

**MONTHLY PROGRESS REPORT #279
FOR JUNE 2020**

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 2020.

1. SUMMARY OF REMEDIATION ACTIONS

Remediation Actions (RA) Underway at Camp Edwards as of 26 June 2020:

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 2.744 billion gallons of water treated and re-injected as of 26 June 2020. No Frank Perkins Road Treatment Facility shutdowns occurred in June.

The Pew Road Mobile Treatment Unit (MTU) continues to operate at a flow rate of 65 GPM. As of 26 June 2020, over 650.6 million gallons of water was treated and re-injected. No Pew Road MTU shutdowns occurred in June.

The Base Boundary MTU continues to operate at a flow rate of 65 gpm. As of 26 June 2020, over 267.6 million gallons of water was treated and re-injected. No Base Boundary MTU shutdowns occurred in June.

The Leading Edge system continues to operate at a flow rate of 100 gpm. As of 26 June 2020, over 203.1 million gallons of water was treated and re-injected. No Leading Edge system shutdowns occurred in June.

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 G continues to operate at a flow rate of 225 gpm. As of 26 June 2020, over 1.256 billion gallons of water have been treated and re-injected. No Northern Treatment Building G shutdowns occurred in June.

The Northern MTUs E and F continue to operate at a flow rate of 250 gpm. As of 26 June 2020, over 1.711 billion gallons of water have been treated and re-injected. No J-2 Range Northern MTU shutdowns occurred in June.

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 June 2020, over 1.366 billion gallons of water have been treated and re-injected. No MTU H and I shutdowns occurred in June.

MTU J continues to operate at a flow rate of 120 gpm. As of 26 June 2020, over 629.1 million gallons of water have been treated and re-injected. No MTU J shutdowns occurred in June.

MTU K continues to operate at a flow rate of 125 gpm. As of 26 June 2020, over 748.0 million gallons of water have been treated and re-injected. No MTU K shutdowns occurred in June.

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 255 gpm. As of 26 June 2020, over 1.372 billion gallons of water have been treated and re-injected. The following J-3 Range system shutdowns occurred in June:

- 1720 on 10 June 2020 due to an FS-12 shutdown-related "Treatment Facility Storage Tank High Level" alarm, and was restarted at 0846 on 11 June 2020.
- 0810 on 12 June 2020 due to an FS-12 shutdown-related "Treatment Facility Storage Tank High Level" alarm, and was restarted at 0834 on 15 June 2020.
- 0808 on 20 June 2020 due to an FS-12 shutdown-related "Treatment Facility Storage Tank High Level" alarm, and was restarted at 0745 on 22 June 2020.
- 1936 on 25 June 2020 due to an FS-12 shutdown-related "Treatment Facility Storage Tank High Level" alarm, and was restarted at 1138 on 26 June 2020.

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 June 2020, over 607.0 million gallons of water have been treated and re-injected. No J-1 Range Southern system shutdowns occurred in June.

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 June 2020, over 849.1 million gallons of water have been treated and re-injected. No J-1 Range Northern MTU shutdowns occurred in June.

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 June 2020, over 2.116 billion gallons of water have been treated and re-injected. The following CIA2 system shutdown occurred in June:

- System 2 shut down at 0548 on 24 June 2020 due to a “Communication Lost” alarm between the extraction well and the MTU, and was restarted at 0905 on 24 June 2020.

2. SUMMARY OF ACTIONS TAKEN**Operable Unit (OU) Activity as of 26 June 2020**CIA

- Performed routine inspections of BEM cover to ensure cover is secure and intact.
- Routine MD Process
- Perform DGM Data Collection
- System 3 bag filters were exchanged on 09 June 2020
- Completed seed operations

Demolition Area 1

- Groundwater sampling within the Demo 1 SPM program

Demolition Area 2

- No activity

J-1 Range

- No activity

J-2 Range

- MTU H GAC Vessel #3 off-line due to a leak on the effluent pipe that must be replaced

J-3 Range

- Barrage Rocket Area geophysical anomaly reacquisition and grid intrusive investigations

L Range

- No activity

Small Arms Ranges

- No activity

Training Areas

- Intrusive investigation in Former E Range geophysical investigation grids
- Additional post-excavation ISM sampling at KD Range Primary Target Excavation Grid

Other

- Collected process water samples from the Central Impact Area (Systems 1 and 2), Demolition Area 1, J1 Range Northern, J1 Range Southern, J2 Range Eastern, J2 Range Northern, and J3 Range treatment systems
- Exchanged bag filters on the Frank Perkins, Leading Edge MTU, and CIA System 3
- Vegetation and UXO clearance of range roads for future improvements

JBCC IAGWSP Tech Update Meeting Minutes 11 June 2020Project and Fieldwork Update

All treatment systems are up and running with the exception of J-2 E unit H vessel 3 is down due to a leak in a fitting in the GAC effluent line. The plumber has ordered parts and will be back to make the repairs. Dawson is scheduled install the pumps in the new CIA wells on June 26th. After that, the wells will be turned over to KGS to perform sampling however, they will need to coordinate and de-conflict with range operations and UXO work. Long term monitoring sampling crews are performing annual sampling in Demolition Area 1.

Dawson resampled the KD Range excavation floor last Thursday. They finished with the 422 discrete targets at the J-3 Range. They found one 4.5" Barrage Rocket at 39" deep in Grid 4, one 81mm Mortar 36" deep in Grid 3 and another 81mm Mortar at 38" deep in Grid 4. The data/dig sheets are in QC and will be sent to the group shortly. Once they finished with the J-3 Range, the crews began UXO clearance activities in support of the upcoming road improvement projects. They completed Barlow Road, from the J-3 Range to Jefferson Road. They are currently working on Wood Road from the J-1 infiltration gallery to Orchard Road. No MEC has been uncovered to date approximately 10 pounds of frag and a lot of "hot rocks" and small metallic items. Once they complete Wood Road, they will move to Turpentine Road to Wheelock Road, which should take them through the end of June. After they complete the roads, they will

begin intrusive work at the former E Range. The geophysical EM61 survey maps and target list will be sent shortly. They will begin in early July but may need to move over to the J-2 Range for the 8 grids in the M19/M20 area so not to conflict with range firing.

In the Central Impact Area, Parsons crews are finishing the demolition operations. All the BEM shots were finished today and they are completing BIPs. One item was too close to the CDC magazine and it is not safe to BIP. They have completed processing munitions debris and all has been shipped sent off-site. The planting of QC seeds is complete. The BEM soils will be sampled today and next week, it will be moved so the BEM liner can be inspected. EPA requested that the team take videos and/or photos of the liner inspection, especially the bottom of the liner. It was noted that the BEM soil have only been used for one year and there has been approximately 20 shots since it was last sampled.

Small Arms Ranges Annual Monitoring Report Presentation

A presentation was provided on the Small Arms Ranges Annual Monitoring Report. It was noted that during the reporting period (March 2019 to March 2020), a total of approximately 450 cubic yards of soil from Former B, C, and D Ranges were excavated and disposed of off-site. Site restoration work is complete. No new wells were installed in the Small Arms Range monitoring network during the reporting period. The most recently installed monitoring well is MW-690S on GA/GB Range, installed in 2017. It was noted that sixteen wells were included in the 2019 monitoring program and all were successfully sampled. All samples were obtained using low flow methods.

Sampling locations, groundwater monitoring results, and trends were reviewed and discussed. Tungsten was detected on B Range in MW-72S (2.0 µg/L total) and MW-470S (0.19 J µg/L total). All other wells were non-detect (14 MWs). For Metals, only two wells had metals detections. They were Antimony in MW-470S (G Range) at 0.19 J µg/L (total) and Tungsten in MW-72S (B Range) at 2.0 µg/L (total). Lead was non-detect in all wells.

A comparison to the Decision Document criteria was discussed. It was noted that there is no timeframe for remedy completion included in DD. The groundwater long-term monitoring for Small Arms Ranges monitoring wells will be continued. After analytical results of subsequent groundwater LTM events are reviewed, IAGWSP will evaluate discontinuing groundwater monitoring and site closeout while maintaining current land use controls. It was noted that metals are below cleanup levels. No changes are recommended for the monitoring well network. IAGWSP will continue annual sampling at Bravo Range (MW-72S, MW-455S, MW-490S, MW-537M1, MW-538M1, and MW-539M1); Charlie Range (MW-123S, MW-456S, and MW-491S); Golf Range (MW-35S, MW-36S, and MW-470S); and GA/GB Range (03MW0709, 03MW0710, 03MW0122A, and MW-690S).

Action Items

The action items were discussed and updated.

JBCC IAGWSP Tech Update Meeting Minutes 25 June 2020Project and Fieldwork Update

All treatment systems are up and running with the exception of J-2 E unit H vessel 3 (still awaiting plumber, who has ordered parts and will be back to make the repairs) and the J-3 Range was down for two days because FS-12 was offline due to an alarm in a storage tank. Long-term monitoring sampling crews are performing annual sampling in Demolition Area 1.

