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First Semester 2010 Compliance Monitoring Report Lawrence Livermore National Laboratory Site 300

Technical Editors

V. Dibley
L. Ferry
M. Buscheck*

Contributing Authors

A. Anderson*
T. Carlsen
S. Chamberlain
S. Gregory
R. Goodrich
A. Helmig*
V. Madrid
P. McKereghan
J. Radyk*
M. Taffet
J. Valett*

*Weiss Associates, Emeryville, California

September 30, 2010

Environmental Restoration Department

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Many people support the Lawrence Livermore National Laboratory Site 300 Environmental Restoration Project. The dedication and diverse skills of all these individuals have contributed to the ongoing success of the Environmental Restoration Department activities. The editors wish to collectively thank all the contributing people and companies.

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 June 2010. 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., 2009). The Eastern GSA post-shutdown monitoring requirements (Holtzapple, 2007) are also included in this report.

During the reporting period of January through June 2010, 4.8 million gallons of ground water and 40.8 million cubic feet of soil vapor were treated at Site 300, removing approximately 6.5 kilograms (kg) of volatile organic compounds (VOCs), 61 grams (g) of perchlorate, 700 kg of nitrate, 69 g of Research Department Explosive (RDX), 4.2 g of a mixture of tetrabutyl orthosilicate (TBOS) and tetrakis (2-ethylbutyl) silane (TKEBS) and 3.6 g of total uranium (Table Summ-1).

Since remediation began in 1991, approximately 381 million gallons of ground water and over 534 million cubic feet of soil vapor have been treated, removing approximately 540 kg of VOCs, 960 g of perchlorate 8,700 kg of nitrate, 1.4 kg of RDX, 9.5 kg of TBOS/TKEBs, and 3.6 g of total 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, ground water monitoring network, and surface water sampling and analyses. These results are presented and discussed by operable unit (OU) as follows:

2.1. General Services Area OU 1
2.2. Building 834 OU 2
2.3. Pit 6 Landfill OU 3
2.4. High Explosive Process Area (HEPA) OU 4
2.5. Building 850/Pit 7 Complex OU 5
2.6. Building 854 OU 6
2.7. Building 832 Canyon OU 7
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 2 through 8 are shown on Figure 2-1. The Pit 2, 8, and 9 Landfills (OU 8) are discussed in Section 3.

The January to June (semi-annual) version of the CMR will no longer include post-only concentration maps and isoconcentration contour maps depicting primary contaminants of concern (COC). In accordance with the revised 2009 CMP/CP requirements, post-only concentration maps and isoconcentration contour maps depicting primary and secondary COC

data will be presented in the annual CMR report along with hydraulic capture zones for all HSUs.

Treatment facility operations and maintenance issues that occurred during the first semester 2010 and influent and effluent analytical data collected during the first semester 2010 are included in this report. Treatment facility pH data collected during the first semester 2010 are presented in Appendix A. Ground and surface water monitoring analytical data and ground water elevation measurements for the entire calendar year 2010 will be presented in the annual report. Analytical data from the analysis of soil samples will be presented in the annual report.

The Building 834 T2 Area *in situ* bioremediation data is included in Appendix B.

2.1. General Services Area (GSA) OU 1

The GSA OU consists of the Eastern and Central GSA areas.

The source of contamination in the Eastern GSA is an abandoned debris burial trench that received craft shop debris. Leaching of solvents in the debris resulted in the release of contaminants to ground water.

A ground water extraction and treatment system (GWTS) operated in the Eastern GSA from 1991 to 2007 to remove VOCs from ground water. VOC-contaminated ground water was extracted from three wells (W-26R-03, W-25N01, and W-25N-24), located downgradient from the debris burial trenches, at a combined flow rate of 45 gallons per minute (gpm). The extracted ground water was treated in three 1,000-pound (lb) granular activated carbon units that removed VOCs through adsorption. The treated effluent water was discharged to nearby Corral Hollow Creek.

Remediation efforts in the Eastern GSA have successfully reduced concentrations of trichloroethylene (TCE) and other VOCs in ground water to below their respective cleanup standards set in the GSA Record of Decision (ROD) (United States [U.S.] Department of Energy [DOE], 1997). The Eastern GSA ground water extraction and treatment system was shut off on February 15, 2007 with the U.S. Environmental Protection Agency (EPA), Regional Water Quality Control Board (RWQCB), and California Department of Toxic Substances Control (DTSC) approval. As required by the GSA ROD, ground water monitoring will be conducted for 5 years after shutdown to determine if VOC concentrations rise or "rebound" above cleanup standards. With one exception described in subsection 2.1.3.3 below, VOC (TCE) concentrations remain below their cleanup standards after three years and eight months following shutdown of the treatment facility.

A map of the Eastern GSA, showing the locations of monitoring and extraction wells and the treatment facility is presented on Figure 2.1-1.

At the Central GSA, chlorinated solvents, mainly TCE, were used as degreasing agents in craft shops, such as Building 875. Rinse water from these degreasing operations was disposed of in dry wells. Typically, dry wells were gravel-filled holes about 3 to 4 feet (ft) deep and two ft in diameter. The Central GSA dry wells were used until 1982. In 1983 and 1984, these dry wells were decommissioned and excavated.

The Central GSA GWTS has been operating since 1992 removing VOCs from ground water. Contaminated ground water is extracted from eight wells (W-7I, W-875-07, W-875-08, W-873-07, W-872-02, W-7O, W-7P, and W-7R) at an approximate combined flow rate of

approximately 2.0 to 3.0 gpm. The Central GSA GWTS began receiving partially treated water from the Building 830-Distal South (830-DISS) facility at the end of the first semester 2007, increasing the flow rate to approximately 5.0 to 6.0 gpm. The current 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 ground water is discharged to the surrounding natural vegetation using misting towers. Treated vapors are discharged to the atmosphere under permit from the San Joaquin Valley Unified Air Pollution Control District.

The Central GSA soil vapor extraction and treatment system (SVTS) began operation in the GSA adjacent to the Building 875 dry well contaminant source area in 1994 removing VOCs from soil vapor. Soil vapor is extracted from wells W-875-07, W-875-08, W-7I, and at a total flow rate of approximately 35 scfm. Simultaneous ground water extraction in the vicinity lowers the elevation of the water table and maximizes the volume of unsaturated soil influenced by vapor extraction. The current SVTS configuration includes a water knockout chamber, a rotary vane blower, and four 140-lb vapor-phase GAC columns arranged in series. Treated vapors are discharged to the atmosphere under a regulatory permit from the San Joaquin Valley Unified Air Pollution Control District.

A map of the Central GSA, showing the locations of monitoring and extraction wells and treatment facilities is presented on Figure 2.1-2.

2.1.1. GSA Ground Water and Soil Vapor Extraction and Treatment System Operations and Monitoring

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

2.1.1.1. GSA Facility Performance Assessment

As discussed above, the Eastern GSA GWTS has been shut down since February 15, 2007. Therefore, only the Central GSA treatment system data are presented in this report. The monthly ground water and soil vapor discharge volumes and rates and operational hours are summarized in Table 2.1-1. The total volume of ground water and vapor extracted and treated and masses removed during the reporting period is presented in Table Summ-1. The cumulative volume of ground water and soil vapor treated and discharged and masses removed are summarized in Table Summ-2. Analytical results for influent and effluent samples are shown in Table 2.1-2. The pH measurement results are presented in Appendix A.

2.1.1.2. GSA Operations and Maintenance Issues

There were no operations and maintenance issues at the Eastern GSA GWTS since it was shut down on February 15, 2007 because ground water cleanup standards have been achieved (see Section 2.1).

The following maintenance and operational issues interrupted continuous operations of the Central GSA GWTS and SVTS during the first semester:

- Freeze protection measures were discontinued and the GWTS and SVTS were restarted on February 1.

- The GWTS and SVTS were shut down on March 4 because water was found inside the facility enclosure, however a leak was not found. The facilities were restarted on March 8 on 10-hr day/4-day/week operational mode and returned to normal operation on March 16.
- A new pump was installed in extraction well W-7O on March 10.
- The GTWS shut down on March 21 due to an unknown cause. The SVTS was shut down on March 22 to avoid upconing of ground water. The facilities returned to full-time operations (24 hrs/day, 7 days a week) on April 15.
- The GWTS was found shut down on May 10 and was restarted.
- The GWTS was found shut down on May 20 and would not restart. The motor contactor was replaced on May 24 and the system was restarted on May 25.
- A site-wide power outage occurred on June 1.
- The GWTS was found shut down on June 7 due to a failed discharge pump motor. A new motor was installed on June 9 and the system was restarted on June 14.

2.1.1.3. GSA Compliance Summary

The Central GSA GWTS operated in compliance with the RWQCB Substantive Requirements for Wastewater Discharge during the first semester 2010. The Central GSA SVTS system operated in compliance with San Joaquin Valley Unified Air Pollution Control District permit limitations.

2.1.1.4. GSA Facility Sampling Plan Evaluation and Modifications

The Central GSA treatment facility sampling and analysis plan complies with the new monitoring requirements in the CMP/CP. The only changes made to the requirements for the Central GSA OU was the suspension of nitrate monitoring as the effluent discharge method is misting and no discharge limit is specified. The treatment facility sampling and analysis plan is presented in Table 2.1-3. The only modification made to the plan during this reporting period was that no compliance monitoring was conducted in January due to system shutdown for freeze protection.

2.1.1.5. GSA Treatment Facility and Extraction Wellfield Modifications

No modifications were made to the CGSA GWTS, SVTS, or the extraction wellfield during this reporting period.

2.1.2. GSA Surface Water and Ground Water Monitoring

The sampling and analysis plans for ground water monitoring at the Central and Eastern GSA are presented in Tables 2.1-4 and 2.1-5, respectively. These tables also delineate and explain deviations from the sampling plan and indicate any additions made to the CMP.

During the reporting period, ground water monitoring was conducted in accordance with the Central GSA CMP and Eastern GSA post-shutdown monitoring requirements with the following exceptions; three required analyses were not performed due to a pump failure and six required

analyses were not performed because there was insufficient water in the wells to collect the samples.

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

The monthly ground water and soil vapor mass removal estimates are summarized in Table 2.1-6. The total mass removed during this reporting period and cumulative mass estimates are summarized in Table Summ-1 and Table Summ-2, respectively.

2.1.3.2. GSA Contaminant Concentrations and Distribution

At the GSA OU, VOCs are the primary COCs detected in ground water. VOCs are present at very low concentrations in ground water within Quaternary alluvial deposits (Qal) that directly overlie the $Tnbs_1$ bedrock in the Eastern GSA.

Since extraction and treatment began at the Eastern GSA in 1991, TCE concentrations in ground water have decreased from a historic maximum of 74 micrograms per liter (µg/L) (W-26R-03, January 1992) to below analytical reporting limits (0.5 µg/L) in the majority of wells and to below the 5 µg/L cleanup standard for TCE in all wells. Within the Qal-$Tnbs_1$ hydrostratigraphic unit (HSU), total VOC concentrations detected in samples during the first semester 2010 ranged from 5.1 µg/L (W-26R-04, June 2010) to <0.5 µg/L. The total VOC concentration detected in well W-26R-04 was made up of 4.6 µg/L of TCE and 0.5 µg/L of tetrachloroethene (PCE). Total VOCs were detected in a sample from only one $Tnbs_1$ well, W-25N-08, at a concentration of 0.5 μg/L (June 2010). First semester 2010 data indicate that TCE and other VOCs have not rebounded significantly and, with one exception described in subsection 2.1.3.3 below, continue to remain below their cleanup standards in all wells since the Eastern GSA GWTS was shutdown in February 2007.

VOCs are the only COCs in ground water and soil vapor at the Central GSA. There are three primary HSUs in the Central GSA:

- Qt-$Tnsc_1$ HSU, a shallow water bearing zone in the western portion of the Central GSA. This HSU includes saturated Qt deposits, and the $Tnbs_2$ sandstone and $Tnsc_1$ siltstone/claystone bedrock units that subcrop beneath the Qt.
- $Tnbs_1$ HSU, a deeper regional aquifer within the western portion of the Central GSA which consists of $Tnbs_1$ sandstone bedrock.
- Qal-$Tnbs_1$ HSU, a shallow water bearing zone within the eastern portion of the Central GSA. In the eastern portion of the Central GSA (near the sewage treatment pond), Qt deposits and the $Tnbs_2$ and $Tnsc_1$ bedrock units are not present. Qal deposits directly overlie the shallow $Tnbs_1$ bedrock that comprises the Qal-$Tnbs_1$ HSU in this area.

A VOC plume exists within the Qt-$Tnsc_1$ and Qal-$Tnbs_1$ HSUs in the Central GSA. Within the Qt-$Tnsc_1$ and Qal-$Tnbs_1$ HSUs, total VOC concentrations during the first semester 2010 ranged from a maximum of 2,000 µg/L (W-7I, June 2010) to <0.5 µg/L. The maximum total VOC ground water concentration continues to occur in the dry well pad area. During the first

semester 2010, total VOCs were detected in offsite monitor wells W-35A-01, W-35A-09, and W-35A-10 at concentrations of 65, 0.7, and 30 µg/L, respectively. Freon 11 comprises 11 µg/L of the total VOC concentration (30 µg/L) in well W-35A-10. Prior to remediation, the maximum total VOC concentration detected in Central GSA ground water was 272,000 µg/L (dry well pad area well W-875-07, 1992), compared to the first semester 2010 maximum concentration of 2,000 µg/L (dry well pad area well W-7I). VOCs were not detected in ground water samples from wells in the deeper $Tnbs_1$ HSU. The decline in VOCs within the Qt-$Tnsc_1$ and Qal-$Tnbs_1$ HSUs and the absence of VOCs in the deeper $Tnbs_1$ HSU, demonstrates the efficacy of ongoing cleanup operations. TCE soil vapor concentrations ranged from 0.18 to 3.6 $ppm_{v/v}$ during first semester 2010. These TCE concentrations have decreased significantly from the maximum historic TCE vapor concentration of 600 $ppm_{v/v}$ at SVTS startup.

2.1.3.3. GSA Remediation Optimization Evaluation

By 2007, ground water extraction and treatment had reduced VOC concentrations in all Eastern GSA wells to below the GSA ROD ground water cleanup standards and TCE concentrations to below analytical reporting limits (0.5 µg/L) in the majority of wells. In January of 2007, DOE/LLNL proposed to initiate the "Requirements for Closeout" described in the Remedial Design document for the GSA OU (Rueth et al., 1998). These requirements specify: *when VOC concentrations in ground water have been reduced to cleanup standards, the ground water extraction and treatment system will be shut off and placed on standby*. The U.S. EPA, RWQCB, and DTSC approved this proposal and the Eastern GSA ground water extraction and treatment system was turned off and effluent discharge to Corral Hollow Creek was discontinued on February 15, 2007, thereby meeting the Substantive Requirements. As required by the GSA ROD, ground water monitoring is being conducted to determine if VOC concentrations rebound above cleanup standards. As of the end of the first semester 2010, TCE has been detected only once above cleanup standards (6.9 µg/L in well W-26R-01, in May 2009). As described in the first semester 2009 CMR, this well and nearby well W-26R-04 were re-sampled in June 2009 with no TCE detections above the cleanup standard. These results were discussed with the U.S. EPA, DTSC, and RWQCB at the July 8, 2009 Remedial Project Managers (RPM) Meeting. The regulatory agencies concurred with continued monitoring and evaluation of TCE concentrations in Eastern GSA wells to determine if TCE concentrations are rebounding. As mentioned in the previous subsection, TCE concentrations were below the 5 µg/L cleanup standard for all Eastern GSA ground water samples collected during first semester 2010.

At the Central GSA, ground water extraction continues to adequately capture the highest concentrations in ground water. During the first semester 2010, extraction well W-7R removed most of the ground water while well W-875-08 removed most of the dissolved VOC mass. Total VOC concentrations within the northern plume area (in the vicinity of W-889-01) remain stable and ground water extraction is being considered in this area. VOC concentrations in offsite wells W-35A-01, W-35A-09, and W-35A-10 show long-term declining trends.

Significantly more VOC mass is being removed by soil vapor extraction than by ground water extraction. During the first semester 2010, 0.14 kg of VOCs was removed from ground water, whereas 0.77 kg of VOCs was removed from vapor. Based on individual well vapor flow monitoring for the first semester 2010, SVE wells W-875-09, W-875-11, and W-875-15 removed

most of the vapor mass. The SVE wellfield configuration will continue to be monitored and evaluated.

2.1.3.4. GSA OU Remedy Performance Issues

There were no new issues that affect the performance of the cleanup remedy for the GSA OU during this reporting period. The remedy continues to be effective and protective of human health and the environment, and to make 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 at the Building 834 Complex have resulted in soil and ground water contamination with VOCs and TBOS/TKEBs. Nitrate concentrations in Building 834 ground water that exceed the cleanup standard (45 mg/L) are likely the result of a combination of natural sources and septic system leachate. In addition, a former underground diesel storage tank released diesel to the subsurface. A map of Building 834 OU showing the locations of monitoring 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 main part of the Building 834 Complex, referred to as the Building 834 core area. The GWTS removes VOCs and TBOS/TKEBs from ground water within the Tpsg HSU and the SVTS removes VOCs from soil vapor. The area immediately to the southwest of the core area is the leachfield area and further to the south is the distal (T2) area. Due to the very low ground water yield from individual ground water 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 not operational without ground water extraction due to the upconing of the ground water in the well that covers the well screen and prevents soil vapor flow.

The current extraction wellfield consists of 13 extraction wells for both ground water and soil vapor extraction. Ten extraction wells (W-834-B2, -B3, -D4, -D5, -D6, -D7, -D12, -D13, -J1, and -2001) are located within the core area and three (W-834-S1, -S12A, and -S13) in the leachfield area. Extraction well W-834-D5 is connected to the facility but has not been used for extraction since the facility was restarted in October 2004 because the capture area is similar to the capture area of extraction well W-834-D13. Ground water and soil vapor extraction well W-834-2001 was added to the system in March 2007. Extracted ground water from this well contains dissolved-phase diesel related to the former underground diesel storage tank. The GWTS extracts ground water at an approximate combined flow rate of 0.23 gpm and the SVTS extracts soil vapor at a combined flow rate of approximately 103 scfm. The current GWTS configuration includes floating hydrocarbon adsorption devices to remove the floating silicon oil, TBOS/TKEBs, and any floating diesel, followed by aqueous-phase GAC to remove VOCs, dissolved-phase TBOS/TKEBs, and diesel from ground water. Nitrate-bearing treated effluent is then discharged via a misting tower onto 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 from the San Joaquin Valley Unified Air Pollution Control District.

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

This section is organized into four subsections: facility performance assessment; operations and maintenance issues; compliance summary; and sampling plan evaluation and modification.

2.2.1.1. Building 834 OU Facility Performance Assessment

The monthly ground water and soil vapor discharge volumes and rates and operational hours are summarized in Table 2.2-1. The total volume of ground water and vapor extracted and treated and masses removed during the reporting period is presented in Table Summ-1. The cumulative volume of ground water and soil vapor treated and discharged and masses removed are summarized in Table Summ-2. Analytical results for influent and effluent samples are shown 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 first semester:

- Freeze protection measures were discontinued and the GWTS and SVTS were restarted on February 1.
- A leak in the pipeline to wells W-834-S1, W-834-S12A, and W-834-S13 was repaired and extraction from these wells resumed on February 9.
- The GWTS and SVTS shut down on April 7 due to a tripped compressor circuit breaker. The compressor oil was checked, the condensate drained, and the system was restarted the same day.
- A site-wide power outage occurred on June 1.

2.2.1.3. Building 834 OU Compliance Summary

The Building 834 GWTS operated in compliance with the RWQCB Substantive Requirements for Wastewater Discharge. The Building 834 SVTS operated in compliance with the San Joaquin Valley Unified Air Pollution Control District permit limitations.

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 new monitoring requirements in the CMP/CP. The only changes made to the requirements for the Building 834 OU was the suspension of nitrate monitoring as the effluent discharge method is misting and no discharge limit is specified. The sampling and analysis plan is presented in Table 2.2-5. The only modification made to the plan during this reporting period was that no compliance monitoring was conducted in January due to system shutdown for freeze protection.

2.2.1.5. Building 834 OU Treatment Facility and Extraction Wellfield Modifications

No modifications to the treatment facility or to the extraction wellfield occurred during this reporting period.

2.2.2. Building 834 OU Ground Water Monitoring

The sampling and analysis plan for ground water monitoring is presented in Table 2.2-6. This table also delineates and explains deviations from the sampling plan and indicates any additions made to the CMP.

During this reporting period, ground water monitoring was conducted in accordance with the CMP monitoring requirements with the following exceptions; seventy required analyses were not performed because there was insufficient water in the wells to collect the samples.

2.2.3. Building 834 OU 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.

2.2.3.1. Building 834 OU Mass Removal

The monthly ground water and soil vapor mass removal estimates are summarized in Table 2.2-7. The total mass removed during this 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 are the primary COCs detected in ground water; TBOS/TKEBs and nitrate are the secondary COCs. These COCs have been identified in two shallow HSUs: 1) the Tpsg perched water-bearing gravel zone, and 2) the underlying Tps-$Tnsc_2$ perching horizon.

2.2.3.2.1. Total VOCs Concentrations and Distribution

While the overall extent of total VOCs in the Building 834 OU ground water 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 highest VOC concentrations in ground water continue to be detected in the 834 core area. Active remediation has reduced total VOC ground water concentrations in the more permeable Tpsg HSU from a pre-remediation maximum of 1,060,000 µg/L (W-834-D3, 1993) to a first semester 2010 maximum concentration of 39,000 µg/L (W-834-C5, January 2010). The underlying Tps-$Tnsc_2$ HSU continues to exhibit the highest total VOC ground water concentrations within Building 834 OU, and throughout Site 300, at 180,000 µg/L (W-834-A1, January 2010). Total VOCs in ground water in well W-834-A1 have remained stable since this well began monitoring the Tps-$Tnsc_2$ HSU in 2000. Another monitor well screened in the Tps-$Tnsc_2$ HSU, W-834-U1, exhibited 63,000 µg/L total VOCs in the first semester 2010 and has generally shown decreasing VOC concentrations since 2000. TCE soil vapor concentrations from the core area SVE wells ranged from 0.01 to 0.97 $ppm_{v/v}$ during first semester 2010. These TCE vapor concentrations have decreased significantly from the maximum pre-remediation core area concentration of 3,200 $ppm_{v/v}$ (W-834-D4, 1989). Well W-834-D4 is located approximately 10 ft from well W-834-D3, which yielded the maximum ground water total VOC concentration in the Tpsg HSU, as mentioned above.

In the leachfield area, total VOCs in the Tpsg HSU have decreased by an order-of-magnitude, from a pre-remediation maximum of 179,200 µg/L (W-834-S1, 1988) to a first semester 2010 maximum concentration of 6,900 µg/L (W-834-2113, February 2010). Total VOCs in the underlying Tps-Tnsc$_2$ HSU in the leachfield area are significantly lower than in the core area. The first semester 2010 maximum total VOC concentration in Tps-Tnsc$_2$ HSU ground water was 6,200 µg/L (W-834-S8, February 2010) in the leachfield area. This HSU has exhibited decreasing or stable VOC trends since monitoring began in 1989. First semester 2010 TCE soil vapor concentrations from the Tpsg HSU in the leachfield area ranged from 0.32 to 5.4 ppm$_{v/v}$, significantly lower than the 710 ppm$_{v/v}$ maximum pre-remediation leachfield area TCE soil vapor concentration measured in 2004.

In the distal area, total VOC concentrations in the Tpsg HSU have decreased from a historic maximum of 86,000 µg/L (W-834-T2A, 1988) to a first semester 2010 maximum of 11,000 µg/L (W-834-T2A, February 2010). The underlying Tps-Tnsc$_2$ HSU is monitored by one well, W-834-2119, which contained 11,000 µg/L total VOCs during the first semester 2010; historic total VOC concentrations in this well have not changed significantly. This well continues to be closely monitored because it is located near an ongoing *in situ* bioremediation experiment.

2.2.3.2.2. TBOS/TKEBS Concentrations and Distribution

The maximum TBOS/TKEBS ground water concentration has decreased from a historic maximum of 7,300,000 µg/L (W-834-D3, 1995) to 140,000 µg/L (W-834-D3, January 2010). This compound is found exclusively in the core area. TBOS/TKEBS concentrations vary from one sampling event to the next, likely due to varying amounts of free-phase TBOS/TKEBS in the sample. Because TBOS/TKEBS concentrations in Tpsg HSU wells in the leachfield and distal areas have historically been below reporting limits, sampling for TBOS/TKEBS in the leachfield and distal areas under the new CMP was changed to biennial frequency, with approximately half the wells to be sampled during even numbered years and half to be sampled during odd numbered years. TBOS/TKEBS concentrations were below reporting limits in those leachfield and distal area wells sampled this year (first semester 2010).

Both the concentration and extent of TBOS/TKEBS in ground water are greater in the Tpsg HSU than in the underlying Tps-Tnsc$_2$ HSU perched horizon. During first semester 2010, TBOS/TKEBS was not detected in any Tps-Tnsc$_2$ HSU wells. TBOS/TKEBS continues to remain below reporting limits in guard wells W-834-T1 and W-834-T3.

2.2.3.2.3. Nitrate Concentrations and Distribution

During first semester 2010, nitrate concentrations in ground water exceeded the 45 mg/L cleanup standard in the Building 834 core, leachfield, and distal areas in the Tpsg HSU and in the leachfield and distal areas in the Tps-Tnsc$_2$ HSU. The one core area Tps-Tnsc$_2$ HSU well that has historically contained nitrate above 45 mg/L (W-834-1711) could not be sampled during first semester 2010 due to insufficient water. Nitrate in Tpsg HSU ground water ranged from a maximum of 290 mg/L (W-834-M1, January 2010) to below the 0.5 mg/L reporting limit. In the core area, nitrate in the Tpsg HSU varies spatially and temporally due to denitrification associated with ongoing intrinsic *in situ* biodegradation. In the underlying Tps-Tnsc$_2$ HSU, nitrate ranged from a maximum of 150 mg/L (W-834-S8, February 2010) to below the 0.5 mg/L reporting limit.

Both natural and anthropogenic (e.g., septic) sources contribute to the nitrate in Building 834 OU ground water. While nitrate has decreased from a historic maximum of 749 mg/L (W-834-K1A, 2000), the continued presence of nitrate above the cleanup standard indicates an ongoing source of nitrate to ground water that is likely a combination of natural sources and septic system leachate. The primary source of nitrate is most likely the septic system leachfield. Additional natural sources in the Tpsg and underlying Tps-$Tnsc_2$ may also contribute nitrate to the ground water.

Nitrate was measured in guard well W-834-T1 screened in the $Tnbs_1$ HSU, during the first semester 2010 at 0.8 mg/L (February 2010), well below the cleanup standard. Historically, nitrate has been detected in this well on three previous occasions (0.89 mg/L in February 2009, 0.45 mg/L in January 2004, and 3.8 mg/L in November 1997). Nitrate was not detected in guard well W-834-T3 screened in the $Tnbs_1$ HSU, during first semester 2010.

2.2.3.2.4. Other Contaminant Concentrations and Distribution

The extent of diesel in ground water 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. During first semester 2010, diesel was detected in well W-834-2001 at 2,400 µg/L (February 2010). Diesel concentrations measured in ground water from this well vary from one sampling event to the next, likely due to varying amounts of free-phase product in the sample.

During first semester 2010, perchlorate was detected in ground water from well W-834-2118 at 4.0 µg/L (February 2010); perchlorate concentrations in this well have decreased from a maximum of 11 µg/L in 2005. Attempts to sample ground water for perchlorate from wells W-834-S7 and W-834-A2 were unsuccessful because these wells were dry during first semester 2010. Ground water from W-834-S7 has historic perchlorate concentrations ranging from 8.8 to 11 µg/L; ground water from W-834-A2 has not been analyzed for perchlorate. Ground water monitoring for perchlorate will continue semi-annually for these three wells.

2.2.3.3. Building 834 OU Remediation Optimization Evaluation

Dual-phase extraction and treatment continued in the Building 834 area throughout the first semester 2010 with the exceptions discussed in Section 2.2.1.2. During the first semester 2010, no modifications were made to the core or leachfield area extraction wellfields. Substantially more VOC mass is being removed by soil vapor extraction than by ground water extraction. Of the 4.09 kg of VOCs removed during the first semester 2010, 3.33 kg were removed in the vapor phase. About 30% of the vapor mass was removed from the core area and 70% from the leachfield area. However, most of the 0.76 kg of dissolved phase VOC mass that was removed came from the core area (0.65 kg).

TCE biodegradation continues within the core area where significant amounts of TBOS/TKEBS are present and serve as an electron donor for intrinsic *in situ* biodegradation. Historically, the primary byproduct of this biodegradation has been cis-1,2-dichloroethene (DCE), although limited vinyl chloride has also been detected. Both cis-1,2-DCE and vinyl chloride were detected in core area ground water in first semester 2010, at maximum concentrations of 12,000 µg/L and 130 µg/L, respectively.

The extraction wellfield for the Tpsg HSU within the core area continues to adequately capture the highest VOC concentrations in ground water. In the leachfield area, the extraction wellfield continues to capture portions of the VOCs in ground water. However, the highest

concentrations (in the vicinity of monitor well W-834-2113) are not fully captured. Accordingly, the leachfield area is under consideration for future extraction wellfield optimization.

In situ bioremediation is being evaluated for this area as part of a long-term treatability test described in Section 2.2.3.4. The total VOC concentrations in the area impacted by the bioremediation experiment have decreased significantly due to a combination of *in situ* biodegradation and dilution.

Total VOC concentration trends in the underlying Tps-$Tnsc_2$ HSU will continue to be monitored closely to evaluate beneficial impacts from active remediation of the overlying Tpsg HSU. The effectiveness of extracting from this low permeability, limited recharge HSU will be evaluated. The use and feasibility of enhanced *in situ* remediation techniques, such as reagent injection coupled with bio-augmentation, will be considered if conventional ground water extraction shows limited effectiveness.

Total VOCs and their extent in ground water are expected to continue to decrease over time as remediation progresses. The deep regional $Tnbs_1$ aquifer continues to be free of contaminants as demonstrated by quarterly analyses of ground water from guard wells W-834-T1 and W-834-T3, both screened in the lower $Tnbs_1$ HSU.

2.2.3.4. T2 Treatability Study

The T2 treatability study, which began in 2005, continued during the first semester 2010. One of the primary objectives of this study is to assess the performance of passive *in situ* bioremediation of TCE at concentrations greater than 10 mg/L in a low yield water-bearing zone (Tpsg HSU) that is typical of VOC source areas at Site 300. The technology is considered passive because it relies solely on injection of nutrients and bacteria without the aid of any active extraction wells. In this treatability study, an isotopically distinct conservative tracer, Hetch-Hetchy (H-H) water, and light hydrocarbon (LHC) analysis of TCE breakdown products, such as ethene, are being used to distinguish bacterial dechlorination of TCE from dilution of the plume resulting from reagent and H-H tracer injection. In 2008, Tpsg ground water was bioaugmented with a consortium of dechlorinating bacteria (KB-1) that contain a strain of Dehalococoides capable of complete dechlorination of TCE to ethene.

During this reporting period, monitoring for various chemical parameters and ground water levels continued. Although reduction-oxidation (Redox) conditions remained relatively stable in all wells (Table B-2), ethene production in well W-834-1825 dropped from 37 µg/L at the end of 2009 to 0.2 µg/L in March 2010 as presented in Table B-1. Similarly, ethene production in W-834-T2 dropped from 970 µg/L to 690 µg/L (Table B-1). In addition, the total VOC concentrations increased slightly in both W-834-1833 and W-834-T2 during this reporting period, indicating some rebound has occurred. However, very little increase in total VOCs was observed in ground water sampled from well W-834-1824, and total VOC concentrations decreased in ground water sampled from well W-834-1825, during 2010. The results from volatile fatty acid analyses indicated that plenty of electron donor was still present in W-834-1825, but very little remained in W-834-T2, consistent with VOC rebound results.

Ground water levels rose in all wells during this reporting period, with the exception of well W-834-1824, which has continued to decline since injection was discontinued in this well over a year ago. This may be related to biofouling resulting from the addition of sodium lactate in this well.

To date, no adverse water quality impacts have been observed outside the treatment zone. The deep $Tnbs_1$ HSU beneath the T2 treatment zone remains devoid of VOCs based on ground water analytical results from $Tnbs_1$ guard well W-834-T1. Nearby wells screened in the Tpsg, W-834-T2B and W-834-T2C, located southwest of the treatment zone, remain "dry." Total VOC concentrations in Tpsg screened wells located upgradient (W-834-2117) and downgradient (W-834-2118) of the treatment zone, and in the underlying Tps-$Tnsc_2$ screened well (W-834-2119) located within the footprint of the treatment zone, did not significantly change during 2010. None of the wells located outside the treatment zone exhibited any significant changes in total VOC concentrations or any evidence of intrinsic biotransformation.

Performance monitoring will continue during 2010 to further evaluate this passive, *in situ* technology. In addition to VOCs and metals, performance wells will be monitored for: (1) volatile fatty acids to ensure that adequate nutrients are available for bacterial dechlorination; (2) LHCs to confirm complete dechlorination of TCE to ethene; and (3) delta deuterium (H_2O) and delta oxygen-18 (H_2O) to estimate the proportion of injected H-H water to natural ground water in the treatment zone. Water quality impacts within the treatment zone and both laterally and vertically beyond the treatment zone will be monitored for significant increases in VOCs, salinity, metals (chromium, arsenic, manganese, selenium, and iron), and methane. A summary of the results of the T2 Area Bioremediation Study will be presented at an RPM meeting. This presentation will include recommendations for future remediation activities in the distal area of the Building 834 OU.

2.2.3.5. Building 834 OU Remedy Performance Issues

There were no new issues that affect the performance of the cleanup remedy for the Building 834 OU during this reporting period. Although the remedy continues to be effective and protective of human health and the environment, and to make progress toward cleanup in the Tpsg HSU, it has not had significant impact decreasing VOC concentrations in the underlying Tps-$Tnsc_2$ HSU beneath the core area.

2.3. Pit 6 Landfill (Pit 6) OU 3

The Pit 6 Landfill covers an area of 2.6 acres near the southern boundary of Site 300. This landfill was used from 1964 to 1973 to bury waste in nine unlined debris trenches and animal pits. The buried waste, which includes laboratory equipment, craft shop debris, 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. 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 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 onto 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 Pit 6 Landfill OU showing the locations of monitoring and water supply wells is presented on Figure 2.3-1.

2.3.1. Pit 6 Landfill OU Surface Water and Ground Water Monitoring

The sampling and analysis plan for ground water and surface water monitoring is presented in Table 2.3-1. This table also delineates and explains deviations from the sampling plan and indicates any additions made to the CMP.

During the reporting period, ground water monitoring was conducted in accordance with the CMP monitoring and post-closure requirements with the following exceptions; twenty required analyses were not performed because there was insufficient water in the wells to collect the samples.

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 Analysis of Contaminant Distribution and Concentration

At the Pit 6 Landfill OU, VOCs and tritium are the primary COCs detected in ground water. Perchlorate and nitrate are secondary COCs. These constituents have been identified within the Qt-Tnbs$_1$ HSU.

2.3.2.1.1. Total VOC Concentrations and Distribution

TCE and cis-1,2-DCE were detected within the Qt-Tnbs$_1$ HSU during the first semester 2010. Total VOC concentrations during the first semester ranged from 8 μg/L (EP6-09 DUP, March 2010) to below the reporting limit (<0.5 μg/L).

TCE concentrations have decreased from the historic maximum of 250 μg/L (K6-19, 1988) to a maximum concentration of 8 μg/L during the first semester 2010 (EP6-09 DUP, March 2010). The maximum historic TCE concentration detected in EP6-09 is 28 μg/L from a ground water sample collected in January 1995. For two months in late 1998, ground water was extracted from EP6-09 to determine the effect on TCE trends. In late 1998, TCE was detected at concentrations as low as 1.4 μg/L. Since 1998, TCE concentrations in EP6-09 have slowly increased to a high of 10 μg/L in October 2008 and have been relatively stable since late 2008.

During the first semester 2010, cis-1,2-DCE was detected in samples from a single Pit 6 Landfill OU well at a maximum concentration of 2.5 μg/L (K6-01S, January 2010). The presence of cis-1,2-DCE, a degradation product of TCE, suggests that some natural dechlorination may be occurring. PCE was not detected during the first semester 2010.

VOCs were not detected in samples collected during the first semester 2010 from guard wells W-PIT6-1819, K6-17, K6-22, and K6-34.

Bromoform, bromodichloromethane, dibromochloromethane, and chloroform were detected in samples collected from CARNRW2, a water-supply well for the Carnegie State Vehicular Recreation Area (SVRA) park during April and May of 2010. The total trihalomethane (THM) concentrations for these samples were below the MCL of 80 μg/L. It is possible that these trihalomethanes detected in the well are the result of intermittent backflow of chlorinated water from the SVRA chlorination system into the well. No other VOCs were detected in the four CARNRW wells during first semester 2010.

2.3.2.1.2. Tritium Concentrations and Distribution

Tritium was detected above the 100 pCi/L background activity in samples from several wells completed in the Qt-$Tnbs_1$ HSU both north of the fault and within the fault zone. Tritium activities have decreased from the historic maximum of 3,420 pCi/L (BC6-13, 2000) to the 292 pCi/L first semester 2010 maximum (K6-33, January 2010). No tritium activities exceeded the State Public Health Goal (PHG) (400 pCi/L) or the cleanup standard (20,000 pCi/L).

During the first semester 2010, tritium activities were detected in ground water samples from guard well W-PIT6-1819 at 139 pCi/L (January 2010) and 100 pCi/L (April 2010). Prior to the first semester 2010, tritium activities in well W-PIT6-1819 ranged from <100 pCi/L to 295 pCi/L. This well is used to define the downgradient extent of the tritium plume. It is located approximately 100 ft west of the Site 300 boundary with the Carnegie State Vehicle Recreation Area residence area and about approximately 200 ft west of the CARNRW1 and CARNRW2 water supply wells.

Tritium activities in ground water sampled from four offsite CARNRW wells during first semester 2010 were below 100 pCi/L in all the monthly ground water samples. Based on these analyses and the results from other wells, the tritium plume appears to be relatively stable to declining in extent.

2.3.2.1.3. Perchlorate Concentrations and Distribution

During first semester 2010, perchlorate was not detected at or above the 4 µg/L reporting limit in any Pit 6 Landfill OU ground water samples, including samples collected from guard wells and the CARNRW water supply wells. Perchlorate concentrations in ground water have been steadily decreasing from the historic maximum concentration of 65.2 µg/L in a sample collected from well K6-19, in 1998.

2.3.2.1.4. Nitrate Concentrations and Distribution

During first semester 2010, nitrate was detected in samples collected from wells completed within the Qt-$Tnbs_1$ HSU, within and north of the fault zone. Nitrate was detected in ground water above the 45 mg/L cleanup standard in one Pit 6 Landfill OU sample. Well K6-23 contained nitrate at a concentration of 150 mg/L (January 2010). Well K6-23 consistently yields ground water nitrate concentrations in excess of the nitrate cleanup standard and is located in close proximity to the Building 899 septic system, which may be a potential source of the nitrate at this location.

Nitrate was not detected above the 0.5 mg/L reporting limit in any of the monthly ground water samples collected during first semester 2010, from water-supply well CARNRW1.

2.3.2.1.5. Status of Uranium Statistical Limit Exceedence at Well EP6-08

When sufficient ground water is available, samples from the six detection monitor wells at Pit 6 (EP6-06, EP6-08, EP6-09, K6-01S, K6-19, and K6-36) are collected and analyzed quarterly for total uranium by alpha spectrometry as part of the surveillance monitoring performed by the Water Guidance and Monitoring Group (WGMG). The resulting data are compared to Statistical Limits (SLs) for each respective well. The SLs are calculated based on a statistical analysis of the historic uranium data for each well and are meant to define evidence of a potential release of the chemical from the landfill. These data and the corresponding comparison to the SLs are documented in the quarterly Pit 6 Post-Closure Monitoring Reports.

During January 2008, total uranium in a ground water sample from well EP6-08 exceeded its 1.5 pCi/L SL with an initial activity of 2.8 pCi/L. As required by regulation, a 7-day letter indicating Statistically Significant Evidence of Release from the landfill was submitted to the RWQCB (Jackson, 2008) and the responsibility for determining if an actual release of uranium from Pit 6 had occurred was transferred to CERCLA investigations (Blake and Taffet, 2008a). Well EP6-08 was re-sampled twice later in January 2008 revealing uranium activities of 2.1 and 2.6 pCi/L. In April 2008, samples collected from EP6-08 were analyzed for uranium by mass and alpha spectrometry. The mass spectrometry sample yielded a uranium-235/uranium-238 ($^{235}U/^{238}U$) atom ratio indicative of natural uranium (0.0072) and a total activity of 3 pCi/L (Blake and Taffet, 2008b). The alpha spectrometry sample yielded 2.2 pCi/L uranium. Although continued analysis of uranium samples was planned for well EP6-08, the well went dry after the April 2008 sampling episode and subsequent sampling has not been possible. LLNL will continue to attempt to collect samples from well EP6-08 every quarter. When sufficient water becomes available due to rising ground water levels, additional ground water samples will be collected for uranium analysis.

At present, the water table north of the fault zone has declined so that several monitor wells are dry or cannot yield sufficient water for sampling. When sufficient water has been available, samples from the other five monitor wells at Pit 6 have continued to yield total uranium activities below their respective SLs for total uranium. During first semester 2010, sufficient water to collect ground water samples for alpha spectrometric analysis of uranium was available from detection monitor wells EP6-06, EP6-09, K6-01S, and K6-19, yielding maximum total uranium activities of 0.46, 2.55, 4.42, and 2.93 pCi/L, respectively. All these uranium activities are below the SLs for each respective well.

Although total uranium activities in samples from well EP6-08 were increasing slightly in the months leading up to the well going dry, all historic uranium data collected in the Pit 6 area are well below the 20 pCi/L uranium cleanup standard, have a $^{235}U/^{238}U$ atom ratio indicative of natural uranium (for all mass spectrometric analyses), and are well within the range of natural background levels for uranium. Therefore, these uranium activities do not indicate a release of uranium from the landfill. Once water levels rise, samples for uranium analysis will be collected from all of the performance monitor wells at Pit 6 to supplement the 2008-present monitoring data.

2.3.2.2. Pit 6 Landfill OU Remediation Optimization Evaluation

The remedy for tritium and VOCs in ground water at the Pit 6 Landfill is Monitored Natural Attenuation (MNA). Ground water levels and contaminants are monitored on a regular basis to: (1) evaluate the efficacy of the natural attenuation remedy in reducing contaminant concentrations, and (2) detect any new chemical releases from the landfill. In general, all primary and secondary ground water COCs at the Pit 6 Landfill OU exhibit stable to decreasing trends and although there was a slight rise in ground water elevations during first semester 2010, ground water levels beneath the landfill remain well below the buried waste.

There has been a decline in perchlorate concentrations in Pit 6 area ground water from a maximum of 65.2 µg/L, measured in 1998. Perchlorate was not detected in ground water above the reporting limit (4 µg/L) in samples from Pit 6 wells, during first semester 2010. Tritium activities in ground water continue to decrease toward background levels and remain far below the 20,000 pCi/L cleanup standard; tritium activities did not exceed the 400 pCi/L Public Health

Goal (PHG). TCE concentrations in ground water remain above the 5 µg/L cleanup standard in samples from only one well (EP6-09) and the concentrations and extent of total VOCs in ground water are generally declining from the current maximum of 8 µg/L.

2.3.2.3. Pit 6 Landfill OU Performance Issues

Although water levels rose slightly north of the fault during first semester 2010, low water levels north of the fault have impacted the monitoring component of the cleanup remedy for the Pit 6 Landfill OU during this reporting period. Despite these conditions, all scheduled samples were collected from guard well W-PIT6-1819 and water supply wells CARNRW1 and CARNRW2. Based on these results, the remedy continues to be effective and protective of human health and the environment, and to make progress toward cleanup.

2.4. High Explosives Process Area (HEPA) 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 waste water discharges into former unlined rinse water lagoons. Another minor source of contamination in ground water resulted from leaking contaminated waste stored at the former Building 829 Waste Accumulation Area (WAA) located near Building 829.

Six GWTSs operate in the HEPA: Building 815-Source (815-SRC), Building 815-Proximal (815-PRX), Building 815-Distal Site Boundary (815-DSB), Building 817-Source (817-SRC), Building 817-Proximal (817-PRX), and Building 829-Source (829-SRC). A map of the HEPA OU showing the locations of monitoring and extraction 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 ground water. Initially, the system extracted from one extraction well, W-815-02 and consisted of aqueous-phase GAC, an ion-exchange system, and an anaerobic bioreactor for nitrate destruction. The treated effluent was discharged to a misting system. The anaerobic bioreactor was decommissioned in 2003. In 2005, the wellfield was expanded to include extraction well W-815-04, with a current combined flow rate of approximately 1.2 gpm. The current GWTS configuration includes a Cuno filter to remove particulates, two ion-exchange columns containing SR-7 resin connected in series for perchlorate removal, and three aqueous-phase GAC canisters (also connected in series) for VOC and HE compound removal. In 2005, the discharge method of misting was replaced by injection of the treated effluent into well W-815-1918 for *in situ* denitrification in the $Tnbs_2$ HSU.

The 815-PRX GWTS began operation in October 2002 removing TCE and perchlorate from ground water. Ground water is extracted from wells W-818-08 and W-818-09 at a current combined flow rate of approximately 1.7 gpm. The current GWTS configuration includes a Cuno filter to remove particulates, two ion-exchange columns with SR-7 resin that are connected in series for perchlorate removal, and three aqueous-phase GAC canisters (also connected in series) for TCE removal. In 2005, the discharge method of misting was replaced by injection of

the treated effluent into well W-815-2134 where an *in situ* natural denitrification process reduces the nitrate to nitrogen 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 ground water extracted near the Site 300 boundary. Ground water is currently extracted from wells W-35C-04 and W-6ER at a combined flow rate of approximately 3 to 4 gpm. The GWTS originally operated intermittently on solar-power until site power was installed in 2005 when 24-hour operations began. 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 ground water. Well W-817-01 extracts ground water from a very low yield portion of the $Tnbs_2$ aquifer. It pumps ground water intermittently using solar power at current flow rates ranging from 40 to 160 gallons per month. The current GWTS configuration includes a Cuno filter to remove particulates, two ion-exchange columns with SR-7 resin that are connected in series for perchlorate removal, and three aqueous-phase GAC canisters (also connected in series) for HE compound removal. Treated ground water is injected into upgradient injection well W-817-06A where an *in situ* natural denitrification process reduces the nitrate to nitrogen in the $Tnbs_2$ HSU.

The 817-PRX GWTS began operation in September 2005 removing VOCs, RDX, and perchlorate from ground water. Initially, ground water was extracted from wells W-817-03 and W-817-04 at a combined flow rate of approximately 1.0 gpm, although the vast majority of ground water was extracted from well W-817-03. In 2007, the extraction wellfield was expanded to include extraction well, W-817-2318. Due to the low yield from ground water extraction well W-817-04, extraction from this well was discontinued in December 2007. Ground water is currently extracted at a combined flow rate of approximately 1.5 to 2.0 gpm. The current GWTS configuration includes a Cuno filter to remove particulates, two aqueous-phase GAC canisters connected in series for TCE and RDX removal, and three ion-exchange columns (also connected in series) for perchlorate removal. The first of the ion exchange columns contains a new ion exchange resin produced by Purolite that is being tested to replace the SR-7. Two columns containing SR-7 resin follow the Purolite column. A third aqueous-phase GAC canister completes the treatment chain, and is placed in this position to remove any residual organic compounds from new SR-7 resin. However, this configuration may be changed upon the next GAC change out so that the order of treatment media mirrors that of other GWTSs. Treated ground water containing nitrate is injected into upgradient injection wells W-817-2109 and W-817-02 that was added in 2007. The treated effluent is split between the two injection wells where an *in situ* denitrification process reduces the nitrate to nitrogen in the $Tnbs_2$ HSU.

The 829-SRC GWTS began operation in August 2005 removing VOCs, nitrate, and perchlorate from ground water. Solar power is used to extract ground water from well W-829-06 at a flow rate of approximately 1 to 4 gallons a day (gpd). The current GWTS configuration includes two ion-exchange columns containing SR-7 resin connected in series for perchlorate removal, three aqueous phase GAC canisters (also connected in series) for VOC removal, and a biotreatment unit to treat nitrate. However, the biotreatment unit has not been utilized because to date, the SR-7 resin has removed all the nitrate. Treated effluent is injected into upgradient well W-829-08.

2.4.1. HEPA OU Ground Water Extraction and Treatment System Operations and Monitoring

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

2.4.1.1. HEPA OU Facility Performance Assessment

The monthly ground water discharge volumes, extraction flow rates, and operational hours are summarized in Tables 2.4-1 through 2.4-6. The total volume of ground water extracted and treated and the total contaminant mass removed during this reporting period is presented in Table Summ-1. The total volume of ground water treated and discharged and the total contaminant mass removed are summarized in Table Summ-2.

Analytical results for influent and effluent samples 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 and operational issues interrupted continuous operations of the 815-SRC, 815-PRX, 815-DSB, 817-SRC, 817-PRX, and 829-SRC GWTSs during first semester:

815-SRC GWTS

- The GWTS shut down on March 15 due to a site power outage. Power was restored but GWTS would not restart due to issues with the Programmatic Logic Control (PLC). The PLC was reloaded on March 22 and the GWTS was restarted on March 23.
- The GWTS shut down temporarily during another power outage on March 30.
- The GWTS shut down on May 4 due to a power outage for programmatic maintenance work at Building 815. The GWTS was restarted on May 5 when power was restored.
- A site-wide power outage occurred on June 1.

815-PRX GWTS

- A double GAC change-out was performed on January 11 due to intermediate port breakthrough detected at the end of 2009.
- Freeze protection measures were discontinued and the GWTS restarted on February 1.
- GTWS extraction well W-818-08 was shut down on April 22 due to problems with the pump's variable speed drive. The system continued to operate extracting from well W-818-09. However, the pump in well W-818-09 failed on May 13, shutting down the GWTS for the remainder of the reporting period.
- A site-wide power outage occurred on June 1.

815-DSB GWTS

- GWTS extraction well W-35C-04 shut down January 14. The pump was repaired on January 27.
- A site-wide power outage occurred on June 1.

817-SRC GWTS

- Freeze protection measures were discontinued and the GWTS restarted on February 1.
- The ion-exchange resin was changed on March 4.
- The GWTS is being operated manually twice a day due to problems with the electronic switches that control run time on the pump.

817-PRX GWTS

- Extraction well W-817-2318 was kept offline the entire month of January for freeze protection measures, while extraction from well W-817-03 continued. Extraction from W-817-2318 resumed on February 2.
- The GWTS was shut down from February 1 until February 2 to repair a pinhole leak in a filter housing.
- A site-wide power outage occurred on June 1.

829-SRC GWTS

- The GWTS was shut down at the beginning of the reporting period while power supply problems and bioreactor nitrate treatment efficiency issues were resolved. The system is operated by solar power and needed major improvements to efficiently run the compressor. In addition, problems with nitrate treatment utilizing a bioreactor continue due to the low volume of ground water to be treated (limited to several gpd).
- New facility batteries were installed on March 11.
- The GWTS was restarted on April 13 for day-only testing operations, extracting and treating approximately 10 gallons of ground water per day. The system was shut down on April 27 due to compressor problems. It was restarted on April 29 and operated in day-only mode while compressor issues are evaluated and resolved. All effluent water was collected in a 500-gallon tank while the system operations were being tested and to run a injection test after completion of startup testing.
- The GWTS was shut down on May 17 after collecting effluent samples. Analytical results for the samples of the facility effluent collected from the storage tanks were received and concentrations of volatile organic compounds, nitrate, and perchlorate met effluent limitations therefore, the system was restarted on June 7 and operated until it was found offline on June 10 due to a possible compressor malfunction.

2.4.1.3. HEPA OU Compliance Summary

The 815-SRC, 815-PRX, 815-DSB, and 817-SRC GWTSs operated in compliance with the RWQCB Substantive Requirements for Wastewater Discharge. However, the January compliance monitoring from the 817-PRX GWTS was inadvertently missed. All samples collected for the remainder of the semester were within effluent limitations. Although analytical results from the single sampling event at 829-SRC were within effluent limitations, no discharge of water occurred at this GWTS during this reporting period.

2.4.1.4. HEPA OU Facility Sampling Plan Evaluation and Modifications

The HEPA OU facility sampling and analysis plan complies with the new monitoring requirements in the CMP/CP. The only change made to the requirements in the HEPA OU was the suspension of nitrate monitoring at all GWTSs since the selected remedy for nitrate is monitored natural attenuation. The only exception is for 829-SRC GWTS where nitrate monitoring is still required. In addition, as specified in the CMP, monitoring for high explosive compounds at the influent to the 815-PRX GWTS has been discontinued and the monitoring frequency at the 815-PRX GWTS effluent has been reduced to quarterly. The sampling and analysis plan is presented in Table 2.4-10. The only modifications made to the plan included: no January compliance monitoring conducted at 815-PRX and 817-SRC due to freeze protection shutdown, no January compliance monitoring conducted at 817-PRX GWTS due to sampling error, and limited compliance monitoring at 829-SRC GWTS because of system was shut down.

2.4.1.5. HEPA OU Treatment Facility and Extraction Wellfield Modifications

No modifications were made to any of the HEPA Treatment Facilities during this reporting period.

2.4.2. HEPA OU Ground Water and Surface Water Monitoring

The sampling and analysis plan for ground water and surface water monitoring 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 reporting period, ground water monitoring was conducted in accordance with the CMP monitoring requirements with the following exceptions; twenty-three required analyses were not performed because there was insufficient water in the wells to collect the samples, four required analyses was not performed due to unsafe well access conditions, and twenty required analysis was not performed due to an inoperable pump.

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 performance issues.

2.4.3.1. HEPA OU Mass Removal

The monthly ground water mass removal estimates are summarized in Tables 2.4-12 through 2.4-17. The total mass removed during this 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 ground water; RDX, HMX, 4-amino-2,6-dinitrotoluene (4-ADNT), perchlorate, and nitrate are secondary COCs. Most ground water contamination at the HEPA is present in the $Tnbs_2$ HSU. Minor amounts of VOCs, perchlorate, and nitrate contamination are present in perched ground water beneath the former Building 829 WAA, in the $Tnsc_{1b}$ HSU. The WAA is located in the northwest portion of the HEPA. Some TCE, RDX, and perchlorate have also been detected in the vicinity of Building 815, in the perched ground water of the Tpsg sands and gravels of the

Tpsg-Tps HSU. No contamination has been detected in the upper and lower $Tnbs_1$ HSUs in the HEPA OU.

2.4.3.2.1. Total VOC Concentrations and Distribution

During the first semester 2010, the maximum total VOC concentration measured in samples from $Tnbs_2$ wells was 61 µg/L in monitor well W-818-11 (March 2010). Although this value represents a slight increase from the concentration (52 µg/L) measured in ground water from the same well last year, total VOCs concentrations in a duplicate sample sent to a different laboratory were only 37 µg/L. The $Tnbs_2$ total VOC plume is detached from its source at Building 815, and the 815-PRX extraction wellfield captures the plume's highest concentrations. Total VOC concentrations in the $Tnbs_2$ HSU ground water have decreased from a historic maximum concentration of 110 µg/L (W-818-08, May 1992) to a first semester 2010 concentration of 42 µg/L (April 2010) in the same well.

VOCs continue to be detected in ground water samples (6.8 µg/L, February 2010) collected from $Tnbs_2$ HSU well W-830-2216 located at the southern end of Building 832 Canyon. Contamination detected in this well probably originates from sources in Building 832 Canyon OU. Well W-830-2216 was connected as an extraction well to the 830-DISS treatment facility, in June 2007. After pumping was initiated, total VOC concentrations in this well began decreasing from a historic maximum of 20 µg/L in May 2007 to a first semester 2010 concentration of 6.8 µg/L (February 2010).

During the first semester 2010, low VOC concentrations (<3 µg/L) were detected in samples from $Tnbs_2$ guard wells W-815-2110 and W-815-2111, located near the southern site boundary. VOCs were not detected in samples taken from any of the other onsite or offsite HEPA $Tnbs_2$ guard wells. VOC concentrations were also below the 0.5 µg/L reporting limit in the routine monthly samples collected from offsite water-supply well GALLO1 during the first semester 2010. One duplicate sample had detectable TCE concentrations (0.6 µg/L, April 2010) above the 0.5 µg/L reporting limit. Duplicate GALLO1 samples were collected in addition to the routine samples for quality assurance/quality control purposes. The routine and duplicate samples were collected on the same date and were sent to different laboratories for analysis. The 817-PRX and 815-DSB facilities were installed to minimize migration of VOCs near the site boundary and to prevent migration of contaminants to the GALLO1 water supply well.

At the 829-SRC treatment facility, the total VOC concentration measured in a sample collected from $Tnsc_{1b}$ HSU extraction well W-829-06 was 22 µg/L. The total VOC concentration measured in a sample collected from $Tnsc_{1b}$ HSU injection well W-829-08 was 5.4 µg/L. Total VOC concentrations in ground water from extraction well W-829-06 have decreased significantly from a historic maximum of 1,013 µg/L (August 1993). VOCs have never been detected in ground water from nearby monitor well W-829-1940 or the deeper nearby Lower $Tnbs_1$ wells.

Near the Building 815 source area, VOCs (mainly TCE) have been detected in the Tpsg sands and gravels of the Tpsg-Tps HSU. These total VOC concentrations have generally been decreasing over time. The maximum first semester 2010 total VOC concentration detected in samples from Tpsg-Tps wells was 30 µg/L, in 817-PRX extraction well W-817-2318 (February 2010); this well extracts ground water from Spring 5. Limited recharge has led to insufficient water for sampling in many wells screened in the Tps-Tpsg HSU. Total VOCs in the

Tpsg-Tps well W-35C-05, located near the site boundary, remain below the 0.5 µg/L reporting limit.

During the first semester 2010, low total VOC concentrations were detected in several samples collected from Qal/WBR guard well W-880-02 (1 µg/L, March 2010). Historically, ground water from well W-880-02 has intermittently had trace concentrations of total VOCs. Total VOC contamination in ground water from these wells probably originates from Building 832 Canyon sources. Total VOC concentrations in ground water from Qal/WBR wells W-35C-06 and W-6ES, located near the site boundary, remain below the 0.5 µg/L reporting limit.

2.4.3.2.2. HE Compound Concentrations and Distribution

During the first semester 2010, RDX concentrations detected in ground water samples from $Tnbs_2$ HSU wells ranged from <1 µg/L to 110 µg/L, in monitor well W-809-03 located adjacent to 815-SRC injection well W-815-1918. RDX concentrations in the $Tnbs_2$ HSU have decreased from a historic maximum of 204 µg/L in 1992 to a maximum concentration of 110 µg/L in the first semester 2010. This decrease in maximum RDX concentrations has been observed in $Tnbs_2$ HSU ground water in both the Building 815 and 817 source areas. As shown in the 2009 Annual CMR, small increases in the extent of the southwestern portion of the RDX plume have been observed, but are likely mitigated by the 817-PRX injection-extraction loop. Given the immobility of HE compounds, the extent of RDX contamination at the leading edge of the plume in the $Tnbs_2$ HSU ground water remains relatively stable.

RDX concentration trends in $Tnbs_2$ HSU in the immediate vicinity of 815-SRC injection well, W-815-1918, continue to increase. Increasing RDX trends have been observed in this area due to the possible mobilization of RDX by injected treated ground water. The maximum RDX concentration in the $Tnbs_2$ HSU mentioned above occurs in W-809-03, just north and upgradient of the injection well. This result is discussed in the Section 2.4.3.3.

RDX was not detected at concentrations above the 1 µg/L reporting limit in any samples collected from $Tnbs_2$ HSU guard wells, during the first semester 2010. RDX was also not detected at concentrations above the 1 µg/L reporting limit in any ground water samples collected from $Tnsc_{1b}$ HSU during the first semester 2010. RDX was also not detected at concentrations above the 1 µg/L reporting limit in any ground water samples collected from the Tpsg-Tps HSU during the first semester 2010 except for monitor well W-815-1928, located north of the 815-SRC. In 2008, RDX was detected for the first time, at a concentration of 19 µg/L, in a ground water sample collected from well W-815-1928. Because the shallow Tpsg-Tps HSU in the vicinity of well W-815-1928 is only periodically saturated, ground water from this well has only been sampled and analyzed twice for RDX. The first sample collected in March 2003 did not contain RDX above the 1 µg/L reporting limit; the second sample collected in March 2008 contained RDX at a concentration of 19 µg/L; this well has been dry during all other sampling events including 2009 and the first semester 2010. The historic maximum concentration of RDX in ground water collected from this HSU is 350 µg/L (March 1988) from well W-815-01; this well has been dry since 1999.

HMX detections in the $Tnbs_2$ HSU are rare, but have occurred near the 815-SRC and 817-SRC treatment facilities. The highest historic HMX concentration detected in ground water in the $Tnbs_2$ HSU was 57 µg/L, in 817-SRC extraction well W-817-01 (October 1995). During the first semester 2010, HMX was detected in ground water from well W-817-01 at a

concentration of 21 µg/L (April 2010). During the first semester 2010, HMX was also detected at lower concentrations in several ground water samples collected from 815-SRC wells, including extraction wells W-815-02 and W-815-04.

During the first semester, nitrobenzene was not detected above the reporting limit of 2 µg/L, in any HEPA ground water samples. Previously, nitrobenzene was detected in the 817-SRC extraction well W-817-01, at a concentration of 6.2 µg/L (April 2008), and in one sample from the influent to the 815-SRC GWTS, at 4.1 µg/L. These samples were the first time nitrobenzene had been detected in ground water in the HEPA and additional samples have all been below the reporting limit.

During the first semester 2010, 4-ADNT was detected at the reporting limit of 2 µg/L in $Tnbs_2$ monitor well W-809-03. Previously, 4-ADNT was detected at a concentration of 2.2 µg/L in monitor well W-818-11. In July 2008, 4-ADNT was detected at a concentration of 7.5 µg/L in a sample collected from the influent to the 815-SRC GWTS; however, no 4-ADNT was detected in any HEPA treatment facility samples during the first semester 2010. The highest historic concentration of 4-ADNT (24 µg/L) was measured in September 1997. Detections of HE compounds other than HMX and RDX reflect a recent change in the Site 300 sampling plan requested analyses to EPA Method 8330. Previously, only RDX and HMX were analyzed and reported, however, now the entire EPA Method 8330 suite of compounds is being analyzed and reported.

2.4.3.2.3. Perchlorate Concentrations and Distribution

Perchlorate concentrations in the $Tnbs_2$ HSU have decreased from a historic maximum of 50 µg/L (February 1998) in well W-817-01 to a first semester 2010 maximum of 29 µg/L (February 2010). Perchlorate was not detected in any of the $Tnbs_2$ HSU guard wells during the first semester 2010. Overall, perchlorate concentrations continue to decline and the southwestern plume front (as shown in the 2009 Annual CMR report) has been receding due to continued 817-PRX and 817-SRC operations. To the north, the $Tnbs_2$ HSU perchlorate plume has also been declining based on concentration trends observed in monitor well W-809-03 and in 815-SRC extraction wells W-815-02 and W-815-04. In the past, an increasing trend has been observed in this area as a result of the mobilization of perchlorate by injection of treated ground water into nearby 815-SRC injection well W-815-1918.

During the first semester 2010, perchlorate concentrations in $Tnsc_{1b}$ HSU extraction well W-829-06 have decreased from a historic maximum of 29 µg/L (December 2000) to a concentration of 8.4 µg/L, detected in May 2010. Perchlorate concentrations in injection well W-829-08 have decreased from a historic maximum of 18 µg/L (December 2000) to below the reporting limit of 4 µg/L, in May 2010. Perchlorate was also not detected above the reporting limit in monitor well W-829-1940 (March 2010) during the first semester.

The maximum perchlorate concentration detected during the first semester 2010 in samples from Tpsg-Tps wells was 14 µg/L, in 817-PRX extraction well W-817-2318 (February 2010). Perchlorate was not detected in any HEPA Qal/WBR wells during the reporting period.

2.4.3.2.4. Nitrate Concentrations and Distribution

During the first semester 2010, nitrate concentrations in samples from the $Tnbs_2$ HSU ranged from <0.1 mg/L in the vicinity of the Site 300 boundary to a maximum of 100 mg/L (March 2010, W-815-04). Nitrate was not detected above the 45 mg/L cleanup standard in ground water from any of the $Tnbs_2$ guard wells sampled during this reporting period.

The maximum nitrate concentration detected in a sample from the $Tnsc_{1b}$ HSU during the first semester, was 80 mg/L (May 2010) in extraction well W-829-06. The maximum nitrate concentration detected in monitor well W-829-1940 during the first semester was 49 mg/L (March 2010). The nitrate concentration in injection well W-829-08 was below the reporting limit of 1 mg/L (May 2010).

During the first semester 2010, the maximum nitrate concentration detected in ground water from Tpsg-Tps HSU well W-6CS was 570 mg/L (March 2010). Because there are no known septic systems or other Site 300 operations representing potential nitrate sources near this well, these elevated nitrate levels may be related to a pre-Site 300 sheep ranch that was discovered in a historic photo of the area. Ground water sampled from all other wells screened in this HSU had significantly lower nitrate concentrations. The highest nitrate concentrations found in other wells screened in this HSU was 150 mg/L, in 817-PRX extraction well W-817-2318. All ground water sampled from Qal/WBR wells had nitrate concentrations below the 45 mg/L cleanup standard.

Nitrate concentrations detected in ground water during the first semester 2010 continue to support the interpretation that nitrate is being treated *in situ* by natural processes. Due to microbial denitrification, nitrate concentrations continue to be below the 45 mg/L cleanup standard in all wells near the southern site boundary where the ground water is under confined conditions.

2.4.3.3. HEPA OU Remediation Optimization Evaluation

Remediation optimization at the HEPA OU is managed by balancing extraction wellfield flow rates at the site boundary with upgradient source area pumping. The existing extraction wellfield captures both the highest concentrations in the VOC plume in the vicinity of wells W-818-08 and W-818-09 (815-PRX) and the leading edge of the plume near the southern site boundary (815-DSB). 815-PRX extraction wells W-818-08 and W-818-09 were both offline during the latter part of the semester due to failed pumps. The flow rates in these extraction wells were increased in 2009 to expand capture of the high concentration portions of the VOC plume. Two new $Tnbs_2$ HSU extraction wells were also installed in the first semester 2010: W-815-2608 was installed near the 815-DSB treatment facility in February 2010 and W-817-2609 was installed near the 817-PRX treatment facility in March 2010. Both wells will be added to the HEPA base map after the well locations are surveyed. A new $Tnbs_2$ extraction well, W-815-2621, is scheduled to be drilled near monitor well W-6K in 2011; the extraction well will be connected to the 815-DSB treatment facility.

Although the overall extent of the primary and secondary COC plumes in the HEPA has not changed significantly during the first semester 2010, total VOC and RDX concentrations within the plumes continue to decline from their historic maximums. These trends are due mainly to remediation efforts in the source and proximal areas of this OU and to a lesser extent, to natural attenuation mechanisms in the confined downgradient areas. The 815-SRC extraction wells, W-815-02 and W-815-04 continue to exhibit decreasing RDX concentrations. However, the RDX trend in W-809-03, near 815-SRC injection well W-815-1918, has increased by an order-of-magnitude during the last year. This trend may be indicative of elevated levels of sorbed RDX that remain in the 815-SRC area. The RDX trends in this well will be monitored.

Perchlorate concentrations in the $Tnbs_2$ HSU have steadily decreased since 1998 when monitoring for this COC began. The 817-SRC (W-817-01) and 817-PRX (W-817-03 and

W-817-04) extraction wells have had the highest perchlorate concentrations in this OU. In early 2008, extraction from well W-817-04 was terminated due to low yield. Pumping from extraction well W-817-03 continues and the treated water is injected into wells W-817-02 and W-817-2109. Upgradient injection at 815-SRC, 817-SRC, 815-PRX, and 817-PRX enhances remediation by flushing contaminants toward the extraction wells. RDX and perchlorate concentrations measured in ground water upgradient of the 815-SRC extraction wellfield and near monitor well W-809-03 remain stable; these areas are within hydraulic capture zones.

The 829-SRC ground water extraction and treatment system was shut down in 2009 while power supply problems and nitrate treatment issues were resolved. These issues are being addressed as part of a full evaluation and upgrade of this facility.

Continuous pumping from all HEPA extraction wells should improve long-term ground water yield, increase dissolved contaminant mass removal, and prevent contaminated ground water from reaching the Site 300 southern boundary. Close monitoring of VOC concentrations in the southern site boundary area will continue, especially in the vicinity of offsite water-supply well GALLO1.

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 to make progress toward cleanup. Continuous extraction well field optimization and operation of the 815-DSB is crucial to the long-term success of remediation efforts in the HEPA OU.

2.5. Building 850/Pit 7 Complex OU 5

High explosive 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 to absorb shot blast. The Building 850 firing table was routinely rinsed down with water after each experiment to reduce dust. Infiltrating water mobilized chemicals from the contaminated gravel to the underlying bedrock and ground water, however this practice was discontinued in 2004. Until 1989, gravels from the firing table surface were periodically removed and disposed of in several pits in the northern part of the site.

A Corrective Action Management Unit (CAMU) was constructed in the Building 850 area of OU 5 in 2009 as part of the Building 850 Removal Action. A total of 27,592 cubic yards of polychlorinated biphenyl, dioxin, and furan-contaminated soil were excavated from the Building 850 Firing Table area, mixed with Portland cement and water, and compacted to form the CAMU. Additional information on the Building 850 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, and monitor wells are presented on Figure 2.5-1.

Starting in 2010, monitoring results for the Pit 7 Complex, including Pits 3, 4, 5, and 7 are now reported in the CMR reports. 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 of firing table debris and

gravel. These pits were constructed by excavating topsoil and alluvial materials to an average depth of 15 to 20 ft (Taffet et al., 1989). The majority of the waste material in the pits came from the firing tables at Buildings 850 and 851, where aboveground detonations were conducted. The waste placed in the pits 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 and underlying bedrock were often inundated and residual contamination came into contact with shallow subsurface ground water. Ground water contaminants include tritium, 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 (RCRA) 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 of very low permeability to prevent infiltration of precipitation and shallow subsurface interflow that could result in leaching of contaminants. The Pit 7 cap also covers 100% of Pit 4 and approximately 25 to 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, completed in March 2008, was designed to prevent further releases of COCs from the pits and underlying bedrock to ground water. There are four components that comprise the drainage diversion system:

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 Drainage Diversion System design is presented in the Remedial Design 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 Drainage Diversion System are described in Section 3.

The Pit 7-Source (PIT7-SRC) GWTS began operation in the first semester 2010. Testing and verification was conducted in March and April; 24-hours a day/4-days a week operations began May 3; and 24-hours a day/7-days a week operations began May 17. Three existing monitor wells, NC7-25, NC7-63, and NC7-64, were converted to extraction wells and three wells were drilled to serve as extraction wells (W-PIT7-2305, W-PIT7-2306, and W-PIT7-2307). The GWTS removes uranium, VOCs, nitrate, and perchlorate from ground water within the Quaternary alluvium/Weathered bedrock (Qal/WBR) (NC7-63, NC7-64, W-PIT7-2305, W-PIT7-2306, and W-PIT7-2307) and $Tnbs_0$ bedrock HSUs (NC7-25). Well NC7-25, screened in the $Tnbs_0$ HSU, will only be pumped when ground water levels in the overlying Qal/WBR HSU are sufficiently low to avoid pulling ground water containing depleted uranium and other contaminants in the Qal/WBR HSU into the $Tnbs_0$ HSU. These conditions are most likely to

occur in late summer/early fall towards the end of the dry season. The GWTS extracts ground water at an approximate combined flow rate of 0.5 gpm. Well W-PIT7-2307 contributes approximately 85% of the flow to the treatment facility. The current GWTS configuration includes three ion-exchange resin canisters for the removal of uranium followed by three ion-exchange canisters containing Sybron SR-7^{TM}, a nitrate-selective resin ion-exchange resin that has a higher affinity for removing perchlorate. Ground water that has been treated to remove uranium, nitrate, and perchlorate is then piped through three aqueous-phase GAC canisters to remove VOCs. The treated water, which still contains tritium, is discharged to an infiltration trench.

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

2.5.1. Building 850 Area of OU 5 Ground Water Monitoring

The sampling and analysis plan for ground water and surface water monitoring is presented in Table 2.5-1. This table also delineates and explains deviations from the sampling plan and indicates any additions made to the CMP.

During the reporting period, ground water monitoring was conducted in accordance with the CMP monitoring requirements with the following exceptions; thirteen required analyses were not performed because there was insufficient water in the wells to collect the samples, seven required analyses were not performed due to an inoperable pump, and two required analyses were inadvertently not added to the sampling plan.

2.5.2. Building 850 Area of OU 5 Remediation Progress Analysis

This section is organized into three subsections: analysis of contaminant distribution and concentration trends; remediation optimization evaluation; and 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 ground water; 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

The maximum first semester 2010 tritium activity in ground water within the Building 850 area was 58,400 ± 11,400 pCi/L (April 2010) detected in a sample from well NC7-70. Well NC7-70 is screened in the Qal/WBR and upper part of the $Tnbs_1$/$Tnbs_0$ bedrock HSU and located about 50 ft downgradient (east) of the Building 850 Firing Table. The highest tritium activities in ground water continue to occur immediately downgradient of the Building 850 Firing Table. The historic maximum of 566,000 pCi/L was measured in a 1985 sample from well NC7-28. The tritium activity detected in this well has declined to 27,600 ± 5,370 pCi/L this semester. The extent of the 20,000 pCi/L cleanup standard ground water tritium activity contour in both the Qal/WBR and $Tnbs_1$/$Tnbs_0$ bedrock HSUs in Doall Ravine is similar to those of 2009.

Ground water tritium activities in most portions of the Building 850 plume continue to decline. However, tritium activities in $Tnbs_1$/$Tnbs_0$ HSU wells located north of Landfill Pit 1 continue to exhibit a slowly increasing trend. Wells W-PIT2-2301 and W-PIT2-2302, both

screened in the Qal/WBR HSU and located in Elk Ravine downgradient from Landfill Pit 2, yielded tritium activities within background range (<100 pCi/L) in samples collected in May 2010. Given the low activities of the Qal/WBR samples, it does not appear that tritium from Building 850 is present in this HSU in Elk Ravine. Overall, the extent of tritium in ground water with activities above the 400 pCi/L California State PHG remains stable, and the extent of ground water with tritium in excess of background is similar to that of previous years.

2.5.2.1.2. Uranium Concentrations and Distribution

Total uranium activities in ground water were below the 20 pCi/L cleanup standard in samples from all wells in the Building 850 area during the first semester 2010. The maximum first semester 2010 uranium activity was 18 pCi/L measured in an April 2010 sample from well NC7-29. Well NC7-29, screened in the $Tnbs_1/Tnbs_0$ HSU, is located south and cross-gradient of Building 850. Historic isotope ratio data indicate the uranium in ground water samples from well NC7-29 is natural and the uranium activities are within the range of natural background levels at Site 300. The maximum uranium activity in a ground water sample containing some depleted uranium, as indicated by mass spectrometry, was 13.5 pCi/L from well NC7-28 (April 2010); this well is screened across the Qal/WBR and $Tnbs_1/Tnbs_0$ HSUs, and is located immediately downgradient of the Building 850 Firing Table.

Uranium analyses for first semester 2010 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. Historic uranium isotope data indicate that the distribution of ground water within the Qal/WBR and $Tnbs_1/Tnbs_0$ HSUs containing some added depleted uranium extends downgradient about 1,200 ft and 700 ft, respectively, from the Building 850 Firing Table and have remained relatively stable. Depleted uranium has also been detected in Qal/WBR and $Tnbs_1/Tnbs_0$ HSU ground water from wells downgradient of the Pit 2 Landfill and from wells in the $Tnbs_1/Tnbs_0$ HSU south of the Pit 2 Landfill. The available uranium isotope data for first semester 2010 suggest that this has not changed.

2.5.2.1.3. Nitrate Concentrations and Distribution

Nitrate was detected at concentrations at or above the 45 mg/L cleanup standard in samples from nine Building 850 area wells during first semester 2010. These wells are located upgradient and west of Building 850, downgradient and east of Building 850, south-southeast of Building 850, and southeast of Pits 1 and 2. The maximum first semester 2010 nitrate concentration detected in the Building 850 area was 140 mg/L in the April 2010 sample from well NC7-29, which equals the historic local maximum also detected in a ground water sample from the same well in June 2007. Well NC7-29, screened in the $Tnbs_1/Tnbs_0$ HSU, is located south and cross-gradient of Building 850. The maximum first semester 2010 nitrate concentration in wells located downgradient of the Building 850 source area was 57 mg/L in the April 2010 ground water sample collected from well NC7-11, screened in the Qal/WBR HSU.

Historic data indicate that ground water nitrate concentrations in the Qal/WBR and $Tnbs_1/Tnbs_0$ HSUs are limited in extent and relatively stable. Overall, the distribution and concentrations of nitrate in ground water are generally similar to those observed in previous years.

2.5.2.1.4. Perchlorate Concentrations and Distribution

During first semester 2010, perchlorate at concentrations exceeding the 6 µg/L cleanup standard was detected in ground water samples from wells east and south of Building 850 and east of Pit 1. The maximum perchlorate concentration of 79 µg/L was detected in the February 2010 sample from well W-850-2417, located downgradient of the Building 850 Firing Table. Wells downgradient of the Building 850 Firing Table continue to exhibit the highest perchlorate concentrations in the Building 850 area. Perchlorate concentrations in excess of the cleanup standard extend continuously from Building 850 over 2,000 and 1,200 ft, respectively, in Qal/WBR and $Tnbs_1/Tnbs_0$ HSU ground water. Concentrations of perchlorate have increased slightly in the Qal/WBR downgradient of Building 850.

During first semester 2010, perchlorate concentrations exceeded the 6 µg/L cleanup standard in samples from well K1-02B (February and April 2010, 6.9 µg/L, both samples), located downgradient of Pit 1. Perchlorate at a concentration above the 4 µg/L reporting limit, but below the 6 µg/L cleanup standard, was detected in the February and April samples from well K1-06 (4.9 and 5.2 µg/L, respectively) and from well W-PIT1-02 (4.9 and 5.6 µg/L, respectively). Both of these wells are also located downgradient of Pit 1. Because the extent of perchlorate and tritium in the $Tnbs_1/Tnbs_0$ HSU ground water with concentrations exceeding background levels extends from Building 850 to the vicinity of and beyond Pit 1, ground water downgradient of Pit 1 is monitored for these contaminants as part of the CERCLA cleanup program. Detection monitoring for potential releases from the Pit 1 Landfill is conducted under Waste Discharge Requirements issued by the RWQCB, as this landfill is not part of the CERCLA program at Site 300. Detection monitoring results for the Pit 1 Landfill are currently reported in the quarterly post-closure monitoring reports for the RCRA-closed Pit 1 and 7 Landfills.

The overall extent of perchlorate in ground water in the Building 850 and Pit 1 and 2 areas did not change significantly during the first semester 2010 and will continue to be closely monitored.

2.5.2.1.5. HE Compound Concentrations and Distribution

During the first semester 2010, ground water samples from 20 wells located in or downgradient of, the Building 850 Firing Table, were collected and analyzed for the HE compounds, HMX and RDX at a 1 µg/L reporting limit. The RDX cleanup standard (1 µg/L) was exceeded in samples from three of the 20 wells. The maximum RDX concentration of 9.3 µg/L was detected in the April 2010 sample from well NC7-28, which is located immediately east of the Building 850 Firing Table. Last year, this well also yielded the maximum RDX concentration in Building 850 ground water (6.7 µg/L, April 2009). The data indicate that RDX exceeding the cleanup standard extends about 800 ft east of Building 850, in the Qal/WBR HSU. HMX was detected above the reporting limit in samples from five wells. The maximum HMX concentration of 11 µg/L, detected in an April 2010 sample from well W-850-2417, is significantly below the Regional Tapwater Screening Level for HMX (1,800 µg/L). Last year, the maximum HMX concentration in Building 850 ground water was 10 µg/L (NC7-28, April 2009). HMX above the reporting limit extends about 550 ft east and southeast of the Building 850 Firing Table. HE compounds were not detected above the reporting limit in ground water samples from wells screened in the $Tnbs_1/Tnbs_0$ HSU downgradient of Building 850 or from wells screened in the underlying $Tnsc_0$ HSU. The data indicate that the extent of HE compounds in ground water is limited to the Building 850 Firing Table and the Qal/WBR HSU

immediately downgradient. The distribution of HE compounds in ground water at Building 850 is similar to observations made in 2008 and 2009, when regular sampling and analysis for these chemicals commenced.

2.5.2.2. Building 850 Area of OU 5 Remediation Optimization Evaluation

MNA is the selected remedy for remediation of tritium in ground water emanating from the Building 850 area. Recent data indicate MNA continues to be effective in reducing tritium activities in ground water. The highest tritium activities in ground water continue to be located immediately downgradient of the tritium sources at the Building 850 Firing Table and continue to decline. The extent of the 20,000 pCi/L cleanup standard tritium activity contours in both HSUs continues to diminish. The significant decreases in activities and extent of the Building 850 tritium plume with activities exceeding the cleanup standard indicate that natural attenuation (dispersion, radioactive decay and a decreasing source term) continues to be effective in reducing tritium activities in ground water. In general, ground water tritium activities continue to decline and are significantly below historic highs throughout the Building 850 plume.

