MONTHLY PROGRESS REPORT #276
FOR MARCH 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 March to 31 March 2020.

1. SUMMARY OF REMEDIATION ACTIONS

Remediation Actions (RA) underway at Camp Edwards as of 27 March 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 2.721 billion gallons of water treated and re-injected as of 27 March 2020. No shutdown(s) of the Frank Perkins Road Treatment Facility occurred during March.

The Pew Road Mobile Treatment Unit (MTU) continues to operate at a flow rate of 65 GPM, with over 642.4 million gallons of water treated and re-injected as of 27 March 2020. No shutdowns of the Pew Road MTU occurred during March.

The Base Boundary MTU continues to operate at a flow rate of 65 gpm, with over 259.1 million gallons of water treated and re-injected as of 27 March 2020. No shutdowns of the Base Boundary MTU occurred during March.

The Leading Edge system continues to operate at a flow rate of 100 gpm, with over 190.0 million gallons of water treated and re-injected as of 27 March 2020. No shutdown(s) of the Leading Edge system occurred during March.

J-2 Range Groundwater RA

Northern Plant

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

The Northern Treatment Building continues to operate at a flow rate of 225 gpm. As of 27 March 2020, over 1.227 billion gallons of water have been treated and re-injected. The following shutdown(s) of the Northern Treatment Building occurred in March:

- Building G shut down due to a power supply interruption at 0514 on 07 March 2020, and was restarted at 0814 on 09 March 2020.

The Northern MTUs E and F continue to operate at a flow rate of 250 gpm. As of 27 March 2020, over 1.679 billion gallons of water have been treated and re-injected. No shutdown(s) of the J-2 Range Northern system occurred during March.

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 27 March 2020, over 1.339 billion gallons of water have been treated and re-injected. The following shutdown(s) of MTUs H and I occurred during March:

- MTUs shut down at 0218 on 23 March 2020 due to an “Inlet Pressure Low” alarm, caused by a power supply interruption damaging a motor starter and its replacement. The system was restarted at 1030 on 23 March 2020.

MTU J continues to operate at a flow rate of 120 gpm. As of 27 March 2020, over 613.4 million gallons of water have been treated and re-injected. The following shutdown(s) of MTU J occurred during March.

- MTU J shut down due to a power supply interruption at 0030 on 05 March 2020, and was restarted at 0745 on 05 March 2020.
- MTU J shut down due to a power supply interruption at 0735 on 12 March 2020, and was restarted at 0810 on 12 March 2020.
- MTU J shut down due to a power supply interruption at 1941 on 12 March 2020, and was restarted at 0820 h on 13 March 2020.

MTU K continues to operate at a flow rate of 125 gpm. As of 27 March 2020, over 731.7 million gallons of water have been treated and re-injected. No shutdown(s) of MTU K occurred during March.

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 27 March 2020, over 1.340 billion gallons of water have been treated and re-injected. The following shutdown(s) of the J-3 Range system occurred during March:

- The system shut down due to a power outage at 1636 on 04 March 2020, and was restarted at 0759 on 05 March.
- The system shut down due to a power outage at 0216 on 07 March 2020, and was restarted at 0915 on 09 March 2020.
- The system shut down due to a power outage at 0737 on 12 March 2020, and was restarted at 0854 on 12 March 2020.
- The system shut down due to a power outage at 1942 on 12 March 2020, and was restarted at 0823 on 13 March 2020.
- The system shut down due to an FS-12 shutdown down at 1224 on 17 March 2020, and was restarted at 1414 on 17 March 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 27 March 2020, over 590.7 million gallons of water have been treated and re-injected. No shutdown(s) of the J-1 Range Southern system occurred during March.

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 27 March 2020, over 816.2 million gallons of water have been treated and re-injected. No shutdown(s) of the J-1 Range Northern MTU occurred during March.

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 27 March 2020, over 2.019 billion gallons of water have been treated and re-injected. No facility shutdown(s) occurred during March.

SUMMARY OF ACTIONS TAKEN

CIA
- Performed routine inspections of BEM cover to ensure cover is secure and intact.
- Completed downhole clearance at five proposed well locations, began drilling and groundwater profile sampling.
- Groundwater sampling within the CIA SPM program.

Demolition Area 1
- Leading Edge MTU bag filters were exchanged on 16 March 2020.
- Pew Road MTU bag filters were exchanged on 09 March 2020.

Demolition Area 2
- No activity.

J-1 Range
- J1 North MTU bag filters were exchanged on 18 March 2020.
- Groundwater sampling.

J-2 Range
- No activity.

J-3 Range
- Bag filters were exchanged on 20 March 2020.

L Range
- No activity.

Small Arms Ranges
- No activity.

Training Areas
- Performed EM-61 Survey at Former E Range 20-acre Investigation Area
- Collected Former A Range groundwater samples.

Other
- Collected process water samples from the Central Impact Area, Demolition Area 1, J1 Range Northern, J1 Range Southern, J2 Range Eastern, J2 Range Northern, and J3 Range treatment systems.