Dawson began intrusive investigation of EM-61 anomalies at Former E Range and has completed discrete targets in four grids to date. Dawson has also completed UXO clearance of Wood and Barlow Roads in support of future range road improvements. Turpentine Road is scheduled to be cleared next week. They will resume intrusive investigations at Former E Range. Dawson will remain in Former E Range until mid-August, at which time they might begin analog clearance at J-2 Range to avoid range-firing conflicts.

KGS is scheduled to begin road improvements, including grading and stone installation, starting with Barlow Road next week. They plan to finish by the end of July or first week in August to avoid conflicts with range firing.

In the Central Impact Area, Parsons crews have finished demolition operations. There are two DGM teams performing surveys. Next week one of the two teams will move on to do Metal Mapper surveys. Parsons collected annual samples from the BEM consolidated shot structure last week. After sampling, material was removed from the cell and the liner was inspected. Based on the inspection, the sidewall liners (two layers of 6 ml poly) were replaced and the material was backfilled into the cell. Updates, including pictures, were provided to EPA and MassDEP as the work progressed.

Demolition Area 2 Annual Monitoring Report Presentation

A presentation was provided on the Demolition Area 2 Annual Monitoring Report. During the reporting period (June 2019 to May 2020), no new fieldwork was conducted. Sampling locations, groundwater monitoring results, and trends were reviewed and discussed. In fall 2019, RDX was detected in five of ten monitoring wells sampled at a maximum concentration of 0.91 µg/L (MW-161S) and three of the detections were below the Reporting Limit (RL) of 0.2 µg/L. In spring 2020, RDX was detected in nine of twenty-one samples at concentrations ranging from 0.034 µg/L (MW-311M2) to 1.59 µg/L (MW-404M2). One sample collected in fall 2019 (MW-161S) and one in spring 2020 (MW-404M2) contained RDX at concentrations exceeding the 0.6 µg/L Risk-Based Concentration (RBC). Only the sample from MW-404M2 exceeded the EPA RSL of 0.97 µg/L. None exceeded the 2 µg/L USEPA Lifetime Health Advisory. HMX was the only other explosive compounds detected during this reporting period and was detected in MW-161S and MW-404M2 at concentrations below the RL.

Figures showing RDX trend plots and the model predicted plumes vs. observed concentrations were displayed. Decision Document cleanup timelines were discussed. The estimates presented in the 2015 Decision Document addendum of below Health Advisory (2 µg/L) by 2016, below RBC (0.6 µg/L) by 2018, and below background level (0.25 µg/L) by 2025 were shown. The updated RDX plume shell estimates that in 2021, concentrations will be below RBC and below background level in 2024. It was noted that during the reporting period, no monitoring wells exceeded 2 µg/L and only two exceeded 0.6 µg/L. The maximum detected concentration was 1.59 µg/L (MW404M2). IAGWSP recommends increasing the monitoring well network

frequency at MW-380M2 and MW-404M2 from annual to semi-annual. The frequency increase at MW-380M2 is used to bound RDX plume to the west of MW-404M2. IAGWSP also proposes to update the RDX plume shell using the drift function for 2021 annual report to account for more recently collected data.

Action Items

The action items were discussed and updated.

JBCC Cleanup Team Meeting

The next meeting of the JBCC Cleanup Team (JBCCCT) has not be scheduled. Meeting materials from the cancelled March 11, 2020 meeting can be found on the IAGWSP web site at [https://jbcc-iagwsp.org/iagwsp/community/impact/presentations/The Cleanup Team meeting](https://jbcc-iagwsp.org/iagwsp/community/impact/presentations/The%20Cleanup%20Team%20meeting) 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.

3. SUMMARY OF DATA RECEIVED

Table 1 summarizes sampling for all media from 1 June to 30 June 2020. Table 2 summarizes the validated detections of explosives compounds and perchlorate for all groundwater results received from 1 June to 30 June 2020. 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. Table 3 summarizes sampling of influent and groundwater samples for per- and polyfluoroalkyl substances (PFAS) from 1 June 2019 to present.

The twelve OUs under investigation and cleanup at Camp Edwards are the 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).

4. SUBMITTED DELIVERABLES

Deliverables submitted during the reporting period include the following:

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|--------------------------------------------------------------------------------------------------------------------|--------------|
| • Project Note Additional PFAS Sampling at J-1 Inter Berm Area, J-2 Range Disposal Area 2, and J-3 Demolition Area | 02 June 2020 |
| • Monthly Progress Report No. 278 for May 2020 | 10 June 2020 |
| • Draft Small Arms Ranges 2020 Annual Environmental Monitoring Report | 22 June 2020 |
| • Final 2012-2016 Five Year Review Report | 24 June 2020 |
| • Draft Demo Area 2 2020 Annual Environmental Monitoring Report | 30 June 2020 |

5. SCHEDULED ACTIONS

The documents below were being prepared or revised in June 2020.

- 2012-2016 Five-Year Review Report
- CIA 2019 Source Removal Annual Report
- CIA and J-2 Range IRA Plan for BEM rocket disposal
- Demo Area 2 2020 Annual Environmental Monitoring Report
- J-1 Ranges 2020 Annual Environmental Monitoring Report
- L Range 2020 Annual Environmental Monitoring Report
- Northwest Corner Demonstration of Compliance Report and Project Note
- Small Arms Ranges 2020 Annual Environmental Monitoring Report
- Small Arms Ranges Completion of Work Report

TABLE 1
Sampling Progress: 1 June to 30 June 2020

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-611M2	MW-611M2_S20	N	06/29/2020	Ground Water	91	101
Demolition Area 1	MW-611M1	MW-611M1_S20	N	06/29/2020	Ground Water	141	151
Demolition Area 1	MW-611M1	MW-611M1_S20D	FD	06/29/2020	Ground Water	141	151
Demolition Area 1	MW-610M2	MW-610M2_S20	N	06/29/2020	Ground Water	85	95
Demolition Area 1	MW-610M1	MW-610M1_S20	N	06/29/2020	Ground Water	110	120
Demolition Area 1	MW-642M2	MW-642M2_S20	N	06/25/2020	Ground Water	77.3	87.3
Demolition Area 1	MW-642M1	MW-642M1_S20	N	06/25/2020	Ground Water	104.3	114.3
Demolition Area 1	MW-641M2	MW-641M2_S20	N	06/25/2020	Ground Water	86.2	96.2
Demolition Area 1	MW-598M2	MW-598M2_S20	N	06/25/2020	Ground Water	88	98
Demolition Area 1	MW-598M1	MW-598M1_S20	N	06/25/2020	Ground Water	122	132
Demolition Area 1	MW-641M1	MW-641M1_S20	N	06/24/2020	Ground Water	113.2	123.2
Demolition Area 1	MW-554M2	MW-554M2_S20	N	06/24/2020	Ground Water	89.1	99.1
Demolition Area 1	MW-554M1	MW-554M1_S20	N	06/24/2020	Ground Water	120	130
Demolition Area 1	MW-559M2	MW-559M2_S20	N	06/24/2020	Ground Water	87	97
Demolition Area 1	MW-559M1	MW-559M1_S20	N	06/24/2020	Ground Water	135.6	145.6
Demolition Area 1	MW-582M2	MW-582M2_S20	N	06/23/2020	Ground Water	84	94
Demolition Area 1	MW-582M1	MW-582M1_S20	N	06/23/2020	Ground Water	134	144
Demolition Area 1	MW-558M2	MW-558M2_S20	N	06/23/2020	Ground Water	98	108
Demolition Area 1	MW-558M1	MW-558M1_S20	N	06/23/2020	Ground Water	134	144
Demolition Area 1	MW-556M2	MW-556M2_S20	N	06/23/2020	Ground Water	111	121
Demolition Area 1	MW-556M1	MW-556M1_S20	N	06/22/2020	Ground Water	153	163
Demolition Area 1	MW-659M2	MW-659M2_S20	N	06/22/2020	Ground Water	85	95
Demolition Area 1	MW-659M1	MW-659M1_S20	N	06/22/2020	Ground Water	120	130
Demolition Area 1	MW-546M2	MW-546M2_S20	N	06/22/2020	Ground Water	100	110
Demolition Area 1	MW-546M1	MW-546M1_S20	N	06/22/2020	Ground Water	140	150
Demolition Area 1	MW-571M2	MW-571M2_S20	N	06/18/2020	Ground Water	74	84
Demolition Area 1	MW-571M1	MW-571M1_S20	N	06/18/2020	Ground Water	114	124
Demolition Area 1	MW-569M2	MW-569M2_S20	N	06/18/2020	Ground Water	84	94
Demolition Area 1	MW-569M1	MW-569M1_S20	N	06/18/2020	Ground Water	114	124
Demolition Area 1	MW-545M4	MW-545M4_S20	N	06/17/2020	Ground Water	72	82
Demolition Area 1	MW-545M3	MW-545M3_S20	N	06/17/2020	Ground Water	101.5	111.5
Demolition Area 1	MW-545M2	MW-545M2_S20	N	06/17/2020	Ground Water	142	152
Demolition Area 1	MW-545M2	MW-545M2_S20D	FD	06/17/2020	Ground Water	142	152
Demolition Area 1	MW-545M1	MW-545M1_S20	N	06/17/2020	Ground Water	162	172
Demolition Area 1	MW-597M2	MW-597M2_S20	N	06/16/2020	Ground Water	118	128
Demolition Area 1	MW-597M1	MW-597M1_S20	N	06/16/2020	Ground Water	148	158
Demolition Area 1	MW-352M1	MW-352M1_S20	N	06/16/2020	Ground Water	115	125
Demolition Area 1	MW-353M2	MW-353M2_S20	N	06/16/2020	Ground Water	57	67
Demolition Area 1	MW-353M1	MW-353M1_S20	N	06/16/2020	Ground Water	107	117
Demolition Area 1	MW-543M2	MW-543M2_S20	N	06/15/2020	Ground Water	91.8	101.8
Demolition Area 1	MW-543M1	MW-543M1_S20	N	06/15/2020	Ground Water	127	137
Demolition Area 1	MW-544M3	MW-544M3_S20	N	06/15/2020	Ground Water	77.5	87.5
Demolition Area 1	MW-544M2	MW-544M2_S20	N	06/15/2020	Ground Water	112	122
Demolition Area 1	MW-544M1	MW-544M1_S20	N	06/15/2020	Ground Water	162	172
Demolition Area 1	MW-544M1	MW-544M1_S20D	FD	06/15/2020	Ground Water	162	172
Demolition Area 1	MW-531M1	MW-531M1_S20	N	06/11/2020	Ground Water	138	148
Demolition Area 1	MW-531M1	MW-531M1_S20D	FD	06/11/2020	Ground Water	138	148
Demolition Area 1	MW-696M1	MW-696M1_S20	N	06/11/2020	Ground Water	175.2	185.2
Demolition Area 1	MW-258M3	MW-258M3_S20	N	06/11/2020	Ground Water	77	82
Demolition Area 1	MW-258M2	MW-258M2_S20	N	06/11/2020	Ground Water	87	92
Demolition Area 1	MW-258M1	MW-258M1_S20	N	06/11/2020	Ground Water	109	119
Demolition Area 1	MW-258M1	MW-258M1_S20D	FD	06/11/2020	Ground Water	109	119
Demolition Area 1	MW-532M2	MW-532M2_S20	N	06/10/2020	Ground Water	138	148
Demolition Area 1	MW-532M1	MW-532M1_S20	N	06/10/2020	Ground Water	168	178
Demolition Area 1	MW-542M1	MW-542M1_S20	N	06/10/2020	Ground Water	144	154
Demolition Area 1	MW-173M2	MW-173M2_S20	N	06/10/2020	Ground Water	208	218
Demolition Area 1	MW-173M2	MW-173M2_S20D	FD	06/10/2020	Ground Water	208	218

