Tnsc0	S	CMP	E624MOD:ALL	4	Y	
W-854-1823	PTMW	Tnbs1-Tnsc0	A	CMP	E300.0:NO3	2	Y	
W-854-1823	PTMW	Tnbs1-Tnsc0	S	CMP	E300.0:PERC	2	Y	
W-854-1823	PTMW	Tnbs1-Tnsc0	S	CMP	E300.0:PERC	4	Y	
W-854-1823	PTMW	Tnbs1-Tnsc0	S	CMP	E624MOD:ALL	2	Y	
W-854-1823	PTMW	Tnbs1-Tnsc0	S	CMP	E624MOD:ALL	4	Y	
W-854-1902	PTMW	Tnbs1-Tnsc0	A	CMP	E300.0:NO3	2	N	DRY
W-854-1902	PTMW	Tnbs1-Tnsc0	S	CMP	E300.0:PERC	2	N	DRY
W-854-1902	PTMW	Tnbs1-Tnsc0	S	CMP	E300.0:PERC	4	N	DRY
W-854-1902	PTMW	Tnbs1-Tnsc0	S	CMP	E624MOD:ALL	2	N	DRY
W-854-1902	PTMW	Tnbs1-Tnsc0	S	CMP	E624MOD:ALL	4	N	DRY
W-854-2115	PTMW	Tnbs1-Tnsc0	A	CMP	E300.0:NO3	2	Y	
W-854-2115	PTMW	Tnbs1-Tnsc0	S	CMP	E300.0:PERC	2	Y	
W-854-2115	PTMW	Tnbs1-Tnsc0	S	CMP	E300.0:PERC	4	Y	
W-854-2115	PTMW	Tnbs1-Tnsc0	S	CMP	E624MOD:ALL	2	Y	
W-854-2115	PTMW	Tnbs1-Tnsc0	S	CMP	E624MOD:ALL	4	Y	
W-854-2139	EW	Tnbs1-Tnsc0	Q	DIS-TF	E300.0:NO3	1	Y	
W-854-2139	EW	Tnbs1-Tnsc0	Q	DIS-TF	E300.0:NO3	2	Y	
W-854-2139	EW	Tnbs1-Tnsc0	Q	DIS-TF	E300.0:NO3	3	Y	
W-854-2139	EW	Tnbs1-Tnsc0	Q	DIS-TF	E300.0:NO3	4	Y	
W-854-2139	EW	Tnbs1-Tnsc0	Q	DIS-TF	E300.0:PERC	1	Y	
W-854-2139	EW	Tnbs1-Tnsc0	Q	DIS-TF	E300.0:PERC	2	Y	
W-854-2139	EW	Tnbs1-Tnsc0	Q	DIS-TF	E300.0:PERC	3	Y	
W-854-2139	EW	Tnbs1-Tnsc0	Q	DIS-TF	E300.0:PERC	4	Y	
W-854-2139	EW	Tnbs1-Tnsc0	Q	DIS-TF	E624MOD:ALL	1	Y	

Table 2.6-7. Building 854 Operable Unit ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-854-2139	EW	Tnbs1-Tnsc0	Q	DIS-TF	E624MOD:ALL	2	Y	
W-854-2139	EW	Tnbs1-Tnsc0	Q	DIS-TF	E624MOD:ALL	3	Y	
W-854-2139	EW	Tnbs1-Tnsc0	Q	DIS-TF	E624MOD:ALL	4	Y	
W-854-2218	EW	Tnbs1-Tnsc0	A	CMP-TF	E300.0:NO3	2	Y	
W-854-2218	EW	Tnbs1-Tnsc0	S	DIS-TF	E300.0:PERC	1	Y	
W-854-2218	EW	Tnbs1-Tnsc0	S	CMP-TF	E300.0:PERC	2	Y	
W-854-2218	EW	Tnbs1-Tnsc0	S	DIS-TF	E300.0:PERC	3	Y	
W-854-2218	EW	Tnbs1-Tnsc0	S	CMP-TF	E300.0:PERC	4	Y	
W-854-2218	EW	Tnbs1-Tnsc0	S	DIS-TF	E624MOD:ALL	1	Y	
W-854-2218	EW	Tnbs1-Tnsc0	S	CMP-TF	E624MOD:ALL	2	Y	
W-854-2218	EW	Tnbs1-Tnsc0	S	DIS-TF	E624MOD:ALL	3	Y	
W-854-2218	EW	Tnbs1-Tnsc0	S	CMP-TF	E624MOD:ALL	4	Y	
W-854-2611	PTMW	Tnbs1/Tnsc0	A	CMP	E300.0:NO3	2	Y	
W-854-2611	PTMW	Tnbs1/Tnsc0	S	CMP	E300.0:PERC	2	Y	
W-854-2611	PTMW	Tnbs1/Tnsc0	S	CMP	E300.0:PERC	4	Y	
W-854-2611	PTMW	Tnbs1/Tnsc0	S	CMP	E624MOD:ALL	2	Y	
W-854-2611	PTMW	Tnbs1/Tnsc0	S	CMP	E624MOD:ALL	4	Y	
W-854-3305	IW	Tnbs1/Tnsc0	S	DIS	E300.0:NO3	1	Y	
W-854-3305	IW	Tnbs1/Tnsc0	A	CMP	E300.0:NO3	2	Y	
W-854-3305	IW	Tnbs1/Tnsc0	S	DIS	E300.0:NO3	3	Y	
W-854-3305	IW	Tnbs1/Tnsc0	A	DIS	E300.0:NO3	4	Y	
W-854-3305	IW	Tnbs1/Tnsc0	S	DIS	E300.0:PERC	1	Y	
W-854-3305	IW	Tnbs1/Tnsc0	S	CMP	E300.0:PERC	2	Y	
W-854-3305	IW	Tnbs1/Tnsc0	S	DIS	E300.0:PERC	3	Y	
W-854-3305	IW	Tnbs1/Tnsc0	S	CMP	E300.0:PERC	4	Y	
W-854-3305	IW	Tnbs1/Tnsc0	S	DIS	E624MOD:ALL	2	Y	
W-854-3305	IW	Tnbs1/Tnsc0	S	DIS	E624MOD:ALL	3	Y	
W-854-3305	IW	Tnbs1/Tnsc0	S	CMP	E624MOD:ALL	4	Y	
W-854-3306	EW	Tnbs1/Tnsc0	S	DIS	E300.0:NO3	1	Y	
W-854-3306	EW	Tnbs1/Tnsc0	A	CMP	E300.0:NO3	2	Y	
W-854-3306	EW	Tnbs1/Tnsc0	S	DIS	E300.0:NO3	3	Y	
W-854-3306	EW	Tnbs1/Tnsc0	A	DIS	E300.0:NO3	4	Y	
W-854-3306	EW	Tnbs1/Tnsc0	S	DIS	E300.0:PERC	1	Y	
W-854-3306	EW	Tnbs1/Tnsc0	S	CMP	E300.0:PERC	2	Y	
W-854-3306	EW	Tnbs1/Tnsc0	S	DIS	E300.0:PERC	3	Y	
W-854-3306	EW	Tnbs1/Tnsc0	S	CMP	E300.0:PERC	4	Y	
W-854-3306	EW	Tnbs1/Tnsc0	S	DIS	E624MOD:ALL	1	Y	
W-854-3306	EW	Tnbs1/Tnsc0	S	CMP	E624MOD:ALL	2	Y	
W-854-3306	EW	Tnbs1/Tnsc0	S	DIS	E624MOD:ALL	3	Y	

Table 2.6-7. Building 854 Operable Unit ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-854-3306	EW	Tnbs1/Tnsc0	S	CMP	E624MOD:ALL	4	Y	
W-854-3307	DMW	Tnbs1/Tnsc0	S	DIS	E300.0:NO3	1	Y	
W-854-3307	DMW	Tnbs1/Tnsc0	A	CMP	E300.0:NO3	2	Y	
W-854-3307	DMW	Tnbs1/Tnsc0	S	DIS	E300.0:NO3	3	Y	
W-854-3307	DMW	Tnbs1/Tnsc0	A	DIS	E300.0:NO3	4	Y	
W-854-3307	DMW	Tnbs1/Tnsc0	S	DIS	E300.0:PERC	1	Y	
W-854-3307	DMW	Tnbs1/Tnsc0	S	CMP	E300.0:PERC	2	Y	
W-854-3307	DMW	Tnbs1/Tnsc0	S	DIS	E300.0:PERC	3	Y	
W-854-3307	DMW	Tnbs1/Tnsc0	S	CMP	E300.0:PERC	4	Y	
W-854-3307	DMW	Tnbs1/Tnsc0	S	DIS	E624MOD:ALL	1	Y	
W-854-3307	DMW	Tnbs1/Tnsc0	S	CMP	E624MOD:ALL	2	Y	
W-854-3307	DMW	Tnbs1/Tnsc0	S	DIS	E624MOD:ALL	3	Y	
W-854-3307	DMW	Tnbs1/Tnsc0	S	CMP	E624MOD:ALL	4	Y	
W-854-3308	IW	Tnbs1/Tnsc0	S	DIS	E300.0:NO3	1	Y	
W-854-3308	IW	Tnbs1/Tnsc0	A	CMP	E300.0:NO3	2	Y	
W-854-3308	IW	Tnbs1/Tnsc0	S	DIS	E300.0:NO3	3	Y	
W-854-3308	IW	Tnbs1/Tnsc0	A	DIS	E300.0:NO3	4	Y	
W-854-3308	IW	Tnbs1/Tnsc0	S	DIS	E300.0:PERC	1	Y	
W-854-3308	IW	Tnbs1/Tnsc0	S	CMP	E300.0:PERC	2	Y	
W-854-3308	IW	Tnbs1/Tnsc0	S	DIS	E300.0:PERC	3	Y	
W-854-3308	IW	Tnbs1/Tnsc0	S	CMP	E300.0:PERC	4	Y	
W-854-3308	IW	Tnbs1/Tnsc0	S	DIS	E624MOD:ALL	1	Y	
W-854-3308	IW	Tnbs1/Tnsc0	S	CMP	E624MOD:ALL	2	Y	
W-854-3308	IW	Tnbs1/Tnsc0	S	DIS	E624MOD:ALL	3	Y	
W-854-3308	IW	Tnbs1/Tnsc0	S	CMP	E624MOD:ALL	4	Y	
W-854-3309	EW	Tnbs1/Tnsc0	S	DIS	E300.0:NO3	1	Y	
W-854-3309	EW	Tnbs1/Tnsc0	A	CMP	E300.0:NO3	2	Y	
W-854-3309	EW	Tnbs1/Tnsc0	S	DIS	E300.0:NO3	3	Y	
W-854-3309	EW	Tnbs1/Tnsc0	A	DIS	E300.0:NO3	4	Y	
W-854-3309	EW	Tnbs1/Tnsc0	S	DIS	E300.0:PERC	1	Y	
W-854-3309	EW	Tnbs1/Tnsc0	S	CMP	E300.0:PERC	2	Y	
W-854-3309	EW	Tnbs1/Tnsc0	S	DIS	E300.0:PERC	3	Y	
W-854-3309	EW	Tnbs1/Tnsc0	S	CMP	E300.0:PERC	4	Y	
W-854-3309	EW	Tnbs1/Tnsc0	S	DIS	E624MOD:ALL	1	Y	
W-854-3309	EW	Tnbs1/Tnsc0	S	CMP	E624MOD:ALL	2	Y	
W-854-3309	EW	Tnbs1/Tnsc0	S	DIS	E624MOD:ALL	3	Y	
W-854-3309	EW	Tnbs1/Tnsc0	S	CMP	E624MOD:ALL	4	Y	
W-854-3405	PTMW	Tnbs1/Tnsc0	1	CMP	DWMETALS:ALL	4	Y	
W-854-3405	PTMW	Tnbs1/Tnsc0	1	CMP	E200.7:SI	4	Y	

Table 2.6-7. Building 854 Operable Unit ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-854-3405	PTMW	Tnbs1/Tnsc0	1	CMP	E300.0:PERC	3	Y	
W-854-3405	PTMW	Tnbs1/Tnsc0	1	CMP	E300.0:PERC	4	Y	
W-854-3405	PTMW	Tnbs1/Tnsc0	1	CMP	E624B:ALL	3	Y	
W-854-3405	PTMW	Tnbs1/Tnsc0	1	CMP	E624B:ALL	4	Y	
W-854-3405	PTMW	Tnbs1/Tnsc0	1	CMP	E8330LOW:ALL	4	Y	
W-854-3405	PTMW	Tnbs1/Tnsc0	1	CMP	E900:ALL	4	Y	
W-854-3405	PTMW	Tnbs1/Tnsc0	1	CMP	E906:ALL	4	Y	
W-854-3405	PTMW	Tnbs1/Tnsc0	1	CMP	GENMIN:ALL	4	Y	
W-854-3405	PTMW	Tnbs1/Tnsc0	1	CMP	TBOS:ALL	4	Y	
W-854-F2	PTMW	Qls-Tnbs1	O	CMP	E300.0:NO3	2	N	To be sampled in 2019
W-854-F2	PTMW	Qls-Tnbs1	O	CMP	E300.0:PERC	2	N	To be sampled in 2019
W-854-F2	PTMW	Qls-Tnbs1	O	CMP	E624MOD:ALL	2	N	To be sampled in 2019
SPRING10	SPR	Tnbs1-Tnsc0	A	CMP	E300.0:NO3	2	N	DRY
SPRING10	SPR	Tnbs1-Tnsc0	S	CMP	E300.0:PERC	2	N	DRY
SPRING10	SPR	Tnbs1-Tnsc0	S	CMP	E300.0:PERC	4	N	DRY
SPRING10	SPR	Tnbs1-Tnsc0	S	CMP	E624MOD:ALL	2	N	DRY
SPRING10	SPR	Tnbs1-Tnsc0	S	CMP	E624MOD:ALL	4	N	DRY
SPRING11	SPR	Tnbs1-Tnsc0	A	CMP	E300.0:NO3	2	Y	
SPRING11	SPR	Tnbs1-Tnsc0	S	CMP	E300.0:PERC	2	Y	
SPRING11	SPR	Tnbs1-Tnsc0	S	CMP	E300.0:PERC	4	Y	
SPRING11	SPR	Tnbs1-Tnsc0	S	CMP	E624MOD:ALL	2	Y	
SPRING11	SPR	Tnbs1-Tnsc0	S	CMP	E624MOD:ALL	4	Y	

Acronyms and Abbreviations:

- = Not applicable
bgs = Below ground surface
CGSA = Central General Services Area
COCs = Contaminants of concern
DIS = Distal
DISS = Distal south
DSB = Distal site boundary
EGSA = Eastern General Services Area
ft = Feet
g = Grams
GWTS = Groundwater treatment system
HSU = Hydrostratigraphic unit
Kcf = Thousands of cubic feet
kg = Kilograms
Kgal = Thousands of gallons
Mcf = Millions of cubic feet
PRX = Proximal
PRXN = Proximal North
PTMW = Plume Tracking Monitor Well
RDX = Research Department Explosive
SRC = Source
SVTS = Soil vapor treatment system
TBOS = Tetra 2-ethylbutylorthosilicate
TKEBS = Tetrakis (2-ethylbutyl) silane
VOC = Volatile organic compound

Table 2.6-8. Building 854-Source mass removed, July 1, 2018 through December 31, 2018.

Treatment facility	Month	SVTS VOC mass removed (g)	GWTS VOC mass removed (g)	Perchlorate mass removed (g)	Nitrate mass removed (kg)	RDX mass removed (g)	TBOS/TKEBS mass removed (g)
854-SRC	July	63	27	1.0	59	-	-
	August	56	17	0.79	32	-	-
	September	48	4.5	0	18	-	-
	October	52	12	0.45	26	-	-
	November	58	11	0.45	24	-	-
	December	54	0	0	0	-	-
Total		330	72	2.7	160	-	-

Acronyms and Abbreviations:

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EGSA = Eastern General Services Area
ft = Feet
g = Grams
GWTS = Groundwater treatment system
HSU = Hydrostratigraphic unit
Kcf = Thousands of cubic feet
kg = Kilograms
Kgal = Thousands of gallons
Mcf = Millions of cubic feet
PRX = Proximal
PRXN = Proximal North
PTMW = Plume Tracking Monitor Well
RDX = Research Department Explosive
SRC = Source
SVTS = Soil vapor treatment system
TBOS = Tetra 2-ethylbutylorthosilicate
TKEBS = Tetrakis (2-ethylbutyl) silane
VOC = Volatile organic compound

Table 2.6-9. Building 854-Proximal mass removed, July 1, 2018 through December 31, 2018.

Treatment facility	Month	SVTS VOC mass removed (g)	GWTS VOC mass removed (g)	Perchlorate mass removed (g)	Nitrate mass removed (kg)	RDX mass removed (g)	TBOS/TKEBS mass removed (g)
854-PRX	July	-	2.7	0	21	-	-
	August	-	2.4	0	19	-	-
	September	-	2.0	0	16	-	-
	October	-	2.2	0	14	-	-
	November	-	0.097	0	0.61	-	-
	December	-	0	0	0	-	-
Total		-	9.4	0	69	-	-

Acronyms and Abbreviations:

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bgs	=	Below ground surface
CGSA	=	Central General Services Area
COCs	=	Contaminants of concern
DIS	=	Distal
DISS	=	Distal south
DSB	=	Distal site boundary
EGSA	=	Eastern General Services Area
ft	=	Feet
g	=	Grams
GWTS	=	Groundwater treatment system
HSU	=	Hydrostratigraphic unit
Kcf	=	Thousands of cubic feet
kg	=	Kilograms
Kgal	=	Thousands of gallons
Mcf	=	Millions of cubic feet
PRX	=	Proximal
PRXN	=	Proximal North
PTMW	=	Plume Tracking Monitor Well
RDX	=	Research Department Explosive
SRC	=	Source
SVTS	=	Soil vapor treatment system
TBOS	=	Tetra 2-ethylbutylorthosilicate
TKEBS	=	Tetrakis (2-ethylbutyl) silane
VOC	=	Volatile organic compound

Table 2.6-10. Building 854-Distal mass removed, July 1, 2018 through December 31, 2018.

Treatment facility	Month	SVTS VOC mass removed (g)	GWTS VOC mass removed (g)	Perchlorate mass removed (g)	Nitrate mass removed (kg)	RDX mass removed (g)	TBOS/TKEBS mass removed (g)
854-DIS	July	-	0.10	0.025	0.10	-	-
	August	-	0.078	0.019	0.075	-	-
	September	-	0.069	0.017	0.067	-	-
	October	-	0.036	0.0073	0.032	-	-
	November	-	0	0	0	-	-
	December	-	0	0	0	-	-
Total		-	0.29	0.068	0.27	-	-

Acronyms and Abbreviations:

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bgs	=	Below ground surface
CGSA	=	Central General Services Area
COCs	=	Contaminants of concern
DIS	=	Distal
DISS	=	Distal south
DSB	=	Distal site boundary
EGSA	=	Eastern General Services Area
ft	=	Feet
g	=	Grams
GWTS	=	Groundwater treatment system
HSU	=	Hydrostratigraphic unit
Kcf	=	Thousands of cubic feet
kg	=	Kilograms
Kgal	=	Thousands of gallons
Mcf	=	Millions of cubic feet
PRX	=	Proximal
PRXN	=	Proximal North
PTMW	=	Plume Tracking Monitor Well
RDX	=	Research Department Explosive
SRC	=	Source
SVTS	=	Soil vapor treatment system
TBOS	=	Tetra 2-ethylbutylorthosilicate
TKEBS	=	Tetrakis (2-ethylbutyl) silane
VOC	=	Volatile organic compound

Table 2.7-1. Building 832-Source volumes of groundwater and soil vapor extracted and discharged, July 1, 2018 through December 31, 2018.

Treatment facility	Month	SVTS Operational hours	GWTS Operational hours	Volume of vapor extracted (thousands of cf)	Volume of groundwater discharged (gal)
832-SRC	July	0	0	0	0
	August	0	0	0	0
	September	0	0	0	0
	October	0	0	0	0
	November	0	0	0	0
	December	0	0	0	0
Total		0	0	0	0

Acronyms and Abbreviations:

-	=	Not applicable
bgs	=	Below ground surface
CGSA	=	Central General Services Area
COCs	=	Contaminants of concern
DIS	=	Distal
DISS	=	Distal south
DSB	=	Distal site boundary
EGSA	=	Eastern General Services Area
ft	=	Feet
g	=	Grams
GWTS	=	Groundwater treatment system
HSU	=	Hydrostratigraphic unit
Kcf	=	Thousands of cubic feet
kg	=	Kilograms
Kgal	=	Thousands of gallons
Mcf	=	Millions of cubic feet
PRX	=	Proximal
PRXN	=	Proximal North
PTMW	=	Plume Tracking Monitor Well
RDX	=	Research Department Explosive
SRC	=	Source
SVTS	=	Soil vapor treatment system
TBOS	=	Tetra 2-ethylbutylorthosilicate
TKEBS	=	Tetrakis (2-ethylbutyl) silane
VOC	=	Volatile organic compound

Table 2.7-2. Building 830-Source volumes of groundwater and soil vapor extracted and discharged, July 1, 2018 through December 31, 2018.

Treatment facility	Month	SVTS Operational hours	GWTS Operational hours	Volume of vapor extracted (thousands of cf)	Volume of groundwater discharged (gal)
830-SRC	July	608	610	504	398,109
	August	318	319	216	207,675
	September	212	217	141	146,713
	October	305	330	204	220,201
	November	211	330	129	214,081
	December	0	0	0	0
Total		1,654	1,806	1,194	1,186,779

Acronyms and Abbreviations:

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bgs	=	Below ground surface
CGSA	=	Central General Services Area
COCs	=	Contaminants of concern
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DISS	=	Distal south
DSB	=	Distal site boundary
EGSA	=	Eastern General Services Area
ft	=	Feet
g	=	Grams
GWTS	=	Groundwater treatment system
HSU	=	Hydrostratigraphic unit
Kcf	=	Thousands of cubic feet
kg	=	Kilograms
Kgal	=	Thousands of gallons
Mcf	=	Millions of cubic feet
PRX	=	Proximal
PRXN	=	Proximal North
PTMW	=	Plume Tracking Monitor Well
RDX	=	Research Department Explosive
SRC	=	Source
SVTS	=	Soil vapor treatment system
TBOS	=	Tetra 2-ethylbutylorthosilicate
TKEBS	=	Tetrakis (2-ethylbutyl) silane
VOC	=	Volatile organic compound

Table 2.7-3. Building 830-Distal South volumes of groundwater and soil vapor extracted and discharged, July 1, 2018 through December 31, 2018.

Treatment facility	Month	SVTS Operational hours	GWTS Operational hours	Volume of vapor extracted (thousands of cf)	Volume of groundwater discharged (gal)
830-DISS	July	-	0	-	0
	August	-	0	-	0
	September	-	0	-	0
	October	-	0	-	0
	November	-	0	-	0
	December	-	0	-	0
Total		-	0	-	0

Acronyms and Abbreviations:

-	=	Not applicable
bgs	=	Below ground surface
CGSA	=	Central General Services Area
COCs	=	Contaminants of concern
DIS	=	Distal
DISS	=	Distal south
DSB	=	Distal site boundary
EGSA	=	Eastern General Services Area
ft	=	Feet
g	=	Grams
GWTS	=	Groundwater treatment system
HSU	=	Hydrostratigraphic unit
Kcf	=	Thousands of cubic feet
kg	=	Kilograms
Kgal	=	Thousands of gallons
Mcf	=	Millions of cubic feet
PRX	=	Proximal
PRXN	=	Proximal North
PTMW	=	Plume Tracking Monitor Well
RDX	=	Research Department Explosive
SRC	=	Source
SVTS	=	Soil vapor treatment system
TBOS	=	Tetra 2-ethylbutylorthosilicate
TKEBS	=	Tetrakis (2-ethylbutyl) silane
VOC	=	Volatile organic compound

Table 2.7-4. Building 832 Canyon Operable Unit volatile organic compounds in groundwater extraction and treatment system influent and effluent.

Location	Date	TCE (µg/L)	PCE (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	Carbon tetrachloride (µg/L)	Chloroform (µg/L)	1,1-DCA (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	1,1,1-TCA (µg/L)	1,1,2-TCA (µg/L)	Freon 11 (µg/L)	Freon 113 (µg/L)	Vinyl chloride (µg/L)
Building 830-Distal South[a]		–	–	–	–	–	–	–	–	–	–	–	–	–	–
Building 830-Source[b]															
830-SRC-I	7/9/18	1,100 D	1.2	1	<0.5	<0.5	0.57	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
830-SRC-I	10/8/18	1,000 D	1.3	0.83	<0.5	<0.5	0.61	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
830-SRC-I	10/8/18 DUP	1,100 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D
830-SRC-I2	7/9/18	23	<0.5	0.51	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
830-SRC-I2	10/8/18	25	<0.5	0.62	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
830-SRC-I2	10/8/18 DUP	23	<0.5	0.59	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
830-SRC-E	7/9/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
830-SRC-E	8/6/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
830-SRC-E	9/4/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
830-SRC-E	10/8/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
830-SRC-E	11/1/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Building 832-Source[c]		–	–	–	–	–	–	–	–	–	–	–	–	–	–

Analyte detected but not reported in main table.

Location	Date	Detection frequency	1,2-Dichloroethene (total) (µg/L)
Building 830-Distal South[a]		–	–
Building 830-Source			
830-SRC-I	7/9/18	1 of 18	1
830-SRC-I	10/8/18	0 of 18	-
830-SRC-I	10/8/18 DUP	0 of 18	-
830-SRC-I2	7/9/18	0 of 18	-
830-SRC-I2	10/8/18	0 of 18	-
830-SRC-I2	10/8/18 DUP	0 of 18	-
830-SRC-E	7/9/18	0 of 18	-
830-SRC-E	8/6/18	0 of 18	-
830-SRC-E	9/4/18	0 of 18	-
830-SRC-E	10/8/18	0 of 18	-
830-SRC-E	11/1/18	0 of 18	-
Building 832-Source[c]		–	–

[a] No VOC monitoring required.

[b] No samples collected in December; system off line for freeze protection.

[c] System off line the entire semester for construction upgrades.

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g	=	Grams
GWTS	=	Groundwater treatment system
HSU	=	Hydrostratigraphic unit
Kcf	=	Thousands of cubic feet
kg	=	Kilograms
Kgal	=	Thousands of gallons
Mcf	=	Millions of cubic feet
PRX	=	Proximal
PRXN	=	Proximal North
PTMW	=	Plume Tracking Monitor Well
RDX	=	Research Department Explosive
SRC	=	Source
SVTS	=	Soil vapor treatment system
TBOS	=	Tetra 2-ethylbutylorthosilicate
TKEBS	=	Tetrakis (2-ethylbutyl) silane
VOC	=	Volatile organic compound

Table 2.7-5. Building 832 Canyon Operable Unit perchlorate in groundwater extraction and treatment system influent and effluent.

Location	Date	Nitrate as NO3 (mg/L)	Perchlorate (µg/L)
Building 830-Distal South[a,b]		–	–
830-DISS-I	10/23/18	69 D	<4
830-DISS-I	10/23/18 DUP	67 D	<4
830-DISS-E	10/23/18	-	<4
830-DISS-E	11/1/18	-	<4
Building 830-Source[c]			
830-SRC-I	7/9/18	110 D	4.3
830-SRC-I	10/8/18	88 D	6.3
830-SRC-I	10/8/18 DUP	91 D	<4
830-SRC-E	7/9/18	15 D	<4
830-SRC-E	8/6/18	8.4 D	<4
830-SRC-E	9/4/18	12 D	<4
830-SRC-E	10/8/18	15 D	<4
830-SRC-E	11/1/18	8 D	<4
Building 832-Source[d]		–	–

[a] System only operated for two short periods in October and November during testing of the CGSA GWTS.

[b] Effluent nitrate monitoring not required.

[c] No samples collected in December; system off line for freeze protection.

[d] System off line the entire semester for construction upgrades.

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ft	=	Feet
g	=	Grams
GWTS	=	Groundwater treatment system
HSU	=	Hydrostratigraphic unit
Kcf	=	Thousands of cubic feet
kg	=	Kilograms
Kgal	=	Thousands of gallons
Mcf	=	Millions of cubic feet
PRX	=	Proximal
PRXN	=	Proximal North
PTMW	=	Plume Tracking Monitor Well
RDX	=	Research Department Explosive
SRC	=	Source
SVTS	=	Soil vapor treatment system
TBOS	=	Tetra 2-ethylbutylorthosilicate
TKEBS	=	Tetrakis (2-ethylbutyl) silane
VOC	=	Volatile organic compound

Table 2.7-6. Building 832 Canyon Operable Unit treatment facility sampling and analysis plan.

Sample location	Sample identification	Parameter	Frequency
832-SRC GWTS			
Influent Port	**832-SRC-I**	**VOCs**	**Quarterly**
		Perchlorate	**Quarterly**
Effluent Port	**832-SRC-E**	**VOCs**	**Monthly**
		Perchlorate	**Monthly**
		PH	**Monthly**
832-SRC SVTS			
Influent Port	**832-SRC-VI**	**No Monitoring Requirements**	
Effluent Port	**832-SRC-VE**	**VOCs**	**Weekly[a]**
Intermediate GAC	**832-SRC-VCF3I**	**VOCs**	**Weekly[a]**
830-SRC GWTS			
Influent Port	**830-SRC-I**	**VOCs**	**Quarterly**
		Perchlorate	**Quarterly**
	830-SRC-I2	**VOCs**	**Quarterly**
Effluent Port	**830-SRC-E**	**VOCs**	**Monthly**
		Perchlorate	**Monthly**
		PH	**Monthly**
		Nitrate	**Monthly**
830-SRC SVTS			
Influent Port	**830-SRC-VI**	**No Monitoring Requirements**	
Effluent Port	**830-SRC-VE**	**VOCs**	**Weekly[a]**
Intermediate GAC	**830-SRC-VCF3I**	**VOCs**	**Weekly[a]**
830-DISS GWTS			
Influent Port	**830-DISS-I**	**Perchlorate**	**Quarterly**
Effluent Port	**830-DISS-E**	**Perchlorate**	**Monthly**
		pH	**Monthly**

[a] Weekly monitoring for VOCs will consist of the use of a flame-ionization detector, photo-ionization detector, or other District-approved VOC detection device.

Notes:

One duplicate and one blank (given fictitious labels) shall be taken for every 12 samples.

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ft = Feet
g = Grams
GWTS = Groundwater treatment system
HSU = Hydrostratigraphic unit
Kcf = Thousands of cubic feet
kg = Kilograms
Kgal = Thousands of gallons
Mcf = Millions of cubic feet
PRX = Proximal
PRXN = Proximal North
PTMW = Plume Tracking Monitor Well
RDX = Research Department Explosive
SRC = Source
SVTS = Soil vapor treatment system
TBOS = Tetra 2-ethylbutylorthosilicate
TKEBS = Tetrakis (2-ethylbutyl) silane
VOC = Volatile organic compound

Table 2.7-7. Building 832 Canyon Operable Unit ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
SPRING3	SPR	Qal/WBR	A	CMP	E300.0:NO3	1	Y	
SPRING3	SPR	Qal/WBR	A	CMP	E300.0:PERC	1	Y	
SPRING3	SPR	Qal/WBR	S	CMP	E624MOD:ALL	1	Y	
SPRING3	SPR	Qal/WBR	S	CMP	E624MOD:ALL	3	N	Insufficient water
SPRING4	SPR	Tpsg-Tps	O	CMP	E300.0:NO3	1	N	To be sampled in 2019
SPRING4	SPR	Tpsg-Tps	O	CMP	E300.0:PERC	1	N	To be sampled in 2019
SPRING4	SPR	Tpsg-Tps	O	CMP	E624MOD:ALL	1	N	To be sampled in 2019
SVI-830-031	PTMW	Qal/WBR	A	CMP	E300.0:NO3	1	Y	
SVI-830-031	PTMW	Qal/WBR	A	CMP	E300.0:PERC	1	Y	
SVI-830-031	PTMW	Qal/WBR	S	CMP	E624MOD:ALL	1	Y	
SVI-830-031	PTMW	Qal/WBR	S	CMP	E624MOD:ALL	3	N	DRY
SVI-830-032	PTMW	Qal/WBR	A	CMP	E300.0:NO3	1	N	Insufficient water
SVI-830-032	PTMW	Qal/WBR	A	CMP	E300.0:PERC	1	N	Insufficient water
SVI-830-032	PTMW	Qal/WBR	S	CMP	E624MOD:ALL	1	N	Insufficient water
SVI-830-032	PTMW	Qal/WBR	S	CMP	E624MOD:ALL	3	N	DRY
SVI-830-033	PTMW	Qal/WBR	A	CMP	E300.0:NO3	1	N	Insufficient water. Partial sampling
SVI-830-033	PTMW	Qal/WBR	A	CMP	E300.0:PERC	1	N	Insufficient water. Partial sampling
SVI-830-033	PTMW	Qal/WBR	S	CMP	E624MOD:ALL	1	N	Insufficient water. Partial sampling
SVI-830-033	PTMW	Qal/WBR	S	CMP	E624MOD:ALL	3	Y	
SVI-830-035	PTMW	Qal/WBR	A	CMP	E300.0:NO3	1	Y	
SVI-830-035	PTMW	Qal/WBR	A	CMP	E300.0:PERC	1	Y	
SVI-830-035	PTMW	Qal/WBR	S	CMP	E624MOD:ALL	1	Y	
SVI-830-035	PTMW	Qal/WBR	S	CMP	E624MOD:ALL	3	Y	
W-830-04A	PTMW	Tnsc1b	A	CMP	E300.0:NO3	1	Y	
W-830-04A	PTMW	Tnsc1b	A	CMP	E300.0:PERC	1	Y	
W-830-04A	PTMW	Tnsc1b	S	CMP	E624MOD:ALL	1	Y	
W-830-04A	PTMW	Tnsc1b	S	CMP	E624MOD:ALL	3	Y	
W-830-05	PTMW	Tnsc1c	A	CMP	E300.0:NO3	1	Y	
W-830-05	PTMW	Tnsc1c	A	CMP	E300.0:PERC	1	Y	
W-830-05	PTMW	Tnsc1c	S	CMP	E624MOD:ALL	1	Y	
W-830-05	PTMW	Tnsc1c	S	CMP	E624MOD:ALL	3	Y	
W-830-07	PTMW	Qal/WBR	A	CMP	E300.0:NO3	1	N	DRY
W-830-07	PTMW	Qal/WBR	A	CMP	E300.0:PERC	1	N	DRY
W-830-07	PTMW	Qal/WBR	S	CMP	E624MOD:ALL	1	N	DRY

Table 2.7-7. Building 832 Canyon Operable Unit ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-830-07	PTMW	Qal/WBR	S	CMP	E624MOD:ALL	3	N	DRY
W-830-09	PTMW	UTnbs1	O	CMP	E300.0:NO3	1	N	To be sampled in 2019
W-830-09	PTMW	UTnbs1	O	CMP	E300.0:PERC	1	N	To be sampled in 2019
W-830-09	PTMW	UTnbs1	S	CMP	E624MOD:ALL	1	Y	
W-830-09	PTMW	UTnbs1	S	CMP	E624MOD:ALL	3	Y	
W-830-10	PTMW	Tnsc1b	A	CMP	E300.0:NO3	1	Y	
W-830-10	PTMW	Tnsc1b	A	CMP	E300.0:PERC	1	Y	
W-830-10	PTMW	Tnsc1b	S	CMP	E624MOD:ALL	1	Y	
W-830-10	PTMW	Tnsc1b	S	CMP	E624MOD:ALL	3	Y	
W-830-11	PTMW	Tnsc1c	A	CMP	E300.0:NO3	1	Y	
W-830-11	PTMW	Tnsc1c	A	CMP	E300.0:PERC	1	Y	
W-830-11	PTMW	Tnsc1c	S	CMP	E624MOD:ALL	1	Y	
W-830-11	PTMW	Tnsc1c	S	CMP	E624MOD:ALL	3	Y	
W-830-12	GW	LTnbs1	S	CMP	E300.0:NO3	1	Y	
W-830-12	GW	LTnbs1	S	CMP	E300.0:NO3	3	Y	
W-830-12	GW	LTnbs1	S	CMP	E300.0:PERC	1	Y	
W-830-12	GW	LTnbs1	S	CMP	E300.0:PERC	3	Y	
W-830-12	GW	LTnbs1	Q	CMP	E624MOD:ALL	1	Y	
W-830-12	GW	LTnbs1	Q	CMP	E624MOD:ALL	2	Y	
W-830-12	GW	LTnbs1	Q	CMP	E624MOD:ALL	3	Y	
W-830-12	GW	LTnbs1	Q	CMP	E624MOD:ALL	4	Y	
W-830-13	PTMW	Tnbs2	A	CMP	E300.0:NO3	1	Y	
W-830-13	PTMW	Tnbs2	A	CMP	E300.0:PERC	1	Y	
W-830-13	PTMW	Tnbs2	S	CMP	E624MOD:ALL	1	Y	
W-830-13	PTMW	Tnbs2	S	CMP	E624MOD:ALL	3	Y	
W-830-13	PTMW	Tnbs2	E	CMP	E8330LOW:ALL	1	Y	
W-830-14	PTMW	Tnsc1b	A	CMP	E300.0:NO3	1	Y	
W-830-14	PTMW	Tnsc1b	E	CMP	E300.0:PERC	1	Y	
W-830-14	PTMW	Tnsc1b	S	CMP	E624MOD:ALL	1	Y	
W-830-14	PTMW	Tnsc1b	S	CMP	E624MOD:ALL	3	Y	
W-830-15	GW	UTnbs1	S	CMP	E300.0:NO3	1	Y	
W-830-15	GW	UTnbs1	S	CMP	E300.0:NO3	3	Y	
W-830-15	GW	UTnbs1	S	CMP	E300.0:PERC	1	Y	
W-830-15	GW	UTnbs1	S	CMP	E300.0:PERC	3	Y	

Table 2.7-7. Building 832 Canyon Operable Unit ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-830-15	GW	UTnbs1	Q	CMP	E624MOD:ALL	1	Y	
W-830-15	GW	UTnbs1	Q	CMP	E624MOD:ALL	2	Y	
W-830-15	GW	UTnbs1	Q	CMP	E624MOD:ALL	3	Y	
W-830-15	GW	UTnbs1	Q	CMP	E624MOD:ALL	4	Y	
W-830-16	PTMW	Tnsc1b	A	CMP	E300.0:NO3	1	Y	
W-830-16	PTMW	Tnsc1b	O	CMP	E300.0:PERC	1	N	To be sampled in 2019
W-830-16	PTMW	Tnsc1b	S	CMP	E624MOD:ALL	1	Y	
W-830-16	PTMW	Tnsc1b	S	CMP	E624MOD:ALL	3	Y	
W-830-17	PTMW	Tnbs2	A	CMP	E300.0:NO3	1	Y	
W-830-17	PTMW	Tnbs2	A	CMP	E300.0:PERC	1	Y	
W-830-17	PTMW	Tnbs2	S	CMP	E624MOD:ALL	1	Y	
W-830-17	PTMW	Tnbs2	S	CMP	E624MOD:ALL	3	Y	
W-830-18	PTMW	UTnbs1	E	CMP	E300.0:NO3	1	Y	
W-830-18	PTMW	UTnbs1	E	CMP	E300.0:PERC	1	Y	
W-830-18	PTMW	UTnbs1	S	CMP	E624MOD:ALL	1	Y	
W-830-18	PTMW	UTnbs1	S	CMP	E624MOD:ALL	3	Y	
W-830-19	EW	Tnsc1b	A	CMP-TF	E300.0:NO3	1	Y	
W-830-19	EW	Tnsc1b	A	DIS-TF	E300.0:NO3	3	Y	
W-830-19	EW	Tnsc1b	A	CMP-TF	E300.0:PERC	1	Y	
W-830-19	EW	Tnsc1b	A	DIS-TF	E300.0:PERC	3	Y	
W-830-19	EW	Tnsc1b	S	CMP-TF	E624MOD:ALL	1	Y	
W-830-19	EW	Tnsc1b	S	DIS-TF	E624MOD:ALL	2	Y	
W-830-19	EW	Tnsc1b	S	CMP-TF	E624MOD:ALL	3	Y	
W-830-19	EW	Tnsc1b	S	DIS-TF	E624MOD:ALL	4	Y	
W-830-20	PTMW	UTnbs1	E	CMP	E300.0:NO3	1	Y	
W-830-20	PTMW	UTnbs1	E	CMP	E300.0:PERC	1	Y	
W-830-20	PTMW	UTnbs1	S	CMP	E624MOD:ALL	1	Y	
W-830-20	PTMW	UTnbs1	S	CMP	E624MOD:ALL	3	Y	
W-830-21	PTMW	Tnsc1b	A	CMP	E300.0:NO3	1	Y	
W-830-21	PTMW	Tnsc1b	A	CMP	E300.0:PERC	1	Y	
W-830-21	PTMW	Tnsc1b	S	CMP	E624MOD:ALL	1	Y	
W-830-21	PTMW	Tnsc1b	S	CMP	E624MOD:ALL	3	Y	
W-830-22	PTMW	Tnsc1a	A	CMP	E300.0:NO3	1	Y	
W-830-22	PTMW	Tnsc1a	A	CMP	E300.0:PERC	1	Y	

Table 2.7-7. Building 832 Canyon Operable Unit ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-830-22	PTMW	Tnsc1a	S	CMP	E624MOD:ALL	1	Y	
W-830-22	PTMW	Tnsc1a	S	CMP	E624MOD:ALL	3	Y	
W-830-25	PTMW	Tnsc1b	A	CMP	E300.0:NO3	1	N	DRY
W-830-25	PTMW	Tnsc1b	A	CMP	E300.0:PERC	1	N	DRY
W-830-25	PTMW	Tnsc1b	S	CMP	E624MOD:ALL	1	N	DRY
W-830-25	PTMW	Tnsc1b	S	CMP	E624MOD:ALL	3	N	DRY
W-830-26	PTMW	UTnbs1	E	CMP	E300.0:NO3	1	Y	
W-830-26	PTMW	UTnbs1	E	CMP	E300.0:PERC	1	Y	
W-830-26	PTMW	UTnbs1	S	CMP	E624MOD:ALL	1	Y	
W-830-26	PTMW	UTnbs1	S	CMP	E624MOD:ALL	3	N	No well access for sampling or measurement
W-830-27	PTMW	Tnsc1a	A	CMP	E300.0:NO3	1	Y	
W-830-27	PTMW	Tnsc1a	A	CMP	E300.0:PERC	1	Y	
W-830-27	PTMW	Tnsc1a	S	CMP	E624MOD:ALL	1	Y	
W-830-27	PTMW	Tnsc1a	S	CMP	E624MOD:ALL	3	Y	
W-830-28	PTMW	UTnbs1	O	CMP	E300.0:NO3	1	N	To be sampled in 2019
W-830-28	PTMW	UTnbs1	O	CMP	E300.0:PERC	1	N	To be sampled in 2019
W-830-28	PTMW	UTnbs1	S	CMP	E624MOD:ALL	1	Y	
W-830-28	PTMW	UTnbs1	S	CMP	E624MOD:ALL	3	Y	
W-830-29	PTMW	LTnbs1	A	CMP	E300.0:NO3	1	Y	
W-830-29	PTMW	LTnbs1	A	CMP	E300.0:PERC	1	Y	
W-830-29	PTMW	LTnbs1	S	CMP	E624MOD:ALL	1	Y	
W-830-29	PTMW	LTnbs1	S	CMP	E624MOD:ALL	3	Y	
W-830-30	PTMW	Qal/WBR	A	CMP	E300.0:NO3	1	Y	
W-830-30	PTMW	Qal/WBR	A	CMP	E300.0:PERC	1	Y	
W-830-30	PTMW	Qal/WBR	S	CMP	E624MOD:ALL	1	Y	
W-830-30	PTMW	Qal/WBR	S	CMP	E624MOD:ALL	3	Y	
W-830-34	PTMW	Qal/WBR	A	CMP	E300.0:NO3	1	Y	
W-830-34	PTMW	Qal/WBR	A	CMP	E300.0:PERC	1	Y	
W-830-34	PTMW	Qal/WBR	S	CMP	E624MOD:ALL	1	Y	
W-830-34	PTMW	Qal/WBR	S	CMP	E624MOD:ALL	3	Y	
W-830-34	PTMW	Qal/WBR	E	CMP	E8330LOW:ALL	1	Y	
W-830-49	EW	Tnsc1b	A	CMP-TF	E300.0:NO3	1	Y	
W-830-49	EW	Tnsc1b	A	DIS-TF	E300.0:NO3	3	Y	
W-830-49	EW	Tnsc1b	A	CMP-TF	E300.0:PERC	1	Y	

Table 2.7-7. Building 832 Canyon Operable Unit ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-830-49	EW	Tnsc1b	A	DIS-TF	E300.0:PERC	3	Y	
W-830-49	EW	Tnsc1b	S	CMP-TF	E624MOD:ALL	1	Y	
W-830-49	EW	Tnsc1b	S	DIS-TF	E624MOD:ALL	2	Y	
W-830-49	EW	Tnsc1b	S	CMP-TF	E624MOD:ALL	3	Y	
W-830-49	EW	Tnsc1b	S	DIS-TF	E624MOD:ALL	4	Y	
W-830-50	PTMW	Tnsc1b	A	CMP	E300.0:NO3	1	Y	
W-830-50	PTMW	Tnsc1b	O	CMP	E300.0:PERC	1	N	To be sampled in 2019
W-830-50	PTMW	Tnsc1b	S	CMP	E624MOD:ALL	1	Y	
W-830-50	PTMW	Tnsc1b	S	CMP	E624MOD:ALL	3	Y	
W-830-51	EW	Tnsc1b	A	CMP-TF	E300.0:NO3	1	Y	
W-830-51	EW	Tnsc1b	A	DIS-TF	E300.0:NO3	3	Y	
W-830-51	EW	Tnsc1b	A	CMP-TF	E300.0:PERC	1	Y	
W-830-51	EW	Tnsc1b	A	DIS-TF	E300.0:PERC	3	Y	
W-830-51	EW	Tnsc1b	S	CMP-TF	E624MOD:ALL	1	Y	
W-830-51	EW	Tnsc1b	S	DIS-TF	E624MOD:ALL	2	Y	
W-830-51	EW	Tnsc1b	S	CMP-TF	E624MOD:ALL	3	Y	
W-830-51	EW	Tnsc1b	S	DIS-TF	E624MOD:ALL	4	Y	
W-830-52	EW	Tnsc1b	A	CMP-TF	E300.0:NO3	1	Y	
W-830-52	EW	Tnsc1b	A	DIS-TF	E300.0:NO3	3	Y	
W-830-52	EW	Tnsc1b	A	CMP-TF	E300.0:PERC	1	Y	
W-830-52	EW	Tnsc1b	A	DIS-TF	E300.0:PERC	3	Y	
W-830-52	EW	Tnsc1b	S	CMP-TF	E624MOD:ALL	1	Y	
W-830-52	EW	Tnsc1b	S	DIS-TF	E624MOD:ALL	2	Y	
W-830-52	EW	Tnsc1b	S	CMP-TF	E624MOD:ALL	3	Y	
W-830-52	EW	Tnsc1b	S	DIS-TF	E624MOD:ALL	4	Y	
W-830-53	EW	Tnsc1b	A	CMP-TF	E300.0:NO3	1	Y	
W-830-53	EW	Tnsc1b	A	DIS-TF	E300.0:NO3	3	Y	
W-830-53	EW	Tnsc1b	A	CMP-TF	E300.0:PERC	1	Y	
W-830-53	EW	Tnsc1b	A	DIS-TF	E300.0:PERC	3	Y	
W-830-53	EW	Tnsc1b	S	CMP-TF	E624MOD:ALL	1	Y	
W-830-53	EW	Tnsc1b	S	CMP-TF	E624MOD:ALL	3	Y	
W-830-53	EW	Tnsc1b	S	DIS-TF	E624MOD:ALL	4	Y	
W-830-54	PTMW	Tnsc1c	O	CMP	E300.0:NO3	1	N	To be sampled in 2019
W-830-54	PTMW	Tnsc1c	O	CMP	E300.0:PERC	1	N	To be sampled in 2019

Table 2.7-7. Building 832 Canyon Operable Unit ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-830-54	PTMW	Tnsc1c	S	CMP	E624MOD:ALL	1	Y	
W-830-54	PTMW	Tnsc1c	S	CMP	E624MOD:ALL	3	Y	
W-830-55	PTMW	Tnsc1b	A	CMP	E300.0:NO3	1	Y	
W-830-55	PTMW	Tnsc1b	E	CMP	E300.0:PERC	1	Y	
W-830-55	PTMW	Tnsc1b	S	CMP	E624MOD:ALL	1	Y	
W-830-55	PTMW	Tnsc1b	S	CMP	E624MOD:ALL	3	Y	
W-830-56	PTMW	Tnsc1b	A	CMP	E300.0:NO3	1	Y	
W-830-56	PTMW	Tnsc1b	O	CMP	E300.0:PERC	1	N	To be sampled in 2019
W-830-56	PTMW	Tnsc1b	S	CMP	E624MOD:ALL	1	Y	
W-830-56	PTMW	Tnsc1b	S	CMP	E624MOD:ALL	3	Y	
W-830-57	EW	UTnbs1	A	CMP-TF	E300.0:NO3	1	Y	
W-830-57	EW	UTnbs1	A	DIS-TF	E300.0:NO3	3	Y	
W-830-57	EW	UTnbs1	A	CMP-TF	E300.0:PERC	1	Y	
W-830-57	EW	UTnbs1	A	DIS-TF	E300.0:PERC	3	Y	
W-830-57	EW	UTnbs1	S	CMP-TF	E624MOD:ALL	1	Y	
W-830-57	EW	UTnbs1	S	DIS-TF	E624MOD:ALL	2	Y	
W-830-57	EW	UTnbs1	S	CMP-TF	E624MOD:ALL	3	Y	
W-830-57	EW	UTnbs1	S	DIS-TF	E624MOD:ALL	4	Y	
W-830-58	PTMW	Tnsc1b	A	CMP	E300.0:NO3	1	Y	
W-830-58	PTMW	Tnsc1b	A	CMP	E300.0:PERC	1	Y	
W-830-58	PTMW	Tnsc1b	S	CMP	E624MOD:ALL	1	Y	
W-830-58	PTMW	Tnsc1b	S	CMP	E624MOD:ALL	3	Y	
W-830-59	EW	Tnsc1b	A	CMP-TF	E300.0:NO3	1	Y	
W-830-59	EW	Tnsc1b	A	DIS-TF	E300.0:NO3	3	Y	
W-830-59	EW	Tnsc1b	A	CMP-TF	E300.0:PERC	1	Y	
W-830-59	EW	Tnsc1b	A	DIS-TF	E300.0:PERC	3	Y	
W-830-59	EW	Tnsc1b	S	CMP-TF	E624MOD:ALL	1	Y	
W-830-59	EW	Tnsc1b	S	DIS-TF	E624MOD:ALL	2	Y	
W-830-59	EW	Tnsc1b	S	CMP-TF	E624MOD:ALL	3	Y	
W-830-59	EW	Tnsc1b	S	DIS-TF	E624MOD:ALL	4	Y	
W-830-60	EW	UTnbs1	A	CMP-TF	E300.0:NO3	1	Y	
W-830-60	EW	UTnbs1	A	DIS-TF	E300.0:NO3	3	Y	
W-830-60	EW	UTnbs1	A	CMP-TF	E300.0:PERC	1	Y	
W-830-60	EW	UTnbs1	A	DIS-TF	E300.0:PERC	3	Y	

Table 2.7-7. Building 832 Canyon Operable Unit ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-830-60	EW	UTnbs1	S	CMP-TF	E624MOD:ALL	1	Y	
W-830-60	EW	UTnbs1	S	DIS-TF	E624MOD:ALL	2	Y	
W-830-60	EW	UTnbs1	S	CMP-TF	E624MOD:ALL	3	Y	
W-830-60	EW	UTnbs1	S	DIS-TF	E624MOD:ALL	4	Y	
W-830-1730	GW	Tnsc1b	S	CMP	E300.0:NO3	1	Y	
W-830-1730	GW	Tnsc1b	S	CMP	E300.0:NO3	3	Y	
W-830-1730	GW	Tnsc1b	S	CMP	E300.0:PERC	1	Y	
W-830-1730	GW	Tnsc1b	S	CMP	E300.0:PERC	3	Y	
W-830-1730	GW	Tnsc1b	Q	CMP	E624MOD:ALL	1	Y	
W-830-1730	GW	Tnsc1b	Q	CMP	E624MOD:ALL	2	Y	
W-830-1730	GW	Tnsc1b	Q	CMP	E624MOD:ALL	3	Y	
W-830-1730	GW	Tnsc1b	Q	CMP	E624MOD:ALL	4	Y	
W-830-1807	EW	Qal/WBR-Tnsc1b	A	CMP-TF	E300.0:NO3	1	Y	
W-830-1807	EW	Qal/WBR-Tnsc1b	A	DIS-TF	E300.0:NO3	3	Y	
W-830-1807	EW	Qal/WBR-Tnsc1b	A	CMP-TF	E300.0:PERC	1	Y	
W-830-1807	EW	Qal/WBR-Tnsc1b	A	DIS-TF	E300.0:PERC	3	Y	
W-830-1807	EW	Qal/WBR-Tnsc1b	S	CMP-TF	E624MOD:ALL	1	Y	
W-830-1807	EW	Qal/WBR-Tnsc1b	S	DIS-TF	E624MOD:ALL	2	Y	
W-830-1807	EW	Qal/WBR-Tnsc1b	S	CMP-TF	E624MOD:ALL	3	Y	
W-830-1807	EW	Qal/WBR-Tnsc1b	S	DIS-TF	E624MOD:ALL	4	Y	
W-830-1829	PTMW	Tnsc1b	A	CMP	E300.0:NO3	1	Y	
W-830-1829	PTMW	Tnsc1b	A	CMP	E300.0:PERC	1	Y	
W-830-1829	PTMW	Tnsc1b	S	CMP	E624MOD:ALL	1	Y	
W-830-1829	PTMW	Tnsc1b	S	CMP	E624MOD:ALL	3	Y	
W-830-1830	PTMW	Tnsc1b	A	CMP	E300.0:NO3	1	Y	
W-830-1830	PTMW	Tnsc1b	A	CMP	E300.0:PERC	1	Y	
W-830-1830	PTMW	Tnsc1b	S	CMP	E624MOD:ALL	1	Y	
W-830-1830	PTMW	Tnsc1b	S	CMP	E624MOD:ALL	3	Y	
W-830-1831	PTMW	Tnsc1b	O	CMP	E300.0:NO3	1	N	To be sampled in 2019
W-830-1831	PTMW	Tnsc1b	O	CMP	E300.0:PERC	1	N	To be sampled in 2019
W-830-1831	PTMW	Tnsc1b	S	CMP	E624MOD:ALL	1	Y	
W-830-1831	PTMW	Tnsc1b	S	CMP	E624MOD:ALL	3	Y	
W-830-1832	PTMW	UTnbs1	A	CMP	E300.0:NO3	1	Y	
W-830-1832	PTMW	UTnbs1	A	CMP	E300.0:PERC	1	Y	

Table 2.7-7. Building 832 Canyon Operable Unit ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-830-1832	PTMW	UTnbs1	S	CMP	E624MOD:ALL	1	Y	
W-830-1832	PTMW	UTnbs1	S	CMP	E624MOD:ALL	3	Y	
W-830-2213	PTMW	Tnsc1b	A	CMP	E300.0:NO3	1	Y	
W-830-2213	PTMW	Tnsc1b	A	CMP	E300.0:PERC	1	Y	
W-830-2213	PTMW	Tnsc1b	S	CMP	E624MOD:ALL	1	Y	
W-830-2213	PTMW	Tnsc1b	S	CMP	E624MOD:ALL	3	N	No well access for sampling or measurement
W-830-2214	EW	Tnsc1a	A	CMP-TF	E300.0:NO3	1	Y	
W-830-2214	EW	Tnsc1a	A	DIS-TF	E300.0:NO3	3	Y	
W-830-2214	EW	Tnsc1a	A	CMP-TF	E300.0:PERC	1	Y	
W-830-2214	EW	Tnsc1a	A	DIS-TF	E300.0:PERC	3	Y	
W-830-2214	EW	Tnsc1a	S	CMP-TF	E624MOD:ALL	1	Y	
W-830-2214	EW	Tnsc1a	S	DIS-TF	E624MOD:ALL	2	Y	
W-830-2214	EW	Tnsc1a	S	CMP-TF	E624MOD:ALL	3	Y	
W-830-2214	EW	Tnsc1a	S	DIS-TF	E624MOD:ALL	4	Y	
W-830-2215	EW	UTnbs1	A	CMP-TF	E300.0:NO3	1	Y	
W-830-2215	EW	UTnbs1	A	DIS-TF	E300.0:NO3	3	Y	
W-830-2215	EW	UTnbs1	A	CMP-TF	E300.0:PERC	1	Y	
W-830-2215	EW	UTnbs1	A	DIS-TF	E300.0:PERC	3	Y	
W-830-2215	EW	UTnbs1	S	CMP-TF	E624MOD:ALL	1	Y	
W-830-2215	EW	UTnbs1	S	DIS-TF	E624MOD:ALL	2	Y	
W-830-2215	EW	UTnbs1	S	CMP-TF	E624MOD:ALL	3	Y	
W-830-2215	EW	UTnbs1	S	DIS-TF	E624MOD:ALL	4	Y	
W-830-2216	EW	Tnbs2	A	CMP-TF	E300.0:NO3	1	Y	
W-830-2216	EW	Tnbs2	A	CMP-TF	E300.0:PERC	1	Y	
W-830-2216	EW	Tnbs2	A	DIS-TF	E300.0:PERC	3	Y	
W-830-2216	EW	Tnbs2	S	CMP-TF	E624MOD:ALL	1	Y	
W-830-2216	EW	Tnbs2	S	DIS-TF	E624MOD:ALL	2	Y	
W-830-2216	EW	Tnbs2	S	CMP-TF	E624MOD:ALL	3	Y	
W-830-2216	EW	Tnbs2	S	DIS-TF	E624MOD:ALL	4	Y	
W-830-2216	EW	Tnbs2	O	CMP-TF	E8330LOW:ALL	1	N	To be sampled in 2019
W-830-2311	PTMW	Tnsc1a	A	CMP	E300.0:NO3	1	Y	
W-830-2311	PTMW	Tnsc1a	A	CMP	E300.0:PERC	1	Y	
W-830-2311	PTMW	Tnsc1a	S	CMP	E624MOD:ALL	1	Y	
W-830-2311	PTMW	Tnsc1a	S	CMP	E624MOD:ALL	3	Y	

Table 2.7-7. Building 832 Canyon Operable Unit ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-830-2701	PTMW	Tnsc1a	A	CMP-TF	E300.0:NO3	1	Y	
W-830-2701	PTMW	Tnsc1a	A	DIS-TF	E300.0:NO3	3	Y	
W-830-2701	PTMW	Tnsc1a	A	CMP-TF	E300.0:PERC	1	Y	
W-830-2701	PTMW	Tnsc1a	A	DIS-TF	E300.0:PERC	3	Y	
W-830-2701	PTMW	Tnsc1a	S	CMP-TF	E624MOD:ALL	1	Y	
W-830-2701	PTMW	Tnsc1a	S	DIS-TF	E624MOD:ALL	2	Y	
W-830-2701	PTMW	Tnsc1a	S	CMP-TF	E624MOD:ALL	3	Y	
W-830-2701	PTMW	Tnsc1a	S	DIS-TF	E624MOD:ALL	4	Y	
W-830-2806	PTMW	Tnsc1a	S	CMP	E300.0:NO3	1	Y	
W-830-2806	PTMW	Tnsc1a	S	CMP	E300.0:NO3	3	Y	
W-830-2806	PTMW	Tnsc1a	S	CMP	E300.0:PERC	1	Y	
W-830-2806	PTMW	Tnsc1a	S	CMP	E300.0:PERC	3	Y	
W-830-2806	PTMW	Tnsc1a	Q	CMP	E624MOD:ALL	1	Y	
W-830-2806	PTMW	Tnsc1a	Q	CMP	E624MOD:ALL	2	Y	
W-830-2806	PTMW	Tnsc1a	Q	CMP	E624MOD:ALL	3	Y	
W-830-2806	PTMW	Tnsc1a	Q	CMP	E624MOD:ALL	4	Y	
W-830-3102	PTMW	UTnbs1	A	CMP	E300.0:NO3	1	Y	
W-830-3102	PTMW	UTnbs1	A	CMP	E300.0:PERC	1	Y	
W-830-3102	PTMW	UTnbs1	S	CMP	E624MOD:ALL	1	Y	
W-830-3102	PTMW	UTnbs1	S	CMP	E624MOD:ALL	3	Y	
W-830-3409	PTMW	Tnbs2	1	CMP	DWMETALS:ALL	4	Y	
W-830-3409	PTMW	Tnbs2	1	CMP	E200.7:SI	4	Y	
W-830-3409	PTMW	Tnbs2	1	CMP	E300.0:PERC	3	Y	
W-830-3409	PTMW	Tnbs2	1	CMP	E300.0:PERC	4	Y	
W-830-3409	PTMW	Tnbs2	1	CMP	E624B:ALL	3	Y	
W-830-3409	PTMW	Tnbs2	1	CMP	E624B:ALL	4	Y	
W-830-3409	PTMW	Tnbs2	1	CMP	E8330LOW:ALL	4	Y	
W-830-3409	PTMW	Tnbs2	1	CMP	E900:ALL	4	Y	
W-830-3409	PTMW	Tnbs2	1	CMP	E906:ALL	4	Y	
W-830-3409	PTMW	Tnbs2	1	CMP	GENMIN:ALL	4	Y	
W-830-3409	PTMW	Tnbs2	1	CMP	MS:UISO	4	Y	
W-830-3409	PTMW	Tnbs2	1	CMP	TBOS:ALL	4	Y	
W-830-3410	PTMW	Tnsc1ab	1	CMP	E300.0:PERC	3	Y	
W-830-3410	PTMW	Tnsc1ab	1	CMP	E624B:ALL	3	Y	

Table 2.7-7. Building 832 Canyon Operable Unit ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-831-01	PTMW	LTnbs1	O	CMP	E300.0:NO3	1	N	To be sampled in 2019
W-831-01	PTMW	LTnbs1	O	CMP	E300.0:PERC	1	N	To be sampled in 2019
W-831-01	PTMW	LTnbs1	O	CMP	E624MOD:ALL	1	N	To be sampled in 2019
W-832-01	EW	Tnsc1b	A	CMP-TF	E300.0:NO3	1	Y	
W-832-01	EW	Tnsc1b	A	CMP-TF	E300.0:PERC	1	Y	
W-832-01	EW	Tnsc1b	A	DIS-TF	E300.0:PERC	3	Y	
W-832-01	EW	Tnsc1b	S	CMP-TF	E624MOD:ALL	1	Y	
W-832-01	EW	Tnsc1b	S	DIS-TF	E624MOD:ALL	2	Y	
W-832-01	EW	Tnsc1b	S	CMP-TF	E624MOD:ALL	3	Y	
W-832-01	EW	Tnsc1b	S	DIS-TF	E624MOD:ALL	4	Y	
W-832-06	PTMW	Tnsc1a	A	CMP	E300.0:NO3	1	Y	
W-832-06	PTMW	Tnsc1a	A	CMP	E300.0:PERC	1	Y	
W-832-06	PTMW	Tnsc1a	S	CMP	E624MOD:ALL	1	Y	
W-832-06	PTMW	Tnsc1a	S	CMP	E624MOD:ALL	3	Y	
W-832-09	PTMW	LTnbs1	A	CMP	E300.0:NO3	1	Y	
W-832-09	PTMW	LTnbs1	A	CMP	E300.0:PERC	1	Y	
W-832-09	PTMW	LTnbs1	S	CMP	E624MOD:ALL	1	Y	
W-832-09	PTMW	LTnbs1	S	CMP	E624MOD:ALL	3	Y	
W-832-10	EW	Tnsc1b	A	CMP-TF	E300.0:NO3	1	Y	
W-832-10	EW	Tnsc1b	A	DIS-TF	E300.0:NO3	3	Y	
W-832-10	EW	Tnsc1b	A	CMP-TF	E300.0:PERC	1	Y	
W-832-10	EW	Tnsc1b	A	DIS-TF	E300.0:PERC	3	Y	
W-832-10	EW	Tnsc1b	S	CMP-TF	E624MOD:ALL	1	Y	
W-832-10	EW	Tnsc1b	S	DIS-TF	E624MOD:ALL	2	Y	
W-832-10	EW	Tnsc1b	S	CMP-TF	E624MOD:ALL	3	Y	
W-832-10	EW	Tnsc1b	S	DIS-TF	E624MOD:ALL	4	Y	
W-832-11	EW	Tnsc1b	A	CMP-TF	E300.0:NO3	1	Y	
W-832-11	EW	Tnsc1b	A	DIS	E300.0:NO3	3	Y	
W-832-11	EW	Tnsc1b	A	CMP-TF	E300.0:PERC	1	Y	
W-832-11	EW	Tnsc1b	A	DIS	E300.0:PERC	3	Y	
W-832-11	EW	Tnsc1b	S	CMP-TF	E624MOD:ALL	1	Y	
W-832-11	EW	Tnsc1b	S	CMP	E624MOD:ALL	3	Y	
W-832-12	EW	Qal/WBR-Tnsc1b	A	CMP-TF	E300.0:NO3	1	Y	
W-832-12	EW	Qal/WBR-Tnsc1b	A	DIS-TF	E300.0:NO3	3	Y	

Table 2.7-7. Building 832 Canyon Operable Unit ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-832-12	EW	Qal/WBR-Tnsc1b	A	CMP-TF	E300.0:PERC	1	Y	
W-832-12	EW	Qal/WBR-Tnsc1b	A	DIS-TF	E300.0:PERC	3	Y	
W-832-12	EW	Qal/WBR-Tnsc1b	S	CMP-TF	E624MOD:ALL	1	Y	
W-832-12	EW	Qal/WBR-Tnsc1b	S	DIS-TF	E624MOD:ALL	2	Y	
W-832-12	EW	Qal/WBR-Tnsc1b	S	CMP-TF	E624MOD:ALL	3	Y	
W-832-12	EW	Qal/WBR-Tnsc1b	S	DIS-TF	E624MOD:ALL	4	Y	
W-832-13	PTMW	Qal/WBR-Tnsc1b	A	CMP	E300.0:NO3	1	Y	
W-832-13	PTMW	Qal/WBR-Tnsc1b	A	CMP	E300.0:PERC	1	Y	
W-832-13	PTMW	Qal/WBR-Tnsc1b	S	CMP	E624MOD:ALL	1	Y	
W-832-13	PTMW	Qal/WBR-Tnsc1b	S	CMP	E624MOD:ALL	3	Y	
W-832-14	PTMW	Tnsc1b	A	CMP	E300.0:NO3	1	N	DRY
W-832-14	PTMW	Tnsc1b	A	CMP	E300.0:PERC	1	N	DRY
W-832-14	PTMW	Tnsc1b	S	CMP	E624MOD:ALL	1	N	DRY
W-832-14	PTMW	Tnsc1b	S	CMP	E624MOD:ALL	3	Y	
W-832-15	EW	Qal/WBR-Tnsc1b	A	CMP-TF	E300.0:NO3	1	Y	
W-832-15	EW	Qal/WBR-Tnsc1b	A	DIS-TF	E300.0:NO3	3	Y	
W-832-15	EW	Qal/WBR-Tnsc1b	A	CMP-TF	E300.0:PERC	1	Y	
W-832-15	EW	Qal/WBR-Tnsc1b	A	DIS-TF	E300.0:PERC	3	Y	
W-832-15	EW	Qal/WBR-Tnsc1b	S	CMP-TF	E624MOD:ALL	1	Y	
W-832-15	EW	Qal/WBR-Tnsc1b	S	DIS-TF	E624MOD:ALL	2	Y	
W-832-15	EW	Qal/WBR-Tnsc1b	S	CMP-TF	E624MOD:ALL	3	Y	
W-832-15	EW	Qal/WBR-Tnsc1b	S	DIS-TF	E624MOD:ALL	4	Y	
W-832-15	EW	Qal/WBR-Tnsc1b	E	CMP-TF	E8330LOW:ALL	2	Y	
W-832-16	PTMW	Tnsc1b	A	CMP	E300.0:NO3	1	N	DRY
W-832-16	PTMW	Tnsc1b	A	CMP	E300.0:PERC	1	N	DRY
W-832-16	PTMW	Tnsc1b	S	CMP	E624MOD:ALL	1	N	DRY
W-832-16	PTMW	Tnsc1b	S	CMP	E624MOD:ALL	3	N	Insufficient water
W-832-17	PTMW	Tnsc1b	A	CMP	E300.0:NO3	1	N	DRY
W-832-17	PTMW	Tnsc1b	A	CMP	E300.0:PERC	1	N	DRY
W-832-17	PTMW	Tnsc1b	S	CMP	E624MOD:ALL	1	N	DRY
W-832-17	PTMW	Tnsc1b	S	CMP	E624MOD:ALL	3	Y	
W-832-18	PTMW	Qal/WBR-Tnsc1b	A	CMP	E300.0:NO3	1	N	DRY
W-832-18	PTMW	Qal/WBR-Tnsc1b	A	CMP	E300.0:PERC	1	N	DRY
W-832-18	PTMW	Qal/WBR-Tnsc1b	S	CMP	E624MOD:ALL	1	N	DRY

Table 2.7-7. Building 832 Canyon Operable Unit ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-832-18	PTMW	Qal/WBR-Tnsc1b	S	CMP	E624MOD:ALL	3	N	Insufficient water
W-832-19	PTMW	Qal/WBR-Tnsc1b	A	CMP	E300.0:NO3	1	N	Insufficient water
W-832-19	PTMW	Qal/WBR-Tnsc1b	A	CMP	E300.0:PERC	1	N	Insufficient water
W-832-19	PTMW	Qal/WBR-Tnsc1b	S	CMP	E624MOD:ALL	1	N	Insufficient water
W-832-19	PTMW	Qal/WBR-Tnsc1b	S	CMP	E624MOD:ALL	3	Y	
W-832-20	PTMW	Tnsc1b	A	CMP	E300.0:NO3	1	N	DRY
W-832-20	PTMW	Tnsc1b	A	CMP	E300.0:PERC	1	N	DRY
W-832-20	PTMW	Tnsc1b	S	CMP	E624MOD:ALL	1	N	DRY
W-832-20	PTMW	Tnsc1b	S	CMP	E624MOD:ALL	3	Y	
W-832-21	PTMW	Qal/WBR	A	CMP	E300.0:NO3	1	N	DRY
W-832-21	PTMW	Qal/WBR	A	CMP	E300.0:PERC	1	N	DRY
W-832-21	PTMW	Qal/WBR	S	CMP	E624MOD:ALL	1	N	DRY
W-832-21	PTMW	Qal/WBR	S	CMP	E624MOD:ALL	3	N	Insufficient water
W-832-22	PTMW	UTnbs1	A	CMP	E300.0:NO3	1	N	DRY
W-832-22	PTMW	UTnbs1	A	CMP	E300.0:PERC	1	N	DRY
W-832-22	PTMW	UTnbs1	A	CMP	E624MOD:ALL	1	N	DRY
W-832-23	PTMW	Tnsc1b	A	CMP	E300.0:NO3	1	Y	
W-832-23	PTMW	Tnsc1b	A	CMP	E300.0:PERC	1	Y	
W-832-23	PTMW	Tnsc1b	S	CMP	E624MOD:ALL	1	Y	
W-832-23	PTMW	Tnsc1b	S	CMP	E624MOD:ALL	3	Y	
W-832-24	PTMW	Tnsc1a	A	CMP	E300.0:NO3	1	Y	
W-832-24	PTMW	Tnsc1a	A	CMP	E300.0:PERC	1	Y	
W-832-24	PTMW	Tnsc1a	S	CMP	E624MOD:ALL	1	Y	
W-832-24	PTMW	Tnsc1a	S	CMP	E624MOD:ALL	3	Y	
W-832-25	EW	Tnsc1a	A	CMP-TF	E300.0:NO3	1	Y	
W-832-25	EW	Tnsc1a	A	DIS-TF	E300.0:NO3	3	Y	
W-832-25	EW	Tnsc1a	A	CMP-TF	E300.0:PERC	1	Y	
W-832-25	EW	Tnsc1a	A	DIS-TF	E300.0:PERC	3	Y	
W-832-25	EW	Tnsc1a	S	CMP-TF	E624MOD:ALL	1	Y	
W-832-25	EW	Tnsc1a	S	DIS-TF	E624MOD:ALL	2	Y	
W-832-25	EW	Tnsc1a	S	CMP-TF	E624MOD:ALL	3	Y	
W-832-25	EW	Tnsc1a	S	DIS-TF	E624MOD:ALL	4	Y	
W-832-1927	PTMW	Tnsc1b	A	CMP	E300.0:NO3	1	Y	
W-832-1927	PTMW	Tnsc1b	A	CMP	E300.0:PERC	1	Y	

Table 2.7-7. Building 832 Canyon Operable Unit ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-832-1927	PTMW	Tnsc1b	S	CMP	E624MOD:ALL	1	Y	
W-832-1927	PTMW	Tnsc1b	S	CMP	E624MOD:ALL	3	Y	
W-832-2112	GW	UTnbs1	S	CMP	E300.0:NO3	1	Y	
W-832-2112	GW	UTnbs1	S	CMP	E300.0:NO3	3	Y	
W-832-2112	GW	UTnbs1	S	CMP	E300.0:PERC	1	Y	
W-832-2112	GW	UTnbs1	S	CMP	E300.0:PERC	3	Y	
W-832-2112	GW	UTnbs1	Q	CMP	E624MOD:ALL	1	Y	
W-832-2112	GW	UTnbs1	Q	CMP	E624MOD:ALL	2	Y	
W-832-2112	GW	UTnbs1	Q	CMP	E624MOD:ALL	3	Y	
W-832-2112	GW	UTnbs1	Q	CMP	E624MOD:ALL	4	Y	
W-832-2906	PTMW	UTnbs1	A	CMP	E300.0:NO3	1	Y	
W-832-2906	PTMW	UTnbs1	A	DIS	E300.0:NO3	3	Y	
W-832-2906	PTMW	UTnbs1	A	CMP	E300.0:PERC	1	Y	
W-832-2906	PTMW	UTnbs1	A	DIS	E300.0:PERC	3	Y	
W-832-2906	PTMW	UTnbs1	S	CMP	E624MOD:ALL	1	Y	
W-832-2906	PTMW	UTnbs1	S	DIS	E624MOD:ALL	2	Y	
W-832-2906	PTMW	UTnbs1	S	CMP	E624MOD:ALL	3	Y	
W-832-2906	PTMW	UTnbs1	S	DIS	E624MOD:ALL	4	Y	
W-832-3015	PTMW	Qal/WBR	A	CMP	E300.0:NO3	1	N	DRY
W-832-3015	PTMW	Qal/WBR	A	CMP	E300.0:PERC	1	N	DRY
W-832-3015	PTMW	Qal/WBR	S	CMP	E624MOD:ALL	1	N	DRY
W-832-3015	PTMW	Qal/WBR	S	CMP	E624MOD:ALL	3	N	DRY
W-832-3016	PTMW	Qal/WBR	A	CMP	E300.0:NO3	1	N	No access to well location
W-832-3016	PTMW	Qal/WBR	A	CMP	E300.0:PERC	1	N	No access to well location
W-832-3016	PTMW	Qal/WBR	S	CMP	E624MOD:ALL	1	N	No access to well location
W-832-3016	PTMW	Qal/WBR	S	CMP	E624MOD:ALL	3	N	DRY
W-832-3017	PTMW	Qal/WBR	A	CMP	E300.0:NO3	1	N	No access to well location
W-832-3017	PTMW	Qal/WBR	A	CMP	E300.0:PERC	1	N	No access to well location
W-832-3017	PTMW	Qal/WBR	S	CMP	E624MOD:ALL	1	N	No access to well location
W-832-3017	PTMW	Qal/WBR	S	CMP	E624MOD:ALL	3	N	No access to well location
W-832-3018	PTMW	Qal/WBR	A	CMP	E300.0:NO3	1	N	No access to well location
W-832-3018	PTMW	Qal/WBR	A	CMP	E300.0:PERC	1	N	No access to well location
W-832-3018	PTMW	Qal/WBR	S	CMP	E624MOD:ALL	1	N	No access to well location
W-832-3018	PTMW	Qal/WBR	S	CMP	E624MOD:ALL	3	N	No access to well location

Table 2.7-7. Building 832 Canyon Operable Unit ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-832-3019	EW	Tnsc1a	A	CMP	E300.0:NO3	1	Y	
W-832-3019	EW	Tnsc1a	A	DIS-TF	E300.0:NO3	3	Y	
W-832-3019	EW	Tnsc1a	A	CMP	E300.0:PERC	1	Y	
W-832-3019	EW	Tnsc1a	A	DIS-TF	E300.0:PERC	3	Y	
W-832-3019	EW	Tnsc1a	S	CMP	E624MOD:ALL	1	Y	
W-832-3019	EW	Tnsc1a	S	DIS-TF	E624MOD:ALL	2	Y	
W-832-3019	EW	Tnsc1a	S	CMP-TF	E624MOD:ALL	3	Y	
W-832-3019	EW	Tnsc1a	S	DIS-TF	E624MOD:ALL	4	Y	
W-832-3020	PTMW	Tnsc1a	A	CMP	E300.0:NO3	1	Y	
W-832-3020	PTMW	Tnsc1a	A	DIS-TF	E300.0:NO3	3	Y	
W-832-3020	PTMW	Tnsc1a	A	CMP	E300.0:PERC	1	Y	
W-832-3020	PTMW	Tnsc1a	A	DIS-TF	E300.0:PERC	3	Y	
W-832-3020	PTMW	Tnsc1a	S	CMP	E624MOD:ALL	1	Y	
W-832-3020	PTMW	Tnsc1a	S	DIS-TF	E624MOD:ALL	2	Y	
W-832-3020	PTMW	Tnsc1a	S	CMP-TF	E624MOD:ALL	3	Y	
W-832-3020	PTMW	Tnsc1a	S	DIS-TF	E624MOD:ALL	4	Y	
W-832-3103	PTMW	UTnbs1	A	CMP	E300.0:NO3	1	Y	
W-832-3103	PTMW	UTnbs1	A	CMP	E300.0:PERC	1	Y	
W-832-3103	PTMW	UTnbs1	S	CMP	E624MOD:ALL	1	Y	
W-832-3103	PTMW	UTnbs1	S	CMP	E624MOD:ALL	3	Y	
W-832-3209	PTMW	Tnsc1a	A	CMP	E300.0:NO3	1	Y	
W-832-3209	PTMW	Tnsc1a	A	DIS	E300.0:NO3	3	Y	
W-832-3209	PTMW	Tnsc1a	A	CMP	E300.0:PERC	1	Y	
W-832-3209	PTMW	Tnsc1a	A	DIS	E300.0:PERC	3	Y	
W-832-3209	PTMW	Tnsc1a	S	CMP	E624MOD:ALL	1	Y	
W-832-3209	PTMW	Tnsc1a	S	DIS	E624MOD:ALL	2	Y	
W-832-3209	PTMW	Tnsc1a	S	CMP	E624MOD:ALL	3	Y	
W-832-3209	PTMW	Tnsc1a	S	DIS	E624MOD:ALL	4	Y	
W-832-3210	PTMW	Tnsc1a	A	CMP	E300.0:NO3	1	Y	
W-832-3210	PTMW	Tnsc1a	A	DIS	E300.0:NO3	3	Y	
W-832-3210	PTMW	Tnsc1a	A	CMP	E300.0:PERC	1	Y	
W-832-3210	PTMW	Tnsc1a	A	DIS	E300.0:PERC	3	Y	
W-832-3210	PTMW	Tnsc1a	S	CMP	E624MOD:ALL	1	Y	
W-832-3210	PTMW	Tnsc1a	S	DIS	E624MOD:ALL	2	Y	

Table 2.7-7. Building 832 Canyon Operable Unit ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-832-3210	PTMW	Tnsc1a	S	CMP	E624MOD:ALL	3	Y	
W-832-3210	PTMW	Tnsc1a	S	DIS	E624MOD:ALL	4	Y	
W-832-3303	IW	Tnsc1a	A	CMP	E300.0:NO3	1	Y	
W-832-3303	IW	Tnsc1a	A	DIS	E300.0:NO3	3	Y	
W-832-3303	IW	Tnsc1a	A	CMP	E300.0:PERC	1	Y	
W-832-3303	IW	Tnsc1a	A	DIS	E300.0:PERC	3	Y	
W-832-3303	IW	Tnsc1a	S	CMP	E624MOD:ALL	1	Y	
W-832-3303	IW	Tnsc1a	S	DIS	E624MOD:ALL	2	Y	
W-832-3303	IW	Tnsc1a	S	CMP	E624MOD:ALL	3	Y	
W-832-3303	IW	Tnsc1a	S	DIS	E624MOD:ALL	4	Y	
W-832-3304	GW	Tnsc1ab	A	CMP	E300.0:NO3	1	Y	
W-832-3304	GW	Tnsc1ab	A	DIS	E300.0:NO3	3	Y	
W-832-3304	GW	Tnsc1ab	A	CMP	E300.0:PERC	1	Y	
W-832-3304	GW	Tnsc1ab	A	DIS	E300.0:PERC	3	Y	
W-832-3304	GW	Tnsc1ab	S	CMP	E624MOD:ALL	1	Y	
W-832-3304	GW	Tnsc1ab	S	DIS	E624MOD:ALL	2	Y	
W-832-3304	GW	Tnsc1ab	S	CMP	E624MOD:ALL	3	Y	
W-832-3304	GW	Tnsc1ab	S	DIS	E624MOD:ALL	4	Y	
W-832-3310	IW	Tnsc1a	A	CMP	E300.0:NO3	1	Y	
W-832-3310	IW	Tnsc1a	A	DIS	E300.0:NO3	3	Y	
W-832-3310	IW	Tnsc1a	A	CMP	E300.0:PERC	1	Y	
W-832-3310	IW	Tnsc1a	A	DIS	E300.0:PERC	3	Y	
W-832-3310	IW	Tnsc1a	S	CMP	E624MOD:ALL	1	Y	
W-832-3310	IW	Tnsc1a	S	DIS	E624MOD:ALL	2	Y	
W-832-3310	IW	Tnsc1a	S	CMP	E624MOD:ALL	3	Y	
W-832-3310	IW	Tnsc1a	S	DIS	E624MOD:ALL	4	Y	
W-832-SC1	PTMW	Qal/WBR	A	CMP	E300.0:NO3	1	N	No access to well location
W-832-SC1	PTMW	Qal/WBR	A	CMP	E300.0:PERC	1	N	No access to well location
W-832-SC1	PTMW	Qal/WBR	S	CMP	E624MOD:ALL	1	N	No access to well location
W-832-SC1	PTMW	Qal/WBR	S	CMP	E624MOD:ALL	3	N	No access to well location
W-832-SC2	PTMW	Qal/WBR	A	CMP	E300.0:NO3	1	N	No access to well location
W-832-SC2	PTMW	Qal/WBR	E	CMP	E300.0:PERC	1	N	No access to well location
W-832-SC2	PTMW	Qal/WBR	S	CMP	E624MOD:ALL	1	N	No access to well location
W-832-SC2	PTMW	Qal/WBR	S	CMP	E624MOD:ALL	3	N	No access to well location

Table 2.7-7. Building 832 Canyon Operable Unit ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-832-SC3	PTMW	Qal/WBR	A	CMP	E300.0:NO3	1	Y	
W-832-SC3	PTMW	Qal/WBR	O	CMP	E300.0:PERC	1	N	To be sampled in 2019
W-832-SC3	PTMW	Qal/WBR	S	CMP	E624MOD:ALL	1	Y	
W-832-SC3	PTMW	Qal/WBR	S	CMP	E624MOD:ALL	3	N	DRY
W-832-SC4	PTMW	Qal/WBR	A	CMP	E300.0:NO3	1	Y	
W-832-SC4	PTMW	Qal/WBR	E	CMP	E300.0:PERC	1	Y	
W-832-SC4	PTMW	Qal/WBR	S	CMP	E624MOD:ALL	1	Y	
W-832-SC4	PTMW	Qal/WBR	S	CMP	E624MOD:ALL	3	N	DRY
W-870-01	PTMW	Qal/WBR	A	CMP	E300.0:NO3	1	N	DRY
W-870-01	PTMW	Qal/WBR	A	CMP	E300.0:PERC	1	N	DRY
W-870-01	PTMW	Qal/WBR	S	CMP	E624MOD:ALL	1	N	DRY
W-870-01	PTMW	Qal/WBR	S	CMP	E624MOD:ALL	3	N	DRY
W-870-02	PTMW	Tnbs2	A	CMP	E300.0:NO3	1	Y	
W-870-02	PTMW	Tnbs2	E	CMP	E300.0:PERC	1	Y	
W-870-02	PTMW	Tnbs2	S	CMP	E624MOD:ALL	1	Y	
W-870-02	PTMW	Tnbs2	S	CMP	E624MOD:ALL	3	Y	
W-880-01	GW	Tnbs2	S	CMP	E300.0:NO3	1	Y	
W-880-01	GW	Tnbs2	S	CMP	E300.0:NO3	3	Y	
W-880-01	GW	Tnbs2	S	CMP	E300.0:PERC	1	Y	
W-880-01	GW	Tnbs2	S	CMP	E300.0:PERC	3	Y	
W-880-01	GW	Tnbs2	Q	CMP	E624MOD:ALL	1	Y	
W-880-01	GW	Tnbs2	Q	CMP	E624MOD:ALL	2	Y	
W-880-01	GW	Tnbs2	Q	CMP	E624MOD:ALL	3	Y	
W-880-01	GW	Tnbs2	Q	CMP	E624MOD:ALL	4	Y	
W-880-01	GW	Tnbs2	S	CMP	E8330LOW:ALL	1	Y	
W-880-01	GW	Tnbs2	S	CMP	E8330LOW:ALL	3	Y	
W-880-02	GW	Qal/WBR	S	CMP	E300.0:NO3	1	Y	
W-880-02	GW	Qal/WBR	S	CMP	E300.0:NO3	3	N	Insufficient water
W-880-02	GW	Qal/WBR	S	CMP	E300.0:PERC	1	Y	
W-880-02	GW	Qal/WBR	S	CMP	E300.0:PERC	3	N	Insufficient water
W-880-02	GW	Qal/WBR	Q	CMP	E624MOD:ALL	1	Y	
W-880-02	GW	Qal/WBR	Q	CMP	E624MOD:ALL	2	Y	
W-880-02	GW	Qal/WBR	Q	CMP	E624MOD:ALL	3	N	Insufficient water
W-880-02	GW	Qal/WBR	Q	CMP	E624MOD:ALL	4	Y	

Table 2.7-7. Building 832 Canyon Operable Unit ground and surface water sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-880-02	GW	Qal/WBR	S	CMP	E8330LOW:ALL	1	Y	
W-880-02	GW	Qal/WBR	S	CMP	E8330LOW:ALL	3	N	Insufficient water
W-880-03	GW	Tnsc1b	S	CMP	E300.0:NO3	1	Y	
W-880-03	GW	Tnsc1b	S	CMP	E300.0:NO3	3	Y	
W-880-03	GW	Tnsc1b	S	CMP	E300.0:PERC	1	Y	
W-880-03	GW	Tnsc1b	S	CMP	E300.0:PERC	3	Y	
W-880-03	GW	Tnsc1b	Q	CMP	E624MOD:ALL	1	Y	
W-880-03	GW	Tnsc1b	Q	CMP	E624MOD:ALL	2	Y	
W-880-03	GW	Tnsc1b	Q	CMP	E624MOD:ALL	3	Y	
W-880-03	GW	Tnsc1b	Q	CMP	E624MOD:ALL	4	Y	
W-880-03	GW	Tnsc1b	S	CMP	E8330LOW:ALL	1	Y	
W-880-03	GW	Tnsc1b	S	CMP	E8330LOW:ALL	3	Y	

Acronyms and Abbreviations:

- \- = Not applicable
- bgs = Below ground surface
- CGSA = Central General Services Area
- COCs = Contaminants of concern
- DIS = Distal
- DISS = Distal south
- DSB = Distal site boundary
- EGSA = Eastern General Services Area
- ft = Feet
- g = Grams
- GWTS = Groundwater treatment system
- HSU = Hydrostratigraphic unit
- Kcf = Thousands of cubic feet
- kg = Kilograms
- Kgal = Thousands of gallons
- Mcf = Millions of cubic feet
- PRX = Proximal
- PRXN = Proximal North
- PTMW = Plume Tracking Monitor Well
- RDX = Research Department Explosive
- SRC = Source
- SVTS = Soil vapor treatment system
- TBOS = Tetra 2-ethylbutylorthosilicate
- TKEBS = Tetrakis (2-ethylbutyl) silane
- VOC = Volatile organic compound

Table 2.7-8. Building 832-Source (832-SRC) mass removed, July 1, 2018 through December 31, 2018.

Treatment facility	Month	SVTS VOC mass removed (g)	GWTS VOC mass removed (g)	Perchlorate mass removed (g)	Nitrate mass removed (kg)	RDX mass removed (g)	TBOS/TKEBS mass removed (g)
832-SRC	July	0	0	0	0	NA	NA
	August	0	0	0	0	NA	NA
	September	0	0	0	0	NA	NA
	October	0	0	0	0	NA	NA
	November	0	0	0	0	NA	NA
	December	0	0	0	0	NA	NA
Total		0	0	0	0	NA	NA

Acronyms and Abbreviations:

- = Not applicable
bgs = Below ground surface
CGSA = Central General Services Area
COCs = Contaminants of concern
DIS = Distal
DISS = Distal south
DSB = Distal site boundary
EGSA = Eastern General Services Area
ft = Feet
g = Grams
GWTS = Groundwater treatment system
HSU = Hydrostratigraphic unit
Kcf = Thousands of cubic feet
kg = Kilograms
Kgal = Thousands of gallons
Mcf = Millions of cubic feet
PRX = Proximal
PRXN = Proximal North
PTMW = Plume Tracking Monitor Well
RDX = Research Department Explosive
SRC = Source
SVTS = Soil vapor treatment system
TBOS = Tetra 2-ethylbutylorthosilicate
TKEBS = Tetrakis (2-ethylbutyl) silane
VOC = Volatile organic compound

Table 2.7-9. Building 830-Source mass removed, July 1, 2018 through December 31, 2018.

Treatment facility	Month	SVTS VOC mass removed (g)	GWTS VOC mass removed (g)	Perchlorate mass removed (g)	Nitrate mass removed (kg)	RDX mass removed (g)	TBOS/TKEBS mass removed (g)
830-SRC	July	63	94	0.21	15	NA	NA
	August	26	52	0.13	8.1	NA	NA
	September	16	43	0.11	6.6	NA	NA
	October	44	65	0.14	9.2	NA	NA
	November	28	50	0.096	7.7	NA	NA
	December	0	0	0	0	NA	NA
Total		180	300	0.68	46	NA	NA

Treatment facility	Month	SVTS VOC mass removed (g)	GWTS VOC mass removed (g)	Perchlorate mass removed (g)	Nitrate mass removed (kg)	RDX mass removed (g)	TBOS/TKEBS mass removed (g)
830-DISS	July	NA	0	0	0	NA	NA
	August	NA	0	0	0	NA	NA
	September	NA	0	0	0	NA	NA
	October	NA	0	0	0	NA	NA
	November	NA	0	0	0	NA	NA
	December	NA	0	0	0	NA	NA
Total		NA	0	0	0	NA	NA

Acronyms and Abbreviations:

- = Not applicable
bgs = Below ground surface
CGSA = Central General Services Area
COCs = Contaminants of concern
DIS = Distal
DISS = Distal south
DSB = Distal site boundary
EGSA = Eastern General Services Area
ft = Feet
g = Grams
GWTS = Groundwater treatment system
HSU = Hydrostratigraphic unit
Kcf = Thousands of cubic feet
kg = Kilograms
Kgal = Thousands of gallons
Mcf = Millions of cubic feet
PRX = Proximal
PRXN = Proximal North
PTMW = Plume Tracking Monitor Well
RDX = Research Department Explosive
SRC = Source
SVTS = Soil vapor treatment system
TBOS = Tetra 2-ethylbutylorthosilicate
TKEBS = Tetrakis (2-ethylbutyl) silane
VOC = Volatile organic compound

Table 2.7-10. Building 830-Distal South mass removed, July 1, 2018 through December 31, 2018.

Treatment facility	Month	SVTS VOC mass removed (g)	GWTS VOC mass removed (g)	Perchlorate mass removed (g)	Nitrate mass removed (kg)	RDX mass removed (g)	TBOS/TKEBS mass removed (g)
830-DISS	July	NA	0	0.00	0	NA	NA
	August	NA	0	0	0	NA	NA
	September	NA	0	0	0	NA	NA
	October	NA	0	0	0	NA	NA
	November	NA	0	0	0	NA	NA
	December	NA	0	0	0	NA	NA
Total		NA	0	0	0	NA	NA

Acronyms and Abbreviations:

- = Not applicable
bgs = Below ground surface
CGSA = Central General Services Area
COCs = Contaminants of concern
DIS = Distal
DISS = Distal south
DSB = Distal site boundary
EGSA = Eastern General Services Area
ft = Feet
g = Grams
GWTS = Groundwater treatment system
HSU = Hydrostratigraphic unit
Kcf = Thousands of cubic feet
kg = Kilograms
Kgal = Thousands of gallons
Mcf = Millions of cubic feet
PRX = Proximal
PRXN = Proximal North
PTMW = Plume Tracking Monitor Well
RDX = Research Department Explosive
SRC = Source
SVTS = Soil vapor treatment system
TBOS = Tetra 2-ethylbutylorthosilicate
TKEBS = Tetrakis (2-ethylbutyl) silane
VOC = Volatile organic compound

Table 2.8-1. Building 801 and Pit 8 Landfill area groundwater sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
K8-01	PTMW	Tnbs1-Tnbs0	A	CMP	AS:UISO	2	Y	
K8-01	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:NO3	2	Y	
K8-01	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	2	Y	
K8-01	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	4	Y	
K8-01	PTMW	Tnbs1-Tnbs0	S	CMP	E624MOD:ALL	2	Y	
K8-01	PTMW	Tnbs1-Tnbs0	S	CMP	E624MOD:ALL	4	Y	
K8-01	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	Y	
K8-01	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	Y	
K8-02B	DMW	Tnbs1-Tnbs0	A	CMP	ANIONS:FL	2	Y	
K8-02B	DMW	Tnbs1-Tnbs0	A	CMP	AS:UISO	4	Y	
K8-02B	DMW	Tnbs1-Tnbs0	A	CMP	E200.7:LI	2	Y	
K8-02B	DMW	Tnbs1-Tnbs0	S	CMP	E300.0:NO3	2	Y	
K8-02B	DMW	Tnbs1-Tnbs0	S	CMP	E300.0:NO3	4	Y	
K8-02B	DMW	Tnbs1-Tnbs0	Q	CMP	E300.0:PERC	1	Y	
K8-02B	DMW	Tnbs1-Tnbs0	Q	CMP	E300.0:PERC	2	Y	
K8-02B	DMW	Tnbs1-Tnbs0	Q	CMP	E300.0:PERC	3	Y	
K8-02B	DMW	Tnbs1-Tnbs0	Q	CMP	E300.0:PERC	4	Y	
K8-02B	DMW	Tnbs1-Tnbs0	A	CMP	E624MOD:ALL	2	Y	
K8-02B	DMW	Tnbs1-Tnbs0	A	CMP	E8330LOW:ALL	2	Y	
K8-02B	DMW	Tnbs1-Tnbs0	Q	CMP	E906:ALL	1	Y	
K8-02B	DMW	Tnbs1-Tnbs0	Q	CMP	E906:ALL	2	Y	
K8-02B	DMW	Tnbs1-Tnbs0	Q	CMP	E906:ALL	3	Y	
K8-02B	DMW	Tnbs1-Tnbs0	Q	CMP	E906:ALL	4	Y	
K8-02B	DMW	Tnbs1-Tnbs0	A	CMP	MS:UISO	2	Y	
K8-02B	DMW	Tnbs1-Tnbs0	A	CMP	T26METALS:ALL	2	Y	
K8-03B	PTMW	Tnbs1-Tnbs0	A	CMP	AS:UISO	2	Y	
K8-03B	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:NO3	2	Y	
K8-03B	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	2	Y	
K8-03B	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	4	Y	
K8-03B	PTMW	Tnbs1-Tnbs0	S	CMP	E624MOD:ALL	2	Y	
K8-03B	PTMW	Tnbs1-Tnbs0	S	CMP	E624MOD:ALL	4	Y	
K8-03B	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	Y	
K8-03B	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	Y	
K8-04	DMW	Tnbs1-Tnbs0	A	CMP	ANIONS:FL	2	Y	
K8-04	DMW	Tnbs1-Tnbs0	A	CMP	E200.7:LI	2	Y	
K8-04	DMW	Tnbs1-Tnbs0	A	CMP	E300.0:NO3	2	Y	
K8-04	DMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	2	Y	

Table 2.8-1. Building 801 and Pit 8 Landfill area groundwater sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
K8-04	DMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	4	Y	
K8-04	DMW	Tnbs1-Tnbs0	A	CMP	E624MOD:ALL	2	Y	
K8-04	DMW	Tnbs1-Tnbs0	A	CMP	E8330LOW:ALL	2	Y	
K8-04	DMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	Y	
K8-04	DMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	Y	
K8-04	DMW	Tnbs1-Tnbs0	A	CMP	MS:UISO	2	Y	
K8-04	DMW	Tnbs1-Tnbs0	A	CMP	T26METALS:ALL	2	Y	
K8-05	DMW	Tnbs1-Tnbs0	O	CMP	ANIONS:FL	2	N	To be sampled in 2019
K8-05	DMW	Tnbs1-Tnbs0	O	CMP	AS:UISO	2	N	To be sampled in 2019
K8-05	DMW	Tnbs1-Tnbs0	O	CMP	E200.7:LI	2	N	To be sampled in 2019
K8-05	DMW	Tnbs1-Tnbs0	O	CMP	E300.0:NO3	2	N	To be sampled in 2019
K8-05	DMW	Tnbs1-Tnbs0	O	CMP	E300.0:PERC	2	N	To be sampled in 2019
K8-05	DMW	Tnbs1-Tnbs0	O	CMP	E624MOD:ALL	2	N	To be sampled in 2019
K8-05	DMW	Tnbs1-Tnbs0	O	CMP	E8330LOW:ALL	2	N	To be sampled in 2019
K8-05	DMW	Tnbs1-Tnbs0	O	CMP	E906:ALL	2	N	To be sampled in 2019
K8-05	DMW	Tnbs1-Tnbs0	O	CMP	T26METALS:ALL	2	N	To be sampled in 2019
W-PIT8-3201	PTMW	Tnbs1/Tnbs0	A	CMP	ANIONS:FL	2	Y	
W-PIT8-3201	PTMW	Tnbs1/Tnbs0	A	CMP	AS:UISO	4	Y	
W-PIT8-3201	PTMW	Tnbs1/Tnbs0	A	CMP	E200.7:LI	2	Y	
W-PIT8-3201	PTMW	Tnbs1/Tnbs0	S	CMP	E300.0:NO3	2	Y	
W-PIT8-3201	PTMW	Tnbs1/Tnbs0	S	CMP	E300.0:NO3	4	Y	
W-PIT8-3201	PTMW	Tnbs1/Tnbs0	Q	CMP	E300.0:PERC	1	Y	
W-PIT8-3201	PTMW	Tnbs1/Tnbs0	Q	CMP	E300.0:PERC	2	Y	
W-PIT8-3201	PTMW	Tnbs1/Tnbs0	Q	CMP	E300.0:PERC	3	Y	
W-PIT8-3201	PTMW	Tnbs1/Tnbs0	Q	CMP	E300.0:PERC	4	Y	
W-PIT8-3201	PTMW	Tnbs1/Tnbs0	A	CMP	E624MOD:ALL	2	Y	
W-PIT8-3201	PTMW	Tnbs1/Tnbs0	A	CMP	E8330LOW:ALL	2	Y	
W-PIT8-3201	PTMW	Tnbs1/Tnbs0	Q	CMP	E906:ALL	1	Y	
W-PIT8-3201	PTMW	Tnbs1/Tnbs0	Q	CMP	E906:ALL	2	Y	
W-PIT8-3201	PTMW	Tnbs1/Tnbs0	Q	CMP	E906:ALL	3	Y	
W-PIT8-3201	PTMW	Tnbs1/Tnbs0	Q	CMP	E906:ALL	4	Y	
W-PIT8-3201	PTMW	Tnbs1/Tnbs0	A	CMP	MS:UISO	2	Y	
W-PIT8-3201	PTMW	Tnbs1/Tnbs0	A	CMP	T26METALS:ALL	2	Y	
W-PIT8-3202	PTMW	Tnbs1/Tnbs0	A	CMP	ANIONS:FL	2	Y	
W-PIT8-3202	PTMW	Tnbs1/Tnbs0	A	CMP	AS:UISO	4	Y	
W-PIT8-3202	PTMW	Tnbs1/Tnbs0	A	CMP	E200.7:LI	2	Y	
W-PIT8-3202	PTMW	Tnbs1/Tnbs0	S	CMP	E300.0:NO3	2	Y	

Table 2.8-1. Building 801 and Pit 8 Landfill area groundwater sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-PIT8-3202	PTMW	Tnbs1/Tnbs0	S	CMP	E300.0:NO3	4	Y	
W-PIT8-3202	PTMW	Tnbs1/Tnbs0	Q	CMP	E300.0:PERC	1	Y	
W-PIT8-3202	PTMW	Tnbs1/Tnbs0	Q	CMP	E300.0:PERC	2	Y	
W-PIT8-3202	PTMW	Tnbs1/Tnbs0	Q	CMP	E300.0:PERC	3	Y	
W-PIT8-3202	PTMW	Tnbs1/Tnbs0	Q	CMP	E300.0:PERC	4	Y	
W-PIT8-3202	PTMW	Tnbs1/Tnbs0	A	CMP	E624MOD:ALL	2	Y	
W-PIT8-3202	PTMW	Tnbs1/Tnbs0	A	CMP	E8330LOW:ALL	2	Y	
W-PIT8-3202	PTMW	Tnbs1/Tnbs0	Q	CMP	E906:ALL	1	Y	
W-PIT8-3202	PTMW	Tnbs1/Tnbs0	Q	CMP	E906:ALL	2	Y	
W-PIT8-3202	PTMW	Tnbs1/Tnbs0	Q	CMP	E906:ALL	3	Y	
W-PIT8-3202	PTMW	Tnbs1/Tnbs0	Q	CMP	E906:ALL	4	Y	
W-PIT8-3202	PTMW	Tnbs1/Tnbs0	A	CMP	MS:UISO	2	Y	
W-PIT8-3202	PTMW	Tnbs1/Tnbs0	A	CMP	T26METALS:ALL	2	Y	
W-PIT8-3203	PTMW	Tnbs1/Tnbs0	A	CMP	ANIONS:FL	2	Y	
W-PIT8-3203	PTMW	Tnbs1/Tnbs0	A	CMP	AS:UISO	4	Y	
W-PIT8-3203	PTMW	Tnbs1/Tnbs0	A	CMP	E200.7:LI	2	Y	
W-PIT8-3203	PTMW	Tnbs1/Tnbs0	S	CMP	E300.0:NO3	2	Y	
W-PIT8-3203	PTMW	Tnbs1/Tnbs0	S	CMP	E300.0:NO3	4	Y	
W-PIT8-3203	PTMW	Tnbs1/Tnbs0	Q	CMP	E300.0:PERC	1	Y	
W-PIT8-3203	PTMW	Tnbs1/Tnbs0	Q	CMP	E300.0:PERC	2	Y	
W-PIT8-3203	PTMW	Tnbs1/Tnbs0	Q	CMP	E300.0:PERC	3	Y	
W-PIT8-3203	PTMW	Tnbs1/Tnbs0	Q	CMP	E300.0:PERC	4	Y	
W-PIT8-3203	PTMW	Tnbs1/Tnbs0	A	CMP	E624MOD:ALL	2	Y	
W-PIT8-3203	PTMW	Tnbs1/Tnbs0	A	CMP	E8330LOW:ALL	2	Y	
W-PIT8-3203	PTMW	Tnbs1/Tnbs0	Q	CMP	E906:ALL	1	Y	
W-PIT8-3203	PTMW	Tnbs1/Tnbs0	Q	CMP	E906:ALL	2	Y	
W-PIT8-3203	PTMW	Tnbs1/Tnbs0	Q	CMP	E906:ALL	3	Y	
W-PIT8-3203	PTMW	Tnbs1/Tnbs0	Q	CMP	E906:ALL	4	Y	
W-PIT8-3203	PTMW	Tnbs1/Tnbs0	A	CMP	MS:UISO	2	Y	
W-PIT8-3203	PTMW	Tnbs1/Tnbs0	A	CMP	T26METALS:ALL	2	Y	

Acronyms and Abbreviations:

- = Not applicable
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COCs = Contaminants of concern
DIS = Distal
DISS = Distal south
DSB = Distal site boundary
EGSA = Eastern General Services Area
ft = Feet
g = Grams
GWTS = Groundwater treatment system
HSU = Hydrostratigraphic unit
Kcf = Thousands of cubic feet
kg = Kilograms
Kgal = Thousands of gallons
Mcf = Millions of cubic feet
PRX = Proximal
PRXN = Proximal North
PTMW = Plume Tracking Monitor Well
RDX = Research Department Explosive
SRC = Source
SVTS = Soil vapor treatment system
TBOS = Tetra 2-ethylbutylorthosilicate
TKEBS = Tetrakis (2-ethylbutyl) silane
VOC = Volatile organic compound

Table 2.8-2. Building 833 area groundwater sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-833-03	PTMW	Tpsg	A	CMP	E624MOD:ALL	1	N	DRY
W-833-12	PTMW	Tpsg	A	CMP	E624MOD:ALL	1	N	DRY
W-833-18	PTMW	Tpsg	A	CMP	E624MOD:ALL	1	N	DRY
W-833-22	PTMW	Tpsg	A	CMP	E624MOD:ALL	1	N	DRY
W-833-28	PTMW	Tpsg	A	CMP	E624MOD:ALL	1	N	DRY
W-833-33	PTMW	Tpsg	A	CMP	E624MOD:ALL	1	Y	
W-833-34	PTMW	Tpsg	A	CMP	E624MOD:ALL	1	N	DRY
W-833-43	PTMW	Tpsg	A	CMP	E624MOD:ALL	1	N	DRY
W-840-01	PTMW	LTnbs1	A	CMP	E300.0:NO3	1	Y	
W-840-01	PTMW	LTnbs1	A	CMP	E300.0:PERC	1	Y	
W-840-01	PTMW	LTnbs1	A	CMP	E624MOD:ALL	1	Y	
W-841-01	PTMW	UTnbs1	O	CMP	E300.0:NO3	1	N	To be sampled in 2019
W-841-01	PTMW	UTnbs1	O	CMP	E300.0:PERC	1	N	To be sampled in 2019
W-841-01	PTMW	UTnbs1	A	CMP	E624MOD:ALL	1	Y	

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DISS = Distal south
DSB = Distal site boundary
EGSA = Eastern General Services Area
ft = Feet
g = Grams
GWTS = Groundwater treatment system
HSU = Hydrostratigraphic unit
Kcf = Thousands of cubic feet
kg = Kilograms
Kgal = Thousands of gallons
Mcf = Millions of cubic feet
PRX = Proximal
PRXN = Proximal North
PTMW = Plume Tracking Monitor Well
RDX = Research Department Explosive
SRC = Source
SVTS = Soil vapor treatment system
TBOS = Tetra 2-ethylbutylorthosilicate
TKEBS = Tetrakis (2-ethylbutyl) silane
VOC = Volatile organic compound

Table 2.8-3. Building 845 Firing Table and Pit 9 Landfill area groundwater sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
K9-01	DMW	Tnbs1/Tnbs0	A	CMP	ANIONS:FL	2	N	No access to well location
K9-01	DMW	Tnbs1/Tnbs0	A	CMP	E200.7:LI	2	N	No access to well location
K9-01	DMW	Tnbs1/Tnbs0	A	CMP	E300.0:NO3	2	N	No access to well location
K9-01	DMW	Tnbs1/Tnbs0	A	CMP	E300.0:PERC	2	N	No access to well location
K9-01	DMW	Tnbs1/Tnbs0	A	CMP	E624MOD:ALL	2	N	No access to well location
K9-01	DMW	Tnbs1/Tnbs0	A	CMP	E8330LOW:ALL	2	N	No access to well location
K9-01	DMW	Tnbs1/Tnbs0	A	CMP	E906:ALL	2	N	No access to well location
K9-01	DMW	Tnbs1/Tnbs0	A	CMP	MS:UISO	2	N	No access to well location
K9-01	DMW	Tnbs1/Tnbs0	A	CMP	T26METALS:ALL	2	N	No access to well location
K9-02	DMW	Tnbs1/Tnbs0	A	CMP	ANIONS:FL	2	N	No access to well location
K9-02	DMW	Tnbs1/Tnbs0	A	CMP	E200.7:LI	2	N	No access to well location
K9-02	DMW	Tnbs1/Tnbs0	A	CMP	E300.0:NO3	2	N	No access to well location
K9-02	DMW	Tnbs1/Tnbs0	A	CMP	E300.0:PERC	2	N	No access to well location
K9-02	DMW	Tnbs1/Tnbs0	A	CMP	E624MOD:ALL	2	N	No access to well location
K9-02	DMW	Tnbs1/Tnbs0	A	CMP	E8330LOW:ALL	2	N	No access to well location
K9-02	DMW	Tnbs1/Tnbs0	A	CMP	E906:ALL	2	N	No access to well location
K9-02	DMW	Tnbs1/Tnbs0	A	CMP	MS:UISO	2	N	No access to well location
K9-02	DMW	Tnbs1/Tnbs0	A	CMP	T26METALS:ALL	2	N	No access to well location
K9-03	DMW	Tnbs1/Tnbs0	A	CMP	ANIONS:FL	2	N	No access to well location
K9-03	DMW	Tnbs1/Tnbs0	A	CMP	E200.7:LI	2	N	No access to well location
K9-03	DMW	Tnbs1/Tnbs0	A	CMP	E300.0:NO3	2	N	No access to well location
K9-03	DMW	Tnbs1/Tnbs0	A	CMP	E300.0:PERC	2	N	No access to well location
K9-03	DMW	Tnbs1/Tnbs0	A	CMP	E624MOD:ALL	2	N	No access to well location
K9-03	DMW	Tnbs1/Tnbs0	A	CMP	E8330LOW:ALL	2	N	No access to well location
K9-03	DMW	Tnbs1/Tnbs0	A	CMP	E906:ALL	2	N	No access to well location
K9-03	DMW	Tnbs1/Tnbs0	A	CMP	MS:UISO	2	N	No access to well location
K9-03	DMW	Tnbs1/Tnbs0	A	CMP	T26METALS:ALL	2	N	No access to well location
K9-04	DMW	Tnbs1/Tnbs0	A	CMP	ANIONS:FL	2	N	No access to well location
K9-04	DMW	Tnbs1/Tnbs0	A	CMP	E200.7:LI	2	N	No access to well location
K9-04	DMW	Tnbs1/Tnbs0	A	CMP	E300.0:NO3	2	N	No access to well location
K9-04	DMW	Tnbs1/Tnbs0	A	CMP	E300.0:PERC	2	N	No access to well location
K9-04	DMW	Tnbs1/Tnbs0	A	CMP	E624MOD:ALL	2	N	No access to well location
K9-04	DMW	Tnbs1/Tnbs0	A	CMP	E8330LOW:ALL	2	N	No access to well location
K9-04	DMW	Tnbs1/Tnbs0	A	CMP	E906:ALL	2	N	No access to well location
K9-04	DMW	Tnbs1/Tnbs0	A	CMP	MS:UISO	2	N	No access to well location
K9-04	DMW	Tnbs1/Tnbs0	A	CMP	T26METALS:ALL	2	N	No access to well location
W-PIT9-3204	DMW	Tnbs1/Tnbs0	A	CMP	ANIONS:FL	2	N	No access to well location

Table 2.8-3. Building 845 Firing Table and Pit 9 Landfill area groundwater sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-PIT9-3204	DMW	Tnbs1/Tnbs0	A	CMP	E200.7:LI	2	N	No access to well location
W-PIT9-3204	DMW	Tnbs1/Tnbs0	A	CMP	E300.0:NO3	2	N	No access to well location
W-PIT9-3204	DMW	Tnbs1/Tnbs0	A	CMP	E300.0:PERC	2	N	No access to well location
W-PIT9-3204	DMW	Tnbs1/Tnbs0	A	CMP	E624MOD:ALL	2	N	No access to well location
W-PIT9-3204	DMW	Tnbs1/Tnbs0	A	CMP	E8330LOW:ALL	2	N	No access to well location
W-PIT9-3204	DMW	Tnbs1/Tnbs0	A	CMP	E906:ALL	2	N	No access to well location
W-PIT9-3204	DMW	Tnbs1/Tnbs0	A	CMP	MS:UISO	2	N	No access to well location
W-PIT9-3204	DMW	Tnbs1/Tnbs0	A	CMP	T26METALS:ALL	2	N	No access to well location
W-PIT9-3205	DMW	Tnbs1/Tnbs0	A	CMP	ANIONS:FL	2	N	No access to well location
W-PIT9-3205	DMW	Tnbs1/Tnbs0	A	CMP	E200.7:LI	2	N	No access to well location
W-PIT9-3205	DMW	Tnbs1/Tnbs0	A	CMP	E300.0:NO3	2	N	No access to well location
W-PIT9-3205	DMW	Tnbs1/Tnbs0	A	CMP	E300.0:PERC	2	N	No access to well location
W-PIT9-3205	DMW	Tnbs1/Tnbs0	A	CMP	E624MOD:ALL	2	N	No access to well location
W-PIT9-3205	DMW	Tnbs1/Tnbs0	A	CMP	E8330LOW:ALL	2	N	No access to well location
W-PIT9-3205	DMW	Tnbs1/Tnbs0	A	CMP	E906:ALL	2	N	No access to well location
W-PIT9-3205	DMW	Tnbs1/Tnbs0	A	CMP	MS:UISO	2	N	No access to well location
W-PIT9-3205	DMW	Tnbs1/Tnbs0	A	CMP	T26METALS:ALL	2	N	No access to well location
W-PIT9-3206	DMW	Tnbs1/Tnbs0	A	CMP	ANIONS:FL	2	N	No access to well location
W-PIT9-3206	DMW	Tnbs1/Tnbs0	A	CMP	E200.7:LI	2	N	No access to well location
W-PIT9-3206	DMW	Tnbs1/Tnbs0	A	CMP	E300.0:NO3	2	N	No access to well location
W-PIT9-3206	DMW	Tnbs1/Tnbs0	A	CMP	E300.0:PERC	2	N	No access to well location
W-PIT9-3206	DMW	Tnbs1/Tnbs0	A	CMP	E624MOD:ALL	2	N	No access to well location
W-PIT9-3206	DMW	Tnbs1/Tnbs0	A	CMP	E8330LOW:ALL	2	N	No access to well location
W-PIT9-3206	DMW	Tnbs1/Tnbs0	A	CMP	E906:ALL	2	N	No access to well location
W-PIT9-3206	DMW	Tnbs1/Tnbs0	A	CMP	MS:UISO	2	N	No access to well location
W-PIT9-3206	DMW	Tnbs1/Tnbs0	A	CMP	T26METALS:ALL	2	N	No access to well location

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g = Grams
GWTS = Groundwater treatment system
HSU = Hydrostratigraphic unit
Kcf = Thousands of cubic feet
kg = Kilograms
Kgal = Thousands of gallons
Mcf = Millions of cubic feet
PRX = Proximal
PRXN = Proximal North
PTMW = Plume Tracking Monitor Well
RDX = Research Department Explosive
SRC = Source
SVTS = Soil vapor treatment system
TBOS = Tetra 2-ethylbutylorthosilicate
TKEBS = Tetrakis (2-ethylbutyl) silane
VOC = Volatile organic compound

Table 2.8-4. Building 851 area groundwater sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-851-05	PTMW	Tmss	A	CMP	AS:UISO	4	Y	
W-851-05	PTMW	Tmss	O	CMP	E624MOD:ALL	2	N	To be sampled in 2019
W-851-05	PTMW	Tmss	A	CMP	MS:UISO	2	Y	
W-851-06	PTMW	Tmss	A	CMP	AS:UISO	4	Y	
W-851-06	PTMW	Tmss	A	CMP	MS:UISO	2	Y	
W-851-07	PTMW	Tmss	A	CMP	AS:UISO	4	Y	
W-851-07	PTMW	Tmss	A	CMP	MS:UISO	2	Y	
W-851-08	PTMW	Tmss	A	CMP	AS:UISO	4	Y	
W-851-08	PTMW	Tmss	A	CMP	MS:UISO	2	Y	
W-851-3207	PTMW	Tmss	A	CMP	AS:UISO	4	Y	
W-851-3207	PTMW	Tmss	A	CMP	MS:UISO	2	Y	
W-851-3208	PTMW	Tmss	A	CMP	AS:UISO	4	Y	
W-851-3208	PTMW	Tmss	A	CMP	MS:UISO	2	Y	

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ft = Feet
g = Grams
GWTS = Groundwater treatment system
HSU = Hydrostratigraphic unit
Kcf = Thousands of cubic feet
kg = Kilograms
Kgal = Thousands of gallons
Mcf = Millions of cubic feet
PRX = Proximal
PRXN = Proximal North
PTMW = Plume Tracking Monitor Well
RDX = Research Department Explosive
SRC = Source
SVTS = Soil vapor treatment system
TBOS = Tetra 2-ethylbutylorthosilicate
TKEBS = Tetrakis (2-ethylbutyl) silane
VOC = Volatile organic compound

Table 3.1-1. Pit 2 Landfill area groundwater sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
K2-01C	DMW	Tnbs1-Tnbs0	A	CMP	ANIONS:FL	2	Y	
K2-01C	DMW	Tnbs1-Tnbs0	A	CMP	E200.7:LI	2	Y	
K2-01C	DMW	Tnbs1-Tnbs0	A	CMP	E300.0:NO3	2	Y	
K2-01C	DMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	2	Y	
K2-01C	DMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	4	Y	
K2-01C	DMW	Tnbs1-Tnbs0	A	CMP	E624MOD:ALL	2	Y	
K2-01C	DMW	Tnbs1-Tnbs0	A	CMP	E8330LOW:ALL	2	Y	
K2-01C	DMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	Y	
K2-01C	DMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	Y	
K2-01C	DMW	Tnbs1-Tnbs0	A	CMP	MS:UISO	2	Y	
K2-01C	DMW	Tnbs1-Tnbs0	A	CMP	T26METALS:ALL	2	Y	
NC2-08	DMW	Tnbs1-Tnbs0	A	CMP	ANIONS:FL	2	Y	
NC2-08	DMW	Tnbs1-Tnbs0	A	CMP	AS:UISO	2	Y	
NC2-08	DMW	Tnbs1-Tnbs0	A	CMP	E200.7:LI	2	Y	
NC2-08	DMW	Tnbs1-Tnbs0	A	CMP	E300.0:NO3	2	Y	
NC2-08	DMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	2	Y	
NC2-08	DMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	4	Y	
NC2-08	DMW	Tnbs1-Tnbs0	A	CMP	E624MOD:ALL	2	Y	
NC2-08	DMW	Tnbs1-Tnbs0	A	CMP	E8330LOW:ALL	2	Y	
NC2-08	DMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	Y	
NC2-08	DMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	Y	
NC2-08	DMW	Tnbs1-Tnbs0	A	DIS	MS:UISO	2	Y	
NC2-08	DMW	Tnbs1-Tnbs0	A	CMP	T26METALS:ALL	2	Y	
W-PIT2-1934	DMW	Tnbs1-Tnbs0	A	CMP	ANIONS:FL	2	Y	
W-PIT2-1934	DMW	Tnbs1-Tnbs0	A	CMP	E200.7:LI	2	Y	
W-PIT2-1934	DMW	Tnbs1-Tnbs0	A	CMP	E300.0:NO3	2	Y	
W-PIT2-1934	DMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	2	Y	
W-PIT2-1934	DMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	4	Y	
W-PIT2-1934	DMW	Tnbs1-Tnbs0	A	CMP	E624MOD:ALL	2	Y	
W-PIT2-1934	DMW	Tnbs1-Tnbs0	A	CMP	E8330LOW:ALL	2	Y	
W-PIT2-1934	DMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	Y	
W-PIT2-1934	DMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	Y	
W-PIT2-1934	DMW	Tnbs1-Tnbs0	A	CMP	MS:UISO	2	Y	
W-PIT2-1934	DMW	Tnbs1-Tnbs0	A	CMP	T26METALS:ALL	2	Y	
W-PIT2-1935	DMW	Tnbs1-Tnbs0	A	CMP	ANIONS:FL	2	Y	
W-PIT2-1935	DMW	Tnbs1-Tnbs0	A	CMP	E200.7:LI	2	Y	
W-PIT2-1935	DMW	Tnbs1-Tnbs0	A	CMP	E300.0:NO3	2	Y	

Table 3.1-1. Pit 2 Landfill area groundwater sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-PIT2-1935	DMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	2	Y	
W-PIT2-1935	DMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	4	Y	
W-PIT2-1935	DMW	Tnbs1-Tnbs0	A	CMP	E624MOD:ALL	2	Y	
W-PIT2-1935	DMW	Tnbs1-Tnbs0	A	CMP	E8330LOW:ALL	2	Y	
W-PIT2-1935	DMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	Y	
W-PIT2-1935	DMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	Y	
W-PIT2-1935	DMW	Tnbs1-Tnbs0	A	CMP	MS:UISO	2	Y	
W-PIT2-1935	DMW	Tnbs1-Tnbs0	A	CMP	T26METALS:ALL	2	Y	
W-PIT2-2226	GW	Tnbs1-Tnbs0	S	CMP	AS:UISO	2	Y	
W-PIT2-2226	GW	Tnbs1-Tnbs0	S	CMP	AS:UISO	4	Y	
W-PIT2-2226	GW	Tnbs1-Tnbs0	S	CMP	E300.0:NO3	2	Y	
W-PIT2-2226	GW	Tnbs1-Tnbs0	S	CMP	E300.0:NO3	4	Y	
W-PIT2-2226	GW	Tnbs1-Tnbs0	Q	CMP	E300.0:PERC	1	Y	
W-PIT2-2226	GW	Tnbs1-Tnbs0	Q	CMP	E300.0:PERC	2	Y	
W-PIT2-2226	GW	Tnbs1-Tnbs0	Q	CMP	E300.0:PERC	3	Y	
W-PIT2-2226	GW	Tnbs1-Tnbs0	Q	CMP	E300.0:PERC	4	Y	
W-PIT2-2226	GW	Tnbs1-Tnbs0	Q	CMP	E906:ALL	1	Y	
W-PIT2-2226	GW	Tnbs1-Tnbs0	Q	CMP	E906:ALL	2	Y	
W-PIT2-2226	GW	Tnbs1-Tnbs0	Q	CMP	E906:ALL	3	Y	
W-PIT2-2226	GW	Tnbs1-Tnbs0	Q	CMP	E906:ALL	4	Y	
W-PIT2-2301	PTMW	Qal/WBR	A	CMP	E300.0:NO3	2	Y	
W-PIT2-2301	PTMW	Qal/WBR	S	CMP	E300.0:PERC	2	Y	
W-PIT2-2301	PTMW	Qal/WBR	S	CMP	E300.0:PERC	4	N	Insufficient water
W-PIT2-2301	PTMW	Qal/WBR	S	CMP	E906:ALL	2	Y	
W-PIT2-2301	PTMW	Qal/WBR	S	CMP	E906:ALL	4	N	Insufficient water
W-PIT2-2301	PTMW	Qal/WBR	A	CMP	MS:UISO	2	Y	
W-PIT2-2302	PTMW	Qal/WBR	A	CMP	E300.0:NO3	2	Y	
W-PIT2-2302	PTMW	Qal/WBR	S	CMP	E300.0:PERC	2	Y	
W-PIT2-2302	PTMW	Qal/WBR	S	CMP	E300.0:PERC	4	N	Insufficient water
W-PIT2-2302	PTMW	Qal/WBR	S	CMP	E906:ALL	2	Y	
W-PIT2-2302	PTMW	Qal/WBR	S	CMP	E906:ALL	4	N	Insufficient water
W-PIT2-2302	PTMW	Qal/WBR	A	CMP	MS:UISO	2	Y	
W-PIT2-2303	PTMW	Qal/WBR	A	CMP	E300.0:NO3	2	N	DRY
W-PIT2-2303	PTMW	Qal/WBR	S	CMP	E300.0:PERC	2	N	DRY
W-PIT2-2303	PTMW	Qal/WBR	S	CMP	E300.0:PERC	4	N	DRY
W-PIT2-2303	PTMW	Qal/WBR	S	CMP	E906:ALL	2	N	DRY
W-PIT2-2303	PTMW	Qal/WBR	S	CMP	E906:ALL	4	N	DRY

Table 3.1-1. Pit 2 Landfill area groundwater sampling and analysis plan.