JBCC IAGWSP Tech Update Meeting Minutes 12 March 2020

Project and Fieldwork Update

All treatment systems are up and running. Long term monitoring sampling continues in the Central Impact Area, mostly downgradient wells. An auger rig will be bought in to begin the down holes for the CIA program next week. Down holes will now need to be dug to 14 feet deep due to reports of an item found in 2000 at that depth. The sonic rig is scheduled to mobilize the week of the 23rd. The sequence for the wells have not been determined yet, it will depend on where Parsons crews are working.

Dawson continues to EM-61 survey at Former E Range. They have approximately 15 of the 20 acres completed as of March 11. They should be completed by the end of next week. The target list and geophysical map will be provided to the agencies for review before anomaly investigation begins sometime in early April. Dawson completed excavation of the 35'x 35' grid around the primary target at the KD Range. Post-excavation samples results were distributed. All explosive compounds with the exception of one of the replicates of HMX was below the S1/GW1 standard. The screened stockpile (45 cubic yards) is at the H Range.

Currently, there is no UXO fieldwork in the Central Impact Area. Crews will return to the site around March 30th pending receipt of the next ten acres. IAGWSP provided recommendations based on what Parsons and IAGWSP thought would be appropriate next steps. MassDEP and EPA discussed all the proposed grids. They kept the southern transect (#3 near the "chicken leg") and the one that was going to the western transect of this area was moved one grid row and extended to hit the target to the west of the chicken leg on the CIA border. This area was picked based on review of LIDAR information as there was an area with some drop-off. In between 3a and 4a, that transect was chosen as it hits another target and is in a higher density area. EPA noted that continuing with transects was not their first choice, they would rather fill in all the area between 4b and 4a all the way to the boundary. The final transect on the east side of the CIA with 1.7 acres is to try to determine the density drop-off in that particular area. EPA and MassDEP noted that while they liked the areas proposed around Tank Ally and agreed they are all good to do however given that a good objective may be to determine the extent and try and get an understanding of the CIA area and how far it extends, it was better to continue with the transect route instead of targeting high density area. EPA noted while they are not disagreeing, they want to know what information these new transects will provide further than what is already known. IAGWSP believes what is currently proposed is more prudent. As a compromise, a transect was proposed from near "A" toward CS-19 (11 1/8 acre grids). To accommodate for this new area, IAGWSP proposes shortening up the 2.25 acre transect to the north, so it extends from just below B to the impact area boundary. Additionally, on the 3.375 acres to the north, cut off the three grids on the west side in the row. In addition, shorten the 1.75 acre on the east side by half a grid, which will provide enough to make a transect. IAGWSP noted they are trying to make sure that the transects can be driven through i.e. no dead ends, for fire safety purposes. It was agreed to further shrink the 3.375 acres down from west to east to the extent needed to do another transect from "A" out to CS-19. IAGWSP will revise the proposed area and redistribute.

Demolition Area 2 Plume Shell Presentation

A presentation was provided on the Demolition Area 2 plume shell. It was explained that to develop the plume shell the following steps were taken: EDMS was queried for RDX data for Demo 2. A simulation was started at the earliest date of groundwater sample collection October 1997 and was ended at December 2019. Representative groundwater extraction rates were used for the simulation period. Particles were initiated in MODPATH at locations and times of each sample collection point and migrate using results of the MODFLOW groundwater flow model. Run MODPATH simulations were run to migrate particles (x, y, and z) to the present time and the model predicted x, y, z, and c values were imported to

Excel. It was noted that RDX concentrations are decayed (Max decay 55% after 5 year) according to Jacobs analysis. Values were imported to ArcView and use as a guide to manually develop plume contours representing approximately 10- foot layers. Then 2D concentration contour lines were converted into 3D Control Points and kriged to MODFLOW Grid in Groundwater Desktop (GWD). The 3D concentration files were imported from GWD to Groundwater Vistas as initial concentration file for determining cleanup time- frames.

For RDX the start date was October 6, 1997 and concentrations ranged from ND to 3.02 µg/L. The number of points migrated was 666 with 17 captured and 642 deleted and 7 used for the plume shell. There were no points that were outside of the model domain.
Figures showing the migrated data points that were retained and deleted were displayed.

It was noted that the longest segment of the plume is approximately 375 feet in length and 50 wide above 0.6 µg/L downgradient of MW-404 with a smaller plume near MW-161S. There is approximately 0.15 pounds > ND (0.2 µg/L) and 0.04 pounds > 0.6 µg/L.

Comparison to Decision Document cleanup times was discussed. Based on the results of the updated RDX plume shell, concentrations are simulated to be below 0.6 µg/L by 2021 and below 0.2 µg/L (background) by 2024. The Decision Document Addendum (USEPA 2015) summarized the results of the RDX plume shell created with data through July 2014 as indicated: RDX concentrations in groundwater will be below the HA level (2.0 µg/L) by 2016; RDX concentrations below the RBC of 0.6 µg/L by 2018; and RDX concentrations below background (0.25 µg/L) after 10.5 years (2025).

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

SUMMARY OF DATA RECEIVED

Table 1 summarizes sampling for all media from 1 March to 31 March 2020. Table 2 summarizes the validated detections of explosives compounds and perchlorate for all groundwater results received from 1 March to 31 March 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 16 June 2019 to present.