N = Normal Sample
FD = Field Duplicate

TABLE 1
Sampling Progress: 1 June to 30 June 2020

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-173M1	MW-173M1_S20	N	06/10/2020	Ground Water	243	253
Demolition Area 1	MW-698M1	MW-698M1_S20	N	06/09/2020	Ground Water	212.4	222.4
Demolition Area 1	MW-697M1	MW-697M1_S20	N	06/09/2020	Ground Water	243	253
Demolition Area 1	MW-533M1	MW-533M1_S20	N	06/09/2020	Ground Water	160	170
Demolition Area 1	MW-533M1	MW-533M1_S20D	FD	06/09/2020	Ground Water	160	170
Demolition Area 1	MW-700M2	MW-700M2_S20	N	06/09/2020	Ground Water	147.7	157.7
Demolition Area 1	MW-700M1	MW-700M1_S20	N	06/09/2020	Ground Water	197.9	207.9
Demolition Area 1	MW-248M3	MW-248M3_S20	N	06/08/2020	Ground Water	143	153
Demolition Area 1	MW-248M2	MW-248M2_S20	N	06/08/2020	Ground Water	178	188
Demolition Area 1	MW-248M1	MW-248M1_S20	N	06/08/2020	Ground Water	216.3	226.3
Demolition Area 1	MW-664M2	MW-664M2_S20	N	06/08/2020	Ground Water	218.5	228.5
Demolition Area 1	MW-664M1	MW-664M1_S20	N	06/08/2020	Ground Water	248.5	258.5
Demolition Area 1	MW-663D	MW-663D_S20	N	06/04/2020	Ground Water	240.6	250.6
Demolition Area 1	MW-663D	MW-663D_S20D	FD	06/04/2020	Ground Water	240.6	250.6
Demolition Area 1	MW-231M2	MW-231M2_S20	N	06/04/2020	Ground Water	165.5	175.5
Demolition Area 1	PR-EFF	PR-EFF-171A	N	06/04/2020	Process Water	0	0
Demolition Area 1	PR-MID-2	PR-MID-2-171A	N	06/04/2020	Process Water	0	0
Demolition Area 1	PR-MID-1	PR-MID-1-171A	N	06/04/2020	Process Water	0	0
Demolition Area 1	PR-INF	PR-INF-171A	N	06/04/2020	Process Water	0	0
Demolition Area 1	MW-231M1	MW-231M1_S20	N	06/04/2020	Ground Water	210.5	220.5
Demolition Area 1	FPR-2-EFF-A	FPR-2-EFF-A-171A	N	06/04/2020	Process Water	0	0
Demolition Area 1	FPR-2-GAC-MID1A	FPR-2-GAC-MID1A-171A	N	06/04/2020	Process Water	0	0
Demolition Area 1	FPR2-POST-IX-A	FPR2-POST-IX-A-171A	N	06/04/2020	Process Water	0	0
Demolition Area 1	FPR-2-INF	FPR-2-INF-171A	N	06/04/2020	Process Water	0	0
Demolition Area 1	D1LE-EFF	D1LE-EFF-47A	N	06/04/2020	Process Water	0	0
Demolition Area 1	D1LE-MID2	D1LE-MID2-47A	N	06/04/2020	Process Water	0	0
Demolition Area 1	D1LE-MID1	D1LE-MID1-47A	N	06/04/2020	Process Water	0	0
Demolition Area 1	D1LE-INF	D1LE-INF-47A	N	06/04/2020	Process Water	0	0
Demolition Area 1	MW-211M2	MW-211M2_S20	N	06/04/2020	Ground Water	175	185
Demolition Area 1	D1-EFF	D1-EFF-119A	N	06/04/2020	Process Water	0	0
Demolition Area 1	D1-MID-2	D1-MID-2-119A	N	06/04/2020	Process Water	0	0
Demolition Area 1	D1-MID-1	D1-MID-1-119A	N	06/04/2020	Process Water	0	0
Demolition Area 1	D1-INF	D1-INF-119A	N	06/04/2020	Process Water	0	0
Demolition Area 1	MW-211M1	MW-211M1_S20	N	06/04/2020	Ground Water	200	210
Demolition Area 1	MW-661D	MW-661D_S20	N	06/03/2020	Ground Water	251.6	261.6
J3 Range	J3-EFF	J3-EFF-165A	N	06/03/2020	Process Water	0	0
J3 Range	J3-MID-2	J3-MID-2-165A	N	06/03/2020	Process Water	0	0
J3 Range	J3-MID-1	J3-MID-1-165A	N	06/03/2020	Process Water	0	0
J3 Range	J3-INF	J3-INF-165A	N	06/03/2020	Process Water	0	0
Demolition Area 1	MW-240M2	MW-240M2_S20	N	06/03/2020	Ground Water	125	135
J1 Range Southern	J1S-EFF	J1S-EFF-151A	N	06/03/2020	Process Water	0	0
J1 Range Southern	J1S-MID	J1S-MID-151A	N	06/03/2020	Process Water	0	0
J1 Range Southern	J1S-INF-2	J1S-INF-2-151A	N	06/03/2020	Process Water	0	0
Demolition Area 1	MW-240M1	MW-240M1_S20	N	06/03/2020	Ground Water	198	208
J2 Range Eastern	J2E-EFF-K	J2E-EFF-K-141A	N	06/03/2020	Process Water	0	0
J2 Range Eastern	J2E-MID-2K	J2E-MID-2K-141A	N	06/03/2020	Process Water	0	0
J2 Range Eastern	J2E-MID-1K	J2E-MID-1K-141A	N	06/03/2020	Process Water	0	0
J2 Range Eastern	J2E-INF-K	J2E-INF-K-141A	N	06/03/2020	Process Water	0	0
Demolition Area 1	MW-662D	MW-662D_S20	N	06/03/2020	Ground Water	202.3	212.3
J2 Range Eastern	J2E-EFF-J	J2E-EFF-J-141A	N	06/03/2020	Process Water	0	0
J2 Range Eastern	J2E-MID-2J	J2E-MID-2J-141A	N	06/03/2020	Process Water	0	0
J2 Range Eastern	J2E-MID-1J	J2E-MID-1J-141A	N	06/03/2020	Process Water	0	0
Demolition Area 1	MW-225M3	MW-225M3_S20	N	06/03/2020	Ground Water	125	135
J2 Range Eastern	J2E-INF-J	J2E-INF-J-141A	N	06/03/2020	Process Water	0	0
Demolition Area 1	MW-225M2	MW-225M2_S20	N	06/03/2020	Ground Water	145	155
J2 Range Eastern	J2E-EFF-IH	J2E-EFF-IH-141A	N	06/03/2020	Process Water	0	0
J2 Range Eastern	J2E-MID-2H	J2E-MID-2H-141A	N	06/03/2020	Process Water	0	0

