

**MONTHLY PROGRESS REPORT #280
FOR JULY 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 July to 31 July 2020.

1. SUMMARY OF REMEDIATION ACTIONS

Remediation Actions (RA) Underway at Camp Edwards as of 31 July 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 2.752 billion gallons of water treated and re-injected as of 31 July 2020. No Frank Perkins Road Treatment Facility shutdowns occurred in July.

The Pew Road Mobile Treatment Unit (MTU) continues to operate at a flow rate of 65 GPM. As of 31 July 2020, over 653.8 million gallons of water was treated and re-injected. No Pew Road MTU shutdowns occurred in July.

The Base Boundary MTU continues to operate at a flow rate of 65 gpm. As of 31 July 2020, over 270.9 million gallons of water was treated and re-injected. No Base Boundary MTU shutdowns occurred in July.

The Leading Edge system continues to operate at a flow rate of 100 gpm. As of 31 July 2020, over 208.2 million gallons of water was treated and re-injected. No Leading Edge system shutdowns occurred in July.

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 31 July 2020, over 1.267 billion gallons of water have been treated and re-injected. No Northern Treatment Building G shutdowns occurred in July.

The Northern MTUs E and F continue to operate at a flow rate of 250 gpm. As of 31 July 2020, over 1.724 billion gallons of water have been treated and re-injected. No J-2 Range Northern MTU shutdowns occurred in July.

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 31 July 2020, over 1.377 billion gallons of water have been treated and re-injected. The following MTU H and I shutdowns occurred in July:

- 0858 on 02 July 2020 to fix a leaking MTU H GAC Vessel #3 effluent pipe, and were restarted at 1240 on 02 July 2020.
- 0950 on 07 July 2020 for MTU H carbon exchange, and was restarted at 0755 on 09 July 2020.
- 1135 on 24 July 2020 to reset leaking lid on GAC vessel #3 of MTU H, and restarted at 1205 on 24 July 2020.
- 0251 on 31 July 2020 due to a "Floor sump high" alarm from leaking fittings on MTU I GAC Vessel #5, and restarted after fittings replacement 0956 on 31 July 2020.

MTU J continues to operate at a flow rate of 120 gpm. As of 31 July 2020, over 635.1 million gallons of water have been treated and re-injected. The following MTU J shutdowns occurred in July:

- 0725 on 21 July 2020 to repair a leak on the GAC Vessels #5 and #6 effluent piping, and restarted at 1130 on 21 July 2020.

MTU K continues to operate at a flow rate of 125 gpm. As of 31 July 2020, over 754.3 million gallons of water have been treated and re-injected. No MTU K shutdowns occurred in July.

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 31 July 2020, over 1.383 billion gallons of water have been treated and re-injected. The following J-3 Range system shutdowns occurred in July:

- 0308 on 06 July 2020 due to an FS-12 shutdown, and was restarted at 1036 on 08 July 2020
- 1601 on 09 July 2020 due to an FS-12 shutdown, and was restarted at 0733 on 10 July 2020.

- 1604 on 20 July 2020 due to an FS-12 shutdown, and was restarted at 0755 on 21 July 2020.
- 1556 on 27 July 2020 due to an FS-12 shutdown, and was restarted at 0827 on 28 July 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 31 July 2020, over 613.3 million gallons of water have been treated and re-injected. No J-1 Range Southern system shutdowns occurred in July.

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 31 July 2020, over 861.7 million gallons of water have been treated and re-injected. No J-1 Range Northern MTU shutdowns occurred in July.

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 31 July 2020, over 2.151 billion gallons of water have been treated and re-injected. The following CIA2 system shutdown occurred in July:

- System 2 shut down at 0734 on 03 July 2020 due to a "Communication Lost" alarm from a power interruption, and was restarted at 1120 on 06 July 2020.
- System 2 shutdown on 1040 on 08 July 2020 to attempt a carbon exchange, and restarted at 0850 on 09 July 2020.
- System 2 shut down at 0704 on 10 July 2020 due to a "Communication Lost" alarm from a power interruption, and was restarted at 0843 on 10 July 2020.
- System 2 was turned off at 1100 on 22 July 2020 for carbon exchange, and restarted at 0745 on 24 July 2020.
- System 2 shut down at 0152 on 31 July 2020 due to a "Communication Lost" alarm between the extraction well and the MTU, and was restarted at 1101 on 31 July 2020.

2. SUMMARY OF ACTIONS TAKEN

Operable Unit (OU) Activity as of 31 July 2020

CIA

- Performed routine inspections of BEM cover to ensure cover is secure and intact
- Routine MD Processing
- Performed DGM and MM data collection
- Conducted intrusive investigations
- Completed groundwater sampling of the new CIA source area screens

Demolition Area 1

- Groundwater sampling within the Demo 1 SPM program
- Leading Edge bag filters were replaced 29 July

Demolition Area 2

- No activity

J-1 Range

- J-1 Range North bag filters exchanged on 07 July

J-2 Range

- Hydraulic monitoring within the J2 North SPM program

J-3 Range

- Bag filters exchanged on 30 June
- Groundwater and surface water sampling, and hydraulic monitoring, within the J3 Range SPM program
- Confirmation EM-61 QC survey of J3 Barrage Rocket Area targets

L Range

- Groundwater sampling within the L Range LTM program

Small Arms Ranges

- No activity

Training Areas

- Intrusive investigation in Former E Range geophysical investigation grids

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
- UXO clearance of Wood Road
- Performed grading, stone/gravel installation on Barlow, Turpentine, and Wood roads

JBCC IAGWSP Tech Update Meeting Minutes 23 July 2020Project and Fieldwork Update

All treatment systems are up and running. There were a couple of minor outages due to power interruptions, but it did not result in significant downtime. USACE is working on a new O&M contract that will include some system improvements, e.g. replacement vessels, VFD upgrades, new floors, etc. Long-term monitoring sampling crews are performing annual sampling in the J-3 Range. It was noted that four wells could not be sampled because they were under water. They were Snake Pond wells MW217-M2/M3, MW-218M2 and MW172-M2. They will move to the J-2 Range next week and then continue with Southeast Ranges sampling.

Dawson resumed investigation of EM-61 anomalies at Former E Range and has completed discrete targets in six grids to date. They will be continuing until the end of the year, as there are 6,500 discrete targets. To date, four MEC items have been found; a 3.5" rocket, two 20mm projectiles and one 60mm fuze. They will continue until the second week in August when they have to move due to scheduled range firing. During this time, they will go to the grids at the J-2 Range, which should take them until approximately the first week of September. Once range firing is done, they will resume intrusive investigations at Former E Range. IAGWSP requested that a figure showing the grids at the Former E Range be distributed to the group. KGS is continuing with road improvements, including grading and stone installation. They are installing gravel on Barlow Road, and then will move to Turpentine and Wood Roads. They plan to finish by the first week in August to avoid conflicts with range firing.