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

2. DELIVERABLES SUBMITTED

Deliverables submitted during the reporting period include the following:

• Monthly Progress Report No. 275 for February 2020	10 March 2020
• Draft Small Arms Ranges Soil Removal Project Summary Report	3 March 2020
• Small Arms Ranges Post DD Soil Removal Report - Appendix A	4 March 2020
• Small Arms Ranges Post DD Soil Removal Report - Appendices B and C	4 March 2020
• Final Central Impact Area 2019 Annual Environmental Monitoring Report,	06 March 2020
• Final CIA 2018 Source Removal Annual Report	19 March 2020

3. SCHEDULED ACTIONS

The documents below were being prepared or revised during March 2020.

- CIA 2018 Source Removal Annual Report
- CIA 2019 Source Removal Annual Report
- CIA 2020 Project Note source removal work
- Draft J-2 Range Eastern and J-2 Range Northern 2019 Environmental Monitoring Report and MOR
- Five-Year Review Report
- J-2 Range PFAS detections Project Note
- Northwest Corner Residual Risk Assessment Work Plan, Demonstration of Compliance Report, and Project Note
- Small Arms Ranges Completion of Work Report

TABLE 1
Sampling Progress: 1 March to 31 March 2020

Area Of Concern	Location	Field Sample ID	Sample Type	Date Sampled	Matrix	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)
Central Impact Area	BH-725	BH-725-GW-256-261	N	03/30/2020	GW Profile	256	261
Central Impact Area	MW-617M2	MW-617M2_S20	N	03/30/2020	Ground Water	118.3	128.3
Central Impact Area	BH-725	BH-725-GW-246-251	N	03/30/2020	GW Profile	246	251
Central Impact Area	MW-617M1	MW-617M1_S20	N	03/30/2020	Ground Water	175.8	185.8
Central Impact Area	MW-616M2	MW-616M2_S20	N	03/30/2020	Ground Water	107.1	117.1
Central Impact Area	MW-616M1	MW-616M1_S20	N	03/30/2020	Ground Water	217.1	227.1
Central Impact Area	BH-725	BH-725-GW-236-241	N	03/27/2020	GW Profile	236	241
Central Impact Area	BH-725	BH-725-GW-226-231	N	03/27/2020	GW Profile	226	231
Central Impact Area	BH-725	BH-725-GW-216-221	N	03/27/2020	GW Profile	216	221
Central Impact Area	BH-725	BH-725-GW-206-211D	FD	03/27/2020	GW Profile	206	211
Central Impact Area	BH-725	BH-725-GW-206-211	N	03/27/2020	GW Profile	206	211
Central Impact Area	BH-725	BH-725-GW-196-201	N	03/27/2020	GW Profile	196	201
Central Impact Area	BH-725	BH-725-GW-186-191	N	03/27/2020	GW Profile	186	191
Central Impact Area	BH-725	BH-725-GW-176-181	N	03/27/2020	GW Profile	176	181
Central Impact Area	BH-725	BH-725-GW-166-171	N	03/26/2020	GW Profile	166	171
Central Impact Area	BH-725	BH-725-GW-156-161	N	03/26/2020	GW Profile	156	161
Central Impact Area	MW-284M2	MW-284M2_S20	N	03/26/2020	Ground Water	45	55
Central Impact Area	MW-284M2	MW-284M2_S20	N	03/26/2020	Ground Water	45	55
Northwest Corner	MW-284M2	MW-284M2_S20	N	03/26/2020	Ground Water	45	55
Northwest Corner	MW-284M2	MW-284M2_S20	N	03/26/2020	Ground Water	45	55
Central Impact Area	BH-725	BH-725-GW-146-151D	FD	03/26/2020	GW Profile	146	151