N = Normal Sample
FD = Field Duplicate

TABLE 1
Sampling Progress: 1 June to 30 June 2020

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-1H	J2E-MID-1H-141A	N	06/03/2020	Process Water	0	0
J2 Range Eastern	J2E-MID-2I	J2E-MID-2I-141A	N	06/03/2020	Process Water	0	0
J2 Range Eastern	J2E-MID-1I	J2E-MID-1I-141A	N	06/03/2020	Process Water	0	0
J2 Range Eastern	J2E-INF-I	J2E-INF-I-141A	N	06/03/2020	Process Water	0	0
Demolition Area 1	MW-225M1	MW-225M1_S20	N	06/03/2020	Ground Water	175	185
Demolition Area 1	MW-221M1	MW-221M1_S20	N	06/02/2020	Ground Water	221	231
Demolition Area 1	XX9514	XX9514_S20	N	06/02/2020	Ground Water	102	112
Demolition Area 1	XX9514	XX9514_S20D	FD	06/02/2020	Ground Water	102	112
Central Impact Area	CIA2-EFF	CIA2-EFF-77A	N	06/02/2020	Process Water	0	0
Central Impact Area	CIA2-MID2	CIA2-MID2-77A	N	06/02/2020	Process Water	0	0
Central Impact Area	CIA2-MID1	CIA2-MID1-77A	N	06/02/2020	Process Water	0	0
Central Impact Area	CIA2-INF	CIA2-INF-77A	N	06/02/2020	Process Water	0	0
Central Impact Area	CIA1-EFF	CIA1-EFF-77A	N	06/02/2020	Process Water	0	0
Central Impact Area	CIA1-MID2	CIA1-MID2-77A	N	06/02/2020	Process Water	0	0
Central Impact Area	CIA1-MID1	CIA1-MID1-77A	N	06/02/2020	Process Water	0	0
Central Impact Area	CIA1-INF	CIA1-INF-77A	N	06/02/2020	Process Water	0	0
Demolition Area 1	MW-274	MW-274_S20	N	06/02/2020	Ground Water	109	199
Central Impact Area	CIA3-EFF	CIA3-EFF-48A	N	06/02/2020	Process Water	0	0
Central Impact Area	CIA3-MID2	CIA3-MID2-48A	N	06/02/2020	Process Water	0	0
Central Impact Area	CIA3-MID1	CIA3-MID1-48A	N	06/02/2020	Process Water	0	0
Central Impact Area	CIA3-INF	CIA3-INF-48A	N	06/02/2020	Process Water	0	0
KD Range	SSKD0004	KD0004_PE_50F	FR	06/02/2020	Soil	0	0.25
KD Range	SSKD0004	KD0004_PE_50E	FR	06/02/2020	Soil	0	0.25
KD Range	SSKD0004	KD0004_PE_50D	N	06/02/2020	Soil	0	0.25
Demolition Area 1	MW-341M3	MW-341M3_S20	N	06/01/2020	Ground Water	209.5	219.5
Demolition Area 1	MW-341M2	MW-341M2_S20	N	06/01/2020	Ground Water	264.5	269.5
Demolition Area 1	MW-341M2	MW-341M2_S20D	FD	06/01/2020	Ground Water	264.5	269.5
Demolition Area 1	MW-341M1	MW-341M1_S20	N	06/01/2020	Ground Water	289.5	299.5
J2 Range Northern	J2N-EFF-G	J2N-EFF-G-165A	N	06/01/2020	Process Water	0	0
J2 Range Northern	J2N-MID-2G	J2N-MID-2G-165A	N	06/01/2020	Process Water	0	0
J2 Range Northern	J2N-MID-1G	J2N-MID-1G-165A	N	06/01/2020	Process Water	0	0
J2 Range Northern	J2N-INF-G	J2N-INF-G-165A	N	06/01/2020	Process Water	0	0
J2 Range Northern	J2N-EFF-EF	J2N-EFF-EF-165A	N	06/01/2020	Process Water	0	0
J2 Range Northern	J2N-MID-2F	J2N-MID-2F-165A	N	06/01/2020	Process Water	0	0
Demolition Area 1	MW-433	MW-433_S20	N	06/01/2020	Ground Water	148	228
J2 Range Northern	J2N-MID-1F	J2N-MID-1F-165A	N	06/01/2020	Process Water	0	0
J2 Range Northern	J2N-INF-EF	J2N-INF-EF-165A	N	06/01/2020	Process Water	0	0
J2 Range Northern	J2N-MID-2E	J2N-MID-2E-165A	N	06/01/2020	Process Water	0	0
J2 Range Northern	J2N-MID-1E	J2N-MID-1E-165A	N	06/01/2020	Process Water	0	0
J1 Range Northern	J1N-EFF	J1N-EFF-80A	N	06/01/2020	Process Water	0	0
J1 Range Northern	J1N-MID2	J1N-MID2-80A	N	06/01/2020	Process Water	0	0
J1 Range Northern	J1N-MID1	J1N-MID1-80A	N	06/01/2020	Process Water	0	0
J1 Range Northern	J1N-INF2	J1N-INF2-80A	N	06/01/2020	Process Water	0	0
Demolition Area 1	MW-432	MW-432_S20	N	06/01/2020	Ground Water	88	188

