

**MONTHLY PROGRESS REPORT #250
FOR JANUARY 2018**

EPA REGION I ADMINISTRATIVE ORDERS SDWA 1-97-1019 and 1-2000-0014

**JOINT BASE CAPE COD (JBCC)
TRAINING RANGE AND IMPACT AREA**

The following summary of progress is for the period from 1 January to 31 January 2018.

1. SUMMARY OF REMEDIATION ACTIONS

The following is a description of Remediation Actions (RA) underway at Camp Edwards as of January 2018.

Demolition Area 1 Comprehensive Groundwater RA

The Demolition Area 1 Comprehensive Groundwater RA consists of the removal and treatment of contaminated groundwater to control further migration of explosives compounds and perchlorate. Extraction, treatment, and recharge (ETR) systems at Frank Perkins Road, Pew Road, Base Boundary, and the Leading Edge include extraction wells, ex-situ treatment processes to remove explosives compounds and perchlorate from the groundwater, and injection wells to return treated water to the aquifer.

The Frank Perkins Road Treatment Facility has been optimized as part of the Environmental and System Performance Monitoring (ESPM) program at Demolition Area 1. The treatment facility continues to operate at a flow rate of 175 gpm, with over 2.533 billion gallons of water treated and re-injected as of 26 January 2018. The following Frank Perkins Road facility shut downs occurred in January:

- EW-658 shut down at 1320 on 4 January 2018 due to a power outage caused by the snowstorm and was restarted at 0914 on 5 January 2018; and
- Shut down at 1145 on 5 January 2018 due to a power outage. When power was restored, it was found that the program had been lost. Subcontractor was onsite on 12 January 2018 to reload the program, and the Treatment Facility was restarted at 0840 on 12 January 2018.

The Pew Road Mobile Treatment Unit (MTU) continues to operate at a flow rate of 103 gpm with over 557.2 million gallons of water treated and re-injected as of 26 January 2018. The following Pew Road MTU shut downs occurred in January:

- Shut down at 0852 on 4 January 2018 due to a power outage caused by the snowstorm and was restarted at 1130 on 5 January 2018.
- Shut down at 1145 on 5 January 2018 due to a power outage and was restarted at 1400 on 5 January 2018; and
- Shut down at 1200 on 30 January 2018 to drain GAC vessels #5 and #6 for carbon change out on 31 January 2018. CFS was onsite on 31 January 2018 to perform carbon change out. Fresh carbon was wetted from the bottom up to allow for overnight soak. The MTU was restarted at 0745 on 1 February 2018.

The Base Boundary MTU is operating at a flow rate of 65 gpm with over 188.0 million gallons of water treated and re-injected as of 26 January 2018. No Base Boundary MTU shut downs occurred in January.

The Leading Edge system continues to operate at a flow rate of 100 gpm with over 88.2 million gallons of water treated and re-injected as of 26 January 2018. The following Leading Edge system shut downs occurred in January:

- Shut down at 1234 on 4 January 2018 due to a power outage caused by the snowstorm and was restarted at 1155 on 5 January 2018.

J-2 Range Groundwater RA

Northern Plant

The J-2 Range Northern Treatment facility consists of removal and treatment of contaminated groundwater to control further migration of explosives compounds and perchlorate. The Extraction, Treatment, and Re-infiltration system includes three extraction wells, ex-situ treatment process to remove explosives compounds and perchlorate from the groundwater, and an infiltration basin to return treated water to the aquifer.

The Northern Treatment Building continues to operate at a flow rate of 225 gpm. As of 26 January 2018, over 965.8 million gallons of water have been treated and re-injected. The following Northern Treatment Building shut downs occurred in January:

- Shut down at 0852 on 4 January 2018 due to a power outage caused by the snowstorm and was restarted at 0935 on 5 January 2018.

The Northern MTUs E and F continue to operate at a flow rate of 250 gpm. As of 26 January 2018, over 1.420 billion gallons of water have been treated and re-injected. The following J-2 Range Northern MTU shut down occurred in January:

- MTU E shut down at 1543 on 4 January 2018 due to a power outage caused by the snowstorm and was restarted at 0959 on 5 January 2018; and
- MTU F shut down at 0853 on 4 January 2018 due to a power outage caused by the snowstorm and was restarted at 0953 on 5 January 2018.

Eastern Plant

The J-2 Range Eastern Treatment facility consists of removal and treatment of groundwater to minimize downgradient migration of explosives compounds and perchlorate. The ETI system includes the following components: three extraction wells in an axial array, an ex-situ treatment process consisting of an ion exchange (IX) resin and granular activated carbon (GAC) media to treat perchlorate and explosives compounds and three infiltration trenches located along the lateral boundaries of the plume where treated water will enter the vadose zone and infiltrate into the aquifer. The J-2 Range Eastern system is running at a combined total flow rate of 495 gpm.

The MTUs H and I continue to operate at a flow rate of 250 gpm. As of 26 January 2018, over 1.039 billion gallons of water have been treated and re-injected. No MTU H and I shut downs occurred in January.

MTU J continues to operate at a flow rate of 120 gpm. As of 26 January 2018, over 479.9 million gallons of water have been treated and re-injected. No shut downs of MTU J occurred in January.

MTU K continues to operate at a flow rate of 125 gpm. As of 26 January 2018, over 593.0 million gallons of water have been treated and re-injected. The following shut downs of MTU K occurred in January:

- MTU K was turned off at 1305 on 30 January 2018 to drain GAC vessels #1 and #2 for carbon changeout on 31 January 2018. CFS was onsite on 31 January 2018 to perform carbon changeout. Fresh carbon was wetted from the bottom up to allow for overnight soak. The MTU was restarted at 0815 on 1 February 2018.