In the Central Impact Area, there is one DGM team and one Metal Mapper team performing surveys. When DGM investigations wrap up, figures showing the entire 10-acre area will be distributed to the team. EPA and MassDEP chose grids 21/56 in 6A and 27/61 6B for the next 100% grids. It was noted that due to range firing for a significant portion of August, Parson would be demobilizing as all of their work areas are encompassed by firing fans. Dawson will continue to work because the J-2 Range is outside of the firing fan. Two intrusive teams mobilized to the site this week and will continue until they de-mobilize.

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 July to 31 July 2020. Table 2 summarizes the validated detections of explosives compounds and perchlorate for all groundwater results received from 1 July to 31 July 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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| • Monthly Progress Report No. 279 for June 2020 | 10 July 2020 |
| • Final Small Arms Ranges 2020 Annual Environmental Monitoring Report | 16 July 2020 |
| • Draft Northwest Corner Demonstration of Compliance Report, dated July 2020 | 17 July 2020 |

5. SCHEDULED ACTIONS

The documents below were being prepared or revised in July 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
- Land Use Controls 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 July to 31 July 2020

Area Of Concern	Location	Field Sample ID	Sample Type	Date Sampled	Matrix	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)
J3 Range	J3EW0032	J3EW0032_F20	N	07/29/2020	Ground Water	102	152
J3 Range	J3EW0032	J3EW0032_F20D	FD	07/29/2020	Ground Water	102	152
J3 Range	90EW0001	90EW0001_F20	N	07/29/2020	Ground Water	83.1	143.8
J3 Range	RS0011OSNK	RS0011OSNK_F20	N	07/29/2020	Ground Water	0	0
J3 Range	LKSNK0006	LKSNK0006_F20	N	07/29/2020	Surface Water	0	1
J3 Range	LKSNK0007	LKSNK0007_F20	N	07/29/2020	Surface Water	0	4
J3 Range	LKSNK0005	LKSNK0005_F20	N	07/29/2020	Surface Water	0	4
J3 Range	90PLT01006	90PLT01006_F20	N	07/29/2020	Process Water	0	0
J3 Range	MW-155M1	MW-155M1_F20	N	07/28/2020	Ground Water	124	134
J3 Range	90PZ0204	90PZ0204_F20	N	07/28/2020	Ground Water	80	85
J3 Range	J3-MW-1-B	J3-MW-1-B_F20	N	07/28/2020	Ground Water	175.6	185.6
J3 Range	J3-MW-1-B	J3-MW-1-B_F20D	FD	07/28/2020	Ground Water	175.6	185.6
J3 Range	J3-MW-1-C	J3-MW-1-C_F20	N	07/28/2020	Ground Water	203.6	213.6
Lima Range	MW-242M1	MW-242M1_F20	N	07/27/2020	Ground Water	235	245
Lima Range	MW-651M1	MW-651M1_F20	N	07/27/2020	Ground Water	242.3	252.3
Lima Range	MW-595M2	MW-595M2_F20	N	07/27/2020	Ground Water	205.3	215.3
Lima Range	MW-595M1	MW-595M1_F20	N	07/27/2020	Ground Water	255.3	265.3
Lima Range	MW-596M1	MW-596M1_F20	N	07/27/2020	Ground Water	231.1	241.1
J3 Range	MW-196S	MW-196S_F20	N	07/23/2020	Ground Water	32	37
J3 Range	J3EWIP2	J3EWIP2_F20	N	07/23/2020	Ground Water	149.5	169.5
J3 Range	J3EWIP2	J3EWIP2_F20D	FD	07/23/2020	Ground Water	149.5	169.5
J3 Range	J3EWIP1	J3EWIP1_F20	N	07/23/2020	Ground Water	153	193
J3 Range	MW-196M1	MW-196M1_F20	N	07/23/2020	Ground Water	45	50
J3 Range	MW-181S	MW-181S_F20	N	07/21/2020	Ground Water	32.25	42.25
J3 Range	MW-30	MW-30_F20	N	07/21/2020	Ground Water	26	36
J3 Range	MW-143M3	MW-143M3_F20	MS	07/21/2020	Ground Water	107	112
J3 Range	MW-143M3	MW-143M3_F20	N	07/21/2020	Ground Water	107	112
J3 Range	MW-143M3	MW-143M3_F20	N	07/21/2020	Ground Water	107	112
J3 Range	MW-143M3	MW-143M3_F20	SD	07/21/2020	Ground Water	107	112
J3 Range	MW-143M2	MW-143M2_F20	N	07/20/2020	Ground Water	117	122
J3 Range	MW-143M2	MW-143M2_F20	N	07/20/2020	Ground Water	117	122
J3 Range	MW-143M1	MW-143M1_F20	N	07/20/2020	Ground Water	144	154
J3 Range	MW-197M3	MW-197M3_F20	N	07/20/2020	Ground Water	60.2	65.2
J3 Range	MW-197M3	MW-197M3_F20	N	07/20/2020	Ground Water	60.2	65.2
J3 Range	MW-197M3	MW-197M3_F20D	FD	07/20/2020	Ground Water	60.2	65.2
J3 Range	MW-197M2	MW-197M2_F20	N	07/20/2020	Ground Water	80.2	85.2
J3 Range	MW-197M2	MW-197M2_F20	N	07/20/2020	Ground Water	80.2	85.2
J3 Range	MW-197M1	MW-197M1_F20	N	07/20/2020	Ground Water	120	125
J3 Range	MW-163S	MW-163S_F20	N	07/16/2020	Ground Water	38	48
J3 Range	MW-163S	MW-163S_F20	N	07/16/2020	Ground Water	38	48
J3 Range	MW-163S	MW-163S_F20D	FD	07/16/2020	Ground Water	38	48
J3 Range	MW-163S	MW-163S_F20D	FD	07/16/2020	Ground Water	38	48
J3 Range	MW-232M2	MW-232M2_F20	N	07/16/2020	Ground Water	61	66
J3 Range	MW-232M2	MW-232M2_F20	N	07/16/2020	Ground Water	61	66
J3 Range	MW-232M1	MW-232M1_F20	N	07/16/2020	Ground Water	77.5	82.5
J3 Range	MW-232M1	MW-232M1_F20	N	07/16/2020	Ground Water	77.5	82.5
J3 Range	MW-193S	MW-193S_F20	N	07/16/2020	Ground Water	32.5	37.5
J3 Range	MW-193S	MW-193S_F20	N	07/16/2020	Ground Water	32.5	37.5
J3 Range	MW-193M1	MW-193M1_F20	N	07/16/2020	Ground Water	57.5	62.5
J3 Range	MW-193M1	MW-193M1_F20	N	07/16/2020	Ground Water	57.5	62.5
J3 Range	MW-198M4	MW-198M4_F20	N	07/15/2020	Ground Water	70	75
J3 Range	MW-198M4	MW-198M4_F20	N	07/15/2020	Ground Water	70	75
J3 Range	MW-198M4	MW-198M4_F20D	FD	07/15/2020	Ground Water	70	75
J3 Range	MW-198M3	MW-198M3_F20	N	07/15/2020	Ground Water	100	105
J3 Range	MW-198M3	MW-198M3_F20	N	07/15/2020	Ground Water	100	105
J3 Range	MW-198M3	MW-198M3_F20D	FD	07/15/2020	Ground Water	100	105
J3 Range	MW-198M2	MW-198M2_F20	N	07/15/2020	Ground Water	120	125
J3 Range	MW-198M2	MW-198M2_F20	N	07/15/2020	Ground Water	120	125
J3 Range	MW-198M1	MW-198M1_F20	N	07/15/2020	Ground Water	150	155
J3 Range	MW-198M1	MW-198M1_F20	N	07/15/2020	Ground Water	150	155
J3 Range	90PZ0211	90PZ0211_F20	N	07/14/2020	Ground Water	80	110
J3 Range	SP3-91M	SP3-91M_F20	N	07/14/2020	Ground Water	50	70
J3 Range	MW-157M3	MW-157M3_F20	N	07/13/2020	Ground Water	70	80
J3 Range	MW-157M2	MW-157M2_F20	N	07/13/2020	Ground Water	110	120
J3 Range	MW-157M1	MW-157M1_F20	N	07/13/2020	Ground Water	154	164
J3 Range	90MW0104C	90MW0104C_F20	N	07/13/2020	Ground Water	84.81	89.81
J2 Range Eastern	J2E-EFF-IH	J2E-EFF-IH-142A	N	07/13/2020	Process Water	0	0