N = Normal Sample
FD = Field Duplicate

TABLE 2
VALIDATED EXPLOSIVE AND PERCHLORATE RESULTS
Data Received June 2020

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-210M2	MW-210M2_S20	156	166	05/28/2020	SW6850	Perchlorate	0.10	J	µg/L	2.0		0.030	0.20
Demolition Area 1	MW-210M1	MW-210M1_S20	201	211	05/28/2020	SW6850	Perchlorate	0.11	J	µg/L	2.0		0.030	0.20
Demolition Area 1	MW-114M1	MW-114M1_S20	177	187	05/28/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.098	J	µg/L	0.60		0.034	0.20
Demolition Area 1	MW-431	MW-431_S20	88	188	05/26/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.090	J	µg/L	400		0.036	0.20
Demolition Area 1	MW-431	MW-431_S20	88	188	05/26/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.13	J	µg/L	0.60		0.034	0.20
Demolition Area 1	MW-431	MW-431_S20D	88	188	05/26/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.10	J	µg/L	400		0.036	0.20
Demolition Area 1	MW-431	MW-431_S20D	88	188	05/26/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.12	J	µg/L	0.60		0.034	0.20
Demolition Area 1	MW-78M1	MW-78M1_S20	135	145	05/26/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.069	J	µg/L	0.60		0.034	0.20
Demolition Area 1	MW-76M1	MW-76M1_S20	125	135	05/26/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.11	J	µg/L	0.60		0.034	0.20
Demolition Area 1	MW-77M2	MW-77M2_S20	120	130	05/21/2020	SW8330	2-Amino-4,6-dinitrotoluene	0.26		µg/L	7.3		0.020	0.20
Demolition Area 1	MW-77M2	MW-77M2_S20	120	130	05/21/2020	SW8330	4-Amino-2,6-dinitrotoluene	0.27		µg/L	7.3		0.027	0.20
Demolition Area 1	MW-77M2	MW-77M2_S20	120	130	05/21/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.80		µg/L	0.60	X	0.034	0.20
Demolition Area 1	MW-77M2	MW-77M2_S20	120	130	05/21/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.93		µg/L	400		0.036	0.20
Demolition Area 1	MW-77M2	MW-77M2_S20D	120	130	05/21/2020	SW8330	2-Amino-4,6-dinitrotoluene	0.25		µg/L	7.3		0.020	0.20
Demolition Area 1	MW-77M2	MW-77M2_S20D	120	130	05/21/2020	SW8330	4-Amino-2,6-dinitrotoluene	0.27		µg/L	7.3		0.027	0.20
Demolition Area 1	MW-77M2	MW-77M2_S20D	120	130	05/21/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.79		µg/L	0.60	X	0.034	0.20
Demolition Area 1	MW-77M2	MW-77M2_S20D	120	130	05/21/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.96		µg/L	400		0.036	0.20
Demolition Area 1	EW-658	EW-658_S20	96	136	05/21/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.051	J	µg/L	0.60		0.034	0.20
Demolition Area 1	EW-658	EW-658_S20	96	136	05/21/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.051	J	µg/L	400		0.036	0.20
Demolition Area 1	MW-31S	MW-31S_S20	98	103	05/20/2020	SW8330	2-Amino-4,6-dinitrotoluene	0.12	J	µg/L	7.3		0.020	0.20
Demolition Area 1	MW-31S	MW-31S_S20	98	103	05/20/2020	SW8330	4-Amino-2,6-dinitrotoluene	0.14	J	µg/L	7.3		0.027	0.20
Demolition Area 1	MW-31S	MW-31S_S20	98	103	05/20/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.30		µg/L	400		0.036	0.20
Demolition Area 1	MW-31S	MW-31S_S20	98	103	05/20/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.51		µg/L	0.60		0.034	0.20
Demolition Area 1	MW-31S	MW-31S_S20	98	103	05/20/2020	SW8330	2,4,6-Trinitrotoluene	0.74		µg/L	2.0		0.041	0.20
Demolition Area 1	MW-31S	MW-31S_S20D	98	103	05/20/2020	SW8330	2-Amino-4,6-dinitrotoluene	0.13	J	µg/L	7.3		0.020	0.20
Demolition Area 1	MW-31S	MW-31S_S20D	98	103	05/20/2020	SW8330	4-Amino-2,6-dinitrotoluene	0.14	J	µg/L	7.3		0.027	0.20
Demolition Area 1	MW-31S	MW-31S_S20D	98	103	05/20/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.31		µg/L	400		0.036	0.20
Demolition Area 1	MW-31S	MW-31S_S20D	98	103	05/20/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.49		µg/L	0.60		0.034	0.20
Demolition Area 1	MW-31S	MW-31S_S20D	98	103	05/20/2020	SW8330	2,4,6-Trinitrotoluene	0.76		µg/L	2.0		0.041	0.20
Demolition Area 1	MW-19S	MW-19S_S20	52.7	62.7	05/20/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.47		µg/L	400		0.036	0.20
Demolition Area 1	MW-19S	MW-19S_S20	52.7	62.7	05/20/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.6		µg/L	0.60	X	0.034	0.20
Demolition Area 1	MW-19S	MW-19S_S20D	52.7	62.7	05/20/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.45		µg/L	400		0.036	0.20
Demolition Area 1	MW-19S	MW-19S_S20D	52.7	62.7	05/20/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.6		µg/L	0.60	X	0.034	0.20
Demolition Area 1	MW-73S	MW-73S_S20	52.2	61.7	05/20/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.061	J	µg/L	0.60		0.034	0.20
J1 Range Northern	MW-245M2	MW-245M2_S20	204	214	05/20/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	20.4		µg/L	0.60	X	0.068	0.40
J1 Range Northern	MW-245M2	MW-245M2_S20	204	214	05/20/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	4.6		µg/L	400		0.036	0.20
J1 Range Northern	MW-245M2	MW-245M2_S20	204	214	05/20/2020	SW6850	Perchlorate	7.3		µg/L	2.0	X	0.030	0.20
J1 Range Northern	MW-245M2	MW-245M2_S20D	204	214	05/20/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	19.5		µg/L	0.60	X	0.068	0.40
J1 Range Northern	MW-245M2	MW-245M2_S20D	204	214	05/20/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	4.7		µg/L	400		0.036	0.20
J1 Range Northern	MW-590M2	MW-590M2_S20	238	248	05/19/2020	SW6850	Perchlorate	3.7		µg/L	2.0	X	0.030	0.20
J1 Range Northern	MW-590M2	MW-590M2_S20D	238	248	05/19/2020	SW6850	Perchlorate	3.6		µg/L	2.0	X	0.030	0.20
J1 Range Northern	MW-303M2	MW-303M2_S20	235.09	245.1	05/18/2020	SW6850	Perchlorate	0.095	J	µg/L	2.0		0.030	0.20
J1 Range Northern	MW-303M2	MW-303M2_S20	235.09	245.1	05/18/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	4.5		µg/L	400		0.036	0.20

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

TABLE 2
VALIDATED EXPLOSIVE AND PERCHLORATE RESULTS
Data Received June 2020

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-303M2	MW-303M2_S20	235.09	245.1	05/18/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	5.7		µg/L	0.60	X	0.034	0.20
J1 Range Northern	MW-689M2	MW-689M2_S20	231.4	241.4	05/18/2020	SW6850	Perchlorate	0.28		µg/L	2.0		0.030	0.20
J1 Range Northern	MW-689M1	MW-689M1_S20	253.5	263.5	05/18/2020	SW6850	Perchlorate	0.16	J	µg/L	2.0		0.030	0.20
J1 Range Northern	MW-688M2	MW-688M2_S20	227.8	237.8	05/18/2020	SW6850	Perchlorate	0.052	J	µg/L	2.0		0.030	0.20
J1 Range Northern	MW-566M1	MW-566M1_S20	232	242	05/14/2020	SW6850	Perchlorate	2.2		µg/L	2.0	X	0.030	0.20
J1 Range Northern	MW-401M3	MW-401M3_S20	228.5	238.5	05/14/2020	SW6850	Perchlorate	0.079	J	µg/L	2.0		0.030	0.20
J1 Range Northern	MW-401M1	MW-401M1_S20	256.1	266.1	05/14/2020	SW6850	Perchlorate	0.040	J	µg/L	2.0		0.030	0.20
J1 Range Northern	MW-541M1	MW-541M1_S20	210	220	05/13/2020	SW6850	Perchlorate	0.20		µg/L	2.0		0.030	0.20
J1 Range Northern	MW-430M2	MW-430M2_S20	188.41	198.41	05/13/2020	SW6850	Perchlorate	0.072	J	µg/L	2.0		0.030	0.20
J1 Range Northern	MW-430M1	MW-430M1_S20	245.23	255.23	05/13/2020	SW6850	Perchlorate	0.073	J	µg/L	2.0		0.030	0.20
J1 Range Northern	MW-370M2	MW-370M2_S20	215.54	225.54	05/13/2020	SW6850	Perchlorate	0.086	J	µg/L	2.0		0.030	0.20
J1 Range Northern	MW-370M1	MW-370M1_S20	245	255	05/13/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.76		µg/L	0.60	X	0.034	0.20
J1 Range Northern	MW-370M1	MW-370M1_S20	245	255	05/13/2020	SW6850	Perchlorate	8.6		µg/L	2.0	X	0.030	0.20
J1 Range Northern	MW-370M1	MW-370M1_S20D	245	255	05/13/2020	SW6850	Perchlorate	8.5		µg/L	2.0	X	0.030	0.20
J1 Range Northern	MW-606M2	MW-606M2_S20	193.2	203.2	05/12/2020	SW6850	Perchlorate	0.069	J	µg/L	2.0		0.030	0.20
J1 Range Northern	MW-606M1	MW-606M1_S20	233.3	243.3	05/12/2020	SW6850	Perchlorate	1.2		µg/L	2.0		0.030	0.20
J1 Range Northern	MW-567M1	MW-567M1_S20	215.5	225.5	05/12/2020	SW6850	Perchlorate	1.7		µg/L	2.0		0.030	0.20
J1 Range Northern	MW-584M2	MW-584M2_S20	228	238	05/12/2020	SW6850	Perchlorate	0.049	J	µg/L	2.0		0.030	0.20
J1 Range Northern	MW-584M1	MW-584M1_S20	248	258	05/12/2020	SW6850	Perchlorate	2.2		µg/L	2.0	X	0.030	0.20
J1 Range Northern	MW-564M1	MW-564M1_S20	227	237	05/11/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.45		µg/L	400		0.036	0.20
J1 Range Northern	MW-564M1	MW-564M1_S20	227	237	05/11/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.6		µg/L	0.60	X	0.034	0.20
J1 Range Northern	MW-564M1	MW-564M1_S20	227	237	05/11/2020	SW6850	Perchlorate	4.6		µg/L	2.0	X	0.030	0.20
J1 Range Northern	MW-564M1	MW-564M1_S20D	227	237	05/11/2020	SW6850	Perchlorate	4.7		µg/L	2.0	X	0.030	0.20
J1 Range Northern	MW-549M2	MW-549M2_S20	187.3	197.3	05/11/2020	SW6850	Perchlorate	0.048	J	µg/L	2.0		0.030	0.20
J1 Range Northern	MW-549M1	MW-549M1_S20	227.4	237.4	05/11/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.077	J	µg/L	0.60		0.034	0.20
J1 Range Northern	MW-549M1	MW-549M1_S20	227.4	237.4	05/11/2020	SW6850	Perchlorate	3.0		µg/L	2.0	X	0.030	0.20
J1 Range Northern	MW-605M2	MW-605M2_S20	182.2	192.2	05/11/2020	SW6850	Perchlorate	0.11	J	µg/L	2.0		0.030	0.20
J1 Range Northern	MW-605M1	MW-605M1_S20	220.2	230.2	05/11/2020	SW6850	Perchlorate	0.050	J	µg/L	2.0		0.030	0.20