J-3 Range Groundwater RA

The J-3 Range Groundwater RA consists of removal and treatment of contaminated groundwater to control further migration of explosives compounds and perchlorate. The ETR system includes four extraction wells, ex-situ treatment process to remove explosives compounds and perchlorate from the groundwater and use of the existing Fuel Spill-12 (FS-12) infiltration gallery to return treated water to the aquifer.

The J-3 system is currently operating at a flow rate of 235 gpm (while J3EW0032 is running at 45 gpm instead of 65 gpm). As of 26 January 2018, over 1.077 billion gallons of water have been treated and re-injected. The following J-3 Range system shut downs occurred in January:

- J3EWIP1 tripped at 0221 on 30 October 2017, during a power outage, and would not restart; alarm was "VFD Fault" "Precharge Error" and would not clear. The VFD was replaced on 2 January 2018 and was programmed on 3 January 2018. J3EWIP1 was restarted at 1020 on 3 January 2018;
- Extraction wells 90EW0001 and J3EW0032 shut down at 0910 on 4 January 2018 due to a power outage caused by the snowstorm and both wells were restarted at 1105 on 5 January 2018; and
- J3EW0032 shut down at 0430 on 7 January 2018; alarm was "Lost Communication to well J3EW0032" and there was no power to the VFD panel at the well vault. BETCO was contacted and was onsite on 9 January 2018. It was determined that the VFD had to be replaced. BETCO installed a new VFD at J3EW0032 on 9 January 2018. Programming the new VFD was performed on 12 January 2018 and J3EW0032 was restarted at 1130 on 12 January 2018; when J3EW0032 was restarted, the well was only able to run at 45 gpm instead of the 65 gpm normal operation. Additional work is required on the new drive, and will be addressed in February.

J-1 Range Groundwater RA

Southern Plant

The J-1 Range Southern Groundwater RA consists of removal and treatment of contaminated groundwater to control further migration of explosives compounds. The ETR system includes two extraction wells, ex-situ treatment process to remove explosives compounds from the groundwater, and an infiltration trench to return treated water to the aquifer.

The Southern MTU continues to operate at a flow rate of 125 gpm. As of 26 January 2018, over 460.2 million gallons of water have been treated and re-injected. No J-1 Range Southern system shut downs occurred in January.

Northern Plant

The J-1 Range Northern Groundwater RA consists of removal and treatment of contaminated groundwater to control further migration of explosives compounds and perchlorate. The ETR system includes two extraction wells, ex-situ treatment process to remove explosives compounds and perchlorate from the groundwater, and an infiltration trench to return treated water to the aquifer.

The Northern MTU continues to operate at a total system flow rate of 250 gpm. As of 26 January 2018, over 533.9 million gallons of water have been treated and re-injected. No J-1 Range Northern MTU shut downs occurred in January.

Central Impact Area RA

The Central Impact Area (CIA) Groundwater treatment facility consists of removal and treatment of groundwater to minimize downgradient migration of explosives compounds and perchlorate. The ETR system includes the following components: three extraction wells, an ex-situ treatment process consisting of an ion exchange (IX) resin and granular activated carbon (GAC) media to treat explosives compounds and three infiltration galleries to return treated water to the aquifer. The CIA systems 1, 2, and 3 continue to run at a combined total flow rate of 750 gpm. As of 26 January 2018, over 1.211 billion gallons of water have been treated and re-injected. The following CIA treatment facility shut downs occurred in January:

- System 1 shut down at 1545 on 4 January 2018 due to a power outage caused by a snowstorm and was restarted at 1021 on 5 January 2018;
- System 2 shut down at 1545 on 4 January 2018 due to a power outage caused by a snowstorm and was restarted at 1000 on 5 January 2018;
- System 1 shut down at 1145 on 5 January 2018 due to a power outage. System was restarted at 1430 on 5 January 2018;
- System 2 shut down at 1145 on 5 January 2018 due to a power outage. System was restarted at 1414 on 5 January 2018;
- System 1 shut down at 0855 on 9 January 2018 due to a power outage. System was restarted at 0950 on 9 January 2018;
- System 2 shut down at 0852 on 9 January 2018 due to a power outage. System was restarted at 1035 on 9 January 2018; and
- System 3 shut down at approximately 1130 on 29 December 2017 due to a power supply interruption. On 28 December 2017, a damaged power pole on Canal View Road was reported to EverSource. EverSource replaced the damaged power pole and switch and System 3 was restarted at 0820 on 11 January 2018.

SUMMARY OF ACTIONS TAKEN

Samples collected during the reporting period are summarized in Table 1.

Process water samples were collected at Frank Perkins Road, Pew Road, Base Boundary, Leading Edge, J-1 Range Southern, J-1 Range Northern, J-2 Range Northern, J-2 Range Eastern, J-3 Range, and Central Impact Area (CIA).

Environmental and system performance monitoring groundwater samples were collected at J-2 Range Northern, J-3 Range, Central Impact Area, and L Range.

Drilling was completed at BH-697 (Profile B) and well screen MW-696M1 (at BH-696, Profile C) was installed at Demolition Area 1.

Drilling was completed at BH-698 (Profile A) in Demolition Area 1 and groundwater profile samples were collected.

Performed Vegetation removal on roads and existing well pads for Demolition Area 1, Demolition Area 2, L Range, J-3 Range, J-1 Range Northern, Western Boundary, Former A Range, the Small Arms Ranges, and CIA.

Replaced road boxes at MW-430 and MW-549 in J-1 Range Northern.

Pulled and decontaminated four pumps from wells at Western Boundary.

Performed routine inspections of BEM cover at the CIA to ensure cover is secure and intact.