Sample Location	Location Type	Hydro Unit	Sampling Frequency	Sample Driver	Requested Analysis	Sampling Quarter	Sampled Y/N	Comment
W-PIT2-2303	PTMW	Qal/WBR	A	CMP	MS:UISO	2	N	DRY
W-PIT2-2304	PTMW	Tnbs1-Tnbs0	A	CMP	AS:UISO	2	N	DRY
W-PIT2-2304	PTMW	Tnbs1-Tnbs0	A	CMP	E300.0:NO3	2	N	DRY
W-PIT2-2304	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	2	N	DRY
W-PIT2-2304	PTMW	Tnbs1-Tnbs0	S	CMP	E300.0:PERC	4	N	DRY
W-PIT2-2304	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	2	N	DRY
W-PIT2-2304	PTMW	Tnbs1-Tnbs0	S	CMP	E906:ALL	4	N	DRY

Acronyms and Abbreviations:

- = Not applicable
bgs = Below ground surface
CGSA = Central General Services Area
COCs = Contaminants of concern
DIS = Distal
DISS = Distal south
DSB = Distal site boundary
EGSA = Eastern General Services Area
ft = Feet
g = Grams
GWTS = Groundwater treatment system
HSU = Hydrostratigraphic unit
Kcf = Thousands of cubic feet
kg = Kilograms
Kgal = Thousands of gallons
Mcf = Millions of cubic feet
PRX = Proximal
PRXN = Proximal North
PTMW = Plume Tracking Monitor Well
RDX = Research Department Explosive
SRC = Source
SVTS = Soil vapor treatment system
TBOS = Tetra 2-ethylbutylorthosilicate
TKEBS = Tetrakis (2-ethylbutyl) silane
VOC = Volatile organic compound

Table 4.2-1. Summary of contaminants of concern in environmental media for Operable Units 1 through 8 at Site 300.

OU	Groundwater COCs	Surface water COCs	Surface soil COCs	Subsurface soil COCs
General Services Area (OU 1)	VOCs	None	None	VOCs[a]
Building 834 (OU 2)	VOCs TBOS/TKEBs Nitrate (as NO_3)	None	None	VOCs[b]
Pit 6 Landfill (OU 3)	VOCs Tritium Nitrate (as NO_3) Perchlorate	VOCs	None	None
HE Process Area (OU 4)	VOCs HE Compounds Nitrate (as NO_3) Perchlorate	VOCs	HE Compounds[a] (Cadmium)[c]	VOCs[a] HE Compounds[a]
Building 850 Firing Table (OU 5)	Tritium Uranium-238 Nitrate (as NO_3) Perchlorate	Tritium	Beryllium[d] Cadmium[d, e] Copper[d] HE Compounds[d] PCBs[f] Dioxins[f] Furans[f] Uranium-238[d]	Tritium[a] Uranium-238[a]
Pit 7 Complex (OU5)	Tritium VOCs Uranium Nitrate (as NO_3) Perchlorate[2]	None	None	Tritium[a] Uranium-238
Building 854 (OU 6)	VOCs Nitrate (as NO_3) Perchlorate	None	Lead[a] Zinc[a] HE Compounds[a] PCBs[g] Tritium[a]	VOCs[a]
Building 832 Canyon (OU 7)	VOCs Nitrate (as NO_3) Perchlorate	VOCs	HE Compounds[a]	VOCs[a] HE Compounds[a] Nitrate (as NO_3)[a]

Table 4.2-1. Summary of contaminants of concern in environmental media for Operable Units 1 through 8 at Site 300.

Operable unit (OU)	Groundwater COCs	Surface water COCs	Surface soil COCs	Subsurface soil COCs
Building 801 Dry Well and the Pit 8 Landfill (OU 8)	**VOCs** **Nitrate (as NO_3)** **Perchlorate**	**None**	**None** **(Cadmium)[c]**	**VOCs[a]**
Building 833 Area (OU 8)	**VOCs**	**None**	**None**	**VOCs[a]**
Building 845 Firing Table and the Pit 9 Landfill (OU 8)	**None**	**None**	**None**	**HE Compounds[a]** **Uranium-238[a]**
Building 851 Firing Table (OU 8)	**Uranium-238**	**None**	**Cadmium[c]** **Copper[a]** **Zinc[a]** **HE Compounds[a]** **Uranium-238[a]**	**VOCs[a]** **Uranium-238[a]**
Pit 2 Landfill (OU 8)	**Nitrate (as NO_3)**	**None**	**None**	**None**

Notes:

[a] No identified ecological risk associated with these constituents.

[b] VOCs in burrow air eliminated as an ecological COC (Dibley et al., 2004b).

[c] Potential hazard to individual squirrel or deer identified in the Site-Wide Remedial Investigation, however, subsequent wildlife surveys found no impact to populations. Additional evaluation in 2011 and 2012 eliminated cadmium as an ecological COC. Analytes in parentheses were not identified as a COC in Table 1-1 of the 2009 Compliance Monitoring Plan/Contingency Plan.

[d] These constituents in surface soil likely removed as part of 2009-2010 removal action (Dibley et al., 2010c).

[e] Results of 2004 exposure analysis for burrowing owls indicate cadmium is unlikely to pose a hazard to owls nesting in the vicinity of Building 850 (Dibley et al., 2004b).

[f] PCBs, dioxins, and furans in surface soil removed as part of 2009-2010 removal action (Dibley et al., 2010c).

[g] PCB-contaminated soil removed from 855 former lagoon in 2005 (U.S. DOE, 2005b).

Acronyms and Abbreviations:

-	=	Not applicable
bgs	=	Below ground surface
CGSA	=	Central General Services Area
COCs	=	Contaminants of concern
DIS	=	Distal
DISS	=	Distal south
DSB	=	Distal site boundary
EGSA	=	Eastern General Services Area
ft	=	Feet
g	=	Grams
GWTS	=	Groundwater treatment system
HSU	=	Hydrostratigraphic unit
Kcf	=	Thousands of cubic feet
kg	=	Kilograms
Kgal	=	Thousands of gallons
Mcf	=	Millions of cubic feet
PRX	=	Proximal
PRXN	=	Proximal North
PTMW	=	Plume Tracking Monitor Well
RDX	=	Research Department Explosive
SRC	=	Source
SVTS	=	Soil vapor treatment system
TBOS	=	Tetra 2-ethylbutylorthosilicate
TKEBS	=	Tetrakis (2-ethylbutyl) silane
VOC	=	Volatile organic compound

This table is adapted from Table 1-1 in the 2009 Compliance Monitoring Plan/Contingency Plan, Dibley et al., 2009a.

Table 4.2-2. Special-status plant species known to occur at Site 300.

Common name	Scientific name 2013	Regulatory Status 2013[a]	Regulatory Status 2018[a]
Large-flowered fiddleneck	***Amsinckia grandiflora***	**FE**	**FE**
Big tarplant	***Blepharizonia plumosa***	**CRPR 1B**	**CRPR 1B**
Diamond-petaled California poppy	***Eschscholzia rhombipetala***	**CRPR 1B**	**CRPR 1B**
Adobe navarretia	***Navarretia nigelliformis* ssp. *radians***	**CRPR 1B**	**CRPR 1B**
Round-leaved filaree	***California macrophylla***	**CRPR 1B**	**CBR**
California androsace	***Androsace elongata* subsp. *acuta***	**CRPR 4**	**CRPR 4**
Stinkbells	***Fritillaria agrestis***	**CRPR 4**	**CRPR 4**
Hogwallow starfish	***Hesperevax caulescens***	**CRPR 4**	**CRPR 4**

[a] Regulatory Status:

FE = Federally Endangered under the Federal Endangered Species Act.

SE = State Endangered under the California Endangered Species Act.

CRPR 1B= California Rare Plant Rank 1B, species are considered rare and endangered throughout their range (CNPS, 2018).

CRPR 4 = California Rare Plant Rank 4, plants of limited distribution that are not considered rare or endangered (CNPS, 2018).

CBR= Considered But Rejected, the species was too common statewide, counties that contain small, localized populations under severe threat should track *C. macrophylla* as a species of local concern (CNPS, 2018).

Acronyms and Abbreviations:

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DISS	=	Distal south
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EGSA	=	Eastern General Services Area
ft	=	Feet
g	=	Grams
GWTS	=	Groundwater treatment system
HSU	=	Hydrostratigraphic unit
Kcf	=	Thousands of cubic feet
kg	=	Kilograms
Kgal	=	Thousands of gallons
Mcf	=	Millions of cubic feet
PRX	=	Proximal
PRXN	=	Proximal North
PTMW	=	Plume Tracking Monitor Well
RDX	=	Research Department Explosive
SRC	=	Source
SVTS	=	Soil vapor treatment system
TBOS	=	Tetra 2-ethylbutylorthosilicate
TKEBS	=	Tetrakis (2-ethylbutyl) silane
VOC	=	Volatile organic compound

Table 4.2-3. Special-status vertebrate and invertebrate wildlife species known to occur at Site 300.

Taxa	Common name	Scientific name 2013	Regulatory status 2013[a,d]	Regulatory status 2018[a,d]
Invertebrates	Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	FT	FT
Amphibians	California tiger salamander	*Ambystoma californiense*	FT, CASSC, ST	FT, ST
	Coast Range newt	*Taricha torosa*	CASSC	None
	California red-legged frog	*Rana draytonii*	FT, CASSC	FT, CASSC
	Western spadefoot toad	*Spea hammondii*	CASSC	CASSC
Reptiles	Western pond turtle	*Emys marmorata*	CASSC	CASSC
	Alameda whipsnake	*Masticophis lateralis euryxanthus*	FT, ST	FT, ST
	San Joaquin coachwhip	*Masticophis flagellum ruddocki*	CASSC	CASSC
	Coast horned lizard	*Phrynosoma blainvillii*	CASSC	CASSC
	Silvery legless lizard	*Anniella pulchra pulchra*	CASSC	CASSC
Birds	Golden Eagle	*Aquila chrysaetos*	BGEPA, CAFPS, BCC	BGEPA, CAFPS, BCC
	Ferruginous Hawk	*Buteo regalis*	BCC	BCC
	Swainson's Hawk	*Buteo swainsoni*	ST, BCC	ST, BCC
	White-tailed Kite	*Elanus leucurus*	CAFPS	CAFPS
	Northern Harrier	*Circus cyaneus*	CASSC	CASSC
	Prairie Falcon	*Falco mexicanus*	BCC	BCC
	Peregrine Falcon	*Falcon peregrinus anatum*	Not observed in 2013	CAFPS
	Short-eared Owl	*Asio flammeus*	CASSC	CASSC
	Long-eared owl	*Asio otus*	None	CASSC
	Burrowing Owl	*Athene cunicularia*	BCC, CASSC	BCC, CASSC
	Long-billed curlew	*Numenius americanus*	Not observed in 2013	BCC
	American pelican	*Pelecanus erythrorhynchos*	Not observed in 2013	BCC

Table 4.2-3. Special-status vertebrate and invertebrate wildlife species known to occur at Site 300.

Taxa	Common name	Scientific name 2013	Regulatory Status 2013[a,d]	Regulatory Status 2018[a,d]
Birds (continued)	Allen's Hummingbird	*Selasphorus sasin*	BCC	BCC
	Rufous Hummingbird	*Selasphorus rufus*	BCC	None[c]
	Costa's Hummingbird	*Calypte costae*	BCC	BCC
	Nuttal's Woodpecker	*Picoides nuttallii*	BCC	BCC
	Willow Flycatcher	*Empidonax traillii*	SE, BCC	SE, BCC
	Loggerhead Shrike	*Lanius ludovicianus*	CASSC, BCC	CASSC, BCC
	Oak Titmouse	*Baeolophus inornatus*	BCC	BCC
	Yellow Warbler	*Dendroica petechia brewsteri*	CASSC, BCC	CASSC, BCC
	Grasshopper Sparrow	*Ammodramus savannarum*	CASSC	CASSC
	Tricolored Blackbird	*Agelaius tricolor*	CASSC, BCC	CASSC, BCC, ST[b]
Mammals	Pallid bat	*Antrozous pallidus*	CASSC	CASSC, WBWGH
	Western red bat	*Lasiurus blossevillii*	CASSC	CASSC, WBWGH
	American badger	*Taxidea taxus*	CASSC	CASSC

[a] Adapted from Appendix C of LLNL (2018).

[b] The CDFW lists the tricolored blackbird as a candidate for listing as Endangered under the California Endangered Species Act (CDFW, 2018a). However, at its August 23, 2018 meeting, the California Fish and Game Commission adopted a finding to list the species as threatened (California Fish and Game Commission, 2018). Therefore, the tricolored blackbird is listed in Table 4.2-3 as State Threatened (ST).

[c] The CDFW lists the Rufous and Costa's hummingbirds as BCC (CDFW, 2018a), but U.S. FWS list Allen's and Costa's hummingbirds for the Coastal California Region (U.S. FWS, 2008). Therefore, Table 4.2-3 lists Allen's and Costa's hummingbirds as BCC.

[d] Regulatory Status:

BCC = U.S. Fish and Wildlife Service Birds of Conservation Concern (U.S. FWS, 2008).
BGEPA = Bald and Golden Eagle Protection Act.
CAFPS = California Department of Fish and Wildlife Fully Protected Species (CDFW, 2018a).
CASSC = California Species of Special Concern (CDFW, 2018a).
FT = Federally Threatened under the Federal Endangered Species Act.
SE = State Endangered under the California Endangered Species Act.
ST = State Threatened under the California Endangered Species Act.
WBWGH = Western Bat Working Group High Priority (WBWG, 1998).

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Kcf = Thousands of cubic feet
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PTMW = Plume Tracking Monitor Well
RDX = Research Department Explosive
SRC = Source
SVTS = Soil vapor treatment system
TBOS = Tetra 2-ethylbutylorthosilicate
TKEBS = Tetrakis (2-ethylbutyl) silane
VOC = Volatile organic compound

Table 4.2-4. Maximum concentration of contaminants of concern in surface soil samples (0 to 0.5 ft) collected between January 1, 2013 and December 31, 2017 (current review period) and through December 31, 2012 (previous review period).

		Review Period					
		Current		Previous	Difference (%)		
COC	Frequency of detection (%)	Min Reported	Max Reported (Max Detected)	Max Reported (Max Detected)	Max Reported	Max Detected	Current status
Building 801 Area (OU 8)							
Cadmium	7 of 14 (50%)	<0.4 mg/kg	<2.5 (1.3) mg/kg	8.6 mg/kg	-71%	-85%	Maximum concentration in current review period less than in the previous review. Previous evaluations showed the COC does not pose an ecological hazard.[a, b]
Building 851 Area (OU 8)							
Cadmium	43 of 46 (94%)	0.045 mg/kg	<1 (0.6) mg/kg	12 mg/kg	-92%	-95%	
Copper	46 of 46 (100%)	4.6 mg/kg	85.3 mg/kg	230 mg/kg	-63%	-63%	Maximum concentration in current review period less than in the previous review period. Not identified as an ecological COC in 2009 CMP/CP. No ecological hazard.
HMX	3 of 46 (6.5%)	<0.13 mg/kg	0.617 mg/kg	150 mg/kg	-100%	-100%	
RDX	0 of 46 (0%)	<0.13 mg/kg	<0.21 mg/kg	<1.5 (0.131) mg/kg	-86%	-100%	
TNT	1 of 46 (2.2%)	<0.13 mg/kg	0.266 mg/kg	<0.358	-26%	-26%	
Uranium 238 (in activity)	50 of 50 (100%)	0.11 pCi/g	44.3 pCi/g	14.15 pCi/g	213%	213%	Maximum activity in current review period greater than previous review period by more than 50%. Estimated concentration exceeds ESL for established for Building 812[d]. Building 851 area under active investigation. Potential ecological hazard to be determined.
Uranium 238 (in mass)	21 of 21 (100%)	0.317 µg/g	76 µg/g	42.88 µg/g[c]	77%	77%	

Table 4.2-4. Maximum concentration of contaminants of concern in surface soil samples (0 to 0.5 ft) collected between January 1, 2013 and December 31, 2017 (current review period) and through December 31, 2012 (previous review period).

		Review Period					
		Current		Previous	Difference (%)		
COC	Frequency of detection (%)	Min Reported	Max Reported (Max Detected)	Max Reported (Max Detected)	Max Reported	Max Detected	Current status
Building 851 Area (OU 8) (continued)							
Zinc	46 of 46 (100%)	22 mg/kg	398 mg/kg	1,400 mg/kg	-72%	-72%	Maximum concentration in current review period less than in the previous review period. Not identified as an ecological COC in 2009 CMP/CP. No ecological hazard.

Notes:

[a] 2011 Annual Compliance Monitoring Report (Dibley et al., 2012c).

[b] 2012 Annual Compliance Monitoring Report (Dibley et al., 2013a).

[c] Estimated from the Uranium 238 (as activity) value for the previous review period.

[d] Baseline Risk Assessment Work Plan for Building 812 (Carlsen et al., 2012).

Acronyms and Abbreviations:

-	=	Not applicable	kg	=	Kilograms
bgs	=	Below ground surface	Kgal	=	Thousands of gallons
CGSA	=	Central General Services Area	Mcf	=	Millions of cubic feet
COCs	=	Contaminants of concern	PRX	=	Proximal
DIS	=	Distal	PRXN	=	Proximal North
DISS	=	Distal south	PTMW	=	Plume Tracking Monitor Well
DSB	=	Distal site boundary	RDX	=	Research Department Explosive
EGSA	=	Eastern General Services Area	SRC	=	Source
ft	=	Feet	SVTS	=	Soil vapor treatment system
g	=	Grams	TBOS	=	Tetra 2-ethylbutylorthosilicate
GWTS	=	Groundwater treatment system	TKEBS	=	Tetrakis (2-ethylbutyl) silane
HSU	=	Hydrostratigraphic unit	VOC	=	Volatile organic compound
Kcf	=	Thousands of cubic feet			

Table 4.2-5. Maximum concentration of analytes previously evaluated in Site 300 surface soil sample (0 to 0.5 ft) but sampled in new locations between January 1, 2013 and December 31, 2017 (current review period) and through December 31, 2012 (previous review period).

		Review Period					
		Current		Previous	Difference (%)		
Analyte	Frequency of detection (%)	Min Reported	Max Reported (Max Detected)	Max Reported (Max Detected)	Max Reported	Max Detected	Current status
Building 801 Area (OU 8)							
Antimony	2 of 4 (14%)	0.2 mg/kg	<1 (0.3) mg/kg	1 mg/kg	0%	-70%	Above mammalian insectivore U.S. EPA Eco-SSL (0.27 mg/kg), below mammalian carnivore ESL (4.9 mg/kg)[a]. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown but unlikely.
Arsenic	10 of 14 (71%)	2.5 mg/kg	10 mg/kg	2.2 mg/kg	355%	355%	Below available U.S. EPA Eco-SSLs (avian 43 mg/kg and mammalian 46 mg/kg)[b]. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown but unlikely.
Barium	14 of 14 (100%)	88 mg/kg	320 mg/kg	330 mg/kg	-3%	-3%	Below available U.S. EPA Eco-SSLs (soil invertebrate 330 mg/kg and mammalian 2000 mg/kg)[c]. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown but unlikely.
Beryllium	9 of 14 (64%)	0.29 mg/kg	<2.5 (1.2) mg/kg	15 mg/kg	-83%	-92%	Below available U.S. EPA Eco-SSLs (soil invertebrate 40 mg/kg and mammalian 21 mg/kg)[d]. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown but unlikely.
Chromium	14 of 14 (100%)	8.7 mg/kg	32 mg/kg	45 mg/kg	-29%	-29%	Above avian insectivore U.S. EPA Eco-SSL (26 mg/kg), but below avian herbivore and carnivore Eco-SSLs (78 and 780 mg/kg) for chromium III; below mammalian insectivore Eco-SSL for chromium 111 (34 mg/kg) and chromium VI (130 mg/kg)[e]. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown but unlikely.
Cobalt	14 of 14 (100%)	3.5 mg/kg	13 mg/kg	19 mg/kg	-32%	-32%	At or below available U.S. EPA Eco-SSLs (plants 13 mg/kg, avian 120 mg/kg and mammalian 230 mg/kg)[f]. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown but unlikely.
Copper	14 of 14 (100%)	7.7 mg/kg	32 mg/kg	1000 mg/kg	-97%	-97%	Below U.S. EPA Eco-SSLs for plants (70 mg/kg), soil invertebrates (80 mg/kg) and mammalian insectivore (49 mg/kg); above avian insectivore Eco-SSL (28 mg/kg), below avian herbivore (76 mg/kg) and carnivore (1600 mg/kg)[g]. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown but unlikely.
Lead	14 of 14 (100%)	5.7 mg/kg	12 mg/kg	110 mg/kg	-89%	-89%	Below U.S. EPA Eco-SSLs for plants (120 mg/kg), soil invertebrates (1700 mg/kg) and mammalian insectivore (46 mg/kg); slightly above avian insectivore Eco-SSL (11 mg/kg), below avian herbivore (46 mg/kg) and carnivore (510 mg/kg)[h]. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown but unlikely.
Mercury	1 of 14 (7.1%)	<0.02 mg/kg	<0.16 (0.034) mg/kg	<0.1 (0.04) mg/kg	60%	-15%	No U.S. EPA Eco-SSL. Maximum detected above LANL soil ESL for avian insectivore (American robin, 0.013 mg/kg), below ESL for soil invertebrates (0.05 mg/kg), avian herbivore, avian carnivore and mammals (0.058 through 76 mg/kg)[n]. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown but unlikely.
Molybdenum	5 of 14 (36%)	<0.5 mg/kg	<2.5 (1.2) mg/kg	<5 mg/kg	-50%	-76%	No U.S. EPA Eco-SSL. Maximum detected below available LANL soil ESLs (avian, 16 to 1,100 mg/kg)[n]. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown but unlikely.
Nickel	14 of 14 (100%)	5.8 mg/kg	32 mg/kg	37 mg/kg	-14%	-14%	Below available U.S. EPA Eco-SSLs (plants 38 mg/kg, soil invertebrates 280 mg/kg, avian 210 mg/kg, mammalian 130 mg/kg)[i]. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown but unlikely.
Selenium	2 of 14 (14%)	<0.5 mg/kg	<5 (0.9) mg/kg	<1 mg/kg	400%	-10%	Above plant and mammalian insectivore U.S. EPA Eco-SSL (0.52 and 0.63 mg/kg, respectively); below soil invertebrate, avian insectivore, mammalian herbivore and mammalian carnivore Eco-SSL (4.1, 1.2, 2.7 and 2.8 mg/kg, respectively)[j]. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown but unlikely.
Silver	3 of 14 (21%)	<0.04 mg/kg	<1.2 (0.29) mg/kg	4.2 mg/kg	-71%	-93%	Below available U.S. EPA Eco-SSLs (plants 560 mg/kg, avian 4.2 mg/kg, mammalian 14 mg/kg)[k]. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown but unlikely.

Table 4.2-5. Maximum concentration of analytes previously evaluated in Site 300 surface soil sample (0 to 0.5 ft) but sampled in new locations between January 1, 2013 and December 31, 2017 (current review period) and through December 31, 2012 (previous review period).

		Review Period					
		Current		Previous	Difference (%)		
Analyte	Frequency of detection (%)	Min Reported	Max Reported (Max Detected)	Max Reported (Max Detected)	Max Reported	Max Detected	Current status
Building 801 Area (OU 8) (continued)							
Thallium	2 of 14 (14%)	<0.2 mg/kg	<2.5 (0.4) mg/kg	<4 mg/kg	-38%	-90%	No U.S. EPA Eco-SSL. Maximum detected below available LANL avian and mammalian ESLs (0.42 to 100 mg/kg), above ESL for plants (0.05 mg/kg)[n]. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown but unlikely.
Thorium 232	14 of 14 (100%)	0.677 pCi/g	1.21 pCi/g	0.79 pCi/g	53%	53%	No U.S. EPA Eco-SSL. Below available LANL ESLs for birds, mammals, soil invertebrates and plants (6.2 to 49,000 pCi/g)[n]. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown but unlikely.
Uranium 234 and 233 (in activity)	8 of 8 (100%)	0.59 pCi/g	0.968 pCi/g	1.8 pCi/g	-46%	-46%	No U.S. EPA Eco-SSL. Below available LANL ESLs for uranium 233 and uranium 234 for birds, mammals, soil invertebrates and plants (440 to 680,000 pCi/g)[n]. Site 300 background levels currently being re-evaluated. No potential ecological hazard as a radionuclide, potential hazard from inorganic uranium unknown.
Uranium 235 and 236 (in activity)	2 of 8 (25%)	0.0743 pCi/g	<1 (0.0951) pCi/g	0.3839 pCi/g	-74%	-75%	No U.S. EPA Eco-SSL. Below available LANL ESLs for uranium 235 and uranium 236 for birds, mammals, soil invertebrates and plants (440 to 15,000,000 pCi/g)[n]. Site 300 background levels currently being re-evaluated. No potential ecological hazard as a radionuclide, potential hazard from inorganic uranium unknown but unlikely.
Uranium 238 (in activity)	8 of 8 (100%)	0.59 pCi/g	0.992 pCi/g	134.5 pCi/g	-99%	-99%	No U.S. EPA Eco-SSL. Below available LANL ESLs for uranium 238 for birds, mammals, soil invertebrates and plants (400 to 4200 pCi/g)[n]. Slightly above ESL (by mass) established for inorganic uranium for Building 812 (estimated total uranium concentration 3.05 mg/kg, Building 812 ESL 2.0 mg/kg)[o]. Site 300 background levels currently being re-evaluated. No potential ecological hazard as a radionuclide, potential hazard from inorganic uranium unknown but unlikely.
Vanadium	14 of 14 (100%)	19 mg/kg	100 mg/kg	130 mg/kg	-23%	-23%	Above avian insectivore and avian herbivore U.S. EPA Eco-SSL (7.8 and 13 mg/kg, respectively); below avian carnivore and mammalian Eco-SSL (140 and 280 mg/kg, respectively)[l]. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown but unlikely.
Zinc	14 of 14 (100%)	14 mg/kg	73 mg/kg	120 mg/kg	-39%	-39%	Below available U.S. EPA Eco-SSLs for plants (160 mg/kg), soil invertebrates (120 mg/kg) and mammals (79 mg/kg). Above avian insectivore Eco-SSL (46 mg/kg), below avian herbivore and carnivore Eco-SSL (950 and 30,000 mg/kg, respectively)[m]. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown but unlikely.
Building 851 Area (OU 8)							
Antimony	22 of 46 (48%)	<0.315 mg/kg	3.7 mg/kg	<10 (2) mg/kg	-63%	85%	Maximum detected above U.S. EPA Eco-SSL for mammalian insectivore (0.27 mg/kg), below mammalian carnivore Eco-SSL (4.9 mg/kg)[a]. Site 300 background levels currently being re-evaluated. Building 851 area under active investigation. Potential ecological hazard to be determined but unlikely.
Arsenic	46 of 46 (100%)	1.17 mg/kg	4.42 mg/kg	<10 (5.8) mg/kg	-56%	-24%	Below available U.S. EPA Eco-SSLs (avian 43 mg/kg and mammalian 46 mg/kg)[b]. Site 300 background levels currently being re-evaluated. Building 851 area under active investigation. Potential ecological hazard to be determined but unlikely.
Barium	46 of 46 (100%)	82.9 mg/kg	428 mg/kg	390 mg/kg	10%	10%	Below available U.S. EPA Eco-SSLs (soil invertebrate 330 mg/kg and mammalian 2000 mg/kg)[c]. Site 300 background levels currently being re-evaluated. Building 851 area under active investigation. Potential ecological hazard to be determined but unlikely.
Beryllium	45 of 46 (98%)	0.3 mg/kg	7.7 mg/kg	1.2 mg/kg	542%	542%	Below available U.S. EPA Eco-SSLs (soil invertebrate 40 mg/kg and mammalian 21 mg/kg)[d]. Site 300 background levels currently being re-evaluated. Building 851 area under active investigation. Potential ecological hazard to be determined but unlikely.

Table 4.2-5. Maximum concentration of analytes previously evaluated in Site 300 surface soil sample (0 to 0.5 ft) but sampled in new locations between January 1, 2013 and December 31, 2017 (current review period) and through December 31, 2012 (previous review period).

		Review Period					
		Current		Previous	Difference (%)		
Analyte	Frequency of detection (%)	Min Reported	Max Reported (Max Detected)	Max Reported (Max Detected)	Max Reported	Max Detected	Current status
Building 851 Area (OU 8) (continued)							
Chromium	46 of 46 (100%)	8.1 mg/kg	25 mg/kg	57 mg/kg	-56%	-56%	Below avian insectivore, herbivore and carnivore U.S. EPA Eco-SSLs (26, 78 and 780 mg/kg) for chromium III; below mammalian insectivore Eco-SSL for chromium 111 (34 mg/kg) and chromium VI (130 mg/kg)[e]. Site 300 background levels currently being re-evaluated. Building 851 area under active investigation. Potential ecological hazard to be determined but unlikely.
Cobalt	44 of 46 (96%)	<5 mg/kg	14.7 mg/kg	18 mg/kg	-18%	-18%	Above plant U.S. EPA Eco-SSL (13 mg/kg); below available avian and mammalian Eco-SSLs (120 mg/kg and 230, respectively mg/kg)[f]. Site 300 background levels currently being re-evaluated. Building 851 area under active investigation. Potential ecological hazard to be determined but unlikely.
Lead	45 of 46 (98%)	4.2 mg/kg	55 mg/kg	98 mg/kg	-44%	-44%	Below U.S. EPA Eco-SSL for plants and soil invertebrates (120 and 1700 mg/kg, respectively); above avian and mammalian insectivore Eco-SSL (11 and 46 mg/kg, respectively); below avian herbivore and carnivore Eco-SSL (46 and 510 mg/kg, respectively)[h]. Site 300 background levels currently being re-evaluated. Building 851 area under active investigation. Potential ecological hazard to be determined.
Mercury	43 of 46 (94%)	0.0136 mg/kg	<0.2 (0.018) mg/kg	0.29 mg/kg	-31%	-94%	No U.S. EPA Eco-SSL. Maximum detected above LANL soil ESL for avian insectivore (American robin, 0.013 mg/kg), below ESL for soil invertebrates (0.05 mg/kg), avian herbivore, avian carnivore and mammals (0.058 through 76 mg/kg)[n]. Site 300 background levels currently being re-evaluated. Site 300 background levels currently being re-evaluated. Building 851 area under active investigation. Potential ecological hazard to be determined.
Molybdenum	36 of 46 (78%)	<0.075 mg/kg	<5 (0.83) mg/kg	<10 mg/kg	-50%	-92%	No U.S. EPA Eco-SSL. Maximum detected below available LANL soil ESLs (avian, 16 to 1,100 mg/kg)[n]. Site 300 background levels currently being re-evaluated. Building 851 area under active investigation. Potential ecological hazard to be determined but unlikely.
Nickel	46 of 46 (100%)	7 mg/kg	30 mg/kg	32 mg/kg	-6%	-6%	Below available U.S. EPA Eco-SSLs (plants 38 mg/kg, soil invertebrates 280 mg/kg, avian 210 mg/kg, mammalian 130 mg/kg)[i]. Site 300 background levels currently being re-evaluated. Building 851 area under active investigation. Potential ecological hazard to be determined but unlikely.
Selenium	40 of 46 (87%)	0.671 mg/kg	<2.5 (1.16) mg/kg	<10 mg/kg	-75%	-88%	Above plant and mammalian insectivore U.S. EPA Eco-SSL (0.52 and 0.63 mg/kg, respectively); below soil invertebrate, avian insectivore, mammalian herbivore and mammalian carnivore Eco-SSL (4.1, 1.2, 2.7 and 2.8 mg/kg, respectively)[j]. Site 300 background levels currently being re-evaluated. Building 851 area under active investigation. Potential ecological hazard to be determined.
Silver	33 of 46 (72%)	<0.0938 mg/kg	<2.5 (1.72) mg/kg	42 mg/kg	-94%	-96%	Maximum detection from current review period below available U.S. EPA Eco-SSLs (plants 560 mg/kg, avian 4.2 mg/kg, mammalian 14 mg/kg)[k]. Site 300 background levels currently being re-evaluated. Building 851 area under active investigation. Potential ecological hazard to be determined.
Thallium	33 of 46 (72%)	<0.128 mg/kg	<25 (1.2) mg/kg	<10 mg/kg	150%	-88%	No U.S. EPA Eco-SSL. Maximum detected above LANL ESLs for plants and mammalian omnivore, insectivore and herbivore (0.05, 0.72, 0.42 and 1.2 mg/kg, respectively)[n]. Site 300 background levels currently being re-evaluated. Building 851 area under active investigation. Potential ecological hazard to be determined.
Total Uranium (in activity)	21 of 21 (100%)	0.22 pCi/g	29 pCi/g	16.03 pCi/g[p]	81%	81%	No U.S. EPA Eco-SSL. Above LANL ESL for inorganic uranium by mass for plants (25 µg/g)[n] and ESL for deer mouse established for Building 812 (2.0 µg/g)[o]. Site 300 background levels currently being re-evaluated. Building 851 area under active investigation. Potential ecological hazard to be determined.
Total Uranium (in mass)	21 of 21 (100%)	0.319 µg/g	76 µg/g	43.01 µg/g[p]	77%	77%	No U.S. EPA Eco-SSL. Above LANL ESL for inorganic uranium by mass for plants (25 µg/g)[n] and ESL for deer mouse established for Building 812 (2.0 µg/g)[o]. Site 300 background levels currently being re-evaluated. Building 851 area under active investigation. Potential ecological hazard to be determined.

Table 4.2-5. Maximum concentration of analytes previously evaluated in Site 300 surface soil sample (0 to 0.5 ft) but sampled in new locations between January 1, 2013 and December 31, 2017 (current review period) and through December 31, 2012 (previous review period).

		Review Period					
		Current		Previous	Difference (%)		
Analyte	Frequency of detection (%)	Minimum Reported	Max Reported (Max Detected)	Max Reported (Max Detected)	Max Reported	Max Detected	Current status
Building 851 Area (OU 8) (continued)							
Uranium 234 and 233 (in activity)	29 of 29 (100%)	0.165 pCi/g	6.2 pCi/g	1.6 pCi/g	288%	288%	No U.S. EPA Eco-SSL. Below available LANL ESLs for uranium 233 and uranium 234 for birds, mammals, soil invertebrates and plants (440 to 680,000 pCi/g)[n]. Site 300 background levels currently being re-evaluated. Building 851 area under active investigation. Potential ecological hazard as a radionuclide to be determined but unlikely.
Uranium 235 (in activity)	21 of 21 (100%)	0.0039 pCi/g	0.32 pCi/g	0.034 pCi/g	841%	841%	No U.S. EPA Eco-SSL. Below available LANL ESLs for uranium 235 for birds, mammals, soil invertebrates and plants (440 to 10,000 pCi/g)[n]. Site 300 background levels currently being re-evaluated. Building 851 area under active investigation. Potential ecological hazard as a radionuclide to be determined but unlikely.
Uranium 235 and 236 (in activity)	16 of 29 (55%)	<0.05 pCi/g	0.63 pCi/g	0.28 pCi/g	125%	125%	No U.S. EPA Eco-SSL. Below available LANL ESLs for uranium 235 and uranium 236 for birds, mammals, soil invertebrates and plants (440 to 15,000,000 pCi/g)[n]. Site 300 background levels currently being re-evaluated. Building 851 area under active investigation. Potential ecological hazard as a radionuclide to be determined but unlikely.
Vanadium	46 of 46 (100%)	25 mg/kg	92.4 mg/kg	120 mg/kg	-23%	-23%	Above avian insectivore and avian herbivore U.S. EPA Eco-SSL (7.8 and 13 mg/kg, respectively); below avian carnivore and mammalian Eco-SSL (140 and 280 mg/kg, respectively)[l]. Site 300 background levels currently being re-evaluated. Building 851 area under active investigation. Potential ecological hazard to be determined but unlikely.

Notes:

[a] U.S. EPA (2005b). Ecological Soil Screening Levels for Antimony.
[b] U.S. EPA (2005c). Ecological Soil Screening Levels for Arsenic.
[c] U.S. EPA (2005d). Ecological Soil Screening Levels for Barium.
[d] U.S. EPA (2005e). Ecological Soil Screening Levels for Beryllium.
[e] U.S. EPA (2008). Ecological Soil Screening Levels for Chromium.
[f] U.S. EPA (2005f). Ecological Soil Screening Levels for Cobalt.
[g] U.S. EPA (2007a). Ecological Soil Screening Levels for Copper.
[h] U.S. EPA (2005g). Ecological Soil Screening Levels for Lead.
[l] U.S. EPA (2007b). Ecological Soil Screening Levels for Nickel.
[j] U.S. EPA (2007c). Ecological Soil Screening Levels for Selenium.
[k] U.S. EPA (2006). Ecological Soil Screening Levels for Silver.
[l] U.S. EPA (2005h). Ecological Soil Screening Levels for Vanadium.
[m] U.S. EPA (2007d). Ecological Soil Screening Levels for Zinc.
[n] LANL (2017). ECORISK Database Release 4.1.
[o] Carlsen et al. (2012). Baseline Risk Assessment Work Plan for Building 812.
[p] Estimated from the sum of the maximum Uranium 234 and 233 (in activity), Uranium 235 and 236 (in activity) and Uranium 238 (in activity) activities from the previous review period.

Acronyms and Abbreviations:

-	=	Not applicable
bgs	=	Below ground surface
CGSA	=	Central General Services Area
COCs	=	Contaminants of concern
DIS	=	Distal
DISS	=	Distal south
DSB	=	Distal site boundary
EGSA	=	Eastern General Services Area
ft	=	Feet
g	=	Grams
GWTS	=	Groundwater treatment system
HSU	=	Hydrostratigraphic unit
Kcf	=	Thousands of cubic feet
kg	=	Kilograms
Kgal	=	Thousands of gallons
Mcf	=	Millions of cubic feet
PRX	=	Proximal
PRXN	=	Proximal North
PTMW	=	Plume Tracking Monitor Well
RDX	=	Research Department Explosive
SRC	=	Source
SVTS	=	Soil vapor treatment system
TBOS	=	Tetra 2-ethylbutylorthosilicate
TKEBS	=	Tetrakis (2-ethylbutyl) silane
VOC	=	Volatile organic compound

Table 4.2-6. New analytes evaluated in surface soil samples (0 to 0.5 ft) collected between January 1, 2013 and December 31, 2017.

Analyte	Frequency of detection (%)	Min Reported	Max Reported (Max Detected)	RL Notes or Median	Current status
Building 801 Area (OU 8)					
Aluminum	14 of 14 (100%)	6,000 mg/kg	26,000 mg/kg	Median: 21,500 mg/kg	No numerical U.S. EPA Eco-SSLs. U.S. EPA concluded aluminum toxicity is associated with soluble aluminum, not total aluminum[c]. Aluminum is identified as a COPEC only in soils with a pH <5. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown but unlikely.
Boron	6 of 14 (43%)	7.9 mg/kg	<25 (17) mg/kg	4 at <25 mg/kg, 4 at <10 mg/kg	No U.S. EPA Eco-SSLs. Above LANL ESL for avian herbivore (robin, 2 mg/kg, lowest ESL), below for mammalian omnivore (deer mouse, 55 mg/kg). Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown but unlikely.
Iron	14 of 14 (100%)	12,000 mg/kg	32,000 mg/kg	Median: 26,000 mg/kg	No numerical U.S. EPA Eco-SSLs. U.S. EPA concluded iron toxicity is rare, and dependent upon site-specific soil chemistry[d]. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown but unlikely.
Magnesium	14 of 14 (100%)	1,200 mg/kg	11,000 mg/kg	Median: 6,650 mg/kg	No U.S. EPA Eco-SSL. U.S.EPA R4 indicates essential nutrients like magnesium, sodium and potassium at or slightly above background do not need to be considered[f]. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown but unlikely.
Manganese	14 of 14 (100%)	130 mg/kg	810 mg/kg	Median: 490 mg/kg	Above U.S. EPA Eco-SSL for plant and soil invertebrates (220 and 450 mg/kg, respectively); below avian and mammalian Eco-SSL (4300 and 4000 mg/kg, respectively)[e]. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown.
Potassium	14 of 14 (100%)	1,500 mg/kg	4,300 mg/kg	Median: 2,900 mg/kg	No U.S. EPA Eco-SSL. U.S.EPA R4 indicates essential nutrients like magnesium, sodium and potassium at or slightly above background do not need to be considered[f]. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown but unlikely.
Radium 226	14 of 14 (100%)	0.871 pCi/g	1.66 pCi/g	Median: 1.35 mg/kg	No U.S. EPA Eco-SSL. At or below available LANL ESLs for birds, mammals, soil invertebrates and plants (1.5 pCi/g for earthworms to 510 pCi/g for mammalian insectivore)[a]. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown but unlikely.
Radium 228	14 of 14 (100%)	0.69 pCi/g	1.51 pCi/g	Median: 0.89 pCi/g	No U.S. EPA Eco-SSL. At or below available LANL ESLs for birds, mammals, soil invertebrates and plants (1.5 pCi/g for earthworms to 1400 pCi/g for avian carnivore)[a]. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown but unlikely.
Thorium 228	14 of 14 (100%)	0.675 pCi/g	1.21 pCi/g	Median: 0.97 pCi/g	No U.S. EPA Eco-SSL. Below available LANL ESLs for birds, mammals, soil invertebrates and plants (43 pCi/g for earthworms to 1600 pCi/g for avian carnivore)[a]. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown but unlikely.
Thorium 230	14 of 14 (100%)	0.798 pCi/g	1.59 pCi/g	Median: 1.11 pCi/g	No U.S. EPA Eco-SSL. Below available LANL ESLs for birds, mammals, soil invertebrates and plants (52 pCi/g for earthworms to 170,000 pCi/g for avian carnivore)[a]. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown but unlikely.
Building 802 (OU 8)					
PCB 1016	0 of 29 (100%)	<0.02 mg/kg	<0.5 mg/kg	3 at <0.02 mg/kg, 26 at <0.5 mg/kg	Not detected. U.S. EPA elected not to develop numerical Eco-SSLs for PCBs, but instructed risk assessors to consider all detections to be site-related, and evaluate the potential ecological impact on a site by site basis[b]. RLs below LANL ESLs for mammalian insectivore (shrew, 1.1 mg/kg, lowest ESL) and mammalian omnivore (deer mouse, 2.0 mg/kg). No ecological hazard.
PCB 1221	0 of 29 (100%)	<0.02 mg/kg	<0.5 mg/kg	3 at <0.02 mg/kg, 26 at <0.5 mg/kg	Not detected. U.S. EPA elected not to develop numerical Eco-SSLs for PCBs, but instructed risk assessors to consider all detections to be site-related, and evaluate the potential ecological impact on a site by site basis[b]. No available alternate ESL. No ecological hazard.
PCB 1232	0 of 29 (100%)	<0.02 mg/kg	<0.5 mg/kg	3 at <0.02 mg/kg, 26 at <0.5 mg/kg	Not detected. U.S. EPA elected not to develop numerical Eco-SSLs for PCBs, but instructed risk assessors to consider all detections to be site-related, and evaluate the potential ecological impact on a site by site basis[b]. No available alternate ESL. No ecological hazard.
PCB 1242	0 of 29 (100%)	<0.02 mg/kg	<0.5 mg/kg	3 at <0.02 mg/kg, 26 at <0.5 mg/kg	Not detected. U.S. EPA elected not to develop numerical Eco-SSLs for PCBs, but instructed risk assessors to consider all detections to be site-related, and evaluate the potential ecological impact on a site by site basis[b]. At least three RLs below LANL ESLs for avian insectivore (robin, 0.041 mg/kg, lowest ESL), and mammalian omnivore (deer mouse, 0.078 mg/kg). No ecological hazard.
PCB 1248	0 of 29 (100%)	<0.02 mg/kg	<0.5 mg/kg	3 at <0.02 mg/kg, 26 at <0.5 mg/kg	Not detected. U.S. EPA elected not to develop numerical Eco-SSLs for PCBs, but instructed risk assessors to consider all detections to be site-related, and evaluate the potential ecological impact on a site by site basis[b]. At least three RLs below LANL ESLs for avian insectivore (robin, 0.041 mg/kg, lowest ESL), and mammalian omnivore (deer mouse, 0.078 mg/kg). No ecological hazard.
PCB 1254	2 of 29 (6.9%)	<0.02 mg/kg	0.98 mg/kg	3 at <0.02 mg/kg, 24 at <0.5 mg/kg	U.S. EPA elected not to develop numerical Eco-SSLs for PCBs, but instructed risk assessors to consider all detections to be site-related, and evaluate the potential ecological impact on a site by site basis[b]. Maximum detection above LANL ESL for avian insectivore (robin, 0.041 mg/kg, lowest ESL), and mammalian omnivore (deer mouse, 0.87 mg/kg). Two detections thus limited areal extent. No ecological hazard.

Table 4.2-6. New analytes evaluated in surface soil samples (0 to 0.5 ft) collected between January 1, 2013 and December 31, 2017.

Analyte	Frequency of detection (%)	Min Reported	Max Reported (Max Detected)	RL Notes or Median	Current status
Building 802 (OU 8) (continued)					
PCB 1260	4 of 29 (14%)	<0.02 mg/kg	0.59 mg/kg	1 at <0.02 mg/kg, 26 at <0.5 mg/kg	U.S. EPA elected not to develop numerical Eco-SSLs for PCBs, but instructed risk assessors to consider all detections to be site-related, and evaluate the potential ecological impact on a site by site basis[b]. Maximum detection below LANL ESL for avian insectivore (robin, 0.88 mg/kg, lowest ESL), and mammalian omnivore (deer mouse, 20 mg/kg). Four detections thus limited areal extent. No ecological hazard.
Building 804 (OU 8)					
PCB 1016	0 of 28 (100%)	<0.02 mg/kg	<0.5 mg/kg	3 at <0.02 mg/kg, 26 at <0.5 mg/kg	Not detected. U.S. EPA elected not to develop numerical Eco-SSLs for PCBs, but instructed risk assessors to consider all detections to be site-related, and evaluate the potential ecological impact on a site by site basis[b]. RLs below LANL ESLs for mammalian insectivore (shrew, 1.1 mg/kg, lowest ESL) and mammalian omnivore (deer mouse, 2.0 mg/kg). No ecological hazard.
PCB 1221	0 of 28 (100%)	<0.02 mg/kg	<0.5 mg/kg	3 at <0.02 mg/kg, 26 at <0.5 mg/kg	Not detected. U.S. EPA elected not to develop numerical Eco-SSLs for PCBs, but instructed risk assessors to consider all detections to be site-related, and evaluate the potential ecological impact on a site by site basis[b]. No available alternate ESL. No ecological hazard.
PCB 1232	0 of 28 (100%)	<0.02 mg/kg	<0.5 mg/kg	3 at <0.02 mg/kg, 26 at <0.5 mg/kg	Not detected. U.S. EPA elected not to develop numerical Eco-SSLs for PCBs, but instructed risk assessors to consider all detections to be site-related, and evaluate the potential ecological impact on a site by site basis[b]. No available alternate ESL. No ecological hazard.
PCB 1242	0 of 28 (100%)	<0.02 mg/kg	<0.5 mg/kg	3 at <0.02 mg/kg, 26 at <0.5 mg/kg	Not detected. U.S. EPA elected not to develop numerical Eco-SSLs for PCBs, but instructed risk assessors to consider all detections to be site-related, and evaluate the potential ecological impact on a site by site basis[b]. At least three RLs below LANL ESLs for avian insectivore (robin, 0.041 mg/kg, lowest ESL), and mammalian omnivore (deer mouse, 0.078 mg/kg). No ecological hazard.
PCB 1248	0 of 28 (100%)	<0.02 mg/kg	<0.5 mg/kg	3 at <0.02 mg/kg, 26 at <0.5 mg/kg	Not detected. U.S. EPA elected not to develop numerical Eco-SSLs for PCBs, but instructed risk assessors to consider all detections to be site-related, and evaluate the potential ecological impact on a site by site basis[b]. At least three RLs below LANL ESLs for avian insectivore (robin, 0.041 mg/kg, lowest ESL), and mammalian omnivore (deer mouse, 0.078 mg/kg). No ecological hazard.
PCB 1254	0 of 28 (100%)	<0.02 mg/kg	<0.5 mg/kg	3 at <0.02 mg/kg, 26 at <0.5 mg/kg	Not detected. U.S. EPA elected not to develop numerical Eco-SSLs for PCBs, but instructed risk assessors to consider all detections to be site-related, and evaluate the potential ecological impact on a site by site basis[b]. At least three RLs below LANL ESL for avian insectivore (robin, 0.041 mg/kg, lowest ESL), all RLs below mammalian omnivore ESL (deer mouse, 0.87 mg/kg). No ecological hazard.
PCB 1260	0 of 28 (100%)	<0.02 mg/kg	<0.5 mg/kg	3 at <0.02 mg/kg, 26 at <0.5 mg/kg	Not detected. U.S. EPA elected not to develop numerical Eco-SSLs for PCBs, but instructed risk assessors to consider all detections to be site-related, and evaluate the potential ecological impact on a site by site basis[b]. RLs below LANL ESL for avian insectivore (robin, 0.88 mg/kg, lowest ESL), and mammalian omnivore (deer mouse, 20 mg/kg). No ecological hazard.
Building 845 (OU 8)					
PCB 1016	0 of 28 (100%)	<0.02 mg/kg	<0.5 mg/kg	3 at <0.02 mg/kg, 26 at <0.5 mg/kg	Not detected. U.S. EPA elected not to develop numerical Eco-SSLs for PCBs, but instructed risk assessors to consider all detections to be site-related, and evaluate the potential ecological impact on a site by site basis[b]. RLs below LANL ESLs for mammalian insectivore (shrew, 1.1 mg/kg, lowest ESL) and mammalian omnivore (deer mouse, 2.0 mg/kg). No ecological hazard.
PCB 1221	0 of 28 (100%)	<0.02 mg/kg	<0.5 mg/kg	3 at <0.02 mg/kg, 26 at <0.5 mg/kg	Not detected. U.S. EPA elected not to develop numerical Eco-SSLs for PCBs, but instructed risk assessors to consider all detections to be site-related, and evaluate the potential ecological impact on a site by site basis[b]. No available alternate ESL. No ecological hazard.
PCB 1232	0 of 28 (100%)	<0.02 mg/kg	<0.5 mg/kg	3 at <0.02 mg/kg, 26 at <0.5 mg/kg	Not detected. U.S. EPA elected not to develop numerical Eco-SSLs for PCBs, but instructed risk assessors to consider all detections to be site-related, and evaluate the potential ecological impact on a site by site basis[b]. No available alternate ESL. No ecological hazard.
PCB 1242	0 of 28 (100%)	<0.02 mg/kg	<0.5 mg/kg	3 at <0.02 mg/kg, 26 at <0.5 mg/kg	Not detected. U.S. EPA elected not to develop numerical Eco-SSLs for PCBs, but instructed risk assessors to consider all detections to be site-related, and evaluate the potential ecological impact on a site by site basis[b]. At least three RLs below LANL ESLs for avian insectivore (robin, 0.041 mg/kg, lowest ESL), and mammalian omnivore (deer mouse, 0.078 mg/kg). No ecological hazard.
PCB 1248	0 of 28 (100%)	<0.02 mg/kg	<0.5 mg/kg	3 at <0.02 mg/kg, 26 at <0.5 mg/kg	Not detected. U.S. EPA elected not to develop numerical Eco-SSLs for PCBs, but instructed risk assessors to consider all detections to be site-related, and evaluate the potential ecological impact on a site by site basis[b]. At least three RLs below LANL ESLs for avian insectivore (robin, 0.041 mg/kg, lowest ESL), and mammalian omnivore (deer mouse, 0.078 mg/kg). No ecological hazard.
PCB 1254	0 of 28 (100%)	<0.02 mg/kg	<0.5 mg/kg	3 at <0.02 mg/kg, 26 at <0.5 mg/kg	Not detected. U.S. EPA elected not to develop numerical Eco-SSLs for PCBs, but instructed risk assessors to consider all detections to be site-related, and evaluate the potential ecological impact on a site by site basis[b]. At least three RLs below LANL ESL for avian insectivore (robin, 0.041 mg/kg, lowest ESL), all RLs below mammalian omnivore ESL (deer mouse, 0.87 mg/kg). No ecological hazard.

Table 4.2-6. New analytes evaluated in surface soil samples (0 to 0.5 ft) collected between January 1, 2013 and December 31, 2017.

Analyte	Frequency of detection (%)	Min Reported	Max Reported (Max Detected)	RL Notes or Median	Current status
Building 845 (OU 8) (continued)					
PCB 1260	0 of 28 (100%)	<0.02 mg/kg	<0.5 mg/kg	3 at <0.02 mg/kg, 26 at <0.5 mg/kg	Not detected. U.S. EPA elected not to develop numerical Eco-SSLs for PCBs, but instructed risk assessors to consider all detections to be site-related, and evaluate the potential ecological impact on a site by site basis[b]. RLs below LANL ESL for avian insectivore (robin, 0.88 mg/kg, lowest ESL), and mammalian omnivore (deer mouse, 20 mg/kg). No ecological hazard.
Building 851 (OU 8)					
1,3-Dinitrobenzene	0 of 46 (0%)	<0.13 mg/kg	<0.21 mg/kg	RLs variable	Not detected. No U.S. EPA Eco-SSL. RLs above LANL ELS for mammalian omnivore (deer mouse, 0.072 mg/kg, lowest ESL)[a]. If an actual release had occurred would expect at least one detection. No ecological hazard.
1,3,5-Trinitrobenzene	0 of 46 (0%)	<0.13 mg/kg	<0.21 mg/kg	RLs variable	Not detected. No U.S. EPA Eco-SSL. RLs below LANL ESL for soil invertebrates (earthworm, 10 mg/kg, lowest ESL) and mammalian omnivore (deer mouse, 110 mg/kg)[a]. No ecological hazard.
2-Amino-4,6-dinitrotoluene	1 of 46 (2.1%)	<0.13 mg/kg	<0.21 (0.163) mg/kg	RLs variable	No U.S. EPA Eco-SSL. No LANL ESL. Maximum detected below U.E. EPA R4 ESL (plants, 14 mg/kg, lowest ESL)[f]. No ecological hazard.
2-Nitrotoluene	0 of 46 (0%)	<0.13 mg/kg	<0.21 mg/kg	RLs variable	Not detected. No U.S. EPA Eco-SSL. RLs below LANL ESL for mammalian omnivore (deer mouse, 2 mg/kg, lowest ESL)[a]. No ecological hazard.
2,4-Dinitro-toluene	0 of 46 (0%)	<0.13 mg/kg	<0.21 mg/kg	RLs variable	Not detected. No U.S. EPA Eco-SSL. RLs below LANL ESL for plants (6 mg/kg, lowest ESL) and mammalian omnivore (deer mouse, 20 mg/kg)[a]. No ecological hazard.
2,6-Dinitro-toluene	0 of 46 (0%)	<0.13 mg/kg	<0.21 mg/kg	RLs variable	Not detected. No U.S. EPA Eco-SSL. RLs below LANL ESL for mammalian omnivore (deer mouse, 4 mg/kg, lowest ESL)[a]. No ecological hazard.
3-Nitrotoluene	0 of 46 (0%)	<0.13 mg/kg	<0.21 mg/kg	RLs variable	Not detected. No U.S. EPA Eco-SSL. RLs below LANL ESL for mammalian omnivore (deer mouse, 2 mg/kg, lowest ESL)[a]. No ecological hazard.
4-Amino-2,6-dinitrotoluene	0 of 46 (0%)	<0.13 mg/kg	<0.21 mg/kg	RLs variable	Not detected. No U.S. EPA Eco-SSL. RLs below LANL ESL for plants (14 mg/kg, lowest ESL) and mammalian omnivore (deer mouse, 23 mg/kg)[a]. No ecological hazard.
4-Nitrotoluene	0 of 46 (0%)	<0.13 mg/kg	<0.21 mg/kg	RLs variable	Not detected. No U.S. EPA Eco-SSL. RLs below LANL ESL for mammalian omnivore (deer mouse, 21 mg/kg, lowest ESL)[a]. No ecological hazard.
Aluminum	44 of 44 (100%)	4,790 mg/kg	25,000 mg/kg	Median: 13,350 mg/kg	No numerical U.S. EPA Eco-SSLs. U.S. EPA concluded aluminum toxicity is associated with soluble aluminum, not total aluminum. Aluminum is identified as a COPEC only in soils with a pH <5[c]. Site 300 background levels currently being re-evaluated. Building 851 area under active investigation. Potential ecological hazard to be determined.
Boron	44 of 44 (100%)	1.23 mg/kg	50 mg/kg	Median: 10.34 mg/kg	No U.S. EPA Eco-SSLs. Site 300 background levels currently being re-evaluated. Building 851 area under active investigation. Potential ecological hazard to be determined.
Iron	44 of 44 (100%)	11,100 mg/kg	30,000 mg/kg	Median: 21,050 mg/kg	No numerical U.S. EPA Eco-SSLs. U.S. EPA concluded iron toxicity is rare, and dependent upon site-specific soil chemistry[d]. Site 300 background levels currently being re-evaluated. Building 851 area under active investigation. Potential ecological hazard to be determined.
Magnesium	44 of 44 (100%)	1,740 mg/kg	9,000 mg/kg	Median: 5,845 mg/kg	No U.S. EPA Eco-SSLs. Site 300 background levels currently being re-evaluated. Building 851 area under active investigation. Potential ecological hazard to be determined.
Manganese	44 of 44 (100%)	160 mg/kg	709 mg/kg	Median: 334 mg/kg	Above U.S. EPA Eco-SSL for plant and soil invertebrates (220 and 450 mg/kg, respectively); below avian and mammalian Eco-SSL (4300 and 4000 mg/kg, respectively)[e]. Site 300 background levels currently being re-evaluated. Building 851 area under active investigation. Potential ecological hazard to be determined.
Nitrobenzene	0 of 46 (0%)	<0.13 mg/kg	<0.21 mg/kg	RLs variable	Not detected. No U.S. EPA Eco-SSL. RLs below LANL ESL for soil invertebrates (earth worms, 2.2 mg/kg, lowest ESL) and mammalian omnivore (deer mouse, 4.8 mg/kg)[a]. No ecological hazard.
Pentaerythritol tetranitrate	0 of 40 (0%)	<0.435 mg/kg	<0.5 mg/kg	RLs variable	Not detected. No U.S. EPA Eco-SSL. No alternate ESL. If an actual release had occurred would expect at least one detection. No ecological hazard.

Table 4.2-6. New analytes evaluated in surface soil samples (0 to 0.5 ft) collected between January 1, 2013 and December 31, 2017.

Analyte	Frequency of detection (%)	Min Reported	Max Reported (Max Detected)	RL Notes or Median	Current status
Building 851 (OU 8) (continued)					
PCB 1016	0 of 28 (100%)	<0.02 mg/kg	<0.5 mg/kg	3 at <0.02 mg/kg, 26 at <0.5 mg/kg	Not detected. U.S. EPA elected not to develop numerical Eco-SSLs for PCBs, but instructed risk assessors to consider all detections to be site-related, and evaluate the potential ecological impact on a site by site basis[b]. RLs below LANL ESLs for mammalian insectivore (shrew, 1.1 mg/kg, lowest ESL) and mammalian omnivore (deer mouse, 2.0 mg/kg). No ecological hazard.
PCB 1221	0 of 28 (100%)	<0.02 mg/kg	<0.5 mg/kg	3 at <0.02 mg/kg, 26 at <0.5 mg/kg	Not detected. U.S. EPA elected not to develop numerical Eco-SSLs for PCBs, but instructed risk assessors to consider all detections to be site-related, and evaluate the potential ecological impact on a site by site basis[b]. No available alternate ESL. Not detected. No ecological hazard.
PCB 1232	0 of 28 (100%)	<0.02 mg/kg	<0.5 mg/kg	3 at <0.02 mg/kg, 26 at <0.5 mg/kg	Not detected. U.S. EPA elected not to develop numerical Eco-SSLs for PCBs, but instructed risk assessors to consider all detections to be site-related, and evaluate the potential ecological impact on a site by site basis[b]. No available alternate ESL. Not detected. No ecological hazard.
PCB 1242	0 of 28 (100%)	<0.02 mg/kg	<0.5 mg/kg	3 at <0.02 mg/kg, 26 at <0.5 mg/kg	Not detected. U.S. EPA elected not to develop numerical Eco-SSLs for PCBs, but instructed risk assessors to consider all detections to be site-related, and evaluate the potential ecological impact on a site by site basis[b]. At least three RLs below LANL ESLs for avian insectivore (robin, 0.041 mg/kg, lowest ESL), and mammalian omnivore (deer mouse, 0.078 mg/kg). No ecological hazard.
PCB 1248	0 of 28 (100%)	<0.02 mg/kg	<0.5 mg/kg	3 at <0.02 mg/kg, 26 at <0.5 mg/kg	Not detected. U.S. EPA elected not to develop numerical Eco-SSLs for PCBs, but instructed risk assessors to consider all detections to be site-related, and evaluate the potential ecological impact on a site by site basis[b]. At least three RLs below LANL ESLs for avian insectivore (robin, 0.041 mg/kg, lowest ESL), and mammalian omnivore (deer mouse, 0.078 mg/kg). No ecological hazard.
PCB 1254	2 of 28 (7.1%)	<0.02 (0.19) mg/kg	<0.5 mg/kg	3 at <0.02 mg/kg, 26 at <0.5 mg/kg	U.S. EPA elected not to develop numerical Eco-SSLs for PCBs, but instructed risk assessors to consider all detections to be site-related, and evaluate the potential ecological impact on a site by site basis[b]. Maximum detection above LANL ESL for avian insectivore (robin, 0.041 mg/kg, lowest ESL), below mammalian omnivore ESL (deer mouse, 0.87 mg/kg). Two detections thus limited areal extent. No ecological hazard.
PCB 1260	0 of 28 (100%)	<0.02 mg/kg	<0.5 mg/kg	3 at <0.02 mg/kg, 26 at <0.5 mg/kg	Not detected. U.S. EPA elected not to develop numerical Eco-SSLs for PCBs, but instructed risk assessors to consider all detections to be site-related, and evaluate the potential ecological impact on a site by site basis[b]. RLs below LANL ESL for avian insectivore (robin, 0.88 mg/kg, lowest ESL), and mammalian omnivore (deer mouse, 20 mg/kg). No ecological hazard.
Perchlorate	7 of 44 (16%)	<1.76 µg/kg	<40 (13.3) µg/kg	4 at <40 µg/kg, 33 at <2 µg/kg	No U.S. EPA Eco-SSL. Maximum detected above available LANL ESLs (0.21 mg/kg for deer mouse). Building 851 area under active investigation. Potential ecological hazard to be determined.
Potassium	44 of 44 (100%)	641 mg/kg	2,940 mg/kg	Median: 1,940 mg/kg	No U.S. EPA Eco-SSL. U.S.EPA R4 indicates essential nutrients like magnesium, sodium and potassium at or slightly above background do not need to be considered[f]. Site 300 background levels currently being re-evaluated. Building 851 area under active investigation. Potential ecological hazard to be determined.
Tetryl	0 of 46 (0%)	<0.13 mg/kg	<0.21 mg/kg	RLs variable	Not detected. No U.S. EPA Eco-SSL. RLs below LANL ESL for mammalian omnivore (deer mouse, 1.5 mg/kg, lowest ESL).
Uranium 234 (in activity)	21 of 21 (100%)	0.11 pCi/g	3.3 pCi/g	Median: 0.031 pCi/g	No U.S. EPA Eco-SSL. Below available LANL ESLs for uranium 234 for birds, mammals, soil invertebrates and plants (440 to 260,000 pCi/g)[a]. Site 300 background levels currently being re-evaluated. Building 851 area under active investigation. Potential ecological hazard as a radionuclide to be determined but unlikely.
Uranium 236 (in activity)	21 of 20 (95%)	0.00027 pCi/g	0.2 pCi/g	Median: 0.0097 pCi/g	No U.S. EPA Eco-SSL. Below available LANL ESLs for uranium 236 for birds, mammals, soil invertebrates and plants (470 to 15,000,000 pCi/g)[a]. Site 300 background levels currently being re-evaluated. Building 851 area under active investigation. Potential ecological hazard as a radionuclide to be determined but unlikely.

Notes:

[a] LANL (2017). ECORISK Database Release 4.1.
[b] U.S. EPA (2005i).
[c] U.S. EPA (2003a). Ecological Soil Screening Levels for Aluminum.
[d] U.S. EPA (2003a). Ecological Soil Screening Levels for Iron.
[e] U.S. EPA (2007e). Ecological Soil Screening Levels for Manganese.
[f] U.S. EPA (2018). Region 4 Ecological Risk Assessment Supplemental Guidance.

Acronyms and Abbreviations:

-	=	Not applicable	DSB	=	Distal site boundary	Kcf	=	Thousands of cubic feet	PTMW	=	Plume Tracking Monitor Well
bgs	=	Below ground surface	EGSA	=	Eastern General Services Area	kg	=	Kilograms	RDX	=	Research Department Explosive
CGSA	=	Central General Services Area	ft	=	Feet	Kgal	=	Thousands of gallons	SRC	=	Source
COCs	=	Contaminants of concern	g	=	Grams	Mcf	=	Millions of cubic feet	SVTS	=	Soil vapor treatment system
DIS	=	Distal	GWTS	=	Groundwater treatment system	PRX	=	Proximal	TBOS	=	Tetra 2-ethylbutylorthosilicate
DISS	=	Distal south	HSU	=	Hydrostratigraphic unit	PRXN	=	Proximal North	TKEBS	=	Tetrakis (2-ethylbutyl) silane
									VOC	=	Volatile organic compound

Table 4.2-7. Maximum concentration of contaminants of concern in subsurface soil samples (>0.5 to 6 ft) collected between January 1, 2013 and December 31, 2017 (current review period) and through December 31, 2012 (previous review period).

		Review Period					
		Current		Previous	Difference (%)		
COC	Frequency of detection (%)	Min Reported	Max Reported (Max Detected)	Max Reported (Max Detected)	Max Reported	Max Detected	Current status
Building 850 (OU 5)							
2,4-Dinitro-toluene	0 of 3 (0%)	<0.2 mg/kg	<0.2 mg/kg	<0.5 mg/kg	NC	NA	Not detected. No U.S. EPA Eco-SSL. RLs below LANL ESL for plants (6 mg/kg, lowest ESL)[e]. No ecological hazard.
2,6-Dinitro-toluene	0 of 3 (0%)	<0.2 mg/kg	<0.2 mg/kg	<0.5 mg/kg	NC	NA	Not detected. No U.S. EPA Eco-SSL. RLs below LANL ESL for mammalian omnivore (deer mouse, 4 mg/kg, lowest ESL)[e]. No ecological hazard.
Nitro-benzene	0 of 3 (0%)	<0.2 mg/kg	<0.2 mg/kg	<0.5 mg/kg	NC	NA	Not detected. No U.S. EPA Eco-SSL. RLs below LANL ESL for soil invertebrates (earthworms, 2.2 mg/kg, lowest ESL)[e]. No ecological hazard.
Building 832 (OU 7)							
1,1-Dichloro-ethane	0 of 4 (0%)	<0.005 mg/kg	<0.005 mg/kg	<0.001 mg/kg	NC	NA	Not detected. No U.S. EPA Eco-SSL. RLs below LANL ESL for mammalian omnivore (deer mouse, 210 mg/kg, lowest ESL)[e]. No ecological hazard.
1,1-Dichloro-ethene	0 of 4 (0%)	<0.005 mg/kg	<0.005 mg/kg	<0.003 mg/kg	NC	NA	Not detected. No U.S. EPA Eco-SSL. RLs below LANL ESL for mammalian insectivore (shrew, 11 mg/kg, lowest ESL)[e]. No ecological hazard.
1,1,1-Trichloro-ethane	0 of 4 (0%)	<0.005 mg/kg	<0.005 mg/kg	<0.002 mg/kg	NC	NA	Not detected. No U.S. EPA Eco-SSL. RLs below LANL ESL for mammalian insectivore (shrew, 260 mg/kg, lowest ESL)[e]. No ecological hazard.
1,1,2-Trichloro-ethane	0 of 4 (0%)	<0.005 mg/kg	<0.005 mg/kg	<0.004 mg/kg	NC	NA	Not detected. No U.S. EPA Eco-SSL or LANL ESL. RLs below U.S. EPA R4 ESL (0.32 mg/kg)[f]. No ecological hazard.

Table 4.2-7. Maximum concentration of contaminants of concern in subsurface soil samples (>0.5 to 6 ft) collected between January 1, 2013 and December 31, 2017 (current review period) and through December 31, 2012 (previous review period).

		Review Period					
		Current		Previous	Difference (%)		
COC	Frequency of detection (%)	Min Reported	Max Reported (Max Detected)	Max Reported (Max Detected)	Max Reported	Max Detected	Current status
Building 832 (OU 7) (continued)							
1,1,2,2-Tetrachloro-ethane	0 of 4 (0%)	<0.005 mg/kg	<0.005 mg/kg	<0.001 mg/kg	NC	NA	Not detected. No U.S. EPA Eco-SSL or LANL ESL. RLs below U.S. EPA R4 ESL (0.127 mg/kg)[f]. No ecological hazard.
1,2-Dichloro-benzene	0 of 4 (0%)	<0.005 mg/kg	<0.005 mg/kg	<0.0005 mg/kg	NC	NA	Not detected. No U.S. EPA Eco-SSL. RLs below LANL ESL for mammalian insectivore (shrew, 0.92 mg/kg, lowest ESL)[e]. No ecological hazard.
1,2-Dichloro-ethane	0 of 4 (0%)	<0.005 mg/kg	<0.005 mg/kg	<0.001 mg/kg	NC	NA	Not detected. No U.S. EPA Eco-SSL. RLs below LANL ESL for avian herbivore (robin, 0.85 mg/kg, lowest ESL)[e]. No ecological hazard.
1,2-Dichloro-ethene (total)	0 of 4 (0%)	<0.005 mg/kg	<0.01 mg/kg	<0.0005 mg/kg	NC	NA	Not detected. No U.S. EPA Eco-SSL. RLs below LANL ESL for mammalian insectivore (shrew, 24 mg/kg, lowest ESL[e]. No ecological hazard.
1,2-Dichloro-propane	0 of 4 (0%)	<0.005 mg/kg	<0.005 mg/kg	<0.001 mg/kg	NC	NA	Not detected. No U.S. EPA Eco-SSL. No LANL ESL. RLs below lowest U.S. EPA R4 ESL (0.28 mg/kg)[f]. No ecological hazard.
1,3-Dichloro-benzene	0 of 4 (0%)	<0.005 mg/kg	<0.005 mg/kg	<0.0005 mg/kg	NC	NA	Not detected. No U.S. EPA Eco-SSL. RLs below LANL ESL for mammalian insectivore (shrew, 0.74 mg/kg, lowest ESL)[e]. No ecological hazard.
1,4-Dichloro-benzene	0 of 4 (0%)	<0.005 mg/kg	<0.005 mg/kg	<0.0005 mg/kg	NC	NA	Not detected. No U.S. EPA Eco-SSL. RLs below LANL ESL for mammalian insectivore (shrew, 0.89 mg/kg, lowest ESL)[e]. No ecological hazard.

Table 4.2-7. Maximum concentration of contaminants of concern in subsurface soil samples (>0.5 to 6 ft) collected between January 1, 2013 and December 31, 2017 (current review period) and through December 31, 2012 (previous review period).

		Review Period					
		Current		Previous	Difference (%)		
COC	Frequency of detection (%)	Min Reported	Max Reported (Max Detected)	Max Reported (Max Detected)	Max Reported	Max Detected	Current status
Building 832 (OU 7) (continued)							
Bromo-dichloro-methane	0 of 4 (0%)	<0.005 mg/kg	<0.005 mg/kg	<0.005 mg/kg	NC	NA	Not detected. No U.S. EPA Eco-SSL. No alternate ESL If an actual release had occurred would expect at least one detection. No ecological hazard.
Bromoform	0 of 4 (0%)	<0.005 mg/kg	<0.005 mg/kg	<0.003 mg/kg	NC	NA	Not detected. No U.S. EPA Eco-SSL. No LANL ESL. RLs below lowest U.E. EPA R4 ESL (0.07 mg/kg)[f]. No ecological hazard.
Bromo-methane	0 of 4 (0%)	<0.01 mg/kg	<0.01 mg/kg	<0.003 mg/kg	NC	NA	Not detected. No U.S. EPA Eco-SSL. No LANL ESL. RLs above lowest U.S. EPA R4 ESL (0.002 mg/kg)[f]. If an actual release had occurred would expect at least one detection. No ecological hazard.
Carbon tetra-chloride	0 of 4 (0%)	<0.005 mg/kg	<0.005 mg/kg	<0.002 mg/kg	NC	NA	Not detected. No U.S. EPA Eco-SSL. No LANL ESL. RLs below lowest U.S. EPA R4 ESL (0.05 mg/kg)[f]. No ecological hazard.
Chloro-benzene	0 of 4 (0%)	<0.005 mg/kg	<0.005 mg/kg	<0.001 mg/kg	NC	NA	Not detected. No U.S. EPA Eco-SSL. RLs below LANL ESL for soil invertebrates (earthworms, 2.4 mg/kg, lowest ESL)[e]. No ecological hazard.
Chloro-ethane	0 of 4 (0%)	<0.01 mg/kg	<0.01 mg/kg	<0.004 mg/kg	NC	NA	Not detected. No U.S. EPA Eco-SSL. No alternate ESL If an actual release had occurred would expect at least one detection. No ecological hazard.
Chloroform	0 of 4 (0%)	<0.005 mg/kg	<0.005 mg/kg	<0.002 mg/kg	NC	NA	Not detected. No U.S. EPA Eco-SSL. RLs below LANL ESL for mammalian omnivore (deer mouse, 8 mg/kg, lowest ESL)[e]. No ecological hazard.

Table 4.2-7. Maximum concentration of contaminants of concern in subsurface soil samples (>0.5 to 6 ft) collected between January 1, 2013 and December 31, 2017 (current review period) and through December 31, 2012 (previous review period).

		Review Period					
		Current		Previous	Difference (%)		
COC	Frequency of detection (%)	Min Reported	Max Reported (Max Detected)	Max Reported (Max Detected)	Max Reported	Max Detected	Current status
Building 832 (OU 7) (continued)							
Chloro-methane	0 of 4 (0%)	<0.01 mg/kg	<0.01 mg/kg	<0.006 mg/kg	NC	NA	Not detected. No U.S. EPA Eco-SSL. No alternate ESL If an actual release had occurred would expect at least one detection. No ecological hazard.
cis-1,2-Dichloro-ethene	0 of 4 (0%)	<0.005 mg/kg	<0.005 mg/kg	<0.0005 mg/kg	NC	NA	Not detected. No U.S. EPA Eco-SSL. RLs below LANL ESL for mammalian insectivore (shrew, 24 mg/kg, lowest ESL)[e]. No ecological hazard.
cis-1,3-Dichloro-propene	0 of 4 (0%)	<0.005 mg/kg	<0.005 mg/kg	<0.005 mg/kg	NC	NA	Not detected. No U.S. EPA Eco-SSL. No LANL ESL. RLs above lowest U.S. EPA R4 ESL (0.001 mg/kg)[f]. If an actual release had occurred would expect at least one detection. No ecological hazard.
Dibromo-chloro-methane	0 of 4 (0%)	<0.005 mg/kg	<0.005 mg/kg	<0.004 mg/kg	NC	NA	Not detected. No U.S. EPA Eco-SSL. No alternate ESL If an actual release had occurred would expect at least one detection. No ecological hazard.
Dichloro-difluoro-methane	0 of 4 (0%)	<0.01 mg/kg	<0.01 mg/kg	<0.0005 mg/kg	NC	NA	Not detected. No U.S. EPA Eco-SSL. No alternate ESL If an actual release had occurred would expect at least one detection. No ecological hazard.
Ethylbenzene	0 of 4 (0%)	<0.005 mg/kg	<0.005 mg/kg	<0.0005 mg/kg	NC	NA	Not detected. No U.S. EPA Eco-SSL. No LANL ESL. RLs below lowest U.S. EPA R4 ESL (0.27 mg/kg)[f]. No ecological hazard.

Table 4.2-7. Maximum concentration of contaminants of concern in subsurface soil samples (>0.5 to 6 ft) collected between January 1, 2013 and December 31, 2017 (current review period) and through December 31, 2012 (previous review period).

		Review Period					
		Current		Previous	Difference (%)		
COC	Frequency of detection (%)	Min Reported	Max Reported (Max Detected)	Max Reported (Max Detected)	Max Reported	Max Detected	Current status
Building 832 (OU 7) (continued)							
Methylene chloride	0 of 4 (0%)	<0.02 mg/kg	<0.02 mg/kg	0.0037 mg/kg	NC	NA	Not detected. No U.S. EPA Eco-SSL. RLs below LANL ESL for mammalian omnivore (deer mouse, 2.6 mg/kg, lowest ESL)[e]. No ecological hazard.
Tetra-chloro-ethene	0 of 4 (0%)	<0.005 mg/kg	<0.005 mg/kg	<0.001 mg/kg	NC	NA	Not detected. No U.S. EPA Eco-SSL. RLs below LANL ESL for mammalian insectivore (shrew, 0.18 mg/kg, lowest ESL)[e]. No ecological hazard.
Toluene	0 of 4 (0%)	<0.005 mg/kg	<0.005 mg/kg	<0.0005 mg/kg	NC	NA	Not detected. No U.S. EPA Eco-SSL. RLs below LANL ESL for mammalian insectivore (shrew, 23 mg/kg, lowest ESL)[e]. No ecological hazard.
Total xylene isomers	0 of 4 (0%)	<0.005 mg/kg	<0.01 mg/kg	<0.001 mg/kg	NC	NA	Not detected. No U.S. EPA Eco-SSL. RLs below LANL ESL for mammalian insectivore (shrew, 1.4 mg/kg, lowest ESL)[e]. No ecological hazard.
trans-1,2-Dichloro-ethene	0 of 4 (0%)	<0.005 mg/kg	<0.005 mg/kg	<0.002 mg/kg	NC	NA	Not detected. No U.S. EPA Eco-SSL. RLs below LANL ESL for mammalian insectivore (shrew, 24 mg/kg, lowest ESL)[e]. No ecological hazard.
trans-1,3-Dichloro-propene	0 of 4 (0%)	<0.005 mg/kg	<0.005 mg/kg	<0.005 mg/kg	NC	NA	Not detected. No U.S. EPA Eco-SSL. No LANL ESL. RLs above lowest U.S. EPA R4 ESL (0.001 mg/kg)[f]. If an actual release had occurred would expect at least one detection. No ecological hazard.

Table 4.2-7. Maximum concentration of contaminants of concern in subsurface soil samples (>0.5 to 6 ft) collected between January 1, 2013 and December 31, 2017 (current review period) and through December 31, 2012 (previous review period).

		Review Period					
		Current		Previous	Difference (%)		
COC	Frequency of detection (%)	Min Reported	Max Reported (Max Detected)	Max Reported (Max Detected)	Max Reported	Max Detected	Current status
Building 832 (OU 7) (continued)							
Trichloroethene	0 of 4 (0%)	<0.005 mg/kg	<0.005 mg/kg	<0.001 (0.0005)	NC	NA	Not detected. No U.S. EPA Eco-SSL. RLs below LANL ESL for mammalian insectivore (shrew, 42 mg/kg, lowest ESL)[e]. No ecological hazard.
Trichlorofluoro-methane	0 of 4 (0%)	<0.005 mg/kg	<0.005 mg/kg	<0.003 mg/kg	NC	NA	Not detected. No U.S. EPA Eco-SSL. RLs below LANL ESL for mammalian insectivore (shrew, 52 mg/kg, lowest ESL)[e]. No ecological hazard.
Building 851 (OU 8)							
Total Uranium (in activity)	4 of 4 (100%)	1.5 pCi/g	3.3 pCi/g	13.4[a]	-306	-306	Maximum activities and concentrations of uranium isotopes in current review period less than previous review (uranium 236 was not evaluated in previous review period). Estimated concentration for total uranium concentration exceeds ESL for established for Building 812 (2.0 mg/kg for deer mouse)[d]. Site 300 background being re-evaluated. Building 851 area under active investigation. Potential ecological hazard to be determined.
Total Uranium (in mass)	4 of 4 (100%)	2.32 µg/g	8.001 µg/g	33.47 µg/g [a]	-318	-318	
Uranium 234 (in activity)	4 of 4 (100%)	0.48 pCi/g	0.65 pCi/g	2.1 pCi/g[c]	-223	-223	
Uranium 235 (in activity)	4 of 4 (100%)	0.031 pCi/g	0.04 pCi/g	0.3 pCi/g	-650	-650	
Uranium 236 (in activity)	4 of 4 (100%)	0.00068 pCi/g	0.017 pCi/g	–	–	–	
Uranium 238 (in activity)	4 of 4 (100%)	0.77 pCi/g	2.7 pCi/g	11 pCi/g	-308	-306	
Uranium 238 (in mass)	4 of 4 (100%)	2.303 µg/g	7.982 µg/g	33.3 pCi/g[b]	-317	-318	

Table 4.2-7. Maximum concentration of contaminants of concern in subsurface soil samples (>0.5 to 6 ft) collected between January 1, 2013 and December 31, 2017 (current review period) and through December 31, 2012 (previous review period).

		Review Period					
		Current		Previous	Difference (%)		
COC	Frequency of detection (%)	Min Reported	Max Reported (Max Detected)	Max Reported (Max Detected)	Max Reported	Max Detected	Current status
Building 851 (OU 8) (continued)							
Vinyl chloride	0 of 4 (0%)	<0.01 mg/kg	<0.01 mg/kg	<0.009 mg/kg	NC	NA	Not detected. No U.S. EPA Eco-SSL. RLs below LANL ESL for mammalian insectivore (shrew, 0.12 mg/kg, lowest ESL)[e]. No ecological hazard.

Notes:

[a] Estimated from the sum of the maximum uranium-234 and -233 (in activity), uranium-235 and -236 (in activity) and uranium-238 (in activity) activities from the previous review period.

[b] Estimated from the uranium-238 (as activity) value for the previous review period.

[c] Combined uranium-233 and uranium-234

[d] Combined uranium-235 and uranium-236

[e] LANL (2017). ECORISK Database Release 4.1.

[f] U.S. EPA (2018). Region 4 Ecological Risk Assessment Supplemental Guidance.

Acronyms and Abbreviations:

- = Not applicable
bgs = Below ground surface
CGSA = Central General Services Area
COCs = Contaminants of concern
DIS = Distal
DISS = Distal south
DSB = Distal site boundary
EGSA = Eastern General Services Area
ft = Feet
g = Grams
GWTS = Groundwater treatment system
HSU = Hydrostratigraphic unit
Kcf = Thousands of cubic feet
kg = Kilograms
Kgal = Thousands of gallons
Mcf = Millions of cubic feet
PRX = Proximal
PRXN = Proximal North
PTMW = Plume Tracking Monitor Well
RDX = Research Department Explosive
SRC = Source
SVTS = Soil vapor treatment system
TBOS = Tetra 2-ethylbutylorthosilicate
TKEBS = Tetrakis (2-ethylbutyl) silane
VOC = Volatile organic compound

Table 4.2-8. New analytes evaluated in subsurface soil samples (>0.5 to 6 ft) collected between January 1, 2013 and December 31, 2017.

Analyte	Frequency of detection (%)	Min Reported	Max Reported (Max Detected)	RL Notes or Median	Current status
Eastern GSA (OU 1)					
1,1'-Biphenyl	0 of 17 (0%)	<5 mg/kg	<50 mg/kg	15 at <5 mg/kg	SVOC, PAHs and PCBs were evaluated for ecological hazard as part of the Fourth Five-Year Review for the General Service Area OU (Villarreal et al., 2017). The review concluded that the limited detections of PCBs in the subsurface soil did not pose an ecological hazard due to the types of terrestrial species found in the Eastern GSA and the limited areal extent of PCBs in the subsurface soil in the vicinity of the burial debris trenches.
1,2-Dichlorobenzene	0 of 19 (0%)	<0.1 mg/kg	<1 mg/kg	15 at <0.1 mg/kg	
1,2,4-Trichlorobenzene	0 of 19 (0%)	<0.1 mg/kg	<1 mg/kg	15 at <0.1 mg/kg	
1,2,4,5-Tetra-chlorobenzene	0 of 17 (0%)	<0.5 mg/kg	<5 mg/kg	15 at <0.5 mg/kg	
1,3-Dichlorobenzene	0 of 19 (0%)	<0.1 mg/kg	<1 mg/kg	15 at <0.1 mg/kg	
1,4-Dichlorobenzene	0 of 19 (0%)	<0.1 mg/kg	<1 mg/kg	15 at <0.1 mg/kg	
2-Chloronaphthalene	0 of 19 (0%)	<0.1 mg/kg	<1 mg/kg	15 at <0.1 mg/kg	
2-Chlorophenol	0 of 19 (0%)	<0.1 mg/kg	<1 mg/kg	15 at <0.1 mg/kg	
2-Methyl-4,6-dinitrophenol	0 of 19 (0%)	<0.5 mg/kg	<5 mg/kg	15 at <0.5 mg/kg	
2-Methylnaphthalene	0 of 19 (0%)	<0.1 mg/kg	<1 mg/kg	15 at <0.1 mg/kg	
2-Naphthylamine	0 of 17 (0%)	<3 mg/kg	<30 mg/kg	15 at <3 mg/kg	
2-Nitroaniline	0 of 19 (0%)	<0.1 mg/kg	<1 mg/kg	15 at <0.1 mg/kg	
2-Nitrophenol	0 of 17 (0%)	<0.1 mg/kg	<1 mg/kg	15 at <0.1 mg/kg	
2,3,4,6-Tetra-chlorophenol	0 of 17 (0%)	<0.5 mg/kg	<5 mg/kg	15 at <0.5 mg/kg	
2,4-Dichlorophenol	0 of 19 (0%)	<0.1 mg/kg	<1 mg/kg	15 at <0.1 mg/kg	
2,4-Dimethylphenol	0 of 19 (0%)	<0.1 mg/kg	<1 mg/kg	15 at <0.1 mg/kg	
2,4-Dinitrophenol	0 of 19 (0%)	<0.5 mg/kg	<5 mg/kg	15 at <0.5 mg/kg	
2,4-Dinitrotoluene	0 of 19 (0%)	<0.1 mg/kg	<1 mg/kg	15 at <0.1 mg/kg	
2,4,5-Trichlorophenol	0 of 19 (0%)	<0.2 mg/kg	<2 mg/kg	15 at <0.2 mg/kg	
2,4,6-Trichlorophenol	0 of 19 (0%)	<0.2 mg/kg	<2 mg/kg	15 at <0.2 mg/kg	
2,6-Dinitrotoluene	0 of 19 (0%)	<0.1 mg/kg	<1 mg/kg	15 at <0.1 mg/kg	
3-Nitroaniline	0 of 19 (0%)	<0.2 mg/kg	<2 mg/kg	15 at <0.2 mg/kg	
3,3-Dichlorobenzidine	0 of 19 (0%)	<0.2 mg/kg	<2 mg/kg	15 at <0.2 mg/kg	
4-Bromophenyl-phenylether	0 of 19 (0%)	<0.1 mg/kg	<1 mg/kg	15 at <0.1 mg/kg	
4-Chloro-3-methylphenol	0 of 19 (0%)	<0.2 mg/kg	<2 mg/kg	15 at <0.2 mg/kg	
4-Chloroaniline	0 of 19 (0%)	<0.1 mg/kg	<1 mg/kg	15 at <0.1 mg/kg	

Table 4.2-8. New analytes evaluated in subsurface soil samples (>0.5 to 6 ft) collected between January 1, 2013 and December 31, 2017.

Analyte	Frequency of detection (%)	Min Reported	Max Reported (Max Detected)	Reporting Limit Notes or Median	Current status
Eastern GSA (OU 1) (continued)					
4-Chlorophenyl-phenylether	0 of 19 (0%)	<0.1 mg/kg	<1 mg/kg	15 at <0.1 mg/kg	SVOC, PAHs and PCBs were evaluated for ecological hazard as part of the Fourth Five-Year Review for the General Service Area OU (Villarreal et al., 2017). The review concluded that the limited detections of PCBs in the subsurface soil did not pose an ecological hazard due to the types of terrestrial species found in the Eastern GSA and the limited areal extent of PCBs in the subsurface soil in the vicinity of the burial debris trenches.
4-Nitroaniline	0 of 19 (0%)	<0.2 mg/kg	<2 mg/kg	15 at <0.2 mg/kg	
4-Nitrophenol	0 of 19 (0%)	<0.2 mg/kg	<2 mg/kg	15 at <0.2 mg/kg	
Acenaphthene	0 of 19 (0%)	<0.1 mg/kg	<1 mg/kg	15 at <0.1 mg/kg	
Acenaphthylene	0 of 19 (0%)	<0.1 mg/kg	<1 mg/kg	15 at <0.1 mg/kg	
Acetophenone	0 of 17 (0%)	<0.5 mg/kg	<5 mg/kg	15 at <0.5 mg/kg	
Aniline	0 of 17 (0%)	<0.2 mg/kg	<2 mg/kg	15 at <0.2 mg/kg	
Anthracene	0 of 19 (0%)	<0.1 mg/kg	<1 mg/kg	15 at <0.1 mg/kg	
Atrazine	0 of 17 (0%)	<0.1 mg/kg	<0.1 mg/kg	15 at <0.1 mg/kg	
Benzaldehyde	0 of 17 (0%)	<5 mg/kg	<50 mg/kg	15 at <5 mg/kg	
Benzidine	0 of 17 (0%)	<3 mg/kg	<30 mg/kg	15 at <3 mg/kg	
Benzo(a)anthracene	0 of 19 (0%)	<0.1 mg/kg	<1 mg/kg	15 at <0.1 mg/kg	
Benzo(a)pyrene	0 of 19 (0%)	<0.1 mg/kg	<1 mg/kg	15 at <0.1 mg/kg	
Benzo (b) fluoranthene	0 of 19 (0%)	<0.1 mg/kg	<1 mg/kg	15 at <0.1 mg/kg	
Benzo(g,h,i)perylene	0 of 19 (0%)	<0.1 mg/kg	<1 mg/kg	15 at <0.1 mg/kg	
Benzo (k) fluoranthene	0 of 19 (0%)	<0.1 mg/kg	<1 mg/kg	15 at <0.1 mg/kg	
Benzoic Acid	0 of 19 (0%)	<0.5 mg/kg	<5 mg/kg	15 at <0.5 mg/kg	
Benzyl Alcohol	0 of 19 (0%)	<0.1 mg/kg	<1 mg/kg	15 at <0.1 mg/kg	
Bis (2-chloroethoxy) methane	0 of 19 (0%)	<0.1 mg/kg	<1 mg/kg	15 at <0.1 mg/kg	
Bis (2-chloroiso-propyl) ether	0 of 19 (0%)	<0.1 mg/kg	<1 mg/kg	15 at <0.1 mg/kg	
Bis (2-ethylhexyl) phthalate	1 of 19 (5.3%)	<0.2 mg/kg	<2 (1.2) mg/kg	15 at <0.2 mg/kg	
Butylbenzylphthalate	0 of 19 (0%)	<0.1 mg/kg	<1 mg/kg	15 at <0.1 mg/kg	
Caprolactam	0 of 17 (0%)	<5 mg/kg	<50 mg/kg	15 at <5 mg/kg	
Carbazole	0 of 17 (0%)	<0.1 mg/kg	<1 mg/kg	15 at <0.1 mg/kg	
Chrysene	0 of 19 (0%)	<0.1 mg/kg	<1 mg/kg	15 at <0.1 mg/kg	
Di-n-octylphthalate	0 of 19 (0%)	<0.1 mg/kg	<1 mg/kg	15 at <0.1 mg/kg	
Dibenzo (a,h) anthracene	0 of 19 (0%)	<0.1 mg/kg	<1 mg/kg	15 at <0.1 mg/kg	
Dibenzofuran	0 of 19 (0%)	<0.1 mg/kg	<1 mg/kg	15 at <0.1 mg/kg	
Dibutylphthalate	0 of 19 (0%)	<0.1 mg/kg	<1 mg/kg	15 at <0.1 mg/kg	

Table 4.2-8. New analytes evaluated in subsurface soil samples (>0.5 to 6 ft) collected between January 1, 2013 and December 31, 2017.