Total uranium activities in ground water are below the 20 pCi/L cleanup standard in samples from all wells in the Building 850 area. The overall extent of total uranium activities at Building 850 has not changed significantly. The remediation strategy for uranium at Building 850 continues to be protective given that: (1) total uranium activities in Building 850 ground water generally remain below the 20 pCi/L cleanup standard; (2) the areal extent of depleted uranium has not changed during the period of monitoring; and (3) the temporal trends in $^{235}U/^{238}U$ isotope ratios from past samples have remained stable.

The overall extent and maximum concentrations of nitrate and perchlorate in ground water are also similar to those observed in previous years. An *in situ* perchlorate bioremediation treatability test is scheduled to commence at Building 850 during the second semester 2010. The objective of this test is to evaluate the efficacy of *in situ* enhanced remediation methods to reduce perchlorate ground water concentrations immediately downgradient of the Building 850 Firing Table. Recently installed well W-850-2417 will serve as a reagent injection well and nearby downgradient well NC7-28 and deeper well W-850-2416 will serve as performance monitor wells for this test.

2.5.2.3. Building 850 Area of OU 5 Remedy Performance Issues

There were no new issues that affect the performance of the cleanup remedy (MNA) 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, and to make progress toward cleanup. Perchlorate, uranium, and RDX in ground water downgradient of the Building 850 Firing Table will continue to be closely monitored and reported. An *in situ* bioremediation treatability test is planned to remediate perchlorate in ground water in the Building 850 source area. Although this treatability test will specifically target perchlorate, the performance of this technology with respect to uranium and RDX remediation or stabilization will also be evaluated. This test has been delayed pending finalization by the RWQCB of the WDR-R5-2008-0149 permit for *in situ* remediation, submission and approval of a conceptual treatability test work plan by the RWQCB, and also by the Building 850 Removal Action, which was completed in January 2010.

2.5.3. Pit 7 Complex Area of OU 5 Ground Water 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 monthly ground water discharge volumes and rates and operational hours are summarized in Table 2.5-2. The total volume of ground water extracted and treated, and masses removed, during the reporting period are presented in Table Summ-1. The cumulative volume of ground water treated and discharged and masses removed are summarized in Table Summ-2. Analytical results for influent and effluent samples are shown 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 and operational issues interrupted continuous operations of the PIT7-SRC GWTS during first semester:

- Operation and testing and verification of the GWTS started on March 16. Startup compliance sampling of the system effluent was conducted on March 18. The GWTS operated intermittently during testing and verification. The system began 24-hours/4-day operations during the week of May 6, and 24-hour/7-day operations on May 10.

2.5.3.3. Pit 7 Complex Area of OU 5 Compliance Summary

The Pit 7-SRC GWTS operated in compliance with the RWQCB Substantive Requirements for Wastewater Discharge.

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 new monitoring requirements in the CMP/CP. The sampling and analysis plan is presented in Table 2.5-7. No changes were made to the plan except for additional compliance monitoring at startup of the GWTS.

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

No modifications to the treatment facility or to the extraction wellfield occurred during this reporting period.

2.5.4. Pit 7 Complex Area of OU 5 Ground Water Monitoring

The sampling and analysis plan for ground water and surface water monitoring is presented in Table 2.5-8. This table also delineates and explains deviations from the sampling plan and indicates any additions made to the CMP.

During the reporting period, ground water monitoring was conducted in accordance with the CMP monitoring requirements with the following exceptions; thirty-nine required analyses were

not performed because there was insufficient water in the wells to collect the samples and one required analysis was inadvertently not added to the sampling plan.

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

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

2.5.5.1. Pit 7 Complex Area of OU 5 Mass Removal

The monthly ground water mass removal estimates are summarized in Table 2.5-9. The total mass removed during this 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 ground water and uranium, perchlorate, nitrate, and VOCs are secondary COCs. These constituents have been identified within the Qal/WBR and $Tnbs_1/Tnbs_0$ HSUs.

2.5.5.2.1. Tritium Activities and Distribution

Overlapping plumes of tritium in ground water extend from Pit 3 and Pit 5 landfill sources. The Pit 7 Landfill is not an apparent source of tritium to ground water as most of the tritium-bearing experiments conducted at Site 300 were conducted prior to its opening in 1979 (Taffet et al., 2008) and well NC7-48, located immediately downgradient to Pit 7 and upgradient of Pit 3, has generally yielded ground water samples that contain tritium at within background ranges. This semester, well NC7-48 yielded a sample containing less than 100 pCi/L of tritium (April 2010).

Tritium activities in the Qal/WBR HSU ground water in the Pit 7 Complex area have decreased from a historic maximum of 2,660,000 pCi/L in 1998 to a maximum tritium activity in the first semester 2010 of 255,000 pCi/L (January 2010). Both the historic and first semester 2010 maximum tritium activities were detected in samples from well NC7-63, located immediately downgradient of Pit 3. Tritium activities in Qal/WBR ground water have generally declined, though some wells showed increases. The observed changes may be related to ground water extraction, which began in April 2010. In the Qal/WBR HSU, the region of ground water containing tritium in excess of the cleanup standard extends about 1,700 ft southeast from the northern edge of Pit 3. The extent of the 20,000 pCi/L cleanup standard ground water tritium activity contour in the Qal/WBR HSU in the Pit 7 Complex area is similar to those of 2009.

Tritium activities in the $Tnbs_1/Tnbs_0$ HSU ground water in the Pit 7 Complex area have decreased from a historic maximum of 770,000 pCi/L in 1999 to a maximum tritium activity in the first semester 2010 of 271,000 pCi/L (January 2010). Both the historic and first semester 2010 maximum tritium activities were detected in samples from well NC7-25, located about 250 ft downgradient (northeast) of the Pit 3 Landfill. In general tritium activities in the $Tnbs_1/Tnbs_0$ HSU are similar to 2009. The highest tritium activities in $Tnbs_1/Tnbs_0$ HSU in Pit 7 Complex area ground water, as represented by the 20,000 pCi/L cleanup standard contour, extend about 800 ft northeast from Pit 3 and Pit 5. The extent of the 20,000 pCi/L cleanup standard ground water tritium activity contour in the $Tnbs_1/Tnbs_0$ HSU in the Pit 7 Complex area is similar to 2009.

Overall, the extent of tritium in ground water with activities above the 400 pCi/L California State PHG remains stable, and the extent of ground water with tritium in excess of background is similar to 2009.

2.5.5.2.2. Uranium Concentrations and Distribution

Depleted uranium was previously released to ground water from sources in the Pits 3, 5, and 7 landfills (Taffet et al., 2008).

Uranium activities in Qal/WBR HSU ground water in the Pit 7 Complex area have decreased from a historic maximum of 781 pCi/L to a maximum tritium activity in the first semester 2010 tritium activity of 120 pCi/L (April 2010). Uranium activities exceeded the 20 pCi/L cleanup standard in sample from 12 wells in the Qal/WBR HSU during the first semester 2010. All 12 wells are proximal to the landfills and have historically shown $^{235}U/^{238}U$ isotopic ratios indicating some depleted uranium. The extent of uranium in excess of the cleanup standard in the Qal/WBR HSU is confined to an area immediately adjacent to Pit 3 and another area that extends from Pit 5 southeast about 500 ft. The extents of both these regions are stable and similar to what has been observed over the last few years. The extent of depleted uranium in Qal/WBR HSU ground water has changed little since the mid-1990s. Areas of depleted uranium in ground water are bounded by wells that have in the past exhibited ground water isotope mass ratios indicative of natural uranium. This indicates that the depleted uranium plume is not migrating significantly in the short term within the Qal/WBR HSU ground water. Sorption may be responsible for slowing the migration of depleted uranium in ground water compared to conservative contaminants such as tritium.

The first semester 2010 samples from well W-PIT7-2305, screened in both the Qal/WBR and $Tnbs_1/Tnbs_0$ HSUs, also exceeded the 20 pCi/L cleanup standard. $^{235}U/^{238}U$ isotopic ratios in these samples also indicated some added depleted uranium.

Uranium activities in the $Tnbs_1/Tnbs_0$ HSU have decreased from a historic maximum of 51.45 pCi/L in 1998 to a maximum uranium activity in the first semester 2010 of 36.5 pCi/L (June 2010). Both the historic and first semester 2010 maximum tritium activities were detected in samples from well NC7-25, located about 250 ft downgradient (northeast) of the Pit 3 Landfill. Well NC7-25 is the only $Tnbs_1/Tnbs_0$ HSU well that historically and currently yields ground water containing uranium in excess of the cleanup standard. However, the historic and first semester 2010 isotope ratio data indicate that the uranium in the NC7-25 ground water is natural. Ground water samples from wells screened in the $Tnbs_1/Tnbs_0$ HSU have not shown a depleted uranium mass ratio, indicating that depleted uranium has not migrated downward into the $Tnbs_1/Tnbs_0$ HSU.

As is the case for Building 850 portion of OU 5, uranium analyses for first semester 2010 were performed primarily by alpha spectroscopy with selected samples analyzed by Inductively Coupled Plasma - Mass Spectrometry (ICP-MS).

2.5.5.2.3. Nitrate Concentrations and Distribution

Nitrate was detected at concentrations at or above the 45 mg/L cleanup standard in samples from eight Pit 7 Complex area wells during first semester 2010. These wells are located downgradient and northeast of the Pit 7 Complex area. In particular, Qal/WBR HSU wells, NC7-16, NC7-21, and NC7-34 yielded February 2010 samples with reported nitrate concentrations of 290, 210, and 150 mg/L, respectively. These results are suspect as the

subsequent May 2010 samples yielded nitrate concentrations of 39, 40, and 27 mg/L, respectively. These subsequent results are equivalent to historic nitrate concentrations observed at these wells.

Other than the wells that exhibited unusual nitrate concentrations as described above, the maximum first semester 2010, nitrate concentration in Qal/WBR HSU wells in the Pit 7 Complex area was 48 mg/L in the January 2010 and April 2010 samples from wells NC7-63 and W-PIT7-2309, respectively. These wells are located immediately downgradient of Pits 3 and 5, respectively.

Other than the wells that exhibited unusual nitrate concentrations as described above, the maximum first semester 2010 nitrate concentration detected in the Pit 7 Complex was 68 mg/L in an April 2010 sample from well NC7-47 screened in the $Tnbs_1/Tnbs_0$ HSU. This well is located about 4,000 ft downgradient/northeast of the Pit 7 Complex landfills.

Historic data indicate that ground water nitrate concentrations in the Qal/WBR and $Tnbs_1/Tnbs_0$ HSUs are limited in extent and relatively stable. Overall, other than the unusual data described above, the distribution and concentrations of nitrate in ground water are generally similar to what has been observed in previous years.

2.5.5.2.4. Perchlorate Concentrations and Distribution

During first semester 2010, perchlorate was detected at concentrations exceeding the 6 µg/L cleanup standard in ground water samples from wells immediately northeast and southeast of the landfills.

Perchlorate concentrations in the Qal/WBR HSU ground water in the Pit 7 Complex area have decreased from a historic maximum of 40 µg/L to a maximum tritium activity in the first semester 2010 tritium activity of 27 µg/L (January 2010). Both the historic and first semester 2010 maximum tritium activities were detected in samples from well W-PIT7-2306, located immediately downgradient of Pit 3. Eleven other wells completed in the Qal/WBR HSU yielded samples containing perchlorate in excess of the 6 µg/L cleanup standard and define an area that extends southeast about 1,200 ft from the middle of Pit 3.

Samples from three $Tnbs_1/Tnbs_0$ HSU wells, K7-03, NC7-25, and NC7-68, contained perchlorate at concentrations in excess of the 6 µg/L cleanup standard and define an area that extends about 1,000 ft southeast along the edges of Pits 3 and 5.

The overall extent of perchlorate in ground water in the Pit 7 Complex area did not change significantly during 2009 and will continue to be closely monitored.

2.5.5.2.5. Volatile Organic Compound Concentrations and Distribution

During the first semester 2010, VOCs were detected in ground water samples from four Pit 7 Complex area wells completed in the Qal/WBR HSU, one well completed in the $Tnbs_1/Tnbs_0$ HSU, and two wells completed across both HSUs.

Total VOC concentrations in the Qal/WBR HSU ground water in the Pit 7 Complex area have decreased from a historic maximum of 21.2 µg/L in 1995 to a maximum tritium activity in the first semester 2010 tritium activity of 11.8 µg/L (January 2010). The maximum tritium activity in the first semester 2010 tritium activity was detected in a sample from Qal/WBR HSU well W-PIT7-2307. This sample contained 8.3 µg/L of TCE; exceeding the TCE 5 µg/L cleanup standard, and 3.5 µg/L of 1,1-DCE; below the 1,1-DCE 6 µg/L cleanup standard. The sample

collected from this well in June 2010 contained 9 µg/L of total VOCs (6.4 and 2.6 µg/L of TCE and 1,1-DCE, respectively).

The maximum total VOC concentration in a sample from a well screened in the $Tnbs_1/Tnbs_0$ HSU was 0.88 µg/L (K7-03, April 2010). The maximum first semester 2010 total VOC concentration in a sample from a well screened in both the Qal/WBR and $Tnbs_1/Tnbs_0$ HSUs was 1.2 µg/L (K7-01, May 2010).

The data indicate that the extent of VOCs in ground water is limited to the area immediately downgradient of Pit 5. TCE is the only VOC detected in samples from Pit 7 Complex area wells that exceeds the cleanup standard of 5 µg/L. Individual VOC concentrations are below cleanup standards in all wells sampled during the first semester 2010, except for well W-PIT7-2307 that contained TCE at concentrations at slightly above the cleanup standard.

2.5.5.2.6. Statistical Evidence of Release of Metals from the Pit 7 Landfill

Prior to the incorporation of the Pit 7 Complex Landfills into the CERCLA CMP/CP, the Pit 7 Landfill was included in the RWQCB's Waste Discharge Requirements (WDR) permit and associated Monitoring and Reporting Program (MRP) for the Pits 1 and 7 Landfills. After the revised CMP/CP was finalized in 2009, the RWQCB modified the WDR permit's MRP to remove the Pit 7 Landfill monitoring and reporting requirements.

Although not part of the CERCLA CMP/CP requirements, DOE agreed to include in the First Semester 2010 CERCLA CMR report, a discussion of historical data related to the RWQCB's WDR MRP for the Pit 7 Landfill to formally resolve the status of constituents of concern for which past exceedences of WDR statistical limits had occurred. Although these exceedences have been discussed in past WDR reports, a discussion of statistical limit exceedences of arsenic, cadmium, copper, nickel, zinc, and radium-266 are discussed below.

Statistical Evidence of Release of Arsenic from Pit 7

The detection of arsenic in ground water samples collected from Pit 7 detection monitor wells at concentrations exceeding the statistical limits established in the WDR MRP for the Pit 7 Landfill were reported to the RWQCB on October 17, 1995. Samples from the following wells were reported as exceeding their respective SLs for arsenic prior to October 17, 1995:

- K7-03 on March 3, 1994 at 0.0072 mg/L (SL = 0.0064 mg/L).
- K7-09 on November 5, 1993 at 0.0027 mg/L (SL = 0.002 mg/L).
- NC7-47 on March 3, 1994 at 0.024 mg/L (SL = 0.021 mg/L).
- NC7-48 on January 18, 1995 at 0.019 mg/L (SL = 0.014 mg/L).

While arsenic concentrations in these samples exceeded their SLs, they are well within the range of natural background concentrations for arsenic in Site 300 ground water (0.002 to 0.22 mg/L). Subsequent (post-1995) data from these and other Pit 7 detection monitor wells indicated arsenic concentrations were below their SLs and within the range of arsenic background concentrations.

Therefore, the SL exceedences reported in the October 17, 1995 letter are not considered as indicative of a release of arsenic from the Pit 7 Landfill, and no further evaluation is required because:

- The arsenic detections above the SL were restricted to a limited period of time and arsenic has not been detected above the SL for over 15 years. .

- All historical arsenic concentrations from the Pit 7 detection monitor wells are within the range of natural background levels for arsenic in Site 300 ground water and are well below the 0.5 mg/L Maximum Contaminant Level (MCL) for arsenic.
- Corrective actions, including the installation of an engineered landfill cap and the Drainage Diversion System, have been implemented to prevent pit inundation and releases of contaminants from the Pit 7 Landfill.

The detection monitor wells identified for the Pit 7 Landfill and Complex will be monitored annually for metals, including arsenic, to detect releases from the landfills in accordance with the CMP detection monitoring requirements.

Statistical Evidence of Release of Cadmium from Pit 7

The detection of cadmium in a ground water sample collected from a Pit 7 detection monitor well NC-75 on December 28, 1993 at a concentration (0.06 mg/L) exceeding the 0.0006 mg/L statistical limits established in the WDR MRP for the Pit 7 Landfill was reported to the RWQCB on October 17, 1995.

After October 17, 1995, cadmium concentrations exceeded SLs on two occasions. However, subsequent validation sampling did not detect cadmium above the SLs, therefore, the original exceedences were determined to be invalid. The 1993 exceedence of the cadmium statistical limit in one well is a singular, anomalous event, and not considered to be indicative of a release from the Pit 7 Landfill.

Therefore, the single SL exceedence is not considered as indicative of a release of cadmium from the Pit 7 Landfill, and no further evaluation is required because:

- The cadmium detection above the SL was restricted to a single sampling event in one well and cadmium has not been detected above the SL for over 17 years. .
- Corrective actions, including the installation of an engineered landfill cap and the Drainage Diversion System, have been implemented to prevent pit inundation and releases of contaminants from the Pit 7 Landfill.

The detection monitor wells identified for the Pit 7 Landfill and Complex will be monitored annually for metals, including cadmium, to detect releases from the landfills in accordance with the CMP detection monitoring requirements.

Statistical Evidence of Release of Copper from Pit 7

The detection of copper in ground water samples collected from Pit 7 detection monitor wells at concentrations exceeding their statistical limits established in the WDR MRP for the Pit 7 Landfill were reported to the RWQCB on October 17, 1995. Samples from the following wells were reported as exceeding their respective SLs for cadmium prior to October 17, 1995:

- K7-03 on June 1, 1994 at 0.15 mg/L (SL = 0.14 mg/L).
- NC7-25 on October 27, 1993 at 0.011 mg/L and on December 28, 1993 at 0.039 mg/L (SL = 0.01 mg/L).
- NC7-48 on November 5, 1993 at 0.026 mg/L and on July 20, 1994 at 0.018 mg/L (SL = 0.01 mg/L).

While copper concentrations in these samples exceeded their SLs, the copper concentrations in the samples from wells NC7-25 and NC7-48 were well within the range of natural background concentrations for copper in Site 300 ground water (0.0059 to 0.05 mg/L). Subsequent (post-

1994) data from these and other Pit 7 detection monitor wells indicated copper concentrations were below their SLs and within the range of copper background concentrations.

Therefore, the SL exceedences reported in the October 17, 1995 letter are not considered as indicative of a release of copper from the Pit 7 Landfill, and no further evaluation is required because:

- The copper detections above the SL were restricted to a limited period of time and copper has not been detected above the SL for over 16 years. .
- Since 1994, copper concentrations detected in the Pit 7 detection monitor wells are within the range of natural background levels for copper in Site 300 ground water and are well below the 1.3 mg/L State MCL for copper.
- Corrective actions, including the installation of an engineered landfill cap and the Drainage Diversion System, have been implemented to prevent pit inundation and releases of contaminants from the Pit 7 Landfill.

The detection monitor wells identified for the Pit 7 Landfill and Complex will be monitored annually for metals, including copper, to detect releases from the landfills in accordance with the CMP detection monitoring requirements.

Statistical Evidence of Release of Nickel from Pit 7

The detection of nickel in ground water samples collected from Pit 7 detection monitor wells at concentrations exceeding their statistical limits established in the WDR MRP for the Pit 7 Landfill were reported to the RWQCB as discussed below.

Samples from the following wells were reported to the RWQCB as exceeding their respective SLs for nickel prior to October 17, 1995:

- K7-01 on November 11, 1993 at 0.014 mg/L (SL = 0.012 mg/L)
- K7-10 on December 28, 1993 at 0.38 mg/L (SL = 0.037 mg/L)
- NC7-26 on October 28, 1993 at 0.02 mg/L (SL = 0.0005 mg/L)

Nickel was detected at concentrations exceeding the SL for well NC7-26 on two occasions after October 17, 1995: 0.0069 mg/L on January 27, 2004 and 0.0055 mg/L on April 27, 2006.

The detection of nickel in a ground water sample collected from Pit 7 detection monitor well K7-09 on February 7, 1996 at a concentration (0.0056 mg/L) exceeding the 0.005 mg/L statistical limits was reported to the RWQCB on May 3, 1996.

While nickel concentrations in these samples exceeded their SLs, the concentrations in the samples from wells K7-01, K7-09 and NC7-26 were well within the range of natural background concentrations for nickel in Site 300 ground water (0.021 mg/L). Well K7-10 in which the highest nickel concentration was detected is located upgradient of Pit 5 and crossgradient of Pit 7.

The detection of nickel in a ground water sample collected from Pit 7 detection monitor well K7-03 on April 17, 2001 at a concentration (0.05 mg/L) exceeding the 0.026 mg/L statistical limits was reported to the RWQCB on July 10, 2001. The nickel SL for well K7-03 was exceeded eleven times between 2002 and 2004, with concentrations ranging from 0.029 to 0.079 mg/L, and once after 2004 (0.031 mg/L on April 28, 2008).

The majority of the nickel SL exceedences have been detected in samples from well K7-03, which is located directly downgradient of the Pit 5 Landfill. As reported in past Compliance

Monitoring Program reports for the RCRA Landfill Pits 1 and 7, the likely cause of the nickel SL exceedences in well K7-03 are due to a possible past slug release from Pit 5 caused by ground water inundating the pit during El Niño events and/or from natural sources in the bedrock.

Therefore, the SL exceedences are not considered as indicative of a release of nickel from the Pit 7 Landfill, and no further evaluation is required because:

- Nickel concentrations in wells K7-01, K7-09 and NC7-26 were well within the range of natural background concentrations.
- Well K7-10 is located upgradient of Pit 5 and crossgradient of Pit 7; therefore the nickel detected in this well is likely attributable to natural sources.
- The nickel SL exceedences detected in well K7-03, located directly downgradient of the Pit 5 Landfill are likely the result of possible past slug release from Pit 5 caused by ground water inundating the pit during El Niño events and/or from natural sources in the bedrock.
- All historical nickel concentrations from the Pit 7 detection monitor wells are well below the 0.1 mg/L State MCL for nickel.
- Corrective actions, including the installation of an engineered landfill cap and the Drainage Diversion System, have been implemented to prevent pit inundation and releases of contaminants from the Pit 7 Landfill.

The detection monitor wells identified for the Pit 7 Landfill and Complex will be monitored annually for metals, including nickel, to detect releases from the landfills in accordance with the CMP detection monitoring requirements. Nickel concentrations in well K7-03 will be monitored closely for indications of releases from Pit 5 following the installation of the Drainage Diversion System.

Statistical Evidence of Release of Zinc from Pit 7

The detection of zinc in ground water samples collected from Pit 7 detection monitor wells at concentrations exceeding their statistical limits established in the WDR MRP for the Pit 7 Landfill were reported to the RWQCB as discussed below.

Samples from the following wells were reported to the RWQCB as exceeding their respective SLs for zinc prior to October 17, 1995:

- K7-01 on September 1, 1993 at 0.08 mg/L (SL = 0.054 mg/L)
- K7-03 on June 1, 1994 at 0.08 mg/L (SL = 0.07 mg/L)
- K7-10 on October 27 1988 at 0.16 mg/L (SL = 0.02 mg/L)
- NC7-48 on January 27, 1994 at 0.079 mg/L (SL = 0.071 mg/L)

While zinc concentrations in these well samples exceeded their SLs, the concentrations in the samples from wells K7-01 and NC7-48 downgradient of Pit 7 were well within the range of natural background concentrations for nickel in Site 300 ground water (0.01 to 0.12 mg/L).

Well K7-10 in which the highest nickel concentration was detected is located upgradient of Pit 5 and crossgradient of Pit 7. The zinc SL for well K7-10 was exceeded after October 17, 1995 on two occasions; 0.023 mg/L on December 4, 2003 and 0.024 mg/L on May 3, 2004. However, the zinc concentrations in these samples were within the range of natural background concentrations for nickel in Site 300 ground water (0.01 to 0.12 mg/L).

The detection of zinc in a ground water sample collected from Pit 7 detection monitor well

K7-03 on January 19, 1999 at a concentration (0.094 mg/L) exceeding the 0.072 mg/L statistical limits was reported to the RWQCB on April 19, 1999. After April 19, 1999, the zinc SL for well K7-03 was exceeded eighteen times between 1999 and 2005 at concentrations ranged from 0.072 to 0.162 mg/L. Because there were previously-reported exceedences for this well, additional letters were not submitted to the RWQCB. There were no zinc exceedences after 2005. These exceedences were discussed in the Compliance Monitoring Program reports for RCRA-Closed Landfill Pits 1 and 7. As discussed in these reports, the likely cause of the nickel SL exceedences in well K7-03 are due to a possible past slug release from Pit 5 caused by ground water inundating the pit during El Niño events and/or from natural sources in the bedrock.

Zinc was detected in a ground water sample collected from Pit 7 detection monitor well NC7-25 on January 3, 2008 at a concentration (0.2 mg/L) exceeding the 0.036 mg/L statistical limits. This SL exceedence was reported to the RWQCB on April 2, 2008. There were no zinc SL exceedences prior to or after the 2008 sampling event in this well.

Therefore, the SL exceedences are not considered as indicative of a release of zinc from the Pit 7 Landfill, and no further evaluation is required because:

- All historical zinc concentrations from the Pit 7 detection monitor wells K7-01 and NC7-48 are well below the 0.12 mg/L State MCL for zinc.
- Well K7-10 is located upgradient of Pit 5 and crossgradient of Pit 7; therefore the zinc detected in this well is likely attributable to natural sources.
- The nickel SL exceedences detected in well K7-03, located directly downgradient of the Pit 5 Landfill, are likely the result of possible past slug release from Pit 5 caused by ground water inundating the pit during El Niño events and/or from natural sources in the bedrock.
- The zinc detection above the SL in well NC7-25 was restricted to a single sampling event; zinc concentrations in this well will be monitored closely.
- All historical nickel concentrations from the Pit 7 detection monitor wells are well below the 5 mg/L State MCL for zinc.
- Corrective actions, including the installation of an engineered landfill cap and the Drainage Diversion System, have been implemented to prevent pit inundation and releases of contaminants from the Pit 7 Landfill.

The detection monitor wells identified for the Pit 7 Landfill and Complex will be monitored annually for metals, including zinc, to detect releases from the landfills in accordance with the CMP detection monitoring requirements. Zinc concentrations in well K7-03 will be monitored closely for indications of releases from Pit 5 following the installation of the Drainage Diversion System.

Statistical Evidence of Release of Radium-226 from Pit 7

The detection of radium-226 in ground water samples collected from Pit 7 detection monitor wells at concentrations exceeding their statistical limits established in the WDR MRP for the Pit 7 Landfill were reported to the RWQCB as discussed below.

Samples from the following wells were reported to the RWQCB as exceeding their respective SLs for zinc prior to October 17, 1995:

- K7-01 on March 17, 1995 at 25.7 pCi/L (SL = 2.61 pCi/L)

- K7-03 on August 8, 1991 at 1.868 pCi/L (SL = 1.2 pCi/L)
- NC7-25 on June 1, 1994 at 624 pCi/L (SL = 1.31 pCi/L)
- NC7-48 on October 11, 1992 at 35.4 pCi/L and on June 2, 1994 at 317 pCi/L (SL = 29.7 pCi/L)

After October 17, 1995, radium-226 activities exceeded SLs on only one occasion; however, the results were not confirmed by subsequent validation sampling and the original exceedence was determined to be invalid. Subsequent (post-1995) sample data from these and other Pit 7 detection monitor wells indicated radium-226 activities were below their SLs

Possible explanations for the radium-226 SL exceedences that occurred prior to April 1995 include non-filtration of the sample in the field or laboratory. To date, filtration status for each of these samples has not been confirmed.

Therefore, the SL exceedences are not considered as indicative of a release of radium-226 from the Pit 7 Landfill, and no further evaluation is required because:

- The radium-226 detections above the SL were restricted to a limited period of time and copper has not been detected at activities above the SL for over 15 years, including during the 1997-1998 El Nino event.
- Corrective actions, including the installation of an engineered landfill cap and the Drainage Diversion System, have been implemented to prevent pit inundation and releases of contaminants from the Pit 7 Landfill.

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

Ground water extraction and treatment began in the first semester of 2010 and thus hydraulic and chemical data from the area of the well field are insufficient to assess the performance of the extraction well field at this time. A more complete analysis of remediation optimization will be presented in the annual CMR report. Well W-PIT7-2307 contributes approximately 80% of the flow to the treatment facility. It appears that options to increase flow from the other wells are limited due to the low sustainable yields of the water-bearing materials. Three additional extraction wells that were to be drilled at Pit 7 to increase the extraction of higher volumes of ground water from the centers of mass of the uranium and perchlorate in ground water will be installed in 2011. The additional time will provide an opportunity to better site and design the extraction wells based on observation of a full year of hydraulic, chemical, and water elevation data from the PIT7-SRC area and install them during a time of maximum saturation after the winter-spring rainy season. The wells will likely be angle-drilled to enable screening them beneath and adjacent to contaminant sources in the landfills and underlying bedrock and increase the volume of saturated zone screened within each extraction well.

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

There were no new issues that affect the performance of the cleanup remedy (MNA) for tritium in the Pit 7 Complex area during this reporting period. The remedy for tritium continues to be effective and protective of human health and the environment, and to make progress toward cleanup. Uranium, perchlorate, VOCs, and nitrate in Pit 7 Complex ground water continue to be closely monitored. With an additional semester of ground water extraction, treatment, and monitoring, the effects of ground water extraction and treatment will be reported in greater detail.

First semester 2010 tritium activities in treated effluent from PIT7-SRC were in the range of 50-60,000 pCi/L, which is equivalent to recent tritium activities in samples from wells completed adjacent to the infiltration trench (wells K7-01 and NC7-21). The tritium activities in these wells will be closely monitored to assess any negative impacts to the distribution of tritium in ground water.

The drainage diversion system performance wells are now outfitted with dedicated pressure transducers that accurately reflect ground water elevations. Collection of accurate ground water levels in these performance wells began in April 2010. Ground water elevations in the Qal/WBR HSU in the Pit 7 Complex generally increased 2 to 3 ft following the above-average 2009-2010 rainfall. This was expected, as the drainage diversion system is not designed to prevent water level rises but to severely impact the influence of extreme storm events. During this rainfall period, ground water levels remained well below the bottoms of the pits.

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 conditions and mechanical and thermal stresses. A map of the Building 854 OU showing the locations of monitoring 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 854-SRC.

The 854-SRC GWTS began operation in December 1999 removing VOCs and perchlorate from ground water. Ground water extraction was expanded in September 2006 from one well, W-854-02 extracting at a flow rate of approximately 1 gpm to include wells W-854-18A, W-854-17, and W-854-2218 currently extracting at an approximate combined flow rate of 1.7 gpm. The GWTS configuration includes a particulate filtration system, two ion-exchange columns containing SR-7 resin connected in series for perchlorate removal, and three aqueous-phase GAC units connected in series for VOC removal. Nitrate-bearing treated effluent is then discharged via a misting tower onto the landscape for uptake and utilization of the nitrate by indigenous grasses.

A SVTS began operation at the 854-SRC in November 2005. Soil vapor is currently extracted from well W-854-1834 at an approximate flow rate of 45 to 50 scfm. This system consists of vapor-phase GAC to remove VOCs from extracted soil vapor. Treated vapors are discharged to the atmosphere under permit from the San Joaquin Valley Unified Air Pollution Control District.

The 854-PRX GWTS began operation in November 2000 removing VOCs, nitrate, and perchlorate from ground water. Ground water is currently extracted at an approximate flow rate of 1.5 gpm from well W-854-03, located southeast of the Building 854 complex. The GWTS configuration includes two ion-exchange columns containing SR-7 resin connected in series for perchlorate removal, three aqueous-phase GAC units connected in series for VOC removal, and aboveground containerized wetland biotreatment for nitrate removal prior to being discharged into an infiltration trench. In 2007, the treatment system was modified to replace the solar power with site power to increase the volume of extracted ground water by operating the GWTS 24-hours a day.

The 854-DIS GWTS is solar-powered and began operation in July 2006 removing VOCs and perchlorate from ground water. Ground water is extracted from well W-854-2139. The current operational flow rate averaged over time is approximately 700 to 800 gallons per month. The GWTS configuration includes two SR-7 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.

2.6.1. Building 854 OU Ground Water Treatment System Operations and Monitoring

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

2.6.1.1. Building 854 OU Facility Performance Assessment

The monthly ground water discharge volumes and rates and operational hours are summarized in Tables 2.6-1 through 2.6-3. The total volume of ground water treated and masses removed during the reporting period are presented in Table Summ-1. The cumulative volume of ground water treated and discharged and the masses removed are summarized in Table Summ-2.

Analytical results for influent and effluent samples are shown 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 and operational issues interrupted continuous operations of the 854-SRC GWTS and SVTS, and 854-PRX and 854-DIS GWTSs during first semester:

854-SRC GWTS

- Replaced two leaking GAC canisters on January 6.
- Freeze protection measures were discontinued and the SVTS restarted on February 3. The GWTS remained offline due to the failure of the pump in extraction well W-854-2218.
- The SVTS shut down on February 25 due to PLC battery failure.
- The GWTS and SVTS were restarted on March 16 after the pump in well W-854-2218 was replaced.
- The ground water extraction wells W-854-2218 and W-854-18A were found shut down on March 22 due to failed transducer. The GWTS continued to run on extraction wells W-854-02 and W-854-17. Extraction wells W-854-2218 and W-854-18A were brought back online on April 13.
- A site-wide power outage occurred on June 1.

854-PRX GWTS

- Freeze protection measures were discontinued and the GWTS was restarted on February 9 to evaluate the effectiveness of the biotreatment unit to reduce nitrate. The system was shutdown at the end of the day pending results. The system was restarted again on February 10, but was immediately shut down when field testing indicated that the

biotreatment unit was not removing the nitrate, possibly due to the cold temperatures and either inactive or low density of nitrate reducing bacteria.

- The system was operated for a short period (~2 hrs) on February 16 to check nitrate concentration using the field test kit, and again on February 18, at which time all compliance samples were collected. The system was immediately shut down after sample collection.
- The system was again operated for a short period on March 30 to field check nitrate concentrations and to collect compliance samples.
- The system was then run for day only operations from May 20 through May 27, at which time operations were changed to 24-hr/7-day operating schedule due to consistent nitrate concentrations.
- A site-wide power outage occurred on June 1.

854-DIS GWTS

- Freeze protection measures were discontinued and the GWTS restarted on February 2.

2.6.1.3. Building 854 OU Compliance Summary

The 854-SRC, and 854-DIS GWTSs all operated in compliance with the RWQCB Substantive Requirements for Wastewater Discharge. The 854-SRC SVTS operated in compliance with San Joaquin Valley Unified Air Pollution Control District permit limitations. The only compliance issue concerned the effluent nitrate concentration in the first sample collected on February 9 from 854-PRX. Although the field test kit indicated nitrate was below the discharge limit of 45 mg/L, the analytical laboratory reported a concentration of 47 mg/L. It was determined that turbidity associated with a long period of system shutdown caused interference with the field test kit. The field testing procedures have been adjusted accordingly. As discussed above, the cold weather and shutdown duration negatively effected bacterial nitrate reduction. During the first portion of the semester, the system could only operate for short periods, until the temperatures increased and the density and activity of the bacterial populations increased. All other sample results were within compliance with the RWQCB Substantive Requirements for Wastewater Discharge.

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 new monitoring requirements in the CMP/CP. The only changes made to the requirements for the Building 854 OU was the suspension of nitrate monitoring at 854-SRC as the effluent discharge method is misting and no discharge limit is specified. The sampling and analysis plan is presented in Table 2.6-6. The only modifications to the plan included no compliance monitoring in January and February from 854-SRC GWTS due to being shutdown for freeze protection and electronics problems, no compliance monitoring in January and April from 854-PRX GWTS due to being shutdown freeze protection and biotreatment unit problems, and no compliance monitoring from 854-DIS GWTS in January due to being shutdown for freeze protection.

2.6.1.5. Building 854 OU Treatment Facility and Extraction Wellfield Modifications

There were no treatment facility or extraction wellfield modifications made in the Building 854 OU during the reporting period.

2.6.2. Building 854 OU Ground Water Monitoring

The sampling and analysis plan for ground water and surface water monitoring is presented in Table 2.6-7. This table also delineates and explains deviations from the sampling plan and indicates any additions made to the CMP.

During the reporting period, ground water monitoring was conducted in accordance with the CMP monitoring requirements with the following exceptions: thirteen required analyses were not performed because there was insufficient water in the wells to collect the samples and four required analyses were not performed due to an inoperable pump.

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 performance issues.

2.6.3.1. Building 854 OU Mass Removal

The monthly ground water mass removal estimates are summarized in Tables 2.6-8 through 2.6-10. The total mass removed during this 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, VOCs and perchlorate are the primary COCs detected in ground water; nitrate is a secondary COCs. These COCs have been identified primarily in the $Tnbs_1/Tnsc_0$ HSU.

2.6.3.2.1. Total VOC Concentrations and Distribution

During the first semester 2010, the maximum concentration of total VOCs in $Tnbs_1/Tnsc_0$ HSU ground water was 97 µg/L (W-854-02, April 2010). TCE comprises all of the total VOCs observed in ground water at Building 854, except for low cis-1,2-DCE concentrations detected in samples from wells W-854-17 and W-854-2139. The maximum cis-1,2-DCE ground water concentration detected during the first semester 2010 was 5.4 µg/L (W-854-17, March 2010). Overall, total VOC concentrations in the $Tnbs_1/Tnsc_0$ HSU have decreased nearly two orders of magnitude from a historic pre-remediation maximum of 2,900 µg/L (W-854-02, 1997). Two VOC plumes exist in the $Tnbs_1/Tnsc_0$ HSU; a northern plume and a less extensive southern plume. The northern plume encompasses the 854-SRC and 854-PRX areas and is separated from the southern plume by a region where total VOC concentrations are below the 0.5 µg/L reporting limit (at wells W-854-1902 and W-854-1822). The southern plume is in the vicinity of former water supply Well 13. While the extent of VOCs impacting Building 854 ground water with concentrations above the 0.5 µg/L reporting limit has remained relatively stable over time, since remediation began: (1) the portion of the northern VOC plume with concentrations greater than 50 µg/L has decreased and is currently limited to the immediate vicinity of the source area; (2) the extent of the northern total VOC plume with concentrations greater than 10 µg/L has

decreased; and (3) the extent of the southern total VOC plume with concentrations greater than 5 µg/L has decreased significantly. Total VOCs were detected in shallow perched ground water in well W-854-10 (screened in the $Tnbs_1$ HSU) located in the 854 source area during the 2009 and the first semester 2010 at maximum concentrations of 17 and 41 µg/L, respectively. The current concentration is an increase from the 2009 maximum and is similar to the 2008 maximum of 34 µg/L. The long-term total VOC concentrations in ground water at this well exhibit a slightly increasing trend with intermittent decreases.

2.6.3.2.2. Perchlorate Concentrations and Distribution

The maximum first semester 2010 perchlorate concentration in $Tnbs_1/Tnsc_0$ HSU ground water was 16.6 µg/L (W-854-1823, June 2010), down from the 22 µg/L maximum concentration measured in ground water from this well in 2009. The previous historic maximum concentration (27 µg/L, W-854-1823) was detected in 2003. Well W-854-1823 is located downgradient of the 854-PRX.

Overall, the distribution and concentrations of perchlorate in ground water are nearly identical to those observed last year. Perchlorate was not detected in first semester samples from any well screened in the Qls or $Tnbs_1$ HSU.

2.6.3.2.3. Nitrate Concentrations and Distribution

The maximum first semester 2010 nitrate concentration in $Tnbs_1/Tnsc_0$ HSU ground water was 44 mg/L (extraction well W-854-03, May 2010). The maximum 2009 nitrate concentration in $Tnbs_1/Tnsc_0$ HSU ground water was 53 mg/L (W-854-02, April 2009). Nitrate analysis of ground water from well W-854-02 was not required this semester. During first semester 2010, nitrate was not detected above the 45 mg/L cleanup standard in samples from any other $Tnbs_1/Tnsc_0$ HSU well. In 2009, nitrate was detected above the cleanup standard in ground water samples from extraction wells W-854-03 (854-PRX) and W-854-2218 (854-SRC), and one $Tnbs_1/Tnsc_0$ monitor well, W-854-09. Additionally, during first semester 2010, nitrate was detected above the cleanup standard in samples from a well screened in the $Tnbs_1$ HSU (W-854-14, 180 mg/L, June 2010) located near Building 858. In 2009, the 270 mg/L of nitrate reported in the sample from well W-854-14 was the maximum historic nitrate concentration detected in the Building 854 OU. The continued presence of elevated nitrate in samples from well W-854-14 could be due to impact from the Building 858 septic system. Geochemical data (nitrogen and oxygen isotopes) collected in the Building 854 OU as part of the Site 300 nitrate MNA study indicated some evidence of *in situ* denitrification in Neroly Formation ground water. The distribution of $Tnbs_1/Tnsc_0$ nitrate in the distal area remains low and essentially unchanged since this study was conducted.

2.6.3.3. Building 854 OU Remediation Optimization Evaluation

Since the 2006 expansion of the 854-SRC GWTS wellfield, the total volume of extracted ground water and contaminant mass removed has increased significantly. Ground water extraction continues to adequately capture the highest VOC concentrations. Well W-854-2218 can be pumped at a higher sustainable yield and future optimization efforts at 854-SRC will include increased pumping of this extraction well. Increased pumping would add to the total volume of 854-SRC effluent discharged. The effluent is currently discharged via misting towers, which are at or near capacity. Therefore, to increase the pumping of extraction well W-854-2218, additional misting towers would need to be constructed to accommodate the additional effluent volume. The 854-SRC SVTS operated throughout first semester 2010, except

for a period of battery failure from late February to mid-March. The maximum historic TCE vapor concentration measured from well W-854-1834 was 4.4 $ppm_{v/v}$ (November 2005). The maximum first semester 2010 TCE vapor concentration measured from well W-854-1834 was 0.46 $ppm_{v/v}$ (April 2010). During the first semester 2010, 0.49 kg of VOC vapor mass were removed at 854-SRC. During the first and second semesters of 2009, 0.48 and 0.62 kg, of VOC vapor mass were removed, respectively. Significant VOC mass continues to be removed from the source area due to relatively high vapor flow rates. This VOC mass is likely volatilizing from vadose zone sources beneath the 854 source area and VOC vapors from the underlying dissolved VOC plume in $Tnbs_1/Tnsc_0$ ground water. Operation of the 854-SRC SVTS will continue until vapor concentrations decline below reporting limits, even after extended shutdown periods. At that time, the 854-SVTS will enter a period of testing specified by SVE system shutdown criteria.

Construction activities supporting full-time operation of 854-PRX were completed in September 2007, increasing overall extraction capacity and the extraction flow rate from well W-854-03 to 1.4 gpm. Although full-time operations have resulted in larger volumes of extracted water from well W-854-03, the stabilized pumping water level in this well remains more than 10 ft above the top of the well screen. This and prior hydraulic testing indicate well W-854-03 can sustain long-term flow rates as high as 4-5 gpm. To increase the extraction flow rate from this well, increased power capacity will be required to the well to operate a higher capacity pump. In turn, increasing the overall flow at this facility will exceed the capacity of the nitrate biotreatment unit and injection trench. Different options are being evaluated to allow for increased pumping from well W-854-03, including misting any excess ground water that exceeds the capacity of the nitrate biotreatment unit, and/or misting the total volume of the effluent.

Laboratory microcosm vessels that contained ground water and Neroly sediment from Site 300 were used to evaluate the efficacy of *in situ* perchlorate biotreatment at Building 854 and 850 and to design a field-scale treatability test at these sites. Preliminary results indicate that all three of the carbon amendments tested (corn syrup, sodium lactate, and ethyl lactate) reduced perchlorate from about 24 µg/L concentrations to below the 4 µg/L reporting limit. Significant nitrate reduction was also observed. The microcosm containing vegetable oil was inconclusive for both perchlorate and nitrate treatment.

Analysis of metals and general minerals was also conducted to determine potential water quality impacts that could result from the *in situ* biotreatment. The metals, arsenic, chromium, and selenium were not detected in any of the laboratory microcosms at concentrations in excess of detection limits. Iron was detected in the ethyl lactate and corn syrup microcosms at 16 and 5.4 mg/L but was not detected in the sodium lactate microcosm. Manganese was detected in the sodium lactate, ethyl lactate, and corn syrup microcosms at concentrations of 0.4, 0.7, and 0.61 mg/L, respectively. The elevated concentrations of iron and manganese in some of the microcosms may be the result of differing equivalent masses of carbon in amendments added to the microcosms. In field application, lower dosages of carbon would be applied to the actual treatment zone. Additionally, oxidizing conditions immediately downgradient of the treatment zone would cause iron and manganese to precipitate as oxides, thus reducing ground water concentrations to very low levels. These results are promising for field application of carbon amendment at Building 854 or Building 850 as toxic metals (arsenic, chromium, and selenium) concentrations were below detection limits for all amendments.

The single extraction well at the 854-DIS GWTS (W-854-2139) pumps at a low average rate of approximately 750 gallons per month because the well becomes rapidly dewatered and cannot sustain prolonged pumping.

2.6.3.4. Building 854 OU Remedy Performance Issues

Although there were no new issues that affect the performance of the cleanup remedy for the Building 854 OU during this reporting period, the facility and discharge capacity limitations at 854-SRC and 854-PRX continue to limit the performance of the extraction wellfields. 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

Building 832 Canyon facilities were used to test the stability of weapons and associated components under various environmental conditions. Contaminants were released from Buildings 830 and 832 through piping leaks and surface spills during testing activities at these buildings.

Three GWTSs and two SVTS 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 ground water and soil vapor, while the 830-DISS facility extracts and treats ground water only.

A map of Building 832 OU showing the locations of monitoring and extraction wells and treatment facilities is presented on Figure 2.7-1.

The 832-SRC GWTS removes VOCs and perchlorate from ground water and the SVTS removes VOCs from soil vapor. The GWTS and SVTS began operation in September and October 1999, respectively. Initially, ground water was extracted from nine wells at a combined total flow rate that initially ranged from 30 to 300 gpd. The total flow eventually dropped to 5 to 50 gpd due to lowering of the water table by pumping. In early 2005, the source area extraction wellfield was reduced to two wells (W-832-12 and W-832-15) operating with vacuum enhancement and a combined flow rate ranging from 60 to 220 gpd. In late 2005, the extraction wellfield was expanded to include three additional downgradient wells (W-832-01, W-832-10, and W-832-11). As a result, the combined flow rate increased to about 1,300 gpd, and VOC concentrations in 832-SRC facility influent increased four-fold. Well W-832-25 was connected to 832-SRC in July 2006. Currently, ground water is extracted from wells W-832-01, W-832-10, W-832-11, W-832-12, W-832-15 and W-832-25 at an approximate combined flow rate of 0.16 gpm. Soil vapor is extracted from wells W-832-12 and W-832-15 at an approximate combined flow rate of approximately 3.0 to 4.4 scfm. The current GWTS configuration includes a Cuno filter for particulate filtration, two ion-exchange columns with SR-7 resin 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 from the San Joaquin Valley Unified Air Pollution Control District.

The 830-SRC GWTS removes VOCs and perchlorate from ground water and the SVTS removes VOCs from soil vapor. The GWTS and SVTS began operation in February and May 2003, respectively. Ground water was extracted from four wells at a total flow rate ranging from 5 to 100 gpd. The 830-SRC extraction wellfield was expanded in 2006; seven GWTS extraction wells (W-830-49, W-830-1829, W-830-2213, W-830-2214, W-830-57, W-830-60, and W-830-2215) were added to the original three (W-830-1807, W-830-19, and W-830-59). The expansion well testing began in 2006. The tests were completed and the expanded wellfield was in full operation during the first semester 2007. During the second semester 2009, both wells W-830-1829 and W-830-2213 were converted back to monitor wells due to lack of water for extraction. The 830-SRC GWTS is currently extracting ground water at a combined flow rate of approximately 5 to 7 gpm. The GWTS configuration includes a Cuno filter for particulate filtration, two ion-exchange columns with SR-7 resin connected in series to remove perchlorate, and three in series aqueous-phase GAC units 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. The 830-SRC soil vapor extraction wellfield was also expanded to include well W-830-49 in 2006. Soil vapor is extracted from wells W-830-1807 and W-830-49 using a liquid ring vacuum pump at a current combined flow rate of approximately 30 to 33 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 from the San Joaquin Valley Unified Air Pollution Control District.

The 830-DISS GWTS began operation in July 2000 removing VOCs, perchlorate, and nitrate from ground water. Approximately 1 gpm of ground water was extracted from three wells (W-830-51, W-830-52, and W-830-53) using natural artesian pressure. The GWTS configuration consisted of a Cuno filter for particulate filtration, two aqueous-phase GAC units in series to remove VOCs, two in-series ion-exchange columns with SR-7 resin to remove perchlorate, and three bioreactor units for nitrate reduction. These units were open-container wetland bioreactors containing microorganisms that use nitrate during cellular respiration. Acetic acid was added to the process stream as a carbon source. Treatment system effluent was discharged via a storm drain that discharges to the Corral Hollow alluvium. At the request of the RWQCB, the facility was modified during the first semester 2007 to cease discharge of treated water to a surface water drainage way. The modification included the addition of a fourth well, W-830-2216, to the extraction wellfield. The GWTS is now extracting ground water at a combined flow rate of approximately 2 to 3 gpm. Currently, extracted ground water flows through ion-exchange canisters to remove perchlorate at the 830-DISS location. The water is piped to the Central GSA GWTS for VOC removal. Nitrate-bearing treated effluent 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 Ground Water and Soil Vapor Extraction and Treatment System Operations and Monitoring

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

2.7.1.1. Building 832 Canyon OU Facility Performance Assessment

The monthly ground water and soil vapor discharge volumes, rates, and operational hours are summarized in Tables 2.7-1 through 2.7-3. The total volume of ground water and vapor extracted and treated and mass removed during the reporting period are presented in Table Summ-1. The cumulative volume of ground water and soil vapor treated and discharged and mass removed are summarized in Table Summ-2. Analytical results for influent and effluent samples are shown 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 and operational issues interrupted continuous operations of the 832-SRC GWTS and SVTS, 830-SRC GWTS and SVTS, and 830-DISS GWTS during first semester:

832-SRC GWTS and SVTS

- The GWTS was restarted on February 16, but was immediately shut down due to a GAC canister leak and pump supply airline leak. The system was restarted on February 18 after replacing the third GAC canister and completing the airline repairs. It was then operated on a day-only operating schedule until February 22 when the system started operating on a 24 hours per day, 4 days a week schedule. The SVTS remained shut down while testing of the computer program in Programmatic Logic Control is conducted. The Electronics Engineering (EE) team continued to evaluate the system alarm problem that was shutting the system down to locate source of the problem.
- A site-wide power outage occurred on June 1.

830-SRC GWTS and SVTS

- The extraction well pump in W-830-49 failed and remained offline for the entire reporting period. It is currently in re-design for dual extraction upgrades.
- Freeze measures were discontinued and the low flow wells W-830-19 and W-830-59 were restarted on February 1.
- The system was shut down on March 23 for ion-exchange resin change out due to fouling, which caused high back-pressure.
- The GWTS was shut down from April 27 to May 3 to change out the granular activated carbon treatment media.
- The GWTS was shut down from May 4 to May 6 to repair leak in the pipeline to the effluent misting tower. An additional misting tower was brought on-line to more widely distribute system effluent, and prevent the formation of a wetland near the misting tower.
- High flow wells W-830-60, W-830-2214, and W-830-2215 and low-flow wells W-830-19, W-830-59, and W-830-1807 were operated as follows:
  - All high-flow (except W-830-57) and low-flow wells in operation until May 5.

- May 6, high-flow wells were offline due to high back-pressure in the ion-exchange columns. The facility continued to extract ground water from low-flow wells.
- May 10, all wells began extracting.
- May 13, only the low-flow wells were extracting. The high flow well W-830-2215 was operated for one day only.
- May 17, the high flow well W-830-2215 began operating 24 hours per day, 4 days a week along with the low-flow wells.
- June 8, all wells were shut down to complete piping changes for the high flow wells.
- June 15, the low-flow wells began extracting 24 hours per day, 7 days a week. The high flow well W-830-2215 began operating 24 hours per day, 4 days a week.

• A site-wide power outage occurred on June 1.

• The SVTS operated solely utilizing extraction well W-830-1807 as W-830-49 was offline as described above.

830-DISS GWTS

• Freeze protection measures were discontinued and the GWTS restarted on February 1.

• The GWTS was shut down intermittently during the reporting period due to issues at the Central GSA GWTS.

2.7.1.3. Building 832 Canyon OU Compliance Summary

The 830-SRC, 832-SRC, and 830-DISS GWTSs operated in compliance with RWQCB Substantive Requirements during the reporting period. The 830-SRC SVTS operated in compliance with the San Joaquin Valley Unified Air Pollution Control District permit limitations. The 832-SRC SVTS was non-operational for the entire 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 new monitoring requirements in the CMP/CP. The only changes made to the requirements for the Building 832 Canyon OU was the suspension of nitrate monitoring at all GWTSs since: (1) the selected remedy for nitrate is monitored natural attenuation, and (2) the effluent discharge method is misting and no discharge limit is specified. In addition, VOC monitoring was discontinued at the 830-DISS GWTS due to treatment and monitoring of 830-DISS VOC containing effluent at the CGSA GWTS. The sampling and analysis plan is presented in Table 2.7-6. The only modifications made to the plan during this reporting period included no compliance monitoring in January at 832-SRC and 830-DISS GWTSs due to being shutdown for freeze protection.

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

The only treatment facility modifications in OU 7 during the reporting period occurred at 830-SRC. Excess backpressure at the influent to the ion exchange columns was causing reduced flow from several of the extraction wells. In order to reduce the back pressure, the extracted

water from three of the wells, W-830-2215, W-830-57, and W-830-60, was re-plumbed to bypass the ion exchange columns. These three wells have had no historical detections of perchlorate, and thus did not need to be run through the columns. As a result, ground water extraction rates have increased from nearly all wells. A secondary influent sample port was added to catch the input from the water bypassing the ion exchange columns.

2.7.2. Building 832 Canyon OU Ground Water Monitoring

The sampling and analysis plan for ground water and surface water monitoring 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 reporting period, ground water monitoring was conducted in accordance with the CMP monitoring requirements with the following exceptions; eighteen required analyses were not performed because there was insufficient water in the wells to collect the samples and four required analyses were not performed due to an inoperable pump.

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 performance issues.

2.7.3.1. Building 832 Canyon OU Mass Removal

The monthly ground water and soil vapor mass removal estimates are summarized in Tables 2.7-8 through 2.7-10. The total masses removed during this 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 (mainly TCE) are the primary COCs detected in ground water; perchlorate and nitrate are the secondary COCs. These constituents have been identified primarily in the $Tnsc_{1a}$, $Tnsc_{1b}$ and Qal/WBR HSUs. Total VOCs have also been detected in low concentrations in Building 832 Canyon in the $Tnbs_2$ and Upper $Tnbs_1$ ($UTnbs_1$) HSUs.

2.7.3.2.1. Total VOC Concentrations and Distribution

Historically, ground water samples from wells located in the Building 830 source area have contained the highest total VOC concentrations in the Qal/WBR HSU. Total VOC concentrations in Qal/WBR HSU ground water near 830-SRC have decreased from a historic maximum of 10,000 µg/L (SVI-830-035) in 2003 to a first semester 2010 maximum concentration of 1,100 µg/L (SVI-830-035, March 2010).

Since remediation began in 1999, in the Building 832 source area, total VOC concentrations in wells screened in the Qal/WBR have decreased from a historic maximum of 1,800 µg/L (W-832-18) in 1998 to a first semester 2010 maximum concentration of 25 µg/L (W-832-23). Monitor well W-832-23 is used to monitor plume concentrations in both the Qal/WBR and $Tnsc_{1b}$ HSUs, since it is screened across both units. Ground water samples (for VOC analyses) were not collected from several wells completed in the Qal and $Tnsc_{1b}$ HSUs because the water table had dropped below the screened intervals.

Total VOC concentrations in ground water samples taken from Qal/WBR HSU guard wells located south of Building 832 Canyon near the Site 300 southern boundary continue to be low (<1 µg/L) to below reporting limits (<0.5 µg/L) and have decreased from a historic maximum of 1.9 µg/L (W-35B-01) in 2001 to 1.0 µg/L (W-880-02) during the first semester 2010.

Since remediation began in the Building 830 source area in 2000, total VOC concentrations in ground water in the $Tnsc_{1b}$ HSU, have decreased by an order-of-magnitude from a historic maximum of 13,000 µg/L (W-830-49) in 2003 to a first semester 2010 maximum of 4,200 µg/L (W-830-19, February 2010). The overall extent of VOCs in the $Tnsc_{1b}$ HSU has not changed significantly over the past several years due to limited recharge and low ground water yields.

At the 830-DISS treatment facility, total VOC concentrations in $Tnsc_{1b}$ HSU artesian wells W-830-51, W-830-52, and W-830-53, have decreased from a historic maximum of 170 µg/L in 2002 to a first semester 2010 maximum concentration of 29 µg/L (W-830-51 and W-830-53, February 2010). Farther south along Building 832 Canyon, the leading edge of the $Tnsc_{1b}$ VOC plume continues to be contained within Site 300 boundaries based on total VOC concentrations below the 0.5 µg/L reporting limit in guard wells W-830-1730 and W-4C. Due to unsafe conditions at the wellhead, guard well W-880-03 was not sampled during the first semester 2010. The wellhead has since been repaired.

Remediation of the $Tnsc_{1a}$ HSU began in early 2007. Since that time, total VOC concentrations in $Tnsc_{1a}$ HSU ground water have decreased from a historic maximum of 1,700 µg/L (W-830-27, 1998) to a first semester 2010 maximum concentration of 812 µg/L (W-830-2214, April 2010). Monitor well W-830-2311 is located near Spring 3, was installed in 2007 to evaluate the downgradient extent of VOCs in the $Tnsc_{1a}$ HSU. The highest total VOC concentration sampled in this well during the first semester 2010 was 26 µg/L (March 2010). A new guard well, W-830-2610 screened in the $Tnsc_{1a}$ and located downgradient of well W-830-2311 near the southern site boundary, was completed in June 2010. This well will be added to the sampling plan after final well development.

Since remediation began in the $UTnbs_1$ HSU, total VOC concentrations in ground water have decreased from a historic maximum of 100 µg/L (W-830-28, June 1998) to a first semester 2010 maximum concentration of 27 µg/L (W-830-60 and W-830-2215, February 2010). During the first semester 2010, total VOCs were not detected above the 0.5 µg/L reporting limit, in guard wells W-830-15 and W-832-2112. Both wells are screened in the $UTnbs_1$.

2.7.3.2.2. HE Compound Concentrations and Distribution

During the first semester 2010, HE compounds (RDX, HMX, 2-amino-4,6-dinitrotoluene, and nitrobenzene) were not detected in ground water in any Building 832 Canyon OU wells.

2.7.3.2.3. Perchlorate Concentrations and Distribution

Perchlorate concentrations detected in Qal/WBR HSU ground water have decreased from a historic maximum of 51 µg/L (W-830-34, December 1998) to a first semester 2010 maximum concentration of 17 µg/L (W-832-18, March 2010). The maximum perchlorate concentration measured in ground water from W-832-23 during the first semester 2010 was below the reporting limit of 4 µg/L (March 2010). Monitor well W-832-23, located slightly downgradient of the Building 832 source area, is used to monitor contaminant concentrations in both the Qal/WBR and $Tnsc_{1b}$ HSUs, since this well is screened across both units. During the first semester 2010, perchlorate was also not detected above the 4 µg/L reporting limit in guard wells W-35B-01 and W-880-02. These guard wells are both screened in the Qal/WBR HSU.

The maximum perchlorate ground water concentration sampled in the $Tnsc_{1b}$ HSU during the first semester 2010 was 17 µg/L (W-832-18, March 2010). Historically, well W-830-58 had contained the highest perchlorate ground water concentration in this HSU (26 µg/L, May 2001) and in March 2010 the perchlorate concentration in ground water at this well was 6 µg/L. Perchlorate was not detected above the reporting limit in any guard wells screened in the $Tnsc_{1b}$, during the first semester 2010. However, due to unsafe conditions at the wellhead, guard well W-880-03 was not sampled in the first semester 2010; this wellhead has since been repaired.

The maximum perchlorate ground water concentration sampled in the $Tnsc_{1a}$ HSU during the first semester 2010 was 7.3 µg/L in extraction well W-832-25 (February 2010). The highest historic perchlorate concentration sampled in the $Tnsc_{1a}$ HSU was 13 µg/L (W-832-25, February 1999).

Perchlorate was not detected above the reporting limit of 4 µg/L in any ground water samples taken from the $UTnbs_1$ HSU during the first semester 2010.

2.7.3.2.4. Nitrate Concentrations and Distribution

Nitrate ground water concentrations continue to be high in the vicinity of the Building 832 and 830 source areas and remain low to below the reporting limit (<0.5 mg/L) in the downgradient, deeper parts of all Building 832 Canyon HSUs.

During the first semester 2010, nitrate ground water concentrations detected in samples from the Qal/WBR HSU ranged from < 0.5 mg/L reporting limit (guard wells) near the site boundary to 180 mg/L (SVI-830-033, March 2010) in the Building 830 source area.

Nitrate ground water concentrations detected in samples from the $Tnsc_{1b}$ HSU ranged from <0.5 mg/L to 190 mg/L (W-830-49, February 2010). Historically, well W-830-49 has contained the highest nitrate concentrations in the $Tnsc_{1b}$ HSU (501 mg/L, June 1998). Nitrate concentrations in the $Tnsc_{1b}$ guard wells ranged from <0.5 mg/L to 1.5 mg/L (W-830-1730, March 2010), significantly below the 45 mg/L cleanup standard. Due to unsafe conditions at the wellhead, guard well W-880-03 was not sampled during the first semester 2010; this wellhead has since been repaired.

During the first semester 2010, the maximum nitrate ground water concentration detected in samples from the $Tnsc_{1a}$ HSU was 88 mg/L (W-832-25, February 2010). Nitrate ground water concentrations detected in samples from the $UTnbs_1$ ranged from <0.5 mg/L to 22 mg/L (W-26R-01, April 2010). Nitrate ground water concentrations were not detected above the 45 mg/L cleanup standard in any $UTnbs_1$ HSU guard wells during the first semester 2010. 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 *in situ*.

2.7.3.3. Building 832 Canyon OU Remediation Optimization Evaluation

Ground water and soil vapor extraction wellfield optimization continued during the first semester 2010 to prevent offsite plume migration, reduce source area concentrations, and increase mass removal. The expanded 832-SRC and 830-SRC extraction wellfields have increased hydraulic capture, while preventing the downward migration of contaminants into deeper HSUs or laterally toward the site boundary and Site 300 water supply wells, Well 18 and Well 20. Ground water yield continues to be low from many 830-SRC and 832-SRC extraction wells and hydraulic capture is difficult to assess because these wells cannot maintain continuous

operation. The low yield is due to a combination of low hydraulic conductivity geologic materials, dewatering, and limited recharge.

As documented in Section 2.7.1.2, the 832-SRC GWTS and SVTS were offline during most of the semester due to a problem with the Programmable Logic Control. Long-term mass removal rates are not expected to be impacted by this short-term shutdown and both facilities are back online. At the 830-SRC treatment facility, a modification was made to allow $UTnbs_1$ HSU extraction wells that do not contain perchlorate concentrations above 4 µg/L (W-830-60, W-830-2215, and W-830-57 wells) to bypass the ion-exchange treatment system. This modification will allow the treatment facility to operate more effectively by removing backpressure, thereby increasing flow, mass removal rates, and hydraulic capture.

The $Tnsc_{1b}$ HSU extraction wells target the highest total 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 extraction wells. Ground water extraction is further constrained by limited recharge and declining water levels in both source areas.

At the 830-SRC treatment facility, some $Tnsc_{1b}$ HSU extraction wells were offline for part of the semester due to treatment facility improvements (described above), pump repairs and freeze protection. Dual extraction well W-830-49 has been offline for wellhead redesign and will be restarted during the second semester 2010. These shutdowns have had some impact on VOC concentrations in nearby extraction wells such as W-830-58; however, no long-term impact is expected.

The $Tnsc_{1a}$ extraction wellfield currently consists of two wells: W-830-2214, located near the 830-SRC and W-832-25, located downgradient of 832-SRC in the distal area of this plume. Active remediation of the $Tnsc_{1a}$ HSU began in 2007 and during the short time the $Tnsc_{1a}$ HSU has been under remediation, VOC concentrations have remained relatively stable. Water levels continue to decline in both the 830-SRC and 832-SRC areas, limiting continuous extraction from the $Tnsc_{1a}$ HSU. A new $Tnsc_{1a}$ extraction well is planned for 2011.

Extraction wells in the $UTnbs_1$ target areas with the highest total VOC concentrations. Monitor well W-830-1832, located on the leading edge of the VOC plume, displayed increasing total VOC concentrations prior to activation of the 830-SRC GWTS. Following activation of the GWTS, total VOC concentrations in this well have generally declined. The overall extent of total VOCs in the $UTnbs_1$ HSU have also decreased since remediation began. Ground water in $UTnbs_1$ guard wells, located downgradient of W-830-1832 and upgradient of water supply Well 20, continue to show analytical results below reporting limits for all COCs.

As extraction proceeds from the 832-SRC, 830-SRC and 830-DISS extraction wells, it is expected that concentrations in all identified OU 7 HSUs will continue to decline. Over the past year, the extent of the VOC plume in the $UTnbs_1$ HSU has decreased slightly and this trend is expected to persist with continued pumping. Total VOC concentration trends in the $UTnbs_1$ HSU continue to be carefully monitored due to the potential influence of pumping at water supply Well 20 and backup water supply Well 18.

2.7.3.4. Building 832 Canyon OU Remedy Performance Issues

No 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 be protective of human health and the environment, and to make progress toward cleanup.

2.8. Site 300 Site-Wide OU 8

The Site 300 Site-Wide OU is comprised of release sites at which no significant ground water contamination and no unacceptable risk to human health or the environment are present. For this reason, a monitoring-only interim remedy was selected for the 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 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 801 Dry Well from the late 1950s to 1984, resulted in contamination of the soil and ground water. 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 building, landfill, and monitor wells is presented on Figure 2.8-1.

2.8.1.1. Building 801 and Pit 8 Landfill Ground Water Monitoring

Wells K8-01 and K8-03B monitor Building 801 ground water contaminants while wells K8-02B, K8-04, and K8-05 are detection monitor wells for the Pit 8 Landfill. Detection monitoring of this landfill, which is discussed in Section 3.2, is conducted to determine if releases have occurred.

The sampling and analysis plan for ground water monitoring is presented in Table 2.8-1. This table delineates any additions made to the CMP.

During the reporting period, ground water monitoring was conducted in accordance with the CMP monitoring requirements with the following exception; one required analysis was inadvertently not added to the sampling plan.

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

At Building 801, VOCs are the primary COCs detected in ground water; perchlorate and nitrate are the secondary COCs. There are no COCs in ground water at the Pit 8 Landfill. The results of the detection monitoring of the Pit 8 Landfill are discussed in Section 3.2.

During first semester 2010, the maximum total VOC concentration detected in ground water samples from wells in the Building 801/Pit 8 Landfill area was 6.2 µg/L (K8-01, June 2010). This total VOC concentration was comprised of 4.2 µg/L of TCE and 2 µg/L of 1,2-dichloroethane (DCA). A duplicate sample collected the same day from well K8-01 contained total VOCs at a concentration of 5.8 µg/L comprised of 3.9 µg/L of TCE and 1.9 µg/L of 1,2-DCA. Total VOC concentrations detected in ground water samples collected from wells downgradient of Building 801 have decreased from a historic maximum of 10 µg/L (K8-01, 1990).

During first semester 2010, perchlorate was not detected above the 4 μg/L reporting limit in any ground water samples from Building 801/Pit 8 monitor wells.

Nitrate concentrations in ground water in the vicinity of Building 801/Pit 8 Landfill have been relatively stable over time. The maximum first semester 2010 nitrate concentration detected in a ground water sample from a well in the Building 801/Pit 8 Landfill area was 54 mg/L (K8-04, June 2010). The sample from well K8-04 and the duplicate sample from well K8-01 (51 mg/L, June 2010) were the only samples that exceeded the 45 mg/L cleanup standard for nitrate. The historic maximum nitrate concentration of 64 mg/L was detected in samples collected from well K8-01 in 2002. Overall, nitrate concentrations in ground water at the Building 801/Pit 8 Landfill generally are similar to previous semesters.

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 ground water. A map showing the locations of the building and monitor wells is presented on Figure 2.8-2.

2.8.2.1. Building 833 Ground Water Monitoring

The sampling and analysis plan for ground water monitoring is presented in Table 2.8-2. This table delineates any additions made to the CMP.

During the reporting period, ground water monitoring was conducted in accordance with the CMP monitoring requirements with the following exceptions; seven required analyses were not performed because there was insufficient water in the wells to collect the samples.

2.8.2.2. Building 833 Contaminant Concentrations and Distribution

At Building 833, VOCs are the primary COC in ground water; there are no secondary COCs.

The Tpsg HSU is a shallow, highly ephemeral perched water-bearing zone. During heavy rainfall events, this HSU may become saturated, but quarterly monitoring of the wells from 1993 to present has shown little evidence of saturation. When saturated, monitoring conducted from 1993 to present has shown a decline in total VOC concentrations in Tpsg HSU ground water from a historic maximum concentration of 2,100 μg/L in 1992 (W-833-03). During the first semester 2010, wells W-830-12 and W-833-33, both screened in the Tpsg HSU, yielded samples containing total VOC concentrations of 4.7 and 110 μg/L, respectively (February 2010). VOCs were not detected in the first semester 2010 sample from deep $Tnbs_1$ HSU monitor well W-833-30, indicating that VOC contamination continues to be confined to the shallow Tpsg perched water-bearing zone.

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 Building 845 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 Ground Water Monitoring

Wells K9-01 through K9-04 are detection monitor wells for the Building 845 and Pit 9 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 ground water monitoring is presented in Table 2.8-3. This table delineates any additions made to the CMP.

During the reporting period, ground water monitoring was conducted in accordance with the CMP monitoring requirements with the following exceptions; nine required analyses were not performed due to an inoperable pump.

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

There are no COCs in ground water at Building 845 and the Pit 9 Landfill. The monitor wells near the Pit 9 Landfill are screened in the lower Neroly Formation $Tnsc_0$ HSU. Detection monitoring of the Pit 9 landfill (discussed in Section 3.3) is conducted to identify any releases to ground water.

2.8.4. Building 851 Firing Table

The Building 851 Firing Table has been used since 1962 to conduct explosives experiments. 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 Ground Water Monitoring

The sampling and analysis plan for ground water monitoring is presented in Table 2.8-4. This table delineates any additions made to the CMP.

During the reporting period, ground water monitoring was conducted in accordance with the CMP monitoring requirements.

2.8.4.2. Building 851 Contaminant Concentrations and Distribution

At the Building 851 Firing Table, uranium is the primary and only COC detected in ground water; VOCs are a vadose zone COC.

The first semester 2010 maximum total uranium activity detected in ground water samples from wells in the Building 851 area was 2.05 pCi/L (W-851-08, May 2010). The historic maximum uranium activity was 3.2 pCi/L (W-851-07, October 1991). The atom ratio of $^{235}U/^{238}U$ in samples from wells W-851-06, and W-851-08 indicated the addition of some depleted uranium. The samples from well W-851-05 and W-851-07 contained only natural uranium. Overall, uranium activities in ground water are similar to previous years and remain well below the 20 pCi/L cleanup standard and within the range of natural background levels. During the first semester 2010, tritium activities were not detected above the 100 pCi/L reporting limit in ground water samples from any Building 851 monitor wells. The maximum historic tritium activity detected in Building 851 ground water was 3,790 pCi/L (W-851-08, late 1998).

3. Detection Monitoring, Inspection, and Maintenance Program for the Pits 2, 3, 4, 5, 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 these landfills. This section presents the results for the Pit 2, 3, 4, 5, 7, 8, and 9 Landfills ground water detection monitoring network, 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 Drainage Diversion System 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 of firing table debris from Buildings 801 and 802. Ground water data indicate that a 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 were identified in surface or subsurface soil at the Pit 2 Landfill. No risk to human or ecological receptors has been identified at the Pit 2 Landfill.

3.1.1. Sampling and Analysis Plan Modifications

The sampling and analysis plan for the Pit 2 Landfill ground water Detection Monitoring Program is presented in Table 3.1-1. During the reporting period ground water monitoring was conducted in accordance with the CMP monitoring requirements, except that seven required analyses were not performed because there was insufficient water in the wells to collect the samples. There were no modifications made to the plan.

3.1.2. Contaminant Detection Monitoring Results

A map showing the locations of monitor wells and the Pit 2 Landfill is presented on Figure 2.5-1.

Depth to ground water within the $Tnbs_1/Tnbs_0$ HSU was measured at over 50 ft to over 70 ft beneath the Pit 2 Landfill.

The maximum first semester 2010 tritium activity within the $Tnbs_1/Tnbs_0$ HSU in the area immediately south of the Pit 2 Landfill was 5,810 ± 1,160 pCi/L (NC2-08, May 2010). The historic maximum tritium activity of 49,100 pCi/L was detected in 1986 (January and August) from well K2-01C. The data indicate that tritium activities in $Tnbs_1/Tnbs_0$ HSU ground water immediately downgradient of the landfill are decreasing and are currently a fraction of the historic maximum. The May 2010 ground water samples from wells W-PIT2-2301 and W-PIT2-2302 screened in the Qal/WBR HSU and located in Elk Ravine downgradient from Pit 2 Landfill did not contain tritium above the reporting limit/background activity (100 pCi/L).

The maximum first semester 2010 uranium activity detected in a ground water sample from the Pit 2 area was 7.5 pCi/L (K2-01C, May 2010). This well is completed in the $Tnbs_1/Tnbs_0$ HSU. Uranium isotope data from ground water samples collected from Qal/WBR wells W-PIT2-2301 and W-PIT2-2302 in March 2010 indicate the presence of low activities of total uranium in Qal/WBR HSU ground water (1.2 and 0.13 pCi/L, respectively).

The release of depleted uranium from Pit 2 may have been the result of the discharge of potable water that was used to maintain a wetland habitat for red-legged frogs (a Federally-listed endangered species) within a drainage channel that extends along the northern and eastern margin of the Pit 2 Landfill. This discharge was discontinued in 2005. Since the discharge was discontinued, total uranium activities in ground water from wells W-PIT2-1934 and W-PIT2-1935, both located along the northern margin of the Pit 2 Landfill, have decreased and the last two of three uranium samples collected from well W-PIT2-1935 in 2009 contained only natural uranium. The sample May 2010 sample from well W-PIT2-1935 was analyzed by alpha spectrometry and contained 0.99 pCi/L of uranium.

During first semester 2010, perchlorate was not detected above the 4 µg/L reporting limit in any Pit 2 area ground water samples.

No other constituents, including VOCs, nitrate, HE compounds, metals and fluoride that were monitored during the 2009 at the Pit 2 landfill as part of the Detection Monitoring Program were detected in $Tnbs_1/Tnbs_0$ HSU ground water above regulatory limits.

3.1.3. Landfill Inspection Results

The Pit 2 Landfill was inspected during first semester 2010 (April 2010). No problems were identified.

3.1.4. Annual Subsidence Monitoring Results

Annual subsidence monitoring will be conducted during the second semester 2010.

3.1.5. Maintenance

No maintenance was conducted on Pit 2 during the first semester 2010.

3.2. Pit 8 Landfill

Pit 8 Landfill received debris from the Building 801 Firing Table until 1974, when it was covered with compacted soil. There is no evidence of contaminant releases from the landfill.

3.2.1. Sampling and Analysis Plan Modifications

The sampling and analysis plan for the Pit 8 Landfill ground water Detection Monitoring Program is presented in Table 2.8-1. During the reporting period, ground water monitoring was conducted in accordance with the CMP monitoring requirements with the following exception; one required analysis was inadvertently not added to the sampling plan.

3.2.2. Contaminant Detection Monitoring Results

Ground water elevations, nitrate, perchlorate, and total VOC concentrations in $Tnbs_1/Tnbs_0$ HSU ground water are presented on Figure 2.8-1.

Buildings and monitor wells at Pit 8 are shown on Figure 2.8-1. Historic and current data indicate that total VOCs detected in ground water in the Pit 8 Landfill area are the result of releases from the former Building 801 dry well, which have migrated downgradient from Building 801 to beneath the landfill. The highest concentration of total VOCs (comprised of 1,2-DCA and TCE) continues to be observed at well K8-01, located upgradient of Pit 8 where samples collected during the first semester 2010 contained 6.2 and 5.8 µg/L total VOCs (June 2010). The presence of total VOCs in ground water samples from well K8-04, immediately downgradient of the Pit 8 Landfill (2 µg/L, June 2010) appears to be indicative of a continuation of the VOC plume originating at the Building 801 dry well and not due to a release from the Pit 8 Landfill. During first semester 2010, 1,2-DCA was the only VOC detected above its cleanup standard (0.5 µg/L). However, the maximum concentration of 1.9 µg/L 1,2-DCA detected this semester in well K8-01 ground water represents a decrease from the historic maximum 1,2-DCA concentration of 5 µg/L detected in a sample from the same well in 1990. This well is located upgradient from the Pit 8 Landfill, and therefore the observed VOCs appear to be the result of releases from the former Building 801 dry well. The presence of 1,2-DCA at concentrations of 2 and 0.6 µg/L, respectively in samples from downgradient wells K8-01 and K8-04, appears to also indicate the continuation of the VOC plume originating at the Building 801 dry well and is not due to a release from the Pit 8 Landfill.

The 2009 maximum nitrate concentration detected in a ground water sample from a well in the Pit 8 Landfill area was 54 mg/L (K8-04, June 2010). A duplicate sample from well K8-01 (51 mg/L, June 2010) was the only other sample from the Pit 8 area that exceeded the 45 mg/L cleanup standard for nitrate.

Tritium activities in all samples collected from wells in the Pit 8 Landfill area during first semester 2010 were below the reporting limit (<100 pCi/L), except for the regular and duplicate June 2010 samples from well K8-01 (155 ± 70.3 and 150 ± 55 pCi/L) and the June 2010 sample from well K8-03B (110 ± 64.4). These activities are within the range of background.

Fluoride, metals, uranium isotopes, and thorium-232 concentrations/activities in samples collected during the first semester 2010 from wells upgradient and downgradient of the Pit 8 Landfill were within the range of background concentrations and below regulatory limits.

Of the constituents monitored during the first semester 2010 as part of the Detection Monitoring Program in $Tnbs_1/Tnbs_0$ HSU ground water from Pit 8 Landfill area wells, only 1,2-DCA and nitrate exceeded applicable cleanup standards.

3.2.3. Landfill Inspection Results

The Pit 8 Landfill was inspected during the first semester 2010. No problems were reported.

3.2.4. Annual Subsidence Monitoring Results

Annual subsidence monitoring will be conducted during the second semester 2010.

3.2.5. Maintenance

No maintenance was conducted at Pit 8 during the first semester 2010.

3.3. Pit 9 Landfill

Debris generated at the Building 845 Firing Table was buried in the Pit 9 Landfill from 1958 until 1963. There has been no evidence of contaminant releases from the Pit 9 Landfill.

3.3.1. Sampling and Analysis Plan Modifications

The sampling and analysis plan for the Pit 9 Landfill ground water Detection Monitoring Program is presented in Table 2.8-3. During the reporting period, ground water monitoring was conducted in accordance with the CMP monitoring requirements with the following exceptions; nine required analyses were not performed due to an inoperable pump.

3.3.2. Contaminant Detection Monitoring Results

All detection monitoring constituents including tritium, HE compounds, VOCs, fluoride, metals, uranium isotopes, and thorium-232 concentrations/activities in samples collected in the first semester 2010 from wells upgradient and downgradient of Pit 9 were at or below background concentrations and below regulatory limits.

During the first semester 2010, depth to ground water was approximately 110 ft beneath the Pit 9 Landfill. There were no significant changes in ground water elevations from previous years.

3.3.4. Annual Subsidence Monitoring Results

Annual subsidence monitoring will be conducted during the second semester 2010.

3.3.5. Maintenance

Some maintenance of the pit cover, including filling of animal burrows, will be completed during the second quarter of 2010.

3.4. Pit 7 Complex Landfills

The Pit 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 25-30% of Pit 3, were capped in 1992. During years of above-normal rainfall (i.e., 1997-1998 El Niño), ground water rose into the bottom of the landfills and the underlying contaminated bedrock. This resulted in the release of tritium, uranium, VOCs, perchlorate, and nitrate to ground water. In addition to these COCs, ground water samples from Pit 7 Complex detection monitor wells are also analyzed for metals, HE compounds, and PCBs as these constituents may have been contained in the firing table gravels placed in the landfills.

3.4.1. Sampling and Analysis Plan Modifications

The sampling and analysis plan for the Pit 7 Complex Landfill ground water Detection Monitoring Program is presented in Table 2.5-8. During the reporting period ground water monitoring was conducted in accordance with the CMP monitoring requirements.

3.4.2. Contaminant Detection Monitoring Results

A map showing the locations of detection monitor 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; 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.

Ground water extraction and treatment at the PIT7-Source facility began in March 2010. Pumping on the extraction wells (all completed in the Qal/WBR HSU) proximal to Pits 3 and 5 may have an impact on the distribution and magnitudes of COC concentrations observed.