JBCC IAGWSP Tech Update Meeting Minutes 11 January 2018

Project and Fieldwork Update

Watermark is drilling at Demolition Area 1 location B which is the middle of three wells on the powerline right-of-way between Pew Road and the Base Boundary. They were at 266' when a hydraulic pump broke. A new pump is expected today and they hope to be back up and drilling tomorrow. Power at the Frank Perkins Road treatment system went off on January 5th and while the power has been restored, the system's program was lost. The contractor will be on-site tomorrow to re-program the system. The J-3 system lost another VFD it was replaced but also needs to be re-programmed which the contractor will do tomorrow. The CIA 3 system was damaged. There was an electrical fire after a power outage due to a faulty EverSource switch. Because power was out over the weekend during very cold temperatures parts of the system froze. EverSource replaced the switch and restored power but when they tried to restart the system it was frozen. Portable heaters were used to thaw/heat up the system and it was restarted today. A pressure gauge needs to be replaced. All other systems are up and running.

There is no field work in the Small Arms Ranges or Central Impact Area. A new contract will be set up to finish the remaining Small Arms Ranges work. There is a meeting on January 31st to discuss the next phase of work in the Central Impact Area. Planning to attend are the IAGWSP, USACE, EPA, MassDEP Parsons (lead contractor on the project note covering Area 1) and TetraTech (lead contractor on work plan detailing Phase 3 and prior work).

Action Items

The action items were discussed and updated.

J-2 Range Northern Annual Environmental Monitoring Report Presentation

A presentation was provided on the J-2 Range Northern Annual Environmental Monitoring Report. It was noted that during the reporting period (November 2016 to October 2017), new plume shells were developed. Northern groundwater treatment system performance statistics were reviewed and discussed. During the reporting period, at MTUs E and F (Wood Road) 123.6 million gallons of groundwater were treated, 2.94 pounds of perchlorate and 0.49 pounds of RDX were removed. At MTU G (Jefferson Road) 117.3 million gallons of water were treated, 0.49 pounds of perchlorate and zero pounds of RDX were removed.

Sampling locations, groundwater monitoring results, and trends were reviewed and discussed. Perchlorate concentrations ranged from non-detect to 49 µg/L (MW-587M2) and there were 14 wells with concentrations above 2 µg/L and 2 wells with concentrations above 15 µg/L. RDX concentrations ranged from non-detect to 2.1 µg/L (MW-585M3) and there were 3 wells with concentrations above 0.6 µg/L and one well with concentrations above 2 µg/L. An overview of the hydraulic analysis completed in August 2017 was presented. It was noted that the numerical model indicates that the perchlorate plume is being captured and that the smaller plumelets are expected to diminish based on long-term modeling. Also, stagnation points downgradient of each extraction well are creating a disjointed plume.

Decision Document cleanup timelines were discussed. Perchlorate and RDX measurements indicate that the plume is reasonably well predicted by the fate and transport model and cleanup times are consistent with the DD timelines. IAGWSP recommends making no modifications to plant operations or extraction rates. IAGWSP recommends adding twelve well screens and the removal of one well screen from the program to provide for a better representation of the capture zones in the vicinity of each extraction well. Six wells are being recommended for removal from the program and a reduction of sampling frequencies is proposed at 27 wells. Regulator comments are pending on the report.

J-2 Range Eastern Annual Environmental Monitoring Report Presentation

A presentation was provided on the J-2 Range Eastern Annual Environmental Monitoring Report. It was noted that during the reporting period (November 2016 to October 2017), new plume shells were developed. The J-2 Range Eastern groundwater treatment system performance statistics were reviewed and discussed. During the reporting period, at MTU J, 59.2 million gallons of groundwater was treated, 0.28 pounds of perchlorate and 0.05 pounds of RDX were removed. At MTUs H and I, 122.3 million gallons of water were treated, 1.38 pounds of perchlorate and 0.28 pounds of RDX were removed. At MTU K, 61.5 million gallons of water were treated, 0.10 pounds of perchlorate and 0.22 pounds of RDX were removed.

Sampling locations, groundwater monitoring results, and trends were reviewed and discussed. Perchlorate concentrations ranged from non-detect to 44.3 µg/L (MW-368M1) and there were 13 wells with concentrations above 2 µg/L and 2 wells with concentrations above 15 µg/L. RDX concentrations ranged from non-detect to 9.2 µg/L (MW-368M1) and there were 7 wells with concentrations above 0.6 µg/L, 4 wells with concentrations above 2 µg/L, and no wells greater than 20 µg/L. An overview of the hydraulic analyses completed in February and August 2017 was presented. It was noted that the numerical model indicates that the perchlorate and RDX plumes are being captured and that stagnation points downgradient of each extraction well are creating a disjointed plume.

Decision Document cleanup timelines were discussed. Perchlorate and RDX measurements indicate that the plume is reasonably well predicted by the fate and transport model and cleanup times are consistent with the DD timelines. IAGWSP recommends making no modifications to plant operations or extraction rates. IAGWSP recommends adding thirteen well screens and the removal of five well screens from the program to provide for a better representation of the capture zones in the vicinity of each extraction well. Eight wells are being recommended for removal from the program and a reduction of sampling frequencies is proposed at five wells. Regulator comments are pending on the report.

JBCC IAGWSP Tech Update Meeting Minutes 25 January 2018

Project and Fieldwork Update

Watermark is drilling at Demolition Area 1 location A which is the southernmost of three wells on the powerline right-of-way between Pew Road and the Base Boundary. They are currently at 106'. The drill rig will next install the well at location B. Depending on results, they will then either install a well at Location A or de-mob. Groundwater sampling crews are in the L Range. It was noted that during the upcoming CIA spring sampling round, 6 shallow well screens will be sampled at EPA's request. EPA noted the locations were CIA wells in the source area near areas where Metal Mapper work had been performed. The USACE Real Estate office is working on rights-of- entry in order to abandon wells in Bourne associated with the Western Boundary.