Central Impact Area	BH-725	BH-725-GW-146-151	N	03/26/2020	GW Profile	146	151
Central Impact Area	MW-284M1	MW-284M1_S20	N	03/26/2020	Ground Water	115	125
Northwest Corner	MW-284M1	MW-284M1_S20	N	03/26/2020	Ground Water	115	125
Central Impact Area	BH-725	BH-725-GW-136-141	N	03/26/2020	GW Profile	136	141
Central Impact Area	BH-725	BH-725-GW-126-131	N	03/26/2020	GW Profile	126	131
Central Impact Area	MW-626M2	MW-626M2_S20	N	03/26/2020	Ground Water	237.2	247.2
Central Impact Area	MW-626M1	MW-626M1_S20	N	03/26/2020	Ground Water	282.2	292.2
Northwest Corner	MW-279M2	MW-279M2_S20	N	03/25/2020	Ground Water	83	88
Central Impact Area	MW-344M2	MW-344M2_S20	N	03/25/2020	Ground Water	145	155
Central Impact Area	MW-344M2	MW-344M2_S20D	FD	03/25/2020	Ground Water	145	155
Northwest Corner	MW-278S	MW-278S_S20	N	03/25/2020	Ground Water	80	90
Northwest Corner	MW-278M2	MW-278M2_S20	N	03/25/2020	Ground Water	97	102
Central Impact Area	MW-178M1	MW-178M1_S20	N	03/24/2020	Ground Water	257	267
Central Impact Area	MW-223M2	MW-223M2_S20	N	03/24/2020	Ground Water	185	195
Central Impact Area	MW-223M1	MW-223M1_S20	N	03/24/2020	Ground Water	211	221
Central Impact Area	MW-223D	MW-223D_S20	N	03/24/2020	Ground Water	260	270
Central Impact Area	MW-623M3	MW-623M3_S20	N	03/23/2020	Ground Water	275	285
Central Impact Area	MW-623M2	MW-623M2_S20	N	03/23/2020	Ground Water	291.8	301.8
Central Impact Area	MW-623M1	MW-623M1_S20	N	03/23/2020	Ground Water	340	350
J1 Range Southern	MW-722M2	MW-722M2_R2	N	03/19/2020	Ground Water	93.9	103.9
J1 Range Southern	MW-722M1	MW-722M1_R2	N	03/19/2020	Ground Water	114.2	124.2
J1 Range Southern	MW-722M1	MW-722M1_R2D	FD	03/19/2020	Ground Water	114.2	124.2
Central Impact Area	MW-23M1	MW-23M1_S20	N	03/19/2020	Ground Water	225	235
Central Impact Area	MW-23D	MW-23D_S20	N	03/19/2020	Ground Water	272	282
J1 Range Southern	MW-720M2	MW-720M2_R2	N	03/18/2020	Ground Water	126.2	136.2
J1 Range Southern	MW-720M2	MW-720M2_R2D	FD	03/18/2020	Ground Water	126.2	136.2
J1 Range Southern	MW-720M1	MW-720M1_R2	N	03/18/2020	Ground Water	146.6	156.6
J1 Range Southern	MW-721M2	MW-721M2_R2	N	03/18/2020	Ground Water	138.5	148.5
J1 Range Southern	MW-721M1	MW-721M1_R2	N	03/18/2020	Ground Water	168.1	178.1
Central Impact Area	MW-202M1	MW-202M1_S20	N	03/17/2020	Ground Water	264	274
Central Impact Area	MW-249M2	MW-249M2_S20	N	03/17/2020	Ground Water	174	184
Central Impact Area	MW-176M2	MW-176M2_S20	N	03/17/2020	Ground Water	229	239
Central Impact Area	MW-176M1	MW-176M1_S20	N	03/17/2020	Ground Water	270	280
Central Impact Area	MW-633M2	MW-633M2_S20	N	03/12/2020	Ground Water	197	207
Central Impact Area	MW-633M1	MW-633M1_S20	N	03/12/2020	Ground Water	282	292
Central Impact Area	MW-207M1	MW-207M1_S20	N	03/12/2020	Ground Water	254	264
Central Impact Area	MW-609M2	MW-609M2_S20	N	03/12/2020	Ground Water	182.39	192.39
Central Impact Area	MW-609M1	MW-609M1_S20	N	03/12/2020	Ground Water	210.39	220.39