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

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Demolition Area 1

Location	D1-INF	FPR-2-INF	MW-258M1	MW-663D	PR-INF
Field Sample ID	D1-INF_PFAS19	FPR-2-INF_PFAS19	MW-258M1_PFAS19	MW-663D_PFAS19	PR-INF_PFAS19
Sampling Depth	0.00 - 0.00	0.00 - 0.00	109.00 - 119.00	240.60 - 250.60	0.00 - 0.00
Sampling Date	06/24/2019	06/25/2019	06/19/2019	06/24/2019	06/25/2019
SDG	320517141	320517141	320515981	320517141	320517141
Sample Type	Normal	Normal	Normal	Normal	Normal
PFAS 21 Cmps	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)
6:2 Fluorotelomer sulfonate (6:2 FTS)	18.0 U	19.0 U	20.0 U	20.0 U	20.0 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	9.10 U	9.50 U	9.80 U	9.80 U	9.80 U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	9.10 U	9.50 U	9.80 U	9.80 U	9.80 U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	9.10 U	9.50 U	9.80 U	9.80 U	9.80 U
Perfluoro-1-heptanesulfonate (PFHpS)	0.910 U	0.950 U	0.980 U	0.980 U	0.980 U
Perfluorobutanesulfonic acid (PFBS)	0.910 U	0.950 U	0.980 U	0.980 U	0.980 U
Perfluorobutanoic acid (PFBA)	1.40 U	1.40 U	1.50 U	1.50 U	1.50 U
Perfluorodecane sulfonate	1.40 U	1.40 U	1.50 U	1.50 U	1.50 U
Perfluorodecanoic acid (PFDA)	0.910 U	0.950 U	0.980 U	2.20	0.980 U
Perfluorododecanoic acid (PFDoA)	1.40 U	1.40 U	1.50 U	1.50 U	1.50 U
Perfluoroheptanoic acid (PFHpA)	1.40 U	1.40 U	1.50 U	1.50 U	1.50 U
Perfluorohexanesulfonic acid (PFHxS)	0.910 U	0.950 U	0.980 U	0.980 U	2.00 U
Perfluorohexanoic acid (PFHxA)	0.910 U	0.950 U	0.980 U	0.980 U	0.980 U
Perfluorononanoic acid (PFNA)	1.40 U	1.40 U	1.50 U	1.00 J	1.50 U
Perfluorooctanesulfonamide (FOSA)	2.70 U	2.80 U	2.90 U	3.00 U	2.90 U
Perfluorooctanesulfonic acid (PFOS)	2.70 U	2.80 U	2.90 U	3.00 U	2.90 U
Perfluorooctanoic acid (PFOA)	1.40 U	1.40 U	1.50 U	1.50 U	1.50 U
Perfluoropentanoic acid (PFPA)	0.910 U	0.950 U	0.980 U	0.460 J	0.980 U
Perfluorotetradecanoic acid (PFTA)	2.70 U	2.80 U	2.90 U	3.00 U	2.90 U
Perfluorotridecanoic acid (PFTrDA)	2.70 U	2.80 U	2.90 U	3.00 U	2.90 U
Perfluoroundecanoic acid (PFUnA)	1.40 U	1.40 U	1.50 U	1.20 J	1.50 U
*PFOS + PFOA (EPA)	0.00	0.00	0.00	0.00	0.00
*PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP/ORSF)	0.00	0.00	0.00	3.20	0.00

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J1 Range Northern

Location	J1N-INF2	J1N-INF2	MW-136S	MW-564M1	MW-590M2
Field Sample ID	J1N-INF2_PFAS19	J1N-INF2_PFAS19R	MW-136S_PFAS19	MW-564M1_PFAS19	MW-590M2_PFAS19
Sampling Depth	0.00 - 0.00	0.00 - 0.00	107.00 - 117.00	227.00 - 237.00	238.00 - 248.00
Sampling Date	06/17/2019	07/30/2019	06/24/2019	06/24/2019	06/24/2019
SDG	320514661	320528231	320517141	320517141	320517141
Sample Type	Normal	Normal	Normal	Normal	Normal
PFAS 21 Cmps	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)
6:2 Fluorotelomer sulfonate (6:2 FTS)	19.0 U	19.0 U	20.0 U	18.0 U	19.0 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	9.30 U	9.60 U	9.80 U	9.20 U	9.60 U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	9.30 U	9.60 U	9.80 U	9.20 U	9.60 U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	9.30 U	9.60 U	9.80 U	9.20 U	9.60 U
Perfluoro-1-heptanesulfonate (PFHpS)	0.930 U	0.960 U	0.980 U	0.920 U	0.960 U
Perfluorobutanesulfonic acid (PFBS)	0.930 U	0.960 U	0.980 U	0.920 U	0.960 U
Perfluorobutanoic acid (PFBA)	1.90 U	1.40 U	0.990 J	1.40 U	1.40 U
Perfluorodecane sulfonate	1.40 U	1.40 U	1.50 U	1.40 U	1.40 U
Perfluorodecanoic acid (PFDA)	0.930 U	0.960 U	0.980 U	0.920 U	0.960 U
Perfluorododecanoic acid (PFDoA)	1.40 U	1.40 U	1.50 U	1.40 U	1.40 U
Perfluoroheptanoic acid (PFHpA)	1.40 U	1.40 U	1.50 U	1.40 U	1.40 U
Perfluorohexanesulfonic acid (PFHxS)	0.930 U	1.90 U	2.00 U	1.80 U	0.960 U
Perfluorohexanoic acid (PFHxA)	0.930 U	0.960 U	0.980 U	0.920 U	0.960 U
Perfluorononanoic acid (PFNA)	1.40 U	1.40 U	1.50 U	1.40 U	1.40 U
Perfluorooctanesulfonamide (FOSA)	1.80 J	2.90 U	2.90 U	2.80 U	2.90 U
Perfluorooctanesulfonic acid (PFOS)	4.90	2.90 U	1.40 J	2.80 U	2.90 U
Perfluorooctanoic acid (PFOA)	1.40 U	1.40 U	2.40	1.40 U	1.40 U
Perfluoropentanoic acid (PFPA)	0.930 U	0.960 U	0.980 U	0.920 U	0.960 U
Perfluorotetradecanoic acid (PFTA)	2.80 U	2.90 U	2.90 U	2.80 U	2.90 U
Perfluorotridecanoic acid (PFTrDA)	2.80 U	2.90 U	2.90 U	2.80 U	2.90 U
Perfluoroundecanoic acid (PFUnA)	1.40 U	1.40 U	1.50 U	1.40 U	1.40 U
*PFOS + PFOA (EPA)	4.90	0.00	3.80	0.00	0.00
*PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP/ORSF)	4.90	0.00	3.80	0.00	0.00