There is no fieldwork in the Small Arms Ranges or Central Impact Area. A new contract will be set up to finish the remaining Small Arms Ranges work. There is a meeting on January 31st to discuss the next phase of work in the Central Impact Area and source work will start back up again in the March/April timeframe.

Upcoming Monitoring Wells

Discussion was held on current and proposed monitoring wells. Recently drilled Demolition Area 1 wells were shown. Three wells have been drilled. There are two optional profile locations that likely will not be needed based on the results seen so far. There is one additional location being proposed upgradient of Pew Road which was pointed out on the figure. It was noted that accessibility may be an issue but that they think it can be reached via a nearby extraction well location. For CIA, a well is being proposed north of EW-3 near the base boundary to check for off-base migration. EPA noted that they were considering a few other wells to help evaluate the cleanup projections for some of the small lobes of the plume. At the J-3 Range, a deeper well is being proposed at MW-227 to delineate deeper contamination that may be bypassing J3EWIP2. For J-1 south, there are a few additional drive points that may be needed to delineate the source area followed by permanent monitoring wells to monitor the upgradient plume.

Finally, for the J-2 Range, as part of the post-decision document geophysical and soil investigation, four water table wells are proposed in Grids O13, P14, P22 and P18 to monitor RDX and perchlorate contamination in the source area. IAGWSP will prepare project notes for all the proposed well locations.

Action Items

The action items were discussed and updated.

JBCC Cleanup Team Meeting

The next meeting of the JBCC Cleanup Team (JBCCCT) is scheduled for February 7, 2018. The Cleanup Team meeting discusses late breaking news and responses to action items, as well as updates from the IAGWSP and the Installation Restoration Program (IRP). The JBCCCT meetings provide a forum for community input regarding issues related to both the IRP and the IAGWSP.

SUMMARY OF DATA RECEIVED

Table 2 summarizes the validated detections of explosives compounds and perchlorate for all groundwater results received from 1 January to 31 January 2018. These results are compared to the Maximum Contaminant Levels/Health Advisory (MCL/HA) values for respective analytes. Explosives and perchlorate are the primary contaminants of concern (COC) at Camp Edwards.

There are currently twelve operable units (OU) under investigation and cleanup at Camp Edwards. The OUs include: Central Impact Area, Demolition Area 1, Demolition Area 2, Former A Range, J-1 Range, J-2 Range, J-3 Range, L Range, Northwest Corner, Small Arms Ranges, Training Areas, and Western Boundary. Environmental monitoring reports for each OU are generated each year to evaluate the current year groundwater results. These reports are available on the site Environmental Data Management System (EDMS) and at the project document repositories (IAGWSP office and Jonathan Bourne Library).

2. DELIVERABLES SUBMITTED

Deliverables submitted during the reporting period include the following:

- | | |
|---|-----------|
| • Monthly Progress Report No. 249 for December 2017 | 1/10/2018 |
| • Plan for Phase III Area 1, Source Removal Action, Central Impact Area
– Project Note | 1/08/2018 |

3. SCHEDULED ACTIONS

The following documents are being prepared or revised during February 2018:

- Training Areas Draft Investigation Report;
- Training Areas Remedy Selection Plan;
- Training Areas Draft Decision Document;
- Land Use Controls Monitoring Report;
- 2017 CIA Source Removal Annual Report;
- 2018 CIA Source Area Workplan
- Technology Evaluation and Attenuation Study Reports;
- J-1 Range Southern Drive Point and Water Table Well Locations Project Note;
- Five Year Review Report;
- J-2 Range Post-DD Phase 2 Geophysical and Soil Completion of Work Report;
- J-3 Range Post-DD Geophysical and Soil Completion of Work Report;
- Proposed Wells Project Notes (Demolition Area 1, J-3 Range, J-2 Ranges, CIA);
- Northwest Corner 2017 Annual Environmental Monitoring Report;
- J-3 Range 2017 Annual Environmental Monitoring Report; and
- J-2 Range Eastern and J-2 Range Northern 2017 Annual Environmental Monitoring Report.