N = Normal Sample
FD = Field Duplicate

TABLE 1
Sampling Progress: 1 March to 31 March 2020

Area Of Concern	Location	Field Sample ID	Sample Type	Date Sampled	Matrix	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)
Central Impact Area	MW-609M1	MW-609M1_S20D	FD	03/12/2020	Ground Water	210.39	220.39
Central Impact Area	MW-212M1	MW-212M1_S20	N	03/11/2020	Ground Water	333	343
Central Impact Area	MW-710M1	MW-710M1_S20	N	03/11/2020	Ground Water	247.5	257.5
Central Impact Area	MW-699M2	MW-699M2_S20	N	03/11/2020	Ground Water	221	231
Central Impact Area	MW-699M1	MW-699M1_S20	N	03/11/2020	Ground Water	261.5	271.5
Central Impact Area	MW-624M2	MW-624M2_S20	N	03/10/2020	Ground Water	254	264
Central Impact Area	MW-624M1	MW-624M1_S20	N	03/10/2020	Ground Water	284	294
Central Impact Area	MW-618M2	MW-618M2_S20	N	03/10/2020	Ground Water	190.5	200.5
Central Impact Area	MW-618M1	MW-618M1_S20	N	03/10/2020	Ground Water	238.5	248.5
Central Impact Area	MW-625M2	MW-625M2_S20	N	03/09/2020	Ground Water	230	240
Central Impact Area	MW-625M1	MW-625M1_S20	N	03/09/2020	Ground Water	260	270
Central Impact Area	MW-441M2	MW-441M2_S20	N	03/09/2020	Ground Water	109.5	119.5
Central Impact Area	MW-441M1	MW-441M1_S20	N	03/09/2020	Ground Water	204.6	214.6
Central Impact Area	MW-350M2	MW-350M2_S20	N	03/05/2020	Ground Water	126	136
Demolition Area 1	PR-EFF	PR-EFF-168A	N	03/05/2020	Process Water	0	0
Demolition Area 1	PR-MID-2	PR-MID-2-168A	N	03/05/2020	Process Water	0	0
Demolition Area 1	PR-MID-1	PR-MID-1-168A	N	03/05/2020	Process Water	0	0
Demolition Area 1	PR-INF	PR-INF-168A	N	03/05/2020	Process Water	0	0
Central Impact Area	MW-607M3	MW-607M3_S20	N	03/05/2020	Ground Water	157.4	167.4
Demolition Area 1	FPR-2-EFF-A	FPR-2-EFF-A-168A	N	03/05/2020	Process Water	0	0
Demolition Area 1	FPR-2-GAC-MID1A	FPR-2-GAC-MID1A-168A	N	03/05/2020	Process Water	0	0
Demolition Area 1	FPR2-POST-IX-A	FPR2-POST-IX-A-168A	N	03/05/2020	Process Water	0	0
Demolition Area 1	FPR-2-INF	FPR-2-INF-168A	N	03/05/2020	Process Water	0	0
Demolition Area 1	D1LE-EFF	D1LE-EFF-44A	N	03/05/2020	Process Water	0	0
Demolition Area 1	D1LE-MID2	D1LE-MID2-44A	N	03/05/2020	Process Water	0	0
Demolition Area 1	D1LE-MID1	D1LE-MID1-44A	N	03/05/2020	Process Water	0	0
Demolition Area 1	D1LE-INF	D1LE-INF-44A	N	03/05/2020	Process Water	0	0
Central Impact Area	MW-607M2	MW-607M2_S20	N	03/05/2020	Ground Water	177.4	187.4
Central Impact Area	MW-607M2	MW-607M2_S20D	FD	03/05/2020	Ground Water	177.4	187.4
Demolition Area 1	D1-EFF	D1-EFF-116A	N	03/05/2020	Process Water	0	0
Demolition Area 1	D1-MID-2	D1-MID-2-116A	N	03/05/2020	Process Water	0	0
Demolition Area 1	D1-MID-1	D1-MID-1-116A	N	03/05/2020	Process Water	0	0
Central Impact Area	MW-607M1	MW-607M1_S20	N	03/05/2020	Ground Water	207.4	217.4
Central Impact Area	MW-607M1	MW-607M1_S20D	FD	03/05/2020	Ground Water	207.4	217.4
Demolition Area 1	D1-INF	D1-INF-116A	N	03/05/2020	Process Water	0	0
J3 Range	J3-EFF	J3-EFF-162A	N	03/04/2020	Process Water	0	0
J3 Range	J3-MID-2	J3-MID-2-162A	N	03/04/2020	Process Water	0	0
Central Impact Area	MW-323M2	MW-323M2_S20	N	03/04/2020	Ground Water	120	130
J3 Range	J3-MID-1	J3-MID-1-162A	N	03/04/2020	Process Water	0	0
J3 Range	J3-INF	J3-INF-162A	N	03/04/2020	Process Water	0	0
J1 Range Southern	J1S-EFF	J1S-EFF-148A	N	03/04/2020	Process Water	0	0
J1 Range Southern	J1S-MID	J1S-MID-148A	N	03/04/2020	Process Water	0	0
J1 Range Southern	J1S-INF-2	J1S-INF-2-148A	N	03/04/2020	Process Water	0	0
Central Impact Area	MW-323M1	MW-323M1_S20	N	03/04/2020	Ground Water	195	205
J2 Range Eastern	J2E-EFF-IH	J2E-EFF-IH-138A	N	03/04/2020	Process Water	0	0
J2 Range Eastern	J2E-MID-2H	J2E-MID-2H-138A	N	03/04/2020	Process Water	0	0
Central Impact Area	MW-338S	MW-338S_S20	N	03/04/2020	Ground Water	72	82
J2 Range Eastern	J2E-MID-1H	J2E-MID-1H-138A	N	03/04/2020	Process Water	0	0
J2 Range Eastern	J2E-MID-2I	J2E-MID-2I-138A	N	03/04/2020	Process Water	0	0
J2 Range Eastern	J2E-MID-1I	J2E-MID-1I-138A	N	03/04/2020	Process Water	0	0
J2 Range Eastern	J2E-INF-I	J2E-INF-I-138A	N	03/04/2020	Process Water	0	0
Central Impact Area	MW-338M2	MW-338M2_S20	N	03/04/2020	Ground Water	119	129
Northwest Corner	MW-338M2	MW-338M2_S20	N	03/04/2020	Ground Water	119	129
J2 Range Eastern	J2E-EFF-K	J2E-EFF-K-138A	N	03/04/2020	Process Water	0	0
J2 Range Eastern	J2E-MID-2K	J2E-MID-2K-138A	N	03/04/2020	Process Water	0	0
J2 Range Eastern	J2E-MID-1K	J2E-MID-1K-138A	N	03/04/2020	Process Water	0	0
J2 Range Eastern	J2E-INF-K	J2E-INF-K-138A	N	03/04/2020	Process Water	0	0
Central Impact Area	MW-338M1	MW-338M1_S20	N	03/04/2020	Ground Water	189	199
Northwest Corner	MW-338M1	MW-338M1_S20	N	03/04/2020	Ground Water	189	199

