

**MONTHLY PROGRESS REPORT #267  
FOR JUNE 2019**

**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 June to 30 June 2019.

**1. SUMMARY OF REMEDIATION ACTIONS**

The following is a description of Remediation Actions (RA) underway at Camp Edwards as of June 2019.

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 2.653 billion gallons of water treated and re-injected as of 28 June 2019. The following shutdowns of the Frank Perkins Road Treatment Facility occurred during the June reporting period:

- Extraction well MW-431 shut down due to a power supply interruption. MW-431 shut down at 1452 h on 22 June 2019 and was restarted at 0715 h on 24 June 2019.

The Pew Road Mobile Treatment Unit (MTU) continues to operate at a flow rate of 65 GPM, with over 618.1 million gallons of water treated and re-injected as of 28 June 2019. The following shutdowns of the Pew Road MTU occurred during the June reporting period:

- The Pew Road MTU shut down at 1150 h on 21 June 2019 due to a power supply interruption. The flow meter value on the PLC was frozen and the MTU would not restart. The extraction well communication was reestablished and reprogrammed and the MTU was restarted at 1415 h on 21 June 2019.
- The Pew Road MTU shut down at 1452 h on 22 June 2019 due to a power supply interruption. The MTU was restarted at 0740 h on 24 June 2019.

The Base Boundary MTU continues to operate at a flow rate of 65 gpm, with over 233.8 million gallons of water treated and re-injected as of 28 June 2019. The following shutdown(s) of the Base Boundary MTU occurred during the June reporting period:

- The Base Boundary MTU was turned off to perform mechanical maintenance. The MTU was turned off at 0740 h on 13 June 2019 to replace the pump and motor and install a packer to isolate the deeper 60 ft of screen (110-170 ft bgs). The pump would fault when restarted. The bag filters were exchanged. On 14 June 2019, BETCo was onsite to replace the overload heaters in the pump controller and the MTU was restarted at 1020 h on 14 June 2019.

The Leading Edge system continues to operate at a flow rate of 100 gpm, with over 152.3 million gallons of water treated and re-injected as of 28 June 2019. No shutdowns of the Leading Edge system occurred during the June reporting period.

### 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 28 June 2019, over 1.136 billion gallons of water have been treated and re-injected. No shutdowns of the Northern Treatment Building occurred in the June reporting period.

The Northern MTUs E and F continue to operate at a flow rate of 250 gpm. As of 28 June 2019, over 1.595 billion gallons of water have been treated and re-injected. No shutdowns of the J-2 Range Northern system occurred during the June reporting period.

#### 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 28 June 2019, over 1.245 billion gallons of water have been treated and re-injected. No shutdowns of MTUs H and I occurred during the June reporting period.

MTU J continues to operate at a flow rate of 120 gpm. As of 28 June 2019, over 567.2 million gallons of water have been treated and re-injected. The following shutdown(s) of MTU J occurred during the June reporting period:

- MTU J shut down due to a power supply interruption (lost a phase). The MTU shut down at 0750 h on 11 June 2019. BETCo was onsite to replace the broken power line insulator between the two ends of the fuse on the cutouts and the other two insulators of the same type on that cutout and the MTU was restarted at 0920 h on 14 June 2019.
- MTU J was turned off to repair a leaking pipe. The MTU was turned off at 0850 h on 21 June 2019 and was restarted at 1140 h on 21 June 2019.

MTU K continues to operate at a flow rate of 125 gpm. As of 28 June 2019, over 683.7 million gallons of water have been treated and re-injected. The following shutdowns of MTU K occurred during the June reporting period:

- MTU K shut down due to a “VFD fault” alarm, caused by a power supply interruption. The MTU shut down at 1623 h on 30 June 2019 and was restarted at 0730 h on 01 July 2019

### 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 155 gpm (while J3EWIP1 is offline awaiting a new pump and motor). As of 28 June 2019, over 1.254 billion gallons of water have been treated and re-injected. The following J-3 Range system shutdown(s) occurred during the June reporting period:

- The System shut down due to an FS-12 shutdown. The System shut down at 1220 h on 22 June 2019 and was restarted at 0843 h on 24 June 2019.
- The System shut down due to an FS-12 shutdown. The System shut down at 1831 h on 27 June 2019 and was restarted at 0758 h on 28 June 2019.
- The System shut down due to a power supply interruption at 1627 h on 30 June 2019. BETCo was onsite to restore power on 02 July 2019 to three of the four extraction wells (90EW0001, J3EWIP2, J3EW0032 operational; J3EWIP1 needs a new pump and motor). The system was restarted at 0850 h on 02 July 2019.

### 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 28 June 2019, over 545.4 million gallons of water have been treated and re-injected. The following shutdowns of the J-1 Range Southern system occurred during the June reporting period:

- The MTU was turned off during the power work at J2 East at 0734 h on 14 June 2019. The MTU was restarted at 0838 h on 14 June 2019.

#### 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 28 June 2019, over 718.4 million gallons of water have been treated and re-injected. No shutdowns of the J-1 Range Northern MTU occurred during the June reporting period.

## 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 28 June 2019, over 1.739 billion gallons of water have been treated and re-injected. No shutdowns of the CIA treatment facility shutdowns occurred during the June reporting period.

## **SUMMARY OF ACTIONS TAKEN**

### CIA

- Performed routine inspections of BEM cover to ensure cover is secure and intact.
- Complete blind seeding P3A2.
- Collect cued MetalMapper data P3A2.
- Conduct DGM survey P3A2.
- Perform intrusive investigation/re-digs P3A1.

### Demolition Area 1

- No activity.

### Demolition Area 2

- No activity.

### Small Arms Ranges

- Site grading at B, Former B and Former D Ranges.
- Gravel installation at A Range and B Range.
- Post-excavation sampling (8th lift) at D Range.
- Vegetation clearance at D Range.

### J-1 Range

- J-1 Range South profile drilling.

### J-2 Range

- No activity.

### J-3 Range

- No activity.

### L Range

- No activity.

### Training Areas

- Site grading at U Range.

## **JBCC IAGWSP Tech Update Meeting Minutes 13 June 2019**

### **Project and Fieldwork Update**

Drilling is underway at BH-720 which is the first J-1 South location. They hit bedrock at 316 feet which they will confirm today. Soil samples were collected at this location and it was noted that once the drivepoint hit refusal, the team did encounter the silt layer that has been predicted to be in this area. A screen setting call will be held on Wednesday. The drilling at CIA boundary has been postponed until after UXO work in the area is completed. Eversource is on-site today at Demolition Area 1 to test the switch while Maher stands by to install the packer. The REC has been completed for the drive points at the Pocasset Baptist Church and the ROE is in review. It will be sent to the Church for their signature next week. Long-term monitoring sampling is underway in Demolition Area 1 and they plan to begin the PFAS sampling June 17th. J-2 North sampling started June 10th and should finish by June 18th. All groundwater treatment systems are up and running with the exception of the J-2 East Unit J which should be back online tomorrow.