Depth to ground water is currently a minimum of 10-15 ft below the buried waste in landfill Pits 3, 4, 5, and 7.

3.4.2.1. Tritium

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

The highest tritium activity detected in a first semester 2010 ground water sample from a Pit 7 Complex detection monitor well was 82,000 pCi/L (April 2010) in $Tnbs_0$ well K7-03. Tritium activities in samples from this well have generally been declining from the maximum historical tritium activity detected in a water sample from this well of 216,000 pCi/L in March 1993. Last year, the maximum tritium activity in a sample from this well was 117,000 pCi/L.

Tritium activities in detection monitor well K7-01 have decreased from the historical maximum activity of 72,900 pCi/L in October 1999 to 47,200 pCi/L of tritium detected in the sample from this well in the first semester of 2010. Last year, a maximum tritium activity of 51,700 pCi/L was detected in the October 2009 sample from this well.

Tritium activities in detection monitor well NC7-26 have decreased from the historical maximum activity of 30,000 pCi/L to 1,960 pCi/L of tritium detected in the sample from this well in May 2010. Last year, the maximum tritium activity in a sample from this well was 2,480 pCi/L.

Tritium activities in samples collected in the first semester 2010 from upgradient well K7-06, cross-gradient wells K7-09, and K7-10, downgradient well NC7-48, and far downgradient well NC7-47 were all below the 100 pCi/L reporting limit.

In general tritium activities and the extent of tritium in the $Tnbs_1/Tnbs_0$ and Qal/WBR HSUs in the Pit 7 Complex area are consistent with those observed in 2009 and no new release of tritium from the landfills is indicated by the first semester 2010 ground water tritium data.

A discussion of tritium that was previously released to ground water from the Pit 7 Complex landfills is presented in Section 2.5.5.2.1.

3.4.2.2. Uranium

Depleted uranium was previously released to ground water from sources in Pits 3, 5, and 7 (Taffet et al., 2008).

Uranium activities were below the 20 pCi/L cleanup standard in all detection monitor well samples collected in the first semester 2010. The maximum uranium activity in a first semester sample from a detection monitor well was 19.2 pCi/L (May 2010) in well K7-01. Uranium activities in ground water samples from this well have generally fluctuated within a few pCi/L of the 20 pCi/L cleanup standard since the 1997-1987 El Niño and $^{235}U/^{238}U$ isotopic ratios have indicated added depleted uranium. The maximum uranium activity detected in a sample from this well was 27 pCi/L (September 1984). The maximum tritium activity detected in a sample from this well in 2009 was 20 pCi/L.

The next highest uranium activity in a first semester 2010 detection monitor well sample was 13.3 pCi/L in the April 2010 sample from well NC7-48. Uranium activities in samples from this well have declined from the historic maximum of 104.9 pCi/L detected in this well after the 1997-98 El Niño (March 1998). The maximum tritium activity detected in a sample from this well in 2009 was 8.5 pCi/L. Ground water samples from this well have historically contained depleted uranium.

Uranium activities in all detection monitor wells have decreased from their historical maximum uranium activities. Uranium activities in wells K7-06, K7-09, K7-10, NC7-26, and NC7-47 have decreased to near or below the detection limit in the first semester 2010.

The extent of uranium in Qal/WBR and $Tnbs_1/Tnbs_0$ ground water is similar to previous semester and recent years. Ground water uranium data from the first semester 2010 do not indicate any new releases of uranium from the Pit 7 Complex landfills.

A discussion of uranium that was previously released to ground water from the Pit 7 Complex landfills is presented in Section 2.5.5.2.2.

3.4.2.3. Nitrate

The maximum nitrate concentration detected in a first semester 2010 sample from a Pit 7 Complex detection monitor well was 68 mg/L (April 2010) from $Tnbs_1/Tnbs_0$ HSU well NC7-47. This was the maximum nitrate concentration detected in any first semester 2010 ground water sample from wells in the Pit 7 Complex area. Ground water samples from well NC7-47 has never contained any other COCs in excess of background concentrations. None of the other detection monitoring wells yielded first semester 2010 samples containing nitrate concentrations in excess of the cleanup standard. Nitrate concentrations in the other detection monitor wells ranged from <0.5 mg/L in well K7-09 to 44 mg/L in well K7-01. Nitrate concentrations trends in the detection monitoring wells are all stable, and generally decreasing from their maximum historical nitrate concentrations. The distribution of nitrate in Pit 7

Complex ground water has declined from previous semesters. Current data do not indicate any new releases of nitrate from any of the landfills.

A discussion of nitrate that was previously released to ground water from the Pit 7 Complex landfills is presented in Section 2.5.5.2.3.

3.4.2.4. Perchlorate

Wells K7-01 (screened in Qal/WBR and $Tnbs_1/Tnbs_0$ HSUs) and K7-03 ($Tnbs_1/Tnbs_0$ HSU) are the only detection monitor wells from which ground water samples have historically contain perchlorate at concentrations in excess of the 4 µg/L detection limit. Perchlorate concentrations in samples from these wells have decreased from the historic maximum of 25 µg/L in K7-01 (July 2006) and 29 µg/L in K7-03 (April 2005) to 12 µg/L and 7.7 µg/L of perchlorate in the first semester 2010, respectively. The overall extent of perchlorate in ground water in the Pit 7 Complex area did not change significantly from 2009 to the first semester 2010. First semester 2010 data did not indicate any new releases of perchlorate from any of the landfills.

A discussion of perchlorate that was previously released to ground water from the Pit 7 Complex landfills is presented in Section 2.5.5.2.4.

3.4.2.5. Volatile Organic Compounds

In the first semester 2010, VOCs were detected in only two detection monitor wells at concentrations above the 0.5 µg/L detection limits. This semester, samples from wells K7-01 and K7-03 contained 1.2 and 0.88 µg/L of total VOCs (all as TCE), respectively. The historic maximum total VOC concentrations in samples from these wells were 20 µg/L (K7-01, May 1985) and 15.2 µg/L (K7-03, July 1985). VOC concentrations have generally been declining in samples from these wells since the times of those maxima. The overall extent of VOCs in ground water in the Pit 7 Complex area did not change significantly from 2009 to the first semester 2010. First semester data did not indicate any new releases of VOCs from any of the landfills.

A discussion of VOCs that were previously released to ground water from the Pit 7 Complex landfills is presented in Section 2.5.5.2.5.

3.4.2.6. Title 26 Metals and Lithium

During the first semester 2010, Title 26 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 ground water samples from the Pit 7 Complex area detection monitoring wells at concentrations in excess of background concentrations or cleanup standards. These data did not indicate a release of metals during the semester from any of the landfills.

3.4.2.7. High Explosives (HE) Compounds

During the first semester 2010, HE compounds were not detected in ground water samples from the Pit 7 Complex area detection monitoring wells at concentrations in excess of individual compound detection limits of 1-2.7 µg/L. These data did not indicate a release of HE compounds during the semester from any of the landfills.

3.4.2.8. Polychlorinated Biphenyls (PCBs)

During the first semester 2010, PCBs were not detected in ground water samples from the Pit 7 Complex area detection monitoring wells at concentrations in excess of individual compound detection limits of approximately 0.5 µg/L. These data did not indicate a release of PCBs during the semester from any of the landfills.

3.4.3. Landfill Inspection Results

Due to issues associated with the engineering inspection subcontract, the Pit 7 landfill cap inspection was not conducted during the first semester 2010. It will be conducted during the second semester 2010. Inspection of the Pit 3 and 5 landfill covers will also be conducted during the second semester 2010.

3.4.4. Annual Subsidence Monitoring Results

Annual subsidence monitoring will be conducted during the second semester 2010.

3.4.5. Maintenance

Maintenance was not performed on any of the pits during the first semester 2010.

3.5. Pit 7 Complex Drainage Diversion System

A Drainage Diversion System was constructed in the Pit 7 Complex area of OU 5 in 2007-2008 (Section 2.6). The Pit 7 Drainage Diversion System is inspected and maintained per the requirements of the Inspection and Maintenance Plan (Taffet et al., 2008).

3.5.1. Drainage Diversion System Inspection Results

The drainage diversion system was inspected during the first semester 2010. Sediment and vegetative debris accumulation were noted in both the northern and southern settling basins and energy dissipation structures.

3.5.2. Drainage Diversion System Maintenance

Sediment and vegetative debris were removed from the northern and southern settling basins and energy dissipation structures during the first semester 2010.

3.6. 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).

3.6.1. Building 850 CAMU Inspection Results

The semi-annual CAMU inspection was performed on June 8, 2010. A summary of the observations include:

- There was no evidence of significant erosion, cracks, or ruts on the CAMU surface or slopes. Minor riling (less than 3-inch depth maximum) was observed on the east slope of the CAMU just below the upper lip. The berm on the lip on the east side of the CAMU, which was enhanced by the contractor in the middle of the rainy season in January 2010,

will be further built up with a shovel and/or gopher mini-dozer to further prevent short-circuiting of flow down the east side of the CAMU.

- A straw wattle was observed detached from the side of the rock-lined drainage channel on the south side of the CAMU.
- No tumbleweeds or other debris was blocking drainage structures, though a large rock (rip-rap) was present on the upslope side of the 24-inch corrugated metal pipe at the southeast corner of the CAMU.
- No signs of significant erosion were observed at or around any drainage structures.
- There is little-to-no sediment accumulated in the sediment trap. A maximum thickness of several inches of sediment has built up: 1) in the rock-lined channel on the east side of the CAMU adjacent to and immediately west of the 18-inch corrugated metal pipe that runs beneath Route 4, and 2) in the rock-lined channel on the east side of the same corrugated metal pipe. As a good housekeeping practice, this sediment will be removed with a vacuum device.
- There is a light occurrence of vegetation on the west, south, and eastern slopes of the CAMU. A pre-emergent herbicide will likely be applied on the sides of the CAMU prior to the start of the next rainy season. No animal burrows were observed. No vehicles or equipment are being stored on the CAMU.
- Wells W-850-2416, W-850-2417, NC7-28, and NC7-71 were video logged to verify that no damage caused by CAMU construction. No damage was found.

3.6.2. Building 850 CAMU Maintenance

The following repairs were completed during the first semester 2010:

- The straw wattle that was observed detached from the side of the rock-lined drainage channel on the south side of the CAMU was put back in place and re-staked.
- The large rock (rip-rap) on the upslope side of the 24-inch corrugated metal pipe at the southeast corner of the CAMU was removed.
- The light vegetation on the west, south, and eastern slopes of the CAMU was removed by hand.

The remainder of the maintenance activities will be scheduled and completed prior to the rainy season, i.e., by early October 2010 and reported in the Annual CMR.

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.

4.1. Human Health Risk and Hazard Management

The CMP/CP requires that the risk and hazard associated with volatile contaminants in the subsurface migrating upward into indoor and outdoor ambient air and being inhaled by workers be re-evaluated annually using current data.

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 onsite worker inhalation risk associated with springs is discussed in Section 4.1.2.

4.1.1. Vapor Intrusion Inhalation Risk Evaluation

According to the CMP/CP, risk and hazard management will continue for buildings/areas where an unacceptable risk and/or hazard were previously identified until the estimated risk is below 10^{-6} and the hazard index is below 1 for two consecutive years. Risk and hazard management was ongoing during the reporting period for the following buildings:

- Building 834D
- Building 830
- Building 833

Risk evaluations for these buildings will be performed and reported in the annual report.

Institutional controls, such as restricting access to or activities in areas of elevated risk, remained in place during the reporting period to prevent unacceptable exposure to contaminants during remediation for those buildings that continue to show an unacceptable risk and/or hazard.

The CMP/CP requires that the institution controls in place at Site 300 be evaluated annually. The completed Institutional Controls Monitoring Checklist for 2010 will be presented in the annual report.

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 surface water is 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 x 10^{-5}, hazard index 2.3 due to TCE and PCE.
2. Spring 5 (HEPA OU) – Cumulative risk 1 x 10^{-5}, due to 1,1-DCE and TCE.
3. Spring 7 (Pit 6 Landfill OU) – Cumulative risk 4 x 10^{-5}, hazard index 1.5 due to TCE, PCE 1,2-DCA, and chloroform.
4. The Carnegie State Vehicular Recreation Area pond (offsite, east of the Pit 6 Landfill) – Cumulative risk 3 x 10^{-6} (hypothetical), due to TCE.

Water-supply well CARNRW-2 is used to fill the Carnegie State Vehicular Recreation Area pond. The baseline risk assessment indicated that if the VOC source in the Pit 6 Landfill OU was not controlled, contaminated ground water could migrate to well CARNRW-2 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 CARNRW-2. No unacceptable risk or hazard exists.

The risk and hazard management evaluation for Spring 3 was completed in 2009. The estimated risk has remained below 10^{-6} and the hazard index has remained below 1 for two consecutive years. No unacceptable risk or hazard to onsite workers exists. Therefore, the annual ambient air inhalation risk evaluation was continued for the following springs in 2010:

- Ambient Air Near Spring 5 in the HEPA OU
- Ambient Air Near Spring 7 in the Pit 6 Landfill OU

The results of the evaluation will be presented in the annual report.

4.1.2.1. Tritium-Contaminated Springs

An unacceptable cumulative risk of 1×10^{-3} was identified in the baseline risk assessment for the inhalation of tritium at Well 8 Spring in the Building 850 area. The risk associated with the inhalation of tritium vapors volatilizing from Well 8 Spring is based on the maximum tritium activity detected (770,000 pCi/L) in 1972. The tritium activities in Well 8 Spring have steadily declined over the decades. The 2002 CMP/CP did not present risk and hazard management processes to re-evaluate the risk associated with tritium in Well 8 Spring. The 2009 CMP/CP revision indicated that the inhalation risk associated with tritium in surface water volatilizing into outdoor ambient air will be re-evaluated annually when surface water is present. The surface water will be sampled and analyzed for tritium semi-annually. The maximum activity will be compared to the current tritium vapor PRG for tap water. If the activity exceeds the PRG, the local site use conditions will be reviewed. If workers do not occupy or plan to occupy the site in the near future, the site use restrictions will be maintained and the annual sampling continued. If workers occupy or plan to occupy the site in the near future, the risk based on projected actual exposure will be recalculated. If the recalculated risk is above 10^{-6} or the hazard index exceeds 1, engineering controls will be implemented to prevent exposure for workers occupying the area. If the activity is below the PRG, land use restrictions will be maintained and the annual sampling continued. If the activity remains below the PRG for two years, risk and hazard management is complete for the site.

The results of the evaluation will be presented in the annual report.

4.2. Ecological Risk and Hazard Management

4.2.1. Completion of 2002 Compliance Monitoring Report/Contingency Plan Ecological Risk and Hazard Management Measures

Surveys for important burrowing species in specified areas were required as an ecological risk and hazard management measure by the 2002 CMP/CP as long as a potential ecological hazard was present. The 2002 CMP/CP initially required surveys at Building 834, Pit 6 Landfill, and Building 850. As discussed in the 2005 Annual CMR, surveys were discontinued at Building 834 and the Pit 6 landfill as additional data showed a potential ecological hazard was no longer present in these areas. The 2005 Annual CMR also discusses other 2002 CMP/CP ecological risk and hazard management measures that were completed and discontinued as a result of additional data showing no potential for ecological hazard.

As discussed in the 2009 Annual CMR, surveys for important burrowing species continued at Building 850 due to the presence of PCBs, dioxins, and furans in surface soil. Surveys focused on western burrowing owl and California tiger salamander, as both species had been observed in the vicinity of Building 850. In addition, an exposure analysis conducted for western burrowing owl indicated a potential hazard to this species from Arochlor 1254 in the soil at Building 850.

Remediation activities at Building 850 began on May 1, 2009. Contaminated soil was excavated from the hillsides adjacent to the firing table, solidified, and placed in the Corrective Action Management Unit located in the former Building 850 corporation yard. As described in the 2009 Annual CMR, several avoidance and minimization measures were implemented during remediation activities to reduce potential impacts to the California tiger salamander. In addition, DOE/LLNL agreed to compensate for the loss of California tiger salamander habitat by setting aside 48.5 acres containing two existing seasonal pools at Site 300, and enhancing one of these pools so that it will hold water for a longer period of time.

Remediation activities at Building 850 were completed on January 28, 2010. As a result, the risk to western burrowing owls and California tiger salamanders from PCBs, dioxins and furans in the surface soil at Building 850 no longer exists. Therefore, the ecological surveys at Building 850 required by the 2002 CMP/CP have been discontinued.

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

A five-year ecological review to evaluate changes in contaminant and ecological conditions in OUs 2 through 8 was performed as required by the 2002 CMP/CP. The results of the five-year review are reported in the 2008 Annual CMR. These results were used to revise and update the ecological risk and hazard management measures and relevant ecological contingency plan actions. These revisions were incorporated into the 2009 Compliance Monitoring Plan and Contingency Plan.

The ecological risk and hazard management measures described in the 2009 CMP/CP were developed to meet the Remedial Action Objectives for environmental protection. These objectives are 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 1) periodically evaluating available biological survey data from the Buildings 801, 851 and the HE Process area to determine potential population-level impacts to ground squirrel and deer exposed to cadmium in surface soil in these areas, as well as re-evaluating the ecological hazard associated with cadmium in surface soil in these areas, 2) ensuring the integrity of the Pit 7 Complex landfill caps to prevent exposure to burrowing animals from uranium isotopes, and 3) evaluating changes in existing contaminant and ecological conditions in OUs 1 through 8 every five years, including re-evaluating VOCs in burrow air in the event that ground water VOC concentrations increase to levels that previously posed a risk to burrowing animals.

This 2010 First Semester CMR is the first compliance monitoring report prepared under the 2009 Compliance Monitoring Plan/Contingency Plan. This report, and subsequent compliance monitoring reports prepared during the reporting period in which the 2009 CMP/CP is active, will report on ecological risk and hazard management measures and ecological contingency plan actions required by the 2009 CMP/CP.

In addition to reporting on the ecological risk and hazard management measures described in the 2009 CMP/CP, this and future compliance monitoring reports will address several new constituents identified in surface soil and surface water during the most recent five year ecological review for which ecological hazard could not be adequately evaluated due to either a limited data set or the lack background data. The results of the most recent five-year ecological review were reported in the 2008 Annual Compliance Monitoring Report.

4.2.3. Cadmium in Surface Soil

In the baseline ecological risk assessment (Webster-Scholten, 1994), ecological hazard (defined as a hazard index greater than 1) was associated with the ingestion of cadmium at several areas though out Site 300. Ecological risk and hazard management measures were developed as part of the 2002 CMP/CP for Buildings 834 and 850, due to a hazard index greater than 1 associated with kit fox (an important fossorial vertebrate species). As described above, additional surface soil data collected from the Building 834 area revealed no ecological hazard was present in this area. In addition, remediation activities targeting PCBs, dioxins and furans in surface soil at Building 850 also eliminated the cadmium ecological hazard present in this area.

While a hazard associated with cadmium in soil was also identified for ground squirrels and deer at Buildings 801, 851, and the HE Process Area, wildlife surveys found no impacts to the squirrel or deer populations. Because potential ecological hazard was not identified for either individual special-status species or deer and squirrel populations in these areas, additional sampling and analysis of cadmium in surface soil was not required under the 2002 CMP/CP. As part of the 2009 CMP/CP, available biological survey data will be periodically evaluated to identify changes in the abundance of these species over time that could indicate impacts to the populations. Survey data will also be reviewed to identify the presence of special status species. The results of this review will be reported on in the 2010 Annual Compliance Monitoring Report.

In addition to evaluating the available biological survey data from the Buildings 801, 851 and HE Process Areas, the 2009 CMP/CP also requires a re-evaluation of the ecological hazard associated with cadmium in surface soil in these areas to determine if continuation of risk and hazard management measures are necessary. This will be conducted by collecting additional surface soil samples from these areas for cadmium analysis and re-evaluating the associated ecological hazard, as described in the 2009 CMP/CP. This sampling is currently planned for the summer of 2011.

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

As part of the five-year ecological review reported on in the 2008 Annual CMR, results of samples of pit waste that were collected from borings through the Pit 3 and 5 landfills were determined to contain uranium at concentrations that posed a hazard if ingested by ground squirrels, burrowing owls, and kit fox. While this area represents potential habitat for burrowing owls and kit fox, neither species has been observed in this area.

The 2009 CMP/CP requires the Pit 7 Complex landfills to be inspected and any burrows or holes in the cover are filled to prevent animals from unacceptable exposure to the pit waste. This will be done as part of the inspection and maintenance program for the Pit 7 Complex. The Pit 7 Complex landfills are inspected quarterly. Section 3.4.3 describes the quarterly landfill inspection results, Section 3.4.4 describes the annual subsidence monitoring results, and Section 3.4.5 describes any maintenance performed. Results of the quarterly inspections, their ecological significance, and a discussion of any maintenance will be provided in the 2010 Annual CMR.

4.2.5. Constituents Identified in the 2008 Five Year Ecological Review Requiring Additional Evaluation

The results of the most recent Five Year Ecological Review were reported in the 2008 Annual CMR. The ecological hazard of several new constituents detected in surface soil and surface water could not be adequately evaluated due to either a limited data set or the lack background data. In surface soil, the ecological hazard from potassium-40 (K-40) in surface soil was not evaluated due to a limited data set and the lack of background data. To determine if a sampling effort to develop background levels of K-40 in surface soil is warranted, the literature will be reviewed to evaluate the potential for ecological hazard from K-40 in surface soil. Results of this review will be reported in future compliance monitoring reports.

The 2008 Annual CMR also reported that chloride, ortho-phosphate, total phosphorus, nitrate plus nitrite, ammonia nitrogen and uranium in several springs had the potential for ecological hazard due to exceeding available conservative ecological screening levels, but could not be completely evaluated due to a limited data set and/or the lack of background data. These springs included Spring 14 (HEPA OU), Springs 3 and 4 (Building 832 Canyon OU) and Springs 10 and 11 (Building 854 OU).

Available data from the Site 300 background springs (Springs 2, 12, 16 and 17) were reviewed for chloride, ortho-phosphate, total phosphorus and ammonia nitrogen. Table 4.2-1 lists the maximum concentration of each of these constituents detected in the background springs. There were no ammonia nitrogen data available from the background springs.

The 2008 Annual CMR reported the following constituents detected in Spring 14 were not completely evaluated due to the lack of background data: chloride (maximum concentration 278 mg/L), ortho-phosphate (maximum concentration 0.4 mg/L), total phosphorus concentration as P (maximum concentration 0.13 mg/L), and total phosphorus as PO_4 (maximum concentration 0.4 mg/L). The maximum concentration for ortho-phosphate, total phosphorus as P and total phosphorus as PO_4 in Spring 14 are all below the maximum concentrations detected in the background springs (Table 4.2-1). Therefore, these constituents in Spring 14 will not be considered further for ecological hazard. Although the maximum chloride concentration detected in Spring 14 exceeds the maximum concentration observed in background springs shown in Table 4.2-1, the chloride concentration in the most recent sample collected from Spring 14 (December 18, 2003) was 170 mg/L, which is below the maximum concentration detected in the background springs. Chloride concentrations will be monitored in future samples collected from Spring 14.

The 2008 Annual CMR reported that nitrate plus nitrite as N (maximum concentration 11 mg/L) in Spring 3 had the potential for ecological hazard and exceeded background, although the data set was very limited. However, this constituent was incorrectly compared to the

background level for nitrite as N (0.01 mg/L). The correct comparison was to nitrate plus nitrite as NO_3 (4600 mg/L), which when converted to nitrate plus nitrite as N (assuming all nitrite is oxidized to nitrate during the analysis), results in a background value of 49 mg/L. The most recent sample collected from Spring 3 (March 9, 2010) detected 11 mg/L of nitrate as NO_3. All samples collected from Spring 3 that have either been analyzed for nitrite as N (7 samples) or nitrite as NO_2 (5 samples) did not detect nitrite. Therefore, this constituent in Spring 3 will not be considered further for ecological hazard.

The 2008 Annual CMR reported the following constituents detected in Spring 4 were not completely evaluated due to the lack of background data: ammonia nitrogen as N (maximum concentration 8.7 mg/L), ortho-phosphate (maximum concentration 0.57 mg/L), and total phosphorus concentration as P (maximum concentration 4 mg/L). The maximum ortho-phosphate concentration in Spring 4 is below maximum concentration observed in the background springs (Table 4.2-1). Therefore, this constituent in Spring 4 will not be considered further for ecological hazard. The single sample from Spring 4 analyzed for total phosphorus as P exceeds the maximum concentration observed in the background springs (Table 4.2-1). Therefore, future samples collected from Spring 4 will be analyzed for total phosphorus to determine if the maximum concentration is representative of total phosphorus concentrations in this spring. Data for ammonia nitrogen are not available for the background springs. The maximum concentration of ammonia nitrogen in Spring 4 was detected in the most recent sample available that was analyzed for this constituent (June 1, 2000). The two previous samples detected 0.16 mg/L of ammonia nitrogen or less. Therefore, future samples collected from Spring 4 will also be analyzed for ammonia nitrogen to determine if the maximum concentration is representative of ammonia concentrations in this spring. In addition, future samples collected from the background springs will be analyzed for ammonia nitrogen to determine the background concentration of this constituent.

The 2008 Annual CMR reported that the maximum total uranium concentration as mg/L (estimated from uranium-238 results) in Spring 10 (0.039 mg/L) and Spring 11 (0.038 mg/L) slightly exceeded the Site 300 background concentration (0.028 mg/L). These maximum concentrations were detected in the most recent sample available for both springs (June 26, 2003 for Spring 10 and June 21, 2002 for Spring 11). Both samples were analyzed for uranium isotopes using mass spectrometry, and results from both springs showed a uranium-235/uranium-238 ratio of 0.0072. This is the natural ratio for these uranium isotopes, and indicates no added depleted uranium is present. Few of the background springs have had samples analyzed for uranium isotopes using the more precise mass spectrometry analytical analysis. The vast majority of available background uranium data are from alpha spectrometry analyses. Therefore, future samples collected from the current background springs will be analyzed for uranium isotopes using mass spectrometry.

5. Data Management Program

The management of data collected during first semester 2010 was subject to the Environmental Restoration Department (ERD) data management process and standard operating procedures (Goodrich, 2009). 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 standard operating procedures for data quality, this process includes sample planning,

chain-of-custody tracking, electronic and hard copy analytical results receipt, strict data validation and verification, data quality control procedures, and data retrieval and presentation. The use of this system promotes and provides a consistent data set of known quality. Quality assurance and quality control are performed consistently on all data.

5.1. Modifications to Existing Procedures

During the first semester of 2010, the relational database that is used to maintain the data for the CMR was moved from Oracle 10g on Sun Solaris to Oracle 11g on Linux. Two automated standby databases were also implemented. The applications used to access the data remained running on a Sun Solaris server. General maintenance and refinements were implemented to improve chain of custodies, data entry verification, and querying abilities. Sample Planning and Chain of Custody Tracking (SPACT) was improved to handle more varied sampling schedules for a wider range of sampling media. Improvements and additions continue to be implemented to the ERD data management process in an ongoing effort to automate and improve the applications, including updates to verifications. The Treatment Facility Real Time (TFRT) application, a high frequency data acquisition system for treatment facilities and their associated extraction wells continues to be improved and its scope of coverage extended. Underlying scripts are being improved to be more robust and maintainable. Standard operating procedures are up to date.

6. Quality Assurance/Quality Control Program

LLNL conducted all compliance monitoring in accordance with the approved Quality Assurance Project Plan (QAPP) (Dibley, 1999) 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 ERD Standard Operating Procedures (SOPs), Operations and Maintenance Manuals (O&Ms), Work Plans, Integration Work Sheets (IWSs), and Site Safety Plans. Modifications to existing LLNL quality assurance/quality control (QA/QC) procedures, new QA/QC procedures that were implemented during this reporting period, self-assessments, quality issues and corrective actions, and analytical and field quality control are discussed in this section.

6.1. Modifications to Existing Procedures

The ERD SOPs have been updated and are currently going through the final review process. After the final review has been completed and procedures have been signed-off, the approved procedures will be released as Revision 14. Revision 14 consists of a total of twenty-seven procedures which will be distributed as controlled documents, as follows: 1.1: Field Borehole Logging, SOP 1.2: Borehole Sampling of Unconsolidated Sediments and Rock, SOP 1.3: Drilling, SOP 1.4: Well Installation, SOP 1.5: Initial Well Development, SOP 1.6: Borehole Geophysical Logging, SOP 1.7: Well Closure, SOP 1.10: Soil Vapor Surveys, SOP 1.11: Soil Surface Flux Monitoring of Gaseous Emission, SOP 1.13: Operation of the AMS TR7000 Well Management System, SOP 1.15: Well Site Core Handling, SOP 1.16: Four Wheel All Terrain

Vehicle (ATV) Operation, SOP 1.17: Soil Vapor Monitoring and Sampling, SOP 4.1: General instructions for Field Personnel, SOP 4.2: Sample Control and Documentation, SOP 4.4: Guide to Packaging and Shipping of Samples, SOP 4.5: General Equipment Decontamination, SOP 4.6: Validation and Verification of Radiological and Nonradiological Data Generated by Analytical Laboratories, SOP 4.8: Calibration/Verification and Maintenance of Field Instruments Used in Measuring Parameters of Surface Water, Ground Water, and Soils, SOP 4.9: Collection of Field QC Samples, SOP 4.15: ERD Self-assessments and Walkabouts, SOP 4.16: ERD Lockout/Tagout Program, SOP 4.17: Change of Aqueous and Vapor Phase Granular Activated Carbon, SOP 4.18: ERD Document Control, SOP 5.5: Data Management Receipt and Processing, SOP 5.20: Cost Effective Sampling (CES) Algorithm Preparation, and SOP 6.1: Decontamination and Decommissioning (D&D) Team – SOP 001. During the review process, certain procedures, as listed, were determined to be obsolete and will be omitted from Revision 14: SOP 1.18: Deployment, Retrieval, Sampling and Maintenance of Instrumented Membrane Technology (IMT) Borehole-Liner Systems, and SOP 2.12: Ground Water Monitor Well and Equipment Maintenance. Other procedures will not be included in this release as planned. These procedures are still undergoing the review and updating process: SOP 1.8: Disposal of Investigation-Derived Wastes (Drill Cuttings, Core Samples, and Drilling Mud), SOP 1.14: Final Well Development/Specific Capacity Tests at LLNL Livermore Site and Site 300, SOP 2.8: Installation of Dedicated Sampling Devices, SOP 3.1: Water-Level Measurements, SOP 3.2: Pressure Transducer Field Calibration, SOP 3.3: Hydraulic Testing (Slug/Bail), SOP 3.4: Hydraulic Testing (Pumping), SOP 4.7A: Livermore Site Treatment and Disposal of Well Development and Well Purge Fluids, SOP 4.7B: Site 300 Treatment and Disposal of Well Development and Well Purge Fluids, and SOP 4.14: Mapping with the Trimble Pathfinder Pro XR GPS System,

6.2. New Procedures

There were no new procedures developed during this reporting period.

6.3. Self-assessments

ERD participates in formal and informal self-assessments. These assessments are used to evaluate work activities to procedural, QA, management, and Integrated Safety Management System (ISMS) practices. External regulatory agencies and management also performs frequent walkabouts during ERD work activities. There were a total of fifteen assessments and walkabouts performed for the ERD Site 300 work activities during the first semester of 2010. Issues and deficiencies observed during the assessments are tracked from inception to resolution using the institutional Issues Tracking System (ITS). To date, all ERD Site 300 work related issues and deficiencies have been successfully corrected and closed-out in the ITS.

6.4. Quality Issues and Corrective Actions

Quality improvement, nonconformance, and corrective action reporting is documented using the Quality Improvement Form (QIF). There were three QIFs processed during this reporting period. Corrective action(s) recommended in all three QIFs has been successfully implemented and closed-out. Suggested corrective actions for three QIFs from the previous reporting period are still in progress.

6.5. Analytical Quality Control

Data review, validation, and verification are conducted on 100% of the incoming analytical data. Contract analytical laboratories are contractually required to provide internal quality control (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 are assigned to analytical data that fall outside the QC acceptance criteria. Data qualifier flags and their definitions are listed in the Acronyms and Abbreviations in the Tables section of this report. The qualifier flags, when they exist, appear next to the analytical data presented in the treatment facility compliance 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 is qualified as rejected only when there is a serious deficiency in the ability to analyze the sample and meet QC criteria. There were no significant data anomalies to report during this semester; however, there was an issue with the QC provided by one of the contracted analytical laboratories (CALs). Periodically, the percent recovery of 1,1,2,2-Tetrachloroethane (an EPA Method 601 analyte) failed the acceptance criteria established by the CAL for the Laboratory Control Sample (LCS). The recovery of this analyte did not meet the lower control limit. An LCS is used to demonstrate that the laboratory measurement system is performing acceptably. It was requested that the CAL provide an explanation as to why the failing LCS compound was reported, versus repeating the process until the recovery of the compound met the control limits. The lab stated that their SOP allows two analytes to be outside the control limits before having to repeat the process. Per the Statement of work (SOW), for the CALs, all LCS analytes must meet the established control limits. This issue has been resolved. The CAL has modified their SOP and is following the requirements specified in the SOW.

6.6. Field Quality Control

Quality control is implemented during the sample collection process in the field. Ten percent of samples are collocated (5% intralaboratory and 5% interlaboratory). Field blanks and trip blanks are used to identify contamination that may occur during sample collection, transportation, or handling of samples at the analytical laboratory. Equipment blanks are used to determine the effectiveness of decontamination processes of portable equipment used for purging and/or sample collection. There were no cross-contamination issues indicated by trip blank, field blank, or equipment blank analyses during this reporting period, but there were trihalomethanes (THMs) detected in the blank water samples. The THMs are not project contaminants of concern, but are indicative of chlorination byproducts. After investigating the potential source of contamination, it was learned that the Milli-Q water system, where the blank water is obtained, was overdue for a filter change. The laboratory analyst agreed to track the filter change-outs more closely, but also reminded ERD sampling personnel that the water is sufficient for their purposes. ERD does not utilize this particular onsite laboratory to perform sample analyses, but ERD is allowed to use their Milli-Q water system. The lab analyst reiterated the proper operating parameters and the amount of time necessary to sufficiently purge the system prior to obtaining water. ERD personnel have not deviated from following these operating procedures.

In addition to the trihalomethanes, other VOCs were detected in the field blanks submitted to the CALs for analysis. Acetone, in particular became problematic when significant concentrations of the compound was detected in both the field blank and the accompanied sample. Various analytes, e.g., metals, anions, etc. were also being detected in the field blank samples as well as the samples submitted for analyses. Due to these detections in the field blank water, the source for obtaining the field blank water was changed from the onsite lab to having the outside CALs provide the blank water. Each CAL has been requested to provide blank water at the beginning of each sampling quarter. The labs have been asked to analyze the water using EPA Method 601 and supply the analytic results along with the water to demonstrate that the water is free of VOCs. These reports are stored along with the quarterly sampling plan on ERD's server.

7. References

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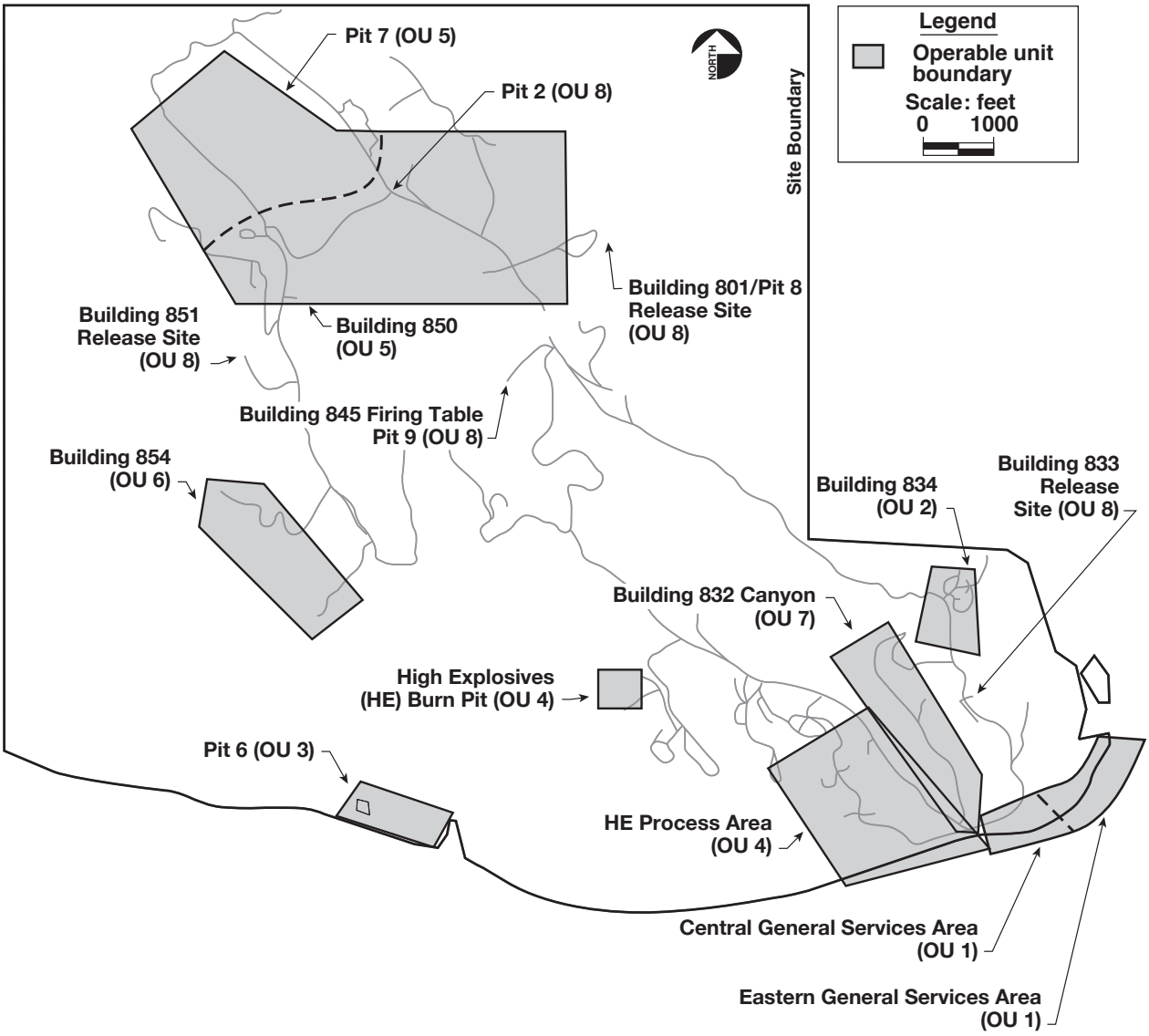

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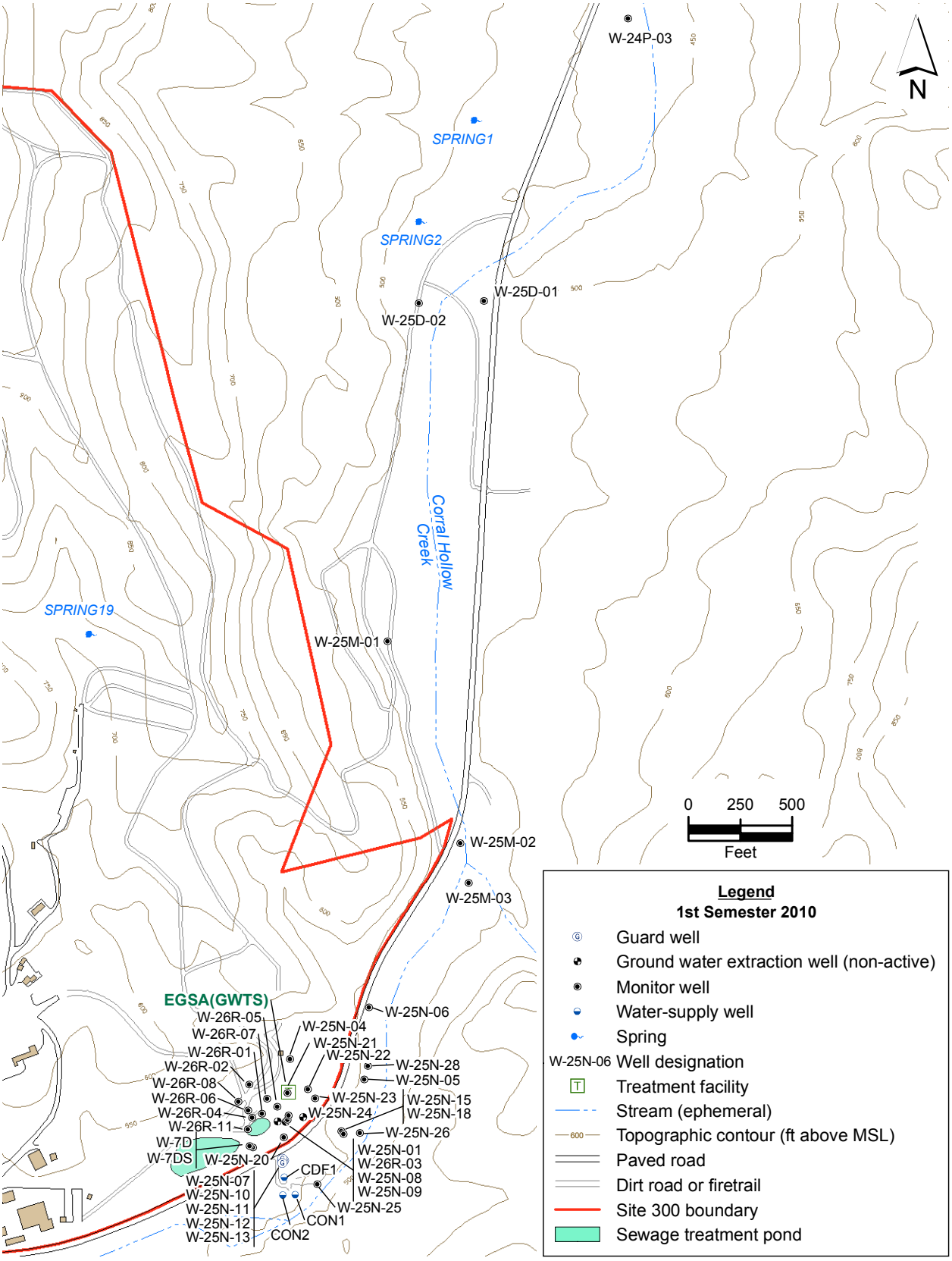

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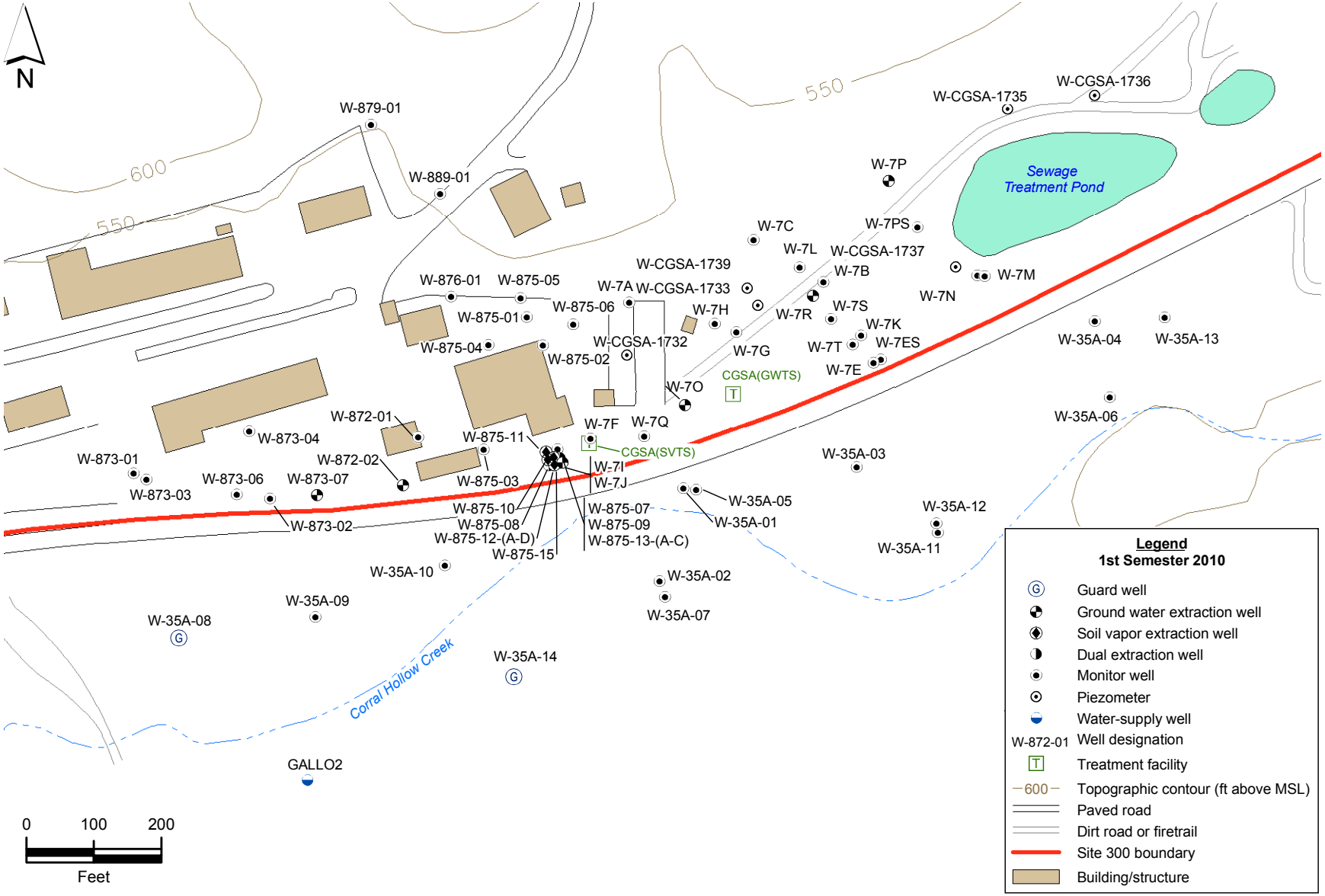

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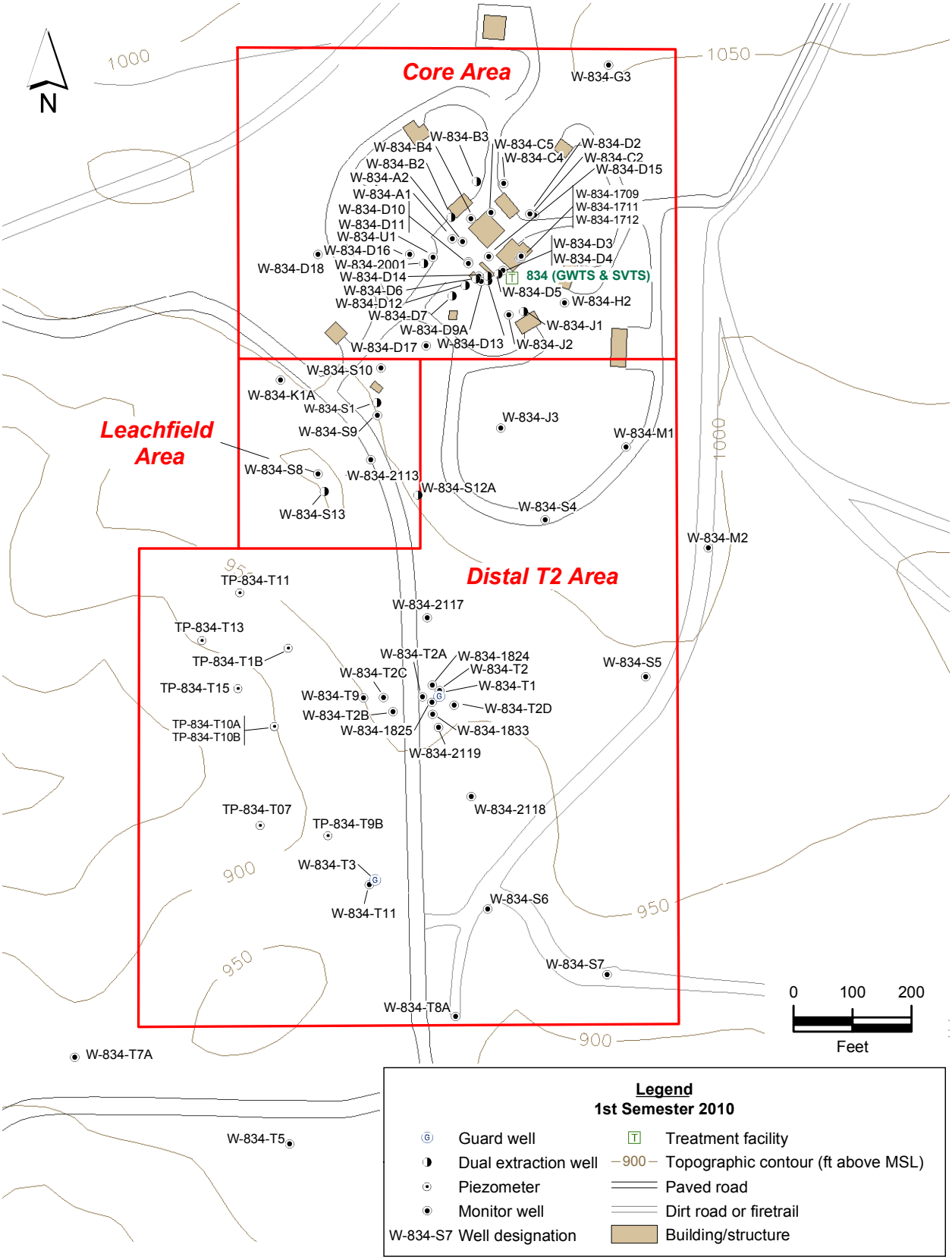

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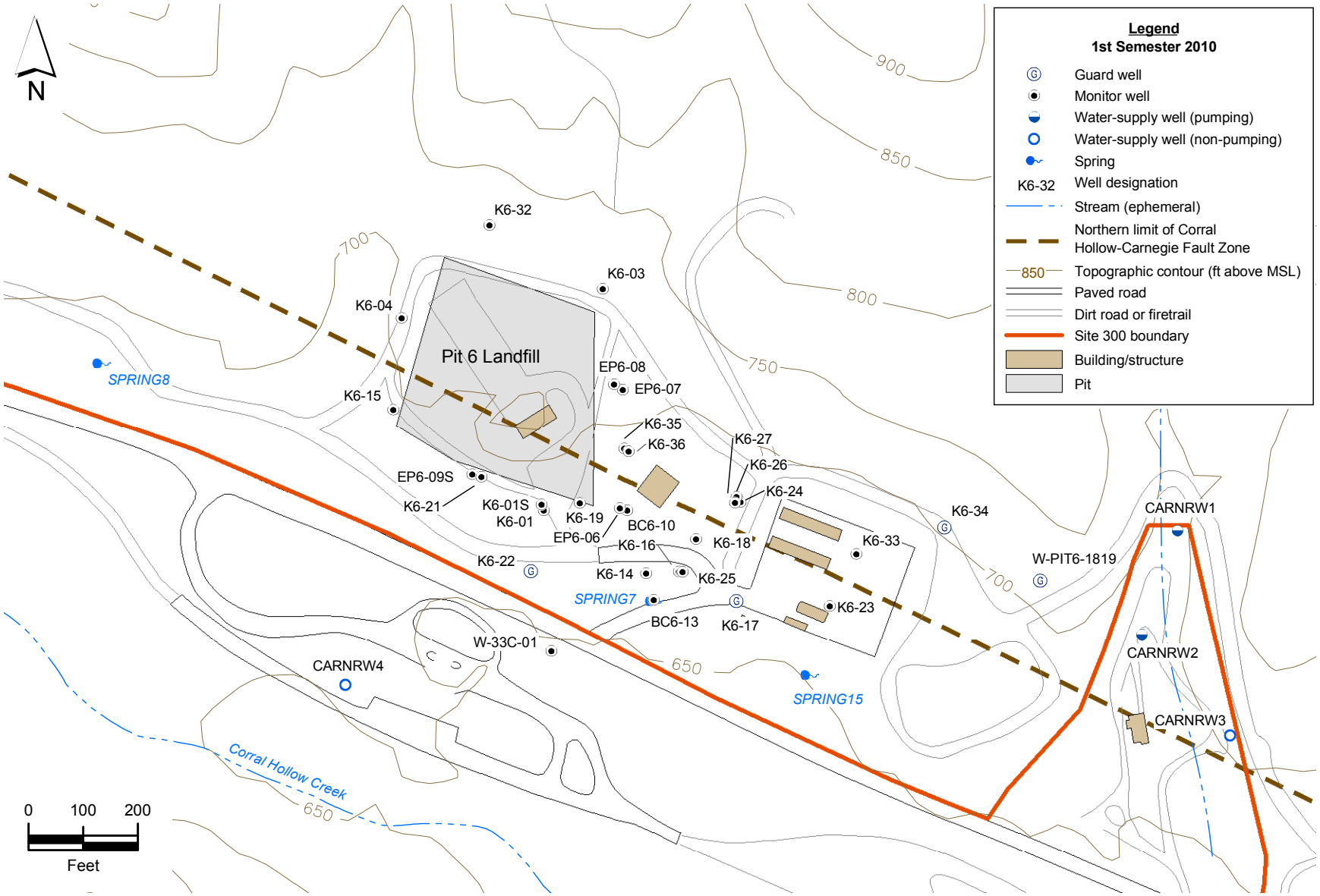

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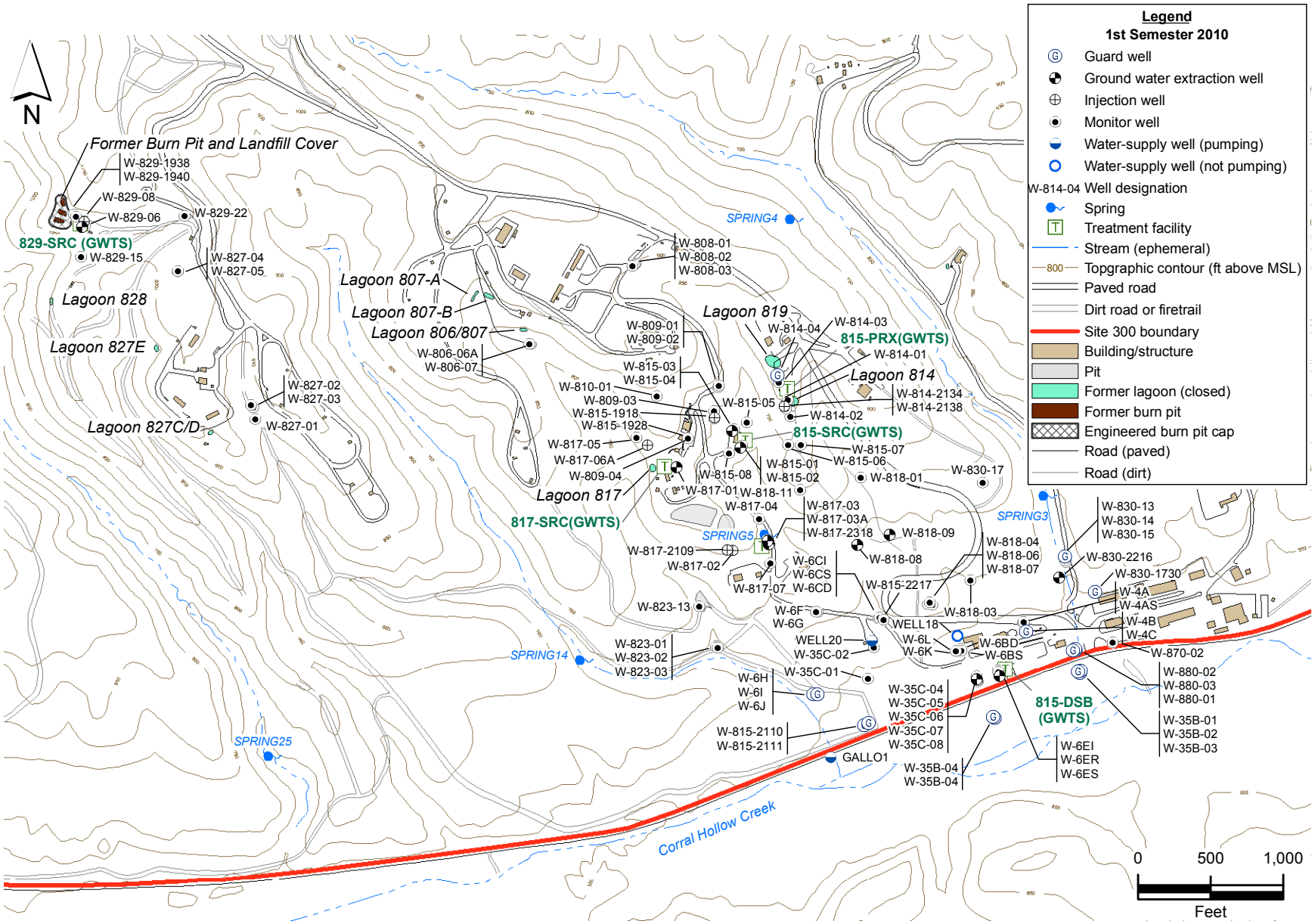

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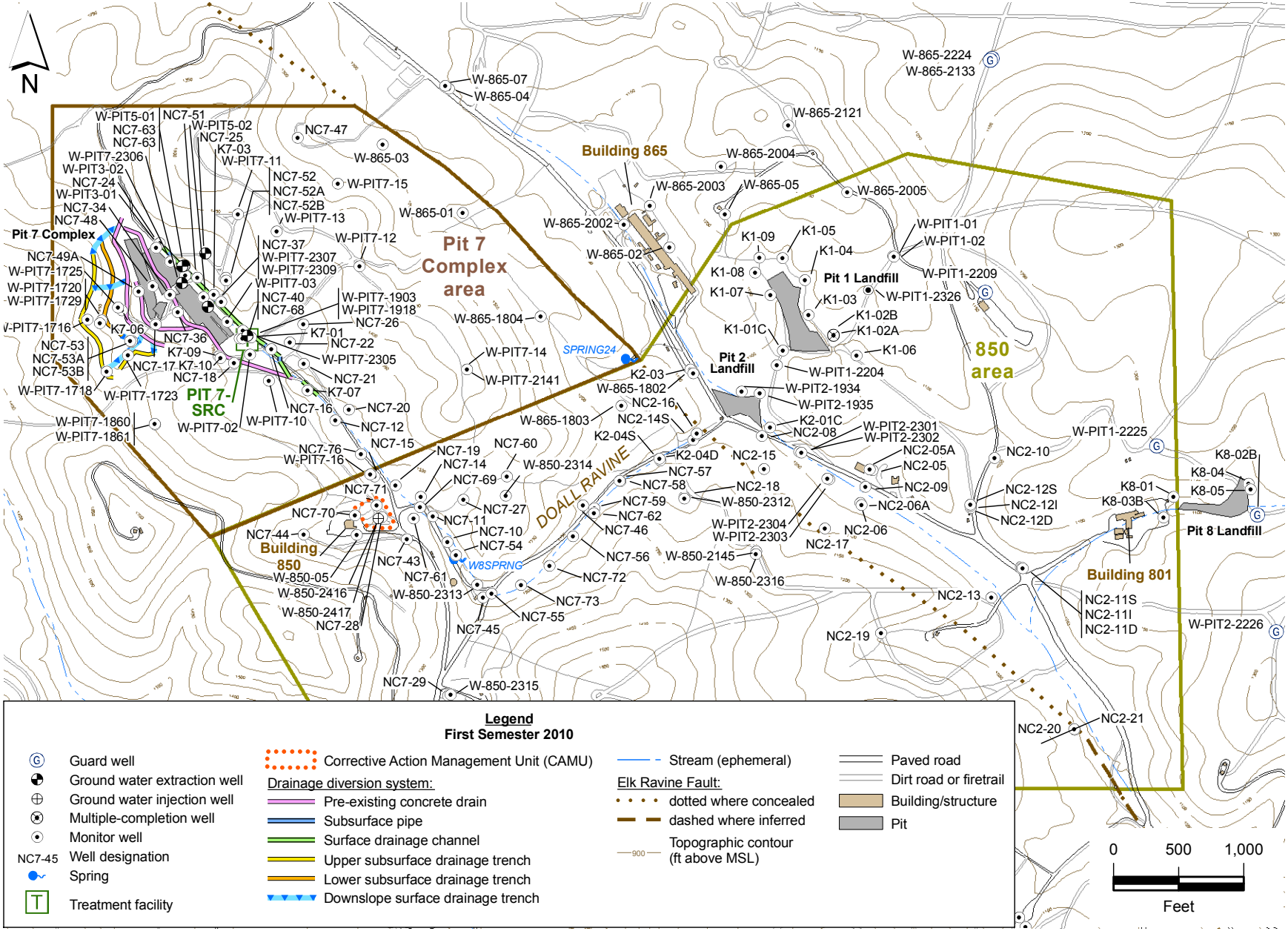

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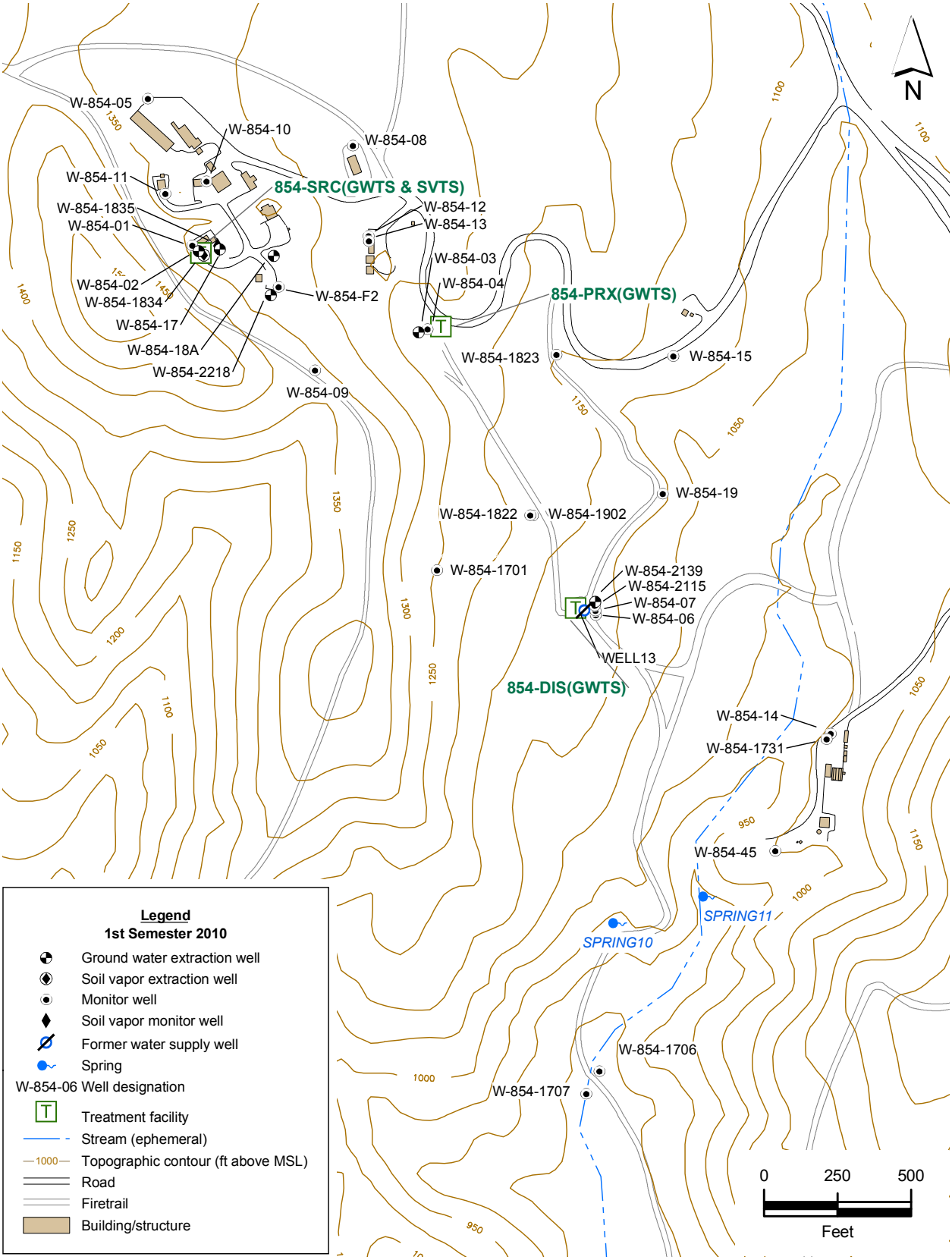

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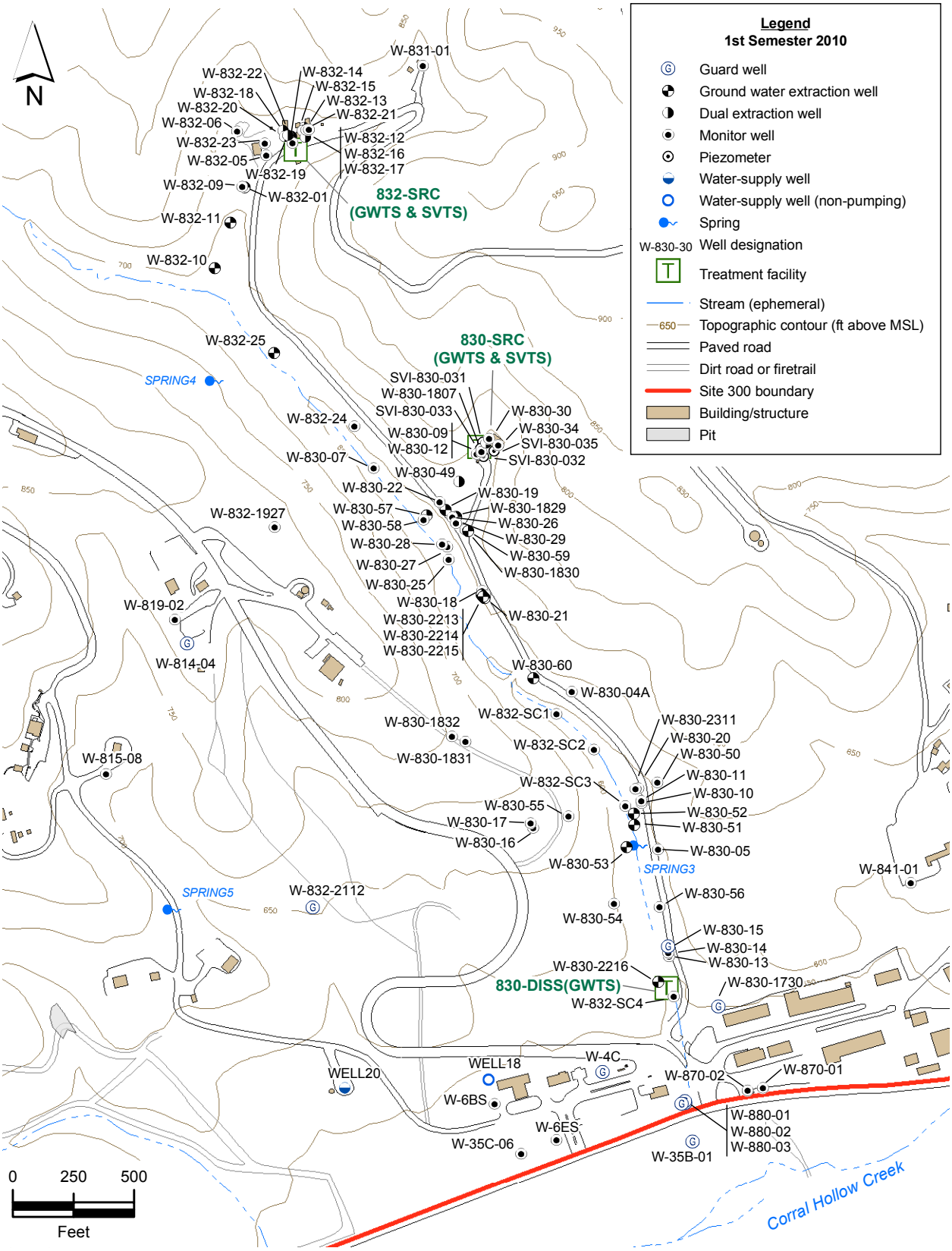

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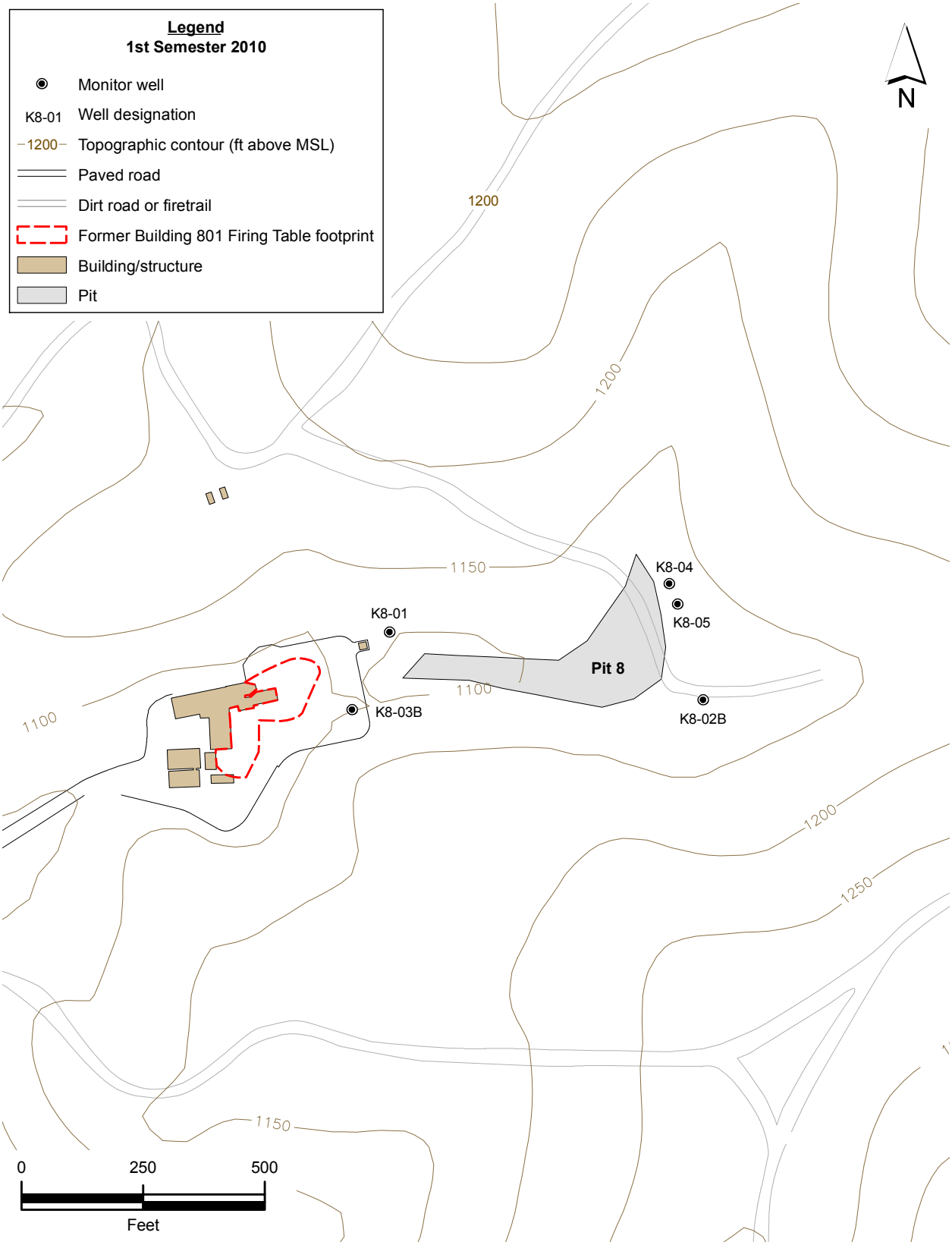

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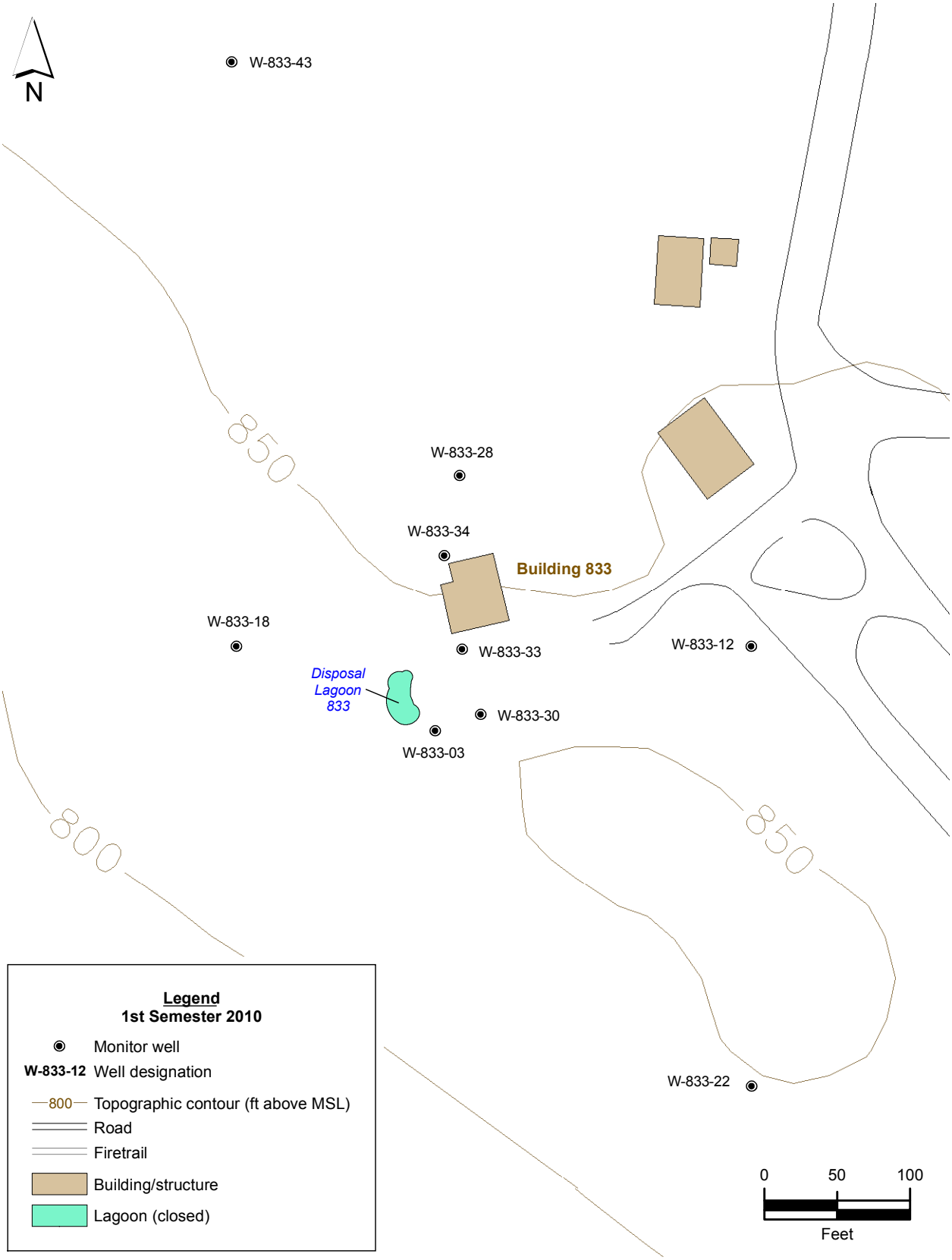

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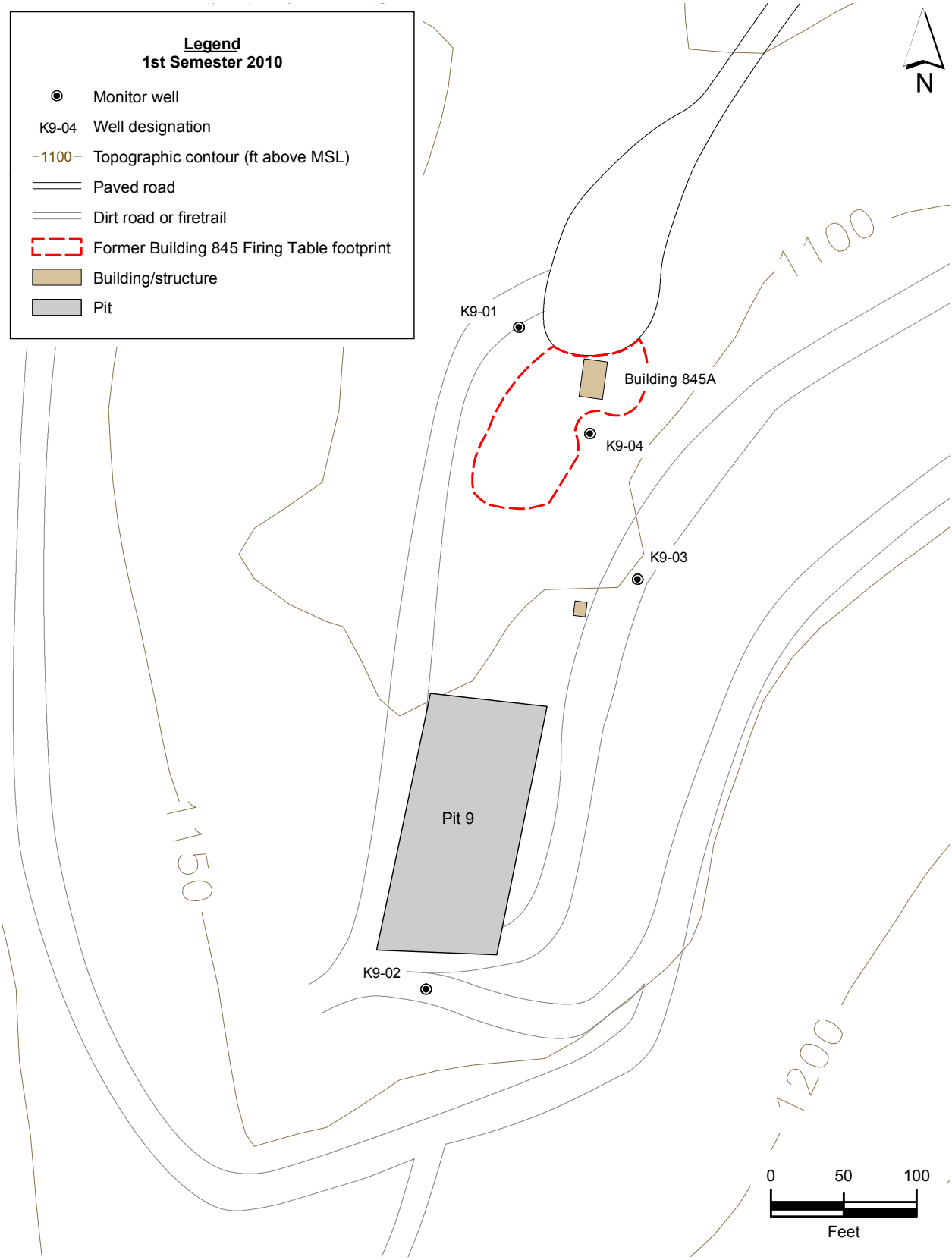

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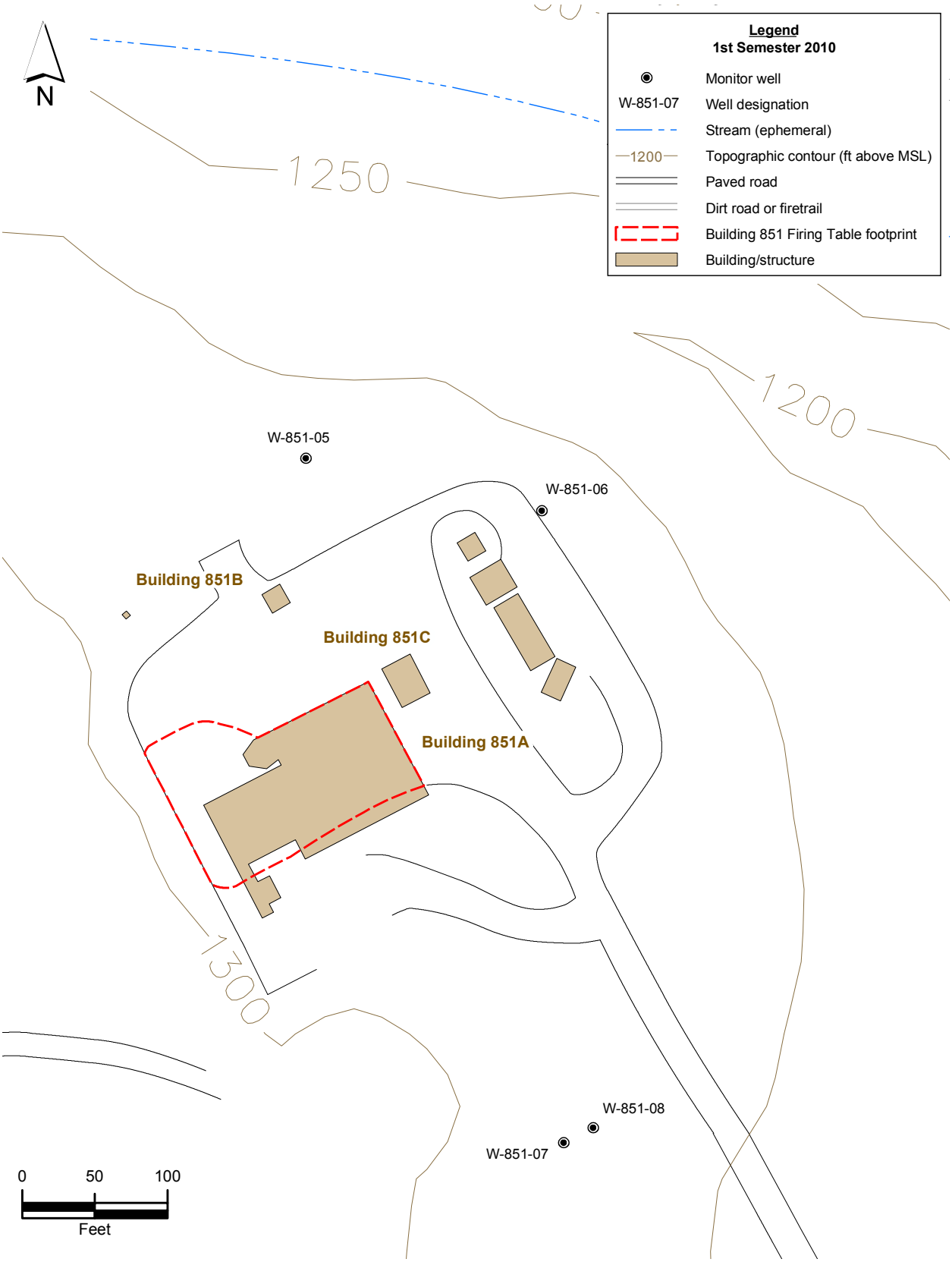

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Acronyms and Abbreviations

4-ADNT	4-Amino-2,6-dinitrotoluene
815	Building 815
817	Building 817
829	Building 829
832	Building 832
834	Building 834
850	Building 850
854	Building 854
A	Annual
As N	As nitrogen
As $CaCO_3$	As calcium carbonate
BTEX	Benzene, toluene, ethyl benzene, and xylene
°C	Degrees Celsius
C12-C24	Diesel range organic compounds in the carbon 12 to carbon 24 range
CAL	Contracted analytical laboratories
CAMU	Corrective Action Management Unit
CDFG	California Department of Fish and Game
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFE	Carbon filter effluent
CFI	Carbon filter influent
CF2I	Second aqueous phase granular carbon filter influent
CF3I	Third aqueous phase granular carbon filter influent
cfm	Cubic feet per minute
CFV2	Second vapor phase granular activated carbon filter effluent
CGSA	Central General Services Area
CHC	Corral hollow creek
CMP/CP	Compliance Monitoring Plan/Contingency Plan
CMR	Compliance Monitoring Report
CO_2	Carbon dioxide
COC	Contaminants of Concern
DCA	Dichloroethane
DCE	Dichloroethylene or dichloroethene
DIS	Discretionary sampling (not required by the CMP)
DISS	Distal south
DMW	Detection monitor well
DOE	Department of Energy
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., 2012) (acronym found in Sampling Plan Tables)
EGSA	Eastern General Services Area
EPA	Environmental Protection Agency
ERD	Environmental Restoration Department
ES&H	Environmental Safety and Health
EV	Effluent vapor
EW	Extraction well
ft	Feet
ft^3	Cubic feet
g	Gram(s)
GAC	Granular activated carbon
gal	Gallon(s)
gpd	Gallons per day
gpm	Gallons per minute
GSA	General Services Area
GTU	Ground Water Treatment Unit.
GW	Guard well
GWTS	Ground Water Treatment System
HE	High Explosives
HEPA	High Explosives Process Area
H-H	Hetch-Hetchy
HMX	High-Melting Explosive
HQ	Hazard quotient
HSU	Hydrostratigraphic unit
I	Influent
ICP-MS	Inductively Coupled Plasma - Mass Spectrometry
ISMA	*In Situ* Microcosm Array
ISMS	Integrated Safety Management System
ITS	Issues Tracking System
IV	Influent vapor
IW	Injection well
IWS	Integrated Work Sheet
K-40	Potassium-40
kft^3	thousands of cubic feet
kg	Kilograms
kgal	Thousands of gallons
km	Kilometers
LCS	Laboratory Control Sample
LHC	Light hydrocarbon
LLNL	Lawrence Livermore National Laboratory
µg/L	Micrograms per liter

µg/m^3	Micrograms per meters cubed
µmhos/cm	Micro ohms per centimeter
µS	Microsiemens
M	Monthly
MCL	Maximum Contaminant Level
Mgal	Millions of gallons
mg/L	Milligrams per liter
MNA	Monitored Natural Attenuation
MTU	Miniature Treatment Unit
mv	Millivolts
MWB	Monitor well used for background
N	No
NB	Nitrobenzene
N_2	Nitrogen
NO_3	Nitrate
NA	Not applicable
NT	Nitrotoluene
NTU	Nephelometric turbidity units
O	Sample to be collected during odd numbered years (i.e., 2013)
ORP	Oxidation/reduction potential
OU	Operable unit
O&M	Operations and Maintenance
PCBs	Polychlorinated biphenyls
PCE	Tetrachloroethene
pCi/L	PicoCuries per liter
pH	A measure of the acidity or alkalinity of an aqueous solution
PHG	Public Health Goal
PLC	Programmatic logic control
ppb_v	Parts per billion by volume
ppm_v	Parts per million on a volume-to-volume basis
PRX	Proximal
PRXN	Proximal north
PSDMP	Post-Monitoring Shutdown Plan
PTMW	Plume Tracking Monitor Well
PTU	Portable Treatment Unit
Q	Quarterly
QAPP	Quality Assurance Project Plan
QA/QC	Quality assurance/quality control
QIF	Quality Improvement Form
RAOs	Remedial Action Objectives
R1	Receiving water sampling point located 100 ft upstream
R2	Receiving water sampling point located 100 ft downstream
RDX	Research Department explosive

REA	Reanalysis
Redox	Reduction-oxidation reaction
REX	Resample
ROD	Record of Decision
RPM	Remedial Project Manager
RWQCB	Regional Water Quality Control Board
S	Semi-annual
Scfm	Standard cubic feet per minute
SOP	Standard Operating Procedure
SOW	Statement of work
SRC	Source
SPR	Spring
STU	Solar-powered Treatment Unit
SVE	Soil Vapor Extraction
SVTS	Soil Vapor Treatment System
SVI	Soil Vapor Influent
SWEIS	Site-Wide Environmental Impact Statement
SWFS	Site Wide Feasibility Study
SWRI	Site-Wide Remedial Investigation
TBOS	Tetrabutyl orthosilicate
TCA	Trichloroethane
TFRT	Treatment Facility Real Time
THMs	trihalomethanes
TKEBS	Tetrakis (2-ethylbutyl) silane
TCE	Trichloroethene
TDS	Total dissolved solids
TF	Treatment facility
TNB	Trinitrobenzene
TNT	Trinitrotoluene
$^{235}U/^{238}U$	Atom ratio of the isotopes uranium-235 and uranium-238
U.S.	United States
USFWS	U.S. Fish and Wildlife Service
VCF4I	Fourth vapor phase granular activated carbon filter influent
VE	Vapor effluent
VES	Vapor extraction system
VI	Vapor influent
VOC	Volatile organic compound
WAA	waste accumulation area
WGMG	Water Guidance and Monitoring Group
WS	Water supply well
Y	Yes

Hydrogeologic Units

Lower $Tnbs_1$ = Lower member of the Neroly lower blue sandstone, below claystone marker bed (regional aquifer).
Qal = Quaternary alluvium.
Qls = Quaternary landslide.
Qt = Quaternary terrace.
Tmss = Miocene Cierbo Formation—lower siltstone/claystone member.
$Tnsc_{1a}$, $Tnsc_{1b}$, $Tnsc_{1c}$ = Sandstone bodies within the $Tnsc_1$ Neroly middle siltstone/claystone (1a = deepest).
$Tnbs_1$ = Lower member of the Neroly lower blue sandstone.
$Tnbs_0$ = Neroly silty sandstone.
$Tnbs_2$ = Miocene Neroly upper blue sandstone.
$Tnsc_0$ = Tertiary Neroly Formation—lower siltstone/claystone member.
$Tnsc_2$ = Miocene Neroly Formation—upper siltstone/claystone member.
Tps = Pliocene non-marine unit.
Tpsg = Miocene non-marine unit (gravel facies).
Tts = Tesla Formation.
$UTnbs_1$ = Upper member of the Neroly lower blue sandstone, above claystone marker bed.
WBR = Weathered bedrock.