Analyte	Frequency of detection (%)	Min Reported	Max Reported (Max Detected)	Reporting Limit Notes or Median	Current status
Eastern GSA (OU 1) (continued)					
Diethyl-phthalate	0 of 19 (0%)	<0.1 mg/kg	<1 mg/kg	15 at <0.1 mg/kg	SVOC, PAHs and PCBs were evaluated for ecological hazard as part of the Fourth Five-Year Review for the General Service Area OU (Villarreal et al., 2017). The review concluded that the limited detections of PCBs in the subsurface soil did not pose an ecological hazard due to the types of terrestrial species found in the Eastern GSA and the limited areal extent of PCBs in the subsurface soil in the vicinity of the burial debris trenches.
Dimethyl-phthalate	0 of 19 (0%)	<0.1 mg/kg	<1 mg/kg	15 at <0.1 mg/kg	
Fluoranthene	0 of 19 (0%)	<0.1 mg/kg	<1 mg/kg	15 at <0.1 mg/kg	
Fluorene	0 of 19 (0%)	<0.1 mg/kg	<1 mg/kg	15 at <0.1 mg/kg	
Hexachlorobenzene	0 of 19 (0%)	<0.1 mg/kg	<1 mg/kg	15 at <0.1 mg/kg	
Hexachlorobutadiene	0 of 19 (0%)	<0.1 mg/kg	<1 mg/kg	15 at <0.1 mg/kg	
Hexachloro-cyclopentadiene	0 of 19 (0%)	<0.1 mg/kg	<1 mg/kg	15 at <0.1 mg/kg	
Hexachloroethane	0 of 19 (0%)	<0.1 mg/kg	<1 mg/kg	15 at <0.1 mg/kg	
Indeno (1,2,3-c,d) pyrene	0 of 19 (0%)	<0.1 mg/kg	<1 mg/kg	15 at <0.1 mg/kg	
Isophorone	0 of 19 (0%)	<0.1 mg/kg	<1 mg/kg	15 at <0.1 mg/kg	
m- and p- Cresol	0 of 19 (0%)	<0.1 mg/kg	<1 mg/kg	15 at <0.2 mg/kg	
N-Nitroso-di-n-propylamine	0 of 19 (0%)	<0.1 mg/kg	<1 mg/kg	15 at <0.1 mg/kg	
Naphthalene	0 of 19 (0%)	<0.1 mg/kg	<1 mg/kg	15 at <0.1 mg/kg	
Nitrobenzene	0 of 19 (0%)	<0.1 mg/kg	<1 mg/kg	15 at <0.1 mg/kg	
o-Cresol	0 of 19 (0%)	<0.1 mg/kg	<1 mg/kg	15 at <0.1 mg/kg	
PCB 1016	0 of 21 (0%)	<0.0095 mg/kg	<0.01 mg/kg	21 at <0.01 mg/kg	
PCB 1221	0 of 21 (0%)	<0.1 mg/kg	<0.019 mg/kg	19 at <0.01 mg/kg	
PCB 1232	0 of 21 (0%)	<0.0095 mg/kg	<0.01 mg/kg	21 at <0.01 mg/kg	
PCB 1242	0 of 21 (0%)	<0.0095	<0.01 mg/kg	21 at <0.01 mg/kg	
PCB 1248	0 of 21 (0%)	<0.0095	<0.01 mg/kg	21 at <0.01 mg/kg	
PCB 1254	3 of 21 (14%)	0.01 mg/kg	0.037 mg/kg	19 at <0.1 mg/kg	
PCB 1260	8 of 21 (38%)	<0.01 mg/kg	0.025 mg/kg	13 at <0.1 mg/kg	
Pentachloro-phenol	0 of 19 (0%)	<0.2 mg/kg	<2 mg/kg	15 at <0.2 mg/kg	
Phenan-threne	0 of 19 (0%)	<0.1 mg/kg	<1 mg/kg	15 at <0.1 mg/kg	
Phenol	0 of 19 (0%)	<0.1 mg/kg	<1 mg/kg	15 at <0.1 mg/kg	
Pyrene	0 of 19 (0%)	<0.1 mg/kg	<1 mg/kg	15 at <0.1 mg/kg	
Pyridine	0 of 17 (0%)	<0.5 mg/kg	<5 mg/kg	15 at <0.5 mg/kg	

Table 4.2-8. New analytes evaluated in subsurface soil samples (>0.5 to 6 ft) collected between January 1, 2013 and December 31, 2017.

Analyte	Frequency of detection (%)	Min Reported	Max Reported (Max Detected)	Reporting Limit Notes or Median	Current status
Building 850 (OU 5)					
1,3-Dinitrobenzene	0 of 3 (0%)	<0.2 mg/kg	<0.2 mg/kg	3 at <0.2 mg/kg	Not detected. No U.S. EPA Eco-SSL. RLs above LANL ESL for mammalian omnivore (deer mouse, 0.072 mg/kg, lowest ESL)[a]. If an actual release had occurred would expect at least one detection. No ecological hazard.
1,3,5-Trinitro-benzene	0 of 3 (0%)	<0.2 mg/kg	<0.2 mg/kg	3 at <0.2 mg/kg	Not detected. No U.S. EPA Eco-SSL. RL below LANL ESL for soil invertebrates (earthworm, 10 mg/kg, lowest ESL) and mammalian omnivore (deer mouse, 110 mg/kg)[a]. No ecological hazard.
2-Amino-4,6-dinitrotoluene	0 of 3 (0%)	<0.2 mg/kg	<0.2 mg/kg	3 at <0.2 mg/kg	Not detected. No U.S. EPA Eco-SSL. No LANL ESL. RL below U.E. EPA R4 ESL (14 mg/kg, lowest ESL)[v]. No ecological hazard.
2-Nitrotoluene	0 of 3 (0%)	<0.2 mg/kg	<0.2 mg/kg	3 at <0.2 mg/kg	Not detected. No U.S. EPA Eco-SSL. RL below LANL ESL for mammalian omnivore (deer mouse, 2 mg/kg, lowest ESL)[a]. No ecological hazard.
3-Nitrotoluene	0 of 3 (0%)	<0.2 mg/kg	<0.2 mg/kg	3 at <0.2 mg/kg	Not detected. No U.S. EPA Eco-SSL. RL below LANL ESL for mammalian omnivore (deer mouse, 2 mg/kg, lowest ESL)[a]. No ecological hazard.
4-Amino-2,6-dinitrotoluene	0 of 3 (0%)	<0.2 mg/kg	<0.2 mg/kg	3 at <0.2 mg/kg	Not detected. No U.S. EPA Eco-SSL. RL below LANL ESL for plants (14 mg/kg, lowest ESL) and mammalian omnivore (deer mouse, 23 mg/kg)[a]. No ecological hazard.
4-Nitrotoluene	0 of 3 (0%)	<0.2 mg/kg	<0.2 mg/kg	3 at <0.2 mg/kg	Not detected. No U.S. EPA Eco-SSL. RL below LANL ELS for mammalian omnivore (deer mouse, 21 mg/kg, lowest ESL)[a]. No ecological hazard.
HMX	0 of 3 (0%)	<0.2 mg/kg	<0.2 mg/kg	3 at <0.2 mg/kg	Not detected. No U.S. EPA Eco-SSL. RL below LANL ESL for soil invertebrates (earthworm, 16 mg/kg, lowest ESL) and mammalian omnivore (deer mouse, 290 mg/kg)[a]. No ecological hazard.
Perchlorate	0 of 3 (0%)	<0.2 mg/kg	<0.2 mg/kg	3 at <0.02 mg/kg	Not detected. No U.S. EPA Eco-SSL. RL below available LANL ESL for mammalian omnivore (deer mouse, 0.21 mg/kg, lowest ESL)[a]. No ecological hazard.
RDX	0 of 3 (0%)	<0.2 mg/kg	<0.2 mg/kg	3 at <0.2 mg/kg	Not detected. No U.S. EPA Eco-SSL. RL below LANL ESL for avian omnivore (robin, 2.3 mg/kg, lowest ESL) and mammalian omnivore (deer mouse, 16 mg/kg)[a]. No ecological hazard.
Building 832 (OU 7)					
1,2,3-Trichloro-propane	0 of 4 (0%)	<0.005 mg/kg	<0.005 mg/kg	4 at <0.005 mg/kg	Not detected. No U.S. EPA Eco-SSL. No alternate ESL. If an actual release had occurred would expect at least one detection. No ecological hazard.
Benzene	0 of 4 (0%)	<0.005 mg/kg	<0.005 mg/kg	4 at <0.005 mg/kg	Not detected. No U.S. EPA Eco-SSL. RLs below LANL ESL for mammalian omnivore (deer mouse, 24 mg/kg, lowest ESL)[a]. No ecological hazard.
Bromobenzene	0 of 4 (0%)	<0.005 mg/kg	<0.005 mg/kg	4 at <0.005 mg/kg	Not detected. No U.S. EPA Eco-SSL. No alternate ESL. If an actual release had occurred would expect at least one detection. No ecological hazard.
Dibromomethane	0 of 4 (0%)	<0.005 mg/kg	<0.005 mg/kg	4 at <0.005 mg/kg	Not detected. No U.S. EPA Eco-SSL. No alternate ESL. If an actual release had occurred would expect at least one detection. No ecological hazard.
Freon 113	0 of 4 (0%)	<0.005 mg/kg	<0.005 mg/kg	4 at <0.005 mg/kg	Not detected. No U.S. EPA Eco-SSL. No alternate ESL. If an actual release had occurred would expect at least one detection. No ecological hazard.
m- and p-Xylene Isomers	0 of 4 (0%)	<0.005 mg/kg	<0.005 mg/kg	4 at <0.005 mg/kg	Not detected. No U.S. EPA Eco-SSL. RL below LANL ESL for mammalian insectivore (shrew, 1.4 mg/kg, lowest ESL) and mammalian omnivore (deer mouse, 1.9 mg/kg)[a]. No ecological hazard.
o-Xylene	0 of 4 (0%)	<0.005 mg/kg	<0.005 mg/kg	4 at <0.005 mg/kg	Not detected. No U.S. EPA Eco-SSL. RL below LANL ESL for mammalian insectivore (shrew, 1.4 mg/kg, lowest ESL) and mammalian omnivore (deer mouse, 1.9 mg/kg)[a]. No ecological hazard.

Table 4.2-8. New analytes evaluated in subsurface soil samples (>0.5 to 6 ft) collected between January 1, 2013 and December 31, 2017.

Analyte	Frequency of detection (%)	Min Reported	Max Reported (Max Detected)	Reporting Limit Notes or Median	Current status
Building 801 (OU 8)					
Aluminum	40 of 40 (100%)	3,800 mg/kg	26,000 mg/kg	Median: 18,000 mg/kg	No numerical U.S. EPA Eco-SSLs. Concluded aluminum toxicity is associated with soluble aluminum, not total aluminum[b]. Aluminum is identified as a COPEC only in soils with a pH <5. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown but unlikely.
Antimony	1 of 40 (2.5%)	0.2 mg/kg	<1 (0.2) mg/kg	39 at <1 mg/kg	Maximum detected below mammalian insectivore U.S. EPA Eco-SSL (0.27 mg/kg)[c]. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown but unlikely.
Arsenic	33 of 40 (82%)	<1 mg/kg	7 mg/kg	Median: 2.7 mg/kg	Below available U.S. EPA Eco-SSLs (avian 43 mg/kg and mammalian 46 mg/kg)[d]. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown but unlikely.
Barium	40 of 40 (100%)	80 mg/kg	420 mg/kg	Median: 210	Maximum detected above U.S. EPA Eco-SSLs for soil invertebrates (330 mg/kg, lowest ESL), below mammalian ESLs (2000 mg/kg)[e]. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown but unlikely.
Beryllium	27 of 40 (68%)	<0.25 mg/kg	<1.2 (1) mg/kg	12 at <1.2 mg/kg; Median: 0.765 mg/kg	Below available U.S. EPA Eco-SSLs (soil invertebrate 40 mg/kg and mammalian 21 mg/kg)[f]. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown but unlikely.
Boron	31 of 40 (78%)	6.6 mg/kg	42 mg/kg	9 at <25 mg/kg; Median: 25 mg/kg	No U.S. EPA Eco-SSLs. Above LANL ESL for avian herbivore (robin, 2 mg/kg, lowest ESL), below for mammalian omnivore (deer mouse, 55 mg/kg). Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown but unlikely.
Cadmium	24 of 40 (60%)	0.08 mg/kg	1.6 mg/kg	10 at <10; 5 at <0.5 mg/kg. Median: 0.895	Maximum detected above U.S. EPA Eco-SSLs for avian and mammalian insectivore (0.77 and 0.36, respectively), but below avian and mammalian herbivore and carnivore (28 to 630 mg/kg)[a]. Previous analysis concluded cadmium in soil the concentration range detected at Building 801 does not pose an ecological hazard to the ecological receptors found at Site 300[t,u]. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown but unlikely.
Chromium	40 of 40 (100%)	6.2 mg/kg	32 mg/kg	Median: 20.5 mg/kg	Maximum detected above avian insectivore U.S. EPA Eco-SSL (26 mg/kg), but below avian herbivore and carnivore Eco-SSLs (78 and 780 mg/kg) for chromium III; below mammalian insectivore Eco-SSL for chromium 111 (34 mg/kg) and chromium VI (130 mg/kg)[g]. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown but unlikely.
Cobalt	40 of 40 (100%)	1.3 mg/kg	14 mg/kg	Median: 9.05 mg/kg	At or below available U.S. EPA Eco-SSLs (plants 13 mg/kg, avian 120 mg/kg and mammalian 230 mg/kg)[f]h Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown but unlikely.
Copper	40 of 40 (100%)	7.3 mg/kg	35 mg/kg	Median: 21 mg/kg	Below U.S. EPA Eco-SSLs for plants (70 mg/kg), soil invertebrates (80 mg/kg) and mammalian insectivore (49 mg/kg); above avian insectivore Eco-SSL (28 mg/kg), below avian herbivore (76 mg/kg) and carnivore (1600 mg/kg)[i]. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown but unlikely.
Iron	40 of 40 (100%)	13,000 mg/kg	34,000 mg/kg	Median: 22,000 mg/kg	No numerical U.S. EPA Eco-SSLs. Concluded iron toxicity is rare, and dependent upon site-specific soil chemistry[j]. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown but unlikely.
Lead	40 of 40 (100%)	4.1 mg/kg	30 mg/kg	Median: 7.55 mg/kg	Below U.S. EPA Eco-SSLs for plants (120 mg/kg), soil invertebrates (1700 mg/kg) and mammalian insectivore (46 mg/kg); above avian insectivore Eco-SSL (11 mg/kg), below avian herbivore (46 mg/kg) and carnivore (510 mg/kg)[k]. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown but unlikely.
Magnesium	40 of 40 (100%)	1,500 mg/kg	11,000 mg/kg	Median: 6,350 mg/kg	No U.S. EPA Eco-SSLs. U.S.EPA R4 indicates essential nutrients like magnesium, sodium and potassium at or slightly above background do not need to be considered[v]. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown but unlikely.
Manganese	40 of 40 (100%)	30 mg/kg	1,100 mg/kg	Median: 355 mg/kg	Above U.S. EPA Eco-SSL for plant and soil invertebrates (220 and 450 mg/kg, respectively); below avian and mammalian Eco-SSL (4300 and 4000 mg/kg, respectively)[l]. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown.
Mercury	1 of 40 (2.5%)	<0.02 mg/kg	0.23 mg/kg	39 at <0.16 mg/kg	No U.S. EPA Eco-SSL. Single detected above LANL soil ESL for avian insectivore (American robin, 0.013 mg/kg), below ESLs for mammals (76 mg/kg)[a]. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown but unlikely.
Molybdenum	10 of 40 (25%)	0.27 mg/kg	1.5 mg/kg	Median: 0.5 mg/kg	No U.S. EPA Eco-SSL. Maximum detected below available LANL soil ESLs (avian, 16 to 1,100 mg/kg)[a]. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown but unlikely.
Nickel	40 of 40 (100%)	2.9 mg/kg	30 mg/kg	Median: 20 mg/kg	Below available U.S. EPA Eco-SSLs (plants 38 mg/kg, soil invertebrates 280 mg/kg, avian 210 mg/kg, mammalian 130 mg/kg)[m] Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown but unlikely.

Table 4.2-8. New analytes evaluated in subsurface soil samples (>0.5 to 6 ft) collected between January 1, 2013 and December 31, 2017.

Analyte	Frequency of detection (%)	Min Reported	Max Reported (Max Detected)	Reporting Limit Notes or Median	Current status
Building 801 (OU 8) (continued)					
Potassium	40 of 40 (100%)	780 mg/kg	3,600 mg/kg	Median: 2,100 mg/kg	No U.S. EPA Eco-SSL. U.S.EPA R4 indicates essential nutrients like magnesium, sodium and potassium at or slightly above background do not need to be considered[v]. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown but unlikely.
Radium 226	40 of 40 (100%)	0.94 pCi/g	3.3 pCi/g	Median: 1.48 pCi/g	No U.S. EPA Eco-SSL. Above LANL ESL for soil invertebrates (earthworms, 1.5 pCi/g), below ESL for mammalian omnivore (deer mouse, 380 pCi/g)[a]. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown but unlikely.
Radium 228	40 of 40 (100%)	0.62 pCi/g	1.96 pCi/g	Median: 0.965 pCi/g	No U.S. EPA Eco-SSL. At or below available LANL ESLs for birds, mammals, soil invertebrates and plants (1.5 pCi/g for earthworms to 1400 pCi/g for avian carnivore)[a]. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown but unlikely.
Selenium	1 of 40 (2.5%)	0.5 mg/kg	<2.5 (0.5) mg/kg	12 at <2.5; 18 at <1; 9 at <0.5 mg/kg	Single detection at or below plant and mammalian insectivore U.S. EPA Eco-SSL (0.52 and 0.63 mg/kg, respectively, lowest ESLs)[n]. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown but unlikely.
Silver	5 of 40 (12%)	0.06 mg/kg	<1.2 (0.37) mg/kg	12 at <1.2, 18 at <0.5, 5 at <0.25 mg/kg	Below available U.S. EPA Eco-SSLs (plants 560 mg/kg, avian 4.2 mg/kg, mammalian 14 mg/kg)[o]. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown but unlikely.
Thallium	6 of 40 (15%)	0.2 mg/kg	<1.2 (0.34) mg/kg	12 at <1.2, 18 at <0.5, 4 at <0.25 mg/kg	No U.S. EPA Eco-SSL. Maximum detected below available LANL avian and mammalian ESLs (0.42 to 100 mg/kg), above ESL for plants (0.05 mg/kg)[a]. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown but unlikely.
Thorium 228	40 of 40 (100%)	0.79 pCi/g	2.04 pCi/g	Median: 1.075 pCi/g	No U.S. EPA Eco-SSL. Below available LANL ESLs for birds, mammals, soil invertebrates and plants (43 pCi/g for earthworms to 1600 pCi/g for avian carnivore)[a]. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown but unlikely.
Thorium 230	40 of 40 (100%)	0.93 pCi/g	2.02 pCi/g	Median: 1.21 pCi/g	No U.S. EPA Eco-SSL. Below available LANL ESLs for birds, mammals, soil invertebrates and plants (52 pCi/g for earthworms to 170,000 pCi/g for avian carnivore)[a]. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown but unlikely.
Thorium 232	40 of 40 (100%)	0.8 pCi/g	1.98 pCi/g	Median: 1.03 pCi/g	No U.S. EPA Eco-SSL. Below available LANL ESLs for birds, mammals, soil invertebrates and plants (6.2 to 49,000 pCi/g)[a]. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown but unlikely.
Total Uranium (in activity)	12 of 12 (100%)	0.35 pCi/g	1.9 pCi/g	Median: 0.63 pCi/g	No U.S. EPA Eco-SSL. Below LANL ESL for inorganic uranium by mass for plants (25 µg/g)[a], above ESL for deer mouse established for Building 812 (2.0 µg/g)[p]. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown.
Total Uranium (in mass)	12 of 12 (100%)	0.57 µg/g	2.9 µg/g	Median: 0.91 µg/g	No U.S. EPA Eco-SSL. Below LANL ESL for inorganic uranium by mass for plants (25 µg/g)[a], above ESL for deer mouse established for Building 812 (2.0 µg/g)[p]. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown.
Uranium 234 (in activity)	12 of 12 (100%)	0.16 pCi/g	0.91 pCi/g	Median: 0.27 pCi/g	No U.S. EPA Eco-SSL. Below available LANL ESLs for uranium 234 for birds, mammals, soil invertebrates and plants (440 to 260,000 pCi/g)[a]. Site 300 background levels currently being re-evaluated. No potential ecological hazard as a radionuclide, potential hazard from inorganic uranium unknown.
Uranium 234 and 233 (in activity)	34 of 34 (100%)	0.519 pCi/g	3.26 pCi/g	Median: 0.7495 pCi/g	No U.S. EPA Eco-SSL. Below available LANL ESLs for uranium 233 and uranium 234 for birds, mammals, soil invertebrates and plants (440 to 680,000 pCi/g)[a]. Site 300 background levels currently being re-evaluated. No potential ecological hazard as a radionuclide, potential hazard from inorganic uranium unknown.
Uranium 235 (in activity)	12 of 12 (100%)	0.0088 pCi/g	0.045 pCi/g	Median: 0.016 pCi/g	No U.S. EPA Eco-SSL. Below available LANL ESLs for uranium 235 for birds, mammals, soil invertebrates and plants (440 to 10,000 pCi/g)[a]. Site 300 background levels currently being re-evaluated. No potential ecological hazard as a radionuclide, potential hazard from inorganic uranium unknown.
Uranium 235 and 236 (in activity)	25 of 34 (74%)	<0.05 pCi/g	0.454 pCi/g	Median: 0.08075 pCi/g	No U.S. EPA Eco-SSL. Below available LANL ESLs for uranium 235 and uranium 236 for birds, mammals, soil invertebrates and plants (440 to 15,000,000 pCi/g)[a]. Site 300 background levels currently being re-evaluated. No potential ecological hazard as a radionuclide, potential hazard from inorganic uranium unknown.
Uranium 236 (in activity)	0 of 12 (0%)	<0.00007 pCi/g	<0.00036 pCi/g	Median: 0.00011 pCi/g	No U.S. EPA Eco-SSL. Below available LANL ESLs for uranium 236 for birds, mammals, soil invertebrates and plants (470 to 15,000,000 pCi/g)[a]. Site 300 background levels currently being re-evaluated. No potential ecological hazard as a radionuclide, potential hazard from inorganic uranium unknown.

Table 4.2-8. New analytes evaluated in subsurface soil samples (>0.5 to 6 ft) collected between January 1, 2013 and December 31, 2017.

Analyte	Frequency of detection (%)	Min Reported	Max Reported (Max Detected)	Reporting Limit Notes or Median	Current status
Building 801 (OU 8) (continued)					
Uranium 238 (in activity)	46 of 46 (100%)	0.19 pCi/g	3.04 pCi/g	Median: 0.702 pCi/g	No U.S. EPA Eco-SSL. Below available LANL ESLs for uranium 238 for birds, mammals, soil invertebrates and plants (400 to 4200 pCi/g)[a]. Above ESL (by mass) established for inorganic uranium for Building 812 (estimated total uranium concentration 3.05 mg/kg, Building 812 ESL 2.0 mg/kg)[p]. Site 300 background levels currently being re-evaluated. No potential ecological hazard as a radionuclide, potential hazard from inorganic uranium unknown.
Uranium 238 (in mass)	12 of 12 (100%)	0.57 µg/g	2.9 µg/g	Median: 1 µg/g	No U.S. EPA Eco-SSL. Below LANL ESL for inorganic uranium by mass for plants (25 µg/g)[a], above ESL for deer mouse established for Building 812 (2.0 µg/g)[p]. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown.
Vanadium	40 of 40 (100%)	13 mg/kg	110 mg/kg	Median: 55.5 mg/kg	Maximum detected above avian insectivore and avian herbivore U.S. EPA Eco-SSL (7.8 and 13 mg/kg, respectively); below avian carnivore and mammalian Eco-SSLs (140 and 280 mg/kg, respectively)[q]. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown.
Zinc	40 of 40 (100%)	11 mg/kg	70 mg/kg	Median: 49.5 mg/kg	Maximum detected above U.S. EPA Eco-SSL for avian insectivore (46 mg/kg, lowest ESL); below Eco-SSLs for plants (160 mg/kg), soil invertebrates (120 mg/kg), avian herbivore and carnivore (950 and 30,000 mg/kg, respectively) and mammals (79 mg/kg)[r]. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown.
Building 851 (OU 8)					
1,3-Dinitro-benzene	0 of 4 (0%)	<0.17 mg/kg	<0.2 mg/kg	4 at <0.2 mg/kg	Not detected. No U.S. EPA Eco-SSL. RLs above LANL ELS for mammalian omnivore (deer mouse, 0.072 mg/kg, lowest ESL)[a]. If an actual release had occurred would expect at least one detection. No ecological hazard.
1,3,5-Trinitro-benzene	0 of 4 (0%)	<0.17 mg/kg	<0.2 mg/kg	4 at <0.2 mg/kg	Not detected. No U.S. EPA Eco-SSL. RLs below LANL ESL for soil invertebrates (earthworm, 10 mg/kg, lowest ESL) and mammalian omnivore (deer mouse, 110 mg/kg)[a]. No ecological hazard.
2-Amino-4,6-dinitrotoluene	0 of 4 (0%)	<0.17 mg/kg	<0.2 mg/kg	4 at <0.2 mg/kg	Not detected. No U.S. EPA Eco-SSL. No LANL ESL. RL below U.E. EPA R4 ESL (14 mg/kg, lowest ESL)[v]. No ecological hazard.
2-Nitrotoluene	0 of 4 (0%)	<0.17 mg/kg	<0.2 mg/kg	4 at <0.2 mg/kg	Not detected. No U.S. EPA Eco-SSL. RLs below LANL ELS for mammalian omnivore (deer mouse, 2 mg/kg, lowest ESL)[a]. No ecological hazard.
2,4-Dinitrotoluene	0 of 4 (0%)	<0.17 mg/kg	<0.2 mg/kg	4 at <0.2 mg/kg	Not detected. No U.S. EPA Eco-SSL. RLs below LANL ELS for plants (6 mg/kg, lowest ESL) and mammalian omnivore (deer mouse, 20 mg/kg)[a]. No ecological hazard.
2,6-Dinitrotoluene	0 of 4 (0%)	<0.17 mg/kg	<0.2 mg/kg	4 at <0.2 mg/kg	Not detected. No U.S. EPA Eco-SSL. RLs below LANL ELS for mammalian omnivore (deer mouse, 4 mg/kg, lowest ESL)[a]. No ecological hazard.
3-Nitrotoluene	0 of 4 (0%)	<0.17 mg/kg	<0.2 mg/kg	4 at <0.2 mg/kg	Not detected. No U.S. EPA Eco-SSL. RLs below LANL ELS for mammalian omnivore (deer mouse, 2 mg/kg, lowest ESL)[a]. No ecological hazard.
4-Amino-2,6-dinitrotoluene	0 of 4 (0%)	<0.17 mg/kg	<0.2 mg/kg	4 at <0.2 mg/kg	Not detected. No U.S. EPA Eco-SSL. RLs below LANL ELS for plants (14 mg/kg, lowest ESL) and mammalian omnivore (deer mouse, 23 mg/kg)[a]. No ecological hazard.
4-Nitrotoluene	0 of 4 (0%)	<0.17 mg/kg	<0.2 mg/kg	4 at <0.2 mg/kg	Not detected. No U.S. EPA Eco-SSL. RLs below LANL ELS for mammalian omnivore (deer mouse, 21 mg/kg, lowest ESL)[a]. No ecological hazard.
Antimony	0 of 4 (0%)	<1 mg/kg	<2 mg/kg	2 at <1; mg/kg 2 at <2 mg/kg	Not detected. RLs above U.S. EPA mammalian insectivore Eco-SSL (0.27 mg/kg), below mammalian carnivore ESL (4.9 mg/kg)[c]. Site 300 background levels currently being re-evaluated. Building 851 area under active investigation. Potential ecological hazard to be determined but unlikely.
Arsenic	4 of 4 (100%)	1.8 mg/kg	4.6 mg/kg	Median: 3.6 mg/kg	Below available U.S. EPA Eco-SSLs (avian 43 mg/kg and mammalian 46 mg/kg)[d]. Site 300 background levels currently being re-evaluated. Building 851 area under active investigation. Potential ecological hazard to be determined but unlikely.
Barium	4 of 4 (100%)	150 mg/kg	280 mg/kg	Median: 155 mg/kg	Below available U.S. EPA Eco-SSLs (soil invertebrate 330 mg/kg and mammalian 2000 mg/kg)[e]. Site 300 background levels currently being re-evaluated. Building 851 area under active investigation. Potential ecological hazard to be determined but unlikely.
Beryllium	1 of 4 (25%)	<0.5 mg/kg	<1 (0.85) mg/kg	2 at <1 mg/kg	Below available U.S. EPA Eco-SSLs (soil invertebrate 40 mg/kg and mammalian 21 mg/kg)[f]. Site 300 background levels currently being re-evaluated. Building 851 area under active investigation. Potential ecological hazard to be determined but unlikely.

Table 4.2-8. New analytes evaluated in subsurface soil samples (>0.5 to 6 ft) collected between January 1, 2013 and December 31, 2017.

Analyte	Frequency of detection (%)	Min Reported	Max Reported (Max Detected)	Reporting Limit Notes or Median	Current status
Building 851 (OU 8) (continued)					
Cadmium	0 of 4 (0%)	<1 mg/kg	<2 mg/kg	2 at <1; 2 at <2 mg/kg	Not detected. RL above U.S. EPA Eco-SSLs for avian and mammalian insectivore (0.77 and 0.36, respectively), but below avian and mammalian herbivore and carnivore (28 to 630 mg/kg)[a]. Previous analysis concluded cadmium in soil the concentration range of the Building 851 subsurface soil RLs does not pose an ecological hazard to the ecological receptors found at Site 300[t,u]. Site 300 background levels currently being re-evaluated. Potential ecological hazard unknown but unlikely.
Chromium	4 of 4 (100%)	15 mg/kg	47 mg/kg	Median: 20 mg/kg	Above U.S. EPA avian and mammalian insectivore Eco-SSL (26 and 34 mg/kg, respectively) for chromium III; below avian herbivore and carnivore Eco-SSL for chromium 111 (78 and 780 mg/kg, respectively) and mammalian insectivore Eco-SSL for chromium VI (130 mg/kg)[g]. Site 300 background levels currently being re-evaluated. Building 851 area under active investigation. Potential ecological hazard to be determined but unlikely.
Cobalt	0 of 4 (0%)	<5 mg/kg	<10 mg/kg	2 at <5; 2 at <10 mg/kg	Not detected. RLs below U.S. EPA plant Eco-SSL (13 mg/kg) and available avian and mammalian Eco-SSLs (120 mg/kg and 230, respectively mg/kg)[h]. Site 300 background levels currently being re-evaluated. Building 851 area under active investigation. Potential ecological hazard to be determined but unlikely.
Copper	4 of 4 (100%)	20 mg/kg	25 mg/kg	Median: 21 mg/kg	Maximum detected below U.S. EPA Eco-SSLs for avian insectivore (28 mg/kg, lowest ESL)[i]. Site 300 background levels currently being re-evaluated. Building 851 area under active investigation. Potential ecological hazard to be determined but unlikely.
HMX	0 of 4 (0%)	<0.17 mg/kg	<0.2 mg/kg	4 at <0.2 mg/kg	Not detected. No U.S. EPA Eco-SSL. RL below LANL ESL for soil invertebrates (earthworm, 16 mg/kg, lowest ESL) and mammalian omnivore (deer mouse, 290 mg/kg)[a]. No ecological hazard.
Lead	1 of 4 (25%)	<10 mg/kg	<20 (13) mg/kg	1 at <10; 2 at <20 mg/kg	Maximum detected above U.S. EPA Eco-SSL for avian insectivore Eco-SSL (robin, 11 mg/kg, lowest ESL); below mammalian omnivore Eco-SSL (deer mouse, 14 mg/kg)[k]. Site 300 background levels currently being re-evaluated. Building 851 area under active investigation. Potential ecological hazard to be determined.
Mercury	1 of 4 (25%)	<0.2 mg/kg	0.39 mg/kg	3 at <0.2 mg/kg	No U.S. EPA Eco-SSL Maximum detected above LANL soil ESL for avian insectivore (robin, 0.013 mg/kg, lowest ESL), below mammalian omnivore ESL (deer mouse, 3 mg/kg)[a]. Site 300 background levels currently being re-evaluated. Site 300 background levels currently being re-evaluated. Building 851 area under active investigation. Potential ecological hazard to be determined.
Molybdenum	1 of 4 (25%)	<5 mg/kg	<10 (5.4) mg/kg	1 at <5; 2 at <10 mg/kg	No U.S. EPA Eco-SSL. Maximum detected below available LANL soil ESLs (avian, 16 to 1,100 mg/kg)[a]. Site 300 background levels currently being re-evaluated. Building 851 area under active investigation. Potential ecological hazard to be determined but unlikely.
Nickel	2 of 4 (50%)	15 mg/kg	27 mg/kg	2 at <20 mg/kg	Maximum detected below available U.S. EPA Eco-SSLs (plants 38 mg/kg, soil invertebrates 280 mg/kg, avian 210 mg/kg, mammalian 130 mg/kg)[m]. Site 300 background levels currently being re-evaluated. Building 851 area under active investigation. Potential ecological hazard to be determined but unlikely.
Nitro-benzene	0 of 4 (0%)	<0.17 mg/kg	<0.2 mg/kg	4 at <0.2 mg/kg	Not detected. No U.S. EPA Eco-SSL. RLs below LANL ESL for soil invertebrates (earth worms, 2.2 mg/kg, lowest ESL) and mammalian omnivore (deer mouse, 4.8 mg/kg)[a].
RDX	0 of 4 (0%)	<0.17 mg/kg	<0.2 mg/kg	4 at <0.2 mg/kg	Not detected. No U.S. EPA Eco-SSL. RL below LANL ESL for avian omnivore (robin, 2.3 mg/kg, lowest ESL) and mammalian omnivore (deer mouse, 16 mg/kg)[a]. No ecological hazard.
Selenium	0 of 4 (0%)	<2.5 mg/kg	<5 mg/kg	2 at <2.5, 2 at <5 mg/kg	Not detected. RLs above U.S. EPA Eco-SSLs (0.52 through 4.1 mg/kg)[n]. Site 300 background levels currently being re-evaluated. Building 851 area under active investigation. Potential ecological hazard to be determined.
Silver	0 of 4 (0%)	<2.5 mg/kg	<5 mg/kg	2 at <2.5, 2 at <5 mg/kg	Not detected. RLs at or below available U.S. EPA Eco-SSLs (plants 560 mg/kg, avian 4.2 mg/kg, mammalian 14 mg/kg)[o]. Site 300 background levels currently being re-evaluated. Building 851 area under active investigation. Potential ecological hazard to be determined.
Tetryl	0 of 4 (0%)	<0.17 mg/kg	<0.2 mg/kg	4 at <0.2 mg/kg	Not detected. No U.S. EPA Eco-SSL. RLs below LANL ESL for mammalian omnivore (deer mouse, 1.5 mg/kg, lowest ESL)[a].
Thallium	0 of 4 (0%)	<25 mg/kg	<50 mg/kg	2 at <25, 2 at <50 mg/kg	Not detected. No U.S. EPA Eco-SSL. RLs above LANL ESLs for plants and mammalian omnivore, insectivore and herbivore (0.05, 0.72, 0.42 and 1.2 mg/kg, respectively)[a]. Site 300 background levels currently being re-evaluated. Building 851 area under active investigation. Potential ecological hazard to be determined.

Table 4.2-8. New analytes evaluated in subsurface soil samples (>0.5 to 6 ft) collected between January 1, 2013 and December 31, 2017.

Analyte	Frequency of detection (%)	Min Reported	Max Reported (Max Detected)	Reporting Limit Notes or Median	Current status
Building 851 (OU 8) (continued)					
TNT	0 of 4 (0%)	<0.17 mg/kg	<0.2 mg/kg	4 at <0.2 mg/kg	Not detected. No U.S. EPA Eco-SSL. RL below LANL ESL for 2,4,6-Trinitrotoluene for avian herbivore (robin, 7.5 mg/kg, lowest ESL) and mammalian omnivore (deer mouse, 95 mg/kg)[a]. No ecological hazard.
Vanadium	4 of 4 (100%)	42 mg/kg	67 mg/kg	Median: 49.5 mg/kg	Maximum detected above avian insectivore and avian herbivore U.S. EPA Eco-SSL (7.8 and 13 mg/kg, respectively); below avian carnivore and mammalian Eco-SSLs (140 and 280 mg/kg, respectively)[q]. Site 300 background levels currently being re-evaluated. Building 851 area under active investigation. Potential ecological hazard to be determined.
Zinc	4 of 4 (100%)	47 mg/kg	81 mg/kg	Median: 51 mg/kg	Maximum detected above U.S. EPA Eco-SSL for mammals (79 mg/kg) and avian insectivore (46 mg/kg)[r]. Site 300 background levels currently being re-evaluated. Building 851 area under active investigation. Potential ecological hazard to be determined.

Notes:

[a] LANL (2017). ECORISK Database Release 4.1.
[b] U.S. EPA (2003a). Ecological Soil Screening Levels for Aluminum.
[c] U.S. EPA (2005b). Ecological Soil Screening Levels for Antimony.
[d] U.S. EPA (2005c). Ecological Soil Screening Levels for Arsenic.
[e] U.S. EPA (2005d). Ecological Soil Screening Levels for Barium.
[f] U.S. EPA (2005e). Ecological Soil Screening Levels for Beryllium.
[g] U.S. EPA (2008). Ecological Soil Screening Levels for Chromium.
[h] U.S. EPA (2005f). Ecological Soil Screening Levels for Cobalt.
[l] U.S. EPA (2007a). Ecological Soil Screening Levels for Copper.
[j] U.S. EPA (2003a). Ecological Soil Screening Levels for Iron.
[k] U.S. EPA (2005g). Ecological Soil Screening Levels for Lead.
[l] U.S. EPA (2007e). Ecological Soil Screening Levels for Manganese.
[m] U.S. EPA (2007b). Ecological Soil Screening Levels for Nickel.
[n] U.S. EPA (2007c). Ecological Soil Screening Levels for Selenium.
[o] U.S. EPA (2006). Ecological Soil Screening Levels for Silver.
[p] Carlsen et al. (2012). Baseline Risk Assessment Work Plan for Building 812.
[q] U.S. EPA (2005h). Ecological Soil Screening Levels for Vanadium.
[r] U.S. EPA (2007d). Ecological Soil Screening Levels for Zinc.
[s] U.S. EPA (2005a). Ecological Soil Screening Levels for Cadmium.
[t] 2011 Annual Compliance Monitoring Report (Dibley et al., 2012c).
[u] 2012 Annual Compliance Monitoring Report (Dibley et al., 2013a).
[v] U.S. EPA (2018). Region 4 Ecological Risk Assessment Supplemental Guidance.

Acronyms and Abbreviations:

- = Not applicable
bgs = Below ground surface
CGSA = Central General Services Area
COCs = Contaminants of concern
DIS = Distal
DISS = Distal south
DSB = Distal site boundary
EGSA = Eastern General Services Area
ft = Feet
g = Grams
GWTS = Groundwater treatment system
HSU = Hydrostratigraphic unit
Kcf = Thousands of cubic feet
kg = Kilograms
Kgal = Thousands of gallons
Mcf = Millions of cubic feet
PRX = Proximal
PRXN = Proximal North
PTMW = Plume Tracking Monitor Well
RDX = Research Department Explosive
SRC = Source
SVTS = Soil vapor treatment system
TBOS = Tetra 2-ethylbutylorthosilicate
TKEBS = Tetrakis (2-ethylbutyl) silane
VOC = Volatile organic compound

Table 4.2-9. Maximum concentration of contaminants of concern (identified for any environmental media for that operable unit) detected in Site 300 spring samples collected between January 1, 2013 and December 31, 2017 (current review period) and through December 31, 2012 (previous review period).

	Current Review Period			Previous Review Period		
Spring COC	Frequency of detection (%)	Minimum concentration	Maximum concentration	Maximum concentration	Difference (%)	Current status
Spring 3 (OU 7)						
Nitrate (as NO_3)	1 of 1 (100%)	28 mg/L	28 mg/L	54 mg/L	-48%	Concentration in current review period below previous review period. Above U.S. EPA AWCC ESL (0.4 mg/L).[a] Below Site 300 background.[b] No ecological hazard.
TCE	10 of 10 (100%)	0.8 µg/L	32 µg/L	200 µg/L	-84%	Concentration in current review period below previous review period. Below San Francisco Bay RWQCB ESL (360 µg/L).[c] No ecological hazard.
Well 8 Spring (OU 5)						
HMX	3 of 3 (100%)	1.8 µg/L	2.7 µg/L	2 µg/L	35%	Detected for the first time in the last sample collected in the previous review period (20-Oct-2010) at 2 µg/L. Below LANL deer mouse ESL of 390,000 µg/L.[d] Below U.S. EPA RSL for non-cancer hazard (1,000 µg/L).[e] No ecological hazard.
Perchlorate	3 of 3 (100%)	8.2 µg/L	17 µg/L	25 µg/L	-32%	Concentration above ESL developed for the aquatic life-stage of amphibians for the Building 850 focused RIFS for perchlorate.[f] Potential ecological risk present for special-status amphibian species.
RDX	3 of 3 (100%)	1.7 µg/L	3.1 µg/L	<1 (20-Oct-2010 last sample	210%	Not detected in previous review period. Below LANL deer mouse ESL of 52,000 µg/L.[d] Below U.S. EPA RSL for non-cancer hazard (80 µg/L).[e] No ecological hazard.

Table 4.2-9. Maximum concentration of contaminants of concern (identified for any environmental media for that operable unit) detected in Site 300 spring samples collected between January 1, 2013 and December 31, 2017 (current review period) and through December 31, 2012 (previous review period).

	Current Review Period			Previous Review Period		
Spring COC	Frequency of detection (%)	Minimum concentration	Maximum concentration	Maximum concentration	Difference (%)	Current status
Well 8 Spring (OU 5) (continued)						
Tritium	3 of 3 (100%)	6,230 pCi/L	15,400 pCi/L	770,000 pCi/L	-98%	Concentration in current review period below previous review period. Below SWRI ecological hazard level.[g] No ecological hazard.
Spring 11 (OU 6)						
1,2-DCE (total)	2 of 8 (25%)	0.5 µg/L	0.91 µg/L	0.5 µg/L (10-Feb-1986)	82%	Last sample collected in previous review period (5-Nov-2012) was <1 µg/L. Below LANL and San Francisco Bay RWQCB ESL (590 µg/L).[c, d] No ecological hazard.
trans-1,2-DCE	1 of 8 (12%)	<0.5 µg/L	0.5 µg/L	0.6 µg/L	-17%	Concentration in current review period below previous review period. Below LANL and San Francisco Bay RWQCB ESL (590 µg/L).[c,d] No ecological hazard.
Nitrate (as NO_3)	3 of 4 (75%)	<0.22 mg/L	15 mg/L	21 mg/L	-29%	Concentration in current review period below previous review period. Above U.S. EPA AWQC ESL (0.4 mg/L).[a] Below Site 300 background.[b] No ecological hazard.
TCE	5 of 8 (62%)	<0.5 µg/L	2.6 µg/L	2.2 µg/L	18%	Concentration in current review period does not exceed pervious review period by more than 50%. Below LANL and San Francisco Bay RWQCB ESL (360 µg/L).[c,d] No ecological hazard.

Table 4.2-9. Maximum concentration of contaminants of concern (identified for any environmental media for that operable unit) detected in Site 300 spring samples collected between January 1, 2013 and December 31, 2017 (current review period) and through December 31, 2012 (previous review period).

	Current Review Period			Previous Review Period		
Spring COC	Frequency of detection (%)	Minimum concentration	Maximum concentration	Maximum concentration	Difference (%)	Current status
Spring 14 (OU 4)						
Nitrate (as NO_3)	1 of 1 (100%)	3.2 mg/L	3.2 mg/L	62 mg/L	-95%	Concentration in current review period below previous review period. Above U.S. EPA AWQC ESL (0.4 mg/L).[a] Below Site 300 background.[b] No ecological hazard.

Notes

[a] U.S. EPA (2000), *Ambient Water Quality Criteria Recommendations for rivers and streams in nutrient Ecoregion III*.

[b] Ferry et al. (1999), *Site-Wide Feasibility Study, Appendix A*.

[c] San Francisco Bay RWQCB (2016), Table GW-2, Lowest Fresh Water Aquatic Habitat Goal.

[d] LANL (2017), *ECORISK Database Release 4.1*, Los Alamos National Laboratory, Los Alamos, NM. September 30, 2017.

[e] U.S. EPA (Nov 2018), Tap water RSL for human health.

[f] Verce et al. (2018), *Draft Focused Remedial Investigation/Feasibility Study for Perchlorate at the Building 850 Area*.

[g] Webster-Scholten (1994), *Site-Wide Remedial Investigation Report*.

Acronyms and Abbreviations:

-	=	Not applicable
bgs	=	Below ground surface
CGSA	=	Central General Services Area
COCs	=	Contaminants of concern
DIS	=	Distal
DISS	=	Distal south
DSB	=	Distal site boundary
EGSA	=	Eastern General Services Area
ft	=	Feet
g	=	Grams
GWTS	=	Groundwater treatment system
HSU	=	Hydrostratigraphic unit
Kcf	=	Thousands of cubic feet
kg	=	Kilograms
Kgal	=	Thousands of gallons
Mcf	=	Millions of cubic feet
PRX	=	Proximal
PRXN	=	Proximal North
PTMW	=	Plume Tracking Monitor Well
RDX	=	Research Department Explosive
SRC	=	Source
SVTS	=	Soil vapor treatment system
TBOS	=	Tetra 2-ethylbutylorthosilicate
TKEBS	=	Tetrakis (2-ethylbutyl) silane
VOC	=	Volatile organic compound

Table 4.2-10. Concentrations of tetrachloroethene and trichloroethene in groundwater samples collected between January 1, 2013 and December 31, 2017 (current review period) and between 2003 and 2004 in the vicinity of burrows sampled for volatile organic compounds in burrow air in the Building 834 and Pit 6 Operable Units.

Well	PCE groundwater concentrations (µg/L)					TCE groundwater concentrations (µg/L)				
	Max Between 2003 and 2004	Current Review Period			Max Difference (%)	Max Between 2003 and 2004	Current review period			Max Difference (%)
		Min	Max	Most Recent			Min	Max	Most Recent	
Building 834 OU (OU 2)										
W-834-B2	120	4.1	83	7 (10-Oct-17)	-31%	4,400	280	2,800	720 (10-Oct-17)	-36%
W-834-B3	<10 (1.1)[a]	<0.5	<25 (2.6)[b]	<5 (10-Oct-17)	150% (136%)	370	47	1,200 (1-Sep-15)	230 (10-Oct-17)	224%
W-834-C2	4.1	0.57	4.6	0.57 (24-Jan-17	12%	950	170	620	170 (24-Jan-17	-35%
W-834-C4	0.87	<0.5	<0.5	<0.5 (7-Aug-17)	-43%	130	14	130	63 (7-Aug-17)	0%
W-834-J1	1.4	<0.5	<0.5	<0.5 (10-Oct-17)	-64%	630	6.3	91	70 (10-Oct-17)	-86%
W-834-J2	3.6	<0.5	<0.5	<0.5 (9-Aug-17)	-86%	790	13	200	160 (9-Aug-17)	-75%
Pit 6 OU (OU 3)										
EP6-09	<0.5	<0.5	<0.5	<0.5 (12-Jul-17)	0%	5.9	3	7.2	6 (12-Jul-17)	22%
K6-01	<0.5	<0.5	<0.5	<0.5 (10-Jul-17)	0%	<0.5	<0.5	<0.5	<0.5 (10-Jul-17)	0%
K6-01S	<0.5	<0.5	<0.5	<0.5 (12-Jul-17)	0%	<0.5	<0.5	<0.5	<0.5 (12-Jul-17)	0%
K6-19	<0.5	<0.5	<0.5	<0.5 (12-Jul-17)	0%	4.1	<0.5	5.5	1.7 (12-Jul-17)	34%

Notes:

[a] Value in parentheses the maximum detected PCE concentration in W-834-B3 between January 1, 2003 and December 31, 2004, detected on 9-Dec-04.

[b] Value in parentheses the maximum detected PCE concentration in W-834-B3 during the current review period, detected on 1-Sep-15.

Acronyms and Abbreviations:

- = Not applicable
bgs = Below ground surface
CGSA = Central General Services Area
COCs = Contaminants of concern
DIS = Distal
DISS = Distal south
DSB = Distal site boundary
EGSA = Eastern General Services Area
ft = Feet
g = Grams
GWTS = Groundwater treatment system
HSU = Hydrostratigraphic unit
Kcf = Thousands of cubic feet
kg = Kilograms
Kgal = Thousands of gallons
Mcf = Millions of cubic feet
PRX = Proximal
PRXN = Proximal North
PTMW = Plume Tracking Monitor Well
RDX = Research Department Explosive
SRC = Source
SVTS = Soil vapor treatment system
TBOS = Tetra 2-ethylbutylorthosilicate
TKEBS = Tetrakis (2-ethylbutyl) silane
VOC = Volatile organic compound

Table 4.2-11. Status of potential ecological hazards at Site 300 Operable Units 1 through 8.

Media of concern	Exposure pathway	Receptors	COC	Baseline Risk Assessment[a] HQ/ TQ	Comments	Additional assessments	Current status	Risk/Hazard management measures
General Services Area (OU 1)								
Eastern General Services Area								
Surface soil (Sewage Treatment Lagoon)	Ingestion	Ground squirrel Kit fox Deer	Cadmium	>1	Wildlife surveys found no impact to the Site 300 ground squirrel and deer populations and no evidence of kit fox.	Below mammalian herbivore and carnivore U.S. EPA Eco-SSL.[k] Wildlife surveys identified breeding populations of California tiger salamander. Insufficient amphibian toxicity data.	Small aerial extent limits potential ecological hazard.	No risk/hazard management measures needed.
Subsurface soil (burial debris trenches)	Ingestion Uptake	Plants, soil invertebrates, avian and mammalian species	PCBs	NC	–	Low levels of PCBs detected in a limited number of subsurface soil samples in 2014[n].	Not ecologically significant due to low concentrations, small number of detections (thus limited areal extent) and types of ecological receptors present.	No risk/hazard management measures needed.
Surface Water (GEOCRK)	Aquatic toxicity	Aquatic species	Copper Zinc	>1	–	Subsequent bioassays showed no aquatic toxicity.	No ecological hazard.	No risk/hazard management measures needed.
Building 834 (OU 2)								
Surface soil	Ingestion	Ground squirrel Kit fox Deer	Cadmium	>1	Wildlife surveys found no impact to the Site 300 ground squirrel and deer populations and no evidence of kit fox.	Additional soil sampling conducted in 2003.[b] 95% UCL less than background.	No ecological hazard.	No risk/hazard management measures needed.
Subsurface soil	Inhalation	Ground squirrel Kit fox	TCE PCE	>1	Wildlife surveys found no impact to the Site 300 ground squirrel population and no evidence of kit fox.	Burrow air sampling completed in 2004 resulted in HQ<1.[c] Analysis in 2013 and 2018 five-year ecological reviews indicate TCE and PCE in groundwater not affecting burrow air.	No ecological hazard.[d]	No risk/hazard management measures needed.

Table 4.2-11. Status of potential ecological hazards at Site 300 Operable Units 1 through 8.

Baseline Risk Assessment[a]								
Media of concern	**Exposure pathway**	**Receptors**	**COC**	**HQ/ TQ**	**Comments**	**Additional assessments**	**Current status**	**Risk/Hazard management measures**
Pit 6 Landfill (OU 3)								
Subsurface soil	Inhalation	Ground squirrel Kit fox	TCE PCE Total VOCs	>1	Wildlife surveys found no impact to the Site 300 ground squirrel population and no evidence of kit fox.	Burrow air sampling completed in 2004 resulted in HQ<1.[c] Analysis in 2013 and 2018 five-year ecological reviews indicate VOCs in groundwater not affecting burrow air.	No ecological hazard.[d]	No risk/hazard management measures needed.
High Explosives (HE) Process Area (OU 4)								
Surface soil	Ingestion	Ground squirrel Deer	Cadmium	>1	Wildlife surveys found no impact to the Site 300 ground squirrel and deer populations and no evidence of kit fox.	Additional soil sampling completed in 2011.[e] 95% UCL below background. Below mammalian herbivore and carnivore U.S. EPA Eco-SSL.[k]	No ecological hazard.	No risk/hazard management measures needed.
Spring 5	Aquatic toxicity	Aquatic species	Copper	>1	No surface water currently present.	Most recent samples within range of background.	No ecological hazard.	No risk/hazard management measures needed.
Spring 14	Aquatic toxicity	Aquatic species	Chloride	>1	Identified during the 2008 Five-Year Ecologial Review.[g]	Recent samples at or below background.[h]	No ecological hazard.	No risk/hazard management measures needed.
Spring 14	Aquatic toxicity	Aquatic species	Ortho-phosphate	>1	Identified during the 2008 Five-Year Ecologial Review.[g]	Background developed in 2010; below background.[i]	No ecological hazard.	No risk/hazard management measures needed.
Spring 14	Aquatic toxicity	Aquatic species	Total Phosphorus (as P, PO_4)	>1	Identified during the 2008 Five-Year Ecologial Review.[g]	Background developed in 2010, found to be below background.[i]	No ecological hazard.	No risk/hazard management measures needed.

Table 4.2-11. Status of potential ecological hazards at Site 300 Operable Units 1 through 8.

Baseline Risk Assessment[a]								
Media of concern	**Exposure pathway**	**Receptors**	**COC**	**HQ/ TQ**	**Comments**	**Additional assessments**	**Current status**	**Risk/Hazard management measures**
Building 850/ Pit 7 Complex (OU 5)								
Building 850								
Surface Soil	Ingestion	Ground squirrel Deer	Cadmium	>1	Wildlife surveys found no impact to the Site 300 ground squirrel and deer populations and no evidence of kit fox.	Likely addressed as part of Building 850 Soil Removal Action.[j]	No ecological hazard.	No risk/hazard management measures needed.
Surface Soil	Ingestion	Ground squirrel Deer Kit fox	PCBs, dioxins, and furans	NC	Literature review indicated individual animals at risk due to the potential for bioaccumulation. Wildlife surveys found no impact to Site 300 ground squirrel or deer populations and no evidence of kit fox.	Addressed as part of Building 850 Soil Removal Action.[j]	No ecological hazard.	No risk/hazard management measures needed.
Surface soil	Ingestion	Burrowing owl	Cadmium	NC	Burrowing owl not identified in area at time of baseline.	HQ estimate in 2004 indicated cadmium unlikely to pose a hazard.[c] Likely addressed as part of Building 850 Soil Removal Action.[j]	No ecological hazard.	No risk/hazard management measures needed.
Well 8 Spring	Aquatic Toxicity	Aquatic life-stage of amphibians	Perchlorate	>1	Screening-level risk assessment conducted in the Building 850 Focused RIFS for Perchlorate[m].	2018 Five-year ecological review.	Potential ecological hazard to special-status amphibian species	Monitoring of Well 8 Spring and Spring 24 for presence of special-status amphibian species.

Table 4.2-11. Status of potential ecological hazards at Site 300 Operable Units 1 through 8.

Baseline Risk Assessment[a]								
Media of concern	**Exposure pathway**	**Receptors**	**COC**	**HQ/ TQ**	**Comments**	**Additional assessments**	**Current status**	**Risk/Hazard management measures**
Building 850/ Pit 7 Complex (OU 5)								
Building 850 (continued)								
Surface soil	Ingestion	Burrowing owl	PCBs, dioxins, and furans	NC	Burrowing owl not identified in area at time of baseline.	HQ estimate in 2004 resulted in HQ>1.[c] Addressed as part of Building 850 Soil Removal Action.[j]	No ecological hazard.	No risk/hazard management measures needed.
Sandpile	Absorbed radiation	Ground squirrel Kit Fox Burrowing owl	Thorium-228	>1	Identified during the 2008 Five-Year Ecologial Review.[g]	Addressed as part of Building 850 Soil Removal Action.[j]	No ecological hazard.	No risk/hazard management measures needed.
Surface Soil	Absorbed radiation	Ground squirrel Kit Fox Burrowing owl	Potassium-40	>1	Identified during the 2008 Five-Year Ecologial Review.[g]	Background developed in 2012, found to be below background.[f]	No ecological hazard.	No risk/hazard management measures needed.
Pit 7 Complex								
Subsurface soil (within landfill)	Ingestion	Ground squirrel Kit Fox Burrowing owl	Uranium	>1	Identified during the 2008 Five-Year Ecologial Review.[g]	Evaluated in the 2008 Five-Year Ecological review.[g]	Maximum activity greater than background, presents a potential risk to burrowing vertebrates.	Landfill inspected and maintained to prevent exposure of burrowing animals.
Building 854 (OU 6)								
Surface Soil	Ingestion	Amphibians	PCBs	NC	Literature review indicated individual animals at risk due to the potential for bioaccumulation.	Addressed when PCB-contaminated soils removed from Building 855 former lagoon in 2005.[l]	No ecological hazard.	No risk/hazard management measures needed.

Table 4.2-11. Status of potential ecological hazards at Site 300 Operable Units 1 through 8.

Baseline Risk Assessment[a]								
Media of concern	**Exposure pathway**	**Receptors**	**COC**	**HQ/ TQ**	**Comments**	**Additional assessments**	**Current status**	**Risk/Hazard management measures**
Building 854 continued (OU 6)								
Spring 10	Aquatic toxicity	Aquatic species	Uranium	>1	Identified during the 2008 Five-Year Ecologial Review.[g]	Additional evaluation limited by small data set.	Currently dry. Most recent samples exceed background and ESL but have natural uranium ratios.[h]	Ongoing monitoring.
Spring 10	Ingestion	Amphibians	Uranium	NC	Identified during the 2008 Five-Year Ecologial Review.[g]	Additional evaluation limited by small data set and insufficient toxicity data; spring can serve as non-breeding habitat.	Currently dry. Most recent samples exceed background and ESL but has natural uranium ratios.[h]	Ongoing monitoring.
Spring 11	Aquatic toxicity	Aquatic species	Uranium	>1	Identified during the 2008 Five-Year Ecologial Review.[g]	Additional samples obtained in 2012.	Most recent samples exceed background and ESL but has natural uranium ratios.[h]	Ongoing monitoring.
Spring 11	Ingestion	Amphibians	Uranium	NC	Identified during the 2008 Five-Year Ecologial Review.[g]	Additional samples obtained in 2012, insufficient toxicity data limits additional evaluation; spring can serve as non-breeding habitat.	Most recent samples exceed background and ESL but has natural uranium ratios.[h]	Ongoing monitoring.
Building 832 Canyon (OU 7)								
Spring 3	Aquatic toxicity	Aquatic species	Nitrate plus Nitrite (as N)	>1	Identified during the 2008 Five-Year Ecologial Review.[g]	Additional evaluation in 2010 showed concentrations to be below background.[i]	No ecological hazard.	No risk/hazard management measures needed.
Spring 4	Aquatic toxicity	Aquatic species	Ammonia Nitrogen (as N)	>1	Identified during the 2008 Five-Year Ecologial Review.[g]	Limited data set; background level developed in 2012.[f]	One historical maximum concentration exceeds background.[f]	Ongoing monitoring.

Table 4.2-11. Status of potential ecological hazards at Site 300 Operable Units 1 through 8.

Media of concern	Exposure pathway	Receptors	COC	Baseline Risk Assessment[a] HQ/ TQ	Comments	Additional assessments	Current status	Risk/Hazard management measures
Building 832 Canyon (OU 7) (continued)								
Spring 4	Aquatic toxicity	Aquatic species	Ortho-phosphate	>1	Identified during the 2008 Five-Year Ecologial Review.[g]	Background developed in 2010; found to be below background.[i]	No ecological hazard.	No risk/hazard management measures needed.
Spring 4	Aquatic toxicity	Aquatic species	Total Phosphorus (as P)	>1	Identified during the 2008 Five-Year Ecologial Review.[g]	Limited data set; background developed in 2010.[i]	Single historical result exceeds background.[i]	Ongoing monitoring.
Site Wide (OU 8)								
Building 802								
Surface soil	Ingestion Uptake	Plants, soil invertebrates, avian and mammalian species	PCBs	NC	–	Low levels of PCBs detected in a limited number of surface soil samples collected in 2013.	Not ecologically significant due to low concentrations, small number of detections (thus limited areal extent) and types of ecological receptors present.	No risk/hazard management measures needed.
Building 801/Pit 8 Landfill								
Surface soil	Ingestion Inhalation	Ground squirrels Deer	Cadmium	>1	Wildlife surveys found no impact to the Site 300 ground squirrel and deer populations.	Additional soil sampling completed in 2011.[e] 95% UCL below background. Below mammalian herbivore and carnivore U.S. EPA Eco-SSL.[k]	No ecological hazard.	No risk/hazard management measures needed.
Surface and Subsurface Soil	Ingestion Uptake	Plants, soil invertebrates, avian and mammalian herbivores, omnivores, insectivores and carnivores	Metals and Radio-nuclides	NC	–	Surface and subsurface soil sampling was conducted north of Building 801 in 2016 to re-evaluate Site 300 background levels. This effort is ongoing. Maximum concentration of some analytes exceeded ESLs.	Ecological hazard unknown but likely limited.	To be determined.

Table 4.2-11. Status of potential ecological hazards at Site 300 Operable Units 1 through 8.

Media of concern	Exposure pathway	Receptors	COC	Baseline Risk Assessment[a] HQ/ TQ	Comments	Additional assessments	Current status	Risk/Hazard management measures
Building 851 Firing Table (continued)								
Surface soil	Ingestion	Ground squirrels Deer	Cadmium	>1	Wildlife surveys found no impact to the Site 300 ground squirrel and deer populations.	Additional soil sampling completed in 2012.[f] 95% UCL below background. Below mammalian herbivore and carnivore U.S. EPA Eco-SSL.[k]	No ecological hazard.	No risk/hazard management measures needed.
Surface and Subsurface Soil	Ingestion Uptake	Plants, soil invertebrates, avian and mammalian herbivores, omnivores, insectivores and carnivores	Metals and Radio-nuclides	NC	–	Surface and subsurface soil sampling was conducted in 2016 as part of an ongoing investigation into uranium detected in sampling conducted in the previous review period. This investigation is ongoing. Maximum concentration of some analytes exceeded ESLs.	Ecological hazard to be determined.	To be determined.

Notes:

a Unless otherwise noted, baseline risk assessment includes assessments presented in the Site-Wide Remedial Investigation (Webster-Scholten, 1994), Site-Wide Feasibility Study (Ferry et al., 1999), and the Pit 7 Complex Remedial Investigation/Feasibility Study (Taffet et al., 2005).

b 2003 Annual Compliance Monitoring Report (Dibley et al., 2004a).

c 2004 First Semester Compliance Monitoring Report (Dibley et al., 2004b).

d Volatile organic compounds in burrow air have been deleted from the list of ecological contaminants of concern and are no longer included in the Ecological Risk and Hazard Management Program.

e 2011 Annual Compliance Monitoring Report (Dibley et al., 2012c).

f 2012 Annual Compliance Monitoring Report (Dibley et al., 2013a).

g 2008 Annual Compliance Monitoring Plan (Dibley et al., 2009b).

h 2013 First Semester Compliance Monitoring Report (Dibley et al., 2013b).

i 2010 First Semester Compliance Monitoring Report (Dibley et al., 2010b).

j Remedial Action Completion Report for the Building 850/Pit 7 Complex Operable Unit (Dibley et al., 2010c).

k Ecological Soil Screening Levels for Cadmium (U.S. EPA, 2005).

l Letter report on PCB-contaminated soil removal from the Building 855 lagoon (U.S. DOE, 2005b).

m Verce et al. (2018), Draft Focused Remedial Investigation/Feasibility Study for Perchlorate at the Building 850 Area.

n Villarreat et al. (2017). Fourth Five-Year Review for the General Services Area.

Acronyms and Abbreviations:

- = Not applicable
bgs = Below ground surface
CGSA = Central General Services Area
COCs = Contaminants of concern
DIS = Distal
DISS = Distal south
DSB = Distal site boundary
EGSA = Eastern General Services Area
ft = Feet
g = Grams
GWTS = Groundwater treatment system
HSU = Hydrostratigraphic unit
Kcf = Thousands of cubic feet
kg = Kilograms
Kgal = Thousands of gallons
Mcf = Millions of cubic feet
PRX = Proximal
PRXN = Proximal North
PTMW = Plume Tracking Monitor Well
RDX = Research Department Explosive
SRC = Source
SVTS = Soil vapor treatment system
TBOS = Tetra 2-ethylbutylorthosilicate
TKEBS = Tetrakis (2-ethylbutyl) silane
VOC = Volatile organic compound

Appendices

Appendix A

Appendix A

Results of Influent and Effluent pH Monitoring

Table A-1. Results of influent and effluent pH, July through December 2018.

A-1. Results of influent and effluent pH, July through December 2018.

Sample Location	Sample Date	Effluent pH Result
GSA OU		
CGSA GWTS	**07/31/2018**	**NM**
CGSA GWTS	**08/31/2018**	**NM**
CGSA GWTS	**09/30/2018**	**NM**
CGSA GWTS	**10/23/2018**	**7.5**
CGSA GWTS	**11/30/2018**	**NM**
CGSA GWTS	**12/31/2018**	**NM**
Building 834 OU		
834 GWTS	**07/09/2018**	**8.1**
834 GWTS	**08/06/2018**	**8.0**
834 GWTS	**09/04/2018**	**7.5**
834 GWTS	**10/04/2018**	**8.0**
834 GWTS	**11/01/2018**	**7.5**
834 GWTS	**12/31/2018**	**NM**
HEPA OU		
815-SRC GWTS	**07/09/2018**	**7.0**
815-SRC GWTS	**08/07/2018**	**7.0**
815-SRC GWTS	**09/04/2018**	**7.0**
815-SRC GWTS	**10/01/2018**	**7.0**
815-SRC GWTS	**11/01/2018**	**7.0**
815-SRC GWTS	**12/03/2018**	**7.0**
815-PRX GWTS	**07/12/2018**	**7.5**
815-PRX GWTS	**08/06/2018**	**7.5**
815-PRX GWTS	**09/05/2018**	**7.5**
815-PRX GWTS	**10/11/2018**	**7.5**
815-PRX GWTS	**11/05/2018**	**7.5**
815-PRX GWTS	**12/03/2018**	**7.5**
815-DSB GWTS	**07/11/2018**	**7.5**

A-1. Results of influent and effluent pH, July through December 2018.

Sample Location	Sample Date	Effluent pH Result
815-DSB GWTS	**08/06/2018**	**7.5**
815-DSB GWTS	**09/04/2018**	**7.5**
815-DSB GWTS	**10/31/2018**	**NM**
815-DSB GWTS	**11/27/2018**	**7.5**
815-DSB GWTS	**12/12/2018**	**7.5**
817-SRC GWTS	**07/10/2018**	**7.0**
817-SRC GWTS	**08/31/2018**	**NM**
817-SRC GWTS	**09/30/2018**	**NM**
817-SRC GWTS	**10/31/2018**	**NM**
817-SRC GWTS	**11/07/2018**	**7.0**
817-SRC GWTS	**12/31/2018**	**NM**
817-PRX GWTS	**07/09/2018**	**7.0**
817-PRX GWTS	**08/06/2018**	**7.0**
817-PRX GWTS	**09/04/2018**	**7.0**
817-PRX GWTS	**10/08/2018**	**7.0**
817-PRX GWTS	**11/01/2018**	**7.0**
817-PRX GWTS	**12/04/2018**	**7.0**
829-SRC GWTS	**06/29/2018**	**7.0**
829-SRC GWTS	**08/31/2018**	**NM**
829-SRC GWTS	**09/30/2018**	**NM**
829-SRC GWTS	**10/02/2018**	**7.0**
829-SRC GWTS	**11/30/2018**	**NM**
829-SRC GWTS	**12/31/2018**	**NM**
Building 850/Pit 7 Complex OU		
PIT7-SRC GWTS	**07/09/2018**	**7.0**
PIT7-SRC GWTS	**08/07/2018**	**7.0**
PIT7-SRC GWTS	**09/04/2018**	**7.0**
PIT7-SRC GWTS	**10/29/2018**	**7.0**
PIT7-SRC GWTS	**11/05/2018**	**7.0**
PIT7-SRC GWTS	**12/03/2018**	**7.0**

A-1. Results of influent and effluent pH, July through December 2018.

Sample Location	Sample Date	Effluent pH Result
Building 854 OU		
854-SRC GWTS	**07/09/2018**	**7.0**
854-SRC GWTS	**08/07/2018**	**7.0**
854-SRC GWTS	**09/04/2018**	**7.0**
854-SRC GWTS	**10/02/2018**	**7.0**
854-SRC GWTS	**11/01/2018**	**7.0**
854-SRC GWTS	**12/31/2018**	**NM**
854-PRX GWTS	**07/10/2018**	**7.0**
854-PRX GWTS	**08/07/2018**	**7.0**
854-PRX GWTS	**09/04/2018**	**7.0**
854-PRX GWTS	**10/01/2018**	**7.0**
854-PRX GWTS	**11/14/2018**	**7.0**
854-PRX GWTS	**12/31/2018**	**NM**
854-DIS GWTS	**07/10/2018**	**7.0**
854-DIS GWTS	**08/07/2018**	**7.0**
854-DIS GWTS	**09/04/2018**	**7.0**
854-DIS GWTS	**10/01/2018**	**7.0**
854-DIS GWTS	**11/30/2018**	**NM**
854-DIS GWTS	**12/31/2018**	**NM**
832 Canyon OU		
832-SRC GWTS	**07/31/2018**	**NM**
832-SRC GWTS	**08/31/2018**	**NM**
832-SRC GWTS	**09/30/2018**	**NM**
832-SRC GWTS	**10/31/2018**	**NM**
832-SRC GWTS	**11/30/2018**	**NM**
832-SRC GWTS	**12/31/2018**	**NM**
830-SRC GWTS	**07/09/2018**	**7.6**
830-SRC GWTS	**08/06/2018**	**7.3**
830-SRC GWTS	**09/04/2018**	**7.2**

A-1. Results of influent and effluent pH, July through December 2018.

Sample Location	Sample Date	Effluent pH Result
830-SRC GWTS	**10/08/2018**	**7.5**
830-SRC GWTS	**11/01/2018**	**7.2**
830-SRC GWTS	**12/31/2018**	**NM**
830-DISS GWTS	**07/31/2018**	**NM**
830-DISS GWTS	**08/31/2018**	**NM**
830-DISS GWTS	**09/30/2018**	**NM**
830-DISS GWTS	**10/23/2018**	**7.0**
830-DISS GWTS	**11/01/2018**	**7.5**
830-DISS GWTS	**12/31/2018**	**NM**

Notes:

834 = Building 834.
815 = Building 815.
817 = Building 817.
829 = Building 829.
854 = Building 854.
832 = Building 832.
830 = Building 830.
CGSA = Central General Services Area.
EGSA = Eastern General Services Area.
DISS = Distal south.
DSB = Distal site boundary.
GWTS = Groundwater treatment system.
PRX = Proximal.
PRXN = Proximal North.
SRC = Source.
NA = Not applicable.
NM = Not measured due to facility not operating during this period. NR = Not required.
OU = Operable unit.
pH = A measure of the acidity or alkalinity of an aqueous solution. mg/L = milligrams per liter

Appendix B

Appendix B

Analytical Results for Routine Monitoring During 2018

Table B-1.01. General Services Area Operable Unit volatile organic compounds (VOCs) in groundwater.

Table B-2.01. Building 834 Operable Unit volatile organic compounds (VOCs) in groundwater.

Table B-2.02. Building 834 Operable Unit nitrate and perchlorate in groundwater.

Table B-2.03. Building 834 Operable Unit tetrabutyl orthosilicate/tetrakis (2-ethylbutyl) silane (TBOS/TKEBS) in groundwater.

Table B-2.04. Building 834 Operable Unit diesel range organic compounds in groundwater.

Table B-2.05. Building 834 Operable Unit metals in groundwater.

Table B-2.06. Building 834 Operable Unit general minerals in groundwater.

Table B-2.07. Building 834 Operable Unit total uranium and uranium isotopes in groundwater.

Table B-2.08. Building 834 Operable Unit gross alpha and beta in groundwater.

Table B-2.09. Building 834 Operable Unit tritium in groundwater.

Table B-2.10. Building 834 Operable Unit high explosive compounds in groundwater.

Table B-3.01. Pit 6 Landfill Operable Unit volatile organic compounds (VOCs) in groundwater.

Table B-3.02. Pit 6 Landfill Operable Unit nitrate and perchlorate in groundwater.

Table B-3.03. Pit 6 Landfill Operable Unit tritium in groundwater.

Table B-3.04. Pit 6 Landfill Operable Unit total uranium and uranium isotopes in groundwater.

Table B-3.05. Pit 6 Pit 6 Operable Unit general minerals in groundwater.

Table B-3.06. Pit 6 Landfill Post-closure Monitoring Plan constituents of concern, detection monitoring wells, SLs, MCLs, and analytical results.

Table B-3.07. Pit 6 Landfill detection monitoring physical parameters.

Table B-4.01. High Explosives Process Area Operable Unit volatile organic compounds (VOCs) in ground and surface water.

Table B-4.02. High Explosives Process Area Operable Unit nitrate and perchlorate in ground and surface water.

Table B-4.03. High Explosives Process Area Operable Unit high explosive compounds in ground and surface water.

Table B-4.04. High Explosives Process Area Operable Unit total uranium and uranium isotopes in groundwater.

Table B-4.05. High Explosives Process Area Operable Unit metals and silica in groundwater.

Table B-4.06. High Explosives Process Area Operable Unit gross alpha and beta in groundwater.

Table B-4.07. High Explosives Process Area Operable Unit tritium in groundwater.
Table B-5.01. Building 850 area in Operable Unit 5 volatile organic compounds (VOCs) in groundwater.
Table B-5.02. Building 850 area in Operable Unit 5 nitrate and perchlorate in groundwater.
Table B-5.03. Building 850 area in Operable Unit 5 metals in groundwater.
Table B-5.04. Building 850 area in Operable Unit 5 polychlorinated biphenyl (PCB) compounds in groundwater.
Table B-5.05. Building 850 area in Operable Unit 5 total uranium and uranium isotopes in groundwater.
Table B-5.06. Building 850 area in Operable Unit 5 tritium in ground and surface water.
Table B-5.07. Building 850 area in Operable Unit 5 high explosive compounds in groundwater.
Table B-5.08. Building 850 area in Operable Unit 5 gross alpha and beta in groundwater.
Table B-5.09. Pit 2 Landfill volatile organic compounds (VOCs) in groundwater.
Table B-5.10. Pit 2 Landfill total uranium and uranium isotopes in groundwater.
Table B-5.11. Pit 2 Landfill nitrate and perchlorate in groundwater.
Table B-5.12. Pit 2 Landfill high explosive compounds in groundwater.
Table B-5.13. Pit 2 Landfill tritium in groundwater.
Table B-5.14. Pit 2 Landfill fluoride in groundwater.
Table B-5.15. Pit 2 Landfill metals in groundwater.
Table B-5.16. Pit 7 Complex area in Operable Unit 5 volatile organic compounds (VOCs) in groundwater.
Table B-5.17. Pit 7 Complex area in Operable Unit 5 nitrate, perchlorate, and orthophosphate in groundwater.
Table B-5.18. Pit 7 Complex area in Operable Unit 5 metals and silica in groundwater.
Table B-5.19. Pit 7 Complex area in Operable Unit 5 polychlorinated biphenyl (PCBs) compounds in groundwater.
Table B-5.20. Pit 7 Complex area in Operable Unit 5 fluoride in groundwater.
Table B-5.21. Pit 7 Complex area in Operable Unit 5 total uranium and uranium isotopes in groundwater.
Table B-5.22. Pit 7 Complex area in Operable Unit 5 tritium in groundwater.
Table B-5.23. Pit 7 Complex area in Operable Unit general minerals in groundwater.
Table B-2.24. Pit 7 complex area in Operable Unit 5 high explosives compounds in groundwater.
Table B-6.01. Building 854 Operable Unit volatile organic compounds (VOCs) in ground and surface water.
Table B-6.02. Building 854 Operable Unit nitrate and perchlorate in ground and surface water.
Table B-6.03. Building 854 Operable Unit total uranium and uranium isotopes in groundwater.
Table B.6.04. Building 854 Operable Unit metals in groundwater.

Table B-6.05. Building 854 Operable Unit general minerals in groundwater.
Table B-6.06. Building 854 Operable Unit gross alpha and beta in groundwater.
Table B-6.07. Building 854 Operable Unit tritium in groundwater.
Table B-6.08. Building 854 Operable Unit high explosive compounds in groundwater.
Table B-6.09. Building 854 Operable Unit tetrabutyl orthosilicate/tetrakis (2-ethylbutyl) silane (TBOS/TKEBS) in groundwater.
Table B-7.01. Building 832 Canyon Operable Unit volatile organic compounds (VOCs) in ground and surface water.
Table B-7.02. Building 832 Canyon Operable Unit nitrate and perchlorate in ground and surface water.
Table B-7.03. Building 832 Canyon Operable Unit high explosive compounds in groundwater.
Table B-7.04. Building 832 Canyon Operable Unit general minerals in groundwater.
Table B-7.05. Building 832 Canyon Operable Unit uranium isotopes in groundwater.
Table B-7.06. Building 832 Canyon Operable Unit metals in groundwater.
Table B-7.07. Building 832 Canyon Operable Unit gross alpha and beta in groundwater.
Table B-7.08. Building 832 Canyon Operable Unit tritium in groundwater.
Table B-7.09. Building 832 Canyon Operable Unit tetrabutyl orthosilicate/tetrakis (2-ethylbutyl) silane (TBOS/TKEBS) in groundwater.
Table B-8.01. Building 851 Firing Table total volatile organic compounds (VOCs) in groundwater.
Table B-8.02. Building 851 Firing Table total uranium and uranium isotopes in groundwater.
Table B-8.03. Building 845 Firing Table and Pit 9 Landfill tritium in groundwater.
Table B-8.04. Building 845 Firing Table and Pit 9 Landfill metals in groundwater.
Table B-8.05. Building 845 Firing Table and Pit 9 Landfill volatile organic compounds (VOCs) in groundwater.
Table B-8.06. Building 845 Firing Table and Pit 9 Landfill high explosive compounds in groundwater.
Table B-8.07. Building 845 Firing Table and Pit 9 Landfill nitrate and perchlorate in groundwater.
Table B-8.08. Building 845 Firing Table and Pit 9 Landfill fluoride in groundwater.
Table B-8.09. Building 845 Firing Table and Pit 9 Landfill total uranium and uranium isotopes in groundwater.
Table B-8.10. Building 833 volatile organic compounds (VOCs) in groundwater.
Table B-8.11. Building 833 nitrate and perchlorate in groundwater.
Table B-8.12. Building 833 general minerals in groundwater.
Table B-8.13. Building 801 Firing Table and Pit 8 Landfill tritium in groundwater.
Table B-8.14. Building 801 Firing Table and Pit 8 Landfill metals in groundwater.
Table B-8.15. Building 801 Firing Table and Pit 8 Landfill volatile organic compounds (VOCs) in groundwater.

Table B-8.16. Building 801 Firing Table and Pit 8 Landfill high explosive compounds in groundwater.

Table B-8.17. Building 801 Firing Table and Pit 8 Landfill nitrate and perchlorate in groundwater.

Table B-8.18. Building 801 Firing Table and Pit 8 Landfill fluoride in groundwater.

Table B-8.19. Building 801 Firing Table and Pit 8 Landfill total uranium and uranium isotopes in groundwater.

Table B-1.01. General Services Area Operable Unit volatile organic compounds (VOCs) in ground water.

Location	Date	Type	TCE (µg/L)	PCE (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	Carbon tetrachloride (µg/L)	Chloroform (µg/L)	1,1-DCA (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	1,1,1-TCA (µg/L)	1,1,2-TCA (µg/L)	Freon 11 (µg/L)	Freon 113 (µg/L)	Vinyl chloride (µg/L)
CDF1	1/18/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CDF1	1/18/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CDF1	1/18/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CDF1	1/18/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CDF1	2/22/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CDF1	2/22/18	DUP	R	R	R	R	R	R	R	R	R	R	R	R	R	R
CDF1	3/22/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CDF1	3/22/18	DUP	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
CDF1	3/27/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CDF1	4/18/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CDF1	4/18/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CDF1	5/23/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CDF1	5/23/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CDF1	6/25/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CDF1	6/25/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CDF1	7/24/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CDF1	7/24/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CON1	1/18/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CON1	1/18/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CON1	1/18/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CON1	1/18/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CON1	2/22/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CON1	2/22/18	DUP	R	R	R	R	R	R	R	R	R	R	R	R	R	R
CON1	3/22/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CON1	3/22/18	DUP	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
CON1	3/27/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CON1	4/18/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CON1	4/18/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CON1	5/23/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CON1	5/23/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CON1	6/25/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CON1	6/25/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CON1	7/24/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CON1	7/24/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CON2	1/18/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CON2	1/18/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CON2	2/22/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Table B-1.01. General Services Area Operable Unit volatile organic compounds (VOCs) in ground water.

Location	Date	Type	TCE (µg/L)	PCE (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	Carbon tetrachloride (µg/L)	Chloroform (µg/L)	1,1-DCA (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	1,1,1-TCA (µg/L)	1,1,2-TCA (µg/L)	Freon 11 (µg/L)	Freon 113 (µg/L)	Vinyl chloride (µg/L)
CON2	2/22/18	DUP	R	R	R	R	R	R	R	R	R	R	R	R	R	R
CON2	3/22/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CON2	3/22/18	DUP	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
CON2	3/27/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CON2	4/18/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CON2	4/18/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CON2	5/23/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CON2	5/23/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CON2	6/25/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CON2	6/25/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CON2	7/24/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CON2	7/24/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-26R-06	6/26/18		1.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-35A-01	6/19/18		58	3.4	0.52	<0.5	<0.5	<0.5	<0.5	<0.5	1	<0.5	<0.5	<0.5	<0.5	<0.5
W-35A-01	6/19/18	DUP	58 H	3.4 H	<0.5 H	<0.5 H	<0.5 H	0.75 H	<0.5 H	<0.5 H	1.2 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
W-35A-02	6/18/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-35A-03	6/19/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-35A-04	6/6/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-35A-05	6/19/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-35A-07	6/18/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-35A-08	3/20/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-35A-08	6/18/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-35A-09	6/18/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-35A-10	6/18/18		11	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	5.4	<0.5	<0.5
W-35A-10	6/18/18	DUP	12 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	7.1 H	<0.5 H	<0.5 H
W-35A-11	6/20/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-35A-12	6/20/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-35A-13	6/20/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-35A-14	3/20/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-35A-14	6/18/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-7A	6/25/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-7B	6/25/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-7C	6/21/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-7E	6/7/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-7ES	6/7/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-7ES	6/7/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-7F	6/21/18		0.76	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Table B-1.01. General Services Area Operable Unit volatile organic compounds (VOCs) in ground water.

Location	Date	Type	TCE (µg/L)	PCE (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	Carbon tetrachloride (µg/L)	Chloroform (µg/L)	1,1-DCA (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	1,1,1-TCA (µg/L)	1,1,2-TCA (µg/L)	Freon 11 (µg/L)	Freon 113 (µg/L)	Vinyl chloride (µg/L)
W-7G	6/21/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-7H	6/19/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-7I	3/14/18		320 D	9.8 D	37 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	4.6 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D
W-7I	5/14/18		240 D	10	29	1.2	<0.5	<0.5	0.7	<0.5	2.9	<0.5	<0.5	<0.5	<0.5	<0.5
W-7I	8/7/18		220 DL	8	26	1.3	<0.5	<0.5	0.71	<0.5	2.4	<0.5	<0.5	<0.5	<0.5	<0.5
W-7J	6/19/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-7K	6/21/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-7L	6/25/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-7M	6/21/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-7N	6/21/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-7O	3/14/18		96 D	5.9 D	1.1 D	<1 D	<1 D	<1 D	<1 D	<1 D	2 D	<1 D	<1 D	<1 D	<1 D	<1 D
W-7O	5/14/18		79	4.6	0.97	<0.5	<0.5	<0.5	<0.5	<0.5	1.5	<0.5	<0.5	0.53	<0.5	<0.5
W-7O	8/7/18		59 L	3.2	0.87	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5
W-7P	3/14/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-7Q	6/19/18		66	8.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-7R	3/14/18		6.9	0.84	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-7S	6/21/18		0.91	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-7T	6/21/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-843-01	6/20/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-843-02	6/20/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-872-01	6/20/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-872-02	3/14/18		4.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2.5	<0.5	<0.5
W-872-02	5/14/18		5.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	3.8	<0.5	<0.5
W-872-02	8/7/18		3.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2.6	<0.5	<0.5
W-873-01	6/20/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-873-02	6/20/18		1.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.76	<0.5	<0.5
W-873-03	6/20/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-873-04	6/20/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-873-06	6/20/18		3.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-873-07	3/14/18		1.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	3.4	<0.5	<0.5
W-873-07	5/14/18		1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	3.5	<0.5	<0.5
W-873-07	8/7/18		0.78 L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.8	<0.5	<0.5
W-875-01	6/19/18		1.2	<0.5	2.4	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-875-01	6/19/18	DUP	1.3	<0.5	2.3	1.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-875-02	6/19/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-875-03	6/19/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-875-04	6/20/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Table B-1.01. General Services Area Operable Unit volatile organic compounds (VOCs) in ground water.

Location	Date	Type	TCE (µg/L)	PCE (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	Carbon tetrachloride (µg/L)	Chloroform (µg/L)	1,1-DCA (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	1,1,1-TCA (µg/L)	1,1,2-TCA (µg/L)	Freon 11 (µg/L)	Freon 113 (µg/L)	Vinyl chloride (µg/L)
W-875-05	6/20/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-875-06	6/20/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-875-07	3/14/18		1,300 D	140 D	38 D	<10 D	<10 D	<10 D	<10 D	<10 D	17 D	<10 D	<10 D	<10 D	<10 D	<10 D
W-875-07	5/14/18		820 D	88 DIJ	26 D	<1 D	<1 D	<1 D	1 D	<1 D	7.8 D	<1 D	<1 DIJ	<1 D	<1 D	<1 D
W-875-07	8/7/18		710 DIJL	75 D	25 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	6.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D
W-875-08	3/14/18		30	1.5	4.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-875-08	5/14/18		25	1.4	3.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-875-08	8/7/18		19	0.8	3.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-875-09	3/14/18		38	2.8	4.4	<0.5	<0.5	<0.5	<0.5	<0.5	0.51	<0.5	<0.5	<0.5	<0.5	<0.5
W-875-09	5/14/18		46	3.2	4.3	<0.5	<0.5	<0.5	<0.5	<0.5	0.61	<0.5	<0.5	<0.5	<0.5	<0.5
W-875-09	8/7/18		56 L	3.9	4.8	<0.5	<0.5	<0.5	<0.5	<0.5	0.76	<0.5	<0.5	<0.5	<0.5	<0.5
W-875-10	3/20/18		74	<0.5	7.4	1.5	<0.5	<0.5	<0.5	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5
W-875-10	6/20/18		73	<0.5	7.5	2	<0.5	<0.5	<0.5	<0.5	1.3	<0.5	<0.5	<0.5	<0.5	<0.5
W-875-11	3/14/18		16	0.8	3.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-875-11	5/14/18		17	0.89	3.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-875-11	8/7/18		44 L	3.2	2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-875-15	3/14/18		16	1.2	3.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-875-15	5/14/18		19	1.5 IJ	3.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5 IJ	<0.5	<0.5	<0.5
W-875-15	8/7/18		20 L	2.1	3.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-876-01	6/20/18		2.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-879-01	6/21/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-889-01	6/21/18		11	<0.5	3.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-889-01	6/21/18	DUP	10	<0.5	3.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-CGSA-1736	6/26/18		2.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-CGSA-1737	6/26/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-CGSA-1739	6/21/18		2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-CGSA-2708	1/16/18		6.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-CGSA-2708	4/9/18		5.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-CGSA-2708	7/9/18		5.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Table B-1.01 (Con't). Analyte detected but not reported in main table.

Location	Date	Type	Detection frequency	1,2-Dichloroethene (total) (µg/L)	Chloroethane (µg/L)	Chloromethane (µg/L)	Methylene chloride (µg/L)
CDF1	1/18/18		0 of 46	-	-	-	-
CDF1	1/18/18	DUP	0 of 45	-	-	-	-
CDF1	1/18/18		0 of 18	-	-	-	-
CDF1	1/18/18	DUP	0 of 18	-	-	-	-
CDF1	2/22/18		0 of 18	-	-	-	-
CDF1	2/22/18	DUP	0 of 18	-	-	-	-
CDF1	3/22/18		0 of 18	-	-	-	-
CDF1	3/22/18	DUP	0 of 18	-	-	-	-
CDF1	3/27/18	DUP	0 of 18	-	-	-	-
CDF1	4/18/18		0 of 18	-	-	-	-
CDF1	4/18/18	DUP	0 of 18	-	-	-	-
CDF1	5/23/18		0 of 18	-	-	-	-
CDF1	5/23/18	DUP	0 of 18	-	-	-	-
CDF1	6/25/18		0 of 18	-	-	-	-
CDF1	6/25/18	DUP	0 of 18	-	-	-	-
CDF1	7/24/18		0 of 18	-	-	-	-
CDF1	7/24/18	DUP	0 of 18	-	-	-	-
CON1	1/18/18		0 of 46	-	-	-	-
CON1	1/18/18	DUP	0 of 45	-	-	-	-
CON1	1/18/18		0 of 18	-	-	-	-
CON1	1/18/18	DUP	0 of 18	-	-	-	-
CON1	2/22/18		0 of 18	-	-	-	-
CON1	2/22/18	DUP	0 of 18	-	-	-	-
CON1	3/22/18		0 of 18	-	-	-	-
CON1	3/22/18	DUP	0 of 18	-	-	-	-
CON1	3/27/18	DUP	0 of 18	-	-	-	-
CON1	4/18/18		0 of 18	-	-	-	-
CON1	4/18/18	DUP	0 of 18	-	-	-	-
CON1	5/23/18		0 of 18	-	-	-	-
CON1	5/23/18	DUP	0 of 18	-	-	-	-
CON1	6/25/18		0 of 18	-	-	-	-

Table B-1.01 (Con't). Analyte detected but not reported in main table.

Location	Date	Type	Detection frequency	1,2-Dichloroethene (total) (µg/L)	Chloroethane (µg/L)	Chloromethane (µg/L)	Methylene chloride (µg/L)
CON1	6/25/18	DUP	0 of 18	-	-	-	-
CON1	7/24/18		0 of 18	-	-	-	-
CON1	7/24/18	DUP	0 of 18	-	-	-	-
CON2	1/18/18		0 of 18	-	-	-	-
CON2	1/18/18	DUP	0 of 18	-	-	-	-
CON2	2/22/18		0 of 18	-	-	-	-
CON2	2/22/18	DUP	0 of 18	-	-	-	-
CON2	3/22/18		0 of 18	-	-	-	-
CON2	3/22/18	DUP	0 of 18	-	-	-	-
CDF1	1/18/18	DUP	0 of 45	-	-	-	-
CON2	4/18/18		0 of 18	-	-	-	-
CON2	4/18/18	DUP	0 of 18	-	-	-	-
CON2	5/23/18		0 of 18	-	-	-	-
CON2	5/23/18	DUP	0 of 18	-	-	-	-
CON2	6/25/18		0 of 18	-	-	-	-
CON2	6/25/18	DUP	0 of 18	-	-	-	-
CON2	7/24/18		0 of 18	-	-	-	-
CON2	7/24/18	DUP	0 of 18	-	-	-	-
W-26R-06	6/26/18		0 of 18	-	-	-	-
W-35A-01	6/19/18		0 of 18	-	-	-	-
W-35A-01	6/19/18	DUP	0 of 18	-	-	-	-
W-35A-02	6/18/18		0 of 18	-	-	-	-
W-35A-03	6/19/18		0 of 18	-	-	-	-
W-35A-04	6/6/18		0 of 18	-	-	-	-
W-35A-05	6/19/18		0 of 18	-	-	-	-
W-35A-07	6/18/18		0 of 18	-	-	-	-
W-35A-08	3/20/18		0 of 18	-	-	-	-
W-35A-08	6/18/18		0 of 18	-	-	-	-
W-35A-09	6/18/18		0 of 18	-	-	-	-
W-35A-10	6/18/18		0 of 18	-	-	-	-
W-35A-10	6/18/18	DUP	0 of 18	-	-	-	-

Table B-1.01 (Con't). Analyte detected but not reported in main table.

Location	Date	Type	Detection frequency	1,2-Dichloroethene (total) (µg/L)	Chloroethane (µg/L)	Chloromethane (µg/L)	Methylene chloride (µg/L)
W-35A-11	6/20/18		0 of 18	-	-	-	-
W-35A-12	6/20/18		0 of 18	-	-	-	-
W-35A-13	6/20/18		0 of 18	-	-	-	-
W-35A-14	3/20/18		0 of 18	-	-	-	-
W-35A-14	6/18/18		0 of 18	-	-	-	-
W-7A	6/25/18		0 of 18	-	-	-	-
W-7B	6/25/18		0 of 18	-	-	-	-
W-7C	6/21/18		0 of 18	-	-	-	-
W-7E	6/7/18		0 of 18	-	-	-	-
W-7ES	6/7/18		0 of 18	-	-	-	-
W-7ES	6/7/18	DUP	0 of 18	-	-	-	-
W-7F	6/21/18		0 of 18	-	-	-	-
W-7G	6/21/18		0 of 18	-	-	-	-
W-7H	6/19/18		0 of 18	-	-	-	-
W-7I	3/14/18		1 of 18	39 D	-	-	-
W-7I	5/14/18		1 of 18	30	-	-	-
W-7I	8/7/18		3 of 18	27	0.69	0.51	-
W-7J	6/19/18		0 of 18	-	-	-	-
W-7K	6/21/18		0 of 18	-	-	-	-
W-7L	6/25/18		0 of 18	-	-	-	-
W-7M	6/21/18		0 of 18	-	-	-	-
W-7N	6/21/18		0 of 18	-	-	-	-
W-7O	3/14/18		0 of 18	-	-	-	-
W-7O	5/14/18		1 of 18	-	0.97	-	-
W-7O	8/7/18		1 of 18	-	2.1	-	-
W-7P	3/14/18		0 of 18	-	-	-	-
W-7Q	6/19/18		0 of 18	-	-	-	-
W-7R	3/14/18		0 of 18	-	-	-	-
W-7S	6/21/18		0 of 18	-	-	-	-
W-7T	6/21/18		0 of 18	-	-	-	-
W-843-01	6/20/18		0 of 18	-	-	-	-

Table B-1.01 (Con't). Analyte detected but not reported in main table.

Location	Date	Type	Detection frequency	1,2-Dichloroethene (total) (µg/L)	Chloroethane (µg/L)	Chloromethane (µg/L)	Methylene chloride (µg/L)
W-843-02	6/20/18		0 of 18	-	-	-	-
W-872-01	6/20/18		0 of 18	-	-	-	-
W-872-02	3/14/18		2 of 18	-	5.6	-	5.9
W-872-02	5/14/18		1 of 18	-	0.53	-	-
W-872-02	8/7/18		2 of 18	-	0.9	-	0.98
W-873-01	6/20/18		0 of 18	-	-	-	-
W-873-02	6/20/18		0 of 18	-	-	-	-
W-873-03	6/20/18		0 of 18	-	-	-	-
W-873-04	6/20/18		0 of 18	-	-	-	-
W-873-06	6/20/18		0 of 18	-	-	-	-
W-873-07	3/14/18		1 of 18	-	1.3	-	-
W-873-07	5/14/18		1 of 18	-	-	0.98	-
W-873-07	8/7/18		1 of 18	-	-	6.1	-
W-875-01	6/19/18		1 of 18	3.6	-	-	-
W-875-01	6/19/18	DUP	1 of 18	3.6	-	-	-
W-875-02	6/19/18		0 of 18	-	-	-	-
W-875-03	6/19/18		0 of 18	-	-	-	-
W-875-04	6/20/18		0 of 18	-	-	-	-
W-875-05	6/20/18		0 of 18	-	-	-	-
W-875-06	6/20/18		0 of 18	-	-	-	-
W-875-07	3/14/18		1 of 18	38 D	-	-	-
W-875-07	5/14/18		1 of 18	27 D	-	-	-
W-875-07	8/7/18		1 of 18	26 D	-	-	-
W-875-08	3/14/18		2 of 18	4.2	7.1	-	-
W-875-08	5/14/18		1 of 18	3.8	-	-	-
W-875-08	8/7/18		3 of 18	3.5	1.3	1.2	-
W-875-09	3/14/18		1 of 18	4.5	-	-	-
W-875-09	5/14/18		1 of 18	4.3	-	-	-
W-875-09	8/7/18		1 of 18	4.9	-	-	-
W-875-10	3/20/18		1 of 18	9	-	-	-
W-875-10	6/20/18		1 of 18	9.6	-	-	-

Table B-1.01 (Con't). Analyte detected but not reported in main table.

Location	Date	Type	Detection frequency	1,2-Dichloroethene (total) (µg/L)	Chloroethane (µg/L)	Chloromethane (µg/L)	Methylene chloride (µg/L)
W-875-11	3/14/18		1 of 18	4	-	-	-
W-875-11	5/14/18		1 of 18	3.8	-	-	-
W-875-11	8/7/18		1 of 18	2	-	-	-
W-875-15	3/14/18		1 of 18	3.3	-	-	-
W-875-15	5/14/18		1 of 18	3.8	-	-	-
W-875-15	8/7/18		1 of 18	3.4	-	-	-
W-876-01	6/20/18		0 of 18	-	-	-	-
W-879-01	6/21/18		0 of 18	-	-	-	-
W-889-01	6/21/18		1 of 18	3.2	-	-	-
W-889-01	6/21/18	DUP	1 of 18	3.1	-	-	-
W-CGSA-1736	6/26/18		0 of 18	-	-	-	-
W-CGSA-1737	6/26/18		0 of 18	-	-	-	-
W-CGSA-1739	6/21/18		0 of 18	-	-	-	-
W-CGSA-2708	1/16/18		0 of 18	-	-	-	-
W-CGSA-2708	4/9/18		0 of 18	-	-	-	-
W-CGSA-2708	7/9/18		0 of 18	-	-	-	-

Table B-1.02. General Services Area Operable Unit nitrate and perchlorate in ground water.

Location	Date	Nitrate (as NO3) (mg/L)	Perchlorate (µg/L)
W-7A	3/20/18	<0.5	<4
W-CGSA-2708	1/16/18	18 D	-
W-CGSA-2708	4/9/18	12 D	-
W-CGSA-2708	7/9/18	14 D	-
W-CGSA-2708	10/8/18	13 D	-
W-CGSA-2708	10/8/18 DUP	13 D	-

Table B-2.01. Building 834 Operable Unit volatile organic compounds (VOCs) in ground water.

Location	Date	Type	TCE (µg/L)	PCE (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	Carbon tetrachloride (µg/L)	Chloroform (µg/L)	1,1-DCA (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	1,1,1-TCA (µg/L)	1,1,2-TCA (µg/L)	Freon 11 (µg/L)	Freon 113 (µg/L)	Vinyl chloride (µg/L)
W-834-1709	2/13/18		2,400 D	14	78	<0.5	<0.5	<0.5	<0.5	<0.5	0.54	<0.5	<0.5	<0.5	<0.5	5.2
W-834-1709	8/13/18		2,000 D	9.5 D	91 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D
W-834-1711	2/13/18		2,300 D	1.6	5.8	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-834-1711	8/13/18		2,200 D	<2.5 D	5.8 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D
W-834-1824	2/22/18		12	<0.5	27	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	9.6
W-834-1824	8/16/18		1.2	<0.5	2.3	0.91	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.7
W-834-1825	2/22/18		860 D	2.6	72	<0.5	<0.5	2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-834-1825	8/22/18		1,800 D	5.1	150 D	<25 D	<0.5	1.7	<0.5	<0.5	0.86	<0.5	<0.5	<0.5	<0.5	<0.5
W-834-1833	2/26/18		1,400 D	2.9	22	<0.5	<0.5	1.6	<0.5	<0.5	<0.5	<0.5	0.58	<0.5	<0.5	<0.5
W-834-1833	8/21/18		1,500 D	3.3 D	34 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D
W-834-2001	3/7/18		89	2.8	340 D	<5 D	<0.5	<0.5	<0.5	<0.5	0.72	<0.5	<0.5	<0.5	<0.5	<0.5
W-834-2001	4/9/18		100	2.4	790 D	<10 D	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
W-834-2001	7/11/18		180 D	3.8	220 D	<2.5 D	<0.5	<0.5	<0.5	<0.5	0.54	<0.5	<0.5	<0.5	<0.5	<0.5
W-834-2001	10/10/18		180 D	2.2	240 D	<10 D	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
W-834-2113	3/7/18		2,000 D	4.6	73	<0.5	<0.5	0.53	<0.5	<0.5	0.59	<0.5	0.82	<0.5	<0.5	<0.5
W-834-2113	4/9/18		1,400 D	4.6	63	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.64	<0.5	<0.5	<0.5
W-834-2113	7/11/18		1,200 D	5	47	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.63	<0.5	<0.5	<0.5
W-834-2113	10/10/18		920 D	2.9	40	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	<0.5
W-834-2117	2/22/18		1,400 D	7.8 D	6 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D
W-834-2117	8/20/18		2,600 D	11	8.9	<0.5	<0.5	0.86	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-834-2118	2/20/18		140 D	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-834-2118	2/20/18	DUP	DHR	R	R	R	R	R	R	R	R	R	R	R	R	R
W-834-2118	3/27/18		120 D	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-834-2118	8/20/18		130 D	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-834-2119	2/26/18		12,000 D	14 D	40 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D
W-834-2119	8/20/18		12,000 D	19 D	40 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D
W-834-2119	8/20/18	DUP	14,000 D	16 D	36 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D
W-834-2119	8/20/18	DUP2	12,900 DH	22 H	53 H	1 H	2 H	4.1 H	<0.5 H	<0.5 H	3.7 H	<0.5 H	1.8 H	2.6 H	<0.5 H	<0.5 H
W-834-3301	2/15/18		2,600 D	7 D	28 D	<1.2 D	<1.2 D	1.4 D	<1.2 D	<1.2 D	<1.2 D	<1.2 D	<1.2 D	<1.2 D	<1.2 D	<1.2 D
W-834-3301	8/22/18		2,100 D	7 D	21 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D
W-834-3302	2/26/18		5,700 D	24 D	350 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	3.2 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D
W-834-3302	8/22/18		6,100 D	34 D	170 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D
W-834-A1	2/15/18		170,000 D	750 D	1,000 D	<100 D	<100 D	<100 D	<100 D	<100 D	<100 D	<100 D	<100 D	<100 D	<100 D	<100 D
W-834-A1	8/13/18		210,000 D	950 D	1,100 D	<100 D	<100 D	<100 D	<100 D	<100 D	<100 D	<100 D	<100 D	<100 D	<100 D	<100 D
W-834-A1	8/13/18	DUP	200,000 D	900 D	990 D	15 D	<5 D	23 D	<5 D	<5 D	65 D	<5 D	12 D	9.5 D	<5 D	<5 D
W-834-B2	3/7/18		460 D	2.5	290 D	<5 D	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-834-B2	4/9/18		390 D	2.8	370 D	<5 D	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-834-B2	7/11/18		340 D	2.4	250 D	<5 D	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-834-B2	10/10/18		870 D	7	1,300 D	<25 D	<0.5	<0.5	<0.5	<0.5	2.3	<0.5	<0.5	<0.5	<0.5	<0.5

Table B-2.01. Building 834 Operable Unit volatile organic compounds (VOCs) in ground water.

Location	Date	Type	TCE (µg/L)	PCE (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	Carbon tetrachloride (µg/L)	Chloroform (µg/L)	1,1-DCA (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	1,1,1-TCA (µg/L)	1,1,2-TCA (µg/L)	Freon 11 (µg/L)	Freon 113 (µg/L)	Vinyl chloride (µg/L)
W-834-B2	10/10/18	DUP	690 DO	5.7 DO	1,100 D	<2.5 DO	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 DO	<2.5 DO	<2.5 DO	<2.5 DO	<2.5 DO	<2.5 D
W-834-B3	3/7/18		70	<0.5	800 D	<25 D	<0.5	<0.5	<0.5	<0.5	2.5	<0.5	<0.5	<0.5	<0.5	130 D
W-834-B3	4/9/18		93 D	<0.5	740 D	<12 D	<0.5	<0.5	<0.5	<0.5	3.1	<0.5	<0.5	<0.5	<0.5	17
W-834-B3	7/11/18		390 D	0.8	1,800 D	<25 D	<0.5	<0.5	<0.5	<0.5	6.6	<0.5	<0.5	<0.5	<0.5	420 D
W-834-B3	10/10/18		18	<0.5	230 D	<5 D	<0.5	<0.5	<0.5	<0.5	1.6	<0.5	<0.5	<0.5	<0.5	8.9
W-834-C4	2/13/18		40	<0.5	11	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-834-C4	8/13/18		130 D	<0.5	150 D	<2.5 D	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-834-C4	8/13/18	DUP	113 DH	<0.5 H	129 DH	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	0.51 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
W-834-C5	2/13/18		13,000 D	45 D	8,800 D	<250 D	<5 D	<5 D	<5 D	<5 D	20 D	<5 D	<5 D	<5 D	<5 D	<5 D
W-834-C5	8/13/18		25,000 D	110 D	20,000 D	<250 D	<5 D	<5 D	<5 D	<5 D	54 D	<5 D	<5 D	<5 D	<5 D	8.3 D
W-834-D3	2/14/18		15	<0.5	9.6	1.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	15
W-834-D3	8/15/18		27	1.1	11	1.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	150 D
W-834-D4	3/7/18		770 D	2.1	930 D	<25 D	<0.5	<0.5	<0.5	<0.5	2.4	<0.5	0.62	<0.5	<0.5	190 D
W-834-D4	4/9/18		3,400 D	8.2 D	760 D	<25 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	3 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D
W-834-D4	7/11/18		1,400 D	2.9 D	620 D	<25 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D
W-834-D4	10/10/18		540 D	1.9	290 D	<5 D	<0.5	<0.5	<0.5	<0.5	1.4	<0.5	0.57	<0.5	<0.5	<0.5
W-834-D5	3/7/18		3,300 D	0.6	3,700 D	<50 D	<0.5	<0.5	<0.5	<0.5	5.3	<0.5	0.56	<0.5	<0.5	17
W-834-D5	7/11/18		320 D	0.54	410 D	<2.5 D	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1	<0.5	<0.5	<0.5
W-834-D6	3/7/18		1,900 D	3.1	1,700 D	<50 D	<0.5	0.57	<0.5	<0.5	0.96	<0.5	1.4	<0.5	0.67	0.68
W-834-D6	4/9/18		770 D	1.4	880 D	<25 D	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.3	<0.5	1.3	<0.5
W-834-D6	7/11/18		210 D	<0.5	290 D	<2.5 D	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.56	<0.5	0.59	<0.5
W-834-D6	10/10/18		160 D	<0.5	140 D	<5 D	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.94	<0.5
W-834-D6	10/10/18	DUP	140 DO	<0.5 O	130 D	<0.5 O	<0.5	<0.5	<0.5 O	<0.5	<0.5 O	<0.5 O	<0.5 O	<0.5 O	0.98 O	<0.5
W-834-D7	3/7/18		300 D	2	71	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-834-D7	4/9/18		640 D	8.6	60 D	<25 D	<0.5	<0.5	<0.5	<0.5	0.66	<0.5	<0.5	2.7	<0.5	<0.5
W-834-D7	7/11/18		2,200 D	11	68	<0.5	<0.5	<0.5	<0.5	<0.5	0.68	<0.5	<0.5	1.6	<0.5	<0.5
W-834-D7	10/10/18		6,400 D	37	150 D	<50 D	1.1	0.94	<0.5	<0.5	2	<0.5	<0.5	3.1	<0.5	<0.5
W-834-D7	10/10/18	DUP	6,600 DO	40 DH	170 DH	<25 DH	<25 DH	<25 DH	<25 DH	<25 DH	<25 DH	<25 DH	<25 DH	<25 DH	<25 DH	<25 DH
W-834-D12	3/7/18		120 D	<0.5	59	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-834-D12	4/9/18		87	<0.5	27	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-834-D12	7/11/18		77	<0.5	17	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-834-D12	10/10/18		67	<0.5	17	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-834-D13	3/7/18		8,800 D	57	2,000 D	<50 D	<0.5	1.4	<0.5	<0.5	4.2	<0.5	2.5	<0.5	<0.5	1.9
W-834-D13	4/9/18		7,000 D	74 D	1,700 D	<50 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	3.2 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D
W-834-D13	7/11/18		7,200 D	46 D	1,500 D	<50 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	3.1 D	<2.5 D	2.7 D	<2.5 D	<2.5 D	<2.5 D
W-834-D13	10/10/18		4,900 D	39 D	1,200 D	<50 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D
W-834-D18	2/14/18		97 D	<0.5	160 D	<2.5 D	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-834-D18	8/15/18		100	<0.5	160 D	<2.5 D	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-834-H2	8/15/18		29	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Table B-2.01. Building 834 Operable Unit volatile organic compounds (VOCs) in ground water.