TABLE 1
Sampling Progress: 1 January to 31 January 2018

Area Of Concern	Location	Field Sample ID	Sample Type	Date Sampled	Matrix	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)
Demolition Area 1	BH-698	D1P-A_271-276	N	01/30/2018	GW Profile	271	276
J2 Range Northern	MW-327M3	MW-327M3_S18	N	01/30/2018	Ground Water	220.2	230.2
J2 Range Northern	MW-620M1	MW-620M1_S18	N	01/30/2018	Ground Water	268.6	278.6
J2 Range Northern	MW-337M1	MW-337M1_S18	N	01/30/2018	Ground Water	243.7	253.7
Demolition Area 1	BH-698	D1P-A_261-266	N	01/30/2018	GW Profile	261	266
J2 Range Northern	MW-635M1	MW-635M1_S18	N	01/29/2018	Ground Water	265.4	275.4
L Range	90MW0031	90MW0031_S18	N	01/29/2018	Ground Water	195.3	200.2
Demolition Area 1	BH-698	D1P-A_251-256	N	01/29/2018	GW Profile	251	256
L Range	90MW0034	90MW0034_S18	N	01/29/2018	Ground Water	94	99
Demolition Area 1	BH-698	D1P-A_241-246	N	01/29/2018	GW Profile	241	246
Demolition Area 1	BH-698	D1P-A_231-236	N	01/26/2018	GW Profile	231	236
Demolition Area 1	BH-698	D1P-A_221-226	N	01/26/2018	GW Profile	221	226
Demolition Area 1	BH-698	D1P-A_221-226D	FD	01/26/2018	GW Profile	221	226
Demolition Area 1	BH-698	D1P-A_211-216	N	01/26/2018	GW Profile	211	216
Demolition Area 1	BH-698	D1P-A_201-206	N	01/25/2018	GW Profile	201	206
Demolition Area 1	BH-698	D1P-A_191-196	N	01/25/2018	GW Profile	191	196
Demolition Area 1	BH-698	D1P-A_181-186	N	01/25/2018	GW Profile	181	186
L Range	MW-530S	MW-530S_S18	N	01/25/2018	Ground Water	97	107
L Range	MW-529M1	MW-529M1_S18	N	01/25/2018	Ground Water	107	117
L Range	MW-325M1	MW-325M1_S18	N	01/24/2018	Ground Water	172.4	182.4
L Range	MW-650M1	MW-650M1_S18	N	01/24/2018	Ground Water	260	270
L Range	MW-651M1	MW-651M1_S18	N	01/24/2018	Ground Water	242.3	252.3
L Range	MW-242M1	MW-242M1_S18	N	01/24/2018	Ground Water	235	245
L Range	MW-242M1	MW-242M1_S18D	FD	01/24/2018	Ground Water	235	245
L Range	MW-288M1	MW-288M1_S18	N	01/23/2018	Ground Water	190	200
L Range	MW-596M1	MW-596M1_S18	N	01/23/2018	Ground Water	231.1	241.1
L Range	MW-595M2	MW-595M2_S18	N	01/23/2018	Ground Water	205.3	215.3
L Range	MW-595M1	MW-595M1_S18	N	01/23/2018	Ground Water	255.3	265.3
L Range	MW-153M2	MW-153M2_S18	N	01/22/2018	Ground Water	144	154
L Range	MW-153M1	MW-153M1_S18	N	01/22/2018	Ground Water	199	209
J3 Range	MW-237S	MW-237S_S18	N	01/18/2018	Ground Water	49	59
Demolition Area 1	BH-697	D1P-B_281-286	N	01/18/2018	GW Profile	281	286
J3 Range	MW-356S	MW-356S_S18	N	01/18/2018	Ground Water	105.1	115.1
Demolition Area 1	BH-697	D1P-B_271-276	N	01/17/2018	GW Profile	271	276
Central Impact Area	SMR-4	SMR-4_S18	N	01/17/2018	Ground Water	102	112
Demolition Area 1	PR-EFF	PR-EFF-142A	N	01/17/2018	Process Water	0	0
Demolition Area 1	PR-MID-2	PR-MID-2-142A	N	01/17/2018	Process Water	0	0
Demolition Area 1	PR-MID-1	PR-MID-1-142A	N	01/17/2018	Process Water	0	0
Demolition Area 1	PR-INF	PR-INF-142A	N	01/17/2018	Process Water	0	0
Demolition Area 1	FPR-2-EFF-A	FPR-2-EFF-A-142A	N	01/17/2018	Process Water	0	0
J3 Range	J3EW0032	J3EW0032_S18	N	01/17/2018	Ground Water	102	152
J3 Range	J3EW0032	J3EW0032_S18D	FD	01/17/2018	Ground Water	102	152
Demolition Area 1	FPR-2-GAC-MID1A	FPR-2-GAC-MID1A-142A	N	01/17/2018	Process Water	0	0
Demolition Area 1	FPR2-POST-IX-A	FPR2-POST-IX-A-142A	N	01/17/2018	Process Water	0	0
Demolition Area 1	FPR-2-INF	FPR-2-INF-142A	N	01/17/2018	Process Water	0	0
Demolition Area 1	D1LE-EFF	D1LE-EFF-18A	N	01/17/2018	Process Water	0	0
Demolition Area 1	D1LE-MID2	D1LE-MID2-18A	N	01/17/2018	Process Water	0	0
Demolition Area 1	D1LE-MID1	D1LE-MID1-18A	N	01/17/2018	Process Water	0	0
Demolition Area 1	D1LE-INF	D1LE-INF-18A	N	01/17/2018	Process Water	0	0
J3 Range	90PLT01006	90PLT01006_S18	N	01/17/2018	Process Water	0	0
Demolition Area 1	D1-EFF	D1-EFF-90A	N	01/17/2018	Process Water	0	0
Demolition Area 1	D1-MID-2	D1-MID-2-90A	N	01/17/2018	Process Water	0	0
Demolition Area 1	D1-MID-1	D1-MID-1-90A	N	01/17/2018	Process Water	0	0
Demolition Area 1	D1-INF	D1-INF-90A	N	01/17/2018	Process Water	0	0
J1 Range Southern	J1S-EFF	J1S-EFF-122A	N	01/16/2018	Process Water	0	0
J3 Range	MW-125S	MW-125S_S18	N	01/16/2018	Ground Water	50	60
J1 Range Southern	J1S-MID-2	J1S-MID-2-122A	N	01/16/2018	Process Water	0	0
J1 Range Southern	J1S-INF-2	J1S-INF-2-122A	N	01/16/2018	Process Water	0	0
J3 Range	J3-EFF	J3-EFF-136A	N	01/16/2018	Process Water	0	0