Data Qualifier Flag Definitions

B = Analyte found in method blank, sample results should be evaluated.

D = Analysis performed at a secondary dilution or concentration (i.e., vapor samples).

E = The analyte was detected below the LLNL reporting limit, but above the analytical laboratory minimum detection limit.

F = Analyte found in field blank, trip blank, or equipment blank.

G = Quantitated using fuel calibration, but does not match typical fuel fingerprint.

H = Sample analyzed outside of holding time, sample results should be evaluated.

I = Surrogate recoveries were outside of QC limits.

J = Analyte was positively identified; the associated numerical value is the proximate concentration of the analyte in the sample.

L = Spike accuracy not within control limits.

O = Duplicate spike or sample precision not within control limits.

R = Sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

S = Analytical results are rejected due to serious deficiencies in the ability to analyze the sample and meet QC criteria. The presence or absence of the analyte cannot be verified.

T = Analyte is tentatively identified compound; result is approximate.

Requested Analyses

AS:THISO = Thorium isotopes performed by alpha spectrometry.
AS:UISO = Uranium isotopes performed by alpha spectrometry.
CMPTRIMET = Thorium, uranium, and lithium performed by EPA Method 200.7.
DWMETALS = Drinking water metals suite performed by various analytical methods.
E200.7:Ba = Barium performed by EPA Method 200.7.
E200.7:Cd = Cadmium performed by EPA Method 200.7.
E200.7:Cu = Copper performed by EPA Method 200.7.
E200.7:SI = Silica performed by EPA Method 200.7.
E200.7:Zn = Zinc performed by EPA Method 200.7.
E210.2 = Beryllium performed by EPA Method 210.2.
E218.2 = Chromium performed by EPA Method 218.2.
E239.2 = Lead performed by EPA Method 239.2.
E245.2 = Mercury performed by EPA Method 245.2.
E300.0:NO3 = Nitrate performed by EPA Method 300.0.
E300.0:PERC = Perchlorate performed by EPA Method 300.0.
E340.2 = Fluoride performed by EPA method 340.2.
E502.2 = Volatile organic compounds performed by EPA Method 502.2.
E601 = Halogenated volatile organic compounds performed by EPA Method 601.
E624 = Volatile organic compounds performed by EPA Method 624.
E8082A = Polychlorinated biphenyls performed by EPA Method 8082A.
E8260 = Volatile organic compounds performed by EPA Method 8260.
E8330 = High explosive compounds performed by EPA Method 8330.
E8330:R+H = High explosive compounds RDX and HMX performed by EPA Method 8330.
E8330:TNT = Trinitrotoluene performed by EPA Method 8330.
E900 = Gross alpha and beta performed by EPA Method 900.
E906 = Tritium performed by EPA Method 906.
EM8015:DIESEL = Diesel range organic compounds performed by modified EPA Method 8015.
GENMIN = General minerals suite performed by various analytical methods.
ICMSRAD = Uranium isotopes performed by mass spectrometry (LLNL laboratory).
MS = Uranium isotopes performed by mass spectrometry (commercial laboratory).
KPA = Kinetic phosphorescence analysis.
MS:THISO = Thorium isotopes performed by mass spectrometry.
MS:UISO = Uranium isotopes performed by mass spectrometry.
T26METALS = Title 26 metals.
TBOS = Tetrabutylorthosilicate.

Ground Water Elevation Table Notes

ABD = Abandoned.
AD = Drilling of adjacent new wells disturbed water level.
BLOC = Well Blocked.
BS = Water detected below bottom of screened interval.
CB = Installation completed as a Christy box.
DRY = No water detected in well casing at time of measurement.
FA = Flowing artesian well, water elevation converted.
FL = Flowing.
ME = Measuring error suspected.
MSL = Mean Sea Level.
MT = Measured twice.
NA = Information not available.
NM = Not Measured.
NOM = Not on field map.
PD = Predevelopment measurement.
PE = Pump Extraction.
PF = Pump not running at time of measurement.
PS = Measurement taken just before sampling.
PT = Pump test interfered with measurement.
RA = Restricted access.
UC = Unsafe conditions.
VE = Vacuum Extraction.
WE = Well equilibrium suspect.
WR = Well recovery.

Table Summ-1. Mass removed, January 1, 2010 through June 30, 2010.

Treatment facility	Volume of ground water treated (thousands of gal)	Volume of soil vapor treated (thousands of ft^3)	Estimated total VOC mass removed (g)	Estimated total perchlorate mass removed (g)	Estimated total nitrate mass removed (kg)	Estimated total RDX mass removed (g)	Estimated total TBOS/ TKEBS mass removed (g)	Estimated total Uranium mass removed (g)
CGSA GWTS	738	NA	150	NA	NA	NA	NA	NA
CGSA SVTS	NA	5,883	780	NA	NA	NA	NA	NA
834 GWTS	75	NA	760	NA	24	NA	4.2	NA
834 SVTS	NA	21,793	3,300	NA	NA	NA	NA	NA
815-SRC GWTS	303	NA	5.3	6.6	110	58	NA	NA
815-PRX GWTS	236	NA	23	7.1	79	NA	NA	NA
815-DSB GWTS	867	NA	41	NA	NA	NA	NA	NA
817-SRC GWTS	<1	NA	0	0.081	0.24	0.15	NA	NA
817-PRX GWTS	354	NA	14	29	140	11	NA	NA
829-SRC GWTS	<1	NA	0.015	0.0070	0.063	NA	NA	NA
PIT7-SRC GWTS	33	NA	0.97	1.4	4.5	NA	NA	3.6
854-SRC GWTS	582	NA	140	3.2	100	NA	NA	NA
854-SRC SVTS	NA	7,783	490	NA	NA	NA	NA	NA
854-PRX GWTS	76	NA	0.077	3.7	13	NA	NA	NA
854-DIS GWTS	4	NA	0.62	0.083	0.38	NA	NA	NA
832-SRC GWTS	41	NA	8.8	0.80	15	NA	NA	NA
832-SRC SVTS	NA	<1	0	NA	NA	NA	NA	NA
830-SRC GWTS	1,088	NA	740	2.1	100	NA	NA	NA
830-SRC SVTS	NA	5,297	29	NA	NA	NA	NA	NA
830-DISS GWTS	366	NA	34	6.7	110	NA	NA	NA
Total	4,765	40,757	6,500	61	700	69	4.2	3.6

Notes:

815 = Building 815.
817 = Building 817.
829 = Building 829.
830 = Building 830.
832 = Building 832.
834 = Building 834.
854 = Building 854.
CGSA = Central General Services Area.
DIS = Distal.
DISS = Distal south.
DSB = Distal site boundary.
ft^3 = Cubic feet.
g = Grams.
gal = Gallons.
GWTS = Ground water treatment system.
kg = Kilograms.
NA = Not applicable.
PRX = Proximal.
RDX = Research Department Explosive.
SRC = Source.
SVTS = Soil vapor treatment system.
TBOS = Tetra 2-ethylbutylorthosilicate.
TKEBS = Tetrakis (2-ethylbutyl) silane.
VOC = Volatile organic compound.
***Nitrate re-injected into the $Tnbs_2$ HSU undergoes in-situ biotransformation to benign N_2 gas by anaerobic denitrifying bacteria.**

Table Summ-2. Summary of cumulative remediation.

Treatment facility	Volume of ground water treated (thousands of gallons)	Volume of soil vapor treated (thousands of Cubic feet)	Estimated total VOC mass removed (kg)	Estimated total perchlorate mass removed (g)	Estimated total nitrate mass removed (kg)	Estimated total RDX mass removed (kg)	Estimated total TBOS/ TKEBS mass removed (kg)	Estimated total Uranium mass removed (kg)
EGSA GWTS	309,379	NA	7.6	NA	NA	NA	NA	NA
CGSA GWTS	19,498	NA	25	NA	NA	NA	NA	NA
CGSA SVTS	NA	126,430	74	NA	NA	NA	NA	NA
834 GWTS	931	NA	43	NA	220	NA	9.5	NA
834 SVTS	NA	280,616	320	NA	NA	NA	NA	NA
815-SRC GWTS	4,850	NA	0.12	240	1,700	1.3	NA	NA
815-PRX GWTS	6,320	NA	0.71	150	1,900	NA	NA	NA
815-DSB GWTS	12,519	NA	0.45	NA	NA	NA	NA	NA
817-SRC GWTS	30	NA	0	3.1	9.7	0.0051	NA	NA
817-PRX GWTS	2,527	NA	0.10	230	890	0.068	NA	NA
829-SRC GWTS	5	NA	0.00031	0.16	1.3	NA	NA	NA
PIT7-SRC GWTS	33	NA	0.00097	1.4	4.5	NA	NA	0.0036
854-SRC GWTS	7,780	NA	5.2	140	1,500	NA	NA	NA
854-SRC SVTS	NA	64,854	10	NA	NA	NA	NA	NA
854-PRX GWTS	2,847	NA	0.61	120	490	NA	NA	NA
854-DIS GWTS	32	NA	0.0043	0.50	2.4	NA	NA	NA
832-SRC GWTS	639	NA	0.20	17	250	NA	NA	NA
832-SRC SVTS	NA	20,192	2.0	NA	NA	NA	NA	NA
830-SRC GWTS	5,911	NA	4.0	13	450	NA	NA	NA
830-SRC SVTS	NA	42,116	50	NA	NA	NA	NA	NA
830-PRXN GWTS	1,949	NA	0.26	NA	22	NA	NA	NA
830-DISS GWTS	5,513	NA	1.4	45	1,300	NA	NA	NA
Total	380,765	534,208	540	960	8,700	1.4	9.5	0.0036

Notes:

815 = Building 815.
817 = Building 817.
829 = Building 829.
830 = Building 830.
832 = Building 832.
834 = Building 834.
854 = Building 854.
CGSA = Central General Services Area.
DIS = Distal.
DISS = Distal south.
DSB = Distal site boundary.
EGSA = Eastern General Services Area.
GWTS = Ground water treatment system.
kg = Kilograms.
NA = Not applicable.
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.
***Nitrate re-injected into the $Tnbs_2$ HSU undergoes in-situ biotransformation to benign N_2 gas by anaerobic denitrifying bacteria.**

Table 2.1-1. Central General Services Area (CGSA) volumes of ground water and soil vapor extracted and discharged, January 1, 2010 through June 30, 2010.

Treatment facility	Month	SVTS Operational hours	GWTS Operational hours	Volume of vapor extracted (thousands of ft^3)	Volume of ground water discharged (gal)
CGSA	January	0	0	0	0
	February	600	600	1,176	130,308
	March	432	504	811	123,636
	April	528	432	1,002	143,783
	May	672	432	1,301	165,021
	June	816	504	1,594	174,971
Total		3,048	2,472	5,884	737,719

Table 2.1-2. Central General Services Area OU VOCs in ground water 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 tetra-chloride (µg/L)	Chloro-form (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)
CGSA-GWTS-E[a]	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
CGSA-GWTS-E	2/3/10	<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	<0.5
CGSA-GWTS-E	3/9/10	<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	<0.5
CGSA-GWTS-E	4/6/10	<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	<0.5
CGSA-GWTS-E	5/11/10	<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	<0.5
CGSA-GWTS-E	6/15/10	<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	<0.5
CGSA-GWTS-I	2/3/10	16	0.75	1.2	<0.5	<0.5	<0.5	<0.5	0.86	<0.5	<0.5	0.91	0.62	1.3	<0.5
CGSA-GWTS-I	4/6/10	65 LO	4.7	3	<0.5	<0.5	<0.5	<0.5	<0.5	0.92	<0.5	<0.5	<0.5	<0.5	<0.5
CGSA-GWTS-I[b]	4/6/10	65 LO	5	2.8	<0.5	<0.5	<0.5	<0.5	<0.5	0.89	<0.5	<0.5	<0.5	<0.5	<0.5

Notes:

[a] **No samples collected in January due to GWTS shut down for freeze protection.**

[b] **Duplicate sample submitted for QA/QC.**

See Acronyms and Abbreviations in the Tables section of this report for definitions.

Table 2.1-2 (Con't.). Analyte detected but not reported in main table.

Location	Date	Detection frequency	1,2-DCE (total) (µg/L)	Dibromochloro-methane
CGSA-GWTS-E[a]	–	–	–	–
CGSA-GWTS-E	2/3/10	0 of 18	–	–
CGSA-GWTS-E	3/9/10	0 of 18	–	–
CGSA-GWTS-E	4/6/10	0 of 18	–	–
CGSA-GWTS-E	5/11/10	0 of 18	–	–
CGSA-GWTS-E	6/15/10	0 of 18	–	–
CGSA-GWTS-I	2/3/10	2 of 18	1.3	0.99
CGSA-GWTS-I	4/6/10	1 of 18	3.2	–
CGSA-GWTS-I[b]	4/6/10	1 of 18	3.0	–

Notes:

[a] **No samples collected in January due to GWTS shut down for freeze protection.**

[b] **Duplicate sample submitted for QA/QC.**

See Acronyms and Abbreviations in the Tables section of this report for definitions.

Table 2.1-3. Central General Services Area OU treatment facility sampling and analysis plan.

Sample location	Sample identification	Parameter	Frequency
CGSA GWTS			
Influent Port	**CGSA-I**	**VOCs**	**Quarterly**
		pH	**Quarterly**
Effluent Port	**CGSA-E**	**VOCs**	**Monthly**
		pH	**Monthly**
834 SVTS			
Influent Port	**CGSA-VI**	**No Monitoring Requirements**	
Effluent Port	**CGSA-VE**	**VOCs**	**Weekly[a]**
Intermediate GAC	**CGSA-VCF4I**	**VOCs**	**Weekly[a]**

Notes:

[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.

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.

Table 2.1-4. Central General Services Area ground water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
W-35A-01	PTMW	Qal	S	CMP	E601:ALL	2	Y	
W-35A-01	PTMW	Qal	S	CMP	E601:ALL	4		
W-35A-02	PTMW	Qal	S	CMP	E601:ALL	2	Y	
W-35A-02	PTMW	Qal	S	CMP	E601:ALL	4		
W-35A-03	PTMW	Qal	S	CMP	E601:ALL	2	Y	
W-35A-03	PTMW	Qal	S	CMP	E601:ALL	4		
W-35A-04*	PTMW	Qal	S	CMP	E601:ALL	2	Y	
W-35A-04*	PTMW	Qal	S	CMP	E601:ALL	4		
W-35A-05	PTMW	Tnbs2	S	CMP	E601:ALL	2	Y	
W-35A-05	PTMW	Tnbs2	S	CMP	E601:ALL	4		
W-35A-06	PTMW	Qal	S	CMP	E601:ALL	2	Y	
W-35A-06	PTMW	Qal	S	CMP	E601:ALL	4		
W-35A-07	PTMW	Tnbs1	S	CMP	E601:ALL	2	Y	
W-35A-07	PTMW	Tnbs1	S	CMP	E601:ALL	4		
W-35A-08	GW	Tnbs2	Q	CMP	E601:ALL	1	Y	
W-35A-08	GW	Tnbs2	Q	CMP	E601:ALL	2	Y	
W-35A-08	GW	Tnbs2	Q	CMP	E601:ALL	3		
W-35A-08	GW	Tnbs2	Q	CMP	E601:ALL	4		
W-35A-09	PTMW	Tnbs2	S	CMP	E601:ALL	2	Y	
W-35A-09	PTMW	Tnbs2	S	CMP	E601:ALL	4		
W-35A-10	PTMW	Tnbs2	S	CMP	E601:ALL	2	Y	
W-35A-10	PTMW	Tnbs2	S	CMP	E601:ALL	4		
W-35A-11	PTMW	Tnbs1	S	CMP	E601:ALL	2	Y	
W-35A-11	PTMW	Tnbs1	S	CMP	E601:ALL	4		
W-35A-12	PTMW	Tnbs1	S	CMP	E601:ALL	2	Y	
W-35A-12	PTMW	Tnbs1	S	CMP	E601:ALL	4		
W-35A-13	PTMW	Tnbs1	S	CMP	E601:ALL	2	Y	
W-35A-13	PTMW	Tnbs1	S	CMP	E601:ALL	4		
W-35A-14	GW	Tnbs2	Q	CMP	E601:ALL	1	Y	
W-35A-14	GW	Tnbs2	Q	CMP	E601:ALL	2	Y	
W-35A-14	GW	Tnbs2	Q	CMP	E601:ALL	3		
W-35A-14	GW	Tnbs2	Q	CMP	E601:ALL	4		
W-7A	PTMW	Tnbs1	S	CMP	E601:ALL	2	Y	
W-7A	PTMW	Tnbs1	S	CMP	E601:ALL	4		
W-7B	PTMW	Tnbs1	S	CMP	E601:ALL	2	Y	
W-7B	PTMW	Tnbs1	S	CMP	E601:ALL	4		
W-7C	PTMW	Tnbs1	S	CMP	E601:ALL	2	N	Inoperable pump.
W-7C	PTMW	Tnbs1	S	CMP	E601:ALL	4		
W-7E*	PTMW	Tnbs1	S	CMP	E601:ALL	2	Y	
W-7E*	PTMW	Tnbs1	S	CMP	E601:ALL	4		
W-7ES*	PTMW	Qal	S	CMP	E601:ALL	2	Y	
W-7ES*	PTMW	Qal	S	CMP	E601:ALL	4		
W-7F	PTMW	Tnsc1	S	CMP	E601:ALL	2	Y	
W-7F	PTMW	Tnsc1	S	CMP	E601:ALL	4		
W-7G	PTMW	Tnbs1	S	CMP	E601:ALL	2	Y	
W-7G	PTMW	Tnbs1	S	CMP	E601:ALL	4		
W-7H	PTMW	Qal	S	CMP	E601:ALL	2	Y	
W-7H	PTMW	Qal	S	CMP	E601:ALL	4		
W-7I	EW	Tnbs2	S	CMP-TF	E601:ALL	2	Y	
W-7I	EW	Tnbs2	S	CMP-TF	E601:ALL	4		
W-7J	PTMW	Tnbs2	S	CMP	E601:ALL	2	Y	
W-7J	PTMW	Tnbs2	S	CMP	E601:ALL	4		
W-7K	PTMW	Tnbs1	S	CMP	E601:ALL	2	Y	
W-7K	PTMW	Tnbs1	S	CMP	E601:ALL	4		
W-7L	PTMW	Tnbs1	S	CMP	E601:ALL	2	Y	
W-7L	PTMW	Tnbs1	S	CMP	E601:ALL	4		
W-7M	PTMW	Tnbs1	S	CMP	E601:ALL	2	Y	
W-7M	PTMW	Tnbs1	S	CMP	E601:ALL	4		
W-7N	PTMW	Tnbs1	S	CMP	E601:ALL	2	Y	
W-7N	PTMW	Tnbs1	S	CMP	E601:ALL	4		
W-7O	EW	Qal	S	CMP-TF	E601:ALL	2	Y	

Table 2.1-4. (Con't.). Central General Services Area ground water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
W-7O	EW	Qal	S	CMP-TF	E601:ALL	4		
W-7P	EW	Tnbs1	S	CMP-TF	E601:ALL	2	Y	
W-7P	EW	Tnbs1	S	CMP-TF	E601:ALL	4		
W-7PS*	PTMW	Qal	S	CMP	E601:ALL	2	Y	
W-7PS*	PTMW	Qal	Q	CMP	E601:ALL	4		
W-7Q	PTMW	Tnbs2	S	DIS	E601:ALL	2	Y	
W-7Q	PTMW	Tnbs2	Q	DIS	E601:ALL	4		
W-7R	EW	Qal	S	CMP-TF	E601:ALL	2	Y	
W-7R	EW	Qal	S	CMP-TF	E601:ALL	4		
W-7S	PTMW	Qal	S	DIS	E601:ALL	2	Y	
W-7S	PTMW	Qal	Q	DIS	E601:ALL	4		
W-7T	PTMW	Qal	S	DIS	E601:ALL	2	Y	
W-7T	PTMW	Qal	Q	DIS	E601:ALL	4		
W-843-01	PTMW	Tnbs1	S	CMP	E601:ALL	2	Y	
W-843-01	PTMW	Tnbs1	S	CMP	E601:ALL	4		
W-843-02	PTMW	Tnbs1	S	CMP	E601:ALL	2	N	Inoperable pump.
W-843-02	PTMW	Tnbs1	S	CMP	E601:ALL	4		
W-872-01	PTMW	Tnbs2	S	CMP	E601:ALL	2	Y	
W-872-01	PTMW	Tnbs2	S	CMP	E601:ALL	4		
W-872-02	EW	Tnbs2	S	CMP-TF	E601:ALL	2	N	Insufficient water.
W-872-02	EW	Tnbs2	S	CMP-TF	E601:ALL	4		
W-873-01	PTMW	Tnbs1	S	CMP	E601:ALL	2	Y	
W-873-01	PTMW	Tnbs1	S	CMP	E601:ALL	4		
W-873-02	PTMW	Tnbs2	S	CMP	E601:ALL	2	Y	
W-873-02	PTMW	Tnbs2	S	CMP	E601:ALL	4		
W-873-03	PTMW	Tnsc1	S	CMP	E601:ALL	2	Y	
W-873-03	PTMW	Tnsc1	S	CMP	E601:ALL	4		
W-873-04	PTMW	Tnsc1	S	CMP	E601:ALL	2	Y	
W-873-04	PTMW	Tnsc1	S	CMP	E601:ALL	4		
W-873-06	PTMW	Tnbs2	S	CMP	E601:ALL	2	Y	
W-873-06	PTMW	Tnbs2	S	CMP	E601:ALL	4		
W-873-07	EW	Tnbs2	S	DIS	E601:ALL	1	Y	
W-873-07	EW	Tnbs2	S	CMP-TF	E601:ALL	2	Y	
W-873-07	EW	Tnbs2	S	DIS	E601:ALL	3		
W-873-07	EW	Tnbs2	S	CMP-TF	E601:ALL	4		
W-CGSA-1732	PTMW	Qal	S	CMP	E601:ALL	2	N	Insufficient water.
W-CGSA-1732	PTMW	Qal	S	CMP	E601:ALL	4		
W-CGSA-1733	PTMW	Qal	S	CMP	E601:ALL	2	Y	
W-CGSA-1733	PTMW	Qal	S	CMP	E601:ALL	4		
W-CGSA-1735	PTMW	Qal	S	CMP	E601:ALL	2	Y	
W-CGSA-1735	PTMW	Qal	S	CMP	E601:ALL	4		
W-CGSA-1736	PTMW	Qal	S	CMP	E601:ALL	2	Y	
W-CGSA-1736	PTMW	Qal	S	CMP	E601:ALL	4		
W-CGSA-1737	PTMW	Qal	S	CMP	E601:ALL	2	Y	
W-CGSA-1737	PTMW	Qal	S	CMP	E601:ALL	4		
W-CGSA-1739	PTMW	Qal	S	CMP	E601:ALL	2	Y	
W-CGSA-1739	PTMW	Qal	S	CMP	E601:ALL	4		
W-875-01	PTMW	Tnbs2	S	CMP	E601:ALL	2	Y	
W-875-01	PTMW	Tnbs2	S	CMP	E601:ALL	4		
W-875-02	PTMW	Tnsc1	S	CMP	E601:ALL	2	Y	
W-875-02	PTMW	Tnsc1	S	CMP	E601:ALL	4		
W-875-03	PTMW	Tnbs2	S	CMP	E601:ALL	2	Y	
W-875-03	PTMW	Tnbs2	S	CMP	E601:ALL	4		
W-875-04	PTMW	Tnbs2	S	CMP	E601:ALL	2	Y	
W-875-04	PTMW	Tnbs2	S	CMP	E601:ALL	4		
W-875-05	PTMW	Tnsc1	S	CMP	E601:ALL	2	Y	
W-875-05	PTMW	Tnsc1	S	CMP	E601:ALL	4		
W-875-06	PTMW	Tnsc1	S	CMP	E601:ALL	2	Y	
W-875-06	PTMW	Tnsc1	S	CMP	E601:ALL	4		
W-875-07	EW	Tnbs2	S	DIS	E601:ALL	1	Y	
W-875-07	EW	Tnbs2	S	CMP-TF	E601:ALL	2	Y	

Table 2.1-4. (Con't.). Central General Services Area ground water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
W-875-07	EW	Tnbs2	S	DIS	E601:ALL	3		
W-875-07	EW	Tnbs2	S	CMP-TF	E601:ALL	4		
W-875-08	EW	Tnbs2	S	DIS	E601:ALL	1	Y	
W-875-08	EW	Tnbs2	S	CMP-TF	E601:ALL	2	Y	
W-875-08	EW	Tnbs2	S	DIS	E601:ALL	3		
W-875-08	EW	Tnbs2	S	CMP-TF	E601:ALL	4		
W-875-09	EW	Tnbs2	S	CMP-TF	E601:ALL	2	N	Insufficient water.
W-875-09	EW	Tnbs2	S	CMP-TF	E601:ALL	4		
W-875-10	EW	Tnbs2	S	CMP-TF	E601:ALL	2	N	Insufficient water.
W-875-10	EW	Tnbs2	S	CMP-TF	E601:ALL	4		
W-875-11	EW	Tnbs2	S	CMP-TF	E601:ALL	2	N	Insufficient water.
W-875-11	EW	Tnbs2	S	CMP-TF	E601:ALL	4		
W-875-15	EW	Tnbs2	S	CMP-TF	E601:ALL	2	N	Insufficient water.
W-875-15	EW	Tnbs2	S	CMP-TF	E601:ALL	4		
W-876-01	PTMW	Tnbs2	S	CMP	E601:ALL	2	Y	
W-876-01	PTMW	Tnbs2	S	CMP	E601:ALL	4		
W-879-01	PTMW	Tnsc1	S	CMP	E601:ALL	2	Y	
W-879-01	PTMW	Tnsc1	S	CMP	E601:ALL	4		
W-889-01	PTMW	Tnsc1	S	CMP	E601:ALL	2	Y	
W-889-01	PTMW	Tnsc1	S	CMP	E601:ALL	4		

Notes:

1) General Services Area primary COC: VOCs (E601 or E624).

2) Wells noted with "*" are sampled as part of the surveillance monitoring performed by the Water Guidance and Monitoring Group (WGMG) for additional constituents and the results are reported in the LLNL Site Annual Environmental Report.

3) See Acronyms and Abbreviations in the Tables section of this report for acronym and abbreviation definitions.

Table 2.1-5. Eastern General Services Area ground water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
CDF1	WS	Qal-Tnsc0	M	CMP	E601:ALL	1	Y	
CDF1	WS	Qal-Tnsc0	M	CMP	E601:ALL	1	Y	
CDF1	WS	Qal-Tnsc0	M	CMP	E601:ALL	1	Y	
CDF1	WS	Qal-Tnsc0	M	CMP	E601:ALL	2	Y	
CDF1	WS	Qal-Tnsc0	M	CMP	E601:ALL	2	Y	
CDF1	WS	Qal-Tnsc0	M	CMP	E601:ALL	2	Y	
CDF1	WS	Qal-Tnsc0	M	CMP	E601:ALL	3		
CDF1	WS	Qal-Tnsc0	M	CMP	E601:ALL	3		
CDF1	WS	Qal-Tnsc0	M	CMP	E601:ALL	3		
CDF1	WS	Qal-Tnsc0	M	CMP	E601:ALL	4		
CDF1	WS	Qal-Tnsc0	M	CMP	E601:ALL	4		
CDF1	WS	Qal-Tnsc0	M	CMP	E601:ALL	4		
CON1	WS	Tnsc0	M	CMP	E601:ALL	1	Y	
CON1	WS	Tnsc0	M	CMP	E601:ALL	1	Y	
CON1	WS	Tnsc0	M	CMP	E601:ALL	1	Y	
CON1	WS	Tnsc0	M	CMP	E601:ALL	2	Y	
CON1	WS	Tnsc0	M	CMP	E601:ALL	2	Y	
CON1	WS	Tnsc0	M	CMP	E601:ALL	2	Y	
CON1	WS	Tnsc0	M	CMP	E601:ALL	3		
CON1	WS	Tnsc0	M	CMP	E601:ALL	3		
CON1	WS	Tnsc0	M	CMP	E601:ALL	3		
CON1	WS	Tnsc0	M	CMP	E601:ALL	4		
CON1	WS	Tnsc0	M	CMP	E601:ALL	4		
CON1	WS	Tnsc0	M	CMP	E601:ALL	4		
CON2	WS	Qal-Tnsc0	M	CMP	E601:ALL	1	Y	
CON2	WS	Qal-Tnsc0	M	CMP	E601:ALL	1	Y	
CON2	WS	Qal-Tnsc0	M	CMP	E601:ALL	1	Y	
CON2	WS	Qal-Tnsc0	M	CMP	E601:ALL	2	Y	
CON2	WS	Qal-Tnsc0	M	CMP	E601:ALL	2	Y	
CON2	WS	Qal-Tnsc0	M	CMP	E601:ALL	2	Y	
CON2	WS	Qal-Tnsc0	M	CMP	E601:ALL	3		
CON2	WS	Qal-Tnsc0	M	CMP	E601:ALL	3		
CON2	WS	Qal-Tnsc0	M	CMP	E601:ALL	3		
CON2	WS	Qal-Tnsc0	M	CMP	E601:ALL	4		
CON2	WS	Qal-Tnsc0	M	CMP	E601:ALL	4		
CON2	WS	Qal-Tnsc0	M	CMP	E601:ALL	4		
W-24P-03	PTMW	Qal	A	CMP	E601:ALL	2	Y	
W-25D-01	PTMW	Qal	A	PSDMP	E601:ALL	2	Y	
W-25D-02	PTMW	Qal	A	PSDMP	E601:ALL	2	Y	
W-25M-01	PTMW	Qal	A	PSDMP	E601:ALL	2	Y	
W-25M-02	PTMW	Qal	A	PSDMP	E601:ALL	2	Y	
W-25M-03	PTMW	Qal	A	PSDMP	E601:ALL	2	Y	
W-25N-01	PTMW	Qal	S	PSDMP	E601:ALL	2	Y	
W-25N-01	PTMW	Qal	S	PSDMP	E601:ALL	4		
W-25N-04	PTMW	Tmss	A	PSDMP	E601:ALL	2	Y	
W-25N-05	PTMW	Tnbs1	S	PSDMP	E601:ALL	2	Y	
W-25N-05	PTMW	Tnbs1	S	CMP	E601:ALL	4		
W-25N-06	PTMW	Qal	A	PSDMP	E601:ALL	2	Y	
W-25N-07	GW	Qal	Q	PSDMP	E601:ALL	1	Y	
W-25N-07	GW	Qal	Q	PSDMP	E601:ALL	2	Y	
W-25N-07	GW	Qal	Q	PSDMP	E601:ALL	3		
W-25N-07	GW	Qal	Q	PSDMP	E601:ALL	4		
W-25N-08	PTMW	Tnbs1	A	PSDMP	E601:ALL	2	Y	
W-25N-09	PTMW	Tnbs1	A	PSDMP	E601:ALL	2	Y	
W-25N-10	GW	Tnbs1	Q	PSDMP	E601:ALL	1	Y	
W-25N-10	GW	Tnbs1	Q	PSDMP	E601:ALL	2	Y	
W-25N-10	GW	Tnbs1	Q	PSDMP	E601:ALL	3		
W-25N-10	GW	Tnbs1	Q	PSDMP	E601:ALL	4		
W-25N-11	GW	Tnbs1	Q	PSDMP	E601:ALL	1	Y	
W-25N-11	GW	Tnbs1	Q	PSDMP	E601:ALL	2	Y	

Table 2.1-5 (Con't.). Eastern General Services Area ground water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
W-25N-11	GW	Tnbs1	Q	PSDMP	E601:ALL	3		
W-25N-11	GW	Tnbs1	Q	PSDMP	E601:ALL	4		
W-25N-12	GW	Tnbs1	Q	PSDMP	E601:ALL	1	Y	
W-25N-12	GW	Tnbs1	Q	PSDMP	E601:ALL	2	Y	
W-25N-12	GW	Tnbs1	Q	PSDMP	E601:ALL	3		
W-25N-12	GW	Tnbs1	Q	PSDMP	E601:ALL	4		
W-25N-13	GW	Tnbs1	Q	PSDMP	E601:ALL	1	Y	
W-25N-13	GW	Tnbs1	Q	PSDMP	E601:ALL	2	Y	
W-25N-13	GW	Tnbs1	Q	PSDMP	E601:ALL	3		
W-25N-13	GW	Tnbs1	Q	PSDMP	E601:ALL	4		
W-25N-15	PTMW	Qal	A	PSDMP	E601:ALL	2	N	Inoperable pump.
W-25N-18	PTMW	Tnbs1	A	PSDMP	E601:ALL	2	Y	
W-25N-20	PTMW	Qal	A	PSDMP	E601:ALL	2	Y	
W-25N-21	PTMW	Tnbs1	A	PSDMP	E601:ALL	2	Y	
W-25N-22	PTMW	Tnbs1	A	PSDMP	E601:ALL	2	Y	
W-25N-23	PTMW	Tnbs1	S	PSDMP	E601:ALL	2	Y	
W-25N-23	PTMW	Tnbs1	S	PSDMP	E601:ALL	4		
W-25N-24	PTMW	Qal	S	PSDMP	E601:ALL	2	Y	
W-25N-24	PTMW	Qal	S	PSDMP	E601:ALL	4		
W-25N-25	PTMW	Tnbs1	A	PSDMP	E601:ALL	2	Y	
W-25N-26	PTMW	Tnbs1	A	PSDMP	E601:ALL	2	Y	
W-25N-28	PTMW	Tnbs1	A	PSDMP	E601:ALL	2	Y	
W-26R-01	PTMW	Tnbs1	S	PSDMP	E601:ALL	2	Y	
W-26R-01	PTMW	Tnbs1	S	PSDMP	E601:ALL	4		
W-26R-02	PTMW	Tnbs1	A	PSDMP	E601:ALL	2	Y	
W-26R-03	PTMW	Qal	S	PSDMP	E601:ALL	2	Y	
W-26R-03	PTMW	Qal	S	PSDMP	E601:ALL	4		
W-26R-04	PTMW	Qal	S	PSDMP	E601:ALL	2	Y	
W-26R-04	PTMW	Qal	S	PSDMP	E601:ALL	4		
W-26R-05	PTMW	Qal	S	PSDMP	E601:ALL	2	Y	
W-26R-05	PTMW	Qal	S	PSDMP	E601:ALL	4		
W-26R-06	PTMW	Tnbs1	S	PSDMP	E601:ALL	2	Y	
W-26R-06	PTMW	Tnbs1	S	PSDMP	E601:ALL	4		
W-26R-07	PTMW	Tnbs1	A	PSDMP	E601:ALL	2	Y	
W-26R-08	PTMW	Tnbs1	A	PSDMP	E601:ALL	2	Y	
W-26R-11*	PTMW	Qal	S	CMP	E601:ALL	2	Y	
W-26R-11*	PTMW	Qal	S	CMP	E601:ALL	4		
W-7D	PTMW	Tnbs1	A	PSDMP	E601:ALL	2	Y	
W-7DS	PTMW	Qal	A	PSDMP	E601:ALL	2	Y	

Notes:

1) Sampling frequency is described in the Eastern GSA Post Shut-down Monitoring Plan (Holtzapple, 2006).

2) General Services Area primary COC: VOCs (E601 or E624).

3) Wells noted with "*" are sampled as part of the surveillance monitoring performed by the Water Guidance and Monitoring Group (WGMG) for additional constituents and the results are reported in the LLNL Site Annual Environmental Report.

4) See Acronyms and Abbreviations in the Tables section of this report for acronym and abbreviation definitions.

Table 2.1-6. Central General Services Area (CGSA) mass removed, January 1, 2010 through June 30, 2010.

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)
CGSA	January	0	0	NA	NA	NA	NA
	February	130	12	NA	NA	NA	NA
	March	120	29	NA	NA	NA	NA
	April	150	36	NA	NA	NA	NA
	May	180	35	NA	NA	NA	NA
	June	200	36	NA	NA	NA	NA
Total		780	150	NA	NA	NA	NA

Table 2.2-1. Building 834 (834) volumes of ground water and soil vapor extracted and discharged, January 1, 2010 through June 30, 2010.

Treatment facility	Month	SVTS Operational hours	GWTS Operational hours	Volume of vapor extracted (thousands of ft^3)	Volume of ground water discharged (gal)
834	January	0	0	0	0
	February	530	530	3,114	10,076
	March	854	854	5,421	19,504
	April	649	649	4,168	14,882
	May	616	616	3,940	13,878
	June	833	833	5,150	16,876
Total		3,482	3,482	21,793	75,216

Table 2.2-2. Building 834 OU VOCs in ground water extraction 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 tetra-chloride (µg/L)	Chloro-form (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-GWTS-E[a]	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
834-GWTS-E	2/2/10	<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	<0.5
834-GWTS-E	3/8/10	<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	<0.5
834-GWTS-E	4/6/10	<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	<0.5
834-GWTS-E	5/4/10	<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	<0.5
834-GWTS-E	6/2/10	<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	<0.5
834-GWTS-I	2/2/10	800 D	8 D	580 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
834-GWTS-I	4/6/10	1,700 D	14 D	370 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
834-GWTS-I[b]	4/6/10	1,700 D	15 D	370 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

Notes:

[a] **No samples collected in January due to GWTS shut down for freeze protection.**

[b] **Duplicate sample submitted for QA/QC.**

See Acronyms and Abbreviations in the Tables section of this report for definitions.

Table 2.2-2 (Con't.). Analyte detected but not reported in main table.

Location	Date	Detection frequency	1,2-DCE (total) (µg/L)
834-GWTS-E[a]	–	–	–
834-GWTS-E	2/2/10	0 of 18	–
834-GWTS-E	3/8/10	0 of 18	–
834-GWTS-E	4/6/10	0 of 18	–
834-GWTS-E	5/4/10	0 of 18	–
834-GWTS-E	6/2/10	0 of 18	–
834-GWTS-I	2/2/10	1 of 18	580 D
834-GWTS-I	4/6/10	1 of 18	370 D
834-GWTS-I[b]	4/6/10	1 of 18	370 D

Notes:

[a] **No samples collected in January due to GWTS shut down for freeze protection.**

[b] **Duplicate sample submitted for QA/QC.**

See Acronyms and Abbreviations in the Tables section of this report for definitions.

Table 2.2-3. Building 834 OU diesel range organic compounds in ground water extraction treatment system influent and effluent.

Location	Date	Diesel Range Organics (C12-C24) (μg/L)
834-GWTS-E[a]	–	–
834-GWTS-E	2/2/10	<200
834-GWTS-E	3/8/10	<200
834-GWTS-E	4/6/10	<200
834-GWTS-E	5/4/10	<200 D
834-GWTS-E	6/2/10	<200
834-GWTS-I	2/2/10	260
834-GWTS-I	4/6/10	<200
834-GWTS-I[b]	04/06/10 DUP	<200

Notes:

[a] **No samples collected in January due to GWTS shut down for freeze protection.**

[b] **Duplicate sample submitted for QA/QC.**

See Acronyms and Abbreviations in the Tables section of this report for definitions.

Table 2.2-4. Building 834 OU TBOS/TKEBS in ground water extraction treatment system influent and effluent.

Location	Date	TBOS/TKEBS (μg/L)
834-GWTS-E[a]	–	–
834-GWTS-E	2/2/10	<10
834-GWTS-E	3/8/10	<10
834-GWTS-E	4/6/10	<10
834-GWTS-E	5/4/10	<10
834-GWTS-E	6/2/10	<10
834-GWTS-I	2/2/10	<10
834-GWTS-I	4/6/10	<10
834-GWTS-I[b]	4/6/10	<10

Notes:

[a] **No samples collected in January due to GWTS shut down for freeze protection.**

[b] **Duplicate sample submitted for QA/QC.**

See Acronyms and Abbreviations in the Tables section of this report for definitions.

Table 2.2-5. Building 834 OU 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**
		pH	**Quarterly**
Effluent Port	**834-E**	**VOCs**	**Monthly**
		TBOS	**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]**

Notes:

[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.

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.

Table 2.2-6. Building 834 OU ground water sampling and analysis plan.

Sample location	Location type	Completion interval	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	E601:ALL	1	Y	
W-834-1709	PTMW	Tpsg	S	CMP	E601:ALL	3		
W-834-1709	PTMW	Tpsg	A	CMP	TBOS:ALL	1	Y	
W-834-1711	PTMW	Tps	A	CMP	E300.0:NO3	1	Y	
W-834-1711	PTMW	Tps	S	CMP	E601:ALL	1	Y	
W-834-1711	PTMW	Tps	S	CMP	E601:ALL	3		
W-834-1711	PTMW	Tps	A	CMP	TBOS:ALL	3		
W-834-1824	PTMW	Tpsg	A	CMP	E300.0:NO3	1	Y	
W-834-1824	PTMW	Tpsg	S	CMP	E601:ALL	1	Y	
W-834-1824	PTMW	Tpsg	S	CMP	E601:ALL	3		
W-834-1824	PTMW	Tpsg	E	CMP	TBOS:ALL	1	Y	
W-834-1824	PTMW	Tpsg	A	DIS	E200.8:MN	1	Y	
W-834-1824	PTMW	Tpsg	A	DIS	E200.8:FILTER	1	Y	
W-834-1824	PTMW	Tpsg	A	DIS	E200.8:SE	1	Y	
W-834-1824	PTMW	Tpsg	A	DIS	E200.8:CR	1	Y	
W-834-1824	PTMW	Tpsg	A	DIS	E200.7:FILTER	1	Y	
W-834-1824	PTMW	Tpsg	A	DIS	E200.7:FE	1	Y	
W-834-1824	PTMW	Tpsg	A	DIS	GENMIN:ALL	1	Y	
W-834-1824	PTMW	Tpsg	A	DIS	GENMIN:FILTER	1	Y	
W-834-1824	PTMW	Tpsg	A	DIS	E200.8:AS	1	Y	
W-834-1825	PTMW	Tpsg	A	CMP	E300.0:NO3	1	N	Insufficient water.
W-834-1825	PTMW	Tpsg	S	CMP	E601:ALL	1	N	Insufficient water.
W-834-1825	PTMW	Tpsg	S	CMP	E601:ALL	3		
W-834-1825	PTMW	Tpsg	O	CMP	TBOS:ALL	1	N	To be sampled in 2011.
W-834-1833	PTMW	Tpsg	A	CMP	E300.0:NO3	1	Y	
W-834-1833	PTMW	Tpsg	S	CMP	E601:ALL	1	Y	
W-834-1833	PTMW	Tpsg	S	CMP	E601:ALL	3		
W-834-1833	PTMW	Tpsg	E	CMP	TBOS:ALL	1	Y	
W-834-2001	EW	Tpsg	A	CMP-TF	E300.0:NO3	1	Y	
W-834-2001	EW	Tpsg	S	CMP-TF	E601:ALL	1	Y	
W-834-2001	EW	Tpsg	S	CMP-TF	E601:ALL	3		
W-834-2001	EW	Tpsg	S	DIS-TF	E624:ALL	2	Y	
W-834-2001	EW	Tpsg	S	DIS-TF	E624:ALL	4		
W-834-2001	EW	Tpsg	A	CMP-TF	TBOS:ALL	1	Y	
W-834-2001	EW	Tpsg	A	DIS-TF	TBOS:ALL	3		
W-834-2001	EW	Tpsg	A	DIS-TF	EM8015	1	Y	
W-834-2113	PTMW	Tpsg	A	CMP	E300.0:NO3	1	Y	
W-834-2113	PTMW	Tpsg	S	CMP	E601:ALL	1	Y	
W-834-2113	PTMW	Tpsg	S	CMP	E601:ALL	3		
W-834-2113	PTMW	Tpsg	E	CMP	TBOS:ALL	1	Y	
W-834-2117	PTMW	Tpsg	A	CMP	E300.0:NO3	1	Y	
W-834-2117	PTMW	Tpsg	S	CMP	E601:ALL	1	Y	
W-834-2117	PTMW	Tpsg	S	CMP	E601:ALL	3		
W-834-2117	PTMW	Tpsg	O	CMP	TBOS:ALL	1	N	To be sampled in 2011.
W-834-2117	PTMW	Tpsg	A	DIS	E200.8:MN	1	Y	
W-834-2117	PTMW	Tpsg	A	DIS	E200.8:FILTER	1	Y	
W-834-2117	PTMW	Tpsg	A	DIS	E200.8:SE	1	Y	
W-834-2117	PTMW	Tpsg	A	DIS	E200.8:CR	1	Y	
W-834-2117	PTMW	Tpsg	A	DIS	E200.7:FILTER	1	Y	
W-834-2117	PTMW	Tpsg	A	DIS	E200.7:FE	1	Y	
W-834-2117	PTMW	Tpsg	A	DIS	GENMIN:ALL	1	Y	
W-834-2117	PTMW	Tpsg	A	DIS	GENMIN:FILTER	1	Y	
W-834-2117	PTMW	Tpsg	A	DIS	E200.8:AS	1	Y	
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		
W-834-2118	PTMW	Tpsg	S	CMP	E601:ALL	1	Y	
W-834-2118	PTMW	Tpsg	S	CMP	E601:ALL	3		
W-834-2118	PTMW	Tpsg	O	CMP	TBOS:ALL	1	N	To be sampled in 2011.

Table 2.2-6 (Con't.). Building 834 OU ground water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
W-834-2118	PTMW	Tpsg	A	DIS	E200.8:MN	1	Y	
W-834-2118	PTMW	Tpsg	A	DIS	E200.8:FILTER	1	Y	
W-834-2118	PTMW	Tpsg	A	DIS	E200.8:SE	1	Y	
W-834-2118	PTMW	Tpsg	A	DIS	E200.8:CR	1	Y	
W-834-2118	PTMW	Tpsg	A	DIS	E200.7:FILTER	1	Y	
W-834-2118	PTMW	Tpsg	A	DIS	E200.7:FE	1	Y	
W-834-2118	PTMW	Tpsg	A	DIS	GENMIN:ALL	1	Y	
W-834-2118	PTMW	Tpsg	A	DIS	GENMIN:FILTER	1	Y	
W-834-2118	PTMW	Tpsg	A	DIS	E200.8:AS	1	Y	
W-834-2119	PTMW	Tpsg	A	CMP	E300.0:NO3	1	Y	
W-834-2119	PTMW	Tpsg	S	CMP	E601:ALL	1	Y	
W-834-2119	PTMW	Tpsg	S	CMP	E601:ALL	3		
W-834-2119	PTMW	Tpsg	E	CMP	TBOS:ALL	1	Y	
W-834-2119	PTMW	Tpsg	A	DIS	E200.8:MN	1	Y	
W-834-2119	PTMW	Tpsg	A	DIS	E200.8:FILTER	1	Y	
W-834-2119	PTMW	Tpsg	A	DIS	E200.8:SE	1	Y	
W-834-2119	PTMW	Tpsg	A	DIS	E200.8:CR	1	Y	
W-834-2119	PTMW	Tpsg	A	DIS	E200.7:FILTER	1	Y	
W-834-2119	PTMW	Tpsg	A	DIS	E200.7:FE	1	Y	
W-834-2119	PTMW	Tpsg	A	DIS	GENMIN:ALL	1	Y	
W-834-2119	PTMW	Tpsg	A	DIS	GENMIN:FILTER	1	Y	
W-834-2119	PTMW	Tpsg	A	DIS	E200.8:AS	1	Y	
W-834-A1	PTMW	Tps	A	CMP	E300.0:NO3	1	Y	
W-834-A1	PTMW	Tps	S	CMP	E601:ALL	1	Y	
W-834-A1	PTMW	Tps	S	CMP	E601:ALL	3		
W-834-A1	PTMW	Tps	S	DIS	EM8015	1	Y	
W-834-A1	PTMW	Tps	A	CMP	TBOS:ALL	1	Y	
W-834-A2	PTMW	Tpsg	A	CMP	E300.0:NO3	1	N	Dry.
W-834-A2	PTMW	Tpsg	S	CMP	E601:ALL	1	N	Dry.
W-834-A2	PTMW	Tpsg	S	CMP	E601:ALL	3		
W-834-A2	PTMW	Tpsg	O	DIS	EM8015	1	N	To be sampled in 2011.
W-834-A2	PTMW	Tpsg	A	CMP	TBOS:ALL	1	N	Dry.
W-834-B2	EW	Tpsg	A	CMP-TF	E300.0:NO3	1	Y	
W-834-B2	EW	Tpsg	S	CMP-TF	E601:ALL	1	Y	
W-834-B2	EW	Tpsg	S	DIS-TF	E601:ALL	2	Y	
W-834-B2	EW	Tpsg	S	CMP-TF	E601:ALL	3		
W-834-B2	EW	Tpsg	S	DIS-TF	E601:ALL	4		
W-834-B2	EW	Tpsg	A	CMP-TF	TBOS:ALL	1	Y	
W-834-B2	EW	Tpsg	A	DIS-TF	TBOS:ALL	3		
W-834-B3	EW	Tpsg	A	CMP-TF	E300.0:NO3	1	Y	
W-834-B3	EW	Tpsg	S	CMP-TF	E601:ALL	1	Y	
W-834-B3	EW	Tpsg	S	DIS-TF	E601:ALL	2	Y	
W-834-B3	EW	Tpsg	S	CMP-TF	E601:ALL	3		
W-834-B3	EW	Tpsg	S	DIS-TF	E601:ALL	4		
W-834-B3	EW	Tpsg	A	CMP-TF	TBOS:ALL	1	Y	
W-834-B3	EW	Tpsg	A	DIS-TF	TBOS:ALL	3		
W-834-B4	PTMW	Tpsg	A	CMP	E300.0:NO3	1	N	Dry.
W-834-B4	PTMW	Tpsg	S	CMP	E601:ALL	1	N	Dry.
W-834-B4	PTMW	Tpsg	S	CMP	E601:ALL	3		
W-834-B4	PTMW	Tpsg	A	CMP	TBOS:ALL	3		
W-834-C2	PTMW	Tpsg	A	CMP	E300.0:NO3	1	N	Dry.
W-834-C2	PTMW	Tpsg	S	CMP	E601:ALL	1	N	Dry.
W-834-C2	PTMW	Tpsg	S	CMP	E601:ALL	3		
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	E601:ALL	1	Y	
W-834-C4	PTMW	Tpsg	S	CMP	E601:ALL	3		
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	E601:ALL	1	Y	

Table 2.2-6 (Con't.). Building 834 OU ground water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
W-834-C5	PTMW	Tpsg	S	CMP	E601:ALL	3		
W-834-C5	PTMW	Tpsg	A	CMP	TBOS:ALL	1	Y	
W-834-D10	PTMW	Tps	A	CMP	E300.0:NO3	1	N	Dry.
W-834-D10	PTMW	Tps	S	CMP	E601:ALL	1	N	Dry.
W-834-D10	PTMW	Tps	S	CMP	E601:ALL	3		
W-834-D10	PTMW	Tps	O	DIS	EM8015	1	N	To be sampled in 2011.
W-834-D10	PTMW	Tps	A	CMP	TBOS:ALL	1	N	Dry.
W-834-D11	PTMW	Tpsg	A	CMP	E300.0:NO3	1	N	Insufficient water.
W-834-D11	PTMW	Tpsg	S	CMP	E601:ALL	1	N	Insufficient water.
W-834-D11	PTMW	Tpsg	S	CMP	E601:ALL	3		
W-834-D11	PTMW	Tpsg	E	DIS	EM8015	1	N	Insufficient water.
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	E601:ALL	1	Y	
W-834-D12	EW	Tpsg	S	DIS-TF	E601:ALL	2	Y	
W-834-D12	EW	Tpsg	S	CMP-TF	E601:ALL	3		
W-834-D12	EW	Tpsg	S	DIS-TF	E601:ALL	4		
W-834-D12	EW	Tpsg	A	CMP-TF	TBOS:ALL	1	Y	
W-834-D12	EW	Tpsg	A	DIS-TF	TBOS:ALL	3		
W-834-D13	EW	Tpsg	A	CMP-TF	E300.0:NO3	1	Y	
W-834-D13	EW	Tpsg	S	CMP-TF	E601:ALL	1	Y	
W-834-D13	EW	Tpsg	S	DIS-TF	E601:ALL	2	Y	
W-834-D13	EW	Tpsg	S	CMP-TF	E601:ALL	3		
W-834-D13	EW	Tpsg	S	DIS-TF	E601:ALL	4		
W-834-D13	EW	Tpsg	A	CMP-TF	TBOS:ALL	1	Y	
W-834-D13	EW	Tpsg	A	DIS-TF	TBOS:ALL	3		
W-834-D13	EW	Tpsg	A	CMP-TF	TBOS:ALL	1	Y	
W-834-D14	PTMW	Tpsg	A	CMP	E300.0:NO3	1	Y	
W-834-D14	PTMW	Tpsg	S	CMP	E601:ALL	1	Y	
W-834-D14	PTMW	Tpsg	S	CMP	E601:ALL	3		
W-834-D14	PTMW	Tpsg	A	CMP	TBOS:ALL	1	Y	
W-834-D15	PTMW	Tpsg	A	CMP	E300.0:NO3	1	N	Insufficient water.
W-834-D15	PTMW	Tpsg	S	CMP	E601:ALL	1	N	Insufficient water.
W-834-D15	PTMW	Tpsg	S	CMP	E601:ALL	3		
W-834-D15	PTMW	Tpsg	A	CMP	TBOS:ALL	1	N	Insufficient water.
W-834-D16	PTMW	Tpsg	A	CMP	E300.0:NO3	1	N	Dry.
W-834-D16	PTMW	Tpsg	S	CMP	E601:ALL	1	N	Dry.
W-834-D16	PTMW	Tpsg	S	CMP	E601:ALL	3		
W-834-D16	PTMW	Tpsg	O	DIS	EM8015	1	N	To be sampled in 2011.
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	E601:ALL	1	N	Dry.
W-834-D17	PTMW	Tpsg	S	CMP	E601:ALL	3		
W-834-D17	PTMW	Tpsg	O	DIS	EM8015	1	N	To be sampled in 2011.
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	E601:ALL	1	Y	
W-834-D18	PTMW	Tpsg	S	CMP	E601:ALL	3		
W-834-D18	PTMW	Tpsg	A	CMP	TBOS:ALL	1	Y	
W-834-D2	PTMW	Tnbs1	A	CMP	E300.0:NO3	1	N	Dry.
W-834-D2	PTMW	Tnbs1	A	CMP	E601:ALL	1	N	Dry.
W-834-D2	PTMW	Tnbs1	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	E601:ALL	1	Y	
W-834-D3	PTMW	Tpsg	S	CMP	E601:ALL	3		
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	E601:ALL	1	Y	
W-834-D4	EW	Tpsg	S	DIS-TF	E601:ALL	2	Y	
W-834-D4	EW	Tpsg	S	CMP-TF	E601:ALL	3		

Table 2.2-6 (Con't.). Building 834 OU ground water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
W-834-D4	EW	Tpsg	S	DIS-TF	E601:ALL	4		
W-834-D4	EW	Tpsg	A	CMP-TF	TBOS:ALL	1	Y	
W-834-D4	EW	Tpsg	A	DIS-TF	TBOS:ALL	3		
W-834-D4	EW	Tpsg	A	CMP-TF	TBOS:ALL	1	Y	
W-834-D5	EW	Tpsg	A	CMP-TF	E300.0:NO3	1	Y	
W-834-D5	EW	Tpsg	S	CMP-TF	E601:ALL	1	Y	
W-834-D5	EW	Tpsg	S	CMP-TF	E601:ALL	3		
W-834-D5	EW	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	E601:ALL	1	Y	
W-834-D6	EW	Tpsg	S	DIS-TF	E601:ALL	2	Y	
W-834-D6	EW	Tpsg	S	CMP-TF	E601:ALL	3		
W-834-D6	EW	Tpsg	S	DIS-TF	E601:ALL	4		
W-834-D6	EW	Tpsg	A	CMP-TF	TBOS:ALL	1	Y	
W-834-D6	EW	Tpsg	A	DIS-TF	TBOS:ALL	3		
W-834-D6	EW	Tpsg	A	CMP-TF	TBOS:ALL	1	Y	
W-834-D7	EW	Tpsg	A	CMP-TF	E300.0:NO3	1	Y	
W-834-D7	EW	Tpsg	S	CMP-TF	E601:ALL	1	Y	
W-834-D7	EW	Tpsg	S	DIS-TF	E601:ALL	2	Y	
W-834-D7	EW	Tpsg	S	CMP-TF	E601:ALL	3		
W-834-D7	EW	Tpsg	S	DIS-TF	E601:ALL	4		
W-834-D7	EW	Tpsg	A	CMP-TF	TBOS:ALL	1	Y	
W-834-D7	EW	Tpsg	A	DIS-TF	TBOS:ALL	3		
W-834-D7	EW	Tpsg	A	CMP-TF	TBOS:ALL	1	Y	
W-834-D9A	PTMW	Tnbs2	A	CMP	E300.0:NO3	1	N	Dry.
W-834-D9A	PTMW	Tnbs2	A	CMP	E601:ALL	1	N	Dry.
W-834-D9A	PTMW	Tnbs2	A	CMP	TBOS:ALL	1	N	Dry.
W-834-G3	PTMW	Tpsg	A	CMP	E300.0:NO3	1	N	Dry.
W-834-G3	PTMW	Tpsg	A	CMP	E601: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	Dry.
W-834-H2	PTMW	Tpsg	S	CMP	E601:ALL	1	N	Dry.
W-834-H2	PTMW	Tpsg	S	CMP	E601:ALL	3		
W-834-H2	PTMW	Tpsg	A	CMP	TBOS:ALL	1	N	Dry.
W-834-J1	EW	Tpsg	A	CMP-TF	E300.0:NO3	1	Y	
W-834-J1	EW	Tpsg	S	CMP-TF	E601:ALL	1	Y	
W-834-J1	EW	Tpsg	S	DIS-TF	E601:ALL	2	Y	
W-834-J1	EW	Tpsg	S	CMP-TF	E601:ALL	3		
W-834-J1	EW	Tpsg	S	DIS-TF	E601:ALL	4		
W-834-J1	EW	Tpsg	A	CMP-TF	TBOS:ALL	1	Y	
W-834-J2	PTMW	Tpsg	A	CMP	E300.0:NO3	1	Y	
W-834-J2	PTMW	Tpsg	S	CMP	E601:ALL	1	Y	
W-834-J2	PTMW	Tpsg	S	CMP	E601:ALL	3		
W-834-J2	PTMW	Tpsg	A	CMP	TBOS:ALL	1	Y	
W-834-J3	PTMW	Tpsg	A	CMP	E300.0:NO3	1	N	Dry.
W-834-J3	PTMW	Tpsg	S	CMP	E601:ALL	1	N	Dry.
W-834-J3	PTMW	Tpsg	S	CMP	E601:ALL	3		
W-834-J3	PTMW	Tpsg	O	CMP	TBOS:ALL	1	N	To be sampled in 2011.
W-834-K1A	PTMW	Tpsg	A	CMP	E300.0:NO3	1	N	Dry.
W-834-K1A	PTMW	Tpsg	S	CMP	E601:ALL	1	N	Dry.
W-834-K1A	PTMW	Tpsg	S	CMP	E601:ALL	3		
W-834-K1A	PTMW	Tpsg	E	DIS	EM8015	1	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	E601:ALL	1	Y	
W-834-M1	PTMW	Tpsg	S	CMP	E601:ALL	3		
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	E601:ALL	1	N	Dry.
W-834-M2	PTMW	Tpsg	S	CMP	E601:ALL	3		

Table 2.2-6 (Con't.). Building 834 OU ground water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
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	E601:ALL	1	Y	
W-834-S1	EW	Tpsg	S	DIS-TF	E601:ALL	2	Y	
W-834-S1	EW	Tpsg	S	CMP-TF	E601:ALL	3		
W-834-S1	EW	Tpsg	S	DIS-TF	E601:ALL	4		
W-834-S1	EW	Tpsg	A	CMP-TF	TBOS:ALL	1	Y	
W-834-S10	PTMW	Tpsg	A	CMP	E300.0:NO3	1	N	Dry.
W-834-S10	PTMW	Tpsg	S	CMP	E624:ALL	1	N	Dry.
W-834-S10	PTMW	Tpsg	S	CMP	E624:ALL	3		
W-834-S10	PTMW	Tpsg	E	DIS	EM8015	1	N	Dry.
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	E601:ALL	1	Y	
W-834-S12A	EW	Tpsg	S	DIS-TF	E601:ALL	2	Y	
W-834-S12A	EW	Tpsg	S	CMP-TF	E601:ALL	3		
W-834-S12A	EW	Tpsg	S	DIS-TF	E601:ALL	4		
W-834-S12A	EW	Tpsg	A	CMP-TF	TBOS:ALL	1	Y	
W-834-S13	EW	Tpsg	A	CMP-TF	E300.0:NO3	1	Y	
W-834-S13	EW	Tpsg	S	CMP-TF	E601:ALL	1	Y	
W-834-S13	EW	Tpsg	S	DIS-TF	E601:ALL	2	Y	
W-834-S13	EW	Tpsg	S	CMP-TF	E601:ALL	3		
W-834-S13	EW	Tpsg	S	DIS-TF	E601:ALL	4		
W-834-S13	EW	Tpsg	A	CMP-TF	TBOS:ALL	1	Y	
W-834-S4	PTMW	Tpsg	A	CMP	E300.0:NO3	1	Y	
W-834-S4	PTMW	Tpsg	S	CMP	E601:ALL	1	Y	
W-834-S4	PTMW	Tpsg	S	CMP	E601:ALL	3		
W-834-S4	PTMW	Tpsg	O	CMP	TBOS:ALL	1	N	To be sampled in 2011.
W-834-S5	PTMW	Tpsg	A	CMP	E300.0:NO3	1	N	Dry.
W-834-S5	PTMW	Tpsg	S	CMP	E601:ALL	1	N	Dry.
W-834-S5	PTMW	Tpsg	S	CMP	E601:ALL	3		
W-834-S5	PTMW	Tpsg	O	DIS	EM8015	1	N	To be sampled in 2011.
W-834-S6	PTMW	Tpsg	A	CMP	E300.0:NO3	1	N	Insufficient water.
W-834-S6	PTMW	Tpsg	S	CMP	E601:ALL	1	N	Insufficient water.
W-834-S6	PTMW	Tpsg	S	CMP	E601:ALL	3		
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	Insufficient water.
W-834-S7	PTMW	Tpsg	S	CMP	E601:ALL	1	N	Insufficient water.
W-834-S7	PTMW	Tpsg	S	CMP	E601:ALL	3		
W-834-S7	PTMW	Tpsg	E	CMP	TBOS:ALL	1	N	Insufficient water.
W-834-S8	PTMW	Tnsc2	A	CMP	E300.0:NO3	1	Y	
W-834-S8	PTMW	Tnsc2	S	CMP	E601:ALL	1	Y	
W-834-S8	PTMW	Tnsc2	S	CMP	E601:ALL	3		
W-834-S8	PTMW	Tnsc2	O	DIS	EM8015	1	N	To be sampled in 2011.
W-834-S8	PTMW	Tnsc2	O	CMP	TBOS:ALL	1	N	To be sampled in 2011.
W-834-S9	PTMW	Tnsc2	A	CMP	E300.0:NO3	1	Y	
W-834-S9	PTMW	Tnsc2	S	CMP	E601:ALL	1	Y	
W-834-S9	PTMW	Tnsc2	S	CMP	E601:ALL	3		
W-834-S9	PTMW	Tnsc2	E	DIS	EM8015	1	Y	
W-834-S9	PTMW	Tnsc2	E	CMP	TBOS:ALL	1	Y	
W-834-T1	GW	Tnbs1	S	CMP	E300.0:NO3	1	Y	
W-834-T1	GW	Tnbs1	S	CMP	E300.0:NO3	3		
W-834-T1	GW	Tnbs1	Q	CMP	E601:ALL	1	Y	
W-834-T1	GW	Tnbs1	Q	CMP	E601:ALL	2	Y	
W-834-T1	GW	Tnbs1	Q	CMP	E601:ALL	3		
W-834-T1	GW	Tnbs1	Q	CMP	E601:ALL	4		
W-834-T1	GW	Tnbs1	S	CMP	TBOS:ALL	1	Y	
W-834-T1	GW	Tnbs1	S	CMP	TBOS:ALL	3		
W-834-T11	PTMW	Tpsg	A	CMP	E300.0:NO3	1	N	Dry.
W-834-T11	PTMW	Tpsg	S	CMP	E601:ALL	1	N	Dry.

Table 2.2-6 (Con't.). Building 834 OU ground water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
W-834-T11	PTMW	Tpsg	S	CMP	E601:ALL	3		
W-834-T11	PTMW	Tpsg	E	CMP	TBOS:ALL	1	N	Dry.
W-834-T2	PTMW	Tpsg	A	CMP	E300.0:NO3	1	Y	
W-834-T2	PTMW	Tpsg	S	CMP	E601:ALL	1	Y	
W-834-T2	PTMW	Tpsg	S	CMP	E601:ALL	3		
W-834-T2	PTMW	Tpsg	O	CMP	TBOS:ALL	1	N	To be sampled in 2011.
W-834-T2	PTMW	Tpsg	A	DIS	E200.8:MN	1	Y	
W-834-T2	PTMW	Tpsg	A	DIS	E200.8:FILTER	1	Y	
W-834-T2	PTMW	Tpsg	A	DIS	E200.8:SE	1	Y	
W-834-T2	PTMW	Tpsg	A	DIS	E200.8:CR	1	Y	
W-834-T2	PTMW	Tpsg	A	DIS	E200.7:FILTER	1	Y	
W-834-T2	PTMW	Tpsg	A	DIS	E200.7:FE	1	Y	
W-834-T2	PTMW	Tpsg	A	DIS	GENMIN:ALL	1	Y	
W-834-T2	PTMW	Tpsg	A	DIS	GENMIN:FILTER	1	Y	
W-834-T2	PTMW	Tpsg	A	DIS	E200.8:AS	1	Y	
W-834-T2A	PTMW	Tpsg	A	CMP	E300.0:NO3	1	Y	
W-834-T2A	PTMW	Tpsg	S	CMP	E601:ALL	1	Y	
W-834-T2A	PTMW	Tpsg	S	CMP	E601:ALL	3		
W-834-T2A	PTMW	Tpsg	E	CMP	TBOS:ALL	1	Y	
W-834-T2B	PTMW	Tpsg	A	CMP	E300.0:NO3	1	N	Dry.
W-834-T2B	PTMW	Tpsg	S	CMP	E601:ALL	1	N	Dry.
W-834-T2B	PTMW	Tpsg	S	CMP	E601:ALL	3		
W-834-T2B	PTMW	Tpsg	O	CMP	TBOS:ALL	1	N	To be sampled in 2011.
W-834-T2C	PTMW	Tpsg	A	CMP	E300.0:NO3	1	N	Dry.
W-834-T2C	PTMW	Tpsg	S	CMP	E601:ALL	1	N	Dry.
W-834-T2C	PTMW	Tpsg	S	CMP	E601:ALL	3		
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	E601:ALL	1	Y	
W-834-T2D	PTMW	Tpsg	S	CMP	E601:ALL	3		
W-834-T2D	PTMW	Tpsg	E	CMP	TBOS:ALL	1	Y	
W-834-T3	GW	Tnbs1	S	CMP	E300.0:NO3	1	Y	
W-834-T3	GW	Tnbs1	S	CMP	E300.0:NO3	3		
W-834-T3	GW	Tnbs1	Q	CMP	E601:ALL	1	Y	
W-834-T3	GW	Tnbs1	Q	CMP	E601:ALL	2	Y	
W-834-T3	GW	Tnbs1	Q	CMP	E601:ALL	3		
W-834-T3	GW	Tnbs1	Q	CMP	E601:ALL	4		
W-834-T3	GW	Tnbs1	S	CMP	TBOS:ALL	1	Y	
W-834-T3	GW	Tnbs1	S	CMP	TBOS:ALL	3		
W-834-T5	PTMW	Tpsg	A	CMP	E300.0:NO3	1	Y	
W-834-T5	PTMW	Tpsg	S	CMP	E601:ALL	1	Y	
W-834-T5	PTMW	Tpsg	S	CMP	E601:ALL	3		
W-834-T5	PTMW	Tpsg	E	CMP	TBOS:ALL	1	Y	
W-834-T7A	PTMW	Tpsg	A	CMP	E300.0:NO3	1	N	Dry.
W-834-T7A	PTMW	Tpsg	S	CMP	E601:ALL	1	N	Dry.
W-834-T7A	PTMW	Tpsg	S	CMP	E601:ALL	3		
W-834-T7A	PTMW	Tpsg	O	CMP	TBOS:ALL	1	N	To be sampled in 2011.
W-834-T8A	PTMW	Tpsg	A	CMP	E300.0:NO3	1	N	Dry.
W-834-T8A	PTMW	Tpsg	S	CMP	E601:ALL	1	N	Dry.
W-834-T8A	PTMW	Tpsg	S	CMP	E601:ALL	3		
W-834-T8A	PTMW	Tpsg	O	CMP	TBOS:ALL	1	N	To be sampled in 2011.
W-834-T9	PTMW	Tpsg	A	CMP	E300.0:NO3	1	N	Dry.
W-834-T9	PTMW	Tpsg	S	CMP	E601:ALL	1	N	Dry.
W-834-T9	PTMW	Tpsg	S	CMP	E601:ALL	3		
W-834-T9	PTMW	Tpsg	O	CMP	TBOS:ALL	1	N	To be sampled in 2011.
W-834-U1	PTMW	Tps	A	CMP	E300.0:NO3	1	Y	
W-834-U1	PTMW	Tps	S	CMP	E624:ALL	1	Y	
W-834-U1	PTMW	Tps	S	CMP	E624:ALL	3		
W-834-U1	PTMW	Tps	A	DIS	EM8015	1	Y	

Table 2.2-6 (Con't.). Building 834 OU ground water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
W-834-U1	PTMW	Tps	A	CMP	TBOS:ALL	1	Y	

Notes:
1) Building 834 primary COC: VOCs (E601).
2) Building 834 secondary COC: Nitrate (E300.0:NO3).
3) Building 834 secondary COC: TBOS/TKEBS.
4) A limited set of wells in the Core area will be sampled for diesel (EM8015) due to an underground storage tank.
5) A limited set of wells will be sampled for perchlorate semiannually.
6) Well W-834-D5 is hooked up to the Building 834 treatment system but is not currently being used as an extraction well.
7) See Acronyms and Abbreviations in the Tables section of this report for acronym and abbreviation definitions.

Table 2.2-7. Building 834 (834) mass removed, January 1, 2010 through June 30, 2010.