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J2 Range Eastern

Location	J2E-INF-I	J2E-INF-J	J2E-INF-K	MW-307M3	MW-307M3	MW-368M1
Field Sample ID	J2E-INF-I_PFAS19	J2E-INF-J_PFAS19	J2E-INF-K_PFAS19	MW-307M3_PFAS19	MW-307M3_PFAS19D	MW-368M1_PFAS19
Sampling Depth	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	125.80 - 135.82	125.80 - 135.82	237.35 - 247.35
Sampling Date	06/20/2019	06/20/2019	06/20/2019	06/18/2019	06/18/2019	06/18/2019
SDG	320515981	320515981	320515981	320514662	320514662	320514662
Sample Type	Normal	Normal	Normal	Normal	Field Duplicate	Normal
PFAS 21 Cmps	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)
6:2 Fluorotelomer sulfonate (6:2 FTS)	19.0 U	19.0 U	20.0 U	18.0 U	19.0 U	17.0 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	9.70 U	9.30 U	9.80 U	9.00 U	9.60 U	8.50 U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	9.70 U	9.30 U	9.80 U	9.00 U	9.60 U	8.50 U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	9.70 U	9.30 U	9.80 U	9.00 U	9.60 U	8.50 U
Perfluoro-1-heptanesulfonate (PFHpS)	0.970 U	0.930 U	0.980 U	0.900 U	0.960 U	0.850 U
Perfluorobutanesulfonic acid (PFBS)	0.970 U	0.930 U	0.980 U	0.900 U	0.960 U	0.850 U
Perfluorobutanoic acid (PFBA)	1.50 U	1.40 U	1.50 U	1.80 U	1.90 U	1.70 U
Perfluorodecane sulfonate	1.50 U	1.40 U	1.50 U	1.30 U	1.40 U	1.30 U
Perfluorodecanoic acid (PFDA)	0.970 U	0.930 U	0.980 U	0.900 U	0.960 U	1.40 J
Perfluorododecanoic acid (PFDoA)	1.50 U	1.40 U	1.50 U	1.30 U	1.40 U	0.450 J
Perfluoroheptanoic acid (PFHpA)	1.50 U	1.40 U	1.50 U	1.30 U	1.40 U	1.30 U
Perfluorohexanesulfonic acid (PFHxS)	0.970 U	0.930 U	0.980 U	0.900 U	0.960 U	0.850 U
Perfluorohexanoic acid (PFHxA)	0.970 U	0.930 U	0.980 U	0.900 U	0.960 U	0.850 U
Perfluorononanoic acid (PFNA)	1.50 U	1.40 U	1.50 U	0.880 J	0.730 J	0.650 J
Perfluorooctanesulfonamide (FOSA)	2.90 U	2.80 U	2.90 U	2.70 U	2.90 U	2.60 U
Perfluorooctanesulfonic acid (PFOS)	2.90 U	2.80 U	2.90 U	2.70 U	2.90 U	2.60 U
Perfluorooctanoic acid (PFOA)	1.50 U	1.40 U	1.50 U	1.30 U	1.40 U	1.30 U
Perfluoropentanoic acid (PFPA)	0.970 U	0.930 U	0.980 U	0.900 U	0.960 U	0.850 U
Perfluorotetradecanoic acid (PFTA)	2.90 U	2.80 U	2.90 U	2.70 U	2.90 U	2.60 U
Perfluorotridecanoic acid (PFTrDA)	2.90 U	2.80 U	2.90 U	2.70 U	2.90 U	2.60 U
Perfluoroundecanoic acid (PFUnA)	1.50 U	1.40 U	1.50 U	1.30 U	1.40 U	4.90
*PFOS + PFOA (EPA)	0.00	0.00	0.00	0.00	0.00	0.00
*PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP/ORSF)	0.00	0.00	0.00	0.880	0.730	2.05

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J2 Range Eastern

	Location	MW-368M2	MW-667M1
	Field Sample ID	MW-368M2_PFAS19	MW-667M1_PFAS19
	Sampling Depth	202.73 - 212.73	302.30 - 312.30
	Sampling Date	06/18/2019	06/17/2019
	SDG	320514662	320514661
	Sample Type	Normal	Normal
PFAS 21 Cmps		Results (ng/L)	Results (ng/L)
6:2 Fluorotelomer sulfonate (6:2 FTS)		18.0 U	18.0 U
8:2 Fluorotelomer sulfonate (8:2 FTS)		8.80 U	9.00 U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)		8.80 U	9.00 U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)		8.80 U	9.00 U
Perfluoro-1-heptanesulfonate (PFHpS)		0.880 U	0.900 U
Perfluorobutanesulfonic acid (PFBS)		0.880 U	0.900 U
Perfluorobutanoic acid (PFBA)		1.30 U	1.80 U
Perfluorodecane sulfonate		1.30 U	1.40 U
Perfluorodecanoic acid (PFDA)		0.800 J	4.30
Perfluorododecanoic acid (PFDoA)		1.30 U	1.40 U
Perfluoroheptanoic acid (PFHpA)		1.30 U	1.40 U
Perfluorohexanesulfonic acid (PFHxS)		0.880 U	0.900 U
Perfluorohexanoic acid (PFHxA)		0.880 U	0.900 U
Perfluorononanoic acid (PFNA)		1.30 U	2.80
Perfluorooctanesulfonamide (FOSA)		2.60 U	2.70 U
Perfluorooctanesulfonic acid (PFOS)		2.60 U	2.70 U
Perfluorooctanoic acid (PFOA)		1.30 U	1.40 U
Perfluoropentanoic acid (PFPA)		0.880 U	0.900 U
Perfluorotetradecanoic acid (PFTA)		2.60 U	2.70 U
Perfluorotridecanoic acid (PFTrDA)		2.60 U	2.70 U
Perfluoroundecanoic acid (PFUnA)		2.40	1.60 J
	†PFOS + PFOA (EPA)	0.00	0.00
	*PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP/ORSG)	0.800	7.10

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J2 Range Northern

Location	J2EW0001	J2EW0002	J2N-INF-E	J2N-INF-F	J2N-INF-F	J2N-INF-G
Field Sample ID	J2EW0001_PFAS19	J2EW0002_PFAS19	J2N-INF-E_PFAS19	J2N-INF-F_PFAS19	J2N-INF-F_PFAS19R	J2N-INF-G_PFAS19
Sampling Depth	179.00 - 234.00	198.00 - 233.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Sampling Date	11/20/2019	11/20/2019	06/18/2019	06/18/2019	07/30/2019	07/30/2019
SDG	320565491	320565491	320514662	320514662	320528231	320528231
Sample Type	Normal	Normal	Normal	Normal	Normal	Normal
PFAS 21 Cmps	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)
6:2 Fluorotelomer sulfonate (6:2 FTS)	19.0 U	40.0 U	19.0 U	19.0 U	19.0 U	19.0 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	19.0 U	20.0 U	9.30 U	9.30 U	9.60 U	9.70 U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	9.60 U	10.0 U	9.30 U	9.30 U	9.60 U	9.70 U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	9.60 U	10.0 U	9.30 U	9.30 U	9.60 U	9.70 U
Perfluoro-1-heptanesulfonate (PFHpS)	0.960 U	0.370 J	0.930 U	0.400 J	0.500 J	0.970 U
Perfluorobutanesulfonic acid (PFBS)	0.960 U	1.00 U	0.930 U	0.930 U	0.960 U	1.40 J
Perfluorobutanoic acid (PFBA)	1.40 U	1.50 U	1.40 U	1.90 U	1.40 U	1.50 U
Perfluorodecane sulfonate	1.40 U	1.50 U	1.40 U	1.40 U	1.40 U	1.50 U
Perfluorodecanoic acid (PFDA)	0.960 U	1.00 U	0.930 U	0.930 U	0.960 U	0.970 U
Perfluorododecanoic acid (PFDoA)	1.40 U	1.50 U	1.40 U	1.40 U	1.40 U	1.50 U
Perfluoroheptanoic acid (PFHpA)	1.40 U	1.00 J	1.40 U	0.940 J	1.00 J	1.50 U
Perfluorohexanesulfonic acid (PFHxS)	0.960 U	11.0	0.930 U	9.90	9.00	1.90 U
Perfluorohexanoic acid (PFHxA)	0.960 U	1.30 J	0.930 U	1.20 J	1.30 J	2.30
Perfluorononanoic acid (PFNA)	1.40 U	1.50 U	1.40 U	1.40 U	1.40 U	1.50 U
Perfluorooctanesulfonamide (FOSA)	2.90 U	3.00 U	2.80 U	2.80 U	2.90 U	2.90 U
Perfluorooctanesulfonic acid (PFOS)	2.90 U	1.30 J	2.80 U	2.80 U	1.10 J	2.90 U
Perfluorooctanoic acid (PFOA)	1.40 U	1.50 J	1.40 U	1.70 J	1.50 J	1.50 U
Perfluoropentanoic acid (PFPA)	0.960 U	0.910 J	0.930 U	0.840 J	1.00 J	1.20 J
Perfluorotetradecanoic acid (PFTA)	2.90 U	3.00 U	2.80 U	2.80 U	2.90 U	2.90 U
Perfluorotridecanoic acid (PFTrDA)	2.90 U	3.00 U	2.80 U	2.80 U	2.90 U	2.90 U
Perfluoroundecanoic acid (PFUnA)	1.40 U	1.50 U	1.40 U	1.40 U	1.40 U	1.50 U
*PFOS + PFOA (EPA)	0.00	2.80	0.00	1.70	2.60	0.00
*PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP/ORSF)	0.00	14.8	0.00	12.5	12.6	0.00