In the Small Arms Ranges, crews have continued site improvements and grading. Additional lifts were excavated at D Range and Former B Range. Soil was sent off-site to Bourn Landfill on May 14th. Two of three replicates at the D Range were above 200 parts per million therefore an additional lift was excavated. XRF is being conducted to try refine the area of contamination. In the Central Impact Area, there are three crews working. They are 35-40% complete in the re-digs area. It is anticipated the new areas will begin in July and they are evaluating whether or not an additional team is needed. Seeding work is complete. One geophysical team is halfway through collection and Metal Mapper began this week and will continue for months.

### **Action Items**

The action items were discussed and updated.

### **L Range Annual Groundwater Monitoring Report Presentation**

A presentation was provided on the L Range 2019 Annual Environmental Monitoring Report. It was noted that during the reporting period (February 2018 to January 2019), no new work was conducted. Sampling locations, groundwater monitoring results, and trends were reviewed and discussed. The July 2018 semi-annual event, included MW-242M1, MW-595M1/M2, MW-596M1, 90MW0034 and RDX was seen at 1.9 µg/L (MW-242M1) and 1.2 µg/L (MW-595M1). The January 2019 annual event included 9 wells. RDX was detected at 1.3J µg/L (MW-242M1), 2.1 µg/L (MW-595M1), 2.0 µg/L (MW-651M1), 0.35J µg/L (MW-650M) and 0.64 µg/L (90MW0031).

Model predicated vs. observed plume comparison was discussed. It was noted that the plume shell was adjusted in 2018 using the drift function protocol to incorporate the measured RDX concentration data from samples collected between December 2015 and January 2018. Since the 2016 Plume Shell was developed prior to measured concentrations > 2 µg/L being reported at MW-242M1 and MW-595M1 (between January 2017 – January 2018) the 2018 drift-adjusted Plume Shell appears to provide a more accurate representation of the current RDX plume, as expected. The observed and predicted plumes are similar in size. Model-predicted plume resulting from transport of the 2018 drift-adjusted plume shell compares well with measured plume without additional adjustment using the drift function.

Transport model results and time to cleanup goals were reviewed and discussed. The transport simulations using the drift function updated plume shell predicted RDX concentrations would fall below 2.0 µg/L at L Range in 2028, and below the 0.6 µg/L risk-based concentrations by 2070.

Due to spikes in RDX concentrations at MW-242M1 (3.7 µg/L in July 2017, 3.0 µg/L in January 2018) and MW-595M1 (4.4 µg/L in January 2017, 3.3 µg/L in July 2017, 2.5 µg/L in January 2018) observed after the November 2015 data cut-off for development of the 2016 plume Shell, earlier transport model predictions of RDX attenuating completely below 2 µg/L by 2018 were clearly inaccurate. This point was discussed in the 2018 annual report as well.

Based on attenuation rates, distance, and the April 2018 100-year groundwater flow and transport simulation, the entirety of the RDX plume is still expected to attenuate below the 0.6 µg/L RBC prior to reaching the operational FS-12 extraction wells. The current model estimated RDX mass in the L Range plume is 0.14 kg at the time of the 2010 Decision Document it was estimated to be 0.11 kg. This is due to the spike in concentrations observed at MW-242M1 and MW-595M1 from January 2017 – January 2018 being incorporated into the more recent drift-adjusted modeled plume. The maximum measured concentration at the time of the Decision Document RDX mass estimate (February 2010) was 2.8 µg/L.

Recommendations include removing MW-325M1 from the sampling program as the well is located 425 feet upgradient of the current delineated plume and has been ND for RDX since 2008 with the exception of a single detection near the RL (0.28 µg/L in February 2010). In addition, the RDX concentration has never exceeded the RBC at this well since sampling began in 2004. IAGWSP also recommends reducing the sampling frequency of MW-153M1 from annual to biennial because the well is located approximately 450 feet upgradient of the current delineated plume and has been ND for RDX in 8 consecutive samples beginning in March 2012.

IAGWSP is recommending an increase in the sampling frequency from annual to semi-annual at MW-651M1 because the well is located approximately 150 upgradient of the MW-595 well cluster, within western lobe of current delineated plume and the RDX concentration increased from 0.44 µg/L in January 2017 to 0.88 µg/L in January 2018 and to 2.0 µg/L in January 2019.

EPA noted that they have begun drafting a Decision Document Addendum for the L Range to document the change in the cleanup time and will circulate it to the team for review.

### **JBCC Cleanup Team Meeting**

The next meeting of the JBCC Cleanup Team (JBCCCT) is scheduled for 10 July 2019. 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 1 summarizes sampling for all media from 1 June to 30 June 2019. Table 2 summarizes the validated detections of explosives compounds and perchlorate for all groundwater results received from 1 June to 30 June 2019. 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.

Twelve operable units (OU) are 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 Area, 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. 266 for May 2019 | 11 June 2019 |
| • Draft Land Use Controls Monitoring Report    | 10 June 2019 |

## 3. SCHEDULED ACTIONS

The following documents are being prepared or revised during June 2019:

- Five Year Review report
- Completion of work report for J-2 Range geophysical work and additional well locations.
- Certificates of Compliance for sites that are completed, e.g. Former A Range and Western Boundary
- KD Range project note
- L Range 2019 Annual Report
- Draft joint IAGWSP/IRP program fact sheet
- Land Use Controls report
- Project Notes on Supplemental Work (Pyrotechnics, Engineer Training Site, and Former E Range)
- J-1 Range Northern and J-1 Range Southern Annual Environmental Monitoring Report
- Demolition Area 2 Annual Environmental Monitoring Report
- Addendum for the 2018 Source Report on the re-digs

