MONTHLY PROGRESS REPORT #283
FOR OCTOBER 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 October to 31 October 2020.

1. SUMMARY OF REMEDIATION ACTIONS

Remediation Actions (RA) Underway at Camp Edwards as of 30 October 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 2.775 billion gallons of water treated and re-injected as of 30 October 2020. No Frank Perkins Road Treatment Facility shutdowns occurred in October.

The Pew Road Mobile Treatment Unit (MTU) continues to operate at a flow rate of 65 GPM. As of 30 October 2020, over 662.2 million gallons of water was treated and re-injected. The following Pew Road MTU shutdowns occurred in October.

- 1322 on 21 October 2020 due to a “VFD fault” alarm and was restarted at 1428 on 21 October 2020.
- 0130 on 22 October 2020 due to a “VFD fault” alarm and was restarted at 0727 on 22 October 2020

The Base Boundary MTU continues to operate at a flow rate of 65 gpm. As of 30 October 2020, over 279.6 million gallons of water was treated and re-injected. No Base Boundary MTU shutdowns occurred in October.

The Leading Edge system continues to operate at a flow rate of 100 gpm. As of 30 October 2020, over 221.4 million gallons of water was treated and re-injected. The following Leading Edge system shutdowns occurred in late September.

- 0810 on 30 September 2020 due to a power supply interruption caused by strong winds and was restarted at 0931 on 30 September 2020

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 30 October 2020, over 1.297 billion gallons of water have been treated and re-injected. The following Northern Treatment Building G shutdowns occurred in October.

- 2130 on 13 October 2020 due to a power supply interruption and was restarted at 0824 on 14 October 2020.

The Northern MTUs E and F continue to operate at a flow rate of 250 gpm. As of 30 October 2020, over 1.775 billion gallons of water have been treated and re-injected. The following J-2 Range Northern MTU shutdowns occurred in October.

- MTU F shut down at 1900 on 07 October 2020 due to a power supply interruption caused by strong winds and was restarted at 0750 on 08 October 2020.
- 2130 on 13 October 2020 due to a power supply interruption and were restarted at 0808 on 14 October 2020
- 1100 on 20 October 2020 to replace a leaking hose on the MTU E GAC Vessel #4 effluent and were restarted at 1145 on 20 October 2020.

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 30 October 2020, over 1.410 billion gallons of water have been treated and re-injected. No MTU H and I shutdowns occurred in October.

MTU J continues to operate at a flow rate of 120 gpm. As of 30 October 2020, over 650.3 million gallons of water have been treated and re-injected. The following MTU J shutdowns occurred in October:

- 0751 on 12 October 2020 due to a power supply interruption caused by a failed UPS was restarted at 1340 h on 13 October 2020.

MTU K continues to operate at a flow rate of 125 gpm. As of 30 October 2020, over 770.4 million gallons of water have been treated and re-injected. No MTU K shutdowns occurred in October.

MTUs H, I, J, and K shut down due to a power outage around 1400 on 30 October 2020 and remained off through the end of the week. Fuses were blown on Greenway Road and Route 130.

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 30 October 2020, over 1.414 billion gallons of water have been treated and re-injected. The following J-3 Range system shutdowns occurred in October:

- 1010 on 28 October 2020 due to a leak on the bag filter housing and was restarted at 1108 on 28 October 2020.
- 0957 on 29 October 2020 due to an FS-12 shutdown and was restarted at 1108 on 29 October 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 30 October 2020, over 628.5 million gallons of water have been treated and re-injected. The following J-1 Range Southern system shutdowns occurred in October.

- Around 1400 on 30 October 2020 shut down due to a power outage and remained off through the end of the week (fuses were blown on Greenway Road and Route 130).

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 30 October 2020, over 894.9 million gallons of water have been treated and re-injected. The following J-1 Range Northern MTU shutdowns occurred in October.

- J1NEW0002 shut down at 1900 on 07 October 2020 due to a power supply interruption caused by strong winds and was restarted at 0815 on 08 October 2020.
- J1NEW0002 shut down at 2138 on 13 October 2020 due to a power supply interruption and was restarted at 0748 on 14 October 2020.

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 30 October 2020, over 2.247 billion gallons of water have been treated and re-injected. No CIA system shutdowns occurred in October.

2. SUMMARY OF ACTIONS TAKEN

Operable Unit (OU) Activity as of 30 October 2020

CIA
- Completed 100% of grids SU 6A and 6B grids
- Performed intrusive investigations
- Performed MM cued data collection recollects in SU 9
- Routine inspections of BEM cover to ensure cover is secure and intact
- Routine MD processing
- Groundwater sampling within the Central Impact Area SPM program

Demolition Area 1
- Third, final, focused, post-packer hydraulic was completed for the Demo 1 Leading Edge MTU on 13 October 2020
- Installation of the Leading Edge infiltration gallery access gate on 23 October 2020

Demolition Area 2
- No activity

J-1 Range
- Groundwater sampling and hydraulic monitoring within the J1 South SPM program.
- Bag filters were exchanged on 13 October 2020.

J-2 Range
- Groundwater sampling within the J2 East SPM program
- MTU E bag filters were exchanged on 19 October 2020

J-3 Range
- Sealed the 90EW0001 vault from percolating rainwater on 05 October 2020
- Bag filters were exchanged on 13 October 2020

L Range
- No activity

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 ,2, and 3), 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 for 8 October 2020

Project and Fieldwork Update

All treatment systems are up and running. Some system repairs and upgrades will be occurring over the next several weeks. In J-2 East, a corroded vessel in unit H will be replaced. While the vessels are out of the unit, the floor will be replaced. At Demolition Area 1 off-base, a pump is being replaced and a gate will be installed in the back of the fence in case there is a need to bring heavy equipment into access the reinjection gallery. At the J-3 Range, a leaky vault at J-3 EW01 will be repaired. Long-term monitoring sampling crews are continuing to perform annual sampling in J-2 Range East through mid-October. They will move to perform sampling at J-1 South through the end of October and then J-1 North. Additionally, the five new CIA wells will be resampled, pending access.