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J2 Range Northern

	Location	MW-234M2	MW-313M1	MW-587M2
	Field Sample ID	MW-234M2_PFAS19	MW-313M1_PFAS19	MW-587M2_PFAS19
	Sampling Depth	110.00 - 120.00	255.40 - 265.40	220.00 - 230.00
	Sampling Date	06/17/2019	06/19/2019	06/19/2019
	SDG	320514661	320515981	320515981
	Sample Type	Normal	Normal	Normal
PFAS 21 Cmps		Results (ng/L)	Results (ng/L)	Results (ng/L)
6:2 Fluorotelomer sulfonate (6:2 FTS)		18.0 U	20.0 U	19.0 U
8:2 Fluorotelomer sulfonate (8:2 FTS)		8.80 U	9.80 U	9.70 U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)		8.80 U	9.80 U	9.70 U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)		8.80 U	9.80 U	9.70 U
Perfluoro-1-heptanesulfonate (PFHpS)		0.880 U	0.980 U	0.970 U
Perfluorobutanesulfonic acid (PFBS)		0.880 U	0.980 U	0.970 U
Perfluorobutanoic acid (PFBA)		1.80 U	0.700 J	1.50 U
Perfluorodecane sulfonate		1.30 U	1.50 U	1.50 U
Perfluorodecanoic acid (PFDA)		0.880 U	1.20 J	0.970 U
Perfluorododecanoic acid (PFDoA)		1.30 U	1.50 U	1.50 U
Perfluoroheptanoic acid (PFHpA)		1.30 U	1.50 U	1.50 U
Perfluorohexanesulfonic acid (PFHxS)		0.600 J	0.980 U	0.970 U
Perfluorohexanoic acid (PFHxA)		0.880 U	0.980 U	0.970 U
Perfluorononanoic acid (PFNA)		1.30 U	1.10 J	1.50 U
Perfluorooctanesulfonamide (FOSA)		2.60 U	2.90 U	2.90 U
Perfluorooctanesulfonic acid (PFOS)		1.90 J	2.90 U	2.90 U
Perfluorooctanoic acid (PFOA)		0.550 J	1.50 U	1.50 U
Perfluoropentanoic acid (PFPA)		0.880 U	0.680 J	0.970 U
Perfluorotetradecanoic acid (PFTA)		2.60 U	2.90 U	2.90 U
Perfluorotridecanoic acid (PFTrDA)		2.60 U	2.90 U	2.90 U
Perfluoroundecanoic acid (PFUnA)		1.30 U	1.40 J	1.50 U
	†PFOS + PFOA (EPA)	2.45	0.00	0.00
	*PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP/ORSF)	3.05	2.30	0.00

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J3 Range

Location	J3-INF	J3-INF	MW-163S	MW-163S	MW-163S	MW-227M2
Field Sample ID	J3-INF_PFAS19	J3-INF_PFAS19D	MW-163S_PFAS19	MW-163S_PFAS19D	MW-163S_PFAS19R	MW-227M2_PFAS19
Sampling Depth	0.00 - 0.00	0.00 - 0.00	38.00 - 48.00	38.00 - 48.00	38.00 - 48.00	110.00 - 120.00
Sampling Date	06/17/2019	06/17/2019	06/18/2019	06/18/2019	07/30/2019	06/19/2019
SDG	320514661	320514661	320514662	320514662	320528231	320515981
Sample Type	Normal	Field Duplicate	Normal	Field Duplicate	Normal	Normal
PFAS 21 Cmps	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)
6:2 Fluorotelomer sulfonate (6:2 FTS)	19.0 U	18.0 U	17.0 U	17.0 U	19.0 U	19.0 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	9.40 U	9.20 U	8.60 U	8.60 U	9.30 U	9.60 U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	9.40 U	9.20 U	8.60 U	8.60 U	9.30 U	9.60 U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	9.40 U	9.20 U	8.60 U	8.60 U	9.30 U	9.60 U
Perfluoro-1-heptanesulfonate (PFHpS)	0.940 U	0.920 U	0.860 U	0.860 U	0.930 U	0.960 U
Perfluorobutanesulfonic acid (PFBS)	0.940 U	0.920 U	0.860 U	0.860 U	0.930 U	0.960 U
Perfluorobutanoic acid (PFBA)	1.90 U	1.80 U	1.70 U	1.70 U	0.560 J	1.40 U
Perfluorodecane sulfonate	1.40 U	1.40 U	1.30 U	1.30 U	1.40 U	1.40 U
Perfluorodecanoic acid (PFDA)	0.940 U	0.920 U	0.860 U	0.860 U	0.930 U	0.960 U
Perfluorododecanoic acid (PFDoA)	1.70 J	1.40 U	1.30 U	1.30 U	1.40 U	1.40 U
Perfluoroheptanoic acid (PFHpA)	1.40 U	1.40 U	1.30 U	1.30 U	1.40 U	1.40 U
Perfluorohexanesulfonic acid (PFHxS)	1.50 J	1.50 J	0.690 J	0.610 J	1.90 U	0.540 J
Perfluorohexanoic acid (PFHxA)	0.940 U	0.920 U	0.410 J	0.860 U	0.930 U	0.960 U
Perfluorononanoic acid (PFNA)	1.40 U	1.40 U	1.30 U	1.30 U	1.40 U	1.40 U
Perfluorooctanesulfonamide (FOSA)	2.80 U	2.80 U	2.60 U	2.60 U	2.80 U	2.90 U
Perfluorooctanesulfonic acid (PFOS)	2.80 U	2.80 U	12.0	12.0	12.0	2.90 U
Perfluorooctanoic acid (PFOA)	0.520 J	1.40 U	1.70	1.60 J	1.30 J	1.40 U
Perfluoropentanoic acid (PFPA)	0.940 U	0.920 U	0.860 U	0.860 U	0.930 U	0.960 U
Perfluorotetradecanoic acid (PFTA)	2.80 U	2.80 U	2.60 U	2.60 U	2.80 U	2.90 U
Perfluorotridecanoic acid (PFTrDA)	1.40 J	2.80 U	2.60 U	2.60 U	2.80 U	2.90 U
Perfluoroundecanoic acid (PFUnA)	1.40 U	1.40 U	1.30 U	1.30 U	1.40 U	1.40 U
*PFOS + PFOA (EPA)	0.520	0.00	13.7	13.6	13.3	0.00
*PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP/ORSF)	2.02	1.50	14.4	14.2	13.3	0.540

PFAS Summary Report – Groundwater
Joint Base Cape Cod, IAGWSP
 KGS 2019 PFAS MW&INF
 J3 Range

Location	MW-250M2
Field Sample ID	MW-250M2_PFAS19
Sampling Depth	145.00 - 155.00
Sampling Date	06/20/2019
SDG	320515981
Sample Type	Normal
PFAS 21 Cmps	Results (ng/L)
6:2 Fluorotelomer sulfonate (6:2 FTS)	19.0 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	9.70 U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	9.70 U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	9.70 U
Perfluoro-1-heptanesulfonate (PFHpS)	0.970 U
Perfluorobutanesulfonic acid (PFBS)	0.970 U
Perfluorobutanoic acid (PFBA)	0.710 J
Perfluorodecane sulfonate	1.40 U
Perfluorodecanoic acid (PFDA)	0.970 U
Perfluorododecanoic acid (PFDoA)	1.40 U
Perfluoroheptanoic acid (PFHpA)	1.40 U
Perfluorohexanesulfonic acid (PFHxS)	0.970 U
Perfluorohexanoic acid (PFHxA)	0.970 U
Perfluorononanoic acid (PFNA)	1.40 U
Perfluorooctanesulfonamide (FOSA)	2.90 U
Perfluorooctanesulfonic acid (PFOS)	2.90 U
Perfluorooctanoic acid (PFOA)	1.40 U
Perfluoropentanoic acid (PFPA)	0.970 U
Perfluorotetradecanoic acid (PFTA)	2.90 U
Perfluorotridecanoic acid (PFTrDA)	2.90 U
Perfluoroundecanoic acid (PFUnA)	1.40 U
†PFOS + PFOA (EPA)	0.00
*PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP/ORSG)	0.00

PFAS Summary Report – Groundwater Joint Base Cape Cod, IAGWSP

Notes:

ng/L = nanograms per liter; ug/kg = micrograms per kilogram; U = not detected; J = estimated; UJ = estimated non detect

The LOQ value will be used to report non-detects when blank contamination occurs

Bolded results indicate detections of PFAS

Bolded and highlighted results indicate detection of PFAS above the EPA Lifetime Health Advisory: PFOS + PFOA > 70 ng/L.

Bolded and highlighted results indicate detection of PFAS above the MassDEP and the MassDEP Office of Research and Standards Guideline (ORSG): PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA > 20 ng/L

† Lifetime Health Advisory, US Environmental Protection Agency, May 2016

‡ Final PFAS-Related Revisions to the Massachusetts Contingency Plan ("MCP", 310 CMR 40.0000), Massachusetts Department of Environmental Protection, December 27, 2019

‡ PFAS Maximum Contaminant Level (MCL) Proposed Amendment & Public Comment ("MCL", 310 CMR 22.00 PFAS MCL Amendments), Massachusetts Department of Environmental Protection, December 27, 2019

‡ Documentation for Updated Office of Research and Standards Guidelines (ORSG) for Per- and Polyfluoroalkyl Substances (PFAS) in Drinking Water, Massachusetts Department of Environmental Protection, January 27, 2020