**TABLE 1**  
**Sampling Progress: 1 June to 30 June 2019**

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	MW-569M1	MW-569M1_S19	N	06/03/2019	Ground Water	114	124
J1 Range Northern	J1N-INF2	J1N-INF2-68A	N	06/03/2019	Process Water	0	0
J1 Range Northern	J1N-MID1	J1N-MID1-68A	N	06/03/2019	Process Water	0	0
J1 Range Northern	J1N-MID2	J1N-MID2-68A	N	06/03/2019	Process Water	0	0
J1 Range Northern	J1N-EFF	J1N-EFF-68A	N	06/03/2019	Process Water	0	0
Demolition Area 1	MW-569M2	MW-569M2_S19	N	06/03/2019	Ground Water	84	94
J2 Range Northern	J2N-MID-1E	J2N-MID-1E-153A	N	06/03/2019	Process Water	0	0
J2 Range Northern	J2N-MID-2E	J2N-MID-2E-153A	N	06/03/2019	Process Water	0	0
Demolition Area 1	MW-571M1	MW-571M1_S19	N	06/03/2019	Ground Water	114	124
J2 Range Northern	J2N-INF-EF	J2N-INF-EF-153A	N	06/03/2019	Process Water	0	0
J2 Range Northern	J2N-MID-1F	J2N-MID-1F-153A	N	06/03/2019	Process Water	0	0
J2 Range Northern	J2N-MID-2F	J2N-MID-2F-153A	N	06/03/2019	Process Water	0	0
J2 Range Northern	J2N-EFF-EF	J2N-EFF-EF-153A	N	06/03/2019	Process Water	0	0
Demolition Area 1	MW-571M2	MW-571M2_S19	N	06/03/2019	Ground Water	74	84
J2 Range Northern	J2N-INF-G	J2N-INF-G-153A	N	06/03/2019	Process Water	0	0
J2 Range Northern	J2N-MID-1G	J2N-MID-1G-153A	N	06/03/2019	Process Water	0	0
J2 Range Northern	J2N-MID-2G	J2N-MID-2G-153A	N	06/03/2019	Process Water	0	0
J2 Range Northern	J2N-EFF-G	J2N-EFF-G-153A	N	06/03/2019	Process Water	0	0
Demolition Area 1	MW-582M1	MW-582M1_S19	N	06/03/2019	Ground Water	134	144
Demolition Area 1	MW-582M1	MW-582M1_S19D	FD	06/03/2019	Ground Water	134	144
Demolition Area 1	MW-582M2	MW-582M2_S19	N	06/03/2019	Ground Water	84	94
Central Impact Area	CIA3-INF	CIA3-INF-36A	N	06/04/2019	Process Water	0	0
Central Impact Area	CIA3-MID1	CIA3-MID1-36A	N	06/04/2019	Process Water	0	0
Central Impact Area	CIA3-MID2	CIA3-MID2-36A	N	06/04/2019	Process Water	0	0
Central Impact Area	CIA3-EFF	CIA3-EFF-36A	N	06/04/2019	Process Water	0	0
Demolition Area 1	MW-533M1	MW-533M1_S19	N	06/04/2019	Ground Water	160	170
Demolition Area 1	MW-533M1	MW-533M1_S19D	FD	06/04/2019	Ground Water	160	170
Demolition Area 1	MW-258M1	MW-258M1_S19	N	06/04/2019	Ground Water	109	119
Demolition Area 1	MW-258M1	MW-258M1_S19D	FD	06/04/2019	Ground Water	109	119
Central Impact Area	CIA1-INF	CIA1-INF-65A	N	06/04/2019	Process Water	0	0
Central Impact Area	CIA1-MID1	CIA1-MID1-65A	N	06/04/2019	Process Water	0	0
Central Impact Area	CIA1-MID2	CIA1-MID2-65A	N	06/04/2019	Process Water	0	0
Central Impact Area	CIA1-EFF	CIA1-EFF-65A	N	06/04/2019	Process Water	0	0
Central Impact Area	CIA2-INF	CIA2-INF-65A	N	06/04/2019	Process Water	0	0
Demolition Area 1	MW-258M2	MW-258M2_S19	N	06/04/2019	Ground Water	87	92
Central Impact Area	CIA2-MID1	CIA2-MID1-65A	N	06/04/2019	Process Water	0	0
Central Impact Area	CIA2-MID2	CIA2-MID2-65A	N	06/04/2019	Process Water	0	0
Central Impact Area	CIA2-EFF	CIA2-EFF-65A	N	06/04/2019	Process Water	0	0
Demolition Area 1	MW-258M3	MW-258M3_S19	N	06/04/2019	Ground Water	77	82
Demolition Area 1	MW-531M1	MW-531M1_S19	N	06/04/2019	Ground Water	138	148
Demolition Area 1	MW-531M1	MW-531M1_S19D	FD	06/04/2019	Ground Water	138	148
Demolition Area 1	MW-696M1	MW-696M1_S19	N	06/04/2019	Ground Water	175.2	185.2
Demolition Area 1	MW-432	MW-432_S19	N	06/05/2019	Ground Water	88	188
Demolition Area 1	MW-431	MW-431_S19	N	06/05/2019	Ground Water	88	188
Demolition Area 1	MW-431	MW-431_S19D	FD	06/05/2019	Ground Water	88	188
J2 Range Eastern	J2E-INF-I	J2E-INF-I-129A	N	06/05/2019	Process Water	0	0
J2 Range Eastern	J2E-MID-1I	J2E-MID-1I-129A	N	06/05/2019	Process Water	0	0
J2 Range Eastern	J2E-MID-2I	J2E-MID-2I-129A	N	06/05/2019	Process Water	0	0
Demolition Area 1	EW-658	EW-658_S19	N	06/05/2019	Ground Water	96	136
J2 Range Eastern	J2E-MID-1H	J2E-MID-1H-129A	N	06/05/2019	Process Water	0	0
J2 Range Eastern	J2E-MID-2H	J2E-MID-2H-129A	N	06/05/2019	Process Water	0	0
J2 Range Eastern	J2E-EFF-IH	J2E-EFF-IH-129A	N	06/05/2019	Process Water	0	0
J2 Range Eastern	J2E-INF-J	J2E-INF-J-129A	N	06/05/2019	Process Water	0	0
J2 Range Eastern	J2E-MID-1J	J2E-MID-1J-129A	N	06/05/2019	Process Water	0	0
J2 Range Eastern	J2E-MID-2J	J2E-MID-2J-129A	N	06/05/2019	Process Water	0	0
J2 Range Eastern	J2E-EFF-J	J2E-EFF-J-129A	N	06/05/2019	Process Water	0	0
Demolition Area 1	MW-173M1	MW-173M1_S19	N	06/05/2019	Ground Water	243	253
J2 Range Eastern	J2E-INF-K	J2E-INF-K-129A	N	06/05/2019	Process Water	0	0
J2 Range Eastern	J2E-MID-1K	J2E-MID-1K-129A	N	06/05/2019	Process Water	0	0