N = Normal Sample
FD = Field Duplicate

TABLE 1
Sampling Progress: 1 July to 31 July 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-2H	J2E-MID-2H-142A	N	07/13/2020	Process Water	0	0
J2 Range Eastern	J2E-MID-1H	J2E-MID-1H-142A	N	07/13/2020	Process Water	0	0
J2 Range Eastern	J2E-MID-2I	J2E-MID-2I-142A	N	07/13/2020	Process Water	0	0
J2 Range Eastern	J2E-MID-1I	J2E-MID-1I-142A	N	07/13/2020	Process Water	0	0
J2 Range Eastern	J2E-INF-I	J2E-INF-I-142A	N	07/13/2020	Process Water	0	0
J3 Range	90MW0104B	90MW0104B_F20	N	07/13/2020	Ground Water	115	120
Central Impact Area	CIA2-EFF	CIA2-EFF-78A	N	07/13/2020	Process Water	0	0
Central Impact Area	CIA2-MID2	CIA2-MID2-78A	N	07/13/2020	Process Water	0	0
Central Impact Area	CIA2-MID1	CIA2-MID1-78A	N	07/13/2020	Process Water	0	0
Central Impact Area	CIA2-INF	CIA2-INF-78A	N	07/13/2020	Process Water	0	0
J3 Range	MW-637M3	MW-637M3_F20	N	07/09/2020	Ground Water	174.1	184.1
J3 Range	MW-637M2	MW-637M2_F20	N	07/09/2020	Ground Water	214.1	224.1
J3 Range	MW-637M2	MW-637M2_F20D	FD	07/09/2020	Ground Water	214.1	224.1
J3 Range	MW-637M1	MW-637M1_F20	N	07/09/2020	Ground Water	236.1	246.1
J3 Range	J3-EFF	J3-EFF-166A	N	07/09/2020	Process Water	0	0
J3 Range	J3-MID-2	J3-MID-2-166A	N	07/09/2020	Process Water	0	0
J3 Range	J3-MID-1	J3-MID-1-166A	N	07/09/2020	Process Water	0	0
J3 Range	J3-INF	J3-INF-166A	N	07/09/2020	Process Water	0	0
Central Impact Area	CIA1-EFF	CIA1-EFF-78A	N	07/09/2020	Process Water	0	0
Central Impact Area	CIA1-MID2	CIA1-MID2-78A	N	07/09/2020	Process Water	0	0
Central Impact Area	CIA1-MID1	CIA1-MID1-78A	N	07/09/2020	Process Water	0	0
Central Impact Area	CIA1-INF	CIA1-INF-78A	N	07/09/2020	Process Water	0	0
J3 Range	MW-343M2	MW-343M2_F20	N	07/09/2020	Ground Water	166.82	171.82
Central Impact Area	CIA3-EFF	CIA3-EFF-49A	N	07/09/2020	Process Water	0	0
Central Impact Area	CIA3-MID2	CIA3-MID2-49A	N	07/09/2020	Process Water	0	0
Central Impact Area	CIA3-MID1	CIA3-MID1-49A	N	07/09/2020	Process Water	0	0
Central Impact Area	CIA3-INF	CIA3-INF-49A	N	07/09/2020	Process Water	0	0
J3 Range	MW-343M1	MW-343M1_F20	N	07/09/2020	Ground Water	214.83	224.83
J1 Range Southern	J1S-EFF	J1S-EFF-152A	N	07/08/2020	Process Water	0	0
J1 Range Southern	J1S-MID	J1S-MID-152A	N	07/08/2020	Process Water	0	0
J1 Range Southern	J1S-INF-2	J1S-INF-2-152A	N	07/08/2020	Process Water	0	0
J3 Range	90MW0054	90MW0054_F20	N	07/08/2020	Ground Water	107	112
J3 Range	90MW0054	90MW0054_F20D	FD	07/08/2020	Ground Water	107	112
J3 Range	90MP0059B	90MP0059B_F20	N	07/08/2020	Ground Water	116.39	118.89
J3 Range	MW-329M2	MW-329M2_F20	N	07/08/2020	Ground Water	150.05	160.05
J3 Range	MW-329M1	MW-329M1_F20	N	07/08/2020	Ground Water	179.96	189.96
J2 Range Eastern	J2E-EFF-K	J2E-EFF-K-142A	N	07/08/2020	Process Water	0	0
J2 Range Eastern	J2E-MID-2K	J2E-MID-2K-142A	N	07/08/2020	Process Water	0	0
J2 Range Eastern	J2E-MID-1K	J2E-MID-1K-142A	N	07/08/2020	Process Water	0	0
J2 Range Eastern	J2E-INF-K	J2E-INF-K-142A	N	07/08/2020	Process Water	0	0
J2 Range Eastern	J2E-EFF-J	J2E-EFF-J-142A	N	07/08/2020	Process Water	0	0
J2 Range Eastern	J2E-MID-2J	J2E-MID-2J-142A	N	07/08/2020	Process Water	0	0
J2 Range Eastern	J2E-MID-1J	J2E-MID-1J-142A	N	07/08/2020	Process Water	0	0
J2 Range Eastern	J2E-INF-J	J2E-INF-J-142A	N	07/08/2020	Process Water	0	0
Central Impact Area	MW-728M1	MW-728M1_R1	N	07/07/2020	Ground Water	153.4	163.4
Demolition Area 1	PR-EFF	PR-EFF-172A	N	07/07/2020	Process Water	0	0
Demolition Area 1	PR-MID-2	PR-MID-2-172A	N	07/07/2020	Process Water	0	0
Demolition Area 1	PR-MID-1	PR-MID-1-172A	N	07/07/2020	Process Water	0	0
Demolition Area 1	PR-INF	PR-INF-172A	N	07/07/2020	Process Water	0	0
Demolition Area 1	FPR-2-EFF-A	FPR-2-EFF-A-172A	N	07/07/2020	Process Water	0	0
Demolition Area 1	FPR-2-GAC-MID1A	FPR-2-GAC-MID1A-172A	N	07/07/2020	Process Water	0	0
Demolition Area 1	FPR2-POST-IX-A	FPR2-POST-IX-A-172A	N	07/07/2020	Process Water	0	0
Demolition Area 1	FPR-2-INF	FPR-2-INF-172A	N	07/07/2020	Process Water	0	0
Demolition Area 1	D1LE-EFF	D1LE-EFF-48A	N	07/07/2020	Process Water	0	0
Central Impact Area	MW-729M1	MW-729M1_R1	N	07/07/2020	Ground Water	231.5	241.5
Demolition Area 1	D1LE-MID2	D1LE-MID2-48A	N	07/07/2020	Process Water	0	0
Demolition Area 1	D1LE-MID1	D1LE-MID1-48A	N	07/07/2020	Process Water	0	0
Demolition Area 1	D1LE-INF	D1LE-INF-48A	N	07/07/2020	Process Water	0	0
Central Impact Area	MW-726S	MW-726S_R1	N	07/07/2020	Ground Water	135.5	145.5
Demolition Area 1	D1-EFF	D1-EFF-120A	N	07/07/2020	Process Water	0	0
Demolition Area 1	D1-MID-2	D1-MID-2-120A	N	07/07/2020	Process Water	0	0
Demolition Area 1	D1-MID-1	D1-MID-1-120A	N	07/07/2020	Process Water	0	0
Demolition Area 1	D1-INF	D1-INF-120A	N	07/07/2020	Process Water	0	0
J3 Range	MW-243M2	MW-243M2_F20	N	07/06/2020	Ground Water	84.5	94.5
J2 Range Northern	J2N-EFF-G	J2N-EFF-G-166A	N	07/06/2020	Process Water	0	0
J3 Range	MW-243M1	MW-243M1_F20	N	07/06/2020	Ground Water	114.5	124.5
J2 Range Northern	J2N-MID-2G	J2N-MID-2G-166A	N	07/06/2020	Process Water	0	0