N = Normal Sample
FD = Field Duplicate

TABLE 1
Sampling Progress: 1 March to 31 March 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-EFF-J	J2E-EFF-J-138A	N	03/04/2020	Process Water	0	0
J2 Range Eastern	J2E-MID-2J	J2E-MID-2J-138A	N	03/04/2020	Process Water	0	0
J2 Range Eastern	J2E-MID-1J	J2E-MID-1J-138A	N	03/04/2020	Process Water	0	0
J2 Range Eastern	J2E-INF-J	J2E-INF-J-138A	N	03/04/2020	Process Water	0	0
Central Impact Area	MW-687M2	MW-687M2_S20	N	03/03/2020	Ground Water	188	198
Central Impact Area	MW-687M1	MW-687M1_S20	N	03/03/2020	Ground Water	232.6	242.6
Central Impact Area	CIA2-EFF	CIA2-EFF-74A	N	03/03/2020	Process Water	0	0
Central Impact Area	CIA2-MID2	CIA2-MID2-74A	N	03/03/2020	Process Water	0	0
Central Impact Area	CIA2-MID1	CIA2-MID1-74A	N	03/03/2020	Process Water	0	0
Central Impact Area	MW-42M3	MW-42M3_S20	N	03/03/2020	Ground Water	165.8	176
Central Impact Area	CIA2-INF	CIA2-INF-74A	N	03/03/2020	Process Water	0	0
Central Impact Area	CIA1-EFF	CIA1-EFF-74A	N	03/03/2020	Process Water	0	0
Central Impact Area	CIA1-MID2	CIA1-MID2-74A	N	03/03/2020	Process Water	0	0
Central Impact Area	CIA1-MID1	CIA1-MID1-74A	N	03/03/2020	Process Water	0	0
Central Impact Area	CIA1-INF	CIA1-INF-74A	N	03/03/2020	Process Water	0	0
Central Impact Area	MW-42M2	MW-42M2_S20	N	03/03/2020	Ground Water	185.8	196
Central Impact Area	CIA3-EFF	CIA3-EFF-45A	N	03/03/2020	Process Water	0	0
Central Impact Area	CIA3-MID2	CIA3-MID2-45A	N	03/03/2020	Process Water	0	0
Central Impact Area	CIA3-MID1	CIA3-MID1-45A	N	03/03/2020	Process Water	0	0
Central Impact Area	CIA3-INF	CIA3-INF-45A	N	03/03/2020	Process Water	0	0
Central Impact Area	MW-42M1	MW-42M1_S20	N	03/03/2020	Ground Water	205.8	216
Former A Range	MW-42M1	MW-42M1_S20	N	03/03/2020	Ground Water	205.8	216
Central Impact Area	MW-686M2	MW-686M2_S20	N	03/02/2020	Ground Water	194.3	204.3
Central Impact Area	MW-686M1	MW-686M1_S20	N	03/02/2020	Ground Water	243.2	253.2
J2 Range Northern	J2N-EFF-G	J2N-EFF-G-162A	N	03/02/2020	Process Water	0	0
J2 Range Northern	J2N-MID-2G	J2N-MID-2G-162A	N	03/02/2020	Process Water	0	0
J2 Range Northern	J2N-MID-1G	J2N-MID-1G-162A	N	03/02/2020	Process Water	0	0
Central Impact Area	MW-87M2	MW-87M2_S20	N	03/02/2020	Ground Water	169	179
J2 Range Northern	J2N-INF-G	J2N-INF-G-162A	N	03/02/2020	Process Water	0	0
J2 Range Northern	J2N-EFF-EF	J2N-EFF-EF-162A	N	03/02/2020	Process Water	0	0
J2 Range Northern	J2N-MID-2F	J2N-MID-2F-162A	N	03/02/2020	Process Water	0	0
J2 Range Northern	J2N-MID-1F	J2N-MID-1F-162A	N	03/02/2020	Process Water	0	0
J2 Range Northern	J2N-INF-EF	J2N-INF-EF-162A	N	03/02/2020	Process Water	0	0
J2 Range Northern	J2N-MID-2E	J2N-MID-2E-162A	N	03/02/2020	Process Water	0	0
Central Impact Area	MW-87M1	MW-87M1_S20	N	03/02/2020	Ground Water	194	204
J2 Range Northern	J2N-MID-1E	J2N-MID-1E-162A	N	03/02/2020	Process Water	0	0
J1 Range Northern	J1N-EFF	J1N-EFF-77A	N	03/02/2020	Process Water	0	0
J1 Range Northern	J1N-MID2	J1N-MID2-77A	N	03/02/2020	Process Water	0	0
J1 Range Northern	J1N-MID1	J1N-MID1-77A	N	03/02/2020	Process Water	0	0
J1 Range Northern	J1N-INF2	J1N-INF2-77A	N	03/02/2020	Process Water	0	0