N = Normal Sample  
FD = Field Duplicate

**TABLE 1**  
**Sampling Progress: 1 June to 30 June 2019**

Area Of Concern	Location	Field Sample ID	Sample Type	Date Sampled	Matrix	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)
J2 Range Eastern	J2E-MID-2K	J2E-MID-2K-129A	N	06/05/2019	Process Water	0	0
J2 Range Eastern	J2E-EFF-K	J2E-EFF-K-129A	N	06/05/2019	Process Water	0	0
Demolition Area 1	MW-173M2	MW-173M2_S19	N	06/05/2019	Ground Water	208	218
J1 Range Southern	BH-720	BH-720-GW-121-126	N	06/05/2019	Water	121	126
J1 Range Southern	J1S-INF-2	J1S-INF-2-139A	N	06/05/2019	Process Water	0	0
J1 Range Southern	J1S-MID	J1S-MID-139A	N	06/05/2019	Process Water	0	0
J1 Range Southern	J1S-EFF	J1S-EFF-139A	N	06/05/2019	Process Water	0	0
J1 Range Southern	BH-720	BH-720-GW-131-136	N	06/05/2019	Water	131	136
Demolition Area 1	MW-19S	MW-19S_S19	N	06/05/2019	Ground Water	52.7	62.7
Demolition Area 1	MW-19S	MW-19S_S19D	FD	06/05/2019	Ground Water	52.7	62.7
J1 Range Southern	BH-720	BH-720-GW-141-146	N	06/05/2019	Water	141	146
J1 Range Southern	BH-720	BH-720-GW-151-156	N	06/05/2019	Water	151	156
Demolition Area 1	MW-532M1	MW-532M1_S19	N	06/06/2019	Ground Water	168	178
Demolition Area 1	D1-INF	D1-INF-107A	N	06/06/2019	Process Water	0	0
Demolition Area 1	D1-MID-1	D1-MID-1-107A	N	06/06/2019	Process Water	0	0
Demolition Area 1	D1-MID-2	D1-MID-2-107A	N	06/06/2019	Process Water	0	0
Demolition Area 1	D1-EFF	D1-EFF-107A	N	06/06/2019	Process Water	0	0
Demolition Area 1	MW-532M2	MW-532M2_S19	N	06/06/2019	Ground Water	138	148
J1 Range Southern	BH-720	BH-720-GW-161-166	N	06/06/2019	Water	161	166
J1 Range Southern	BH-720	BH-720-GW-161-166D	FD	06/06/2019	Water	161	166
Demolition Area 1	D1LE-INF	D1LE-INF-35A	N	06/06/2019	Process Water	0	0
Demolition Area 1	D1LE-MID1	D1LE-MID1-35A	N	06/06/2019	Process Water	0	0
Demolition Area 1	D1LE-MID2	D1LE-MID2-35A	N	06/06/2019	Process Water	0	0
Demolition Area 1	D1LE-EFF	D1LE-EFF-35A	N	06/06/2019	Process Water	0	0
Demolition Area 1	FPR-2-INF	FPR-2-INF-159A	N	06/06/2019	Process Water	0	0
Demolition Area 1	FPR2-POST-IX-A	FPR2-POST-IX-A-159A	N	06/06/2019	Process Water	0	0
Demolition Area 1	MW-542M1	MW-542M1_S19	N	06/06/2019	Ground Water	144	154
Demolition Area 1	FPR-2-GAC-MID1A	FPR-2-GAC-MID1A-159A	N	06/06/2019	Process Water	0	0
Demolition Area 1	FPR-2-EFF-A	FPR-2-EFF-A-159A	N	06/06/2019	Process Water	0	0
Demolition Area 1	PR-INF	PR-INF-159A	N	06/06/2019	Process Water	0	0
Demolition Area 1	PR-MID-1	PR-MID-1-159A	N	06/06/2019	Process Water	0	0
Demolition Area 1	PR-MID-2	PR-MID-2-159A	N	06/06/2019	Process Water	0	0
Demolition Area 1	PR-EFF	PR-EFF-159A	N	06/06/2019	Process Water	0	0
Demolition Area 1	MW-231M1	MW-231M1_S19	N	06/06/2019	Ground Water	210.5	220.5
Demolition Area 1	MW-231M1	MW-231M1_S19D	FD	06/06/2019	Ground Water	210.5	220.5
Demolition Area 1	MW-231M2	MW-231M2_S19	N	06/06/2019	Ground Water	165.5	175.5
J3 Range	J3-INF	J3-INF-153A	N	06/06/2019	Process Water	0	0
J3 Range	J3-MID-1	J3-MID-1-153A	N	06/06/2019	Process Water	0	0
J3 Range	J3-MID-2	J3-MID-2-153A	N	06/06/2019	Process Water	0	0
J3 Range	J3-EFF	J3-EFF-153A	N	06/06/2019	Process Water	0	0
J1 Range Southern	BH-720	BH-720-GW-171-176	N	06/06/2019	Water	171	176
J1 Range Southern	BH-720	BH-720-GW-181-186	N	06/07/2019	Water	181	186
J1 Range Southern	BH-720	BH-720-GW-191-196	N	06/07/2019	Water	191	196
J1 Range Southern	BH-720	BH-720-GW-201-206	N	06/07/2019	Water	201	206
J1 Range Southern	BH-720	BH-720-GW-211-216	N	06/07/2019	Water	211	216
J1 Range Southern	BH-720	BH-720-GW-221-226	N	06/10/2019	Water	221	226
J1 Range Southern	BH-720	BH-720-GW-231-236	N	06/10/2019	Water	231	236
J2 Range Northern	MW-63D	MW-63D_S19	N	06/10/2019	Ground Water	375	380
Demolition Area 1	MW-642M1	MW-642M1_S19	N	06/10/2019	Ground Water	104.3	114.3
J2 Range Northern	MW-63M1	MW-63M1_S19	N	06/10/2019	Ground Water	244	254
Demolition Area 1	MW-642M2	MW-642M2_S19	N	06/10/2019	Ground Water	77.3	87.3
J2 Range Northern	MW-63M2	MW-63M2_S19	N	06/10/2019	Ground Water	214	224
Demolition Area 1	MW-641M1	MW-641M1_S19	N	06/10/2019	Ground Water	113.2	123.2
J2 Range Northern	MW-63M3	MW-63M3_S19	N	06/10/2019	Ground Water	182	192
J2 Range Northern	MW-63S	MW-63S_S19	N	06/10/2019	Ground Water	153	163
Demolition Area 1	MW-641M2	MW-641M2_S19	N	06/10/2019	Ground Water	86.2	96.2
J1 Range Southern	BH-720	BH-720-GW-251-256	N	06/10/2019	Water	251	256
Demolition Area 1	MW-248M1	MW-248M1_S19	N	06/11/2019	Ground Water	216.3	226.3
J2 Range Northern	MW-296M1	MW-296M1_S19	N	06/11/2019	Ground Water	255.1	265.1