N = Normal Sample
FD = Field Duplicate

TABLE 1
Sampling Progress: 1 July to 31 July 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 Northern	J2N-MID-1G	J2N-MID-1G-166A	N	07/06/2020	Process Water	0	0
J2 Range Northern	J2N-INF-G	J2N-INF-G-166A	N	07/06/2020	Process Water	0	0
J3 Range	MW-359M2	MW-359M2_F20	N	07/06/2020	Ground Water	148.62	158.62
J2 Range Northern	J2N-EFF-EF	J2N-EFF-EF-166A	N	07/06/2020	Process Water	0	0
J2 Range Northern	J2N-MID-2F	J2N-MID-2F-166A	N	07/06/2020	Process Water	0	0
J2 Range Northern	J2N-MID-1F	J2N-MID-1F-166A	N	07/06/2020	Process Water	0	0
J2 Range Northern	J2N-INF-EF	J2N-INF-EF-166A	N	07/06/2020	Process Water	0	0
J3 Range	MW-295M2	MW-295M2_F20	N	07/06/2020	Ground Water	117	127
J2 Range Northern	J2N-MID-2E	J2N-MID-2E-166A	N	07/06/2020	Process Water	0	0
J2 Range Northern	J2N-MID-1E	J2N-MID-1E-166A	N	07/06/2020	Process Water	0	0
J1 Range Northern	J1N-EFF	J1N-EFF-81A	N	07/06/2020	Process Water	0	0
J1 Range Northern	J1N-MID2	J1N-MID2-81A	N	07/06/2020	Process Water	0	0
J3 Range	MW-295M1	MW-295M1_F20	N	07/06/2020	Ground Water	145	155
J1 Range Northern	J1N-MID1	J1N-MID1-81A	N	07/06/2020	Process Water	0	0
J1 Range Northern	J1N-INF2	J1N-INF2-81A	N	07/06/2020	Process Water	0	0