N = Normal Sample
FD = Field Duplicate

TABLE 2
VALIDATED EXPLOSIVE AND PERCHLORATE RESULTS
Data Received March 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
Central Impact Area	MW-01S	MW-01S_S20	114	124	02/06/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.34		µg/L	0.60		0.034	0.20
Central Impact Area	MW-01M2	MW-01M2_S20	160	165	02/06/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.31		µg/L	0.60		0.034	0.20
Central Impact Area	MW-90S	MW-90S_S20	118	128	02/06/2020	SW8330	2-Amino-4,6-dinitrotoluene	0.030	J	µg/L	7.3		0.020	0.20
Central Impact Area	MW-90S	MW-90S_S20	118	128	02/06/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.19	J	µg/L	400		0.036	0.20
Central Impact Area	MW-90S	MW-90S_S20	118	128	02/06/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	2.2		µg/L	0.60	X	0.034	0.20
Central Impact Area	MW-90S	MW-90S_S20D	118	128	02/06/2020	SW8330	2-Amino-4,6-dinitrotoluene	0.035	J	µg/L	7.3		0.020	0.20
Central Impact Area	MW-90S	MW-90S_S20D	118	128	02/06/2020	SW8330	4-Amino-2,6-dinitrotoluene	0.042	J	µg/L	7.3		0.027	0.20
Central Impact Area	MW-90S	MW-90S_S20D	118	128	02/06/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.18	J	µg/L	400		0.036	0.20
Central Impact Area	MW-90S	MW-90S_S20D	118	128	02/06/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	2.2		µg/L	0.60	X	0.034	0.20
Central Impact Area	MW-90M1	MW-90M1_S20	145	155	02/06/2020	SW8330	4-Amino-2,6-dinitrotoluene	0.042	J	µg/L	7.3		0.027	0.20
Central Impact Area	MW-90M1	MW-90M1_S20	145	155	02/06/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.12	J	µg/L	400		0.036	0.20
Central Impact Area	MW-90M1	MW-90M1_S20	145	155	02/06/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.52		µg/L	0.60		0.034	0.20
Central Impact Area	MW-112M1	MW-112M1_S20	195	205	02/05/2020	SW8330	4-Amino-2,6-dinitrotoluene	0.059	J	µg/L	7.3		0.027	0.20
Central Impact Area	MW-112M1	MW-112M1_S20	195	205	02/05/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.088	J	µg/L	400		0.036	0.20
Central Impact Area	MW-112M1	MW-112M1_S20	195	205	02/05/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.2		µg/L	0.60	X	0.034	0.20
Central Impact Area	MW-113M2	MW-113M2_S20	190	200	02/05/2020	SW8330	4-Amino-2,6-dinitrotoluene	0.045	J	µg/L	7.3		0.027	0.20
Central Impact Area	MW-38M4	MW-38M4_S20	132	142	02/05/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.055	J	µg/L	400		0.036	0.20
Central Impact Area	MW-38M4	MW-38M4_S20	132	142	02/05/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.48		µg/L	0.60		0.034	0.20
Central Impact Area	MW-38M3	MW-38M3_S20	170	180	02/05/2020	SW8330	4-Amino-2,6-dinitrotoluene	0.053	J	µg/L	7.3		0.027	0.20
Central Impact Area	MW-38M3	MW-38M3_S20	170	180	02/05/2020	SW6850	Perchlorate	0.12	J	µg/L	2.0		0.027	0.20
Central Impact Area	MW-38M3	MW-38M3_S20	170	180	02/05/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.38		µg/L	0.60		0.034	0.20
Central Impact Area	MW-25	MW-25_S20	108	118	02/04/2020	SW8330	4-Amino-2,6-dinitrotoluene	0.045	J	µg/L	7.3		0.027	0.20
Central Impact Area	MW-25	MW-25_S20	108	118	02/04/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.084	J	µg/L	400		0.036	0.20
Central Impact Area	MW-25	MW-25_S20	108	118	02/04/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.6		µg/L	0.60	X	0.034	0.20
Central Impact Area	MW-485M1	MW-485M1_S20	125.32	135.32	02/04/2020	SW8330	4-Amino-2,6-dinitrotoluene	0.051	J	µg/L	7.3		0.027	0.20
Central Impact Area	MW-485M1	MW-485M1_S20	125.32	135.32	02/04/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.49		µg/L	400		0.036	0.20
Central Impact Area	MW-485M1	MW-485M1_S20	125.32	135.32	02/04/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	2.7		µg/L	0.60	X	0.034	0.20
Central Impact Area	MW-485M1	MW-485M1_S20D	125.32	135.32	02/04/2020	SW8330	4-Amino-2,6-dinitrotoluene	0.061	J	µg/L	7.3		0.027	0.20
Central Impact Area	MW-485M1	MW-485M1_S20D	125.32	135.32	02/04/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.59		µg/L	400		0.036	0.20
Central Impact Area	MW-485M1	MW-485M1_S20D	125.32	135.32	02/04/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	3.4		µg/L	0.60	X	0.034	0.20
Central Impact Area	MW-477M2	MW-477M2_S20	145.62	155.62	02/04/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	1.1		µg/L	400		0.036	0.20
Central Impact Area	MW-477M2	MW-477M2_S20	145.62	155.62	02/04/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	9.3		µg/L	0.60	X	0.034	0.20
Central Impact Area	MW-477M2	MW-477M2_S20D	145.62	155.62	02/04/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	1.1		µg/L	400		0.036	0.20
Central Impact Area	MW-477M2	MW-477M2_S20D	145.62	155.62	02/04/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	8.9		µg/L	0.60	X	0.034	0.20
Central Impact Area	MW-40M1	MW-40M1_S20	132.5	142.5	02/03/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.91		µg/L	0.60	X	0.034	0.20
Central Impact Area	MW-107M2	MW-107M2_S20	125	135	02/03/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.046	J	µg/L	400		0.036	0.20
Central Impact Area	MW-107M2	MW-107M2_S20	125	135	02/03/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.80		µg/L	0.60	X	0.034	0.20
J2 Range Eastern	MW-324M2	MW-324M2_S20	203.74	214.74	01/30/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.25		µg/L	400		0.036	0.20
J2 Range Eastern	MW-324M2	MW-324M2_S20	203.74	214.74	01/30/2020	SW6850	Perchlorate	0.41		µg/L	2.0		0.027	0.20
J2 Range Eastern	MW-324M1	MW-324M1_S20	234.85	244.85	01/30/2020	SW6850	Perchlorate	0.21		µg/L	2.0		0.027	0.20
J2 Range Eastern	MW-324M1	MW-324M1_S20	234.85	244.85	01/30/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.25		µg/L	400		0.036	0.20
J2 Range Eastern	MW-339M1	MW-339M1_S20	233	243	01/29/2020	SW6850	Perchlorate	0.44		µg/L	2.0		0.027	0.20
J2 Range Eastern	MW-368M2	MW-368M2_S20	202.73	212.73	01/29/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	4.6		µg/L	0.60	X	0.034	0.20