Location	Date	Type	TCE (µg/L)	PCE (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	Carbon tetrachloride (µg/L)	Chloroform (µg/L)	1,1-DCA (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	1,1,1-TCA (µg/L)	1,1,2-TCA (µg/L)	Freon 11 (µg/L)	Freon 113 (µg/L)	Vinyl chloride (µg/L)
W-834-J1	3/7/18		19	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-834-J1	4/9/18		15	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-834-J1	7/11/18		17	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-834-J1	10/10/18		13	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-834-J2	2/21/18		240 D	<0.5	32	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2.3
W-834-J2	8/15/18		45	<0.5	3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-834-M1	2/21/18		<0.5	<0.5	<0.5	<0.5	<0.5	0.69	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-834-M1	2/21/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	0.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-834-M1	8/15/18		<0.5	<0.5	<0.5	<0.5	<0.5	0.63	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-834-S1	3/7/18		470 D	12	46	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-834-S1	4/9/18		1,000 D	23	32	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-834-S1	7/11/18		330 D	8.1	27	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-834-S1	10/10/18		710 D	5.6	43	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-834-S1	10/10/18	DUP	520 DO	4.2 DO	34 D	<2.5 DO	<2.5 D	<2.5 D	<2.5 DO	<2.5 D	<2.5 DO	<2.5 DO	<2.5 DO	<2.5 DO	<2.5 DO	<2.5 D
W-834-S12A	3/7/18		790 D	0.66	1.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.61	<0.5	<0.5	<0.5
W-834-S12A	4/9/18		1,000 D	0.71	1.7	<0.5	<0.5	0.58	<0.5	<0.5	<0.5	<0.5	0.83	<0.5	<0.5	<0.5
W-834-S12A	7/11/18		540 D	<0.5	1.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.77	<0.5	<0.5	<0.5
W-834-S12A	10/10/18		470 D	<0.5	1.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.62	<0.5	<0.5	<0.5
W-834-S12A	10/10/18	DUP	380 DO	<1 DO	<1 D	<1 DO	<1 D	<1 D	<1 DO	<1 D	<1 DO	<1 DO	<1 DO	<1 DO	<1 DO	<1 D
W-834-S13	3/7/18		120 D	0.6	5.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-834-S13	4/9/18		380 D	1.7	11	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-834-S13	7/11/18		36	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-834-S13	10/10/18		55	<0.5	2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-834-S4	2/21/18		14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-834-S4	2/21/18	DUP	R	R	R	R	R	R	R	R	R	R	R	R	R	R
W-834-S4	3/27/18	DUP	14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-834-S4	8/15/18		14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-834-S8	2/21/18		1,300 D	15 D	22 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D
W-834-S8	8/21/18		3,300 D	42	52	<0.5	0.67	2.2	<0.5	<0.5	0.52	<0.5	<0.5	0.85	<0.5	<0.5
W-834-S9	2/21/18		700 D	<10 D	<10 D	<10 D	<10 D	<10 D	<10 D	<10 D	<10 D	<10 D	<10 D	<10 D	<10 D	<10 D
W-834-S9	2/21/18	DUP	720 D	<10 D	<10 D	<10 D	<10 D	<10 D	<10 D	<10 D	<10 D	<10 D	<10 D	<10 D	<10 D	<10 D
W-834-S9	8/20/18		1,900 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D
W-834-S9	8/20/18	DUP	2,610 DH	5.9 H	5.5 H	0.75 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	1.2 H	<0.5 H	<0.5 H	1.3 H	<0.5 H	<0.5 H
W-834-T1	2/22/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-834-T1	6/11/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-834-T1	8/16/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-834-T1	12/10/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-834-T1	12/10/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-834-T2	2/27/18		16	<0.5	22	1.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	21

Table B-2.01. Building 834 Operable Unit volatile organic compounds (VOCs) in ground water.

Location	Date	Type	TCE (µg/L)	PCE (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	Carbon tetrachloride (µg/L)	Chloroform (µg/L)	1,1-DCA (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	1,1,1-TCA (µg/L)	1,1,2-TCA (µg/L)	Freon 11 (µg/L)	Freon 113 (µg/L)	Vinyl chloride (µg/L)
W-834-T2	8/16/18		88	<0.5	61	2.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	39
W-834-T2A	2/27/18		2,800 D	4.8	17	<0.5	<0.5	1.3	<0.5	<0.5	0.56	<0.5	0.64	<0.5	<0.5	<0.5
W-834-T2A	8/16/18		2,800 D	7.2	10	<0.5	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	0.71	<0.5	<0.5	<0.5
W-834-T2B	2/26/18		7,000 DL	5.3	4.9	<0.5	<0.5	2.2	<0.5	<0.5	0.55	<0.5	1.6	<0.5	<0.5	<0.5
W-834-T2B	8/21/18		7,000 D	5.7	7.3	<0.5	<0.5	2.4	<0.5	<0.5	0.75	<0.5	1.4	<0.5	<0.5	<0.5
W-834-T2D	3/21/18		4,800 D	18 D	13 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D
W-834-T2D	8/20/18		5,600 D	21 D	15 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D
W-834-T3	2/27/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-834-T3	6/11/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-834-T3	6/11/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-834-T3	8/16/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-834-T3	12/10/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-834-T5	2/27/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-834-T5	8/21/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-834-U1	2/15/18		14,000 D	65 D	740 D	<10 D	<10 D	<10 D	<10 D	<10 D	<10 D	<10 D	<10 D	<10 D	<10 D	<10 D
W-834-U1	8/15/18		40,000 D	230 D	2,700 D	<250 D	<5 D	13 D	<5 D	<5 D	26 D	<5 D	7.5 D	<5 D	<5 D	<5 D

Table B-2.01 (Con't). Analyte detected but not reported in main table.

Location	Date	Type	Detection frequency	1,2-Dichloroethene (total) (µg/L)	Chloroethane (µg/L)	Methylene chloride (µg/L)
W-834-1709	2/13/18		1 of 18	78	-	-
W-834-1709	8/13/18		1 of 18	91 D	-	-
W-834-1711	2/13/18		1 of 18	6.1	-	-
W-834-1711	8/13/18		1 of 18	6.1 D	-	-
W-834-1824	2/22/18		1 of 18	28	-	-
W-834-1824	8/16/18		1 of 18	3.2	-	-
W-834-1825	2/22/18		1 of 18	73	-	-
W-834-1825	8/22/18		1 of 18	150 D	-	-
W-834-1833	2/26/18		1 of 18	22	-	-
W-834-1833	8/21/18		1 of 18	34 D	-	-
W-834-2001	3/7/18		1 of 18	340 D	-	-
W-834-2001	4/9/18		1 of 32	790 D	-	-
W-834-2001	7/11/18		1 of 18	220 D	-	-
W-834-2001	10/10/18		1 of 32	240 D	-	-
W-834-2113	3/7/18		1 of 18	73	-	-
W-834-2113	4/9/18		1 of 18	63	-	-
W-834-2113	7/11/18		1 of 18	47	-	-
W-834-2113	10/10/18		1 of 18	41	-	-
W-834-2117	2/22/18		1 of 18	6 D	-	-
W-834-2117	8/20/18		2 of 18	9	-	6.1
W-834-2118	2/20/18		0 of 18	-	-	-
W-834-2118	2/20/18	DUP	0 of 18	-	-	-
W-834-2118	3/27/18		0 of 18	-	-	-
W-834-2118	8/20/18		0 of 18	-	-	-
W-834-2119	2/26/18		1 of 18	40 D	-	-
W-834-2119	8/20/18		1 of 18	40 D	-	-
W-834-2119	8/20/18	DUP	1 of 18	36 D	-	-
W-834-2119	8/20/18	DUP2	1 of 18	54 H	-	-
W-834-3301	2/15/18		1 of 18	29 D	-	-
W-834-3301	8/22/18		1 of 18	21 D	-	-
W-834-3302	2/26/18		1 of 18	350 D	-	-
W-834-3302	8/22/18		1 of 18	170 D	-	-
W-834-A1	2/15/18		1 of 18	1,000 D	-	-
W-834-A1	8/13/18		1 of 18	1,100 D	-	-
W-834-A1	8/13/18	DUP	1 of 18	1,000 D	-	-
W-834-B2	3/7/18		1 of 18	290 D	-	-
W-834-B2	4/9/18		1 of 18	370 D	-	-
W-834-B2	7/11/18		1 of 18	250 D	-	-
W-834-B2	10/10/18		1 of 18	1,300 D	-	-
W-834-B2	10/10/18	DUP	1 of 18	1,100 DO	-	-
W-834-B3	3/7/18		1 of 18	800 D	-	-
W-834-B3	4/9/18		1 of 18	740 D	-	-
W-834-B3	7/11/18		1 of 18	1,800 D	-	-
W-834-B3	10/10/18		1 of 18	230 D	-	-
W-834-C4	2/13/18		1 of 18	11	-	-
W-834-C4	8/13/18		1 of 18	150 D	-	-
W-834-C4	8/13/18	DUP	1 of 18	129 DHL	-	-

Table B-2.01 (Con't). Analyte detected but not reported in main table.

Location	Date	Type	Detection frequency	1,2-Dichloroethene (total) (µg/L)	Chloroethane (µg/L)	Methylene chloride (µg/L)
W-834-C5	2/13/18		1 of 18	8,800 D	-	-
W-834-C5	8/13/18		1 of 18	20,000 D	-	-
W-834-D3	2/14/18		1 of 18	11	-	-
W-834-D3	8/15/18		1 of 18	12	-	-
W-834-D4	3/7/18		1 of 18	930 D	-	-
W-834-D4	4/9/18		1 of 18	760 D	-	-
W-834-D4	7/11/18		1 of 18	620 D	-	-
W-834-D4	10/10/18		1 of 18	290 D	-	-
W-834-D5	3/7/18		1 of 18	3,700 D	-	-
W-834-D5	7/11/18		1 of 18	410 D	-	-
W-834-D6	3/7/18		1 of 18	1,700 D	-	-
W-834-D6	4/9/18		1 of 18	880 D	-	-
W-834-D6	7/11/18		1 of 18	290 D	-	-
W-834-D6	10/10/18		1 of 18	140 D	-	-
W-834-D6	10/10/18	DUP	1 of 18	130 DO	-	-
W-834-D7	3/7/18		1 of 18	71	-	-
W-834-D7	4/9/18		1 of 18	60 D	-	-
W-834-D7	7/11/18		1 of 18	68	-	-
W-834-D7	10/10/18		1 of 18	150 D	-	-
W-834-D7	10/10/18	DUP	1 of 18	170 DH	-	-
W-834-D12	3/7/18		1 of 18	59	-	-
W-834-D12	4/9/18		1 of 18	27	-	-
W-834-D12	7/11/18		1 of 18	17	-	-
W-834-D12	10/10/18		1 of 18	17	-	-
W-834-D13	3/7/18		1 of 18	2,000 D	-	-
W-834-D13	4/9/18		1 of 18	1,700 D	-	-
W-834-D13	7/11/18		1 of 18	1,500 D	-	-
W-834-D13	10/10/18		1 of 18	1,200 D	-	-
W-834-D18	2/14/18		1 of 18	160 D	-	-
W-834-D18	8/15/18		1 of 18	160 D	-	-
W-834-H2	8/15/18		0 of 18	-	-	-
W-834-J1	3/7/18		0 of 18	-	-	-
W-834-J1	4/9/18		0 of 18	-	-	-
W-834-J1	7/11/18		0 of 18	-	-	-
W-834-J1	10/10/18		0 of 18	-	-	-
W-834-J2	2/21/18		1 of 18	33	-	-
W-834-J2	8/15/18		1 of 18	3	-	-
W-834-M1	2/21/18		0 of 18	-	-	-
W-834-M1	2/21/18	DUP	0 of 18	-	-	-
W-834-M1	8/15/18		0 of 18	-	-	-
W-834-S1	3/7/18		1 of 18	46	-	-
W-834-S1	4/9/18		1 of 18	32	-	-
W-834-S1	7/11/18		1 of 18	27	-	-
W-834-S1	10/10/18		1 of 18	43	-	-
W-834-S1	10/10/18	DUP	1 of 18	34 DO	-	-
W-834-S12A	3/7/18		1 of 18	1.5	-	-
W-834-S12A	4/9/18		1 of 18	1.7	-	-

Table B-2.01 (Con't). Analyte detected but not reported in main table.

Location	Date	Type	Detection frequency	1,2-Dichloroethene (total) (µg/L)	Chloroethane (µg/L)	Methylene chloride (µg/L)
W-834-S12A	7/11/18		1 of 18	1.1	-	-
W-834-S12A	10/10/18		1 of 18	1.1	-	-
W-834-S12A	10/10/18	DUP	0 of 18	-	-	-
W-834-S13	3/7/18		1 of 18	5.4	-	-
W-834-S13	4/9/18		1 of 18	11	-	-
W-834-S13	7/11/18		1 of 18	1.2	-	-
W-834-S13	10/10/18		1 of 18	2	-	-
W-834-S4	2/21/18		0 of 18	-	-	-
W-834-S4	2/21/18	DUP	0 of 18	-	-	-
W-834-S4	3/27/18	DUP	0 of 18	-	-	-
W-834-S4	8/15/18		0 of 18	-	-	-
W-834-S8	2/21/18		1 of 18	22 D	-	-
W-834-S8	8/21/18		1 of 18	53	-	-
W-834-S9	2/21/18		0 of 18	-	-	-
W-834-S9	2/21/18	DUP	0 of 18	-	-	-
W-834-S9	8/20/18		0 of 18	-	-	-
W-834-S9	8/20/18	DUP	1 of 18	6.3 H	-	-
W-834-T1	2/22/18		0 of 18	-	-	-
W-834-T1	6/11/18		0 of 18	-	-	-
W-834-T1	8/16/18		0 of 18	-	-	-
W-834-T1	12/10/18		0 of 18	-	-	-
W-834-T1	12/10/18	DUP	0 of 18	-	-	-
W-834-T2	2/27/18		2 of 18	23	26	-
W-834-T2	8/16/18		2 of 18	64	36	-
W-834-T2A	2/27/18		1 of 18	18	-	-
W-834-T2A	8/16/18		1 of 18	10	-	-
W-834-T2B	2/26/18		1 of 18	5.2	-	-
W-834-T2B	8/21/18		1 of 18	7.7	-	-
W-834-T2D	3/21/18		1 of 18	13 D	-	-
W-834-T2D	8/20/18		1 of 18	15 D	-	-
W-834-T3	2/27/18		0 of 18	-	-	-
W-834-T3	6/11/18		0 of 18	-	-	-
W-834-T3	6/11/18	DUP	0 of 18	-	-	-
W-834-T3	8/16/18		0 of 18	-	-	-
W-834-T3	12/10/18		0 of 18	-	-	-
W-834-T5	2/27/18		0 of 18	-	-	-
W-834-T5	8/21/18		0 of 18	-	-	-
W-834-U1	2/15/18		1 of 18	740 D	-	-
W-834-U1	8/15/18		1 of 18	2,700 D	-	-

Table B-2.02. Building 834 Operable Unit nitrate and perchlorate in ground water.

Location	Date	Nitrate (as NO3) (mg/L)	Perchlorate (µg/L)
W-834-1709	2/13/18	29	-
W-834-1711	2/13/18	81	-
W-834-1824	2/22/18	<5 D	-
W-834-1825	2/22/18	45 D	-
W-834-1833	2/26/18	98 D	-
W-834-2001	3/7/18	5.6	-
W-834-2113	3/7/18	140 D	-
W-834-2117	2/22/18	41	-
W-834-2118	2/20/18	160 D	5.8
W-834-2118	2/20/18 DUP	160 D	5.1
W-834-2118	8/20/18	-	6.1
W-834-2119	2/26/18	97 D	-
W-834-2119	2/26/18 DUP	110 D	-
W-834-3301	2/15/18	15 D	-
W-834-3302	2/26/18	68 D	-
W-834-A1	2/15/18	6.8	-
W-834-B2	3/7/18	48	-
W-834-B3	3/7/18	7.1	-
W-834-C4	2/13/18	49	-
W-834-C5	2/13/18	40	-
W-834-D3	2/14/18	<0.5	-
W-834-D4	3/7/18	<0.5	-
W-834-D5	3/7/18	1.8	-
W-834-D6	3/7/18	20	-
W-834-D7	3/7/18	130 D	-
W-834-D12	3/7/18	77	-
W-834-D13	3/7/18	6.1	-
W-834-D18	2/14/18	65	-
W-834-J1	3/7/18	150 D	-
W-834-J2	2/21/18	330 D	-
W-834-M1	2/21/18	310 D	-
W-834-M1	2/21/18 DUP	310 D	-
W-834-S1	3/7/18	210 D	-
W-834-S12A	3/7/18	130 D	-
W-834-S13	3/7/18	130 D	-
W-834-S4	2/21/18	170 D	-
W-834-S4	2/21/18 DUP	190 D	-
W-834-S8	2/21/18	120 D	-
W-834-S9	2/21/18	78 D	-
W-834-S9	2/21/18 DUP	73 D	-
W-834-T1	2/22/18	<0.5	-
W-834-T1	8/16/18	<0.5	-
W-834-T2	2/27/18	<1 D	-
W-834-T2A	2/27/18	49	-
W-834-T2B	2/26/18	530 D	-
W-834-T2D	3/21/18	110 D	-
W-834-T3	2/27/18	<0.5	-
W-834-T3	8/16/18	<0.5	-
W-834-T5	2/27/18	86	-
W-834-U1	2/15/18	0.52	-

Table B-2.03. Building 834 Operable Unit tetrabutyl orthosilicate/tetrakis (2-ethylbutyl) silane (TBOS/TKEBS) in ground water.

Location	Date	C24H52O4Si (µg/L)
W-834-1709	2/13/18	130 D
W-834-1711	2/13/18	<10
W-834-1824	2/22/18	<10
W-834-1833	2/26/18	<10 D
W-834-2001	3/7/18	<9
W-834-2113	3/7/18	33
W-834-2113	7/11/18	<10
W-834-2119	2/26/18	<10 D
W-834-2119	2/26/18 DUP	<10
W-834-3301	2/15/18	<10 D
W-834-3302	2/26/18	<10 D
W-834-A1	2/15/18	<10
W-834-B2	3/7/18	68
W-834-B2	7/11/18	<10
W-834-B3	3/7/18	33
W-834-B3	7/11/18	<10
W-834-C4	2/13/18	55 D
W-834-C5	2/13/18	110 D
W-834-D3	2/14/18	20
W-834-D4	3/7/18	650 D
W-834-D4	7/11/18	110
W-834-D5	3/7/18	<10
W-834-D6	3/7/18	42
W-834-D6	7/11/18	<10
W-834-D7	3/7/18	28
W-834-D7	7/11/18	<10
W-834-D12	3/7/18	20
W-834-D12	7/11/18	<10
W-834-D13	3/7/18	40
W-834-D13	7/11/18	<10
W-834-D18	2/14/18	17
W-834-J1	3/7/18	36
W-834-J1	7/11/18	<10
W-834-J2	2/21/18	47 DJ
W-834-M1	2/21/18	<10 D
W-834-M1	2/21/18 DUP	<10 D
W-834-S1	3/7/18	<10
W-834-S1	7/11/18	<10
W-834-S12A	3/7/18	<10
W-834-S12A	7/11/18	<10
W-834-S13	3/7/18	24
W-834-S13	7/11/18	<10
W-834-S9	2/21/18	<10
W-834-S9	2/21/18 DUP	<11 D
W-834-T1	2/22/18	<10
W-834-T1	8/16/18	<10
W-834-T2A	2/27/18	<10 D
W-834-T2D	3/21/18	<10
W-834-T3	2/27/18	<10 D
W-834-T3	8/16/18	<10
W-834-T5	2/27/18	<10 D
W-834-U1	2/15/18	<10 D

Table B-2.04. Building 834 Operable Unit diesel range organic compounds in ground water.

Location	Date	Diesel Fuel (µg/L)	Diesel Range Organics (C12-C24) (µg/L)
W-834-2001	3/7/18	470	-
W-834-2001	7/11/18	<200	-
W-834-A1	2/15/18	-	<200
W-834-S9	2/21/18	-	220 D
W-834-S9	2/21/18 DUP	-	<200
W-834-U1	2/15/18	<200	-

Table B-2.05. Building 834 Operable Unit metals in ground water.

Location	Date	Iron (mg/L)	Manganese (mg/L)
W-834-1824	2/22/18	1.5 D	0.46
W-834-1825	2/22/18	<0.1	<0.03
W-834-1833	2/26/18	<0.1	<0.03
W-834-T2	2/27/18	<0.1	0.36

Table B-3.01. Pit 6 Landfill Operable Unit volatile organic compounds (VOCs) in ground water.

Location	Date	Type	TCE (µg/L)	PCE (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	Carbon tetrachloride (µg/L)	Chloroform (µg/L)	1,1-DCA (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	1,1,1-TCA (µg/L)	1,1,2-TCA (µg/L)	Freon 11 (µg/L)	Freon 113 (µg/L)	Vinyl chloride (µg/L)
BC6-10	1/4/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BC6-10	7/16/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW1	1/16/18		<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
CARNRW1	1/16/18	DUP	<0.5	<1	<1 L	<1 L	<1 L	<1 L	<1 L	<1	<1 L	<1 L	<1	<1 L	<1 L	<1 L
CARNRW1	1/16/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW1	1/16/18	DUP	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
CARNRW1	2/21/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW1	2/21/18	DUP	R	R	R	R	R	R	R	R	R	R	R	R	R	R
CARNRW1	3/13/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW1	3/13/18	DUP	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
CARNRW1	3/27/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW1	4/26/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW1	4/26/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW1	5/9/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW1	5/9/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW1	6/13/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW1	6/13/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW1	7/17/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW1	7/17/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW1	8/20/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW1	8/20/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW1	9/6/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW1	9/6/18	DUP	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
CARNRW1	10/16/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW1	10/30/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW1	11/7/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW1	11/7/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW1	12/12/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW1	12/12/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW2	1/16/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW2	1/16/18	DUP	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
CARNRW2	1/16/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW2	1/16/18	DUP	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
CARNRW2	2/21/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW2	2/21/18	DUP	R	R	R	R	R	R	R	R	R	R	R	R	R	R
CARNRW2	3/13/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW2	3/13/18	DUP	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
CARNRW2	3/28/18	DUP	R	R	R	R	R	R	R	R	R	R	R	R	R	R
CARNRW2	4/26/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW2	4/26/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW2	5/9/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW2	5/9/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW2	6/13/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW2	6/13/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW2	7/17/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Table B-3.01. Pit 6 Landfill Operable Unit volatile organic compounds (VOCs) in ground water.

Location	Date	Type	TCE (µg/L)	PCE (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	Carbon tetrachloride (µg/L)	Chloroform (µg/L)	1,1-DCA (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	1,1,1-TCA (µg/L)	1,1,2-TCA (µg/L)	Freon 11 (µg/L)	Freon 113 (µg/L)	Vinyl chloride (µg/L)
CARNRW2	7/17/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW2	8/22/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW2	8/22/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW2	9/6/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW2	9/6/18	DUP	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
CARNRW2	10/16/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW2	10/30/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW2	11/8/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW2	11/8/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW2	12/26/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW2	12/26/18	DUP	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 HO	<0.5 H	<0.5 H
CARNRW3	1/16/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW3	1/16/18	DUP	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
CARNRW3	2/21/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW3	2/21/18	DUP	R	R	R	R	R	R	R	R	R	R	R	R	R	R
CARNRW3	3/13/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW3	3/13/18	DUP	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
CARNRW3	3/28/18	DUP	R	R	R	R	R	R	R	R	R	R	R	R	R	R
CARNRW3	4/26/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW3	4/26/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW3	5/9/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW3	5/9/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW3	6/13/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW3	6/13/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW3	7/17/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW3	7/17/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW3	8/20/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW3	8/20/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW3	9/6/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW3	9/6/18	DUP	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
CARNRW3	10/17/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW3	10/17/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW3	11/8/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW3	11/8/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW3	12/12/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW3	12/12/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW4	1/16/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW4	1/16/18	DUP	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
CARNRW4	2/21/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW4	2/21/18	DUP	R	R	R	R	R	R	R	R	R	R	R	R	R	R
CARNRW4	3/13/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW4	3/13/18	DUP	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
CARNRW4	3/28/18	DUP	R	R	R	R	R	R	R	R	R	R	R	R	R	R
CARNRW4	4/26/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW4	4/26/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Table B-3.01. Pit 6 Landfill Operable Unit volatile organic compounds (VOCs) in ground water.

Location	Date	Type	TCE (µg/L)	PCE (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	Carbon tetrachloride (µg/L)	Chloroform (µg/L)	1,1-DCA (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	1,1,1-TCA (µg/L)	1,1,2-TCA (µg/L)	Freon 11 (µg/L)	Freon 113 (µg/L)	Vinyl chloride (µg/L)
CARNRW4	5/9/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW4	5/9/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW4	6/13/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW4	6/13/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW4	7/17/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW4	7/17/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW4	8/20/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW4	8/20/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW4	9/6/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW4	9/6/18	DUP	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
CARNRW4	10/17/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW4	10/17/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW4	11/8/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW4	11/8/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW4	12/12/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARNRW4	12/12/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
EP6-06	1/11/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
EP6-06	7/31/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
EP6-07	1/3/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
EP6-07	7/16/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
EP6-07	7/16/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
EP6-08	1/3/18		1.4	3.1	<0.5	<0.5	<0.5	0.66	0.53	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
EP6-08	2/12/18		1.1	3.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
EP6-08	4/4/18		2.3	4.8	<0.5	<0.5	<0.5	0.76	0.56	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
EP6-08	7/16/18		2	3.7	<0.5	<0.5	<0.5	<0.5	0.55	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
EP6-09	1/4/18		7.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
EP6-09	1/4/18	DUP	7.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
EP6-09	7/31/18		7.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
EP6-09	7/31/18	DUP	7.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K6-01	1/4/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K6-01	7/12/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K6-01S	1/4/18		<0.5	<0.5	2.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K6-01S	7/31/18		<0.5	<0.5	2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K6-03	1/3/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K6-03	7/11/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K6-04	1/3/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K6-04	7/11/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K6-14	1/4/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K6-14	7/12/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K6-16	1/10/18		0.79	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K6-16	1/10/18	DUP	0.84	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K6-16	7/12/18		0.62	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K6-17	1/11/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K6-17	4/3/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K6-17	8/1/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Table B-3.01. Pit 6 Landfill Operable Unit volatile organic compounds (VOCs) in ground water.

Location	Date	Type	TCE (µg/L)	PCE (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	Carbon tetrachloride (µg/L)	Chloroform (µg/L)	1,1-DCA (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	1,1,1-TCA (µg/L)	1,1,2-TCA (µg/L)	Freon 11 (µg/L)	Freon 113 (µg/L)	Vinyl chloride (µg/L)
K6-17	10/1/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K6-18	1/8/18		0.81	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K6-18	1/8/18	DUP	1.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K6-18	7/17/18		1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K6-19	1/3/18		3.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K6-19	8/1/18		2.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K6-19	8/1/18	DUP	3.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K6-23	1/11/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K6-23	8/1/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K6-24	1/8/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K6-25	1/4/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K6-25	7/12/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K6-26	1/8/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K6-26	7/17/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K6-27	1/8/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K6-27	7/17/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K6-33	1/3/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K6-33	7/11/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K6-34	1/3/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K6-34	4/3/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K6-34	7/11/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K6-34	10/1/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K6-35	1/4/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K6-35	7/16/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K6-35	7/16/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-33C-01	1/10/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-33C-01	7/17/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT6-1819	1/3/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT6-1819	4/3/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT6-1819	7/11/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT6-1819	10/1/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT6-2816	1/4/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT6-2816	1/4/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT6-2816	2/12/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT6-2816	7/16/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT6-2817	1/8/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT6-2817	7/17/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Table B-3.01 (Con't). Analyte detected but not reported in main table.

Location	Date	Type	Detection frequency	1,2-Dichloroethene (total) (µg/L)
BC6-10	1/4/18		0 of 18	-
BC6-10	7/16/18		0 of 18	-
CARNRW1	1/16/18		0 of 32	-
CARNRW1	1/16/18	DUP	0 of 32	-
CARNRW1	1/16/18		0 of 18	-
CARNRW1	1/16/18	DUP	0 of 18	-
CARNRW1	2/21/18		0 of 18	-
CARNRW1	2/21/18	DUP	0 of 18	-
CARNRW1	3/13/18		0 of 18	-
CARNRW1	3/13/18	DUP	0 of 18	-
CARNRW1	3/27/18	DUP	0 of 18	-
CARNRW1	4/26/18		0 of 18	-
CARNRW1	4/26/18	DUP	0 of 18	-
CARNRW1	5/9/18		0 of 18	-
CARNRW1	5/9/18	DUP	0 of 18	-
CARNRW1	6/13/18		0 of 18	-
CARNRW1	6/13/18	DUP	0 of 18	-
CARNRW1	7/17/18		0 of 18	-
CARNRW1	7/17/18	DUP	0 of 18	-
CARNRW1	8/20/18		0 of 18	-
CARNRW1	8/20/18	DUP	0 of 18	-
CARNRW1	9/6/18		0 of 18	-
CARNRW1	9/6/18	DUP	0 of 18	-
CARNRW1	10/16/18		0 of 18	-
CARNRW1	10/30/18		0 of 18	-
CARNRW1	11/7/18		0 of 18	-
CARNRW1	11/7/18	DUP	0 of 18	-
CARNRW1	12/12/18		0 of 18	-
CARNRW1	12/12/18	DUP	0 of 18	-
CARNRW2	1/16/18		0 of 46	-
CARNRW2	1/16/18	DUP	0 of 45	-
CARNRW2	1/16/18		0 of 18	-
CARNRW2	1/16/18	DUP	0 of 18	-
CARNRW2	2/21/18		0 of 18	-
CARNRW2	2/21/18	DUP	0 of 18	-
CARNRW2	3/13/18		0 of 18	-
CARNRW2	3/13/18	DUP	0 of 18	-
CARNRW2	3/28/18	DUP	0 of 18	-
CARNRW2	4/26/18		0 of 18	-
CARNRW2	4/26/18	DUP	0 of 18	-
CARNRW2	5/9/18		0 of 18	-
CARNRW2	5/9/18	DUP	0 of 18	-
CARNRW2	6/13/18		0 of 18	-
CARNRW2	6/13/18	DUP	0 of 18	-
CARNRW2	7/17/18		0 of 18	-
CARNRW2	7/17/18	DUP	0 of 18	-
CARNRW2	8/22/18		0 of 18	-
CARNRW2	8/22/18	DUP	0 of 18	-
CARNRW2	9/6/18		0 of 18	-
CARNRW2	9/6/18	DUP	0 of 18	-
CARNRW2	10/16/18		0 of 18	-
CARNRW2	10/30/18		0 of 18	-
CARNRW2	11/8/18		0 of 18	-
CARNRW2	11/8/18	DUP	0 of 18	-
CARNRW2	12/26/18		0 of 18	-
CARNRW2	12/26/18	DUP	0 of 18	-
CARNRW3	1/16/18		0 of 18	-
CARNRW3	1/16/18	DUP	0 of 18	-
CARNRW3	2/21/18		0 of 18	-
CARNRW3	2/21/18	DUP	0 of 18	-
CARNRW3	3/13/18		0 of 18	-
CARNRW3	3/13/18	DUP	0 of 18	-
CARNRW3	3/28/18	DUP	0 of 18	-
CARNRW3	4/26/18		0 of 18	-
CARNRW3	4/26/18	DUP	0 of 18	-

Table B-3.01 (Con't). Analyte detected but not reported in main table.

Location	Date	Type	Detection frequency	1,2-Dichloroethene (total) (µg/L)
CARNRW3	5/9/18		0 of 18	-
CARNRW3	5/9/18	DUP	0 of 18	-
CARNRW3	6/13/18		0 of 18	-
CARNRW3	6/13/18	DUP	0 of 18	-
CARNRW3	7/17/18		0 of 18	-
CARNRW3	7/17/18	DUP	0 of 18	-
CARNRW3	8/20/18		0 of 18	-
CARNRW3	8/20/18	DUP	0 of 18	-
CARNRW3	9/6/18		0 of 18	-
CARNRW3	9/6/18	DUP	0 of 18	-
CARNRW3	10/17/18		0 of 18	-
CARNRW3	10/17/18	DUP	0 of 18	-
CARNRW3	11/8/18		0 of 18	-
CARNRW3	11/8/18	DUP	0 of 18	-
CARNRW3	12/12/18		0 of 18	-
CARNRW3	12/12/18	DUP	0 of 18	-
CARNRW4	1/16/18		0 of 18	-
CARNRW4	1/16/18	DUP	0 of 18	-
CARNRW4	2/21/18		0 of 18	-
CARNRW4	2/21/18	DUP	0 of 18	-
CARNRW4	3/13/18		0 of 18	-
CARNRW4	3/13/18	DUP	0 of 18	-
CARNRW4	3/28/18	DUP	0 of 18	-
CARNRW4	4/26/18		0 of 18	-
CARNRW4	4/26/18	DUP	0 of 18	-
CARNRW4	5/9/18		0 of 18	-
CARNRW4	5/9/18	DUP	0 of 18	-
CARNRW4	6/13/18		0 of 18	-
CARNRW4	6/13/18	DUP	0 of 18	-
CARNRW4	7/17/18		0 of 18	-
CARNRW4	7/17/18	DUP	0 of 18	-
CARNRW4	8/20/18		0 of 18	-
CARNRW4	8/20/18	DUP	0 of 18	-
CARNRW4	9/6/18		0 of 18	-
CARNRW4	9/6/18	DUP	0 of 18	-
CARNRW4	10/17/18		0 of 18	-
CARNRW4	10/17/18	DUP	0 of 18	-
CARNRW4	11/8/18		0 of 18	-
CARNRW4	11/8/18	DUP	0 of 18	-
CARNRW4	12/12/18		0 of 18	-
CARNRW4	12/12/18	DUP	0 of 18	-
EP6-06	1/11/18		0 of 10	-
EP6-06	1/11/18		0 of 18	-
EP6-06	7/31/18		0 of 18	-
EP6-07	1/3/18		0 of 10	-
EP6-07	1/3/18		0 of 18	-
EP6-07	7/16/18		0 of 18	-
EP6-07	7/16/18	DUP	0 of 18	-
EP6-08	1/3/18		0 of 10	-
EP6-08	1/3/18		0 of 18	-
EP6-08	2/12/18		0 of 18	-
EP6-08	4/4/18		0 of 18	-
EP6-08	7/16/18		0 of 18	-
EP6-09	1/4/18		0 of 10	-
EP6-09	1/4/18	DUP	0 of 10	-
EP6-09	1/4/18		0 of 18	-
EP6-09	1/4/18	DUP	0 of 18	-
EP6-09	7/31/18		0 of 18	-
EP6-09	7/31/18	DUP	0 of 18	-
K6-01	1/4/18		0 of 10	-
K6-01	1/4/18		0 of 18	-
K6-01	7/12/18		0 of 18	-
K6-01S	1/4/18		0 of 10	-
K6-01S	1/4/18		1 of 18	2.1
K6-01S	7/31/18		1 of 18	2

Table B-3.01 (Con't). Analyte detected but not reported in main table.

Location	Date	Type	Detection frequency	1,2-Dichloroethene (total) (µg/L)
K6-03	1/3/18		0 of 18	-
K6-03	7/11/18		0 of 18	-
K6-04	1/3/18		0 of 18	-
K6-04	7/11/18		0 of 18	-
K6-14	1/4/18		0 of 18	-
K6-14	7/12/18		0 of 18	-
K6-16	1/10/18		0 of 18	-
K6-16	1/10/18	DUP	0 of 18	-
K6-16	7/12/18		0 of 18	-
K6-17	1/11/18		0 of 18	-
K6-17	4/3/18		0 of 18	-
K6-17	8/1/18		0 of 18	-
K6-17	10/1/18		0 of 18	-
K6-18	1/8/18		0 of 18	-
K6-18	1/8/18	DUP	0 of 18	-
K6-18	7/17/18		0 of 18	-
K6-19	1/3/18		0 of 10	-
K6-19	1/3/18		0 of 18	-
K6-19	8/1/18		0 of 18	-
K6-19	8/1/18	DUP	0 of 18	-
K6-23	1/11/18		0 of 18	-
K6-23	8/1/18		0 of 18	-
K6-24	1/8/18		0 of 18	-
K6-25	1/4/18		0 of 18	-
K6-25	7/12/18		0 of 18	-
K6-26	1/8/18		0 of 18	-
K6-26	7/17/18		0 of 18	-
K6-27	1/8/18		0 of 18	-
K6-27	7/17/18		0 of 18	-
K6-33	1/3/18		0 of 18	-
K6-33	7/11/18		0 of 18	-
K6-34	1/3/18		0 of 18	-
K6-34	4/3/18		0 of 18	-
K6-34	7/11/18		0 of 18	-
K6-34	10/1/18		0 of 18	-
K6-35	1/4/18		0 of 10	-
K6-35	1/4/18		0 of 18	-
K6-35	7/16/18		0 of 18	-
K6-35	7/16/18	DUP	0 of 18	-
W-33C-01	1/10/18		0 of 18	-
W-33C-01	7/17/18		0 of 18	-
W-PIT6-1819	1/3/18		0 of 18	-
W-PIT6-1819	4/3/18		0 of 18	-
W-PIT6-1819	7/11/18		0 of 18	-
W-PIT6-1819	10/1/18		0 of 18	-
W-PIT6-2816	1/4/18		0 of 18	-
W-PIT6-2816	1/4/18	DUP	0 of 18	-
W-PIT6-2816	2/12/18		0 of 18	-
W-PIT6-2816	7/16/18		0 of 18	-
W-PIT6-2817	1/8/18		0 of 18	-
W-PIT6-2817	7/17/18		0 of 18	-

Table B-3.02. Pit 6 Landfill Operable Unit nitrate and perchlorate in ground water.

Location	Date	Nitrate (as NO3) (mg/L)	Perchlorate (µg/L)
BC6-10	1/4/18	<2.5 D	<4
CARNRW1	1/16/18	<0.5	<4
CARNRW1	1/16/18 DUP	<0.5	<4
CARNRW1	2/21/18	0.82	<4
CARNRW1	2/21/18 DUP	<0.5	<4
CARNRW1	3/13/18	<0.5	<4
CARNRW1	3/13/18 DUP	<0.5	<4
CARNRW1	4/26/18	<0.5	<4
CARNRW1	4/26/18 DUP	<0.5	<4
CARNRW1	5/9/18	<0.5	<4
CARNRW1	5/9/18 DUP	<0.5	<4
CARNRW1	6/13/18	<0.5	<4
CARNRW1	6/13/18 DUP	<0.5	<4
CARNRW1	7/17/18	<0.5	<4
CARNRW1	7/17/18 DUP	<0.5	<4
CARNRW1	8/20/18	<0.5	<4
CARNRW1	8/20/18 DUP	<0.5	<4
CARNRW1	9/6/18	<0.5	<4
CARNRW1	9/6/18 DUP	<0.5	<4
CARNRW1	10/16/18	<0.5	<4
CARNRW1	10/16/18 DUP	<0.5	<4
CARNRW1	11/7/18	<0.5	<4
CARNRW1	11/7/18 DUP	<0.5	<4
CARNRW1	12/12/18	<0.5	<4
CARNRW1	12/12/18 DUP	<0.5	<4
CARNRW2	1/16/18	<0.5	<4
CARNRW2	1/16/18 DUP	<0.5	<4
CARNRW2	2/21/18	<0.5	<4
CARNRW2	2/21/18 DUP	<0.5	<4
CARNRW2	3/13/18	1.3	<4
CARNRW2	3/13/18 DUP	1.3	<4
CARNRW2	4/26/18	0.79	<4
CARNRW2	4/26/18 DUP	0.71	<4
CARNRW2	5/9/18	0.66	<4
CARNRW2	5/9/18 DUP	0.66	<4
CARNRW2	6/13/18	<0.5	<4

Table B-3.02. Pit 6 Landfill Operable Unit nitrate and perchlorate in ground water.

Location	Date	Nitrate (as NO3) (mg/L)	Perchlorate (µg/L)
CARNRW2	6/13/18 DUP	<0.5	<4
CARNRW2	7/17/18	<0.5	<4
CARNRW2	7/17/18 DUP	<0.5	<4
CARNRW2	8/22/18	<0.5	<4
CARNRW2	8/22/18 DUP	<0.5	<4
CARNRW2	9/6/18	<0.5	<4
CARNRW2	9/6/18 DUP	<0.5	<4
CARNRW2	10/16/18	0.87	<4
CARNRW2	10/16/18 DUP	0.89	<4
CARNRW2	11/8/18	<0.5	<4
CARNRW2	11/8/18 DUP	<0.5	<4
CARNRW2	12/26/18	<0.5	<4
CARNRW2	12/26/18 DUP	<0.5	<4
CARNRW3	1/16/18	<0.5	<4
CARNRW3	1/16/18 DUP	<0.5	<4
CARNRW3	2/21/18	<0.5	<4
CARNRW3	2/21/18 DUP	<0.5	<4
CARNRW3	3/13/18	<0.5	<4
CARNRW3	3/13/18 DUP	<0.5	<4
CARNRW3	4/26/18	<0.5	<4
CARNRW3	4/26/18 DUP	<0.5	<4
CARNRW3	5/9/18	0.8	<4
CARNRW3	5/9/18 DUP	<0.5	<4
CARNRW3	6/13/18	<0.5	<4
CARNRW3	6/13/18 DUP	<0.5	<4
CARNRW3	7/17/18	<0.5	<4
CARNRW3	7/17/18 DUP	<0.5	<4
CARNRW3	8/20/18	<0.5	<4
CARNRW3	8/20/18 DUP	<0.5	<4
CARNRW3	9/6/18	<0.5	<4
CARNRW3	9/6/18 DUP	<0.5	<4
CARNRW3	10/17/18	<0.5	<4
CARNRW3	10/17/18 DUP	<0.5	<4
CARNRW3	11/8/18	<0.5	<4
CARNRW3	11/8/18 DUP	<0.5	<4
CARNRW3	12/12/18	<0.5	<4

Table B-3.02. Pit 6 Landfill Operable Unit nitrate and perchlorate in ground water.

Location	Date	Nitrate (as NO3) (mg/L)	Perchlorate (µg/L)
CARNRW3	12/12/18 DUP	0.53	<4
CARNRW4	1/16/18	<0.5	<4
CARNRW4	1/16/18 DUP	<0.5	<4
CARNRW4	2/21/18	<0.5	<4
CARNRW4	2/21/18 DUP	<0.5	<4
CARNRW4	3/13/18	<1 D	<4
CARNRW4	3/13/18 DUP	<0.5	<4
CARNRW4	4/26/18	<0.5	<4
CARNRW4	4/26/18 DUP	<0.5	<4
CARNRW4	5/9/18	<0.5	<4
CARNRW4	5/9/18 DUP	<0.5	<4
CARNRW4	6/13/18	<0.5	<4
CARNRW4	6/13/18 DUP	<0.5	<4
CARNRW4	7/17/18	<0.5	<4
CARNRW4	7/17/18 DUP	<0.5	<4
CARNRW4	8/20/18	<0.5	<4
CARNRW4	8/20/18 DUP	<0.5	<4
CARNRW4	9/6/18	<1 D	<4
CARNRW4	9/6/18 DUP	<0.5	<4
CARNRW4	10/17/18	<0.5	<4
CARNRW4	10/17/18 DUP	<0.5	<4
CARNRW4	11/8/18	<0.5	<4
CARNRW4	11/8/18 DUP	<0.5	<4
CARNRW4	12/12/18	<0.5	<4
CARNRW4	12/12/18 DUP	<0.5	<4
EP6-06	1/11/18	<0.5	<4
EP6-07	1/3/18	<0.5	<4
EP6-08	1/3/18	<0.5	<4
EP6-09	1/4/18	24 D	<4
EP6-09	1/4/18 DUP	24 D	<4
K6-01	1/4/18	<1 D	<4
K6-01S	1/4/18	<2.5 D	<4
K6-03	1/3/18	<0.5	<4
K6-04	1/3/18	11	<4
K6-14	1/4/18	<2.5 D	<4
K6-16	1/10/18	36 D	<20 D

Table B-3.02. Pit 6 Landfill Operable Unit nitrate and perchlorate in ground water.

Location	Date	Nitrate (as NO3) (mg/L)	Perchlorate (µg/L)
K6-16	1/10/18 DUP	37 D	<4
K6-17	1/11/18	<2.5 D	<4
K6-17	8/1/18	<2.5 D	-
K6-17	8/6/18	-	<4
K6-18	1/8/18	190 D	8.7
K6-18	1/8/18 DUP	180 D	11
K6-19	1/3/18	20	6.6
K6-23	1/11/18	170 D	<4
K6-23	8/1/18	160 D	-
K6-24	1/8/18	46 D	<4
K6-25	1/4/18	<2.5 D	<4
K6-26	1/8/18	<0.5	<4
K6-27	1/8/18	<0.5	<4
K6-33	1/3/18	<2.5 D	<4
K6-34	1/3/18	<0.5	<4
K6-34	7/11/18	<0.5	<4
K6-35	1/4/18	<0.5	<4
W-33C-01	1/10/18	3.8 D	<4
W-PIT6-1819	1/3/18	1.4	<4
W-PIT6-1819	7/11/18	2.3	<4
W-PIT6-2816	1/4/18	1.2	<4
W-PIT6-2816	1/4/18 DUP	1.1	<4
W-PIT6-2817	1/8/18	2.2	<4

Table B-3.03. Pit 6 Landfill Operable Unit tritium in ground water.

Location	Date	Tritium (pCi/L)
BC6-10	1/4/18	<100
BC6-10	7/16/18	<100
CARNRW1	1/16/18	<100
CARNRW1	1/16/18 DUP	<100
CARNRW1	2/21/18	<100
CARNRW1	2/21/18 DUP	<100
CARNRW1	3/13/18	<100
CARNRW1	3/13/18 DUP	<100
CARNRW1	4/26/18	<100
CARNRW1	4/26/18 DUP	<100
CARNRW1	5/9/18	<100
CARNRW1	5/9/18 DUP	<100
CARNRW1	6/13/18	<100
CARNRW1	6/13/18 DUP	<100
CARNRW1	7/17/18	<100
CARNRW1	7/17/18 DUP	<100
CARNRW1	8/20/18	<100
CARNRW1	8/20/18 DUP	<100
CARNRW1	9/6/18	<100
CARNRW1	9/6/18 DUP	<100
CARNRW1	10/16/18	<100
CARNRW1	10/16/18 DUP	<100
CARNRW1	11/7/18	<100
CARNRW1	11/7/18 DUP	<100 O
CARNRW1	12/12/18	<121
CARNRW1	12/12/18 DUP	<100
CARNRW2	1/16/18	<100
CARNRW2	1/16/18 DUP	<100
CARNRW2	2/21/18	<100
CARNRW2	2/21/18 DUP	<100
CARNRW2	3/13/18	<100
CARNRW2	3/13/18 DUP	<100
CARNRW2	4/26/18	<100
CARNRW2	4/26/18 DUP	<100
CARNRW2	5/9/18	<100
CARNRW2	5/9/18 DUP	<100

Table B-3.03. Pit 6 Landfill Operable Unit tritium in ground water.

Location	Date	Tritium (pCi/L)
CARNRW2	6/13/18	<100
CARNRW2	6/13/18 DUP	<100
CARNRW2	7/17/18	<100
CARNRW2	7/17/18 DUP	<100
CARNRW2	8/22/18	<100
CARNRW2	8/22/18 DUP	<100
CARNRW2	9/6/18	<100
CARNRW2	9/6/18 DUP	<100
CARNRW2	10/16/18	<100
CARNRW2	10/16/18 DUP	<100
CARNRW2	11/8/18	<100
CARNRW2	11/8/18 DUP	<100
CARNRW2	12/26/18	<121
CARNRW2	12/26/18 DUP	<100
CARNRW3	1/16/18	<100
CARNRW3	1/16/18 DUP	<100
CARNRW3	2/21/18	<100
CARNRW3	2/21/18 DUP	<100
CARNRW3	3/13/18	<100
CARNRW3	3/13/18 DUP	<100
CARNRW3	4/26/18	<100
CARNRW3	4/26/18 DUP	<100
CARNRW3	5/9/18	<100
CARNRW3	5/9/18 DUP	<100
CARNRW3	6/13/18	<100
CARNRW3	6/13/18 DUP	<100
CARNRW3	7/17/18	<100
CARNRW3	7/17/18 DUP	<100
CARNRW3	8/20/18	<100
CARNRW3	8/20/18 DUP	<100
CARNRW3	9/6/18	<100
CARNRW3	9/6/18 DUP	<100
CARNRW3	10/17/18	<100
CARNRW3	10/17/18 DUP	<100
CARNRW3	11/8/18	<100
CARNRW3	11/8/18 DUP	<100

Table B-3.03. Pit 6 Landfill Operable Unit tritium in ground water.

Location	Date	Tritium (pCi/L)
CARNRW3	12/12/18	<123
CARNRW3	12/12/18 DUP	<100
CARNRW4	1/16/18	<100
CARNRW4	1/16/18 DUP	<100
CARNRW4	2/21/18	<100
CARNRW4	2/21/18 DUP	<100
CARNRW4	3/13/18	<100
CARNRW4	3/13/18 DUP	<100
CARNRW4	4/26/18	<100
CARNRW4	4/26/18 DUP	<100
CARNRW4	5/9/18	<100
CARNRW4	5/9/18 DUP	<100
CARNRW4	6/13/18	<100
CARNRW4	6/13/18 DUP	<100
CARNRW4	7/17/18	<100
CARNRW4	7/17/18 DUP	<100
CARNRW4	8/20/18	<100
CARNRW4	8/20/18 DUP	<100
CARNRW4	9/6/18	<100
CARNRW4	9/6/18 DUP	<100
CARNRW4	10/17/18	<100
CARNRW4	10/17/18 DUP	<100
CARNRW4	11/8/18	<100
CARNRW4	11/8/18 DUP	<100
CARNRW4	12/12/18	<121
CARNRW4	12/12/18 DUP	<100
EP6-06	1/11/18	<100
EP6-06	7/31/18	<100
EP6-07	1/3/18	<100
EP6-07	7/16/18	<100
EP6-07	7/16/18 DUP	<100
EP6-08	1/3/18	<100
EP6-08	7/31/18	<100
EP6-09	1/4/18	<100
EP6-09	1/4/18 DUP	<100
EP6-09	7/31/18	<100

Table B-3.03. Pit 6 Landfill Operable Unit tritium in ground water.

Location	Date	Tritium (pCi/L)
EP6-09	7/31/18 DUP	<100
K6-01	1/4/18	<100
K6-01	7/12/18	<100
K6-01S	1/4/18	<100
K6-01S	7/31/18	<100
K6-03	1/3/18	<100
K6-03	7/11/18	<100
K6-04	1/3/18	<100
K6-04	7/11/18	<100
K6-14	1/4/18	<100
K6-14	7/12/18	<100
K6-16	1/10/18	<100
K6-16	1/10/18 DUP	<100
K6-16	7/12/18	<100
K6-17	1/11/18	<100
K6-17	4/3/18	<100
K6-17	8/1/18	<100
K6-17	10/1/18	<100
K6-18	1/8/18	<100
K6-18	1/8/18 DUP	<100
K6-18	7/17/18	<100
K6-19	1/3/18	147 ± 74.8
K6-19	8/1/18	177 ± 71.1
K6-19	8/1/18 DUP	140 ± 65.4
K6-23	1/11/18	<100
K6-23	8/1/18	<100
K6-24	1/8/18	162 ± 84.9
K6-25	1/4/18	<100
K6-25	7/12/18	<100
K6-26	1/8/18	<100
K6-26	7/17/18	<100
K6-27	1/8/18	<100
K6-27	7/17/18	<100
K6-33	1/3/18	<100
K6-33	7/11/18	135 ± 70.3
K6-34	1/3/18	<100

Table B-3.03. Pit 6 Landfill Operable Unit tritium in ground water.

Location	Date	Tritium (pCi/L)
K6-34	4/3/18	<100
K6-34	7/11/18	<100
K6-34	10/1/18	107 ± 73.9
K6-35	1/4/18	<100
K6-35	7/16/18	<100
K6-35	7/16/18 DUP	<100
W-33C-01	1/10/18	<100
W-33C-01	7/17/18	<100
W-PIT6-1819	1/3/18	<100
W-PIT6-1819	4/3/18	<100
W-PIT6-1819	7/11/18	110 ± 70.5
W-PIT6-1819	10/1/18	<100
W-PIT6-2816	1/4/18	<100
W-PIT6-2816	1/4/18 DUP	<100
W-PIT6-2816	7/16/18	<100
W-PIT6-2817	1/8/18	<100
W-PIT6-2817	7/17/18	<100

Table B-3.04. Pit 6 Landfill Operable Unit total uranium and uranium isotopes in ground water.

Location	Date	AS	AS	AS	MS	MS	MS	MS	MS	MS	MS	MS
		Uranium 234 and 233 (in activity) (pCi/L)	Uranium 235 and 236 (in activity) (pCi/L)	Uranium 238 (in activity) (pCi/L)	Total Uranium (in activity) (pCi/L)	Total Uranium (in mass) (µg/L)	Uranium 234 (in activity) (pCi/L)	Uranium 235 (in activity) (pCi/L)	Uranium 236 (in activity) (pCi/L)	Uranium 238 (in activity) (pCi/L)	Uranium 238 (in mass) (µg/L)	Uranium 235/238 (atom/atom)
CARNRW2	1/16/18	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-
CARNRW2	1/16/18 DUP	0.221 ± 0.0940	<0.1	<0.1	-	-	-	-	-	-	-	-
CARNRW2	4/26/18	0.160 ± 0.0767	<0.1	<0.1	-	-	-	-	-	-	-	-
CARNRW2	4/26/18 DUP	0.118 ± 0.0710	<0.1	<0.1	-	-	-	-	-	-	-	-
CARNRW2	7/17/18	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-
CARNRW2	7/17/18 DUP	0.143 ± 0.0730	<0.1	<0.1	-	-	-	-	-	-	-	-
CARNRW2	10/16/18	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-
CARNRW2	10/16/18 DUP	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-
EP6-06	1/11/18	0.352 ± 0.169	<0.1	0.153 ± 0.111	-	-	-	-	-	-	-	-
EP6-07	1/3/18	0.222 ± 0.0848	<0.1	<0.1	-	-	-	-	-	-	-	-
EP6-07	3/15/18	0.288 ± 0.142	<0.1	0.164 ± 0.104	-	-	-	-	-	-	-	-
EP6-07	4/4/18	0.123 ± 0.0667	<0.1	0.144 ± 0.0678	-	-	-	-	-	-	-	-
EP6-07	7/16/18	0.159 ± 0.0746	<0.1	0.196 ± 0.0690	-	-	-	-	-	-	-	-
EP6-07	7/16/18 DUP	0.290 ± 0.110	<0.1	0.152 ± 0.0760	-	-	-	-	-	-	-	-
EP6-08	1/3/18	13.1 ± 1.89	0.620 ± 0.198	10.2 ± 1.50	-	-	-	-	-	-	-	-

Table B-3.04. Pit 6 Landfill Operable Unit total uranium and uranium isotopes in ground water.

Location	Date	AS	AS	AS	MS	MS	MS	MS	MS	MS	MS	MS
		Uranium 234 and 233 (in activity) (pCi/L)	Uranium 235 and 236 (in activity) (pCi/L)	Uranium 238 (in activity) (pCi/L)	Total Uranium (in activity) (pCi/L)	Total Uranium (in mass) (µg/L)	Uranium 234 (in activity) (pCi/L)	Uranium 235 (in activity) (pCi/L)	Uranium 236 (in activity) (pCi/L)	Uranium 238 (in activity) (pCi/L)	Uranium 238 (in mass) (µg/L)	Uranium 235/238 (atom/atom)
EP6-08	3/15/18	10.6 ± 1.92	0.675 ± 0.271	7.92 ± 1.48	-	-	-	-	-	-	-	-
EP6-08	4/4/18	10.2 ± 1.44	0.532 ± 0.172	7.12 ± 1.04	-	-	-	-	-	-	-	-
EP6-08	7/16/18	9.28 ± 1.12	0.481 ± 0.129	7.25 ± 0.892	-	-	-	-	-	-	-	-
EP6-09	1/4/18	1.32 ± 0.256 O	<0.1	1.23 ± 0.244	-	-	-	-	-	-	-	-
EP6-09	1/4/18 DUP	2.15 ± 0.310 O	0.124 ± 0.0608	1.74 ± 0.262	-	-	-	-	-	-	-	-
EP6-09	3/15/18	2.34 ± 0.517	<0.1	1.70 ± 0.410	-	-	-	-	-	-	-	-
EP6-09	4/4/18	2.44 ± 0.393	0.151 ± 0.0822	2.36 ± 0.380	-	-	-	-	-	-	-	-
EP6-09	7/12/18	2.81 ± 0.468	0.174 ± 0.0916	2.66 ± 0.448	-	-	-	-	-	-	-	-
EP6-09	7/12/18 DUP	2.05 ± 0.291	0.120 ± 0.0560	1.99 ± 0.284	-	-	-	-	-	-	-	-
K6-01	1/4/18	0.446 ± 0.133 O	<0.1	0.288 ± 0.105	-	-	-	-	-	-	-	-
K6-01	3/15/18	0.504 ± 0.206	<0.1	0.340 ± 0.162	-	-	-	-	-	-	-	-
K6-01	4/4/18	0.355 ± 0.110	<0.1	0.230 ± 0.0863	-	-	-	-	-	-	-	-
K6-01	4/4/18 DUP	0.303 ± 0.0973	<0.1	0.358 ± 0.103	-	-	-	-	-	-	-	-
K6-01	7/17/18	0.314 ± 0.0915	<0.1	0.265 ± 0.0766	-	-	-	-	-	-	-	-

Table B-3.04. Pit 6 Landfill Operable Unit total uranium and uranium isotopes in ground water.

Location	Date	AS	AS	AS	MS	MS	MS	MS	MS	MS	MS	MS
		Uranium 234 and 233 (in activity) (pCi/L)	Uranium 235 and 236 (in activity) (pCi/L)	Uranium 238 (in activity) (pCi/L)	Total Uranium (in activity) (pCi/L)	Total Uranium (in mass) (µg/L)	Uranium 234 (in activity) (pCi/L)	Uranium 235 (in activity) (pCi/L)	Uranium 236 (in activity) (pCi/L)	Uranium 238 (in activity) (pCi/L)	Uranium 238 (in mass) (µg/L)	Uranium 235/238 (atom/atom)
K6-01S	1/4/18	2.18 ± 0.324 O	0.186 ± 0.0773	1.31 ± 0.223	-	-	-	-	-	-	-	-
K6-19	1/3/18	5.29 ± 0.694	0.349 ± 0.113	4.25 ± 0.574	-	-	-	-	-	-	-	-
K6-19	3/15/18 REX	5.25 ± 1.23	0.441 ± 0.262	3.24 ± 0.840	-	-	-	-	-	-	-	-
K6-19	4/4/18	4.83 ± 0.705	0.158 ± 0.0863	3.26 ± 0.509	-	-	-	-	-	-	-	-
K6-19	8/1/18	4.48 ± 0.596	0.192 ± 0.0879	3.06 ± 0.433	-	-	-	-	-	-	-	-
K6-19	8/1/18 DUP	4.60 ± 0.596	0.151 ± 0.0700	3.04 ± 0.421	-	-	-	-	-	-	-	-
K6-19	10/1/18	-	-	-	7.78 ± 0.160	8.50 ± 0.0210	4.80 ± 0.160	0.130 ± 0.000850	<0.00055	2.90 ± 0.00710	8.50 ± 0.0210	0.00725 ± 0.0000430
K6-35	1/4/18	0.139 ± 0.0617 O	<0.1	<0.1	-	-	-	-	-	-	-	-
K6-35	3/15/18	0.113 ± 0.105	<0.1	<0.1	-	-	-	-	-	-	-	-
K6-35	4/4/18	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-
K6-35	7/16/18	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-
K6-35	7/16/18 DUP	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-

Table B-3.05. Pit 6 Landfill Operable Unit high explosive compounds in ground and surface water.

Location	Date	HMX (µg/L)	RDX (µg/L)
CARNRW1	1/16/18	<0.26	<0.26
CARNRW1	1/16/18 D	<1	<1
CARNRW1	4/26/18	<0.27	<0.27
CARNRW1	4/26/18 D	<1	<1
CARNRW1	7/17/18	<0.26	<0.26
CARNRW1	7/17/18 D	<1	<1
CARNRW1	10/16/18	<1 D	<1 D
CARNRW1	10/16/18	<1	<1
CARNRW2	1/16/18	<0.26	<0.26
CARNRW2	1/16/18 D	<1.2	<1.2
CARNRW2	4/26/18	<0.27	<0.27
CARNRW2	4/26/18 D	<1	<1
CARNRW2	7/17/18	<0.26	<0.26
CARNRW2	7/17/18 D	<1	<1
CARNRW2	10/16/18	<1	<1
CARNRW2	10/16/18	<1	<1

Table B-3.06. Pit 6 Landfill Post-closure Monitoring Plan constituents of concern, detection monitoring wells, SLs, MCLs, and analytical results.

COC	Well	SL	MCL	1/3/18	1/4/18	1/4/18 DUP	1/11/18	2/12/18	3/15/18	3/15/18 REX	4/4/18	7/12/18	7/12/18 DUP	7/16/18	7/16/18 DUP	7/31/18	7/31/18 DUP	8/1/18	8/1/18 DUP	10/1/18
Beryllium (mg/L)	EP6-06	0.0002	0.004	-	-	-	<0.0005	-	-	-	-	-	-	-	-	-	-	-	-	-
	EP6-08	-	0.004	<0.0005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EP6-09	0.0002	0.004	-	<0.0005	<0.0005	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	K6-01S	0.0002	0.004	-	<0.0005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	K6-19	0.0002	0.004	<0.0005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	K6-35	-	0.004	-	<0.0005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury (mg/L)	EP6-06	0.0002	0.002	-	-	-	<0.0002	-	-	-	-	-	-	-	-	-	-	-	-	-
	EP6-08	-	0.002	<0.0002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EP6-09	0.0002	0.002	-	<0.0002	<0.0002	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	K6-01S	0.0002	0.002	-	<0.0002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	K6-19	0.0002	0.002	<0.0002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	K6-35	-	0.002	-	<0.0002 B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tritium (pCi/L)	EP6-06	100	20000	-	-	-	<100	-	-	-	-	-	-	-	-	<100	-	-	-	-
	EP6-08	-	20000	<100	-	-	-	-	-	-	-	-	-	-	-	<100	-	-	-	-
	EP6-09	138	20000	-	<100	<100	-	-	-	-	-	-	-	-	-	<100	<100	-	-	-
	K6-01S	167	20000	-	<100	-	-	-	-	-	-	-	-	-	-	<100	-	-	-	-
	K6-19	317	20000	147 ± 74.8	-	-	-	-	-	-	-	-	-	-	-	-	-	177 ± 71.1	140 ± 65.4	-
	K6-35	157	20000	-	<100	-	-	-	-	-	-	-	-	<100	<100	-	-	-	-	-
Uranium (pCi/L)	K6-19	-	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.5 ± 0.021
Total Uranium (calculated) (pCi/L)	EP6-06	-	-	-	-	-	0.536 ± 0.214	-	-	-	-	-	-	-	-	-	-	-	-	-
	EP6-08	-	-	23.9 ± 2.42	-	-	-	-	19.2 ± 2.44	-	17.9 ± 1.78	-	-	17 ± 1.44	-	-	-	-	-	-
	EP6-09	-	-	-	2.62 ± 0.358 O	4.01 ± 0.41 O	-	-	4.12 ± 0.665	-	4.95 ± 0.553	5.64 ± 0.654	4.16 ± 0.41	-	-	-	-	-	-	-
	K6-01S	-	-	-	3.68 ± 0.401 O	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	K6-19	-	-	9.89 ± 0.908	-	-	-	-	-	8.93 ± 1.51	8.25 ± 0.874	-	-	-	-	-	-	7.73 ± 0.742	7.79 ± 0.733	-

Table B-3.06. Pit 6 Landfill Post-closure Monitoring Plan constituents of concern, detection monitoring wells, SLs, MCLs, and analytical results.

COC	Well	SL	MCL	1/3/18	1/4/18	1/4/18 DUP	1/11/18	2/12/18	3/15/18	3/15/18 REX	4/4/18	7/12/18	7/12/18 DUP	7/16/18	7/16/18 DUP	7/31/18	7/31/18 DUP	8/1/18	8/1/18 DUP	10/1/18
	K6-35	-	-	-	0.273 ± 0.0861 O	-	-	-	0.192 ± 0.143	-	<0.3	-	-	<0.3	<0.3	-	-	-	-	-
Gross alpha (pCi/L)	EP6-06	7.7	15	-	-	-	<2	-	-	-	-	-	-	-	-	-	-	-	-	-
	EP6-08	-	15	23.4 ± 4.82	-	-	-	-	21.4 ± 4.46 O	-	14.6 ± 3.32	-	-	8.42 ± 2.41 O	-	-	-	-	-	-
	EP6-09	4.9	15	-	3.52 ± 2.08	<2	-	-	2.28 ± 2.4 O	-	3.78 ± 2.06	3.06 ± 1.68 O	2.58 ± 1.7 O	-	-	-	-	-	-	-
	K6-01S	26	15	-	3.69 ± 6.31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	K6-19	9.2	15	8.68 ± 3.64	-	-	-	-	-	6.76 ± 2.41 O	9.4 ± 3.34	-	-	-	-	-	-	9.61 ± 3.09	7.98 ± 2.56	-
	K6-35	-	15	-	<2	-	-	-	<2 O	-	<2	-	-	<2 O	<2	-	-	-	-	-
Gross beta (pCi/L)	EP6-06	21.3	50	-	-	-	6.07 ± 1.67	-	-	-	-	-	-	-	-	-	-	-	-	-
	EP6-08	-	50	16.3 ± 3.2	-	-	-	-	11.9 ± 2.53	-	15.8 ± 3.19 O	-	-	16.8 ± 3.32	-	-	-	-	-	-
	EP6-09	21.3	50	-	11.9 ± 2.65	10.7 ± 2.64	-	-	13.8 ± 2.88	-	13.5 ± 2.86 O	9.46 ± 2.07	9.92 ± 2.18	-	-	-	-	-	-	-
	K6-01S	57.7	50	-	20.2 ± 5.32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	K6-19	21.3	50	13 ± 2.97	-	-	-	-	-	13 ± 2.76	13.4 ± 2.81 O	-	-	-	-	-	-	14.8 ± 3.32	14.4 ± 2.89	-
	K6-35	-	50	-	7.17 ± 1.59	-	-	-	9.61 ± 1.93	-	9.63 ± 2.01 O	-	-	7.28 ± 1.68	7.8 ± 1.8	-	-	-	-	-
Benzene (µg/L)	EP6-06	0.5	1	-	-	-	<0.4	-	-	-	-	-	-	-	-	-	-	-	-	-
	EP6-08	-	1	<0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EP6-09	0.5	1	-	<0.4	<0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	K6-01S	0.5	1	-	<0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	K6-19	0.5	1	<0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	K6-35	-	1	-	<0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloroform (µg/L)	EP6-06	0.5	80	-	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5	-	-	-	-
	EP6-08	-	80	0.66	-	-	-	<0.5	-	-	0.76	-	-	<0.5	-	-	-	-	-	-
	EP6-09	0.5	80	-	<0.5	<0.5	-	-	-	-	-	-	-	-	-	<0.5	<0.5	-	-	-
	K6-01S	0.5	80	-	<0.5	-	-	-	-	-	-	-	-	-	-	<0.5	-	-	-	-
	K6-19	1.5	80	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	-

Table B-3.06. Pit 6 Landfill Post-closure Monitoring Plan constituents of concern, detection monitoring wells, SLs, MCLs, and analytical results.

COC	Well	SL	MCL	1/3/18	1/4/18	1/4/18 DUP	1/11/18	2/12/18	3/15/18	3/15/18 REX	4/4/18	7/12/18	7/12/18 DUP	7/16/18	7/16/18 DUP	7/31/18	7/31/18 DUP	8/1/18	8/1/18 DUP	10/1/18
	K6-35	-	80	-	<0.5	-	-	-	-	-	-	-	-	<0.5	<0.5	-	-	-	-	-
1,2-Dichloroethane (µg/L)	EP6-06	0.5	0.5	-	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5	-	-	-	-
	EP6-08	-	0.5	<0.5	-	-	-	<0.5	-	-	<0.5	-	-	<0.5	-	-	-	-	-	-
	EP6-09	0.5	0.5	-	<0.5	<0.5	-	-	-	-	-	-	-	-	-	<0.5	<0.5	-	-	-
	K6-01S	0.5	0.5	-	<0.5	-	-	-	-	-	-	-	-	-	-	<0.5	-	-	-	-
	K6-19	0.5	0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	-
	K6-35	-	0.5	-	<0.5	-	-	-	-	-	-	-	-	<0.5	<0.5	-	-	-	-	-
cis-1,2-Dichloroethene (µg/L)	EP6-06	0.5	6	-	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5	-	-	-	-
	EP6-08	-	6	<0.5	-	-	-	<0.5	-	-	<0.5	-	-	<0.5	-	-	-	-	-	-
	EP6-09	0.5	6	-	<0.5	<0.5	-	-	-	-	-	-	-	-	-	<0.5	<0.5	-	-	-
	K6-01S	7	6	-	2.1	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-
	K6-19	0.5	6	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	-
	K6-35	-	6	-	<0.5	-	-	-	-	-	-	-	-	<0.5	<0.5	-	-	-	-	-
Ethylbenzene (µg/L)	EP6-06	0.5	700	-	-	-	<0.3	-	-	-	-	-	-	-	-	-	-	-	-	-
	EP6-08	-	700	<0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EP6-09	0.5	700	-	<0.3	<0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	K6-01S	0.5	700	-	<0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	K6-19	0.5	700	<0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	K6-35	-	700	-	<0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methylene chloride (µg/L)	EP6-06	1	5	-	-	-	<1	-	-	-	-	-	-	-	-	<1	-	-	-	-
	EP6-08	-	5	<1	-	-	-	<1	-	-	<1	-	-	<1	-	-	-	-	-	-
	EP6-09	1	5	-	<1	<1	-	-	-	-	-	-	-	-	-	<1	<1	-	-	-
	K6-01S	1	5	-	<1	-	-	-	-	-	-	-	-	-	-	<1	-	-	-	-
	K6-19	1	5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	-
	K6-35	-	5	-	<1	-	-	-	-	-	-	-	-	<1	<0.5	-	-	-	-	-
Tetrachloroethene (µg/L)	EP6-06	0.5	5	-	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5	-	-	-	-
	EP6-08	-	5	3.1	-	-	-	3.6	-	-	4.8	-	-	3.7	-	-	-	-	-	-
	EP6-09	0.5	5	-	<0.5	<0.5	-	-	-	-	-	-	-	-	-	<0.5	<0.5	-	-	-
	K6-01S	0.5	5	-	<0.5	-	-	-	-	-	-	-	-	-	-	<0.5	-	-	-	-
	K6-19	0.5	5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	-
	K6-35	-	5	-	<0.5	-	-	-	-	-	-	-	-	<0.5	<0.5	-	-	-	-	-

Table B-3.06. Pit 6 Landfill Post-closure Monitoring Plan constituents of concern, detection monitoring wells, SLs, MCLs, and analytical results.

COC	Well	SL	MCL	1/3/18	1/4/18	1/4/18 DUP	1/11/18	2/12/18	3/15/18	3/15/18 REX	4/4/18	7/12/18	7/12/18 DUP	7/16/18	7/16/18 DUP	7/31/18	7/31/18 DUP	8/1/18	8/1/18 DUP	10/1/18
Toluene (µg/L)	EP6-06	0.5	150	-	-	-	<0.3	-	-	-	-	-	-	-	-	-	-	-	-	-
	EP6-08	-	150	<0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EP6-09	0.5	150	-	<0.3	<0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	K6-01S	0.5	150	-	<0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	K6-19	0.5	150	<0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	K6-35	-	150	-	<0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,1,1-Trichloroethane (µg/L)	EP6-06	0.5	200	-	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5	-	-	-	-
	EP6-08	-	200	<0.5	-	-	-	<0.5	-	-	<0.5	-	-	<0.5	-	-	-	-	-	-
	EP6-09	0.5	200	-	<0.5	<0.5	-	-	-	-	-	-	-	-	-	<0.5	<0.5	-	-	-
	K6-01S	0.5	200	-	<0.5	-	-	-	-	-	-	-	-	-	-	<0.5	-	-	-	-
	K6-19	0.5	200	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	-
	K6-35	-	200	-	<0.5	-	-	-	-	-	-	-	-	<0.5	<0.5	-	-	-	-	-
Trichloroethene (TCE) (µg/L)	EP6-06	0.5	5	-	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5	-	-	-	-
	EP6-08	-	5	1.4	-	-	-	1.1	-	-	2.3	-	-	2	-	-	-	-	-	-
	EP6-09	17	5	-	7.1	7.4	-	-	-	-	-	-	-	-	-	7.5	7.5	-	-	-
	K6-01S	1.5	5	-	<0.5	-	-	-	-	-	-	-	-	-	-	<0.5	-	-	-	-
	K6-19	13	5	3.3	-	-	-	-	-	-	-	-	-	-	-	-	-	2.8	3.2	-
	K6-35	-	5	-	<0.5	-	-	-	-	-	-	-	-	<0.5	<0.5	-	-	-	-	-
Total xylene isomers (µg/L)	EP6-06	1	1750	-	-	-	<0.4	-	-	-	-	-	-	-	-	-	-	-	-	-
	EP6-08	-	1750	<0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EP6-09	1	1750	-	<0.4	<0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	K6-01S	1	1750	-	<0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	K6-19	1	1750	<0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	K6-35	-	1750	-	<0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table B-3.07. Pit 6 Landfill detection monitoring physical parameters.

Location	Date	Field Temperature (Degrees C)	Field pH (Units)	Field Specific Conductance (µmhos/cm)	Total dissolved solids (TDS) (mg/L)
EP6-06	1/11/18	20.6	7.85	1,231	800 D
EP6-06	7/31/18	22.3	8.09	1,231	-
EP6-08	1/3/18	18.4	7.8	1,465	950 D
EP6-08	2/12/18	18	7.58	1,398	-
EP6-08	3/15/18	17.4	7.56	1,408	-
EP6-08	4/4/18	18.9	7.74	1,316	-
EP6-08	7/16/18	22.7	7.32	1,364	-
EP6-08	7/31/18	21.8	7.29	1,359	-
EP6-09	1/4/18	21.8	7.75	1,749	1,200 D
EP6-09	1/4/18 DUP	-	-	-	1,200 D
EP6-09	3/15/18	19.7	7.67	1,775	-
EP6-09	4/4/18	22	7.62	1,759	-
EP6-09	7/12/18	23	7.79	1,728	-
EP6-09	7/31/18	21.4	7.9	1,838	-
K6-01S	1/4/18	22.8	7.18	3,930	3,400 D
K6-01S	7/31/18	24.6	7.25	3,780	-
K6-19	1/3/18	19.6	7.85	1,469	1,100 D
K6-19	3/15/18	19	7.7	1,487	-
K6-19	4/4/18	21.3	7.59	1,462	-
K6-19	8/1/18	21.9	8.13	1,514	-
K6-19	10/1/18	22	7.77	1,345	-
K6-35	1/4/18	22.1	8.1	1,055	730 D
K6-35	3/15/18	19.1	7.83	1,082	-
K6-35	4/4/18	21.6	7.75	1,061	-
K6-35	7/16/18	22.9	7.79	1,052	-

Table B-4.01. High Explosives Process Area Operable Unit volatile organic compounds (VOCs) in ground and surface water.

Location	Date	Type	TCE (µg/L)	PCE (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	Carbon tetrachloride (µg/L)	Chloroform (µg/L)	1,1-DCA (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	1,1,1-TCA (µg/L)	1,1,2-TCA (µg/L)	Freon 11 (µg/L)	Freon 113 (µg/L)	Vinyl chloride (µg/L)
GALLO1	1/30/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
GALLO1	1/30/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
GALLO1	1/30/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
GALLO1	1/30/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
GALLO1	2/26/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
GALLO1	3/13/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
GALLO1	3/13/18	DUP	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
GALLO1	4/25/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
GALLO1	4/25/18	DUP	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
GALLO1	4/25/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
GALLO1	4/25/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
GALLO1	5/9/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
GALLO1	5/9/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
GALLO1	6/13/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
GALLO1	6/13/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
GALLO1	7/25/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
GALLO1	7/25/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
GALLO1	7/25/18	DUP2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
GALLO1	7/25/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
GALLO1	7/25/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
GALLO1	7/25/18	DUP2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
GALLO1	8/22/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
GALLO1	8/22/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
GALLO1	8/22/18	DUP2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
GALLO1	9/4/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
GALLO1	9/4/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
GALLO1	9/4/18	DUP2	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
GALLO1	10/18/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
GALLO1	10/18/18	DUP	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
GALLO1	10/18/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
GALLO1	10/18/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
GALLO1	11/6/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
GALLO1	11/6/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
GALLO1	12/12/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
GALLO1	12/12/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-35B-01	3/19/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-35B-01	6/18/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Table B-4.01. High Explosives Process Area Operable Unit volatile organic compounds (VOCs) in ground and surface water.

Location	Date	Type	TCE (µg/L)	PCE (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	Carbon tetrachloride (µg/L)	Chloroform (µg/L)	1,1-DCA (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	1,1,1-TCA (µg/L)	1,1,2-TCA (µg/L)	Freon 11 (µg/L)	Freon 113 (µg/L)	Vinyl chloride (µg/L)
W-35B-01	9/24/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-35B-01	12/20/18		R	R	R	R	R	R	R	R	R	R	R	R	R	R
W-35B-02	2/26/18		<0.5 L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-35B-02	6/18/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-35B-02	9/19/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-35B-02	12/10/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	R	<0.5	<0.5	<0.5
W-35B-03	2/26/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-35B-03	6/18/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-35B-03	9/19/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-35B-03	12/10/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	R	<0.5	<0.5	<0.5
W-35B-04	2/26/18		0.81	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-35B-04	6/18/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-35B-04	9/19/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-35B-04	12/10/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	R	<0.5	<0.5	<0.5
W-35B-05	2/26/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-35B-05	6/18/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-35B-05	9/19/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-35B-05	12/10/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	R	<0.5	<0.5	<0.5
W-35C-01	3/7/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-35C-01	9/19/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-35C-02	3/5/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-35C-02	9/24/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-35C-04	1/17/18		14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-35C-04	4/3/18		16	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-35C-04	8/6/18		15	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-35C-04	8/14/18		15	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-35C-04	11/27/18		12	<0.5	0.52	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-35C-05	2/20/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-35C-05	9/18/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-35C-06	2/26/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-35C-07	2/26/18		1	<0.5	0.61	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-35C-07	9/19/18		0.9	<0.5	0.61	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-35C-07	9/19/18	DUP	0.78 H	<0.5 H	0.53 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
W-35C-08	2/20/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-35C-08	9/18/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-4A	3/19/18		9.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-4A	3/19/18	DUP	9.4 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H

Table B-4.01. High Explosives Process Area Operable Unit volatile organic compounds (VOCs) in ground and surface water.

Location	Date	Type	TCE (µg/L)	PCE (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	Carbon tetrachloride (µg/L)	Chloroform (µg/L)	1,1-DCA (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	1,1,1-TCA (µg/L)	1,1,2-TCA (µg/L)	Freon 11 (µg/L)	Freon 113 (µg/L)	Vinyl chloride (µg/L)
W-4A	9/19/18		9.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-4A	9/19/18	DUP	8.9 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	0.72 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
W-4AS	3/13/18		4.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-4AS	9/18/18		2.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-4B	3/14/18		3.6 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
W-4B	9/13/18		5.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-4B	9/18/18		5.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-4C	3/14/18		<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
W-4C	6/21/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-4C	9/13/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-4C	9/18/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-4C	12/11/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5 L
W-6BD	2/20/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-6BD	9/24/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-6BS	2/20/18		0.52	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-6BS	2/20/18	DUP	R	R	R	R	R	R	R	R	R	R	R	R	R	R
W-6BS	3/28/18	DUP	R	R	R	R	R	R	R	R	R	R	R	R	R	R
W-6BS	9/18/18		1.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-6CD	3/6/18		<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
W-6CD	3/6/18	DUP	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-6CD	9/24/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-6CI	3/5/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-6CI	3/5/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-6CI	9/24/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-6CS	2/26/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-6CS	9/18/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-6ER	1/17/18		8.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-6ER	4/3/18		17	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-6ER	7/11/18		17	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-6ER	11/27/18		12	<0.5	0.68	0.53	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-6ER	11/27/18	DUP	12	<0.5	0.69	0.57	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-6ES	2/26/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-6ES	9/19/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-6G	2/26/18		3.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-6G	9/18/18		3.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-6H	3/7/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-6H	6/6/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Table B-4.01. High Explosives Process Area Operable Unit volatile organic compounds (VOCs) in ground and surface water.

Location	Date	Type	TCE (µg/L)	PCE (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	Carbon tetrachloride (µg/L)	Chloroform (µg/L)	1,1-DCA (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	1,1,1-TCA (µg/L)	1,1,2-TCA (µg/L)	Freon 11 (µg/L)	Freon 113 (µg/L)	Vinyl chloride (µg/L)
W-6H	9/13/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-6H	12/11/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5 L
W-6I	3/7/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-6I	9/19/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-6J	3/7/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-6J	9/13/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-6K	3/5/18		6.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-6K	9/17/18		4.1	<0.5	0.64	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-6L	2/12/18		22	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-6L	9/17/18		19	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-808-01	3/20/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-808-01	9/6/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-808-02	3/27/18		<0.5 L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-808-02	9/6/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-808-03	3/20/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-808-03	9/6/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-809-01	3/14/18	DUP	1.8 H	<0.5 H	<0.5 H	<1 H	<0.5 H	1.3 H	<0.5 H	<0.5 H	1.3 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
W-809-01	3/20/18		1.9	<0.5	<0.5	<0.5	<0.5	1.2	<0.5	<0.5	1.3	<0.5	<0.5	<0.5	<0.5	<0.5
W-809-01	9/6/18		1.5	<0.5	<0.5	<0.5	<0.5	1.1	<0.5	<0.5	1	<0.5	<0.5	<0.5	<0.5	<0.5
W-809-01	9/6/18	DUP	1.9 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	1.4 H	<0.5 H	<0.5 H	1.4 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
W-809-02	3/20/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-809-02	9/6/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-809-03	3/15/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-809-03	9/10/18		<0.5 L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-810-01	3/20/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-810-01	9/6/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-814-01	2/20/18		1.6	<0.5	0.93	<0.5	<0.5	0.54	<0.5	0.73	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-814-01	9/17/18		1.8	<0.5	0.95	<0.5	<0.5	0.71	<0.5	0.85	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-814-01	9/17/18	DUP	1.9	<0.5	0.98	<0.5	<0.5	0.71	<0.5	0.84	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-814-02	3/12/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-814-02	9/12/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-814-04	3/6/18		<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
W-814-04	6/7/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-814-04	9/12/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-814-04	12/5/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-814-2138	3/12/18		5.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-814-2138	9/17/18		4.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Table B-4.01. High Explosives Process Area Operable Unit volatile organic compounds (VOCs) in ground and surface water.

Location	Date	Type	TCE (µg/L)	PCE (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	Carbon tetrachloride (µg/L)	Chloroform (µg/L)	1,1-DCA (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	1,1,1-TCA (µg/L)	1,1,2-TCA (µg/L)	Freon 11 (µg/L)	Freon 113 (µg/L)	Vinyl chloride (µg/L)
W-815-02	1/3/18		10	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.75	<0.5	<0.5	<0.5	<0.5	<0.5
W-815-02	4/9/18		13	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.86	<0.5	<0.5	<0.5	<0.5	<0.5
W-815-02	7/9/18		12	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.72	<0.5	<0.5	<0.5	<0.5	<0.5
W-815-02	10/3/18		12	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.77	<0.5	<0.5	<0.5	<0.5	<0.5
W-815-04	1/3/18		3.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.72	<0.5	<0.5	<0.5	<0.5	<0.5
W-815-04	4/9/18		3.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.67	<0.5	<0.5	<0.5	<0.5	<0.5
W-815-04	7/9/18		2.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-815-04	10/3/18		2.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-815-04	10/3/18	DUP	2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-815-05	4/19/18		5.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-815-06	9/12/18		8.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-815-07	3/12/18		10	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-815-07	3/12/18	DUP	10	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-815-07	9/12/18		11	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-815-08	3/15/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-815-2110	3/7/18		1.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-815-2110	6/6/18		1.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-815-2110	6/6/18	DUP	1.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-815-2110	9/13/18		1.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-815-2110	12/11/18		1.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-815-2110	12/11/18	DUP	1.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-815-2111	3/7/18		0.86	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-815-2111	6/6/18		0.97	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-815-2111	9/13/18		0.95	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-815-2111	12/11/18		0.84	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-815-2217	2/26/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-815-2217	9/18/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-815-2608	3/21/18		2.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-815-2608	4/3/18		2.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-815-2608	8/6/18		2.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-815-2608	12/12/18		2.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-815-2608	12/12/18	DUP	2.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-815-2621	2/12/18		20	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-815-2621	9/12/18		19	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-815-2803	2/5/18		1.1 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
W-815-2803	4/9/18		0.89	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-815-2803	7/9/18		0.92	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Table B-4.01. High Explosives Process Area Operable Unit volatile organic compounds (VOCs) in ground and surface water.

Location	Date	Type	TCE (µg/L)	PCE (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	Carbon tetrachloride (µg/L)	Chloroform (µg/L)	1,1-DCA (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	1,1,1-TCA (µg/L)	1,1,2-TCA (µg/L)	Freon 11 (µg/L)	Freon 113 (µg/L)	Vinyl chloride (µg/L)
W-815-2803	10/3/18		0.54	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-815-2803	10/3/18	DUP	1.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-817-01	1/8/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-817-01	4/9/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-817-01	7/10/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-817-01	11/7/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-817-01	11/7/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-817-03	1/8/18		7.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-817-03	4/9/18		7.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-817-03	7/9/18		7.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-817-03	10/8/18		8.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-817-03	10/8/18	DUP	8.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-817-03A	3/19/18		2.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-817-03A	9/11/18		11 L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-817-04	3/19/18		11	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-817-04	3/19/18	DUP	11	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-817-04	9/11/18		11	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-817-05	3/21/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-817-05	9/10/18		<0.5 L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-817-2318	1/8/18		17	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-817-2318	4/9/18		17	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-817-2318	7/9/18		19	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-817-2318	10/8/18		19	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-817-2609	3/19/18		8.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-817-2609	9/10/18		9.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-817-3023	3/21/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-817-3023	9/11/18		<0.5 L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-817-3025	3/19/18		1.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-817-3025	9/11/18		1.2 L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-817-3025	9/11/18	DUP	1.2 L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-817-3026	3/19/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-817-3026	9/11/18		<0.5 L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-818-01	3/12/18		10	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-818-01	9/12/18		9.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-818-01	9/19/18		9.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-818-03	9/12/18		12	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-818-03	9/19/18		13	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Table B-4.01. High Explosives Process Area Operable Unit volatile organic compounds (VOCs) in ground and surface water.

Location	Date	Type	TCE (µg/L)	PCE (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	Carbon tetrachloride (µg/L)	Chloroform (µg/L)	1,1-DCA (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	1,1,1-TCA (µg/L)	1,1,2-TCA (µg/L)	Freon 11 (µg/L)	Freon 113 (µg/L)	Vinyl chloride (µg/L)
W-818-04	3/19/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-818-04	9/17/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-818-06	3/19/18		12	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-818-06	9/17/18		12	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-818-06	9/17/18	DUP	12	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-818-07	3/19/18		6.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-818-07	3/19/18	DUP	5.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-818-07	9/17/18		5.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-818-08	1/16/18		27	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-818-08	4/3/18		33	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-818-08	7/9/18		29	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-818-08	10/8/18		31	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-818-09	1/16/18		13	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-818-09	4/3/18		16	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-818-09	7/9/18		15	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-818-09	10/8/18		16	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-818-09	10/8/18	DUP	15	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-818-11	3/12/18		28	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-818-11	3/12/18	DUP	28	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-818-11	9/17/18		29	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-818-11	9/17/18	DUP	31 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	0.53 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
W-819-02	3/6/18		<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
W-819-02	9/12/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-819-02	9/19/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-823-01	3/7/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-823-01	9/19/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-823-02	3/7/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-823-02	9/13/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-823-13	3/7/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-823-13	9/19/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-827-05	3/14/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-829-06	1/8/18		24	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-829-06	4/5/18		25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-829-06	7/10/18		26	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-829-06	10/2/18		27	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-829-06	10/2/18	DUP	28	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-829-08	3/14/18		3	<0.5	0.67	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Table B-4.01. High Explosives Process Area Operable Unit volatile organic compounds (VOCs) in ground and surface water.

Location	Date	Type	TCE (µg/L)	PCE (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	Carbon tetrachloride (µg/L)	Chloroform (µg/L)	1,1-DCA (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	1,1,1-TCA (µg/L)	1,1,2-TCA (µg/L)	Freon 11 (µg/L)	Freon 113 (µg/L)	Vinyl chloride (µg/L)
W-829-08	9/12/18		1.7	<0.5	0.62	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-829-15	4/5/18		<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
W-829-1938	4/11/18		<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
W-829-1938	4/11/18	DUP	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
W-829-1940	3/14/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-829-1940	9/12/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-829-22	4/9/18		<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
WELL18	1/24/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
WELL18	1/24/18	DUP	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
WELL18	2/6/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
WELL18	2/6/18	DUP	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
WELL18	3/7/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
WELL18	3/7/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
WELL18	4/25/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
WELL18	4/25/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
WELL18	5/30/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
WELL18	5/30/18	DUP	<0.5 L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
WELL18	6/28/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
WELL18	6/28/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
WELL18	7/23/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
WELL18	7/23/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
WELL18	8/7/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
WELL18	8/7/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5 LO	<0.5
WELL18	9/4/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
WELL18	9/4/18	DUP	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
WELL18	10/2/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
WELL18	10/2/18	DUP	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
WELL18	11/6/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
WELL18	11/6/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
WELL18	12/17/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
WELL18	12/17/18	DUP	<0.5 H	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
WELL20	1/24/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
WELL20	1/24/18	DUP	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 LH	<0.5 H
WELL20	2/6/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
WELL20	2/6/18	DUP	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 HO	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
WELL20	3/7/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
WELL20	3/7/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Table B-4.01. High Explosives Process Area Operable Unit volatile organic compounds (VOCs) in ground and surface water.

Location	Date	Type	TCE (µg/L)	PCE (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	Carbon tetrachloride (µg/L)	Chloroform (µg/L)	1,1-DCA (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	1,1,1-TCA (µg/L)	1,1,2-TCA (µg/L)	Freon 11 (µg/L)	Freon 113 (µg/L)	Vinyl chloride (µg/L)
WELL20	4/25/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
WELL20	4/25/18	DUP	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
WELL20	5/30/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
WELL20	5/30/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
WELL20	6/28/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
WELL20	6/28/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
WELL20	7/23/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
WELL20	7/23/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
WELL20	8/23/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
WELL20	8/23/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
WELL20	9/18/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
WELL20	9/18/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
WELL20	10/3/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
WELL20	10/3/18	DUP	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
WELL20	11/7/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
WELL20	11/7/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
WELL20	12/17/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
WELL20	12/17/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Table B-4.01 (Con't). Analyte detected but not reported in main table.

Location	Date	Type	Detection frequency	1,2-Dichloroethene (total) (µg/L)
GALLO1	1/30/18		0 of 46	-
GALLO1	1/30/18	DUP	0 of 45	-
GALLO1	1/30/18		0 of 18	-
GALLO1	1/30/18	DUP	0 of 18	-
GALLO1	2/26/18		0 of 18	-
GALLO1	3/13/18		0 of 18	-
GALLO1	3/13/18	DUP	0 of 18	-
GALLO1	4/25/18		0 of 46	-
GALLO1	4/25/18	DUP	0 of 45	-
GALLO1	4/25/18		0 of 18	-
GALLO1	4/25/18	DUP	0 of 18	-
GALLO1	5/9/18		0 of 18	-
GALLO1	5/9/18	DUP	0 of 18	-
GALLO1	6/13/18		0 of 18	-
GALLO1	6/13/18	DUP	0 of 18	-
GALLO1	7/25/18		0 of 46	-
GALLO1	7/25/18	DUP	0 of 46	-
GALLO1	7/25/18	DUP2	0 of 45	-
GALLO1	7/25/18		0 of 18	-
GALLO1	7/25/18	DUP	0 of 18	-
GALLO1	7/25/18	DUP2	0 of 18	-
GALLO1	8/22/18		0 of 18	-
GALLO1	8/22/18	DUP	0 of 18	-
GALLO1	8/22/18	DUP2	0 of 18	-
GALLO1	9/4/18		0 of 18	-
GALLO1	9/4/18	DUP	0 of 18	-
GALLO1	9/4/18	DUP2	0 of 17	-
GALLO1	10/18/18		0 of 46	-
GALLO1	10/18/18	DUP	0 of 45	-
GALLO1	10/18/18		0 of 18	-
GALLO1	10/18/18	DUP	0 of 18	-
GALLO1	11/6/18		0 of 18	-
GALLO1	11/6/18	DUP	0 of 18	-
GALLO1	12/12/18		0 of 18	-
GALLO1	12/12/18	DUP	0 of 18	-
W-35B-01	3/19/18		0 of 18	-
W-35B-01	6/18/18		0 of 18	-
W-35B-01	9/24/18		0 of 18	-
W-35B-01	12/20/18		0 of 18	-
W-35B-02	2/26/18		0 of 18	-
W-35B-02	6/18/18		0 of 18	-
W-35B-02	9/19/18		0 of 18	-
W-35B-02	12/10/18		0 of 18	-
W-35B-03	2/26/18		0 of 18	-
W-35B-03	6/18/18		0 of 18	-
W-35B-03	9/19/18		0 of 18	-
W-35B-03	12/10/18		0 of 18	-
W-35B-04	2/26/18		0 of 18	-
W-35B-04	6/18/18		0 of 18	-
W-35B-04	9/19/18		0 of 18	-
W-35B-04	12/10/18		0 of 18	-
W-35B-05	2/26/18		0 of 18	-
W-35B-05	6/18/18		0 of 18	-
W-35B-05	9/19/18		0 of 18	-
W-35B-05	12/10/18		0 of 18	-
W-35C-01	3/7/18		0 of 18	-
W-35C-01	9/19/18		0 of 18	-
W-35C-02	3/5/18		0 of 18	-
W-35C-02	9/24/18		0 of 18	-
W-35C-04	1/17/18		0 of 18	-
W-35C-04	4/3/18		0 of 18	-
W-35C-04	8/6/18		0 of 18	-
W-35C-04	8/14/18		0 of 18	-
W-35C-04	11/27/18		0 of 18	-
W-35C-05	2/20/18		0 of 18	-

Table B-4.01 (Con't). Analyte detected but not reported in main table.

Location	Date	Type	Detection frequency	1,2-Dichloroethene (total) (µg/L)
W-35C-05	9/18/18		0 of 18	-
W-35C-06	2/26/18		0 of 18	-
W-35C-07	2/26/18		0 of 18	-
W-35C-07	9/19/18		0 of 18	-
W-35C-07	9/19/18	DUP	0 of 18	-
W-35C-08	2/20/18		0 of 18	-
W-35C-08	9/18/18		0 of 18	-
W-4A	3/19/18		0 of 18	-
W-4A	3/19/18	DUP	0 of 18	-
W-4A	9/19/18		0 of 18	-
W-4A	9/19/18	DUP	0 of 18	-
W-4AS	3/13/18		0 of 18	-
W-4AS	9/18/18		0 of 18	-
W-4B	3/14/18		0 of 18	-
W-4B	9/13/18		0 of 18	-
W-4B	9/18/18		0 of 18	-
W-4C	3/14/18		0 of 18	-
W-4C	6/21/18		0 of 18	-
W-4C	9/13/18		0 of 18	-
W-4C	9/18/18		0 of 18	-
W-4C	12/11/18		0 of 18	-
W-6BD	2/20/18		0 of 18	-
W-6BD	9/24/18		0 of 18	-
W-6BS	2/20/18		0 of 18	-
W-6BS	2/20/18	DUP	0 of 18	-
W-6BS	3/28/18	DUP	0 of 18	-
W-6BS	9/18/18		0 of 18	-
W-6CD	3/6/18		0 of 18	-
W-6CD	3/6/18	DUP	0 of 18	-
W-6CD	9/24/18		0 of 18	-
W-6CI	3/5/18		0 of 18	-
W-6CI	3/5/18	DUP	0 of 18	-
W-6CI	9/24/18		0 of 18	-
W-6CS	2/26/18		0 of 18	-
W-6CS	9/18/18		0 of 18	-
W-6ER	1/17/18		0 of 18	-
W-6ER	4/3/18		0 of 18	-
W-6ER	7/11/18		0 of 18	-
W-6ER	11/27/18		1 of 18	1.2
W-6ER	11/27/18	DUP	1 of 18	1.3
W-6ES	2/26/18		0 of 18	-
W-6ES	9/19/18		0 of 18	-
W-6G	2/26/18		0 of 18	-
W-6G	9/18/18		0 of 18	-
W-6H	3/7/18		0 of 18	-
W-6H	6/6/18		0 of 18	-
W-6H	9/13/18		0 of 18	-
W-6H	12/11/18		0 of 18	-
W-6I	3/7/18		0 of 18	-
W-6I	9/19/18		0 of 18	-
W-6J	3/7/18		0 of 18	-
W-6J	9/13/18		0 of 18	-
W-6K	3/5/18		0 of 18	-
W-6K	9/17/18		0 of 18	-
W-6L	2/12/18		0 of 18	-
W-6L	9/17/18		0 of 18	-
W-808-01	3/20/18		0 of 18	-
W-808-01	9/6/18		0 of 18	-
W-808-02	3/27/18		0 of 18	-
W-808-02	9/6/18		0 of 18	-
W-808-03	3/20/18		0 of 18	-
W-808-03	9/6/18		0 of 18	-
W-809-01	3/14/18	DUP	0 of 18	-
W-809-01	3/20/18		0 of 18	-
W-809-01	9/6/18		0 of 18	-

Table B-4.01 (Con't). Analyte detected but not reported in main table.

Location	Date	Type	Detection frequency	1,2-Dichloroethene (total) (µg/L)
W-809-01	9/6/18	DUP	0 of 18	-
W-809-02	3/20/18		0 of 18	-
W-809-02	9/6/18		0 of 18	-
W-809-03	3/15/18		0 of 18	-
W-809-03	9/10/18		0 of 18	-
W-810-01	3/20/18		0 of 18	-
W-810-01	9/6/18		0 of 18	-
W-814-01	2/20/18		0 of 18	-
W-814-01	9/17/18		0 of 18	-
W-814-01	9/17/18	DUP	0 of 18	-
W-814-02	3/12/18		0 of 18	-
W-814-02	9/12/18		0 of 18	-
W-814-04	3/6/18		0 of 18	-
W-814-04	6/7/18		0 of 18	-
W-814-04	9/12/18		0 of 18	-
W-814-04	12/5/18		0 of 18	-
W-814-2138	3/12/18		0 of 18	-
W-814-2138	9/17/18		0 of 18	-
W-815-02	1/3/18		0 of 18	-
W-815-02	4/9/18		0 of 18	-
W-815-02	7/9/18		0 of 18	-
W-815-02	10/3/18		0 of 18	-
W-815-04	1/3/18		0 of 18	-
W-815-04	4/9/18		0 of 18	-
W-815-04	7/9/18		0 of 18	-
W-815-04	10/3/18		0 of 18	-
W-815-04	10/3/18	DUP	0 of 18	-
W-815-05	4/19/18		0 of 18	-
W-815-06	9/12/18		0 of 18	-
W-815-07	3/12/18		0 of 18	-
W-815-07	3/12/18	DUP	0 of 18	-
W-815-07	9/12/18		0 of 18	-
W-815-08	3/15/18		0 of 18	-
W-815-2110	3/7/18		0 of 18	-
W-815-2110	6/6/18		0 of 18	-
W-815-2110	6/6/18	DUP	0 of 18	-
W-815-2110	9/13/18		0 of 18	-
W-815-2110	12/11/18		0 of 18	-
W-815-2110	12/11/18	DUP	0 of 18	-
W-815-2111	3/7/18		0 of 18	-
W-815-2111	6/6/18		0 of 18	-
W-815-2111	9/13/18		0 of 18	-
W-815-2111	12/11/18		0 of 18	-
W-815-2217	2/26/18		0 of 18	-
W-815-2217	9/18/18		0 of 18	-
W-815-2608	3/21/18		0 of 18	-
W-815-2608	4/3/18		0 of 18	-
W-815-2608	8/6/18		0 of 18	-
W-815-2608	12/12/18		0 of 18	-
W-815-2608	12/12/18	DUP	0 of 18	-
W-815-2621	2/12/18		0 of 18	-
W-815-2621	9/12/18		0 of 18	-
W-815-2803	2/5/18		0 of 18	-
W-815-2803	4/9/18		0 of 18	-
W-815-2803	7/9/18		0 of 18	-
W-815-2803	10/3/18		0 of 18	-
W-815-2803	10/3/18	DUP	0 of 18	-
W-817-01	1/8/18		0 of 18	-
W-817-01	4/9/18		0 of 18	-
W-817-01	7/10/18		0 of 18	-
W-817-01	11/7/18		0 of 18	-
W-817-01	11/7/18	DUP	0 of 18	-
W-817-03	1/8/18		0 of 18	-
W-817-03	4/9/18		0 of 18	-
W-817-03	7/9/18		0 of 18	-

Table B-4.01 (Con't). Analyte detected but not reported in main table.

Location	Date	Type	Detection frequency	1,2-Dichloroethene (total) (µg/L)
W-817-03	10/8/18		0 of 18	-
W-817-03	10/8/18	DUP	0 of 18	-
W-817-03A	3/19/18		0 of 18	-
W-817-03A	9/11/18		0 of 18	-
W-817-04	3/19/18		0 of 18	-
W-817-04	3/19/18	DUP	0 of 18	-
W-817-04	9/11/18		0 of 18	-
W-817-05	3/21/18		0 of 18	-
W-817-05	9/10/18		0 of 18	-
W-817-2318	1/8/18		0 of 18	-
W-817-2318	4/9/18		0 of 18	-
W-817-2318	7/9/18		0 of 18	-
W-817-2318	10/8/18		0 of 18	-
W-817-2609	3/19/18		0 of 18	-
W-817-2609	9/10/18		0 of 18	-
W-817-3023	3/21/18		0 of 18	-
W-817-3023	9/11/18		0 of 18	-
W-817-3025	3/19/18		0 of 18	-
W-817-3025	9/11/18		0 of 18	-
W-817-3025	9/11/18	DUP	0 of 18	-
W-817-3026	3/19/18		0 of 18	-
W-817-3026	9/11/18		0 of 18	-
W-818-01	3/12/18		0 of 18	-
W-818-01	9/12/18		0 of 18	-
W-818-01	9/19/18		0 of 18	-
W-818-03	9/12/18		0 of 18	-
W-818-03	9/19/18		0 of 18	-
W-818-04	3/19/18		0 of 18	-
W-818-04	9/17/18		0 of 18	-
W-818-06	3/19/18		0 of 18	-
W-818-06	9/17/18		0 of 18	-
W-818-06	9/17/18	DUP	0 of 18	-
W-818-07	3/19/18		0 of 18	-
W-818-07	3/19/18	DUP	0 of 18	-
W-818-07	9/17/18		0 of 18	-
W-818-08	1/16/18		0 of 18	-
W-818-08	4/3/18		0 of 18	-
W-818-08	7/9/18		0 of 18	-
W-818-08	10/8/18		0 of 18	-
W-818-09	1/16/18		0 of 18	-
W-818-09	4/3/18		0 of 18	-
W-818-09	7/9/18		0 of 18	-
W-818-09	10/8/18		0 of 18	-
W-818-09	10/8/18	DUP	0 of 18	-
W-818-11	3/12/18		0 of 18	-
W-818-11	3/12/18	DUP	0 of 18	-
W-818-11	9/17/18		0 of 18	-
W-818-11	9/17/18	DUP	0 of 18	-
W-819-02	3/6/18		0 of 18	-
W-819-02	9/12/18		0 of 18	-
W-819-02	9/19/18		0 of 18	-
W-823-01	3/7/18		0 of 18	-
W-823-01	9/19/18		0 of 18	-
W-823-02	3/7/18		0 of 18	-
W-823-02	9/13/18		0 of 18	-
W-823-13	3/7/18		0 of 18	-
W-823-13	9/19/18		0 of 18	-
W-827-05	3/14/18		0 of 18	-
W-829-06	1/8/18		0 of 18	-
W-829-06	4/5/18		0 of 18	-
W-829-06	7/10/18		0 of 18	-
W-829-06	10/2/18		0 of 18	-
W-829-06	10/2/18	DUP	0 of 18	-
W-829-08	3/14/18		0 of 18	-
W-829-08	9/12/18		0 of 18	-

Table B-4.01 (Con't). Analyte detected but not reported in main table.

Location	Date	Type	Detection frequency	1,2-Dichloroethene (total) (µg/L)
W-829-15	4/5/18		0 of 32	-
W-829-1938	4/11/18		0 of 32	-
W-829-1938	4/11/18	DUP	0 of 32	-
W-829-1940	3/14/18		0 of 18	-
W-829-1940	9/12/18		0 of 18	-
W-829-22	4/9/18		0 of 32	-
WELL18	1/24/18		0 of 18	-
WELL18	1/24/18	DUP	0 of 18	-
WELL18	2/6/18		0 of 18	-
WELL18	2/6/18	DUP	0 of 18	-
WELL18	3/7/18		0 of 18	-
WELL18	3/7/18	DUP	0 of 18	-
WELL18	4/25/18		0 of 18	-
WELL18	4/25/18	DUP	0 of 18	-
WELL18	5/30/18		0 of 18	-
WELL18	5/30/18	DUP	0 of 18	-
WELL18	6/28/18		0 of 18	-
WELL18	6/28/18	DUP	0 of 18	-
WELL18	7/23/18		0 of 18	-
WELL18	7/23/18	DUP	0 of 18	-
WELL18	8/7/18		0 of 18	-
WELL18	8/7/18	DUP	0 of 18	-
WELL18	9/4/18		0 of 18	-
WELL18	9/4/18	DUP	0 of 18	-
WELL18	10/2/18		0 of 18	-
WELL18	10/2/18	DUP	0 of 18	-
WELL18	11/6/18		0 of 18	-
WELL18	11/6/18	DUP	0 of 18	-
WELL18	12/17/18		0 of 18	-
WELL18	12/17/18	DUP	0 of 18	-
WELL20	1/24/18		0 of 46	-
WELL20	1/24/18	DUP	0 of 45	-
WELL20	2/6/18		0 of 46	-
WELL20	2/6/18	DUP	0 of 45	-
WELL20	3/7/18		0 of 46	-
WELL20	3/7/18	DUP	0 of 45	-
WELL20	4/25/18		0 of 46	-
WELL20	4/25/18	DUP	0 of 45	-
WELL20	5/30/18		0 of 46	-
WELL20	5/30/18	DUP	0 of 45	-
WELL20	6/28/18		0 of 46	-
WELL20	6/28/18	DUP	0 of 45	-
WELL20	7/23/18		0 of 46	-
WELL20	7/23/18	DUP	0 of 45	-
WELL20	8/23/18		0 of 46	-
WELL20	8/23/18	DUP	0 of 45	-
WELL20	9/18/18		0 of 46	-
WELL20	9/18/18	DUP	0 of 45	-
WELL20	10/3/18		0 of 46	-
WELL20	10/3/18	DUP	0 of 45	-
WELL20	11/7/18		0 of 46	-
WELL20	11/7/18	DUP	0 of 45	-
WELL20	12/17/18		0 of 46	-
WELL20	12/17/18	DUP	0 of 45	-

Table B-4.02. High Explosives Process Area Operable Unit nitrate and perchlorate in ground and surface water.

Location	Date	Nitrate (as NO3) (mg/L)	Perchlorate (µg/L)
GALLO1	1/30/18	<0.5	<4
GALLO1	1/30/18 DUP	<0.5	<4
GALLO1	2/26/18	<0.5	<4
GALLO1	2/26/18 DUP	<0.5	<4
GALLO1	3/13/18	<0.5	<4
GALLO1	3/13/18 DUP	<0.5	<4
GALLO1	4/25/18	<0.5	<4
GALLO1	4/25/18 DUP	<0.5	<4
GALLO1	5/9/18	<0.5	<4
GALLO1	5/9/18 DUP	<0.5	<4
GALLO1	6/13/18	<0.5	<4
GALLO1	6/13/18 DUP	<0.5	<4
GALLO1	7/25/18	<0.5	<4
GALLO1	7/25/18 DUP	<0.5	<4
GALLO1	7/25/18 DUP	<0.5	<4
GALLO1	8/22/18	<0.5	<4
GALLO1	8/22/18 DUP	<0.5	<4
GALLO1	8/22/18 DUP	<0.5	<4
GALLO1	9/4/18	<1 D	<4
GALLO1	9/4/18 DUP	<1 D	<4
GALLO1	9/4/18 DUP	<0.5	<4
GALLO1	10/18/18	<0.5	<4
GALLO1	10/18/18 DUP	<0.5	<4
GALLO1	11/6/18	<0.5	<4
GALLO1	11/6/18 DUP	<0.5	<4
GALLO1	12/12/18	<0.5	<4
GALLO1	12/12/18 DUP	<0.5	<4
W-35B-01	3/19/18	<2.5 D	<4
W-35B-01	9/24/18	<2.5 D	<4
W-35B-02	2/26/18	18 D	<4
W-35B-02	9/19/18	19 D	<4
W-35B-03	2/26/18	2.8	<4
W-35B-03	9/19/18	3	<4
W-35B-04	2/26/18	<2.5 D	<4
W-35B-04	9/19/18	1.9	<4
W-35B-05	2/26/18	1.2	<4
W-35B-05	9/19/18	1.2	<4
W-35C-01	3/19/18	<2.5 D	-
W-35C-05	2/20/18	5.7 D	-
W-35C-06	2/26/18	7.6 D	<4 L
W-35C-07	2/26/18	<2.5 D	<4 L
W-35C-08	2/20/18	<2.5 D	<4
W-4A	3/19/18	<2.5 D	<4
W-4A	3/19/18 DUP	<0.5	<4
W-4AS	3/13/18	<2.5 D	<4
W-4C	3/14/18	<2.5 DL	<4
W-4C	9/13/18	<2.5 D	<4
W-6BD	2/20/18	<2.5 D	<4
W-6BS	2/20/18	17 D	<4

Table B-4.02. High Explosives Process Area Operable Unit nitrate and perchlorate in ground and surface water.