TABLE 2
VALIDATED EXPLOSIVE AND PERCHLORATE RESULTS
Data Received July 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-611M2	MW-611M2_S20	91	101	06/29/2020	SW6850	Perchlorate	1.6		µg/L	2.0		0.030	0.20
Demolition Area 1	MW-611M1	MW-611M1_S20	141	151	06/29/2020	SW6850	Perchlorate	2.7		µg/L	2.0	X	0.030	0.20
Demolition Area 1	MW-611M1	MW-611M1_S20D	141	151	06/29/2020	SW6850	Perchlorate	2.8		µg/L	2.0	X	0.030	0.20
Demolition Area 1	MW-610M2	MW-610M2_S20	85	95	06/29/2020	SW6850	Perchlorate	0.14	J	µg/L	2.0		0.030	0.20
Demolition Area 1	MW-610M1	MW-610M1_S20	110	120	06/29/2020	SW6850	Perchlorate	0.39		µg/L	2.0		0.030	0.20
Demolition Area 1	MW-642M2	MW-642M2_S20	77.3	87.3	06/25/2020	SW6850	Perchlorate	0.24		µg/L	2.0		0.030	0.20
Demolition Area 1	MW-642M1	MW-642M1_S20	104.3	114.3	06/25/2020	SW6850	Perchlorate	0.40		µg/L	2.0		0.030	0.20
Demolition Area 1	MW-641M2	MW-641M2_S20	86.2	96.2	06/25/2020	SW6850	Perchlorate	0.43		µg/L	2.0		0.030	0.20
Demolition Area 1	MW-598M2	MW-598M2_S20	88	98	06/25/2020	SW6850	Perchlorate	0.36		µg/L	2.0		0.030	0.20
Demolition Area 1	MW-598M1	MW-598M1_S20	122	132	06/25/2020	SW6850	Perchlorate	0.97		µg/L	2.0		0.030	0.20
Demolition Area 1	MW-641M1	MW-641M1_S20	113.2	123.2	06/24/2020	SW6850	Perchlorate	2.0		µg/L	2.0	X	0.030	0.20
Demolition Area 1	MW-554M2	MW-554M2_S20	89.1	99.1	06/24/2020	SW6850	Perchlorate	0.24		µg/L	2.0		0.030	0.20
Demolition Area 1	MW-554M1	MW-554M1_S20	120	130	06/24/2020	SW6850	Perchlorate	0.50		µg/L	2.0		0.030	0.20
Demolition Area 1	MW-559M2	MW-559M2_S20	87	97	06/24/2020	SW6850	Perchlorate	0.25		µg/L	2.0		0.030	0.20
Demolition Area 1	MW-559M1	MW-559M1_S20	135.6	145.6	06/24/2020	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-559M1	MW-559M1_S20	135.6	145.6	06/24/2020	SW6850	Perchlorate	0.35	J	µg/L	2.0		0.030	0.20
Demolition Area 1	MW-582M2	MW-582M2_S20	84	94	06/23/2020	SW6850	Perchlorate	0.19	J	µg/L	2.0		0.030	0.20
Demolition Area 1	MW-582M1	MW-582M1_S20	134	144	06/23/2020	SW6850	Perchlorate	1.2		µg/L	2.0		0.030	0.20
Demolition Area 1	MW-558M2	MW-558M2_S20	98	108	06/23/2020	SW6850	Perchlorate	0.18	J	µg/L	2.0		0.030	0.20
Demolition Area 1	MW-558M1	MW-558M1_S20	134	144	06/23/2020	SW6850	Perchlorate	0.31		µg/L	2.0		0.030	0.20
Demolition Area 1	MW-556M2	MW-556M2_S20	111	121	06/23/2020	SW6850	Perchlorate	0.21		µg/L	2.0		0.030	0.20
Demolition Area 1	MW-556M1	MW-556M1_S20	153	163	06/22/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.17	J	µg/L	0.60		0.034	0.20
Demolition Area 1	MW-556M1	MW-556M1_S20	153	163	06/22/2020	SW6850	Perchlorate	1.7		µg/L	2.0		0.030	0.20
Demolition Area 1	MW-659M2	MW-659M2_S20	85	95	06/22/2020	SW6850	Perchlorate	0.12	J	µg/L	2.0		0.030	0.20
Demolition Area 1	MW-659M1	MW-659M1_S20	120	130	06/22/2020	SW6850	Perchlorate	0.32		µg/L	2.0		0.030	0.20
Demolition Area 1	MW-546M2	MW-546M2_S20	100	110	06/22/2020	SW6850	Perchlorate	0.10	J	µg/L	2.0		0.030	0.20
Demolition Area 1	MW-546M1	MW-546M1_S20	140	150	06/22/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.092	J	µg/L	0.60		0.034	0.20
Demolition Area 1	MW-546M1	MW-546M1_S20	140	150	06/22/2020	SW6850	Perchlorate	0.13	J	µg/L	2.0		0.030	0.20
Demolition Area 1	MW-571M2	MW-571M2_S20	74	84	06/18/2020	SW6850	Perchlorate	0.16	J	µg/L	2.0		0.030	0.20
Demolition Area 1	MW-571M1	MW-571M1_S20	114	124	06/18/2020	SW6850	Perchlorate	1.1		µg/L	2.0		0.030	0.20
Demolition Area 1	MW-569M2	MW-569M2_S20	84	94	06/18/2020	SW6850	Perchlorate	0.16	J	µg/L	2.0		0.030	0.20
Demolition Area 1	MW-569M1	MW-569M1_S20	114	124	06/18/2020	SW6850	Perchlorate	0.47		µg/L	2.0		0.030	0.20
Demolition Area 1	MW-545M4	MW-545M4_S20	72	82	06/17/2020	SW6850	Perchlorate	0.48		µg/L	2.0		0.030	0.20
Demolition Area 1	MW-545M3	MW-545M3_S20	101.5	111.5	06/17/2020	SW6850	Perchlorate	0.70		µg/L	2.0		0.030	0.20
Demolition Area 1	MW-545M2	MW-545M2_S20	142	152	06/17/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.19	J	µg/L	0.60		0.034	0.20
Demolition Area 1	MW-545M2	MW-545M2_S20	142	152	06/17/2020	SW6850	Perchlorate	3.7		µg/L	2.0	X	0.030	0.20
Demolition Area 1	MW-545M2	MW-545M2_S20D	142	152	06/17/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.20		µg/L	0.60		0.034	0.20
Demolition Area 1	MW-545M2	MW-545M2_S20D	142	152	06/17/2020	SW6850	Perchlorate	3.9		µg/L	2.0	X	0.030	0.20
Demolition Area 1	MW-545M1	MW-545M1_S20	162	172	06/17/2020	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-545M1	MW-545M1_S20	162	172	06/17/2020	SW6850	Perchlorate	1.4		µg/L	2.0		0.030	0.20
Demolition Area 1	MW-597M2	MW-597M2_S20	118	128	06/16/2020	SW6850	Perchlorate	0.054	J	µg/L	2.0		0.030	0.20
Demolition Area 1	MW-597M1	MW-597M1_S20	148	158	06/16/2020	SW6850	Perchlorate	0.10	J	µg/L	2.0		0.030	0.20
Demolition Area 1	MW-352M1	MW-352M1_S20	115	125	06/16/2020	SW6850	Perchlorate	0.074	J	µg/L	2.0		0.030	0.20
Demolition Area 1	MW-353M1	MW-353M1_S20	107	117	06/16/2020	SW6850	Perchlorate	0.11	J	µg/L	2.0		0.030	0.20