N = Normal Sample  
FD = Field Duplicate

**TABLE 1**  
**Sampling Progress: 1 June to 30 June 2019**

Area Of Concern	Location	Field Sample ID	Sample Type	Date Sampled	Matrix	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)
J2 Range Northern	MW-296M1	MW-296M1_S19D	FD	06/11/2019	Ground Water	255.1	265.1
J1 Range Southern	BH-720	BH-720-GW-261-266	N	06/11/2019	Water	261	266
Demolition Area 1	MW-248M2	MW-248M2_S19	N	06/11/2019	Ground Water	178	188
J2 Range Northern	MW-296M2	MW-296M2_S19	N	06/11/2019	Ground Water	215	225
Demolition Area 1	MW-248M3	MW-248M3_S19	N	06/11/2019	Ground Water	143	153
J2 Range Northern	MW-619M1	MW-619M1_S19	N	06/11/2019	Ground Water	255.1	265.1
J2 Range Northern	MW-619M2	MW-619M2_S19	N	06/11/2019	Ground Water	234.1	244.1
Demolition Area 1	MW-697M1	MW-697M1_S19	N	06/11/2019	Ground Water	243	253
J1 Range Southern	BH-720	BH-720-GW-271-276	N	06/11/2019	Water	271	276
J2 Range Northern	MW-635M1	MW-635M1_S19	N	06/11/2019	Ground Water	265.4	275.4
J2 Range Northern	MW-635M1	MW-635M1_S19D	FD	06/11/2019	Ground Water	265.4	275.4
J1 Range Southern	BH-720	BH-720-GW-271-276D	FD	06/11/2019	Water	271	276
Demolition Area 1	MW-698M1	MW-698M1_S19	N	06/11/2019	Ground Water	212.4	222.4
J1 Range Southern	BH-720	BH-720-GW-281-286	N	06/11/2019	Water	281	286
Demolition Area 1	MW-700M1	MW-700M1_S19	N	06/12/2019	Ground Water	197.9	207.9
J1 Range Southern	BH-720	BH-720-GW-291-296	N	06/12/2019	Water	291	296
Demolition Area 1	MW-700M2	MW-700M2_S19	N	06/12/2019	Ground Water	147.7	157.7
J1 Range Southern	BH-720	BH-720-GW-301-306	N	06/12/2019	Water	301	306
Demolition Area 1	MW-659M1	MW-659M1_S19	N	06/12/2019	Ground Water	120	130
Demolition Area 1	MW-659M2	MW-659M2_S19	N	06/12/2019	Ground Water	85	95
J1 Range Southern	BH-720	BH-720-GW-311-316	N	06/12/2019	Water	311	316
J2 Range Northern	MW-620M1	MW-620M1_S19	N	06/12/2019	Ground Water	268.6	278.6
J2 Range Northern	MW-331M1	MW-331M1_S19	N	06/13/2019	Ground Water	235.4	245.4
J2 Range Northern	MW-331M1	MW-331M1_S19D	FD	06/13/2019	Ground Water	235.4	245.4
Central Impact Area	MW-192M1	MW-192M1_S19	N	06/13/2019	Ground Water	195	205
Central Impact Area	MW-192M2	MW-192M2_S19	N	06/13/2019	Ground Water	135	145
J2 Range Northern	MW-331M2	MW-331M2_S19	N	06/13/2019	Ground Water	195.3	205.3
Central Impact Area	MW-192M3	MW-192M3_S19	N	06/13/2019	Ground Water	115	125
J2 Range Northern	MW-337D	MW-337D_S19	N	06/13/2019	Ground Water	310	320
J2 Range Northern	MW-337D	MW-337D_S19D	FD	06/13/2019	Ground Water	310	320
J2 Range Northern	MW-337M1	MW-337M1_S19	N	06/13/2019	Ground Water	243.71	253.71
J2 Range Northern	MW-612M1	MW-612M1_S19	N	06/13/2019	Ground Water	297	307
Central Impact Area	MW-05D	MW-05D_S19	N	06/13/2019	Ground Water	335	340
J2 Range Northern	MW-612M2	MW-612M2_S19	N	06/14/2019	Ground Water	267	277
J2 Range Eastern	MW-372D	MW-372D_S19	N	06/14/2019	Ground Water	300.59	310.59
J2 Range Eastern	MW-334M2	MW-334M2_S19	N	06/14/2019	Ground Water	165	175
J2 Range Northern	MW-613M1	MW-613M1_S19	N	06/14/2019	Ground Water	267.1	277.1
J2 Range Northern	MW-613M2	MW-613M2_S19	N	06/14/2019	Ground Water	246.1	256.1
J1 Range Northern	J1N-INF2	J1N-INF2_PFAS19	N	06/17/2019	Process Water	0	0
J3 Range	J3-INF	J3-INF_PFAS19	N	06/17/2019	Process Water	0	0
J3 Range	J3-INF	J3-INF_PFAS19D	FD	06/17/2019	Process Water	0	0
J2 Range Northern	MW-340D	MW-340D_S19	N	06/17/2019	Ground Water	329.6	339.6
J2 Range Northern	MW-234M2	MW-234M2_PFAS19	N	06/17/2019	Ground Water	110	120
J2 Range Northern	MW-340M1	MW-340M1_S19	N	06/17/2019	Ground Water	255.9	265.9
J2 Range Eastern	MW-667M1	MW-667M1_PFAS19	N	06/17/2019	Ground Water	302.3	312.3
J2 Range Northern	MW-340M2	MW-340M2_S19	N	06/17/2019	Ground Water	215.8	225.1
J2 Range Eastern	MW-368M1	MW-368M1_PFAS19	N	06/18/2019	Ground Water	237.35	247.35
J2 Range Northern	MW-330M1	MW-330M1_S19	N	06/18/2019	Ground Water	313.1	323.1
J2 Range Eastern	MW-368M2	MW-368M2_PFAS19	N	06/18/2019	Ground Water	202.73	212.73
J2 Range Northern	MW-330M2	MW-330M2_S19	N	06/18/2019	Ground Water	238	248
J2 Range Eastern	MW-307M3	MW-307M3_PFAS19	N	06/18/2019	Ground Water	125.8	135.82
J2 Range Eastern	MW-307M3	MW-307M3_PFAS19D	FD	06/18/2019	Ground Water	125.8	135.82
J1 Range Southern	BH-721	BH-721-GW-121-126	N	06/18/2019	Water	121	126
J2 Range Northern	MW-330M3	MW-330M3_S19	N	06/18/2019	Ground Water	155	165
J3 Range	MW-163S	MW-163S_PFAS19	N	06/18/2019	Ground Water	38	48
J3 Range	MW-163S	MW-163S_PFAS19D	FD	06/18/2019	Ground Water	38	48
J1 Range Southern	BH-721	BH-721-GW-131-136	N	06/18/2019	Water	131	136
J2 Range Northern	MW-318M1	MW-318M1_S19	N	06/18/2019	Ground Water	305.8	315.8
J2 Range Northern	J2N-INF-F	J2N-INF-F_PFAS19	N	06/18/2019	Process Water	0	0