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	January	0	0	NA	0	NA	0
	February	530	70	NA	3.1	NA	0.53
	March	1,100	140	NA	5.9	NA	1.0
	April	800	190	NA	4.7	NA	0.88
	May	390	170	NA	4.5	NA	0.79
	June	530	200	NA	5.8	NA	0.93
Total		3,300	760	NA	24	NA	4.2

Table 2.3-1. Pit 6 Landfill OU ground and surface water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
BC6-10	PTMW	Tnbs1	A	CMP	E300.0:NO3	1	Y	
BC6-10	PTMW	Tnbs1	A	CMP	E300.0:PERC	1	Y	
BC6-10	PTMW	Tnbs1	S	CMP	E601:ALL	1	Y	
BC6-10	PTMW	Tnbs1	S	CMP	E601:ALL	3		
BC6-10	PTMW	Tnbs1	S	CMP	E906:ALL	1	Y	
BC6-10	PTMW	Tnbs1	S	CMP	E906:ALL	3		
BC6-13 (Spring7)	PTMW	Qt/Tnbs1	E	CMP	E300.0:NO3	1	N	Dry.
BC6-13 (Spring7)	PTMW	Qt/Tnbs1	E	CMP	E300.0:PERC	1	N	Dry.
BC6-13 (Spring7)	PTMW	Qt/Tnbs1	E	CMP	E601:ALL	1	N	Dry.
BC6-13 (Spring7)	PTMW	Qt/Tnbs1	E	CMP	E906:ALL	1	N	Dry.
CARNRW1*	WS	Tnbs1/Tmss	M	CMP	E300.0:NO3	1	Y	
CARNRW1*	WS	Tnbs1/Tmss	M	CMP	E300.0:NO3	1	Y	
CARNRW1*	WS	Tnbs1/Tmss	M	CMP	E300.0:NO3	1	Y	
CARNRW1*	WS	Tnbs1/Tmss	M	CMP	E300.0:PERC	1	Y	
CARNRW1*	WS	Tnbs1/Tmss	M	CMP	E300.0:PERC	1	Y	
CARNRW1*	WS	Tnbs1/Tmss	M	CMP	E300.0:PERC	1	Y	
CARNRW1*	WS	Tnbs1/Tmss	M	CMP	E601:ALL	1	Y	
CARNRW1*	WS	Tnbs1/Tmss	M	CMP	E601:ALL	1	Y	
CARNRW1*	WS	Tnbs1/Tmss	M	CMP	E601:ALL	1	Y	
CARNRW1*	WS	Tnbs1/Tmss	M	CMP	E906:ALL	1	Y	
CARNRW1*	WS	Tnbs1/Tmss	M	CMP	E906:ALL	1	Y	
CARNRW1*	WS	Tnbs1/Tmss	M	CMP	E906:ALL	1	Y	
CARNRW1*	WS	Tnbs1/Tmss	M	CMP	E300.0:NO3	2	Y	
CARNRW1*	WS	Tnbs1/Tmss	M	CMP	E300.0:NO3	2	Y	
CARNRW1*	WS	Tnbs1/Tmss	M	CMP	E300.0:NO3	2	Y	
CARNRW1*	WS	Tnbs1/Tmss	M	CMP	E300.0:PERC	2	Y	
CARNRW1*	WS	Tnbs1/Tmss	M	CMP	E300.0:PERC	2	Y	
CARNRW1*	WS	Tnbs1/Tmss	M	CMP	E300.0:PERC	2	Y	
CARNRW1*	WS	Tnbs1/Tmss	M	CMP	E601:ALL	2	Y	
CARNRW1*	WS	Tnbs1/Tmss	M	CMP	E601:ALL	2	Y	
CARNRW1*	WS	Tnbs1/Tmss	M	CMP	E601:ALL	2	Y	
CARNRW1*	WS	Tnbs1/Tmss	M	CMP	E906:ALL	2	Y	
CARNRW1*	WS	Tnbs1/Tmss	M	CMP	E906:ALL	2	Y	
CARNRW1*	WS	Tnbs1/Tmss	M	CMP	E906:ALL	2	Y	
CARNRW1*	WS	Tnbs1/Tmss	M	CMP	E300.0:NO3	3		
CARNRW1*	WS	Tnbs1/Tmss	M	CMP	E300.0:NO3	3		
CARNRW1*	WS	Tnbs1/Tmss	M	CMP	E300.0:NO3	3		
CARNRW1*	WS	Tnbs1/Tmss	M	CMP	E300.0:PERC	3		
CARNRW1*	WS	Tnbs1/Tmss	M	CMP	E300.0:PERC	3		
CARNRW1*	WS	Tnbs1/Tmss	M	CMP	E300.0:PERC	3		
CARNRW1*	WS	Tnbs1/Tmss	M	CMP	E601:ALL	3		
CARNRW1*	WS	Tnbs1/Tmss	M	CMP	E601:ALL	3		
CARNRW1*	WS	Tnbs1/Tmss	M	CMP	E601:ALL	3		
CARNRW1*	WS	Tnbs1/Tmss	M	CMP	E906:ALL	3		
CARNRW1*	WS	Tnbs1/Tmss	M	CMP	E906:ALL	3		
CARNRW1*	WS	Tnbs1/Tmss	M	CMP	E906:ALL	3		
CARNRW1*	WS	Tnbs1/Tmss	M	CMP	E300.0:NO3	4		
CARNRW1*	WS	Tnbs1/Tmss	M	CMP	E300.0:NO3	4		
CARNRW1*	WS	Tnbs1/Tmss	M	CMP	E300.0:NO3	4		
CARNRW1*	WS	Tnbs1/Tmss	M	CMP	E300.0:PERC	4		
CARNRW1*	WS	Tnbs1/Tmss	M	CMP	E300.0:PERC	4		
CARNRW1*	WS	Tnbs1/Tmss	M	CMP	E300.0:PERC	4		
CARNRW1*	WS	Tnbs1/Tmss	M	CMP	E601:ALL	4		
CARNRW1*	WS	Tnbs1/Tmss	M	CMP	E601:ALL	4		
CARNRW1*	WS	Tnbs1/Tmss	M	CMP	E601:ALL	4		
CARNRW1*	WS	Tnbs1/Tmss	M	CMP	E906:ALL	4		
CARNRW1*	WS	Tnbs1/Tmss	M	CMP	E906:ALL	4		
CARNRW1*	WS	Tnbs1/Tmss	M	CMP	E906:ALL	4		
CARNRW2*	WS	Tnbs1/Tmss	M	CMP	E300.0:NO3	1	Y	
CARNRW2*	WS	Tnbs1/Tmss	M	CMP	E300.0:NO3	1	Y	

Table 2.3-1 (Con't.). Pit 6 Landfill OU ground and surface water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
CARNRW2*	WS	Tnbs1/Tmss	M	CMP	E300.0:NO3	1	Y	
CARNRW2*	WS	Tnbs1/Tmss	M	CMP	E300.0:PERC	1	Y	
CARNRW2*	WS	Tnbs1/Tmss	M	CMP	E300.0:PERC	1	Y	
CARNRW2*	WS	Tnbs1/Tmss	M	CMP	E300.0:PERC	1	Y	
CARNRW2*	WS	Tnbs1/Tmss	M	CMP	E601:ALL	1	Y	
CARNRW2*	WS	Tnbs1/Tmss	M	CMP	E601:ALL	1	Y	
CARNRW2*	WS	Tnbs1/Tmss	M	CMP	E601:ALL	1	Y	
CARNRW2*	WS	Tnbs1/Tmss	M	CMP	E906:ALL	1	Y	
CARNRW2*	WS	Tnbs1/Tmss	M	CMP	E906:ALL	1	Y	
CARNRW2*	WS	Tnbs1/Tmss	M	CMP	E906:ALL	1	Y	
CARNRW2*	WS	Tnbs1/Tmss	M	CMP	E300.0:NO3	2	Y	
CARNRW2*	WS	Tnbs1/Tmss	M	CMP	E300.0:NO3	2	Y	
CARNRW2*	WS	Tnbs1/Tmss	M	CMP	E300.0:NO3	2	Y	
CARNRW2*	WS	Tnbs1/Tmss	M	CMP	E300.0:PERC	2	Y	
CARNRW2*	WS	Tnbs1/Tmss	M	CMP	E300.0:PERC	2	Y	
CARNRW2*	WS	Tnbs1/Tmss	M	CMP	E300.0:PERC	2	Y	
CARNRW2*	WS	Tnbs1/Tmss	M	CMP	E601:ALL	2	Y	
CARNRW2*	WS	Tnbs1/Tmss	M	CMP	E601:ALL	2	Y	
CARNRW2*	WS	Tnbs1/Tmss	M	CMP	E601:ALL	2	Y	
CARNRW2*	WS	Tnbs1/Tmss	M	CMP	E906:ALL	2	Y	
CARNRW2*	WS	Tnbs1/Tmss	M	CMP	E906:ALL	2	Y	
CARNRW2*	WS	Tnbs1/Tmss	M	CMP	E906:ALL	2	Y	
CARNRW2*	WS	Tnbs1/Tmss	M	CMP	E300.0:NO3	3		
CARNRW2*	WS	Tnbs1/Tmss	M	CMP	E300.0:NO3	3		
CARNRW2*	WS	Tnbs1/Tmss	M	CMP	E300.0:NO3	3		
CARNRW2*	WS	Tnbs1/Tmss	M	CMP	E300.0:PERC	3		
CARNRW2*	WS	Tnbs1/Tmss	M	CMP	E300.0:PERC	3		
CARNRW2*	WS	Tnbs1/Tmss	M	CMP	E300.0:PERC	3		
CARNRW2*	WS	Tnbs1/Tmss	M	CMP	E601:ALL	3		
CARNRW2*	WS	Tnbs1/Tmss	M	CMP	E601:ALL	3		
CARNRW2*	WS	Tnbs1/Tmss	M	CMP	E601:ALL	3		
CARNRW2*	WS	Tnbs1/Tmss	M	CMP	E906:ALL	3		
CARNRW2*	WS	Tnbs1/Tmss	M	CMP	E906:ALL	3		
CARNRW2*	WS	Tnbs1/Tmss	M	CMP	E906:ALL	3		
CARNRW2*	WS	Tnbs1/Tmss	M	CMP	E300.0:NO3	4		
CARNRW2*	WS	Tnbs1/Tmss	M	CMP	E300.0:NO3	4		
CARNRW2*	WS	Tnbs1/Tmss	M	CMP	E300.0:NO3	4		
CARNRW2*	WS	Tnbs1/Tmss	M	CMP	E300.0:PERC	4		
CARNRW2*	WS	Tnbs1/Tmss	M	CMP	E300.0:PERC	4		
CARNRW2*	WS	Tnbs1/Tmss	M	CMP	E300.0:PERC	4		
CARNRW2*	WS	Tnbs1/Tmss	M	CMP	E601:ALL	4		
CARNRW2*	WS	Tnbs1/Tmss	M	CMP	E601:ALL	4		
CARNRW2*	WS	Tnbs1/Tmss	M	CMP	E601:ALL	4		
CARNRW2*	WS	Tnbs1/Tmss	M	CMP	E906:ALL	4		
CARNRW2*	WS	Tnbs1/Tmss	M	CMP	E906:ALL	4		
CARNRW2*	WS	Tnbs1/Tmss	M	CMP	E906:ALL	4		
CARNRW3	WS	Tnbs1/Tmss	M	CMP	E300.0:NO3	1	Y	
CARNRW3	WS	Tnbs1/Tmss	M	CMP	E300.0:NO3	1	Y	
CARNRW3	WS	Tnbs1/Tmss	M	CMP	E300.0:NO3	1	Y	
CARNRW3	WS	Tnbs1/Tmss	M	CMP	E300.0:PERC	1	Y	
CARNRW3	WS	Tnbs1/Tmss	M	CMP	E300.0:PERC	1	Y	
CARNRW3	WS	Tnbs1/Tmss	M	CMP	E300.0:PERC	1	Y	
CARNRW3	WS	Tnbs1/Tmss	M	CMP	E601:ALL	1	Y	
CARNRW3	WS	Tnbs1/Tmss	M	CMP	E601:ALL	1	Y	
CARNRW3	WS	Tnbs1/Tmss	M	CMP	E601:ALL	1	Y	
CARNRW3	WS	Tnbs1/Tmss	M	CMP	E906:ALL	1	Y	
CARNRW3	WS	Tnbs1/Tmss	M	CMP	E906:ALL	1	Y	
CARNRW3	WS	Tnbs1/Tmss	M	CMP	E906:ALL	1	Y	
CARNRW3	WS	Tnbs1/Tmss	M	CMP	E300.0:NO3	2	Y	
CARNRW3	WS	Tnbs1/Tmss	M	CMP	E300.0:NO3	2	Y	

Table 2.3-1 (Con't.). Pit 6 Landfill OU ground and surface water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
CARNRW3	WS	Tnbs1/Tmss	M	CMP	E300.0:NO3	2	Y	
CARNRW3	WS	Tnbs1/Tmss	M	CMP	E300.0:PERC	2	Y	
CARNRW3	WS	Tnbs1/Tmss	M	CMP	E300.0:PERC	2	Y	
CARNRW3	WS	Tnbs1/Tmss	M	CMP	E300.0:PERC	2	Y	
CARNRW3	WS	Tnbs1/Tmss	M	CMP	E601:ALL	2	Y	
CARNRW3	WS	Tnbs1/Tmss	M	CMP	E601:ALL	2	Y	
CARNRW3	WS	Tnbs1/Tmss	M	CMP	E601:ALL	2	Y	
CARNRW3	WS	Tnbs1/Tmss	M	CMP	E906:ALL	2	Y	
CARNRW3	WS	Tnbs1/Tmss	M	CMP	E906:ALL	2	Y	
CARNRW3	WS	Tnbs1/Tmss	M	CMP	E906:ALL	2	Y	
CARNRW3	WS	Tnbs1/Tmss	M	CMP	E300.0:NO3	3		
CARNRW3	WS	Tnbs1/Tmss	M	CMP	E300.0:NO3	3		
CARNRW3	WS	Tnbs1/Tmss	M	CMP	E300.0:NO3	3		
CARNRW3	WS	Tnbs1/Tmss	M	CMP	E300.0:PERC	3		
CARNRW3	WS	Tnbs1/Tmss	M	CMP	E300.0:PERC	3		
CARNRW3	WS	Tnbs1/Tmss	M	CMP	E300.0:PERC	3		
CARNRW3	WS	Tnbs1/Tmss	M	CMP	E601:ALL	3		
CARNRW3	WS	Tnbs1/Tmss	M	CMP	E601:ALL	3		
CARNRW3	WS	Tnbs1/Tmss	M	CMP	E601:ALL	3		
CARNRW3	WS	Tnbs1/Tmss	M	CMP	E906:ALL	3		
CARNRW3	WS	Tnbs1/Tmss	M	CMP	E906:ALL	3		
CARNRW3	WS	Tnbs1/Tmss	M	CMP	E906:ALL	3		
CARNRW3	WS	Tnbs1/Tmss	M	CMP	E300.0:NO3	4		
CARNRW3	WS	Tnbs1/Tmss	M	CMP	E300.0:NO3	4		
CARNRW3	WS	Tnbs1/Tmss	M	CMP	E300.0:NO3	4		
CARNRW3	WS	Tnbs1/Tmss	M	CMP	E300.0:PERC	4		
CARNRW3	WS	Tnbs1/Tmss	M	CMP	E300.0:PERC	4		
CARNRW3	WS	Tnbs1/Tmss	M	CMP	E300.0:PERC	4		
CARNRW3	WS	Tnbs1/Tmss	M	CMP	E601:ALL	4		
CARNRW3	WS	Tnbs1/Tmss	M	CMP	E601:ALL	4		
CARNRW3	WS	Tnbs1/Tmss	M	CMP	E601:ALL	4		
CARNRW3	WS	Tnbs1/Tmss	M	CMP	E906:ALL	4		
CARNRW3	WS	Tnbs1/Tmss	M	CMP	E906:ALL	4		
CARNRW3	WS	Tnbs1/Tmss	M	CMP	E906:ALL	4		
CARNRW4	WS	Qal/Tts	M	CMP	E300.0:NO3	1	Y	
CARNRW4	WS	Qal/Tts	M	CMP	E300.0:NO3	1	Y	
CARNRW4	WS	Qal/Tts	M	CMP	E300.0:NO3	1	Y	
CARNRW4	WS	Qal/Tts	M	CMP	E300.0:PERC	1	Y	
CARNRW4	WS	Qal/Tts	M	CMP	E300.0:PERC	1	Y	
CARNRW4	WS	Qal/Tts	M	CMP	E300.0:PERC	1	Y	
CARNRW4	WS	Qal/Tts	M	CMP	E601:ALL	1	Y	
CARNRW4	WS	Qal/Tts	M	CMP	E601:ALL	1	Y	
CARNRW4	WS	Qal/Tts	M	CMP	E601:ALL	1	Y	
CARNRW4	WS	Qal/Tts	M	CMP	E906:ALL	1	Y	
CARNRW4	WS	Qal/Tts	M	CMP	E906:ALL	1	Y	
CARNRW4	WS	Qal/Tts	M	CMP	E906:ALL	1	Y	
CARNRW4	WS	Qal/Tts	M	CMP	E300.0:NO3	2	Y	
CARNRW4	WS	Qal/Tts	M	CMP	E300.0:NO3	2	Y	
CARNRW4	WS	Qal/Tts	M	CMP	E300.0:NO3	2	Y	
CARNRW4	WS	Qal/Tts	M	CMP	E300.0:PERC	2	Y	
CARNRW4	WS	Qal/Tts	M	CMP	E300.0:PERC	2	Y	
CARNRW4	WS	Qal/Tts	M	CMP	E300.0:PERC	2	Y	
CARNRW4	WS	Qal/Tts	M	CMP	E601:ALL	2	Y	
CARNRW4	WS	Qal/Tts	M	CMP	E601:ALL	2	Y	
CARNRW4	WS	Qal/Tts	M	CMP	E601:ALL	2	Y	
CARNRW4	WS	Qal/Tts	M	CMP	E906:ALL	2	Y	
CARNRW4	WS	Qal/Tts	M	CMP	E906:ALL	2	Y	
CARNRW4	WS	Qal/Tts	M	CMP	E906:ALL	2	Y	
CARNRW4	WS	Qal/Tts	M	CMP	E300.0:NO3	3		
CARNRW4	WS	Qal/Tts	M	CMP	E300.0:NO3	3		

Table 2.3-1 (Con't.). Pit 6 Landfill OU ground and surface water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
CARNRW4	WS	Qal/Tts	M	CMP	E300.0:NO3	3		
CARNRW4	WS	Qal/Tts	M	CMP	E300.0:PERC	3		
CARNRW4	WS	Qal/Tts	M	CMP	E300.0:PERC	3		
CARNRW4	WS	Qal/Tts	M	CMP	E300.0:PERC	3		
CARNRW4	WS	Qal/Tts	M	CMP	E601:ALL	3		
CARNRW4	WS	Qal/Tts	M	CMP	E601:ALL	3		
CARNRW4	WS	Qal/Tts	M	CMP	E601:ALL	3		
CARNRW4	WS	Qal/Tts	M	CMP	E906:ALL	3		
CARNRW4	WS	Qal/Tts	M	CMP	E906:ALL	3		
CARNRW4	WS	Qal/Tts	M	CMP	E906:ALL	3		
CARNRW4	WS	Qal/Tts	M	CMP	E300.0:NO3	4		
CARNRW4	WS	Qal/Tts	M	CMP	E300.0:NO3	4		
CARNRW4	WS	Qal/Tts	M	CMP	E300.0:NO3	4		
CARNRW4	WS	Qal/Tts	M	CMP	E300.0:PERC	4		
CARNRW4	WS	Qal/Tts	M	CMP	E300.0:PERC	4		
CARNRW4	WS	Qal/Tts	M	CMP	E300.0:PERC	4		
CARNRW4	WS	Qal/Tts	M	CMP	E601:ALL	4		
CARNRW4	WS	Qal/Tts	M	CMP	E601:ALL	4		
CARNRW4	WS	Qal/Tts	M	CMP	E601:ALL	4		
CARNRW4	WS	Qal/Tts	M	CMP	E906:ALL	4		
CARNRW4	WS	Qal/Tts	M	CMP	E906:ALL	4		
CARNRW4	WS	Qal/Tts	M	CMP	E906:ALL	4		
EP6-06*	DMW	Qt/Tnbs1	Q	WGMG	E8260:ALL	1	Y	
EP6-06*	DMW	Qt/Tnbs1	Q	WGMG	E8260:ALL	2	Y	
EP6-06*	DMW	Qt/Tnbs1	Q	WGMG	E8260:ALL	3		
EP6-06*	DMW	Qt/Tnbs1	Q	WGMG	E8260:ALL	4		
EP6-06*	DMW	Qt/Tnbs1	Q	WGMG	E300.0:NO3	1	Y	
EP6-06*	DMW	Qt/Tnbs1	Q	WGMG	E300.0:NO3	2	Y	
EP6-06*	DMW	Qt/Tnbs1	Q	WGMG	E300.0:NO3	3		
EP6-06*	DMW	Qt/Tnbs1	Q	WGMG	E300.0:NO3	4		
EP6-06*	DMW	Qt/Tnbs1	Q	WGMG	E300.0:PERC	1	Y	
EP6-06*	DMW	Qt/Tnbs1	Q	WGMG	E300.0:PERC	2	Y	
EP6-06*	DMW	Qt/Tnbs1	Q	WGMG	E300.0:PERC	3		
EP6-06*	DMW	Qt/Tnbs1	Q	WGMG	E300.0:PERC	4		
EP6-06*	DMW	Qt/Tnbs1	Q	WGMG	E906:ALL	1	Y	
EP6-06*	DMW	Qt/Tnbs1	Q	WGMG	E906:ALL	2	Y	
EP6-06*	DMW	Qt/Tnbs1	Q	WGMG	E906:ALL	3		
EP6-06*	DMW	Qt/Tnbs1	Q	WGMG	E906:ALL	4		
EP6-07	PTMW	Tnbs1	A	CMP	E300.0:NO3	1	Y	
EP6-07	PTMW	Tnbs1	A	CMP	E300.0:PERC	1	Y	
EP6-07	PTMW	Tnbs1	S	CMP	E601:ALL	1	Y	
EP6-07	PTMW	Tnbs1	S	CMP	E601:ALL	3		
EP6-07	PTMW	Tnbs1	S	CMP	E906:ALL	1	Y	
EP6-07	PTMW	Tnbs1	S	CMP	E906:ALL	3		
EP6-08*	DMW	Tnbs1	Q	WGMG	E8260:ALL	1	N	Dry.
EP6-08*	DMW	Tnbs1	Q	WGMG	E8260:ALL	2	N	Insufficient water.
EP6-08*	DMW	Tnbs1	Q	WGMG	E8260:ALL	3		
EP6-08*	DMW	Tnbs1	Q	WGMG	E8260:ALL	4		
EP6-08*	DMW	Tnbs1	Q	WGMG	E300.0:NO3	1	N	Dry.
EP6-08*	DMW	Tnbs1	Q	WGMG	E300.0:NO3	2	N	Insufficient water.
EP6-08*	DMW	Tnbs1	Q	WGMG	E300.0:NO3	3		
EP6-08*	DMW	Tnbs1	Q	WGMG	E300.0:NO3	4		
EP6-08*	DMW	Tnbs1	Q	WGMG	E300.0:PERC	1	N	Dry.
EP6-08*	DMW	Tnbs1	Q	WGMG	E300.0:PERC	2	N	Insufficient water.
EP6-08*	DMW	Tnbs1	Q	WGMG	E300.0:PERC	3		
EP6-08*	DMW	Tnbs1	Q	WGMG	E300.0:PERC	4		
EP6-08*	DMW	Tnbs1	Q	WGMG	E906:ALL	1	N	Dry.
EP6-08*	DMW	Tnbs1	Q	WGMG	E906:ALL	2	N	Insufficient water.
EP6-08*	DMW	Tnbs1	Q	WGMG	E906:ALL	3		
EP6-08*	DMW	Tnbs1	Q	WGMG	E906:ALL	4		

Table 2.3-1 (Con't.). Pit 6 Landfill OU ground and surface water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
EP6-09*	DMW	Tnbs1	Q	WGMG	E8260:ALL	1	Y	
EP6-09*	DMW	Tnbs1	Q	WGMG	E8260:ALL	2	Y	
EP6-09*	DMW	Tnbs1	Q	WGMG	E8260:ALL	3		
EP6-09*	DMW	Tnbs1	Q	WGMG	E8260:ALL	4		
EP6-09*	DMW	Tnbs1	Q	WGMG	E300.0:NO3	1	Y	
EP6-09*	DMW	Tnbs1	Q	WGMG	E300.0:NO3	2	Y	
EP6-09*	DMW	Tnbs1	Q	WGMG	E300.0:NO3	3		
EP6-09*	DMW	Tnbs1	Q	WGMG	E300.0:NO3	4		
EP6-09*	DMW	Tnbs1	Q	WGMG	E300.0:PERC	1	Y	
EP6-09*	DMW	Tnbs1	Q	WGMG	E300.0:PERC	2	Y	
EP6-09*	DMW	Tnbs1	Q	WGMG	E300.0:PERC	3		
EP6-09*	DMW	Tnbs1	Q	WGMG	E300.0:PERC	4		
EP6-09*	DMW	Tnbs1	Q	WGMG	E906:ALL	1	Y	
EP6-09*	DMW	Tnbs1	Q	WGMG	E906:ALL	2	Y	
EP6-09*	DMW	Tnbs1	Q	WGMG	E906:ALL	3		
EP6-09*	DMW	Tnbs1	Q	WGMG	E906:ALL	4		
K6-01	DMW	Tnbs1	A	CMP	E300.0:NO3	1	Y	
K6-01	DMW	Tnbs1	A	CMP	E300.0:PERC	1	Y	
K6-01	DMW	Tnbs1	S	CMP	E601:ALL	1	Y	
K6-01	DMW	Tnbs1	S	CMP	E601:ALL	3		
K6-01	DMW	Tnbs1	S	CMP	E906:ALL	1	Y	
K6-01	DMW	Tnbs1	S	CMP	E906:ALL	3		
K6-01S*	DMW	Qt/Tnbs1	Q	WGMG	E8260:ALL	1	Y	
K6-01S*	DMW	Qt/Tnbs1	Q	WGMG	E8260:ALL	2	Y	
K6-01S*	DMW	Qt/Tnbs1	Q	WGMG	E8260:ALL	3		
K6-01S*	DMW	Qt/Tnbs1	Q	WGMG	E8260:ALL	4		
K6-01S*	DMW	Qt/Tnbs1	Q	WGMG	E300.0:NO3	1	Y	
K6-01S*	DMW	Qt/Tnbs1	Q	WGMG	E300.0:NO3	2	Y	
K6-01S*	DMW	Qt/Tnbs1	Q	WGMG	E300.0:NO3	3		
K6-01S*	DMW	Qt/Tnbs1	Q	WGMG	E300.0:NO3	4		
K6-01S*	DMW	Qt/Tnbs1	Q	WGMG	E300.0:PERC	1	Y	
K6-01S*	DMW	Qt/Tnbs1	Q	WGMG	E300.0:PERC	2	Y	
K6-01S*	DMW	Qt/Tnbs1	Q	WGMG	E300.0:PERC	3		
K6-01S*	DMW	Qt/Tnbs1	Q	WGMG	E300.0:PERC	4		
K6-01S*	DMW	Qt/Tnbs1	Q	WGMG	E906:ALL	1	Y	
K6-01S*	DMW	Qt/Tnbs1	Q	WGMG	E906:ALL	2	Y	
K6-01S*	DMW	Qt/Tnbs1	Q	WGMG	E906:ALL	3		
K6-01S*	DMW	Qt/Tnbs1	Q	WGMG	E906:ALL	4		
K6-03	PTMW	Tnbs1	A	CMP	E300.0:NO3	1	Y	
K6-03	PTMW	Tnbs1	A	CMP	E300.0:PERC	1	Y	
K6-03	PTMW	Tnbs1	S	CMP	E601:ALL	1	Y	
K6-03	PTMW	Tnbs1	S	CMP	E601:ALL	3		
K6-03	PTMW	Tnbs1	S	CMP	E906:ALL	1	Y	
K6-03	PTMW	Tnbs1	S	CMP	E906:ALL	3		
K6-04	PTMW	Tnbs1	A	CMP	E300.0:NO3	1	Y	
K6-04	PTMW	Tnbs1	A	CMP	E300.0:PERC	1	Y	
K6-04	PTMW	Tnbs1	S	CMP	E601:ALL	1	Y	
K6-04	PTMW	Tnbs1	S	CMP	E601:ALL	3		
K6-04	PTMW	Tnbs1	S	CMP	E906:ALL	1	Y	
K6-04	PTMW	Tnbs1	S	CMP	E906:ALL	3		
K6-14	PTMW	Tnbs1	A	CMP	E300.0:NO3	1	Y	
K6-14	PTMW	Tnbs1	A	CMP	E300.0:PERC	1	Y	
K6-14	PTMW	Tnbs1	S	CMP	E601:ALL	1	Y	
K6-14	PTMW	Tnbs1	S	CMP	E601:ALL	3		
K6-14	PTMW	Tnbs1	S	CMP	E906:ALL	1	Y	
K6-14	PTMW	Tnbs1	S	CMP	E906:ALL	3		
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	E601:ALL	1	N	Dry.
K6-15	PTMW	Qt/Tnbs1	S	CMP	E601:ALL	3		

Table 2.3-1 (Con't.). Pit 6 Landfill OU ground and surface water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
K6-15	PTMW	Qt/Tnbs1	S	CMP	E906:ALL	1	N	Dry.
K6-15	PTMW	Qt/Tnbs1	S	CMP	E906:ALL	3		
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	E601:ALL	1	Y	
K6-16	PTMW	Qt/Tnbs1	S	CMP	E601:ALL	3		
K6-16	PTMW	Qt/Tnbs1	S	CMP	E906:ALL	1	Y	
K6-16	PTMW	Qt/Tnbs1	S	CMP	E906:ALL	3		
K6-17	GW	Qt/Tnbs1	S	CMP	E300.0:NO3	1	Y	
K6-17	GW	Qt/Tnbs1	S	CMP	E300.0:NO3	3		
K6-17	GW	Qt/Tnbs1	S	CMP	E300.0:PERC	1	Y	
K6-17	GW	Qt/Tnbs1	S	CMP	E300.0:PERC	3		
K6-17	GW	Qt/Tnbs1	Q	CMP	E601:ALL	1	Y	
K6-17	GW	Qt/Tnbs1	Q	CMP	E601:ALL	2	Y	
K6-17	GW	Qt/Tnbs1	Q	CMP	E601:ALL	3		
K6-17	GW	Qt/Tnbs1	Q	CMP	E601:ALL	4		
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		
K6-17	GW	Qt/Tnbs1	Q	CMP	E906:ALL	4		
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	E601:ALL	1	Y	
K6-18	PTMW	Qt/Tnbs1	S	CMP	E601:ALL	3		
K6-18	PTMW	Qt/Tnbs1	S	CMP	E906:ALL	1	Y	
K6-18	PTMW	Qt/Tnbs1	S	CMP	E906:ALL	3		
K6-19*	DMW	Qt/Tnbs1	Q	WGMG	E8260:ALL	1	Y	
K6-19*	DMW	Qt/Tnbs1	Q	WGMG	E8260:ALL	2	Y	
K6-19*	DMW	Qt/Tnbs1	Q	WGMG	E8260:ALL	3		
K6-19*	DMW	Qt/Tnbs1	Q	WGMG	E8260:ALL	4		
K6-19*	DMW	Qt/Tnbs1	Q	WGMG	E300.0:NO3	1	Y	
K6-19*	DMW	Qt/Tnbs1	Q	WGMG	E300.0:NO3	2	Y	
K6-19*	DMW	Qt/Tnbs1	Q	WGMG	E300.0:NO3	3		
K6-19*	DMW	Qt/Tnbs1	Q	WGMG	E300.0:NO3	4		
K6-19*	DMW	Qt/Tnbs1	Q	WGMG	E300.0:PERC	1	Y	
K6-19*	DMW	Qt/Tnbs1	Q	WGMG	E300.0:PERC	2	Y	
K6-19*	DMW	Qt/Tnbs1	Q	WGMG	E300.0:PERC	3		
K6-19*	DMW	Qt/Tnbs1	Q	WGMG	E300.0:PERC	4		
K6-19*	DMW	Qt/Tnbs1	Q	WGMG	E906:ALL	1	Y	
K6-19*	DMW	Qt/Tnbs1	Q	WGMG	E906:ALL	2	Y	
K6-19*	DMW	Qt/Tnbs1	Q	WGMG	E906:ALL	3		
K6-19*	DMW	Qt/Tnbs1	Q	WGMG	E906:ALL	4		
K6-21	PTMW	Qt	A	CMP	E300.0:NO3	1	N	Dry.
K6-21	PTMW	Qt	A	CMP	E300.0:PERC	1	N	Dry.
K6-21	PTMW	Qt	A	CMP	E601:ALL	1	N	Dry.
K6-21	PTMW	Qt	A	CMP	E906:ALL	1	N	Dry.
K6-22	GW	Tnbs1	S	CMP	E300.0:NO3	1	Y	
K6-22	GW	Tnbs1	S	CMP	E300.0:NO3	3		
K6-22	GW	Tnbs1	S	CMP	E300.0:PERC	1	Y	
K6-22	GW	Tnbs1	S	CMP	E300.0:PERC	3		
K6-22	GW	Tnbs1	Q	CMP	E601:ALL	1	Y	
K6-22	GW	Tnbs1	Q	CMP	E601:ALL	2	Y	
K6-22	GW	Tnbs1	Q	CMP	E601:ALL	3		
K6-22	GW	Tnbs1	Q	CMP	E601:ALL	4		
K6-22	GW	Tnbs1	Q	CMP	E906:ALL	1	Y	
K6-22	GW	Tnbs1	Q	CMP	E906:ALL	2	Y	
K6-22	GW	Tnbs1	Q	CMP	E906:ALL	3		
K6-22	GW	Tnbs1	Q	CMP	E906:ALL	4		
K6-23	PTMW	Tmss	A	CMP	E300.0:NO3	1	Y	
K6-23	PTMW	Tmss	A	CMP	E300.0:PERC	1	Y	

Table 2.3-1 (Con't.). Pit 6 Landfill OU ground and surface water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
K6-23	PTMW	Tmss	S	CMP	E601:ALL	1	Y	
K6-23	PTMW	Tmss	S	CMP	E601:ALL	3		
K6-23	PTMW	Tmss	S	CMP	E906:ALL	1	Y	
K6-23	PTMW	Tmss	S	CMP	E906:ALL	3		
K6-24	PTMW	Tnbs1	A	CMP	E300.0:NO3	1	N	Dry.
K6-24	PTMW	Tnbs1	A	CMP	E300.0:PERC	1	N	Dry.
K6-24	PTMW	Tnbs1	S	CMP	E601:ALL	1	N	Dry.
K6-24	PTMW	Tnbs1	S	CMP	E601:ALL	3		
K6-24	PTMW	Tnbs1	S	CMP	E906:ALL	1	N	Dry.
K6-24	PTMW	Tnbs1	S	CMP	E906:ALL	3		
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	E601:ALL	1	Y	
K6-25	PTMW	Tmss	S	CMP	E601:ALL	3		
K6-25	PTMW	Tmss	S	CMP	E906:ALL	1	Y	
K6-25	PTMW	Tmss	S	CMP	E906:ALL	3		
K6-26	PTMW	Tnbs1	A	CMP	E300.0:NO3	1	Y	
K6-26	PTMW	Tnbs1	A	CMP	E300.0:PERC	1	Y	
K6-26	PTMW	Tnbs1	S	CMP	E601:ALL	1	Y	
K6-26	PTMW	Tnbs1	S	CMP	E601:ALL	3		
K6-26	PTMW	Tnbs1	S	CMP	E906:ALL	1	Y	
K6-26	PTMW	Tnbs1	S	CMP	E906:ALL	3		
K6-27	PTMW	Tnbs1	A	CMP	E300.0:NO3	1	Y	
K6-27	PTMW	Tnbs1	A	CMP	E300.0:PERC	1	Y	
K6-27	PTMW	Tnbs1	S	CMP	E601:ALL	1	Y	
K6-27	PTMW	Tnbs1	S	CMP	E601:ALL	3		
K6-27	PTMW	Tnbs1	S	CMP	E906:ALL	1	Y	
K6-27	PTMW	Tnbs1	S	CMP	E906:ALL	3		
K6-32	PTMW	Tnbs1	A	CMP	E300.0:NO3	1	N	Dry.
K6-32	PTMW	Tnbs1	A	CMP	E300.0:PERC	1	N	Dry.
K6-32	PTMW	Tnbs1	S	CMP	E601:ALL	1	N	Dry.
K6-32	PTMW	Tnbs1	S	CMP	E601:ALL	3		
K6-32	PTMW	Tnbs1	S	CMP	E906:ALL	1	N	Dry.
K6-32	PTMW	Tnbs1	S	CMP	E906:ALL	3		
K6-33	PTMW	Tnbs1	A	CMP	E300.0:NO3	1	Y	
K6-33	PTMW	Tnbs1	A	CMP	E300.0:PERC	1	Y	
K6-33	PTMW	Tnbs1	S	CMP	E601:ALL	1	Y	
K6-33	PTMW	Tnbs1	S	CMP	E906:ALL	1	Y	
K6-33	PTMW	Tnbs1	S	CMP	E601:ALL	3		
K6-33	PTMW	Tnbs1	S	CMP	E906:ALL	3		
K6-34	GW	Tnbs1	S	CMP	E300.0:NO3	1	Y	
K6-34	GW	Tnbs1	S	CMP	E300.0:NO3	3		
K6-34	GW	Tnbs1	S	CMP	E300.0:PERC	1	Y	
K6-34	GW	Tnbs1	S	CMP	E300.0:PERC	3		
K6-34	GW	Tnbs1	Q	CMP	E601:ALL	1	Y	
K6-34	GW	Tnbs1	Q	CMP	E601:ALL	2	Y	
K6-34	GW	Tnbs1	Q	CMP	E601:ALL	3		
K6-34	GW	Tnbs1	Q	CMP	E601:ALL	4		
K6-34	GW	Tnbs1	Q	CMP	E906:ALL	1	Y	
K6-34	GW	Tnbs1	Q	CMP	E906:ALL	2	Y	
K6-34	GW	Tnbs1	Q	CMP	E906:ALL	3		
K6-34	GW	Tnbs1	Q	CMP	E906:ALL	4		
K6-35	PTMW	Tnbs1	A	CMP	E300.0:NO3	1	Y	
K6-35	PTMW	Tnbs1	A	CMP	E300.0:PERC	1	Y	
K6-35	PTMW	Tnbs1	S	CMP	E601:ALL	1	Y	
K6-35	PTMW	Tnbs1	S	CMP	E601:ALL	3		
K6-35	PTMW	Tnbs1	S	CMP	E906:ALL	1	Y	
K6-35	PTMW	Tnbs1	S	CMP	E906:ALL	3		
K6-36*	DMW	Tnbs1	Q	WGMG	E8260:ALL	1	N	Dry.
K6-36*	DMW	Tnbs1	Q	WGMG	E8260:ALL	2	N	Dry.

Table 2.3-1 (Con't.). Pit 6 Landfill OU ground and surface water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
K6-36*	DMW	Tnbs1	Q	WGMG	E8260:ALL	3		
K6-36*	DMW	Tnbs1	Q	WGMG	E8260:ALL	4		
K6-36*	DMW	Tnbs1	Q	WGMG	E300.0:NO3	1	N	Dry.
K6-36*	DMW	Tnbs1	Q	WGMG	E300.0:NO3	2	N	Dry.
K6-36*	DMW	Tnbs1	Q	WGMG	E300.0:NO3	3		
K6-36*	DMW	Tnbs1	Q	WGMG	E300.0:NO3	4		
K6-36*	DMW	Tnbs1	Q	WGMG	E300.0:PERC	1	N	Dry.
K6-36*	DMW	Tnbs1	Q	WGMG	E300.0:PERC	2	N	Dry.
K6-36*	DMW	Tnbs1	Q	WGMG	E300.0:PERC	3		
K6-36*	DMW	Tnbs1	Q	WGMG	E300.0:PERC	4		
K6-36*	DMW	Tnbs1	Q	WGMG	E906:ALL	1	N	Dry.
K6-36*	DMW	Tnbs1	Q	WGMG	E906:ALL	2	N	Dry.
K6-36*	DMW	Tnbs1	Q	WGMG	E906:ALL	2	Y	
K6-36*	DMW	Tnbs1	Q	WGMG	E906:ALL	4		
SPRING15	SPR	Qt	O	CMP	E300.0:NO3	1	N	To be sampled in 2011.
SPRING15	SPR	Qt	O	CMP	E300.0:PERC	1	N	To be sampled in 2011.
SPRING15	SPR	Qt	O	CMP	E601	1	N	To be sampled in 2011.
SPRING15	SPR	Qt	O	CMP	E906	1	N	To be sampled in 2011.
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	E601:ALL	1	Y	
W-33C-01	PTMW	Tts	S	CMP	E601:ALL	3		
W-33C-01	PTMW	Tts	S	CMP	E906:ALL	1	Y	
W-33C-01	PTMW	Tts	S	CMP	E906:ALL	3		
W-34-01	MWB	Tnsc1	A	DIS	E300.0:NO3	1	Y	
W-34-01	MWB	Tnsc1	A	DIS	E300.0:PERC	1	Y	
W-34-01	MWB	Tnsc1	A	DIS	E601:ALL	1	Y	
W-34-01	MWB	Tnsc1	A	DIS	E906:ALL	1	Y	
W-34-02	MWB	Upper Tnbs1	A	DIS	E300.0:NO3	1	Y	
W-34-02	MWB	Upper Tnbs1	A	DIS	E300.0:PERC	1	Y	
W-34-02	MWB	Upper Tnbs1	A	DIS	E601:ALL	1	Y	
W-34-02	MWB	Upper Tnbs1	A	DIS	E906:ALL	1	Y	
W-PIT6-1819	GW	Tnbs1	S	CMP	E300.0:NO3	1	Y	
W-PIT6-1819	GW	Tnbs1	S	CMP	E300.0:NO3	3		
W-PIT6-1819	GW	Tnbs1	S	CMP	E300.0:PERC	1	Y	
W-PIT6-1819	GW	Tnbs1	S	CMP	E300.0:PERC	3		
W-PIT6-1819	GW	Tnbs1	Q	CMP	E601:ALL	1	Y	
W-PIT6-1819	GW	Tnbs1	Q	CMP	E601:ALL	2	Y	
W-PIT6-1819	GW	Tnbs1	Q	CMP	E601:ALL	3		
W-PIT6-1819	GW	Tnbs1	Q	CMP	E601:ALL	4		
W-PIT6-1819	GW	Tnbs1	Q	CMP	E906:ALL	1	Y	
W-PIT6-1819	GW	Tnbs1	Q	CMP	E906:ALL	2	Y	
W-PIT6-1819	GW	Tnbs1	Q	CMP	E906:ALL	3		
W-PIT6-1819	GW	Tnbs1	Q	CMP	E906:ALL	4		

Notes:

1) Detection Monitoring conducted per the Pit 6 Post-Closure Plan.

2) Pit 6 Landfill primary COC: VOCs (E601).

3) Pit 6 Landfill primary COC: tritium (E906).

4) Pit 6 Landfill secondary COC: nitrate (E300:NO3).

5) Pit 6 Landfill secondary COC: perchlorate (E300.0:PERC).

6) Wells noted with "*" are sampled as part of the surveillance monitoring performed by the Water Guidance and Monitoring Group (WGMG) for additional constituents and the results are reported in the LLNL Site Annual Environmental Report.

7) See Acronyms and Abbreviations in the Tables section of this report for acronym and abbreviation definitions.

Table 2.4-1. Building 815-Source (815-SRC) volumes of ground water and soil vapor extracted and discharged, January 1, 2010 through June 30, 2010.

Treatment facility	Month	SVTS Operational hours	GWTS Operational hours	Volume of vapor extracted (thousands of ft^3)	Volume of ground water discharged (gal)
815-SRC	January	NA	698	NA	52,444
	February	NA	640	NA	46,675
	March	NA	662	NA	50,956
	April	NA	638	NA	46,573
	May	NA	580	NA	43,419
	June	NA	825	NA	62,572
Total		NA	4,043	NA	302,639

Table 2.4-2. Building 815-Proximal (815-PRX) volumes of ground water and soil vapor extracted and discharged, January 1, 2010 through June 30, 2010.

Treatment facility	Month	SVTS Operational hours	GWTS Operational hours	Volume of vapor extracted (thousands of ft^3)	Volume of ground water discharged (gal)
815-PRX	January	NA	0	NA	0
	February	NA	517	NA	53,781
	March	NA	846	NA	89,588
	April	NA	678	NA	64,533
	May	NA	420	NA	28,439
	June	NA	0	NA	0
Total		NA	2,461	NA	236,341

Table 2.4-3. Building 815-Distal Site Boundary (815-DSB) volumes of ground water and soil vapor extracted and discharged, January 1, 2010 through June 30, 2010.

Treatment facility	Month	SVTS Operational hours	GWTS Operational hours	Volume of vapor extracted (thousands of ft^3)	Volume of ground water discharged (gal)
815-DSB	January	NA	724	NA	116,448
	February	NA	677	NA	143,234
	March	NA	987	NA	207,714
	April	NA	521	NA	108,287
	May	NA	633	NA	129,382
	June	NA	810	NA	162,379
Total		NA	4,352	NA	867,444

Table 2.4-4. Building 817-Source (817-SRC) volumes of ground water and soil vapor extracted and discharged, January 1, 2010 through June 30, 2010.

Treatment facility	Month	SVTS Operational hours	GWTS Operational hours	Volume of vapor extracted (thousands of ft^3)	Volume of ground water discharged (gal)
817-SRC	January	NA	0	NA	0
	February	NA	3	NA	144
	March	NA	5	NA	253
	April	NA	4	NA	180
	May	NA	2	NA	99
	June	NA	2	NA	102
Total		NA	16	NA	778

Table 2.4-5. Building 817-Proximal (817-PRX) volumes of ground water and soil vapor extracted and discharged, January 1, 2010 through June 30, 2010.

Treatment facility	Month	SVTS Operational hours	GWTS Operational hours	Volume of vapor extracted (thousands of ft^3)	Volume of ground water discharged (gal)
817-PRX	January	NA	709	NA	58,613
	February	NA	625	NA	52,919
	March	NA	831	NA	71,187
	April	NA	678	NA	58,499
	May	NA	634	NA	50,854
	June	NA	840	NA	62,128
Total		NA	4,317	NA	354,200

Table 2.4-6. Building 829-Source (829-SRC) volumes of ground water and soil vapor extracted and discharged, January 1, 2010 through June 30, 2010.

Treatment facility	Month	SVTS Operational hours	GWTS Operational hours	Volume of vapor extracted (thousands of ft^3)	Volume of ground water discharged (gal)
829-SRC	January	NA	0	NA	0
	February	NA	0	NA	0
	March	NA	0	NA	0
	April	NA	80	NA	103
	May	NA	64	NA	79
	June	NA	22	NA	24
Total		NA	166	NA	206

Table 2.4-7. High Explosives Process Area OU VOCs in ground water 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 tetra-chloride (μg/L)	Chloro-form (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 Boundry															
815-DSB-GWTS-E	**1/25/10**	**<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**	**<0.5**
815-DSB-GWTS-E	**2/9/10**	**<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**	**<0.5**
815-DSB-GWTS-E	**3/9/10**	**<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**	**<0.5**
815-DSB-GWTS-E	**4/7/10**	**<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**	**<0.5**
815-DSB-GWTS-E	**5/11/10**	**<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**	**<0.5**
815-DSB-GWTS-E	**6/7/10**	**<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**	**<0.5**
815-DSB-GWTS-I	**2/9/10**	**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**
815-DSB-GWTS-I	**4/7/10**	**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**
815-DSB-GWTS-I[a]	**4/7/10**	**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**
Building 815-Proximal[b,c]															
815-PRX-GWTS-E	**2/3/10**	**<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**	**<0.5**
815-PRX-GWTS-E	**3/9/10**	**<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**	**<0.5**
815-PRX-GWTS-E	**4/13/10**	**<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**	**<0.5**
815-PRX-GWTS-E	**5/4/10**	**<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**	**<0.5**
815-PRX-GWTS-I	**2/3/10**	**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**
815-PRX-GWTS-I	**4/13/10**	**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**
815-PRX-GWTS-I[a]	**4/13/10**	**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**
Building 815-Source															
815-SRC-GWTS-E	**1/13/10**	**<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**	**<0.5**
815-SRC-GWTS-E	**2/4/10**	**<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**	**<0.5**
815-SRC-GWTS-E	**3/9/10**	**<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**	**<0.5**
815-SRC-GWTS-E	**4/12/10**	**<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**	**<0.5**
815-SRC-GWTS-E	**5/4/10**	**<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**	**<0.5**
815-SRC-GWTS-E	**6/2/10**	**<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**	**<0.5**
815-SRC-GWTS-I	**1/13/10**	**4.7**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**0.68**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**
815-SRC-GWTS-I	**4/12/10**	**5.1**	**<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-GWTS-I[a]	**4/12/10**	**5.1**	**<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**

Table 2.4-7 (Con't.). High Explosives Process Area OU VOCs in ground water 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 tetra-chloride (µg/L)	Chloro-form (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 817-Proximal[b]															
817-PRX-GWTS-E	2/9/10	<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	<0.5
817-PRX-GWTS-E	3/9/10	<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	<0.5
817-PRX-GWTS-E	4/13/10	<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	<0.5
817-PRX-GWTS-E	5/4/10	<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	<0.5
817-PRX-GWTS-E	6/2/10	<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	<0.5
817-PRX-GWTS-I	2/9/10	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
817-PRX-GWTS-I	4/13/10	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
817-PRX-GWTS-I[a]	4/13/10	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
Building 817-Source[b]															
817-SRC-GWTS-E	2/10/10	<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	<0.5
817-SRC-GWTS-E	3/9/10	<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	<0.5
817-SRC-GWTS-E	4/13/10	<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	<0.5
817-SRC-GWTS-E	5/5/10	<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	<0.5
817-SRC-GWTS-E	6/2/10	<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	<0.5
817-SRC-GWTS-I	2/10/10	<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	<0.5
817-SRC-GWTS-I	4/13/10	<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	<0.5
817-SRC-GWTS-I[a]	4/13/10	<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	<0.5
Building 829-Source[d]															
829-SRC-GWTS-E	5/17/10	<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	<0.5
829-SRC-GWTS-I	5/17/10	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
829-SRC-GWTS-I[a]	5/17/10	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

Notes:

[a] **Duplicate sample submitted for QA/QC.**

[b] **No samples collected in January due to GWTS shut down for freeze protection.**

[c] **No compliance monitoring conduced in June; system offline due to malfunction of extraction pumps.**

[d] **Only able to collect one set of re-start samples prior to electronics problems shut down of GWTS.**

See Acronyms and Abbreviations in the Tables section of this report for definitions.

Table 2.4-7 (Con't.). Analyte detected but not reported in main table.

Location	Date	Detection frequency
Building 815-Distal Site Boundry		
815-DSB-GWTS-E	**1/25/10**	**0 of 18**
815-DSB-GWTS-E	**2/9/10**	**0 of 18**
815-DSB-GWTS-E	**3/9/10**	**0 of 18**
815-DSB-GWTS-E	**4/7/10**	**0 of 18**
815-DSB-GWTS-E	**5/11/10**	**0 of 18**
815-DSB-GWTS-E	**6/7/10**	**0 of 18**
815-DSB-GWTS-I	**2/9/10**	**0 of 18**
815-DSB-GWTS-I	**4/7/10**	**0 of 18**
815-DSB-GWTS-I[a]	**4/7/10**	**0 of 18**
Building 815-Proximal[b,c]		
815-PRX-GWTS-E	**2/3/10**	**0 of 18**
815-PRX-GWTS-E	**3/9/10**	**0 of 18**
815-PRX-GWTS-E	**4/13/10**	**0 of 18**
815-PRX-GWTS-E	**5/4/10**	**0 of 18**
815-PRX-GWTS-I	**2/3/10**	**0 of 18**
815-PRX-GWTS-I	**4/13/10**	**0 of 18**
815-PRX-GWTS-I[a]	**4/13/10**	**0 of 18**
Building 815-Source		
815-SRC-GWTS-E	**1/13/10**	**0 of 18**
815-SRC-GWTS-E	**2/4/10**	**0 of 18**
815-SRC-GWTS-E	**3/9/10**	**0 of 18**
815-SRC-GWTS-E	**4/12/10**	**0 of 18**
815-SRC-GWTS-E	**5/4/10**	**0 of 18**
815-SRC-GWTS-E	**6/2/10**	**0 of 18**
815-SRC-GWTS-I	**1/13/10**	**0 of 18**
815-SRC-GWTS-I	**4/12/10**	**0 of 18**
815-SRC-GWTS-I[a]	**4/12/10**	**0 of 18**
Building 817-Proximal[b]		
817-PRX-GWTS-E	**2/9/10**	**0 of 18**
817-PRX-GWTS-E	**3/9/10**	**0 of 18**
817-PRX-GWTS-E	**4/13/10**	**0 of 18**
817-PRX-GWTS-E	**5/4/10**	**0 of 18**
817-PRX-GWTS-E	**6/2/10**	**0 of 18**
817-PRX-GWTS-I	**2/9/10**	**0 of 18**
817-PRX-GWTS-I	**4/13/10**	**0 of 18**
817-PRX-GWTS-I[a]	**4/13/10**	**0 of 18**
Building 817-Source[b]		
817-SRC-GWTS-E	**2/10/10**	**0 of 18**
817-SRC-GWTS-E	**3/9/10**	**0 of 18**
817-SRC-GWTS-E	**4/13/10**	**0 of 18**
817-SRC-GWTS-E	**5/5/10**	**0 of 18**
817-SRC-GWTS-E	**6/2/10**	**0 of 18**
817-SRC-GWTS-I	**2/10/10**	**0 of 18**
817-SRC-GWTS-I	**4/13/10**	**0 of 18**
817-SRC-GWTS-I[a]	**4/13/10**	**0 of 18**

Table 2.4-7 (Con't.). Analyte detected but not reported in main table.

Location	Date	Detection frequency
Building 829-Source[d]		
829-SRC-GWTS-E	**5/17/10**	**0 of 18**
829-SRC-GWTS-I	**5/17/10**	**0 of 18**
829-SRC-GWTS-I[a]	**5/17/10**	**0 of 18**

Notes:

[a] **Duplicate sample submitted for QA/QC.**

[b] **No samples collected in January due to GWTS shut down for freeze protection.**

[c] **No compliance monitoring conduced in June; system offline due to malfunction of extraction pumps.**

[d] **Only able to collect one set of re-start samples prior to electronics problems shut down of GWTS.**

See Acronyms and Abbreviations in the Tables section of this report for definitions.

Table 2.4-8. High Explosives Process Area OU nitrate and perchlorate in ground water treatment system influent and effluent.

Location	Date	Nitrate (as NO3) (mg/L)	Perchlorate (μg/L)
Building 815-Distal Site Boundry[a]			
Building 815-Proximal[b,c]			
815-PRX-GWTS-E	**2/3/10**	**NR**	**<4**
815-PRX-GWTS-E	**3/9/10**	**NR**	**<4**
815-PRX-GWTS-E	**4/13/10**	**NR**	**<4**
815-PRX-GWTS-E	**5/4/10**	**NR**	**<4**
815-PRX-GWTS-I	**2/3/10**	**NR**	**7.4**
815-PRX-GWTS-I	**4/13/10**	**NR**	**5.7**
815-PRX-GWTS-I[d]	**4/13/10**	**NR**	**7.3**
Building 815-Source			
815-SRC-GWTS-E	**1/13/10**	**NR**	**<4**
815-SRC-GWTS-E	**2/4/10**	**NR**	**<4**
815-SRC-GWTS-E	**3/9/10**	**NR**	**<4**
815-SRC-GWTS-E	**4/12/10**	**NR**	**<4**
815-SRC-GWTS-E	**5/4/10**	**NR**	**<4**
815-SRC-GWTS-E	**6/2/10**	**NR**	**<4**
815-SRC-GWTS-I	**1/13/10**	**NR**	**9.2 O**
815-SRC-GWTS-I	**4/12/10**	**NR**	**6.7**
815-SRC-GWTS-I[d]	**4/12/10**	**NR**	**6.7**
Building 817-Proximal[b]			
817-PRX-GWTS-E	**2/9/10**	**NR**	**<4**
817-PRX-GWTS-E	**3/9/10**	**NR**	**<4**
817-PRX-GWTS-E	**4/13/10**	**NR**	**<4**
817-PRX-GWTS-E	**5/4/10**	**NR**	**<4**
817-PRX-GWTS-E	**6/2/10**	**NR**	**<4**
817-PRX-GWTS-I	**2/9/10**	**NR**	**21 D**
817-PRX-GWTS-I	**4/13/10**	**NR**	**19**
817-PRX-GWTS-I[d]	**4/13/10**	**NR**	**19**
817-PRX-GWTS-I[d]	**4/13/10**	**NR**	**23**

Table 2.4-8 (Con't.). High Explosives Process Area OU nitrate and perchlorate in ground water treatment system influent and effluent.

Location	Date	Nitrate (as NO3) (mg/L)	Perchlorate (μg/L)
Building 817-Source[b]			
817-SRC-GWTS-E	**2/10/10**	**NR**	**<4**
817-SRC-GWTS-E	**3/9/10**	**NR**	**<4**
817-SRC-GWTS-E	**4/13/10**	**NR**	**<4**
817-SRC-GWTS-E	**5/5/10**	**NR**	**<4**
817-SRC-GWTS-E	**6/2/10**	**NR**	**<4**
817-SRC-GWTS-I	**2/10/10**	**NR**	**29 D**
817-SRC-GWTS-I	**4/13/10**	**NR**	**26 D**
817-SRC-GWTS-I[d]	**4/13/10**	**NR**	**25 D**
Building 829-Source[e]			
829-SRC-GWTS-E	**5/17/10**	**<1 D**	**<4**
829-SRC-GWTS-I	**5/17/10**	**78 D**	**8.4**
829-SRC-GWTS-I[d]	**5/17/10**	**80 D**	**7.9**

Notes:

[a] No nitrate or perchlorate monitoring required.

[b] No samples collected in January due to GWTS shut down for freeze protection.

[c] No compliance monitoring conducted in June; system offline due to malfunction of extraction pumps.

[d] Duplicate sample submitted for QA/QC.

[e] Only able to collect one set of re-start samples prior to electronics problems shut down of GWTS.

See Acronyms and Abbreviations in the Tables section of this report for definitions.

Table 2.4-9. High Explosives Process Area OU high explosive compounds in ground water treatment system influent and effluent.

Location	Date	1,3,5-TNB (µg/L)	1,3-DNB (µg/L)	TNT (µg/L)	2,4-DNT (µg/L)	2,6-DNT (µg/L)	2-Amino-4,6- DNT (µg/L)	2-NT (µg/L)	3-NT (µg/L)	4-Amino-2,6- DNT (µg/L)	4-NT (µg/L)	HMX (µg/L)	NB (µg/L)	RDX (µg/L)
Building 815-Proximal[a]														
815-PRX-GWTS-E	**2/3/10**	**<2**	**<2**	**<2 O**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<1**	**<2**	**<1**
815-PRX-GWTS-E	**4/13/10**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<1**	**<2**	**<1**
Building 815-Source														
815-SRC-GWTS-E	**1/13/10**	**<1.3**	**<1.3**	**<1.3**	**<1.3**	**<1.3**	**<1.3**	**<1.3**	**<1.3**	**<1.3**	**<1.3**	**<0.67**	**<1.3**	**<0.67**
815-SRC-GWTS-E	**2/4/10**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<1**	**<2**	**<1**
815-SRC-GWTS-E	**3/9/10**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<1**	**<2**	**<1**
815-SRC-GWTS-E	**4/12/10**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<1**	**<2**	**<1**
815-SRC-GWTS-E	**5/4/10**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<1**	**<2**	**<1**
815-SRC-GWTS-E	**6/2/10**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<1**	**<2**	**<1**
815-SRC-GWTS-I	**1/13/10**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**9.1**	**<2**	**67**
815-SRC-GWTS-I	**4/12/10**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**8.5**	**<2**	**61**
815-SRC-GWTS-I[b]	**4/12/10**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**6.3**	**<2**	**59**
Building 817-Proximal[c]														
817-PRX-GWTS-E	**2/9/10**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<1**	**<2**	**<1**
817-PRX-GWTS-E[d]	**3/9/10**	**<2.4 D**	**<2.4 D**	**<2.4 D**	**<2.4 D**	**<2.4 D**	**<2.4 D**	**<2.4 D**	**<2.4 D**	**<2.4 D**	**<2.4 D**	**<1.2 D**	**<2.4 D**	**<1.2 D**
817-PRX-GWTS-E	**4/13/10**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<1**	**<2**	**<1**
817-PRX-GWTS-E	**5/4/10**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<1**	**<2**	**<1**
817-PRX-GWTS-E	**6/2/10**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<1**	**<2**	**<1**
817-PRX-GWTS-I	**2/9/10**	**<2 DO**	**<2 DO**	**<2 D**	**<2 D**	**<2 D**	**<2 D**	**<2 D**	**<2 D**	**<2 D**	**<2 D**	**<1 D**	**<2 DO**	**8.8 D**
817-PRX-GWTS-I	**4/13/10**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<1**	**<2 O**	**-**
817-PRX-GWTS-I[b]	**4/13/10**	**<2 D**	**<2 D**	**<2 D**	**<2 D**	**<2 D**	**<2 D**	**<2 D**	**<2 D**	**<2 D**	**<2 D**	**<1 D**	**<2 D**	**9.6 D**

Table 2.4-9 (Con't.). High Explosives Process Area OU high explosive compounds in ground water treatment system influent and effluent.

Location	Date	1,3,5-TNB (µg/L)	1,3-DNB (µg/L)	TNT (µg/L)	2,4-DNT (µg/L)	2,6-DNT (µg/L)	2-Amino-4,6- DNT (µg/L)	2-NT (µg/L)	3-NT (µg/L)	4-Amino-2,6- DNT (µg/L)	4-NT (µg/L)	HMX (µg/L)	NB (µg/L)	RDX (µg/L)
Building 817-Source[c]														
817-SRC-GWTS-E	2/10/10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1
817-SRC-GWTS-E[d]	3/9/10	<2.6 D	<2.6 D	<2.6 D	<2.6 D	<2.6 D	<2.6 D	<2.6 D	<2.6 D	<2.6 D	<2.6 D	<1.3 D	<2.6 D	<1.3 D
817-SRC-GWTS-E	4/13/10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1
817-SRC-GWTS-E	5/5/10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1
817-SRC-GWTS-E	6/2/10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1
817-SRC-GWTS-I	2/10/10	<2.4 DO	<2.4 DO	<2.4 D	<2.4 D	<2.4 D	<2.4 D	<2.4 D	<2.4 D	<2.4 D	<2.4 D	19 D	<2.4 DO	52 D
817-SRC-GWTS-I	4/13/10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	21	<2	49
817-SRC-GWTS-I[b]	4/13/10	<2 D	<2 D	<2 D	<2 D	<2 D	<2 D	<2 D	<2 D	<2 D	<2 D	19 D	<2 D	50 D
Building 829-Source[e]														
829-SRC-GWTS-I	5/17/10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1
829-SRC-GWTS-I[b]	5/17/10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<1

Notes:

[a] **High Explosive monitoring at 815-PRX-GWTS required at effluent only on a quarterly basis.**

[b] **Duplicate sample submitted for QA/QC.**

[c] **No samples collected in January due to GWTS shut down for freeze protection.**

[d] **Due to samples extraction problems at CAL, PQLs were raised slightly above normal.**

[e] **High Explosive monitoring at 829-SRC-GWTS not required; however, samples required annually from extraction well do represent influent to GWTS.**

See Acronyms and Abbreviations in the Tables section of this report for definitions.

Table 2.4-10. High Explosives Process Area OU 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**
		pH	**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**
		Perchlorate	**Quarterly**
		pH	**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**
		pH	**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**
		pH	**Quarterly**
Effluent Port	**817-SRC-E**	**VOCs**	**Monthly**
		HE Compounds	**Monthly**
		Perchlorate	**Monthly**
		pH	**Monthly**

Table 2.4-10 (Cont.). High Explosives Process Area OU treatment facility sampling and analysis plans.

Sample location	Sample identification	Parameter	Frequency
817-PRX GWTS			
Influent Port	**817-PRX-I**	**VOCs**	**Quarterly**
		HE Compounds	**Quarterly**
		Perchlorate	**Quarterly**
		pH	**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**
		pH	**Quarterly**
Effluent Port	**829-SRC-BTU-I**	**VOCs**	**Monthly**
Effluent Port	**829-SRC-E**	**Perchlorate**	**Monthly**
		Nitrate	**Monthly**
		pH	**Monthly**

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.

Table 2.4-11. High Explosives Process Area OU ground and surface water sampling and analysis plan.

Sample location	Location type	Completion interval	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		
GALLO1*	WS	Tnbs2	M	CMP	E300.0:NO3	3		
GALLO1*	WS	Tnbs2	M	CMP	E300.0:NO3	3		
GALLO1*	WS	Tnbs2	M	CMP	E300.0:NO3	4		
GALLO1*	WS	Tnbs2	M	CMP	E300.0:NO3	4		
GALLO1*	WS	Tnbs2	M	CMP	E300.0:NO3	4		
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		
GALLO1*	WS	Tnbs2	M	CMP	E300.0:PERC	3		
GALLO1*	WS	Tnbs2	M	CMP	E300.0:PERC	3		
GALLO1*	WS	Tnbs2	M	CMP	E300.0:PERC	4		
GALLO1*	WS	Tnbs2	M	CMP	E300.0:PERC	4		
GALLO1*	WS	Tnbs2	M	CMP	E300.0:PERC	4		
GALLO1*	WS	Tnbs2	M	CMP	E601:ALL	1	Y	
GALLO1*	WS	Tnbs2	M	CMP	E601:ALL	1	Y	
GALLO1*	WS	Tnbs2	M	CMP	E601:ALL	1	Y	
GALLO1*	WS	Tnbs2	M	CMP	E601:ALL	2	Y	
GALLO1*	WS	Tnbs2	M	CMP	E601:ALL	2	Y	
GALLO1*	WS	Tnbs2	M	CMP	E601:ALL	2	Y	
GALLO1*	WS	Tnbs2	M	CMP	E601:ALL	3		
GALLO1*	WS	Tnbs2	M	CMP	E601:ALL	3		
GALLO1*	WS	Tnbs2	M	CMP	E601:ALL	3		
GALLO1*	WS	Tnbs2	M	CMP	E601:ALL	4		
GALLO1*	WS	Tnbs2	M	CMP	E601:ALL	4		
GALLO1*	WS	Tnbs2	M	CMP	E601:ALL	4		
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	
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		
GALLO1*	WS	Tnbs2	M	CMP	E8330LOW:ALL	3		
GALLO1*	WS	Tnbs2	M	CMP	E8330LOW:ALL	3		
GALLO1*	WS	Tnbs2	M	CMP	E8330LOW:ALL	4		
GALLO1*	WS	Tnbs2	M	CMP	E8330LOW:ALL	4		
GALLO1*	WS	Tnbs2	M	CMP	E8330LOW:ALL	4		
GALLO1*	WS	Tnbs2	Q	WGMG	E502.2	1	Y	
GALLO1*	WS	Tnbs2	Q	WGMG	E502.2	2	Y	
GALLO1*	WS	Tnbs2	Q	WGMG	E502.2	3		
GALLO1*	WS	Tnbs2	Q	WGMG	E502.2	4		
SPRING5	SPR	Tps	A	CMP	E300.0:NO3	1	N	Dry.
SPRING5	SPR	Tps	A	CMP	E300.0:PERC	1	N	Dry.
SPRING5	SPR	Tps	S	CMP	E601:ALL	1	N	Dry.
SPRING5	SPR	Tps	S	CMP	E601:ALL	3		
SPRING5	SPR	Tps	A	CMP	E8330LOW:ALL	1	N	Dry.
W-35B-01	GW	Qal	S	CMP	E300.0:NO3	1	Y	
W-35B-01	GW	Qal	S	CMP	E300.0:NO3	3		
W-35B-01	GW	Qal	S	CMP	E300.0:PERC	1	Y	

Table 2.4-11 (Con't.). High Explosives Process Area OU ground and surface water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
W-35B-01	GW	Qal	S	CMP	E300.0:PERC	3		
W-35B-01	GW	Qal	Q	CMP	E601:ALL	1	Y	
W-35B-01	GW	Qal	Q	CMP	E601:ALL	2	Y	
W-35B-01	GW	Qal	Q	CMP	E601:ALL	3		
W-35B-01	GW	Qal	Q	CMP	E601:ALL	4		
W-35B-01	GW	Qal	S	CMP	E8330LOW:ALL	1	Y	
W-35B-01	GW	Qal	S	CMP	E8330LOW:ALL	3		
W-35B-02	GW	Tnbs2	S	CMP	E300.0:NO3	1	Y	
W-35B-02	GW	Tnbs2	S	CMP	E300.0:NO3	3		
W-35B-02	GW	Tnbs2	S	CMP	E300.0:PERC	1	Y	
W-35B-02	GW	Tnbs2	S	CMP	E300.0:PERC	3		
W-35B-02	GW	Tnbs2	Q	CMP	E601:ALL	1	Y	
W-35B-02	GW	Tnbs2	Q	CMP	E601:ALL	2	Y	
W-35B-02	GW	Tnbs2	Q	CMP	E601:ALL	3		
W-35B-02	GW	Tnbs2	Q	CMP	E601:ALL	4		
W-35B-02	GW	Tnbs2	S	CMP	E8330LOW:ALL	1	Y	
W-35B-02	GW	Tnbs2	S	CMP	E8330LOW:ALL	3		
W-35B-03	GW	Tnbs2	S	CMP	E300.0:NO3	1	Y	
W-35B-03	GW	Tnbs2	S	CMP	E300.0:NO3	3		
W-35B-03	GW	Tnbs2	S	CMP	E300.0:PERC	1	Y	
W-35B-03	GW	Tnbs2	S	CMP	E300.0:PERC	3		
W-35B-03	GW	Tnbs2	Q	CMP	E601:ALL	1	Y	
W-35B-03	GW	Tnbs2	Q	CMP	E601:ALL	2	Y	
W-35B-03	GW	Tnbs2	Q	CMP	E601:ALL	3		
W-35B-03	GW	Tnbs2	Q	CMP	E601:ALL	4		
W-35B-03	GW	Tnbs2	S	CMP	E8330LOW:ALL	1	Y	
W-35B-03	GW	Tnbs2	S	CMP	E8330LOW:ALL	3		
W-35B-04	GW	Tnbs2	S	CMP	E300.0:NO3	1	Y	
W-35B-04	GW	Tnbs2	S	CMP	E300.0:NO3	3		
W-35B-04	GW	Tnbs2	S	CMP	E300.0:PERC	1	Y	
W-35B-04	GW	Tnbs2	S	CMP	E300.0:PERC	3		
W-35B-04	GW	Tnbs2	Q	CMP	E601:ALL	1	Y	
W-35B-04	GW	Tnbs2	Q	CMP	E601:ALL	2	Y	
W-35B-04	GW	Tnbs2	Q	CMP	E601:ALL	3		
W-35B-04	GW	Tnbs2	Q	CMP	E601:ALL	4		
W-35B-04	GW	Tnbs2	S	CMP	E8330LOW:ALL	1	Y	
W-35B-04	GW	Tnbs2	S	CMP	E8330LOW:ALL	3		
W-35B-05	GW	Tnbs2	S	CMP	E300.0:NO3	1	Y	
W-35B-05	GW	Tnbs2	S	CMP	E300.0:NO3	3		
W-35B-05	GW	Tnbs2	S	CMP	E300.0:PERC	1	Y	
W-35B-05	GW	Tnbs2	S	CMP	E300.0:PERC	3		
W-35B-05	GW	Tnbs2	Q	CMP	E601:ALL	1	Y	
W-35B-05	GW	Tnbs2	Q	CMP	E601:ALL	2	Y	
W-35B-05	GW	Tnbs2	Q	CMP	E601:ALL	3		
W-35B-05	GW	Tnbs2	Q	CMP	E601:ALL	4		
W-35B-05	GW	Tnbs2	S	CMP	E8330LOW:ALL	1	Y	
W-35B-05	GW	Tnbs2	S	CMP	E8330LOW:ALL	3		
W-35C-01	PTMW	Tnsc2	A	CMP	E300.0:NO3	1	Y	
W-35C-01	PTMW	Tnsc2	S	CMP	E601:ALL	1	Y	
W-35C-01	PTMW	Tnsc2	S	CMP	E601:ALL	3		
W-35C-02	PTMW	Tnbs1	S	CMP	E601:ALL	1	Y	
W-35C-02	PTMW	Tnbs1	S	CMP	E601:ALL	3		
W-35C-02	PTMW	Tnbs1	A	CMP	E8330LOW:ALL	1	Y	
W-35C-04	EW	Tnbs2	S	CMP-TF	E601:ALL	1	Y	
W-35C-04	EW	Tnbs2	S	DIS	E601:ALL	2	Y	
W-35C-04	EW	Tnbs2	S	CMP-TF	E601:ALL	3		
W-35C-04	EW	Tnbs2	S	DIS	E601:ALL	4		
W-35C-05	PTMW	Tps	A	CMP	E300.0:NO3	1	Y	
W-35C-05	PTMW	Tps	S	CMP	E601:ALL	1	Y	
W-35C-05	PTMW	Tps	S	CMP	E601:ALL	3		

Table 2.4-11 (Con't.). High Explosives Process Area OU ground and surface water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
W-35C-06	PTMW	Qal	S	CMP	E601:ALL	1	Y	
W-35C-06	PTMW	Qal	S	CMP	E601:ALL	3		
W-35C-06	PTMW	Qal	A	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	E601:ALL	1	Y	
W-35C-07	PTMW	Tnsc2	S	CMP	E601:ALL	3		
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	E601:ALL	1	Y	
W-35C-08	PTMW	Tnsc2	S	CMP	E601:ALL	3		
W-4A	PTMW	Tnbs2	E	CMP	E300.0:NO3	1	N	Inoperable pump.
W-4A	PTMW	Tnbs2	E	CMP	E300.0:PERC	1	N	Inoperable pump.
W-4A	PTMW	Tnbs2	S	CMP	E601:ALL	1	N	Inoperable pump.
W-4A	PTMW	Tnbs2	S	CMP	E601:ALL	3		
W-4A	PTMW	Tnbs2	E	CMP	E8330LOW:ALL	1	N	Inoperable pump.
W-4AS	PTMW	Tps	A	CMP	E300.0:NO3	1	Y	
W-4AS	PTMW	Tps	E	CMP	E300.0:PERC	1	Y	
W-4AS	PTMW	Tps	S	CMP	E601:ALL	1	Y	
W-4AS	PTMW	Tps	S	CMP	E601:ALL	3		
W-4AS	PTMW	Tps	E	CMP	E8330LOW:ALL	1	Y	
W-4B	PTMW	Tnbs2	S	CMP	E601:ALL	1	Y	
W-4B	PTMW	Tnbs2	S	CMP	E601:ALL	3		
W-4C	GW	Tnsc1	S	CMP	E300.0:NO3	1	Y	
W-4C	GW	Tnsc1	S	CMP	E300.0:NO3	3		
W-4C	GW	Tnsc1	S	CMP	E300.0:PERC	1	Y	
W-4C	GW	Tnsc1	S	CMP	E300.0:PERC	3		
W-4C	GW	Tnsc1	Q	CMP	E601:ALL	1	Y	
W-4C	GW	Tnsc1	Q	CMP	E601:ALL	2	Y	
W-4C	GW	Tnsc1	Q	CMP	E601:ALL	3		
W-4C	GW	Tnsc1	Q	CMP	E601:ALL	4		
W-6BD	PTMW	Tps	A	CMP	E300.0:NO3	1	Y	
W-6BD	PTMW	Tps	E	CMP	E300.0:PERC	1	Y	
W-6BD	PTMW	Tps	S	CMP	E601:ALL	1	Y	
W-6BD	PTMW	Tps	S	CMP	E601:ALL	3		
W-6BD	PTMW	Tps	E	CMP	E8330LOW:ALL	1	Y	
W-6BS	PTMW	Tps	A	CMP	E300.0:NO3	1	Y	
W-6BS	PTMW	Tps	E	CMP	E300.0:PERC	1	Y	
W-6BS	PTMW	Tps	S	CMP	E601:ALL	1	Y	
W-6BS	PTMW	Tps	S	CMP	E601:ALL	3		
W-6BS	PTMW	Tps	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	E601:ALL	1	Y	
W-6CD	PTMW	Tnbs2	S	CMP	E601:ALL	3		
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	E601:ALL	1	Y	
W-6CI	PTMW	Tnsc2	S	CMP	E601:ALL	3		
W-6CI	PTMW	Tnsc2	A	CMP	E8330LOW:ALL	1	Y	
W-6CS	PTMW	Tps	A	CMP	E300.0:NO3	1	Y	
W-6CS	PTMW	Tps	A	CMP	E300.0:PERC	1	Y	
W-6CS	PTMW	Tps	S	CMP	E601:ALL	1	Y	
W-6CS	PTMW	Tps	S	CMP	E601:ALL	3		
W-6CS	PTMW	Tps	A	CMP	E8330LOW:ALL	1	Y	
W-6EI	PTMW	Tnsc2	A	CMP	E300.0:NO3	1	Y	
W-6EI	PTMW	Tnsc2	A	CMP	E300.0:PERC	1	Y	
W-6EI	PTMW	Tnsc2	S	CMP	E601:ALL	1	Y	

Table 2.4-11 (Con't.). High Explosives Process Area OU ground and surface water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
W-6EI	PTMW	Tnsc2	S	CMP	E601:ALL	3		
W-6EI	PTMW	Tnsc2	A	CMP	E8330LOW:ALL	1	Y	
W-6ER	EW	Tnbs2	S	CMP-TF	E601:ALL	1	Y	
W-6ER	EW	Tnbs2	S	DIS	E601:ALL	2	Y	
W-6ER	EW	Tnbs2	S	CMP-TF	E601:ALL	3		
W-6ER	EW	Tnbs2	S	DIS	E601:ALL	4		
W-6ES	PTMW	Qal	E	CMP	E300.0:NO3	1	Y	
W-6ES	PTMW	Qal	E	CMP	E300.0:PERC	1	Y	
W-6ES	PTMW	Qal	S	CMP	E601:ALL	1	Y	
W-6ES	PTMW	Qal	S	CMP	E601:ALL	3		
W-6ES	PTMW	Qal	A	CMP	E8330LOW:ALL	1	Y	
W-6F	PTMW	Tnbs2	A	CMP	E300.0:NO3	1	Y	
W-6F	PTMW	Tnbs2	A	CMP	E300.0:PERC	1	Y	
W-6F	PTMW	Tnbs2	S	CMP	E601:ALL	1	Y	
W-6F	PTMW	Tnbs2	S	CMP	E601:ALL	3		
W-6F	PTMW	Tnbs2	A	CMP	E8330LOW:ALL	1	Y	
W-6G	PTMW	Tnbs2	A	CMP	E300.0:NO3	1	Y	
W-6G	PTMW	Tnbs2	S	CMP	E601:ALL	1	Y	
W-6G	PTMW	Tnbs2	S	CMP	E601:ALL	3		
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		
W-6H	GW	Tnbs2	S	CMP	E300.0:PERC	1	Y	
W-6H	GW	Tnbs2	S	CMP	E300.0:PERC	3		
W-6H	GW	Tnbs2	Q	CMP	E601:ALL	1	Y	
W-6H	GW	Tnbs2	Q	CMP	E601:ALL	2	Y	
W-6H	GW	Tnbs2	Q	CMP	E601:ALL	3		
W-6H	GW	Tnbs2	Q	CMP	E601:ALL	4		
W-6H	GW	Tnbs2	S	CMP	E8330LOW:ALL	1	Y	
W-6H	GW	Tnbs2	S	CMP	E8330LOW:ALL	3		
W-6I	PTMW	Tps	S	CMP	E601:ALL	1	Y	
W-6I	PTMW	Tps	S	CMP	E601:ALL	3		
W-6J	GW	Tnbs2	S	CMP	E300.0:NO3	1	Y	
W-6J	GW	Tnbs2	S	CMP	E300.0:NO3	3		
W-6J	GW	Tnbs2	S	CMP	E300.0:PERC	1	Y	
W-6J	GW	Tnbs2	S	CMP	E300.0:PERC	3		
W-6J	GW	Tnbs2	Q	CMP	E601:ALL	1	Y	
W-6J	GW	Tnbs2	Q	CMP	E601:ALL	2	Y	
W-6J	GW	Tnbs2	Q	CMP	E601:ALL	3		
W-6J	GW	Tnbs2	Q	CMP	E601:ALL	4		
W-6J	GW	Tnbs2	S	CMP	E8330LOW:ALL	1	Y	
W-6J	GW	Tnbs2	S	CMP	E8330LOW:ALL	3		
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	E601:ALL	1	Y	
W-6K	PTMW	Tnbs2	S	CMP	E601:ALL	3		
W-6K	PTMW	Tnbs2	E	CMP	E8330LOW:ALL	1	Y	
W-6L	PTMW	Tnbs2	S	CMP	E601:ALL	1	Y	
W-6L	PTMW	Tnbs2	S	CMP	E601:ALL	3		
W-808-01	PTMW	Tps	A	CMP	E300.0:NO3	1	Y	
W-808-01	PTMW	Tps	A	CMP	E300.0:PERC	1	Y	
W-808-01	PTMW	Tps	S	CMP	E601:ALL	1	Y	
W-808-01	PTMW	Tps	S	CMP	E601:ALL	3		
W-808-02	PTMW	Tnsc2	A	CMP	E300.0:NO3	1	N	Dry.
W-808-02	PTMW	Tnsc2	A	CMP	E300.0:PERC	1	N	Dry.
W-808-02	PTMW	Tnsc2	S	CMP	E601:ALL	1	N	Dry.
W-808-02	PTMW	Tnsc2	S	CMP	E601:ALL	3		
W-808-03	PTMW	Tnbs1	A	CMP	E300.0:NO3	1	Y	
W-808-03	PTMW	Tnbs1	A	CMP	E300.0:PERC	1	Y	
W-808-03	PTMW	Tnbs1	S	CMP	E601:ALL	1	Y	

Table 2.4-11 (Con't.). High Explosives Process Area OU ground and surface water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
W-808-03	PTMW	Tnbs1	S	CMP	E601:ALL	3		
W-809-01	PTMW	Tps	A	CMP	E300.0:NO3	1	Y	
W-809-01	PTMW	Tps	A	CMP	E300.0:PERC	1	Y	
W-809-01	PTMW	Tps	S	CMP	E601:ALL	1	Y	
W-809-01	PTMW	Tps	S	CMP	E601:ALL	3		
W-809-01	PTMW	Tps	A	CMP	E8330LOW:ALL	1	Y	
W-809-02	PTMW	Tnbs2	A	CMP	E300.0:NO3	1	Y	
W-809-02	PTMW	Tnbs2	S	CMP	E601:ALL	1	Y	
W-809-02	PTMW	Tnbs2	S	CMP	E601:ALL	3		
W-809-02	PTMW	Tnbs2	A	CMP	E8330LOW:ALL	1	Y	
W-809-02	PTMW	Tnbs2	A	CMP	E300.0:PERC	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	S	CMP	E601:ALL	1	Y	
W-809-03	PTMW	Tnbs2	S	CMP	E601:ALL	3		
W-809-03	PTMW	Tnbs2	A	CMP	E8330LOW:ALL	1	Y	
W-809-04	PTMW	Tps	A	CMP	E300.0:NO3	1	Y	
W-809-04	PTMW	Tps	A	CMP	E300.0:PERC	1	Y	
W-809-04	PTMW	Tps	S	CMP	E601:ALL	1	Y	
W-809-04	PTMW	Tps	S	CMP	E601:ALL	3		
W-809-04	PTMW	Tps	A	CMP	E8330LOW:ALL	1	Y	
W-810-01	PTMW	Tnbs1	A	CMP	E300.0:NO3	1	Y	
W-810-01	PTMW	Tnbs1	A	CMP	E300.0:PERC	1	Y	
W-810-01	PTMW	Tnbs1	S	CMP	E601:ALL	1	Y	
W-810-01	PTMW	Tnbs1	S	CMP	E601:ALL	3		
W-810-01	PTMW	Tnbs1	A	CMP	E8330LOW:ALL	1	Y	
W-814-01	PTMW	Tps	A	CMP	E300.0:NO3	1	Y	
W-814-01	PTMW	Tps	A	CMP	E300.0:PERC	1	Y	
W-814-01	PTMW	Tps	S	CMP	E601:ALL	1	Y	
W-814-01	PTMW	Tps	S	CMP	E601:ALL	3		
W-814-01	PTMW	Tps	A	CMP	E8330LOW:ALL	1	Y	
W-814-02	PTMW	Tnbs2	A	CMP	E300.0:NO3	1	N	Inoperable pump.
W-814-02	PTMW	Tnbs2	A	CMP	E300.0:PERC	1	N	Inoperable pump.
W-814-02	PTMW	Tnbs2	S	CMP	E601:ALL	1	N	Inoperable pump.
W-814-02	PTMW	Tnbs2	S	CMP	E601:ALL	3		
W-814-02	PTMW	Tnbs2	A	CMP	E8330LOW:ALL	1	N	Inoperable pump.
W-814-03	PTMW	Tps	A	CMP	E300.0:NO3	1	N	Dry.
W-814-03	PTMW	Tps	A	CMP	E300.0:PERC	1	N	Dry.
W-814-03	PTMW	Tps	S	CMP	E601:ALL	1	N	Dry.
W-814-03	PTMW	Tps	S	CMP	E601:ALL	3		
W-814-03	PTMW	Tps	A	CMP	E8330LOW:ALL	1	N	Dry.
W-814-04	GW	Tnsc1	S	CMP	E300.0:NO3	1	Y	
W-814-04	GW	Tnsc1	S	CMP	E300.0:NO3	3		
W-814-04	GW	Tnsc1	S	CMP	E300.0:PERC	1	Y	
W-814-04	GW	Tnsc1	S	CMP	E300.0:PERC	3		
W-814-04	GW	Tnsc1	Q	CMP	E601:ALL	1	Y	
W-814-04	GW	Tnsc1	Q	CMP	E601:ALL	2	Y	
W-814-04	GW	Tnsc1	Q	CMP	E601:ALL	3		
W-814-04	GW	Tnsc1	Q	CMP	E601:ALL	4		
W-814-2138	PTMW	Tpsg	A	CMP	E300.0:NO3	1	Y	
W-814-2138	PTMW	Tpsg	A	CMP	E300.0:PERC	1	Y	
W-814-2138	PTMW	Tpsg	S	CMP	E601:ALL	1	Y	
W-814-2138	PTMW	Tpsg	S	CMP	E601:ALL	3		
W-814-2138	PTMW	Tpsg	A	CMP	E8330LOW:ALL	1	Y	
W-815-01	PTMW	Tps	A	CMP	E300.0:NO3	1	N	Dry.
W-815-01	PTMW	Tps	A	CMP	E300.0:PERC	1	N	Dry.
W-815-01	PTMW	Tps	S	CMP	E601:ALL	1	N	Dry.
W-815-01	PTMW	Tps	S	CMP	E601:ALL	3		
W-815-01	PTMW	Tps	A	CMP	E8330LOW:ALL	1	N	Dry.
W-815-02	EW	Tnbs2	A	CMP-TF	E300.0:NO3	1	Y	