Location	Date	Nitrate (as NO3) (mg/L)	Perchlorate (µg/L)
W-6BS	2/20/18 DUP	19	<4
W-6CD	3/6/18	<2.5 D	<4
W-6CD	3/6/18 DUP	<0.5	<4
W-6CI	3/5/18	4.6 D	<4
W-6CI	3/5/18 DUP	4.8 D	<4
W-6CS	2/26/18	790 D	5.1
W-6ES	2/26/18	7.7 D	<4 L
W-6G	2/26/18	19 D	<4
W-6H	3/7/18	-	<4
W-6H	3/19/18	<2.5 D	-
W-6H	9/13/18	<2.5 D	<4
W-6J	3/7/18	-	<4
W-6J	9/13/18	<2.5 D	<4
W-6K	3/5/18	<2.5 D	<4
W-808-01	3/14/18	88 DL	<4
W-808-02	3/27/18	0.64	<4
W-808-03	3/14/18	<2.5 DL	<4
W-809-01	3/14/18	98 DL	<4
W-809-01	3/14/18 DUP	93 D	5.7
W-809-02	3/14/18	120 DL	8.9
W-809-02	9/6/18	-	8.6
W-809-03	3/15/18	92 D	<4
W-809-03	9/10/18	-	<4
W-810-01	3/14/18	<2.5 DL	<4
W-814-01	2/20/18	68 D	<4
W-814-02	3/12/18	79 DL	<4
W-814-04	3/6/18	<2.5 D	<4
W-814-04	9/12/18	<2.5 D	-
W-814-04	9/19/18	-	<4
W-814-2138	3/12/18	77 DL	<4
W-815-02	1/3/18	92 D	<4
W-815-02	7/9/18	-	<4
W-815-04	1/3/18	95 D	<4
W-815-04	7/9/18	-	<4
W-815-05	4/19/18	78 D	<4
W-815-07	3/12/18	86 DL	4.8
W-815-07	3/12/18 DUP	85 DL	4.9
W-815-08	3/15/18	<2.5 D	<4
W-815-2110	3/7/18	<1 D	<4
W-815-2110	9/13/18	<0.5	<4
W-815-2111	3/7/18	<1 D	<4
W-815-2111	9/13/18	<1 D	<4
W-815-2608	3/21/18	-	<4
W-815-2621	2/12/18	11	<4
W-815-2803	2/5/18	110 D	14
W-815-2803	7/9/18	-	16
W-817-01	1/8/18	93 D	22 D
W-817-01	4/9/18	-	18
W-817-01	7/10/18	-	25 D

Table B-4.02. High Explosives Process Area Operable Unit nitrate and perchlorate in ground and surface water.

Location	Date	Nitrate (as NO3) (mg/L)	Perchlorate (µg/L)
W-817-01	11/7/18	-	23 D
W-817-01	11/7/18 DUP	-	24 D
W-817-03	1/8/18	96 D	19
W-817-03	7/9/18	-	14
W-817-03A	3/19/18	70 D	7
W-817-04	3/19/18	97 D	12
W-817-04	3/19/18 DUP	97 D	11
W-817-05	3/21/18	<2.5 D	<4
W-817-2318	1/8/18	100 D	13
W-817-2318	7/9/18	-	8.5
W-817-2609	3/19/18	120 D	14
W-817-3023	3/21/18	100 D	6.8
W-817-3025	3/19/18	100 D	11
W-817-3026	3/19/18	97 D	<4
W-818-01	3/12/18	86 DL	4.4
W-818-04	3/19/18	<0.5	<4
W-818-06	3/19/18	29 D	<4
W-818-07	3/19/18	<2.5 D	<4
W-818-07	3/19/18 DUP	<2.5 D	<4
W-818-08	1/16/18	86	5.7
W-818-08	7/12/18	-	4.4
W-818-09	1/16/18	87	4.6
W-818-09	7/12/18	-	4.7
W-818-11	3/12/18	86 DL	5.4
W-818-11	3/12/18 DUP	84 DL	5.8
W-819-02	3/6/18	<2.5 D	<4
W-823-01	3/7/18	-	<4
W-823-01	3/19/18	17 D	-
W-823-13	3/7/18	-	<4
W-823-13	3/19/18	45 D	-
W-827-05	3/14/18	<0.5	<4
W-829-06	1/8/18	77 D	14
W-829-06	4/5/18	70 D	13
W-829-06	7/10/18	71 D	14
W-829-06	10/2/18	75 D	17
W-829-06	10/2/18 DUP	49 D	13
W-829-08	3/14/18	<1 D	<4
W-829-15	4/5/18	-	<4
W-829-1938	4/11/18	-	<4
W-829-1938	4/11/18 DUP	-	<4
W-829-1940	3/14/18	45 D	<4
W-829-22	4/9/18	-	<4
WELL18	1/24/18	<0.5	<4
WELL18	1/24/18 DUP	<0.5	<4
WELL18	2/6/18	<0.5	<4
WELL18	2/6/18 DUP	<0.5	<4
WELL18	3/7/18	<0.5	<4
WELL18	3/7/18 DUP	<0.5	<4
WELL18	4/25/18	<0.5	<4

Table B-4.02. High Explosives Process Area Operable Unit nitrate and perchlorate in ground and surface water.

Location	Date	Nitrate (as NO3) (mg/L)	Perchlorate (µg/L)
WELL18	4/25/18 DUP	<0.5	<4
WELL18	5/30/18	<0.5	<4
WELL18	5/30/18 DUP	<0.5	<4
WELL18	6/28/18	<0.5	<4
WELL18	6/28/18 DUP	<0.5	<4
WELL18	7/23/18	<0.5	<4
WELL18	7/23/18 DUP	<0.5	<4
WELL18	8/7/18	<0.5	<4
WELL18	8/7/18 DUP	<0.5	<4
WELL18	9/4/18	<0.5	<4
WELL18	9/4/18 DUP	<0.5	<4
WELL18	10/2/18	<0.5	<4
WELL18	10/2/18 DUP	<0.5	<4
WELL18	11/6/18	<0.5	<4
WELL18	11/6/18 DUP	<0.5	<4
WELL18	12/17/18	<0.5	<4
WELL18	12/17/18 DUP	<0.5	<4
WELL20	1/24/18	<0.5	<4
WELL20	1/24/18 DUP	<0.5	<4
WELL20	2/6/18	<0.5	<4
WELL20	2/6/18 DUP	<0.5	<4
WELL20	3/7/18	<0.5	<4
WELL20	3/7/18 DUP	<0.5	<4
WELL20	4/25/18	<0.5	<4
WELL20	4/25/18 DUP	<0.5	<4
WELL20	5/30/18	<0.5	<4
WELL20	5/30/18 DUP	<0.5	<4
WELL20	6/28/18	<0.5	<4
WELL20	6/28/18 DUP	<0.5	<4
WELL20	7/23/18	<0.5	<4
WELL20	7/23/18 DUP	<0.5	<4
WELL20	8/23/18	<0.5	<4
WELL20	8/23/18 DUP	<0.5	<4
WELL20	9/18/18	<0.5	<4
WELL20	9/18/18 DUP	<0.5	<4
WELL20	10/3/18	<0.5	<4
WELL20	10/3/18 DUP	<0.5	<4
WELL20	11/7/18	<0.5	<4
WELL20	11/7/18 DUP	<0.5	<4
WELL20	12/17/18	<0.5	<4
WELL20	12/17/18 DUP	<0.5	<4

Table B-4.03. High Explosives Process Area Operable Unit high explosive compounds in ground and surface water.

Location	Date	1,3,5-Trinitrobenzene (µg/L)	1,3-Dinitrobenzene (µg/L)	2,4-Dinitrotoluene (µg/L)	2,6-Dinitrotoluene (µg/L)	2-Amino-4,6-Dinitrotoluene (µg/L)	2-Nitrotoluene (µg/L)	3-Nitrotoluene (µg/L)	4-Amino-2,6-Dinitrotoluene (µg/L)	4-Nitrotoluene (µg/L)	HMX (µg/L)	Nitrobenzene (µg/L)	RDX (µg/L)	TNT (µg/L)
GALLO1	1/30/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
GALLO1	1/30/18 DUP	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
GALLO1	2/26/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
GALLO1	2/26/18 DUP	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
GALLO1	3/13/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
GALLO1	3/13/18 DUP	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
GALLO1	4/25/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
GALLO1	4/25/18 DUP	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
GALLO1	5/9/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
GALLO1	5/9/18 DUP	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
GALLO1	6/13/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
GALLO1	6/13/18 DUP	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
GALLO1	7/25/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
GALLO1	7/25/18 DUP	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
GALLO1	7/25/18 DUP	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
GALLO1	8/22/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
GALLO1	8/22/18 DUP	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
GALLO1	8/22/18 DUP	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
GALLO1	9/4/18	<2 D	<2 D	<2 D	<2 D	<2 D	<2 D	<2 D	<2 D	<2 D	<1 D	<2 D	<1 D	<2 D
GALLO1	9/4/18 DUP	<2 D	<2 D	<2 D	<2 D	<2 D	<2 D	<2 D	<2 D	<2 D	<1 D	<2 D	<1 D	<2 D
GALLO1	9/4/18 DUP	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
GALLO1	10/18/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
GALLO1	10/18/18 DUP	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
GALLO1	11/6/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
GALLO1	11/6/18 DUP	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
GALLO1	12/12/18	<2 D	<2 D	<2 D	<2 D	<2 D	<2 D	<2 D	<2 D	<2 D	<1 D	<2 D	<1 D	<2 D
GALLO1	12/12/18 DUP	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
W-35B-01	3/19/18	<2.1 IJ	<2.1 IJ	<2.1 IJ	<2.1 IJ	<2.1 IJ	<2.1 IJ	<2.1 IJ	<2.1 IJ	<2.1 IJ	<1.1 IJ	<2.1 IJ	<1.1 IJ	<2.1 IJ
W-35B-01	9/24/18	<2.1	<2.1 O	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<1.1 L	<2.1	<1.1 O	<2.1
W-35B-02	2/26/18	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<1	<2.1	<1	<2.1
W-35B-02	9/19/18	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	R	<2.2	<1.1	<2.2
W-35B-03	2/26/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
W-35B-03	9/19/18	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	R	<2.1	<1.1	<2.1
W-35B-04	2/26/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
W-35B-04	9/19/18	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	R	<2.1	<1	<2.1
W-35B-05	2/26/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
W-35B-05	9/19/18	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	R	<2.3	<1.1	<2.3
W-35C-02	3/5/18	<2 L	<2	<2	<2	<2	<2	<2	<2	<2	<1 L	<2	<1 L	<2
W-35C-06	2/26/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
W-35C-07	2/26/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	24 D	<2	<1	<2
W-4A	3/19/18	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<1.1	<2.2	<1.1	<2.2
W-4A	3/19/18 DUP	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
W-4AS	3/13/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
W-4B	4/19/18 REX	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<1.1	<2.1	<1.1	<2.1
W-6BD	2/20/18	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<1	<2.1	<1	<2.1
W-6BS	2/20/18	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<1.1	<2.1	<1.1	<2.1
W-6BS	2/20/18 DUP	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2

Table B-4.03. High Explosives Process Area Operable Unit high explosive compounds in ground and surface water.

Location	Date	1,3,5-Trinitrobenzene (µg/L)	1,3-Dinitrobenzene (µg/L)	2,4-Dinitrotoluene (µg/L)	2,6-Dinitrotoluene (µg/L)	2-Amino-4,6-Dinitrotoluene (µg/L)	2-Nitrotoluene (µg/L)	3-Nitrotoluene (µg/L)	4-Amino-2,6-Dinitrotoluene (µg/L)	4-Nitrotoluene (µg/L)	HMX (µg/L)	Nitrobenzene (µg/L)	RDX (µg/L)	TNT (µg/L)
W-6CD	3/6/18	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<1	<2.1	<1	<2.1
W-6CD	3/6/18 DUP	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
W-6CI	3/5/18	<2.1 L	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<1 L	<2.1	<1 L	<2.1
W-6CI	3/5/18 DUP	<2 L	<2	<2	<2	<2	<2	<2	<2	<2	<1 L	<2	<1 L	<2
W-6CS	2/26/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
W-6ES	2/26/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
W-6G	2/26/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
W-6H	3/7/18	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<1.2	<2.5	<1.2	<2.5
W-6H	9/13/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
W-6J	3/7/18	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<1.1	<2.2	<1.1	<2.2
W-6J	9/13/18	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<1	<2.1	30 D	<2.1
W-6K	3/5/18	<2 L	<2	<2	<2	<2	<2	<2	<2	<2	3.1 L	<2	<1 L	<2
W-808-02	3/27/18	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<1	<2.1	<1	<2.1
W-809-01	3/14/18 DUP	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
W-809-01	4/19/18 REX	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
W-809-02	4/19/18 REX	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<1	<2.1	<1	<2.1
W-809-03	4/19/18	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	2.7	<2.2	6.2	<2.2	33 D	<2.2
W-809-03	9/10/18	<2	<2	<2	<2	<2	<2	<2	4.3	<2	9	<2	60 D	<2
W-810-01	4/19/18 REX	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<1	<2.1	<1	<2.1
W-814-01	2/20/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
W-814-02	3/12/18	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<1	<2.1	<1	<2.1
W-814-2138	3/12/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
W-815-02	1/3/18	<2	<2	<2	<2	<2	<2	<2	4.5	<2	8	<2	57 D	<2
W-815-02	7/9/18	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	4.5	<2.1	8.3	<2.1	58 DL	<2.1
W-815-04	1/3/18	<2	<2	<2	<2	<2	<2	<2	3.3	<2	6.9	<2	58 D	<2
W-815-04	7/9/18	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	3.3	<2.2	7.5	<2.2	53 DIJL	<2.2
W-815-05	4/19/18	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<1	<2.1	<1	<2.1
W-815-07	3/12/18	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<1.1	<2.1	2.1	<2.1
W-815-07	3/12/18 DUP	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	2.1	<2
W-815-08	4/19/18	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<1.1	<2.1	<1.1	<2.1
W-815-2110	3/7/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
W-815-2110	9/13/18	<2 D	<2 D	<2 D	<2 D	<2 D	<2 D	<2 D	<2 D	<2 D	<1 D	<2 D	<1 D	<2 D
W-815-2111	3/7/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
W-815-2111	9/13/18	<2 D	<2 D	<2 D	<2 D	<2 D	<2 D	<2 D	<2 D	<2 D	<1 D	<2 D	<1 D	<2 D
W-815-2621	2/12/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
W-815-2803	2/5/18	<2	<2	<2	<2	<2	<2	<2	5.3	<2	5.4	<2	53 D	<2
W-815-2803	7/9/18	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	6	<2.2	6.6	<2.2	56 DL	<2.2
W-817-01	1/8/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	15	<2	41	<2
W-817-01	4/9/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	19	<2	38	<2
W-817-01	7/10/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	20	<2	40	<2
W-817-01	11/7/18	<2	<2	<2	<2.1	<2	<2.6	<2	<2	<2.5	15	<2	42	<2
W-817-01	11/7/18 DUP	<2	<2	<2	<2.1	<2	<2.6	<2	<2	<2.5	14	<2	40	<2
W-817-03	1/8/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	17 D	<2
W-817-03	7/9/18	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<1.1	<2.2	17 DL	<2.2
W-817-03A	3/19/18	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<1	<2.1	4.2	<2.1
W-817-04	3/19/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	9.5	<2
W-817-04	3/19/18 DUP	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	10	<2

Table B-4.03. High Explosives Process Area Operable Unit high explosive compounds in ground and surface water.

Location	Date	1,3,5-Trinitrobenzene (µg/L)	1,3-Dinitrobenzene (µg/L)	2,4-Dinitrotoluene (µg/L)	2,6-Dinitrotoluene (µg/L)	2-Amino-4,6-Dinitrotoluene (µg/L)	2-Nitrotoluene (µg/L)	3-Nitrotoluene (µg/L)	4-Amino-2,6-Dinitrotoluene (µg/L)	4-Nitrotoluene (µg/L)	HMX (µg/L)	Nitrobenzene (µg/L)	RDX (µg/L)	TNT (µg/L)
W-817-05	3/21/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
W-817-2318	1/8/18	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<1.1	<2.1	1.2	<2.1
W-817-2318	7/9/18	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<1.1	<2.1	<1.1	<2.1
W-817-2609	3/19/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
W-817-3023	3/21/18	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<1.1	<2.1	<1.1	<2.1
W-817-3025	3/19/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
W-817-3026	3/19/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
W-818-01	3/12/18	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<1.1	<2.1	3.7	<2.1
W-818-04	3/19/18	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<1.1	<2.2	<1.1	<2.2
W-818-07	3/19/18	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<1.1	<2.2	<1.1	<2.2
W-818-07	3/19/18 DUP	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<1.1	<2.2	<1.1	<2.2
W-818-08	1/16/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
W-818-08	4/3/18	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<1.1	<2.1	2.3	<2.1
W-818-08	10/8/18	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<1.1	<2.1	2.3	<2.1
W-818-09	1/16/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
W-818-09	4/3/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	1.3	<2
W-818-09	10/8/18	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<1	<2.1	1.3	<2.1
W-818-09	10/8/18 DUP	<2	<2	<2	<2.1	<2	<2.6	<2	<2	<2.5	<1	<2	1.1	<2
W-818-11	3/12/18	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<1	<2.1	24 D	<2.1
W-818-11	3/12/18 DUP	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	24 D	<2
W-819-02	3/6/18	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<1	<2.1	<1	<2.1
W-823-01	3/7/18	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<1.1	<2.2	<1.1	<2.2
W-823-13	3/7/18	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4	<1.2	<2.4	<1.2	<2.4
W-827-05	3/14/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
W-829-06	1/8/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
W-829-08	3/14/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
W-829-15	4/5/18	-	-	<5	<5	-	-	-	-	-	<0.26	<5	<0.26	<1.3
W-829-1938	4/11/18	-	-	<5	<5	-	-	-	-	-	<0.24	<5	<0.24	<1.2
W-829-1938	4/11/18 DUP	-	-	<5	<5	-	-	-	-	-	<0.26	<5	<0.26	<1.3
W-829-1940	3/14/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
W-829-22	4/9/18	-	-	<5	<5	-	-	-	-	-	<0.26	<5	<0.26	<1.3
WELL18	1/24/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
WELL18	1/24/18 DUP	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
WELL18	2/6/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
WELL18	2/6/18 DUP	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
WELL18	3/7/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
WELL18	3/7/18 DUP	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
WELL18	4/25/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
WELL18	4/25/18 DUP	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
WELL18	5/30/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
WELL18	5/30/18 DUP	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
WELL18	6/28/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
WELL18	6/28/18 DUP	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
WELL18	7/23/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
WELL18	7/23/18 DUP	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
WELL18	8/7/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
WELL18	8/7/18 DUP	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2

Table B-4.03. High Explosives Process Area Operable Unit high explosive compounds in ground and surface water.

Location	Date	1,3,5-Trinitrobenzene (µg/L)	1,3-Dinitrobenzene (µg/L)	2,4-Dinitrotoluene (µg/L)	2,6-Dinitrotoluene (µg/L)	2-Amino-4,6-Dinitrotoluene (µg/L)	2-Nitrotoluene (µg/L)	3-Nitrotoluene (µg/L)	4-Amino-2,6-Dinitrotoluene (µg/L)	4-Nitrotoluene (µg/L)	HMX (µg/L)	Nitrobenzene (µg/L)	RDX (µg/L)	TNT (µg/L)
WELL18	9/4/18	<2 D	<2 D	<2 D	<2 D	<2 D	<2 D	<2 D	<2 D	<2 D	<1 D	<2 D	<1 D	<2 D
WELL18	9/4/18 DUP	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
WELL18	10/2/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
WELL18	10/2/18 DUP	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
WELL18	11/6/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
WELL18	11/6/18 DUP	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
WELL18	12/17/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
WELL18	12/17/18 DUP	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
WELL20	1/24/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
WELL20	1/24/18 DUP	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
WELL20	2/6/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
WELL20	2/6/18 DUP	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
WELL20	3/7/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
WELL20	3/7/18 DUP	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
WELL20	4/25/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
WELL20	4/25/18 DUP	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
WELL20	5/30/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
WELL20	5/30/18 DUP	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
WELL20	6/28/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
WELL20	6/28/18 DUP	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
WELL20	7/23/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
WELL20	7/23/18 DUP	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
WELL20	8/23/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
WELL20	8/23/18 DUP	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
WELL20	9/18/18	<2 D	<2 D	<2 D	<2 D	<2 D	<2 D	<2 D	<2 D	<2 D	<1 DL	<2 D	<1 D	<2 D
WELL20	9/18/18 DUP	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
WELL20	10/3/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
WELL20	10/3/18 DUP	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
WELL20	11/7/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
WELL20	11/7/18 DUP	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
WELL20	12/17/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
WELL20	12/17/18 DUP	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2

Table B-4.04. High Explosives Process Area Operable Unit diesel range organic compounds in ground water.

Location	Date	Diesel Fuel (µg/L)
W-823-1	9/13/18	<53 O

Table B-4.06. High Explosives Process Area Operable Unit metals and silica in ground water.

Location	Date	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)	Iron (mg/L)	Lead (mg/L)	Manganese (mg/L)	Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Potassium (mg/L)	Selenium (mg/L)	Silver (mg/L)	Sodium (mg/L)	Thallium (mg/L)	Vanadium (mg/L)	Zinc (mg/L)
GALLO1	1/30/18	-	0.0036	<0.025	<0.0005	<0.0005	-	<0.025	<0.01	-	<0.002	-	-	-	<0.005	-	-	-	-	-	<0.025	0.044
GALLO1	1/30/18 DUP	-	0.002	<0.02	<0.0005	<0.0005	-	<0.02	<0.01	-	<0.002	-	-	-	<0.005	-	-	-	-	-	<0.02	<0.02
GALLO1	4/25/18	-	0.0035	<0.025 B	<0.0005	<0.0005	-	<0.025	<0.01	-	<0.002	-	-	-	<0.005	-	-	-	-	-	<0.025	0.028
GALLO1	4/25/18 DUP	-	0.002	<0.02	<0.0005	<0.0005	-	<0.02	<0.01	-	<0.002	-	-	-	<0.005	-	-	-	-	-	<0.02	<0.02
GALLO1	7/25/18	-	0.0032	<0.025	<0.0005	<0.0005	-	<0.025 B	<0.01	-	<0.002	-	-	-	<0.005	-	-	-	-	-	<0.025	<0.02
GALLO1	7/25/18 DUP	-	0.0026	<0.025	<0.0005	<0.0005	-	<0.025 B	<0.01	-	<0.002	-	-	-	<0.005	-	-	-	-	-	<0.025	<0.02
GALLO1	7/25/18 DUP2	-	0.003	<0.02	<0.0005	<0.0005	-	<0.02	<0.01	-	<0.002	-	-	-	<0.005	-	-	-	-	-	<0.02	<0.02
GALLO1	10/18/18	-	0.0035	<0.025	<0.0005	<0.0005	-	<0.025	<0.01	-	<0.002	-	-	-	<0.005	-	-	-	-	-	<0.025	0.023
GALLO1	10/18/18 DUP	-	0.002	<0.02	<0.0005	<0.0005	-	<0.02	<0.01	-	<0.002	-	-	-	<0.005	-	-	-	-	-	<0.02	<0.02
W-829-15	4/5/18	<0.005	0.018	0.052	<0.0005	<0.0005	<0.001	<0.025	<0.01 F	<0.05	<0.002	<0.01	<0.0002 BF	<0.025 B	<0.005	18 F	<0.002 B	<0.0005	140 F	<0.001	<0.01	0.031 FO
W-829-15	5/21/18 REX	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.02
W-829-15	5/29/18 REX	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.022 F
W-829-1938	4/11/18	<0.005	0.021	<0.025	<0.0005	<0.0005	<0.001	<0.025	<0.01	0.051	<0.002	0.038	<0.0002	<0.025 B	<0.005	11	<0.002	<0.0005	140	<0.001	<0.01	<0.02
W-829-1938	4/11/18 DUP	<0.005	0.021	<0.025	<0.0005	<0.0005	<0.001	<0.025	<0.01	0.075	<0.002	0.05	<0.0002	<0.025 B	<0.005	10	<0.002	0.00087	130	<0.001 B	<0.01	<0.02
W-829-22	4/9/18	<0.005	<0.002	<0.025	<0.0005	<0.0005	<0.001	<0.025	<0.01	<0.05	<0.002	0.013	<0.0002 O	<0.025 B	<0.005	8	<0.002	<0.0005	210	<0.001	<0.01	0.028
W-829-22	5/22/18 REX	-	-	-	-	-	-	-	-	-	-	0.014	-	-	-	-	-	-	-	-	-	0.02 F
W-829-22	5/29/18 REX	-	-	-	-	-	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	0.022 F
WELL20	1/24/18	<0.005	<0.002	<0.025	<0.0005	<0.0005	<0.001	<0.025	<0.01	-	<0.002	-	<0.0002	<0.025 B	<0.005	-	<0.002	<0.0005	-	<0.001	<0.01	0.02
WELL20	1/24/18 DUP	<0.005	<0.002	<0.02	<0.0005	<0.0005	<0.001	<0.02	<0.01	-	<0.002	-	<0.0002	<0.02 B	<0.005	-	<0.002	<0.0005	-	<0.001	<0.02	<0.02
WELL20	4/25/18	<0.005	<0.002	<0.025	<0.0005	<0.0005	<0.001	<0.025	<0.01	-	<0.002	-	<0.0002	<0.025	<0.005	-	<0.002	<0.0005	-	<0.001	<0.01	0.026
WELL20	4/25/18 DUP	<0.005	<0.002	<0.02	<0.0005	<0.0005	<0.001	<0.02	<0.01	-	<0.002	-	<0.0002	<0.02	<0.005	-	<0.002	<0.0005	-	<0.001	<0.02	<0.02
WELL20	7/23/18	<0.005	<0.002	<0.025	<0.0005	<0.0005	<0.001	<0.025	<0.01 F	-	<0.002	-	<0.0002	<0.025 B	<0.005 F	-	<0.002	<0.0005	-	<0.001	<0.01	<0.02
WELL20	7/23/18 DUP	<0.005	<0.002	<0.02	<0.0005	<0.0005	<0.001	<0.02	<0.01	-	<0.002	-	<0.0002	<0.02	<0.005	-	<0.002	<0.0005 L	-	<0.001	<0.02	<0.02
WELL20	10/3/18	<0.005	<0.002	<0.025	<0.0005	<0.0005	<0.001	<0.025	<0.01	-	<0.002	-	<0.0002	<0.025 B	<0.005	-	<0.002 BO	<0.0005	-	<0.001	<0.01	0.02
WELL20	10/3/18 DUP	<0.005	<0.002	<0.02	<0.0005	<0.0005	<0.001	<0.02	<0.01	-	<0.002	-	<0.0002	<0.02	<0.005	-	<0.002	<0.0005	-	<0.001	<0.02	<0.02

Table B-4.07. High Explosives Process Area Operable Unit gross alpha and beta in ground water.

Location	Date	Gross alpha (pCi/L)	Gross beta (pCi/L)
GALLO1	1/30/18	<2	<3
GALLO1	1/30/18 DUP	<2	<3
GALLO1	4/25/18	2.37 ± 2.31 O	<3
GALLO1	4/25/18 DUP	<2	4.9 ± 2.3
GALLO1	7/25/18	<2 O	4.36 ± 1.24 O
GALLO1	7/25/18 DUP	<2 O	3.81 ± 1.43 O
GALLO1	7/25/18 DUP	<2	3.8 ± 1.7
GALLO1	10/18/18	<2	<3
GALLO1	10/18/18 DUP	<2	3.4 ± 1.9
W-829-15	4/5/18	<2 O	18 ± 3.29
W-829-1938	4/11/18	2.19 ± 1.48 O	10.9 ± 2.1
W-829-1938	4/11/18 DUP	<2 O	9.65 ± 1.97
W-829-22	4/9/18	<2 O	6.64 ± 1.61
WELL20	1/24/18	<2	6.83 ± 1.7
WELL20	1/24/18 DUP	4.5 ± 1.9	6.4 ± 2
WELL20	4/25/18	<2 O	6.09 ± 1.53
WELL20	4/25/18 DUP	<2	6.3 ± 1.8
WELL20	7/23/18	<2 O	6.4 ± 1.57
WELL20	7/23/18 DUP	<2	7.1 ± 1.7
WELL20	10/3/18	<2	4.94 ± 1.64
WELL20	10/3/18 DUP	<2	6.5 ± 1.6

Table B-4.08. High Explosives Process Area Operable Unit tritium in ground water.

Location	Date	Tritium (pCi/L)
GALLO1	1/30/18	<100
GALLO1	1/30/18 DUP	<100
GALLO1	4/25/18	<100
GALLO1	4/25/18 DUP	<100
GALLO1	7/25/18	<100
GALLO1	7/25/18 DUP	<100
GALLO1	7/25/18 DUP	<100
GALLO1	10/18/18	<100
GALLO1	10/18/18 DUP	<100
WELL20	1/24/18	<100
WELL20	1/24/18 DUP	<100
WELL20	4/25/18	<100
WELL20	4/25/18 DUP	<100
WELL20	7/23/18	<100
WELL20	7/23/18 DUP	<100
WELL20	10/3/18	<100
WELL20	10/3/18 DUP	<100

Table B-5.01. Building 850 area in Operable Unit 5 volatile organic compounds (VOCs) in ground water.

Location	Date	Type	TCE (µg/L)	PCE (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	Carbon tetrachloride (µg/L)	Chloroform (µg/L)	1,1-DCA (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	1,1,1-TCA (µg/L)	1,1,2-TCA (µg/L)	Freon 11 (µg/L)	Freon 113 (µg/L)	Vinyl chloride (µg/L)
K1-01C	2/28/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K1-01C	5/10/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K1-01C	9/5/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K1-01C	11/28/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K1-02B	1/22/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K1-02B	1/22/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K1-02B	5/2/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K1-04	2/8/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K1-04	5/8/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K1-04	9/5/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K1-04	11/14/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K1-05	2/28/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	22	<0.5
K1-05	5/15/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	22	<0.5
K1-05	8/15/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	19	<0.5
K1-05	8/15/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	18	<0.5
K1-05	10/9/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	25	<0.5
K1-07	2/5/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.56	<0.5
K1-07	5/15/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.1	<0.5
K1-07	8/8/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.61	<0.5
K1-07	11/27/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.82	<0.5
K1-08	1/23/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	36	<0.5
K1-08	5/7/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	35	<0.5
K1-08	8/14/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	26	<0.5
K1-08	11/5/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	27	<0.5
K1-09	2/27/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	60	<0.5
K1-09	5/3/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	64	<0.5
K1-09	8/14/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	53	<0.5
K1-09	11/28/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	48	<0.5
W-865-02	1/22/18		<0.5	1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.63	49	<0.5
W-865-02	7/31/18		<0.5	0.99	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	42	<0.5
W-865-05	3/28/18		<0.5 L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	71 D	<0.5
W-865-05	3/28/18		<0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	72	<0.5
W-865-05	9/12/18		<0.5	0.65	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	120 D	<0.5
W-865-1802	1/22/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-865-1802	7/23/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Table B-5.01. Building 850 area in Operable Unit 5 volatile organic compounds (VOCs) in ground water.

Location	Date	Type	TCE (µg/L)	PCE (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	Carbon tetrachloride (µg/L)	Chloroform (µg/L)	1,1-DCA (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	1,1,1-TCA (µg/L)	1,1,2-TCA (µg/L)	Freon 11 (µg/L)	Freon 113 (µg/L)	Vinyl chloride (µg/L)
W-865-2005	1/29/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	5.9	<0.5
W-865-2005	1/29/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	5.9	<0.5
W-865-2005	9/11/18		<0.5 L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	7.6	<0.5
W-865-2005	9/11/18	DUP	<0.5 L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	8.4	<0.5
W-865-2121	3/13/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	12	<0.5
W-865-2121	7/31/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	9.6	<0.5
W-865-2133	1/30/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-865-2133	7/24/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-865-2224	5/8/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-865-2224	11/13/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-865-3403	10/31/18		<0.5	0.72	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	<0.5	<0.5	88	<0.5
W-PIT1-220	4/17/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT1-220	10/4/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT1-232	1/30/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT1-232	5/16/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT1-232	5/16/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT1-232	9/13/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT1-232	11/26/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT1-232	11/26/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT1-262	4/17/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT1-262	10/4/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT1-262	10/4/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT1-302	5/3/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT1-302	5/3/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT7-340	10/31/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Table B-5.01 (Con't). Analyte detected but not reported in main table.

Location	Date	Type	Detection frequency	Toluene (µg/L)
K1-01C	2/28/18		0 of 37	-
K1-01C	5/10/18		1 of 37	0.5
K1-01C	9/5/18		0 of 37	-
K1-01C	11/28/18		0 of 37	-
K1-02B	1/22/18		0 of 37	-
K1-02B	1/22/18	DUP	0 of 37	-
K1-02B	5/2/18		0 of 37	-
K1-04	2/8/18		0 of 37	-
K1-04	5/8/18		0 of 37	-
K1-04	9/5/18		0 of 37	-
K1-04	11/14/18		0 of 37	-
K1-05	2/28/18		0 of 37	-
K1-05	5/15/18		0 of 37	-
K1-05	8/15/18		0 of 37	-
K1-05	8/15/18	DUP	0 of 37	-
K1-05	10/9/18		0 of 37	-
K1-07	2/5/18		0 of 37	-
K1-07	5/15/18		0 of 37	-
K1-07	8/8/18		0 of 37	-
K1-07	11/27/18		0 of 37	-
K1-08	1/23/18		0 of 37	-
K1-08	5/7/18		0 of 37	-
K1-08	8/14/18		0 of 37	-
K1-08	11/5/18		0 of 37	-
K1-09	2/27/18		0 of 37	-
K1-09	5/3/18		0 of 37	-
K1-09	8/14/18		0 of 37	-
K1-09	11/28/18		0 of 37	-
W-865-02	1/22/18		0 of 18	-
W-865-02	7/31/18		0 of 18	-
W-865-05	3/28/18		0 of 18	-
W-865-05	3/28/18		0 of 37	-
W-865-05	9/12/18		0 of 18	-
W-865-1802	1/22/18		0 of 18	-
W-865-1802	7/23/18		0 of 18	-
W-865-2005	1/29/18		0 of 18	-
W-865-2005	1/29/18	DUP	0 of 18	-
W-865-2005	9/11/18		0 of 18	-
W-865-2005	9/11/18	DUP	0 of 18	-
W-865-2121	3/13/18		0 of 18	-
W-865-2121	7/31/18		0 of 18	-
W-865-2133	1/30/18		0 of 18	-
W-865-2133	7/24/18		0 of 18	-
W-865-2224	5/8/18		0 of 18	-
W-865-2224	11/13/18		0 of 18	-
W-865-3403	10/31/18		0 of 30	-
W-PIT1-2209	4/17/18		0 of 18	-
W-PIT1-2209	10/4/18		0 of 18	-
W-PIT1-2326	1/30/18		0 of 37	-
W-PIT1-2326	5/16/18		0 of 37	-
W-PIT1-2326	5/16/18	DUP	0 of 37	-
W-PIT1-2326	9/13/18		0 of 37	-
W-PIT1-2326	11/26/18		0 of 37	-
W-PIT1-2326	11/26/18	DUP	0 of 37	-
W-PIT1-2620	4/17/18		0 of 18	-
W-PIT1-2620	10/4/18		0 of 18	-
W-PIT1-2620	10/4/18	DUP	0 of 18	-
W-PIT1-3021	5/3/18		0 of 18	-
W-PIT1-3022	5/3/18		0 of 18	-
W-PIT7-3406	10/31/18		0 of 30	-

Table B-5.02. Building 850 area in Operable Unit 5 nitrate and perchlorate in ground water.

Location	Date	Nitrate as NO3 (mg/L)	Perchlorate (µg/L)
K1-01C	2/28/18	35	<4
K1-01C	5/10/18	36	<4
K1-01C	9/5/18	36	<4
K1-01C	11/28/18	37	<4
K1-02B	1/22/18	31	<4
K1-02B	1/22/18 DUP	31	4.5
K1-02B	5/2/18	30	4.3
K1-04	2/8/18	27	<4
K1-04	5/8/18	29	<4
K1-04	9/5/18	27	<4
K1-04	11/14/18	28	<4
K1-05	2/28/18	35	<4
K1-05	5/15/18	35	<4
K1-05	8/15/18	35	<4
K1-05	8/15/18 DUP	35	<4
K1-05	10/9/18	34	<4
K1-06	2/1/18	-	<4
K1-06	5/8/18	40 D	4.8
K1-07	2/5/18	24	<4
K1-07	5/15/18	30	<4
K1-07	8/8/18	29	<4
K1-07	11/27/18	30	<4
K1-08	1/23/18	34	<4 O
K1-08	5/7/18	35	<4
K1-08	8/14/18	33	<4
K1-08	11/5/18	33	<4
K1-09	2/27/18	33	<4
K1-09	5/3/18	35	<4
K1-09	8/14/18	34	<4
K1-09	11/28/18	35	<4
K2-03	5/23/18	13	-
K2-03	10/10/18	-	<4
K2-04S	4/24/18	-	5.8
K2-04S	4/24/18 DUP	-	5.9
K2-04S	11/1/18	-	5.8
NC2-05	6/19/18	39 D	<4
NC2-05	11/14/18	-	<4
NC2-05A	6/19/18	34 D	6.2
NC2-05A	6/19/18 DUP	34 D	4.4
NC2-05A	11/14/18	-	4
NC2-06	5/8/18	40 D	-
NC2-06	11/19/18	-	4.6
NC2-06A	5/8/18	0.63	-
NC2-06A	11/19/18	-	<4
NC2-09	5/7/18	<0.5	<4
NC2-10	5/7/18	24	<4
NC2-11D	5/2/18	32 D	4.5
NC2-11D	12/11/18	-	<4
NC2-11D	12/11/18 DUP	-	<4
NC2-11I	5/8/18	35 D	4.8

Table B-5.02. Building 850 area in Operable Unit 5 nitrate and perchlorate in ground water.

Location	Date	Nitrate as NO3 (mg/L)	Perchlorate (µg/L)
NC2-11I	11/28/18	-	4
NC2-11S	5/8/18	33 D	<4
NC2-11S	11/28/18	-	<4
NC2-12D	4/24/18	32	4.8
NC2-12D	4/24/18 DUP	32	6.4
NC2-12D	12/3/18	-	4.9
NC2-12I	5/21/18	37 D	5.8
NC2-12I	12/3/18	-	6
NC2-12S	5/21/18	97 D	4.8
NC2-12S	12/3/18	-	<4
NC2-13	5/9/18	35 D	<4
NC2-13	11/19/18	-	<4
NC2-14S	1/18/18	-	5.7
NC2-14S	7/24/18	-	4.2
NC2-14S	7/24/18 DUP	-	4.4
NC2-15	5/10/18	38 D	-
NC2-15	5/10/18 DUP	37 D	<4
NC2-15	5/31/18	-	<4
NC2-15	11/1/18	-	<4
NC2-16	1/18/18	-	<4
NC2-16	7/24/18	-	<4
NC2-17	5/7/18	34	6.9
NC2-17	11/19/18	-	6
NC2-18	5/16/18	-	5.9
NC2-18	11/1/18	-	4.7
NC2-19	11/19/18	-	<4
NC2-20	5/21/18	47 D	<4
NC7-10	1/18/18	-	11
NC7-10	1/18/18 DUP	-	9.3
NC7-10	5/1/18	52 D	-
NC7-10	7/23/18	-	12
NC7-11	5/1/18	50 D	4.6
NC7-11	10/22/18	-	8.8
NC7-15	10/8/18	33 D	<4
NC7-19	4/30/18	31	<4
NC7-19	10/8/18	-	<4
NC7-27	5/21/18	52 D	5.4
NC7-27	10/18/18	-	5
NC7-28	5/2/18	22 D	25
NC7-28	10/23/18	20	20
NC7-29	5/3/18	220 D	7
NC7-29	10/24/18	-	6.6
NC7-43	5/2/18	0.99	<4
NC7-43	10/22/18	-	<4
NC7-44	5/3/18	51 D	5
NC7-44	5/3/18 DUP	51	7.6
NC7-44	10/24/18	-	6.6
NC7-46	5/21/18	-	<4
NC7-56	5/9/18	48 D	-
NC7-56	5/31/18	-	5.6

Table B-5.02. Building 850 area in Operable Unit 5 nitrate and perchlorate in ground water.

Location	Date	Nitrate as NO3 (mg/L)	Perchlorate (µg/L)
NC7-56	10/29/18	-	5.2
NC7-58	5/31/18	-	5
NC7-58	10/29/18	-	4
NC7-59	5/9/18	48 D	6.8
NC7-59	10/29/18	-	5.2
NC7-60	1/18/18	-	<4
NC7-60	4/18/18	1.1	-
NC7-60	7/23/18	-	<4
NC7-61	1/10/18	-	30 D
NC7-61	1/10/18 DUP	-	31 D
NC7-61	5/24/18	-	42 D
NC7-61	5/24/18 DUP	-	42 D
NC7-61	7/16/18	-	36 D
NC7-61	7/16/18 DUP	-	32 D
NC7-61	10/30/18	-	41 D
NC7-61	10/30/18 DUP	-	42 D
NC7-62	5/31/18	-	5.7
NC7-62	10/31/18	-	4.9
NC7-62	10/31/18 DUP	-	6.7
NC7-69	5/17/18	<0.5	-
NC7-69	12/4/18	-	<4
NC7-70	5/3/18	<2.5 D	<4
NC7-70	10/23/18	-	<4
NC7-71	5/2/18	<0.5	<4
NC7-71	10/23/18	-	<4
NC7-72	5/31/18	-	4.4
NC7-72	10/29/18	-	4.3
NC7-73	5/9/18	50 D	-
NC7-73	5/31/18	-	5
NC7-73	10/29/18	-	4.4
W-850-05	5/3/18	1.9	<4
W-850-05	10/22/18	-	<4
W-850-2145	5/16/18	-	6.6
W-850-2145	11/1/18	-	5.7
W-850-2145	11/1/18 DUP	-	7
W-850-2312	5/16/18	<2.5 D	<4
W-850-2312	11/1/18	-	<4
W-850-2313	5/1/18	47	9.8
W-850-2313	10/22/18	-	9.9
W-850-2313	10/22/18 DUP	-	11
W-850-2314	4/18/18	<0.5	<4
W-850-2314	10/18/18	-	<4
W-850-2315	5/3/18	2.1	<4
W-850-2315	10/24/18	-	<4
W-850-2316	5/16/18	<2.5 D	<4
W-850-2316	11/1/18	-	<4
W-850-2416	5/2/18	1.5	<4
W-850-2416	10/23/18	-	<4
W-850-2417	5/9/18	53	50 D
W-850-2417	10/23/18	-	44 D

Table B-5.02. Building 850 area in Operable Unit 5 nitrate and perchlorate in ground water.

Location	Date	Nitrate as NO3 (mg/L)	Perchlorate (µg/L)
W-850-2805	5/9/18	1.7	<4
W-850-2805	10/24/18	-	<4
W-865-02	1/22/18	44 D	<4
W-865-02	7/31/18	46 D	-
W-865-05	3/28/18	76 D	<4
W-865-05	9/12/18	79 D	-
W-865-1802	4/25/18	31	<4
W-865-1803	4/25/18	38 D	<4
W-865-1803	10/10/18	-	<4
W-865-2005	1/29/18	31 D	<4
W-865-2005	1/29/18 DUP	31 D	<4
W-865-2005	5/8/18	-	<4
W-865-2005	5/8/18 DUP	-	<4
W-865-2005	9/11/18	33 D	-
W-865-2005	9/11/18 DUP	33 D	-
W-865-2005	9/17/18	-	<4
W-865-2005	9/17/18 DUP	-	<4
W-865-2005	10/31/18	-	<4
W-865-2005	10/31/18 DUP	-	<4
W-865-2121	3/13/18	50 D	<4
W-865-2121	7/31/18	51 D	-
W-865-2133	1/30/18	<0.5	<4
W-865-2133	5/8/18	-	<4
W-865-2133	7/24/18	<0.5	<4
W-865-2133	11/13/18	-	<4 L
W-865-2224	1/30/18	-	<4
W-865-2224	5/8/18	<0.5	<4
W-865-2224	7/24/18	-	<4
W-865-2224	11/13/18	<0.5	<4
W-865-3403	10/31/18	-	<4
W-PIT1-2204	12/4/18	-	<4
W-PIT1-2209	1/10/18	-	<4
W-PIT1-2209	4/17/18	63	-
W-PIT1-2209	4/19/18	-	<4
W-PIT1-2209	7/12/18	-	<4
W-PIT1-2209	10/4/18	60	<4
W-PIT1-2225	2/1/18	-	<4
W-PIT1-2225	5/10/18	<0.5	<4
W-PIT1-2225	7/30/18	-	<4
W-PIT1-2225	11/27/18	<0.5	<4
W-PIT1-2326	1/30/18	31	4.6
W-PIT1-2326	5/16/18	31	6.5
W-PIT1-2326	5/16/18 DUP	31	5.2
W-PIT1-2326	9/13/18	31	4.8
W-PIT1-2326	11/26/18	31	5.1
W-PIT1-2326	11/26/18 DUP	33	5.4
W-PIT1-2620	1/17/18	-	6.6
W-PIT1-2620	4/17/18	45 D	5.8
W-PIT1-2620	7/16/18	-	6.6
W-PIT1-2620	10/4/18	-	4.6

Table B-5.02. Building 850 area in Operable Unit 5 nitrate and perchlorate in ground water.

Location	Date	Nitrate as NO3 (mg/L)	Perchlorate (µg/L)
W-PIT1-2620	10/4/18 DUP	-	4.5
W-PIT1-3021	5/3/18	<0.5	-
W-PIT1-3021	12/4/18	-	<4
W-PIT1-3022	5/3/18	20	4.5
W-PIT1-3022	12/4/18	-	<4
W-PIT7-16	10/8/18	<0.5	<4
W-PIT7-3406	10/31/18	-	4

Table B-5.03. Building 850 area in Operable Unit 5 metals in ground water.

Location	Date	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)	Iron (mg/L)	Lead (mg/L)	Manganese (mg/L)	Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Selenium (mg/L)	Silica (as SiO2) (mg/L)	Silver (mg/L)	Sodium (mg/L)	Thallium (mg/L)	Vanadium (mg/L)	Zinc (mg/L)
K1-01C	2/28/18	-	<0.01 D	<0.12 DF	<0.0025 D	<0.0025 D	<0.005 BD	<0.12 BD	<0.05 D	0.075	<0.01 D	0.047	<0.0002	-	<0.025 D	<0.01 BD	-	<0.0025 D	36 BF	-	<0.12 D	<0.1 D
K1-01C	5/10/18	-	0.012	0.025	<0.0005	<0.0005	-	<0.025	<0.01	-	<0.002	-	-	-	<0.005	-	-	-	-	-	0.07	0.027
K1-01C	9/5/18	-	0.012	<0.025	<0.0005	<0.0005	<0.001	<0.025	<0.01	<0.05	<0.002 O	<0.01	<0.0002 B	-	<0.005	0.0021	-	<0.0005	34	-	0.066	0.025
K1-01C	11/28/18	-	0.0086	<0.025	<0.0005	<0.0005	-	<0.025	<0.01	-	<0.002	-	-	-	<0.005	-	-	-	-	-	0.071	<0.02
K1-02B	1/22/18	-	0.012	0.027 B	<0.0005	<0.0005	<0.001	<0.025 B	<0.01	<0.05	<0.002	0.087	<0.0002	-	<0.005	0.0026	-	<0.0005	42	-	0.049	<0.02
K1-02B	1/22/18 DUP	-	0.012	0.027 B	<0.0005	<0.0005	<0.001	<0.025 B	<0.01	<0.05	<0.002	<0.01	<0.0002	-	<0.005	0.0027	-	<0.0005	44	-	0.052	<0.02
K1-02B	5/2/18	-	0.011	0.028	<0.0005	<0.0005	-	<0.025	<0.01	-	<0.002	-	-	-	<0.005	-	-	-	-	-	0.051	<0.02
K1-04	2/8/18	-	0.0087	0.031	<0.0005	<0.0005	<0.001	<0.025 B	<0.01	<0.05	<0.002 B	<0.01	<0.0002	-	<0.005	<0.002	-	<0.0005	37	-	0.034	<0.02
K1-04	5/8/18	-	0.012 B	0.03	<0.0005	<0.0005	-	<0.025	<0.01	-	<0.002 B	-	-	-	<0.005	-	-	-	-	-	0.036	0.46
K1-04	9/5/18	-	0.012	0.028	<0.0005	<0.0005	<0.001	<0.025	<0.01	<0.05	<0.002 O	<0.01	<0.0002 B	-	<0.005	0.0025	-	<0.0005	39	-	0.034	0.023
K1-04	11/14/18	-	0.011	0.031 B	<0.0005	<0.0005	-	<0.025 B	<0.01 B	-	<0.002	-	-	-	<0.005	-	-	-	-	-	0.037 B	<0.02
K1-05	2/28/18	-	0.014	0.038 F	<0.0005	<0.0005	0.0018 B	<0.025 B	<0.01	0.11	<0.002	<0.01	<0.0002	-	<0.005	<0.002 B	-	<0.0005	43 BF	-	0.061	<0.02
K1-05	5/15/18	-	0.013	0.038 F	<0.0005 F	<0.0005	-	<0.025	<0.01 F	-	<0.002 F	-	-	-	<0.005	-	-	-	-	-	0.067 F	0.023 F
K1-05	8/15/18	-	0.013 B	0.036	<0.0005	<0.0005 O	<0.001	<0.025	<0.01	<0.05	<0.002	<0.01	<0.0002	-	<0.005	<0.002 O	-	<0.0005	40 B	-	0.065	0.034
K1-05	8/15/18 DUP	-	0.015 B	0.038	<0.0005	<0.0005 O	<0.001	<0.025	<0.01	<0.05	<0.002	<0.01	<0.0002	-	<0.005	0.002 O	-	<0.0005	42 B	-	0.07	0.031
K1-05	9/24/18 REX	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.02
K1-05	10/8/18	-	0.014	0.038	<0.0005	<0.0005	-	<0.025 BO	<0.01	-	<0.002	-	-	-	<0.005	-	-	-	-	-	0.065	0.041
K1-05	11/12/18 REX	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.026
K1-05	11/19/18 REX	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.01
K1-07	2/5/18	-	0.0072	0.028	<0.0005	<0.0005	<0.001	<0.025	<0.01	<0.05	<0.002	0.012	<0.0002	-	<0.005	0.0027	-	<0.0005	37	-	0.053	<0.02
K1-07	5/15/18	-	0.011	0.029 F	<0.0005	<0.0005	-	<0.025	<0.01 F	-	<0.002 F	-	-	-	<0.005	-	-	-	-	-	0.067 F	0.021 F
K1-07	8/8/18	-	0.0077	0.025	<0.0005	<0.0005	<0.001	<0.025	<0.01	<0.05	<0.002	<0.01	<0.0002	-	<0.005	<0.002	-	<0.0005	38	-	0.057	<0.02
K1-07	11/27/18	-	0.0053	0.027	<0.0005	<0.0005	-	<0.025	<0.01	-	<0.002	-	-	-	<0.005	-	-	-	-	-	0.057	<0.02
K1-08	1/23/18	-	0.014	0.046	<0.0005	<0.0005	<0.001 B	<0.025 B	<0.01	<0.05	<0.002	<0.01	<0.0002	-	<0.005	<0.002	-	<0.0005	44	-	0.064	0.024
K1-08	3/19/18 REX	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.022
K1-08	3/26/18 REX	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.027
K1-08	5/7/18	-	0.014	0.045	<0.0005	<0.0005	-	<0.025	<0.01	-	<0.002	-	-	-	<0.005	-	-	-	-	-	0.063	0.02
K1-08	8/14/18	-	0.014 O	0.045 B	<0.0005	<0.0005	<0.001	<0.025	<0.01	<0.05	<0.002 B	<0.01	<0.0002	-	<0.005	0.0024 B	-	<0.0005	47 BF	-	0.063	<0.02
K1-08	11/5/18	-	0.014	0.042	<0.0005	<0.0005 B	-	<0.025 B	<0.01	-	<0.002 B	-	-	-	<0.005	-	-	-	-	-	0.06 B	0.02
K1-09	2/6/18 REX	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.013
K1-09	2/20/18 REX	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.025
K1-09	2/27/18	-	0.013	0.044 B	<0.0005	<0.0005	0.0013 B	<0.025 O	<0.01 B	<0.05	<0.002	<0.01	<0.0002	-	<0.005 O	0.0021	-	<0.0005	42 J	-	0.058 B	<0.02
K1-09	5/3/18	-	0.013	0.048	<0.0005	<0.0005	-	<0.025	<0.01	-	<0.002	-	-	-	<0.005	-	-	-	-	-	0.063	0.021
K1-09	8/14/18	-	0.013 O	0.045 B	<0.0005	<0.0005	<0.001	<0.025	<0.01	<0.05	<0.002 B	<0.01	<0.0002	-	<0.005	<0.002 B	-	<0.0005	44 BF	-	0.064	<0.02
K1-09	11/28/18	-	0.0077	0.046	<0.0005	<0.0005	-	<0.025	<0.01	-	<0.002	-	-	-	<0.005	-	-	-	-	-	0.06	<0.02
W-865-02	1/22/18	<0.06	0.0093	0.024	<0.002	<0.005	<0.01	<0.02	<0.01	-	<0.003	-	<0.0002	<0.02	<0.02	<0.005	-	<0.005	-	<0.005	0.05	<0.05
W-865-05	3/28/18	<0.06	0.007	0.065	<0.002	<0.005	<0.01	<0.02	<0.01	-	<0.003	-	<0.0002	<0.02	<0.02	<0.005	-	<0.005	-	<0.005	0.038	0.032
W-865-2005	1/29/18	<0.06	0.013	0.027	<0.002	<0.005	<0.01	<0.02	<0.01	-	<0.003	-	<0.0002	<0.02	<0.02	<0.005	-	<0.005	-	<0.005	0.056	<0.02
W-865-2005	1/29/18 DUP	<0.06	0.013	0.027	<0.002	<0.005	<0.01	<0.02	<0.01	-	<0.003	-	<0.0002	<0.02	<0.02	<0.005	-	<0.005	-	<0.005	0.058	<0.02
W-865-2121	3/13/18	<0.06	0.0088	0.025	<0.002	<0.005	<0.01	<0.02	<0.01	-	<0.003	-	<0.0002	<0.02	<0.02	<0.005	-	<0.005	-	<0.005	0.051	0.036
W-865-2133	1/30/18	<0.06	0.019	0.02	<0.002	<0.005	<0.01	<0.02	<0.01	-	<0.003	-	<0.0002	<0.02	<0.02	<0.005	-	<0.005	-	<0.005	<0.01	0.037
W-865-3403	10/31/18	-	0.0064	0.064	-	<0.0005	0.001	-	-	-	<0.005	-	<0.0002	-	-	<0.002	72	<0.001	-	-	-	-
W-PIT1-2326	1/30/18	-	0.012	0.036	<0.0005	<0.0005	-	<0.025 B	<0.01	-	<0.002	-	-	-	<0.005	-	-	-	-	-	0.051	0.023
W-PIT1-2326	5/16/18	-	0.0089	0.036	<0.0005	<0.0005	-	<0.025	<0.01	-	<0.002	-	-	-	<0.005	-	-	-	-	-	0.05	0.024
W-PIT1-2326	5/16/18 DUP	-	0.0099	0.036	<0.0005	<0.0005	-	<0.025	<0.01	-	<0.002	-	-	-	<0.005	-	-	-	-	-	0.051	0.022
W-PIT1-2326	9/13/18	-	0.012	0.039	<0.0005	<0.0005	-	<0.025 B	<0.01	-	<0.002	-	-	-	<0.005	-	-	-	-	-	0.051	<0.02
W-PIT1-2326	11/26/18	-	0.012	0.036 F	<0.0005	<0.0005	-	<0.025	<0.01 F	-	<0.002	-	-	-	<0.005 F	-	-	-	-	-	0.053	<0.02 F
W-PIT1-2326	11/26/18 DUP	-	0.012	0.037 F	<0.0005	<0.0005	-	<0.025	<0.01 F	-	<0.002	-	-	-	<0.005 F	-	-	-	-	-	0.054	<0.02 F
W-PIT1-2620	4/17/18	-	0.016	0.044	-	<0.0005	<0.001	-	-	-	<0.005	-	<0.0002 L	-	-	0.004	-	<0.001	-	-	-	-
W-PIT7-3406	10/31/18	-	0.0051	0.011	-	<0.0005	<0.001	-	-	-	<0.005	-	<0.0002	-	-	0.014	47	<0.001	-	-	-	-

Table B-5.04. Building 850 area in Operable Unit 5 polychlorinated biphenyl (PCB) compounds in ground water.

Location	Date	PCB 1016 (µg/L)	PCB 1221 (µg/L)	PCB 1232 (µg/L)	1242 (µg/L)	PCB 1248 (µg/L)	PCB 1254 (µg/L)	1260 (µg/L)
K1-01C	2/28/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K1-02B	1/22/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K1-02B	1/22/18 DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K1-04	2/8/18	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
K1-05	2/28/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K1-07	2/5/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K1-08	1/23/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K1-09	2/27/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
NC7-28	5/2/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
NC7-44	5/3/18	R	R	R	R	R	R	R

Table B-5.05. Building 850 area in Operable Unit 5 total uranium and uranium isotopes in ground water.

Location	Date	AS	AS	AS	MS	MS	MS	MS	MS	MS	MS	MS
		Uranium 234 and 233 (in activity) (pCi/L)	Uranium 235 and 236 (in activity) (pCi/L)	Uranium 238 (in activity) (pCi/L)	Total Uranium (in activity) (pCi/L)	Total Uranium (in mass) (µg/L)	Uranium 234 (in activity) (pCi/L)	Uranium 235 (in activity) (pCi/L)	Uranium 236 (in activity) (pCi/L)	Uranium 238 (in activity) (pCi/L)	Uranium 238 (in mass) (µg/L)	Uranium 235/238 (atom/ atom)
K1-01C	2/28/18	2.41 ± 0.428 BO	0.122 ± 0.0811 O	1.52 ± 0.298	-	-	-	-	-	-	-	-
K1-01C	5/10/18	2.28 ± 0.383	<0.1	1.11 ± 0.229	-	-	-	-	-	-	-	-
K1-01C	9/5/18	2.28 ± 0.342	<0.1	1.12 ± 0.203	-	-	-	-	-	-	-	-
K1-01C	11/28/18	2.41 ± 0.374	0.108 ± 0.0689	0.953 ± 0.192	-	-	-	-	-	-	-	-
K1-02B	1/22/18	3.10 ± 0.474	0.167 ± 0.0851 O	2.15 ± 0.356	-	-	-	-	-	-	-	-
K1-02B	1/22/18 DUP	3.11 ± 0.459	0.144 ± 0.0759	1.84 ± 0.307	-	-	-	-	-	-	-	-
K1-02B	5/2/18	2.50 ± 0.372	0.173 ± 0.0769	1.57 ± 0.262	-	-	-	-	-	-	-	-
K1-04	2/8/18	1.65 ± 0.288 O	0.141 ± 0.0767	0.732 ± 0.169	-	-	-	-	-	-	-	-
K1-04	5/8/18	1.42 ± 0.269	<0.1 O	0.798 ± 0.185	-	-	-	-	-	-	-	-
K1-04	9/5/18	1.19 ± 0.227	<0.1	0.625 ± 0.149	-	-	-	-	-	-	-	-
K1-04	11/14/18	1.44 ± 0.225 O	<0.1	0.706 ± 0.139	2.00 ± 0.0230	1.90 ± 0.0190	1.30 ± 0.0220	0.0300 ± 0.000340	<0.0001 2	0.630 ± 0.00640	1.90 ± 0.0190	0.00726 ±
K1-05	2/28/18	2.00 ± 0.375 BO	0.144 ± 0.0909 O	0.992 ± 0.231	-	-	-	-	-	-	-	-
K1-05	5/15/18	2.08 ± 0.386	<0.1	1.01 ± 0.234	-	-	-	-	-	-	-	-
K1-05	8/15/18	1.88 ± 0.327 O	0.161 ± 0.0815	1.02 ± 0.215	-	-	-	-	-	-	-	-
K1-05	8/15/18 DUP	2.06 ± 0.354 O	0.107 ± 0.0755	1.00 ± 0.215	-	-	-	-	-	-	-	-
K1-05	10/9/18	1.96 ± 0.296	<0.1	0.857 ± 0.164	3.00 ± 0.0380	2.80 ± 0.0100	2.00 ± 0.0380	0.0430 ± 0.000250	<0.0001 8	0.930 ± 0.00340	2.80 ± 0.0100	0.00721 ±
K1-06	5/8/18	5.73 ± 0.844	0.156 ± 0.0877 O	3.06 ± 0.502	-	-	-	-	-	-	-	-
K1-07	2/5/18	1.72 ± 0.277	<0.1	0.974 ± 0.185	-	-	-	-	-	-	-	-
K1-07	5/15/18	1.73 ± 0.295	0.136 ± 0.0712	0.959 ± 0.196	3.00 ± 0.0820	2.84 ± 0.0100	2.00 ± 0.0820	0.0440 ± 0.000220	<0.0001 8	0.948 ± 0.00400	2.82 ± 0.0130	0.00728 ±
K1-07	8/8/18	1.96 ± 0.277	<0.1	0.887 ± 0.156	-	-	-	-	-	-	-	-
K1-07	11/27/18	2.06 ± 0.320	<0.1	0.983 ± 0.188	-	-	-	-	-	-	-	-
K1-08	1/23/18	1.93 ± 0.308	<0.1 O	0.985 ± 0.192	-	-	-	-	-	-	-	-
K1-08	5/7/18	1.97 ± 0.329	<0.1 O	1.10 ± 0.213	-	-	-	-	-	-	-	-

Table B-5.05. Building 850 area in Operable Unit 5 total uranium and uranium isotopes in ground water.

Location	Date	AS	AS	AS	MS	MS	MS	MS	MS	MS	MS	MS
		Uranium 234 and 233 (in activity) (pCi/L)	Uranium 235 and 236 (in activity) (pCi/L)	Uranium 238 (in activity) (pCi/L)	Total Uranium (in activity) (pCi/L)	Total Uranium (in mass) (µg/L)	Uranium 234 (in activity) (pCi/L)	Uranium 235 (in activity) (pCi/L)	Uranium 236 (in activity) (pCi/L)	Uranium 238 (in activity) (pCi/L)	Uranium 238 (in mass) (µg/L)	Uranium 235/238 (atom/ atom)
K1-08	8/14/18	2.25 ± 0.376 FO	0.208 ± 0.0950	0.917 ± 0.202	-	-	-	-	-	-	-	-
K1-08	11/5/18	2.17 ± 0.323	0.146 ± 0.0683	1.08 ± 0.195	-	-	-	-	-	-	-	-
K1-09	2/27/18	2.48 ± 0.431 O	<0.1 O	1.07 ± 0.240	-	-	-	-	-	-	-	-
K1-09	5/3/18	2.29 ± 0.368	0.223 ± 0.0931	1.20 ± 0.231	-	-	-	-	-	-	-	-
K1-09	8/14/18	2.23 ± 0.363 FO	0.118 ± 0.0685	1.19 ± 0.231	-	-	-	-	-	-	-	-
K1-09	11/28/18	2.13 ± 0.356	<0.1	0.957 ± 0.204	-	-	-	-	-	-	-	-
K2-03	5/23/18	4.60 ± 0.545	0.309 ± 0.0878	2.95 ± 0.373	-	-	-	-	-	-	-	-
K2-04S	4/24/18	2.01 ± 0.308	<0.1	1.65 ± 0.265	-	-	-	-	-	-	-	-
K2-04S	4/24/18 DUP	2.19 ± 0.332	<0.1	1.55 ± 0.256	-	-	-	-	-	-	-	-
NC2-05	6/19/18	5.11 ± 0.574	0.283 ± 0.0875	3.62 ± 0.428	-	-	-	-	-	-	-	-
NC2-05A	6/19/18	2.19 ± 0.306	<0.1	1.41 ± 0.225	-	-	-	-	-	-	-	-
NC2-05A	6/19/18 DUP	2.37 ± 0.325	<0.1	1.36 ± 0.219	-	-	-	-	-	-	-	-
NC2-06	5/8/18	1.92 ± 0.338	<0.1 O	1.22 ± 0.242	-	-	-	-	-	-	-	-
NC2-06A	5/8/18	-	-	-	0.300 ± 0.00720	0.374 ± 0.00320	0.170 ± 0.00710	0.00530 ± 0.000051	<0.007	0.120 ± 0.00110	0.372 ± 0.00320	0.00661 ±
NC2-09	5/7/18	<0.1	<0.1 O	<0.1	-	-	-	-	-	-	-	-
NC2-10	5/7/18	2.75 ± 0.406	0.192 ± 0.0816 O	1.99 ± 0.316	-	-	-	-	-	-	-	-
NC2-11D	5/2/18	-	-	-	4.80 ± 0.0520	5.34 ± 0.0200	2.90 ± 0.0520	0.0830 ± 0.000650	<0.0003 4	1.80 ± 0.00680	5.30 ± 0.0200	0.00724 ±
NC2-11I	5/8/18	2.84 ± 0.449	0.172 ± 0.0849 O	1.83 ± 0.320	-	-	-	-	-	-	-	-
NC2-11S	5/8/18	2.91 ± 0.451	0.130 ± 0.0733 O	1.38 ± 0.255	-	-	-	-	-	-	-	-
NC2-12D	4/24/18	2.07 ± 0.338	<0.1	1.30 ± 0.242	-	-	-	-	-	-	-	-
NC2-12D	4/24/18 DUP	1.92 ± 0.297	<0.1	1.37 ± 0.231	-	-	-	-	-	-	-	-
NC2-12I	5/21/18	2.16 ± 0.320	0.196 ± 0.0786	1.59 ± 0.253	-	-	-	-	-	-	-	-
NC2-12S	5/21/18	3.23 ± 0.395	0.232 ± 0.0733	1.81 ± 0.247	-	-	-	-	-	-	-	-
NC2-13	5/9/18	3.79 ± 0.571	0.180 ± 0.0885 O	2.64 ± 0.428	-	-	-	-	-	-	-	-

Table B-5.05. Building 850 area in Operable Unit 5 total uranium and uranium isotopes in ground water.

Location	Date	AS	AS	AS	MS	MS	MS	MS	MS	MS	MS	MS
		Uranium 234 and 233 (in activity) (pCi/L)	Uranium 235 and 236 (in activity) (pCi/L)	Uranium 238 (in activity) (pCi/L)	Total Uranium (in activity) (pCi/L)	Total Uranium (in mass) (µg/L)	Uranium 234 (in activity) (pCi/L)	Uranium 235 (in activity) (pCi/L)	Uranium 236 (in activity) (pCi/L)	Uranium 238 (in activity) (pCi/L)	Uranium 238 (in mass) (µg/L)	Uranium 235/238 (atom/ atom)
NC2-15	5/10/18	1.52 ± 0.428	<0.1	0.849 ± 0.294	-	-	-	-	-	-	-	-
NC2-15	5/10/18 DUP	1.87 ± 0.430	<0.1	0.820 ± 0.240 O	-	-	-	-	-	-	-	-
NC2-16	5/7/18	0.966 ± 0.214	<0.1 O	0.453 ± 0.136	-	-	-	-	-	-	-	-
NC2-17	5/7/18	2.44 ± 0.396	<0.1 O	1.67 ± 0.298	-	-	-	-	-	-	-	-
NC2-18	5/16/18	1.69 ± 0.266	<0.1	1.27 ± 0.215	-	-	-	-	-	-	-	-
NC2-18	11/1/18	1.73 ± 0.280	<0.1	1.46 ± 0.247	-	-	-	-	-	-	-	-
NC2-19	5/23/18	5.60 ± 0.635	0.468 ± 0.108	4.05 ± 0.477	-	-	-	-	-	-	-	-
NC2-21	5/23/18	2.46 ± 0.333	0.236 ± 0.0793	1.77 ± 0.258	-	-	-	-	-	-	-	-
NC7-10	5/1/18	-	-	-	2.50 ± 0.0200	3.03 ± 0.0120	1.50 ± 0.0200	0.0430 ± 0.000390	<0.007	1.00 ± 0.00400	3.01 ± 0.0120	0.00661 ±
NC7-11	5/1/18	1.51 ± 0.261	0.114 ± 0.0635	1.06 ± 0.203	-	-	-	-	-	-	-	-
NC7-19	4/30/18	1.62 ± 0.275	<0.1	1.60 ± 0.271	-	-	-	-	-	-	-	-
NC7-27	5/21/18	1.75 ± 0.242	0.175 ± 0.0654	1.45 ± 0.209	-	-	-	-	-	-	-	-
NC7-28	5/2/18	-	-	-	8.50 ± 0.0950	17.5 ± 0.0760	2.50 ± 0.0920	0.110 ± 0.000900	0.0310 ± 0.0000290	5.90 ± 0.0260	17.5 ± 0.0760	0.00286 ± 0.000020
NC7-28	10/23/18	-	-	-	7.60 ± 0.0870	16.0 ± 0.0730	2.20 ± 0.0830	0.0950 ± 0.000780	0.0280 ± 0.0000260	5.30 ± 0.0250	16.0 ± 0.0730	0.00281 ± 0.000019
NC7-29	5/3/18	10.4 ± 1.35	0.643 ± 0.174 O	9.21 ± 1.20	-	-	-	-	-	-	-	-
NC7-29	10/24/18	-	-	-	20.0 ± 0.340	26.0 ± 0.130	11.0 ± 0.340	0.410 ± 0.00300	<0.0017	8.70 ± 0.0440	26.0 ± 0.130	0.00724 ±
NC7-43	5/2/18	0.540 ± 0.134	<0.1	0.494 ± 0.124	-	-	-	-	-	-	-	-
NC7-44	5/3/18	1.80 ± 0.337	0.115 ± 0.0776 O	1.11 ± 0.241	-	-	-	-	-	-	-	-
NC7-44	5/3/18 DUP	1.94 ± 0.390	0.195 ± 0.0830	0.880 ± 0.210 O	-	-	-	-	-	-	-	-
NC7-58	5/9/18	1.94 ± 0.241 B	0.157 ± 0.0541 B	1.69 ± 0.216	-	-	-	-	-	-	-	-

Table B-5.05. Building 850 area in Operable Unit 5 total uranium and uranium isotopes in ground water.

Location	Date	AS	AS	AS	MS	MS	MS	MS	MS	MS	MS	MS
		Uranium 234 and 233 (in activity) (pCi/L)	Uranium 235 and 236 (in activity) (pCi/L)	Uranium 238 (in activity) (pCi/L)	Total Uranium (in activity) (pCi/L)	Total Uranium (in mass) (µg/L)	Uranium 234 (in activity) (pCi/L)	Uranium 235 (in activity) (pCi/L)	Uranium 236 (in activity) (pCi/L)	Uranium 238 (in activity) (pCi/L)	Uranium 238 (in mass) (µg/L)	Uranium 235/238 (atom/ atom)
NC7-60	4/18/18	0.505 ± 0.153	<0.1	0.249 ± 0.102	-	-	-	-	-	-	-	-
NC7-61	5/24/18	-	-	-	4.70 ± 0.0680	7.60 ± 0.0140	2.10 ± 0.0680	0.0660 ± 0.000600	0.0100 ± 0.00004 80	2.60 ± 0.00480	7.60 ± 0.0140	0.00403 ± 0.000036
NC7-61	5/24/18 DUP	-	-	-	4.70 ± 0.130	7.80 ± 0.0750	2.00 ± 0.130	0.0670 ± 0.000800	0.0100 ± 0.00017	2.60 ± 0.0250	7.70 ± 0.0750	0.00401 ±
NC7-62	5/9/18	2.12 ± 0.245 B	0.149 ± 0.0487 B	1.81 ± 0.215	-	-	-	-	-	-	-	-
NC7-69	5/17/18	0.130 ± 0.0555	<0.1	<0.1	-	-	-	-	-	-	-	-
NC7-70	5/3/18	-	-	-	0.550 ± 0.0150	1.10 ± 0.00570	0.170 ± 0.0150	0.00700 ± 0.000062	<0.007	0.370 ± 0.00190	1.09 ± 0.00570	0.00294 ±
NC7-70	10/23/18	-	-	-	0.720 ± 0.0130	1.40 ± 0.00730	0.230 ± 0.0130	0.00900 ± 0.000170	<0.007	0.470 ± 0.00250	1.40 ± 0.00730	0.00296 ±
NC7-71	5/2/18	-	-	-	<0.0627	0.0415 ± 0.00110	<0.026	0.000590 ±	<0.0000 18	0.0140 ± 0.000360	0.0412 ± 0.00110	0.00665 ±
NC7-71	10/23/18	-	-	-	0.0120 ± 0.000210	0.0350 ± 0.000640	<0.023	0.000500 ±	<0.0000 14	0.0120 ± 0.000210	0.0350 ± 0.000620	0.00658 ±
NC7-72	5/9/18	1.87 ± 0.230 B	0.111 ± 0.0434 B	1.58 ± 0.201	-	-	-	-	-	-	-	-
NC7-73	5/9/18	2.26 ± 0.264 B	0.143 ± 0.0498 B	1.68 ± 0.208	-	-	-	-	-	-	-	-
W-850-05	5/3/18	0.119 ± 0.0623	0.102 ± 0.0616 O	0.117 ± 0.0590	-	-	-	-	-	-	-	-
W-850-05	10/22/18	-	-	-	0.0770 ± 0.00300	0.0780 ± 0.000450	<0.062	0.00110 ± 0.000019	<0.0000 26	0.0260 ± 0.000150	0.0770 ± 0.000430	0.00657 ±
W-850-2145	5/16/18	2.93 ± 0.419	0.193 ± 0.0805	1.99 ± 0.309	-	-	-	-	-	-	-	-
W-850-2312	5/16/18	0.994 ± 0.255	<0.1	0.286 ± 0.125	-	-	-	-	-	-	-	-

Table B-5.05. Building 850 area in Operable Unit 5 total uranium and uranium isotopes in ground water.

Location	Date	AS	AS	AS	MS	MS	MS	MS	MS	MS	MS	MS
		Uranium 234 and 233 (in activity) (pCi/L)	Uranium 235 and 236 (in activity) (pCi/L)	Uranium 238 (in activity) (pCi/L)	Total Uranium (in activity) (pCi/L)	Total Uranium (in mass) (µg/L)	Uranium 234 (in activity) (pCi/L)	Uranium 235 (in activity) (pCi/L)	Uranium 236 (in activity) (pCi/L)	Uranium 238 (in activity) (pCi/L)	Uranium 238 (in mass) (µg/L)	Uranium 235/238 (atom/ atom)
W-850-2313	5/1/18	2.59 ± 0.391	0.209 ± 0.0876	2.38 ± 0.366	4.70 ± 0.0870	6.19 ± 0.0250	2.60 ± 0.0870	0.0950 ± 0.000580	<0.0004	2.10 ± 0.00830	6.14 ± 0.0250	0.00718 ±
W-850-2315	5/3/18	14.0 ± 1.71	0.740 ± 0.178 O	10.7 ± 1.32	-	-	-	-	-	-	-	-
W-850-2315	10/24/18	-	-	-	16.0 ± 0.200	20.0 ± 0.100	9.00 ± 0.200	0.310 ± 0.00220	<0.0013	6.70 ± 0.0340	20.0 ± 0.100	0.00724 ±
W-850-2416	5/2/18	-	-	-	<0.0627	0.0625 ± 0.000600	<0.062	0.000830 ± 0.000760	<0.000027	0.0210 ± 0.000190	0.0622 ± 0.000600	0.00618 ±
W-850-2416	10/23/18	-	-	-	0.0490 ± 0.00190	0.0570 ± 0.00120	<0.062	±	<0.000021	0.0190 ± 0.000390	0.0570 ± 0.00120	0.00614 ±
W-850-2417	5/9/18	-	-	-	11.0 ± 0.170	24.4 ± 0.0470	2.70 ± 0.170	0.130 ± 0.000870	0.0470 ± 0.0000640	8.20 ± 0.0160	24.3 ± 0.0470	0.00252 ± 0.000016
W-850-2805	5/9/18	0.152 ± 0.0811	<0.1 O	<0.1	-	-	-	-	-	-	-	-
W-865-1802	4/25/18	1.40 ± 0.230	0.118 ± 0.0640	0.799 ± 0.157	-	-	-	-	-	-	-	-
W-865-1803	4/25/18	2.09 ± 0.324	0.113 ± 0.0635	1.08 ± 0.200	-	-	-	-	-	-	-	-
W-865-2133	1/30/18	1.81 ± 0.316	<0.1	1.28 ± 0.246 O	-	-	-	-	-	-	-	-
W-865-2133	7/24/18	1.81 ± 0.254	0.153 ± 0.0625	1.25 ± 0.193	-	-	-	-	-	-	-	-
W-865-2224	5/8/18	0.258 ± 0.0941	<0.1 O	0.203 ± 0.0807	-	-	-	-	-	-	-	-

Table B-5.05. Building 850 area in Operable Unit 5 total uranium and uranium isotopes in ground water.

Location	Date	AS	AS	AS	MS	MS	MS	MS	MS	MS	MS	MS
		Uranium 234 and 233 (in activity) (pCi/L)	Uranium 235 and 236 (in activity) (pCi/L)	Uranium 238 (in activity) (pCi/L)	Total Uranium (in activity) (pCi/L)	Total Uranium (in mass) (µg/L)	Uranium 234 (in activity) (pCi/L)	Uranium 235 (in activity) (pCi/L)	Uranium 236 (in activity) (pCi/L)	Uranium 238 (in activity) (pCi/L)	Uranium 238 (in mass) (µg/L)	Uranium 235/238 (atom/ atom)
W-865-2224	11/13/18	0.234 ± 0.0851 O	<0.1	0.151 ± 0.0679	-	-	-	-	-	-	-	-
W-865-3403	10/31/18	-	-	-	1.70 ± 0.0130	1.30 ± 0.00470	1.20 ± 0.0130	0.0210 ± 0.000100	<0.000086	0.450 ± 0.00160	1.30 ± 0.00470	0.00722 ±
W-PIT1-2209	4/17/18	2.48 ± 0.421	<0.1	1.18 ± 0.246	-	-	-	-	-	-	-	-
W-PIT1-2209	10/4/18	2.15 ± 0.280	0.117 ± 0.0514	1.15 ± 0.174	-	-	-	-	-	-	-	-
W-PIT1-2225	5/10/18	0.130 ± 0.0866	<0.1	<0.1	-	-	-	-	-	-	-	-
W-PIT1-2225	11/27/18	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-
W-PIT1-2326	1/30/18	2.53 ± 0.400	0.159 ± 0.0808	1.36 ± 0.253 O	-	-	-	-	-	-	-	-
W-PIT1-2326	5/16/18	2.61 ± 0.397	0.163 ± 0.0780	1.48 ± 0.259	-	-	-	-	-	-	-	-
W-PIT1-2326	5/16/18 DUP	2.67 ± 0.393	0.123 ± 0.0668	1.47 ± 0.250	-	-	-	-	-	-	-	-
W-PIT1-2326	9/13/18	2.32 ± 0.352	<0.1	1.41 ± 0.243	-	-	-	-	-	-	-	-
W-PIT1-2326	11/26/18	2.54 ± 0.369	<0.1	1.45 ± 0.241	4.30 ± 0.0930	4.30 ± 0.0310	2.80 ± 0.0920	0.0670 ± 0.000700	<0.00028	1.40 ± 0.0100	4.30 ± 0.0310	0.00728 ±
W-PIT1-2326	11/26/18 DUP	2.77 ± 0.441	0.120 ± 0.0731	1.55 ± 0.285	-	-	-	-	-	-	-	-
W-PIT1-2620	4/17/18	3.83 ± 0.590	0.138 ± 0.0802	1.54 ± 0.295	-	-	-	-	-	-	-	-

Table B-5.05. Building 850 area in Operable Unit 5 total uranium and uranium isotopes in ground water.

Location	Date	AS	AS	AS	MS	MS	MS	MS	MS	MS	MS	MS
		Uranium 234 and 233 (in activity) (pCi/L)	Uranium 235 and 236 (in activity) (pCi/L)	Uranium 238 (in activity) (pCi/L)	Total Uranium (in activity) (pCi/L)	Total Uranium (in mass) (µg/L)	Uranium 234 (in activity) (pCi/L)	Uranium 235 (in activity) (pCi/L)	Uranium 236 (in activity) (pCi/L)	Uranium 238 (in activity) (pCi/L)	Uranium 238 (in mass) (µg/L)	Uranium 235/238 (atom/ atom)
W-PIT1-3021	5/3/18	0.192 ± 0.0839	<0.1 O	0.149 ± 0.0766	-	-	-	-	-	-	-	-
W-PIT1-3022	5/3/18	1.92 ± 0.336	0.165 ± 0.0871 O	1.43 ± 0.271	-	-	-	-	-	-	-	-
W-PIT7-16	10/8/18	0.129 ± 0.0560	<0.1	<0.1	-	-	-	-	-	-	-	-
W-PIT7-3406	10/31/18	5.39 ± 0.657	0.427 ± 0.113	4.83 ± 0.597	-	-	-	-	-	-	-	-

Table B-5.06. Building 850 area in Operable Unit 5 tritium in ground and surface water.

Location	Date	Tritium (pCi/L)
K1-01C	2/28/18	703 ± 155
K1-01C	5/10/18	852 ± 193 O
K1-01C	9/5/18	733 ± 178
K1-01C	11/28/18	715 ± 169
K1-02B	1/22/18	2930 ± 589
K1-02B	1/22/18 DUP	2880 ± 579
K1-02B	5/2/18	2310 ± 627
K1-04	2/8/18	567 ± 141
K1-04	5/8/18	509 ± 134
K1-04	9/5/18	514 ± 143
K1-04	11/14/18	524 ± 129
K1-05	2/28/18	171 ± 73.9
K1-05	5/15/18	170 ± 77.0
K1-05	8/15/18	242 ± 90.0
K1-05	8/15/18 DUP	239 ± 89.8
K1-05	10/9/18	184 ± 86.6
K1-06	2/1/18	1800 ± 371
K1-06	5/8/18	1770 ± 366
K1-07	2/5/18	<100
K1-07	5/15/18	<100
K1-07	8/8/18	<100
K1-07	11/27/18	<100
K1-08	1/23/18	271 ± 89.2
K1-08	5/7/18	191 ± 85.8
K1-08	8/14/18	192 ± 82.1
K1-08	11/5/18	247 ± 84.0
K1-09	2/27/18	151 ± 73.1
K1-09	5/3/18	164 ± 80.2
K1-09	8/14/18	137 ± 76.3
K1-09	11/28/18	<100
K2-03	5/23/18	130 ± 78.6
K2-03	10/10/18	166 ± 85.9
K2-04S	4/24/18	4160 ± 827
K2-04S	4/24/18 DUP	3920 ± 779
K2-04S	11/1/18	4190 ± 836
NC2-05	6/19/18	<100
NC2-05	11/27/18	<100
NC2-05A	6/19/18	3120 ± 626
NC2-05A	6/19/18 DUP	2710 ± 545
NC2-05A	11/14/18	2920 ± 586
NC2-06	5/8/18	3220 ± 644
NC2-06	11/19/18	3650 ± 730
NC2-06A	5/8/18	<100
NC2-06A	11/19/18	<100
NC2-09	5/7/18	<100
NC2-09	11/14/18	<100
NC2-10	5/7/18	462 ± 124
NC2-10	11/28/18	441 ± 121
NC2-11D	5/2/18	1750 ± 526
NC2-11D	12/11/18	2110 ± 448

Table B-5.06. Building 850 area in Operable Unit 5 tritium in ground and surface water.

Location	Date	Tritium (pCi/L)
NC2-11D	12/11/18 DUP	2250 ± 472
NC2-11I	5/8/18	2750 ± 555
NC2-11I	11/28/18	2870 ± 578
NC2-11S	5/8/18	2280 ± 465
NC2-11S	11/28/18	2430 ± 493
NC2-12D	4/24/18	4340 ± 861
NC2-12D	4/24/18 DUP	3980 ± 792
NC2-12D	12/3/18	4610 ± 915
NC2-12I	5/21/18	4330 ± 860
NC2-12I	12/3/18	4310 ± 858
NC2-12S	5/21/18	2270 ± 464
NC2-12S	12/3/18	2370 ± 484
NC2-13	5/9/18	427 ± 119
NC2-13	11/19/18	462 ± 126
NC2-14S	5/7/18	4030 ± 801
NC2-14S	10/24/18	2270 ± 472
NC2-15	5/10/18	2120 ± 434
NC2-15	5/10/18 DUP	2280 ± 360
NC2-15	11/1/18	2190 ± 452
NC2-16	5/7/18	1030 ± 229
NC2-16	10/24/18	476 ± 140
NC2-17	5/7/18	5750 ± 1130
NC2-17	11/19/18	6280 ± 1240
NC2-18	5/16/18	5110 ± 1010 O
NC2-18	11/1/18	5320 ± 1060
NC2-19	5/23/18	<100
NC2-19	11/19/18	<100
NC2-20	5/21/18	<100
NC2-21	5/23/18	<100
NC7-10	5/1/18	5100 ± 1140
NC7-10	10/22/18	5500 ± 1090
NC7-10	10/31/18	5880 ± 1160
NC7-11	5/1/18	2250 ± 457
NC7-11	10/22/18	3750 ± 753
NC7-15	10/8/18	158 ± 84.9
NC7-19	4/30/18	755 ± 176
NC7-19	10/8/18	741 ± 177
NC7-27	5/21/18	4170 ± 828
NC7-27	10/18/18	4400 ± 879
NC7-28	5/2/18	11700 ± 2400
NC7-28	10/23/18	15800 ± 3080
NC7-29	5/3/18	<100
NC7-29	10/24/18	<100
NC7-43	5/2/18	6540 ± 1290
NC7-43	10/22/18	6440 ± 1270
NC7-44	5/3/18	<100
NC7-44	5/3/18 DUP	<100
NC7-44	10/24/18	<100
NC7-46	5/21/18	<100
NC7-56	5/9/18	4840 ± 957

Table B-5.06. Building 850 area in Operable Unit 5 tritium in ground and surface water.

Location	Date	Tritium (pCi/L)
NC7-56	10/29/18	4350 ± 863
NC7-58	5/9/18	4520 ± 897
NC7-58	10/29/18	3940 ± 784
NC7-59	5/9/18	4090 ± 812
NC7-59	10/29/18	4360 ± 866
NC7-60	4/18/18	887 ± 199
NC7-60	10/18/18	846 ± 205
NC7-61	5/24/18	12600 ± 2450
NC7-61	5/24/18 DUP	12200 ± 2380
NC7-61	10/30/18	12700 ± 2480
NC7-61	10/30/18 DUP	13400 ± 2620
NC7-62	5/9/18	4300 ± 852
NC7-62	10/31/18	4690 ± 930
NC7-62	10/31/18 DUP	4680 ± 730
NC7-69	5/17/18	<100
NC7-69	12/4/18	<100
NC7-70	5/3/18	18900 ± 3670
NC7-70	10/23/18	16900 ± 3280
NC7-71	5/2/18	2640 ± 685
NC7-71	10/23/18	2450 ± 497
NC7-72	5/9/18	4260 ± 845
NC7-72	10/29/18	4010 ± 799
NC7-73	5/9/18	4350 ± 862
NC7-73	10/29/18	3600 ± 719
W-850-05	5/3/18	16700 ± 3260
W-850-05	10/22/18	16200 ± 3170
W-850-2145	5/16/18	6330 ± 1240 O
W-850-2145	11/1/18	6730 ± 1330
W-850-2145	11/1/18 DUP	6900 ± 1100 O
W-850-2312	5/16/18	215 ± 83.2 O
W-850-2312	11/1/18	206 ± 83.8
W-850-2313	5/1/18	7560 ± 1480
W-850-2313	10/22/18	8260 ± 1620
W-850-2313	10/22/18 DUP	9100 ± 1400
W-850-2314	4/18/18	1110 ± 241
W-850-2314	10/18/18	938 ± 219
W-850-2315	5/3/18	<100
W-850-2315	10/24/18	<100
W-850-2316	6/4/18	6940 ± 1360
W-850-2316	11/1/18	6940 ± 1370
W-850-2416	5/2/18	<100
W-850-2416	10/23/18	<100
W-850-2417	5/9/18	15200 ± 2960
W-850-2417	10/23/18	14500 ± 2820
W-850-2805	5/9/18	<100
W-850-2805	10/24/18	<100
W-865-02	1/22/18	<100
W-865-02	7/31/18	<100
W-865-05	3/28/18	<100
W-865-05	9/12/18	<100

Table B-5.06. Building 850 area in Operable Unit 5 tritium in ground and surface water.

Location	Date	Tritium (pCi/L)
W-865-1802	4/25/18	303 ± 95.7
W-865-1802	10/10/18	322 ± 107
W-865-1803	4/25/18	1340 ± 282
W-865-1803	10/10/18	1620 ± 340
W-865-2005	1/29/18	<100
W-865-2005	1/29/18 DUP	<100
W-865-2005	5/8/18	<100
W-865-2005	5/8/18 DUP	<100
W-865-2005	9/11/18	<100
W-865-2005	9/11/18 DUP	<100
W-865-2005	10/31/18	<100
W-865-2005	10/31/18 DUP	<100
W-865-2121	4/25/18	<100
W-865-2121	11/13/18	<100
W-865-2133	1/30/18	<100
W-865-2133	5/8/18	<100
W-865-2133	7/24/18	<100
W-865-2133	11/13/18	<100
W-865-2224	1/30/18	<100
W-865-2224	5/8/18	<100
W-865-2224	7/24/18	<100
W-865-2224	11/13/18	<100
W-865-3403	10/31/18	<100
W-PIT1-2204	12/4/18	<100
W-PIT1-2209	1/10/18	<100
W-PIT1-2209	4/19/18	<100
W-PIT1-2209	7/12/18	<100
W-PIT1-2209	10/4/18	<100
W-PIT1-2225	2/1/18	<100
W-PIT1-2225	5/10/18	<100
W-PIT1-2225	7/30/18	<100
W-PIT1-2225	11/27/18	<100
W-PIT1-2326	1/30/18	2400 ± 487
W-PIT1-2326	5/16/18	1970 ± 402 O
W-PIT1-2326	5/16/18 DUP	2160 ± 441 O
W-PIT1-2326	9/13/18	2260 ± 467
W-PIT1-2326	11/26/18	2280 ± 479
W-PIT1-2326	11/26/18 DUP	2450 ± 512
W-PIT1-2620	1/17/18	2210 ± 453
W-PIT1-2620	4/19/18	1590 ± 331
W-PIT1-2620	7/16/18	1730 ± 359
W-PIT1-2620	10/4/18	1710 ± 372
W-PIT1-2620	10/4/18 DUP	1880 ± 408
W-PIT1-3021	5/3/18	<100
W-PIT1-3021	12/4/18	<100
W-PIT1-3022	5/3/18	959 ± 213
W-PIT1-3022	12/4/18	1210 ± 261
W-PIT7-16	10/8/18	<100
W-PIT7-3406	10/31/18	83900 ± 16300

Table B-5.07. Building 850 area in Operable Unit 5 high explosive compounds in ground water water.

Location	Date	1,3,5-Trinitrobenzene (µg/L)	1,3-Dinitrobenzene (µg/L)	2,4-Dinitrotoluene (µg/L)	2,6-Dinitrotoluene (µg/L)	2-Amino-4,6-Dinitrotoluene (µg/L)	2-Nitrotoluene (µg/L)	3-Nitrotoluene (µg/L)	4-Amino-2,6-Dinitrotoluene (µg/L)	4-Nitrotoluene (µg/L)	HMX (µg/L)	Nitrobenzene (µg/L)	RDX (µg/L)	TNT (µg/L)
K1-01C	2/28/18	-	-	<5	<5	-	-	-	-	-	<0.33	<5	<0.33	-
K1-01C	5/10/18	-	-	-	-	-	-	-	-	-	<0.26	-	<0.26	-
K1-01C	9/5/18	-	-	-	-	-	-	-	-	-	<1 D	-	<1 D	-
K1-01C	11/28/18	-	-	-	-	-	-	-	-	-	<1	-	<1	-
K1-02B	1/22/18	-	-	<5 O	<5 O	-	-	-	-	-	<0.26	<5 O	<0.26	-
K1-02B	1/22/18 DUP	-	-	<5 O	<5 O	-	-	-	-	-	<0.26	<5 O	<0.26	-
K1-02B	5/2/18	-	-	-	-	-	-	-	-	-	<0.27	-	<0.27	-
K1-04	2/8/18	-	-	<5 O	<5	-	-	-	-	-	<0.25	<5	<0.25	-
K1-04	5/8/18	-	-	-	-	-	-	-	-	-	<0.26	-	<0.26	-
K1-04	9/5/18	-	-	-	-	-	-	-	-	-	<1 D	-	<1 D	-
K1-04	11/14/18	-	-	-	-	-	-	-	-	-	<1	-	<1	-
K1-05	2/28/18	-	-	<5	<5	-	-	-	-	-	<0.24	<5	<0.24	-
K1-05	5/15/18	-	-	-	-	-	-	-	-	-	<0.26	-	<0.26	-
K1-05	8/15/18	-	-	-	-	-	-	-	-	-	<0.26	-	<0.26	-
K1-05	8/15/18 DUP	-	-	-	-	-	-	-	-	-	<0.26	-	<0.26	-
K1-05	10/9/18	-	-	-	-	-	-	-	-	-	<1	-	<1	-
K1-07	2/5/18	-	-	<5	<5	-	-	-	-	-	<0.26	<5	<0.26	-
K1-07	5/15/18	-	-	-	-	-	-	-	-	-	<0.27	-	<0.27	-
K1-07	8/8/18	-	-	-	-	-	-	-	-	-	<0.29	-	<0.29	-
K1-07	11/27/18	-	-	-	-	-	-	-	-	-	<1 D	-	<1 D	-
K1-08	1/23/18	-	-	<5	<5	-	-	-	-	-	<0.26	<5	<0.26	-
K1-08	5/7/18	-	-	-	-	-	-	-	-	-	<0.26	-	<0.26	-
K1-08	8/14/18	-	-	-	-	-	-	-	-	-	<0.26	-	<0.26	-
K1-08	11/5/18	-	-	-	-	-	-	-	-	-	<1 D	-	<1 D	-
K1-09	2/27/18	-	-	<5	<5	-	-	-	-	-	<0.25	<5	<0.25	-
K1-09	5/3/18	-	-	-	-	-	-	-	-	-	<0.27	-	<0.27	-
K1-09	8/14/18	-	-	-	-	-	-	-	-	-	<0.26	-	<0.26	-
K1-09	11/28/18	-	-	-	-	-	-	-	-	-	<1	-	<1	-
NC7-10	5/1/18	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	2.2	<2.1	1.9	<2.1
NC7-10	10/22/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	2.2	<2	1.9	<2
NC7-11	10/22/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	1.2	<2	1.1	<2
NC7-15	9/20/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	R	<2	<1	<2
NC7-15	10/8/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
NC7-19	4/30/18	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<1.1	<2.2	<1.1	<2.2
NC7-19	10/8/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
NC7-27	5/21/18	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<1.1	<2.1	<1.1	<2.1
NC7-27	10/18/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
NC7-28	5/2/18	<0.56	<0.56	<0.56	<0.59	<0.56	<0.73	<0.56	<0.56	<0.7	5.8	<0.56	2.6	<0.56
NC7-28	10/23/18	<2.4 D	<2.4 D	<2.4 D	<2.5 D	<2.4 D	<3.1 D	<2.4 D	<2.4 D	<2.9 D	6 D	<2.4 D	2 D	<2.4 D
NC7-43	5/2/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
NC7-43	10/22/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
NC7-44	5/3/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
NC7-44	10/24/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
NC7-56	5/9/18	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<1.1	<2.2	<1.1	<2.2

Table B-5.07. Building 850 area in Operable Unit 5 high explosive compounds in ground water water.

Location	Date	1,3,5-Trinitrobenzene (µg/L)	1,3-Dinitrobenzene (µg/L)	2,4-Dinitrotoluene (µg/L)	2,6-Dinitrotoluene (µg/L)	2-Amino-4,6-Dinitrotoluene (µg/L)	2-Nitrotoluene (µg/L)	3-Nitrotoluene (µg/L)	4-Amino-2,6-Dinitrotoluene (µg/L)	4-Nitrotoluene (µg/L)	HMX (µg/L)	Nitrobenzene (µg/L)	RDX (µg/L)	TNT (µg/L)
NC7-56	10/29/18	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<1	<2.1	<1	<2.1
NC7-60	4/18/18	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<1	<2.1	<1	<2.1
NC7-60	10/18/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<0.99	<2	<0.99	<2
NC7-61	5/24/18	<0.51	<0.51	<0.51	<0.54	<0.51	<0.67	<0.51	<0.51	<0.64	2.6	<0.51	1.2	<0.51
NC7-61	5/24/18 DUP	<0.54	<0.54	<0.54	<0.57	<0.54	<0.7	<0.54	<0.54	<0.68	6	<0.54	3.4	<0.54
NC7-61	10/30/18	<2.2 D	<2.2 D	<2.2 D	<2.4 D	<2.2 D	<2.9 D	<2.2 D	<2.2 D	<2.8 D	5.4 D	<2.2 D	3.7 D	<2.2 D
NC7-61	10/30/18 DUP	<2 D	<2 D	<2 D	<2.1 D	<2 D	<2.6 D	<2 D	<2 D	<2.5 D	5.9 D	<2 D	4.2 D	<2 D
NC7-69	5/17/18	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<1.1	<2.1	<1.1	<2.1
NC7-69	12/4/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
NC7-70	5/3/18	<13 DI	<13 DI	<13 DI	<13 DI	<13 DI	<17 DI	<13 DI	<13 DI	<16 DI	<6.4 DI	<13 DI	<6.4 DI	<13 DI
NC7-70	10/23/18	<40 DI	<40 DI	<40 DI	<42 DI	<40 DI	<52 DI	<40 DI	<40 DI	<50 DI	<20 DI	<40 DI	<20 DI	<40 DI
NC7-71	5/2/18	<0.57	<0.57	<0.57	<0.6	<0.57	<0.74	<0.57	<0.57	<0.71	<0.29	<0.57	<0.29	<0.57
NC7-71	10/23/18	<2	<2	<2	<2.1	<2	<2.6	<2	<2	<2.5	<1	<2	<1	<2
NC7-72	5/9/18	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<1.1	<2.2	<1.1	<2.2
NC7-72	10/29/18	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<1	<2.1	<1	<2.1
NC7-73	5/9/18	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<1	<2.1	<1	<2.1
NC7-73	10/29/18	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<1.1	<2.1	<1.1	<2.1
W-850-05	5/3/18	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<1	<2.1	<1	<2.1
W-850-05	10/22/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<0.99	<2	<0.99	<2
W-850-2313	5/1/18	<0.51	<0.51	<0.51	<0.53	<0.51	<0.66	<0.51	<0.51	<0.63	0.49	<0.51	0.97	<0.51
W-850-2313	10/22/18	<2.4 D	<2.4 D	<2.4 D	<2.5 D	<2.4 D	<3.1 D	<2.4 D	<2.4 D	<2.9 D	<1.2 D	<2.4 D	<1.2 D	<2.4 D
W-850-2313	10/22/18 DUP	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
W-850-2314	4/18/18	<0.55	<0.55	<0.55	<0.58	<0.55	<0.72	<0.55	<0.55	<0.69	<0.28	<0.55	<0.28	<0.55
W-850-2314	10/18/18	<2 D	<2 D	<2 D	<2.1 D	<2 D	<2.6 D	<2 D	<2 D	<2.5 D	<1 D	<2 D	<1 D	<2 D
W-850-2416	5/2/18	<0.55	<0.55	<0.55	<0.57	<0.55	<0.71	<0.55	<0.55	<0.68	<0.27	<0.55	<0.27	<0.55
W-850-2416	10/23/18	<2	<2	<2	<2.1	<2	<2.6	<2	<2	<2.5	<1	<2	<1	<2
W-850-2417	5/9/18	<0.51	<0.51	<0.51	<0.54	<0.51	<0.67	<0.51	<0.51	<0.64	9.1	<0.51	5.4	<0.51
W-850-2417	10/23/18	<2	<2	<2	<2.1	<2	<2.6	<2	<2	<2.5	7.3	<2	4.2	<2
W-865-3403	10/31/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
W-PIT1-2326	1/30/18	-	-	-	-	-	-	-	-	-	<0.26	-	<0.26	-
W-PIT1-2326	5/16/18	-	-	-	-	-	-	-	-	-	<0.25	-	<0.25	-
W-PIT1-2326	5/16/18 DUP	-	-	-	-	-	-	-	-	-	<0.29	-	<0.29	-
W-PIT1-2326	9/13/18	-	-	-	-	-	-	-	-	-	<1 D	-	<1 D	-
W-PIT1-2326	11/26/18	-	-	-	-	-	-	-	-	-	<1 D	-	<1 D	-
W-PIT1-2326	11/26/18 DUP	-	-	-	-	-	-	-	-	-	<1 D	-	<1 D	-
W-PIT7-16	9/20/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	R	<2	<1	<2
W-PIT7-16	10/8/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2 D	<2	<0.99	<2
W-PIT7-3406	10/31/18	<2 D	<2 D	<2 D	<2 D	<2 D	<2 D	<2 D	<2 D	<2 D	<1 D	<2 D	<1 D	<2 D

Table B-5.08. Building 850 area in Operable Unit 5 general minerals in ground water.

Constituents of concern	W-865-3403	W-PIT7-3406
	10/31/18	10/31/18
Total Alkalinity (as CaCO3) (mg/L)	140	270
Aluminum (mg/L)	<0.2	<0.2
Bicarbonate Alk (as CaCO3) (mg/L)	140	270
Calcium (mg/L)	61	54
Carbonate Alk (as CaCO3) (mg/L)	<4.1	<4.1
Chloride (mg/L)	100	100
Copper (mg/L)	<0.05	<0.05
Fluoride (mg/L)	0.2	0.55
Hydroxide Alk (as CaCO3) (mg/L)	<4.1	<4.1
Iron (mg/L)	<0.1	<0.1
Magnesium (mg/L)	28	35
Manganese (mg/L)	<0.03	<0.03
Nickel (mg/L)	<0.1	<0.1
Nitrate (as N) (mg/L)	18	3
Nitrate (as NO3) (mg/L)	80	15
Nitrite (as N) (mg/L)	<0.5	<0.5
pH (Units)	7.6	7.63
Ortho-Phosphate (mg/L)	0.31	0.57
Total Phosphorus (as PO4) (mg/L)	0.29	0.56
Potassium (mg/L)	3.2	9.6
Sodium (mg/L)	43	110
Total dissolved solids (TDS) (mg/L)	540 D	650 D
Specific Conductance (µmhos/cm)	787	985
Sulfate (mg/L)	33	82
Surfactants (mg/L)	<0.5	<0.5
Total Hardness (as CaCO3) (mg/L)	270	280
Zinc (mg/L)	<0.05	<0.05

Table B-5.09. Building 850 area in Operable Unit 5 gross alpha and beta in ground water.

Location	Date	Gross alpha (pCi/L)	Gross beta (pCi/L)
K1-01C	2/28/18	3.09 ± 0.966	3.32 ± 0.83 FO
K1-01C	5/10/18	3.86 ± 1.78 O	<3
K1-01C	9/5/18	2.26 ± 1.45	3.75 ± 1.44
K1-01C	11/28/18	<2	3.67 ± 1.08
K1-02B	1/22/18	3.2 ± 1.14	4.52 ± 1.05
K1-02B	1/22/18 DUP	4.47 ± 1.36	3.44 ± 0.912
K1-02B	5/2/18	3.68 ± 1.77 O	4.24 ± 1.53
K1-04	2/8/18	<2	<3
K1-04	5/8/18	<2 O	3.98 ± 1.33
K1-04	9/5/18	<2	<3
K1-04	11/14/18	<2	<3
K1-05	2/28/18	2.96 ± 0.974	<3 FO
K1-05	5/15/18	3.32 ± 1.76 O	3.29 ± 1.13
K1-05	8/15/18	3.84 ± 1.81	4.58 ± 1.35
K1-05	8/15/18 DUP	<2	3.44 ± 1.02
K1-05	10/9/18	2.73 ± 1.03	3.22 ± 0.875
K1-07	2/5/18	2.24 ± 1.54	3.04 ± 1.19
K1-07	5/15/18	2.13 ± 1.41 O	<3
K1-07	8/8/18	3.23 ± 1.85 B	3.63 ± 1.36
K1-07	11/27/18	<2	3.3 ± 1.04
K1-08	1/23/18	2.42 ± 0.932	4.1 ± 1.02
K1-08	5/7/18	2.59 ± 1.54 O	3.26 ± 1.02
K1-08	8/14/18	<2	<3
K1-08	11/5/18	2.65 ± 1.5	3.06 ± 1.28
K1-09	2/27/18	3.15 ± 1.01	3.16 ± 0.851
K1-09	5/3/18	3.72 ± 1.9 O	4.65 ± 1.35
K1-09	8/14/18	<2	<3
K1-09	11/28/18	<2	<3
K2-04S	4/24/18	2.99 ± 1.57 O	4.75 ± 1.39 F
K2-04S	4/24/18 DUP	2.87 ± 1.34 O	3.22 ± 1.25 F
NC2-11D	5/2/18	3.43 ± 1.69 O	6.44 ± 1.76
NC2-12D	4/24/18	2.77 ± 1.45 O	4.32 ± 1.32 F
NC2-12D	4/24/18 DUP	2.66 ± 1.47 O	4.01 ± 1.34 F
NC7-61	5/24/18	3.85 ± 1.24	4.67 ± 0.994
NC7-61	5/24/18 DUP	3.1 ± 1.06	6.03 ± 1.19
NC7-69	5/17/18	<2	3.88 ± 0.841
W-865-3403	10/31/18	<2	<3
W-PIT1-2326	1/30/18	<2	3.4 ± 0.93
W-PIT1-2326	5/16/18	4.71 ± 1.97 O	4.28 ± 1.43
W-PIT1-2326	5/16/18 DUP	2.54 ± 1.51 O	3.17 ± 1.01
W-PIT1-2326	9/13/18	2.76 ± 1.21	4.19 ± 0.989
W-PIT1-2326	11/26/18	3.59 ± 1.64	<3
W-PIT1-2326	11/26/18 DUP	<2	<3
W-PIT7-3406	10/31/18	6.95 ± 2.05	12.8 ± 2.61

Table B-5.10. Building 850 area in Operable Unit 5 tetrabutyl orthosilicate/tetrakis (2-ethylbutyl) silane (TBOS/TKEBS) in ground water.

Location	Date	C24H52O4Si (µg/L)
W-865-3403	10/31/18	<10 D
W-PIT7-3406	10/31/18	<10 D

Table B-5.11. Pit 2 Landfill volatile organic compounds (VOCs) in ground water.

Location	Date	Type	TCE (µg/L)	PCE (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	Carbon tetrachloride (µg/L)	Chloroform (µg/L)	1,1-DCA (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	1,1,1-TCA (µg/L)	1,1,2-TCA (µg/L)	Freon 11 (µg/L)	Freon 113 (µg/L)	Vinyl chloride (µg/L)
K2-01C	5/7/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
NC2-08	5/10/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT2-1934	5/3/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT2-1935	5/3/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT2-2301	3/21/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Table B-5.11 (Con't). Analyte detected but not reported in main table.

Location	Date	Type	Detection frequency
K2-01C	5/7/18		0 of 18
NC2-08	5/10/18		0 of 18
W-PIT2-1934	5/3/18		0 of 18
W-PIT2-1935	5/3/18		0 of 18
W-PIT2-2301	3/21/18		0 of 37

Table B-5.12. Pit 2 Landfill total uranium and uranium isotopes in ground water.