N = Normal Sample  
FD = Field Duplicate

**TABLE 1**  
**Sampling Progress: 1 June to 30 June 2019**

Area Of Concern	Location	Field Sample ID	Sample Type	Date Sampled	Matrix	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)
J1 Range Southern	BH-721	BH-721-GW-141-146	N	06/18/2019	Water	141	146
J2 Range Northern	MW-318M2	MW-318M2_S19	N	06/18/2019	Ground Water	205.8	215.8
J2 Range Northern	MW-587M2	MW-587M2_PFAS19	N	06/19/2019	Ground Water	220	230
J1 Range Southern	BH-721	BH-721-GW-151-156	N	06/19/2019	Water	151	156
J2 Range Northern	MW-313M1	MW-313M1_PFAS19	N	06/19/2019	Ground Water	255.4	265.4
J1 Range Southern	BH-721	BH-721-GW-161-166	N	06/19/2019	Water	161	166
J3 Range	MW-227M2	MW-227M2_PFAS19	N	06/19/2019	Ground Water	110	120
J1 Range Southern	BH-721	BH-721-GW-171-176	N	06/19/2019	Water	171	176
J1 Range Southern	BH-721	BH-721-GW-171-176D	FD	06/19/2019	Water	171	176
Demolition Area 1	MW-258M1	MW-258M1_PFAS19	N	06/19/2019	Ground Water	109	119
J1 Range Southern	BH-721	BH-721-GW-181-186	N	06/19/2019	Water	181	186
J3 Range	MW-250M2	MW-250M2_PFAS19	N	06/20/2019	Ground Water	145	155
J2 Range Eastern	J2E-INF-I	J2E-INF-I_PFAS19	N	06/20/2019	Process Water	0	0
J1 Range Southern	BH-721	BH-721-GW-191-196	N	06/20/2019	Ground Water	191	196
J2 Range Eastern	J2E-INF-J	J2E-INF-J_PFAS19	N	06/20/2019	Process Water	0	0
J2 Range Eastern	J2E-INF-K	J2E-INF-K_PFAS19	N	06/20/2019	Process Water	0	0
J1 Range Southern	BH-721	BH-721-GW-201-206	N	06/20/2019	Ground Water	201	206
J1 Range Southern	BH-721	BH-721-GW-211-216	N	06/20/2019	Ground Water	211	216
Demolition Area 1	D1-INF	D1-INF_PFAS19	N	06/24/2019	Process Water	0	0
J1 Range Northern	MW-136S	MW-136S_PFAS19	N	06/24/2019	Ground Water	107	117
J1 Range Southern	BH-722	BH-722-GW-96-101	N	06/24/2019	Water	96	101
J1 Range Northern	MW-590M2	MW-590M2_PFAS19	N	06/24/2019	Ground Water	238	248
J1 Range Southern	BH-722	BH-722-GW-106-111	N	06/24/2019	Water	106	111
J1 Range Northern	MW-564M1	MW-564M1_PFAS19	N	06/24/2019	Ground Water	227	237
Demolition Area 1	MW-663D	MW-663D_PFAS19	N	06/24/2019	Ground Water	240.6	250.6
J1 Range Southern	BH-722	BH-722-GW-116-121	N	06/24/2019	Water	116	121
Demolition Area 1	MW-663D	MW-663D_S19	N	06/24/2019	Ground Water	240.6	250.6
Demolition Area 1	MW-663D	MW-663D_S19D	FD	06/24/2019	Ground Water	240.6	250.6
Demolition Area 1	FPR-2-INF	FPR-2-INF_PFAS19	N	06/25/2019	Process Water	0	0
Demolition Area 1	PR-INF	PR-INF_PFAS19	N	06/25/2019	Process Water	0	0
J1 Range Southern	BH-722	BH-722-GW-126-131	N	06/25/2019	Water	126	131
J1 Range Southern	BH-722	BH-722-GW-126-131D	FD	06/25/2019	Water	126	131
J2 Range Northern	MW-519M1	MW-519M1_S19	N	06/25/2019	Ground Water	198	208
J2 Range Northern	MW-519M1	MW-519M1_S19D	FD	06/25/2019	Ground Water	198	208
J1 Range Southern	BH-722	BH-722-GW-136-141	N	06/25/2019	Water	136	141
Central Impact Area	MW-05M1	MW-05M1_S19	N	06/25/2019	Ground Water	210	215
J2 Range Northern	MW-05M1	MW-05M1_S19	N	06/25/2019	Ground Water	210	215
J1 Range Southern	BH-722	BH-722-GW-146-151	N	06/25/2019	Water	146	151
D Range	SSDR158EAST	DR158E_L8	N	06/26/2019	Soil	6	6.25
D Range	SSDR158EAST	DR158E_L8R1	FR	06/26/2019	Soil	6	6.25
D Range	SSDR158EAST	DR158E_L8R2	FR	06/26/2019	Soil	6	6.25
Demolition Area 1	MW-610M1	MW-610M1_S19	N	06/26/2019	Ground Water	110	120
J1 Range Southern	BH-722	BH-722-GW-156-161	N	06/26/2019	Water	156	161
Demolition Area 1	MW-610M2	MW-610M2_S19	N	06/26/2019	Ground Water	85	95
J1 Range Southern	BH-722	BH-722-GW-166-171	N	06/26/2019	Water	166	171
Demolition Area 1	MW-598M1	MW-598M1_S19	N	06/27/2019	Ground Water	122	132
Demolition Area 1	MW-598M1	MW-598M1_S19D	FD	06/27/2019	Ground Water	122	132
Demolition Area 1	MW-598M2	MW-598M2_S19	N	06/27/2019	Ground Water	88	98
J1 Range Southern	BH-722	BH-722-GW-176-181	N	06/27/2019	Water	176	181
Demolition Area 1	MW-611M1	MW-611M1_S19	N	06/27/2019	Ground Water	141	151
Demolition Area 1	MW-611M2	MW-611M2_S19	N	06/27/2019	Ground Water	91	101
Northwest Corner	RSNW06	RSNW06_S19	N	06/27/2019	Ground Water	0	0
Northwest Corner	RSNW06	RSNW06_S19	N	06/27/2019	Ground Water	0	0