Table 2.4-11 (Con't.). High Explosives Process Area OU ground and surface water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
W-815-02	EW	Tnbs2	A	CMP-TF	E300.0:PERC	1	Y	
W-815-02	EW	Tnbs2	A	DIS	E300.0:PERC	3		
W-815-02	EW	Tnbs2	S	CMP-TF	E601:ALL	1	Y	
W-815-02	EW	Tnbs2	S	DIS	E601:ALL	2	Y	
W-815-02	EW	Tnbs2	S	CMP-TF	E601:ALL	3		
W-815-02	EW	Tnbs2	S	DIS	E601:ALL	4		
W-815-02	EW	Tnbs2	A	CMP-TF	E8330LOW:ALL	1	Y	
W-815-02	EW	Tnbs2	A	DIS	E8330LOW:ALL	3		
W-815-03	PTMW	Tps	A	CMP	E300.0:NO3	1	N	Dry.
W-815-03	PTMW	Tps	A	CMP	E300.0:PERC	1	N	Dry.
W-815-03	PTMW	Tps	S	CMP	E601:ALL	1	N	Dry.
W-815-03	PTMW	Tps	S	CMP	E601:ALL	3		
W-815-03	PTMW	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	DIS	E300.0:PERC	3		
W-815-04	EW	Tnbs2	A	CMP-TF	E300.0:PERC	1	Y	
W-815-04	EW	Tnbs2	S	CMP-TF	E601:ALL	1	Y	
W-815-04	EW	Tnbs2	S	DIS	E601:ALL	2	Y	
W-815-04	EW	Tnbs2	S	CMP-TF	E601:ALL	3		
W-815-04	EW	Tnbs2	S	DIS	E601:ALL	4		
W-815-04	EW	Tnbs2	A	CMP-TF	E8330LOW:ALL	1	Y	
W-815-04	EW	Tnbs2	A	DIS	E8330LOW:ALL	3		
W-815-05	PTMW	Tps	A	CMP	E300.0:NO3	1	Y	
W-815-05	PTMW	Tps	A	CMP	E300.0:PERC	1	Y	
W-815-05	PTMW	Tps	S	CMP	E601:ALL	1	Y	
W-815-05	PTMW	Tps	S	CMP	E601:ALL	3		
W-815-05	PTMW	Tps	A	CMP	E8330LOW:ALL	1	Y	
W-815-06	PTMW	Tnbs2	A	CMP	E300.0:NO3	1	Y	
W-815-06	PTMW	Tnbs2	A	CMP	E300.0:PERC	1	Y	
W-815-06	PTMW	Tnbs2	S	CMP	E601:ALL	1	Y	
W-815-06	PTMW	Tnbs2	S	CMP	E601:ALL	3		
W-815-06	PTMW	Tnbs2	A	CMP	E8330LOW:ALL	1	Y	
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	E601:ALL	1	Y	
W-815-07	PTMW	Tnbs2	S	CMP	E601:ALL	3		
W-815-07	PTMW	Tnbs2	A	CMP	E8330LOW:ALL	1	Y	
W-815-08	PTMW	Tnbs1	A	CMP	E300.0:NO3	1	Y	
W-815-08	PTMW	Tnbs1	A	CMP	E300.0:PERC	1	Y	
W-815-08	PTMW	Tnbs1	S	CMP	E601:ALL	1	Y	
W-815-08	PTMW	Tnbs1	S	CMP	E601:ALL	3		
W-815-08	PTMW	Tnbs1	A	CMP	E8330LOW:ALL	1	Y	
W-815-1928	PTMW	Tps	A	CMP	E300.0:NO3	1	N	Dry.
W-815-1928	PTMW	Tps	A	CMP	E300.0:PERC	1	N	Dry.
W-815-1928	PTMW	Tps	S	CMP	E601:ALL	1	N	Dry.
W-815-1928	PTMW	Tps	S	CMP	E601:ALL	3		
W-815-1928	PTMW	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		
W-815-2110	GW	Tnbs2	S	CMP	E300.0:PERC	1	Y	
W-815-2110	GW	Tnbs2	S	CMP	E300.0:PERC	3		
W-815-2110	GW	Tnbs2	Q	CMP	E601:ALL	1	Y	
W-815-2110	GW	Tnbs2	Q	CMP	E601:ALL	2	Y	
W-815-2110	GW	Tnbs2	Q	CMP	E601:ALL	3		
W-815-2110	GW	Tnbs2	Q	CMP	E601:ALL	4		
W-815-2110	GW	Tnbs2	S	CMP	E8330LOW:ALL	1	Y	
W-815-2110	GW	Tnbs2	S	CMP	E8330LOW:ALL	3		
W-815-2111	GW	Tnbs2	S	CMP	E300.0:NO3	1	Y	
W-815-2111	GW	Tnbs2	S	CMP	E300.0:NO3	3		
W-815-2111	GW	Tnbs2	S	CMP	E300.0:PERC	1	Y	

Table 2.4-11 (Con't.). High Explosives Process Area OU ground and surface water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
W-815-2111	GW	Tnbs2	S	CMP	E300.0:PERC	3		
W-815-2111	GW	Tnbs2	Q	CMP	E601:ALL	1	Y	
W-815-2111	GW	Tnbs2	Q	CMP	E601:ALL	2	Y	
W-815-2111	GW	Tnbs2	Q	CMP	E601:ALL	3		
W-815-2111	GW	Tnbs2	Q	CMP	E601:ALL	4		
W-815-2111	GW	Tnbs2	S	CMP	E8330LOW:ALL	1	Y	
W-815-2111	GW	Tnbs2	S	CMP	E8330LOW:ALL	3		
W-815-2217	PTMW	Tnbs2	S	CMP	E601:ALL	1	Y	
W-815-2217	PTMW	Tnbs2	S	CMP	E601:ALL	3		
W-817-01	EW	Tnbs2	A	CMP-TF	E300.0:NO3	4		
W-817-01	EW	Tnbs2	A	CMP-TF	E300.0:PERC	1	Y	
W-817-01	EW	Tnbs2	A	DIS	E300.0:PERC	2	Y	
W-817-01	EW	Tnbs2	A	DIS	E300.0:PERC	3		
W-817-01	EW	Tnbs2	A	DIS	E300.0:PERC	4		
W-817-01	EW	Tnbs2	S	CMP-TF	E601:ALL	1	Y	
W-817-01	EW	Tnbs2	S	DIS	E601:ALL	2	Y	
W-817-01	EW	Tnbs2	S	CMP-TF	E601:ALL	3		
W-817-01	EW	Tnbs2	S	DIS	E601:ALL	4		
W-817-01	EW	Tnbs2	A	CMP-TF	E8330LOW:ALL	1	Y	
W-817-01	EW	Tnbs2	A	DIS	E8330LOW:ALL	2	Y	
W-817-01	EW	Tnbs2	A	DIS	E8330LOW:ALL	3		
W-817-01	EW	Tnbs2	A	DIS	E8330LOW:ALL	4		
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	E300.0:PERC	3		
W-817-03	EW	Tnbs2	S	CMP-TF	E601:ALL	1	Y	
W-817-03	EW	Tnbs2	S	DIS	E601:ALL	2	Y	
W-817-03	EW	Tnbs2	S	CMP-TF	E601:ALL	3		
W-817-03	EW	Tnbs2	S	DIS	E601:ALL	4		
W-817-03	EW	Tnbs2	A	CMP-TF	E8330LOW:ALL	1	Y	
W-817-03	EW	Tnbs2	A	DIS	E8330LOW:ALL	3		
W-817-03A	PTMW	Tps	A	CMP	E300.0:NO3	1	Y	
W-817-03A	PTMW	Tps	A	CMP	E300.0:PERC	1	Y	
W-817-03A	PTMW	Tps	S	CMP	E601:ALL	1	Y	
W-817-03A	PTMW	Tps	S	CMP	E601:ALL	3		
W-817-03A	PTMW	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	E601:ALL	1	Y	
W-817-04	PTMW	Tnbs2	S	CMP	E601:ALL	3		
W-817-04	PTMW	Tnbs2	A	CMP	E8330LOW:ALL	1	Y	
W-817-05	PTMW	Tnsc1	A	CMP	E300.0:NO3	1	Y	
W-817-05	PTMW	Tnsc1	A	CMP	E300.0:PERC	1	Y	
W-817-05	PTMW	Tnsc1	S	CMP	E601:ALL	1	Y	
W-817-05	PTMW	Tnsc1	S	CMP	E601:ALL	3		
W-817-05	PTMW	Tnsc1	A	CMP	E8330LOW:ALL	1	Y	
W-817-07	PTMW	Tnbs2	A	CMP	E300.0:NO3	1	Y	
W-817-07	PTMW	Tnbs2	A	CMP	E300.0:PERC	1	Y	
W-817-07	PTMW	Tnbs2	S	CMP	E601:ALL	1	Y	
W-817-07	PTMW	Tnbs2	S	CMP	E601:ALL	3		
W-817-07	PTMW	Tnbs2	A	CMP	E8330LOW:ALL	1	Y	
W-817-2318	EW	Tpsg	A	CMP-TF	E300.0:NO3	1	Y	
W-817-2318	EW	Tpsg	A	CMP-TF	E300.0:PERC	1	Y	
W-817-2318	EW	Tpsg	A	DIS	E300.0:PERC	3		
W-817-2318	EW	Tpsg	S	CMP-TF	E601:ALL	1	Y	
W-817-2318	EW	Tpsg	S	DIS	E601:ALL	2	Y	
W-817-2318	EW	Tpsg	S	CMP-TF	E601:ALL	3		
W-817-2318	EW	Tpsg	S	DIS	E601:ALL	4		
W-817-2318	EW	Tpsg	A	CMP-TF	E8330LOW:ALL	1	Y	
W-817-2318	EW	Tpsg	A	DIS	E8330LOW:ALL	3		

Table 2.4-11 (Con't.). High Explosives Process Area OU ground and surface water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
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	E601:ALL	1	Y	
W-818-01	PTMW	Tnbs2	S	CMP	E601:ALL	3		
W-818-01	PTMW	Tnbs2	A	CMP	E8330LOW:ALL	1	Y	
W-818-03	PTMW	Tnbs2	A	CMP	E300.0:NO3	1	Y	
W-818-03	PTMW	Tnbs2	A	CMP	E300.0:PERC	1	Y	
W-818-03	PTMW	Tnbs2	S	CMP	E601:ALL	1	Y	
W-818-03	PTMW	Tnbs2	S	CMP	E601:ALL	3		
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	E601:ALL	1	Y	
W-818-04	PTMW	Tnsc2	S	CMP	E601:ALL	3		
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	E601:ALL	1	Y	
W-818-06	PTMW	Tnbs2	S	CMP	E601:ALL	3		
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	E601:ALL	1	Y	
W-818-07	PTMW	Tnbs2	S	CMP	E601:ALL	3		
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	E300.0:PERC	3		
W-818-08	EW	Tnbs2	S	CMP-TF	E601:ALL	1	Y	
W-818-08	EW	Tnbs2	S	DIS	E601:ALL	2	Y	
W-818-08	EW	Tnbs2	S	CMP-TF	E601:ALL	3		
W-818-08	EW	Tnbs2	S	DIS	E601:ALL	4		
W-818-08	EW	Tnbs2	A	CMP-TF	E8330LOW:ALL	1	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	E300.0:PERC	3		
W-818-09	EW	Tnbs2	S	CMP-TF	E601:ALL	1	Y	
W-818-09	EW	Tnbs2	S	DIS	E601:ALL	2	Y	
W-818-09	EW	Tnbs2	S	CMP-TF	E601:ALL	3		
W-818-09	EW	Tnbs2	S	DIS	E601:ALL	4		
W-818-09	EW	Tnbs2	A	CMP-TF	E8330LOW:ALL	1	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	E601:ALL	1	Y	
W-818-11	PTMW	Tnbs2	S	CMP	E601:ALL	3		
W-818-11	PTMW	Tnbs2	A	CMP	E8330LOW:ALL	1	Y	
W-819-02	PTMW	Tnsc1	A	CMP	E300.0:NO3	1	Y	
W-819-02	PTMW	Tnsc1	A	CMP	E300.0:PERC	1	Y	
W-819-02	PTMW	Tnsc1	S	CMP	E601:ALL	1	Y	
W-819-02	PTMW	Tnsc1	S	CMP	E601:ALL	3		
W-819-02	PTMW	Tnsc1	A	CMP	E8330LOW:ALL	1	Y	
W-823-01	PTMW	Tps	A	CMP	E300.0:NO3	1	Y	
W-823-01	PTMW	Tps	A	CMP	E300.0:PERC	1	Y	
W-823-01	PTMW	Tps	S	CMP	E601:ALL	1	Y	
W-823-01	PTMW	Tps	S	CMP	E601:ALL	3		
W-823-01	PTMW	Tps	A	CMP	E8330LOW:ALL	1	Y	
W-823-02	PTMW	Tnbs2	S	CMP	E601:ALL	1	Y	
W-823-02	PTMW	Tnbs2	S	CMP	E601:ALL	3		
W-823-03	PTMW	Tnbs2	A	CMP	E300.0:NO3	1	Y	
W-823-03	PTMW	Tnbs2	E	CMP	E300.0:PERC	1	Y	
W-823-03	PTMW	Tnbs2	S	CMP	E601:ALL	1	Y	
W-823-03	PTMW	Tnbs2	S	CMP	E601:ALL	3		

Table 2.4-11 (Con't.). High Explosives Process Area OU ground and surface water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
W-823-03	PTMW	Tnbs2	E	CMP	E8330LOW:ALL	1	Y	
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	E601:ALL	1	Y	
W-823-13	PTMW	Tnbs2	S	CMP	E601:ALL	3		
W-823-13	PTMW	Tnbs2	A	CMP	E8330LOW:ALL	1	Y	
W-827-05	PTMW	Tnbs1	A	CMP	E300.0:NO3	1	Y	
W-827-05	PTMW	Tnbs1	A	CMP	E300.0:PERC	1	Y	
W-827-05	PTMW	Tnbs1	S	CMP	E601:ALL	1	Y	
W-827-05	PTMW	Tnbs1	S	CMP	E601:ALL	3		
W-827-05	PTMW	Tnbs1	A	CMP	E8330LOW:ALL	1	Y	
W-829-06	EW	Tnbs1	A	CMP-TF	E300.0:NO3	1	N	TF not operational.
W-829-06	EW	Tnbs1	A	DIS	E300.0:NO3	2	Y	
W-829-06	EW	Tnbs1	A	DIS	E300.0:NO3	3		
W-829-06	EW	Tnbs1	A	DIS	E300.0:NO3	4		
W-829-06	EW	Tnbs1	A	CMP-TF	E300.0:PERC	1	N	TF not operational.
W-829-06	EW	Tnbs1	A	DIS	E300.0:PERC	2	Y	
W-829-06	EW	Tnbs1	A	DIS	E300.0:PERC	3		
W-829-06	EW	Tnbs1	A	DIS	E300.0:PERC	4		
W-829-06	EW	Tnbs1	S	CMP-TF	E601:ALL	1	N	TF not operational.
W-829-06	EW	Tnbs1	S	DIS	E601:ALL	2	Y	
W-829-06	EW	Tnbs1	S	CMP-TF	E601:ALL	3		
W-829-06	EW	Tnbs1	S	DIS	E601:ALL	4		
W-829-06	EW	Tnbs1	A	CMP-TF	E8330LOW:ALL	1	N	TF not operational.
W-829-15*	DMW	Tnbs1	A	WGMG	E624:ALL	2	Y	
W-829-15*	DMW	Tnbs1	A	WGMG	E300.0:PERC	2	Y	
W-829-15*	DMW	Tnbs1	A	WGMG	E8330:R+H	2	Y	
W-829-15*	DMW	Tnbs1	A	WGMG	E8330:TNT	2	Y	
W-829-1938*	DMW	Tnbs1	Q	WGMG	E624:ALL	1	Y	
W-829-1938*	DMW	Tnbs1	Q	WGMG	E624:ALL	2	Y	
W-829-1938*	DMW	Tnbs1	Q	WGMG	E624:ALL	3		
W-829-1938*	DMW	Tnbs1	Q	WGMG	E624:ALL	4		
W-829-1938*	DMW	Tnbs1	Q	WGMG	E300.0:PERC	1	Y	
W-829-1938*	DMW	Tnbs1	Q	WGMG	E300.0:PERC	2	Y	
W-829-1938*	DMW	Tnbs1	Q	WGMG	E300.0:PERC	3		
W-829-1938*	DMW	Tnbs1	Q	WGMG	E300.0:PERC	4		
W-829-1938*	DMW	Tnbs1	Q	WGMG	E8330:R+H	1	Y	
W-829-1938*	DMW	Tnbs1	Q	WGMG	E8330:R+H	2	Y	
W-829-1938*	DMW	Tnbs1	Q	WGMG	E8330:R+H	3		
W-829-1938*	DMW	Tnbs1	Q	WGMG	E8330:R+H	4		
W-829-1938*	DMW	Tnbs1	Q	WGMG	E8330:TNT	1	Y	
W-829-1938*	DMW	Tnbs1	Q	WGMG	E8330:TNT	2	Y	
W-829-1938*	DMW	Tnbs1	Q	WGMG	E8330:TNT	3		
W-829-1938*	DMW	Tnbs1	Q	WGMG	E8330:TNT	4		
W-829-1940	PTMW	Tnsc1	A	CMP	E300.0:NO3	1	Y	
W-829-1940	PTMW	Tnsc1	A	CMP	E300.0:PERC	1	Y	
W-829-1940	PTMW	Tnsc1	S	CMP	E601:ALL	1	Y	
W-829-1940	PTMW	Tnsc1	S	CMP	E601:ALL	3		
W-829-1940	PTMW	Tnsc1	A	CMP	E8330LOW:ALL	1	Y	
W-829-22*	DMW	Tnbs1	A	WGMG	E624:ALL	2	Y	
W-829-22*	DMW	Tnbs1	A	WGMG	E300.0:PERC	2	Y	
W-829-22*	DMW	Tnbs1	A	WGMG	E8330:R+H	2	Y	
W-829-22*	DMW	Tnbs1	A	WGMG	E8330:TNT	2	Y	
W-880-01	GW	Tnbs2	S	CMP	E300.0:NO3	1	Y	
W-880-01	GW	Tnbs2	S	CMP	E300.0:NO3	3		
W-880-01	GW	Tnbs2	S	CMP	E300.0:PERC	1	Y	
W-880-01	GW	Tnbs2	S	CMP	E300.0:PERC	3		
W-880-01	GW	Tnbs2	Q	CMP	E601:ALL	1	Y	
W-880-01	GW	Tnbs2	Q	CMP	E601:ALL	2	Y	
W-880-01	GW	Tnbs2	Q	CMP	E601:ALL	3		

Table 2.4-11 (Con't.). High Explosives Process Area OU ground and surface water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
W-880-01	GW	Tnbs2	Q	CMP	E601:ALL	4		
W-880-01	GW	Tnbs2	S	CMP	E8330LOW:ALL	1	Y	
W-880-01	GW	Tnbs2	S	CMP	E8330LOW:ALL	3		
W-880-02	GW	Qal	S	CMP	E300.0:NO3	1	Y	
W-880-02	GW	Qal	S	CMP	E300.0:NO3	3		
W-880-02	GW	Qal	S	CMP	E300.0:PERC	1	Y	
W-880-02	GW	Qal	S	CMP	E300.0:PERC	3		
W-880-02	GW	Qal	Q	CMP	E601:ALL	1	Y	
W-880-02	GW	Qal	Q	CMP	E601:ALL	2	Y	
W-880-02	GW	Qal	Q	CMP	E601:ALL	3		
W-880-02	GW	Qal	Q	CMP	E601:ALL	4		
W-880-02	GW	Qal	S	CMP	E8330LOW:ALL	1	Y	
W-880-02	GW	Qal	S	CMP	E8330LOW:ALL	3		
W-880-03	GW	Tnsc1	S	CMP	E300.0:NO3	1	N	Unsafe conditions.
W-880-03	GW	Tnsc1	S	CMP	E300.0:NO3	3		
W-880-03	GW	Tnsc1	S	CMP	E300.0:PERC	1	N	Unsafe conditions.
W-880-03	GW	Tnsc1	S	CMP	E300.0:PERC	3		
W-880-03	GW	Tnsc1	Q	CMP	E601:ALL	1	N	Unsafe conditions.
W-880-03	GW	Tnsc1	Q	CMP	E601:ALL	2	Y	
W-880-03	GW	Tnsc1	Q	CMP	E601:ALL	3		
W-880-03	GW	Tnsc1	Q	CMP	E601:ALL	4		
W-880-03	GW	Tnsc1	S	CMP	E8330LOW:ALL	1	N	Unsafe conditions.
W-880-03	GW	Tnsc1	S	CMP	E8330LOW:ALL	3		
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	N	Inoperable Pump.
WELL18*	WS	Tnbs1	M	CMP	E300.0:NO3	2	N	Inoperable Pump.
WELL18*	WS	Tnbs1	M	CMP	E300.0:NO3	2	N	Inoperable Pump.
WELL18*	WS	Tnbs1	M	CMP	E300.0:NO3	2	Y	
WELL18*	WS	Tnbs1	M	CMP	E300.0:NO3	3		
WELL18*	WS	Tnbs1	M	CMP	E300.0:NO3	3		
WELL18*	WS	Tnbs1	M	CMP	E300.0:NO3	3		
WELL18*	WS	Tnbs1	M	CMP	E300.0:NO3	4		
WELL18*	WS	Tnbs1	M	CMP	E300.0:NO3	4		
WELL18*	WS	Tnbs1	M	CMP	E300.0:NO3	4		
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	N	Inoperable Pump.
WELL18*	WS	Tnbs1	M	CMP	E300.0:PERC	2	N	Inoperable Pump.
WELL18*	WS	Tnbs1	M	CMP	E300.0:PERC	2	N	Inoperable Pump.
WELL18*	WS	Tnbs1	M	CMP	E300.0:PERC	2	Y	
WELL18*	WS	Tnbs1	M	CMP	E300.0:PERC	3		
WELL18*	WS	Tnbs1	M	CMP	E300.0:PERC	3		
WELL18*	WS	Tnbs1	M	CMP	E300.0:PERC	3		
WELL18*	WS	Tnbs1	M	CMP	E300.0:PERC	4		
WELL18*	WS	Tnbs1	M	CMP	E300.0:PERC	4		
WELL18*	WS	Tnbs1	M	CMP	E300.0:PERC	4		
WELL18*	WS	Tnbs1	M	CMP	E601:ALL	1	Y	
WELL18*	WS	Tnbs1	M	CMP	E601:ALL	1	Y	
WELL18*	WS	Tnbs1	M	CMP	E601:ALL	1	N	Inoperable Pump.
WELL18*	WS	Tnbs1	M	CMP	E601:ALL	2	N	Inoperable Pump.
WELL18*	WS	Tnbs1	M	CMP	E601:ALL	2	N	Inoperable Pump.
WELL18*	WS	Tnbs1	M	CMP	E601:ALL	2	Y	
WELL18*	WS	Tnbs1	M	CMP	E601:ALL	3		
WELL18*	WS	Tnbs1	M	CMP	E601:ALL	3		
WELL18*	WS	Tnbs1	M	CMP	E601:ALL	3		
WELL18*	WS	Tnbs1	M	CMP	E601:ALL	4		
WELL18*	WS	Tnbs1	M	CMP	E601:ALL	4		
WELL18*	WS	Tnbs1	M	CMP	E601:ALL	4		
WELL18*	WS	Tnbs1	M	CMP	E8330LOW:ALL	1	Y	

Table 2.4-11 (Con't.). High Explosives Process Area OU ground and surface water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
WELL18*	WS	Tnbs1	M	CMP	E8330LOW:ALL	1	Y	
WELL18*	WS	Tnbs1	M	CMP	E8330LOW:ALL	1	N	Inoperable Pump.
WELL18*	WS	Tnbs1	M	CMP	E8330LOW:ALL	2	N	Inoperable Pump.
WELL18*	WS	Tnbs1	M	CMP	E8330LOW:ALL	2	N	Inoperable Pump.
WELL18*	WS	Tnbs1	M	CMP	E8330LOW:ALL	2	Y	
WELL18*	WS	Tnbs1	M	CMP	E8330LOW:ALL	3		
WELL18*	WS	Tnbs1	M	CMP	E8330LOW:ALL	3		
WELL18*	WS	Tnbs1	M	CMP	E8330LOW:ALL	3		
WELL18*	WS	Tnbs1	M	CMP	E8330LOW:ALL	4		
WELL18*	WS	Tnbs1	M	CMP	E8330LOW:ALL	4		
WELL18*	WS	Tnbs1	M	CMP	E8330LOW:ALL	4		
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		
WELL20*	WS	Tnbs1	M	CMP	E300.0:NO3	3		
WELL20*	WS	Tnbs1	M	CMP	E300.0:NO3	3		
WELL20*	WS	Tnbs1	M	CMP	E300.0:NO3	4		
WELL20*	WS	Tnbs1	M	CMP	E300.0:NO3	4		
WELL20*	WS	Tnbs1	M	CMP	E300.0:NO3	4		
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		
WELL20*	WS	Tnbs1	M	CMP	E300.0:PERC	3		
WELL20*	WS	Tnbs1	M	CMP	E300.0:PERC	3		
WELL20*	WS	Tnbs1	M	CMP	E300.0:PERC	4		
WELL20*	WS	Tnbs1	M	CMP	E300.0:PERC	4		
WELL20*	WS	Tnbs1	M	CMP	E300.0:PERC	4		
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		
WELL20*	WS	Tnbs1	M	CMP	E8330LOW:ALL	3		
WELL20*	WS	Tnbs1	M	CMP	E8330LOW:ALL	3		
WELL20*	WS	Tnbs1	M	CMP	E8330LOW:ALL	4		
WELL20*	WS	Tnbs1	M	CMP	E8330LOW:ALL	4		
WELL20*	WS	Tnbs1	M	CMP	E8330LOW:ALL	4		
WELL20*	WS	Tnbs1	M	WGMG	E502.2	1	Y	
WELL20*	WS	Tnbs1	M	WGMG	E502.2	1	Y	
WELL20*	WS	Tnbs1	M	WGMG	E502.2	1	Y	
WELL20*	WS	Tnbs1	M	WGMG	E502.2	2	Y	
WELL20*	WS	Tnbs1	M	WGMG	E502.2	2	Y	
WELL20*	WS	Tnbs1	M	WGMG	E502.2	2	Y	
WELL20*	WS	Tnbs1	M	WGMG	E502.2	3		
WELL20*	WS	Tnbs1	M	WGMG	E502.2	3		
WELL20*	WS	Tnbs1	M	WGMG	E502.2	3		
WELL20*	WS	Tnbs1	M	WGMG	E502.2	4		
WELL20*	WS	Tnbs1	M	WGMG	E502.2	4		
WELL20*	WS	Tnbs1	M	WGMG	E502.2	4		

Notes appear on the following page.

Table 2.4-11 (Con't.). High Explosives Process Area OU ground and surface water sampling and analysis plan.

Notes:
1) W-829-15, W-829-22, and W-829-1938 are detection monitoring wells. Analytes and sampling frequency are specified in the RCRA Closure Plan for the High Explosives Open Burn Facility.
2) HEPA primary COC: VOCs (E601 or E624).
3) HEPA secondary COC: nitrate (E300:NO3).
4) HEPA secondary COC: perchlorate (E300.0:PERC).
5) HEPA secondary COC: HE compounds (E8330).
6) Wells noted with "*" are sampled as part of the surveillance monitoring performed by the Water Guidance and Monitoring Group (WGMG) for additional constituents and the results are reported in the LLNL Site Annual Environmental Report.
7) See Acronyms and Abbreviations in the Tables section of this report for acronym and abbreviation definitions.

Table 2.4-12. Building 815-Source (815-SRC) mass removed, January 1, 2010 through June 30, 2010.

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	January	NA	0.93	1.2	20	10	NA
	February	NA	0.83	1.1	17	9.1	NA
	March	NA	0.86	1.1	19	9.8	NA
	April	NA	0.81	1.0	17	9.0	NA
	May	NA	0.75	0.93	16	8.4	NA
	June	NA	1.1	1.4	23	12	NA
Total		NA	5.3	6.6	110	58	NA

Notes:
*Nitrate re-injected into the $Tnbs_2$ HSU undergoes in-situ biotransformation to benign N_2 gas by anaerobic denitrifying bacteria.

Table 2.4-13. Building 815-Proximal (815-PRX) mass removed, January 1, 2010 through June 30, 2010.

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	January	NA	0	0	0	NA	NA
	February	NA	5.4	1.6	18	NA	NA
	March	NA	9.2	2.7	30	NA	NA
	April	NA	6.3	1.9	21	NA	NA
	May	NA	2.0	0.84	9.7	NA	NA
	June	NA	0	0	0	NA	NA
Total		NA	23	7.1	79	NA	NA

Notes:
*Nitrate re-injected into the $Tnbs_2$ HSU undergoes in-situ biotransformation to benign N_2 gas by anaerobic denitrifying bacteria.

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Table 2.4-14. Building 815-Distal Site Boundary (815-DSB) mass removed, January 1, 2010 through June 30, 2010.

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	January	NA	4.8	NA	NA	NA	NA
	February	NA	6.8	NA	NA	NA	NA
	March	NA	9.8	NA	NA	NA	NA
	April	NA	5.3	NA	NA	NA	NA
	May	NA	6.4	NA	NA	NA	NA
	June	NA	8.0	NA	NA	NA	NA
Total		NA	41	NA	NA	NA	NA

Table 2.4-15. Building 817-Source (817-SRC) mass removed, January 1, 2010 through June 30, 2010.

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	January	NA	0	0	0	0	NA
	February	NA	0	0.016	0.044	0.028	NA
	March	NA	0	0.028	0.078	0.050	NA
	April	NA	0	0.018	0.055	0.034	NA
	May	NA	0	0.0097	0.030	0.019	NA
	June	NA	0	0.010	0.031	0.019	NA
Total		NA	0	0.081	0.24	0.15	NA

Notes:

***Nitrate re-injected into the $Tnbs_2$ HSU undergoes in-situ biotransformation to benign N_2 gas by anaerobic denitrifying bacteria.**

Table 2.4-16. Building 817-Proximal (817-PRX) mass removed, January 1, 2010 through June 30, 2010.

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	January	NA	1.7	5.1	21	1.8	NA
	February	NA	2.0	4.4	20	1.7	NA
	March	NA	3.2	5.8	29	2.1	NA
	April	NA	2.5	4.6	24	1.6	NA
	May	NA	2.0	4.1	20	1.5	NA
	June	NA	2.4	5.1	25	1.9	NA
Total		NA	14	29	140	11	NA

Notes:

*Nitrate re-injected into the $Tnbs_2$ HSU undergoes in-situ biotransformation to benign N_2 gas by anaerobic denitrifying bacteria.

Table 2.4-17. Building 829-Source (829-SRC) mass removed, January 1, 2010 through June 30, 2010.

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	January	NA	0	0	0	NA	NA
	February	NA	0	0	0	NA	NA
	March	NA	0	0	0	NA	NA
	April	NA	0.0062	0.0037	0.032	NA	NA
	May	NA	0.0066	0.0025	0.024	NA	NA
	June	NA	0.0020	0.00076	0.0073	NA	NA
Total		NA	0.015	0.0070	0.063	NA	NA

Table 2.5-1. Building 850 Area of OU 5 ground and surface water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
K1-01C*	DMW	Tnbs1	Q	WGMG	AS:UISO	1	Y	
K1-01C*	DMW	Tnbs1	Q	WGMG	AS:UISO	2	Y	
K1-01C*	DMW	Tnbs1	Q	WGMG	AS:UISO	3		
K1-01C*	DMW	Tnbs1	Q	WGMG	AS:UISO	4		
K1-01C*	DMW	Tnbs1	Q	WGMG	E300.0:NO3	1	Y	
K1-01C*	DMW	Tnbs1	Q	WGMG	E300.0:NO3	2	Y	
K1-01C*	DMW	Tnbs1	Q	WGMG	E300.0:NO3	3		
K1-01C*	DMW	Tnbs1	Q	WGMG	E300.0:NO3	4		
K1-01C*	DMW	Tnbs1	Q	WGMG	E300.0:PERC	1	Y	
K1-01C*	DMW	Tnbs1	Q	WGMG	E300.0:PERC	2	Y	
K1-01C*	DMW	Tnbs1	Q	WGMG	E300.0:PERC	3		
K1-01C*	DMW	Tnbs1	Q	WGMG	E300.0:PERC	4		
K1-01C*	DMW	Tnbs1	Q	WGMG	E8260	1	Y	
K1-01C*	DMW	Tnbs1	Q	WGMG	E8260	2	Y	
K1-01C*	DMW	Tnbs1	Q	WGMG	E8260	3		
K1-01C*	DMW	Tnbs1	Q	WGMG	E8260	4		
K1-01C*	DMW	Tnbs1	Q	WGMG	E906:ALL	1	Y	
K1-01C*	DMW	Tnbs1	Q	WGMG	E906:ALL	2	Y	
K1-01C*	DMW	Tnbs1	Q	WGMG	E906:ALL	3		
K1-01C*	DMW	Tnbs1	Q	WGMG	E906:ALL	4		
K1-02B*	DMW	Tnbs0	Q	WGMG	AS:UISO	1	Y	
K1-02B*	DMW	Tnbs0	Q	WGMG	AS:UISO	2	Y	
K1-02B*	DMW	Tnbs0	Q	WGMG	AS:UISO	3		
K1-02B*	DMW	Tnbs0	Q	WGMG	AS:UISO	4		
K1-02B*	DMW	Tnbs0	Q	WGMG	E300.0:NO3	1	Y	
K1-02B*	DMW	Tnbs0	Q	WGMG	E300.0:NO3	2	Y	
K1-02B*	DMW	Tnbs0	Q	WGMG	E300.0:NO3	3		
K1-02B*	DMW	Tnbs0	Q	WGMG	E300.0:NO3	4		
K1-02B*	DMW	Tnbs0	Q	WGMG	E300.0:PERC	1	Y	
K1-02B*	DMW	Tnbs0	Q	WGMG	E300.0:PERC	2	Y	
K1-02B*	DMW	Tnbs0	Q	WGMG	E300.0:PERC	3		
K1-02B*	DMW	Tnbs0	Q	WGMG	E300.0:PERC	4		
K1-02B*	DMW	Tnbs0	Q	WGMG	E8260	1	Y	
K1-02B*	DMW	Tnbs0	Q	WGMG	E8260	2	Y	
K1-02B*	DMW	Tnbs0	Q	WGMG	E8260	3		
K1-02B*	DMW	Tnbs0	Q	WGMG	E8260	4		
K1-02B*	DMW	Tnbs0	Q	WGMG	E906:ALL	1	Y	
K1-02B*	DMW	Tnbs0	Q	WGMG	E906:ALL	2	Y	
K1-02B*	DMW	Tnbs0	Q	WGMG	E906:ALL	3		
K1-02B*	DMW	Tnbs0	Q	WGMG	E906:ALL	4		
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		
K1-04*	DMW	Tnbs1/Tnbs0	Q	WGMG	AS:UISO	4		
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		
K1-04*	DMW	Tnbs1/Tnbs0	Q	WGMG	E300.0:NO3	4		
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		
K1-04*	DMW	Tnbs1/Tnbs0	Q	WGMG	E300.0:PERC	4		
K1-04*	DMW	Tnbs0	Q	WGMG	E8260	1	Y	
K1-04*	DMW	Tnbs0	Q	WGMG	E8260	2	Y	
K1-04*	DMW	Tnbs0	Q	WGMG	E8260	3		
K1-04*	DMW	Tnbs0	Q	WGMG	E8260	4		
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		
K1-04*	DMW	Tnbs1/Tnbs0	Q	WGMG	E906:ALL	4		

Table 2.5-1 (Con't.). Building 850 Area of OU 5 ground and surface water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
K1-05*	DMW	Tnbs1	Q	WGMG	AS:UISO	1	Y	
K1-05*	DMW	Tnbs1	Q	WGMG	AS:UISO	2	Y	
K1-05*	DMW	Tnbs1	Q	WGMG	AS:UISO	3		
K1-05*	DMW	Tnbs1	Q	WGMG	AS:UISO	4		
K1-05*	DMW	Tnbs1	Q	WGMG	E300.0:NO3	1	Y	
K1-05*	DMW	Tnbs1	Q	WGMG	E300.0:NO3	2	Y	
K1-05*	DMW	Tnbs1	Q	WGMG	E300.0:NO3	3		
K1-05*	DMW	Tnbs1	Q	WGMG	E300.0:NO3	4		
K1-05*	DMW	Tnbs1	Q	WGMG	E300.0:PERC	1	Y	
K1-05*	DMW	Tnbs1	Q	WGMG	E300.0:PERC	2	Y	
K1-05*	DMW	Tnbs1	Q	WGMG	E300.0:PERC	3		
K1-05*	DMW	Tnbs1	Q	WGMG	E300.0:PERC	4		
K1-05*	DMW	Tnbs1	Q	WGMG	E8260	1	Y	
K1-05*	DMW	Tnbs1	Q	WGMG	E8260	2	Y	
K1-05*	DMW	Tnbs1	Q	WGMG	E8260	3		
K1-05*	DMW	Tnbs1	Q	WGMG	E8260	4		
K1-05*	DMW	Tnbs1	Q	WGMG	E906:ALL	1	Y	
K1-05*	DMW	Tnbs1	Q	WGMG	E906:ALL	2	Y	
K1-05*	DMW	Tnbs1	Q	WGMG	E906:ALL	3		
K1-05*	DMW	Tnbs1	Q	WGMG	E906:ALL	4		
K1-06*	PTMW	Tnbs1	A	CMP	AS:UISO	2	Y	
K1-06*	PTMW	Tnbs1	A	CMP	E300.0:NO3	2	Y	
K1-06*	PTMW	Tnbs1	Q	WGMG	E300.0:PERC	1	Y	
K1-06*	PTMW	Tnbs1	Q	WGMG	E300.0:PERC	2	Y	
K1-06*	PTMW	Tnbs1	Q	WGMG	E300.0:PERC	3		
K1-06*	PTMW	Tnbs1	Q	WGMG	E300.0:PERC	4		
K1-06*	PTMW	Tnbs1	Q	WGMG	E906:ALL	1	Y	
K1-06*	PTMW	Tnbs1	Q	WGMG	E906:ALL	2	Y	
K1-06*	PTMW	Tnbs1	Q	WGMG	E906:ALL	3		
K1-06*	PTMW	Tnbs1	Q	WGMG	E906:ALL	4		
K1-07*	DMW	Tnbs1	Q	WGMG	AS:UISO	1	Y	
K1-07*	DMW	Tnbs1	Q	WGMG	AS:UISO	2	Y	
K1-07*	DMW	Tnbs1	Q	WGMG	AS:UISO	3		
K1-07*	DMW	Tnbs1	Q	WGMG	AS:UISO	4		
K1-07*	DMW	Tnbs1	Q	WGMG	E300.0:NO3	1	Y	
K1-07*	DMW	Tnbs1	Q	WGMG	E300.0:NO3	2	Y	
K1-07*	DMW	Tnbs1	Q	WGMG	E300.0:NO3	3		
K1-07*	DMW	Tnbs1	Q	WGMG	E300.0:NO3	4		
K1-07*	DMW	Tnbs1	Q	WGMG	E300.0:PERC	1	Y	
K1-07*	DMW	Tnbs1	Q	WGMG	E300.0:PERC	2	Y	
K1-07*	DMW	Tnbs1	Q	WGMG	E300.0:PERC	3		
K1-07*	DMW	Tnbs1	Q	WGMG	E300.0:PERC	4		
K1-07*	DMW	Tnbs1	Q	WGMG	E8260	1	Y	
K1-07*	DMW	Tnbs1	Q	WGMG	E8260	2	Y	
K1-07*	DMW	Tnbs1	Q	WGMG	E8260	3		
K1-07*	DMW	Tnbs1	Q	WGMG	E8260	4		
K1-07*	DMW	Tnbs1	Q	WGMG	E906:ALL	1	Y	
K1-07*	DMW	Tnbs1	Q	WGMG	E906:ALL	2	Y	
K1-07*	DMW	Tnbs1	Q	WGMG	E906:ALL	3		
K1-07*	DMW	Tnbs1	Q	WGMG	E906:ALL	4		
K1-07*	DMW	Tnbs1	A	DIS	MS:UISO	2	Y	
K1-08*	DMW	Tnbs1	Q	WGMG	AS:UISO	1	Y	
K1-08*	DMW	Tnbs1	Q	WGMG	AS:UISO	2	Y	
K1-08*	DMW	Tnbs1	Q	WGMG	AS:UISO	3		
K1-08*	DMW	Tnbs1	Q	WGMG	AS:UISO	4		
K1-08*	DMW	Tnbs1	Q	WGMG	E300.0:NO3	1	Y	
K1-08*	DMW	Tnbs1	Q	WGMG	E300.0:NO3	2	Y	
K1-08*	DMW	Tnbs1	Q	WGMG	E300.0:NO3	3		
K1-08*	DMW	Tnbs1	Q	WGMG	E300.0:NO3	4		
K1-08*	DMW	Tnbs1	Q	WGMG	E300.0:PERC	1	Y	

Table 2.5-1 (Con't.). Building 850 Area of OU 5 ground and surface water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
K1-08*	DMW	Tnbs1	Q	WGMG	E300.0:PERC	2	Y	
K1-08*	DMW	Tnbs1	Q	WGMG	E300.0:PERC	3		
K1-08*	DMW	Tnbs1	Q	WGMG	E300.0:PERC	4		
K1-08*	DMW	Tnbs1	Q	WGMG	E8260	1	Y	
K1-08*	DMW	Tnbs1	Q	WGMG	E8260	2	Y	
K1-08*	DMW	Tnbs1	Q	WGMG	E8260	3		
K1-08*	DMW	Tnbs1	Q	WGMG	E8260	4		
K1-08*	DMW	Tnbs1	Q	WGMG	E906:ALL	1	Y	
K1-08*	DMW	Tnbs1	Q	WGMG	E906:ALL	2	Y	
K1-08*	DMW	Tnbs1	Q	WGMG	E906:ALL	3		
K1-08*	DMW	Tnbs1	Q	WGMG	E906:ALL	4		
K1-09*	DMW	Tnbs1	Q	WGMG	AS:UISO	1	Y	
K1-09*	DMW	Tnbs1	Q	WGMG	AS:UISO	2	Y	
K1-09*	DMW	Tnbs1	Q	WGMG	AS:UISO	3		
K1-09*	DMW	Tnbs1	Q	WGMG	AS:UISO	4		
K1-09*	DMW	Tnbs1	Q	WGMG	E300.0:NO3	1	Y	
K1-09*	DMW	Tnbs1	Q	WGMG	E300.0:NO3	2	Y	
K1-09*	DMW	Tnbs1	Q	WGMG	E300.0:NO3	3		
K1-09*	DMW	Tnbs1	Q	WGMG	E300.0:NO3	4		
K1-09*	DMW	Tnbs1	Q	WGMG	E300.0:PERC	1	Y	
K1-09*	DMW	Tnbs1	Q	WGMG	E300.0:PERC	2	Y	
K1-09*	DMW	Tnbs1	Q	WGMG	E300.0:PERC	3		
K1-09*	DMW	Tnbs1	Q	WGMG	E300.0:PERC	4		
K1-09*	DMW	Tnbs1	Q	WGMG	E8260	1	Y	
K1-09*	DMW	Tnbs1	Q	WGMG	E8260	2	Y	
K1-09*	DMW	Tnbs1	Q	WGMG	E8260	3		
K1-09*	DMW	Tnbs1	Q	WGMG	E8260	4		
K1-09*	DMW	Tnbs1	Q	WGMG	E906:ALL	1	Y	
K1-09*	DMW	Tnbs1	Q	WGMG	E906:ALL	2	Y	
K1-09*	DMW	Tnbs1	Q	WGMG	E906:ALL	3		
K1-09*	DMW	Tnbs1	Q	WGMG	E906:ALL	4		
K2-03	PTMW	Tnbs1	A	CMP	AS:UISO	2	Y	
K2-03	PTMW	Tnbs1	A	CMP	E300.0:NO3	2	Y	
K2-03	PTMW	Tnbs1	S	CMP	E300.0:PERC	2	Y	
K2-03	PTMW	Tnbs1	S	CMP	E300.0:PERC	4		
K2-03	PTMW	Tnbs1	S	CMP	E906:ALL	2	Y	
K2-03	PTMW	Tnbs1	S	CMP	E906:ALL	4		
K2-04D	PTMW	Tnbs1	O	CMP	AS:UISO	2	N	To be sampled in 2011.
K2-04D	PTMW	Tnbs1	E	CMP	E300.0:NO3	2	Y	
K2-04D	PTMW	Tnbs1	S	CMP	E300.0:PERC	2	Y	
K2-04D	PTMW	Tnbs1	S	CMP	E300.0:PERC	4		
K2-04D	PTMW	Tnbs1	S	CMP	E906:ALL	2	Y	
K2-04D	PTMW	Tnbs1	S	CMP	E906:ALL	4		
K2-04S	PTMW	Tnbs1	E	CMP	AS:UISO	2	Y	
K2-04S	PTMW	Tnbs1	O	CMP	E300.0:NO3	2	N	To be sampled in 2011.
K2-04S	PTMW	Tnbs1	S	CMP	E300.0:PERC	2	Y	
K2-04S	PTMW	Tnbs1	S	CMP	E300.0:PERC	4		
K2-04S	PTMW	Tnbs1	S	CMP	E906:ALL	2	Y	
K2-04S	PTMW	Tnbs1	S	CMP	E906:ALL	4		
NC2-05	PTMW	Tnbs1	A	CMP	AS:UISO	2	Y	
NC2-05	PTMW	Tnbs1	A	CMP	E300.0:NO3	2	Y	
NC2-05	PTMW	Tnbs1	S	CMP	E300.0:PERC	2	Y	
NC2-05	PTMW	Tnbs1	S	CMP	E300.0:PERC	4		
NC2-05	PTMW	Tnbs1	S	CMP	E906:ALL	2	Y	
NC2-05	PTMW	Tnbs1	S	CMP	E906:ALL	4		
NC2-05A	PTMW	Tnbs1	A	CMP	AS:UISO	2	Y	
NC2-05A	PTMW	Tnbs1	A	CMP	E300.0:NO3	2	Y	
NC2-05A	PTMW	Tnbs1	S	CMP	E300.0:PERC	2	Y	
NC2-05A	PTMW	Tnbs1	S	CMP	E300.0:PERC	4		
NC2-05A	PTMW	Tnbs1	S	CMP	E906:ALL	2	Y	

Table 2.5-1 (Con't.). Building 850 Area of OU 5 ground and surface water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
NC2-05A	PTMW	Tnbs1	S	CMP	E906:ALL	4		
NC2-06	PTMW	Tnbs1	A	CMP	AS:UISO	2	Y	
NC2-06	PTMW	Tnbs1	A	CMP	E300.0:NO3	2	Y	
NC2-06	PTMW	Tnbs1	S	CMP	E300.0:PERC	2	Y	
NC2-06	PTMW	Tnbs1	S	CMP	E300.0:PERC	4		
NC2-06	PTMW	Tnbs1	S	CMP	E906:ALL	2	Y	
NC2-06	PTMW	Tnbs1	S	CMP	E906:ALL	4		
NC2-06A	PTMW	Tnbs1	A	CMP	AS:UISO	2	Y	
NC2-06A	PTMW	Tnbs1	A	CMP	E300.0:NO3	2	Y	
NC2-06A	PTMW	Tnbs1	S	CMP	E300.0:PERC	2	Y	
NC2-06A	PTMW	Tnbs1	S	CMP	E300.0:PERC	4		
NC2-06A	PTMW	Tnbs1	S	CMP	E906:ALL	2	Y	
NC2-06A	PTMW	Tnbs1	S	CMP	E906:ALL	4		
NC2-06A	PTMW	Tnbs1	A	DIS	MS:UISO	2	Y	
NC2-09	PTMW	Tnbs1	A	CMP	AS:UISO	2	Y	
NC2-09	PTMW	Tnbs1	A	CMP	E300.0:NO3	2	Y	
NC2-09	PTMW	Tnbs1	S	CMP	E300.0:PERC	2	Y	
NC2-09	PTMW	Tnbs1	S	CMP	E300.0:PERC	4		
NC2-09	PTMW	Tnbs1	S	CMP	E906:ALL	2	Y	
NC2-09	PTMW	Tnbs1	S	CMP	E906:ALL	4		
NC2-10	PTMW	Tnbs1	E	CMP	AS:UISO	2	Y	
NC2-10	PTMW	Tnbs1	A	CMP	E300.0:NO3	2	Y	
NC2-10	PTMW	Tnbs1	S	CMP	E300.0:PERC	2	Y	
NC2-10	PTMW	Tnbs1	S	CMP	E300.0:PERC	4		
NC2-10	PTMW	Tnbs1	S	CMP	E906:ALL	2	Y	
NC2-10	PTMW	Tnbs1	S	CMP	E906:ALL	4		
NC2-11D	PTMW	Tnbs1	A	CMP	AS:UISO	2	Y	
NC2-11D	PTMW	Tnbs1	A	CMP	E300.0:NO3	2	Y	
NC2-11D	PTMW	Tnbs1	S	CMP	E300.0:PERC	2	Y	
NC2-11D	PTMW	Tnbs1	S	CMP	E300.0:PERC	4		
NC2-11D	PTMW	Tnbs1	S	CMP	E906:ALL	2	Y	
NC2-11D	PTMW	Tnbs1	S	CMP	E906:ALL	4		
NC2-11D	PTMW	Tnbs1	A	DIS	MS:UISO	2	Y	
NC2-11I	PTMW	Tnbs1	A	CMP	AS:UISO	2	N	Inoperable pump.
NC2-11I	PTMW	Tnbs1	A	CMP	E300.0:NO3	2	N	Inoperable pump.
NC2-11I	PTMW	Tnbs1	S	CMP	E300.0:PERC	2	N	Inoperable pump.
NC2-11I	PTMW	Tnbs1	S	CMP	E300.0:PERC	4		
NC2-11I	PTMW	Tnbs1	S	CMP	E906:ALL	2	N	Inoperable pump.
NC2-11I	PTMW	Tnbs1	S	CMP	E906:ALL	4		
NC2-11S	PTMW	Tnbs1	A	CMP	AS:UISO	2	Y	
NC2-11S	PTMW	Tnbs1	A	CMP	E300.0:NO3	2	Y	
NC2-11S	PTMW	Tnbs1	S	CMP	E300.0:PERC	2	Y	
NC2-11S	PTMW	Tnbs1	S	CMP	E300.0:PERC	4		
NC2-11S	PTMW	Tnbs1	S	CMP	E906:ALL	2	Y	
NC2-11S	PTMW	Tnbs1	S	CMP	E906:ALL	4		
NC2-12D	PTMW	Tnbs1	A	CMP	AS:UISO	2	Y	
NC2-12D	PTMW	Tnbs1	A	CMP	E300.0:NO3	2	Y	
NC2-12D	PTMW	Tnbs1	S	CMP	E300.0:PERC	2	Y	
NC2-12D	PTMW	Tnbs1	S	CMP	E300.0:PERC	4		
NC2-12D	PTMW	Tnbs1	S	CMP	E906:ALL	2	Y	
NC2-12D	PTMW	Tnbs1	S	CMP	E906:ALL	4		
NC2-12I	PTMW	Tnbs1	A	CMP	AS:UISO	2	Y	
NC2-12I	PTMW	Tnbs1	A	CMP	E300.0:NO3	2	Y	
NC2-12I	PTMW	Tnbs1	S	CMP	E300.0:PERC	2	Y	
NC2-12I	PTMW	Tnbs1	S	CMP	E300.0:PERC	4		
NC2-12I	PTMW	Tnbs1	S	CMP	E906:ALL	2	Y	
NC2-12I	PTMW	Tnbs1	S	CMP	E906:ALL	4		
NC2-12S	PTMW	Tnbs1	A	CMP	AS:UISO	2	Y	
NC2-12S	PTMW	Tnbs1	A	CMP	E300.0:NO3	2	Y	
NC2-12S	PTMW	Tnbs1	S	CMP	E300.0:PERC	2	Y	

Table 2.5-1 (Con't.). Building 850 Area of OU 5 ground and surface water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
NC2-12S	PTMW	Tnbs1	S	CMP	E300.0:PERC	4		
NC2-12S	PTMW	Tnbs1	S	CMP	E906:ALL	2	Y	
NC2-12S	PTMW	Tnbs1	S	CMP	E906:ALL	4		
NC2-13	PTMW	Tnbs1	A	CMP	AS:UISO	2	Y	
NC2-13	PTMW	Tnbs1	A	CMP	E300.0:NO3	2	Y	
NC2-13	PTMW	Tnbs1	S	CMP	E300.0:PERC	2	Y	
NC2-13	PTMW	Tnbs1	S	CMP	E300.0:PERC	4		
NC2-13	PTMW	Tnbs1	S	CMP	E906:ALL	2	Y	
NC2-13	PTMW	Tnbs1	S	CMP	E906:ALL	4		
NC2-14S	PTMW	Tnbs1	O	CMP	AS:UISO	2	N	To be sampled in 2011.
NC2-14S	PTMW	Tnbs1	O	CMP	E300.0:NO3	2	N	To be sampled in 2011.
NC2-14S	PTMW	Tnbs1	S	CMP	E300.0:PERC	1	Y	
NC2-14S	PTMW	Tnbs1	S	CMP	E300.0:PERC	3		
NC2-14S	PTMW	Tnbs1	S	CMP	E906:ALL	2	Y	
NC2-14S	PTMW	Tnbs1	S	CMP	E906:ALL	4		
NC2-15	PTMW	Tnbs1	A	CMP	AS:UISO	2	Y	
NC2-15	PTMW	Tnbs1	A	CMP	E300.0:NO3	2	Y	
NC2-15	PTMW	Tnbs1	S	CMP	E300.0:PERC	2	Y	
NC2-15	PTMW	Tnbs1	S	CMP	E300.0:PERC	4		
NC2-15	PTMW	Tnbs1	S	CMP	E906:ALL	2	Y	
NC2-15	PTMW	Tnbs1	S	CMP	E906:ALL	4		
NC2-16	PTMW	Tnbs1	E	CMP	AS:UISO	2	Y	
NC2-16	PTMW	Tnbs1	O	CMP	E300.0:NO3	2	N	To be sampled in 2011.
NC2-16	PTMW	Tnbs1	S	CMP	E300.0:PERC	1	Y	
NC2-16	PTMW	Tnbs1	S	CMP	E300.0:PERC	3		
NC2-16	PTMW	Tnbs1	S	CMP	E906:ALL	2	Y	
NC2-16	PTMW	Tnbs1	S	CMP	E906:ALL	4		
NC2-17	PTMW	Tnbs1	A	CMP	AS:UISO	2	Y	
NC2-17	PTMW	Tnbs1	A	CMP	E300.0:NO3	2	Y	
NC2-17	PTMW	Tnbs1	S	CMP	E300.0:PERC	2	Y	
NC2-17	PTMW	Tnbs1	S	CMP	E300.0:PERC	4		
NC2-17	PTMW	Tnbs1	S	CMP	E906:ALL	2	Y	
NC2-17	PTMW	Tnbs1	S	CMP	E906:ALL	4		
NC2-18	PTMW	Tnbs1	A	DIS	AS:UISO	2	Y	
NC2-18	PTMW	Tnbs1	O	CMP	E300.0:NO3	2	N	To be sampled in 2011.
NC2-18	PTMW	Tnbs1	S	CMP	E300.0:PERC	2	Y	
NC2-18	PTMW	Tnbs1	S	CMP	E300.0:PERC	4		
NC2-18	PTMW	Tnbs1	S	CMP	E906:ALL	2	Y	
NC2-18	PTMW	Tnbs1	S	CMP	E906:ALL	4		
NC2-19	PTMW	Tnbs1	E	CMP	AS:UISO	2	Y	
NC2-19	PTMW	Tnbs1	O	CMP	E300.0:NO3	2	N	To be sampled in 2011.
NC2-19	PTMW	Tnbs1	S	CMP	E300.0:PERC	2	Y	
NC2-19	PTMW	Tnbs1	S	CMP	E300.0:PERC	4		
NC2-19	PTMW	Tnbs1	S	CMP	E906:ALL	2	Y	
NC2-19	PTMW	Tnbs1	S	CMP	E906:ALL	4		
NC2-20	PTMW	Tnbs0	O	CMP	AS:UISO	2	N	To be sampled in 2011.
NC2-20	PTMW	Tnbs0	E	CMP	E300.0:NO3	2	Y	
NC2-20	PTMW	Tnbs0	A	CMP	E300.0:PERC	2	Y	
NC2-20	PTMW	Tnbs0	A	CMP	E906:ALL	2	Y	
NC2-21	PTMW	Tnbs1	E	CMP	AS:UISO	2	Y	
NC2-21	PTMW	Tnbs1	O	CMP	E300.0:NO3	2	N	To be sampled in 2011.
NC2-21	PTMW	Tnbs1	A	CMP	E300.0:PERC	2	Y	
NC2-21	PTMW	Tnbs1	A	CMP	E906:ALL	2	Y	
NC7-10	PTMW	Tnbs1	A	CMP	AS:UISO	2	Y	
NC7-10	PTMW	Tnbs1	A	CMP	E300.0:NO3	2	Y	
NC7-10	PTMW	Tnbs1	S	CMP	E300.0:PERC	1	Y	
NC7-10	PTMW	Tnbs1	S	CMP	E300.0:PERC	3		
NC7-10	PTMW	Tnbs1	S	CMP	E906:ALL	2	Y	
NC7-10	PTMW	Tnbs1	S	CMP	E906:ALL	4		
NC7-10	PTMW	Tnbs1	A	DIS	MS:UISO	2	Y	

Table 2.5-1 (Con't.). Building 850 Area of OU 5 ground and surface water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
NC7-10	PTMW	Tnbs1	S	DIS	E8330	2	Y	
NC7-10	PTMW	Tnbs1	S	DIS	E8330	4		
NC7-11	PTMW	Qal/Tnbs1	A	CMP	AS:UISO	2	Y	
NC7-11	PTMW	Qal/Tnbs1	A	CMP	E300.0:NO3	2	Y	
NC7-11	PTMW	Qal/Tnbs1	S	CMP	E300.0:PERC	2	Y	
NC7-11	PTMW	Qal/Tnbs1	S	CMP	E300.0:PERC	4		
NC7-11	PTMW	Qal/Tnbs1	S	CMP	E906:ALL	2	Y	
NC7-11	PTMW	Qal/Tnbs1	S	CMP	E906:ALL	4		
NC7-11	PTMW	Qal/Tnbs1	S	DIS	E8330	2	Y	
NC7-11	PTMW	Qal/Tnbs1	S	DIS	E8330	4		
NC7-14	PTMW	Qal/Tnbs1	A	CMP	AS:UISO	2	N	Insufficient water.
NC7-14	PTMW	Qal/Tnbs1	A	CMP	E300.0:NO3	2	N	Insufficient water.
NC7-14	PTMW	Qal/Tnbs1	S	CMP	E300.0:PERC	2	N	Insufficient water.
NC7-14	PTMW	Qal/Tnbs1	S	CMP	E300.0:PERC	4		
NC7-14	PTMW	Qal/Tnbs1	S	CMP	E906:ALL	2	N	Insufficient water.
NC7-14	PTMW	Qal/Tnbs1	S	CMP	E906:ALL	4		
NC7-14	PTMW	Qal/Tnbs1	S	DIS	E8330	2	N	Insufficient water.
NC7-14	PTMW	Qal/Tnbs1	S	DIS	E8330	4		
NC7-15	PTMW	Tnbs1	O	CMP	AS:UISO	2	N	To be sampled in 2011.
NC7-15	PTMW	Tnbs1	E	CMP	E300.0:NO3	2	Y	
NC7-15	PTMW	Tnbs1	A	CMP	E300.0:PERC	2	Y	
NC7-15	PTMW	Tnbs1	S	CMP	E906:ALL	2	Y	
NC7-15	PTMW	Tnbs1	S	CMP	E906:ALL	4		
NC7-15	PTMW	Tnbs1	S	DIS	E8330	2	Y	
NC7-15	PTMW	Tnbs1	S	DIS	E8330	4		
NC7-19	PTMW	Qal/Tnbs1	E	CMP	AS:UISO	2	Y	
NC7-19	PTMW	Qal/Tnbs1	A	CMP	E300.0:NO3	2	Y	
NC7-19	PTMW	Qal/Tnbs1	S	CMP	E300.0:PERC	2	Y	
NC7-19	PTMW	Qal/Tnbs1	S	CMP	E300.0:PERC	4		
NC7-19	PTMW	Qal/Tnbs1	S	CMP	E906:ALL	2	Y	
NC7-19	PTMW	Qal/Tnbs1	S	CMP	E906:ALL	4		
NC7-19	PTMW	Qal/Tnbs1	S	DIS	E8330	2	Y	
NC7-19	PTMW	Qal/Tnbs1	S	DIS	E8330	4		
NC7-27	PTMW	Tnsc0	A	CMP	AS:UISO	2	Y	
NC7-27	PTMW	Tnsc0	A	CMP	E300.0:NO3	2	Y	
NC7-27	PTMW	Tnsc0	S	CMP	E300.0:PERC	2	Y	
NC7-27	PTMW	Tnsc0	S	CMP	E300.0:PERC	4		
NC7-27	PTMW	Tnsc0	S	CMP	E906:ALL	2	Y	
NC7-27	PTMW	Tnsc0	S	CMP	E906:ALL	4		
NC7-27	PTMW	Tnsc0	S	DIS	E8330	2	Y	
NC7-27	PTMW	Tnsc0	S	DIS	E8330	4		
NC7-28	PTMW	Tnbs1	A	CMP	AS:UISO	2	Y	
NC7-28	PTMW	Tnbs1	A	CMP	E300.0:NO3	2	Y	
NC7-28	PTMW	Tnbs1	S	CMP	E300.0:PERC	2	Y	
NC7-28	PTMW	Tnbs1	S	CMP	E300.0:PERC	4		
NC7-28	PTMW	Tnbs1	S	CMP	E906:ALL	2	Y	
NC7-28	PTMW	Tnbs1	S	CMP	E906:ALL	4		
NC7-28	PTMW	Tnbs1	A	DIS	MS:UISO	2	Y	
NC7-28	PTMW	Tnbs1	E	DIS	E8082A	2	Y	
NC7-28	PTMW	Tnbs1	S	DIS	E8330	2	Y	
NC7-28	PTMW	Tnbs1	S	DIS	E8330	4		
NC7-29	PTMW	Tnbs1	A	CMP	AS:UISO	2	Y	
NC7-29	PTMW	Tnbs1	A	CMP	E300.0:NO3	2	Y	
NC7-29	PTMW	Tnbs1	S	CMP	E300.0:PERC	2	Y	
NC7-29	PTMW	Tnbs1	S	CMP	E300.0:PERC	4		
NC7-29	PTMW	Tnbs1	S	CMP	E906:ALL	2	Y	
NC7-29	PTMW	Tnbs1	S	CMP	E906:ALL	4		
NC7-43	PTMW	Tnbs1	A	CMP	AS:UISO	2	Y	
NC7-43	PTMW	Tnbs1	A	CMP	E300.0:NO3	2	Y	
NC7-43	PTMW	Tnbs1	S	CMP	E300.0:PERC	2	Y	

Table 2.5-1 (Con't.). Building 850 Area of OU 5 ground and surface water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
NC7-43	PTMW	Tnbs1	S	CMP	E300.0:PERC	4		
NC7-43	PTMW	Tnbs1	S	CMP	E906:ALL	2	Y	
NC7-43	PTMW	Tnbs1	S	CMP	E906:ALL	4		
NC7-43	PTMW	Tnbs1	S	DIS	E8330	2	Y	
NC7-43	PTMW	Tnbs1	S	DIS	E8330	4		
NC7-44	PTMW	Tnbs1	A	CMP	AS:UISO	2	Y	
NC7-44	PTMW	Tnbs1	A	CMP	E300.0:NO3	2	Y	
NC7-44	PTMW	Tnbs1	S	CMP	E300.0:PERC	2	Y	
NC7-44	PTMW	Tnbs1	S	CMP	E300.0:PERC	4		
NC7-44	PTMW	Tnbs1	S	CMP	E906:ALL	2	Y	
NC7-44	PTMW	Tnbs1	S	CMP	E906:ALL	4		
NC7-44	PTMW	Tnbs1	E	DIS	E8082A	2	Y	
NC7-44	PTMW	Tnbs1	S	DIS	E8330	2	Y	
NC7-44	PTMW	Tnbs1	S	DIS	E8330	4		
NC7-46	PTMW	Tnbs1	O	CMP	AS:UISO	2	N	To be sampled in 2011.
NC7-46	PTMW	Tnbs1	O	CMP	E300.0:NO3	2	N	To be sampled in 2011.
NC7-46	PTMW	Tnbs1	A	CMP	E300.0:PERC	2	Y	
NC7-46	PTMW	Tnbs1	A	CMP	E906:ALL	2	Y	
NC7-54	PTMW	Qal	A	CMP	AS:UISO	2	Y	
NC7-54	PTMW	Qal	A	CMP	E300.0:NO3	2	Y	
NC7-54	PTMW	Qal	S	CMP	E300.0:PERC	2	Y	
NC7-54	PTMW	Qal	S	CMP	E300.0:PERC	4		
NC7-54	PTMW	Qal	S	CMP	E906:ALL	2	Y	
NC7-54	PTMW	Qal	S	CMP	E906:ALL	4		
NC7-54	PTMW	Qal	A	DIS	MS:UISO	2	Y	
NC7-54	PTMW	Qal	S	DIS	E8330	2	Y	
NC7-54	PTMW	Qal	S	DIS	E8330	4		
NC7-55	PTMW	Tnbs1	A	CMP	AS:UISO	2	N	Dry.
NC7-55	PTMW	Tnbs1	O	CMP	E300.0:NO3	2	N	To be sampled in 2011.
NC7-55	PTMW	Tnbs1	S	CMP	E300.0:PERC	2	N	Dry.
NC7-55	PTMW	Tnbs1	S	CMP	E300.0:PERC	4		
NC7-55	PTMW	Tnbs1	S	CMP	E906:ALL	2	N	Dry.
NC7-55	PTMW	Tnbs1	S	CMP	E906:ALL	4		
NC7-55	PTMW	Tnbs1	A	DIS	MS:UISO	4		
NC7-55	PTMW	Tnbs1	S	DIS	E8330	2	N	Dry.
NC7-55	PTMW	Tnbs1	S	DIS	E8330	4		
NC7-56	PTMW	Qal/Tnbs1	O	CMP	AS:UISO	2	N	To be sampled in 2011.
NC7-56	PTMW	Qal/Tnbs1	E	CMP	E300.0:NO3	2	Y	
NC7-56	PTMW	Qal/Tnbs1	S	CMP	E300.0:PERC	2	Y	
NC7-56	PTMW	Qal/Tnbs1	S	CMP	E300.0:PERC	4		
NC7-56	PTMW	Qal/Tnbs1	S	CMP	E906:ALL	2	Y	
NC7-56	PTMW	Qal/Tnbs1	S	CMP	E906:ALL	4		
NC7-56	PTMW	Qal/Tnbs1	S	DIS	E8330	2	Y	
NC7-56	PTMW	Qal/Tnbs1	S	DIS	E8330	4		
NC7-57	PTMW	Qal	O	CMP	AS:UISO	2	N	To be sampled in 2011.
NC7-57	PTMW	Qal	E	CMP	E300.0:NO3	2	N	Dry.
NC7-57	PTMW	Qal	S	CMP	E300.0:PERC	2	N	Dry.
NC7-57	PTMW	Qal	S	CMP	E300.0:PERC	4		
NC7-57	PTMW	Qal	S	CMP	E906:ALL	2	N	Dry.
NC7-57	PTMW	Qal	S	CMP	E906:ALL	4		
NC7-58	PTMW	Qal	E	CMP	AS:UISO	2	Y	
NC7-58	PTMW	Qal	O	CMP	E300.0:NO3	2	N	To be sampled in 2011.
NC7-58	PTMW	Qal	S	CMP	E300.0:PERC	2	Y	
NC7-58	PTMW	Qal	S	CMP	E300.0:PERC	4		
NC7-58	PTMW	Qal	S	CMP	E906:ALL	2	Y	
NC7-58	PTMW	Qal	S	CMP	E906:ALL	4		
NC7-59	PTMW	Qal/Tnbs1	O	CMP	AS:UISO	2	N	To be sampled in 2011.
NC7-59	PTMW	Qal/Tnbs1	E	CMP	E300.0:NO3	2	Y	
NC7-59	PTMW	Qal/Tnbs1	S	CMP	E300.0:PERC	2	Y	
NC7-59	PTMW	Qal/Tnbs1	S	CMP	E300.0:PERC	4		

Table 2.5-1 (Con't.). Building 850 Area of OU 5 ground and surface water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
NC7-59	PTMW	Qal/Tnbs1	S	CMP	E906:ALL	2	Y	
NC7-59	PTMW	Qal/Tnbs1	S	CMP	E906:ALL	4		
NC7-60	PTMW	Tnbs0	E	CMP	AS:UISO	2	Y	
NC7-60	PTMW	Tnbs0	A	CMP	E300.0:NO3	2	Y	
NC7-60	PTMW	Tnbs0	S	CMP	E300.0:PERC	1	Y	
NC7-60	PTMW	Tnbs0	S	CMP	E300.0:PERC	3		
NC7-60	PTMW	Tnbs0	S	CMP	E906:ALL	2	Y	
NC7-60	PTMW	Tnbs0	S	CMP	E906:ALL	4		
NC7-60	PTMW	Tnbs0	S	DIS	E8330	2	Y	
NC7-60	PTMW	Tnbs0	S	DIS	E8330	4		
NC7-61*	PTMW	Tnbs0	A	CMP	AS:UISO	2	Y	
NC7-61*	PTMW	Tnbs0	A	CMP	E300.0:NO3	2	Y	
NC7-61*	PTMW	Tnbs0	Q	WGMG	E300.0:PERC	1	Y	
NC7-61*	PTMW	Tnbs0	Q	WGMG	E300.0:PERC	2	Y	
NC7-61*	PTMW	Tnbs0	Q	WGMG	E300.0:PERC	3		
NC7-61*	PTMW	Tnbs0	Q	WGMG	E300.0:PERC	4		
NC7-61*	PTMW	Tnbs0	S	CMP	E906:ALL	2	Y	
NC7-61*	PTMW	Tnbs0	S	CMP	E906:ALL	4		
NC7-61*	PTMW	Tnbs0	A	DIS	MS:UISO	2	Y	
NC7-61*	PTMW	Tnbs0	O	DIS	E8082A	2	N	To be sampled in 2011.
NC7-61*	PTMW	Tnbs0	S	DIS	E8330	2	Y	
NC7-61*	PTMW	Tnbs0	S	DIS	E8330	4		
NC7-62	PTMW	Tnbs1	E	CMP	AS:UISO	2	Y	
NC7-62	PTMW	Tnbs1	O	CMP	E300.0:NO3	2	N	To be sampled in 2011.
NC7-62	PTMW	Tnbs1	S	CMP	E300.0:PERC	2	Y	
NC7-62	PTMW	Tnbs1	S	CMP	E300.0:PERC	4		
NC7-62	PTMW	Tnbs1	S	CMP	E906:ALL	2	Y	
NC7-62	PTMW	Tnbs1	S	CMP	E906:ALL	4		
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		
NC7-69	PTMW	Tmss	S	CMP	E906:ALL	2	Y	
NC7-69	PTMW	Tmss	S	CMP	E906:ALL	4		
NC7-69	PTMW	Tmss	S	DIS	E8330	2	Y	
NC7-69	PTMW	Tmss	S	DIS	E8330	4		
NC7-70	PTMW	Tnbs1	A	CMP	E300.0:NO3	2	Y	
NC7-70	PTMW	Tnbs1	S	CMP	E300.0:PERC	2	Y	
NC7-70	PTMW	Tnbs1	S	CMP	E300.0:PERC	4		
NC7-70	PTMW	Tnbs1	S	CMP	E906:ALL	2	Y	
NC7-70	PTMW	Tnbs1	S	CMP	E906:ALL	4		
NC7-70	PTMW	Tnbs1	A	CMP	MS:UISO	2	Y	Performed in place of AS:UISO.
NC7-70	PTMW	Tnbs1	O	DIS	E8082A	2	N	To be sampled in 2011.
NC7-70	PTMW	Tnbs1	S	DIS	E8330	2	Y	
NC7-70	PTMW	Tnbs1	S	DIS	E8330	4		
NC7-71	PTMW	Tnbs1	A	CMP	AS:UISO	2	Y	
NC7-71	PTMW	Tnbs1	A	CMP	E300.0:NO3	2	Y	
NC7-71	PTMW	Tnbs1	S	CMP	E300.0:PERC	2	Y	
NC7-71	PTMW	Tnbs1	S	CMP	E300.0:PERC	4		
NC7-71	PTMW	Tnbs1	S	CMP	E906:ALL	2	Y	
NC7-71	PTMW	Tnbs1	S	CMP	E906:ALL	4		
NC7-71	PTMW	Tnbs1	A	DIS	MS:UISO	2	Y	
NC7-71	PTMW	Tnbs1	S	DIS	E8330	2	Y	
NC7-71	PTMW	Tnbs1	S	DIS	E8330	4		
NC7-72	PTMW	Tnbs1	E	CMP	AS:UISO	2	Y	
NC7-72	PTMW	Tnbs1	O	CMP	E300.0:NO3	2	N	To be sampled in 2011.
NC7-72	PTMW	Tnbs1	S	CMP	E300.0:PERC	2	Y	
NC7-72	PTMW	Tnbs1	S	CMP	E300.0:PERC	4		
NC7-72	PTMW	Tnbs1	S	CMP	E906:ALL	2	Y	

Table 2.5-1 (Con't.). Building 850 Area of OU 5 ground and surface water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
NC7-72	PTMW	Tnbs1	S	CMP	E906:ALL	4		
NC7-72	PTMW	Tnbs1	S	DIS	E8330	2	Y	
NC7-72	PTMW	Tnbs1	S	DIS	E8330	4		
NC7-73	PTMW	Tnbs1	A	CMP	AS:UISO	2	Y	
NC7-73	PTMW	Tnbs1	E	CMP	E300.0:NO3	2	Y	
NC7-73	PTMW	Tnbs1	S	CMP	E300.0:PERC	2	Y	
NC7-73	PTMW	Tnbs1	S	CMP	E300.0:PERC	4		
NC7-73	PTMW	Tnbs1	S	CMP	E906:ALL	2	Y	
NC7-73	PTMW	Tnbs1	S	CMP	E906:ALL	4		
NC7-73	PTMW	Tnbs1	S	DIS	E8330	2	Y	
NC7-73	PTMW	Tnbs1	S	DIS	E8330	4		
SPRING24	SPR	Tnbs0/Tnbs1	E	CMP	AS:UISO	2	N	Dry.
SPRING24	SPR	Tnbs0/Tnbs1	O	CMP	E300.0:NO3	2	N	To be sampled in 2011.
SPRING24	SPR	Tnbs0/Tnbs1	S	CMP	E300.0:PERC	2	N	Dry.
SPRING24	SPR	Tnbs0/Tnbs1	S	CMP	E300.0:PERC	4		
SPRING24	SPR	Tnbs0/Tnbs1	S	CMP	E906:ALL	2	N	Dry.
SPRING24	SPR	Tnbs0/Tnbs1	S	CMP	E906:ALL	4		
W-850-05	PTMW	Tnbs1	A	CMP	AS:UISO	2	Y	
W-850-05	PTMW	Tnbs1	A	CMP	E300.0:NO3	2	Y	
W-850-05	PTMW	Tnbs1	S	CMP	E300.0:PERC	2	Y	
W-850-05	PTMW	Tnbs1	S	CMP	E300.0:PERC	4		
W-850-05	PTMW	Tnbs1	S	CMP	E906:ALL	2	Y	
W-850-05	PTMW	Tnbs1	S	CMP	E906:ALL	4		
W-850-05	PTMW	Tnbs1	A	DIS	MS:UISO	4		
W-850-05	PTMW	Tnbs1	S	DIS	E8330	2	Y	
W-850-05	PTMW	Tnbs1	S	DIS	E8330	4		
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 2011.
W-850-2145	PTMW	Tnbs1/Tnbs0	A	CMP	E300.0:PERC	2	Y	
W-850-2145	PTMW	Tnbs1/Tnbs0	S	CMP	E300.0:PERC	4		
W-850-2145	PTMW	Tnbs1/Tnbs0	S	CMP	E906:ALL	2	Y	
W-850-2145	PTMW	Tnbs1/Tnbs0	S	CMP	E906:ALL	4		
W-850-2312	PTMW	Tnbs0	E	CMP	AS:UISO	2	Y	
W-850-2312	PTMW	Tnbs0	E	CMP	E300.0:NO3	2	Y	
W-850-2312	PTMW	Tnbs0	S	CMP	E300.0:PERC	2	Y	
W-850-2312	PTMW	Tnbs0	S	CMP	E300.0:PERC	4		
W-850-2312	PTMW	Tnbs0	S	CMP	E906:ALL	2	Y	
W-850-2312	PTMW	Tnbs0	S	CMP	E906:ALL	4		
W-850-2313	PTMW	Tnbs0	A	CMP	AS:UISO	2	Y	
W-850-2313	PTMW	Tnbs0	E	CMP	E300.0:NO3	2	Y	
W-850-2313	PTMW	Tnbs0	S	CMP	E300.0:PERC	2	Y	
W-850-2313	PTMW	Tnbs0	S	CMP	E300.0:PERC	4		
W-850-2313	PTMW	Tnbs0	S	CMP	E906:ALL	2	Y	
W-850-2313	PTMW	Tnbs0	S	CMP	E906:ALL	4		
W-850-2313	PTMW	Tnbs0	A	DIS	MS:UISO	2	Y	
W-850-2313	PTMW	Tnbs0	S	DIS	E8330	2	Y	
W-850-2313	PTMW	Tnbs0	S	DIS	E8330	4		
W-850-2314	PTMW	Tnbs0	O	CMP	AS:UISO	2	N	To be sampled in 2011.
W-850-2314	PTMW	Tnbs0	A	CMP	E300.0:NO3	2	N	Inoperable pump.
W-850-2314	PTMW	Tnbs0	S	CMP	E300.0:PERC	2	N	Inoperable pump.
W-850-2314	PTMW	Tnbs0	S	CMP	E300.0:PERC	4		
W-850-2314	PTMW	Tnbs0	S	CMP	E906:ALL	2	N	Inoperable pump.
W-850-2314	PTMW	Tnbs0	S	CMP	E906:ALL	4		
W-850-2314	PTMW	Tnbs0	S	DIS	E8330	2	N	Inoperable pump.
W-850-2314	PTMW	Tnbs0	S	DIS	E8330	4		
W-850-2315	PTMW	Tnbs0	A	CMP	AS:UISO	2	Y	
W-850-2315	PTMW	Tnbs0	A	CMP	E300.0:NO3	2	Y	
W-850-2315	PTMW	Tnbs0	S	CMP	E300.0:PERC	2	Y	
W-850-2315	PTMW	Tnbs0	S	CMP	E300.0:PERC	4		
W-850-2315	PTMW	Tnbs0	S	CMP	E906:ALL	2	Y	

Table 2.5-1 (Con't.). Building 850 Area of OU 5 ground and surface water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
W-850-2315	PTMW	Tnbs0	S	CMP	E906:ALL	4		
W-850-2316	PTMW	Tnbs0	O	CMP	AS:UISO	2	N	To be sampled in 2011.
W-850-2316	PTMW	Tnbs0	E	CMP	E300.0:NO3	2	Y	
W-850-2316	PTMW	Tnbs0	S	CMP	E300.0:PERC	2	Y	
W-850-2316	PTMW	Tnbs0	S	CMP	E300.0:PERC	4		
W-850-2316	PTMW	Tnbs0	S	CMP	E906:ALL	2	Y	
W-850-2316	PTMW	Tnbs0	S	CMP	E906:ALL	4		
W-850-2416	PTMW	Tnbs0	A	CMP	AS:UISO	2	Y	
W-850-2416	PTMW	Tnbs0	A	CMP	E300.0:NO3	2	Y	
W-850-2416	PTMW	Tnbs0	S	CMP	E300.0:PERC	2	Y	
W-850-2416	PTMW	Tnbs0	S	CMP	E300.0:PERC	4		
W-850-2416	PTMW	Tnbs0	S	CMP	E906:ALL	2	Y	
W-850-2416	PTMW	Tnbs0	S	CMP	E906:ALL	4		
W-850-2416	PTMW	Tnbs0	A	DIS	MS:UISO	2	Y	
W-850-2416	PTMW	Tnbs0	S	DIS	E8330	2	Y	
W-850-2416	PTMW	Tnbs0	S	DIS	E8330	4		
W-850-2417	PTMW	Tnbs1	A	CMP	AS:UISO	2	Y	
W-850-2417	PTMW	Tnbs1	A	CMP	E300.0:NO3	2	Y	
W-850-2417	PTMW	Tnbs1	S	CMP	E300.0:PERC	1	Y	
W-850-2417	PTMW	Tnbs1	S	CMP	E300.0:PERC	3		
W-850-2417	PTMW	Tnbs1	S	CMP	E906:ALL	2	Y	
W-850-2417	PTMW	Tnbs1	S	CMP	E906:ALL	4		
W-850-2417	PTMW	Tnbs1	A	DIS	MS:UISO	2	Y	
W-850-2417	PTMW	Tnbs1	S	DIS	E8330	2	Y	
W-850-2417	PTMW	Tnbs1	S	DIS	E8330	4		
W-865-1802	PTMW	Tnbs0-Tnsc0	A	CMP	AS:UISO	2	Y	
W-865-1802	PTMW	Tnbs0-Tnsc0	A	CMP	E300.0:NO3	2	Y	
W-865-1802	PTMW	Tnbs0-Tnsc0	A	CMP	E300.0:PERC	2	Y	
W-865-1802	PTMW	Tnbs0-Tnsc0	S	CMP	E906:ALL	2	Y	
W-865-1802	PTMW	Tnbs0-Tnsc0	S	CMP	E906:ALL	4		
W-865-1802	PTMW	Tnbs0-Tnsc0	S	DIS	E601	1	Y	
W-865-1802	PTMW	Tnbs0-Tnsc0	S	DIS	E601	3		
W-865-1803	PTMW	Tnbs0-Tnsc0	E	CMP	AS:UISO	2	Y	
W-865-1803	PTMW	Tnbs0-Tnsc0	E	CMP	E300.0:NO3	2	Y	
W-865-1803	PTMW	Tnbs0-Tnsc0	S	CMP	E300.0:PERC	2	Y	
W-865-1803	PTMW	Tnbs0-Tnsc0	S	CMP	E300.0:PERC	4		
W-865-1803	PTMW	Tnbs0-Tnsc0	S	CMP	E906:ALL	2	Y	
W-865-1803	PTMW	Tnbs0-Tnsc0	S	CMP	E906:ALL	4		
W-865-2133	GW	Tnbs1/Tnbs0	S	CMP	AS:UISO	1	Y	
W-865-2133	GW	Tnbs1/Tnbs0	S	CMP	AS:UISO	3		
W-865-2133	GW	Tnbs1/Tnbs0	S	CMP	E300.0:NO3	1	Y	
W-865-2133	GW	Tnbs1/Tnbs0	S	CMP	E300.0:NO3	3		
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		
W-865-2133	GW	Tnbs1/Tnbs0	Q	CMP	E300.0:PERC	4		
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		
W-865-2133	GW	Tnbs1/Tnbs0	Q	CMP	E906:ALL	4		
W-865-2133	GW	Tnbs1/Tnbs0	A	DIS	DWMETALS	1	Y	
W-865-2133	GW	Tnbs1/Tnbs0	S	DIS	E601	1	Y	
W-865-2133	GW	Tnbs1/Tnbs0	S	DIS	E601	3		
W-865-2224	GW	Tnbs1/Tnbs0	S	CMP	AS:UISO	2	Y	
W-865-2224	GW	Tnbs1/Tnbs0	S	CMP	AS:UISO	4		
W-865-2224	GW	Tnbs1/Tnbs0	S	CMP	E300.0:NO3	2	N	Not sampled.
W-865-2224	GW	Tnbs1/Tnbs0	S	CMP	E300.0:NO3	4		
W-865-2224	GW	Tnbs1/Tnbs0	Q	CMP	E300.0:PERC	1	N	Not sampled.
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		

Table 2.5-1 (Con't.). Building 850 Area of OU 5 ground and surface water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
W-865-2224	GW	Tnbs1/Tnbs0	Q	CMP	E300.0:PERC	4		
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		
W-865-2224	GW	Tnbs1/Tnbs0	Q	CMP	E906:ALL	4		
W-865-2224	GW	Tnbs1/Tnbs0	S	DIS	E601	2	Y	
W-865-2224	GW	Tnbs1/Tnbs0	S	DIS	E601	4		
W-PIT1-02*	PTMW	Tnbs1	E	CMP	AS:UISO	2	Y	
W-PIT1-02*	PTMW	Tnbs1	A	DIS	E300.0:NO3	2	Y	
W-PIT1-02*	PTMW	Tnbs1	Q	WGMG	E300.0:PERC	1	Y	
W-PIT1-02*	PTMW	Tnbs1	Q	WGMG	E300.0:PERC	2	Y	
W-PIT1-02*	PTMW	Tnbs1	Q	WGMG	E300.0:PERC	3		
W-PIT1-02*	PTMW	Tnbs1	Q	WGMG	E300.0:PERC	4		
W-PIT1-02*	PTMW	Tnbs1	Q	WGMG	E906:ALL	1	Y	
W-PIT1-02*	PTMW	Tnbs1	Q	WGMG	E906:ALL	2	Y	
W-PIT1-02*	PTMW	Tnbs1	Q	WGMG	E906:ALL	3		
W-PIT1-02*	PTMW	Tnbs1	Q	WGMG	E906:ALL	4		
W-PIT1-02*	PTMW	Tnbs1	A	DIS	DWMETALS	2	Y	
W-PIT1-02*	PTMW	Tnbs1	S	DIS	E601	2	Y	
W-PIT1-02*	PTMW	Tnbs1	S	DIS	E601	4		
W-PIT1-2204	PTMW	Qal/Tnbs1-cong	A	CMP	AS:UISO	2	Y	
W-PIT1-2204	PTMW	Qal/Tnbs1-cong	A	CMP	E300.0:NO3	2	Y	
W-PIT1-2204	PTMW	Qal/Tnbs1-cong	S	CMP	E300.0:PERC	2	Y	
W-PIT1-2204	PTMW	Qal/Tnbs1-cong	S	CMP	E300.0:PERC	4		
W-PIT1-2204	PTMW	Qal/Tnbs1-cong	S	CMP	E906:ALL	2	Y	
W-PIT1-2204	PTMW	Qal/Tnbs1-cong	S	CMP	E906:ALL	4		
W-PIT1-2209	GW	Tnbs1	S	CMP	AS:UISO	2	Y	
W-PIT1-2209	GW	Tnbs1	S	CMP	AS:UISO	4		
W-PIT1-2209	GW	Tnbs1	S	CMP	E300.0:NO3	2	Y	
W-PIT1-2209	GW	Tnbs1	S	CMP	E300.0:NO3	4		
W-PIT1-2209	GW	Tnbs1	Q	CMP	E300.0:PERC	1	Y	
W-PIT1-2209	GW	Tnbs1	Q	CMP	E300.0:PERC	2	Y	
W-PIT1-2209	GW	Tnbs1	Q	CMP	E300.0:PERC	3		
W-PIT1-2209	GW	Tnbs1	Q	CMP	E300.0:PERC	4		
W-PIT1-2209	GW	Tnbs1	Q	CMP	E906:ALL	1	Y	
W-PIT1-2209	GW	Tnbs1	Q	CMP	E906:ALL	2	Y	
W-PIT1-2209	GW	Tnbs1	Q	CMP	E906:ALL	3		
W-PIT1-2209	GW	Tnbs1	Q	CMP	E906:ALL	4		
W-PIT1-2209	GW	Tnbs1	S	DIS	E601	2	Y	
W-PIT1-2209	GW	Tnbs1	S	DIS	E601	4		
W-PIT1-2225	GW	Tnbs1/Tnbs0	S	CMP	AS:UISO	2	Y	
W-PIT1-2225	GW	Tnbs1/Tnbs0	S	CMP	AS:UISO	4		
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		
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		
W-PIT1-2225	GW	Tnbs1/Tnbs0	Q	CMP	E300.0:PERC	4		
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		
W-PIT1-2225	GW	Tnbs1/Tnbs0	Q	CMP	E906:ALL	4		
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		
W-PIT1-2326*	DMW	Tnbs1/Tnbs0	Q	WGMG	AS:UISO	4		
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		
W-PIT1-2326*	DMW	Tnbs1/Tnbs0	Q	WGMG	E300.0:NO3	4		

Table 2.5-1 (Con't.). Building 850 Area of OU 5 ground and surface water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
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		
W-PIT1-2326*	DMW	Tnbs1/Tnbs0	Q	WGMG	E300.0:PERC	4		
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		
W-PIT1-2326*	DMW	Tnbs1/Tnbs0	Q	WGMG	E906:ALL	4		
W-PIT1-2326*	DMW	Tnbs1/Tnbs0	Q	WGMG	E8260	1	Y	
W-PIT1-2326*	DMW	Tnbs1/Tnbs0	Q	WGMG	E8260	2	Y	
W-PIT1-2326*	DMW	Tnbs1/Tnbs0	Q	WGMG	E8260	3		
W-PIT1-2326*	DMW	Tnbs1/Tnbs0	Q	WGMG	E8260	4		
W-PIT7-16	PTMW	Tnsc0	A	CMP	AS:UISO	2	Y	
W-PIT7-16	PTMW	Tnsc0	A	CMP	E300.0:NO3	2	Y	
W-PIT7-16	PTMW	Tnsc0	S	CMP	E300.0:PERC	2	Y	
W-PIT7-16	PTMW	Tnsc0	S	CMP	E300.0:PERC	4		
W-PIT7-16	PTMW	Tnsc0	S	CMP	E906:ALL	2	Y	
W-PIT7-16	PTMW	Tnsc0	S	CMP	E906:ALL	4		
W-PIT7-16	PTMW	Tnsc0	S	DIS	E8330	2	Y	
W-PIT7-16	PTMW	Tnsc0	S	DIS	E8330	4		
W8SPRNG	SPR	Tnbs1	A	CMP	AS:UISO	2	Y	
W8SPRNG	SPR	Tnbs1	A	CMP	E300.0:NO3	2	Y	
W8SPRNG	SPR	Tnbs1	S	CMP	E300.0:PERC	2	Y	
W8SPRNG	SPR	Tnbs1	S	CMP	E300.0:PERC	4		
W8SPRNG	SPR	Tnbs1	S	CMP	E906:ALL	2	Y	
W8SPRNG	SPR	Tnbs1	S	CMP	E906:ALL	4		
W8SPRNG	SPR	Tnbs1	S	DIS	E8330	2	Y	
W8SPRNG	SPR	Tnbs1	S	DIS	E8330	4		

Notes:

1) K1-01C, K1-02B, K1-04, K1-05, K1-07, K1-08, K1-09, and W-PIT1-2326 are Pit 1 Landfill detection monitoring wells. Analytes and sampling frequency are specified in Waste Discharge Requirements for the Pit 1 Landfill.