N = Normal Sample
FD = Field Duplicate

TABLE 1
Sampling Progress: 1 January to 31 January 2018

Area Of Concern	Location	Field Sample ID	Sample Type	Date Sampled	Matrix	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)
J3 Range	J3-MID-2	J3-MID-2-136A	N	01/16/2018	Process Water	0	0
J3 Range	J3-MID-1	J3-MID-1-136A	N	01/16/2018	Process Water	0	0
J3 Range	J3-INF	J3-INF-136A	N	01/16/2018	Process Water	0	0
J3 Range	MW-13S	MW-13S_S18	N	01/16/2018	Ground Water	73	83
Central Impact Area	CIA2-EFF	CIA2-EFF-48A	N	01/16/2018	Process Water	0	0
Central Impact Area	CIA2-MID2	CIA2-MID2-48A	N	01/16/2018	Process Water	0	0
Central Impact Area	CIA2-MID1	CIA2-MID1-48A	N	01/16/2018	Process Water	0	0
Central Impact Area	CIA2-INF	CIA2-INF-48A	N	01/16/2018	Process Water	0	0
Central Impact Area	CIA1-EFF	CIA1-EFF-48A	N	01/16/2018	Process Water	0	0
Central Impact Area	CIA1-MID2	CIA1-MID2-48A	N	01/16/2018	Process Water	0	0
Central Impact Area	CIA1-MID1	CIA1-MID1-48A	N	01/16/2018	Process Water	0	0
Central Impact Area	CIA1-INF	CIA1-INF-48A	N	01/16/2018	Process Water	0	0
J3 Range	MW-190M2	MW-190M2_S18	N	01/16/2018	Ground Water	110	120
Central Impact Area	CIA3-EFF	CIA3-EFF-19A	N	01/16/2018	Process Water	0	0
Central Impact Area	CIA3-MID2	CIA3-MID2-19A	N	01/16/2018	Process Water	0	0
Central Impact Area	CIA3-MID1	CIA3-MID1-19A	N	01/16/2018	Process Water	0	0
Central Impact Area	CIA3-INF	CIA3-INF-19A	N	01/16/2018	Process Water	0	0
J3 Range	MW-347S	MW-347S_S18	N	01/11/2018	Ground Water	105	115
J2 Range Eastern	J2E-EFF-IH	J2E-EFF-IH-112A	N	01/11/2018	Process Water	0	0
J2 Range Eastern	J2E-MID-2H	J2E-MID-2H-112A	N	01/11/2018	Process Water	0	0
J2 Range Eastern	J2E-MID-1H	J2E-MID-1H-112A	N	01/11/2018	Process Water	0	0
J3 Range	MW-364M1	MW-364M1_S18	N	01/11/2018	Ground Water	147	157
J2 Range Eastern	J2E-MID-2I	J2E-MID-2I-112A	N	01/11/2018	Process Water	0	0
J2 Range Eastern	J2E-MID-1I	J2E-MID-1I-112A	N	01/11/2018	Process Water	0	0
J2 Range Eastern	J2E-INF-I	J2E-INF-I-112A	N	01/11/2018	Process Water	0	0
J2 Range Eastern	J2E-EFF-K	J2E-EFF-K-112A	N	01/11/2018	Process Water	0	0
J2 Range Eastern	J2E-MID-2K	J2E-MID-2K-112A	N	01/11/2018	Process Water	0	0
J2 Range Eastern	J2E-MID-1K	J2E-MID-1K-112A	N	01/11/2018	Process Water	0	0
J2 Range Eastern	J2E-INF-K	J2E-INF-K-112A	N	01/11/2018	Process Water	0	0
J2 Range Eastern	J2E-EFF-J	J2E-EFF-J-112A	N	01/11/2018	Process Water	0	0
J3 Range	MW-383M2	MW-383M2_S18	N	01/11/2018	Ground Water	150.6	160.6
J2 Range Eastern	J2E-MID-2J	J2E-MID-2J-112A	N	01/11/2018	Process Water	0	0
J2 Range Eastern	J2E-MID-1J	J2E-MID-1J-112A	N	01/11/2018	Process Water	0	0
J2 Range Eastern	J2E-INF-J	J2E-INF-J-112A	N	01/11/2018	Process Water	0	0
Central Impact Area	MW-152M2	MW-152M2_S18	N	01/10/2018	Ground Water	154	164
Central Impact Area	MW-118M2	MW-118M2_S18	N	01/10/2018	Ground Water	116	126
Demolition Area 1	BH-697	D1P-B_261-266	N	01/09/2018	GW Profile	261	266
J3 Range	MW-636M2	MW-636M2_S18	N	01/09/2018	Ground Water	110.5	120.5
J3 Range	MW-636M1	MW-636M1_S18	N	01/09/2018	Ground Water	141.6	151.6
J3 Range	MW-653M2	MW-653M2_S18	N	01/09/2018	Ground Water	59.3	69.3
J3 Range	MW-653M1	MW-653M1_S18	N	01/09/2018	Ground Water	147.5	157.5
J3 Range	90EW0001	90EW0001_S18	N	01/08/2018	Ground Water	83.1	143.8
J3 Range	J3EWIP2	J3EWIP2_S18	N	01/08/2018	Ground Water	149.5	169.5
J3 Range	J3EWIP2	J3EWIP2_S18D	FD	01/08/2018	Ground Water	149.5	169.5
J3 Range	J3EWIP1	J3EWIP1_S18	N	01/08/2018	Ground Water	153	193
J3 Range	MW-637M3	MW-637M3_S18	N	01/08/2018	Ground Water	174.1	184.1
J2 Range Northern	J2N-EFF-G	J2N-EFF-G-136A	N	01/08/2018	Process Water	0	0
J2 Range Northern	J2N-MID-2G	J2N-MID-2G-136A	N	01/08/2018	Process Water	0	0
J2 Range Northern	J2N-MID-1G	J2N-MID-1G-136A	N	01/08/2018	Process Water	0	0
J2 Range Northern	J2N-INF-G	J2N-INF-G-136A	N	01/08/2018	Process Water	0	0
J2 Range Northern	J2N-EFF-EF	J2N-EFF-EF-136A	N	01/08/2018	Process Water	0	0
J2 Range Northern	J2N-MID-2F	J2N-MID-2F-136A	N	01/08/2018	Process Water	0	0
J2 Range Northern	J2N-MID-1F	J2N-MID-1F-136A	N	01/08/2018	Process Water	0	0
J2 Range Northern	J2N-INF-EF	J2N-INF-EF-136A	N	01/08/2018	Process Water	0	0
J3 Range	MW-637M2	MW-637M2_S18	N	01/08/2018	Ground Water	214.1	224.1
J2 Range Northern	J2N-MID-2E	J2N-MID-2E-136A	N	01/08/2018	Process Water	0	0
J2 Range Northern	J2N-MID-1E	J2N-MID-1E-136A	N	01/08/2018	Process Water	0	0
J1 Range Northern	J1N-EFF	J1N-EFF-51A	N	01/08/2018	Process Water	0	0
J1 Range Northern	J1N-MID2	J1N-MID2-51A	N	01/08/2018	Process Water	0	0