Location	Date	AS	AS	AS	MS	MS	MS	MS	MS	MS	MS	MS
		Uranium 234 and 233 (in activity) (pCi/L)	Uranium 235 and 236 (in activity) (pCi/L)	Uranium 238 (in activity) (pCi/L)	Total Uranium (in activity) (pCi/L)	Total Uranium (in mass) (µg/L)	Uranium 234 (in activity) (pCi/L)	Uranium 235 (in activity) (pCi/L)	Uranium 236 (in activity) (pCi/L)	Uranium 238 (in activity) (pCi/L)	Uranium 238 (in mass) (µg/L)	Uranium 235/238 (atom/atom)
K2-01C	5/7/18	-	-	-	3.30 ± 0.0900	4.46 ± 0.0190	1.80 ± 0.0900	0.0620 ±	<0.007	1.50 ± 0.00650	4.43 ± 0.0190	0.00649 ±
NC2-08	5/10/18	1.50 ± 0.325	<0.1	1.02 ± 0.255	2.70 ± 0.0580	3.03 ± 0.0120	1.60 ± 0.0580	0.0470 ±	<0.00019	1.00 ± 0.00400	3.01 ± 0.0120	0.00723 ±
W-PIT2-1934	5/3/18	-	-	-	4.90 ± 0.0700	5.38 ± 0.0220	3.10 ± 0.0700	0.0770 ± 0.000500	<0.0014	1.80 ± 0.00730	5.34 ± 0.0220	0.00669 ± 0.0000340
W-PIT2-1935	5/3/18	-	-	-	4.10 ± 0.0580	4.72 ± 0.0120	2.50 ± 0.0580	0.0660 ± 0.000270	<0.007	1.60 ± 0.00410	4.68 ± 0.0120	0.00652 ± 0.0000210
W-PIT2-2226	5/10/18	0.113 ± 0.0831	<0.1	<0.1	-	-	-	-	-	-	-	-
W-PIT2-2226	11/27/18	0.101 ± 0.0550	<0.1	<0.1	-	-	-	-	-	-	-	-
W-PIT2-2301	4/25/18	-	-	-	0.690 ± 0.0100	0.940 ± 0.00220	0.363 ± 0.00600	0.0139 ± 0.000100	<0.00025	0.310 ± 0	0.934 ± 0.00200	0.00688 ± 0.0000230
W-PIT2-2302	5/8/18	-	-	-	0.120 ± 0.00500	0.181 ± 0.00110	<0.062	0.00250 ± 0.0000520	<0.00009	0.0600 ± 0.000380	0.180 ± 0.00110	0.00639 ± 0.000130

Table B-5.13. Pit 2 Landfill nitrate and perchlorate in ground water.

Location	Date	Nitrate (as NO3) (mg/L)	Perchlorate (µg/L)
K2-01C	5/7/18	34	<4
K2-01C	12/4/18	-	<4
NC2-08	5/10/18	43 D	-
NC2-08	5/31/18	-	4.8
NC2-08	11/14/18	-	<4
W-PIT2-1934	5/3/18	51 D	<4
W-PIT2-1934	12/4/18	-	<4
W-PIT2-1935	5/3/18	46 D	-
W-PIT2-1935	12/4/18	-	<4
W-PIT2-2226	2/1/18	-	<4
W-PIT2-2226	5/10/18	<0.5	<4
W-PIT2-2226	7/30/18	-	<4
W-PIT2-2226	11/27/18	<0.5	<4
W-PIT2-2301	4/25/18	33	<4
W-PIT2-2302	5/8/18	43	<4

Table B-5.14. Pit 2 Landfill high explosive compounds in ground water.

Location	Date	1,3,5-Trinitrobenzene (µg/L)	1,3-Dinitrobenzene (µg/L)	2,4-Dinitrotoluene (µg/L)	2,6-Dinitrotoluene (µg/L)	2-Amino-4,6-Dinitrotoluene (µg/L)	2-Nitrotoluene (µg/L)	3-Nitrotoluene (µg/L)	4-Amino-2,6-Dinitrotoluene (µg/L)	4-Nitrotoluene (µg/L)	HMX (µg/L)	Nitrobenzene (µg/L)	RDX (µg/L)	TNT (µg/L)
K2-01C	5/7/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
NC2-08	5/10/18	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<1	<2.1	<1	<2.1
W-PIT2-1934	5/3/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
W-PIT2-1935	5/3/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2

Table B-5.15. Pit 2 Landfill tritium in ground water.

Location	Date	Tritium (pCi/L)
K2-01C	5/7/18	766 ± 178
K2-01C	12/12/18	1450 ± 321
NC2-08	5/10/18	2880 ± 579
NC2-08	11/14/18	2670 ± 539
W-PIT2-1934	5/3/18	924 ± 207
W-PIT2-1934	12/4/18	947 ± 211
W-PIT2-1935	5/3/18	833 ± 192
W-PIT2-1935	12/12/18	1130 ± 262
W-PIT2-2226	2/1/18	<100
W-PIT2-2226	5/10/18	<100
W-PIT2-2226	7/30/18	<100
W-PIT2-2226	11/27/18	<100
W-PIT2-2301	4/25/18	<100
W-PIT2-2302	5/8/18	<100

Table B-5.16. Pit 2 Landfill fluoride in ground water.

Location	Date	Fluoride (mg/L)
K2-01C	5/7/18	0.15
NC2-08	5/10/18	0.23
W-PIT2-1934	5/3/18	0.25
W-PIT2-1935	5/3/18	0.13

Table B-5.17. Pit 2 Landfill metals in ground water.

Constituents of concern	K2-01C	NC2-08	W-PIT2-1934	W-PIT2-1935
	5/7/18	5/10/18	5/3/18	5/3/18
Antimony (mg/L)	<0.06	<0.06	<0.06	<0.06
Arsenic (mg/L)	0.0094	0.011	0.011	0.01
Barium (mg/L)	0.024	0.012	0.027	0.037
Beryllium (mg/L)	<0.002	<0.002	<0.002	<0.002
Cadmium (mg/L)	<0.005	<0.005	<0.005	<0.005
Chromium (mg/L)	<0.01	<0.01	<0.01	<0.01
Cobalt (mg/L) Copper	<0.02	<0.02	<0.02	<0.02
(mg/L) Lead (mg/L)	0.021	<0.01	<0.01	<0.01
Lithium (mg/L)	<0.003	<0.003	<0.003	<0.003
Mercury (mg/L)	<0.02	0.031	0.02	<0.02
Molybdenum (mg/L)	<0.0002	<0.0002	<0.0002	<0.0002
Nickel (mg/L)	<0.02	<0.02	<0.02	<0.02
Selenium (mg/L)	0.022	<0.02	<0.02	<0.02
Silver (mg/L)	<0.005	<0.005	<0.005	<0.005
Thallium (mg/L)	<0.005	<0.005	<0.005	<0.005
Vanadium (mg/L)	<0.005	<0.005	<0.005	<0.005
Zinc (mg/L)	0.055	0.061	0.064	0.052
	0.11	0.028	<0.02	0.023

Table B-5.18. Pit 2 Landfill gross alpha and beta in ground water.

Location	Date	Gross alpha (pCi/L)	Gross beta (pCi/L)
K2-01C	12/4/18	<2 O	3.18 ± 1.07

Table B-5.19. Pit 7 Complex area in Operable Unit 5 volatile organic compounds in ground water.

Location	Date	Type	TCE (µg/L)	PCE (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	Carbon tetrachloride (µg/L)	Chloroform (µg/L)	1,1-DCA (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	1,1,1-TCA (µg/L)	1,1,2-TCA (µg/L)	Freon 11 (µg/L)	Freon 113 (µg/L)	Vinyl chloride (µg/L)
K7-01	4/16/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K7-03	4/25/18		1.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K7-03	4/25/18	DUP	1.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K7-06	4/9/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K7-09	4/23/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K7-10	4/23/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
NC7-12	10/8/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
NC7-16	4/26/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
NC7-17	4/12/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
NC7-18	4/23/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
NC7-20	4/30/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
NC7-21	4/26/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
NC7-22	4/26/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
NC7-25	2/7/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
NC7-25	4/25/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
NC7-25	11/5/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
NC7-25	11/5/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
NC7-26	4/26/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
NC7-34	4/24/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
NC7-36	4/24/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
NC7-37	4/17/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
NC7-40	5/2/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
NC7-47	10/10/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
NC7-48	4/12/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
NC7-48	4/12/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
NC7-51	4/25/18		0.58	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
NC7-52	4/25/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
NC7-52	4/25/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
NC7-63	4/24/18		IJR	IJR	IJR	IJR	IJR	IJR	IJR	IJR	IJR	IJR	IJR	IJR	IJR	IJR
NC7-63	5/9/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
NC7-64	2/7/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
NC7-64	4/25/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
NC7-64	11/12/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
NC7-65	4/10/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
NC7-67	4/17/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
NC7-75	4/24/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-865-01	1/18/18		<0.5 HI	<0.5 HI	<0.5 HI	<0.5 HI	<0.5 HI	<0.5 HI	<0.5 HI	<0.5 HI	<0.5 HI	<0.5 HI	<0.5 HI	<0.5 HI	<0.5 HI	<0.5 HI
W-865-01	7/23/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-865-1804	1/18/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Table B-5.19. Pit 7 Complex area in Operable Unit 5 volatile organic compounds in ground water.

Location	Date	Type	TCE (µg/L)	PCE (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	Carbon tetrachloride (µg/L)	Chloroform (µg/L)	1,1-DCA (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	1,1,1-TCA (µg/L)	1,1,2-TCA (µg/L)	Freon 11 (µg/L)	Freon 113 (µg/L)	Vinyl chloride (µg/L)
W-865-1804	7/23/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT7-03	4/17/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT7-03	4/17/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT7-03	10/17/18		0.77	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT7-10	5/1/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT7-12	4/10/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT7-13	4/18/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT7-13	4/18/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT7-1918	5/2/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT7-1918	10/17/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT7-1918	10/17/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT7-2305	2/12/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT7-2305	4/9/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT7-2305	12/5/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT7-2305	12/5/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT7-2306	2/6/18		6.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.4	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT7-2306	4/9/18		3.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT7-2306	11/13/18		3.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.9	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT7-2307	2/5/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT7-2307	4/11/18		0.83	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT7-2307	11/27/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT7-2309	4/25/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT7-2309	4/25/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT7-2703	2/7/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT7-2703	4/25/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT7-2703	11/27/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT7-2703	11/27/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT7-2704	3/7/18		0.79	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT7-2704	4/9/18		0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT7-2704	11/13/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT7-2705	2/12/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT7-2705	4/11/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT7-2705	12/5/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT7-2705	12/5/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Table B-5.19 (Con't). Analyte detected but not reported in main table.

Location	Date	Type	Detection frequency	Chloroethane (µg/L)	Methylene chloride (µg/L)
K7-01	4/16/18		0 of 18	-	-
K7-03	4/25/18		0 of 18	-	-
K7-03	4/25/18	DUP	0 of 18	-	-
K7-06	4/9/18		0 of 18	-	-
K7-09	4/23/18		0 of 18	-	-
K7-10	4/23/18		0 of 18	-	-
NC7-12	10/8/18		0 of 18	-	-
NC7-16	4/26/18		0 of 18	-	-
NC7-17	4/12/18		0 of 18	-	-
NC7-18	4/23/18		0 of 18	-	-
NC7-20	4/30/18		0 of 18	-	-
NC7-21	4/26/18		0 of 18	-	-
NC7-22	4/26/18		0 of 18	-	-
NC7-25	2/7/18		0 of 18	-	-
NC7-25	4/25/18		0 of 18	-	-
NC7-25	11/5/18		0 of 18	-	-
NC7-25	11/5/18	DUP	0 of 18	-	-
NC7-26	4/26/18		0 of 18	-	-
NC7-34	4/24/18		0 of 18	-	-
NC7-36	4/24/18		0 of 18	-	-
NC7-37	4/17/18		0 of 18	-	-
NC7-40	5/2/18		0 of 18	-	-
NC7-47	10/10/18		0 of 18	-	-
NC7-48	4/12/18		0 of 18	-	-
NC7-48	4/12/18	DUP	0 of 18	-	-
NC7-51	4/25/18		0 of 18	-	-
NC7-52	4/25/18		0 of 18	-	-
NC7-52	4/25/18	DUP	0 of 18	-	-
NC7-63	4/24/18		0 of 18	-	-
NC7-63	5/9/18		0 of 18	-	-
NC7-64	2/7/18		0 of 18	-	-
NC7-64	4/25/18		0 of 18	-	-
NC7-64	11/12/18		0 of 18	-	-
NC7-65	4/10/18		0 of 18	-	-
NC7-67	4/17/18		0 of 18	-	-
NC7-75	4/24/18		0 of 18	-	-
W-865-01	1/18/18		0 of 18	-	-
W-865-01	7/23/18		0 of 18	-	-
W-865-1804	1/18/18		0 of 18	-	-
W-865-1804	7/23/18		0 of 18	-	-
W-PIT7-03	4/17/18		0 of 18	-	-
W-PIT7-03	4/17/18	DUP	0 of 18	-	-
W-PIT7-03	10/17/18		0 of 18	-	-
W-PIT7-10	5/1/18		0 of 18	-	-
W-PIT7-12	4/10/18		0 of 18	-	-
W-PIT7-13	4/18/18		0 of 18	-	-
W-PIT7-13	4/18/18	DUP	0 of 18	-	-
W-PIT7-1918	5/2/18		0 of 18	-	-
W-PIT7-1918	10/17/18		0 of 18	-	-
W-PIT7-1918	10/17/18	DUP	0 of 18	-	-
W-PIT7-2305	2/12/18		2 of 18	4.6	3.1
W-PIT7-2305	4/9/18		0 of 18	-	-
W-PIT7-2305	12/5/18		0 of 18	-	-
W-PIT7-2305	12/5/18	DUP	0 of 18	-	-
W-PIT7-2306	2/6/18		0 of 18	-	-
W-PIT7-2306	4/9/18		0 of 18	-	-
W-PIT7-2306	11/13/18		0 of 18	-	-
W-PIT7-2307	2/5/18		0 of 18	-	-
W-PIT7-2307	4/11/18		0 of 18	-	-
W-PIT7-2307	11/27/18		0 of 18	-	-

Table B-5.19 (Con't). Analyte detected but not reported in main table.

Location	Date	Type	Detection frequency	Chloroethane (µg/L)	Methylene chloride (µg/L)
W-PIT7-2309	4/25/18		0 of 18	-	-
W-PIT7-2309	4/25/18	DUP	0 of 18	-	-
W-PIT7-2703	2/7/18		0 of 18	-	-
W-PIT7-2703	4/25/18		0 of 18	-	-
W-PIT7-2703	11/27/18		0 of 18	-	-
W-PIT7-2703	11/27/18	DUP	0 of 18	-	-
W-PIT7-2704	3/7/18		0 of 18	-	-
W-PIT7-2704	4/9/18		0 of 18	-	-
W-PIT7-2704	11/13/18		0 of 18	-	-
W-PIT7-2705	2/12/18		0 of 18	-	-
W-PIT7-2705	4/11/18		0 of 18	-	-
W-PIT7-2705	12/5/18		0 of 18	-	-
W-PIT7-2705	12/5/18	DUP	0 of 18	-	-

Table B-5.20. Pit 7 Complex area in Operable Unit 5 nitrate, perchlorate, and orthophosphate in ground water.

Location	Date	Nitrate as NO3 (mg/L)	Perchlorate (µg/L)	Orthophosphate (mg/L)
		E300.0	E300.0	E300.0
K7-01	4/16/18	57	5.3	-
K7-03	4/25/18	29	5.2	-
K7-03	4/25/18 DUP	29	6.3	-
K7-06	4/9/18	17	<4	-
K7-06	10/3/18	-	<4	-
K7-09	4/23/18	<0.5	<4	-
K7-09	10/4/18	-	<4	-
K7-10	4/23/18	3.1	<4	-
NC7-12	10/8/18	31 D	<4	-
NC7-16	4/26/18	19	<4	-
NC7-17	4/12/18	55	<4	-
NC7-18	4/23/18	26	<4	-
NC7-20	4/30/18	-	<4	-
NC7-21	4/26/18	63 D	5.4	-
NC7-22	4/26/18	33 D	<4	-
NC7-25	2/7/18	47	9.2	-
NC7-25	4/25/18	48	12	-
NC7-25	11/5/18	-	8.5	-
NC7-25	11/5/18 DUP	-	8.7	-
NC7-26	4/26/18	4.2	<4	-
NC7-26	10/16/18	-	<4	-
NC7-34	4/24/18	47 D	16	-
NC7-36	4/24/18	43	<4	-
NC7-37	4/17/18	29	5.8	-
NC7-40	5/2/18	53 D	10	-
NC7-47	10/10/18	53	<4	-
NC7-48	4/12/18	21	<4	-
NC7-48	4/12/18 DUP	22	<4	-
NC7-49A	4/12/18	24	<4	-
NC7-51	4/25/18	46 D	7	-
NC7-52	4/25/18	20	4.4	-
NC7-52	4/25/18 DUP	20	4.1	-
NC7-63	4/24/18	61 D	<4	-
NC7-64	2/7/18	55	6.4	-
NC7-64	4/25/18	60	4.6	-
NC7-64	11/12/18	-	6.3	-
NC7-65	4/10/18	<0.5	<4	-
NC7-67	4/17/18	1.5	<4	-
NC7-68	4/17/18	21	8.9	-
NC7-75	4/24/18	0.69	<4	-
NC7-75	10/17/18	-	<4	-
NC7-76	10/8/18	-	<4	-
W-865-01	1/18/18	4.5	<4	-
W-865-03	1/18/18	42 D	<4	-
W-865-1804	1/18/18	28	<4	-
W-865-1804	7/23/18	-	<4	-
W-PIT7-02	4/30/18	2	<4	-

Table B-5.20. Pit 7 Complex area in Operable Unit 5 nitrate, perchlorate, and orthophosphate in ground water.

Location	Date	Nitrate as NO3 (mg/L)	Perchlorate (µg/L)	Orthophosphate (mg/L)
W-PIT7-03	4/17/18	48 D	7.6	-
W-PIT7-03	4/17/18 DUP	49 D	9.5	-
W-PIT7-10	5/1/18	40	<4	-
W-PIT7-12	4/10/18	44	<4	-
W-PIT7-12	10/2/18	-	<4	-
W-PIT7-13	4/18/18	59 D	<4	-
W-PIT7-13	4/18/18 DUP	58 D	4.1	-
W-PIT7-14	4/10/18	-	<4	-
W-PIT7-15	10/10/18	<0.5	<4	-
W-PIT7-1860	4/9/18	-	<4	-
W-PIT7-1903	5/2/18	-	-	<1 HL
W-PIT7-1904	5/2/18	-	-	<1 HL
W-PIT7-1905	5/2/18	-	-	<1 HL
W-PIT7-1907	5/2/18	-	-	<1 HL
W-PIT7-1915	5/2/18	-	-	4.4 HL
W-PIT7-1916	5/2/18	-	-	<1 HL
W-PIT7-1917	5/2/18	-	-	<1 HL
W-PIT7-1918	5/2/18	41	8.4	<1
W-PIT7-1918	10/17/18	-	8.9	-
W-PIT7-1918	10/17/18 DUP	-	9.1	-
W-PIT7-1919	5/2/18	-	-	<1 HL
W-PIT7-2141	4/10/18	39	<4	-
W-PIT7-2141	10/2/18	-	<4	-
W-PIT7-2305	2/12/18	78	7.8	-
W-PIT7-2305	4/9/18	67	6.7	-
W-PIT7-2305	7/19/18	64	-	-
W-PIT7-2305	12/5/18	-	9.1	-
W-PIT7-2305	12/5/18 DUP	-	9.2	-
W-PIT7-2306	2/6/18	44	21 D	-
W-PIT7-2306	4/9/18	40	17	-
W-PIT7-2306	11/13/18	-	16	-
W-PIT7-2307	2/5/18	30	6	-
W-PIT7-2307	4/11/18	37	4.9	-
W-PIT7-2307	11/27/18	-	5	-
W-PIT7-2309	4/25/18	37	4	-
W-PIT7-2309	4/25/18 DUP	36 D	5.4	-
W-PIT7-2703	2/7/18	48	8.6	-
W-PIT7-2703	4/25/18	49	8.3	-
W-PIT7-2703	11/27/18	-	7.1	-
W-PIT7-2703	11/27/18 DUP	-	7.4	-
W-PIT7-2704	3/7/18	23	4.4	-
W-PIT7-2704	4/9/18	22	<4	-
W-PIT7-2704	11/13/18	-	4.8	-
W-PIT7-2705	2/12/18	62	10	-
W-PIT7-2705	4/11/18	46	7.8	-
W-PIT7-2705	12/5/18	-	8.9	-
W-PIT7-2705	12/5/18 DUP	-	8.6	-

Table B-5.21. Pit 7 Complex area in Operable Unit 5 metals and silica in ground water.

Constituents of concern	K7-01	K7-03	K7-03	K7-06	K7-09	K7-10	NC7-26	NC7-47	NC7-48	NC7-48	W-865-01
	4/16/18	4/25/18	4/25/18 DUP	4/9/18	4/23/18	4/23/18	4/26/18	10/10/18	4/12/18	4/12/18 DUP	1/18/18
Antimony (mg/L)	<0.06	<0.06	-	<0.06	<0.06	<0.06	<0.06	<0.12 D	<0.06	<0.06	<0.06
Arsenic (mg/L)	0.0074	<0.005	-	0.018	<0.005	<0.005	<0.005	<0.01 D	0.0052	0.0053	<0.005
Barium (mg/L)	0.16	0.07	-	0.08	0.014	0.062	0.025	0.052 D	0.12	0.12	0.058
Beryllium (mg/L)	<0.002	<0.002	-	<0.002	<0.002	<0.002	<0.002	<0.004 D	<0.002	<0.002	<0.002
Cadmium (mg/L)	<0.005	<0.005	-	<0.005	<0.005	<0.005	<0.005	<0.01 D	<0.005	<0.005	<0.005
Chromium (mg/L)	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.02 D	<0.01	<0.01	<0.01
Cobalt (mg/L) Copper	<0.02	<0.02	-	<0.02	<0.02	<0.02	<0.02	<0.04 D	<0.02	<0.02	<0.02
(mg/L) Lead (mg/L)	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.02 D	<0.01	<0.01	<0.01
Lithium (mg/L)	<0.003	<0.003	-	<0.003	<0.003	<0.003	<0.003	<0.006 D	<0.003	<0.003	<0.003
Mercury (mg/L)	0.032	0.037	0.026	0.033	0.14	0.053	0.033	0.026	0.058	0.062	-
Molybdenum (mg/L)	<0.0002	<0.0002	-	<0.0002 O	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Nickel (mg/L)	<0.02	<0.02	-	<0.02	<0.02	<0.02	<0.02	<0.04 D	<0.02	<0.02	<0.02
Selenium (mg/L)	<0.02	<0.02	-	<0.02	<0.02	<0.02	<0.02	<0.04 D	<0.02	<0.02	<0.02
Silver (mg/L)	<0.005	<0.005	-	<0.005	<0.005	<0.005	<0.005	<0.01 D	<0.005	<0.005	<0.005
Thallium (mg/L)	<0.005	<0.005	-	<0.005	<0.005	<0.005	<0.005	<0.01 D	<0.005	<0.005	<0.005
Vanadium (mg/L)	<0.005	<0.005	-	<0.005	<0.005	<0.005	<0.005	<0.01 D	<0.005	<0.005	<0.005
Zinc (mg/L)	0.012	<0.01	-	0.037	<0.01	<0.01	<0.01	0.054 D	0.016	0.017	0.026
	<0.02	0.028	-	0.028	<0.02	<0.02	0.028	<0.04 D	<0.02	<0.02	<0.05

Table B-5.22. Pit 7 Complex area in Operable Unit 5 polychlorinated biphenyl (PCBs) compounds in ground water.

Location	Date	PCB 1016 (µg/L)	PCB 1221 (µg/L)	PCB 1232 (µg/L)	PCB 1242 (µg/L)	PCB 1248 (µg/L)	PCB 1254 (µg/L)	PCB 1260 (µg/L)
K7-01	4/16/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K7-03	4/25/18	<0.5 DH	<0.5 DH	<0.5 DH	<0.5 DH	<0.5 DH	<0.5 DH	<0.5 DH
K7-03	4/25/18 DUP	<0.49	<0.49	<0.49	<0.49	<0.49	<0.49	<0.49
K7-06	4/9/18	<0.5 D	<0.5 D	<0.5 D	<0.5 D	<0.5 D	<0.5 D	<0.5 D
K7-09	4/23/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K7-10	4/23/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
NC7-26	4/26/18	<0.5 D	<0.5 D	<0.5 D	<0.5 D	<0.5 D	<0.5 D	<0.5 D
NC7-47	10/10/18	<0.5 D	<0.5 D	<0.5 D	<0.5 D	<0.5 D	<0.5 D	<0.5 D
NC7-48	4/12/18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
NC7-48	4/12/18 DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Table B-5.23. Pit 7 Complex area in Operable Unit 5 fluoride in ground water.

Location	Date	Fluoride (mg/L)
K7-01	4/16/18	0.34
K7-03	4/25/18	0.29
K7-03	4/25/18 DUP	<0.5
K7-06	4/9/18	0.32
K7-09	4/23/18	0.11
K7-10	4/23/18	0.053
NC7-26	4/26/18	0.2
NC7-47	10/10/18	0.44
NC7-48	4/12/18	0.12
NC7-48	4/12/18 DUP	0.12

Table B-5.24. Pit 7 Complex area in Operable Unit 5 total uranium and uranium isotopes in ground water.

Location	Date	AS	AS	AS	KPA	MS	MS	MS	MS	MS	MS	MS	MS
		Uranium 234 and 233 (in activity) (pCi/L)	Uranium 235 and 236 (in activity) (pCi/L)	Uranium 238 (in activity) (pCi/L)	Total Uranium (in mass) (µg/L)	Total Uranium (in activity) (pCi/L)	Total Uranium (in mass) (µg/L)	Uranium 234 (in activity) (pCi/L)	Uranium 235 (in activity) (pCi/L)	Uranium 236 (in activity) (pCi/L)	Uranium 238 (in activity) (pCi/L)	Uranium 238 (in mass) (µg/L)	Uranium 235/238 (atom/atom)
K7-01	4/16/18	-	-	-	-	10.0 ± 0.190	15.0 ± 0.0480	5.30 ± 0.190	0.230 ± 0.000820	<0.00095	4.90 ± 0.0160	15.0 ± 0.0480	0.00721 ± 0.0000110
K7-03	4/25/18	-	-	-	-	5.02 ± 0.0800	7.10 ± 0.0190	2.55 ± 0.0840	0.110 ± 0.000900	<0.00045	2.36 ± 0.0100	7.03 ± 0.0190	0.00723 ± 0.0000560
K7-06	4/9/18	0.714 ± 0.141 B	<0.1 B	0.544 ± 0.119	-	-	-	-	-	-	-	-	-
K7-09	4/23/18	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-
K7-10	4/23/18	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-
NC7-12	9/20/18	-	-	-	-	3.10 ± 0.0550	4.20 ± 0.0160	1.60 ± 0.0550	0.0640 ± 0.000360	<0.00079	1.40 ± 0.00550	4.20 ± 0.0160	0.00709 ± 0.0000290
NC7-12	10/8/18	1.52 ± 0.213	<0.1	1.28 ± 0.185	-	2.68 ± 0.0420	3.70 ± 0.0190	1.40 ± 0.0410	0.0550 ± 0.000430	<0.00076	1.20 ± 0.00630	3.60 ± 0.0190	0.00706 ± 0.0000410
NC7-16	1/17/18	-	-	-	-	20.0 ± 0.260	36.0 ± 0.100	7.20 ± 0.260	0.350 ± 0.00240	0.0410 ± 0.000180	12.0 ± 0.0350	36.0 ± 0.100	0.00440 ± 0.0000280
NC7-16	4/26/18	8.04 ± 1.14	0.460 ± 0.154	12.9 ± 1.75	-	20.8 ± 0.400	37.0 ± 0.120	7.96 ± 0.400	0.363 ± 0.00270	0.0420 ± 0.000410	12.5 ± 0.0400	37.1 ± 0.120	0.00453 ± 0.0000310
NC7-16	7/19/18	-	-	-	-	22.0 ± 0.130	40.0 ± 0.210	8.50 ± 0.100	0.390 ± 0.00260	0.0420 ± 0.0000230	13.0 ± 0.0720	39.0 ± 0.210	0.00459 ± 0.0000190
NC7-16	10/16/18	-	-	-	-	16.0 ± 0.290	28.0 ± 0.0860	6.70 ± 0.280	0.300 ± 0.00180	0.0260 ± 0.000330	9.30 ± 0.0290	28.0 ± 0.0860	0.00500 ± 0.0000260
NC7-17	4/12/18	1.04 ± 0.231	0.156 ± 0.0880	0.837 ± 0.203	-	-	-	-	-	-	-	-	-
NC7-18	4/23/18	1.31 ± 0.263	<0.1	1.29 ± 0.260	-	-	-	-	-	-	-	-	-
NC7-20	4/30/18	1.95 ± 0.315	0.192 ± 0.0837	1.80 ± 0.297	-	-	-	-	-	-	-	-	-
NC7-21	4/26/18	3.75 ± 0.507	0.127 ± 0.0690	3.91 ± 0.522	-	-	-	-	-	-	-	-	-
NC7-25	2/7/18	16.5 ± 2.67	0.768 ± 0.259	14.5 ± 2.36	-	-	-	-	-	-	-	-	-
NC7-25	4/25/18	-	-	-	46.7 ± 5.09 D	36.4 ± 0.870	48.0 ± 0.170	19.7 ± 0.870	0.746 ± 0.00380	<0.0031	16.0 ± 0.0600	47.7 ± 0.170	0.00723 ± 0.0000260
NC7-25	11/5/18	19.4 ± 2.35	1.13 ± 0.236	17.1 ± 2.09	-	35.0 ± 0.740	47.0 ± 0.140	19.0 ± 0.740	0.730 ± 0.00490	<0.003	16.0 ± 0.0490	47.0 ± 0.140	0.00722 ± 0.0000430
NC7-25	11/5/18 DUP	19.4 ± 2.39	1.12 ± 0.237	17.2 ± 2.13	-	37.0 ± 0.820	47.0 ± 0.220	20.0 ± 0.810	0.730 ± 0.00410	<0.003	16.0 ± 0.0740	47.0 ± 0.220	0.00723 ± 0.0000210
NC7-26	4/26/18	-	-	-	-	0.570 ± 0.0100	0.700 ± 0.00380	0.323 ± 0.00970	0.0108 ± 0.000100	<0.000045	0.230 ± 0	0.697 ± 0.00400	0.00718 ± 0.0000190
NC7-34	4/24/18	5.20 ± 0.910	0.230 ± 0.136	8.24 ± 1.35	-	-	-	-	-	-	-	-	-
NC7-36	4/24/18	1.18 ± 0.236	<0.1	1.02 ± 0.214	-	-	-	-	-	-	-	-	-
NC7-37	4/17/18	5.31 ± 0.806	0.420 ± 0.150	15.9 ± 2.16	-	-	-	-	-	-	-	-	-
NC7-40	1/17/18	-	-	-	-	85.0 ± 1.40	180 ± 0.850	23.0 ± 1.30	1.20 ± 0.00760	0.280 ± 0.000680	60.0 ± 0.290	180 ± 0.850	0.00324 ± 0.0000120
NC7-40	5/2/18	-	-	-	-	97.0 ± 2.10	204 ± 0.830	27.0 ± 2.00	1.40 ± 0.0110	0.320 ± 0.00140	68.0 ± 0.280	203 ± 0.830	0.00326 ± 0.0000210
NC7-40	7/19/18	-	-	-	-	110 ± 1.90	220 ± 0.380	30.0 ± 1.90	1.60 ± 0.00790	0.350 ± 0.00110	74.0 ± 0.130	220 ± 0.380	0.00326 ± 0.0000160
NC7-40	10/17/18	-	-	-	-	120 ± 1.70	240 ± 1.60	33.0 ± 1.60	1.70 ± 0.0210	0.400 ± 0.000680	82.0 ± 0.540	240 ± 1.60	0.00323 ± 0.0000350
NC7-40	10/17/18 DUP	-	-	-	-	120 ± 0.670	240 ± 0.350	34.0 ± 0.660	1.70 ± 0.00770	0.370 ± 0.000130	80.0 ± 0.120	240 ± 0.350	0.00324 ± 0.0000140
NC7-47	10/10/18	1.17 ± 0.199	<0.1	0.704 ± 0.144	-	-	-	-	-	-	-	-	-
NC7-48	4/12/18	-	-	-	-	5.70 ± 0.0890	13.0 ± 0.0290	1.40 ± 0.0890	0.0790 ± 0.000620	0.0200 ± 0.0000420	4.20 ± 0.00990	13.0 ± 0.0290	0.00292 ± 0.0000220
NC7-48	4/12/18 DUP	-	-	-	-	5.90 ± 0.0580	13.0 ± 0.0270	1.50 ± 0.0570	0.0800 ± 0.000970	0.0200 ± 0.0000170	4.30 ± 0.00900	13.0 ± 0.0270	0.00290 ± 0.0000350
NC7-49A	4/12/18	1.39 ± 0.265	<0.1	0.988 ± 0.215	-	-	-	-	-	-	-	-	-
NC7-50	4/30/18	0.583 ± 0.149	<0.1	0.608 ± 0.149	-	-	-	-	-	-	-	-	-
NC7-51	1/17/18	-	-	-	-	47.0 ± 0.830	83.0 ± 0.400	18.0 ± 0.820	0.810 ± 0.00510	0.0950 ± 0.000740	28.0 ± 0.140	83.0 ± 0.400	0.00454 ± 0.0000180
NC7-51	4/25/18	-	-	-	-	48.7 ± 1.00	76.0 ± 0.250	22.3 ± 1.00	0.916 ± 0.00500	0.0536 ± 0.00200	25.4 ± 0.0800	75.5 ± 0.250	0.00561 ± 0.0000240
NC7-51	7/19/18	-	-	-	-	55.0 ± 0.950	82.0 ± 0.560	26.0 ± 0.940	1.00 ± 0.00750	0.0490 ± 0.00190	27.0 ± 0.190	82.0 ± 0.560	0.00590 ± 0.0000130
NC7-51	10/9/18	-	-	-	-	46.4 ± 0.540	73.0 ± 0.400	21.0 ± 0.520	0.860 ± 0.00650	0.0570 ± 0.000490	24.0 ± 0.130	73.0 ± 0.400	0.00548 ± 0.0000290
NC7-51	10/9/18 DUP	-	-	-	-	46.0 ± 0.970	74.0 ± 0.400	20.0 ± 0.960	0.850 ± 0.00600	0.0590 ± 0.00160	25.0 ± 0.130	74.0 ± 0.400	0.00532 ± 0.0000240
NC7-52	4/25/18	1.33 ± 0.263	<0.1	1.59 ± 0.296	-	-	-	-	-	-	-	-	-
NC7-52	4/25/18 DUP	1.51 ± 0.320	<0.1	1.51 ± 0.320	-	-	-	-	-	-	-	-	-
NC7-53	4/9/18	0.718 ± 0.141 B	<0.1 B	0.507 ± 0.114	-	-	-	-	-	-	-	-	-
NC7-63	4/24/18	-	-	-	-	153 ± 2.30	290 ± 1.20	55.0 ± 2.20	2.46 ± 0.0150	0.391 ± 0.00140	95.5 ± 0.390	284 ± 1.20	0.00401 ± 0.0000190
NC7-64	2/7/18	52.0 ± 17.1	2.37 ± 1.24	81.4 ± 26.5	-	-	-	-	-	-	-	-	-
NC7-64	4/25/18	-	-	-	237 ± 25.9 D	158 ± 4.10	280 ± 1.20	62.7 ± 4.10	2.71 ± 0.0160	0.324 ± 0.00550	92.6 ± 0.390	276 ± 1.20	0.00455 ± 0.0000180
NC7-64	11/12/18	55.7 ± 8.99 O	3.98 ± 0.843	90.2 ± 14.4	-	160 ± 3.60	290 ± 2.80	60.0 ± 3.40	2.70 ± 0.0430	0.360 ± 0.00340	97.0 ± 0.930	290 ± 2.80	0.00439 ± 0.0000540
NC7-65	4/10/18	1.73 ± 0.265 B	0.151 ± 0.0659 B	1.38 ± 0.223	-	3.10 ± 0.0290	4.10 ± 0.0230	1.70 ± 0.0280	0.0640 ± 0.000420	<0.00026	1.40 ± 0.00770	4.10 ± 0.0230	0.00724 ± 0.0000260
NC7-67	4/17/18	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-
NC7-68	4/17/18	1.54 ± 0.301	0.114 ± 0.0769	1.09 ± 0.237	-	-	-	-	-	-	-	-	-
NC7-75	4/24/18	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-
NC7-76	10/8/18	1.35 ± 0.194	<0.1	1.45 ± 0.205	-	-	-	-	-	-	-	-	-
W-PIT7-02	4/30/18	0.490 ± 0.132	<0.1	0.320 ± 0.103	-	-	-	-	-	-	-	-	-
W-PIT7-03	4/17/18	9.18 ± 1.21	0.583 ± 0.165	11.1 ± 1.43	-	-	-	-	-	-	-	-	-
W-PIT7-03	4/17/18 DUP	10.0 ± 1.60	0.450 ± 0.120	10.9 ± 1.80	-	-	-	-	-	-	-	-	-
W-PIT7-10	5/1/18	1.37 ± 0.263	<0.1	1.12 ± 0.224	-	-	-	-	-	-	-	-	-
W-PIT7-13	4/18/18	5.25 ± 0.951	0.297 ± 0.158	3.12 ± 0.623	-	-	-	-	-	-	-	-	-
W-PIT7-13	4/18/18 DUP	4.56 ± 0.750	0.125 ± 0.0480	3.06 ± 0.520	-	-	-	-	-	-	-	-	-
W-PIT7-14	4/10/18	-	-	-	-	<0.06273	0.00570 ± 0.0003	<0.005	0.0000950 ± 0.00000	<0.000012	0.00190 ± 0.0000	0.00570 ± 0.0000	0.00772 ± 0.000362

Table B-5.24. Pit 7 Complex area in Operable Unit 5 total uranium and uranium isotopes in ground water.

Location	Date	AS	AS	AS	KPA	MS	MS	MS	MS	MS	MS	MS	MS
		Uranium 234 and 233 (in activity) (pCi/L)	Uranium 235 and 236 (in activity) (pCi/L)	Uranium 238 (in activity) (pCi/L)	Total Uranium (in mass) (µg/L)	Total Uranium (in activity) (pCi/L)	Total Uranium (in mass) (µg/L)	Uranium 234 (in activity) (pCi/L)	Uranium 235 (in activity) (pCi/L)	Uranium 236 (in activity) (pCi/L)	Uranium 238 (in activity) (pCi/L)	Uranium 238 (in mass) (µg/L)	Uranium 235/238 (atom/atom)
W-PIT7-15	10/10/18	-	-	-	-	0.0564 ± 0.00280	0.0610 ± 0.00082(	<0.062	0.000940 ± 0.000021	<0.000018	0.0200 ± 0.00027	0.0600 ± 0.00081	0.00721 ± 0.000130
W-PIT7-1860	4/9/18	0.104 ± 0.0549 B	<0.1 B	<0.1	-	-	-	-	-	-	-	-	-
W-PIT7-1903	5/2/18	32.1 ± 6.31	1.98 ± 0.642	102 ± 19.4	-	-	-	-	-	-	-	-	-
W-PIT7-1904	5/2/18	27.9 ± 5.54	2.39 ± 0.706 O	95.6 ± 18.4	-	-	-	-	-	-	-	-	-
W-PIT7-1905	5/2/18	24.5 ± 4.01	1.80 ± 0.468 O	72.2 ± 11.4	-	-	-	-	-	-	-	-	-
W-PIT7-1907	5/2/18	<0.1	<0.1 O	<0.1	-	-	-	-	-	-	-	-	-
W-PIT7-1915	5/2/18	<0.1	<0.1 O	0.101 ± 0.0613	-	-	-	-	-	-	-	-	-
W-PIT7-1916	5/2/18	25.3 ± 4.25	1.88 ± 0.496 O	74.8 ± 12.2	-	-	-	-	-	-	-	-	-
W-PIT7-1917	5/2/18	23.8 ± 4.41	2.19 ± 0.614 O	78.9 ± 14.1	-	-	-	-	-	-	-	-	-
W-PIT7-1918	5/2/18	-	-	-	-	67.0 ± 1.00	140 ± 0.460	19.0 ± 1.00	1.00 ± 0.00790	0.220 ± 0.000510	47.0 ± 0.150	140 ± 0.460	0.00331 ± 0.0000240
W-PIT7-1919	5/2/18	26.8 ± 5.48	2.72 ± 0.806 O	82.8 ± 16.4	-	-	-	-	-	-	-	-	-
W-PIT7-2141	4/10/18	-	-	-	-	6.00 ± 0.0740	6.80 ± 0.0330	3.60 ± 0.0730	0.110 ± 0.000550	<0.00044	2.30 ± 0.0110	6.80 ± 0.0330	0.00722 ± 0.0000140
W-PIT7-2305	2/12/18	2.41 ± 0.377 O	0.140 ± 0.0787	2.37 ± 0.370	-	-	-	-	-	-	-	-	-
W-PIT7-2305	4/9/18	-	-	-	12.3 ± 1.35 D	8.40 ± 0.160	12.0 ± 0.0720	4.20 ± 0.160	0.180 ± 0.00120	<0.0029	4.00 ± 0.0240	12.0 ± 0.0720	0.00697 ± 0.0000220
W-PIT7-2305	12/5/18	5.71 ± 0.741	0.436 ± 0.127	5.97 ± 0.769	-	11.0 ± 0.340	16.0 ± 0.0860	5.70 ± 0.340	0.240 ± 0.00250	<0.0023	5.30 ± 0.0290	16.0 ± 0.0860	0.00709 ± 0.0000620
W-PIT7-2305	12/5/18 DUP	5.71 ± 0.688	0.521 ± 0.127	5.21 ± 0.634	-	11.0 ± 0.280	16.0 ± 0.0950	5.60 ± 0.280	0.240 ± 0.00200	<0.001	5.20 ± 0.0320	15.0 ± 0.0950	0.00710 ± 0.0000410
W-PIT7-2306	2/6/18	8.69 ± 1.09	0.384 ± 0.119	12.3 ± 1.49	-	-	-	-	-	-	-	-	-
W-PIT7-2306	4/9/18	-	-	-	-	23.0 ± 0.370	40.0 ± 0.150	9.20 ± 0.370	0.370 ± 0.00220	0.0470 ± 0.000300	13.0 ± 0.0500	39.0 ± 0.150	0.00435 ± 0.0000190
W-PIT7-2306	7/9/18	-	-	-	28.5 ± 4.48 D	-	-	-	-	-	-	-	-
W-PIT7-2306	11/13/18	8.64 ± 1.02 O	0.565 ± 0.136	13.2 ± 1.51	-	22.0 ± 0.490	38.0 ± 0.200	8.80 ± 0.480	0.350 ± 0.00240	0.0490 ± 0.000510	13.0 ± 0.0680	38.0 ± 0.200	0.00429 ± 0.0000190
W-PIT7-2307	2/5/18	4.99 ± 0.687	0.378 ± 0.124	9.83 ± 1.25	-	-	-	-	-	-	-	-	-
W-PIT7-2307	4/11/18	-	-	-	-	17.0 ± 0.290	27.9 ± 0.140	7.40 ± 0.290	0.310 ± 0.00310	0.0240 ± 0.000360	9.34 ± 0.0470	27.8 ± 0.140	0.00513 ± 0.0000440
W-PIT7-2307	7/9/18	-	-	-	9.00 ± 1.45 D	-	-	-	-	-	-	-	-
W-PIT7-2307	11/27/18	4.18 ± 0.593	0.286 ± 0.107	7.58 ± 0.990	-	11.0 ± 0.150	22.0 ± 0.180	4.00 ± 0.140	0.180 ± 0.00210	0.0280 ± 0.0000730	7.20 ± 0.0600	21.0 ± 0.180	0.00387 ± 0.0000320
W-PIT7-2309	4/25/18	-	-	-	-	2.14 ± 0.0400	2.90 ± 0.00950	1.12 ± 0.0420	0.0455 ± 0.000300	<0.00019	0.980 ± 0	2.91 ± 0.0100	0.00724 ± 0.0000410
W-PIT7-2703	2/7/18	48.1 ± 8.92	2.72 ± 0.725	49.1 ± 9.09	-	-	-	-	-	-	-	-	-
W-PIT7-2703	4/25/18	-	-	-	134 ± 14.6 D	99.3 ± 1.20	140 ± 0.850	50.5 ± 1.10	1.95 ± 0.0140	0.0483 ± 0.00260	46.8 ± 0.290	139 ± 0.850	0.00648 ± 0.0000210
W-PIT7-2703	11/27/18	46.4 ± 6.88	2.11 ± 0.479	44.5 ± 6.61	-	98.0 ± 2.40	140 ± 0.650	50.0 ± 2.40	2.00 ± 0.0170	0.0380 ± 0.0150	47.0 ± 0.220	140 ± 0.650	0.00664 ± 0.0000490
W-PIT7-2703	11/27/18 DUP	43.3 ± 5.90	2.55 ± 0.495	42.9 ± 5.85	-	98.0 ± 1.30	140 ± 0.560	50.0 ± 1.30	2.00 ± 0.0180	0.0380 ± 0.00450	47.0 ± 0.190	140 ± 0.560	0.00661 ± 0.0000530
W-PIT7-2704	3/7/18	1.15 ± 0.201	<0.1	0.901 ± 0.169	-	-	-	-	-	-	-	-	-
W-PIT7-2704	4/9/18	-	-	-	-	2.20 ± 0.0350	2.90 ± 0.00780	1.20 ± 0.0350	0.0410 ± 0.000260	<0.007	0.960 ± 0.00260	2.90 ± 0.00780	0.00661 ± 0.0000390
W-PIT7-2704	7/9/18	-	-	-	1.31 ± 0.192	-	-	-	-	-	-	-	-
W-PIT7-2704	11/13/18	1.41 ± 0.240 O	0.145 ± 0.0678	1.15 ± 0.207	-	2.30 ± 0.0480	3.10 ± 0.0100	1.20 ± 0.0480	0.0450 ± 0.000350	<0.007	1.00 ± 0.00340	3.10 ± 0.0100	0.00673 ± 0.0000480
W-PIT7-2705	2/12/18	24.6 ± 4.16 O	2.39 ± 0.589	82.6 ± 13.5	-	-	-	-	-	-	-	-	-
W-PIT7-2705	4/11/18	-	-	-	155 ± 17.0 D	73.0 ± 0.660	156 ± 0.410	19.0 ± 0.650	1.00 ± 0.00870	0.260 ± 0.000180	52.3 ± 0.140	156 ± 0.410	0.00311 ± 0.0000250
W-PIT7-2705	12/5/18	17.0 ± 2.25	1.57 ± 0.323	43.9 ± 5.60	-	70.0 ± 1.60	140 ± 0.890	21.0 ± 1.60	1.00 ± 0.00830	0.210 ± 0.00120	49.0 ± 0.300	140 ± 0.890	0.00333 ± 0.0000170
W-PIT7-2705	12/5/18 DUP	19.2 ± 2.74	1.59 ± 0.355	48.1 ± 6.65	-	71.0 ± 1.70	150 ± 0.440	21.0 ± 1.70	1.00 ± 0.00530	0.230 ± 0.00130	49.0 ± 0.150	150 ± 0.440	0.00334 ± 0.0000140

Table B-5.25. Pit 7 Complex area in Operable Unit 5 tritium in ground water.

Location	Date	Tritium (pCi/L)
K7-01	4/16/18	15300 ± 2980
K7-01	10/16/18	17700 ± 3460
K7-03	4/25/18	40300 ± 7940
K7-03	4/25/18 DUP	47600 ± 7200
K7-03	10/9/18	43500 ± 8460
K7-03	10/9/18 DUP	45300 ± 8800
K7-06	4/9/18	<100
K7-06	10/3/18	<100
K7-09	4/23/18	<100
K7-09	10/4/18	<100
K7-10	4/23/18	<100
K7-10	10/4/18	<100
NC7-12	10/8/18	2040 ± 419
NC7-16	1/17/18	35100 ± 6820
NC7-16	4/26/18	32800 ± 6470
NC7-16	7/19/18	38800 ± 7540
NC7-16	10/16/18	42700 ± 8290
NC7-17	4/12/18	<100
NC7-17	10/3/18	<100
NC7-18	4/23/18	<100
NC7-18	10/4/18	<100
NC7-20	4/30/18	3750 ± 746
NC7-20	10/8/18	3670 ± 733
NC7-21	4/26/18	20400 ± 4100
NC7-21	10/16/18	20200 ± 3940
NC7-22	4/26/18	7720 ± 1650
NC7-25	2/7/18	161000 ± 31200
NC7-25	4/25/18	143000 ± 27900
NC7-25	11/5/18	177000 ± 34300
NC7-25	11/5/18 DUP	173000 ± 33600
NC7-26	4/26/18	2460 ± 656
NC7-26	10/16/18	1630 ± 353
NC7-34	4/24/18	2080 ± 426
NC7-34	10/4/18	1400 ± 296
NC7-36	4/24/18	<100
NC7-36	10/4/18	<100
NC7-37	4/17/18	13900 ± 2710
NC7-37	10/17/18	9590 ± 1890
NC7-40	1/17/18	54600 ± 10600
NC7-40	5/2/18	46300 ± 9090
NC7-40	7/19/18	49900 ± 9690
NC7-40	10/17/18	52200 ± 10100
NC7-40	10/17/18 DUP	58000 ± 11300
NC7-47	10/10/18	<100
NC7-48	4/12/18	<100
NC7-48	4/12/18 DUP	<100
NC7-48	10/3/18	<100
NC7-49A	4/12/18	<100
NC7-49A	10/3/18	<100
NC7-51	1/17/18	251000 ± 48800

Table B-5.25. Pit 7 Complex area in Operable Unit 5 tritium in ground water.

Location	Date	Tritium (pCi/L)
NC7-51	4/25/18	112000 ± 21900
NC7-51	7/19/18	116000 ± 22500
NC7-51	10/9/18	127000 ± 24600
NC7-51	10/9/18 DUP	119000 ± 23100
NC7-52	1/17/18	31900 ± 6190
NC7-52	7/19/18	24000 ± 4660
NC7-63	4/24/18	141000 ± 27300
NC7-63	10/17/18	190000 ± 37000
NC7-64	2/7/18	106000 ± 20600
NC7-64	4/25/18	116000 ± 22600
NC7-64	11/28/18	111000 ± 21600
NC7-65	4/10/18	151 ± 75.8
NC7-65	10/2/18	136 ± 92.9
NC7-67	4/17/18	2150 ± 439
NC7-67	10/4/18	2360 ± 480
NC7-68	4/17/18	2090 ± 427
NC7-68	10/4/18	1980 ± 406
NC7-75	4/24/18	12200 ± 2380
NC7-75	10/17/18	8510 ± 1680
NC7-76	10/8/18	1290 ± 278
W-865-01	1/18/18	<100
W-865-01	7/23/18	<100
W-865-03	1/18/18	<100
W-865-1804	1/18/18	866 ± 196
W-865-1804	7/23/18	863 ± 201
W-PIT7-02	1/17/18	<100
W-PIT7-02	7/19/18	<100
W-PIT7-03	1/17/18	68300 ± 13300
W-PIT7-10	5/1/18	<100
W-PIT7-10	11/20/18	<100
W-PIT7-12	4/10/18	1930 ± 385
W-PIT7-12	10/2/18	2060 ± 439
W-PIT7-13	4/18/18	23600 ± 4580
W-PIT7-13	4/18/18 DUP	25800 ± 3900
W-PIT7-13	10/2/18	30100 ± 5860
W-PIT7-13	10/2/18 DUP	26800 ± 4100
W-PIT7-14	4/10/18	<100
W-PIT7-15	10/10/18	<100
W-PIT7-1860	4/9/18	<100
W-PIT7-1918	5/2/18	36100 ± 7110
W-PIT7-1918	10/17/18	38800 ± 7540
W-PIT7-1918	10/17/18 DUP	46600 ± 7100
W-PIT7-2141	4/10/18	10600 ± 2060
W-PIT7-2141	10/2/18	12200 ± 2390
W-PIT7-2305	2/12/18	19700 ± 3820
W-PIT7-2305	4/9/18	22300 ± 4330
W-PIT7-2305	12/5/18	27000 ± 5240
W-PIT7-2305	12/5/18 DUP	28700 ± 5570
W-PIT7-2306	2/6/18	28100 ± 5470
W-PIT7-2306	4/9/18	19800 ± 3840

Table B-5.25. Pit 7 Complex area in Operable Unit 5 tritium in ground water.

Location	Date	Tritium (pCi/L)
W-PIT7-2306	11/13/18	18400 ± 3580
W-PIT7-2307	2/5/18	26900 ± 5220
W-PIT7-2307	4/11/18	38000 ± 7390
W-PIT7-2307	11/27/18	19200 ± 3750
W-PIT7-2309	4/25/18	32300 ± 6380
W-PIT7-2309	4/25/18 DUP	36300 ± 5500
W-PIT7-2309	10/9/18	34000 ± 6610
W-PIT7-2703	2/7/18	85300 ± 16600
W-PIT7-2703	4/25/18	83300 ± 16200
W-PIT7-2703	11/27/18	82500 ± 16000
W-PIT7-2703	11/27/18 DUP	81100 ± 15700
W-PIT7-2704	3/7/18	279 ± 86.6
W-PIT7-2704	4/9/18	305 ± 89.9
W-PIT7-2704	11/13/18	291 ± 89.9
W-PIT7-2705	2/12/18	46400 ± 9020
W-PIT7-2705	4/11/18	35200 ± 6840
W-PIT7-2705	12/5/18	37100 ± 7200
W-PIT7-2705	12/5/18 DUP	32700 ± 6360

Table B-5.26. Pit 7 Complex area in Operable Unit 5 high explosive compounds in ground water.

Location	Date	1,3,5-Trinitrobenzene (µg/L)	1,3-Dinitrobenzene (µg/L)	2,4-Dinitrotoluene (µg/L)	2,6-Dinitrotoluene (µg/L)	2-Amino-4,6-Dinitrotoluene (µg/L)	2-Nitrotoluene (µg/L)	3-Nitrotoluene (µg/L)	4-Amino-2,6-Dinitrotoluene (µg/L)	4-Nitrotoluene (µg/L)	HMX (µg/L)	Nitrobenzene (µg/L)	RDX (µg/L)	TNT (µg/L)
K7-01	4/16/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
K7-03	4/25/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
K7-03	4/25/18 DUP	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<1	<2.1	<1	<2.1
K7-06	4/9/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
K7-09	4/23/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
K7-10	4/23/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
NC7-26	4/26/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
NC7-47	10/10/18	<2.3 D	<2.3 D	<2.3 D	<2.3 D	<2.3 D	<2.3 D	<2.3 D	<2.3 D	<2.3 D	<1.1 D	<2.3 D	<1.1 D	<2.3 D
NC7-48	4/12/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
NC7-48	4/12/18 DUP	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2

Table B-6.01. Building 854 Operable Unit volatile organic compounds (VOCs) in ground and surface water.

Location	Date	Type	TCE (µg/L)	PCE (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	Carbon tetrachloride (µg/L)	Chloroform (µg/L)	1,1-DCA (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	1,1,1-TCA (µg/L)	1,1,2-TCA (µg/L)	Freon 11 (µg/L)	Freon 113 (µg/L)	Vinyl chloride (µg/L)
W-854-01	5/22/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-01	11/5/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-02	1/3/18		79	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-02	4/3/18		84	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-02	7/9/18		79	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-02	10/15/18		74	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-02	10/15/18	DUP	63	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-03	1/10/18		3.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-03	7/10/18		5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-03	10/1/18		5.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-03	10/1/18	DUP	6.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-04	5/23/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-04	12/4/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-05	5/22/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-05	11/5/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-06	5/29/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-06	5/29/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-06	11/7/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-07	5/29/18		22	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-07	5/29/18	DUP	23	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-07	11/7/18		22	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-08	5/23/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-08	11/6/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-10	5/22/18		9.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-10	5/22/18	DUP	10	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-10	11/5/18		8.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-10	11/5/18	DUP	8.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-13	5/30/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-13	11/6/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-14	5/24/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-14	11/12/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-15	5/23/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-15	11/8/18		R	R	R	R	R	R	R	R	R	R	R	R	R	R
W-854-15	12/3/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-17	5/22/18		8.4	<0.5	15	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-17	11/5/18		11	<0.5	17	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-17	11/5/18	DUP	9.3	<0.5	17	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-18A	5/23/18		11	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-18A	11/6/18		13	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-45	5/24/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-45	11/12/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-45	11/12/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-1701	5/29/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-1701	11/7/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-1707	6/4/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-1707	12/18/18		<0.5 LO	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-1731	5/24/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-1731	11/12/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Table B-6.01. Building 854 Operable Unit volatile organic compounds (VOCs) in ground and surface water.

Location	Date	Type	TCE (µg/L)	PCE (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	Carbon tetrachloride (µg/L)	Chloroform (µg/L)	1,1-DCA (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	1,1,1-TCA (µg/L)	1,1,2-TCA (µg/L)	Freon 11 (µg/L)	Freon 113 (µg/L)	Vinyl chloride (µg/L)
W-854-1822	5/29/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-1822	11/7/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-1823	5/30/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-1823	11/8/18		R	R	R	R	R	R	R	R	R	R	R	R	R	R
W-854-1823	12/3/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-2115	5/29/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-2115	11/7/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-2139	2/27/18		18	<0.5	0.53	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-2139	4/3/18		21	<0.5	0.82	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-2139	7/10/18		20	<0.5	0.72	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-2139	10/1/18		23	<0.5	0.74	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-2139	10/1/18	DUP	24	<0.5	0.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-2218	1/3/18		7.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-2218	4/3/18		6.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-2218	7/9/18		13	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-2218	10/2/18		13	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-2611	5/22/18		2.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-2611	11/5/18		2.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-3305	5/29/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-3305	8/21/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-3305	11/12/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-3306	2/8/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-3306	5/24/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-3306	8/21/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-3306	11/12/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-3307	2/8/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-3307	5/29/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-3307	8/21/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-3307	11/12/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-3308	2/8/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-3308	5/29/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-3308	8/21/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-3308	11/8/18		R	R	R	R	R	R	R	R	R	R	R	R	R	R
W-854-3308	12/3/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-3309	2/8/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-3309	2/8/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-3309	5/29/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-3309	8/21/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-3309	11/8/18		R	R	R	R	R	R	R	R	R	R	R	R	R	R
W-854-3309	12/3/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-854-3405	11/20/18		4.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
SPRING11	6/4/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
SPRING11	12/18/18		<0.5 LO	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Table B-6.01 (Con't). Analyte detected but not reported in main table.

Location	Date	Type	Detection frequency	1,2-Dichloroethene	Toluene (µg/L)
W-854-01	5/22/18		0 of 18	-	-
W-854-01	11/5/18		0 of 18	-	-
W-854-02	1/3/18		0 of 18	-	-
W-854-02	4/3/18		0 of 18	-	-
W-854-02	7/9/18		0 of 18	-	-
W-854-02	10/15/18		0 of 18	-	-
W-854-02	10/15/18	DUP	0 of 18	-	-
W-854-03	1/10/18		0 of 18	-	-
W-854-03	7/10/18		0 of 18	-	-
W-854-03	10/1/18		0 of 18	-	-
W-854-03	10/1/18	DUP	0 of 18	-	-
W-854-04	5/23/18		0 of 18	-	-
W-854-04	12/4/18		0 of 18	-	-
W-854-05	5/22/18		0 of 18	-	-
W-854-05	11/5/18		0 of 18	-	-
W-854-06	5/29/18		0 of 18	-	-
W-854-06	5/29/18	DUP	0 of 18	-	-
W-854-06	11/7/18		0 of 18	-	-
W-854-07	5/29/18		0 of 18	-	-
W-854-07	5/29/18	DUP	0 of 18	-	-
W-854-07	11/7/18		0 of 18	-	-
W-854-08	5/23/18		0 of 18	-	-
W-854-08	11/6/18		0 of 18	-	-
W-854-10	5/22/18		0 of 18	-	-
W-854-10	5/22/18	DUP	0 of 18	-	-
W-854-10	11/5/18		0 of 18	-	-
W-854-10	11/5/18	DUP	0 of 18	-	-
W-854-13	5/30/18		0 of 18	-	-
W-854-13	11/6/18		0 of 18	-	-
W-854-14	5/24/18		0 of 18	-	-
W-854-14	11/12/18		0 of 18	-	-
W-854-15	5/23/18		0 of 18	-	-
W-854-15	11/8/18		0 of 18	-	-
W-854-15	12/3/18		0 of 18	-	-
W-854-17	5/22/18		1 of 18	15	-
W-854-17	11/5/18		1 of 18	17	-
W-854-17	11/5/18	DUP	1 of 18	17	-
W-854-18A	5/23/18		0 of 18	-	-
W-854-18A	11/6/18		0 of 18	-	-
W-854-45	5/24/18		0 of 18	-	-
W-854-45	11/12/18		0 of 18	-	-
W-854-45	11/12/18	DUP	0 of 18	-	-
W-854-1701	5/29/18		0 of 18	-	-
W-854-1701	11/7/18		0 of 18	-	-
W-854-1707	6/4/18		0 of 18	-	-
W-854-1707	12/18/18		0 of 18	-	-
W-854-1731	5/24/18		0 of 18	-	-
W-854-1731	11/12/18		0 of 18	-	-
W-854-1822	5/29/18		0 of 18	-	-
W-854-1822	11/7/18		0 of 18	-	-
W-854-1823	5/30/18		0 of 18	-	-
W-854-1823	11/8/18		0 of 18	-	-
W-854-1823	12/3/18		0 of 18	-	-
W-854-2115	5/29/18		0 of 18	-	-
W-854-2115	11/7/18		0 of 18	-	-
W-854-2139	2/27/18		0 of 18	-	-
W-854-2139	4/3/18		0 of 18	-	-
W-854-2139	7/10/18		0 of 18	-	-
W-854-2139	10/1/18		0 of 18	-	-
W-854-2139	10/1/18	DUP	0 of 18	-	-
W-854-2218	1/3/18		0 of 18	-	-
W-854-2218	4/3/18		0 of 18	-	-
W-854-2218	7/9/18		0 of 18	-	-
W-854-2218	10/2/18		0 of 18	-	-
W-854-2611	5/22/18		0 of 18	-	-
W-854-2611	11/5/18		0 of 18	-	-
W-854-3305	5/29/18		0 of 18	-	-
W-854-3305	8/21/18		0 of 18	-	-
W-854-3305	11/12/18		0 of 18	-	-
W-854-3306	2/8/18		0 of 18	-	-
W-854-3306	5/24/18		0 of 18	-	-
W-854-3306	8/21/18		0 of 18	-	-
W-854-3306	11/12/18		0 of 18	-	-
W-854-3307	2/8/18		0 of 18	-	-
W-854-3307	5/29/18		0 of 18	-	-
W-854-3307	8/21/18		0 of 18	-	-
W-854-3307	11/12/18		0 of 18	-	-
W-854-3308	2/8/18		0 of 18	-	-
W-854-3308	5/29/18		0 of 18	-	-
W-854-3308	8/21/18		0 of 18	-	-
W-854-3308	11/8/18		0 of 18	-	-
W-854-3308	12/3/18		0 of 18	-	-
W-854-3309	2/8/18		0 of 18	-	-

Table B-6.01 (Con't). Analyte detected but not reported in main table.

Location	Date	Type	Detection frequency	1,2-Dichloroethene	Toluene (µg/L)
W-854-3309	2/8/18	DUP	0 of 18	-	-
W-854-3309	5/29/18		0 of 18	-	-
W-854-3309	8/21/18		0 of 18	-	-
W-854-3309	11/8/18		0 of 18	-	-
W-854-3309	12/3/18		0 of 18	-	-
W-854-3405	11/20/18		1 of 30	-	4.6
SPRING11	6/4/18		0 of 18	-	-
SPRING11	12/18/18		0 of 18	-	-

Table B-6.02. Building 854 Operable Unit nitrate and perchlorate in ground and surface water.

Location	Date	Nitrate (as NO3) (mg/L)	Perchlorate (µg/L)
W-854-01	5/22/18	<0.5	<4
W-854-01	11/5/18	-	<4
W-854-02	1/3/18	-	5.3
W-854-02	4/3/18	49	5.5
W-854-02	7/9/18	-	5.6
W-854-02	10/15/18	-	5.6
W-854-02	10/15/18 DUP	-	5
W-854-03	1/10/18	38	<4
W-854-03	5/1/18	38	-
W-854-03	6/12/18	37	-
W-854-03	7/10/18	38	<4
W-854-03	8/7/18	39	-
W-854-03	9/4/18	39	-
W-854-03	10/1/18	39	<4
W-854-03	10/1/18 DUP	36 D	<4
W-854-03	11/14/18	39	-
W-854-03	11/14/18 DUP	36 D	-
W-854-04	5/23/18	<2.5 D	<4
W-854-04	12/4/18	-	<4
W-854-05	5/22/18	60 D	<4
W-854-05	11/5/18	-	<4
W-854-06	5/29/18	<0.5	<4
W-854-06	5/29/18 DUP	<0.5	<4
W-854-06	11/7/18	-	<4
W-854-07	5/29/18	27 D	5.2
W-854-07	5/29/18 DUP	26 D	6.2
W-854-07	11/7/18	-	4.8
W-854-08	5/23/18	41 D	4.2
W-854-08	11/6/18	-	<4
W-854-10	5/22/18	19 D	<4
W-854-10	5/22/18 DUP	19 D	<4
W-854-10	11/5/18	-	<4
W-854-10	11/5/18 DUP	-	<4
W-854-13	5/30/18	0.72	<4
W-854-13	11/6/18	-	<4
W-854-14	5/24/18	11	-
W-854-14	5/30/18	-	<4
W-854-14	11/12/18	-	<4 L
W-854-15	5/23/18	9.3 D	<4
W-854-15	11/8/18	-	<4
W-854-17	5/22/18	1	<4
W-854-17	11/5/18	-	<4
W-854-17	11/5/18 DUP	-	<4
W-854-18A	5/23/18	21	<4
W-854-18A	11/6/18	-	<4
W-854-45	5/24/18	65 D	-
W-854-45	5/30/18	-	9.1
W-854-45	11/12/18	-	8.7 L
W-854-45	11/12/18 DUP	-	12
W-854-1701	5/29/18	<2.5 D	<4

Table B-6.02. Building 854 Operable Unit nitrate and perchlorate in ground and surface water.

Location	Date	Nitrate (as NO3) (mg/L)	Perchlorate (µg/L)
W-854-1701	11/7/18	-	<4 L
W-854-1707	6/4/18	5.8 D	<4
W-854-1707	12/18/18	-	<4
W-854-1731	5/24/18	4.9 D	-
W-854-1731	5/30/18	-	<4
W-854-1731	11/12/18	-	<4 L
W-854-1822	5/29/18	2.6	<4
W-854-1822	11/7/18	-	<4 L
W-854-1823	5/30/18	31 D	13
W-854-1823	11/8/18	-	11
W-854-2115	5/29/18	<0.5	<4
W-854-2115	11/7/18	-	<4 L
W-854-2139	2/27/18	23	6.6
W-854-2139	4/3/18	18	5.7
W-854-2139	7/10/18	20	5
W-854-2139	10/1/18	22	4.4
W-854-2139	10/1/18 DUP	21	5
W-854-2218	1/3/18	-	<4
W-854-2218	4/3/18	51	<4
W-854-2218	7/9/18	-	<4
W-854-2218	10/2/18	-	<4
W-854-2611	5/22/18	49 D	<4
W-854-2611	11/5/18	-	<4
W-854-3305	2/8/18	<2.5 D	<4
W-854-3305	5/29/18	<2.5 D	<4
W-854-3305	8/21/18	29 D	<4
W-854-3305	11/12/18	<2.5 D	<4 L
W-854-3306	2/8/18	66 D	8.4
W-854-3306	5/24/18	64 D	-
W-854-3306	5/30/18	-	9.5
W-854-3306	8/21/18	65 D	11
W-854-3306	11/12/18	64 D	8 L
W-854-3307	2/8/18	66 D	9.3
W-854-3307	5/29/18	62 D	9.8
W-854-3307	8/21/18	62 D	11
W-854-3307	11/12/18	59 D	8.7 L
W-854-3308	2/8/18	3 D	5
W-854-3308	5/29/18	9.2 D	12
W-854-3308	8/21/18	12 D	19
W-854-3308	11/8/18	12 D	15
W-854-3309	2/8/18	19	8.8
W-854-3309	2/8/18 DUP	17 D	10
W-854-3309	5/29/18	20 D	11
W-854-3309	8/21/18	21 D	13
W-854-3309	11/8/18	22	9.8
W-854-3405	11/20/18	-	7.4
SPRING11	6/4/18	9.2 D	<4
SPRING11	12/18/18	-	<4

Table B-6.03. Building 854 Operable Unit total uranium and uranium isotopes in ground water.

Location	Date	Uranium 234 and 233 (in	Uranium 235 and 236	Uranium 238 (in
W-854-3405	11/20/18	8.08 ± 1.07	0.276 ± 0.108	4.80 ± 0.676

Table B-6.04. Building 854 Operable Unit metals in ground water.

Location	Date	Arsenic (mg/L)	Barium (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Lead (mg/L)	Mercury (mg/L)	Selenium (mg/L)	Silica (as SiO2) (mg/L)	Silver (mg/L)
W-854-3405	11/20/18	0.1	0.041	<0.0005	0.0021	<0.005	<0.0002	0.015	52	<0.001

Table B-6.05. Building 854 Operable Unit general minerals in ground water.

Constituents of concern	W-854-3405
	11/20/18
Total Alkalinity (as CaCO3) (mg/L)	190
Aluminum (mg/L)	<0.2
Bicarbonate Alk (as CaCO3) (mg/L)	190 D
Calcium (mg/L)	23
Carbonate Alk (as CaCO3) (mg/L)	<8.2 D
Chloride (mg/L)	170
Copper (mg/L)	<0.05
Fluoride (mg/L)	0.47
Hydroxide Alk (as CaCO3) (mg/L)	<8.2 D
Iron (mg/L)	<0.1
Magnesium (mg/L)	12
Manganese (mg/L)	<0.03
Nickel (mg/L)	<0.1
Nitrate (as N) (mg/L)	12
Nitrate (as NO3) (mg/L)	53 H
Nitrite (as N) (mg/L)	<0.5
pH (Units)	8.17
Ortho-Phosphate (mg/L)	0.18
Total Phosphorus (as PO4) (mg/L)	<0.15 L
Potassium (mg/L)	6.7
Sodium (mg/L)	170
Total dissolved solids (TDS) (mg/	660 D
L) Specific Conductance (µmhos/cm)	1,070
Sulfate (mg/L)	42
Surfactants (mg/L)	<0.5
Total Hardness (as CaCO3) (mg/L)	110
Zinc (mg/L)	<0.05

Table B-6.06. Building 854 Operable Unit gross alpha and beta in ground water.

Location	Date	Gross alpha (pCi/L)	Gross beta (pCi/L)
W-854-3405	11/20/18	13.5 ± 3.26	6.02 ± 1.5

Table B-6.07. Building 854 Operable Unit tritium in ground water.

Location	Date	Tritium (pCi/L)
W-854-3405	11/20/18	<100

Table B-6.08. Building 854 Operable Unit high explosive compounds in ground water water.

Location	Date	1,3,5-Trinitrobenzene (µg/L)	1,3-Dinitrobenzene (µg/L)	2,4-Dinitrotoluene (µg/L)	2,6-Dinitrotoluene (µg/L)	2-Amino-4,6-Dinitrotoluene (µg/L)	2-Nitrotoluene (µg/L)	3-Nitrotoluene (µg/L)	4-Amino-2,6-Dinitrotoluene (µg/L)	4-Nitrotoluene (µg/L)	HMX (µg/L)	Nitrobenzene (µg/L)	RDX (µg/L)	TNT (µg/L)
W-854-3405	11/20/18	<2	<2	<2	<2.1	<2	<2.6	<2	<2	<2.5	<1	<2	<1	<2

Table B-6.09. Building 854 Operable Unit tetrabutyl orthosilicate/tetrakis (2-ethylbutyl) silane (TBOS/TKEBS) in ground water.

Location	Date	C24H52O4Si (µg/L)
W-854-3405	11/20/18	<10

Table B-7.01. Building 832 Canyon Operable Unit volatile organic compounds (VOCs) in ground and surface water.

Location	Date	Type	TCE (µg/L)	PCE (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	Carbon tetrachloride (µg/L)	Chloroform (µg/L)	1,1-DCA (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	1,1,1-TCA (µg/L)	1,1,2-TCA (µg/L)	Freon 11 (µg/L)	Freon 113 (µg/L)	Vinyl chloride (µg/L)
SPRING3	3/12/18		15	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
SVI-830-031	3/7/18		58	1.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
SVI-830-032	3/7/18		66 D	<1 D	<1 D	<1 D	<1 D	<1 D	<1 D	<1 D	<1 D	<1 D	<1 D	<1 D	<1 D	<1 D
SVI-830-033	3/7/18		5.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
SVI-830-033	9/4/18		5.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
SVI-830-035	3/7/18		840 D	<5 DH	<5 DH	<5 DH	<5 DH	<5 DH	<5 DH	<5 DH	<5 DH	<5 DH	<5 DH	<5 DH	<5 DH	<5 DH
SVI-830-035	9/4/18		300 D	<1 D	<1 D	<1 D	<1 D	<1 D	<1 D	<1 D	<1 D	<1 D	<1 D	<1 D	<1 D	<1 D
W-830-04A	3/6/18		7.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-04A	3/6/18	DUP	9.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-04A	8/27/18		11	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-04A	8/27/18	DUP	11	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-05	3/8/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-05	3/8/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-05	8/28/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-09	3/5/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-09	8/23/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-10	3/6/18		43 DH	<1 DH	<1 DH	<1 DH	<1 DH	<1 DH	<1 DH	<1 DH	<1 DH	<1 DH	<1 DH	<1 DH	<1 DH	<1 DH
W-830-10	8/27/18		46	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-10	8/27/18	DUP	46	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-11	3/8/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-11	8/27/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-12	3/7/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-12	6/13/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-12	8/23/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-12	12/5/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-13	3/8/18		4.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-13	8/28/18		4.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-14	3/8/18		<0.5	<0.5	1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-14	8/28/18		<0.5	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-15	3/8/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-15	6/13/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-15	8/28/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-15	12/5/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Table B-7.01. Building 832 Canyon Operable Unit volatile organic compounds (VOCs) in ground and surface water.

Location	Date	Type	TCE (µg/L)	PCE (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	Carbon tetrachloride (µg/L)	Chloroform (µg/L)	1,1-DCA (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	1,1,1-TCA (µg/L)	1,1,2-TCA (µg/L)	Freon 11 (µg/L)	Freon 113 (µg/L)	Vinyl chloride (µg/L)
W-830-16	3/7/18		<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
W-830-16	9/4/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-17	3/7/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-17	9/4/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-18	3/5/18		18	<0.5	1.5	2.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-18	8/27/18		19	<0.5	1.6	2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-19	3/13/18		1,800 D	2.5	0.53	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-19	4/9/18		1,800 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D
W-830-19	7/10/18		1,900 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D
W-830-19	10/8/18		1,900 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D
W-830-20	3/6/18		0.79	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-20	8/27/18		0.82	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-21	3/5/18		72	<0.5	<0.5	0.78	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-21	8/27/18		44	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-22	3/6/18		94 D	<0.5	1.2	2.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-22	8/28/18		84 D	<0.5	2.3	3.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-22	8/28/18	DUP	103 D	<0.5	1.3	1.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-26	2/28/18		9.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-27	2/28/18		780 DHL	<10 DH	<10 DH	<10 DH	<10 DH	<10 DH	<10 DH	<10 DH	<10 DH	<10 DH	<10 DH	<10 DH	<10 DH	<10 DH
W-830-27	8/28/18		520 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D
W-830-28	2/28/18		11 HL	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
W-830-28	8/28/18		12	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-29	2/28/18		<0.5 HL	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
W-830-29	8/27/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-30	3/7/18		11	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-30	9/5/18		10	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-34	3/7/18		150 D	<1 DH	<1 DH	<1 DH	<1 DH	<1 DH	<1 DH	<1 DH	<1 DH	<1 DH	<1 DH	<1 DH	<1 DH	<1 DH
W-830-34	9/5/18		110 D	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-34	9/5/18	DUP	110 D	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-49	3/13/18		1,600 D	3.4	<0.5	<0.5	<0.5	<0.5	<0.5	0.73	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-49	4/9/18		1,300 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D
W-830-49	7/10/18		1,300 D	2.6 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D
W-830-49	10/8/18		2,000 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D

Table B-7.01. Building 832 Canyon Operable Unit volatile organic compounds (VOCs) in ground and surface water.

Location	Date	Type	TCE (µg/L)	PCE (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	Carbon tetrachloride (µg/L)	Chloroform (µg/L)	1,1-DCA (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	1,1,1-TCA (µg/L)	1,1,2-TCA (µg/L)	Freon 11 (µg/L)	Freon 113 (µg/L)	Vinyl chloride (µg/L)
W-830-50	3/8/18		7.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-50	3/8/18	DUP	8.5	<0.5	0.52	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-50	9/5/18		8.5	<0.5	0.64	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-51	3/21/18		38	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-51	6/12/18		41	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-51	7/16/18		41	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-51	10/17/18		40	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-52	3/21/18		48	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-52	6/12/18		39	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-52	7/16/18		38	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-52	10/17/18		35	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-52	10/17/18	DUP	33	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-53	6/12/18		44	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-53	7/16/18		44	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-53	10/17/18		40	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-53	10/17/18	DUP	41	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-54	3/7/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-54	9/4/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-55	3/7/18		1 H	<0.5 H	0.53 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
W-830-55	9/4/18		1.1	<0.5	0.53	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-56	3/8/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-56	3/8/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-56	8/28/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-57	3/13/18		11	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-57	4/9/18		12	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-57	7/10/18		12	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-57	10/8/18		13	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-57	10/8/18	DUP	11	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-58	2/28/18		340 DHI	<10 DH	<10 DH	<10 DH	<10 DH	<10 DH	<10 DH	<10 DH	<10 DH	<10 DH	<10 DH	<10 DH	<10 DH	<10 DH
W-830-58	8/28/18		140 D	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-59	3/13/18		1,300 D	1.7	0.56	<0.5	<0.5	0.76	<0.5	0.55	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-59	4/9/18		750 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D
W-830-59	7/10/18		1,100 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D

Table B-7.01. Building 832 Canyon Operable Unit volatile organic compounds (VOCs) in ground and surface water.

Location	Date	Type	TCE (µg/L)	PCE (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	Carbon tetrachloride (µg/L)	Chloroform (µg/L)	1,1-DCA (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	1,1,1-TCA (µg/L)	1,1,2-TCA (µg/L)	Freon 11 (µg/L)	Freon 113 (µg/L)	Vinyl chloride (µg/L)
W-830-59	10/8/18		1,100 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D
W-830-60	3/13/18		18	<0.5	0.59	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-60	4/9/18		18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-60	7/10/18		17	<0.5	0.53	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-60	10/8/18		19	<0.5	0.59	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-60	10/8/18	DUP	18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-1730	3/7/18		<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
W-830-1730	6/13/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-1730	8/28/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-1730	12/5/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-1807	3/13/18		98 D	1.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-1807	4/9/18		93 D	1.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-1807	7/10/18		150 D	2.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-1807	10/8/18		130 D	2.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-1807	10/8/18	DUP	140 D	1.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-1829	2/28/18		1,400 DI	<25 DH	<25 DH	<25 DH	<25 DH	<25 DH	<25 DH	<25 DH	<25 DH	<25 DH	<25 DH	<25 DH	<25 DH	<25 DH
W-830-1829	9/5/18		1,400 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D
W-830-1830	3/6/18		1,100 DI	<5 DH	<5 DH	<5 DH	<5 DH	<5 DH	<5 DH	<5 DH	<5 DH	<5 DH	<5 DH	<5 DH	<5 DH	<5 DH
W-830-1830	9/5/18		1,400 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D	<5 D
W-830-1831	3/7/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-1831	9/4/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-1832	3/7/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-1832	9/4/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-2213	3/5/18		900 D	<10 D	<10 D	<10 D	<10 D	<10 D	<10 D	<10 D	<10 D	<10 D	<10 D	<10 D	<10 D	<10 D
W-830-2214	3/13/18		1,200 D	1.2 IJ	0.63	<0.5	<0.5	0.55	<0.5	<0.5	<0.5	<0.5	<0.5 IJ	<0.5	<0.5	<0.5
W-830-2214	4/9/18		1,000 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D
W-830-2214	7/10/18		950 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D
W-830-2214	10/8/18		1,100 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D
W-830-2215	3/13/18		19	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-2215	4/9/18		23	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-2215	7/10/18		28	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-2215	10/8/18		29	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-2215	10/8/18	DUP	26	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Table B-7.01. Building 832 Canyon Operable Unit volatile organic compounds (VOCs) in ground and surface water.

Location	Date	Type	TCE (µg/L)	PCE (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	Carbon tetrachloride (µg/L)	Chloroform (µg/L)	1,1-DCA (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	1,1,1-TCA (µg/L)	1,1,2-TCA (µg/L)	Freon 11 (µg/L)	Freon 113 (µg/L)	Vinyl chloride (µg/L)
W-830-2216	3/21/18		5.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-2216	6/12/18		6.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-2216	7/16/18		6.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-2216	10/17/18		1	<0.5	<0.5	<0.5	<0.5	1.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-2311	3/12/18		51	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-2311	3/12/18	DUP	51	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-2311	8/27/18		50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-2311	8/27/18	DUP	57	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-2701	3/13/18		11	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-2701	4/9/18		15	<0.5	1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-2701	7/10/18		22	<0.5	0.72	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-2701	10/8/18		20	<0.5	1.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-2806	3/7/18		<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
W-830-2806	6/18/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-2806	9/4/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-2806	12/6/18		<1 D	<1 D	<1 D	<1 D	<1 D	<1 D	<1 D	<1 D	<1 D	<1 D	<1 D	<1 D	<1 D	<1 D
W-830-2806	12/6/18	REA	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR
W-830-3102	3/5/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-3102	9/4/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-830-3409	10/29/18		1.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-01	3/7/18		130 DH	<2.5 DH	36 DH	<2.5 DH	<2.5 DH	<2.5 DH	<2.5 DH	<2.5 DH	<2.5 DH	<2.5 DH	<2.5 DH	<2.5 DH	<2.5 DH	<2.5 DH
W-832-01	4/9/18		170 D	<0.5	39	<0.5	<0.5	0.54	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-01	7/17/18		190 D	<0.5	40	<0.5	<0.5	0.56	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-01	10/18/18		160 D	<1 D	30 D	<1 D	<1 D	<1 D	<1 D	<1 D	<1 D	<1 D	<1 D	<1 D	<1 DL	<1 D
W-832-01	10/18/18	DUP	170 D	<1 D	32 D	<1 D	<1 D	<1 D	<1 D	<1 D	<1 D	<1 D	<1 D	<1 D	<1 DL	<1 D
W-832-06	2/27/18		<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
W-832-06	8/22/18		<0.5	<0.5 IJ	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5 IJ	<0.5	<0.5	<0.5
W-832-09	2/28/18		<0.5 HL	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
W-832-09	8/23/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-10	3/7/18		61 H	<0.5 H	2.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	0.65 H	<0.5 H	<0.5 H
W-832-10	4/9/18		82 D	<0.5	3.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.69	<0.5	<0.5
W-832-10	7/17/18		78 D	<0.5	2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.64	<0.5	<0.5
W-832-10	10/18/18		72	<0.5	2.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.3	<0.5 L	<0.5

Table B-7.01. Building 832 Canyon Operable Unit volatile organic compounds (VOCs) in ground and surface water.

Location	Date	Type	TCE (µg/L)	PCE (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	Carbon tetrachloride (µg/L)	Chloroform (µg/L)	1,1-DCA (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	1,1,1-TCA (µg/L)	1,1,2-TCA (µg/L)	Freon 11 (µg/L)	Freon 113 (µg/L)	Vinyl chloride (µg/L)
W-832-10	10/18/18	DUP	69	<0.5	2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.7	<0.5 L	<0.5
W-832-11	3/7/18		92 DH	<2.5 DH	6.3 DH	<2.5 DH	<2.5 DH	<2.5 DH	<2.5 DH	<2.5 DH	<2.5 DH	<2.5 DH	<2.5 DH	<2.5 DH	<2.5 DH	<2.5 DH
W-832-11	8/23/18		79 D	<0.5	7.8	<0.5	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	<0.5
W-832-12	3/7/18		18 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
W-832-12	4/9/18		17	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-12	7/17/18		38	<0.5	0.65	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-12	10/18/18		38	<0.5	0.71	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5 L	<0.5
W-832-13	2/28/18		22	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-13	8/23/18		35	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-14	8/23/18		23	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-15	3/7/18		24 H	<0.5 H	0.57 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
W-832-15	4/9/18		24	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-15	7/17/18		35	<0.5	0.51	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-15	10/18/18		41	<0.5	0.68	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5 L	<0.5
W-832-17	8/23/18		1.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-19	8/23/18		3.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-20	8/23/18		26	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-23	2/27/18		210 DH	<2.5 DH	<2.5 DH	<2.5 DH	<2.5 DH	<2.5 DH	<2.5 DH	<2.5 DH	<2.5 DH	<2.5 DH	<2.5 DH	<2.5 DH	<2.5 DH	<2.5 DH
W-832-23	2/27/18	DUP	200 D	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-23	8/22/18		210 D	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-23	8/22/18	DUP	220 D	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-24	2/28/18		37 HL	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
W-832-24	2/28/18	DUP	33	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-24	8/23/18		32	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-24	8/23/18	DUP	45	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-25	3/7/18		48 H	<0.5 H	1.1 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
W-832-25	4/9/18		59	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-25	7/17/18		42	<0.5	0.58	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-25	10/18/18		57	<0.5	0.92	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.67	<0.5 L	<0.5
W-832-25	10/18/18	DUP	59	<0.5	0.84	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.71	<0.5 L	<0.5
W-832-1927	3/8/18		36	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-1927	3/8/18	DUP	37	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-1927	8/27/18		29	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Table B-7.01. Building 832 Canyon Operable Unit volatile organic compounds (VOCs) in ground and surface water.

Location	Date	Type	TCE (µg/L)	PCE (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	Carbon tetrachloride (µg/L)	Chloroform (µg/L)	1,1-DCA (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	1,1,1-TCA (µg/L)	1,1,2-TCA (µg/L)	Freon 11 (µg/L)	Freon 113 (µg/L)	Vinyl chloride (µg/L)
W-832-1927	8/27/18	DUP	37	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-2112	3/8/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-2112	6/13/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-2112	8/28/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-2112	12/12/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-2906	2/28/18		7.9 HL	<0.5 H	0.65 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H	<0.5 H
W-832-2906	6/13/18		8.3	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-2906	8/23/18		6.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-2906	12/5/18		8.5	<0.5	0.55	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-3019	2/27/18		1,700 D	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.66	<0.5	<0.5	<0.5
W-832-3019	4/9/18		860 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D	<2.5 D
W-832-3019	7/17/18		1,700 D	<0.5	0.59	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	<0.5
W-832-3019	10/18/18		1,600 D	<0.5	0.65	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.61	<0.5	<0.5	<0.5
W-832-3019	10/18/18	DUP	1,600 D	<0.5	0.59	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.57	<0.5	<0.5	<0.5
W-832-3020	2/28/18		72	<0.5	3.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.64	<0.5	<0.5
W-832-3020	4/9/18		70 D	<0.5	3.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.62	<0.5	<0.5
W-832-3020	7/17/18		93	<0.5	5.4	<0.5	<0.5	0.52	<0.5	<0.5	<0.5	<0.5	<0.5	0.76	<0.5	<0.5
W-832-3020	10/18/18		65	<0.5	2.8	<0.5	<0.5	0.51	<0.5	<0.5	<0.5	<0.5	<0.5	0.57	<0.5	<0.5
W-832-3103	3/5/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-3103	9/10/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-3209	2/27/18		17	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-3209	6/12/18		15	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-3209	8/22/18		15	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-3209	11/27/18		15	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-3210	2/27/18		5.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-3210	6/12/18		7.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-3210	8/22/18		9.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-3210	11/27/18		8.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-3210	11/27/18	DUP	7.1 L	<0.5 L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-3303	3/5/18		22	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-3303	6/12/18		1.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-3303	8/22/18		6.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-3303	11/27/18		10	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Table B-7.01. Building 832 Canyon Operable Unit volatile organic compounds (VOCs) in ground and surface water.

Location	Date	Type	TCE (µg/L)	PCE (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	Carbon tetrachloride (µg/L)	Chloroform (µg/L)	1,1-DCA (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	1,1,1-TCA (µg/L)	1,1,2-TCA (µg/L)	Freon 11 (µg/L)	Freon 113 (µg/L)	Vinyl chloride (µg/L)
W-832-3303	11/27/18	DUP	10	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-3304	3/5/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-3304	6/12/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-3304	9/10/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-3304	11/27/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-3310	3/5/18		20	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-3310	6/12/18		24	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-3310	8/22/18		28	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-3310	11/27/18		25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-SC3	3/12/18		15	<0.5	0.52	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-832-SC4	3/12/18		4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-870-02	3/8/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-870-02	9/5/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-880-01	3/12/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-880-01	6/18/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-880-01	6/18/18	DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-880-01	9/5/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-880-01	12/6/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-880-02	3/8/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-880-02	6/18/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-880-02	9/5/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-880-02	12/6/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-880-03	3/12/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-880-03	6/18/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-880-03	9/5/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-880-03	12/6/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Table B-7.01 (Con't). Analyte detected but not reported in main table.

Location	Date	Type	Detection frequency	1,2-Dichloroethene (total) (µg/L)
SPRING3	3/12/18		0 of 18	-
SVI-830-031	3/7/18		0 of 18	-
SVI-830-032	3/7/18		0 of 18	-
SVI-830-033	3/7/18		0 of 18	-
SVI-830-033	9/4/18		0 of 18	-
SVI-830-035	3/7/18		0 of 18	-
SVI-830-035	9/4/18		0 of 18	-
W-830-04A	3/6/18		0 of 18	-
W-830-04A	3/6/18	DUP	0 of 18	-
W-830-04A	8/27/18		0 of 18	-
W-830-04A	8/27/18	DUP	0 of 18	-
W-830-05	3/8/18		0 of 18	-
W-830-05	3/8/18	DUP	0 of 18	-
W-830-05	8/28/18		0 of 18	-
W-830-09	3/5/18		0 of 18	-
W-830-09	8/23/18		0 of 18	-
W-830-10	3/6/18		0 of 18	-
W-830-10	8/27/18		0 of 18	-
W-830-10	8/27/18	DUP	0 of 18	-
W-830-11	3/8/18		0 of 18	-
W-830-11	8/27/18		0 of 18	-
W-830-12	3/7/18		0 of 18	-
W-830-12	6/13/18		0 of 18	-
W-830-12	8/23/18		0 of 18	-
W-830-12	12/5/18		0 of 18	-
W-830-13	3/8/18		0 of 18	-
W-830-13	8/28/18		0 of 18	-
W-830-14	3/8/18		1 of 18	1
W-830-14	8/28/18		0 of 18	-
W-830-15	3/8/18		0 of 18	-
W-830-15	6/13/18		0 of 18	-
W-830-15	8/28/18		0 of 18	-
W-830-15	12/5/18		0 of 18	-
W-830-16	3/7/18		0 of 18	-
W-830-16	9/4/18		0 of 18	-
W-830-17	3/7/18		0 of 18	-
W-830-17	9/4/18		0 of 18	-
W-830-18	3/5/18		1 of 18	3.7
W-830-18	8/27/18		1 of 18	4.1
W-830-19	3/13/18		0 of 18	-
W-830-19	4/9/18		0 of 18	-
W-830-19	7/10/18		0 of 18	-
W-830-19	10/8/18		0 of 18	-
W-830-20	3/6/18		0 of 18	-
W-830-20	8/27/18		0 of 18	-
W-830-21	3/5/18		1 of 18	1.3
W-830-21	8/27/18		0 of 18	-
W-830-22	3/6/18		1 of 18	3.4
W-830-22	8/28/18		1 of 18	5.9

Table B-7.01 (Con't). Analyte detected but not reported in main table.

W-830-22	8/28/18	DUP	1 of 18	3.1
W-830-26	2/28/18		0 of 18	-
W-830-27	2/28/18		0 of 18	-
W-830-27	8/28/18		0 of 18	-
W-830-28	2/28/18		0 of 18	-
W-830-28	8/28/18		0 of 18	-
W-830-29	2/28/18		0 of 18	-
W-830-29	8/27/18		0 of 18	-
W-830-30	3/7/18		0 of 18	-
W-830-30	9/5/18		0 of 18	-
W-830-34	3/7/18		0 of 18	-
W-830-34	9/5/18		0 of 18	-
W-830-34	9/5/18	DUP	0 of 18	-
W-830-49	3/13/18		0 of 18	-
W-830-49	4/9/18		0 of 18	-
W-830-49	7/10/18		0 of 18	-
W-830-49	10/8/18		0 of 18	-
W-830-50	3/8/18		0 of 18	-
W-830-50	3/8/18	DUP	0 of 18	-
W-830-50	9/5/18		0 of 18	-
W-830-51	3/21/18		0 of 18	-
W-830-51	6/12/18		0 of 18	-
W-830-51	7/16/18		0 of 18	-
W-830-51	10/17/18		0 of 18	-
W-830-52	3/21/18		0 of 18	-
W-830-52	6/12/18		0 of 18	-
W-830-52	7/16/18		0 of 18	-
W-830-52	10/17/18		0 of 18	-
W-830-52	10/17/18	DUP	0 of 18	-
W-830-53	6/12/18		0 of 18	-
W-830-53	7/16/18		0 of 18	-
W-830-53	10/17/18		0 of 18	-
W-830-53	10/17/18	DUP	0 of 18	-
W-830-54	3/7/18		0 of 18	-
W-830-54	9/4/18		0 of 18	-
W-830-55	3/7/18		0 of 18	-
W-830-55	9/4/18		0 of 18	-
W-830-56	3/8/18		0 of 18	-
W-830-56	3/8/18	DUP	0 of 18	-
W-830-56	8/28/18		0 of 18	-
W-830-57	3/13/18		0 of 18	-
W-830-57	4/9/18		0 of 18	-
W-830-57	7/10/18		0 of 18	-
W-830-57	10/8/18		0 of 18	-
W-830-57	10/8/18	DUP	0 of 18	-
W-830-58	2/28/18		0 of 18	-
W-830-58	8/28/18		0 of 18	-
W-830-59	3/13/18		0 of 18	-
W-830-59	4/9/18		0 of 18	-
W-830-59	7/10/18		0 of 18	-
W-830-59	10/8/18		0 of 18	-

Table B-7.01 (Con't). Analyte detected but not reported in main table.

W-830-60	3/13/18		0 of 18	-
W-830-60	4/9/18		0 of 18	-
W-830-60	7/10/18		0 of 18	-
W-830-60	10/8/18		0 of 18	-
W-830-60	10/8/18	DUP	0 of 18	-
W-830-1730	3/7/18		0 of 18	-
W-830-1730	6/13/18		0 of 18	-
W-830-1730	8/28/18		0 of 18	-
W-830-1730	12/5/18		0 of 18	-
W-830-1807	3/13/18		0 of 18	-
W-830-1807	4/9/18		0 of 18	-
W-830-1807	7/10/18		0 of 18	-
W-830-1807	10/8/18		0 of 18	-
W-830-1807	10/8/18	DUP	0 of 18	-
W-830-1829	2/28/18		0 of 18	-
W-830-1829	9/5/18		0 of 18	-
W-830-1830	3/6/18		0 of 18	-
W-830-1830	9/5/18		0 of 18	-
W-830-1831	3/7/18		0 of 18	-
W-830-1831	9/4/18		0 of 18	-
W-830-1832	3/7/18		0 of 18	-
W-830-1832	9/4/18		0 of 18	-
W-830-2213	3/5/18		0 of 18	-
W-830-2214	3/13/18		0 of 18	-
W-830-2214	4/9/18		0 of 18	-
W-830-2214	7/10/18		0 of 18	-
W-830-2214	10/8/18		0 of 18	-
W-830-2215	3/13/18		0 of 18	-
W-830-2215	4/9/18		0 of 18	-
W-830-2215	7/10/18		0 of 18	-
W-830-2215	10/8/18		0 of 18	-
W-830-2215	10/8/18	DUP	0 of 18	-
W-830-2216	3/21/18		0 of 18	-
W-830-2216	6/12/18		0 of 18	-
W-830-2216	7/16/18		0 of 18	-
W-830-2216	10/17/18		0 of 18	-
W-830-2311	3/12/18		0 of 18	-
W-830-2311	3/12/18	DUP	0 of 18	-
W-830-2311	8/27/18		0 of 18	-
W-830-2311	8/27/18	DUP	0 of 18	-
W-830-2701	3/13/18		1 of 18	1.2
W-830-2701	4/9/18		1 of 18	1
W-830-2701	7/10/18		0 of 18	-
W-830-2701	10/8/18		1 of 18	1.1
W-830-2806	3/7/18		0 of 18	-
W-830-2806	6/18/18		0 of 18	-
W-830-2806	9/4/18		0 of 18	-
W-830-2806	12/6/18		0 of 18	-
W-830-2806	12/6/18	REA	0 of 18	-
W-830-3102	3/5/18		0 of 18	-
W-830-3102	9/4/18		0 of 18	-

Table B-7.01 (Con't). Analyte detected but not reported in main table.

W-830-3409	10/29/18		0 of 30	-
W-832-01	3/7/18		1 of 18	36 DH
W-832-01	4/9/18		1 of 18	39
W-832-01	7/17/18		1 of 18	40
W-832-01	10/18/18		1 of 18	30 D
W-832-01	10/18/18	DUP	1 of 18	32 D
W-832-06	2/27/18		0 of 18	-
W-832-06	8/22/18		0 of 18	-
W-832-09	2/28/18		0 of 18	-
W-832-09	8/23/18		0 of 18	-
W-832-10	3/7/18		1 of 18	2.5 H
W-832-10	4/9/18		1 of 18	3.3
W-832-10	7/17/18		1 of 18	2.5
W-832-10	10/18/18		1 of 18	2.2
W-832-10	10/18/18	DUP	1 of 18	2
W-832-11	3/7/18		1 of 18	6.3 DH
W-832-11	8/23/18		1 of 18	7.8
W-832-12	3/7/18		0 of 18	-
W-832-12	4/9/18		0 of 18	-
W-832-12	7/17/18		0 of 18	-
W-832-12	10/18/18		0 of 18	-
W-832-13	2/28/18		0 of 18	-
W-832-13	8/23/18		0 of 18	-
W-832-14	8/23/18		0 of 18	-
W-832-15	3/7/18		0 of 18	-
W-832-15	4/9/18		0 of 18	-
W-832-15	7/17/18		0 of 18	-
W-832-15	10/18/18		0 of 18	-
W-832-17	8/23/18		0 of 18	-
W-832-19	8/23/18		0 of 18	-
W-832-20	8/23/18		0 of 18	-
W-832-23	2/27/18		0 of 18	-
W-832-23	2/27/18	DUP	0 of 18	-
W-832-23	8/22/18		0 of 18	-
W-832-23	8/22/18	DUP	0 of 18	-
W-832-24	2/28/18		0 of 18	-
W-832-24	2/28/18	DUP	0 of 18	-
W-832-24	8/23/18		0 of 18	-
W-832-24	8/23/18	DUP	0 of 18	-
W-832-25	3/7/18		1 of 18	1.1 H
W-832-25	4/9/18		1 of 18	1.2
W-832-25	7/17/18		0 of 18	-
W-832-25	10/18/18		0 of 18	-
W-832-25	10/18/18	DUP	0 of 18	-
W-832-1927	3/8/18		0 of 18	-
W-832-1927	3/8/18	DUP	0 of 18	-
W-832-1927	8/27/18		0 of 18	-
W-832-1927	8/27/18	DUP	0 of 18	-
W-832-2112	3/8/18		0 of 18	-
W-832-2112	6/13/18		0 of 18	-
W-832-2112	8/28/18		0 of 18	-

Table B-7.01 (Con't). Analyte detected but not reported in main table.

W-832-2112	12/12/18		0 of 18	-
W-832-2906	2/28/18		0 of 18	-
W-832-2906	6/13/18		0 of 18	-
W-832-2906	8/23/18		0 of 18	-
W-832-2906	12/5/18		0 of 18	-
W-832-3019	2/27/18		0 of 18	-
W-832-3019	4/9/18		0 of 18	-
W-832-3019	7/17/18		0 of 18	-
W-832-3019	10/18/18		0 of 18	-
W-832-3019	10/18/18	DUP	0 of 18	-
W-832-3020	2/28/18		1 of 18	3.3
W-832-3020	4/9/18		1 of 18	3.9
W-832-3020	7/17/18		1 of 18	5.4
W-832-3020	10/18/18		1 of 18	2.8
W-832-3103	3/5/18		0 of 18	-
W-832-3103	9/10/18		0 of 18	-
W-832-3209	2/27/18		0 of 18	-
W-832-3209	6/12/18		0 of 18	-
W-832-3209	8/22/18		0 of 18	-
W-832-3209	11/27/18		0 of 18	-
W-832-3210	2/27/18		0 of 18	-
W-832-3210	6/12/18		0 of 18	-
W-832-3210	8/22/18		0 of 18	-
W-832-3210	11/27/18		0 of 18	-
W-832-3210	11/27/18	DUP	0 of 18	-
W-832-3303	3/5/18		0 of 18	-
W-832-3303	6/12/18		0 of 18	-
W-832-3303	8/22/18		0 of 18	-
W-832-3303	11/27/18		0 of 18	-
W-832-3303	11/27/18	DUP	0 of 18	-
W-832-3304	3/5/18		0 of 18	-
W-832-3304	6/12/18		0 of 18	-
W-832-3304	9/10/18		0 of 18	-
W-832-3304	11/27/18		0 of 18	-
W-832-3310	3/5/18		0 of 18	-
W-832-3310	6/12/18		0 of 18	-
W-832-3310	8/22/18		0 of 18	-
W-832-3310	11/27/18		0 of 18	-
W-832-SC3	3/12/18		0 of 18	-
W-832-SC4	3/12/18		0 of 18	-
W-870-02	3/8/18		0 of 18	-
W-870-02	9/5/18		0 of 18	-
W-880-01	3/12/18		0 of 18	-
W-880-01	6/18/18		0 of 18	-
W-880-01	6/18/18	DUP	0 of 18	-
W-880-01	9/5/18		0 of 18	-
W-880-01	12/6/18		0 of 18	-
W-880-02	3/8/18		0 of 18	-
W-880-02	6/18/18		0 of 18	-
W-880-02	9/5/18		0 of 18	-
W-880-02	12/6/18		0 of 18	-

Table B-7.01 (Con't). Analyte detected but not reported in main table.

W-880-03	3/12/18	0 of 18	-
W-880-03	6/18/18	0 of 18	-
W-880-03	9/5/18	0 of 18	-
W-880-03	12/6/18	0 of 18	-

Table B-7.02. Building 832 Canyon Operable Unit nitrate and perchlorate in ground and surface water.

Location	Date	Nitrate (as NO3) (mg/L)	Perchlorate (µg/L)
SPRING3	3/12/18	44 DL	<4
SVI-830-031	3/7/18	-	<4
SVI-830-031	3/19/18	95 D	-
SVI-830-035	3/7/18	-	<4
SVI-830-035	3/19/18	110 D	-
W-830-04A	3/6/18	76 O	<4
W-830-04A	3/6/18 DUP	75 O	<4
W-830-05	3/8/18	78 D	<4
W-830-05	3/8/18 DUP	78	<4
W-830-10	3/6/18	65 D	4.9
W-830-11	3/8/18	6	<4
W-830-12	3/7/18	<0.5	<4
W-830-12	8/23/18	<0.5	<4
W-830-13	3/8/18	35 D	<4
W-830-14	3/8/18	<2.5 D	<4
W-830-15	3/8/18	<2.5 D	<4
W-830-15	8/28/18	<2.5 D	<4
W-830-16	3/7/18	<2.5 D	-
W-830-17	3/7/18	-	<4
W-830-18	3/5/18	<2.5 D	<4
W-830-19	3/13/18	140 D	<4
W-830-19	7/10/18	140 DL	<4
W-830-20	3/6/18	<1 DO	<4
W-830-21	3/5/18	24 D	<4
W-830-22	3/6/18	5.2 DO	<4
W-830-26	2/28/18	6.3 D	<4
W-830-27	2/28/18	120 D	-
W-830-27	3/7/18	-	5.9
W-830-29	2/28/18	<0.5	<4
W-830-30	3/7/18	66 D	<4
W-830-30	3/28/18	63 D	-
W-830-34	3/7/18	-	<4
W-830-34	3/19/18	120 D	-
W-830-49	3/13/18	110 D	<4
W-830-49	7/10/18	130 DL	<4
W-830-50	3/8/18	13 D	-
W-830-50	3/8/18 DUP	13 D	-
W-830-51	3/21/18	54 D	<4
W-830-51	7/16/18	62 D	4.3
W-830-52	3/21/18	72 D	4.2
W-830-52	7/16/18	67 D	4.2
W-830-53	6/12/18	64 D	5.3
W-830-53	7/16/18	65 D	<4
W-830-55	3/7/18	<2.5 D	<4
W-830-56	3/8/18	27 D	-
W-830-56	3/8/18 DUP	27 D	-
W-830-57	3/13/18	<2.5 D	<4
W-830-57	7/10/18	7.4 DL	<4
W-830-58	2/28/18	110 D	-

Table B-7.02. Building 832 Canyon Operable Unit nitrate and perchlorate in ground and surface water.

Location	Date	Nitrate (as NO3) (mg/L)	Perchlorate (µg/L)
W-830-58	3/7/18	-	5.5
W-830-59	3/13/18	120 D	<4
W-830-59	7/10/18	110 DL	<4
W-830-60	3/13/18	<2.5 D	<4
W-830-60	7/10/18	<2.5 DL	<4
W-830-1730	3/7/18	<2.5 D	<4
W-830-1730	8/28/18	<2.5 D	<4
W-830-1807	3/13/18	71 D	<4
W-830-1807	7/10/18	72 DL	<4
W-830-1829	2/28/18	110 D	<4
W-830-1830	3/6/18	110 D	4.5
W-830-1832	3/7/18	-	<4
W-830-1832	3/19/18	3 D	-
W-830-2213	3/5/18	100 D	5.9
W-830-2214	3/13/18	110 D	4.5
W-830-2214	7/10/18	100 DL	4.5
W-830-2215	3/13/18	<2.5 D	<4
W-830-2215	7/10/18	6.8 DL	<4
W-830-2216	3/21/18	52 D	<4
W-830-2216	7/16/18	-	<4
W-830-2311	3/12/18	71 D	<4
W-830-2311	3/12/18 DUP	72 D	4.3
W-830-2701	3/13/18	<2.5 D	<4
W-830-2701	7/10/18	14 DL	<4
W-830-2806	3/7/18	<2.5 D	<4
W-830-2806	9/4/18	<2.5 D	<4
W-830-3102	3/5/18	4.7 D	<4
W-830-3409	10/29/18	-	<4
W-832-01	3/7/18	-	5
W-832-01	3/19/18	120 D	-
W-832-01	7/17/18	-	4.7
W-832-06	2/27/18	21 D	<4
W-832-09	2/28/18	<0.5	<4 L
W-832-10	3/7/18	-	8.2
W-832-10	3/19/18	88 D	-
W-832-10	7/17/18	87 D	6
W-832-11	3/7/18	-	6.3
W-832-11	3/19/18	110 D	-
W-832-11	8/23/18	120 D	5.6
W-832-12	3/7/18	-	<4
W-832-12	3/19/18	90 D	-
W-832-12	7/17/18	80 D	<4
W-832-13	2/28/18	130 D	6.7
W-832-15	3/7/18	-	4.2
W-832-15	3/19/18	97 D	-
W-832-15	7/17/18	90 D	<4
W-832-23	2/27/18	55 D	<4 L
W-832-23	2/27/18 DUP	49	<4
W-832-24	2/28/18	39 D	<4

Table B-7.02. Building 832 Canyon Operable Unit nitrate and perchlorate in ground and surface water.

Location	Date	Nitrate (as NO3) (mg/L)	Perchlorate (µg/L)
W-832-24	2/28/18 DUP	39 D	<4
W-832-25	3/7/18	-	8.7
W-832-25	3/19/18	99 D	-
W-832-25	7/17/18	98 D	8.2
W-832-1927	3/8/18	52 D	<4
W-832-1927	3/8/18 DUP	52 D	<4
W-832-2112	3/8/18	<2.5 D	<4
W-832-2112	8/28/18	<2.5 D	<4
W-832-2906	2/28/18	<2.5 D	<4 L
W-832-2906	8/23/18	<2.5 D	<4
W-832-3019	2/27/18	120 D	13
W-832-3019	7/17/18	120 D	13
W-832-3020	2/28/18	96 D	6
W-832-3020	7/17/18	95 D	5.2
W-832-3103	3/5/18	1.6 D	<4
W-832-3209	2/27/18	76	<4
W-832-3209	8/22/18	80	<4
W-832-3210	2/27/18	19 D	4.1
W-832-3210	8/22/18	15 D	<4
W-832-3303	3/5/18	68 D	4
W-832-3303	8/22/18	98 D	<4
W-832-3304	3/5/18	31 D	<4
W-832-3304	9/10/18	30 D	<4
W-832-3310	3/5/18	110 D	7.9
W-832-3310	8/22/18	110 D	8
W-832-SC3	3/12/18	21 DL	-
W-832-SC4	3/12/18	54 DL	<4
W-870-02	3/8/18	2.1	<4
W-880-01	3/12/18	<1 D	<4
W-880-01	9/5/18	<1 D	<4
W-880-02	3/8/18	<1 D	<8 D
W-880-02	9/5/18	<1 D	<4
W-880-03	3/12/18	<1 D	<4
W-880-03	9/5/18	<1 D	<4

Table B-7.03. Building 832 Canyon Operable Unit high explosive compounds in ground water.