J = Estimated Result

MDL = Method Detection Limit

RL = Reporting Limit

TABLE 2
VALIDATED EXPLOSIVE AND PERCHLORATE RESULTS
Data Received July 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-544M3	MW-544M3_S20	77.5	87.5	06/15/2020	SW6850	Perchlorate	0.10	J	µg/L	2.0		0.030	0.20
Demolition Area 1	MW-544M2	MW-544M2_S20	112	122	06/15/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.045	J	µg/L	0.60		0.034	0.20
Demolition Area 1	MW-544M2	MW-544M2_S20	112	122	06/15/2020	SW6850	Perchlorate	0.49		µg/L	2.0		0.030	0.20
Demolition Area 1	MW-544M1	MW-544M1_S20	162	172	06/15/2020	SW6850	Perchlorate	11.5		µg/L	2.0	X	0.030	0.20
Demolition Area 1	MW-544M1	MW-544M1_S20D	162	172	06/15/2020	SW6850	Perchlorate	11.5		µg/L	2.0	X	0.030	0.20
Demolition Area 1	MW-531M1	MW-531M1_S20	138	148	06/11/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.17	J	µg/L	0.60		0.034	0.20
Demolition Area 1	MW-531M1	MW-531M1_S20	138	148	06/11/2020	SW6850	Perchlorate	5.7		µg/L	2.0	X	0.030	0.20
Demolition Area 1	MW-531M1	MW-531M1_S20D	138	148	06/11/2020	SW6850	Perchlorate	5.8		µg/L	2.0	X	0.030	0.20
Demolition Area 1	MW-696M1	MW-696M1_S20	175.2	185.2	06/11/2020	SW6850	Perchlorate	0.50		µg/L	2.0		0.030	0.20
Demolition Area 1	MW-258M3	MW-258M3_S20	77	82	06/11/2020	SW6850	Perchlorate	0.078	J	µg/L	2.0		0.030	0.20
Demolition Area 1	MW-258M2	MW-258M2_S20	87	92	06/11/2020	SW6850	Perchlorate	0.065	J	µg/L	2.0		0.030	0.20
Demolition Area 1	MW-258M1	MW-258M1_S20	109	119	06/11/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.32		µg/L	0.60		0.034	0.20
Demolition Area 1	MW-258M1	MW-258M1_S20	109	119	06/11/2020	SW6850	Perchlorate	2.0		µg/L	2.0		0.030	0.20
Demolition Area 1	MW-258M1	MW-258M1_S20D	109	119	06/11/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.34		µg/L	0.60		0.034	0.20
Demolition Area 1	MW-258M1	MW-258M1_S20D	109	119	06/11/2020	SW6850	Perchlorate	1.9		µg/L	2.0		0.030	0.20
Demolition Area 1	MW-532M2	MW-532M2_S20	138	148	06/10/2020	SW6850	Perchlorate	2.0		µg/L	2.0		0.030	0.20
Demolition Area 1	MW-532M1	MW-532M1_S20	168	178	06/10/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.061	J	µg/L	0.60		0.034	0.20
Demolition Area 1	MW-532M1	MW-532M1_S20	168	178	06/10/2020	SW6850	Perchlorate	0.24		µg/L	2.0		0.030	0.20
Demolition Area 1	MW-542M1	MW-542M1_S20	144	154	06/10/2020	SW6850	Perchlorate	0.068	J	µg/L	2.0		0.030	0.20
Demolition Area 1	MW-542M1	MW-542M1_S20	144	154	06/10/2020	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-173M2	MW-173M2_S20	208	218	06/10/2020	SW6850	Perchlorate	0.17	J	µg/L	2.0		0.030	0.20
Demolition Area 1	MW-173M1	MW-173M1_S20	243	253	06/10/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.059	J	µg/L	0.60		0.034	0.20
Demolition Area 1	MW-698M1	MW-698M1_S20	212.4	222.4	06/09/2020	SW6850	Perchlorate	0.11	J	µg/L	2.0		0.030	0.20
Demolition Area 1	MW-697M1	MW-697M1_S20	243	253	06/09/2020	SW6850	Perchlorate	0.39		µg/L	2.0		0.030	0.20
Demolition Area 1	MW-533M1	MW-533M1_S20	160	170	06/09/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.46		µg/L	0.60		0.034	0.20
Demolition Area 1	MW-533M1	MW-533M1_S20	160	170	06/09/2020	SW6850	Perchlorate	22.5		µg/L	2.0	X	0.060	0.40
Demolition Area 1	MW-533M1	MW-533M1_S20D	160	170	06/09/2020	SW6850	Perchlorate	22.5		µg/L	2.0	X	0.060	0.40
Demolition Area 1	MW-700M2	MW-700M2_S20	147.7	157.7	06/09/2020	SW6850	Perchlorate	0.063	J	µg/L	2.0		0.030	0.20
Demolition Area 1	MW-700M1	MW-700M1_S20	197.9	207.9	06/09/2020	SW6850	Perchlorate	0.11	J	µg/L	2.0		0.030	0.20
Demolition Area 1	MW-248M3	MW-248M3_S20	143	153	06/08/2020	SW6850	Perchlorate	0.12	J	µg/L	2.0		0.030	0.20
Demolition Area 1	MW-248M1	MW-248M1_S20	216.3	226.3	06/08/2020	SW6850	Perchlorate	0.54		µg/L	2.0		0.030	0.20
Demolition Area 1	MW-663D	MW-663D_S20	240.6	250.6	06/04/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.3		µg/L	0.60	X	0.034	0.20
Demolition Area 1	MW-663D	MW-663D_S20	240.6	250.6	06/04/2020	SW6850	Perchlorate	8.5		µg/L	2.0	X	0.030	0.20
Demolition Area 1	MW-663D	MW-663D_S20D	240.6	250.6	06/04/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.3		µg/L	0.60	X	0.034	0.20
Demolition Area 1	MW-663D	MW-663D_S20D	240.6	250.6	06/04/2020	SW6850	Perchlorate	8.4		µg/L	2.0	X	0.030	0.20
Demolition Area 1	MW-231M2	MW-231M2_S20	165.5	175.5	06/04/2020	SW6850	Perchlorate	0.72		µg/L	2.0		0.030	0.20
Demolition Area 1	MW-231M1	MW-231M1_S20	210.5	220.5	06/04/2020	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-231M1	MW-231M1_S20	210.5	220.5	06/04/2020	SW6850	Perchlorate	0.44		µg/L	2.0		0.030	0.20
Demolition Area 1	MW-211M2	MW-211M2_S20	175	185	06/04/2020	SW6850	Perchlorate	0.11	J	µg/L	2.0		0.030	0.20
Demolition Area 1	MW-211M1	MW-211M1_S20	200	210	06/04/2020	SW6850	Perchlorate	0.34		µg/L	2.0		0.030	0.20
Demolition Area 1	MW-240M2	MW-240M2_S20	125	135	06/03/2020	SW6850	Perchlorate	0.18	J	µg/L	2.0		0.030	0.20
Demolition Area 1	MW-240M1	MW-240M1_S20	198	208	06/03/2020	SW6850	Perchlorate	0.086	J	µg/L	2.0		0.030	0.20
Demolition Area 1	MW-662D	MW-662D_S20	202.3	212.3	06/03/2020	SW6850	Perchlorate	2.0		µg/L	2.0		0.030	0.20
Demolition Area 1	MW-225M1	MW-225M1_S20	175	185	06/03/2020	SW6850	Perchlorate	0.12	J	µg/L	2.0		0.030	0.20

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RL = Reporting Limit

TABLE 2
VALIDATED EXPLOSIVE AND PERCHLORATE RESULTS
Data Received July 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	XX9514	XX9514_S20	102	112	06/02/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.40		µg/L	0.60		0.034	0.20
Demolition Area 1	XX9514	XX9514_S20	102	112	06/02/2020	SW6850	Perchlorate	3.8		µg/L	2.0	X	0.030	0.20
Demolition Area 1	XX9514	XX9514_S20D	102	112	06/02/2020	SW6850	Perchlorate	3.9		µg/L	2.0	X	0.030	0.20
Demolition Area 1	MW-341M3	MW-341M3_S20	209.5	219.5	06/01/2020	SW6850	Perchlorate	0.26		µg/L	2.0		0.030	0.20
Demolition Area 1	MW-341M2	MW-341M2_S20	264.5	269.5	06/01/2020	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-341M2	MW-341M2_S20	264.5	269.5	06/01/2020	SW6850	Perchlorate	0.51		µg/L	2.0		0.030	0.20
Demolition Area 1	MW-341M2	MW-341M2_S20D	264.5	269.5	06/01/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.48		µg/L	0.60		0.034	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/ORSG)	0.00	0.00	0.00	3.20	0.00
§Sum of All Compounds Collected	0.00	0.00	0.00	4.86	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/ORSG)	4.90	0.00	3.80	0.00	0.00
§Sum of All Compounds Collected	6.70	0.00	4.79	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/ORSG)	0.00	0.00	0.00	0.880	0.730	2.05
§Sum of All Compounds Collected	0.00	0.00	0.00	0.880	0.730	7.40

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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
	§Sum of All Compounds Collected	3.20	8.70

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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/ORSG)	0.00	14.8	0.00	12.5	12.6	0.00
§Sum of All Compounds Collected	0.00	17.4	0.00	15.0	15.4	4.90