2) Building 850 primary COC: tritium (E906).

3) Building 850 secondary COC: nitrate (E300.0:NO3).

4) Building 850 primary COC: perchlorate (E300.0:PERC).

5) Building 850 secondary COC: uranium (MS:UISO).

6) Wells noted with "*" are sampled as part of the surveillance monitoring performed by the Water Guidance and Monitoring Group (WGMG) for additional constituents and the results are reported in the LLNL Site Annual Environmental Report.

7) See Acronyms and Abbreviations in the Tables section of this report for acronym and abbreviation definitions.

Table 2.5-2. PIT7-Source (PIT7-SRC) volumes of ground water and soil vapor extracted and discharged, January 1, 2010 through June 30, 2010.

Treatment facility	Month	SVTS Operational hours	GWTS Operational hours	Volume of vapor extracted (thousands of ft^3)	Volume of ground water discharged (gal)
PIT7-SRC	March	NA	36	NA	1,339
	April	NA	67	NA	6,700
	May	NA	399	NA	11,609
	June	NA	802	NA	13,834
Total		NA	1,304	NA	33,482

Table 2.5-3. Pit 7-Source (PIT7-SRC) VOCs in ground water 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 tetra-chloride (µg/L)	Chloro-form (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-GWTS-E	3/18/10	<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	<0.5
PIT7-SRC-GWTS-E	4/21/10	<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	<0.5
PIT7-SRC-GWTS-E	5/5/10	<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	<0.5
PIT7-SRC-GWTS-E	6/2/10	<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	<0.5
PIT7-SRC-GWTS-I	3/18/10	6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.7	<0.5	<0.5	<0.5	<0.5	<0.5
PIT7-SRC-GWTS-I	3/18/10	6.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2.1	<0.5	<0.5	<0.5	<0.5	<0.5
PIT7-SRC-GWTS-I	4/21/10	5.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.7	<0.5	<0.5	<0.5	<0.5	<0.5
PIT7-SRC-GWTS-I[a]	4/21/10	5.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.7	<0.5	<0.5	<0.5	<0.5	<0.5

Notes:

[a] **Duplicate sample submitted for QA/QC.**

See Acronyms and Abbreviations in the Tables section of this report for definitions.

Table 2.5-3 (Con't.). Analyte detected but not reported in main table.

Location	Date	Detection frequency
PIT7-SRC-GWTS-E	3/18/10	0 of 18
PIT7-SRC-GWTS-E	4/21/10	0 of 18
PIT7-SRC-GWTS-E	5/5/10	0 of 18
PIT7-SRC-GWTS-E	6/2/10	0 of 18
PIT7-SRC-GWTS-I	3/18/10	0 of 18
PIT7-SRC-GWTS-I	3/18/10	0 of 18
PIT7-SRC-GWTS-I	4/21/10	0 of 18
PIT7-SRC-GWTS-I[a]	4/21/10	0 of 18

Notes:

[a] **Duplicate sample submitted for QA/QC.**

See Acronyms and Abbreviations in the Tables section of this report for definitions.

Table 2.5-4. Pit 7-Source (PIT7-SRC) nitrate and perchlorate in ground water treatment system influent and effluent.

Location	Date	Nitrate (as NO3) (mg/L)	Perchlorate (μg/L)
PIT7-SRC-GWTS-E	3/18/10	<0.5	<4
PIT7-SRC-GWTS-E	4/21/10	<0.5	<4
PIT7-SRC-GWTS-E	5/5/10	<0.5	<4
PIT7-SRC-GWTS-E	6/2/10	<0.5	<4
PIT7-SRC-GWTS-I	3/18/10	32	11
PIT7-SRC-GWTS-I	3/18/10	-	13
PIT7-SRC-GWTS-I	4/21/10	35	11
PIT7-SRC-GWTS-I[a]	04/21/10 DUP	35	10

Notes:

[a] **Duplicate sample submitted for QA/QC.**

See Acronyms and Abbreviations in the Tables section of this report for definitions.

Table 2.5-5. Pit 7-Source (PIT7-SRC) total uranium in ground water treatment system influent and effluent.

Location	Date	Total Uranium (pCi/L)
PIT7-SRC-GWTS-E	3/18/10	<0.3
PIT7-SRC-GWTS-E	4/21/10	0.234 ± 0.0734
PIT7-SRC-GWTS-E	5/5/10	0.153 ± 0.0866
PIT7-SRC-GWTS-E	6/2/10	<0.3
PIT7-SRC-GWTS-I	3/18/10	26.7 ± 3.02
PIT7-SRC-GWTS-I	3/18/10	18.2 ± 2.39
PIT7-SRC-GWTS-I	4/21/10	22.0 ± 3.14
PIT7-SRC-GWTS-I[a]	4/21/10	21.1 ± 3.41

Notes:

[a] **Duplicate sample submitted for QA/QC.**

See Acronyms and Abbreviations in the Tables section of this report for definitions.

Table 2.5-6. Pit 7-Source (PIT7-SRC) tritium in ground water treatment system influent and effluent.

Location	Date	Tritium (pCi/L)
PIT7-SRC-GWTS-E	3/18/10	58000 ± 11300
PIT7-SRC-GWTS-E	4/21/10	52400 ± 10200
PIT7-SRC-GWTS-E	5/5/10	63000 ± 12200
PIT7-SRC-GWTS-E	6/2/10	54900 ± 10700
PIT7-SRC-GWTS-I	3/18/10	52200 ± 10100
PIT7-SRC-GWTS-I	4/21/10	54800 ± 10600
PIT7-SRC-GWTS-I[a]	04/21/10 DUP	56300 ± 10900

Notes:

[a] **Duplicate sample submitted for QA/QC.**

See Acronyms and Abbreviations in the Tables section of this report for definitions.

Table 2.5-7. Pit 7-Source (PIT7-SRC) 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**
		pH	**Quarterly**
Effluent Port	**PIT7-SRC-E**	**VOCs**	**Monthly**
		Uranium	**Monthly**
		Perchlorate	**Monthly**
		Nitrate	**Monthly**
		Tritium[a]	**Monthly**
		pH	**Monthly**

Notes:

[a] Although tritium is not treated/removed by the PIT7-SRC GWTS, tritium activities will be monitoring to determine levels that are being discharged to the infiltration trench.

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.

Table 2.5-8. Pit 7 Complex Area of OU 5 ground and surface water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
K7-01	DMW	Qal/WBR;Tnbs0	A	CMP	E8082	2	Y	
K7-01	DMW	Qal/WBR;Tnbs0	A	CMP	E8330	2	Y	
K7-01	DMW	Qal/WBR;Tnbs0	A	CMP	AS:UISO	2	Y	
K7-01	DMW	Qal/WBR;Tnbs0	A	CMP	E200.7:LI	2	Y	
K7-01	DMW	Qal/WBR;Tnbs0	A	CMP	E300.0:NO3	2	Y	
K7-01	DMW	Qal/WBR;Tnbs0	A	CMP	E300.0:PERC	2	Y	
K7-01	DMW	Qal/WBR;Tnbs0	A	DIS	E340.2:ALL	1	Y	
K7-01	DMW	Qal/WBR;Tnbs0	A	CMP	E340.2:ALL	2	Y	
K7-01	DMW	Qal/WBR;Tnbs0	A	CMP	E601:ALL	2	Y	
K7-01	DMW	Qal/WBR;Tnbs0	S	CMP	E906:ALL	4		
K7-01	DMW	Qal/WBR;Tnbs0	S	CMP	E906:ALL	2	Y	
K7-01	DMW	Qal/WBR;Tnbs0	A	DIS	MS:UISO	2	Y	
K7-01	DMW	Qal/WBR;Tnbs0	A	CMP	T26METALS:ALL	2	Y	
K7-03	DMW	Tnbs0	A	CMP	E8082	2	Y	
K7-03	DMW	Tnbs0	A	CMP	E8330	2	Y	
K7-03	DMW	Tnbs0	A	CMP	AS:UISO	2	Y	
K7-03	DMW	Tnbs0	A	CMP	E200.7:LI	2	Y	
K7-03	DMW	Tnbs0	A	CMP	E300.0:NO3	2	Y	
K7-03	DMW	Tnbs0	A	CMP	E300.0:PERC	2	Y	
K7-03	DMW	Tnbs0	A	CMP	E340.2:ALL	2	Y	
K7-03	DMW	Tnbs0	A	CMP	E601:ALL	2	Y	
K7-03	DMW	Tnbs0	S	CMP	E906:ALL	4		
K7-03	DMW	Tnbs0	S	CMP	E906:ALL	2	Y	
K7-03	DMW	Tnbs0	A	DIS	MS:UISO	2	Y	
K7-03	DMW	Tnbs0	A	CMP	T26METALS:ALL	2	Y	
K7-06	DMW	Qal/WBR;Tnbs0	A	CMP	E8082	2	Y	
K7-06	DMW	Qal/WBR;Tnbs0	A	CMP	E8330	2	Y	
K7-06	DMW	Qal/WBR;Tnbs0	A	CMP	AS:UISO	2	Y	
K7-06	DMW	Qal/WBR;Tnbs0	A	CMP	E200.7:LI	2	Y	
K7-06	DMW	Qal/WBR;Tnbs0	A	CMP	E300.0:NO3	2	Y	
K7-06	DMW	Qal/WBR;Tnbs0	S	CMP	E300.0:PERC	4		
K7-06	DMW	Qal/WBR;Tnbs0	S	CMP	E300.0:PERC	2	Y	
K7-06	DMW	Qal/WBR;Tnbs0	A	CMP	E340.2:ALL	2	Y	
K7-06	DMW	Qal/WBR;Tnbs0	A	CMP	E601:ALL	2	Y	
K7-06	DMW	Qal/WBR;Tnbs0	S	CMP	E906:ALL	4		
K7-06	DMW	Qal/WBR;Tnbs0	S	CMP	E906:ALL	2	Y	
K7-06	DMW	Qal/WBR;Tnbs0	A	CMP	T26METALS:ALL	2	Y	
K7-07	PTMW	Qal/WBR	A	CMP	AS:UISO	2	Y	
K7-07	PTMW	Qal/WBR	E	CMP	E300.0:NO3	2	Y	
K7-07	PTMW	Qal/WBR	A	CMP	E300.0:PERC	2	Y	
K7-07	PTMW	Qal/WBR	S	CMP	E906:ALL	4		
K7-07	PTMW	Qal/WBR	S	CMP	E906:ALL	2	Y	
K7-09	DMW	Tnsc0	A	CMP	E8082	2	Y	
K7-09	DMW	Tnsc0	A	CMP	E8330	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	4		
K7-09	DMW	Tnsc0	S	CMP	E300.0:PERC	2	Y	
K7-09	DMW	Tnsc0	A	CMP	E340.2:ALL	2	Y	
K7-09	DMW	Tnsc0	A	CMP	E601:ALL	2	Y	
K7-09	DMW	Tnsc0	S	CMP	E906:ALL	4		
K7-09	DMW	Tnsc0	S	CMP	E906:ALL	2	Y	
K7-09	DMW	Tnsc0	A	CMP	T26METALS:ALL	2	Y	
K7-10	DMW	Tnbs0	A	CMP	E8082	2	Y	
K7-10	DMW	Tnbs0	A	CMP	E8330	2	Y	
K7-10	DMW	Tnbs0	A	CMP	AS:UISO	2	Y	
K7-10	DMW	Tnbs0	A	CMP	E200.7:LI	2	Y	
K7-10	DMW	Tnbs0	A	CMP	E300.0:NO3	2	Y	
K7-10	DMW	Tnbs0	A	CMP	E300.0:PERC	2	Y	

Table 2.5-8 (Con't.). Pit 7 Complex Area of OU 5 ground and surface water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
K7-10	DMW	Tnbs0	A	CMP	E340.2:ALL	2	Y	
K7-10	DMW	Tnbs0	A	CMP	E601:ALL	2	Y	
K7-10	DMW	Tnbs0	S	CMP	E906:ALL	4		
K7-10	DMW	Tnbs0	S	CMP	E906:ALL	2	Y	
K7-10	DMW	Tnbs0	A	CMP	T26METALS:ALL	2	Y	
NC7-12	PTMW	Qal/WBR	A	CMP	AS:UISO	2	Y	
NC7-12	PTMW	Qal/WBR	E	CMP	E300.0:NO3	2	Y	
NC7-12	PTMW	Qal/WBR	A	CMP	E300.0:PERC	2	Y	
NC7-12	PTMW	Qal/WBR	A	CMP	E601:ALL	2	Y	
NC7-12	PTMW	Qal/WBR	S	CMP	E906:ALL	4		
NC7-12	PTMW	Qal/WBR	S	CMP	E906:ALL	2	Y	
NC7-12	PTMW	Qal/WBR	A	DIS	MS:UISO	2	Y	
NC7-16	PTMW	Qal/WBR	A	CMP	AS:UISO	2	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	E601:ALL	2	Y	
NC7-16	PTMW	Qal/WBR	S	CMP	E906:ALL	4		
NC7-16	PTMW	Qal/WBR	S	CMP	E906:ALL	2	Y	
NC7-16	PTMW	Qal/WBR	A	DIS	MS:UISO	2	Y	
NC7-17	PTMW	Qal/WBR	A	CMP	AS:UISO	2	Y	
NC7-17	PTMW	Qal/WBR	A	CMP	E300.0:NO3	2	Y	
NC7-17	PTMW	Qal/WBR	E	CMP	E300.0:PERC	2	Y	
NC7-17	PTMW	Qal/WBR	A	CMP	E601:ALL	2	Y	
NC7-17	PTMW	Qal/WBR	S	CMP	E906:ALL	2	Y	
NC7-17	PTMW	Qal/WBR	S	CMP	E906:ALL	4		
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	S	CMP	E906:ALL	4		
NC7-18	PTMW	Qal/WBR	S	CMP	E906:ALL	2	Y	
NC7-20	PTMW	Qal/WBR	O	CMP	E300.0:NO3	2	N	To be sampled in 2011.
NC7-20	PTMW	Qal/WBR	A	CMP	AS:UISO	2	Y	
NC7-20	PTMW	Qal/WBR	A	CMP	E300.0:PERC	2	Y	
NC7-20	PTMW	Qal/WBR	S	CMP	E906:ALL	4		
NC7-20	PTMW	Qal/WBR	S	CMP	E906:ALL	2	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	
NC7-21	PTMW	Qal/WBR	A	CMP	E601:ALL	2	Y	
NC7-21	PTMW	Qal/WBR	S	CMP	E906:ALL	4		
NC7-21	PTMW	Qal/WBR	S	CMP	E906:ALL	2	Y	
NC7-22	PTMW	Qal/WBR	A	CMP	AS:UISO	2	N	Dry.
NC7-22	PTMW	Qal/WBR	A	CMP	E300.0:NO3	2	N	Dry.
NC7-22	PTMW	Qal/WBR	A	CMP	E300.0:PERC	2	N	Dry.
NC7-22	PTMW	Qal/WBR	A	CMP	E601:ALL	2	N	Dry.
NC7-22	PTMW	Qal/WBR	S	CMP	E906:ALL	2	N	Dry.
NC7-22	PTMW	Qal/WBR	S	CMP	E906:ALL	4		
NC7-24	PTMW	Qal/WBR;Tnbs0	A	CMP	AS:UISO	2	N	Dry.
NC7-24	PTMW	Qal/WBR;Tnbs0	A	CMP	E300.0:NO3	2	N	Dry.
NC7-24	PTMW	Qal/WBR;Tnbs0	A	CMP	E300.0:PERC	2	N	Dry.
NC7-24	PTMW	Qal/WBR;Tnbs0	S	CMP	E906:ALL	2	N	Dry.
NC7-24	PTMW	Qal/WBR;Tnbs0	S	CMP	E906:ALL	4		
NC7-25	EW	Tnbs0-Tnsc0	A	DIS-TF	AS:UISO	1	Y	
NC7-25	EW	Tnbs0-Tnsc0	A	CMP-TF	AS:UISO	2	Y	
NC7-25	EW	Tnbs0-Tnsc0	A	DIS-TF	AS:UISO	4		
NC7-25	EW	Tnbs0-Tnsc0	A	DIS-TF	E300.0:NO3	1	Y	
NC7-25	EW	Tnbs0-Tnsc0	A	CMP-TF	E300.0:NO3	2	Y	
NC7-25	EW	Tnbs0-Tnsc0	A	DIS-TF	E300.0:PERC	1	Y	
NC7-25	EW	Tnbs0-Tnsc0	A	CMP-TF	E300.0:PERC	2	Y	
NC7-25	EW	Tnbs0-Tnsc0	A	DIS-TF	E300.0:PERC	4		

Table 2.5-8 (Con't.). Pit 7 Complex Area of OU 5 ground and surface water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
NC7-25	EW	Tnbs0-Tnsc0	A	DIS-TF	E601:ALL	1	Y	
NC7-25	EW	Tnbs0-Tnsc0	A	CMP-TF	E601:ALL	2	Y	
NC7-25	EW	Tnbs0-Tnsc0	A	DIS-TF	E601:ALL	4		
NC7-25	EW	Tnbs0-Tnsc0	S	DIS-TF	E906:ALL	1	Y	
NC7-25	EW	Tnbs0-Tnsc0	S	CMP-TF	E906:ALL	2	Y	
NC7-25	EW	Tnbs0-Tnsc0	S	DIS-TF	E906:ALL	3		
NC7-25	EW	Tnbs0-Tnsc0	S	CMP-TF	E906:ALL	4		
NC7-25	EW	Tnbs0-Tnsc0	A	DIS-TF	MS:UISO	1	Y	
NC7-25	EW	Tnbs0-Tnsc0	A	DIS-TF	MS:UISO	2	Y	
NC7-25	EW	Tnbs0-Tnsc0	A	DIS-TF	MS:UISO	4		
NC7-26	DMW	Tnbs0-Tnsc0	A	CMP	E8082	2	Y	
NC7-26	DMW	Tnbs0-Tnsc0	A	CMP	E8330	2	Y	
NC7-26	DMW	Tnbs0-Tnsc0	A	CMP	AS:UISO	2	Y	
NC7-26	DMW	Tnbs0-Tnsc0	A	CMP	E200.7:LI	2	Y	
NC7-26	DMW	Tnbs0-Tnsc0	A	CMP	E300.0:NO3	2	Y	
NC7-26	DMW	Tnbs0-Tnsc0	A	DIS	E300.0:PERC	4		
NC7-26	DMW	Tnbs0-Tnsc0	A	CMP	E300.0:PERC	2	Y	
NC7-26	DMW	Tnbs0-Tnsc0	A	CMP	E340.2:ALL	2	Y	
NC7-26	DMW	Tnbs0-Tnsc0	A	CMP	E601:ALL	2	Y	
NC7-26	DMW	Tnbs0-Tnsc0	S	CMP	E906:ALL	4		
NC7-26	DMW	Tnbs0-Tnsc0	S	CMP	E906:ALL	2	Y	
NC7-26	DMW	Tnbs0-Tnsc0	A	DIS	MS:UISO	2	Y	
NC7-26	DMW	Tnbs0-Tnsc0	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	E601:ALL	2	Y	
NC7-34	PTMW	Qal/WBR	S	CMP	E906:ALL	4		
NC7-34	PTMW	Qal/WBR	S	CMP	E906:ALL	2	Y	
NC7-36	PTMW	Qal/WBR	A	CMP	AS:UISO	2	Y	
NC7-36	PTMW	Qal/WBR	A	CMP	E300.0:NO3	2	Y	
NC7-36	PTMW	Qal/WBR	A	CMP	E300.0:PERC	2	Y	
NC7-36	PTMW	Qal/WBR	A	CMP	E601:ALL	2	Y	
NC7-36	PTMW	Qal/WBR	S	CMP	E906:ALL	4		
NC7-36	PTMW	Qal/WBR	S	CMP	E906:ALL	2	Y	
NC7-37	PTMW	Qal/WBR	A	CMP	AS:UISO	2	N	Dry.
NC7-37	PTMW	Qal/WBR	A	CMP	E300.0:NO3	2	N	Dry.
NC7-37	PTMW	Qal/WBR	A	CMP	E300.0:PERC	2	N	Dry.
NC7-37	PTMW	Qal/WBR	A	CMP	E601:ALL	2	N	Dry.
NC7-37	PTMW	Qal/WBR	S	CMP	E906:ALL	2	N	Dry.
NC7-37	PTMW	Qal/WBR	S	CMP	E906:ALL	4		
NC7-40	PTMW	Qal/WBR	A	CMP	AS:UISO	2	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	E601:ALL	2	Y	
NC7-40	PTMW	Qal/WBR	S	CMP	E906:ALL	2	Y	
NC7-40	PTMW	Qal/WBR	S	CMP	E906:ALL	4		
NC7-40	PTMW	Qal/WBR	A	DIS	MS:UISO	2	Y	
NC7-47	DMW	Tnbs0-Tnsc0	A	CMP	E8082	2	Y	
NC7-47	DMW	Tnbs0-Tnsc0	A	CMP	E8330	2	Y	
NC7-47	DMW	Tnbs0-Tnsc0	A	CMP	AS:UISO	2	Y	
NC7-47	DMW	Tnbs0-Tnsc0	A	CMP	E200.7:LI	2	Y	
NC7-47	DMW	Tnbs0-Tnsc0	A	CMP	E300.0:NO3	2	Y	
NC7-47	DMW	Tnbs0-Tnsc0	A	CMP	E300.0:PERC	2	Y	
NC7-47	DMW	Tnbs0-Tnsc0	A	CMP	E340.2:ALL	2	Y	
NC7-47	DMW	Tnbs0-Tnsc0	A	CMP	E601:ALL	2	Y	
NC7-47	DMW	Tnbs0-Tnsc0	S	CMP	E906:ALL	4		
NC7-47	DMW	Tnbs0-Tnsc0	S	CMP	E906:ALL	2	Y	
NC7-47	DMW	Tnbs0-Tnsc0	A	CMP	T26METALS:ALL	2	Y	
NC7-48	DMW	Qal/WBR	A	CMP	E8082	2	Y	

Table 2.5-8 (Con't.). Pit 7 Complex Area of OU 5 ground and surface water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
NC7-48	DMW	Qal/WBR	A	CMP	E8330	2	Y	
NC7-48	DMW	Qal/WBR	A	CMP	AS:UISO	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	E340.2:ALL	2	Y	
NC7-48	DMW	Qal/WBR	A	CMP	E601:ALL	2	Y	
NC7-48	DMW	Qal/WBR	S	CMP	E906:ALL	4		
NC7-48	DMW	Qal/WBR	S	CMP	E906:ALL	2	Y	
NC7-48	DMW	Qal/WBR	A	DIS	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	A	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	4		
NC7-49A	PTMW	Qal/WBR	S	CMP	E906:ALL	2	Y	
NC7-51	PTMW	Qal/WBR	A	CMP	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	E601:ALL	2	Y	
NC7-51	PTMW	Qal/WBR	S	CMP	E906:ALL	2	Y	
NC7-51	PTMW	Qal/WBR	S	CMP	E906:ALL	4		
NC7-51	PTMW	Qal/WBR	A	DIS	MS:UISO	2	Y	
NC7-52	PTMW	Tnbs0-Tnsc0	A	CMP	AS:UISO	2	Y	
NC7-52	PTMW	Tnbs0-Tnsc0	A	CMP	E300.0:NO3	2	Y	
NC7-52	PTMW	Tnbs0-Tnsc0	A	CMP	E300.0:PERC	2	Y	
NC7-52	PTMW	Tnbs0-Tnsc0	S	CMP	E906:ALL	1	Y	
NC7-52	PTMW	Tnbs0-Tnsc0	S	CMP	E906:ALL	3		
NC7-53	PTMW	Qal/WBR	A	DIS	AS:UISO	2	Y	
NC7-53	PTMW	Qal/WBR	O	CMP	AS:UISO	2	N	To be sampled in 2011.
NC7-53	PTMW	Qal/WBR	O	CMP	E300.0:NO3	2	N	To be sampled in 2011.
NC7-53	PTMW	Qal/WBR	O	CMP	E300.0:PERC	2	N	To be sampled in 2011.
NC7-53	PTMW	Qal/WBR	O	CMP	E906:ALL	2	N	To be sampled in 2011.
NC7-63	EW	Qal/WBR	A	DIS-TF	AS:UISO	1	Y	
NC7-63	EW	Qal/WBR	A	CMP-TF	AS:UISO	2	N	Insufficient water.
NC7-63	EW	Qal/WBR	A	DIS-TF	AS:UISO	4		
NC7-63	EW	Qal/WBR	A	DIS-TF	E300.0:NO3	1	Y	
NC7-63	EW	Qal/WBR	A	CMP-TF	E300.0:NO3	2	N	Insufficient water.
NC7-63	EW	Qal/WBR	A	DIS-TF	E300.0:PERC	1	Y	
NC7-63	EW	Qal/WBR	A	CMP-TF	E300.0:PERC	2	N	Insufficient water.
NC7-63	EW	Qal/WBR	A	DIS-TF	E300.0:PERC	4		
NC7-63	EW	Qal/WBR	A	DIS-TF	E601:ALL	1	Y	
NC7-63	EW	Qal/WBR	A	CMP-TF	E601:ALL	2	N	Insufficient water.
NC7-63	EW	Qal/WBR	A	DIS-TF	E601:ALL	4		
NC7-63	EW	Qal/WBR	S	DIS-TF	E906:ALL	1	Y	
NC7-63	EW	Qal/WBR	S	CMP-TF	E906:ALL	2	N	Insufficient water.
NC7-63	EW	Qal/WBR	S	DIS-TF	E906:ALL	3		
NC7-63	EW	Qal/WBR	S	CMP-TF	E906:ALL	4		
NC7-63	EW	Qal/WBR	Q	DIS-TF	KPA:UTOT	3		
NC7-63	EW	Qal/WBR	Q	DIS-TF	KPA:UTOT	4		
NC7-63	EW	Qal/WBR	S	DIS-TF	MS:UISO	1	Y	
NC7-63	EW	Qal/WBR	S	DIS-TF	MS:UISO	2	N	Insufficient water.
NC7-63	EW	Qal/WBR	S	DIS-TF	MS:UISO	3		
NC7-64	EW	Qal/WBR	A	DIS-TF	AS:UISO	1	Y	
NC7-64	EW	Qal/WBR	A	CMP-TF	AS:UISO	2	Y	
NC7-64	EW	Qal/WBR	A	DIS-TF	AS:UISO	4		
NC7-64	EW	Qal/WBR	A	DIS-TF	E300.0:NO3	1	Y	
NC7-64	EW	Qal/WBR	A	CMP-TF	E300.0:NO3	2	Y	
NC7-64	EW	Qal/WBR	A	DIS-TF	E300.0:PERC	1	Y	
NC7-64	EW	Qal/WBR	A	CMP-TF	E300.0:PERC	2	Y	

Table 2.5-8 (Con't.). Pit 7 Complex Area of OU 5 ground and surface water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
NC7-64	EW	Qal/WBR	A	DIS-TF	E300.0:PERC	4		
NC7-64	EW	Qal/WBR	A	DIS-TF	E601:ALL	1	Y	
NC7-64	EW	Qal/WBR	A	CMP-TF	E601:ALL	2	Y	
NC7-64	EW	Qal/WBR	A	DIS-TF	E601:ALL	4		
NC7-64	EW	Qal/WBR	S	DIS-TF	E906:ALL	1	Y	
NC7-64	EW	Qal/WBR	S	CMP-TF	E906:ALL	2	Y	
NC7-64	EW	Qal/WBR	S	DIS-TF	E906:ALL	3		
NC7-64	EW	Qal/WBR	S	CMP-TF	E906:ALL	4		
NC7-64	EW	Qal/WBR	Q	DIS-TF	KPA:UTOT	3		
NC7-64	EW	Qal/WBR	Q	DIS-TF	KPA:UTOT	4		
NC7-64	EW	Qal/WBR	A	DIS-TF	MS:UISO	1	Y	
NC7-64	EW	Qal/WBR	A	DIS-TF	MS:UISO	2	Y	
NC7-64	EW	Qal/WBR	A	DIS-TF	MS:UISO	3		
NC7-65	PTMW	Tnbs0-Tnsc0	A	CMP	AS:UISO	2	Y	
NC7-65	PTMW	Tnbs0-Tnsc0	A	CMP	E300.0:NO3	2	Y	
NC7-65	PTMW	Tnbs0-Tnsc0	A	CMP	E300.0:PERC	2	Y	
NC7-65	PTMW	Tnbs0-Tnsc0	A	CMP	E601:ALL	2	Y	
NC7-65	PTMW	Tnbs0-Tnsc0	S	CMP	E906:ALL	4		
NC7-65	PTMW	Tnbs0-Tnsc0	S	CMP	E906:ALL	2	Y	
NC7-65	PTMW	Tnbs0-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	E601:ALL	2	Y	
NC7-67	PTMW	Tnsc0	S	CMP	E906:ALL	4		
NC7-67	PTMW	Tnsc0	S	CMP	E906:ALL	2	Y	
NC7-68	PTMW	Tnbs0	A	DIS	AS:UISO	2	Y	
NC7-68	PTMW	Tnbs0	A	CMP	E300.0:NO3	2	Y	
NC7-68	PTMW	Tnbs0	A	CMP	E300.0:PERC	2	Y	
NC7-68	PTMW	Tnbs0	S	CMP	E906:ALL	4		
NC7-68	PTMW	Tnbs0	S	CMP	E906:ALL	2	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		
NC7-75	PTMW	Tnsc0	A	CMP	E601:ALL	2	N	Not sampled.
NC7-75	PTMW	Tnsc0	S	CMP	E906:ALL	1	Y	
NC7-75	PTMW	Tnsc0	S	CMP	E906:ALL	3		
NC7-76	PTMW	Tnbs1	A	CMP	AS:UISO	2	Y	
NC7-76	PTMW	Tnbs1	O	CMP	E300.0:NO3	2	N	To be sampled in 2011.
NC7-76	PTMW	Tnbs1	A	CMP	E300.0:PERC	2	Y	
NC7-76	PTMW	Tnbs1	S	CMP	E906:ALL	2	Y	
NC7-76	PTMW	Tnbs1	S	CMP	E906:ALL	4		
W-865-01	PTMW	Tnbs0	A	DIS	DWMETALS	1	Y	
W-865-01	PTMW	Tnbs0	A	CMP	E300.0:NO3	1	Y	
W-865-01	PTMW	Tnbs0	A	CMP	E300.0:PERC	1	Y	
W-865-01	PTMW	Tnbs0	S	DIS	E601:ALL	1	Y	
W-865-01	PTMW	Tnbs0	S	DIS	E601:ALL	3		
W-865-01	PTMW	Tnbs0	S	CMP	E906:ALL	1	Y	
W-865-01	PTMW	Tnbs0	S	CMP	E906:ALL	3		
W-865-03	PTMW	Tnbs0	A	CMP	E300.0:NO3	1	Y	
W-865-03	PTMW	Tnbs0	A	CMP	E300.0:PERC	1	Y	
W-865-03	PTMW	Tnbs0	A	CMP	E906:ALL	1	Y	
W-865-1804	PTMW	Tnbs1	E	CMP	E300.0:NO3	1	Y	
W-865-1804	PTMW	Tnbs1	A	CMP	E300.0:PERC	1	Y	
W-865-1804	PTMW	Tnbs1	A	DIS	E300.0:PERC	3		
W-865-1804	PTMW	Tnbs1	S	DIS	E601:ALL	1	Y	
W-865-1804	PTMW	Tnbs1	S	DIS	E601:ALL	3		
W-865-1804	PTMW	Tnbs1	S	CMP	E906:ALL	1	Y	
W-865-1804	PTMW	Tnbs1	S	CMP	E906:ALL	3		

Table 2.5-8 (Con't.). Pit 7 Complex Area of OU 5 ground and surface water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
W-PIT3-01	PTMW	Qal/WBR	A	CMP	AS:UISO	2	N	Dry.
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	4		
W-PIT3-01	PTMW	Qal/WBR	S	CMP	E906:ALL	2	N	Dry.
W-PIT3-01	PTMW	Qal/WBR	A	DIS	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	4		
W-PIT3-02	PTMW	Qal/WBR	S	CMP	E906:ALL	2	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	4		
W-PIT5-01	PTMW	Qal/WBR	S	CMP	E906:ALL	2	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		
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		
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	
W-PIT7-03	PTMW	Qal/WBR	A	CMP	E300.0:PERC	2	Y	
W-PIT7-03	PTMW	Qal/WBR	A	CMP	E601:ALL	2	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	S	CMP	E906:ALL	4		
W-PIT7-10	PTMW	Qal/WBR	S	CMP	E906:ALL	2	Y	
W-PIT7-11	PTMW	Tnbs0	A	CMP	AS:UISO	2	N	Dry.
W-PIT7-11	PTMW	Tnbs0	A	CMP	E300.0:NO3	2	N	Dry.
W-PIT7-11	PTMW	Tnbs0	A	CMP	E300.0:PERC	2	N	Dry.
W-PIT7-11	PTMW	Tnbs0	S	CMP	E906:ALL	4		
W-PIT7-11	PTMW	Tnbs0	S	CMP	E906:ALL	2	N	Dry.
W-PIT7-11	PTMW	Tnbs0	A	DIS	MS:UISO	2	N	Dry.
W-PIT7-12	PTMW	Tnbs0	O	CMP	AS:UISO	2	N	To be sampled in 2011.
W-PIT7-12	PTMW	Tnbs0	A	CMP	E300.0:NO3	2	Y	
W-PIT7-12	PTMW	Tnbs0	A	CMP	E300.0:PERC	2	Y	
W-PIT7-12	PTMW	Tnbs0	A	DIS	E300.0:PERC	4		
W-PIT7-12	PTMW	Tnbs0	S	CMP	E906:ALL	4		
W-PIT7-12	PTMW	Tnbs0	S	CMP	E906:ALL	2	Y	
W-PIT7-13	PTMW	Tnbs0	A	CMP	AS:UISO	2	Y	
W-PIT7-13	PTMW	Tnbs0	A	CMP	E300.0:NO3	2	Y	
W-PIT7-13	PTMW	Tnbs0	A	CMP	E300.0:PERC	2	Y	
W-PIT7-13	PTMW	Tnbs0	S	CMP	E906:ALL	4		
W-PIT7-13	PTMW	Tnbs0	S	CMP	E906:ALL	2	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-PIT7-14	PTMW	Tnsc0	O	DIS	AS:UISO	2	N	To be sampled in 2011.
W-PIT7-15	PTMW	Tnbs0	E	CMP	AS:UISO	2	Y	
W-PIT7-15	PTMW	Tnbs0	A	CMP	E300.0:NO3	2	Y	
W-PIT7-15	PTMW	Tnbs0	A	CMP	E300.0:PERC	2	Y	

Table 2.5-8 (Con't.). Pit 7 Complex Area of OU 5 ground and surface water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
W-PIT7-15	PTMW	Tnbs0	S	CMP	E906:ALL	4		
W-PIT7-15	PTMW	Tnbs0	S	CMP	E906:ALL	2	Y	
W-PIT7-15	PTMW	Tnbs0	A	DIS	MS:UISO	2	Y	
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 2011.
W-PIT7-1861	PTMW	Qal/WBR	O	CMP	E300.0:NO3	2	N	To be sampled in 2011.
W-PIT7-1861	PTMW	Qal/WBR	O	CMP	E300.0:PERC	2	N	To be sampled in 2011.
W-PIT7-1861	PTMW	Qal/WBR	O	CMP	E906:ALL	2	N	To be sampled in 2011.
W-PIT7-1918	PTMW	Qal/WBR	A	CMP	AS:UISO	2	Y	
W-PIT7-1918	PTMW	Qal/WBR	A	CMP	E300.0:NO3	2	Y	
W-PIT7-1918	PTMW	Qal/WBR	A	CMP	E300.0:PERC	2	Y	
W-PIT7-1918	PTMW	Qal/WBR	A	CMP	E601:ALL	2	Y	
W-PIT7-1918	PTMW	Qal/WBR	S	CMP	E906:ALL	4		
W-PIT7-1918	PTMW	Qal/WBR	S	CMP	E906:ALL	2	Y	
W-PIT7-1918	PTMW	Qal/WBR	A	DIS	MS:UISO	2	Y	
W-PIT7-2141	PTMW	Tnbs0	E	CMP	AS:UISO	2	Y	
W-PIT7-2141	PTMW	Tnbs0	A	CMP	E300.0:NO3	2	Y	
W-PIT7-2141	PTMW	Tnbs0	A	CMP	E300.0:PERC	2	Y	
W-PIT7-2141	PTMW	Tnbs0	A	DIS	E300.0:PERC	4		
W-PIT7-2141	PTMW	Tnbs0	S	CMP	E906:ALL	4		
W-PIT7-2141	PTMW	Tnbs0	S	CMP	E906:ALL	2	Y	
W-PIT7-2141	PTMW	Tnbs0	A	DIS	MS:UISO	2	Y	
W-PIT7-2305	EW	Qal/WBR; $Tnbs_0$	A	DIS-TF	AS:UISO	1	Y	
W-PIT7-2305	EW	Qal/WBR; $Tnbs_0$	A	CMP-TF	AS:UISO	2	Y	
W-PIT7-2305	EW	Qal/WBR; $Tnbs_0$	A	DIS-TF	AS:UISO	4		
W-PIT7-2305	EW	Qal/WBR; $Tnbs_0$	A	DIS-TF	E300.0:NO3	1	Y	
W-PIT7-2305	EW	Qal/WBR; $Tnbs_0$	A	CMP-TF	E300.0:NO3	2	Y	
W-PIT7-2305	EW	Qal/WBR; $Tnbs_0$	A	DIS-TF	E300.0:PERC	1	Y	
W-PIT7-2305	EW	Qal/WBR; $Tnbs_0$	A	CMP-TF	E300.0:PERC	2	Y	
W-PIT7-2305	EW	Qal/WBR; $Tnbs_0$	A	DIS-TF	E300.0:PERC	4		
W-PIT7-2305	EW	Qal/WBR; $Tnbs_0$	A	DIS-TF	E601	1	Y	
W-PIT7-2305	EW	Qal/WBR; $Tnbs_0$	A	CMP-TF	E601	2	Y	
W-PIT7-2305	EW	Qal/WBR; $Tnbs_0$	A	DIS-TF	E601	4		
W-PIT7-2305	EW	Qal/WBR; $Tnbs_0$	S	DIS-TF	E906	1	Y	
W-PIT7-2305	EW	Qal/WBR; $Tnbs_0$	S	CMP-TF	E906	2	Y	
W-PIT7-2305	EW	Qal/WBR; $Tnbs_0$	S	DIS-TF	E906	3		
W-PIT7-2305	EW	Qal/WBR; $Tnbs_0$	S	CMP-TF	E906	4		
W-PIT7-2305	EW	Qal/WBR; $Tnbs_0$	Q	DIS-TF	KPA:UTOT	3		
W-PIT7-2305	EW	Qal/WBR; $Tnbs_0$	Q	DIS-TF	KPA:UTOT	4		
W-PIT7-2305	EW	Qal/WBR; $Tnbs_0$	S	DIS-TF	MS:UISO	1	Y	
W-PIT7-2305	EW	Qal/WBR; $Tnbs_0$	S	DIS-TF	MS:UISO	2	Y	
W-PIT7-2305	EW	Qal/WBR; $Tnbs_0$	S	DIS-TF	MS:UISO	3		
W-PIT7-2306	EW	Qal/WBR	A	DIS-TF	AS:UISO	1	Y	
W-PIT7-2306	EW	Qal/WBR	A	CMP-TF	AS:UISO	2	Y	
W-PIT7-2306	EW	Qal/WBR	A	DIS-TF	AS:UISO	4		
W-PIT7-2306	EW	Qal/WBR	A	DIS-TF	E300.0:NO3	1	Y	
W-PIT7-2306	EW	Qal/WBR	A	CMP-TF	E300.0:NO3	2	Y	
W-PIT7-2306	EW	Qal/WBR	A	DIS-TF	E300.0:PERC	1	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		
W-PIT7-2306	EW	Qal/WBR	A	DIS-TF	E601	1	Y	
W-PIT7-2306	EW	Qal/WBR	A	CMP-TF	E601	2	Y	
W-PIT7-2306	EW	Qal/WBR	A	DIS-TF	E601	4		
W-PIT7-2306	EW	Qal/WBR	S	DIS-TF	E906	1	Y	
W-PIT7-2306	EW	Qal/WBR	S	CMP-TF	E906	2	Y	
W-PIT7-2306	EW	Qal/WBR	S	DIS-TF	E906	3		
W-PIT7-2306	EW	Qal/WBR	S	CMP-TF	E906	4		
W-PIT7-2306	EW	Qal/WBR	Q	DIS-TF	KPA:UTOT	3		

Table 2.5-8 (Con't.). Pit 7 Complex Area of OU 5 ground and surface water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
W-PIT7-2306	EW	Qal/WBR	Q	DIS-TF	KPA:UTOT	4		
W-PIT7-2306	EW	Qal/WBR	A	DIS-TF	MS:UISO	1	Y	
W-PIT7-2306	EW	Qal/WBR	S	DIS-TF	MS:UISO	2	Y	
W-PIT7-2306	EW	Qal/WBR	S	DIS-TF	MS:UISO	3		
W-PIT7-2307	EW	Qal/WBR	A	DIS-TF	AS:UISO	1	Y	
W-PIT7-2307	EW	Qal/WBR	A	CMP-TF	AS:UISO	2	Y	
W-PIT7-2307	EW	Qal/WBR	A	DIS-TF	AS:UISO	4		
W-PIT7-2307	EW	Qal/WBR	A	DIS-TF	E300.0:NO3	1	Y	
W-PIT7-2307	EW	Qal/WBR	A	CMP-TF	E300.0:NO3	2	Y	
W-PIT7-2307	EW	Qal/WBR	A	DIS-TF	E300.0:PERC	1	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		
W-PIT7-2307	EW	Qal/WBR	A	DIS-TF	E601	1	Y	
W-PIT7-2307	EW	Qal/WBR	A	CMP-TF	E601	2	Y	
W-PIT7-2307	EW	Qal/WBR	A	DIS-TF	E601	4		
W-PIT7-2307	EW	Qal/WBR	S	DIS-TF	E906	1	Y	
W-PIT7-2307	EW	Qal/WBR	S	CMP-TF	E906	2	Y	
W-PIT7-2307	EW	Qal/WBR	S	DIS-TF	E906	3		
W-PIT7-2307	EW	Qal/WBR	S	CMP-TF	E906	4		
W-PIT7-2307	EW	Qal/WBR	Q	DIS-TF	KPA:UTOT	3		
W-PIT7-2307	EW	Qal/WBR	Q	DIS-TF	KPA:UTOT	4		
W-PIT7-2307	EW	Qal/WBR	A	DIS-TF	MS:UISO	1	Y	
W-PIT7-2307	EW	Qal/WBR	S	DIS-TF	MS:UISO	2	Y	
W-PIT7-2307	EW	Qal/WBR	S	DIS-TF	MS:UISO	3		
W-PIT7-2309	PTMW	Qal/WBR	A	CMP	AS:UISO	2	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	E601: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		
W-PIT7-2309	PTMW	Qal/WBR	A	DIS	MS:UISO	2	Y	

Notes:

1) Pit 7 Complex primary COC: tritium (E906).
2) Pit 7 Complex secondary COC: nitrate (E300.0:NO3).
3) Pit 7 Complex secondary COC: perchlorate (E300.0:PERC)
4) Pit 7 Complex secondary COC: uranium (AS:UISO and/or MS:UISO).
5) Pit 7 Complex secondary COC: VOCs (E601).
6) CMP Detection monitoring analyte: tritium (E906) sampled annually.
7) CMP Detection monitoring analyte: VOCs (E601 or E624) sampled annually.
8) CMP Detection monitoring analyte: fluoride (E340.2) sampled annually.
9) CMP Detection monitoring analyte: HE compounds (E8330) sampled annually.
10) CMP Detection monitoring analyte: nitrate (E300.0:NO3) sampled annually.
11) CMP Detection monitoring analyte: perchlorate (E300.0:PERC) sampled annually.
12) CMP Detection monitoring analytes: Title 26 metals plus Li (T26METALS and E200.8:Li) sampled annually.
13) CMP Detection monitoring analytes: uranium isotopes (AS:UISO) sampled annually.
14) CMP Detection monitoring analytes: polychlorinated biphenyls (E8082) sampled annually.
15) See Acronyms and Abbreviations in the Tables section of this report for acronym and abbreviation definitions.

Table 2.5-9. PIT 7-Source (PIT7-SRC) mass removed, January 1, 2010 through June 30, 2010.

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	March	NA	0.036	0.057	0.18	0.17
	April	NA	0.21	0.28	0.89	0.77
	May	NA	0.35	0.49	1.5	1.3
	June	NA	0.37	0.59	1.9	1.4
Total		NA	0.97	1.4	4.5	3.6

Table 2.6-1. Building 854-Source (854-SRC) volumes of ground water and soil vapor extracted and discharged, January 1, 2010 through June 30, 2010.

Treatment facility	Month	SVTS Operational hours	GWTS Operational hours	Volume of vapor extracted (thousands of ft^3)	Volume of ground water discharged (gal)
854-SRC	January	0	0	0	0
	February	516	0	1,517	0
	March	358	357	1,007	29,314
	April	539	693	1,514	135,362
	May	576	677	1,598	201,730
	June	767	802	2,147	215,332
Total		2,756	2,529	7,783	581,738

Table 2.6-2. Building 854-Proximal (854-PRX) volumes of ground water and soil vapor extracted and discharged, January 1, 2010 through June 30, 2010.

Treatment facility	Month	SVTS Operational hours	GWTS Operational hours	Volume of vapor extracted (thousands of ft^3)	Volume of ground water discharged (gal)
854-PRX	January	NA	0	NA	0
	February	NA	12	NA	881
	March	NA	3	NA	255
	April	NA	0	NA	0
	May	NA	71	NA	5,996
	June	NA	802	NA	68,582
Total		NA	888	NA	75,714

Table 2.6-3. Building 854-Distal (854-DIS) volumes of ground water and soil vapor extracted and discharged, January 1, 2010 through June 30, 2010.

Treatment facility	Month	SVTS Operational hours	GWTS Operational hours	Volume of vapor extracted (thousands of ft^3)	Volume of ground water discharged (gal)
854-DIS	January	NA	0	NA	0
	February	NA	13	NA	650
	March	NA	17	NA	904
	April	NA	17	NA	813
	May	NA	15	NA	792
	June	NA	23	NA	1,052
Total		NA	85	NA	4,211

Table 2.6-4. Building 854 OU VOCs in ground water 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 tetra-chloride (μg/L)	Chloro-form (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-GWTS-E	**2/9/10**	**<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**	**<0.5**
854-DIS-GWTS-E	**3/9/10**	**<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**	**<0.5**
854-DIS-GWTS-E	**4/7/10**	**<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**	**<0.5**
854-DIS-GWTS-E	**5/4/10**	**<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**	**<0.5**
854-DIS-GWTS-E	**6/2/10**	**<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**	**<0.5**
854-DIS-GWTS-I	**2/9/10**	**43**	**<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**
854-DIS-GWTS-I	**4/7/10**	**35**	**<0.5**	**0.63**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**
854-DIS-GWTS-I[b]	**4/7/10**	**32**	**<0.5**	**0.6**	**<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[a,c]															
854-PRX-GWTS-E	**2/18/10**	**<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**	**<0.5**
854-PRX-GWTS-E	**2/22/10**	**<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**	**<0.5**
854-PRX-GWTS-E	**3/30/10**	**<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**	**<0.5**
854-PRX-GWTS-E	**5/20/10**	**<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**	**<0.5**
854-PRX-GWTS-E	**6/7/10**	**<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**	**<0.5**
854-PRX-GWTS-I	**2/18/10**	**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**
854-PRX-GWTS-I	**5/20/10**	**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**
854-PRX-GWTS-I[b]	**5/20/10**	**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**

Table 2.6-4 (Con't.). Building 854 OU VOCs in ground water 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 tetra-chloride (µg/L)	Chloro-form (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-Source[d]															
854-SRC-GWTS-E	**3/17/10**	**<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**	**<0.5**
854-SRC-GWTS-E	**4/6/10**	**<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**	**<0.5**
854-SRC-GWTS-E	**5/4/10**	**<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**	**<0.5**
854-SRC-GWTS-E	**6/2/10**	**<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**	**<0.5**
854-SRC-GWTS-I	**3/17/10**	**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**
854-SRC-GWTS-I	**4/6/10**	**98 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**
854-SRC-GWTS-I[b]	**4/6/10**	**98 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**

Notes:

[a] No samples collected in January due to GWTS shut down for freeze protection.

[b] Duplicate sample submitted for QA/QC.

[c] Additional effluent monitoring conducted for system re-start.

[d] No monitoring conducted in January or February due to shut down for electronic control problems.

See Acronyms and Abbreviations in the Tables section of this report for definitions.

Table 2.6-4 (Cont.). Analyte detected but not reported in main table.

Location	Date	Detection frequency
***Building 854-Distal*[a]**		
854-DIS-GWTS-E	**2/9/10**	**0 of 18**
854-DIS-GWTS-E	**3/9/10**	**0 of 18**
854-DIS-GWTS-E	**4/7/10**	**0 of 18**
854-DIS-GWTS-E	**5/4/10**	**0 of 18**
854-DIS-GWTS-E	**6/2/10**	**0 of 18**
854-DIS-GWTS-I	**2/9/10**	**0 of 18**
854-DIS-GWTS-I	**4/7/10**	**0 of 18**
854-DIS-GWTS-I[b]	**4/7/10**	**0 of 18**
***Building 854-Proximal*[a,c]**		
854-PRX-GWTS-E	**2/18/10**	**0 of 18**
854-PRX-GWTS-E	**2/22/10**	**0 of 18**
854-PRX-GWTS-E	**3/30/10**	**0 of 18**
854-PRX-GWTS-E	**5/20/10**	**0 of 18**
854-PRX-GWTS-E	**6/7/10**	**0 of 18**
854-PRX-GWTS-I	**2/18/10**	**0 of 18**
854-PRX-GWTS-I	**5/20/10**	**0 of 18**
854-PRX-GWTS-I[b]	**5/20/10**	**0 of 18**
***Building 854-Source*[d]**		
854-SRC-GWTS-E	**3/17/10**	**0 of 18**
854-SRC-GWTS-E	**4/6/10**	**0 of 18**
854-SRC-GWTS-E	**5/4/10**	**0 of 18**
854-SRC-GWTS-E	**6/2/10**	**0 of 18**
854-SRC-GWTS-I	**3/17/10**	**0 of 18**
854-SRC-GWTS-I	**4/6/10**	**0 of 18**
854-SRC-GWTS-I[b]	**4/6/10**	**0 of 18**

Notes:

[a] **No samples collected in January due to GWTS shut down for freeze protection.**

[b] **Duplicate sample submitted for QA/QC.**

[c] **Additional effluent monitoring conducted for system re-start.**

[d] **No monitoring conducted in January or February due to shut down for electronic control problems.**

See Acronyms and Abbreviations in the Tables section of this report for definitions.

Table 2.6-5. Building 854 OU nitrate and perchlorate in ground water treatment system influent and effluent.

Location	Date	Nitrate (as NO3) (mg/L)	Perchlorate (μg/L)
Building 854-Distal[a]			
854-DIS-GWTS-E	**2/9/10**	**0.76**	**<4**
854-DIS-GWTS-E	**3/9/10**	**0.63**	**<4**
854-DIS-GWTS-E	**4/7/10**	**1.2**	**<4**
854-DIS-GWTS-E	**5/4/10**	**2.2**	**<4**
854-DIS-GWTS-E	**6/2/10**	**3.5**	**<4**
854-DIS-GWTS-I	**2/9/10**	**24**	**5.4**
854-DIS-GWTS-I	**4/7/10**	**23**	**4.9**
854-DIS-GWTS-I[b]	**4/7/10**	**24**	**5.1**
Building 854-Proximal[a,c]			
854-PRX-GWTS-E	**2/9/10**	**47**	**–**
854-PRX-GWTS-E	**2/18/10**	**<0.5**	**<4**
854-PRX-GWTS-E	**2/22/10**	**<0.5**	**<4 L**
854-PRX-GWTS-E	**3/30/10**	**<0.5**	**<4**
854-PRX-GWTS-E	**5/20/10**	**1.4**	**<4**
854-PRX-GWTS-E	**5/24/10**	**<0.5**	**–**
854-PRX-GWTS-E	**6/7/10**	**<0.5**	**<4**
854-PRX-GWTS-I	**2/18/10**	**43**	**14 D**
854-PRX-GWTS-I	**5/20/10**	**43**	**13**
854-PRX-GWTS-I[b]	**5/20/10**	**44**	**–**
Building 854-Source[d]			
854-SRC-GWTS-E	**3/17/10**	**NR**	**<4**
854-SRC-GWTS-E	**4/6/10**	**NR**	**<4**
854-SRC-GWTS-E	**5/4/10**	**NR**	**<4**
854-SRC-GWTS-E	**6/2/10**	**NR**	**<4**
854-SRC-GWTS-I	**3/17/10**	**NR**	**<4**
854-SRC-GWTS-I	**4/6/10**	**NR**	**7.2**
854-SRC-GWTS-I[b]	**4/6/10**	**NR**	**7.2**

Notes:

[a] **No samples collected in January due to GWTS shut down for freeze protection.**

[b] **Duplicate sample submitted for QA/QC.**

[c] **Extra nitrate monitoring for BTU testing.**

[d] **No monitoring conduced in January or February due to shut down for electronic control problems.**

See Acronyms and Abbreviations in the Tables section of this report for definitions.

Table 2.6-6. Building 854 OU treatment facility sampling and analysis plan.

Sample location	Sample identification	Parameter	Frequency
854-SRC GWTS			
Influent Port	**854-SRC-I**	**VOCs**	**Quarterly**
		Perchlorate	**Quarterly**
		pH	**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-E**	**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**
		pH	**Quarterly**
Effluent Port	**854-PRX-BTU-I**	**VOCs**	**Monthly**
Effluent Port	**854-PRX-E**	**Perchlorate**	**Monthly**
		Nitrate	**Monthly**
		pH	**Monthly**
854-DIS GWTS			
Influent Port	**W-854-2139-854-DIS-I**	**VOCs**	**Quarterly**
		Perchlorate	**Quarterly**
		Nitrate	**Quarterly**
		pH	**Quarterly**
Effluent Port	**854-DIS-E**	**VOCs**	**Monthly**
		Perchlorate	**Monthly**
		Nitrate	**Monthly**
		pH	**Monthly**

Notes:

[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.

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.

Table 2.6-7. Building 854 OU ground and surface water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
SPRING10	SPR	Qls	A	CMP	E300.0:NO3	2	Y	
SPRING10	SPR	Qls	S	CMP	E300.0:PERC	2	Y	
SPRING10	SPR	Qls	S	CMP	E300.0:PERC	4		
SPRING10	SPR	Qls	S	CMP	E601:ALL	1	Y	
SPRING10	SPR	Qls	S	CMP	E601:ALL	3		
SPRING11	SPR	Qls-Tnbs1	A	CMP	E300.0:NO3	2	Y	
SPRING11	SPR	Qls-Tnbs1	S	CMP	E300.0:PERC	2	Y	
SPRING11	SPR	Qls-Tnbs1	S	CMP	E300.0:PERC	4		
SPRING11	SPR	Qls-Tnbs1	S	CMP	E601:ALL	1	Y	
SPRING11	SPR	Qls-Tnbs1	S	CMP	E601:ALL	3		
W-854-01	PTMW	Tnbs1	A	CMP	E300.0:NO3	2	Y	
W-854-01	PTMW	Tnbs1	S	CMP	E300.0:PERC	4		
W-854-01	PTMW	Tnbs1	S	CMP	E300.0:PERC	2	Y	
W-854-01	PTMW	Tnbs1	S	CMP	E601:ALL	2	Y	
W-854-01	PTMW	Tnbs1	S	CMP	E601:ALL	4		
W-854-02	EW	Tnbs1	A	CMP-TF	E300.0:NO3	2	Y	
W-854-02	EW	Tnbs1	S	CMP-TF	E300.0:PERC	2	Y	
W-854-02	EW	Tnbs1	S	CMP-TF	E300.0:PERC	4		
W-854-02	EW	Tnbs1	S	CMP-TF	E601:ALL	2	Y	
W-854-02	EW	Tnbs1	S	CMP-TF	E601:ALL	4		
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		
W-854-04	PTMW	Tmss	S	CMP	E601:ALL	2	Y	
W-854-04	PTMW	Tmss	S	CMP	E601:ALL	4		
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	N	Inoperable pump.
W-854-05	PTWM	Qls-Tnbs1	S	CMP	E300.0:PERC	4		
W-854-05	PTWM	Qls-Tnbs1	S	CMP	E601:ALL	2	N	Inoperable pump.
W-854-05	PTMW	Qls-Tnbs1	S	CMP	E601:ALL	4		
W-854-06	PTMW	Tnsc0	A	CMP	E300.0:NO3	2	Y	
W-854-06	PTWM	Tnsc0	S	CMP	E300.0:PERC	2	Y	
W-854-06	PTMW	Tnsc0	S	CMP	E300.0:PERC	4		
W-854-06	PTMW	Tnsc0	S	CMP	E601:ALL	2	Y	
W-854-06	PTWM	Tnsc0	S	CMP	E601:ALL	4		
W-854-07	PTMW	Tnbs1	A	CMP	E300.0:NO3	2	Y	
W-854-07	PTMW	Tnbs1	S	CMP	E300.0:PERC	4		
W-854-07	PTWM	Tnbs1	S	CMP	E300.0:PERC	2	Y	
W-854-07	PTMW	Tnbs1	S	CMP	E601:ALL	2	Y	
W-854-07	PTWM	Tnbs1	S	CMP	E601:ALL	4		
W-854-08	PTMW	Tnbs1	A	CMP	E300.0:NO3	2	Y	
W-854-08	PTMW	Tnbs1	S	CMP	E300.0:PERC	4		
W-854-08	PTWM	Tnbs1	S	CMP	E300.0:PERC	2	N	Inoperable pump.
W-854-08	PTMW	Tnbs1	S	CMP	E601:ALL	2	N	Inoperable pump.
W-854-08	PTWM	Tnbs1	S	CMP	E601:ALL	4		
W-854-09	PTMW	Tnsbs0	A	CMP	E300.0:NO3	2	Y	
W-854-09	PTMW	Tnsbs0	S	CMP	E300.0:PERC	4		
W-854-09	PTWM	Tnsbs0	S	CMP	E300.0:PERC	2	Y	
W-854-09	PTMW	Tnsbs0	S	CMP	E601:ALL	2	Y	
W-854-09	PTWM	Tnsbs0	S	CMP	E601:ALL	4		
W-854-10	PTMW	Tnsbs0	A	CMP	E300.0:NO3	2	Y	
W-854-10	PTMW	Tnsbs0	S	CMP	E300.0:PERC	4		
W-854-10	PTWM	Tnsbs0	S	CMP	E300.0:PERC	2	Y	
W-854-10	PTMW	Tnsbs0	S	CMP	E601:ALL	2	Y	
W-854-10	PTWM	Tnsbs0	S	CMP	E601:ALL	4		
W-854-11	PTWM	Tnbs1	A	CMP	E300.0:NO3	2	N	Insufficient water.
W-854-11	PTMW	Tnbs1	S	CMP	E300.0:PERC	4		
W-854-11	PTWM	Tnbs1	S	CMP	E300.0:PERC	2	N	Insufficient water.
W-854-11	PTMW	Tnbs1	S	CMP	E601:ALL	2	N	Insufficient water.
W-854-11	PTWM	Tnbs1	S	CMP	E601:ALL	4		

Table 2.6-7 (Con't.). Building 854 OU ground and surface water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
W-854-12	PTMW	Tmss	A	CMP	E300.0:NO3	2	N	Insufficient water.
W-854-12	PTMW	Tmss	S	CMP	E300.0:PERC	4		
W-854-12	PTWM	Tmss	S	CMP	E300.0:PERC	2	N	Insufficient water.
W-854-12	PTWM	Tmss	S	CMP	E601:ALL	4		
W-854-12	PTMW	Tmss	S	CMP	E601:ALL	2	N	Insufficient water.
W-854-13	PTMW	Tnsc0	A	CMP	E300.0:NO3	2	Y	
W-854-13	PTMW	Tnsc0	S	CMP	E300.0:PERC	4		
W-854-13	PTWM	Tnsc0	S	CMP	E300.0:PERC	2	Y	
W-854-13	PTMW	Tnsc0	S	CMP	E601:ALL	2	Y	
W-854-13	PTWM	Tnsc0	S	CMP	E601:ALL	4		
W-854-14	PTMW	Tnbs1	A	CMP	E300.0:NO3	2	Y	
W-854-14	PTMW	Tnbs1	S	CMP	E300.0:PERC	4		
W-854-14	PTWM	Tnbs1	S	CMP	E300.0:PERC	2	Y	
W-854-14	PTWM	Tnbs1	S	CMP	E601:ALL	4	Y	
W-854-14	PTMW	Tnbs1	A	CMP	E601:ALL	2	Y	
W-854-15	PTMW	Qls	A	CMP	E300.0:NO3	2	Y	
W-854-15	PTMW	Qls	S	CMP	E300.0:PERC	4		
W-854-15	PTWM	Qls	S	CMP	E300.0:PERC	2	Y	
W-854-15	PTMW	Qls	S	CMP	E601:ALL	2	Y	
W-854-15	PTWM	Qls	S	CMP	E601:ALL	4		
W-854-17	EW	Tnsbs0-Tnsc0	A	CMP-TF	E300.0:NO3	2	Y	
W-854-17	EW	Tnsbs0-Tnsc0	S	CMP-TF	E300.0:PERC	4		
W-854-17	EW	Tnsbs0-Tnsc0	S	CMP-TF	E300.0:PERC	2	Y	
W-854-17	EW	Tnsbs0-Tnsc0	S	CMP-TF	E601:ALL	2	Y	
W-854-17	EW	Tnsbs0-Tnsc0	S	CMP-TF	E601:ALL	4		
W-854-1701	PTMW	Tnsc0	A	CMP	E300.0:NO3	2	Y	
W-854-1701	PTMW	Tnsc0	S	CMP	E300.0:PERC	4		
W-854-1701	PTWM	Tnsc0	S	CMP	E300.0:PERC	2	Y	
W-854-1701	PTMW	Tnsc0	S	CMP	E601:ALL	2	Y	
W-854-1701	PTWM	Tnsc0	S	CMP	E601:ALL	4		
W-854-1706	PTMW	Qal-Tnbs1	A	CMP	E300.0:NO3	2	N	Dry.
W-854-1706	PTMW	Qal-Tnbs1	S	CMP	E300.0:PERC	4		
W-854-1706	PTWM	Qal-Tnbs1	S	CMP	E300.0:PERC	2	N	Dry.
W-854-1706	PTWM	Qal-Tnbs1	S	CMP	E601:ALL	4	N	Dry.
W-854-1706	PTMW	Qal-Tnbs1	S	CMP	E601:ALL	2	N	Dry.
W-854-1707	PTMW	Tnsc0	A	CMP	E300.0:NO3	2	Y	
W-854-1707	PTMW	Tnsc0	S	CMP	E300.0:PERC	4		
W-854-1707	PTWM	Tnsc0	S	CMP	E300.0:PERC	2	Y	
W-854-1707	PTMW	Tnsc0	S	CMP	E601:ALL	2	Y	
W-854-1707	PTWM	Tnsc0	S	CMP	E601:ALL	4		
W-854-1731	PTMW	Tmss	A	CMP	E300.0:NO3	2	Y	
W-854-1731	PTMW	Tmss	S	CMP	E300.0:PERC	4		
W-854-1731	PTWM	Tmss	S	CMP	E300.0:PERC	2	Y	
W-854-1731	PTMW	Tmss	S	CMP	E601:ALL	2	Y	
W-854-1731	PTWM	Tmss	S	CMP	E601:ALL	4		
W-854-1822	PTMW	Tnbs1	A	CMP	E300.0:NO3	2	Y	
W-854-1822	PTMW	Tnbs1	S	CMP	E300.0:PERC	4		
W-854-1822	PTWM	Tnbs1	S	CMP	E300.0:PERC	2	Y	
W-854-1822	PTMW	Tnbs1	S	CMP	E601:ALL	2	Y	
W-854-1822	PTWM	Tnbs1	S	CMP	E601:ALL	4		
W-854-1823	PTMW	Tnsbs1-Tnsc0	A	CMP	E300.0:NO3	2	Y	
W-854-1823	PTWM	Tnsbs1-Tnsc0	S	CMP	E300.0:PERC	4		
W-854-1823	PTMW	Tnsbs1-Tnsc0	S	CMP	E300.0:PERC	2	Y	
W-854-1823	PTWM	Tnsbs1-Tnsc0	S	CMP	E601:ALL	2	Y	
W-854-1823	PTWM	Tnsbs1-Tnsc0	S	CMP	E601:ALL	4		
W-854-18A	EW	Tnbs1	A	CMP-TF	E300.0:NO3	2	Y	
W-854-18A	EW	Tnbs1	S	CMP-TF	E300.0:PERC	4		
W-854-18A	EW	Tnbs1	S	CMP-TF	E300.0:PERC	2	Y	
W-854-18A	EW	Tnbs1	S	CMP-TF	E601:ALL	2	Y	
W-854-18A	EW	Tnbs1	S	CMP-TF	E601:ALL	4		

Table 2.6-7 (Con't.). Building 854 OU ground and surface water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
W-854-19	PTWM	Qls	O	CMP	E300.0:NO3	2	N	To be sampled in 2011.
W-854-19	PTWM	Qls	O	CMP	E300.0:PERC	2	N	To be sampled in 2011.
W-854-19	PTWM	Qls	O	CMP	E601:ALL	2	N	To be sampled in 2011.
W-854-1902	PTMW	Tnsbs1-Tnsc0	A	CMP	E300.0:NO3	2	Y	
W-854-1902	PTMW	Tnsbs1-Tnsc0	S	CMP	E300.0:PERC	4		
W-854-1902	PTWM	Tnsbs1-Tnsc0	S	CMP	E300.0:PERC	2	Y	
W-854-1902	PTMW	Tnsbs1-Tnsc0	S	CMP	E601:ALL	2	Y	
W-854-1902	PTWM	Tnsbs1-Tnsc0	S	CMP	E601:ALL	4		
W-854-2115	PTMW	Tnsbs1-Tnsc0	A	CMP	E300.0:NO3	2	Y	
W-854-2115	PTMW	Tnsbs1-Tnsc0	S	CMP	E300.0:PERC	4		
W-854-2115	PTWM	Tnsbs1-Tnsc0	S	CMP	E300.0:PERC	2	Y	
W-854-2115	PTMW	Tnsbs1-Tnsc0	S	CMP	E601:ALL	2	Y	
W-854-2115	PTWM	Tnsbs1-Tnsc0	S	CMP	E601:ALL	4		
W-854-2139	EW	Tnsbs1-Tnsc0	S	DIS	E300.0:NO3	1	Y	
W-854-2139	EW	Tnsbs1-Tnsc0	A	CMP-TF	E300.0:NO3	2	Y	
W-854-2139	EW	Tnsbs1-Tnsc0	S	DIS	E300.0:NO3	3		
W-854-2139	EW	Tnsbs1-Tnsc0	A	DIS	E300.0:NO3	4		
W-854-2139	EW	Tnsbs1-Tnsc0	S	DIS	E300.0:PERC	1	Y	
W-854-2139	EW	Tnsbs1-Tnsc0	S	CMP-TF	E300.0:PERC	2	Y	
W-854-2139	EW	Tnsbs1-Tnsc0	S	DIS	E300.0:PERC	3		
W-854-2139	EW	Tnsbs1-Tnsc0	S	CMP-TF	E300.0:PERC	4		
W-854-2139	EW	Tnsbs1-Tnsc0	S	DIS	E601:ALL	1	Y	
W-854-2139	EW	Tnsbs1-Tnsc0	S	CMP-TF	E601:ALL	2	Y	
W-854-2139	EW	Tnsbs1-Tnsc0	S	DIS	E601:ALL	3		
W-854-2139	EW	Tnsbs1-Tnsc0	S	CMP-TF	E601:ALL	4		
W-854-2218	EW	Tnbs1	A	CMP-TF	E300.0:NO3	2	Y	
W-854-2218	EW	Tnbs1	S	CMP-TF	E300.0:PERC	4		
W-854-2218	EW	Tnbs1	S	CMP-TF	E300.0:PERC	2	Y	
W-854-2218	EW	Tnbs1	S	CMP-TF	E601:ALL	2	Y	
W-854-2218	EW	Tnbs1	S	CMP-TF	E601:ALL	4		
W-854-45	PTMW	Tnbs1	A	CMP	E300.0:NO3	2	Y	
W-854-45	PTMW	Tnbs1	S	CMP	E300.0:PERC	4		
W-854-45	PTWM	Tnbs1	S	CMP	E300.0:PERC	2	Y	
W-854-45	PTMW	Tnbs1	S	CMP	E601:ALL	2	Y	
W-854-45	PTWM	Tnbs1	S	CMP	E601:ALL	4		
W-854-F2	PTMW	Qls-Tnbs1	O	CMP	E300.0:NO3	2	N	To be sampled in 2011.
W-854-F2	PTMW	Qls-Tnbs1	O	CMP	E300.0:PERC	2	N	To be sampled in 2011.
W-854-F2	PTMW	Qls-Tnbs1	O	CMP	E601	2	N	To be sampled in 2011.

Notes:

1) Building 854 primary Contaminants of Concern in Ground Water: VOCs (E601 or E624) and perchlorate (E300.0:PERC).

2) Building 854 secondary COC: nitrate (E300:NO3).

3) See Appendix A Acronyms for acronym and abbreviation definitions.

Table 2.6-8. Building 854-Source (854-SRC) mass removed, January 1, 2010 through June 30, 2010.