Location	Date	1,3,5-Trinitrobenzene (µg/L)	1,3-Dinitrobenzene (µg/L)	2,4-Dinitrotoluene (µg/L)	2,6-Dinitrotoluene (µg/L)	2-Amino-4,6-Dinitrotoluene (µg/L)	2-Nitrotoluene (µg/L)	3-Nitrotoluene (µg/L)	4-Amino-2,6-Dinitrotoluene (µg/L)	4-Nitrotoluene (µg/L)	HMX (µg/L)	Nitrobenzene (µg/L)	RDX (µg/L)	TNT (µg/L)
W-830-13	3/8/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<0.99 L	<2	<0.99	<2
W-830-34	3/7/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1 L	<2	<1	<2
W-830-3409	10/29/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
W-832-15	4/9/18	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<1.1	<2.1	<1.1	<2.1
W-880-01	3/12/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
W-880-01	9/5/18	<2 D	<2 D	<2 D	<2 D	<2 D	<2 D	<2 D	<2 D	<2 D	<1 D	<2 D	<1 D	<2 D
W-880-02	3/8/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
W-880-03	3/12/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
W-880-03	9/5/18	<2 D	<2 D	<2 D	<2 D	<2 D	<2 D	<2 D	<2 D	<2 D	<1 D	<2 D	<1 D	<2 D

Table B-7.02. Building 832 Canyon Operable Unit nitrate and perchlorate in ground and surface water.

Location	Date	Nitrate (as NO3) (mg/L)	Perchlorate (µg/L)
SPRING3	3/12/18	44 DL	<4
SVI-830-031	3/7/18	-	<4
SVI-830-031	3/19/18	95 D	-
SVI-830-035	3/7/18	-	<4
SVI-830-035	3/19/18	110 D	-
W-830-04A	3/6/18	76 O	<4
W-830-04A	3/6/18 DUP	75 O	<4
W-830-05	3/8/18	78 D	<4
W-830-05	3/8/18 DUP	78	<4
W-830-10	3/6/18	65 D	4.9
W-830-11	3/8/18	6	<4
W-830-12	3/7/18	<0.5	<4
W-830-12	8/23/18	<0.5	<4
W-830-13	3/8/18	35 D	<4
W-830-14	3/8/18	<2.5 D	<4
W-830-15	3/8/18	<2.5 D	<4
W-830-15	8/28/18	<2.5 D	<4
W-830-16	3/7/18	<2.5 D	-
W-830-17	3/7/18	-	<4
W-830-18	3/5/18	<2.5 D	<4
W-830-19	3/13/18	140 D	<4
W-830-19	7/10/18	140 DL	<4
W-830-20	3/6/18	<1 DO	<4
W-830-21	3/5/18	24 D	<4
W-830-22	3/6/18	5.2 DO	<4
W-830-26	2/28/18	6.3 D	<4
W-830-27	2/28/18	120 D	-
W-830-27	3/7/18	-	5.9
W-830-29	2/28/18	<0.5	<4
W-830-30	3/7/18	66 D	<4
W-830-30	3/28/18	63 D	-
W-830-34	3/7/18	-	<4
W-830-34	3/19/18	120 D	-
W-830-49	3/13/18	110 D	<4
W-830-49	7/10/18	130 DL	<4
W-830-50	3/8/18	13 D	-
W-830-50	3/8/18 DUP	13 D	-
W-830-51	3/21/18	54 D	<4
W-830-51	7/16/18	62 D	4.3
W-830-52	3/21/18	72 D	4.2
W-830-52	7/16/18	67 D	4.2
W-830-53	6/12/18	64 D	5.3
W-830-53	7/16/18	65 D	<4
W-830-55	3/7/18	<2.5 D	<4
W-830-56	3/8/18	27 D	-
W-830-56	3/8/18 DUP	27 D	-
W-830-57	3/13/18	<2.5 D	<4
W-830-57	7/10/18	7.4 DL	<4
W-830-58	2/28/18	110 D	-

Table B-7.02. Building 832 Canyon Operable Unit nitrate and perchlorate in ground and surface water.

Location	Date	Nitrate (as NO3) (mg/L)	Perchlorate (µg/L)
W-830-58	3/7/18	-	5.5
W-830-59	3/13/18	120 D	<4
W-830-59	7/10/18	110 DL	<4
W-830-60	3/13/18	<2.5 D	<4
W-830-60	7/10/18	<2.5 DL	<4
W-830-1730	3/7/18	<2.5 D	<4
W-830-1730	8/28/18	<2.5 D	<4
W-830-1807	3/13/18	71 D	<4
W-830-1807	7/10/18	72 DL	<4
W-830-1829	2/28/18	110 D	<4
W-830-1830	3/6/18	110 D	4.5
W-830-1832	3/7/18	-	<4
W-830-1832	3/19/18	3 D	-
W-830-2213	3/5/18	100 D	5.9
W-830-2214	3/13/18	110 D	4.5
W-830-2214	7/10/18	100 DL	4.5
W-830-2215	3/13/18	<2.5 D	<4
W-830-2215	7/10/18	6.8 DL	<4
W-830-2216	3/21/18	52 D	<4
W-830-2216	7/16/18	-	<4
W-830-2311	3/12/18	71 D	<4
W-830-2311	3/12/18 DUP	72 D	4.3
W-830-2701	3/13/18	<2.5 D	<4
W-830-2701	7/10/18	14 DL	<4
W-830-2806	3/7/18	<2.5 D	<4
W-830-2806	9/4/18	<2.5 D	<4
W-830-3102	3/5/18	4.7 D	<4
W-830-3409	10/29/18	-	<4
W-832-01	3/7/18	-	5
W-832-01	3/19/18	120 D	-
W-832-01	7/17/18	-	4.7
W-832-06	2/27/18	21 D	<4
W-832-09	2/28/18	<0.5	<4 L
W-832-10	3/7/18	-	8.2
W-832-10	3/19/18	88 D	-
W-832-10	7/17/18	87 D	6
W-832-11	3/7/18	-	6.3
W-832-11	3/19/18	110 D	-
W-832-11	8/23/18	120 D	5.6
W-832-12	3/7/18	-	<4
W-832-12	3/19/18	90 D	-
W-832-12	7/17/18	80 D	<4
W-832-13	2/28/18	130 D	6.7
W-832-15	3/7/18	-	4.2
W-832-15	3/19/18	97 D	-
W-832-15	7/17/18	90 D	<4
W-832-23	2/27/18	55 D	<4 L
W-832-23	2/27/18 DUP	49	<4
W-832-24	2/28/18	39 D	<4

Table B-7.02. Building 832 Canyon Operable Unit nitrate and perchlorate in ground and surface water.

Location	Date	Nitrate (as NO3) (mg/L)	Perchlorate (µg/L)
W-832-24	2/28/18 DUP	39 D	<4
W-832-25	3/7/18	-	8.7
W-832-25	3/19/18	99 D	-
W-832-25	7/17/18	98 D	8.2
W-832-1927	3/8/18	52 D	<4
W-832-1927	3/8/18 DUP	52 D	<4
W-832-2112	3/8/18	<2.5 D	<4
W-832-2112	8/28/18	<2.5 D	<4
W-832-2906	2/28/18	<2.5 D	<4 L
W-832-2906	8/23/18	<2.5 D	<4
W-832-3019	2/27/18	120 D	13
W-832-3019	7/17/18	120 D	13
W-832-3020	2/28/18	96 D	6
W-832-3020	7/17/18	95 D	5.2
W-832-3103	3/5/18	1.6 D	<4
W-832-3209	2/27/18	76	<4
W-832-3209	8/22/18	80	<4
W-832-3210	2/27/18	19 D	4.1
W-832-3210	8/22/18	15 D	<4
W-832-3303	3/5/18	68 D	4
W-832-3303	8/22/18	98 D	<4
W-832-3304	3/5/18	31 D	<4
W-832-3304	9/10/18	30 D	<4
W-832-3310	3/5/18	110 D	7.9
W-832-3310	8/22/18	110 D	8
W-832-SC3	3/12/18	21 DL	-
W-832-SC4	3/12/18	54 DL	<4
W-870-02	3/8/18	2.1	<4
W-880-01	3/12/18	<1 D	<4
W-880-01	9/5/18	<1 D	<4
W-880-02	3/8/18	<1 D	<8 D
W-880-02	9/5/18	<1 D	<4
W-880-03	3/12/18	<1 D	<4
W-880-03	9/5/18	<1 D	<4

Table B-7.03. Building 832 Canyon Operable Unit high explosive compounds in ground water.

Location	Date	1,3,5-Trinitrobenzene (µg/L)	1,3-Dinitrobenzene (µg/L)	2,4-Dinitrotoluene (µg/L)	2,6-Dinitrotoluene (µg/L)	2-Amino-4,6-Dinitrotoluene (µg/L)	2-Nitrotoluene (µg/L)	3-Nitrotoluene (µg/L)	4-Amino-2,6-Dinitrotoluene (µg/L)	4-Nitrotoluene (µg/L)	HMX (µg/L)	Nitrobenzene (µg/L)	RDX (µg/L)	TNT (µg/L)
W-830-13	3/8/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<0.99 L	<2	<0.99	<2
W-830-34	3/7/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1 L	<2	<1	<2
W-830-3409	10/29/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
W-832-15	4/9/18	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<1.1	<2.1	<1.1	<2.1
W-880-01	3/12/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
W-880-01	9/5/18	<2 D	<2 D	<2 D	<2 D	<2 D	<2 D	<2 D	<2 D	<2 D	<1 D	<2 D	<1 D	<2 D
W-880-02	3/8/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
W-880-03	3/12/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
W-880-03	9/5/18	<2 D	<2 D	<2 D	<2 D	<2 D	<2 D	<2 D	<2 D	<2 D	<1 D	<2 D	<1 D	<2 D

Table B-7.04. Building 832 Canyon Operable Unit general minerals in ground water.

Constituents of concern	W-830-3409
	10/29/18
Total Alkalinity (as CaCO3) (mg/L)	250
Aluminum (mg/L)	<0.2
Bicarbonate Alk (as CaCO3) (mg/L)	250 D
Calcium (mg/L)	23
Carbonate Alk (as CaCO3) (mg/L)	<8.2 D
Chloride (mg/L)	260 D
Copper (mg/L)	<0.05
Fluoride (mg/L)	0.69 D
Hydroxide Alk (as CaCO3) (mg/L)	<8.2 D
Iron (mg/L)	<0.1
Magnesium (mg/L)	8.6
Manganese (mg/L)	<0.03
Nickel (mg/L)	<0.1
Nitrate (as N) (mg/L)	6.1 D
Nitrate (as NO3) (mg/L)	27
Nitrite (as N) (mg/L)	<0.5
pH (Units)	8.1
Ortho-Phosphate (mg/L)	0.16
Total Phosphorus (as PO4) (mg/L)	<0.15
Potassium (mg/L)	11
Sodium (mg/L)	320
Total dissolved solids (TDS) (mg/	1,100 D
L) Specific Conductance (µmhos/cm)	1,770
Sulfate (mg/L)	200
Surfactants (mg/L)	<0.5
Total Hardness (as CaCO3) (mg/L)	94
Zinc (mg/L)	<0.05

Table B-7.05. Building 832 Canyon Operable Unit uranium isotopes in ground water.

Location	Date	AS	AS	AS	MS	MS	MS	MS	MS	MS	MS	MS
		Uranium 234 and 233 (in activity) (pCi/L)	Uranium 235 and 236 (in activity) (pCi/L)	Uranium 238 (in activity) (pCi/L)	Total Uranium (in activity) (pCi/L)	Total Uranium (in mass) (µg/L)	Uranium 234 (in activity) (pCi/L)	Uranium 235 (in activity) (pCi/L)	Uranium 236 (in activity) (pCi/L)	Uranium 238 (in activity) (pCi/L)	Uranium 238 (in mass) (µg/L)	Uranium 235/238 (atom/atom)
W-830-3409	10/29/18	32.5 ± 3.92	2.25 ± 0.384	30.6 ± 3.70	-	-	-	-	-	-	-	-
W-830-3409	12/12/18	-	-	-	170 ± 1.80	230 ± 2.00	91.0 ± 1.70	3.60 ± 0.0330	<0.015	78.0 ± 0.690	230 ± 2.00	0.00726 ± 0.0000190

Table B-7.06. Building 832 Canyon Operable Unit metals in ground water.

Location	Date	Arsenic (mg/L)	Barium (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Lead (mg/L)	Mercury (mg/L)	Selenium (mg/L)	Silica (as SiO2) (mg/L)	Silver (mg/L)
W-830-3409	10/29/18	0.044	0.018	<0.0005	<0.001	<0.005	<0.0002	0.11	52	<0.001

Table B-7.07. Building 832 Canyon Operable Unit gross alpha and beta in ground water.

Location	Date	Gross alpha (pCi/L)	Gross beta (pCi/L)
W-830-3409	10/29/18	43.6 ± 8.38	25.7 ± 4.95

Table B-7.08. Building 832 Canyon Operable Unit tritium in ground water.

Location	Date	Tritium (pCi/L)
W-830-3409	10/29/18	<100

Table B-7.09. Building 832 Canyon Operable Unit tetrabutyl orthosilicate/tetrakis (2-ethylbutyl) silane (TBOS/TKEBS) in ground water.

Location	Date	C24H52O4Si (µg/L)
W-830-3409	10/29/18	<10

Table B-8.01. Building 851 Firing Table total volatile organic compounds in ground water.

Location	Date	Type	TCE (µg/L)	PCE (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	Carbon tetrachloride (µg/L)	Chloroform (µg/L)	1,1-DCA (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	1,1,1-TCA (µg/L)	1,1,2-TCA (µg/L)	Freon 11 (µg/L)	Freon 113 (µg/L)	Vinyl chloride (µg/L)
W-851-05	10/30/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-851-06	10/30/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-851-07	10/30/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-851-08	10/30/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-851-3207	10/30/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-851-3208	10/30/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Table B-8.01 (Con't). Analyte detected but not reported in main table.

Location	Date	Type	Detection frequency
W-851-05	10/30/18		0 of 18
W-851-06	10/30/18		0 of 18
W-851-07	10/30/18		0 of 18
W-851-08	10/30/18		0 of 18
W-851-3207	10/30/18		0 of 18
W-851-3208	10/30/18		0 of 18

Table B-8.02. Building 851 Firing Table total perchlorate in ground water.

Location	Date	Nitrate (as NO3) (mg/L)	Perchlorate (µg/L)
W-851-05	10/30/18	<1 D	<4
W-851-06	10/30/18	<1 D	<4
W-851-07	10/30/18	<1 D	<4
W-851-08	10/30/18	<1 D	<4
W-851-3207	10/30/18	<1 D	<4
W-851-3208	10/30/18	<1 D	<4

Table B-8.03. Building 851 Firing Table total uranium and uranium isotopes in ground water.

Location	Date	AS	AS	AS	MS	MS	MS	MS	MS	MS	MS	MS
		Uranium 234 and 233 (in activity) (pCi/L)	Uranium 235 and 236 (in activity) (pCi/L)	Uranium 238 (in activity) (pCi/L)	Total Uranium (in activity) (pCi/L)	Total Uranium (in mass) (µg/L)	Uranium 234 (in activity) (pCi/L)	Uranium 235 (in activity) (pCi/L)	Uranium 236 (in activity) (pCi/L)	Uranium 238 (in activity) (pCi/L)	Uranium 238 (in mass) (µg/L)	Uranium 235/238 (atom/atom)
W-851-05	5/31/18	-	-	-	<0.0627	0.0200 ± 0.000430	<0.049	0.000320 ± 0.0000140	<0.000044	0.00680 ± 0.000100	0.0200 ± 0.000310	0.00727 ± 0.000310
W-851-05	10/30/18	0.103 ± 0.0568	<0.1	<0.1	-	-	-	-	-	-	-	-
W-851-06	5/31/18	-	-	-	0.0890 ± 0.00750	0.0650 ± 0.000680	0.0660 ± 0.00750	0.000880 ± 0.0000190	<0.00011	0.0220 ± 0.000230	0.0640 ± 0.000670	0.00633 ± 0.000120
W-851-06	10/30/18	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-
W-851-07	5/31/18	-	-	-	0.120 ± 0.00890	0.0750 ± 0.000880	0.0930 ± 0.00890	0.00120 ± 0.0000340	<0.000043	0.0250 ± 0.000290	0.0740 ± 0.000860	0.00730 ± 0.000190
W-851-07	10/30/18	0.162 ± 0.0728	<0.1	<0.1	-	-	-	-	-	-	-	-
W-851-08	5/31/18	-	-	-	0.880 ± 0.0240	0.980 ± 0.00540	0.540 ± 0.0240	0.0150 ± 0.000190	<0.00015	0.330 ± 0.00180	0.970 ± 0.00540	0.00710 ± 0.0000830
W-851-08	5/31/18 DUP	-	-	-	0.860 ± 0.0200	0.980 ± 0.00790	0.520 ± 0.0200	0.0150 ± 0.000160	<0.00017	0.330 ± 0.00270	0.980 ± 0.00790	0.00713 ± 0.0000470
W-851-08	10/30/18	0.560 ± 0.123	<0.1	0.372 ± 0.0956	-	-	-	-	-	-	-	-
W-851-3207	5/31/18	-	-	-	3.90 ± 0.0630	2.60 ± 0.0150	3.00 ± 0.0630	0.0410 ± 0.000300	<0.00025	0.870 ± 0.00520	2.60 ± 0.0150	0.00723 ± 0.0000310
W-851-3207	10/30/18	2.55 ± 0.350	0.142 ± 0.0618	0.777 ± 0.151	-	-	-	-	-	-	-	-
W-851-3208	5/31/18	-	-	-	0.370 ± 0.00860	0.270 ± 0.00290	0.270 ± 0.00850	0.00420 ± 0.0000730	<0.00009	0.0900 ± 0.000980	0.270 ± 0.00290	0.00733 ± 0.0000990
W-851-3208	10/30/18	0.380 ± 0.104	<0.1	0.164 ± 0.0677	-	-	-	-	-	-	-	-

Table B-8.04. Building 851 Firing Table metals in ground water.

Constituents of concern	W-851-05	W-851-06	W-851-07	W-851-08	W-851-3207	W-851-3208
	10/30/18	10/30/18	10/30/18	10/30/18	10/30/18	10/30/18
Antimony (mg/L)	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Arsenic (mg/L)	<0.005	<0.005	<0.005	<0.005	0.005	<0.005
Barium (mg/L)	<0.01	0.012	<0.01	0.02	0.013	0.012
Beryllium (mg/L)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cadmium (mg/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chromium (mg/L)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt (mg/L)	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Copper (mg/L)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lead (mg/L)	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Mercury (mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum (mg/L)	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Nickel (mg/L)	<0.02	<0.02	<0.02	0.023	<0.02	<0.02
Selenium (mg/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Silver (mg/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Thallium (mg/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Vanadium (mg/L)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc (mg/L)	0.039	0.04	0.037	0.056	0.04	0.045

Table B-8.05. Building 851 Firing Table high explosive compounds in ground water.

Location	Date	1,3,5-Trinitrobenzene (µg/L)	1,3-Dinitrobenzene (µg/L)	2,4-Dinitrotoluene (µg/L)	2,6-Dinitrotoluene (µg/L)	2-Amino-4,6-Dinitrotoluene (µg/L)	2-Nitrotoluene (µg/L)	3-Nitrotoluene (µg/L)	4-Amino-2,6-Dinitrotoluene (µg/L)	4-Nitrotoluene (µg/L)	HMX (µg/L)	Nitrobenzene (µg/L)	RDX (µg/L)	TNT (µg/L)
W-851-05	10/30/18	<2 D	<2 D	<2 D	<2.1 D	<2 D	<2.6 D	<2 D	<2 D	<2.5 D	<1 D	<2 D	<1 D	<2 D
W-851-06	10/30/18	<2 D	<2 D	<2 D	<2.1 D	<2 D	<2.6 D	<2 D	<2 D	<2.5 D	<1 D	<2 D	<1 D	<2 D
W-851-07	10/30/18	<2 D	<2 D	<2 D	<2.1 D	<2 D	<2.6 D	<2 D	<2 D	<2.5 D	<1 D	<2 D	<1 D	<2 D
W-851-08	10/30/18	<2.4 D	<2.4 D	<2.4 D	<2.5 D	<2.4 D	<3.1 D	<2.4 D	<2.4 D	<2.9 D	<1.2 D	<2.4 D	<1.2 D	<2.4 D
W-851-3207	10/30/18	<2.3 D	<2.3 D	<2.3 D	<2.4 D	<2.3 D	<3 D	<2.3 D	<2.3 D	<2.9 D	<1.1 D	<2.3 D	<1.1 D	<2.3 D
W-851-3208	10/30/18	<2.4 D	<2.4 D	<2.4 D	<2.5 D	<2.4 D	<3.1 D	<2.4 D	<2.4 D	<2.9 D	<1.2 D	<2.4 D	<1.2 D	<2.4 D

Table B-8.06. Building 845 Firing Table and Pit 9 Landfill volatile organic compounds (VOCs) in ground water.

Location	Date	Type	TCE (µg/L)	PCE (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	Carbon tetrachloride (µg/L)	Chloroform (µg/L)	1,1-DCA (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	1,1,1-TCA (µg/L)	1,1,2-TCA (µg/L)	Freon 11 (µg/L)	Freon 113 (µg/L)	Vinyl chloride (µg/L)
K9-01	10/11/18		R	R	R	R	R	R	R	R	R	R	R	R	R	R
K9-02	10/11/18		R	R	R	R	R	R	R	R	R	R	R	R	R	R
K9-04	10/11/18		R	R	R	R	R	R	R	R	R	R	R	R	R	R
W-PIT9-3204	10/11/18		R	R	R	R	R	R	R	R	R	R	R	R	R	R
W-PIT9-3205	10/15/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT9-3206	10/15/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Table B-8.06 (Con't). Analyte detected but not reported in main table.

Location	Date	Type	Detection frequency
K9-01	10/11/18		0 of 18
K9-02	10/11/18		0 of 18
K9-04	10/11/18		0 of 18
W-PIT9-3204	10/11/18		0 of 18
W-PIT9-3205	10/15/18		0 of 18
W-PIT9-3206	10/15/18		0 of 18

Table B-8.07. Building 845 Firing Table and Pit 9 Landfill nitrate and perchlorate in ground water.

Location	Date	Nitrate (as NO3) (mg/L)	Perchlorate (µg/L)
K9-01	10/11/18	<2.5 D	<4
K9-02	10/11/18	<2.5 D	<4
K9-04	10/11/18	<2.5 D	<4
W-PIT9-3204	10/11/18	<2.5 D	<4
W-PIT9-3205	10/15/18	<2.5 D	<4
W-PIT9-3206	10/15/18	<2.5 D	<4

Table B-8.08. Building 845 Firing Table and Pit 9 Landfill total uranium and uranium isotopes in ground water.

Location	Date	Total Uranium (in activity) (pCi/L)	Total Uranium (in mass) (µg/L)	Uranium 234 (in activity) (pCi/L)	Uranium 235 (in activity) (pCi/L)	Uranium 236 (in activity) (pCi/L)	Uranium 238 (in activity) (pCi/L)	Uranium 238 (in mass) (µg/L)	Uranium 235/238 (atom/atom)
K9-01	10/11/18	0.0641 ± 0.00420	0.0560 ± 0.00052(	<0.062	0.000860 ± 0.000022(	<0.000025	0.0190 ± 0.00016(	0.0550 ± 0.00049(	0.00718 ± 0.000170
K9-02	10/11/18	0.201 ± 0.00330	0.130 ± 0.00150	0.150 ± 0.00330	0.00210 ± 0.0000310	<0.000025	0.0440 ± 0.00049(	0.130 ± 0.00150	0.00720 ± 0.0000750
K9-04	10/11/18	0.210 ± 0.0100	0.160 ± 0.000900	0.160 ± 0.0100	0.00240 ± 0.0000390	<0.000027	0.0540 ± 0.00030(	0.160 ± 0.000900	0.00695 ± 0.000100
W-PIT9-3204	10/11/18	0.160 ± 0.00430	0.170 ± 0.00130	0.100 ± 0.00420	0.00270 ± 0.0000330	<0.000038	0.0580 ± 0.00043(	0.170 ± 0.00130	0.00720 ± 0.0000690
W-PIT9-3205	10/15/18	0.450 ± 0.0170	0.260 ± 0.00160	0.360 ± 0.0170	0.00400 ± 0.0000430	<0.000031	0.0850 ± 0.00055(	0.250 ± 0.00160	0.00727 ± 0.0000620
W-PIT9-3206	10/15/18	0.150 ± 0.00600	0.140 ± 0.00130	0.100 ± 0.00600	0.00210 ± 0.0000270	<0.00003	0.0450 ± 0.00042(	0.130 ± 0.00130	0.00722 ± 0.0000650

Table B-8.09. Building 845 Firing Table and Pit 9 Landfill high explosive compounds in ground water.

Location	Date	1,3,5-Trinitrobenzene (µg/L)	1,3-Dinitrobenzene (µg/L)	2,4-Dinitrotoluene (µg/L)	2,6-Dinitrotoluene (µg/L)	2-Amino-4,6-Dinitrotoluene (µg/L)	2-Nitrotoluene (µg/L)	3-Nitrotoluene (µg/L)	4-Amino-2,6-Dinitrotoluene (µg/L)	4-Nitrotoluene (µg/L)	HMX (µg/L)	Nitrobenzene (µg/L)	RDX (µg/L)	TNT (µg/L)
K9-01	10/11/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<0.99	<2	<0.99	<2
K9-02	10/11/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
K9-04	10/11/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
W-PIT9-3204	10/11/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
W-PIT9-3205	10/15/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
W-PIT9-3206	10/15/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2

Table B-8.10. Building 845 Firing Table and Pit 9 Landfill tritium in ground water.

Location	Date	Tritium (pCi/L)
K9-01	10/11/18	<100
K9-02	10/11/18	<100
K9-04	10/11/18	<100
W-PIT9-3204	10/11/18	<100
W-PIT9-3205	10/15/18	<100
W-PIT9-3206	10/15/18	<100

Table B-8.11. Building 845 Firing Table and Pit 9 Landfill metals in ground water.

Constituents of concern	K9-01	K9-02	K9-04	W-PIT9-3204	W-PIT9-3205	W-PIT9-3206
	10/11/18	10/11/18	10/11/18	10/11/18	10/15/18	10/15/18
Antimony (mg/L)	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Arsenic (mg/L)	<0.005	0.024	<0.005	0.0083	0.0077	0.033
Barium (mg/L)	0.014	0.021	0.022	<0.01	0.011	<0.01
Beryllium (mg/L)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cadmium (mg/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chromium (mg/L)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt (mg/L)	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Copper (mg/L)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lead (mg/L)	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Lithium (mg/L)	0.076	0.086	0.1	0.074	0.082	0.052
Mercury (mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum (mg/L)	0.027	0.052	0.024	0.031	0.032	0.066
Nickel (mg/L)	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Selenium (mg/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Silver (mg/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Thallium (mg/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Vanadium (mg/L)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc (mg/L)	<0.02	<0.02	<0.02	0.031	0.037	0.035

Table B-8.12. Building 845 Firing Table and Pit 9 Landfill fluoride in ground water.

Location	Date	Fluoride (mg/L)
K9-01	10/11/18	0.19
K9-02	10/11/18	0.26
K9-04	10/11/18	0.26
W-PIT9-3204	10/11/18	0.22
W-PIT9-3205	10/15/18	0.2
W-PIT9-3206	10/15/18	0.31

Table B-8.13. Building 833 volatile organic compounds (VOCs) in ground water.

Location	Date	Type	TCE (µg/L)	PCE (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	Carbon tetrachloride (µg/L)	Chloroform (µg/L)	1,1-DCA (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	1,1,1-TCA (µg/L)	1,1,2-TCA (µg/L)	Freon 11 (µg/L)	Freon 113 (µg/L)	Vinyl chloride (µg/L)
W-833-33	2/27/18		83 DH	<1 DH	<1 DH	<1 DH	<1 DH	<1 DH	<1 DH	<1 DH	<1 DH	<1 DH	<1 DH	<1 DH	<1 DH	<1 DH
W-833-33	2/27/18	DUP	79 DH	<1 DH	<1 DH	<1 DH	<1 DH	<1 DH	<1 DH	<1 DH	<1 DH	<1 DH	<1 DH	<1 DH	<1 DH	<1 DH
W-833-33	8/8/18		78	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-840-01	3/13/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-841-01	3/12/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Table B-8.13 (Con't). Analyte detected but not reported in main table.

Location	Date	Type	Detection frequency
W-833-33	2/27/18		0 of 18
W-833-33	2/27/18	DUP	0 of 18
W-833-33	8/8/18		0 of 18
W-840-01	3/13/18		0 of 18
W-841-01	3/12/18		0 of 18

Table B-8.14. Building 833 nitrate and perchlorate in ground water.

Location	Date	Nitrate (as NO3) (mg/L)	Perchlorate (µg/L)
W-840-01	3/13/18	<10 D	<2,000 D

Table B-8.15. Building 801 Firing Table and Pit 8 Landfill volatile organic compounds (VOCs) in ground water.

Location	Date	Type	TCE (µg/L)	PCE (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	Carbon tetrachloride (µg/L)	Chloroform (µg/L)	1,1-DCA (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	1,1,1-TCA (µg/L)	1,1,2-TCA (µg/L)	Freon 11 (µg/L)	Freon 113 (µg/L)	Vinyl chloride (µg/L)
K8-01	5/14/18		3.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K8-01	5/14/18	DUP	3.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K8-01	11/26/18		3	<0.5 IJ	<0.5	<0.5	<0.5	<0.5	<0.5	1.5	<0.5	<0.5	<0.5 IJ	<0.5	<0.5	<0.5
K8-01	11/26/18	DUP	3.1 L	<0.5 L	<0.5	<0.5	<0.5	<0.5	<0.5	1.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K8-02B	5/14/18		1.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K8-03B	5/14/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K8-03B	11/26/18		<0.5	<0.5 IJ	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5 IJ	<0.5	<0.5	<0.5
K8-04	5/14/18		1.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
K8-04	5/14/18	DUP	1.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.98	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT8-3201	5/15/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT8-3202	5/15/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-PIT8-3203	5/15/18		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Table B-8.15 (Con't). Analyte detected but not reported in main table.

Location	Date	Type	Detection frequency
K8-01	5/14/18		0 of 18
K8-01	5/14/18	DUP	0 of 18
K8-01	11/26/18		0 of 18
K8-01	11/26/18	DUP	0 of 18
K8-02B	5/14/18		0 of 18
K8-03B	5/14/18		0 of 18
K8-03B	11/26/18		0 of 18
K8-04	5/14/18		0 of 18
K8-04	5/14/18	DUP	0 of 18
W-PIT8-3201	5/15/18		0 of 18
W-PIT8-3202	5/15/18		0 of 18
W-PIT8-3203	5/15/18		0 of 18

Table B-8.16. Building 801 Firing Table and Pit 8 Landfill nitrate and perchlorate in ground water.

Location	Date	Nitrate (as NO3) (mg/L)	Perchlorate (µg/L)
K8-01	5/14/18	46 D	<4
K8-01	5/14/18 DUP	44 D	<4
K8-01	11/26/18	-	<4
K8-01	11/26/18 DUP	-	<4
K8-02B	2/5/18	-	<4
K8-02B	5/14/18	42 D	<4
K8-02B	7/25/18	-	<4
K8-02B	11/26/18	40 D	<4
K8-02B	11/26/18 DUP	43 D	<4
K8-03B	5/14/18	6.8	<4
K8-03B	11/26/18	-	<4
K8-04	5/14/18	70 D	<4
K8-04	5/14/18 DUP	70 D	4.1
K8-04	11/26/18	-	<4
W-PIT8-3201	2/5/18	-	<4
W-PIT8-3201	5/15/18	37 D	<4
W-PIT8-3201	7/25/18	-	<4
W-PIT8-3201	11/20/18	38	<4
W-PIT8-3202	2/5/18	-	<4
W-PIT8-3202	5/15/18	17 D	<4
W-PIT8-3202	7/25/18	-	<4
W-PIT8-3202	11/20/18	18	<4
W-PIT8-3203	2/5/18	-	<4
W-PIT8-3203	5/15/18	58 D	4
W-PIT8-3203	7/25/18	-	4.7
W-PIT8-3203	11/20/18	56 D	<4

Table B-8.17. Building 801 Firing Table and Pit 8 Landfill total uranium and uranium isotopes in ground water.

Location	Date	AS Uranium 234 and 233 (in activity) (pCi/L)	AS Uranium 235 and 236 (in activity) (pCi/L)	AS Uranium 238 (in activity) (pCi/L)	MS Total Uranium (in activity) (pCi/L)	MS Total Uranium (in mass) (µg/L)	MS Uranium 234 (in activity) (pCi/L)	MS Uranium 235 (in activity) (pCi/L)	MS Uranium 236 (in activity) (pCi/L)	MS Uranium 238 (in activity) (pCi/L)	MS Uranium 238 (in mass) (µg/L)	MS Uranium 235/238 (atom/atom)
K8-01	5/14/18	6.18 ± 0.8	0.256 ± 0.104	3.93 ± 0.569	-	-	-	-	-	-	-	-
K8-01	5/14/18 DUP	7.30 ± 1.3	0.370 ± 0.140	3.99 ± 0.780	-	-	-	-	-	-	-	-
K8-02B	5/14/18	-	-	-	13.0 ± 0.130	14.7 ± 0.0800	8.10 ± 0.120	0.230 ± 0.00180	<0.00094	4.90 ± 0.0270	14.6 ± 0.0810	0.00724 ± 0.0000410
K8-02B	11/26/18	6.86 ± 0.9	0.239 ± 0.100	4.74 ± 0.680	-	-	-	-	-	-	-	-
K8-02B	11/26/18 DUP	8.50 ± 1.7	0.230 ± 0.140 I	5.30 ± 1.10 I	-	-	-	-	-	-	-	-
K8-03B	5/14/18	3.14 ± 0.5	<0.1	2.15 ± 0.417	-	-	-	-	-	-	-	-
K8-04	5/14/18	-	-	-	15.0 ± 0.220	16.9 ± 0.0600	9.00 ± 0.220	0.260 ± 0.00140	<0.0011	5.64 ± 0.0210	16.8 ± 0.0620	0.00723 ± 0.0000260
K8-04	5/14/18 DUP	-	-	-	14.0 ± 0.240	16.7 ± 0.0900	8.40 ± 0.240	0.260 ± 0.00260	<0.0011	5.56 ± 0.0310	16.5 ± 0.0920	0.00723 ± 0.0000590
W-PIT8-3201	5/15/18	-	-	-	9.20 ± 0.180	9.91 ± 0.0300	5.80 ± 0.180	0.150 ± 0.00100	<0.00064	3.31 ± 0.0100	9.84 ± 0.0290	0.00726 ± 0.0000420
W-PIT8-3201	11/20/18	5.63 ± 0.7	0.203 ± 0.0983	3.66 ± 0.554	-	-	-	-	-	-	-	-

Table B-8.17. Building 801 Firing Table and Pit 8 Landfill total uranium and uranium isotopes in ground water.

Location	Date	AS	AS	AS	MS	MS	MS	MS	MS	MS	MS	MS
		Uranium 234 and 233 (in activity) (pCi/L)	Uranium 235 and 236 (in activity) (pCi/L)	Uranium 238 (in activity) (pCi/L)	Total Uranium (in activity) (pCi/L)	Total Uranium (in mass) (µg/L)	Uranium 234 (in activity) (pCi/L)	Uranium 235 (in activity) (pCi/L)	Uranium 236 (in activity) (pCi/L)	Uranium 238 (in activity) (pCi/L)	Uranium 238 (in mass) (µg/L)	Uranium 235/238 (atom/atom)
W-PIT8-3202	5/15/18	-	-	-	5.70 ± 0.0880	6.94 ± 0.0200	3.30 ± 0.0880	0.110 ± 0.000570	<0.00045	2.31 ± 0.00700	6.89 ± 0.0200	0.00728 ± 0.0000310
W-PIT8-3202	11/20/18	3.33 ± 0.4	0.178 ± 0.0887	2.11 ± 0.346	-	-	-	-	-	-	-	-
W-PIT8-3203	5/15/18	-	-	-	26.0 ± 0.590	30.9 ± 0.120	15.0 ± 0.590	0.480 ± 0.00270	<0.002	10.3 ± 0.0410	30.7 ± 0.120	0.00726 ± 0.0000280
W-PIT8-3203	11/20/18	13.2 ± 1.7	0.629 ± 0.176	9.44 ± 1.26	-	-	-	-	-	-	-	-

Table B-8.18. Building 801 Firing Table and Pit 8 Landfill high explosive compounds in ground water.

Location	Date	1,3,5-Trinitrobenzene (µg/L)	1,3-Dinitrobenzene (µg/L)	2,4-Dinitrotoluene (µg/L)	2,6-Dinitrotoluene (µg/L)	2-Amino-4,6-Dinitrotoluene (µg/L)	2-Nitrotoluene (µg/L)	3-Nitrotoluene (µg/L)	4-Amino-2,6-Dinitrotoluene (µg/L)	4-Nitrotoluene (µg/L)	HMX (µg/L)	Nitrobenzene (µg/L)	RDX (µg/L)	TNT (µg/L)
K8-02B	5/14/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
K8-04	5/14/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
K8-04	5/14/18 D	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
W-PIT8-3201	5/15/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
W-PIT8-3202	5/15/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2
W-PIT8-3203	5/15/18	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2

Table B-8.19. Building 801 Firing Table and Pit 8 Landfill tritium in ground water.

Location	Date	Tritium (pCi/L)
K8-01	5/14/18	168 ± 77.2 O
K8-01	5/14/18 DUP	216 ± 76.0
K8-01	11/26/18	243 ± 97.9
K8-01	11/26/18 DUP	208 ± 56.0
K8-02B	2/5/18	<100
K8-02B	5/14/18	<100 O
K8-02B	7/25/18	<100
K8-02B	11/26/18	<100
K8-02B	11/26/18 DUP	<100
K8-03B	5/14/18	<100 O
K8-03B	11/26/18	<100
K8-04	5/14/18	<100 O
K8-04	5/14/18 DUP	<100 O
K8-04	11/26/18	<100
W-PIT8-3201	2/5/18	<100
W-PIT8-3201	5/15/18	<100 O
W-PIT8-3201	7/25/18	<100
W-PIT8-3201	11/20/18	105 ± 82.6
W-PIT8-3202	2/5/18	<100
W-PIT8-3202	5/15/18	<100 O
W-PIT8-3202	7/25/18	<100
W-PIT8-3202	11/20/18	<100
W-PIT8-3203	2/5/18	<100
W-PIT8-3203	5/15/18	<100 O
W-PIT8-3203	7/25/18	<100
W-PIT8-3203	11/20/18	<100

Table B-8.20. Building 801 Firing Table and Pit 8 Landfill metals in ground water.

Constituents of concern	K8-02B	K8-04	K8-04	W-PIT8-3201	W-PIT8-3202	W-PIT8-3203
	5/14/18	5/14/18	5/14/18 DUP	5/15/18	5/15/18	5/15/18
Antimony (mg/L)	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Arsenic (mg/L)	0.021	0.022	0.023	0.014	0.016	0.068
Barium (mg/L)	<0.01	<0.01	<0.01	0.015	<0.01	0.038
Beryllium (mg/L)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cadmium (mg/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chromium (mg/L)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt (mg/L)	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Copper (mg/L)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lead (mg/L)	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Lithium (mg/L)	0.036	0.04	0.042	0.032	0.03	0.056
Mercury (mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum (mg/L)	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Nickel (mg/L)	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Selenium (mg/L)	0.0059	0.012	0.012	<0.005	<0.005	0.016
Silver (mg/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Thallium (mg/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Vanadium (mg/L)	0.063	0.086	0.088	0.057	0.015	0.1
Zinc (mg/L)	0.036	0.028	0.028	0.03	0.029	0.03

Table B-8.21. Building 801 Firing Table and Pit 8 Landfill fluoride in ground water.

Location	Date	Fluoride (mg/L)
K8-02B	5/14/18	0.35
K8-04	5/14/18	0.38
K8-04	5/14/18 DUP	0.38
W-PIT8-3201	5/15/18	0.42
W-PIT8-3202	5/15/18	0.37
W-PIT8-3203	5/15/18	0.54

Appendix C

Appendix C

Groundwater Elevations Measured During 2018

Table C-1. General Services Area Operable Unit ground water elevations.
Table C-2. Building 834 Operable Unit groundwater elevations.
Table C-3. Pit 6 Landfill Operable Unit groundwater elevations.
Table C-4. High Explosives Process Area Operable Unit groundwater elevations.
Table C-5. Building 850 area in Operable Unit 5 groundwater elevations.
Table C-6. Pit 2 Landfill groundwater elevations.
Table C-7. Pit 7 Complex area in Operable Unit 5 groundwater elevations.
Table C-8. Building 854 Operable Unit groundwater elevations.
Table C-9. Building 832 Canyon Operable Unit groundwater elevations.
Table C-10. Building 851 Firing Table groundwater elevations.
Table C-11. Building 845 Firing Table and Pit 9 Landfill groundwater elevations.
Table C-12. Building 833 groundwater elevations.
Table C-13. Building 801 Firing Table and Pit 8 Landfill groundwater elevations.

Table C-1. General Services Area Operable Unit ground water elevations.

CDF1	01/18/18	489.80	
CDF1	01/18/18	495.33	PS
CDF1	02/22/18	487.59	PS
CDF1	03/22/18	488.62	PS
CDF1	03/27/18	487.00	PS
CDF1	04/18/18	490.52	
CDF1	04/18/18	488.31	PS
CDF1	05/23/18	487.68	PS
CDF1	06/25/18	485.72	PS
CDF1	07/24/18	486.97	
CDF1	07/24/18	485.50	PS
CDF1	08/30/18	485.29	PS
CDF1	09/11/18	485.52	PS
CDF1	10/22/18	485.19	PS
CDF1	11/13/18	488.40	
CDF1	11/13/18	488.40	PS
CDF1	12/17/18	487.24	PS
CON1	01/18/18	491.14	
CON1	01/18/18	491.14	PS
CON1	02/22/18	491.36	PS
CON1	03/22/18	491.68	PS
CON1	03/27/18	491.21	PS
CON1	04/18/18	491.38	
CON1	04/18/18	491.68	PS
CON1	05/23/18	490.83	PS
CON1	06/25/18	490.08	PS
CON1	07/24/18	489.26	
CON1	07/24/18	489.26	PS
CON1	08/30/18	488.27	PS
CON1	09/11/18	489.40	PS
CON1	10/22/18	477.69	PS
CON1	11/13/18	489.18	
CON1	11/13/18	489.18	PS
CON1	12/17/18	489.26	PS
CON2	01/18/18	490.27	
CON2	01/18/18	490.01	PS
CON2	02/22/18	489.38	PS
CON2	03/22/18	489.29	PS
CON2	03/27/18	489.31	PS
CON2	04/18/18	488.95	
CON2	04/18/18	488.95	PS
CON2	05/23/18	488.32	PS
CON2	06/25/18	487.89	PS
CON2	07/24/18	487.49	
CON2	07/24/18	487.67	PS
CON2	08/30/18	487.18	PS
CON2	09/11/18	487.10	PS
CON2	10/22/18	486.81	PS
CON2	11/13/18	486.89	
CON2	11/13/18	486.89	PS

Table C-1. General Services Area Operable Unit ground water elevations.

CON2	12/17/18	486.74	PS
W-24P-03	01/18/18	NM	No access to well location
W-24P-03	04/18/18	NM	No access to well location
W-24P-03	07/24/18	425.24	
W-24P-03	11/05/18	NM	No access to well location
W-25D-01	01/18/18	447.71	
W-25D-01	04/18/18	446.49	
W-25D-01	08/14/18	444.06	
W-25D-01	11/05/18	NM	No access to well location
W-25D-02	01/18/18	447.97	
W-25D-02	04/18/18	446.62	
W-25D-02	08/14/18	444.16	
W-25D-02	11/05/18	NM	No access to well location
W-25M-01	01/18/18	458.43	
W-25M-01	04/18/18	456.76	
W-25M-01	07/11/18	455.18	PS
W-25M-01	08/14/18	454.64	
W-25M-01	09/11/18	454.42	PS
W-25M-01	11/05/18	453.96	
W-25M-02	01/18/18	474.96	
W-25M-02	04/18/18	473.56	
W-25M-02	07/24/18	471.94	
W-25M-02	11/05/18	NM	No access to well location
W-25M-03	01/18/18	476.59	
W-25M-03	04/18/18	475.16	
W-25M-03	07/24/18	473.68	
W-25M-03	11/05/18	NM	No access to well location
W-25N-04	01/08/18	487.47	
W-25N-04	04/30/18	486.82	
W-25N-04	08/13/18	486.22	
W-25N-04	11/19/18	485.91	
W-25N-05	01/18/18	484.84	
W-25N-05	04/18/18	483.68	
W-25N-05	07/24/18	482.65	
W-25N-05	11/05/18	NM	No access to well location
W-25N-06	01/18/18	481.79	
W-25N-06	04/18/18	480.45	
W-25N-06	07/24/18	478.82	
W-25N-06	11/05/18	NM	No access to well location
W-25N-07	01/18/18	490.03	
W-25N-07	04/18/18	488.78	
W-25N-07	07/24/18	487.72	
W-25N-07	11/13/18	486.72	
W-25N-08	01/08/18	488.13	
W-25N-08	04/30/18	486.72	
W-25N-08	08/13/18	485.72	
W-25N-08	11/19/18	485.08	
W-25N-10	01/18/18	490.66	
W-25N-10	04/18/18	490.76	
W-25N-10	07/24/18	486.62	

Table C-1. General Services Area Operable Unit ground water elevations.

W-25N-10	11/13/18	488.53	
W-25N-11	01/18/18	489.61	
W-25N-11	07/24/18	486.07	
W-25N-11	11/13/18	488.06	
W-25N-12	01/18/18	490.15	
W-25N-12	04/18/18	489.99	
W-25N-12	07/24/18	486.98	
W-25N-12	11/13/18	487.72	
W-25N-13	01/18/18	489.18	
W-25N-13	04/18/18	488.02	
W-25N-13	07/24/18	486.78	
W-25N-13	11/13/18	485.93	
W-25N-15	01/18/18	487.74	
W-25N-15	04/18/18	486.70	
W-25N-15	07/24/18	485.51	
W-25N-15	11/05/18	NM	No access to well location
W-25N-18	01/18/18	487.50	
W-25N-18	04/18/18	486.34	
W-25N-18	07/24/18	485.24	
W-25N-18	11/05/18	NM	No access to well location
W-25N-22	01/08/18	488.86	
W-25N-22	02/13/18	488.33	PS
W-25N-22	02/14/18	488.32	PS
W-25N-22	04/30/18	487.63	
W-25N-22	08/13/18	486.42	
W-25N-22	09/12/18	486.43	PS
W-25N-22	09/13/18	486.45	PS
W-25N-22	11/19/18	485.85	
W-25N-23	01/08/18	488.46	
W-25N-23	04/30/18	487.18	
W-25N-23	08/13/18	485.98	
W-25N-23	09/12/18	485.78	PS
W-25N-23	09/13/18	485.79	PS
W-25N-23	11/19/18	485.26	
W-25N-25	01/18/18	488.73	
W-25N-25	04/18/18	487.64	
W-25N-25	07/24/18	486.44	
W-25N-25	11/13/18	485.39	
W-25N-26	01/18/18	487.68	
W-25N-26	04/18/18	486.38	
W-25N-26	07/24/18	485.27	
W-25N-26	11/05/18	NM	No access to well location
W-25N-28	01/18/18	484.66	
W-25N-28	04/18/18	483.08	
W-25N-28	07/24/18	481.96	
W-25N-28	11/05/18	481.35	
W-26R-01	01/08/18	490.41	
W-26R-01	02/12/18	489.68	PS
W-26R-01	02/13/18	489.61	PS
W-26R-01	04/30/18	488.81	

Table C-1. General Services Area Operable Unit ground water elevations.

W-26R-01	06/04/18	488.38	PS
W-26R-01	06/05/18	488.41	PS
W-26R-01	08/13/18	487.51	
W-26R-01	08/27/18	487.79	PS
W-26R-01	08/28/18	487.81	PS
W-26R-01	11/19/18	486.76	
W-26R-01	12/03/18	486.81	PS
W-26R-01	12/04/18	486.78	PS
W-26R-05	01/08/18	490.29	
W-26R-05	02/12/18	489.93	PS
W-26R-05	02/15/18	489.89	PS
W-26R-05	04/30/18	489.21	
W-26R-05	06/04/18	488.91	PS
W-26R-05	06/11/18	488.89	PS
W-26R-05	08/13/18	488.28	
W-26R-05	09/12/18	488.17	PS
W-26R-05	09/18/18	487.38	PS
W-26R-05	11/19/18	487.86	
W-26R-05	12/03/18	487.29	PS
W-26R-05	12/06/18	487.32	PS
W-26R-06	01/08/18	490.03	
W-26R-06	04/30/18	488.57	
W-26R-06	06/26/18	487.94	PS
W-26R-06	08/13/18	487.45	
W-26R-06	11/19/18	486.62	
W-26R-06	12/06/18	486.56	PS
W-26R-07	01/08/18	491.99	
W-26R-07	04/30/18	491.42	
W-26R-07	08/13/18	489.95	
W-26R-07	11/19/18	NM	No access to well location
W-26R-08	01/08/18	492.59	
W-26R-08	04/30/18	492.01	
W-26R-08	08/13/18	490.47	
W-26R-08	11/19/18	490.86	
W-26R-11	01/08/18	490.39	
W-26R-11	04/30/18	488.71	
W-26R-11	08/13/18	487.52	
W-26R-11	11/19/18	486.63	
W-35A-01	01/18/18	492.71	
W-35A-01	04/18/18	491.53	
W-35A-01	06/19/18	490.70	PS
W-35A-01	07/24/18	490.31	
W-35A-01	11/06/18	489.26	
W-35A-01	12/20/18	489.08	PS
W-35A-02	01/18/18	495.07	
W-35A-02	04/18/18	493.92	
W-35A-02	06/18/18	493.27	PS
W-35A-02	07/24/18	493.00	
W-35A-02	11/06/18	492.40	
W-35A-02	12/20/18	492.40	PS

Table C-1. General Services Area Operable Unit ground water elevations.

W-35A-03	01/18/18	492.41	
W-35A-03	04/18/18	491.34	
W-35A-03	06/19/18	490.49	PS
W-35A-03	07/24/18	490.06	
W-35A-03	11/06/18	489.14	
W-35A-03	12/10/18	488.84	PS
W-35A-04	01/18/18	491.07	
W-35A-04	02/20/18	490.47	PS
W-35A-04	02/21/18	490.48	PS
W-35A-04	04/18/18	489.93	
W-35A-04	06/06/18	489.14	PS
W-35A-04	06/07/18	489.13	PS
W-35A-04	07/24/18	488.63	
W-35A-04	09/17/18	488.13	PS
W-35A-04	09/18/18	488.10	PS
W-35A-04	11/06/18	487.49	
W-35A-04	12/10/18	487.43	PS
W-35A-04	12/11/18	487.43	PS
W-35A-05	01/18/18	493.08	
W-35A-05	04/18/18	491.79	
W-35A-05	06/19/18	490.97	PS
W-35A-05	07/24/18	490.59	
W-35A-05	11/06/18	489.43	
W-35A-05	12/20/18	489.31	PS
W-35A-06	01/18/18	490.79	
W-35A-06	04/18/18	489.62	
W-35A-06	07/24/18	488.37	
W-35A-06	11/06/18	487.27	
W-35A-07	01/18/18	508.30	
W-35A-07	04/18/18	507.57	
W-35A-07	06/18/18	506.96	PS
W-35A-07	07/24/18	506.40	
W-35A-07	11/06/18	505.70	
W-35A-07	12/10/18	505.72	PS
W-35A-08	01/18/18	500.78	
W-35A-08	03/20/18	500.26	PS
W-35A-08	04/18/18	500.54	
W-35A-08	06/18/18	500.23	PS
W-35A-08	07/24/18	499.54	
W-35A-08	09/24/18	499.36	PS
W-35A-08	11/06/18	499.26	
W-35A-08	12/20/18	499.35	PS
W-35A-09	01/18/18	497.62	
W-35A-09	04/18/18	496.82	
W-35A-09	06/18/18	496.12	PS
W-35A-09	07/24/18	495.85	
W-35A-09	11/06/18	495.14	
W-35A-09	12/20/18	495.23	PS
W-35A-10	01/18/18	497.82	
W-35A-10	04/18/18	496.91	

Table C-1. General Services Area Operable Unit ground water elevations.

W-35A-10	06/18/18	495.81	PS
W-35A-10	07/24/18	495.46	
W-35A-10	11/06/18	494.53	
W-35A-10	12/20/18	494.62	PS
W-35A-11	01/18/18	504.46	
W-35A-11	04/18/18	504.19	
W-35A-11	06/20/18	503.32	PS
W-35A-11	07/24/18	503.04	
W-35A-11	11/06/18	502.28	
W-35A-11	12/19/18	502.35	PS
W-35A-12	01/18/18	496.85	
W-35A-12	04/18/18	495.99	
W-35A-12	06/20/18	495.35	PS
W-35A-12	07/24/18	494.97	
W-35A-12	11/06/18	493.68	
W-35A-12	12/19/18	493.74	PS
W-35A-13	01/18/18	492.11	
W-35A-13	04/18/18	491.01	
W-35A-13	06/20/18	490.23	PS
W-35A-13	07/24/18	489.84	
W-35A-13	11/06/18	488.69	
W-35A-13	12/20/18	488.72	PS
W-35A-14	01/18/18	497.33	
W-35A-14	03/20/18	496.00	PS
W-35A-14	04/18/18	496.29	
W-35A-14	06/18/18	495.94	PS
W-35A-14	07/24/18	495.31	
W-35A-14	09/24/18	494.80	PS
W-35A-14	11/06/18	494.63	
W-35A-14	12/20/18	494.79	PS
W-7A	01/08/18	508.01	
W-7A	03/20/18	507.27	PS
W-7A	04/24/18	507.09	
W-7A	06/25/18	506.39	PS
W-7A	08/09/18	505.89	
W-7A	11/01/18	505.19	
W-7A	12/17/18	505.21	PS
W-7B	01/08/18	491.59	
W-7B	04/30/18	490.24	
W-7B	06/25/18	489.44	PS
W-7B	08/13/18	488.89	
W-7B	11/19/18	488.04	
W-7B	12/17/18	487.99	PS
W-7C	01/08/18	501.87	
W-7C	04/30/18	500.90	
W-7C	06/21/18	500.07	PS
W-7C	08/13/18	499.65	
W-7C	11/19/18	499.07	
W-7C	12/06/18	499.00	PS
W-7D	01/08/18	492.58	

Table C-1. General Services Area Operable Unit ground water elevations.

W-7D	04/30/18	491.70	
W-7D	08/13/18	490.22	
W-7D	11/19/18	490.52	
W-7DS	01/08/18	490.18	
W-7DS	02/14/18	489.61	PS
W-7DS	04/30/18	488.70	
W-7DS	08/13/18	487.51	
W-7DS	11/19/18	486.65	
W-7DS	12/03/18	486.61	PS
W-7E	01/08/18	491.63	
W-7E	04/30/18	490.23	
W-7E	06/07/18	489.74	PS
W-7E	06/11/18	489.74	PS
W-7E	08/13/18	488.93	
W-7E	11/19/18	488.08	
W-7E	12/05/18	488.10	PS
W-7E	12/06/18	488.06	PS
W-7ES	01/08/18	492.06	
W-7ES	02/20/18	491.40	PS
W-7ES	02/21/18	491.41	PS
W-7ES	04/30/18	490.61	
W-7ES	06/07/18	490.01	PS
W-7ES	06/11/18	490.00	PS
W-7ES	08/13/18	489.18	
W-7ES	08/27/18	489.03	PS
W-7ES	08/28/18	489.03	PS
W-7ES	11/19/18	488.17	
W-7ES	12/05/18	488.13	PS
W-7ES	12/06/18	488.13	PS
W-7F	01/10/18	498.20	
W-7F	05/01/18	498.88	
W-7F	06/21/18	498.08	PS
W-7F	08/13/18	498.17	
W-7F	11/01/18	494.61	
W-7F	12/06/18	496.97	PS
W-7G	01/08/18	502.57	
W-7G	04/24/18	501.95	
W-7G	06/21/18	501.24	PS
W-7G	08/09/18	500.88	
W-7G	11/01/18	500.20	
W-7G	12/17/18	500.07	PS
W-7H	01/08/18	493.24	
W-7H	04/24/18	492.14	
W-7H	06/19/18	491.74	PS
W-7H	08/09/18	493.27	
W-7H	11/01/18	493.19	
W-7H	12/10/18	492.54	PS
W-7I	01/10/18	503.55	
W-7I	05/01/18	504.08	
W-7I	08/13/18	502.43	

Table C-1. General Services Area Operable Unit ground water elevations.

W-7I	11/05/18	504.85	
W-7J	01/10/18	500.20	
W-7J	05/01/18	500.68	
W-7J	06/19/18	499.89	PS
W-7J	08/13/18	499.09	
W-7J	11/01/18	497.34	
W-7J	12/17/18	497.89	PS
W-7K	01/08/18	502.72	
W-7K	04/30/18	502.03	
W-7K	06/21/18	501.49	PS
W-7K	08/13/18	500.95	
W-7K	11/19/18	500.23	
W-7K	12/17/18	500.20	PS
W-7L	01/08/18	502.76	
W-7L	04/30/18	502.08	
W-7L	06/25/18	501.51	PS
W-7L	08/13/18	501.05	
W-7L	11/19/18	500.36	
W-7L	12/17/18	500.15	PS
W-7M	01/08/18	496.52	
W-7M	04/30/18	495.65	
W-7M	06/21/18	494.85	PS
W-7M	08/13/18	494.30	
W-7M	11/19/18	493.85	
W-7M	12/19/18	493.75	PS
W-7N	01/08/18	491.86	
W-7N	04/30/18	490.54	
W-7N	06/21/18	489.88	PS
W-7N	08/13/18	489.28	
W-7N	11/19/18	488.38	
W-7N	12/19/18	488.33	PS
W-7O	01/08/18	490.36	
W-7O	05/01/18	488.92	
W-7O	08/13/18	489.14	
W-7O	11/01/18	488.09	
W-7P	01/08/18	490.72	
W-7P	04/30/18	489.42	
W-7P	08/13/18	488.80	
W-7P	11/19/18	< 488.80	DRY
W-7PS	01/08/18	491.52	
W-7PS	04/30/18	< 490.48	DRY
W-7PS	08/13/18	< 490.48	DRY
W-7PS	11/19/18	< 490.48	DRY
W-7Q	01/08/18	492.41	
W-7Q	05/01/18	492.58	
W-7Q	06/19/18	491.22	PS
W-7Q	08/13/18	491.53	
W-7Q	11/01/18	490.58	
W-7Q	12/06/18	490.45	PS
W-7R	01/08/18	490.51	

Table C-1. General Services Area Operable Unit ground water elevations.

W-7R	04/30/18	489.16	
W-7R	08/13/18	489.15	
W-7R	11/19/18	488.28	
W-7S	01/08/18	490.56	
W-7S	04/30/18	489.13	
W-7S	06/21/18	488.47	PS
W-7S	08/13/18	489.21	
W-7S	11/19/18	488.22	
W-7S	12/06/18	488.20	PS
W-7T	01/08/18	491.06	
W-7T	04/30/18	490.65	
W-7T	06/21/18	489.97	PS
W-7T	08/13/18	489.24	
W-7T	11/19/18	488.27	
W-7T	12/06/18	488.27	PS
W-843-01	01/09/18	514.39	
W-843-01	04/18/18	514.06	
W-843-01	06/20/18	513.76	PS
W-843-01	08/13/18	513.08	
W-843-01	11/05/18	512.59	
W-843-01	12/06/18	512.76	PS
W-843-02	01/09/18	520.34	
W-843-02	04/18/18	519.47	
W-843-02	06/20/18	518.92	PS
W-843-02	08/13/18	518.47	
W-843-02	11/05/18	517.70	
W-843-02	12/06/18	517.60	PS
W-872-01	01/10/18	501.64	
W-872-01	05/01/18	502.17	
W-872-01	06/20/18	501.17	PS
W-872-01	08/09/18	500.29	
W-872-01	11/01/18	498.92	
W-872-01	12/12/18	498.66	PS
W-872-02	01/10/18	500.16	
W-872-02	05/01/18	500.49	
W-872-02	08/09/18	499.20	
W-872-02	11/01/18	492.15	
W-873-01	01/10/18	519.09	
W-873-01	04/24/18	519.14	
W-873-01	06/20/18	518.51	PS
W-873-01	08/09/18	517.68	
W-873-01	11/01/18	517.28	
W-873-01	12/10/18	517.61	PS
W-873-02	01/10/18	501.23	
W-873-02	05/01/18	501.41	
W-873-02	06/20/18	501.70	PS
W-873-02	08/09/18	499.71	
W-873-02	11/01/18	498.40	
W-873-02	12/12/18	498.15	PS
W-873-03	01/10/18	504.26	

Table C-1. General Services Area Operable Unit ground water elevations.

W-873-03	04/24/18	504.89	
W-873-03	06/20/18	503.75	PS
W-873-03	08/09/18	502.99	
W-873-03	11/01/18	502.35	
W-873-03	12/10/18	502.49	PS
W-873-04	01/10/18	512.34	
W-873-04	05/01/18	512.19	
W-873-04	06/20/18	512.21	PS
W-873-04	08/09/18	511.99	
W-873-04	11/01/18	512.21	
W-873-06	01/10/18	502.56	
W-873-06	05/01/18	502.72	
W-873-06	06/20/18	501.56	PS
W-873-06	08/09/18	500.71	
W-873-06	11/01/18	499.48	
W-873-06	12/12/18	499.26	PS
W-873-07	01/10/18	501.09	
W-873-07	05/01/18	501.41	
W-873-07	08/09/18	499.98	
W-873-07	11/01/18	491.06	
W-875-01	01/10/18	512.60	
W-875-01	04/23/18	512.01	
W-875-01	06/19/18	511.56	PS
W-875-01	08/09/18	511.30	
W-875-01	11/01/18	511.15	
W-875-01	12/05/18	511.49	PS
W-875-02	01/10/18	509.76	
W-875-02	04/24/18	510.37	
W-875-02	06/19/18	509.81	PS
W-875-02	08/09/18	509.46	
W-875-02	11/01/18	509.16	
W-875-02	12/05/18	509.35	PS
W-875-03	01/10/18	501.62	
W-875-03	05/01/18	500.88	
W-875-03	06/19/18	500.34	PS
W-875-03	08/09/18	499.84	
W-875-03	11/01/18	499.14	
W-875-03	12/05/18	514.14	PS
W-875-04	01/10/18	510.71	
W-875-04	04/23/18	511.56	
W-875-04	06/20/18	510.71	PS
W-875-04	08/09/18	510.58	
W-875-04	11/01/18	510.33	
W-875-04	12/05/18	510.43	PS
W-875-05	01/10/18	513.88	
W-875-05	04/23/18	513.85	
W-875-05	06/20/18	513.60	PS
W-875-05	08/09/18	513.50	
W-875-05	11/01/18	513.45	
W-875-05	12/05/18	513.60	PS

Table C-1. General Services Area Operable Unit ground water elevations.

W-875-06	01/10/18	505.12	
W-875-06	04/23/18	506.90	
W-875-06	06/20/18	505.69	PS
W-875-06	08/09/18	NM	No access to well location
W-875-06	11/01/18	504.67	
W-875-06	12/05/18	528.09	PS
W-875-07	01/10/18	501.54	
W-875-07	05/01/18	501.80	
W-875-07	08/13/18	499.62	
W-875-07	11/05/18	501.91	
W-875-08	01/10/18	503.03	
W-875-08	05/01/18	503.57	
W-875-08	08/13/18	501.72	
W-875-08	11/05/18	501.45	
W-875-09	01/10/18	503.28	
W-875-09	05/01/18	503.85	
W-875-09	08/13/18	502.10	
W-875-09	11/05/18	502.20	
W-875-10	01/10/18	501.36	
W-875-10	03/20/18	502.45	PS
W-875-10	05/01/18	< 502.28	DRY
W-875-10	06/20/18	502.25	PS
W-875-10	08/13/18	504.15	
W-875-10	11/01/18	504.15	
W-875-11	01/10/18	500.20	
W-875-11	05/01/18	500.70	
W-875-11	08/13/18	499.00	
W-875-11	11/01/18	498.90	
W-875-15	01/10/18	500.90	
W-875-15	05/01/18	501.35	
W-875-15	08/13/18	499.75	
W-875-15	11/05/18	501.69	
W-876-01	01/10/18	516.58	
W-876-01	04/23/18	515.05	
W-876-01	06/20/18	514.73	PS
W-876-01	08/09/18	514.45	
W-876-01	11/01/18	513.98	
W-876-01	12/05/18	513.88	PS
W-879-01	01/09/18	510.63	
W-879-01	04/23/18	509.68	
W-879-01	06/21/18	509.08	PS
W-879-01	08/13/18	508.42	
W-879-01	11/01/18	508.16	
W-879-01	12/11/18	507.65	PS
W-889-01	01/09/18	514.66	
W-889-01	04/23/18	514.64	
W-889-01	06/21/18	514.52	PS
W-889-01	08/13/18	514.45	
W-889-01	11/01/18	514.33	
W-889-01	12/12/18	514.35	PS

Table C-1. General Services Area Operable Unit ground water elevations.

W-CGSA-1732	01/08/18	504.64	
W-CGSA-1732	04/24/18	504.62	
W-CGSA-1732	08/09/18	< 504.33	DRY
W-CGSA-1732	11/01/18	504.43	
W-CGSA-1733	01/08/18	492.27	
W-CGSA-1733	04/30/18	490.92	
W-CGSA-1733	08/13/18	490.37	
W-CGSA-1733	11/19/18	490.29	
W-CGSA-1735	01/08/18	< 494.53	DRY
W-CGSA-1735	04/30/18	< 494.53	DRY
W-CGSA-1735	08/13/18	< 494.53	DRY
W-CGSA-1735	11/19/18	< 494.53	DRY
W-CGSA-1736	01/08/18	490.63	
W-CGSA-1736	04/30/18	489.29	
W-CGSA-1736	08/13/18	488.08	
W-CGSA-1736	11/19/18	487.67	
W-CGSA-1737	01/08/18	491.69	
W-CGSA-1737	04/30/18	490.31	
W-CGSA-1737	06/26/18	489.21	PS
W-CGSA-1737	08/13/18	489.06	
W-CGSA-1737	11/19/18	487.96	
W-CGSA-1737	12/11/18	488.01	PS
W-CGSA-1739	01/08/18	493.57	
W-CGSA-1739	04/30/18	493.02	
W-CGSA-1739	06/21/18	492.76	PS
W-CGSA-1739	08/13/18	492.37	
W-CGSA-1739	11/19/18	492.49	
W-CGSA-1739	12/11/18	492.44	PS
W-CGSA-2708	01/09/18	505.87	
W-CGSA-2708	04/23/18	505.45	
W-CGSA-2708	08/13/18	505.44	
W-CGSA-2708	11/01/18	504.46	
W-CGSA-2907	01/09/18	525.98	
W-CGSA-2907	04/23/18	525.92	
W-CGSA-2907	08/13/18	< 525.92	DRY
W-CGSA-2907	11/01/18	525.47	
W-CGSA-2908	01/09/18	526.54	
W-CGSA-2908	04/23/18	526.50	
W-CGSA-2908	08/13/18	526.50	
W-CGSA-2908	11/01/18	526.44	

Table C-2. Building 834 Operable Unit ground water elevations.

W-834-1709	01/04/18	993.73	
W-834-1709	02/13/18	993.86	PS
W-834-1709	04/17/18	994.27	
W-834-1709	07/25/18	992.84	
W-834-1709	08/13/18	992.65	PS
W-834-1709	10/16/18	991.68	
W-834-1711	01/04/18	982.54	
W-834-1711	02/13/18	982.54	PS
W-834-1711	04/17/18	981.46	
W-834-1711	07/25/18	981.61	
W-834-1711	08/13/18	981.59	PS
W-834-1711	10/16/18	981.12	
W-834-1712	01/04/18	< 1000.11	DRY
W-834-1712	04/17/18	< 1000.11	DRY
W-834-1712	07/25/18	< 1000.11	DRY
W-834-1712	10/16/18	< 1000.11	DRY
W-834-1824	01/04/18	926.56	
W-834-1824	02/22/18	926.50	PS
W-834-1824	04/16/18	926.68	
W-834-1824	07/25/18	926.55	
W-834-1824	08/16/18	926.48	PS
W-834-1824	10/16/18	926.43	
W-834-1825	01/04/18	923.67	
W-834-1825	02/22/18	923.57	PS
W-834-1825	04/16/18	923.67	
W-834-1825	07/25/18	923.57	
W-834-1825	08/22/18	923.62	PS
W-834-1825	10/16/18	923.09	
W-834-1833	01/04/18	920.81	
W-834-1833	02/26/18	920.95	PS
W-834-1833	04/16/18	920.93	
W-834-1833	07/25/18	920.88	
W-834-1833	08/21/18	920.84	PS
W-834-1833	10/16/18	920.27	
W-834-2001	01/04/18	992.14	
W-834-2001	04/17/18	990.11	
W-834-2001	07/25/18	990.07	
W-834-2001	10/16/18	990.09	
W-834-2113	01/04/18	962.44	
W-834-2113	04/17/18	959.81	
W-834-2113	07/25/18	961.06	
W-834-2113	10/16/18	959.86	
W-834-2117	01/04/18	935.52	
W-834-2117	02/22/18	935.48	PS
W-834-2117	04/16/18	935.59	
W-834-2117	07/25/18	935.45	
W-834-2117	08/20/18	935.43	PS
W-834-2117	10/16/18	934.99	
W-834-2118	01/24/18	909.79	
W-834-2118	02/20/18	909.69	PS

Table C-2. Building 834 Operable Unit ground water elevations.

W-834-2118	03/27/18	909.94	PS
W-834-2118	04/17/18	910.05	
W-834-2118	07/26/18	910.71	
W-834-2118	08/20/18	910.63	PS
W-834-2118	10/22/18	910.61	
W-834-2119	01/04/18	898.64	
W-834-2119	02/26/18	898.79	PS
W-834-2119	04/16/18	899.04	
W-834-2119	07/25/18	899.53	
W-834-2119	08/20/18	899.54	PS
W-834-2119	10/16/18	899.61	
W-834-A1	01/04/18	985.42	
W-834-A1	02/15/18	984.88	PS
W-834-A1	04/17/18	984.67	
W-834-A1	07/25/18	985.14	
W-834-A1	08/13/18	984.95	PS
W-834-A1	10/16/18	984.15	
W-834-A2	01/04/18	< 997.18	DRY
W-834-A2	04/17/18	997.34	
W-834-A2	07/25/18	< 997.34	DRY
W-834-A2	10/16/18	< 997.34	DRY
W-834-B2	01/04/18	< 1001.79	DRY
W-834-B2	04/17/18	1002.07	
W-834-B2	07/25/18	1002.15	
W-834-B2	10/16/18	1002.01	
W-834-B3	01/04/18	< 1005.39	DRY
W-834-B3	04/17/18	1007.03	
W-834-B3	07/25/18	1007.37	
W-834-B3	10/16/18	1006.88	
W-834-B4	01/04/18	< 1000.67	DRY
W-834-B4	04/17/18	1001.97	
W-834-B4	07/25/18	1000.74	
W-834-B4	10/16/18	< 1000.73	DRY
W-834-C2	01/04/18	< 1001.72	DRY
W-834-C2	04/17/18	< 1001.34	DRY
W-834-C2	07/25/18	< 1001.34	DRY
W-834-C2	10/16/18	< 1001.34	DRY
W-834-C4	01/04/18	1007.65	
W-834-C4	02/13/18	1009.06	PS
W-834-C4	04/17/18	1010.33	
W-834-C4	07/25/18	1007.66	
W-834-C4	08/13/18	1007.45	PS
W-834-C4	10/16/18	1006.96	
W-834-C5	01/04/18	1001.72	
W-834-C5	02/13/18	1003.72	PS
W-834-C5	04/17/18	1004.24	
W-834-C5	07/25/18	1003.07	
W-834-C5	08/13/18	1002.80	PS
W-834-C5	10/16/18	1001.89	
W-834-D2	01/04/18	< 694.75	DRY

Table C-2. Building 834 Operable Unit ground water elevations.

W-834-D2	04/17/18	< 694.75	DRY
W-834-D2	07/25/18	< 692.05	DRY
W-834-D2	10/16/18	< 692.05	DRY
W-834-D3	01/04/18	991.61	
W-834-D3	02/14/18	990.83	PS
W-834-D3	04/17/18	991.05	
W-834-D3	07/25/18	990.57	
W-834-D3	08/15/18	990.22	PS
W-834-D3	10/16/18	989.55	
W-834-D4	01/04/18	990.22	
W-834-D4	04/17/18	987.26	
W-834-D4	07/25/18	987.06	
W-834-D4	10/16/18	983.41	
W-834-D5	01/04/18	989.54	
W-834-D5	04/17/18	986.47	
W-834-D5	07/25/18	987.28	
W-834-D5	10/16/18	985.67	
W-834-D6	01/04/18	988.40	
W-834-D6	04/17/18	984.53	
W-834-D6	07/25/18	984.54	
W-834-D6	10/16/18	984.44	
W-834-D7	01/04/18	986.12	
W-834-D7	04/17/18	981.38	
W-834-D7	07/25/18	981.72	
W-834-D7	10/16/18	981.44	
W-834-D10	01/04/18	983.78	
W-834-D10	04/17/18	983.29	
W-834-D10	07/25/18	982.73	
W-834-D10	10/16/18	< 982.73	DRY
W-834-D11	01/04/18	993.24	
W-834-D11	04/17/18	993.19	
W-834-D11	07/25/18	993.09	
W-834-D11	10/16/18	993.10	
W-834-D12	01/04/18	987.39	
W-834-D12	04/17/18	987.04	
W-834-D12	07/25/18	987.06	
W-834-D12	10/16/18	990.69	
W-834-D13	01/04/18	989.29	
W-834-D13	04/17/18	989.09	
W-834-D13	07/25/18	988.89	
W-834-D13	10/16/18	989.19	
W-834-D14	01/04/18	989.17	
W-834-D14	04/17/18	987.93	
W-834-D14	07/25/18	987.47	
W-834-D14	10/16/18	< 987.47	DRY
W-834-D15	01/04/18	< 992.81	DRY
W-834-D15	04/17/18	993.68	
W-834-D15	07/25/18	< 993.68	DRY
W-834-D15	10/16/18	< 993.68	DRY
W-834-D16	01/04/18	< 997.37	DRY

Table C-2. Building 834 Operable Unit ground water elevations.

W-834-D16	04/17/18	< 997.37	DRY
W-834-D16	07/25/18	< 997.37	DRY
W-834-D16	10/16/18	< 997.37	DRY
W-834-D17	01/04/18	< 983.76	DRY
W-834-D17	04/17/18	< 983.76	DRY
W-834-D17	07/25/18	< 983.76	DRY
W-834-D17	10/16/18	< 983.76	DRY
W-834-D18	01/04/18	992.46	
W-834-D18	02/14/18	992.22	PS
W-834-D18	04/17/18	991.68	
W-834-D18	07/25/18	991.63	
W-834-D18	08/15/18	991.61	PS
W-834-D18	10/16/18	991.41	
W-834-G3	01/04/18	< 1040.03	DRY
W-834-G3	04/17/18	< 1040.03	DRY
W-834-G3	07/25/18	< 1040.03	DRY
W-834-G3	10/16/18	< 1040.03	DRY
W-834-H2	01/04/18	993.05	
W-834-H2	04/17/18	992.31	
W-834-H2	07/25/18	992.35	
W-834-H2	08/15/18	992.30	PS
W-834-H2	10/16/18	992.08	
W-834-J1	01/04/18	989.93	
W-834-J1	04/17/18	989.83	
W-834-J1	07/25/18	990.15	
W-834-J1	10/16/18	989.03	
W-834-J2	01/04/18	988.64	
W-834-J2	02/21/18	987.89	PS
W-834-J2	04/17/18	986.05	
W-834-J2	07/25/18	987.39	
W-834-J2	08/15/18	987.39	PS
W-834-J2	10/16/18	985.59	
W-834-J3	01/04/18	965.13	
W-834-J3	04/17/18	964.23	
W-834-J3	07/25/18	< 964.23	DRY
W-834-J3	10/16/18	< 964.23	DRY
W-834-M1	01/04/18	963.79	
W-834-M1	02/21/18	963.76	PS
W-834-M1	04/17/18	963.71	
W-834-M1	07/25/18	963.76	
W-834-M1	08/15/18	963.76	PS
W-834-M1	10/16/18	963.61	
W-834-M2	01/24/18	< 957.59	DRY
W-834-M2	04/17/18	< 957.59	DRY
W-834-M2	07/26/18	< 957.59	DRY
W-834-M2	10/22/18	< 957.59	DRY
W-834-S1	01/04/18	971.07	
W-834-S1	04/17/18	968.60	
W-834-S1	07/25/18	967.22	
W-834-S1	10/22/18	969.77	

Table C-2. Building 834 Operable Unit ground water elevations.

W-834-S10	01/04/18	< 981.33	DRY
W-834-S10	04/17/18	< 982.33	DRY
W-834-S10	07/25/18	< 982.33	DRY
W-834-S10	10/16/18	< 982.33	DRY
W-834-S12A	01/04/18	953.05	
W-834-S12A	04/16/18	953.90	
W-834-S12A	07/25/18	953.97	
W-834-S12A	10/16/18	953.83	
W-834-S13	01/04/18	956.52	
W-834-S13	04/16/18	959.47	
W-834-S13	07/25/18	958.79	
W-834-S13	10/16/18	959.08	
W-834-S4	01/04/18	948.74	
W-834-S4	02/21/18	948.55	PS
W-834-S4	03/27/18	948.44	PS
W-834-S4	04/17/18	948.94	
W-834-S4	07/25/18	948.57	
W-834-S4	08/15/18	948.57	PS
W-834-S4	10/16/18	948.33	
W-834-S5	01/24/18	< 935.29	DRY
W-834-S5	04/17/18	< 935.29	DRY
W-834-S5	07/26/18	< 935.29	DRY
W-834-S5	10/22/18	< 935.29	DRY
W-834-S6	01/24/18	890.79	
W-834-S6	04/17/18	890.79	
W-834-S6	07/26/18	890.82	
W-834-S6	10/22/18	890.80	
W-834-S7	01/24/18	< 886.83	DRY
W-834-S7	04/17/18	< 886.83	DRY
W-834-S7	07/26/18	< 886.83	DRY
W-834-S7	10/22/18	< 886.83	DRY
W-834-S8	01/04/18	946.10	
W-834-S8	02/21/18	945.76	PS
W-834-S8	04/16/18	945.22	
W-834-S8	07/25/18	944.97	
W-834-S8	08/21/18	943.38	PS
W-834-S8	10/16/18	942.02	
W-834-S9	01/04/18	946.53	
W-834-S9	02/21/18	945.88	PS
W-834-S9	04/17/18	945.21	
W-834-S9	07/25/18	944.68	
W-834-S9	08/20/18	944.63	PS
W-834-S9	10/16/18	943.93	
W-834-T1	01/04/18	641.50	
W-834-T1	02/22/18	641.41	PS
W-834-T1	04/16/18	641.82	
W-834-T1	06/11/18	641.92	PS
W-834-T1	07/25/18	641.90	
W-834-T1	08/16/18	641.92	PS
W-834-T1	10/16/18	641.82	

Table C-2. Building 834 Operable Unit ground water elevations.

W-834-T1	12/10/18	641.74	PS
W-834-T11	01/04/18	< 895.04	DRY
W-834-T11	04/17/18	< 895.04	DRY
W-834-T11	07/25/18	< 895.04	DRY
W-834-T11	10/16/18	< 895.04	DRY
W-834-T2	01/04/18	924.86	
W-834-T2	02/27/18	925.04	PS
W-834-T2	04/16/18	924.98	
W-834-T2	07/25/18	924.76	
W-834-T2	08/16/18	924.44	PS
W-834-T2	10/16/18	924.36	
W-834-T2A	01/04/18	924.84	
W-834-T2A	02/27/18	924.94	PS
W-834-T2A	04/16/18	924.74	
W-834-T2A	07/25/18	924.70	
W-834-T2A	08/16/18	924.29	PS
W-834-T2A	10/16/18	924.20	
W-834-T2B	01/04/18	920.70	
W-834-T2B	02/26/18	920.80	PS
W-834-T2B	04/16/18	920.33	
W-834-T2B	07/25/18	921.60	
W-834-T2B	08/21/18	921.50	PS
W-834-T2B	10/16/18	920.30	
W-834-T2C	01/04/18	< 927.08	DRY
W-834-T2C	04/16/18	< 927.08	DRY
W-834-T2C	07/25/18	< 927.08	DRY
W-834-T2C	10/16/18	< 927.08	DRY
W-834-T2D	01/24/18	923.74	
W-834-T2D	03/21/18	923.89	PS
W-834-T2D	04/17/18	923.46	
W-834-T2D	07/26/18	923.68	
W-834-T2D	08/20/18	923.53	PS
W-834-T2D	10/22/18	923.33	
W-834-T3	01/04/18	610.64	
W-834-T3	02/27/18	610.70	PS
W-834-T3	04/17/18	610.89	
W-834-T3	06/11/18	610.59	PS
W-834-T3	07/25/18	611.39	
W-834-T3	08/16/18	611.34	PS
W-834-T3	10/16/18	611.09	
W-834-T3	12/10/18	611.01	PS
W-834-T5	01/04/18	854.27	
W-834-T5	02/27/18	854.37	PS
W-834-T5	04/17/18	854.24	
W-834-T5	07/26/18	854.25	
W-834-T5	08/21/18	854.13	PS
W-834-T5	10/17/18	854.02	
W-834-T7A	01/04/18	< 842.98	DRY
W-834-T7A	04/17/18	< 842.98	DRY
W-834-T7A	07/25/18	< 842.98	DRY

Table C-2. Building 834 Operable Unit ground water elevations.

W-834-T7A	10/16/18	< 842.98	DRY
W-834-T8A	01/24/18	< 886.10	DRY
W-834-T8A	04/17/18	< 886.10	DRY
W-834-T8A	07/26/18	< 886.10	DRY
W-834-T8A	10/22/18	< 886.10	DRY
W-834-T9	01/04/18	< 931.23	DRY
W-834-T9	04/16/18	< 931.23	DRY
W-834-T9	07/25/18	< 931.23	DRY
W-834-T9	10/16/18	< 931.23	DRY
W-834-U1	01/04/18	987.66	
W-834-U1	02/15/18	987.08	PS
W-834-U1	04/17/18	987.06	
W-834-U1	07/25/18	987.27	
W-834-U1	08/15/18	986.93	PS
W-834-U1	10/16/18	985.78	

Table C-3. Pit 6 Landfill Operable Unit ground water elevations.

BC6-10	01/04/18	658.42	PS
BC6-10	01/04/18	658.42	
BC6-10	04/12/18	658.55	
BC6-10	07/16/18	658.60	PS
BC6-10	07/31/18	658.65	
BC6-10	11/14/18	658.45	
BC6-13	01/04/18	< 659.12	DRY
BC6-13	04/12/18	< 659.12	DRY
BC6-13	07/31/18	< 659.12	DRY
BC6-13	11/14/18	< 659.12	DRY
CARNRW1	01/18/18	647.11	
CARNRW1	04/12/18	646.70	
CARNRW1	07/17/18	644.83	
CARNRW1	11/08/18	644.38	
CARNRW1	11/14/18	643.43	
CARNRW3	01/16/18	668.78	PS
CARNRW3	01/30/18	665.80	
CARNRW3	02/21/18	665.12	PS
CARNRW3	03/13/18	665.69	PS
CARNRW3	03/28/18	666.20	PS
CARNRW3	04/12/18	665.90	
CARNRW3	04/26/18	665.82	PS
CARNRW3	05/09/18	666.07	PS
CARNRW3	06/13/18	666.06	PS
CARNRW3	07/17/18	665.40	PS
CARNRW3	07/17/18	665.40	
CARNRW3	08/20/18	664.87	PS
CARNRW3	09/06/18	664.77	PS
CARNRW3	10/17/18	665.44	PS
CARNRW3	11/08/18	665.40	
CARNRW3	11/08/18	665.40	PS
CARNRW3	11/14/18	665.12	
CARNRW3	12/12/18	666.00	PS
CARNRW4	01/16/18	637.04	PS
CARNRW4	01/30/18	637.26	
CARNRW4	02/21/18	636.68	PS
CARNRW4	03/13/18	637.75	PS
CARNRW4	03/28/18	637.65	PS
CARNRW4	04/12/18	638.12	
CARNRW4	04/26/18	638.18	PS
CARNRW4	05/09/18	637.75	PS
CARNRW4	06/13/18	637.05	PS
CARNRW4	07/17/18	636.60	
CARNRW4	07/17/18	636.60	PS
CARNRW4	08/20/18	636.57	PS
CARNRW4	09/06/18	636.42	PS
CARNRW4	10/17/18	637.08	PS
CARNRW4	11/08/18	636.21	PS
CARNRW4	11/08/18	636.19	
CARNRW4	11/14/18	636.15	
CARNRW4	12/12/18	636.35	PS
EP6-06	01/04/18	662.36	
EP6-06	01/11/18	662.35	PS

Table C-3. Pit 6 Landfill Operable Unit ground water elevations.

EP6-06	04/12/18	662.31	
EP6-06	07/31/18	662.16	PS
EP6-06	07/31/18	662.16	
EP6-06	11/14/18	662.51	
EP6-07	01/03/18	653.76	PS
EP6-07	01/04/18	653.76	
EP6-07	03/15/18	654.28	PS
EP6-07	04/04/18	654.65	PS
EP6-07	04/12/18	654.55	
EP6-07	07/16/18	653.25	PS
EP6-07	07/31/18	653.27	
EP6-07	11/14/18	652.77	
EP6-08	01/03/18	653.60	PS
EP6-08	01/04/18	653.60	
EP6-08	02/12/18	654.38	PS
EP6-08	03/15/18	654.36	PS
EP6-08	04/04/18	654.56	PS
EP6-08	04/12/18	654.54	
EP6-08	07/16/18	653.17	PS
EP6-08	07/31/18	653.23	PS
EP6-08	07/31/18	653.23	
EP6-08	11/14/18	652.81	
EP6-09	01/04/18	665.07	PS
EP6-09	01/04/18	665.07	
EP6-09	03/15/18	664.78	PS
EP6-09	04/04/18	664.66	PS
EP6-09	04/12/18	664.63	
EP6-09	07/12/18	664.56	PS
EP6-09	07/31/18	664.43	
EP6-09	07/31/18	664.40	PS
EP6-09	11/14/18	664.68	
K6-01	01/04/18	665.25	PS
K6-01	01/04/18	665.25	
K6-01	03/15/18	664.60	PS
K6-01	04/04/18	664.74	PS
K6-01	04/12/18	664.64	
K6-01	07/12/18	664.52	PS
K6-01	07/17/18	664.46	PS
K6-01	07/31/18	664.42	
K6-01	11/14/18	664.18	
K6-01S	01/04/18	664.89	PS
K6-01S	01/04/18	664.89	
K6-01S	04/12/18	664.60	
K6-01S	07/31/18	664.39	
K6-01S	07/31/18	664.39	PS
K6-01S	11/14/18	664.12	
K6-03	01/03/18	653.90	PS
K6-03	01/04/18	653.90	
K6-03	04/12/18	654.82	
K6-03	07/11/18	653.41	PS
K6-03	07/31/18	653.40	
K6-03	11/14/18	653.05	
K6-04	01/03/18	652.59	PS

Table C-3. Pit 6 Landfill Operable Unit ground water elevations.

K6-04	01/04/18	652.59	
K6-04	04/12/18	655.32	
K6-04	07/11/18	654.12	PS
K6-04	07/31/18	654.06	
K6-04	11/14/18	653.67	
K6-14	01/04/18	659.19	PS
K6-14	01/04/18	659.19	
K6-14	04/12/18	661.80	
K6-14	07/12/18	659.79	PS
K6-14	07/31/18	659.54	
K6-14	11/14/18	658.57	
K6-15	01/04/18	< 664.79	DRY
K6-15	04/12/18	< 664.79	DRY
K6-15	07/31/18	< 664.79	DRY
K6-15	11/14/18	< 664.79	DRY
K6-16	01/04/18	660.90	
K6-16	01/10/18	660.87	PS
K6-16	04/12/18	662.05	
K6-16	07/12/18	661.27	PS
K6-16	07/31/18	660.55	
K6-16	11/14/18	660.80	
K6-17	01/04/18	657.61	
K6-17	01/11/18	657.63	PS
K6-17	04/03/18	660.55	PS
K6-17	04/12/18	660.91	
K6-17	07/31/18	658.76	
K6-17	08/01/18	658.76	PS
K6-17	08/06/18	658.75	PS
K6-17	10/01/18	657.53	PS
K6-17	11/14/18	657.07	
K6-18	01/04/18	659.54	
K6-18	01/08/18	659.52	PS
K6-18	04/12/18	659.99	
K6-18	07/17/18	659.49	PS
K6-18	07/31/18	659.54	
K6-18	11/14/18	659.44	
K6-19	01/03/18	664.10	PS
K6-19	01/04/18	661.47	
K6-19	03/15/18	664.03	PS
K6-19	04/04/18	663.97	PS
K6-19	04/12/18	663.92	
K6-19	07/31/18	663.79	
K6-19	08/01/18	663.79	PS
K6-19	10/01/18	663.79	PS
K6-19	11/14/18	663.67	
K6-21	01/04/18	664.82	
K6-21	04/12/18	< 664.82	DRY
K6-21	07/31/18	< 664.82	DRY
K6-21	11/14/18	< 664.82	DRY
K6-22	01/04/18	649.38	
K6-22	04/12/18	649.33	
K6-22	07/31/18	649.33	
K6-22	11/14/18	648.93	

Table C-3. Pit 6 Landfill Operable Unit ground water elevations.

K6-23	01/04/18	656.68	
K6-23	01/11/18	656.69	PS
K6-23	04/12/18	657.46	
K6-23	07/31/18	657.38	
K6-23	08/01/18	657.38	PS
K6-23	11/14/18	656.42	
K6-24	01/04/18	652.94	
K6-24	01/08/18	652.85	PS
K6-24	04/12/18	654.06	
K6-24	07/31/18	652.68	
K6-24	11/14/18	652.18	
K6-25	01/04/18	660.52	PS
K6-25	01/04/18	660.52	
K6-25	04/12/18	661.38	
K6-25	07/12/18	660.80	PS
K6-25	07/31/18	660.71	
K6-25	11/14/18	660.50	
K6-26	01/04/18	653.91	
K6-26	01/08/18	653.88	PS
K6-26	04/12/18	655.01	
K6-26	07/17/18	653.67	PS
K6-26	07/31/18	653.80	
K6-26	11/14/18	653.16	
K6-27	01/04/18	652.74	
K6-27	01/08/18	652.94	PS
K6-27	04/12/18	653.67	
K6-27	07/17/18	652.29	PS
K6-27	07/31/18	652.49	
K6-27	11/14/18	651.74	
K6-32	01/04/18	654.64	
K6-32	04/12/18	655.43	
K6-32	07/31/18	654.22	
K6-32	11/14/18	653.69	
K6-33	01/03/18	647.03	PS
K6-33	01/04/18	647.74	
K6-33	04/12/18	648.61	
K6-33	07/11/18	645.93	PS
K6-33	07/31/18	648.81	
K6-33	11/14/18	646.32	
K6-34	01/03/18	646.66	PS
K6-34	01/29/18	649.45	
K6-34	04/03/18	648.58	PS
K6-34	04/12/18	649.08	
K6-34	07/11/18	645.78	PS
K6-34	07/31/18	648.56	
K6-34	10/01/18	646.16	PS
K6-34	11/14/18	645.03	
K6-35	01/04/18	653.63	
K6-35	01/04/18	653.82	PS
K6-35	03/15/18	654.43	PS
K6-35	04/04/18	654.72	PS
K6-35	04/12/18	654.76	
K6-35	07/16/18	653.39	PS

Table C-3. Pit 6 Landfill Operable Unit ground water elevations.

K6-35	07/31/18	653.55	
K6-35	11/14/18	652.86	
K6-36	01/04/18	653.68	
K6-36	04/12/18	653.78	
K6-36	07/31/18	653.51	
K6-36	11/14/18	652.88	
W-33C-01	01/10/18	635.30	PS
W-33C-01	01/30/18	633.91	
W-33C-01	04/12/18	636.25	
W-33C-01	07/17/18	630.83	PS
W-33C-01	07/31/18	630.26	
W-33C-01	11/08/18	628.86	
W-33C-01	11/14/18	628.87	
W-34-01	01/29/18	672.22	
W-34-01	04/12/18	672.28	
W-34-01	07/31/18	672.26	
W-34-01	11/14/18	672.06	
W-34-02	01/29/18	648.39	
W-34-02	04/12/18	648.86	
W-34-02	07/31/18	648.68	
W-34-02	11/14/18	648.61	
W-PIT6-1819	01/03/18	645.30	PS
W-PIT6-1819	01/29/18	648.00	
W-PIT6-1819	04/03/18	647.65	PS
W-PIT6-1819	04/12/18	647.70	
W-PIT6-1819	07/11/18	645.56	PS
W-PIT6-1819	07/31/18	647.19	
W-PIT6-1819	10/01/18	646.14	PS
W-PIT6-1819	11/14/18	644.19	

Table C-4. High Explosives Process Area Operable Unit ground water elevations.

GALLO1	04/25/18	538.51	PS
W-35B-01	01/18/18	504.14	
W-35B-01	03/19/18	503.90	PS
W-35B-01	04/18/18	504.20	
W-35B-01	06/18/18	503.84	PS
W-35B-01	07/24/18	503.87	
W-35B-01	09/24/18	503.69	PS
W-35B-01	11/06/18	503.72	
W-35B-01	12/20/18	503.77	PS
W-35B-02	01/18/18	504.21	
W-35B-02	02/26/18	504.03	PS
W-35B-02	04/18/18	504.21	
W-35B-02	06/18/18	504.03	PS
W-35B-02	07/24/18	503.86	
W-35B-02	09/19/18	503.70	PS
W-35B-02	11/06/18	503.73	
W-35B-02	12/10/18	503.93	PS
W-35B-03	01/18/18	506.38	
W-35B-03	02/26/18	506.32	PS
W-35B-03	04/18/18	506.33	
W-35B-03	06/18/18	506.00	PS
W-35B-03	07/24/18	506.00	
W-35B-03	09/19/18	505.90	PS
W-35B-03	11/06/18	506.15	
W-35B-03	12/10/18	506.18	PS
W-35B-04	01/18/18	528.46	
W-35B-04	02/26/18	528.56	PS
W-35B-04	04/18/18	526.16	
W-35B-04	06/18/18	525.81	PS
W-35B-04	07/24/18	525.36	
W-35B-04	09/19/18	525.43	PS
W-35B-04	11/06/18	NM	No well access for sampling or measurement
W-35B-05	01/18/18	528.17	
W-35B-05	02/26/18	528.33	PS
W-35B-05	04/18/18	526.49	
W-35B-05	06/18/18	525.93	PS
W-35B-05	07/24/18	525.74	
W-35B-05	09/19/18	524.73	PS
W-35B-05	11/06/18	NM	No well access for sampling or measurement
W-35C-01	01/30/18	539.84	
W-35C-01	03/07/18	539.82	PS
W-35C-01	03/19/18	539.91	PS
W-35C-01	04/30/18	540.29	
W-35C-01	08/08/18	538.51	
W-35C-01	09/13/18	537.71	PS
W-35C-01	09/19/18	538.51	PS
W-35C-01	11/07/18	539.21	
W-35C-02	01/30/18	569.27	
W-35C-02	04/30/18	568.45	
W-35C-02	07/23/18	529.40	

Table C-4. High Explosives Process Area Operable Unit ground water elevations.

W-35C-02	09/24/18	562.10	PS
W-35C-02	11/07/18	527.80	
W-35C-04	01/08/18	531.49	
W-35C-04	05/02/18	440.51	
W-35C-04	08/08/18	440.58	
W-35C-04	10/30/18	NM	No well access for sampling or measurement
W-35C-05	01/08/18	509.83	
W-35C-05	02/20/18	508.83	PS
W-35C-05	05/02/18	507.15	
W-35C-05	08/08/18	506.33	
W-35C-05	09/18/18	506.03	PS
W-35C-05	10/30/18	505.45	
W-35C-06	01/08/18	506.07	
W-35C-06	02/26/18	505.52	PS
W-35C-06	05/02/18	505.25	
W-35C-06	08/08/18	< 504.88	DRY
W-35C-06	10/30/18	< 504.88	DRY
W-35C-07	01/08/18	535.59	ARTESIAN
W-35C-07	05/02/18	531.02	
W-35C-07	08/08/18	531.05	
W-35C-07	09/19/18	530.97	PS
W-35C-07	10/30/18	530.80	
W-35C-08	01/08/18	507.36	
W-35C-08	02/20/18	506.79	PS
W-35C-08	05/02/18	506.39	
W-35C-08	08/08/18	505.94	
W-35C-08	09/18/18	505.65	PS
W-35C-08	10/30/18	505.34	
W-4A	01/10/18	530.18	
W-4A	03/19/18	530.77	PS
W-4A	05/02/18	527.50	
W-4A	08/09/18	528.83	
W-4A	09/19/18	528.44	PS
W-4A	10/30/18	530.67	
W-4AS	01/10/18	525.95	
W-4AS	03/13/18	526.05	PS
W-4AS	05/02/18	524.85	
W-4AS	08/09/18	525.20	
W-4AS	09/18/18	524.95	PS
W-4AS	10/30/18	527.10	
W-4B	01/17/18	531.38	ARTESIAN
W-4B	04/19/18	528.95	PS
W-4B	05/02/18	527.30	
W-4B	08/08/18	527.08	
W-4B	09/13/18	528.58	PS
W-4B	09/18/18	528.50	PS
W-4B	11/01/18	526.32	
W-4C	01/17/18	> 534.61	HIGH-ARTESIAN
W-4C	05/02/18	> 535.27	HIGH-ARTESIAN
W-4C	08/08/18	530.72	ARTESIAN

Table C-4. High Explosives Process Area Operable Unit ground water elevations.

W-4C	09/13/18	534.09	PS
W-4C	09/18/18	534.26	PS
W-4C	11/01/18	530.63	ARTESIAN
W-4C	12/11/18	534.43	PS
W-6BD	01/10/18	508.87	
W-6BD	02/20/18	508.57	PS
W-6BD	05/02/18	508.07	
W-6BD	08/08/18	507.87	
W-6BD	09/24/18	506.97	PS
W-6BD	10/30/18	507.48	
W-6BS	01/10/18	508.85	
W-6BS	02/20/18	508.63	PS
W-6BS	03/28/18	508.58	PS
W-6BS	05/02/18	508.09	
W-6BS	08/08/18	507.90	
W-6BS	09/18/18	507.33	PS
W-6BS	10/30/18	507.33	
W-6CD	01/29/18	548.90	
W-6CD	03/06/18	548.93	PS
W-6CD	04/30/18	546.40	
W-6CD	07/23/18	548.04	
W-6CD	09/24/18	548.46	PS
W-6CD	11/07/18	549.54	
W-6CI	01/29/18	549.11	
W-6CI	03/05/18	548.93	PS
W-6CI	04/30/18	540.71	
W-6CI	07/23/18	546.96	
W-6CI	09/24/18	547.90	PS
W-6CI	11/07/18	549.41	
W-6CS	01/29/18	553.99	
W-6CS	02/26/18	552.78	PS
W-6CS	04/30/18	552.28	
W-6CS	07/23/18	549.63	
W-6CS	09/18/18	549.33	PS
W-6CS	11/07/18	548.95	
W-6EI	01/17/18	534.11	ARTESIAN
W-6EI	05/02/18	528.87	
W-6EI	08/08/18	531.27	
W-6EI	10/30/18	NM	No well access for sampling or measurement
W-6ER	01/17/18	487.22	
W-6ER	05/02/18	462.08	
W-6ER	08/08/18	461.82	
W-6ER	10/30/18	NM	No well access for sampling or measurement
W-6ES	01/10/18	505.70	
W-6ES	02/26/18	505.57	PS
W-6ES	05/02/18	504.92	
W-6ES	08/08/18	504.39	
W-6ES	09/19/18	504.23	PS
W-6ES	10/30/18	503.81	
W-6G	01/29/18	558.27	

Table C-4. High Explosives Process Area Operable Unit ground water elevations.

W-6G	02/26/18	558.25	PS
W-6G	04/30/18	556.70	
W-6G	07/23/18	557.42	
W-6G	09/18/18	557.39	PS
W-6G	11/07/18	557.92	
W-6H	01/30/18	552.74	
W-6H	03/07/18	552.39	PS
W-6H	03/19/18	552.95	PS
W-6H	04/30/18	539.14	
W-6H	06/06/18	550.44	PS
W-6H	08/08/18	550.48	
W-6H	09/13/18	550.64	PS
W-6H	11/07/18	552.46	
W-6H	12/11/18	549.76	PS
W-6I	01/30/18	532.97	
W-6I	03/07/18	533.36	PS
W-6I	04/30/18	533.29	
W-6I	08/08/18	530.77	
W-6I	09/13/18	530.29	PS
W-6I	09/19/18	530.34	PS
W-6I	11/07/18	530.39	
W-6J	01/30/18	552.11	
W-6J	03/07/18	552.60	PS
W-6J	04/30/18	539.13	
W-6J	08/08/18	549.84	
W-6J	09/13/18	549.90	PS
W-6J	11/07/18	552.06	
W-6K	01/08/18	537.91	ARTESIAN
W-6K	05/02/18	531.02	
W-6K	05/21/18	534.02	ARTESIAN
W-6K	08/08/18	533.94	ARTESIAN
W-6K	09/17/18	533.25	PS
W-6K	10/30/18	534.34	ARTESIAN
W-6L	01/08/18	538.61	ARTESIAN
W-6L	05/02/18	531.75	
W-6L	08/08/18	534.48	ARTESIAN
W-6L	09/17/18	533.17	PS
W-6L	10/30/18	534.87	ARTESIAN
W-806-06A	02/01/18	696.75	
W-806-06A	05/07/18	695.91	
W-806-06A	08/07/18	695.36	
W-806-06A	11/20/18	695.28	
W-806-07	02/01/18	< 762.14	DRY
W-806-07	05/07/18	< 762.14	DRY
W-806-07	08/07/18	< 762.14	DRY
W-806-07	11/20/18	< 762.14	DRY
W-808-01	02/01/18	853.63	
W-808-01	03/14/18	853.51	PS
W-808-01	03/20/18	853.50	PS
W-808-01	05/07/18	853.21	

Table C-4. High Explosives Process Area Operable Unit ground water elevations.

W-808-01	08/07/18	852.81	
W-808-01	09/06/18	852.60	PS
W-808-01	11/20/18	851.84	
W-808-02	02/01/18	< 816.24	DRY
W-808-02	03/27/18	813.46	PS
W-808-02	05/07/18	813.70	
W-808-02	08/07/18	813.99	
W-808-02	09/06/18	814.00	PS
W-808-02	11/20/18	814.22	
W-808-03	02/01/18	605.21	
W-808-03	03/14/18	605.46	PS
W-808-03	03/20/18	610.43	PS
W-808-03	05/07/18	605.52	
W-808-03	08/07/18	605.15	
W-808-03	09/06/18	604.98	PS
W-808-03	11/20/18	605.02	
W-809-01	02/01/18	722.21	
W-809-01	03/14/18	722.11	PS
W-809-01	03/20/18	722.09	PS
W-809-01	04/19/18	722.05	PS
W-809-01	05/07/18	722.11	
W-809-01	08/07/18	721.96	
W-809-01	09/06/18	721.91	PS
W-809-01	11/20/18	721.83	
W-809-02	02/01/18	649.22	
W-809-02	03/14/18	649.31	PS
W-809-02	03/20/18	649.28	PS
W-809-02	04/19/18	649.20	PS
W-809-02	05/07/18	649.23	
W-809-02	08/07/18	649.23	
W-809-02	09/06/18	649.29	PS
W-809-02	11/20/18	649.58	
W-809-03	02/01/18	645.91	
W-809-03	03/15/18	646.29	PS
W-809-03	04/19/18	647.30	PS
W-809-03	05/07/18	647.32	
W-809-03	08/07/18	647.02	
W-809-03	09/10/18	646.44	PS
W-809-03	11/20/18	645.93	
W-809-04	02/01/18	< 697.14	DRY
W-809-04	05/07/18	< 697.14	DRY
W-809-04	08/07/18	< 697.14	DRY
W-809-04	11/20/18	< 697.14	DRY
W-810-01	02/01/18	600.14	
W-810-01	03/14/18	600.52	PS
W-810-01	03/20/18	600.54	PS
W-810-01	04/19/18	600.49	PS
W-810-01	05/07/18	600.73	
W-810-01	08/07/18	598.68	
W-810-01	09/06/18	598.17	PS

Table C-4. High Explosives Process Area Operable Unit ground water elevations.

W-810-01	11/20/18	598.63	
W-814-01	01/25/18	699.01	
W-814-01	02/20/18	698.92	PS
W-814-01	04/26/18	699.10	
W-814-01	08/06/18	698.58	
W-814-01	09/17/18	698.43	PS
W-814-01	10/29/18	698.33	
W-814-02	01/25/18	636.30	
W-814-02	03/12/18	636.55	PS
W-814-02	04/26/18	636.65	
W-814-02	08/06/18	636.38	
W-814-02	09/12/18	635.46	PS
W-814-02	10/29/18	636.18	
W-814-03	01/25/18	< 722.17	DRY
W-814-03	04/26/18	< 722.17	DRY
W-814-03	08/06/18	< 722.17	DRY
W-814-03	10/29/18	< 722.17	DRY
W-814-04	01/25/18	580.41	
W-814-04	03/06/18	580.02	PS
W-814-04	04/26/18	580.08	
W-814-04	06/07/18	578.04	PS
W-814-04	08/06/18	576.52	
W-814-04	09/12/18	577.07	PS
W-814-04	09/19/18	576.97	PS
W-814-04	10/29/18	576.77	
W-814-04	12/05/18	576.54	PS
W-814-2134	01/25/18	731.27	
W-814-2134	04/26/18	720.19	
W-814-2134	08/06/18	715.15	
W-814-2134	08/15/18	723.89	
W-814-2134	10/29/18	730.41	
W-814-2138	01/25/18	699.15	
W-814-2138	03/12/18	698.94	PS
W-814-2138	04/26/18	699.23	
W-814-2138	08/06/18	698.34	
W-814-2138	09/17/18	698.11	PS
W-814-2138	10/29/18	698.41	
W-815-01	02/01/18	< 673.57	DRY
W-815-01	05/07/18	< 673.57	DRY
W-815-01	08/07/18	< 673.57	DRY
W-815-01	11/20/18	< 673.57	DRY
W-815-02	02/01/18	611.17	
W-815-02	05/07/18	611.17	
W-815-02	08/07/18	611.14	
W-815-02	11/20/18	611.14	
W-815-03	02/01/18	< 674.65	DRY
W-815-03	05/07/18	< 674.65	DRY
W-815-03	08/07/18	< 674.65	DRY
W-815-03	11/20/18	< 674.65	DRY
W-815-04	02/01/18	626.75	

Table C-4. High Explosives Process Area Operable Unit ground water elevations.

W-815-04	05/07/18	626.74	
W-815-04	08/07/18	626.77	
W-815-04	11/20/18	626.83	
W-815-05	02/01/18	684.18	
W-815-05	04/19/18	681.43	PS
W-815-05	05/07/18	680.53	
W-815-05	08/07/18	675.31	
W-815-05	11/20/18	676.03	
W-815-06	01/25/18	626.92	
W-815-06	04/26/18	627.00	
W-815-06	08/06/18	626.81	
W-815-06	09/12/18	626.51	PS
W-815-06	10/29/18	626.24	
W-815-07	01/25/18	625.26	
W-815-07	03/12/18	625.32	PS
W-815-07	04/26/18	625.49	
W-815-07	08/06/18	625.29	
W-815-07	09/12/18	624.99	PS
W-815-07	10/29/18	624.79	
W-815-08	02/01/18	595.58	
W-815-08	03/15/18	595.89	PS
W-815-08	04/19/18	596.09	PS
W-815-08	05/07/18	596.27	
W-815-08	08/07/18	593.01	
W-815-08	11/20/18	592.84	
W-815-1918	02/01/18	672.19	
W-815-1918	05/07/18	672.60	
W-815-1918	08/07/18	669.63	
W-815-1918	11/20/18	672.71	
W-815-1928	02/01/18	717.31	
W-815-1928	05/07/18	< 717.31	DRY
W-815-1928	08/07/18	< 717.31	DRY
W-815-1928	11/20/18	< 717.31	DRY
W-815-2110	01/30/18	NM	No well access for sampling or measurement
W-815-2110	04/30/18	522.99	
W-815-2110	06/06/18	542.93	PS
W-815-2110	08/08/18	543.19	
W-815-2110	09/13/18	543.21	PS
W-815-2110	11/07/18	NM	No well access for sampling or measurement
W-815-2110	12/11/18	545.04	PS
W-815-2111	01/30/18	NM	No well access for sampling or measurement
W-815-2111	04/30/18	523.13	
W-815-2111	06/06/18	541.56	PS
W-815-2111	08/08/18	541.96	
W-815-2111	09/13/18	541.79	PS
W-815-2111	11/07/18	NM	No access to well location
W-815-2111	12/11/18	544.17	PS
W-815-2217	01/29/18	549.12	
W-815-2217	02/26/18	549.22	PS
W-815-2217	04/30/18	546.52	

Table C-4. High Explosives Process Area Operable Unit ground water elevations.