N = Normal Sample
FD = Field Duplicate

TABLE 1
Sampling Progress: 1 January to 31 January 2018

Area Of Concern	Location	Field Sample ID	Sample Type	Date Sampled	Matrix	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)
J1 Range Northern	J1N-MID1	J1N-MID1-51A	N	01/08/2018	Process Water	0	0
J1 Range Northern	J1N-INF2	J1N-INF2-51A	N	01/08/2018	Process Water	0	0
J3 Range	MW-637M1	MW-637M1_S18	N	01/08/2018	Ground Water	236.1	246.1
Demolition Area 1	BH-697	D1P-B_251-256	N	01/05/2018	GW Profile	251	256
Demolition Area 1	BH-697	D1P-B_251-256D	FD	01/05/2018	GW Profile	251	256
Demolition Area 1	BH-697	D1P-B_241-246	N	01/03/2018	GW Profile	241	246
Demolition Area 1	BH-697	D1P-B_231-236	N	01/03/2018	GW Profile	231	236

TABLE 2
VALIDATED EXPLOSIVE AND PERCHLORATE RESULTS
 Data Received January 2018

Area of Concern	Location ID	Field Sample ID	Top Depth (ft bgs)	Bottom Depth (ft bgs)	Date Sampled	Test Method	Analyte	Result Value	Qualifier	Units	MCL/HA	> MCL/HA	MDL	RL
Demolition Area 1	MW-31S	MW-31S_F17	98	103	12/19/2017	SW8330	4-Amino-2,6-dinitrotoluene	0.32		ug/L	7.3		0.015	0.20
Demolition Area 1	MW-31S	MW-31S_F17	98	103	12/19/2017	SW8330	2-Amino-4,6-dinitrotoluene	0.37		ug/L	7.3		0.016	0.20
Demolition Area 1	MW-31S	MW-31S_F17	98	103	12/19/2017	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	2.3		ug/L	0.60	X	0.036	0.20
Demolition Area 1	MW-31S	MW-31S_F17	98	103	12/19/2017	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	2.9		ug/L	400		0.025	0.20
Demolition Area 1	MW-31M	MW-31M_F17	113	123	12/19/2017	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	1.3		ug/L	400		0.025	0.20
Demolition Area 1	MW-77M	MW-77M2_F17	120	130	12/19/2017	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	1.4		ug/L	400		0.025	0.20
Demolition Area 1	MW-77M2	MW-77M2_F17	120	130	12/19/2017	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.9		ug/L	0.60	X	0.036	0.20
Demolition Area 1	MW-211M1	MW-211M1_F17	200	210	12/18/2017	SW6850	Perchlorate	0.082	J	ug/L	2.0		0.012	0.20
Demolition Area 1	MW-231M1	MW-231M1_F17	210.5	220.5	12/18/2017	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.52		ug/L	0.60		0.036	0.20
Demolition Area 1	MW-231M1	MW-231M1_F17	210.5	220.5	12/18/2017	SW6850	Perchlorate	2.0		ug/L	2.0	X	0.012	0.20
Demolition Area 1	MW-231M1	MW-231M1_F17D	210.5	220.5	12/18/2017	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.52		ug/L	0.60		0.036	0.20
Demolition Area 1	MW-663D	MW-663D_F17	240.6	250.6	12/18/2017	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.0		ug/L	0.60	X	0.036	0.20
Demolition Area 1	MW-663D	MW-663D_F17	240.6	250.6	12/18/2017	SW6850	Perchlorate	17.3		ug/L	2.0	X	0.012	0.20
Demolition Area 1	MW-663D	MW-663D_F17D	240.6	250.6	12/18/2017	SW6850	Perchlorate	17.7		ug/L	2.0	X	0.012	0.20
Demolition Area 1	MW-341M2	MW-341M2_F17	264.5	269.5	12/18/2017	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.75		ug/L	0.60	X	0.036	0.20
Demolition Area 1	MW-341M2	MW-341M2_F17	264.5	269.5	12/18/2017	SW6850	Perchlorate	2.4		ug/L	2.0	X	0.012	0.20
Demolition Area 1	MW-341M2	MW-341M2_F17D	264.5	269.5	12/18/2017	SW6850	Perchlorate	2.4		ug/L	2.0	X	0.012	0.20
Demolition Area 1	MW-659M1	MW-659M1_F17	120	130	12/18/2017	SW6850	Perchlorate	0.65		ug/L	2.0		0.012	0.20
J1 Range Northern	MW-303M3	MW-303M3_F17	139.7	149.7	12/07/2017	SW8330	4-Amino-2,6-dinitrotoluene	0.27		ug/L	7.3		0.015	0.20
J1 Range Northern	MW-303M2	MW-303M2_F17	235.1	245.1	12/07/2017	SW6850	Perchlorate	0.20		ug/L	2.0		0.012	0.20
J1 Range Northern	MW-303M2	MW-303M2_F17	235.1	245.1	12/07/2017	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	3.7		ug/L	400		0.025	0.20
J1 Range Northern	MW-303M2	MW-303M2_F17	235.1	245.1	12/07/2017	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	7.9		ug/L	0.60	X	0.036	0.20
J1 Range Northern	MW-303M2	MW-303M2_F17D	235.1	245.1	12/07/2017	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	3.9		ug/L	400		0.025	0.20
J1 Range Northern	MW-303M2	MW-303M2_F17D	235.1	245.1	12/07/2017	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	8.3		ug/L	0.60	X	0.036	0.20
J1 Range Northern	MW-303M1	MW-303M1_F17	299.1	309.1	12/07/2017	SW6850	Perchlorate	0.053	J	ug/L	2.0		0.012	0.20
J1 Range Northern	MW-164M1	MW-164M1_F17	227	237	12/06/2017	SW6850	Perchlorate	0.043	J	ug/L	2.0		0.012	0.20
J1 Range Northern	MW-590M2	MW-590M2_F17	238	248	12/06/2017	SW6850	Perchlorate	3.9		ug/L	2.0	X	0.012	0.20
J1 Range Northern	MW-590M1	MW-590M1_F17	258	268	12/06/2017	SW6850	Perchlorate	0.034	J	ug/L	2.0		0.012	0.20
J1 Range Northern	MW-584M2	MW-584M2_F17	228	238	12/06/2017	SW6850	Perchlorate	0.072	J	ug/L	2.0		0.012	0.20
J1 Range Northern	MW-584M1	MW-584M1_F17	248	258	12/06/2017	SW6850	Perchlorate	5.4		ug/L	2.0	X	0.012	0.20
J1 Range Northern	MW-401M3	MW-401M3_F17	228.5	238.5	12/05/2017	SW6850	Perchlorate	0.038	J	ug/L	2.0		0.012	0.20
J1 Range Northern	MW-401M1	MW-401M1_F17	256.1	266.1	12/05/2017	SW6850	Perchlorate	0.023	J	ug/L	2.0		0.012	0.20
J1 Range Northern	MW-606M2	MW-606M2_F17	193.2	203.2	12/05/2017	SW6850	Perchlorate	0.033	J	ug/L	2.0		0.012	0.20
J1 Range Northern	MW-606M1	MW-606M1_F17	233.3	243.3	12/05/2017	SW6850	Perchlorate	0.87		ug/L	2.0		0.012	0.20
Central Impact Area	MW-695S	MW-695S_R2	130	140	12/05/2017	SW6850	Perchlorate	0.057	J	ug/L	2.0		0.012	0.20
Central Impact Area	MW-695S	MW-695S_R2	130	140	12/05/2017	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.29		ug/L	400		0.025	0.20
Central Impact Area	MW-695S	MW-695S_R2	130	140	12/05/2017	SW8330	2-Amino-4,6-dinitrotoluene	0.41		ug/L	7.3		0.016	0.20
Central Impact Area	MW-695S	MW-695S_R2	130	140	12/05/2017	SW8330	4-Amino-2,6-dinitrotoluene	0.50		ug/L	7.3		0.015	0.20
Central Impact Area	MW-695S	MW-695S_R2	130	140	12/05/2017	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	3.2		ug/L	0.60	X	0.036	0.20
J1 Range Northern	MW-346M4	MW-346M4_F17	140	150	12/04/2017	SW6850	Perchlorate	0.019	J	ug/L	2.0		0.012	0.20