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

MCL/HA= Either the MCL or Lowest Health Advisory Limit

TABLE 2
VALIDATED EXPLOSIVE AND PERCHLORATE RESULTS
Data Received March 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
J2 Range Eastern	MW-368M2	MW-368M2_S20	202.73	212.73	01/29/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	6.8		µg/L	400		0.036	0.20
J2 Range Eastern	MW-368M2	MW-368M2_S20	202.73	212.73	01/29/2020	SW6850	Perchlorate	9.5		µg/L	2.0	X	0.027	0.20
J2 Range Eastern	MW-368M2	MW-368M2_S20D	202.73	212.73	01/29/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	4.4		µg/L	0.60	X	0.034	0.20
J2 Range Eastern	MW-368M2	MW-368M2_S20D	202.73	212.73	01/29/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	7.0		µg/L	400		0.036	0.20
J2 Range Eastern	MW-368M2	MW-368M2_S20D	202.73	212.73	01/29/2020	SW6850	Perchlorate	9.1		µg/L	2.0	X	0.027	0.20
J2 Range Eastern	J2MW-04M2	J2MW-04M2_S20	210	220	01/29/2020	SW6850	Perchlorate	0.054	J	µg/L	2.0		0.027	0.20
J2 Range Eastern	J2MW-04M1	J2MW-04M1_S20	257	267	01/29/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.098	J	µg/L	400		0.036	0.20
J2 Range Eastern	J2MW-04M1	J2MW-04M1_S20	257	267	01/29/2020	SW6850	Perchlorate	0.099	J	µg/L	2.0		0.027	0.20
Central Impact Area	MW-37M2	MW-37M2_S20	145	155	01/27/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.44		µg/L	0.60		0.034	0.20
Central Impact Area	MW-235M1	MW-235M1_S20	154	164	01/27/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.10	J	µg/L	0.60		0.034	0.20
Central Impact Area	MW-487M2	MW-487M2_S20	195.84	205.84	01/27/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.061	J	µg/L	400		0.036	0.20
Central Impact Area	MW-487M2	MW-487M2_S20	195.84	205.84	01/27/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.78		µg/L	0.60	X	0.034	0.20

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

MCL/HA= Either the MCL or Lowest Health Advisory Limit
April 08, 2020

PFAS Summary Report – Groundwater
Joint Base Cape Cod, IAGWSP
KGS 2019 PFAS MW&INF
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)	**0.00**	**0.00**	**0.00**	**3.20**	**0.00**
§PFOS + PFOA + PFHpA + PFHxS + PFNA (Mass ORSG)	**0.00**	**0.00**	**0.00**	**1.00**	**0.00**

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KGS 2019 PFAS MW&INF
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)	**4.90**	**0.00**	**3.80**	**0.00**	**0.00**
§PFOS + PFOA + PFHpA + PFHxS + PFNA (Mass ORSG)	**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)	**0.00**	**0.00**	**0.00**	**0.880**	**0.730**	**2.05**
§PFOS + PFOA + PFHpA + PFHxS + PFNA (Mass ORSG)	**0.00**	**0.00**	**0.00**	**0.880**	**0.730**	**0.650**

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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)	**0.800**	**7.10**
§PFOS + PFOA + PFHpA + PFHxS + PFNA (Mass ORSG)	**0.00**	**2.80**

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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)	**0.00**	**14.8**	**0.00**	**12.5**	**12.6**	**0.00**
§PFOS + PFOA + PFHpA + PFHxS + PFNA (Mass ORSG)	**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)	**3.05**	**2.30**	**0.00**
§PFOS + PFOA + PFHpA + PFHxS + PFNA (Mass ORSG)	**3.05**	**1.10**	**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)	**2.02**	**1.50**	**14.4**	**14.2**	**13.3**	**0.540**
§PFOS + PFOA + PFHpA + PFHxS + PFNA (Mass ORSG)	**2.02**	**1.50**	**14.4**	**14.2**	**13.3**	**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)	**0.00**
§PFOS + PFOA + PFHpA + PFHxS + PFNA (Mass ORSG)	**0.00**

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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: PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA > 20 ng/L

Bolded and highlighted results indicate detection of PFAS above the MassDEP Office of Research and Standards Guideline (ORSG): PFOS + PFOA + PFHpA + PFHxS + PFNA > 70 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

§ MassDEP Office of Research and Standards Final Recommendations for Interim Toxicity and Drinking Water Guidance Values, Massachusetts Department of Environmental Protection, June 8, 2018