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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/ORSG)	3.05	2.30	0.00
	§Sum of All Compounds Collected	3.05	5.08	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/ORSG)	2.02	1.50	14.4	14.2	13.3	0.540
§Sum of All Compounds Collected	5.12	1.50	14.8	14.2	13.9	0.540

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 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
§Sum of All Compounds Collected	0.710

PFAS Summary Report – Groundwater
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KGS 2020 J3 Range SPM Fall
J3 Range

Location	MW-143M2	MW-143M3	MW-163S	MW-163S	MW-181S	MW-193M1
Field Sample ID	MW-143M2_F20	MW-143M3_F20	MW-163S_F20	MW-163S_F20D	MW-181S_F20	MW-193M1_F20
Sampling Depth	117.00 - 122.00	107.00 - 112.00	38.00 - 48.00	38.00 - 48.00	32.25 - 42.25	57.50 - 62.50
Sampling Date	07/20/2020	07/21/2020	07/16/2020	07/16/2020	07/21/2020	07/16/2020
SDG	320629171	320629171	320627321	320627321	320629171	320627321
Sample Type	Normal	Normal	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	19.0 U	19.0 U	20.0 U	19.0 U	19.0 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	9.40 U	9.50 U	9.70 U	9.80 U	9.40 U	9.60 U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	9.40 U	9.50 U	9.70 U	9.80 U	9.40 U	9.60 U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	9.40 U	9.50 U	9.70 U	9.80 U	9.40 U	9.60 U
Perfluoro-1-heptanesulfonate (PFHpS)	0.940 U	0.950 U	0.970 U	0.980 U	0.940 U	0.960 U
Perfluorobutanesulfonic acid (PFBS)	1.20 J	0.620 J	0.970 U	0.980 U	0.940 U	0.960 U
Perfluorobutanoic acid (PFBA)	1.40 U	1.40 U	1.00 J	1.00 J	1.40 U	0.570 J
Perfluorodecane sulfonate	1.40 U	1.40 U	1.50 U	1.50 U	1.40 U	1.40 U
Perfluorodecanoic acid (PFDA)	0.940 U	0.950 U	0.970 U	0.980 U	0.940 U	0.960 U
Perfluorododecanoic acid (PFDoA)	1.40 U	1.40 U	1.50 U	1.50 U	1.40 U	1.40 U
Perfluoroheptanoic acid (PFHpA)	1.40 U	1.40 U	1.50 U	1.50 U	1.40 U	1.40 U
Perfluorohexanesulfonic acid (PFHxS)	26.0	4.20	1.90 U	2.00 U	1.90 U	1.90 U
Perfluorohexanoic acid (PFHxA)	0.940 U	0.950 U	0.970 U	0.980 U	0.940 U	0.960 U
Perfluorononanoic acid (PFNA)	1.40 U	1.40 U	1.50 U	1.50 U	1.40 U	1.40 U
Perfluorooctanesulfonamide (FOSA)	2.80 U	2.80 U	2.90 U	2.90 U	2.80 U	2.90 U
Perfluorooctanesulfonic acid (PFOS)	2.80 U	2.80 U	4.90	5.00	16.0	2.90 U
Perfluorooctanoic acid (PFOA)	1.40 U	1.40 U	0.840 J	0.940 J	0.510 J	1.40 U
Perfluoropentanoic acid (PFPA)	0.940 U	0.950 U	0.970 U	0.460 J	0.940 U	0.490 J
Perfluorotetradecanoic acid (PFTA)	2.80 U	2.80 U	2.90 U	2.90 U	2.80 U	2.90 U
Perfluorotridecanoic acid (PFTTrDA)	2.80 U	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	1.50 U	1.40 U	1.40 U
†PFOS + PFOA (EPA)	0.00	0.00	5.74	5.94	16.5	0.00
#PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP/ORSG)	26.0	4.20	5.74	5.94	16.5	0.00
§Sum of All Compounds Collected	27.2	4.82	6.74	7.40	16.5	1.06

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J3 Range

Location	MW-193S	MW-196M1	MW-196S	MW-197M1	MW-197M2	MW-197M3
Field Sample ID	MW-193S_F20	MW-196M1_F20	MW-196S_F20	MW-197M1_F20	MW-197M2_F20	MW-197M3_F20D
Sampling Depth	32.50 - 37.50	45.00 - 50.00	32.00 - 37.00	120.00 - 125.00	80.20 - 85.20	60.20 - 65.20
Sampling Date	07/16/2020	07/23/2020	07/23/2020	07/20/2020	07/20/2020	07/20/2020
SDG	320627321	320630121	320630121	320629171	320629171	320629171
Sample Type	Normal	Normal	Normal	Normal	Normal	Field Duplicate
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)	18.0 U	18.0 U	18.0 U	19.0 U	19.0 U	18.0 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	9.20 U	9.20 U	9.00 U	9.40 U	9.30 U	9.20 U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	9.20 U	9.20 U	9.00 U	9.40 U	9.30 U	9.20 U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	9.20 U	9.20 U	9.00 U	9.40 U	9.30 U	9.20 U
Perfluoro-1-heptanesulfonate (PFHpS)	0.920 U	0.920 U	0.900 U	0.940 U	0.930 U	0.920 U
Perfluorobutanesulfonic acid (PFBS)	2.20	0.920 U	0.900 U	0.940 U	1.80 J	0.920 U
Perfluorobutanoic acid (PFBA)	1.20 J	1.80 U	1.80 U	1.40 U	4.90	1.40 J
Perfluorodecane sulfonate	1.40 U	1.40 U	1.30 U	1.40 U	1.40 U	1.40 U
Perfluorodecanoic acid (PFDA)	0.920 U	0.550 J	0.900 U	0.940 U	0.930 U	0.920 U
Perfluorododecanoic acid (PFDoA)	1.40 U	1.40 U	1.30 U	1.40 U	1.40 U	1.40 U
Perfluoroheptanoic acid (PFHpA)	1.40 U	1.40 U	1.30 U	1.40 U	4.00	1.40 U
Perfluorohexanesulfonic acid (PFHxS)	19.0	1.00 J	0.900 U	1.90 U	37.0	1.80 U
Perfluorohexanoic acid (PFHxA)	0.830 J	0.950 J	0.510 J	0.940 U	8.40	0.450 J
Perfluorononanoic acid (PFNA)	1.40 U	1.40 U	1.30 U	1.40 U	1.40 U	1.40 U
Perfluorooctanesulfonamide (FOSA)	2.80 U	2.80 U	2.70 U	2.80 U	2.80 U	2.80 U
Perfluorooctanesulfonic acid (PFOS)	2.80 U	1.10 J	3.80	2.80 U	10.0	2.80 U
Perfluorooctanoic acid (PFOA)	1.40 U	2.10	1.10 J	0.550 J	3.10	1.10 J
Perfluoropentanoic acid (PFPA)	1.30 J	0.660 J	0.440 J	0.400 J	6.50	0.440 J
Perfluorotetradecanoic acid (PFTA)	2.80 U	2.80 U	2.70 U	2.80 U	2.80 U	2.80 U
Perfluorotridecanoic acid (PFTTrDA)	2.80 U	2.80 U	2.70 U	2.80 U	2.80 U	2.80 U
Perfluoroundecanoic acid (PFUnA)	1.40 U	1.40 U	1.30 U	1.40 U	1.40 U	1.40 U
†PFOS + PFOA (EPA)	0.00	3.20	4.90	0.550	13.1	1.10
#PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP/ORSG)	19.0	4.75	4.90	0.550	54.1	1.10
§Sum of All Compounds Collected	24.5	6.36	5.85	0.950	75.7	3.39