J = Estimated Result
 MDL = Method Detection Limit
 RL = Reporting Limit

TABLE 2
VALIDATED EXPLOSIVE AND PERCHLORATE RESULTS
Data Received January 2018

Area of Concern	Location ID	Field Sample ID	Top Depth (ft bgs)	Bottom Depth (ft bgs)	Date Sampled	Test Method	Analyte	Result Value	Qualifier	Units	MCL/HA	> MCL/HA	MDL	RL
J1 Range Northern	MW-346M3	MW-346M3_F17	175	185	12/04/2017	SW6850	Perchlorate	0.076	J	ug/L	2.0		0.012	0.20
J1 Range Northern	MW-346M2	MW-346M2_F17	205.3	215.3	12/04/2017	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.20		ug/L	400		0.025	0.20
J1 Range Northern	MW-346M2	MW-346M2_F17	205.3	215.3	12/04/2017	SW6850	Perchlorate	0.97		ug/L	2.0		0.012	0.20
J1 Range Northern	MW-346M2	MW-346M2_F17	205.3	215.3	12/04/2017	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	3.7		ug/L	0.60	X	0.036	0.20
J1 Range Northern	MW-346M2	MW-346M2_F17D	205.3	215.3	12/04/2017	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.20		ug/L	400		0.025	0.20
J1 Range Northern	MW-346M2	MW-346M2_F17D	205.3	215.3	12/04/2017	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	3.8		ug/L	0.60	X	0.036	0.20
J1 Range Northern	MW-346M1	MW-346M1_F17	245	255	12/04/2017	SW6850	Perchlorate	11.7		ug/L	2.0	X	0.012	0.20
J1 Range Northern	MW-346M1	MW-346M1_F17	245	255	12/04/2017	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	9.4		ug/L	0.60	X	0.036	0.20
J1 Range Northern	MW-346M1	MW-346M1_F17D	245	255	12/04/2017	SW6850	Perchlorate	11.3		ug/L	2.0	X	0.012	0.20
J1 Range Northern	MW-346M1	MW-346M1_F17D	245	255	12/04/2017	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	9.6		ug/L	0.60	X	0.036	0.20
Demolition Area 2	MW-573M2	MW-573M2_F17	155.4	165.4	11/13/2017	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.22		ug/L	0.60		0.036	0.20
Demolition Area 2	MW-573M2	MW-573M2_F17D	155.4	165.4	11/13/2017	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.20		ug/L	0.60		0.036	0.20

J = Estimated Result
 MDL = Method Detection Limit
 RL = Reporting Limit