W-815-2217	07/23/18	548.30	
W-815-2217	09/18/18	548.42	PS
W-815-2217	11/07/18	549.57	
W-815-2608	01/30/18	NM	No well access for sampling or measurement
W-815-2608	04/30/18	513.36	
W-815-2608	08/08/18	517.60	
W-815-2608	11/07/18	NM	No well access for sampling or measurement
W-815-2621	01/08/18	538.37	ARTESIAN
W-815-2621	05/02/18	531.25	
W-815-2621	08/08/18	532.33	
W-815-2621	09/12/18	532.35	PS
W-815-2621	10/30/18	531.85	
W-815-3024	02/01/18	680.64	
W-815-3024	05/07/18	680.72	
W-815-3024	08/07/18	680.79	
W-815-3024	11/20/18	680.75	
W-817-01	02/01/18	632.40	
W-817-01	05/07/18	635.09	
W-817-01	08/22/18	636.25	
W-817-01	11/20/18	635.85	
W-817-02	02/01/18	NM	No access to well location
W-817-02	05/07/18	NM	No well access for sampling or measurement
W-817-02	08/13/18	NM	No access to well location
W-817-02	11/20/18	NM	No access to well location
W-817-03	02/01/18	569.40	
W-817-03	05/07/18	569.43	
W-817-03	08/07/18	568.30	
W-817-03	11/20/18	568.10	
W-817-03A	02/01/18	666.46	
W-817-03A	03/19/18	666.47	PS
W-817-03A	05/07/18	666.18	
W-817-03A	08/07/18	666.11	
W-817-03A	09/11/18	666.00	PS
W-817-03A	11/20/18	665.87	
W-817-04	02/01/18	607.96	
W-817-04	03/19/18	607.92	PS
W-817-04	05/07/18	607.74	
W-817-04	08/07/18	607.66	
W-817-04	09/11/18	607.58	PS
W-817-04	11/20/18	607.43	
W-817-05	02/01/18	634.23	
W-817-05	03/21/18	634.56	PS
W-817-05	05/07/18	634.33	
W-817-05	08/22/18	634.43	
W-817-05	09/10/18	634.51	PS
W-817-05	11/20/18	634.39	
W-817-06A	02/01/18	656.04	
W-817-06A	05/07/18	655.77	
W-817-06A	08/22/18	655.77	
W-817-06A	11/20/18	655.77	

Table C-4. High Explosives Process Area Operable Unit ground water elevations.

W-817-07	02/01/18	569.59	
W-817-07	05/07/18	569.61	
W-817-07	08/07/18	569.65	
W-817-07	11/20/18	569.75	
W-817-2109	02/01/18	NM	No well access for sampling or measurement
W-817-2109	05/07/18	NM	No well access for sampling or measurement
W-817-2109	08/13/18	NM	No access to well location
W-817-2109	11/20/18	NM	No access to well location
W-817-2318	02/01/18	666.48	
W-817-2318	05/07/18	665.58	
W-817-2318	08/07/18	665.19	
W-817-2318	11/20/18	666.16	
W-817-2609	02/01/18	568.90	
W-817-2609	03/19/18	568.87	PS
W-817-2609	05/07/18	568.98	
W-817-2609	08/07/18	568.13	
W-817-2609	09/10/18	567.66	PS
W-817-2609	11/20/18	567.51	
W-817-3023	02/01/18	642.10	
W-817-3023	03/21/18	642.24	PS
W-817-3023	05/07/18	642.16	
W-817-3023	08/22/18	642.31	
W-817-3023	09/11/18	642.24	PS
W-817-3023	11/20/18	642.24	
W-817-3025	02/01/18	572.71	
W-817-3025	03/19/18	572.84	PS
W-817-3025	05/07/18	572.59	
W-817-3025	08/07/18	571.26	
W-817-3025	09/11/18	570.83	PS
W-817-3025	11/20/18	570.89	
W-817-3026	02/01/18	570.43	
W-817-3026	03/19/18	570.55	PS
W-817-3026	05/07/18	570.35	
W-817-3026	08/07/18	569.35	
W-817-3026	09/11/18	568.91	PS
W-817-3026	11/20/18	568.91	
W-818-01	01/25/18	585.38	
W-818-01	03/12/18	585.46	PS
W-818-01	04/26/18	585.39	
W-818-01	08/06/18	585.33	
W-818-01	09/12/18	585.57	PS
W-818-01	09/19/18	585.64	PS
W-818-01	10/29/18	585.37	
W-818-03	01/11/18	542.71	
W-818-03	04/26/18	542.23	
W-818-03	08/06/18	542.13	
W-818-03	09/12/18	542.19	PS
W-818-03	09/19/18	542.09	PS
W-818-03	10/29/18	542.02	
W-818-04	01/11/18	547.59	

Table C-4. High Explosives Process Area Operable Unit ground water elevations.

W-818-04	03/19/18	548.46	PS
W-818-04	04/26/18	547.43	
W-818-04	08/06/18	547.66	
W-818-04	09/17/18	547.55	PS
W-818-04	10/29/18	547.73	
W-818-06	01/11/18	544.06	
W-818-06	03/19/18	544.90	PS
W-818-06	04/26/18	541.62	
W-818-06	08/06/18	543.02	
W-818-06	09/17/18	542.68	PS
W-818-06	10/29/18	544.32	
W-818-07	01/11/18	544.21	
W-818-07	03/19/18	544.98	PS
W-818-07	04/26/18	542.06	
W-818-07	08/06/18	543.18	
W-818-07	09/17/18	542.89	PS
W-818-07	10/29/18	544.51	
W-818-08	01/25/18	532.88	
W-818-08	04/26/18	532.73	
W-818-08	08/06/18	532.63	
W-818-08	10/29/18	532.53	
W-818-09	01/25/18	522.62	
W-818-09	04/26/18	522.70	
W-818-09	08/06/18	522.52	
W-818-09	10/29/18	522.59	
W-818-11	01/25/18	600.23	
W-818-11	03/12/18	600.20	PS
W-818-11	04/26/18	600.34	
W-818-11	08/06/18	600.15	
W-818-11	09/17/18	600.13	PS
W-818-11	10/29/18	599.79	
W-819-02	01/25/18	591.17	
W-819-02	03/06/18	591.09	PS
W-819-02	04/26/18	591.82	
W-819-02	08/06/18	587.57	
W-819-02	09/12/18	586.96	PS
W-819-02	09/19/18	586.94	PS
W-819-02	10/29/18	587.67	
W-823-01	01/30/18	572.17	
W-823-01	03/07/18	572.36	PS
W-823-01	03/19/18	572.37	PS
W-823-01	04/30/18	571.72	
W-823-01	08/08/18	568.92	
W-823-01	09/13/18	568.65	PS
W-823-01	09/19/18	568.75	PS
W-823-01	11/07/18	569.10	
W-823-02	01/30/18	572.14	
W-823-02	03/07/18	572.38	PS
W-823-02	04/30/18	571.58	
W-823-02	08/08/18	568.81	

Table C-4. High Explosives Process Area Operable Unit ground water elevations.

W-823-02	09/13/18	568.65	PS
W-823-02	11/07/18	568.88	
W-823-03	01/30/18	571.92	
W-823-03	04/30/18	571.92	
W-823-03	08/08/18	569.99	
W-823-03	11/07/18	569.72	
W-823-13	01/30/18	572.94	
W-823-13	03/07/18	572.94	PS
W-823-13	03/19/18	573.00	PS
W-823-13	04/30/18	573.04	
W-823-13	08/08/18	571.46	
W-823-13	09/13/18	571.34	PS
W-823-13	09/19/18	571.34	PS
W-823-13	11/07/18	571.24	
W-827-01	01/22/18	< 861.72	DRY
W-827-01	05/01/18	< 861.72	DRY
W-827-01	08/06/18	< 861.72	DRY
W-827-01	10/11/18	< 861.72	DRY
W-827-02	01/22/18	860.61	
W-827-02	05/01/18	861.51	
W-827-02	08/06/18	863.00	
W-827-02	10/11/18	862.37	
W-827-03	01/22/18	725.36	
W-827-03	05/01/18	725.90	
W-827-03	08/06/18	725.82	
W-827-03	10/11/18	725.65	
W-827-04	01/22/18	725.00	
W-827-04	05/01/18	724.92	
W-827-04	08/06/18	< 724.73	DRY
W-827-04	10/11/18	< 724.73	DRY
W-827-05	01/22/18	652.67	
W-827-05	03/14/18	652.67	PS
W-827-05	05/01/18	654.40	
W-827-05	08/06/18	650.38	
W-827-05	10/11/18	652.63	
W-829-06	01/22/18	972.42	
W-829-06	05/01/18	972.01	
W-829-06	08/06/18	971.91	
W-829-06	10/11/18	971.71	
W-829-08	01/22/18	973.75	
W-829-08	03/14/18	974.04	PS
W-829-08	05/01/18	974.05	
W-829-08	08/06/18	973.68	
W-829-08	09/12/18	973.69	PS
W-829-08	10/11/18	973.70	
W-829-15	01/22/18	696.09	
W-829-15	04/05/18	695.90	PS
W-829-15	05/01/18	696.30	
W-829-15	05/21/18	695.83	PS
W-829-15	05/29/18	695.80	PS

Table C-4. High Explosives Process Area Operable Unit ground water elevations.

W-829-15	08/06/18	694.08	
W-829-15	10/08/18	695.43	PS
W-829-15	10/11/18	695.43	
W-829-1938	01/22/18	705.96	
W-829-1938	04/05/18	705.94	PS
W-829-1938	04/09/18	705.94	PS
W-829-1938	04/10/18	705.92	PS
W-829-1938	04/11/18	705.90	PS
W-829-1938	05/01/18	706.32	
W-829-1938	08/06/18	704.07	
W-829-1938	10/10/18	703.92	PS
W-829-1938	10/11/18	703.85	
W-829-1940	01/22/18	975.05	
W-829-1940	03/14/18	975.03	PS
W-829-1940	05/01/18	975.07	
W-829-1940	08/06/18	974.92	
W-829-1940	09/12/18	974.93	PS
W-829-1940	10/11/18	974.88	
W-829-22	01/22/18	655.37	
W-829-22	04/09/18	655.26	PS
W-829-22	05/01/18	655.95	
W-829-22	05/22/18	655.77	PS
W-829-22	05/29/18	655.77	PS
W-829-22	08/06/18	655.57	
W-829-22	10/09/18	655.34	PS
W-829-22	10/11/18	655.64	
WELL18	04/25/18	531.41	PS
WELL20	01/29/18	570.39	
WELL20	04/25/18	573.71	PS
WELL20	04/30/18	567.73	
WELL20	08/07/18	NM	No well access for sampling or measurement
WELL20	11/07/18	571.31	

Table C-5. Building 850 area in Operable Unit 5 ground water elevations.

K1-01C	01/11/18	974.65	
K1-01C	02/28/18	975.12	PS
K1-01C	04/11/18	975.32	
K1-01C	05/10/18	975.27	PS
K1-01C	07/10/18	974.94	
K1-01C	09/05/18	974.64	PS
K1-01C	10/08/18	974.42	
K1-01C	11/28/18	974.84	PS
K1-02B	01/22/18	971.41	PS
K1-02B	01/25/18	971.53	
K1-02B	04/11/18	971.61	
K1-02B	05/02/18	971.73	PS
K1-02B	07/10/18	971.36	
K1-02B	10/08/18	971.18	
K1-04	01/11/18	965.44	
K1-04	02/08/18	965.62	PS
K1-04	04/11/18	965.97	
K1-04	05/08/18	965.84	PS
K1-04	07/10/18	965.75	
K1-04	09/05/18	965.29	PS
K1-04	10/08/18	965.57	
K1-04	11/14/18	965.15	PS
K1-05	01/11/18	958.36	
K1-05	02/28/18	958.89	PS
K1-05	04/11/18	959.06	
K1-05	05/15/18	958.88	PS
K1-05	07/10/18	958.91	
K1-05	08/15/18	958.92	PS
K1-05	09/24/18	958.63	PS
K1-05	10/08/18	958.77	
K1-05	10/08/18	958.59	PS
K1-05	10/09/18	958.22	PS
K1-05	11/12/18	958.16	PS
K1-05	11/19/18	958.17	PS
K1-06	01/25/18	973.94	
K1-06	02/01/18	973.96	PS
K1-06	04/11/18	973.94	
K1-06	05/08/18	973.97	PS
K1-06	07/10/18	973.84	
K1-06	10/08/18	973.59	
K1-07	01/11/18	967.91	
K1-07	02/05/18	968.40	PS
K1-07	04/11/18	968.43	
K1-07	05/15/18	968.31	PS
K1-07	07/10/18	968.10	
K1-07	08/08/18	968.07	PS
K1-07	10/08/18	967.74	
K1-07	11/27/18	967.63	PS
K1-08	01/11/18	967.54	
K1-08	01/23/18	967.67	PS

Table C-5. Building 850 area in Operable Unit 5 ground water elevations.

K1-08	03/19/18	967.82	PS
K1-08	03/26/18	967.46	PS
K1-08	04/11/18	967.64	
K1-08	05/07/18	967.51	PS
K1-08	07/10/18	967.24	
K1-08	08/14/18	967.02	PS
K1-08	10/08/18	966.94	
K1-08	11/05/18	966.86	PS
K1-09	01/11/18	965.05	
K1-09	02/06/18	965.07	PS
K1-09	02/20/18	965.08	PS
K1-09	02/27/18	965.10	PS
K1-09	04/11/18	965.18	
K1-09	05/03/18	964.58	PS
K1-09	07/10/18	964.74	
K1-09	08/14/18	964.58	PS
K1-09	10/08/18	964.33	
K1-09	11/28/18	964.25	PS
K2-03	01/11/18	1016.31	
K2-03	04/10/18	1015.80	
K2-03	05/23/18	1015.49	PS
K2-03	07/10/18	1015.13	
K2-03	10/04/18	1014.38	
K2-03	10/10/18	1014.35	PS
K2-04D	01/11/18	1069.60	
K2-04D	04/09/18	1069.22	
K2-04D	07/09/18	1068.12	
K2-04D	10/03/18	1066.66	
K2-04S	01/11/18	1070.45	
K2-04S	04/09/18	1070.15	
K2-04S	04/24/18	1070.41	PS
K2-04S	07/09/18	1069.14	
K2-04S	10/03/18	1067.43	
K2-04S	11/01/18	1066.79	PS
NC2-05	01/11/18	981.39	
NC2-05	04/10/18	981.40	
NC2-05	06/19/18	981.11	PS
NC2-05	07/11/18	981.16	
NC2-05	10/08/18	980.61	
NC2-05	11/14/18	980.15	PS
NC2-05	11/27/18	979.95	PS
NC2-05A	01/11/18	981.70	
NC2-05A	04/10/18	981.67	
NC2-05A	06/19/18	981.43	PS
NC2-05A	07/11/18	981.48	
NC2-05A	10/08/18	980.98	
NC2-05A	11/14/18	980.55	PS
NC2-06	01/11/18	982.21	
NC2-06	04/10/18	982.10	
NC2-06	05/08/18	982.09	PS

Table C-5. Building 850 area in Operable Unit 5 ground water elevations.

NC2-06	07/10/18	981.89	
NC2-06	10/08/18	981.44	
NC2-06	11/19/18	981.29	PS
NC2-06A	01/11/18	982.02	
NC2-06A	04/10/18	981.65	
NC2-06A	05/08/18	981.96	PS
NC2-06A	07/10/18	981.79	
NC2-06A	10/08/18	981.29	
NC2-06A	11/19/18	981.10	PS
NC2-09	01/11/18	982.25	
NC2-09	04/10/18	982.09	
NC2-09	05/07/18	981.97	PS
NC2-09	07/11/18	981.77	
NC2-09	10/08/18	981.37	
NC2-09	11/14/18	980.85	PS
NC2-10	01/16/18	973.82	
NC2-10	04/11/18	973.83	
NC2-10	05/07/18	973.69	PS
NC2-10	07/11/18	973.72	
NC2-10	10/08/18	973.55	
NC2-10	11/28/18	973.49	PS
NC2-11D	01/16/18	974.02	
NC2-11D	04/11/18	974.04	
NC2-11D	05/02/18	974.01	PS
NC2-11D	07/11/18	973.77	
NC2-11D	10/08/18	973.72	
NC2-11D	12/11/18	973.51	PS
NC2-11I	01/16/18	973.72	
NC2-11I	04/11/18	973.68	
NC2-11I	05/08/18	973.57	PS
NC2-11I	07/11/18	973.50	
NC2-11I	10/08/18	973.27	
NC2-11I	11/28/18	973.18	PS
NC2-11S	01/16/18	973.94	
NC2-11S	04/11/18	973.95	
NC2-11S	05/08/18	973.87	PS
NC2-11S	07/11/18	973.62	
NC2-11S	10/08/18	973.60	
NC2-11S	11/28/18	973.42	PS
NC2-12D	01/16/18	974.75	
NC2-12D	04/11/18	974.60	
NC2-12D	04/24/18	974.60	PS
NC2-12D	07/10/18	974.40	
NC2-12D	10/08/18	974.25	
NC2-12D	12/03/18	974.07	PS
NC2-12I	01/16/18	974.66	
NC2-12I	04/11/18	974.60	
NC2-12I	05/21/18	974.64	PS
NC2-12I	07/10/18	974.45	
NC2-12I	10/08/18	974.40	

Table C-5. Building 850 area in Operable Unit 5 ground water elevations.

NC2-12I	12/03/18	973.97	PS
NC2-12S	01/16/18	975.18	
NC2-12S	04/11/18	975.12	
NC2-12S	05/21/18	975.11	PS
NC2-12S	07/10/18	974.82	
NC2-12S	10/08/18	974.74	
NC2-12S	12/03/18	974.42	PS
NC2-13	01/16/18	974.70	
NC2-13	04/11/18	974.57	
NC2-13	05/09/18	974.50	PS
NC2-13	07/09/18	974.46	
NC2-13	10/08/18	974.20	
NC2-13	11/19/18	974.02	PS
NC2-14S	01/11/18	1059.93	
NC2-14S	01/18/18	1059.88	PS
NC2-14S	04/10/18	1059.70	
NC2-14S	05/07/18	1059.49	PS
NC2-14S	07/09/18	1058.76	
NC2-14S	07/24/18	1058.50	PS
NC2-14S	10/03/18	1057.60	
NC2-14S	10/24/18	1057.50	PS
NC2-15	01/11/18	997.74	
NC2-15	04/10/18	996.58	
NC2-15	05/10/18	996.36	PS
NC2-15	05/31/18	995.96	PS
NC2-15	07/12/18	995.56	
NC2-15	10/08/18	993.91	
NC2-15	11/01/18	993.84	PS
NC2-16	01/11/18	1060.66	
NC2-16	01/18/18	1060.70	PS
NC2-16	04/10/18	1060.46	
NC2-16	05/07/18	1060.32	PS
NC2-16	07/09/18	1059.66	
NC2-16	07/24/18	1059.53	PS
NC2-16	10/03/18	1058.76	
NC2-16	10/24/18	1058.56	PS
NC2-17	01/11/18	982.25	
NC2-17	04/10/18	982.21	
NC2-17	05/07/18	982.08	PS
NC2-17	07/10/18	982.07	
NC2-17	10/08/18	981.56	
NC2-17	11/19/18	981.27	PS
NC2-18	01/29/18	1059.75	
NC2-18	04/10/18	1059.39	
NC2-18	05/16/18	1059.17	PS
NC2-18	07/09/18	1058.77	
NC2-18	10/03/18	1057.89	
NC2-18	11/01/18	1057.82	PS
NC2-19	01/16/18	977.94	
NC2-19	04/11/18	977.95	

Table C-5. Building 850 area in Operable Unit 5 ground water elevations.

NC2-19	05/23/18	977.97	PS
NC2-19	07/09/18	977.84	
NC2-19	10/08/18	977.74	
NC2-19	11/19/18	977.66	PS
NC2-20	01/16/18	963.85	
NC2-20	04/11/18	964.84	
NC2-20	05/21/18	964.86	PS
NC2-20	07/11/18	964.75	
NC2-20	10/10/18	964.57	
NC2-21	01/16/18	965.15	
NC2-21	04/11/18	964.97	
NC2-21	05/23/18	964.99	PS
NC2-21	07/11/18	964.84	
NC2-21	10/10/18	964.64	
NC7-10	01/03/18	1216.71	
NC7-10	01/18/18	1216.59	PS
NC7-10	04/09/18	1216.78	
NC7-10	05/01/18	1216.52	PS
NC7-10	07/05/18	1216.15	
NC7-10	07/23/18	1216.06	PS
NC7-10	10/02/18	1215.68	
NC7-10	10/22/18	1215.52	PS
NC7-10	10/31/18	1215.54	PS
NC7-11	01/03/18	1224.24	
NC7-11	04/09/18	1224.48	
NC7-11	05/01/18	1224.24	PS
NC7-11	07/05/18	1223.85	
NC7-11	10/02/18	1223.79	
NC7-11	10/22/18	1223.74	PS
NC7-14	01/03/18	1228.61	
NC7-14	04/09/18	1228.47	
NC7-14	07/05/18	1228.16	
NC7-14	10/02/18	< 1227.59	DRY
NC7-15	01/03/18	1249.21	
NC7-15	04/09/18	1249.21	
NC7-15	07/03/18	1248.51	
NC7-15	09/20/18	1248.18	PS
NC7-15	10/02/18	1248.01	
NC7-19	01/03/18	1243.32	
NC7-19	04/09/18	1244.15	
NC7-19	04/30/18	1243.42	PS
NC7-19	07/03/18	1242.97	
NC7-19	10/02/18	1242.62	
NC7-19	10/08/18	1242.52	PS
NC7-27	01/03/18	1196.67	
NC7-27	04/10/18	1196.75	
NC7-27	05/21/18	1196.82	PS
NC7-27	07/05/18	1196.52	
NC7-27	10/02/18	1196.50	
NC7-27	10/18/18	1196.42	PS

Table C-5. Building 850 area in Operable Unit 5 ground water elevations.

NC7-28	01/03/18	1258.51	
NC7-28	04/09/18	1258.58	
NC7-28	05/02/18	1258.73	PS
NC7-28	07/05/18	1258.66	
NC7-28	10/03/18	1258.56	
NC7-28	10/23/18	1258.51	PS
NC7-29	01/03/18	1204.14	
NC7-29	04/09/18	1203.75	
NC7-29	05/03/18	1203.53	PS
NC7-29	07/05/18	1203.46	
NC7-29	10/03/18	1202.96	
NC7-29	10/24/18	1202.88	PS
NC7-43	01/03/18	1244.07	
NC7-43	05/02/18	1244.46	
NC7-43	05/02/18	1244.30	PS
NC7-43	07/05/18	1243.88	
NC7-43	10/03/18	1243.63	
NC7-43	10/22/18	1243.66	PS
NC7-44	01/03/18	1324.11	
NC7-44	04/09/18	1323.72	
NC7-44	05/03/18	1323.67	PS
NC7-44	07/05/18	1323.55	
NC7-44	10/03/18	1323.63	
NC7-44	10/24/18	1321.42	PS
NC7-45	01/03/18	1154.11	
NC7-45	04/09/18	1154.52	
NC7-45	07/05/18	1153.45	
NC7-45	10/02/18	1153.09	
NC7-46	01/03/18	1107.40	
NC7-46	04/09/18	1107.31	
NC7-46	05/21/18	1107.27	PS
NC7-46	07/05/18	1107.22	
NC7-46	10/03/18	1107.00	
NC7-54	01/03/18	< 1196.87	DRY
NC7-54	04/09/18	< 1196.87	DRY
NC7-54	07/05/18	< 1196.87	DRY
NC7-54	10/02/18	< 1196.85	DRY
NC7-55	01/03/18	< 1159.94	DRY
NC7-55	04/09/18	< 1159.94	DRY
NC7-55	07/05/18	< 1159.94	DRY
NC7-55	10/03/18	< 1159.94	DRY
NC7-56	01/03/18	1112.78	
NC7-56	04/09/18	1112.95	
NC7-56	05/09/18	1113.07	PS
NC7-56	05/31/18	1112.75	PS
NC7-56	07/09/18	1112.54	
NC7-56	10/03/18	1112.18	
NC7-56	10/29/18	1111.06	PS
NC7-57	01/03/18	< 1088.56	DRY
NC7-57	04/09/18	< 1088.56	DRY

Table C-5. Building 850 area in Operable Unit 5 ground water elevations.

NC7-57	07/09/18	< 1088.56	DRY
NC7-57	10/03/18	< 1088.56	DRY
NC7-58	01/03/18	1083.81	
NC7-58	04/09/18	1084.30	
NC7-58	05/09/18	1084.22	PS
NC7-58	05/31/18	1084.43	PS
NC7-58	07/09/18	1083.28	
NC7-58	10/03/18	1082.40	
NC7-58	10/29/18	1082.33	PS
NC7-59	01/03/18	1102.49	
NC7-59	04/09/18	1102.54	
NC7-59	05/09/18	1102.49	PS
NC7-59	07/09/18	1102.29	
NC7-59	10/03/18	1102.04	
NC7-59	10/29/18	1101.95	PS
NC7-60	01/03/18	1169.10	
NC7-60	01/18/18	1168.97	PS
NC7-60	04/10/18	1168.80	
NC7-60	04/18/18	1168.74	PS
NC7-60	07/05/18	1168.22	
NC7-60	07/23/18	1168.32	PS
NC7-60	10/02/18	1168.42	
NC7-60	10/18/18	1168.30	PS
NC7-61	01/03/18	1231.02	
NC7-61	01/10/18	1231.02	PS
NC7-61	04/09/18	1231.07	
NC7-61	05/24/18	1231.07	PS
NC7-61	07/05/18	1230.99	
NC7-61	07/16/18	1230.99	PS
NC7-61	10/03/18	1230.93	
NC7-61	10/30/18	1230.86	PS
NC7-62	01/03/18	1103.27	
NC7-62	04/09/18	1103.36	
NC7-62	05/09/18	1103.19	PS
NC7-62	05/31/18	1103.16	PS
NC7-62	07/09/18	1102.94	
NC7-62	10/03/18	1102.66	
NC7-62	10/31/18	1102.67	PS
NC7-69	01/03/18	1250.33	
NC7-69	04/09/18	1250.32	
NC7-69	05/17/18	1250.03	PS
NC7-69	07/05/18	1249.85	
NC7-69	10/02/18	1249.83	
NC7-69	12/04/18	1249.82	PS
NC7-70	01/03/18	1278.02	
NC7-70	04/09/18	1277.84	
NC7-70	05/03/18	1278.00	PS
NC7-70	07/05/18	1277.47	
NC7-70	10/03/18	1277.18	
NC7-70	10/23/18	1277.14	PS

Table C-5. Building 850 area in Operable Unit 5 ground water elevations.

NC7-71	01/03/18	1246.82	
NC7-71	04/09/18	1246.74	
NC7-71	05/02/18	1246.77	PS
NC7-71	07/05/18	1246.39	
NC7-71	10/03/18	1246.31	
NC7-71	10/23/18	1246.23	PS
NC7-72	01/03/18	1124.37	
NC7-72	04/09/18	1124.83	
NC7-72	05/09/18	1124.63	PS
NC7-72	05/31/18	1124.35	PS
NC7-72	07/09/18	1124.10	
NC7-72	10/03/18	1123.65	
NC7-72	10/29/18	1123.57	PS
NC7-73	01/03/18	1138.96	
NC7-73	04/09/18	1139.17	
NC7-73	05/09/18	1139.10	PS
NC7-73	05/31/18	1138.84	PS
NC7-73	07/09/18	1138.62	
NC7-73	10/03/18	1138.32	
NC7-73	10/29/18	1138.25	PS
W-850-05	01/03/18	1273.54	
W-850-05	04/09/18	1273.61	
W-850-05	05/03/18	1273.54	PS
W-850-05	07/05/18	1273.18	
W-850-05	10/03/18	1272.99	
W-850-05	10/22/18	1272.87	PS
W-850-2145	01/29/18	1030.53	
W-850-2145	04/10/18	1030.47	
W-850-2145	05/16/18	1030.39	PS
W-850-2145	07/09/18	1030.37	
W-850-2145	10/03/18	1030.32	
W-850-2145	11/01/18	1030.28	PS
W-850-2312	01/29/18	1065.33	
W-850-2312	04/10/18	1065.09	
W-850-2312	05/16/18	1064.83	PS
W-850-2312	07/09/18	1064.31	
W-850-2312	10/03/18	1063.23	
W-850-2312	11/01/18	1063.16	PS
W-850-2313	01/03/18	1159.45	
W-850-2313	04/09/18	1159.93	
W-850-2313	05/01/18	1159.81	PS
W-850-2313	07/05/18	1158.88	
W-850-2313	10/02/18	1158.69	
W-850-2313	10/22/18	1158.52	PS
W-850-2314	01/03/18	1180.44	
W-850-2314	04/10/18	1178.74	
W-850-2314	04/18/18	1178.59	PS
W-850-2314	07/05/18	1178.17	
W-850-2314	10/02/18	1177.54	
W-850-2314	10/18/18	1177.36	PS

Table C-5. Building 850 area in Operable Unit 5 ground water elevations.

W-850-2315	01/03/18	1204.38	
W-850-2315	04/09/18	1204.01	
W-850-2315	05/03/18	1203.93	PS
W-850-2315	07/05/18	1203.74	
W-850-2315	10/03/18	1203.18	
W-850-2315	10/24/18	1203.11	PS
W-850-2316	01/29/18	1030.53	
W-850-2316	04/10/18	1030.49	
W-850-2316	05/16/18	1030.31	PS
W-850-2316	06/04/18	1030.24	PS
W-850-2316	07/09/18	1030.39	
W-850-2316	10/03/18	1030.12	
W-850-2316	11/01/18	1030.00	PS
W-850-2416	01/03/18	1252.23	
W-850-2416	04/09/18	1252.24	
W-850-2416	05/02/18	1252.16	PS
W-850-2416	07/05/18	1252.08	
W-850-2416	10/03/18	1251.88	
W-850-2416	10/23/18	1251.85	PS
W-850-2417	01/03/18	1261.47	
W-850-2417	04/09/18	1261.56	
W-850-2417	05/09/18	1261.84	PS
W-850-2417	07/05/18	1261.56	
W-850-2417	10/03/18	1261.35	
W-850-2417	10/23/18	1260.12	PS
W-850-2805	01/03/18	1113.98	
W-850-2805	04/09/18	1114.01	
W-850-2805	05/09/18	1114.05	PS
W-850-2805	07/05/18	1113.70	
W-850-2805	10/03/18	1113.45	
W-850-2805	10/24/18	1113.27	PS
W-865-02	01/11/18	987.86	
W-865-02	01/22/18	987.77	PS
W-865-02	04/10/18	987.66	
W-865-02	07/10/18	987.47	
W-865-02	07/31/18	987.32	PS
W-865-02	10/04/18	987.28	
W-865-05	01/16/18	964.95	
W-865-05	03/28/18	964.75	PS
W-865-05	04/11/18	964.36	
W-865-05	07/11/18	963.71	
W-865-05	09/12/18	963.08	PS
W-865-05	10/10/18	963.38	
W-865-1802	01/11/18	1021.11	
W-865-1802	01/22/18	1020.93	PS
W-865-1802	04/10/18	1020.70	
W-865-1802	04/25/18	1020.63	PS
W-865-1802	07/10/18	1020.25	
W-865-1802	07/23/18	1020.12	PS
W-865-1802	10/04/18	1019.49	

Table C-5. Building 850 area in Operable Unit 5 ground water elevations.

W-865-1802	10/10/18	1019.44	PS
W-865-1803	01/16/18	1081.22	
W-865-1803	04/10/18	1079.73	
W-865-1803	04/25/18	1079.54	PS
W-865-1803	07/09/18	1078.37	
W-865-1803	10/03/18	1076.29	
W-865-1803	10/10/18	1076.24	PS
W-865-2005	01/16/18	946.65	
W-865-2005	01/29/18	946.56	PS
W-865-2005	04/11/18	946.97	
W-865-2005	05/08/18	946.77	PS
W-865-2005	07/11/18	946.97	
W-865-2005	09/11/18	946.67	PS
W-865-2005	09/17/18	946.63	PS
W-865-2005	10/10/18	946.57	
W-865-2005	10/31/18	946.56	PS
W-865-2121	01/16/18	941.99	
W-865-2121	03/13/18	942.32	PS
W-865-2121	04/11/18	942.28	
W-865-2121	04/25/18	941.96	PS
W-865-2121	07/11/18	942.21	
W-865-2121	07/31/18	942.09	PS
W-865-2121	10/10/18	942.21	
W-865-2121	11/13/18	942.15	PS
W-865-2133	01/29/18	927.71	
W-865-2133	01/30/18	927.69	PS
W-865-2133	04/11/18	927.82	
W-865-2133	05/08/18	927.62	PS
W-865-2133	07/11/18	927.77	
W-865-2133	07/24/18	927.80	PS
W-865-2133	10/10/18	927.65	
W-865-2133	11/13/18	927.57	PS
W-865-2224	01/29/18	927.51	
W-865-2224	01/30/18	927.55	PS
W-865-2224	04/11/18	927.57	
W-865-2224	05/08/18	927.55	PS
W-865-2224	07/11/18	927.68	
W-865-2224	07/24/18	927.54	PS
W-865-2224	10/10/18	927.52	
W-865-2224	11/13/18	927.20	PS
W-PIT1-01	01/16/18	< 1032.97	DRY
W-PIT1-01	04/11/18	< 1032.97	DRY
W-PIT1-01	07/11/18	< 1032.97	DRY
W-PIT1-01	10/10/18	< 1032.97	DRY
W-PIT1-02	01/16/18	946.18	
W-PIT1-02	04/11/18	946.66	
W-PIT1-02	07/11/18	946.67	
W-PIT1-02	10/10/18	946.67	
W-PIT1-2204	01/11/18	1032.39	
W-PIT1-2204	04/11/18	1032.41	

Table C-5. Building 850 area in Operable Unit 5 ground water elevations.

W-PIT1-2204	07/10/18	1032.48	
W-PIT1-2204	10/08/18	1032.37	
W-PIT1-2204	12/04/18	1032.28	PS
W-PIT1-2209	01/10/18	947.45	PS
W-PIT1-2209	01/16/18	947.64	
W-PIT1-2209	04/11/18	948.03	
W-PIT1-2209	04/17/18	947.72	PS
W-PIT1-2209	04/19/18	947.71	PS
W-PIT1-2209	07/11/18	947.56	
W-PIT1-2209	07/12/18	947.58	PS
W-PIT1-2209	10/04/18	948.09	PS
W-PIT1-2209	10/10/18	947.65	
W-PIT1-2225	01/29/18	964.89	
W-PIT1-2225	02/01/18	964.83	PS
W-PIT1-2225	04/11/18	964.94	
W-PIT1-2225	05/10/18	964.86	PS
W-PIT1-2225	07/11/18	964.72	
W-PIT1-2225	07/30/18	964.83	PS
W-PIT1-2225	10/08/18	964.75	
W-PIT1-2225	11/27/18	964.58	PS
W-PIT1-2326	01/29/18	968.14	
W-PIT1-2326	01/30/18	968.08	PS
W-PIT1-2326	04/11/18	968.36	
W-PIT1-2326	05/16/18	968.04	PS
W-PIT1-2326	07/10/18	968.11	
W-PIT1-2326	09/13/18	968.05	PS
W-PIT1-2326	10/08/18	967.95	
W-PIT1-2326	11/26/18	967.77	PS
W-PIT1-2620	01/16/18	946.27	
W-PIT1-2620	01/17/18	946.32	PS
W-PIT1-2620	04/11/18	946.65	
W-PIT1-2620	04/17/18	946.75	PS
W-PIT1-2620	04/19/18	946.68	PS
W-PIT1-2620	07/11/18	946.78	
W-PIT1-2620	07/16/18	946.78	PS
W-PIT1-2620	10/04/18	946.69	PS
W-PIT1-2620	10/10/18	946.89	
W-PIT1-3021	01/25/18	978.03	
W-PIT1-3021	04/11/18	977.88	
W-PIT1-3021	05/03/18	977.64	PS
W-PIT1-3021	07/10/18	977.71	
W-PIT1-3021	10/08/18	977.39	
W-PIT1-3021	12/04/18	977.49	PS
W-PIT1-3022	01/25/18	977.82	
W-PIT1-3022	04/11/18	977.69	
W-PIT1-3022	05/03/18	977.44	PS
W-PIT1-3022	07/10/18	977.45	
W-PIT1-3022	10/08/18	977.09	
W-PIT1-3022	12/04/18	976.77	PS
W-PIT7-16	01/03/18	1250.11	

Table C-5. Building 850 area in Operable Unit 5 ground water elevations.

W-PIT7-16	04/09/18	1250.07	
W-PIT7-16	07/03/18	1249.80	
W-PIT7-16	09/20/18	1249.69	PS
W-PIT7-16	10/02/18	1249.70	
W-PIT7-16	10/08/18	1249.64	PS

Table C-6. Pit 2 Landfill ground water elevations.

K2-01C	01/11/18	990.62	
K2-01C	04/10/18	989.70	
K2-01C	05/07/18	989.42	PS
K2-01C	07/10/18	989.00	
K2-01C	10/04/18	987.27	
K2-01C	12/04/18	986.54	PS
K2-01C	12/12/18	986.28	PS
NC2-08	01/11/18	994.27	
NC2-08	04/10/18	993.06	
NC2-08	05/10/18	992.85	PS
NC2-08	05/31/18	992.42	PS
NC2-08	07/11/18	991.97	
NC2-08	10/08/18	990.43	
NC2-08	11/14/18	989.62	PS
W-PIT2-1934	01/11/18	1011.77	
W-PIT2-1934	04/10/18	1010.46	
W-PIT2-1934	05/03/18	1009.93	PS
W-PIT2-1934	07/10/18	1009.16	
W-PIT2-1934	10/04/18	1007.61	
W-PIT2-1934	12/04/18	1007.61	PS
W-PIT2-1935	01/11/18	987.81	
W-PIT2-1935	04/10/18	986.82	
W-PIT2-1935	05/03/18	986.34	PS
W-PIT2-1935	07/10/18	985.76	
W-PIT2-1935	10/04/18	984.46	
W-PIT2-1935	12/04/18	984.36	PS
W-PIT2-1935	12/12/18	984.31	PS
W-PIT2-2226	01/29/18	964.62	
W-PIT2-2226	02/01/18	964.56	PS
W-PIT2-2226	05/02/18	964.68	
W-PIT2-2226	05/10/18	964.61	PS
W-PIT2-2226	07/12/18	964.52	
W-PIT2-2226	07/30/18	964.48	PS
W-PIT2-2226	10/11/18	964.27	
W-PIT2-2226	11/27/18	964.17	PS
W-PIT2-2301	01/11/18	1012.13	
W-PIT2-2301	03/21/18	1016.33	PS
W-PIT2-2301	04/10/18	1021.66	
W-PIT2-2301	04/25/18	1023.80	PS
W-PIT2-2301	07/12/18	1012.45	
W-PIT2-2301	10/08/18	1012.33	
W-PIT2-2302	01/11/18	1026.38	
W-PIT2-2302	04/10/18	1026.83	
W-PIT2-2302	05/08/18	1027.47	PS
W-PIT2-2302	07/12/18	1026.11	
W-PIT2-2302	10/08/18	1026.06	
W-PIT2-2303	01/11/18	< 1019.60	DRY
W-PIT2-2303	04/10/18	< 1019.60	DRY
W-PIT2-2303	07/10/18	< 1019.60	DRY
W-PIT2-2303	10/08/18	< 1019.60	DRY

Table C-6. Pit 2 Landfill ground water elevations.

W-PIT2-2304	01/11/18	983.69	
W-PIT2-2304	04/10/18	< 983.59	DRY
W-PIT2-2304	07/10/18	< 983.59	DRY
W-PIT2-2304	10/08/18	< 983.59	DRY

Table C-7. Pit 7 Complex area in Operable Unit 5 ground water elevations.

K7-01	01/03/18	1294.43	
K7-01	04/04/18	1293.45	
K7-01	04/16/18	1293.30	PS
K7-01	07/03/18	1292.83	
K7-01	10/02/18	1292.15	
K7-01	10/16/18	1292.21	PS
K7-03	01/02/18	1314.79	
K7-03	04/04/18	1313.98	
K7-03	04/25/18	1314.15	PS
K7-03	07/03/18	1313.82	
K7-03	10/01/18	1312.84	
K7-03	10/09/18	1312.86	PS
K7-06	01/02/18	1388.46	
K7-06	04/04/18	1388.45	
K7-06	04/09/18	1388.43	PS
K7-06	07/02/18	1387.47	
K7-06	10/01/18	1386.72	
K7-06	10/03/18	1386.70	PS
K7-07	01/02/18	1276.90	
K7-07	04/04/18	1276.22	
K7-07	07/02/18	1275.27	
K7-07	10/01/18	< 1274.22	DRY
K7-09	01/02/18	1297.00	
K7-09	04/04/18	1299.10	
K7-09	04/23/18	1298.98	PS
K7-09	07/02/18	1296.90	
K7-09	10/01/18	1296.52	
K7-09	10/04/18	1296.48	PS
K7-10	01/02/18	1308.01	
K7-10	04/04/18	1308.00	
K7-10	04/23/18	1307.98	PS
K7-10	07/02/18	1307.41	
K7-10	10/01/18	1307.16	
K7-10	10/04/18	1307.14	PS
NC7-12	01/03/18	1266.21	
NC7-12	04/09/18	1265.98	
NC7-12	07/03/18	1264.39	
NC7-12	09/20/18	1263.77	PS
NC7-12	10/02/18	1263.79	
NC7-12	10/08/18	1263.75	PS
NC7-16	01/03/18	1288.16	
NC7-16	01/17/18	1287.49	PS
NC7-16	04/04/18	1287.31	
NC7-16	04/26/18	1287.19	PS
NC7-16	07/03/18	1285.02	
NC7-16	07/19/18	1284.96	PS
NC7-16	10/02/18	1283.79	
NC7-16	10/16/18	1283.69	PS
NC7-17	01/02/18	1361.05	
NC7-17	01/31/18	1360.98	

Table C-7. Pit 7 Complex area in Operable Unit 5 ground water elevations.

NC7-17	04/04/18	1360.47	
NC7-17	04/12/18	1360.45	PS
NC7-17	07/02/18	1359.78	
NC7-17	10/01/18	1359.21	
NC7-17	10/03/18	1359.19	PS
NC7-18	01/02/18	1310.04	
NC7-18	04/04/18	1310.20	
NC7-18	04/23/18	1309.93	PS
NC7-18	07/02/18	1308.71	
NC7-18	10/01/18	1307.74	
NC7-18	10/04/18	1307.84	PS
NC7-20	01/03/18	1259.59	
NC7-20	04/09/18	1259.12	
NC7-20	04/30/18	1259.15	PS
NC7-20	07/03/18	1257.98	
NC7-20	10/02/18	1257.44	
NC7-20	10/08/18	1257.40	PS
NC7-21	01/03/18	1279.32	
NC7-21	04/04/18	1278.49	
NC7-21	04/26/18	1278.45	PS
NC7-21	07/03/18	1277.27	
NC7-21	10/02/18	1276.57	
NC7-21	10/16/18	1276.29	PS
NC7-22	01/03/18	1276.75	
NC7-22	04/04/18	1275.76	
NC7-22	04/26/18	1275.34	PS
NC7-22	07/03/18	1273.98	
NC7-22	10/02/18	< 1273.91	DRY
NC7-24	01/02/18	1323.33	
NC7-24	04/04/18	1322.96	
NC7-24	07/03/18	1322.73	
NC7-24	10/01/18	1322.03	
NC7-25	01/03/18	1300.89	
NC7-25	04/04/18	1297.63	
NC7-25	07/03/18	1297.57	
NC7-25	10/02/18	1299.81	
NC7-26	01/03/18	1258.77	
NC7-26	04/04/18	1258.11	
NC7-26	04/26/18	1257.87	PS
NC7-26	07/03/18	1257.33	
NC7-26	10/02/18	1257.14	
NC7-26	10/16/18	1256.89	PS
NC7-34	01/02/18	1340.38	
NC7-34	04/04/18	1339.74	
NC7-34	04/24/18	1339.27	PS
NC7-34	07/02/18	1338.03	
NC7-34	10/01/18	1335.69	
NC7-34	10/04/18	1335.60	PS
NC7-36	01/02/18	1340.64	
NC7-36	04/04/18	1340.08	

Table C-7. Pit 7 Complex area in Operable Unit 5 ground water elevations.

NC7-36	04/24/18	1340.00	PS
NC7-36	07/02/18	1339.21	
NC7-36	10/01/18	1337.72	
NC7-36	10/04/18	1337.69	PS
NC7-37	01/02/18	1318.04	
NC7-37	04/04/18	1315.37	
NC7-37	04/17/18	1315.35	PS
NC7-37	07/03/18	1315.35	
NC7-37	10/01/18	1313.04	
NC7-37	10/17/18	1312.97	PS
NC7-40	01/03/18	1300.66	
NC7-40	01/17/18	1300.46	PS
NC7-40	04/04/18	1299.54	
NC7-40	05/02/18	1299.53	PS
NC7-40	07/03/18	1298.88	
NC7-40	07/19/18	1298.80	PS
NC7-40	10/02/18	1298.28	
NC7-40	10/17/18	1298.47	PS
NC7-47	01/11/18	1205.15	
NC7-47	04/10/18	1205.16	
NC7-47	07/09/18	1205.18	
NC7-47	10/03/18	1205.16	
NC7-47	10/10/18	1205.15	PS
NC7-48	01/02/18	1346.10	
NC7-48	04/04/18	1346.20	
NC7-48	04/12/18	1346.17	PS
NC7-48	07/02/18	1345.14	
NC7-48	10/01/18	1344.27	
NC7-48	10/03/18	1344.37	PS
NC7-49A	01/02/18	1363.53	
NC7-49A	04/04/18	1363.81	
NC7-49A	04/12/18	1363.73	PS
NC7-49A	07/02/18	1362.18	
NC7-49A	10/01/18	1360.53	
NC7-49A	10/03/18	1360.53	PS
NC7-50	01/11/18	1120.01	
NC7-50	04/10/18	1120.43	
NC7-50	04/30/18	1120.37	PS
NC7-50	07/09/18	1120.32	
NC7-50	10/03/18	1120.82	
NC7-51	01/02/18	1319.63	
NC7-51	01/17/18	1319.39	PS
NC7-51	04/04/18	1317.73	
NC7-51	04/25/18	1317.63	PS
NC7-51	07/03/18	1317.13	
NC7-51	07/19/18	1316.97	PS
NC7-51	10/01/18	1315.93	
NC7-51	10/09/18	1315.83	PS
NC7-52	01/03/18	1294.51	
NC7-52	01/17/18	1294.40	PS

Table C-7. Pit 7 Complex area in Operable Unit 5 ground water elevations.

NC7-52	04/04/18	1294.40	
NC7-52	04/25/18	1294.37	PS
NC7-52	07/03/18	1294.31	
NC7-52	07/19/18	1294.33	PS
NC7-52	10/02/18	1294.21	
NC7-53	01/02/18	1390.62	
NC7-53	04/04/18	1390.52	
NC7-53	04/09/18	1390.48	PS
NC7-53	07/02/18	1389.87	
NC7-53	10/01/18	1389.57	
NC7-63	01/02/18	1320.67	
NC7-63	04/04/18	1319.67	
NC7-63	04/24/18	1319.55	PS
NC7-63	05/09/18	1319.77	PS
NC7-63	07/03/18	1319.18	
NC7-63	10/01/18	1318.07	
NC7-63	10/17/18	1317.95	PS
NC7-64	01/02/18	1324.48	
NC7-64	04/04/18	1304.78	
NC7-64	07/03/18	1304.63	
NC7-64	10/01/18	1313.80	
NC7-65	01/03/18	1264.06	
NC7-65	04/10/18	1262.84	
NC7-65	04/10/18	1262.84	PS
NC7-65	07/03/18	1262.43	
NC7-65	10/02/18	1262.22	
NC7-67	01/03/18	1292.72	
NC7-67	04/04/18	1292.25	
NC7-67	04/17/18	1292.22	PS
NC7-67	07/03/18	1291.79	
NC7-67	10/02/18	1291.14	
NC7-67	10/04/18	1291.12	PS
NC7-68	01/03/18	1293.63	
NC7-68	04/04/18	1292.95	
NC7-68	04/17/18	1292.96	PS
NC7-68	07/03/18	1292.50	
NC7-68	10/02/18	1291.92	
NC7-68	10/04/18	1292.78	PS
NC7-75	01/02/18	1304.92	
NC7-75	04/04/18	1304.75	
NC7-75	04/24/18	1304.74	PS
NC7-75	07/03/18	1304.73	
NC7-75	10/01/18	1304.20	
NC7-75	10/17/18	1303.79	PS
NC7-76	01/03/18	1256.06	
NC7-76	04/09/18	1255.55	
NC7-76	07/03/18	1255.16	
NC7-76	10/02/18	1254.30	
NC7-76	10/08/18	1254.25	PS
W-865-01	01/16/18	1154.51	

Table C-7. Pit 7 Complex area in Operable Unit 5 ground water elevations.

W-865-01	01/18/18	1154.48	PS
W-865-01	04/10/18	1154.33	
W-865-01	07/09/18	1154.16	
W-865-01	07/23/18	1154.18	PS
W-865-01	10/03/18	1154.11	
W-865-03	01/11/18	1182.03	
W-865-03	01/18/18	1181.98	PS
W-865-03	04/10/18	1181.92	
W-865-03	07/09/18	1181.78	
W-865-03	10/03/18	1181.64	
W-865-1804	01/16/18	1109.06	
W-865-1804	01/18/18	1109.03	PS
W-865-1804	04/10/18	1109.04	
W-865-1804	07/09/18	1109.07	
W-865-1804	07/23/18	1109.01	PS
W-865-1804	10/03/18	1109.01	
W-PIT3-02	01/02/18	< 1332.52	DRY
W-PIT3-02	04/04/18	< 1332.52	DRY
W-PIT3-02	07/03/18	< 1332.52	DRY
W-PIT3-02	10/11/18	< 1332.52	DRY
W-PIT5-02	01/02/18	< 1321.72	DRY
W-PIT5-02	04/04/18	< 1321.72	DRY
W-PIT5-02	07/03/18	< 1321.72	DRY
W-PIT5-02	10/01/18	< 1321.72	DRY
W-PIT7-02	01/03/18	1297.54	
W-PIT7-02	01/17/18	1297.50	PS
W-PIT7-02	04/04/18	1296.93	
W-PIT7-02	04/30/18	1296.69	PS
W-PIT7-02	07/02/18	1296.02	
W-PIT7-02	07/19/18	1295.85	PS
W-PIT7-02	10/01/18	1295.22	
W-PIT7-03	01/03/18	1307.52	
W-PIT7-03	01/17/18	1307.52	PS
W-PIT7-03	04/04/18	1305.91	
W-PIT7-03	04/17/18	1305.88	PS
W-PIT7-03	07/03/18	1305.52	
W-PIT7-03	10/01/18	1304.22	
W-PIT7-03	10/17/18	1303.91	PS
W-PIT7-10	01/02/18	1318.03	
W-PIT7-10	04/04/18	1293.54	
W-PIT7-10	05/01/18	1293.58	PS
W-PIT7-10	07/02/18	1293.03	
W-PIT7-10	10/01/18	1292.63	
W-PIT7-10	10/16/18	1292.50	PS
W-PIT7-10	11/20/18	1292.31	PS
W-PIT7-11	01/03/18	1264.05	
W-PIT7-11	04/10/18	1263.44	
W-PIT7-11	07/03/18	1262.96	
W-PIT7-11	10/02/18	1262.76	
W-PIT7-12	01/03/18	1202.76	

Table C-7. Pit 7 Complex area in Operable Unit 5 ground water elevations.

W-PIT7-12	04/10/18	1202.66	
W-PIT7-12	04/10/18	1202.66	PS
W-PIT7-12	07/09/18	1202.40	
W-PIT7-12	10/02/18	1202.52	
W-PIT7-12	10/02/18	1202.25	PS
W-PIT7-13	01/03/18	1251.99	
W-PIT7-13	04/10/18	1252.08	
W-PIT7-13	04/18/18	1252.10	PS
W-PIT7-13	07/03/18	1251.99	
W-PIT7-13	10/02/18	1251.80	PS
W-PIT7-13	10/02/18	1251.80	
W-PIT7-14	01/03/18	1158.91	
W-PIT7-14	04/10/18	1159.74	
W-PIT7-14	04/10/18	1159.74	PS
W-PIT7-14	07/09/18	1158.74	
W-PIT7-14	10/02/18	1158.82	
W-PIT7-15	01/11/18	1200.14	
W-PIT7-15	04/10/18	1200.32	
W-PIT7-15	07/09/18	1200.07	
W-PIT7-15	10/03/18	1200.08	
W-PIT7-15	10/10/18	1200.02	PS
W-PIT7-1715	01/02/18	1424.23	
W-PIT7-1715	04/04/18	1424.10	
W-PIT7-1715	07/02/18	1423.68	
W-PIT7-1715	10/01/18	1423.18	
W-PIT7-1716	01/02/18	< 1430.58	DRY
W-PIT7-1716	04/04/18	< 1430.58	DRY
W-PIT7-1716	07/02/18	< 1430.58	DRY
W-PIT7-1716	10/01/18	< 1430.58	DRY
W-PIT7-1719	01/02/18	1451.79	
W-PIT7-1719	04/04/18	1451.49	
W-PIT7-1719	07/02/18	1451.20	
W-PIT7-1719	10/01/18	1450.88	
W-PIT7-1721	01/02/18	1419.47	
W-PIT7-1721	04/04/18	1419.20	
W-PIT7-1721	07/02/18	< 1419.20	DRY
W-PIT7-1721	10/01/18	< 1419.20	DRY
W-PIT7-1722	01/02/18	< 1427.32	DRY
W-PIT7-1722	04/04/18	< 1427.32	DRY
W-PIT7-1722	07/02/18	< 1427.32	DRY
W-PIT7-1722	10/01/18	< 1427.32	DRY
W-PIT7-1725	01/02/18	1299.50	
W-PIT7-1725	04/04/18	1299.46	
W-PIT7-1725	07/02/18	1299.48	
W-PIT7-1725	10/01/18	1299.46	
W-PIT7-1726	01/02/18	< 1459.42	DRY
W-PIT7-1726	04/04/18	< 1459.42	DRY
W-PIT7-1726	07/02/18	< 1459.42	DRY
W-PIT7-1726	10/01/18	< 1459.42	DRY
W-PIT7-1727	01/02/18	< 1417.47	DRY

Table C-7. Pit 7 Complex area in Operable Unit 5 ground water elevations.

W-PIT7-1727	04/04/18	< 1417.47	DRY
W-PIT7-1727	07/02/18	< 1417.47	DRY
W-PIT7-1727	10/01/18	< 1417.47	DRY
W-PIT7-1728	01/02/18	< 1460.14	DRY
W-PIT7-1728	04/04/18	< 1460.14	DRY
W-PIT7-1728	07/02/18	< 1460.14	DRY
W-PIT7-1728	10/01/18	< 1460.14	DRY
W-PIT7-1729	01/02/18	< 1434.84	DRY
W-PIT7-1729	04/04/18	1434.84	
W-PIT7-1729	07/02/18	< 1434.84	DRY
W-PIT7-1729	10/01/18	< 1434.84	DRY
W-PIT7-1860	01/02/18	1434.49	
W-PIT7-1860	04/04/18	1434.18	
W-PIT7-1860	04/09/18	1434.17	PS
W-PIT7-1860	07/02/18	1433.98	
W-PIT7-1860	10/01/18	1433.86	
W-PIT7-1861	01/02/18	1434.66	
W-PIT7-1861	04/04/18	1434.11	
W-PIT7-1861	07/02/18	1433.98	
W-PIT7-1861	10/01/18	1433.86	
W-PIT7-1903	01/03/18	1299.38	
W-PIT7-1903	04/04/18	1298.53	
W-PIT7-1903	05/02/18	1298.33	PS
W-PIT7-1903	07/03/18	1298.23	
W-PIT7-1903	10/02/18	1297.86	
W-PIT7-1904	01/03/18	1298.75	
W-PIT7-1904	04/04/18	1297.78	
W-PIT7-1904	05/02/18	1297.64	PS
W-PIT7-1904	07/03/18	1297.19	
W-PIT7-1904	10/02/18	1296.65	
W-PIT7-1905	01/03/18	1298.78	
W-PIT7-1905	04/04/18	1297.93	
W-PIT7-1905	05/02/18	1297.86	PS
W-PIT7-1905	07/03/18	1297.68	
W-PIT7-1905	10/02/18	1297.48	
W-PIT7-1907	01/03/18	1299.78	
W-PIT7-1907	04/04/18	1298.88	
W-PIT7-1907	05/02/18	1298.77	PS
W-PIT7-1907	07/03/18	1298.43	
W-PIT7-1907	10/02/18	1298.03	
W-PIT7-1915	01/03/18	1299.45	
W-PIT7-1915	04/04/18	1298.50	
W-PIT7-1915	05/02/18	1298.39	PS
W-PIT7-1915	07/03/18	1298.02	
W-PIT7-1915	10/02/18	1297.62	
W-PIT7-1916	01/03/18	1299.12	
W-PIT7-1916	04/04/18	1298.22	
W-PIT7-1916	05/02/18	1298.15	PS
W-PIT7-1916	07/03/18	1297.79	
W-PIT7-1916	10/02/18	1297.37	

Table C-7. Pit 7 Complex area in Operable Unit 5 ground water elevations.

W-PIT7-1917	01/03/18	1299.16	
W-PIT7-1917	04/04/18	1297.81	
W-PIT7-1917	05/02/18	1297.67	PS
W-PIT7-1917	07/03/18	1297.36	
W-PIT7-1917	10/02/18	1297.01	
W-PIT7-1918	01/03/18	1299.39	
W-PIT7-1918	04/04/18	1298.29	
W-PIT7-1918	05/02/18	1298.14	PS
W-PIT7-1918	07/03/18	1297.87	
W-PIT7-1918	10/02/18	1297.42	
W-PIT7-1918	10/17/18	1297.53	PS
W-PIT7-1919	01/03/18	1295.90	
W-PIT7-1919	04/04/18	1295.23	
W-PIT7-1919	05/02/18	1295.18	PS
W-PIT7-1919	07/03/18	1294.90	
W-PIT7-1919	10/02/18	1294.46	
W-PIT7-2141	01/03/18	1164.49	
W-PIT7-2141	04/10/18	1164.42	
W-PIT7-2141	04/10/18	1164.42	PS
W-PIT7-2141	07/09/18	1164.19	
W-PIT7-2141	10/02/18	1164.29	
W-PIT7-2141	10/02/18	1164.29	PS
W-PIT7-2305	01/03/18	1298.03	
W-PIT7-2305	04/04/18	1296.71	
W-PIT7-2305	07/03/18	1296.05	
W-PIT7-2305	10/02/18	1294.10	
W-PIT7-2306	01/02/18	1324.12	
W-PIT7-2306	04/04/18	1321.17	
W-PIT7-2306	07/03/18	1320.05	
W-PIT7-2306	10/01/18	1317.02	
W-PIT7-2307	01/02/18	1317.62	
W-PIT7-2307	04/04/18	1314.77	
W-PIT7-2307	07/03/18	1315.15	
W-PIT7-2307	10/01/18	1313.05	
W-PIT7-2309	01/02/18	1313.46	
W-PIT7-2309	04/04/18	1312.71	
W-PIT7-2309	04/25/18	1312.64	PS
W-PIT7-2309	07/03/18	1312.38	
W-PIT7-2309	10/01/18	1311.43	
W-PIT7-2309	10/09/18	1311.50	PS
W-PIT7-2703	01/02/18	1322.32	
W-PIT7-2703	04/04/18	1304.22	
W-PIT7-2703	07/03/18	1304.11	
W-PIT7-2703	10/01/18	1310.90	
W-PIT7-2704	01/02/18	1326.52	
W-PIT7-2704	04/04/18	1324.43	
W-PIT7-2704	07/03/18	1323.32	
W-PIT7-2704	10/01/18	1320.80	
W-PIT7-2705	01/03/18	1298.02	
W-PIT7-2705	04/04/18	1293.74	

Table C-7. Pit 7 Complex area in Operable Unit 5 ground water elevations.

W-PIT7-2705	07/03/18	1286.39
W-PIT7-2705	10/02/18	1292.04

Table C-8. Building 854 Operable Unit ground water elevations.

W-854-01	01/22/18	1118.15	
W-854-01	04/25/18	1118.35	
W-854-01	05/22/18	1118.42	PS
W-854-01	07/16/18	1118.25	
W-854-01	10/15/18	1118.17	
W-854-01	11/05/18	1118.11	PS
W-854-02	01/22/18	1185.52	
W-854-02	04/25/18	1184.94	
W-854-02	07/16/18	1184.67	
W-854-02	10/15/18	1185.29	
W-854-03	01/22/18	1119.28	
W-854-03	04/25/18	1118.80	
W-854-03	07/16/18	1116.03	
W-854-03	10/15/18	1115.83	
W-854-04	01/22/18	951.78	
W-854-04	04/25/18	952.34	
W-854-04	05/23/18	952.23	PS
W-854-04	07/16/18	952.49	
W-854-04	10/15/18	952.39	
W-854-04	12/04/18	952.18	PS
W-854-05	01/22/18	1242.24	
W-854-05	04/25/18	1242.32	
W-854-05	05/22/18	1242.40	PS
W-854-05	07/16/18	1242.44	
W-854-05	10/15/18	1242.61	
W-854-05	11/05/18	1242.46	PS
W-854-06	01/22/18	991.55	
W-854-06	04/25/18	991.45	
W-854-06	05/29/18	991.41	PS
W-854-06	07/16/18	991.35	
W-854-06	10/15/18	991.17	
W-854-06	11/07/18	991.23	PS
W-854-07	01/22/18	992.69	
W-854-07	04/25/18	992.56	
W-854-07	05/29/18	992.52	PS
W-854-07	07/16/18	992.28	
W-854-07	10/15/18	992.26	
W-854-07	11/07/18	992.43	PS
W-854-08	01/22/18	1155.65	
W-854-08	04/25/18	1155.56	
W-854-08	05/23/18	1155.55	PS
W-854-08	07/16/18	1155.50	
W-854-08	10/15/18	1155.40	
W-854-08	11/06/18	1155.30	PS
W-854-09	01/31/18	1168.53	
W-854-09	04/25/18	1168.53	
W-854-09	07/16/18	1168.51	
W-854-09	10/15/18	1168.58	
W-854-10	01/22/18	1209.92	
W-854-10	04/25/18	1210.15	

Table C-8. Building 854 Operable Unit ground water elevations.

W-854-10	05/22/18	1210.17	PS
W-854-10	07/16/18	1210.08	
W-854-10	10/15/18	1209.53	
W-854-10	11/05/18	1209.28	PS
W-854-11	01/22/18	< 1189.38	DRY
W-854-11	04/25/18	< 1189.38	DRY
W-854-11	07/16/18	< 1189.38	DRY
W-854-11	10/15/18	< 1189.38	DRY
W-854-12	02/01/18	1030.29	
W-854-12	05/07/18	1030.29	
W-854-12	08/07/18	1030.35	
W-854-12	11/06/18	1030.07	
W-854-13	02/01/18	1150.40	
W-854-13	05/07/18	1150.41	
W-854-13	05/30/18	1150.49	PS
W-854-13	08/07/18	1149.40	
W-854-13	11/06/18	1150.15	PS
W-854-13	11/06/18	1150.15	
W-854-14	01/22/18	949.10	
W-854-14	04/25/18	949.40	
W-854-14	05/24/18	949.45	PS
W-854-14	05/30/18	949.24	PS
W-854-14	07/16/18	949.30	
W-854-14	10/15/18	949.02	
W-854-14	11/12/18	948.99	PS
W-854-15	01/22/18	1056.64	
W-854-15	04/25/18	1056.71	
W-854-15	05/23/18	1056.67	PS
W-854-15	07/16/18	1057.10	
W-854-15	10/15/18	1056.70	
W-854-15	11/08/18	1056.49	PS
W-854-15	12/03/18	1056.10	PS
W-854-17	01/22/18	1192.63	
W-854-17	04/25/18	1192.43	
W-854-17	05/22/18	1192.48	PS
W-854-17	07/16/18	1192.48	
W-854-17	10/15/18	1192.46	
W-854-17	11/05/18	1192.38	PS
W-854-18A	01/22/18	1195.20	
W-854-18A	04/25/18	1195.12	
W-854-18A	05/23/18	1195.07	PS
W-854-18A	07/16/18	1194.35	
W-854-18A	10/15/18	1193.90	
W-854-18A	11/06/18	1193.86	PS
W-854-19	01/22/18	< 1028.85	DRY
W-854-19	04/25/18	< 1028.85	DRY
W-854-19	07/16/18	< 1028.85	DRY
W-854-19	10/15/18	< 1028.85	DRY
W-854-45	01/22/18	913.68	
W-854-45	04/25/18	914.09	

Table C-8. Building 854 Operable Unit ground water elevations.

W-854-45	05/24/18	914.19	PS
W-854-45	05/30/18	914.28	PS
W-854-45	07/16/18	914.10	
W-854-45	10/15/18	914.00	
W-854-45	11/12/18	913.95	PS
W-854-1701	01/22/18	1011.45	
W-854-1701	04/25/18	1011.89	
W-854-1701	05/29/18	1011.92	PS
W-854-1701	07/16/18	1011.74	
W-854-1701	10/15/18	1011.92	
W-854-1701	11/07/18	1011.80	PS
W-854-1706	01/31/18	NM	No access to well location
W-854-1706	05/01/18	NM	No access to well location
W-854-1706	07/16/18	NM	No access to well location
W-854-1706	10/15/18	NM	No access to well location
W-854-1707	01/31/18	801.43	
W-854-1707	05/01/18	800.54	
W-854-1707	06/04/18	799.60	PS
W-854-1707	07/16/18	799.31	
W-854-1707	10/15/18	799.11	
W-854-1707	12/18/18	798.18	PS
W-854-1731	01/22/18	949.80	
W-854-1731	04/25/18	950.09	
W-854-1731	05/24/18	950.04	PS
W-854-1731	05/30/18	950.14	PS
W-854-1731	07/16/18	950.14	
W-854-1731	10/15/18	949.95	
W-854-1731	11/12/18	949.97	PS
W-854-1822	01/22/18	1039.51	
W-854-1822	04/25/18	1039.52	
W-854-1822	05/29/18	1039.46	PS
W-854-1822	07/16/18	1039.29	
W-854-1822	10/15/18	1039.27	
W-854-1822	11/07/18	1039.25	PS
W-854-1823	01/22/18	1101.25	
W-854-1823	04/25/18	1101.16	
W-854-1823	05/30/18	1101.14	PS
W-854-1823	07/16/18	1100.71	
W-854-1823	10/15/18	1100.21	
W-854-1823	11/08/18	1100.05	PS
W-854-1823	12/03/18	1099.84	PS
W-854-1834	01/22/18	1212.08	
W-854-1834	04/25/18	1212.06	
W-854-1834	07/16/18	1211.99	
W-854-1834	10/15/18	1211.09	
W-854-1835	01/22/18	< 1210.05	DRY
W-854-1835	04/25/18	< 1210.05	DRY
W-854-1835	07/16/18	< 1210.05	DRY
W-854-1835	10/15/18	< 1210.05	DRY
W-854-1902	01/22/18	< 1039.38	DRY

Table C-8. Building 854 Operable Unit ground water elevations.

W-854-1902	04/25/18	< 1039.38	DRY
W-854-1902	07/16/18	< 1039.38	DRY
W-854-1902	10/15/18	< 1039.38	DRY
W-854-2115	01/22/18	993.00	
W-854-2115	04/25/18	992.77	
W-854-2115	05/29/18	992.78	PS
W-854-2115	07/16/18	992.48	
W-854-2115	10/15/18	992.40	
W-854-2115	11/07/18	992.55	PS
W-854-2139	01/22/18	993.19	
W-854-2139	04/25/18	991.38	
W-854-2139	07/16/18	990.31	
W-854-2139	10/15/18	993.53	
W-854-2218	01/22/18	1180.10	
W-854-2218	04/25/18	1179.70	
W-854-2218	07/16/18	1178.40	
W-854-2218	10/15/18	1175.85	
W-854-2611	01/22/18	1185.39	
W-854-2611	04/25/18	1184.72	
W-854-2611	05/22/18	1184.66	PS
W-854-2611	07/16/18	1184.97	
W-854-2611	10/15/18	1185.42	
W-854-2611	11/05/18	1185.40	PS
W-854-3405	10/15/18	NM	No access to well location

Table C-9. Building 832 Canyon Operable Unit ground water elevations.

SPRING3	03/12/18	555.72	PS
SVI-830-0	01/23/18	669.63	
SVI-830-0	03/07/18	669.55	PS
SVI-830-0	03/19/18	669.53	PS
SVI-830-0	04/19/18	669.48	
SVI-830-0	07/26/18	< 669.48	DRY
SVI-830-0	10/17/18	669.19	
SVI-830-0	01/23/18	659.62	
SVI-830-0	04/19/18	< 659.15	DRY
SVI-830-0	07/26/18	< 659.15	DRY
SVI-830-0	10/17/18	< 659.15	DRY
SVI-830-0	01/23/18	668.32	
SVI-830-0	03/07/18	668.32	PS
SVI-830-0	04/19/18	668.25	
SVI-830-0	07/26/18	668.20	
SVI-830-0	09/04/18	668.20	PS
SVI-830-0	10/17/18	667.77	
SVI-830-0	01/23/18	668.96	
SVI-830-0	03/07/18	669.22	PS
SVI-830-0	03/19/18	669.13	PS
SVI-830-0	04/19/18	669.14	
SVI-830-0	07/26/18	668.84	
SVI-830-0	09/04/18	669.26	PS
SVI-830-0	10/17/18	669.36	
W-830-04	01/17/18	578.90	
W-830-04	03/06/18	578.72	PS
W-830-04	04/26/18	578.41	
W-830-04	08/02/18	572.90	
W-830-04	08/27/18	574.38	PS
W-830-04	10/25/18	574.40	
W-830-05	01/17/18	559.15	
W-830-05	03/08/18	559.07	PS
W-830-05	04/26/18	559.21	
W-830-05	08/02/18	557.04	
W-830-05	08/28/18	557.22	PS
W-830-05	10/25/18	557.42	
W-830-07	01/23/18	< 623.20	DRY
W-830-07	04/19/18	< 623.20	DRY
W-830-07	07/30/18	< 623.20	DRY
W-830-07	10/17/18	< 623.20	DRY
W-830-09	01/23/18	580.58	
W-830-09	03/05/18	581.08	PS
W-830-09	04/19/18	581.86	
W-830-09	07/26/18	577.36	
W-830-09	08/23/18	574.01	PS
W-830-09	10/17/18	573.96	
W-830-10	01/17/18	578.33	
W-830-10	03/06/18	578.21	PS
W-830-10	04/26/18	577.85	
W-830-10	08/02/18	572.37	

Table C-9. Building 832 Canyon Operable Unit ground water elevations.

W-830-10	08/27/18	573.87	PS
W-830-10	10/25/18	573.92	
W-830-11	01/17/18	562.27	
W-830-11	03/08/18	562.11	PS
W-830-11	04/26/18	561.49	
W-830-11	08/02/18	558.65	
W-830-11	08/27/18	558.84	PS
W-830-11	10/25/18	559.31	
W-830-12	01/23/18	604.84	
W-830-12	03/07/18	604.80	PS
W-830-12	04/19/18	605.55	
W-830-12	06/13/18	605.64	PS
W-830-12	07/26/18	605.58	
W-830-12	08/23/18	605.40	PS
W-830-12	10/17/18	605.07	
W-830-12	12/05/18	605.87	PS
W-830-13	01/17/18	537.96	
W-830-13	03/08/18	538.00	PS
W-830-13	04/26/18	537.31	
W-830-13	08/02/18	534.07	
W-830-13	08/28/18	533.85	PS
W-830-13	10/25/18	533.77	
W-830-14	01/17/18	544.78	
W-830-14	03/08/18	544.75	PS
W-830-14	04/26/18	544.80	
W-830-14	08/02/18	544.27	
W-830-14	08/28/18	544.18	PS
W-830-14	10/25/18	544.22	
W-830-15	01/17/18	564.19	
W-830-15	03/08/18	564.19	PS
W-830-15	04/26/18	NM	No well access for sampling or measurement
W-830-15	06/13/18	562.21	PS
W-830-15	08/02/18	559.09	
W-830-15	08/28/18	558.24	PS
W-830-15	10/25/18	559.35	
W-830-15	12/05/18	561.21	PS
W-830-16	01/25/18	577.54	
W-830-16	03/07/18	577.23	PS
W-830-16	04/26/18	577.13	
W-830-16	08/02/18	571.83	
W-830-16	09/04/18	573.31	PS
W-830-16	10/30/18	573.48	
W-830-17	01/25/18	566.01	
W-830-17	03/07/18	566.05	PS
W-830-17	04/26/18	566.01	
W-830-17	08/02/18	566.17	
W-830-17	09/04/18	566.16	PS
W-830-17	10/30/18	566.03	
W-830-18	01/17/18	579.59	
W-830-18	03/05/18	581.07	PS

Table C-9. Building 832 Canyon Operable Unit ground water elevations.

W-830-18	04/26/18	580.89	
W-830-18	08/02/18	568.79	
W-830-18	08/27/18	571.64	PS
W-830-18	10/25/18	570.51	
W-830-19	01/23/18	615.92	
W-830-19	04/19/18	615.94	
W-830-19	07/26/18	613.00	
W-830-19	10/17/18	614.34	
W-830-20	01/17/18	575.33	
W-830-20	03/06/18	575.53	PS
W-830-20	04/26/18	575.96	
W-830-20	08/02/18	568.63	
W-830-20	08/27/18	569.55	PS
W-830-20	10/25/18	569.16	
W-830-21	01/17/18	586.74	
W-830-21	03/05/18	586.54	PS
W-830-21	04/26/18	586.57	
W-830-21	08/02/18	585.45	
W-830-21	08/27/18	585.34	PS
W-830-21	10/25/18	585.34	
W-830-22	01/23/18	605.39	
W-830-22	03/06/18	605.25	PS
W-830-22	04/19/18	605.07	
W-830-22	08/02/18	604.17	
W-830-22	08/28/18	604.15	PS
W-830-22	10/17/18	603.72	
W-830-25	01/23/18	< 595.94	DRY
W-830-25	04/19/18	< 595.94	DRY
W-830-25	07/30/18	595.94	
W-830-25	10/25/18	< 595.94	DRY
W-830-26	01/23/18	585.61	
W-830-26	02/28/18	586.23	PS
W-830-26	04/19/18	586.85	
W-830-26	07/26/18	584.90	
W-830-26	10/17/18	582.03	
W-830-27	01/23/18	594.21	
W-830-27	02/28/18	594.11	PS
W-830-27	03/07/18	594.28	PS
W-830-27	04/19/18	593.74	
W-830-27	07/30/18	584.05	
W-830-27	08/28/18	583.94	PS
W-830-27	10/25/18	583.84	
W-830-28	01/23/18	579.71	
W-830-28	02/28/18	580.26	PS
W-830-28	04/19/18	580.96	
W-830-28	07/30/18	569.78	
W-830-28	08/28/18	571.83	PS
W-830-28	10/25/18	570.62	
W-830-29	01/23/18	587.23	
W-830-29	02/28/18	587.83	PS

Table C-9. Building 832 Canyon Operable Unit ground water elevations.

W-830-29	04/19/18	588.30	
W-830-29	07/26/18	586.43	
W-830-29	08/27/18	585.61	PS
W-830-29	10/17/18	586.31	
W-830-30	01/23/18	672.30	
W-830-30	03/07/18	672.25	PS
W-830-30	03/28/18	671.94	PS
W-830-30	04/19/18	672.16	
W-830-30	07/26/18	671.52	
W-830-30	09/05/18	672.69	PS
W-830-30	10/17/18	672.71	
W-830-34	01/23/18	672.35	
W-830-34	03/07/18	672.58	PS
W-830-34	03/19/18	672.15	PS
W-830-34	04/19/18	671.61	
W-830-34	07/26/18	672.00	
W-830-34	09/05/18	672.65	PS
W-830-34	10/17/18	672.65	
W-830-49	01/23/18	628.74	
W-830-49	04/19/18	628.55	
W-830-49	07/26/18	626.54	
W-830-49	10/17/18	626.04	
W-830-50	01/17/18	578.74	
W-830-50	03/08/18	578.52	PS
W-830-50	04/26/18	578.20	
W-830-50	08/02/18	572.81	
W-830-50	09/05/18	574.22	PS
W-830-50	10/25/18	574.30	
W-830-51	01/17/18	NM	No well access for sampling or measurement
W-830-51	04/26/18	NM	No well access for sampling or measurement
W-830-51	08/02/18	NM	No well access for sampling or measurement
W-830-51	11/19/18	NM	No well access for sampling or measurement
W-830-52	01/17/18	NM	No well access for sampling or measurement
W-830-52	04/26/18	NM	No well access for sampling or measurement
W-830-52	08/02/18	NM	No well access for sampling or measurement
W-830-52	10/25/18	NM	No well access for sampling or measurement
W-830-53	01/17/18	NM	No well access for sampling or measurement
W-830-53	04/26/18	NM	No well access for sampling or measurement
W-830-53	08/02/18	NM	No well access for sampling or measurement
W-830-53	10/25/18	NM	No access to well location
W-830-54	01/25/18	547.47	
W-830-54	03/07/18	547.54	PS
W-830-54	04/26/18	547.52	
W-830-54	08/02/18	546.22	
W-830-54	09/04/18	545.86	PS
W-830-54	10/30/18	545.97	
W-830-55	01/25/18	577.75	
W-830-55	03/07/18	577.57	PS
W-830-55	04/26/18	577.18	
W-830-55	08/02/18	572.15	

Table C-9. Building 832 Canyon Operable Unit ground water elevations.

W-830-55	09/04/18	573.53	PS
W-830-55	10/30/18	573.66	
W-830-56	01/17/18	545.59	
W-830-56	03/08/18	545.52	PS
W-830-56	04/26/18	545.52	
W-830-56	08/02/18	545.03	
W-830-56	08/28/18	544.98	PS
W-830-56	10/25/18	544.95	
W-830-57	01/23/18	579.55	
W-830-57	04/19/18	580.67	
W-830-57	07/30/18	569.95	
W-830-57	10/25/18	570.56	
W-830-58	01/23/18	608.44	
W-830-58	02/28/18	607.45	PS
W-830-58	03/07/18	607.52	PS
W-830-58	04/19/18	607.42	
W-830-58	07/30/18	606.67	
W-830-58	08/28/18	606.58	PS
W-830-58	10/25/18	606.37	
W-830-59	01/23/18	612.10	
W-830-59	04/19/18	612.14	
W-830-59	07/26/18	612.61	
W-830-59	10/17/18	609.86	
W-830-60	01/17/18	579.73	
W-830-60	04/26/18	580.98	
W-830-60	08/02/18	567.22	
W-830-60	10/25/18	570.91	
W-830-17	01/09/18	524.15	
W-830-17	03/07/18	523.80	PS
W-830-17	04/26/18	523.88	
W-830-17	06/13/18	523.70	PS
W-830-17	08/02/18	523.53	
W-830-17	08/28/18	523.52	PS
W-830-17	10/30/18	523.40	
W-830-17	12/05/18	523.29	PS
W-830-18	01/23/18	669.28	
W-830-18	04/19/18	669.17	
W-830-18	08/20/18	661.73	
W-830-18	10/17/18	663.22	
W-830-18	01/23/18	607.41	
W-830-18	02/28/18	607.51	PS
W-830-18	04/19/18	607.36	
W-830-18	07/26/18	606.81	
W-830-18	09/05/18	607.11	PS
W-830-18	10/17/18	606.81	
W-830-18	01/23/18	606.20	
W-830-18	03/06/18	606.18	PS
W-830-18	04/19/18	606.18	
W-830-18	07/26/18	606.05	
W-830-18	09/05/18	605.78	PS

Table C-9. Building 832 Canyon Operable Unit ground water elevations.

W-830-18	10/17/18	605.42	
W-830-18	01/25/18	579.01	
W-830-18	03/07/18	578.82	PS
W-830-18	04/26/18	578.51	
W-830-18	08/02/18	573.17	
W-830-18	09/04/18	572.40	PS
W-830-18	10/30/18	574.61	
W-830-18	01/25/18	580.67	
W-830-18	03/07/18	581.14	PS
W-830-18	03/19/18	581.12	PS
W-830-18	04/26/18	581.64	
W-830-18	08/02/18	570.82	
W-830-18	09/04/18	570.52	PS
W-830-18	10/30/18	572.28	
W-830-22	01/17/18	589.49	
W-830-22	03/05/18	589.28	PS
W-830-22	04/26/18	587.74	
W-830-22	08/02/18	578.89	
W-830-22	10/25/18	< 578.89	DRY
W-830-22	01/17/18	590.17	
W-830-22	04/26/18	587.46	
W-830-22	08/02/18	573.77	
W-830-22	10/25/18	574.57	
W-830-22	01/17/18	579.99	
W-830-22	04/26/18	581.36	
W-830-22	08/02/18	565.45	
W-830-22	10/25/18	571.07	
W-830-22	01/09/18	538.29	
W-830-22	04/26/18	538.19	
W-830-22	08/02/18	538.12	
W-830-22	10/30/18	538.03	
W-830-23	01/17/18	578.69	
W-830-23	03/12/18	578.47	PS
W-830-23	04/26/18	578.14	
W-830-23	08/02/18	572.77	
W-830-23	08/27/18	574.27	PS
W-830-23	10/25/18	574.29	
W-830-26	01/10/18	525.18	
W-830-26	05/02/18	525.52	
W-830-26	08/08/18	525.41	
W-830-26	10/30/18	525.09	
W-830-27(	01/17/18	578.90	
W-830-27(	04/26/18	578.35	
W-830-27(	08/02/18	569.37	
W-830-27(	10/25/18	574.37	
W-830-28(	01/25/18	579.22	
W-830-28(	03/07/18	579.19	PS
W-830-28(	04/26/18	578.94	
W-830-28(	06/18/18	574.82	PS
W-830-28(	08/02/18	574.00	

Table C-9. Building 832 Canyon Operable Unit ground water elevations.

W-830-28(	09/04/18	573.58	PS
W-830-28(	10/30/18	575.04	
W-830-28(	12/06/18	575.92	PS
W-830-34	11/20/18	NM	Well location under construction
W-831-01	01/23/18	639.65	
W-831-01	04/19/18	640.02	
W-831-01	07/26/18	639.72	
W-831-01	10/17/18	639.86	
W-832-01	01/23/18	675.63	
W-832-01	04/19/18	675.63	
W-832-01	07/30/18	676.56	
W-832-01	10/17/18	674.51	
W-832-05	01/23/18	685.10	
W-832-05	04/19/18	687.07	
W-832-05	07/30/18	687.82	
W-832-05	10/17/18	686.23	
W-832-06	01/23/18	681.90	
W-832-06	02/27/18	682.24	PS
W-832-06	04/19/18	682.47	
W-832-06	07/30/18	683.15	
W-832-06	08/22/18	682.85	PS
W-832-06	10/17/18	682.25	
W-832-09	01/23/18	632.89	
W-832-09	02/28/18	633.12	PS
W-832-09	04/19/18	633.38	
W-832-09	07/30/18	633.82	
W-832-09	08/23/18	633.44	PS
W-832-09	10/17/18	633.54	
W-832-10	01/23/18	655.34	
W-832-10	04/19/18	649.76	
W-832-10	07/30/18	654.10	
W-832-10	10/25/18	653.65	
W-832-11	01/23/18	666.70	
W-832-11	04/19/18	666.35	
W-832-11	07/30/18	668.95	
W-832-11	08/23/18	668.79	PS
W-832-11	10/25/18	667.95	
W-832-12	01/23/18	703.03	
W-832-12	04/23/18	701.90	
W-832-12	07/30/18	703.58	
W-832-12	10/25/18	700.77	
W-832-13	01/23/18	703.78	
W-832-13	02/28/18	704.07	PS
W-832-13	04/19/18	704.51	
W-832-13	07/30/18	704.13	
W-832-13	08/23/18	703.13	PS
W-832-13	10/25/18	701.56	
W-832-14	01/23/18	695.56	
W-832-14	04/19/18	697.50	
W-832-14	07/30/18	698.53	

Table C-9. Building 832 Canyon Operable Unit ground water elevations.

W-832-14	08/23/18	697.77	PS
W-832-14	10/25/18	696.17	
W-832-15	01/23/18	702.66	
W-832-15	04/23/18	700.63	
W-832-15	07/30/18	703.13	
W-832-15	10/25/18	700.83	
W-832-16	01/23/18	< 702.82	DRY
W-832-16	04/19/18	703.22	
W-832-16	07/30/18	703.18	
W-832-16	10/25/18	< 703.18	DRY
W-832-17	01/23/18	< 703.35	DRY
W-832-17	04/19/18	< 703.20	DRY
W-832-17	07/30/18	703.70	
W-832-17	08/23/18	704.20	PS
W-832-17	10/25/18	703.35	
W-832-18	01/23/18	695.65	
W-832-18	04/19/18	< 695.65	DRY
W-832-18	07/30/18	697.50	
W-832-18	10/25/18	696.00	
W-832-19	01/23/18	< 695.24	DRY
W-832-19	04/19/18	697.42	
W-832-19	07/30/18	697.62	
W-832-19	08/23/18	696.62	PS
W-832-19	10/25/18	695.69	
W-832-20	01/23/18	< 695.97	DRY
W-832-20	04/19/18	696.27	
W-832-20	07/30/18	697.88	
W-832-20	08/23/18	697.42	PS
W-832-20	10/25/18	< 696.88	DRY
W-832-21	01/23/18	< 708.69	DRY
W-832-21	04/19/18	< 708.69	DRY
W-832-21	07/30/18	< 708.69	DRY
W-832-21	10/25/18	< 708.69	DRY
W-832-22	01/23/18	< 664.27	DRY
W-832-22	04/19/18	< 664.27	DRY
W-832-22	07/30/18	< 664.27	DRY
W-832-22	10/25/18	< 664.27	DRY
W-832-23	01/23/18	687.36	
W-832-23	02/27/18	687.79	PS
W-832-23	04/19/18	689.36	
W-832-23	07/30/18	689.34	
W-832-23	08/22/18	688.83	PS
W-832-23	10/17/18	687.49	
W-832-24	01/23/18	624.42	
W-832-24	02/28/18	624.21	PS
W-832-24	04/19/18	623.99	
W-832-24	07/30/18	623.61	
W-832-24	08/23/18	623.46	PS
W-832-24	10/17/18	623.19	
W-832-25	01/23/18	634.70	

Table C-9. Building 832 Canyon Operable Unit ground water elevations.

W-832-25	04/19/18	627.12	
W-832-25	07/30/18	632.02	
W-832-25	10/25/18	630.92	
W-832-19	01/25/18	592.75	
W-832-19	03/08/18	592.53	PS
W-832-19	04/26/18	592.60	
W-832-19	08/02/18	592.30	
W-832-19	08/27/18	592.30	PS
W-832-19	10/30/18	592.10	
W-832-21	01/25/18	586.19	
W-832-21	03/08/18	586.77	PS
W-832-21	04/26/18	586.87	
W-832-21	06/13/18	584.67	PS
W-832-21	08/06/18	582.36	
W-832-21	08/28/18	582.06	PS
W-832-21	10/29/18	582.31	
W-832-21	12/12/18	583.29	PS
W-832-29	01/23/18	580.36	
W-832-29	02/28/18	580.89	PS
W-832-29	04/19/18	581.54	
W-832-29	06/13/18	576.23	PS
W-832-29	07/26/18	573.69	
W-832-29	08/23/18	572.98	PS
W-832-29	10/17/18	573.25	
W-832-29	12/05/18	573.31	PS
W-832-30	01/29/18	573.76	
W-832-30	04/26/18	NM	No access to well location
W-832-30	08/02/18	NM	No access to well location
W-832-30	10/25/18	NM	No access to well location
W-832-30	01/23/18	688.26	
W-832-30	02/27/18	688.55	PS
W-832-30	04/19/18	689.28	
W-832-30	07/30/18	690.03	
W-832-30	10/17/18	688.38	
W-832-SC	01/29/18	< 579.51	DRY
W-832-SC	04/26/18	NM	No access to well location
W-832-SC	08/02/18	NM	No access to well location
W-832-SC	10/25/18	NM	No access to well location
W-832-SC	01/29/18	< 571.09	DRY
W-832-SC	04/26/18	NM	No access to well location
W-832-SC	08/02/18	NM	No access to well location
W-832-SC	10/25/18	NM	No access to well location
W-832-SC	01/29/18	558.45	
W-832-SC	03/12/18	558.37	PS
W-832-SC	04/26/18	557.57	
W-832-SC	08/02/18	< 557.57	DRY
W-832-SC	10/25/18	< 557.57	DRY
W-832-SC	01/09/18	530.71	
W-832-SC	03/12/18	530.97	PS
W-832-SC	04/26/18	530.30	

Table C-9. Building 832 Canyon Operable Unit ground water elevations.

W-832-SC	08/02/18	< 530.30	DRY
W-832-SC	10/25/18	< 530.30	DRY
W-870-01	01/10/18	< 507.91	DRY
W-870-01	04/24/18	< 507.91	DRY
W-870-01	08/09/18	< 507.91	DRY
W-870-01	11/01/18	< 507.91	DRY
W-870-02	01/10/18	506.18	
W-870-02	03/08/18	506.19	PS
W-870-02	05/02/18	506.02	
W-870-02	08/09/18	505.67	
W-870-02	09/05/18	506.07	PS
W-870-02	11/19/18	505.92	
W-880-01	01/10/18	508.46	
W-880-01	03/12/18	508.35	PS
W-880-01	05/02/18	507.96	
W-880-01	06/18/18	507.92	PS
W-880-01	08/08/18	507.76	
W-880-01	09/05/18	507.57	PS
W-880-01	10/30/18	507.90	
W-880-01	12/06/18	507.60	PS
W-880-02	01/10/18	506.96	
W-880-02	03/08/18	507.23	PS
W-880-02	05/02/18	516.97	
W-880-02	06/18/18	506.75	PS
W-880-02	08/08/18	506.52	
W-880-02	09/05/18	506.37	PS
W-880-02	10/30/18	506.75	
W-880-02	12/06/18	506.75	PS
W-880-03	01/17/18	> 533.73	HIGH-ARTESIAN
W-880-03	05/02/18	> 534.39	HIGH-ARTESIAN
W-880-03	05/21/18	537.05	ARTESIAN
W-880-03	06/18/18	528.10	PS
W-880-03	08/08/18	528.25	
W-880-03	09/05/18	535.21	PS
W-880-03	10/30/18	529.78	ARTESIAN
W-880-03	12/06/18	535.30	PS

Table C-10. Building 851 Firing Table ground water elevations.

W-851-05	02/01/18	1134.59	
W-851-05	05/01/18	1134.89	
W-851-05	05/31/18	1134.78	PS
W-851-05	07/16/18	1134.71	
W-851-05	10/04/18	1134.69	
W-851-05	10/30/18	1134.59	PS
W-851-06	02/01/18	1134.59	
W-851-06	05/01/18	1134.73	
W-851-06	05/31/18	1134.20	PS
W-851-06	07/16/18	1134.53	
W-851-06	10/04/18	1134.70	
W-851-06	10/30/18	1134.60	PS
W-851-07	02/01/18	1134.37	
W-851-07	05/01/18	1134.52	
W-851-07	05/31/18	1134.63	PS
W-851-07	07/16/18	1134.59	
W-851-07	10/04/18	1134.62	
W-851-07	10/30/18	1134.44	PS
W-851-08	02/01/18	1091.20	
W-851-08	05/01/18	1091.52	
W-851-08	05/31/18	1091.46	PS
W-851-08	07/16/18	1091.32	
W-851-08	10/04/18	1091.27	
W-851-08	10/30/18	1091.16	PS

Table C-11. Building 845 Firing Table and Pit 9 Landfill ground water elevations.

K9-01	01/17/18	996.21	
K9-01	04/25/18	996.31	
K9-01	07/12/18	NM	No access to well location
K9-01	08/22/18	996.16	
K9-01	10/10/18	996.23	
K9-01	10/11/18	996.22	PS
K9-02	01/17/18	1005.20	
K9-02	04/25/18	1005.49	
K9-02	07/12/18	1005.38	
K9-02	07/12/18	NM	No access to well location
K9-02	10/10/18	1005.50	
K9-02	10/11/18	1005.50	PS
K9-03	01/17/18	996.48	
K9-03	04/25/18	996.53	
K9-03	07/12/18	NM	No access to well location
K9-03	08/22/18	996.99	
K9-03	10/10/18	996.74	
K9-04	01/17/18	994.12	
K9-04	04/25/18	994.25	
K9-04	07/12/18	NM	No access to well location
K9-04	08/22/18	994.27	
K9-04	10/10/18	994.08	
K9-04	10/11/18	994.06	PS
W-PIT9-32	07/12/18	NM	No access to well location
W-PIT9-32	07/12/18	NM	No access to well location
W-PIT9-32	07/12/18	NM	No access to well location

Table C-12. Building 833 ground water elevations.

W-833-03	01/09/18	< 812.37	DRY
W-833-03	04/17/18	< 812.37	DRY
W-833-03	07/17/18	< 812.48	DRY
W-833-03	10/04/18	< 812.48	DRY
W-833-12	01/09/18	< 826.79	DRY
W-833-12	04/17/18	827.12	
W-833-12	07/17/18	< 827.12	DRY
W-833-12	10/04/18	< 827.12	DRY
W-833-18	01/09/18	< 810.23	DRY
W-833-18	04/17/18	< 810.23	DRY
W-833-18	07/17/18	< 810.23	DRY
W-833-18	10/04/18	< 810.23	DRY
W-833-22	01/09/18	< 823.41	DRY
W-833-22	04/17/18	< 823.41	DRY
W-833-22	07/17/18	< 823.41	DRY
W-833-22	10/04/18	< 823.41	DRY
W-833-28	01/09/18	813.99	
W-833-28	04/17/18	813.82	
W-833-28	07/17/18	< 813.52	DRY
W-833-28	10/04/18	813.59	
W-833-30	01/09/18	586.35	
W-833-30	04/17/18	587.06	
W-833-30	07/17/18	586.97	
W-833-30	10/04/18	586.21	
W-833-33	01/09/18	823.65	
W-833-33	02/27/18	823.38	PS
W-833-33	04/17/18	827.70	
W-833-33	07/17/18	824.67	
W-833-33	08/08/18	824.17	PS
W-833-33	10/04/18	837.55	
W-833-34	01/09/18	< 815.02	DRY
W-833-34	04/17/18	< 815.02	DRY
W-833-34	07/17/18	< 815.02	DRY
W-833-34	10/04/18	< 815.02	DRY
W-833-43	01/09/18	< 826.28	DRY
W-833-43	04/17/18	< 826.28	DRY
W-833-43	07/17/18	< 826.28	DRY
W-833-43	10/04/18	< 826.28	DRY
W-840-01	01/08/18	583.18	
W-840-01	03/13/18	583.07	PS
W-840-01	04/18/18	583.31	
W-840-01	07/17/18	583.55	
W-840-01	11/05/18	583.83	
W-841-01	01/08/18	567.52	
W-841-01	03/12/18	567.78	PS
W-841-01	04/18/18	568.03	
W-841-01	07/17/18	568.47	
W-841-01	11/05/18	568.76	

Table C-13. Building 801 Firing Table and Pit 8 Landfill ground water elevations.

K8-01	01/29/18	966.10	
K8-01	04/11/18	966.02	
K8-01	05/14/18	966.02	PS
K8-01	07/11/18	965.94	
K8-01	10/08/18	965.89	
K8-01	11/26/18	965.30	PS
K8-02B	01/29/18	964.80	
K8-02B	02/05/18	964.76	PS
K8-02B	04/11/18	964.84	
K8-02B	05/14/18	964.76	PS
K8-02B	07/11/18	964.74	
K8-02B	07/25/18	964.57	PS
K8-02B	10/08/18	964.42	
K8-02B	11/26/18	964.37	PS
K8-03B	05/14/18	966.64	PS
K8-03B	11/26/18	966.18	PS
K8-04	01/29/18	964.51	
K8-04	04/11/18	964.53	
K8-04	05/14/18	964.37	PS
K8-04	07/11/18	964.35	
K8-04	10/08/18	964.27	
K8-04	11/26/18	964.21	PS
K8-05	01/29/18	< 985.80	DRY
K8-05	04/11/18	< 985.80	DRY
K8-05	07/11/18	< 985.80	DRY
K8-05	10/08/18	< 985.85	DRY

Appendix D

Appendix D

Institutional Controls Monitoring Checklist

Table D-1. Completed 2018 Institutional Controls Monitoring Checklist

Table B-2. Institutional Controls Monitoring Checklist

This checklist will be used to conduct monitoring of institutional and engineered controls that are used to prevent exposure to contamination. The checklist will be completed at least annually and the results will be reported in the annual Compliance Monitoring Reports. Corrective action implementation is discussed in Section 6.1.6.

Institutional Control	Status[a]	Explanation/Observation of Corrective Action
Verify that the occupancy warning signs are visible at Building 834D.	Yes	Inspected on 12/20/18. Signs in place on both entrances to building.
Verify that the Pit 6 Landfill was inspected within the last year and deficiencies were corrected.[b]	Yes	Inspected on 4/16/18. Maintenance performed including closing animal holes and weed removal.
Verify that signage is in place at the Pit 6 Landfill prohibiting unauthorized access and excavation.	No	Only one sign was in place, which did not prohibit excavation or access. New signs have been produced, including a second set for alternate access points, to include more specific restrictions. Sign installations did not take place prior to end of 2018, due delay in obtaining excavation permit.
Verify that the fences and warning signs at the site boundary and control entry are in proper condition.[c]	No	Fencing and warning signs at the control entry are in proper condition. However, the entire perimeter fence and associated warning signs were not inspected in 2018. An inspections process is being developed, but has not yet been implemented.
Verify that the Building 850 Soil Solidification Corrective Action Management Unit was inspected within the last year and deficiencies were corrected.[d]	Yes	Inspections were performed as prescribed on 10/17/18 and 12/20/18. However, a substantial number of rodent holes were observed during both inspections, but due to restrictions mandated by the Environmental Functional Area, repairs could not be made during the reporting period.
Verify that the Pit 7 Complex Drainage Diversion System was inspected within the last year and deficiencies were corrected.[e]	Yes	Inspections performed monthly and/or after each rainfall event in 2018. Maintenance performed as needed.
Verify that the Pit 7 Complex landfills were inspected within the last year and deficiencies were corrected.[b]	Yes	Inspections performed after each rainfall event in 2018. Maintenance performed as needed.
Verify that signage is in place at the Pit 7 Complex Landfills prohibiting unauthorized access and excavation.	No	One sign was in place, but did not specifically prohibit excavation or access. New signs have been produced, including a second set for southern access, to include more specific restrictions. Sign installations did not take place prior to end of 2018 due to delay in obtaining excavation permit.
Verify that the occupancy warning signs are visible at Building 854A.	Yes	Inspected on 12/20/18. Sign in place on Room 102.

Table B-2. Institutional Controls Monitoring Checklist (continued).

Institutional Control	Status[a]	Explanation/Observation of Corrective Action
Verify that the occupancy warning signs are visible at Building 830.	Yes	Inspected on 12/20/18. Sign in place on two doors.
Verify that the occupancy warning signs are visible at Building 833.	Yes	Inspected on 12/20/18. Sign in place on door to internal hallway (rm 106).
Check that the engineered controls (heating, ventilating, and air-conditioning system for Building 833) are functioning properly.	Yes	Inspected on 12/20/18. Ventilation fully functional.
Verify that the Pit 2 Landfill was inspected within the last year and deficiencies were corrected.[b]	Yes	Inspected 1/18/18, 4/16/18, 7/18/18, and 10/25/18. All deficiencies corrected.
Verify that the Pit 8 Landfill was inspected within the last year and deficiencies were corrected.[b]	Yes	Inspected 1/18/18, 4/16/18, 7/18/18, and 10/25/18. All deficiencies corrected.
Verify that the Pit 9 Landfill was inspected within the last year and deficiencies were corrected.[b]	Yes	Inspected 1/18/18, 4/16/18, 7/18/18, and 10/25/18. All deficiencies corrected.

Notes:

[a] Satisfactory status indicated by "Yes". Unsatisfactory status indicated by "No". Unsatisfactory status requires explanation. The Inspector shall immediately notify the Environmental Restoration Project Leader of any unsatisfactory status.

[b] The landfills are inspected and maintained by LLNL Maintenance and Utility Services. Inspections are documented and the results are provided to the Environmental Restoration Project and reported in the annual Compliance Monitoring Reports.

[c] Perimeter fences are inspected by the CAS Inspections Group annually.

[d] The Building 850 Soil Solidification mound is inspected and maintained by LLNL Maintenance and Utility Services. Inspections are documented and the results are provided to the Environmental Restoration Project and reported in the annual Compliance Monitoring Reports.

[e] The Pit 7 Drainage Diversion System is inspected and maintained by LLNL Maintenance and Utility Services. Inspections are documented and the results are provided to the Environmental Restoration Project and reported in the annual Compliance Monitoring Reports.

Completed by:

Steve Gregory _____ Date: 12/20/18
(Print Name) (Signature)

Appendix E

Appendix E

Per- and Polyfluoroalkyl Substances Sampling Results for Monitor Well W-25M-01

Table E-1. Lawrence Livermore National Laboratory Site 300 Per- and Polyfluoroalkyl Substances (PFAS) Sampling Results for Monitor Well W-25M-01

U.S. Department of Energy
National Nuclear Security Administration

Livermore Field Office, Livermore, California 94551

Lawrence Livermore National Laboratory

Lawrence Livermore National Security, LLC, Livermore, California 94551

LLNL-MI-763061

Lawrence Livermore National Laboratory Site 300 Per- and Polyfluoroalkyl Substances (PFAS) Sampling Results for Monitor Well W-25M-01

November 2018

Environmental Restoration Department

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Lawrence Livermore National Laboratory, Site 300 Per- and Polyfluoroalkyl Substances (PFAS) Sampling Results for Monitor Well W-25M-01

This summary discusses results of the sampling of monitor well W-25M-01, located downgradient of the former Navy Fire Suppression Area within the Eastern General Services Area (EGSA), Lawrence Livermore National Laboratory – Site 300. The EGSA has reached regulatory closure; the final close-out document was submitted to the regulatory agencies on June 26, 2017 (Ferry et al., 2017). The purpose of sampling well W-25M-01 was to analyze groundwater samples for flame-retardant chemicals, namely Per- and Polyfluoroalkyl Substances (PFAS), prior to the decommissioning of EGSA monitoring wells, as requested during: *Lawrence Livermore National Laboratory Site 300 Remedial Project Managers' Meeting — January 19, 2017*. Based on Central Valley Regional Water Quality Control Board approval (Attachment 1), W-25M-01 will be decommissioned in 2019.

DOE/LLNL submitted a PFAS sampling and analysis plan for W-25M-01 on July 20, 2018. Environmental Protection Agency (EPA) and Central Valley Regional Water Quality Control Board comments recieved on August 6 and August 3, 2018, respectively, were incorporated into the sampling plan (LLNL, 2018). Sampling of W-25M-01 was completed September 11, 2018. Routine, duplicate, equipment rinseate, field blank, and trip blank samples were collected. Analysis was completed using TestAmerica Laboratories Modified EPA Method 537 (Table 1).

Total Perfluorooctanoic acid (PFOA) was detected in routine and duplicate samples at 3.2 and 2.8 ppt, respectively. Total Perfluorohexanesulfonic acid was detected in routine and duplicate samples at 7.6 and 7.8 ppt, respectively. Currently, there are no regulatory levels for Perfluorohexanesulfonic acid. None of the nineteen analytes were detected in rinsate, field blank, or trip blank samples. All samples were below the California Division of Drinking Water notification level of 14 ppt for perfluorooctanoic acid (PFOA) and 13 ppt for perfluorooctanesulfonic acid (PFOS), the California Response Level of 70 ppt total PFOA and PFOS, and the EPA's health advisory level of 70 ppt total PFOA and PFOS.

DOE/LLNL provided a summary of PFAS presence, waste generation, and analytical data to the California Department of Toxic Substances Control on November 16, 2018, in response to a request for information issued by the agency.

References

Ferry L., A. Anderson, J. Lorega, and M. Buscheck (2017), *Close Out Report for the Eastern General Services Area Subarea of Operable Unit 1 at Lawrence Livermore National Laboratory Site 300*, Lawrence Livermore National Laboratory, Livermore, Calif. (LLNL-AR-607015).

LLNL (2018), *Site 300 Per- and Polyfluoroalkyl Substances (PFAS) Sampling and Analysis Plan for Monitor Well W-25M-01,* Lawrence Livermore National Laboratory, Livermore, Calif. (LLNL-MI-755225).

Tables

Table 1. Modified EPA Method 537 analytes and reporting limits (Test America Laboratories).

	Reporting Limit	
Analyte	**ug/L**	**ppt**
Perfluoro-1-butanesulfonic acid | PFBS	0.0025	2.5
PFBA | Perfluoro-n-butanoic acid	0.0025	2.5
Perfluoro-1-decanesulfonic acid | PFDS	0.004	4
Perfluoro-n-decanoic acid | PFDA	0.0025	2.5
Perfluoro-n-dodecanoic acid | PFDoA	0.0025	2.5
PFHpS | Perfluoro-1-heptanesulfonic acid	0.0025	2.5
PFHpA | Perfluoro-n-heptanoic acid	0.0025	2.5
Perfluoro-n-hexadecanoic acid | PFHxDA	0.0025	2.5
Total PFHxS | Total Perfluorohexanesulfonic acid	0.0025	2.5
Perfluoro-n-hexanoic acid | PFHxA	0.0025	2.5
Perfluoro-n-nonanoic acid | PFNA	0.0025	2.5
PFODA | Perfluoro-n-octadecanoic acid	0.0025	2.5
FOSA | Perfluorooctane Sulfonamide	0.0025	2.5
Total PFOS | Total Perfluorooctanesulfonic acid	0.004	4
Total Perfluorooctanoic acid | Total PFOA	0.0025	2.5
PFPeA | Perfluoro-n-pentanoic acid	0.0025	2.5
Perfluoro-n-tetradecanoic acid | PFTeA	0.0025	2.5
PFTrDA | Perfluoro-n-tridecanoic acid	0.0025	2.5
PFUdA | Perfluoro-n-undecanoic acid	0.0025	2.5

Notes:

ug/L = micrograms per liter

ppt = parts per trillion

Table 2. W-25M-01 PFAS Sample Results, September 11, 2018.

	Sample Identification [a]					
	W-25M-01			W-25M-01-DUP		
	ug/L		ppt	ug/L		ppt
Perfluoro-1-butanesulfonic acid	< 0.002	<	2	< 0.0021	<	2.1
Perfluoro-1-decanesulfonic acid	< 0.0032	<	3.2	< 0.0034	<	3.4
Perfluoro-1-heptanesulfonic acid	< 0.002	<	2	< 0.0021	<	2.1
Perfluoro-n-butanoic acid	< 0.002	<	2	< 0.0021	<	2.1
Perfluoro-n-decanoic acid	< 0.002	<	2	< 0.0021	<	2.1
Perfluoro-n-dodecanoic acid	< 0.002	<	2	< 0.0021	<	2.1
Perfluoro-n-heptanoic acid	< 0.002	<	2	< 0.0021	<	2.1
Perfluoro-n-hexadecanoic acid	< 0.0032	<	3.2	< 0.0034	<	3.4
Perfluoro-n-hexanoic acid	< 0.002	<	2	< 0.0021	<	2.1
Perfluoro-n-nonanoic acid	< 0.002	<	2	< 0.0021	<	2.1
Perfluoro-n-octadecanoic acid	< 0.0032	<	3.2	< 0.0034	<	3.4
Perfluoro-n-pentanoic acid	< 0.002	<	2	< 0.0021	<	2.1
Perfluoro-n-tetradecanoic acid	< 0.0032	<	3.2	< 0.0034	<	3.4
Perfluoro-n-tridecanoic acid	< 0.0032	<	3.2	< 0.0034	<	3.4
Perfluoro-n-undecanoic acid	< 0.002	<	2	< 0.0021	<	2.1
Perfluorooctane Sulfonamide	< 0.0032	<	3.2	< 0.0034	<	3.4
Total Perfluorohexanesulfonic acid	**0.0076**		**7.6**	**0.0078**		**7.8**
Total Perfluorooctanesulfonic acid	< 0.0032	<	3.2	< 0.0034	<	3.4
Total Perfluorooctanoic acid	**0.0032**		**3.2**	**0.0028**		**2.8**

Notes:

[a] Sample Identification provided for reference to analytical data.

< Indicates less than the reporting limit.

Bold font indicates a detection above the reporting limit.

ug/L = micrograms per liter

ppt = parts per trillion