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J3 Range

Location	MW-197M3	MW-198M1	MW-198M2	MW-198M3	MW-198M4	MW-232M1
Field Sample ID	MW-197M3_F20	MW-198M1_F20	MW-198M2_F20	MW-198M3_F20	MW-198M4_F20	MW-232M1_F20
Sampling Depth	60.20 - 65.20	150.00 - 155.00	120.00 - 125.00	100.00 - 105.00	70.00 - 75.00	77.50 - 82.50
Sampling Date	07/20/2020	07/15/2020	07/15/2020	07/15/2020	07/15/2020	07/16/2020
SDG	320629171	320627321	320627321	320627321	320627321	320627321
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)	18.0 U	19.0 U	19.0 U	19.0 U	19.0 U	19.0 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	9.20 U	9.50 U	9.50 U	9.50 U	9.50 U	9.50 U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	9.20 U	9.50 U	9.50 U	9.50 U	9.50 U	9.50 U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	9.20 U	9.50 U	9.50 U	9.50 U	9.50 U	9.50 U
Perfluoro-1-heptanesulfonate (PFHpS)	0.920 U	0.950 U	0.950 U	0.950 U	0.950 U	0.950 U
Perfluorobutanesulfonic acid (PFBS)	0.920 U	0.950 U	0.950 U	0.950 U	0.950 U	0.950 U
Perfluorobutanoic acid (PFBA)	1.50 J	1.40 U	0.740 J	0.740 J	6.50	2.20
Perfluorodecane sulfonate	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U
Perfluorodecanoic acid (PFDA)	0.920 U	0.950 U	0.950 U	0.950 U	0.950 U	0.950 U
Perfluorododecanoic acid (PFDoA)	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U
Perfluoroheptanoic acid (PFHpA)	1.40 U	1.40 U	1.40 U	1.40 U	1.80 J	1.40 U
Perfluorohexanesulfonic acid (PFHxS)	1.80 U	0.950 U	0.950 U	1.90 U	4.40	0.950 U
Perfluorohexanoic acid (PFHxA)	0.920 U	0.950 U	0.950 U	0.950 U	3.70	0.950 U
Perfluorononanoic acid (PFNA)	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U
Perfluorooctanesulfonamide (FOSA)	2.80 U	2.80 U	2.90 U	2.80 U	2.80 U	2.90 U
Perfluorooctanesulfonic acid (PFOS)	1.00 J	2.80 U	2.90 U	2.80 U	2.30 J	2.90 U
Perfluorooctanoic acid (PFOA)	0.990 J	1.40 U	1.40 U	1.40 U	2.30	0.640 J
Perfluoropentanoic acid (PFPA)	0.430 J	0.460 J	0.950 U	0.950 U	2.80	0.420 J
Perfluorotetradecanoic acid (PFTA)	2.80 U	2.80 U	2.90 U	2.80 U	2.80 U	2.90 U
Perfluorotridecanoic acid (PFTTrDA)	2.80 U	2.80 U	2.90 U	2.80 U	2.80 U	2.90 U
Perfluoroundecanoic acid (PFUnA)	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U
†PFOS + PFOA (EPA)	1.99	0.00	0.00	0.00	4.60	0.640
#PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP/ORSG)	1.99	0.00	0.00	0.00	10.8	0.640
§Sum of All Compounds Collected	3.92	0.460	0.740	0.740	23.8	3.26

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J3 Range

Location	MW-232M2	MW-30
Field Sample ID	MW-232M2_F20	MW-30_F20
Sampling Depth	61.00 - 66.00	26.00 - 36.00
Sampling Date	07/16/2020	07/21/2020
SDG	320627321	320629171
Sample Type	Normal	Normal
PFAS 21 Cmps	Results (ng/L)	Results (ng/L)
6:2 Fluorotelomer sulfonate (6:2 FTS)	20.0 U	19.0 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	10.0 U	9.40 U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	10.0 U	9.40 U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	10.0 U	9.40 U
Perfluoro-1-heptanesulfonate (PFHpS)	1.00 U	0.940 U
Perfluorobutanesulfonic acid (PFBS)	1.00 U	0.940 U
Perfluorobutanoic acid (PFBA)	3.20	1.40 U
Perfluorodecane sulfonate	1.50 U	1.40 U
Perfluorodecanoic acid (PFDA)	1.00 U	0.940 U
Perfluorododecanoic acid (PFDoA)	1.50 U	1.40 U
Perfluoroheptanoic acid (PFHpA)	1.50 U	1.40 U
Perfluorohexanesulfonic acid (PFHxS)	1.00 U	0.940 U
Perfluorohexanoic acid (PFHxA)	1.00 U	0.940 U
Perfluorononanoic acid (PFNA)	1.50 U	1.40 U
Perfluorooctanesulfonamide (FOSA)	3.00 U	2.80 U
Perfluorooctanesulfonic acid (PFOS)	3.00 U	15.0
Perfluorooctanoic acid (PFOA)	1.10 J	0.790 J
Perfluoropentanoic acid (PFPA)	0.520 J	0.940 U
Perfluorotetradecanoic acid (PFTA)	3.00 U	2.80 U
Perfluorotridecanoic acid (PFTTrDA)	3.00 U	2.80 U
Perfluoroundecanoic acid (PFUnA)	1.50 U	1.40 U
†PFOS + PFOA (EPA)	1.10	15.8
*PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP/ORSG)	1.10	15.8
§Sum of All Compounds Collected	4.82	15.8

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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

§ Summation of results for all compounds appearing in the report:

- 6:2 Fluorotelomer sulfonate (6:2 FTS)
- 8:2 Fluorotelomer sulfonate (8:2 FTS)
- N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)
- N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)
- Perfluoro-1-heptanesulfonate (PFHpS)
- Perfluorobutanesulfonic acid (PFBS)
- Perfluorobutanoic acid (PFBA)
- Perfluorodecane sulfonate
- Perfluorodecanoic acid (PFDA)
- Perfluorododecanoic acid (PFDoA)
- Perfluoroheptanoic acid (PFHpA)
- Perfluorohexanesulfonic acid (PFHxS)
- Perfluorohexanoic acid (PFHxA)
- Perfluorononanoic acid (PFNA)
- Perfluorooctanesulfonamide (FOSA)
- Perfluorooctanesulfonic acid (PFOS)
- Perfluorooctanoic acid (PFOA)
- Perfluoropentanoic acid (PFPA)
- Perfluorotetradecanoic acid (PFTA)
- Perfluorotridecanoic acid (PFTTrDA)
- Perfluoroundecanoic acid (PFUnA)