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	January	0	0	0	0	NA	NA
	February	76	0	0	0	NA	NA
	March	51	7.6	0.41	5.5	NA	NA
	April	110	33	0.92	24	NA	NA
	May	110	45	0.85	35	NA	NA
	June	150	49	1.0	38	NA	NA
Total		490	140	3.2	100	NA	NA

Table 2.6-9. Building 854-Proximal (854-PRX) mass removed, January 1, 2010 through June 30, 2010.

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	January	NA	0	0	0	NA	NA
	February	NA	0.060	0.047	0.14	NA	NA
	March	NA	0.017	0.014	0.042	NA	NA
	April	NA	0	0	0	NA	NA
	May	NA	0	0.30	1.0	NA	NA
	June	NA	0	3.4	11	NA	NA
Total		NA	0.077	3.7	13	NA	NA

Table 2.6-10. Building 854-Distal (854-DIS) mass removed, January 1, 2010 through June 30, 2010.

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	January	NA	0	0	0	NA	NA
	February	NA	0.11	0.013	0.059	NA	NA
	March	NA	0.15	0.019	0.082	NA	NA
	April	NA	0.11	0.016	0.074	NA	NA
	May	NA	0.11	0.015	0.072	NA	NA
	June	NA	0.14	0.020	0.096	NA	NA
Total		NA	0.62	0.083	0.38	NA	NA

Table 2.7-1. Building 832-Source (832-SRC) volumes of ground water and soil vapor extracted and discharged, January 1, 2010 through June 30, 2010.

Treatment facility	Month	SVTS Operational hours	GWTS Operational hours	Volume of vapor extracted (thousands of ft^3)	Volume of ground water discharged (gal)
832-SRC	January	0	0	0	0
	February	0	38	0	549
	March	0	387	0	11,024
	April	0	292	0	9,291
	May	0	317	0	9,409
	June	0	367	0	10,560
Total		0	1,401	0	40,833

Table 2.7-2. Building 830-Source (830-SRC) volumes of ground water and soil vapor extracted and discharged, January 1, 2010 through June 30, 2010.

Treatment facility	Month	SVTS Operational hours	GWTS Operational hours	Volume of vapor extracted (thousands of ft^3)	Volume of ground water discharged (gal)
830-SRC	January	700	696	879	223,481
	February	665	672	926	214,849
	March	755	833	921	271,151
	April	646	648	1,000	215,947
	May	452	462	668	48,564
	June	636	300	903	114,368
Total		3,854	3,611	5,297	1,088,360

Table 2.7-3. Building 830-Distal South (830-DISS) volumes of ground water and soil vapor extracted and discharged, January 1, 2010 through June 30, 2010.

Treatment facility	Month	SVTS Operational hours	GWTS Operational hours	Volume of vapor extracted (thousands of ft^3)	Volume of ground water discharged (gal)
830-DISS	January	NA	0	NA	0
	February	NA	600	NA	138,475
	March	NA	384	NA	71,057
	April	NA	432	NA	60,530
	May	NA	168	NA	29,626
	June	NA	336	NA	66,036
Total		NA	1,920	NA	365,724

Table 2.7-4. Building 832 Canyon OU VOCs in ground water 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 tetra-chloride (µg/L)	Chloro-form (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															
830-SRC-GWTS-E	1/11/10	<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	<0.5
830-SRC-GWTS-E	2/2/10	<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	<0.5
830-SRC-GWTS-E	3/2/10	<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	<0.5
830-SRC-GWTS-E	4/6/10	<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	<0.5
830-SRC-GWTS-E	5/4/10	<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	<0.5
830-SRC-GWTS-E	6/2/10	<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	<0.5
830-SRC-GWTS-I	1/11/10	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
830-SRC-GWTS-I	4/6/10	3,300 D	4.1	0.77	<0.5	<0.5	1.2	<0.5	1.5	0.56	<0.5	1.1	<0.5	<0.5	<0.5
830-SRC-GWTS-I[b]	4/6/10	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
830-SRC-GWTS-I	4/20/10	350 D	<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
Building 832-Source[c]															
832-SRC-GWTS-E	2/18/10	<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	<0.5
832-SRC-GWTS-E[d]	2/22/10	<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	<0.5
832-SRC-GWTS-E	3/2/10	<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	<0.5
832-SRC-GWTS-E	4/6/10	<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	<0.5
832-SRC-GWTS-E	5/4/10	<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	<0.5
832-SRC-GWTS-E	6/2/10	<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	<0.5
832-SRC-GWTS-I	2/18/10	130 D	<0.5	4.3	<0.5	<0.5	0.67	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
832-SRC-GWTS-I	4/6/10	110 D	<0.5	3.6	<0.5	<0.5	0.58	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
832-SRC-GWTS-I[b]	4/6/10	110 D	<0.5	3.9	<0.5	<0.5	0.62	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Notes appear on the following page.

Table 2.7-4 (Con't.). Building 832 Canyon OU VOCs in ground water treatment system influent and effluent.

Notes:

[a] **No influent or effluent monitoring conducted due to VOC treatment at CGSA GWTS.**

[b] **Duplicate sample submitted for QA/QC.**

[c] **No effluent monitoring conducted in January due to Control System Malfunction.**

[d] **Additional effluent monitoring conducted for system re-start.**

See Acronyms and Abbreviations in the Tables section of this report for definitions.

Table 2.7-4 (Con't.). Analyte detected but not reported in main table.

Location	Date	Detection frequency	1,2-DCE (Total) (μg/l)
Building 830-Distal South[a]			
Building 830-Source			
830-SRC-GWTS-E	**1/11/10**	**0 of 18**	**–**
830-SRC-GWTS-E	**2/2/10**	**0 of 18**	**–**
830-SRC-GWTS-E	**3/2/10**	**0 of 18**	**–**
830-SRC-GWTS-E	**4/6/10**	**0 of 18**	**–**
830-SRC-GWTS-E	**5/4/10**	**0 of 18**	**–**
830-SRC-GWTS-E	**6/2/10**	**0 of 18**	**–**
830-SRC-GWTS-I	**1/11/10**	**0 of 18**	**–**
830-SRC-GWTS-I	**4/6/10**	**0 of 18**	**–**
830-SRC-GWTS-I[b]	**4/6/10**	**0 of 18**	**–**
830-SRC-GWTS-I	**4/20/10**	**0 of 18**	**–**
Building 832-Source[c]			
832-SRC-GWTS-E	**2/18/10**	**0 of 18**	**–**
832-SRC-GWTS-E[d]	**2/22/10**	**0 of 18**	**–**
832-SRC-GWTS-E	**3/2/10**	**0 of 18**	**–**
832-SRC-GWTS-E	**4/6/10**	**0 of 18**	**–**
832-SRC-GWTS-E	**5/4/10**	**0 of 18**	**–**
832-SRC-GWTS-E	**6/2/10**	**0 of 18**	**–**
832-SRC-GWTS-I	**2/18/10**	**1 of 18**	**4.3**
832-SRC-GWTS-I	**4/6/10**	**1 of 18**	**3.6**
832-SRC-GWTS-I[b]	**4/6/10**	**1 of 18**	**3.9**

Notes:

[a] **No influent or effluent monitoring conducted due to VOC treatment at CGSA GWTS.**

[b] **Duplicate sample submitted for QA/QC.**

[c] **No effluent monitoring conducted in January due to Control System Malfunction.**

[d] **Additional effluent monitoring conducted for system re-start.**

See Acronyms and Abbreviations in the Tables section of this report for definitions.

Table 2.7-5. Building 832 Canyon OU nitrate and perchlorate in ground water treatment system influent and effluent.

Location	Date	Perchlorate (μg/L)
Building 830-Distal South[a]		
830-DISS-GWTS-E	**2/9/10**	**<4**
830-DISS-GWTS-E	**3/9/10**	**<4**
830-DISS-GWTS-E	**4/6/10**	**<4**
830-DISS-GWTS-E	**5/11/10**	**<4**
830-DISS-GWTS-E	**6/15/10**	**<4**
830-DISS-GWTS-I	**2/9/10**	**<4**
830-DISS-GWTS-I	**4/6/10**	**4.9**
830-DISS-GWTS-I[b]	**4/6/10**	**<4**
Building 830-Source		
830-SRC-GWTS-E	**1/11/10**	**<4**
830-SRC-GWTS-E	**2/2/10**	**<4**
830-SRC-GWTS-E	**3/2/10**	**<4**
830-SRC-GWTS-E	**4/6/10**	**<4**
830-SRC-GWTS-E	**5/4/10**	**<4**
830-SRC-GWTS-E	**6/2/10**	**<4**
830-SRC-GWTS-I	**1/11/10**	**<4**
830-SRC-GWTS-I	**4/6/10**	**<4**
830-SRC-GWTS-I[b]	**4/6/10**	**<4**
Building 832-Source[c]		
832-SRC-GWTS-E	**2/18/10**	**<4**
832-SRC-GWTS-E[d]	**2/22/10**	**<4 L**
832-SRC-GWTS-E	**3/2/10**	**<4**
832-SRC-GWTS-E	**4/6/10**	**<4**
832-SRC-GWTS-E	**5/4/10**	**<4**
832-SRC-GWTS-E	**6/2/10**	**<4**
832-SRC-GWTS-I	**2/18/10**	**8**
832-SRC-GWTS-I	**4/6/10**	**6.2**
832-SRC-GWTS-I[b]	**4/6/10**	**5.3**

Notes:

[a] **No compliance monitoring conducted in January due to shut down of GWTS for freeze protection.**

[b] **Duplicate sample submitted for QA/QC.**

[c] **No effluent monitoring conducted in January due to Control System Malfunction.**

[d] **Additional effluent monitoring conducted for system re-start.**

See Acronyms and Abbreviations in the Tables section of this report for definitions.

Table 2.7-6. Building 832 Canyon OU treatment facility sampling and analysis plan.

Sample location	Sample identification	Parameter	Frequency
832-SRC GWTS			
Influent Port	**832-SRC-I**	**VOCs**	**Quarterly**
		Perchlorate	**Quarterly**
		pH	**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**
		PH	**Quarterly**
Effluent Port	**830-SRC-E**	**VOCs**	**Monthly**
		Perchlorate	**Monthly**
		PH	**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**
		pH	**Quarterly**
Effluent Port	**830-DISS-E**	**Perchlorate**	**Monthly**
		pH	**Monthly**

Notes:

[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.

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.

Table 2.7-7. Building 832 Canyon OU ground and surface water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
SPRING3	SPR	Qal	A	CMP	E300.0:NO3	1	Y	
SPRING3	SPR	Qal	A	CMP	E300.0:PERC	1	Y	
SPRING3	SPR	Qal	S	CMP	E601:ALL	1	Y	
SPRING3	SPR	Qal	S	CMP	E601:ALL	3		
SPRING4	SPR	Tps	O	CMP	E300.0:NO3	1	N	To be sampled in 2011.
SPRING4	SPR	Tps	O	CMP	E300.0:PERC	1	N	To be sampled in 2011.
SPRING4	SPR	Tps	O	CMP	E601:ALL	1	N	To be sampled in 2011.
SVI-830-031	PTMW	Tnsc1	A	CMP	E300.0:NO3	1	Y	
SVI-830-031	PTMW	Tnsc1	A	CMP	E300.0:PERC	1	Y	
SVI-830-031	PTMW	Tnsc1	S	CMP	E601:ALL	1	Y	
SVI-830-031	PTMW	Tnsc1	S	CMP	E601:ALL	3		
SVI-830-032	PTMW	Tnsc1	A	CMP	E300.0:NO3	1	Y	
SVI-830-032	PTMW	Tnsc1	A	CMP	E300.0:PERC	1	Y	
SVI-830-032	PTMW	Tnsc1	S	CMP	E601:ALL	1	Y	
SVI-830-032	PTMW	Tnsc1	S	CMP	E601:ALL	3		
SVI-830-033	PTMW	Tnsc1	A	CMP	E300.0:NO3	1	Y	
SVI-830-033	PTMW	Tnsc1	A	CMP	E300.0:PERC	1	Y	
SVI-830-033	PTMW	Tnsc1	S	CMP	E601:ALL	1	Y	
SVI-830-033	PTMW	Tnsc1	S	CMP	E601:ALL	3		
SVI-830-035	PTMW	Tnsc1	A	CMP	E300.0:NO3	1	Y	
SVI-830-035	PTMW	Tnsc1	A	CMP	E300.0:PERC	1	Y	
SVI-830-035	PTMW	Tnsc1	S	CMP	E601:ALL	1	Y	
SVI-830-035	PTMW	Tnsc1	S	CMP	E601:ALL	3		
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	E601:ALL	1	Y	
W-830-04A	PTMW	Tnsc1b	S	CMP	E601:ALL	3		
W-830-05	PTMW	Tnbs2-Tnsc1c	A	CMP	E300.0:NO3	1	Y	
W-830-05	PTMW	Tnbs2-Tnsc1c	A	CMP	E300.0:PERC	1	Y	
W-830-05	PTMW	Tnbs2-Tnsc1c	S	CMP	E601:ALL	1	Y	
W-830-05	PTMW	Tnbs2-Tnsc1c	S	CMP	E601:ALL	3		
W-830-07	PTMW	Tnsc1	A	CMP	E300.0:NO3	1	N	Dry.
W-830-07	PTMW	Tnsc1	A	CMP	E300.0:PERC	1	N	Dry.
W-830-07	PTMW	Tnsc1	S	CMP	E601:ALL	1	N	Dry.
W-830-07	PTMW	Tnsc1	S	CMP	E601:ALL	3		
W-830-09	PTMW	Upper Tnbs1	O	CMP	E300.0:NO3	1	Y	
W-830-09	PTMW	Upper Tnbs1	O	CMP	E300.0:PERC	1	Y	
W-830-09	PTMW	Upper Tnbs1	S	CMP	E601:ALL	1	Y	
W-830-09	PTMW	Upper Tnbs1	S	CMP	E601:ALL	3		
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	E601:ALL	1	Y	
W-830-10	PTMW	Tnsc1b	S	CMP	E601:ALL	3		
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	E601:ALL	1	Y	
W-830-11	PTMW	Tnsc1c	S	CMP	E601:ALL	3		
W-830-12	GW	Lower Tnbs1	S	CMP	E300.0:NO3	1	N	Inoperable pump.
W-830-12	GW	Lower Tnbs1	S	CMP	E300.0:NO3	3		
W-830-12	GW	Lower Tnbs1	S	CMP	E300.0:PERC	1	N	Inoperable pump.
W-830-12	GW	Lower Tnbs1	S	CMP	E300.0:PERC	3		
W-830-12	GW	Lower Tnbs1	Q	CMP	E601:ALL	4		
W-830-12	GW	Lower Tnbs1	Q	CMP	E601:ALL	1	N	Inoperable pump.
W-830-12	GW	Lower Tnbs1	Q	CMP	E601:ALL	2	N	Inoperable pump.
W-830-12	GW	Lower Tnbs1	Q	CMP	E601:ALL	3		
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	E601:ALL	1	Y	
W-830-13	PTMW	Tnbs2	S	CMP	E601:ALL	3		
W-830-13	PTMW	Tnbs2	E	CMP	E8330LOW:ALL	1	Y	

Table 2.7-7 (Con't.). Building 832 Canyon OU ground and surface water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
W-830-14	PTMW	Tnsc1b	E	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	E601:ALL	1	Y	
W-830-14	PTMW	Tnsc1b	S	CMP	E601:ALL	3		
W-830-15	GW	Upper Tnbs1	S	CMP	E300.0:NO3	1	Y	
W-830-15	GW	Upper Tnbs1	S	CMP	E300.0:NO3	3		
W-830-15	GW	Upper Tnbs1	S	CMP	E300.0:PERC	1	Y	
W-830-15	GW	Upper Tnbs1	S	CMP	E300.0:PERC	3		
W-830-15	GW	Upper Tnbs1	Q	CMP	E601:ALL	4		
W-830-15	GW	Upper Tnbs1	Q	CMP	E601:ALL	1	Y	
W-830-15	GW	Upper Tnbs1	Q	CMP	E601:ALL	2	Y	
W-830-15	GW	Upper Tnbs1	Q	CMP	E601:ALL	3		
W-830-16	PTMW	Tnsc1b	O	CMP	E300.0:NO3	1	N	To be sampled in 2011.
W-830-16	PTMW	Tnsc1b	O	CMP	E300.0:PERC	1	N	To be sampled in 2011.
W-830-16	PTMW	Tnsc1b	S	CMP	E601:ALL	1	Y	
W-830-16	PTMW	Tnsc1b	S	CMP	E601:ALL	3		
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	E601:ALL	1	Y	
W-830-17	PTMW	Tnbs2	S	CMP	E601:ALL	3		
W-830-1730	GW	Tnsc1b	S	CMP	E300.0:NO3	1	Y	
W-830-1730	GW	Tnsc1b	S	CMP	E300.0:NO3	3		
W-830-1730	GW	Tnsc1b	S	CMP	E300.0:PERC	1	Y	
W-830-1730	GW	Tnsc1b	S	CMP	E300.0:PERC	3		
W-830-1730	GW	Tnsc1b	Q	CMP	E601:ALL	1	Y	
W-830-1730	GW	Tnsc1b	Q	CMP	E601:ALL	2	Y	
W-830-1730	GW	Tnsc1b	Q	CMP	E601:ALL	3		
W-830-1730	GW	Tnsc1b	Q	CMP	E601:ALL	4		
W-830-18	PTMW	Upper Tnbs1	E	CMP	E300.0:NO3	1	Y	
W-830-18	PTMW	Upper Tnbs1	E	CMP	E300.0:PERC	1	Y	
W-830-18	PTMW	Upper Tnbs1	S	CMP	E601:ALL	1	Y	
W-830-18	PTMW	Upper Tnbs1	S	CMP	E601:ALL	3		
W-830-1807	EW	Qal/Tnsc1	A	CMP-TF	E300.0:NO3	1	Y	
W-830-1807	EW	Qal/Tnsc1	A	DIS	E300.0:PERC	3		
W-830-1807	EW	Qal/Tnsc1	A	CMP-TF	E300.0:PERC	1	Y	
W-830-1807	EW	Qal/Tnsc1	S	DIS	E601:ALL	2	Y	
W-830-1807	EW	Qal/Tnsc1	S	DIS	E601:ALL	4		
W-830-1807	EW	Qal/Tnsc1	S	CMP-TF	E601:ALL	1	Y	
W-830-1807	EW	Qal/Tnsc1	S	CMP-TF	E601:ALL	3		
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	E601:ALL	1	Y	
W-830-1829	PTMW	Tnsc1b	S	CMP	E601:ALL	3		
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	E601:ALL	1	Y	
W-830-1830	PTMW	Tnsc1b	S	CMP	E601:ALL	3		
W-830-1831	PTMW	Tnsc1b	O	CMP	E300.0:NO3	1	N	To be sampled in 2011.
W-830-1831	PTMW	Tnsc1b	O	CMP	E300.0:PERC	1	N	To be sampled in 2011.
W-830-1831	PTMW	Tnsc1b	S	CMP	E601:ALL	1	Y	
W-830-1831	PTMW	Tnsc1b	S	CMP	E601:ALL	3		
W-830-1832	PTMW	Upper Tnbs1	A	CMP	E300.0:NO3	1	Y	
W-830-1832	PTMW	Upper Tnbs1	A	CMP	E300.0:PERC	1	Y	
W-830-1832	PTMW	Upper Tnbs1	S	CMP	E601:ALL	1	Y	
W-830-1832	PTMW	Upper Tnbs1	S	CMP	E601:ALL	3		
W-830-19	EW	Tnsc1b	A	CMP-TF	E300.0:NO3	1	Y	
W-830-19	EW	Tnsc1b	A	DIS	E300.0:PERC	3		
W-830-19	EW	Tnsc1b	A	CMP-TF	E300.0:PERC	1	Y	
W-830-19	EW	Tnsc1b	S	DIS	E601:ALL	2	Y	
W-830-19	EW	Tnsc1b	S	DIS	E601:ALL	4		

Table 2.7-7 (Con't.). Building 832 Canyon OU ground and surface water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
W-830-19	EW	Tnsc1b	S	CMP-TF	E601:ALL	1	Y	
W-830-19	EW	Tnsc1b	S	CMP-TF	E601:ALL	3		
W-830-20	PTMW	Upper Tnbs1	E	CMP	E300.0:NO3	1	Y	
W-830-20	PTMW	Upper Tnbs1	E	CMP	E300.0:PERC	1	Y	
W-830-20	PTMW	Upper Tnbs1	S	CMP	E601:ALL	1	Y	
W-830-20	PTMW	Upper Tnbs1	S	CMP	E601:ALL	3		
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	E601:ALL	1	Y	
W-830-21	PTMW	Tnsc1b	S	CMP	E601:ALL	3		
W-830-22	PTMW	Tnsc1a	A	CMP	E300.0:NO3	1	Y	
W-830-22	PTMW	Tnsc1a	A	CMP	E300.0:PERC	1	Y	
W-830-22	PTMW	Tnsc1a	S	CMP	E601:ALL	1	Y	
W-830-22	PTMW	Tnsc1a	S	CMP	E601:ALL	3		
W-830-2213	PTMW	Tnsc1b	A	CMP	E300.0:NO3	1	N	Dry.
W-830-2213	PTMW	Tnsc1b	A	CMP	E300.0:PERC	1	N	Dry.
W-830-2213	PTMW	Tnsc1b	S	CMP	E601:ALL	1	N	Dry.
W-830-2213	PTMW	Tnsc1b	S	CMP	E601:ALL	3		
W-830-2214	EW	Tnsc1a	A	CMP-TF	E300.0:NO3	1	Y	
W-830-2214	EW	Tnsc1a	A	DIS	E300.0:PERC	3		
W-830-2214	EW	Tnsc1a	A	CMP-TF	E300.0:PERC	1	Y	
W-830-2214	EW	Tnsc1a	S	DIS	E601:ALL	2	Y	
W-830-2214	EW	Tnsc1a	S	DIS	E601:ALL	4		
W-830-2214	EW	Tnsc1a	S	CMP-TF	E601:ALL	1	Y	
W-830-2214	EW	Tnsc1a	S	CMP-TF	E601:ALL	3		
W-830-2215	EW	Upper Tnbs1	A	CMP-TF	E300.0:NO3	1	Y	
W-830-2215	EW	Upper Tnbs1	A	CMP-TF	E300.0:PERC	1	Y	
W-830-2215	EW	Upper Tnbs1	S	DIS	E601:ALL	2	Y	
W-830-2215	EW	Upper Tnbs1	S	DIS	E601:ALL	4		
W-830-2215	EW	Upper Tnbs1	S	CMP-TF	E601:ALL	1	Y	
W-830-2215	EW	Upper Tnbs1	S	CMP-TF	E601:ALL	3		
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	E300.0:PERC	1	Y	
W-830-2216	EW	Tnbs2	S	CMP-TF	E601:ALL	1	Y	
W-830-2216	EW	Tnbs2	S	DIS	E601:ALL	2	Y	
W-830-2216	EW	Tnbs2	S	CMP-TF	E601:ALL	3		
W-830-2216	EW	Tnbs2	S	DIS	E601:ALL	4		
W-830-2216	EW	Tnbs2	O	CMP-TF	E8330LOW:ALL	1	N	To be sampled in 2011.
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	DIS	E601:ALL	2	Y	
W-830-2311	PTMW	Tnsc1a	S	DIS	E601:ALL	4		
W-830-2311	PTMW	Tnsc1a	S	CMP	E601:ALL	1	Y	
W-830-2311	PTMW	Tnsc1a	S	CMP	E601:ALL	3		
W-830-2311	PTMW	Tnsc1a	A	DIS	E624:ALL	2	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	E601:ALL	1	N	Dry.
W-830-25	PTMW	Tnsc1b	S	CMP	E601:ALL	3		
W-830-26	PTMW	Upper Tnbs1	E	CMP	E300.0:NO3	1	N	Dry.
W-830-26	PTMW	Upper Tnbs1	E	CMP	E300.0:PERC	1	N	Dry.
W-830-26	PTMW	Upper Tnbs1	S	CMP	E601:ALL	1	N	Dry.
W-830-26	PTMW	Upper Tnbs1	S	CMP	E601:ALL	3		
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	E601:ALL	1	Y	
W-830-27	PTMW	Tnsc1a	S	CMP	E601:ALL	3		
W-830-28	PTMW	Upper Tnbs1	O	CMP	E300.0:NO3	1	Y	
W-830-28	PTMW	Upper Tnbs1	O	CMP	E300.0:PERC	1	Y	

Table 2.7-7 (Con't.). Building 832 Canyon OU ground and surface water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
W-830-28	PTMW	Upper Tnbs1	S	CMP	E601:ALL	1	Y	
W-830-28	PTMW	Upper Tnbs1	S	CMP	E601:ALL	3		
W-830-29	PTMW	Lower Tnbs1	A	CMP	E300.0:NO3	1	Y	
W-830-29	PTMW	Lower Tnbs1	A	CMP	E300.0:PERC	1	Y	
W-830-29	PTMW	Lower Tnbs1	S	CMP	E601:ALL	1	Y	
W-830-29	PTMW	Lower Tnbs1	S	CMP	E601:ALL	3		
W-830-30	PTMW	Qal/Tnsc1	A	CMP	E300.0:NO3	1	Y	
W-830-30	PTMW	Qal/Tnsc1	A	CMP	E300.0:PERC	1	Y	
W-830-30	PTMW	Qal/Tnsc1	S	CMP	E601:ALL	1	Y	
W-830-30	PTMW	Qal/Tnsc1	S	CMP	E601:ALL	3		
W-830-34	PTMW	Qal/Tnsc1	A	CMP	E300.0:NO3	1	Y	
W-830-34	PTMW	Qal/Tnsc1	A	CMP	E300.0:PERC	1	Y	
W-830-34	PTMW	Qal/Tnsc1	S	CMP	E601:ALL	1	Y	
W-830-34	PTMW	Qal/Tnsc1	S	CMP	E601:ALL	3		
W-830-34	PTMW	Qal/Tnsc1	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	E300.0:PERC	3		
W-830-49	EW	Tnsc1b	A	CMP-TF	E300.0:PERC	1	Y	
W-830-49	EW	Tnsc1b	S	DIS	E601:ALL	2	Y	
W-830-49	EW	Tnsc1b	S	CMP-TF	E601:ALL	3		
W-830-49	EW	Tnsc1b	S	DIS	E601:ALL	4		
W-830-49	EW	Tnsc1b	S	CMP-TF	E601:ALL	1	Y	
W-830-49	EW	Tnsc1b	S	CMP-TF	E601:ALL	3		
W-830-50	PTMW	Tnsc1b	A	CMP	E300.0:NO3	1	Y	
W-830-50	PTMW	Tnsc1b	O	CMP	E300.0:PERC	1	Y	
W-830-50	PTMW	Tnsc1b	S	CMP	E601:ALL	1	Y	
W-830-50	PTMW	Tnsc1b	S	CMP	E601:ALL	3		
W-830-51	EW	Tnsc1b	A	CMP-TF	E300.0:NO3	1	Y	
W-830-51	EW	Tnsc1b	A	DIS	E300.0:PERC	3		
W-830-51	EW	Tnsc1b	A	CMP-TF	E300.0:PERC	1	Y	
W-830-51	EW	Tnsc1b	S	DIS	E601:ALL	2	Y	
W-830-51	EW	Tnsc1b	S	CMP-TF	E601:ALL	3		
W-830-51	EW	Tnsc1b	S	DIS	E601:ALL	4		
W-830-51	EW	Tnsc1b	S	CMP-TF	E601:ALL	1	Y	
W-830-51	EW	Tnsc1b	S	CMP-TF	E601:ALL	3		
W-830-52	EW	Tnsc1b	A	CMP-TF	E300.0:NO3	1	Y	
W-830-52	EW	Tnsc1b	A	DIS	E300.0:PERC	3		
W-830-52	EW	Tnsc1b	A	CMP-TF	E300.0:PERC	1	Y	
W-830-52	EW	Tnsc1b	S	DIS	E601:ALL	2	Y	
W-830-52	EW	Tnsc1b	S	CMP-TF	E601:ALL	3		
W-830-52	EW	Tnsc1b	S	DIS	E601:ALL	4		
W-830-52	EW	Tnsc1b	S	CMP-TF	E601:ALL	1	Y	
W-830-52	EW	Tnsc1b	S	CMP-TF	E601:ALL	3		
W-830-53	EW	Tnsc1b	A	CMP-TF	E300.0:NO3	1	Y	
W-830-53	EW	Tnsc1b	A	DIS	E300.0:PERC	3		
W-830-53	EW	Tnsc1b	A	CMP-TF	E300.0:PERC	1	Y	
W-830-53	EW	Tnsc1b	S	DIS	E601:ALL	2	Y	
W-830-53	EW	Tnsc1b	S	CMP-TF	E601:ALL	3		
W-830-53	EW	Tnsc1b	S	DIS	E601:ALL	4		
W-830-53	EW	Tnsc1b	S	CMP-TF	E601:ALL	1	Y	
W-830-53	EW	Tnsc1b	S	CMP-TF	E601:ALL	3		
W-830-54	PTMW	Tnsc1c	O	CMP	E300.0:NO3	1	Y	
W-830-54	PTMW	Tnsc1c	O	CMP	E300.0:PERC	1	Y	
W-830-54	PTMW	Tnsc1c	S	CMP	E601:ALL	1	Y	
W-830-54	PTMW	Tnsc1c	S	CMP	E601:ALL	3		
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	E601:ALL	1	Y	
W-830-55	PTMW	Tnsc1b	S	CMP	E601:ALL	3		
W-830-56	PTMW	Tnsc1b	A	CMP	E300.0:NO3	1	Y	

Table 2.7-7 (Con't.). Building 832 Canyon OU ground and surface water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
W-830-56	PTMW	Tnsc1b	O	CMP	E300.0:PERC	1	Y	
W-830-56	PTMW	Tnsc1b	S	CMP	E601:ALL	1	Y	
W-830-56	PTMW	Tnsc1b	S	CMP	E601:ALL	3		
W-830-57	EW	Upper Tnbs1	A	CMP-TF	E300.0:NO3	1	Y	
W-830-57	EW	Upper Tnbs1	A	CMP-TF	E300.0:PERC	1	Y	
W-830-57	EW	Upper Tnbs1	S	DIS	E601:ALL	2	Y	
W-830-57	EW	Upper Tnbs1	S	CMP-TF	E601:ALL	3		
W-830-57	EW	Upper Tnbs1	S	DIS	E601:ALL	4		
W-830-57	EW	Upper Tnbs1	S	CMP-TF	E601:ALL	1	Y	
W-830-57	EW	Upper Tnbs1	S	CMP-TF	E601:ALL	3		
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	E601:ALL	1	Y	
W-830-58	PTMW	Tnsc1b	S	CMP	E601:ALL	3		
W-830-59	EW	Tnsc1b	A	CMP-TF	E300.0:NO3	1	Y	
W-830-59	EW	Tnsc1b	A	CMP-TF	E300.0:PERC	3		
W-830-59	EW	Tnsc1b	A	CMP-TF	E300.0:PERC	1	Y	
W-830-59	EW	Tnsc1b	S	DIS	E601:ALL	2	Y	
W-830-59	EW	Tnsc1b	S	CMP-TF	E601:ALL	3		
W-830-59	EW	Tnsc1b	S	DIS	E601:ALL	4		
W-830-59	EW	Tnsc1b	S	CMP-TF	E601:ALL	1	Y	
W-830-59	EW	Tnsc1b	S	CMP-TF	E601:ALL	3		
W-830-60	EW	Upper Tnbs1	A	CMP-TF	E300.0:NO3	1	Y	
W-830-60	EW	Upper Tnbs1	A	CMP-TF	E300.0:PERC	1	Y	
W-830-60	EW	Upper Tnbs1	S	DIS	E601:ALL	2	Y	
W-830-60	EW	Upper Tnbs1	S	CMP-TF	E601:ALL	3		
W-830-60	EW	Upper Tnbs1	S	DIS	E601:ALL	4		
W-830-60	EW	Upper Tnbs1	S	CMP-TF	E601:ALL	1	Y	
W-830-60	EW	Upper Tnbs1	S	CMP-TF	E601:ALL	3		
W-831-01	PTMW	Lower Tnbs1	O	CMP	E300.0:NO3	1	N	To be sampled in 2011.
W-831-01	PTMW	Lower Tnbs1	O	CMP	E300.0:PERC	1	N	To be sampled in 2011.
W-831-01	PTMW	Lower Tnbs1	O	CMP	E601:ALL	1	N	To be sampled in 2011.
W-832-01	EW	Tnsc1b	A	CMP-TF	E300.0:NO3	1	Y	
W-832-01	EW	Tnsc1b	A	DIS	E300.0:PERC	3		
W-832-01	EW	Tnsc1b	A	CMP-TF	E300.0:PERC	1	Y	
W-832-01	EW	Tnsc1b	S	DIS	E601:ALL	2	Y	
W-832-01	EW	Tnsc1b	S	CMP-TF	E601:ALL	3		
W-832-01	EW	Tnsc1b	S	DIS	E601:ALL	4		
W-832-01	EW	Tnsc1b	S	CMP-TF	E601:ALL	1	Y	
W-832-01	EW	Tnsc1b	S	CMP-TF	E601:ALL	3		
W-832-06	PTMW	Tnsc1b	A	CMP	E300.0:NO3	1	Y	
W-832-06	PTMW	Tnsc1b	A	CMP	E300.0:PERC	1	Y	
W-832-06	PTMW	Tnsc1b	S	CMP	E601	1	Y	
W-832-06	PTMW	Tnsc1b	S	CMP	E601	3		
W-832-09	PTMW	Lower Tnbs1	A	CMP	E300.0:NO3	1	Y	
W-832-09	PTMW	Lower Tnbs1	A	CMP	E300.0:PERC	1	Y	
W-832-09	PTMW	Lower Tnbs1	S	CMP	E601:ALL	1	Y	
W-832-09	PTMW	Lower Tnbs1	S	CMP	E601:ALL	3		
W-832-10	EW	Tnsc1b	A	CMP-TF	E300.0:NO3	1	Y	
W-832-10	EW	Tnsc1b	A	DIS	E300.0:PERC	3		
W-832-10	EW	Tnsc1b	A	CMP-TF	E300.0:PERC	1	Y	
W-832-10	EW	Tnsc1b	S	DIS	E601:ALL	2	Y	
W-832-10	EW	Tnsc1b	S	CMP-TF	E601:ALL	3		
W-832-10	EW	Tnsc1b	S	DIS	E601:ALL	4		
W-832-10	EW	Tnsc1b	S	CMP-TF	E601:ALL	1	Y	
W-832-10	EW	Tnsc1b	S	CMP-TF	E601:ALL	3		
W-832-11	EW	Tnsc1b	A	CMP-TF	E300.0:NO3	1	Y	
W-832-11	EW	Tnsc1b	A	DIS	E300.0:PERC	3		
W-832-11	EW	Tnsc1b	A	CMP-TF	E300.0:PERC	1	Y	
W-832-11	EW	Tnsc1b	S	DIS	E601:ALL	2	Y	

Table 2.7-7 (Con't.). Building 832 Canyon OU ground and surface water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
W-832-11	EW	Tnsc1b	S	CMP-TF	E601:ALL	3		
W-832-11	EW	Tnsc1b	S	DIS	E601:ALL	4		
W-832-11	EW	Tnsc1b	S	CMP-TF	E601:ALL	1	Y	
W-832-11	EW	Tnsc1b	S	CMP-TF	E601:ALL	3		
W-832-12	EW	Qal/fill	A	CMP-TF	E300.0:NO3	1	Y	
W-832-12	EW	Qal/fill	A	DIS	E300.0:PERC	3		
W-832-12	EW	Qal/fill	A	CMP-TF	E300.0:PERC	1	Y	
W-832-12	EW	Qal/fill	S	DIS	E601:ALL	2	Y	
W-832-12	EW	Qal/fill	S	CMP-TF	E601:ALL	3		
W-832-12	EW	Qal/fill	S	DIS	E601:ALL	4		
W-832-12	EW	Qal/fill	S	CMP-TF	E601:ALL	1	Y	
W-832-12	EW	Qal/fill	S	CMP-TF	E601:ALL	3		
W-832-13	EW	Qal/fill	A	CMP-TF	E300.0:NO3	1	Y	
W-832-13	EW	Qal/fill	A	CMP-TF	E300.0:PERC	1	Y	
W-832-13	EW	Qal/fill	S	CMP-TF	E601:ALL	1	Y	
W-832-13	EW	Qal/fill	S	CMP-TF	E601:ALL	3		
W-832-14	EW	Qal/fill	A	CMP-TF	E300.0:NO3	1	Y	
W-832-14	EW	Qal/fill	A	CMP-TF	E300.0:PERC	1	Y	
W-832-14	EW	Qal/fill	S	CMP-TF	E601:ALL	1	Y	
W-832-14	EW	Qal/fill	S	CMP-TF	E601:ALL	3		
W-832-15	EW	Qal/fill	A	DIS	E300.0:NO3	3		
W-832-15	EW	Qal/fill	A	CMP-TF	E300.0:NO3	1	Y	
W-832-15	EW	Qal/fill	A	DIS	E300.0:PERC	3		
W-832-15	EW	Qal/fill	A	CMP-TF	E300.0:PERC	1	Y	
W-832-15	EW	Qal/fill	S	DIS	E601:ALL	2	Y	
W-832-15	EW	Qal/fill	S	CMP-TF	E601:ALL	3		
W-832-15	EW	Qal/fill	S	DIS	E601:ALL	4		
W-832-15	EW	Qal/fill	S	CMP-TF	E601:ALL	1	Y	
W-832-15	EW	Qal/fill	S	CMP-TF	E601:ALL	3		
W-832-15	EW	Qal/fill	E	CMP-TF	E8330LOW:ALL	2	Y	
W-832-16	EW	Qal/fill	A	CMP-TF	E300.0:NO3	1	Y	
W-832-16	EW	Qal/fill	A	CMP-TF	E300.0:PERC	1	Y	
W-832-16	EW	Qal/fill	S	CMP-TF	E601:ALL	1	Y	
W-832-16	EW	Qal/fill	S	CMP-TF	E601:ALL	3		
W-832-17	EW	Qal/fill	A	CMP-TF	E300.0:NO3	1	Y	
W-832-17	EW	Qal/fill	A	CMP-TF	E300.0:PERC	1	Y	
W-832-17	EW	Qal/fill	S	CMP-TF	E601:ALL	1	Y	
W-832-17	EW	Qal/fill	S	CMP-TF	E601:ALL	3		
W-832-18	EW	Qal/fill	A	CMP-TF	E300.0:NO3	1	Y	
W-832-18	EW	Qal/fill	A	CMP-TF	E300.0:PERC	1	Y	
W-832-18	EW	Qal/fill	S	CMP-TF	E601:ALL	1	Y	
W-832-18	EW	Qal/fill	S	CMP-TF	E601:ALL	3		
W-832-19	PTMW	Qal/fill	A	CMP	E300.0:NO3	1	Y	
W-832-19	PTMW	Qal/fill	A	CMP	E300.0:PERC	1	Y	
W-832-19	PTMW	Qal/fill	S	CMP	E601:ALL	1	Y	
W-832-19	PTMW	Qal/fill	S	CMP	E601:ALL	3		
W-832-1927	PTMW	Tnsc1b	A	CMP	E300.0:NO3	1	Y	
W-832-1927	PTMW	Tnsc1b	A	CMP	E300.0:PERC	1	Y	
W-832-1927	PTMW	Tnsc1b	S	CMP	E601:ALL	1	Y	
W-832-1927	PTMW	Tnsc1b	S	CMP	E601:ALL	3		
W-832-20	EW	Qal/fill	A	CMP-TF	E300.0:NO3	1	Y	
W-832-20	EW	Qal/fill	A	CMP-TF	E300.0:PERC	1	Y	
W-832-20	EW	Qal/fill	S	CMP-TF	E601:ALL	1	Y	
W-832-20	EW	Qal/fill	S	CMP-TF	E601:ALL	3		
W-832-21	PTMW	Qal/fill	A	CMP	E300.0:NO3	1	Y	
W-832-21	PTMW	Qal/fill	A	CMP	E300.0:PERC	1	Y	
W-832-21	PTMW	Qal/fill	S	CMP	E601:ALL	1	Y	
W-832-21	PTMW	Qal/fill	S	CMP	E601:ALL	3		
W-832-2112	GW	Upper Tnbs1	S	CMP	E300.0:NO3	1	Y	
W-832-2112	GW	Upper Tnbs1	S	CMP	E300.0:NO3	3		

Table 2.7-7 (Con't.). Building 832 Canyon OU ground and surface water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
W-832-2112	GW	Upper Tnbs1	S	CMP	E300.0:PERC	1	Y	
W-832-2112	GW	Upper Tnbs1	S	CMP	E300.0:PERC	3		
W-832-2112	GW	Upper Tnbs1	Q	CMP	E601:ALL	1	Y	
W-832-2112	GW	Upper Tnbs1	Q	CMP	E601:ALL	2	Y	
W-832-2112	GW	Upper Tnbs1	Q	CMP	E601:ALL	3		
W-832-2112	GW	Upper Tnbs1	Q	CMP	E601:ALL	4		
W-832-22	EW	Qal/fill	A	CMP-TF	E300.0:NO3	1	N	Dry.
W-832-22	EW	Qal/fill	A	CMP-TF	E300.0:PERC	1	N	Dry.
W-832-22	EW	Qal/fill	S	CMP-TF	E601:ALL	1	N	Dry.
W-832-22	EW	Qal/fill	S	CMP-TF	E601:ALL	3		
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	E601:ALL	1	Y	
W-832-23	PTMW	Tnsc1b	S	CMP	E601:ALL	3		
W-832-24	PTMW	Tnsc1b	A	CMP	E300.0:NO3	1	Y	
W-832-24	PTMW	Tnsc1b	A	CMP	E300.0:PERC	1	Y	
W-832-24	PTMW	Tnsc1b	S	CMP	E601:ALL	1	Y	
W-832-24	PTMW	Tnsc1b	S	CMP	E601:ALL	3		
W-832-25	EW	Tnsc1b	A	CMP-TF	E300.0:NO3	1	Y	
W-832-25	EW	Tnsc1b	A	DIS	E300.0:PERC	3		
W-832-25	EW	Tnsc1b	A	CMP-TF	E300.0:PERC	1	Y	
W-832-25	EW	Tnsc1b	S	DIS	E601:ALL	2	Y	
W-832-25	EW	Tnsc1b	S	CMP-TF	E601:ALL	3		
W-832-25	EW	Tnsc1b	S	DIS	E601:ALL	4		
W-832-25	EW	Tnsc1b	S	CMP-TF	E601:ALL	1	Y	
W-832-25	EW	Tnsc1b	S	CMP-TF	E601:ALL	3		
W-832-SC1	PTMW	Qal	A	CMP	E300.0:NO3	1	Y	
W-832-SC1	PTMW	Qal	O	CMP	E300.0:PERC	1	N	To be sampled in 2011.
W-832-SC1	PTMW	Qal	S	CMP	E601:ALL	1	Y	
W-832-SC1	PTMW	Qal	S	CMP	E601:ALL	3		
W-832-SC2	PTMW	Qal	A	CMP	E300.0:NO3	1	N	Dry.
W-832-SC2	PTMW	Qal	E	CMP	E300.0:PERC	1	N	Dry.
W-832-SC2	PTMW	Qal	S	CMP	E601:ALL	1	N	Dry.
W-832-SC2	PTMW	Qal	S	CMP	E601:ALL	3		
W-832-SC3	PTMW	Qal	A	CMP	E300.0:NO3	1	Y	
W-832-SC3	PTMW	Qal	O	CMP	E300.0:PERC	1	Y	
W-832-SC3	PTMW	Qal	S	CMP	E601:ALL	1	Y	
W-832-SC3	PTMW	Qal	S	CMP	E601:ALL	3		
W-832-SC4	PTMW	Qal	A	CMP	E300.0:NO3	1	Y	
W-832-SC4	PTMW	Qal	E	CMP	E300.0:PERC	1	Y	
W-832-SC4	PTMW	Qal	S	CMP	E601:ALL	1	Y	
W-832-SC4	PTMW	Qal	S	CMP	E601:ALL	3		
W-870-01	PTMW	Qal	A	CMP	E300.0:NO3	1	Y	
W-870-01	PTMW	Qal	O	CMP	E300.0:PERC	1	N	To be sampled in 2011.
W-870-01	PTMW	Qal	S	CMP	E601:ALL	1	Y	
W-870-01	PTMW	Qal	S	CMP	E601:ALL	3		
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	E601:ALL	1	Y	
W-870-02	PTMW	Tnbs2	S	CMP	E601:ALL	3		
W-880-01	GW	Tnbs2	S	CMP	E300.0:NO3	1	Y	
W-880-01	GW	Tnbs2	S	CMP	E300.0:NO3	3		
W-880-01	GW	Tnbs2	S	CMP	E300.0:PERC	1	Y	
W-880-01	GW	Tnbs2	S	CMP	E300.0:PERC	3		
W-880-01	GW	Tnbs2	Q	CMP	E601:ALL	1	Y	
W-880-01	GW	Tnbs2	Q	CMP	E601:ALL	2	Y	
W-880-01	GW	Tnbs2	Q	CMP	E601:ALL	3		
W-880-01	GW	Tnbs2	Q	CMP	E601:ALL	4		
W-880-01	GW	Tnbs2	S	CMP	E8330LOW:ALL	1	Y	
W-880-01	GW	Tnbs2	S	CMP	E8330LOW:ALL	3		

Table 2.7-7 (Con't.). Building 832 Canyon OU ground and surface water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
W-880-02	GW	Qal	S	CMP	E300.0:NO3	1	Y	
W-880-02	GW	Qal	S	CMP	E300.0:NO3	3		
W-880-02	GW	Qal	S	CMP	E300.0:PERC	1	Y	
W-880-02	GW	Qal	S	CMP	E300.0:PERC	3		
W-880-02	GW	Qal	Q	CMP	E601:ALL	1	Y	
W-880-02	GW	Qal	Q	CMP	E601:ALL	2	Y	
W-880-02	GW	Qal	Q	CMP	E601:ALL	3		
W-880-02	GW	Qal	Q	CMP	E601:ALL	4		
W-880-02	GW	Qal	S	CMP	E8330LOW:ALL	1	Y	
W-880-02	GW	Qal	S	CMP	E8330LOW:ALL	3		
W-880-03	GW	Tnsc1	S	CMP	E300.0:NO3	1	N	Unsafe conditions.
W-880-03	GW	Tnsc1	S	CMP	E300.0:NO3	3		
W-880-03	GW	Tnsc1	S	CMP	E300.0:PERC	1	N	Unsafe conditions.
W-880-03	GW	Tnsc1	S	CMP	E300.0:PERC	3		
W-880-03	GW	Tnsc1	Q	CMP	E601:ALL	1	N	Unsafe conditions.
W-880-03	GW	Tnsc1	Q	CMP	E601:ALL	2	Y	
W-880-03	GW	Tnsc1	Q	CMP	E601:ALL	3		
W-880-03	GW	Tnsc1	Q	CMP	E601:ALL	4		
W-880-03	GW	Tnsc1	S	CMP	E8330LOW:ALL	1	N	Unsafe conditions.
W-880-03	GW	Tnsc1	S	CMP	E8330LOW:ALL	3		

Notes:

1) Building 830 primary Contaminants of Concern in Ground Water: VOCs (E601 or E624).
2) Building 830 secondary COC: nitrate (E300:NO3).
3) Building 830 secondary COC: perchlorate (E300.0:PERC).
4) Building 832 primary Contaminants of Concern in Ground Water: VOCs (E601 or E624).
5) Building 832 secondary COC: nitrate (E300:NO3).
6) Building 832 secondary COC: perchlorate (E300.0:PERC).
7) Building 830 vadose zone COC: HMX.
8) See Appendix A Acronyms for acronym and abbreviation definitions.

Table 2.7-8. Building 832-Source (832-SRC) mass removed, January 1, 2010 through June 30, 2010.

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	January	0	0	0	0	NA	NA
	February	0	0.038	0.011	0.19	NA	NA
	March	0	1.1	0.22	4.0	NA	NA
	April	0	2.3	0.18	3.4	NA	NA
	May	0	2.4	0.19	3.4	NA	NA
	June	0	2.9	0.21	3.8	NA	NA
Total		0	8.8	0.80	15	NA	NA

Table 2.7-9. Building 830-Source (830-SRC) mass removed, January 1, 2010 through June 30, 2010.

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	January	8.1	66	0.49	16	NA	NA
	February	8.5	130	0.31	18	NA	NA
	March	2.5	210	0.49	25	NA	NA
	April	2.7	160	0.42	20	NA	NA
	May	1.8	63	0.13	8.3	NA	NA
	June	5.1	110	0.27	13	NA	NA
Total		29	740	2.1	100	NA	NA

Table 2.7-10. Building 830-Distal South (830-DISS) mass removed, January 1, 2010 through June 30, 2010.

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	January	NA	0	0	0	NA	NA
	February	NA	13	2.5	41	NA	NA
	March	NA	7.1	1.3	22	NA	NA
	April	NA	5.6	1.1	19	NA	NA
	May	NA	2.8	0.54	9.1	NA	NA
	June	NA	5.7	1.2	20	NA	NA
Total		NA	34	6.7	110	NA	NA

Table 2.8-1. Building 801 and Pit 8 Landfill area ground water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
K8-01	PTMW	Upper Tnbs1	A	CMP	AS:UISO	2	Y	
K8-01	PTMW	Upper Tnbs1	A	CMP	E300.0:NO3	2	Y	
K8-01	PTMW	Upper Tnbs1	S	CMP	E300.0:PERC	2	Y	
K8-01	PTMW	Upper Tnbs1	S	CMP	E300.0:PERC	4		
K8-01	PTMW	Upper Tnbs1	S	CMP	E601:ALL	2	Y	
K8-01	PTMW	Upper Tnbs1	S	CMP	E601:ALL	4		
K8-01	PTMW	Upper Tnbs1	S	CMP	E906:ALL	2	Y	
K8-01	PTMW	Upper Tnbs1	S	CMP	E906:ALL	4		
K8-02B	DMW	Tnsc1/Upper Tnbs1	S	CMP	AS:UISO	2	Y	
K8-02B	DMW	Tnsc1/Upper Tnbs1	S	CMP	AS:UISO	4		
K8-02B	DMW	Tnsc1/Upper Tnbs1	A	CMP	E200.7:LI	2	Y	
K8-02B	DMW	Tnsc1/Upper Tnbs1	S	CMP	E300.0:NO3	2	Y	
K8-02B	DMW	Tnsc1/Upper Tnbs1	S	CMP	E300.0:NO3	4		
K8-02B	DMW	Tnsc1/Upper Tnbs1	Q	CMP	E300.0:PERC	1	Y	
K8-02B	DMW	Tnsc1/Upper Tnbs1	Q	CMP	E300.0:PERC	2	Y	
K8-02B	DMW	Tnsc1/Upper Tnbs1	Q	CMP	E300.0:PERC	3		
K8-02B	DMW	Tnsc1/Upper Tnbs1	Q	CMP	E300.0:PERC	4		
K8-02B	DMW	Tnsc1/Upper Tnbs1	A	CMP	E340.2:ALL	2	Y	
K8-02B	DMW	Tnsc1/Upper Tnbs1	A	CMP	E601:ALL	2	Y	
K8-02B	DMW	Tnsc1/Upper Tnbs1	A	CMP	E8330LOW:ALL	2	Y	
K8-02B	DMW	Tnsc1/Upper Tnbs1	Q	CMP	E906:ALL	1	Y	
K8-02B	DMW	Tnsc1/Upper Tnbs1	Q	CMP	E906:ALL	2	N	Not sampled.
K8-02B	DMW	Tnsc1/Upper Tnbs1	Q	CMP	E906:ALL	3		
K8-02B	DMW	Tnsc1/Upper Tnbs1	Q	CMP	E906:ALL	4	Y	
K8-02B	DMW	Tnsc1/Upper Tnbs1	A	DIS	MS:UISO	2	Y	
K8-02B	DMW	Tnsc1/Upper Tnbs1	A	CMP	T26METALS:ALL	2	Y	
K8-03B	PTMW	Upper Tnbs1	A	CMP	AS:UISO	2	Y	
K8-03B	PTMW	Upper Tnbs1	A	CMP	E300.0:NO3	2	Y	
K8-03B	PTMW	Upper Tnbs1	S	CMP	E300.0:PERC	2	Y	
K8-03B	PTMW	Upper Tnbs1	S	CMP	E300.0:PERC	4		
K8-03B	PTMW	Upper Tnbs1	S	CMP	E601:ALL	2	Y	
K8-03B	PTMW	Upper Tnbs1	S	CMP	E601:ALL	4		
K8-03B	PTMW	Upper Tnbs1	A	CMP	E906:ALL	2	Y	
K8-03B	PTMW	Upper Tnbs1	A	CMP	E906:ALL	4		
K8-04	DMW	Upper Tnbs1	A	CMP	AS:UISO	2	Y	
K8-04	DMW	Upper Tnbs1	A	CMP	E200.7:LI	2	Y	
K8-04	DMW	Upper Tnbs1	A	CMP	E300.0:NO3	2	Y	
K8-04	DMW	Upper Tnbs1	S	CMP	E300.0:PERC	2	Y	
K8-04	DMW	Upper Tnbs1	S	CMP	E300.0:PERC	4		
K8-04	DMW	Upper Tnbs1	A	CMP	E340.2:ALL	2	Y	
K8-04	DMW	Upper Tnbs1	A	CMP	E601:ALL	2	Y	
K8-04	DMW	Upper Tnbs1	A	CMP	E8330LOW:ALL	2	Y	
K8-04	DMW	Upper Tnbs1	S	CMP	E906:ALL	2	Y	
K8-04	DMW	Upper Tnbs1	S	CMP	E906:ALL	4		
K8-04	DMW	Upper Tnbs1	A	DIS	MS:UISO	2	Y	
K8-04	DMW	Upper Tnbs1	A	CMP	T26METALS:ALL	2	Y	
K8-05	DMW	Tnbs2	O	CMP	AS:UISO	2	N	To be sampled in 2011.
K8-05	DMW	Tnbs2	O	CMP	E200.7:LI	2	N	To be sampled in 2011.
K8-05	DMW	Tnbs2	O	CMP	E300.0:NO3	2	N	To be sampled in 2011.
K8-05	DMW	Tnbs2	O	CMP	E300.0:PERC	2	N	To be sampled in 2011.
K8-05	DMW	Tnbs2	O	CMP	E340.2:ALL	2	N	To be sampled in 2011.
K8-05	DMW	Tnbs2	O	CMP	E601:ALL	2	N	To be sampled in 2011.
K8-05	DMW	Tnbs2	O	CMP	E8330LOW:ALL	2	N	To be sampled in 2011.
K8-05	DMW	Tnbs2	O	CMP	E906:ALL	2	N	To be sampled in 2011.
K8-05	DMW	Tnbs2	O	CMP	T26METALS:ALL	2	N	To be sampled in 2011.

Notes appear on the following page.

Table 2.8-1 (Con't.). Building 801 and Pit 8 Landfill area ground water sampling and analysis plan.

Notes:
1) CMP Detection monitoring analyte: tritium (E906) sampled annually.
2) CMP Detection monitoring analyte: VOCs (E601 or E624) sampled annually.
3) CMP Detection monitoring analyte: fluoride (E340.2) sampled annually.
4) CMP Detection monitoring analyte: HE compounds (E8330) sampled annually.
5) CMP Detection monitoring analyte: nitrate (E300.0:NO3) sampled annually.
6) CMP Detection monitoring analyte: perchlorate (E300.0:PERC) sampled annually.
7) CMP Detection monitoring analytes: Title 26 metals plus Li (T26METALS and E200.8:Li) sampled annually.
8) CMP Detection monitoring analytes: uranium isotopes (AS:UISO) sampled annually.
9) Building 801 primary COC: VOCs (E601 or E624).
10) Building 801 secondary COC: nitrate (E300.0:NO3).
11) Building 801 secondary COC: perchlorate (E300:PERC) .
12) See Appendix A Acronyms for acronym and abbreviation definitions.

Table 2.8-2. Building 833 area ground water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
W-833-03	PTMW	Tps	A	CMP	E601:ALL	1	N	Dry.
W-833-12	PTMW	Tps	A	CMP	E601:ALL	1	Y	
W-833-18	PTMW	Tps	A	CMP	E601:ALL	1	N	Dry.
W-833-22	PTMW	Tps	A	CMP	E601:ALL	1	N	Dry.
W-833-28	PTMW	Tps	A	CMP	E601:ALL	1	N	Insufficient water.
W-833-30	PTMW	Lower Tnbs1	S	CMP	E601:ALL	1	Y	
W-833-30	PTMW	Lower Tnbs1	S	CMP	E601:ALL	3		
W-833-33	PTMW	Tps	A	CMP	E601:ALL	1	Y	
W-833-34	PTMW	Tps	A	CMP	E601:ALL	1	N	Dry.
W-833-43	PTMW	Tps	A	CMP	E601:ALL	1	N	Dry.
W-840-01	PTMW	Lower Tnbs1	A	CMP	E300.0:NO3	1	Y	
W-840-01	PTMW	Lower Tnbs1	A	CMP	E300.0:PERC	1	Y	
W-840-01	PTMW	Lower Tnbs1	A	CMP	E601:ALL	1	Y	
W-841-01	PTMW	Upper Tnbs1	O	CMP	E300.0:NO3	1	N	To be sampled in 2011.
W-841-01	PTMW	Upper Tnbs1	O	CMP	E300.0:PERC	1	N	To be sampled in 2011.
W-841-01	PTMW	Upper Tnbs1	A	CMP	E601:ALL	1	N	Dry.

Notes:
1) Building 833 primary COC: VOCs (E601).
2) See Appendix A Acronyms for acronym and abbreviation definitions.

Table 2.8-3. Building 845 Firing Table and Pit 9 Landfill area ground water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
K9-01	DMW	Tmss	A	CMP	AS:UISO	2	Y	
K9-01	DMW	Tmss	A	CMP	E200.7:LI	2	Y	
K9-01	DMW	Tmss	A	CMP	E300.0:NO3	2	Y	
K9-01	DMW	Tmss	A	CMP	E300.0:PERC	2	Y	
K9-01	DMW	Tmss	A	CMP	E340.2:ALL	2	Y	
K9-01	DMW	Tmss	A	CMP	E601:ALL	2	Y	
K9-01	DMW	Tmss	A	CMP	E8330LOW:ALL	2	Y	
K9-01	DMW	Tmss	A	CMP	E906:ALL	2	Y	
K9-01	DMW	Tmss	A	DIS	MS:UISO	2	Y	
K9-01	DMW	Tmss	A	CMP	T26METALS:ALL	2	Y	
K9-02	DMW	Tmss	A	CMP	AS:UISO	2	Y	
K9-02	DMW	Tmss	A	CMP	E200.7:LI	2	Y	
K9-02	DMW	Tmss	A	CMP	E300.0:NO3	2	Y	
K9-02	DMW	Tmss	A	CMP	E300.0:PERC	2	Y	
K9-02	DMW	Tmss	A	CMP	E340.2:ALL	2	Y	
K9-02	DMW	Tmss	A	CMP	E601:ALL	2	Y	
K9-02	DMW	Tmss	A	CMP	E8330LOW:ALL	2	Y	
K9-02	DMW	Tmss	A	CMP	E906:ALL	2	Y	
K9-02	DMW	Tmss	A	DIS	MS:UISO	2	Y	
K9-02	DMW	Tmss	A	CMP	T26METALS:ALL	2	Y	
K9-03	DMW	Tmss	A	CMP	AS:UISO	2	Y	
K9-03	DMW	Tmss	A	CMP	E200.7:LI	2	Y	
K9-03	DMW	Tmss	A	CMP	E300.0:NO3	2	Y	
K9-03	DMW	Tmss	A	CMP	E300.0:PERC	2	Y	
K9-03	DMW	Tmss	A	CMP	E340.2:ALL	2	Y	
K9-03	DMW	Tmss	A	CMP	E601:ALL	2	Y	
K9-03	DMW	Tmss	A	CMP	E8330LOW:ALL	2	Y	
K9-03	DMW	Tmss	A	CMP	E906:ALL	2	Y	
K9-03	DMW	Tmss	A	DIS	MS:UISO	2	Y	
K9-03	DMW	Tmss	A	CMP	T26METALS:ALL	2	Y	
K9-04	DMW	Tmss	A	CMP	AS:UISO	2	N	Inoperable pump.
K9-04	DMW	Tmss	A	CMP	E200.7:LI	2	N	Inoperable pump.
K9-04	DMW	Tmss	A	CMP	E300.0:NO3	2	N	Inoperable pump.
K9-04	DMW	Tmss	A	CMP	E300.0:PERC	2	N	Inoperable pump.
K9-04	DMW	Tmss	A	CMP	E340.2:ALL	2	N	Inoperable pump.
K9-04	DMW	Tmss	A	CMP	E601:ALL	2	N	Inoperable pump.
K9-04	DMW	Tmss	A	CMP	E8330LOW:ALL	2	N	Inoperable pump.
K9-04	DMW	Tmss	A	CMP	E906:ALL	2	N	Inoperable pump.
K9-04	DMW	Tmss	A	DIS	MS:UISO	2	N	Inoperable pump.
K9-04	DMW	Tmss	A	CMP	T26METALS:ALL	2	N	Inoperable pump.

Notes:

1) No COCs in ground water.
2) CMP Detection monitoring analyte: tritium (E906) sampled annually.
3) CMP Detection monitoring analyte: VOCs (E601 or E624) sampled annually.
4) CMP Detection monitoring analyte: fluoride (E340.2) sampled annually.
5) CMP Detection monitoring analyte: HE compounds (E8330) sampled annually.
6) CMP Detection monitoring analyte: nitrate (E300.0:NO3) sampled annually.
7) CMP Detection monitoring analyte: perchlorate (E300.0:PERC) sampled annually.
8) CMP Detection monitoring analytes: Title 26 metals plus Li (T26METALS and E200.8:Li) sampled annually.
9) CMP Detection monitoring analytes: uranium isotopes (AS:UISO) sampled annually.
10) COC in the Vadose Zone not detected in Ground Water: HE Compounds and uranium.
11) See Appendix A Acronyms for acronym and abbreviation definitions.

Table 2.8-4. Building 851 area ground water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
W-851-05	PTMW	Tmss	S	CMP	AS:UISO	2	Y	
W-851-05	PTMW	Tmss	S	CMP	AS:UISO	4		
W-851-05	PTMW	Tmss	O	CMP	E601:ALL	2	N	To be sampled in 2011.
W-851-05	PTMW	Tmss	A	DIS	E906:ALL	2	Y	
W-851-05	PTMW	Tmss	A	DIS	MS:UISO	2	Y	
W-851-06	PTMW	Tmss	S	CMP	AS:UISO	2	Y	
W-851-06	PTMW	Tmss	S	CMP	AS:UISO	4		
W-851-06	PTMW	Tmss	A	DIS	E906:ALL	2	Y	
W-851-06	PTMW	Tmss	A	DIS	MS:UISO	2	Y	
W-851-07	PTMW	Tmss	S	CMP	AS:UISO	2	Y	
W-851-07	PTMW	Tmss	S	CMP	AS:UISO	4		
W-851-07	PTMW	Tmss	A	DIS	E906:ALL	2	Y	
W-851-07	PTMW	Tmss	A	DIS	MS:UISO	2	Y	
W-851-08	PTMW	Tmss	S	CMP	AS:UISO	2	Y	
W-851-08	PTMW	Tmss	S	CMP	AS:UISO	4		
W-851-08	PTMW	Tmss	A	DIS	E906:ALL	2	Y	
W-851-08	PTMW	Tmss	A	DIS	MS:UISO	2	Y	

Notes:

1) Building 851 primary COC: uranium (AS:UISO).

2) Contaminants of Concern in the Vadose Zone not detected in Ground Water: VOCs (E601).

3) See Appendix A Acronyms for acronym and abbreviation definitions.

Table 3.1-1. Pit 2 Landfill area ground water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
K2-01C	DMW	Tnbs1	A	CMP	AS:UISO	2	Y	
K2-01C	DMW	Tnbs1	A	CMP	E200.7:LI	2	Y	
K2-01C	DMW	Tnbs1	A	CMP	E300.0:NO3	2	Y	
K2-01C	DMW	Tnbs1	S	CMP	E300.0:PERC	4		
K2-01C	DMW	Tnbs1	S	CMP	E300.0:PERC	2	Y	
K2-01C	DMW	Tnbs1	A	CMP	E340.2:ALL	2	Y	
K2-01C	DMW	Tnbs1	A	CMP	E601:ALL	2	Y	
K2-01C	DMW	Tnbs1	A	CMP	E8330LOW:ALL	2	Y	
K2-01C	DMW	Tnbs1	A	DIS	E906:ALL	1	Y	
K2-01C	DMW	Tnbs1	S	CMP	E906:ALL	2	Y	
K2-01C	DMW	Tnbs1	S	CMP	E906:ALL	4		
K2-01C	DMW	Tnbs1	A	DIS	MS:UISO	2	Y	
K2-01C	DMW	Tnbs1	A	CMP	T26METALS:ALL	2	Y	
NC2-08	DMW	Tnbs1	A	CMP	AS:UISO	2	Y	
NC2-08	DMW	Tnbs1	A	CMP	E200.7:LI	2	Y	
NC2-08	DMW	Tnbs1	A	CMP	E300.0:NO3	2	Y	
NC2-08	DMW	Tnbs1	S	CMP	E300.0:PERC	4		
NC2-08	DMW	Tnbs1	S	CMP	E300.0:PERC	2	Y	
NC2-08	DMW	Tnbs1	A	CMP	E340.2:ALL	2	Y	
NC2-08	DMW	Tnbs1	A	CMP	E601:ALL	2	Y	
NC2-08	DMW	Tnbs1	S	CMP	E906:ALL	2	Y	
NC2-08	DMW	Tnbs1	S	CMP	E906:ALL	4		
NC2-08	DMW	Tnbs1	A	DIS	MS:UISO	2	Y	
NC2-08	DMW	Tnbs1	A	CMP	T26METALS:ALL	2	Y	
W-PIT2-1934	DMW	Lower Tnbs1	A	CMP	AS:UISO	2	Y	
W-PIT2-1934	DMW	Lower Tnbs1	A	CMP	E200.7:LI	2	Y	
W-PIT2-1934	DMW	Lower Tnbs1	A	CMP	E300.0:NO3	2	Y	
W-PIT2-1934	DMW	Lower Tnbs1	S	CMP	E300.0:PERC	4		
W-PIT2-1934	DMW	Lower Tnbs1	S	CMP	E300.0:PERC	2	Y	
W-PIT2-1934	DMW	Lower Tnbs1	A	CMP	E340.2:ALL	2	Y	
W-PIT2-1934	DMW	Lower Tnbs1	A	CMP	E601:ALL	2	Y	
W-PIT2-1934	DMW	Lower Tnbs1	S	CMP	E906:ALL	2	Y	
W-PIT2-1934	DMW	Lower Tnbs1	S	CMP	E906:ALL	4		
W-PIT2-1934	DMW	Lower Tnbs1	A	DIS	MS:UISO	2	Y	
W-PIT2-1934	DMW	Lower Tnbs1	A	CMP	T26METALS:ALL	2	Y	
W-PIT2-1935	DMW	Lower Tnbs1	A	CMP	AS:UISO	2	Y	
W-PIT2-1935	DMW	Lower Tnbs1	A	CMP	E200.7:LI	2	Y	
W-PIT2-1935	DMW	Lower Tnbs1	A	CMP	E300.0:NO3	2	Y	
W-PIT2-1935	DMW	Lower Tnbs1	S	CMP	E300.0:PERC	2	Y	
W-PIT2-1935	DMW	Lower Tnbs1	S	CMP	E300.0:PERC	4		
W-PIT2-1935	DMW	Lower Tnbs1	A	CMP	E340.2:ALL	2	Y	
W-PIT2-1935	DMW	Lower Tnbs1	A	CMP	E601:ALL	2	Y	
W-PIT2-1935	DMW	Lower Tnbs1	S	CMP	E906:ALL	2	Y	
W-PIT2-1935	DMW	Lower Tnbs1	S	CMP	E906:ALL	4		
W-PIT2-1935	DMW	Lower Tnbs1	A	DIS	MS:UISO	2	Y	
W-PIT2-1935	DMW	Lower Tnbs1	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		
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		
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		
W-PIT2-2226	GW	Tnbs1/Tnbs0	Q	CMP	E300.0:PERC	4		
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		
W-PIT2-2226	GW	Tnbs1/Tnbs0	Q	CMP	E906:ALL	4		
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	

Table 3.1-1 (Con't.). Pit 2 Landfill area ground water sampling and analysis plan.

Sample location	Location type	Completion interval	Sampling frequency	Sample driver	Requested analysis	Sampling quarter	Sampled Y/N	Comment
W-PIT2-2301	PTMW	Qal/WBR	S	CMP	E300.0:PERC	4		
W-PIT2-2301	PTMW	Qal/WBR	S	CMP	E906:ALL	2	Y	
W-PIT2-2301	PTMW	Qal/WBR	S	CMP	E906:ALL	4		
W-PIT2-2301	PTMW	Qal/WBR	A	DIS	MS:UISO	2	Y	
W-PIT2-2301	PTMW	Qal/WBR	A	CMP	AS:UISO	2	N	MS:UISO sampled.
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		
W-PIT2-2302	PTMW	Qal/WBR	S	CMP	E906:ALL	2	Y	
W-PIT2-2302	PTMW	Qal/WBR	S	CMP	E906:ALL	4		
W-PIT2-2302	PTMW	Qal/WBR	A	DIS	MS:UISO	2	Y	
W-PIT2-2302	PTMW	Qal/WBR	A	CMP	AS:UISO	2	N	MS:UISO sampled.
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		
W-PIT2-2303	PTMW	Qal/WBR	S	CMP	E906:ALL	2	N	Dry.
W-PIT2-2303	PTMW	Qal/WBR	S	CMP	E906:ALL	4		
W-PIT2-2303	PTMW	Qal/WBR	A	DIS	MS:UISO	2	N	Dry.
W-PIT2-2303	PTMW	Qal/WBR	A	CMP	AS:UISO	2	N	MS:UISO sampled.
W-PIT2-2304	PTMW	Qal/WBR	A	CMP	AS:UISO	2	N	Dry.
W-PIT2-2304	PTMW	Qal/WBR	A	CMP	E300.0:NO3	2	N	Dry.
W-PIT2-2304	PTMW	Qal/WBR	S	CMP	E300.0:PERC	2	N	Dry.
W-PIT2-2304	PTMW	Qal/WBR	S	CMP	E300.0:PERC	4		
W-PIT2-2304	PTMW	Qal/WBR	S	CMP	E906:ALL	2	N	Dry.
W-PIT2-2304	PTMW	Qal/WBR	S	CMP	E906:ALL	4		
W-PIT2-2304	PTMW	Qal/WBR	A	DIS	MS:UISO	2	N	Dry.

Notes:

1) CMP Detection monitoring analyte: tritium (E906) sampled annually.
2) CMP Detection monitoring analyte: VOCs (E601 or E624) sampled annually.
3) CMP Detection monitoring analyte: fluoride (E340.2) sampled annually.
4) CMP Detection monitoring analyte: HE compounds (E8330) sampled annually.
5) CMP Detection monitoring analyte: nitrate (E300.0:NO3) sampled annually.
6) CMP Detection monitoring analyte: perchlorate (E300.0:PERC) sampled annually.
7) CMP Detection monitoring analytes: Title 26 metals plus Li (T26METALS and E200.8:Li) sampled annually.
8) CMP Detection monitoring analytes: uranium isotopes (AS:UISO) sampled annually.
9) See Acronyms and Abbreviations in the Tables section of this report for acronym and abbreviation definitions.

Table 4.2-1. Maximum concentration of chloride, ortho-phosphate and total phosphorus in Site 300 background springs.

Constituent	Springs with highest reported concentration	Minimum Concentration	Maximum Concentration	Number of times Analyzed	Percent Detections	Units
Chloride	**Spring 2**	**150**	**210**	**7**	**100**	**mg/L**
Ortho-phosphate	**Spring 17**	**0.24**	**0.98**	**5**	**100**	**mg/L**
Total Phosphorus (as P)	**Springs 2 and 17**	**0.08**	**0.3**	**3**	**100**	**mg/L**
Total Phosphorus (as PO4)	**Spring 17**	**0.5**	**5.9**	**4**	**100**	**mg/L**

Appendix A

Results of Influent and effluent pH Monitoring

A-1. Results of infuent and effluent pH, and effluent dissolved oxygen monitoring, January through June 2010.

Sample Location	Sample Date	Influent pH Result	Effluent pH Result	Effluent Dissolved Oxygen (mg/L)
GSA OU				
CGSA GWTS	**01/31/2010**	**NM**	**NA**	**NR**
CGSA GWTS	**02/03/2010**	**NA**	**7.2**	**NR**
CGSA GWTS	**03/09/2010**	**NA**	**7.2**	**NR**
CGSA GWTS	**04/06/2010**	**7**	**7.2**	**NR**
CGSA GWTS	**05/11/2010**	**NA**	**7**	**NR**
CGSA GWTS	**06/15/2010**	**NA**	**7**	**NR**
Building 834 OU				
834 GWTS	**01/31/2010**	**NA**	**NA**	**NR**
834 GWTS	**02/02/2010**	**7.94**	**7.75**	**NR**
834 GWTS	**03/08/2010**	**NA**	**7.34**	**NR**
834 GWTS	**04/06/2010**	**8.38**	**7.71**	**NR**
834 GWTS	**05/04/2010**	**NA**	**7.65**	**NR**
834 GWTS	**06/02/2010**	**NA**	**7.65**	**NR**
HEPA OU				
815-SRC GWTS	**01/13/2010**	**7.91**	**7.5**	**NR**
815-SRC GWTS	**02/04/2010**	**NA**	**7.45**	**NR**
815-SRC GWTS	**03/09/2010**	**NA**	**7.41**	**NR**
815-SRC GWTS	**04/12/2010**	**7.3**	**7.35**	**NR**
815-SRC GWTS	**05/04/2010**	**NA**	**7.39**	**NR**
815-SRC GWTS	**06/02/2010**	**NA**	**7.44**	**NR**
815-PRX GWTS	**01/31/2010**	**NA**	**NA**	**NR**
815-PRX GWTS	**02/03/2010**	**7.94**	**7.52**	**NR**
815-PRX GWTS	**03/09/2010**	**NA**	**7.8**	**NR**
815-PRX GWTS	**04/13/2010**	**7.91**	**7.85**	**NR**
815-PRX GWTS	**05/04/2010**	**NA**	**7.46**	**NR**
815-PRX GWTS	**06/30/2010**	**NA**	**NA**	**NR**
815-DSB GWTS	**01/25/2010**	**NM**	**7**	**NR**
815-DSB GWTS	**02/09/2010**	**NA**	**7**	**NR**

A-1 (Con't.). Results of infuent and effluent pH, and effluent dissolved oxygen monitoring, January through June 2010.

Sample Location	Sample Date	Influent pH Result	Effluent pH Result	Effluent Dissolved Oxygen (mg/L)
815-DSB GWTS	**03/09/2010**	**NA**	**7**	**NR**
815-DSB GWTS	**04/07/2010**	**7**	**7**	**NR**
815-DSB GWTS	**05/11/2010**	**NA**	**7**	**NR**
815-DSB GWTS	**06/07/2010**	**NA**	**7**	**NR**
817-SRC GWTS	**01/31/2010**	**NA**	**NA**	**NR**
817-SRC GWTS	**02/01/2010**	**7**	**7**	**NR**
817-SRC GWTS	**03/09/2010**	**NA**	**7.88**	**NR**
817-SRC GWTS	**04/13/2010**	**8.11**	**8.04**	**NR**
817-SRC GWTS	**05/05/2010**	**NA**	**7.83**	**NR**
817-SRC GWTS	**06/02/2010**	**NA**	**7.48**	**NR**
817-PRX GWTS	**01/31/2010**	**NA**	**NA**	**NR**
817-PRX GWTS	**02/09/2010**	**7.79**	**7.52**	**NR**
817-PRX GWTS	**03/09/2010**	**NA**	**7.38**	**NR**
817-PRX GWTS	**04/13/2010**	**7.75**	**7.6**	**NR**
817-PRX GWTS	**05/04/2010**	**NA**	**7.21**	**NR**
817-PRX GWTS	**06/02/2010**	**NA**	**7.42**	**NR**
829-SRC GWTS	**01/31/2010**	**NM**	**NA**	**NR**
829-SRC GWTS	**02/28/2010**	**NA**	**NA**	**NR**
829-SRC GWTS	**03/31/2010**	**NA**	**NA**	**NR**
829-SRC GWTS	**04/30/2010**	**NA**	**NA**	**NR**
829-SRC GWTS	**05/17/2010**	**7.83**	**7.45**	**NR**
829-SRC GWTS	**06/30/2010**	**NA**	**NA**	**NR**
Building 850/Pit 7 Complex OU				
PIT7-SRC GWTS	**01/31/2010**	**NM**	**NA**	**NR**
PIT7-SRC GWTS	**02/28/2010**	**NA**	**NA**	**NR**
PIT7-SRC GWTS	**03/18/2010**	**NA**	**7**	**NR**
PIT7-SRC GWTS	**04/21/2010**	**NM**	**7**	**NR**
PIT7-SRC GWTS	**05/05/2010**	**NA**	**7**	**NR**
PIT7-SRC GWTS	**06/02/2010**	**NA**	**7**	**NR**

A-1 (Con't.). Results of infuent and effluent pH, and effluent dissolved oxygen monitoring, January through June 2010.

Sample Location	Sample Date	Influent pH Result	Effluent pH Result	Effluent Dissolved Oxygen (mg/L)
Building 854 OU				
854-SRC GWTS	**01/31/2010**	**NM**	**NA**	**NR**
854-SRC GWTS	**02/28/2010**	**NA**	**NA**	**NR**
854-SRC GWTS	**03/17/2010**	**NA**	**7**	**NR**
854-SRC GWTS	**04/06/2010**	**7**	**7**	**NR**
854-SRC GWTS	**05/04/2010**	**NA**	**7**	**NR**
854-SRC GWTS	**06/02/2010**	**NA**	**7**	**NR**
854-PRX GWTS	**01/31/2010**	**NM**	**NA**	**NR**
854-PRX GWTS	**02/18/2010**	**NA**	**7**	**NR**
854-PRX GWTS	**03/30/2010**	**NA**	**7**	**NR**
854-PRX GWTS	**04/30/2010**	**NM**	**NA**	**NR**
854-PRX GWTS	**05/20/2010**	**NA**	**7**	**NR**
854-PRX GWTS	**06/07/2010**	**NA**	**7**	**NR**
854-DIS GWTS	**01/31/2010**	**NM**	**NA**	**NR**
854-DIS GWTS	**02/09/2010**	**NA**	**7**	**NR**
854-DIS GWTS	**03/09/2010**	**NA**	**7**	**NR**
854-DIS GWTS	**04/07/2010**	**7**	**7**	**NR**
854-DIS GWTS	**05/04/2010**	**NA**	**7**	**NR**
854-DIS GWTS	**06/02/2010**	**NA**	**7**	**NR**
832 Canyon OU				
832-SRC GWTS	**01/31/2010**	**NA**	**NA**	**NR**
832-SRC GWTS	**02/01/2010**	**7.76**	**7.02**	**NR**
832-SRC GWTS	**03/02/2010**	**NA**	**7.04**	**NR**
832-SRC GWTS	**04/06/2010**	**7.82**	**7.56**	**NR**
832-SRC GWTS	**05/04/2010**	**NA**	**7.81**	**NR**
832-SRC GWTS	**06/02/2010**	**NA**	**7.54**	**NR**
830-SRC GWTS	**01/11/2010**	**8.22**	**7.25**	**NR**
830-SRC GWTS	**02/02/2010**	**NA**	**7.41**	**NR**
830-SRC GWTS	**03/02/2010**	**NA**	**7.37**	**NR**

A-1 (Con't.). Results of infuent and effluent pH, and effluent dissolved oxygen monitoring, January through June 2010.

Sample Location	Sample Date	Influent pH Result	Effluent pH Result	Effluent Dissolved Oxygen (mg/L)
830-SRC GWTS	04/06/2010	7.74	6.85	NR
830-SRC GWTS	05/04/2010	NA	7.41	NR
830-SRC GWTS	06/02/2010	NA	7.01	NR
830-DISS GWTS	01/31/2010	NM	NA	NR
830-DISS GWTS	02/09/2010	NA	7	NR
830-DISS GWTS	03/09/2010	NA	7	NR
830-DISS GWTS	04/06/2010	7	7	NR
830-DISS GWTS	05/11/2010	NA	7	NR
830-DISS GWTS	06/15/2010	NA	7	NR

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 = Ground water 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

Building 834 T2 Area *In Situ* Bioremediation Monitoring Data

B-1. Results of light hydrocarbon monitoring for the Building 834 T2 Area bioremediation treatability Study.

Sample Location	Sample Date	Ethane (μg/L)	Ethene (μg/L)	Methane (μg/L)
W-834-1824	NS	–	–	–
W-834-1825	3/9/10	0.025	15	12,000
W-834-1833	3/9/10	0.018	0.2	1.3
W-834-T2	3/9/10	1.6	690	13,000

Notes:

See Acronyms and Abbreviations in the Tables section of this report for definitions.

B-2. Results of oxygen-reduction potential (ORP) monitoring for the Building 834 T2 Area bioremediation treatability Study.

Date	W-834-1824 (mv)	W-834-1825 (mv)	W-834-1833 (mv)	W-834-T2 (mv)
2/9/10	-268	–	54	–
2/16/10	–	–	–	-143
3/9/10	–	-154	68	-85

Notes:

***In Situ* ORP monitoring discontinued after August, 2009; ORP monitoring conducted at surface with Ultra Meter.**

See Acronyms and Abbreviations in the Tables section of this report for definitions.

LAWRENCE LIVERMORE
NATIONAL LABORATORY

Lawrence Livermore National Security, LLC • Livermore, California • 94551