N = Normal Sample  
FD = Field Duplicate

**TABLE 2**  
**VALIDATED EXPLOSIVES AND PERCHLORATE RESULTS**  
**Data Received June 2019**

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-543M2	MW-543M2_S19	91.8	101.8	05/23/2019	SW6850	Perchlorate	0.074	J	ug/L	2.0		0.027	0.20
Demolition Area 1	MW-543M1	MW-543M1_S19	127	137	05/23/2019	SW6850	Perchlorate	0.073	J	ug/L	2.0		0.027	0.20
Demolition Area 1	MW-544M3	MW-544M3_S19	77.5	87.5	05/23/2019	SW6850	Perchlorate	0.11	J	ug/L	2.0		0.027	0.20
Demolition Area 1	MW-544M2	MW-544M2_S19	112	122	05/23/2019	SW6850	Perchlorate	0.68		ug/L	2.0		0.027	0.20
Demolition Area 1	MW-544M2	MW-544M2_S19	112	122	05/23/2019	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.052	J	ug/L	0.60		0.036	0.20
Demolition Area 1	MW-544M1	MW-544M1_S19	162	172	05/23/2019	SW6850	Perchlorate	3.8		ug/L	2.0	X	0.027	0.20
Demolition Area 1	MW-544M1	MW-544M1_S19	162	172	05/23/2019	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.11	J	ug/L	0.60		0.036	0.20
Demolition Area 1	MW-544M1	MW-544M1_S19D	162	172	05/23/2019	SW6850	Perchlorate	3.7		ug/L	2.0	X	0.027	0.20
Demolition Area 1	MW-546M2	MW-546M2_S19	100	110	05/22/2019	SW6850	Perchlorate	0.082	J	ug/L	2.0		0.027	0.20
Demolition Area 1	MW-546M1	MW-546M1_S19	140	150	05/22/2019	SW6850	Perchlorate	0.15	J	ug/L	2.0		0.027	0.20
Demolition Area 1	MW-545M4	MW-545M4_S19	72	82	05/22/2019	SW6850	Perchlorate	0.44		ug/L	2.0		0.027	0.20
Demolition Area 1	MW-545M3	MW-545M3_S19	101.5	111.5	05/22/2019	SW6850	Perchlorate	0.36		ug/L	2.0		0.027	0.20
Demolition Area 1	MW-545M2	MW-545M2_S19	142	152	05/22/2019	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.24		ug/L	0.60		0.036	0.20
Demolition Area 1	MW-545M2	MW-545M2_S19	142	152	05/22/2019	SW6850	Perchlorate	2.7		ug/L	2.0	X	0.027	0.20
Demolition Area 1	MW-545M2	MW-545M2_S19D	142	152	05/22/2019	SW6850	Perchlorate	2.8		ug/L	2.0	X	0.027	0.20
Demolition Area 1	MW-545M1	MW-545M1_S19	162	172	05/22/2019	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.085	J	ug/L	0.60		0.036	0.20
Demolition Area 1	MW-545M1	MW-545M1_S19	162	172	05/22/2019	SW6850	Perchlorate	1.8		ug/L	2.0		0.027	0.20
Demolition Area 1	MW-662D	MW-662D_S19	203.3	212.3	05/21/2019	SW6850	Perchlorate	0.66		ug/L	2.0		0.027	0.20
Demolition Area 1	MW-225M3	MW-225M3_S19	125	135	05/21/2019	SW6850	Perchlorate	0.069	J	ug/L	2.0		0.027	0.20
Demolition Area 1	MW-225M1	MW-225M1_S19	175	185	05/21/2019	SW6850	Perchlorate	0.13	J	ug/L	2.0		0.027	0.20
Demolition Area 1	MW-240M2	MW-240M2_S19	125	135	05/20/2019	SW6850	Perchlorate	0.22		ug/L	2.0		0.027	0.20
Demolition Area 1	MW-211M2	MW-211M2_S19	175	185	05/20/2019	SW6850	Perchlorate	0.066	J	ug/L	2.0		0.027	0.20
Demolition Area 1	MW-211M1	MW-211M1_S19	200	210	05/20/2019	SW6850	Perchlorate	0.22		ug/L	2.0		0.027	0.20
Demolition Area 1	MW-139M2	MW-139M2_S19	154	164	05/17/2019	SW6850	Perchlorate	0.062	J	ug/L	2.0		0.027	0.20
Demolition Area 1	MW-341M3	MW-341M3_S19	209.5	219.5	05/17/2019	SW6850	Perchlorate	0.14	J	ug/L	2.0		0.027	0.20
Demolition Area 1	MW-341M2	MW-341M2_S19	264.5	269.5	05/17/2019	SW6850	Perchlorate	1.1		ug/L	2.0		0.027	0.20
Demolition Area 1	MW-341M2	MW-341M2_S19	264.5	269.5	05/17/2019	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.60		ug/L	0.60		0.036	0.20
Demolition Area 1	MW-341M2	MW-341M2_S19D	264.5	269.5	05/17/2019	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.57		ug/L	0.60		0.036	0.20
Demolition Area 1	MW-210M2	MW-210M2_S19	156	166	05/16/2019	SW6850	Perchlorate	0.15	J	ug/L	2.0		0.027	0.20
Demolition Area 1	MW-210M1	MW-210M1_S19	201	211	05/16/2019	SW6850	Perchlorate	0.099	J	ug/L	2.0		0.027	0.20
Demolition Area 1	MW-165M2	MW-165M2_S19	124.5	134.5	05/16/2019	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.076	J	ug/L	400		0.025	0.20
Demolition Area 1	MW-165M2	MW-165M2_S19	124.5	134.5	05/16/2019	SW6850	Perchlorate	0.24		ug/L	2.0		0.027	0.20
Demolition Area 1	MW-165M1	MW-165M1_S19	184.5	194.5	05/16/2019	SW6850	Perchlorate	0.075	J	ug/L	2.0		0.027	0.20
Demolition Area 1	MW-31S	MW-31S_S19	98	103	05/14/2019	SW8330	1,3,5-Trinitrobenzene	0.10	J	ug/L	1090		0.024	0.20
Demolition Area 1	MW-31S	MW-31S_S19	98	103	05/14/2019	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.43		ug/L	0.60		0.036	0.20
Demolition Area 1	MW-31S	MW-31S_S19	98	103	05/14/2019	SW8330	4-Amino-2,6-dinitrotoluene	0.16	J	ug/L	7.3		0.015	0.20
Demolition Area 1	MW-31S	MW-31S_S19	98	103	05/14/2019	SW8330	2-Amino-4,6-dinitrotoluene	0.19	J	ug/L	7.3		0.016	0.20
Demolition Area 1	MW-31S	MW-31S_S19	98	103	05/14/2019	SW8330	2,4,6-Trinitrotoluene	0.93		ug/L	2.0		0.027	0.20
Demolition Area 1	MW-31S	MW-31S_S19	98	103	05/14/2019	SW8330	2,4-Dinitrotoluene	0.089	J	ug/L	5.0		0.054	0.20
Demolition Area 1	MW-31S	MW-31S_S19	98	103	05/14/2019	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.32		ug/L	400		0.025	0.20

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

**TABLE 2**  
**VALIDATED EXPLOSIVES AND PERCHLORATE RESULTS**  
**Data Received June 2019**

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_S19D	98	103	05/14/2019	SW8330	2,4,6-Trinitrotoluene	0.95		ug/L	2.0		0.027	0.20
Demolition Area 1	MW-31S	MW-31S_S19D	98	103	05/14/2019	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.30		ug/L	400		0.025	0.20
Demolition Area 1	MW-31S	MW-31S_S19D	98	103	05/14/2019	SW8330	2,4-Dinitrotoluene	0.095	J	ug/L	5.0		0.054	0.20
Demolition Area 1	MW-31S	MW-31S_S19D	98	103	05/14/2019	SW8330	2-Amino-4,6-dinitrotoluene	0.18	J	ug/L	7.3		0.016	0.20
Demolition Area 1	MW-31S	MW-31S_S19D	98	103	05/14/2019	SW8330	1,3,5-Trinitrobenzene	0.11	J	ug/L	1090		0.024	0.20
Demolition Area 1	MW-31S	MW-31S_S19D	98	103	05/14/2019	SW8330	4-Amino-2,6-dinitrotoluene	0.17	J	ug/L	7.3		0.015	0.20
Demolition Area 1	MW-31S	MW-31S_S19D	98	103	05/14/2019	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.47		ug/L	0.60		0.036	0.20
Demolition Area 1	MW-76M2	MW-76M2_S19	105	115	05/13/2019	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.076	J	ug/L	400		0.025	0.20
Demolition Area 1	MW-76M2	MW-76M2_S19	105	115	05/13/2019	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.12	J	ug/L	0.60		0.036	0.20
Demolition Area 1	MW-77M2	MW-77M2_S19	120	130	05/13/2019	SW8330	4-Amino-2,6-dinitrotoluene	0.32		ug/L	7.3		0.015	0.20
Demolition Area 1	MW-77M2	MW-77M2_S19	120	130	05/13/2019	SW8330	2-Amino-4,6-dinitrotoluene	0.25		ug/L	7.3		0.016	0.20
Demolition Area 1	MW-77M2	MW-77M2_S19	120	130	05/13/2019	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.91		ug/L	0.60	X	0.036	0.20
Demolition Area 1	MW-77M2	MW-77M2_S19	120	130	05/13/2019	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	1.9		ug/L	400		0.025	0.20
Demolition Area 1	MW-77M2	MW-77M2_S19	120	130	05/13/2019	SW8330	2,4-Dinitrotoluene	0.096	J	ug/L	5.0		0.054	0.20
Demolition Area 1	MW-77M2	MW-77M2_S19D	120	130	05/13/2019	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	1.9		ug/L	400		0.025	0.20
Demolition Area 1	MW-77M2	MW-77M2_S19D	120	130	05/13/2019	SW8330	2,4-Dinitrotoluene	0.092	J	ug/L	5.0		0.054	0.20
Demolition Area 1	MW-77M2	MW-77M2_S19D	120	130	05/13/2019	SW8330	4-Amino-2,6-dinitrotoluene	0.32		ug/L	7.3		0.015	0.20
Demolition Area 1	MW-77M2	MW-77M2_S19D	120	130	05/13/2019	SW8330	2-Amino-4,6-dinitrotoluene	0.26		ug/L	7.3		0.016	0.20
Demolition Area 1	MW-77M2	MW-77M2_S19D	120	130	05/13/2019	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.95		ug/L	0.60	X	0.036	0.20
Demolition Area 2	MW-161S	MW-161S_S19	145.5	155.5	05/06/2019	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.16	J	ug/L	0.60		0.036	0.20
Demolition Area 2	MW-161S	MW-161S_S19D	145.5	155.5	05/06/2019	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.17	J	ug/L	0.60		0.036	0.20
Demolition Area 2	MW-573M2	MW-573M2_S19	155.4	165.4	05/06/2019	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.21	J	ug/L	0.60		0.036	0.20
Demolition Area 2	MW-572M1	MW-572M1_S19	164.9	174.9	05/02/2019	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.11	J	ug/L	0.60		0.036	0.20
Demolition Area 2	MW-259M1	MW-259M1_S19	189	199	05/02/2019	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.32		ug/L	0.60		0.036	0.20
Demolition Area 2	MW-16S	MW-16S_S19	125	135	05/02/2019	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.10	J	ug/L	0.60		0.036	0.20
Demolition Area 2	MW-380M2	MW-380M2_S19	205.66	215.66	04/30/2019	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.12	J	ug/L	0.60		0.036	0.20
Demolition Area 2	MW-404M2	MW-404M2_S19	200.04	210.04	04/30/2019	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.52		ug/L	0.60		0.036	0.20
Demolition Area 2	MW-404M2	MW-404M2_S19D	200.04	210.04	04/30/2019	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.52		ug/L	0.60		0.036	0.20
Demolition Area 2	MW-655M1	MW-655M1_S19	178	188	04/29/2019	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.090	J	ug/L	0.60		0.036	0.20
J1 Range Northern	MW-590M2	MW-590M2_S19	238	248	04/29/2019	SW6850	Perchlorate	4.4		ug/L	2.0	X	0.027	0.20
J1 Range Northern	MW-590M1	MW-590M1_S19	258	268	04/29/2019	SW6850	Perchlorate	0.094	J	ug/L	2.0		0.027	0.20
J1 Range Northern	MW-303M2	MW-303M2_S19	235.09	245.1	04/25/2019	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_S19	235.09	245.1	04/25/2019	SW6850	Perchlorate	0.18	J	ug/L	2.0		0.027	0.20
J1 Range Northern	MW-303M2	MW-303M2_S19	235.09	245.1	04/25/2019	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	7.4		ug/L	0.60	X	0.036	0.20
J1 Range Northern	MW-245M2	MW-245M2_S19	204	214	04/25/2019	SW6850	Perchlorate	5.7	J	ug/L	2.0	X	0.027	0.20
J1 Range Northern	MW-245M2	MW-245M2_S19	204	214	04/25/2019	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	29.2		ug/L	0.60	X	0.36	2.0
J1 Range Northern	MW-245M2	MW-245M2_S19D	204	214	04/25/2019	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	5.2		ug/L	400		0.025	0.20
J1 Range Northern	MW-245M2	MW-245M2_S19D	204	214	04/25/2019	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	5.2		ug/L	400		0.025	0.20
J1 Range Northern	MW-245M2	MW-245M2_S19D	204	214	04/25/2019	SW6850	Perchlorate	5.7	J	ug/L	2.0	X	0.027	0.20
J1 Range Northern	MW-245M2	MW-245M2_S19D	204	214	04/25/2019	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	29.5		ug/L	0.60	X	0.36	2.0

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

**TABLE 2**  
**VALIDATED EXPLOSIVES AND PERCHLORATE RESULTS**  
**Data Received June 2019**

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-430M2	MW-430M2_S19	188.41	198.41	04/25/2019	SW6850	Perchlorate	0.087	J	ug/L	2.0		0.027	0.20
J1 Range Northern	MW-541M1	MW-541M1_S19	210	220	04/24/2019	SW6850	Perchlorate	0.17	J	ug/L	2.0		0.027	0.20
J1 Range Northern	MW-566M1	MW-566M1_S19	232	242	04/18/2019	SW6850	Perchlorate	2.1		ug/L	2.0	X	0.027	0.20
J1 Range Northern	MW-564M1	MW-564M1_S19	227	237	04/18/2019	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	2.4	J	ug/L	0.60	X	0.036	0.20
J1 Range Northern	MW-564M1	MW-564M1_S19	227	237	04/18/2019	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.45	J	ug/L	400		0.025	0.20
J1 Range Northern	MW-564M1	MW-564M1_S19	227	237	04/18/2019	SW6850	Perchlorate	12.3		ug/L	2.0	X	0.027	0.20
J1 Range Northern	MW-564M1	MW-564M1_S19D	227	237	04/18/2019	SW6850	Perchlorate	12.1		ug/L	2.0	X	0.027	0.20
J1 Range Northern	MW-549M1	MW-549M1_S19	227.4	237.4	04/18/2019	SW6850	Perchlorate	3.4		ug/L	2.0	X	0.027	0.20
J1 Range Northern	MW-370M1	MW-370M1_S19	245	255	04/18/2019	SW6850	Perchlorate	7.7		ug/L	2.0	X	0.027	0.20
J1 Range Northern	MW-370M1	MW-370M1_S19	245	255	04/18/2019	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.39	J	ug/L	0.60		0.036	0.20
J1 Range Northern	MW-370M1	MW-370M1_S19D	245	255	04/18/2019	SW6850	Perchlorate	7.4		ug/L	2.0	X	0.027	0.20
J1 Range Northern	MW-567M1	MW-567M1_S19	215.5	225.5	04/17/2019	SW6850	Perchlorate	1.8		ug/L	2.0		0.027	0.20
J1 Range Southern	MW-592M1	MW-592M1_S19	201	211	04/17/2019	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.12	J	ug/L	0.60		0.036	0.20
Central Impact Area	MW-710M1	MW-710M1_S19	247.5	257.5	04/15/2019	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.44	J	ug/L	0.60		0.036	0.20
Central Impact Area	MW-699M1	MW-699M1_S19	261.5	271.5	04/15/2019	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.63	J	ug/L	0.60	X	0.036	0.20

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