Dawson is continuing the 20-acre investigation at the Former E Range. Investigation of discrete targets/polygons/obstructions has been completed in 33 grids, two grids are in progress and the team is currently working on discrete targets in grids G6 and H6. To date, fourteen MEC items have been found: eleven 3.5” rockets, one 4.2” illumination mortars, one 60mm and one 60mm fuze. Work will continue at the Former E Range until March. KGS completed sign installation at the former Otis Gun Club.

In the Central Impact Area, there are four dig teams working in grids 7A and 7B. Each are approximately 45% complete. MetalMapper is complete and awaiting data analysis. They are performing re-shoots in areas 8 and 9. There is a new contract with IE Weston for the next 10 acres. An initial kickoff with the team will be upcoming this quarter.

EPA suggested that the team consider modifying the QAPP protocols for notifications for cracked/open items, specifically communications pathways around the discovery of uncommon UXO.

Central Impact Area Annual Environmental Monitoring Report Presentation

A presentation was provided on the Central Impact Area Annual Environmental Monitoring Report. It was noted that the presentation would cover new work conducted, system performance, annual groundwater sampling results (July 2019 through June 2020) and trends, hydraulic monitoring and groundwater modeling, a comparison to Decision Document criteria, and recommendations.

During the reporting period two groundwater profile borings and three water table wells were drilled, constructed and sampled. One water table well (MW-726) along Turpentine Road at the location of MW-100M2, two wells (MW-725 and MW-727) were located downgradient of the Phase III Areas A and B source removal areas, MW-729 was installed downgradient of the 2,000 meter berm plume and MW-725 was installed downgradient of the junction of Turpentine & Tank Alley Roads.

System performance summaries with statistics for MTUs CIA 1, CIA 2, and CIA 3 were displayed and reviewed. Plots of treatment systems influent trends were displayed and discussed. It was noted that all three systems had breakthrough during the reporting period and that systems CIA 2 and CIA 3 had multiple breakthroughs over a short period of time. During the reporting period, CIA 1 removed 0.68 pounds of RDX and 0.5 pounds of perchlorate, CIA 2 removed 1.12 pounds of RDX and 0.33 pounds of perchlorate and CIA 3 removed 0.76 pounds of RDX and 0.14 pounds of perchlorate.

Groundwater monitoring results and trends were discussed. Overall, perchlorate ranged from non-detect to 3.6 µg/L (MW-89M2). There were three well locations with concentrations above 2 µg/L. No well locations were above 15 µg/L. RDX concentrations ranged from non-detect to 9.3 µg/L (MW-477M2). There were 35 well locations with concentrations above 0.6 µg/L and 15 well locations that were above 2 µg/L. There were no well locations with RDX concentrations above 20 µg/L. Monitoring well locations, cross-sections and trend plots for perchlorate and RDX were displayed and discussed.

It was noted that one aquifer hydraulic analysis was conducted during this reporting period. In January 2020, water levels ranged from 45.08 ft MSL at MW-616M2 (north) to 68.13 ft MSL at MW-184M1 (south). The horizontal gradient in Zone 1 was approximately 0.00188 ft/ft; in Zone 2, it was 0.00390 ft/ft. Measured and model-predicted concentrations and plume figures were shown and discussed.

Decision Document cleanup timelines were discussed. It was noted that the time to cleanup for two areas of the plumes—the 2,000-meter plume and Zone 1 of the main plume—extended significantly.

No modifications are recommended for plant operations, sampling, wellfield extraction rates, or the hydraulic monitoring programs at this time. For the chemical monitoring program, it is recommended that the five newly installed wells be added to the annual sampling program for both explosives and perchlorate.

Action Items

The action items were discussed and updated.

JBCC IAGWSP Tech Update Meeting Minutes for 29 October 2020

Project and Fieldwork Update

All treatment systems are up and running. CIA 2 had an RDX breakthrough this month and change out is being scheduled. CIA 2 has had several breakthroughs recently. During the carbon change out in July, a sample of the carbon was collected to try and determine if something unusual is happening with it. It was noted that the three highest influent concentrations site-wide are in the CIA, with the maximum of 1.14 ppb at CIA 2. The long-term monitoring sampling crews are finishing with the last round of water level measurements at Demolition Area 1 leading edge to evaluate the performance of the packer that was recently installed. Results will be included in the next Demolition Area 1 monitoring report. The new CIA wells will be sampled at the end of the week. Crews will move to perform sampling at J-1 South and then J-1 North through the end of November.

Dawson is continuing the 20-acre investigation at the Former E Range. Investigation of discrete targets/polygons/obstructions has been completed in 40 grids, five grids are in progress and the team is currently working on discrete targets in grids E7 and F7. To date, twenty MEC items have been found: seventeen 3.5" rockets, one 4.2" illumination mortars, one 60mm and one 60mm fuze. In addition, 23 20 mm target practice projectiles were found. Although not considered MEC, the items need to be vented in the BEM in order to be disposed of properly. Work will continue at the Former E Range until March.

In the Central Impact Area, there are four dig teams working in grids 7A and 7B. Grid 71 is approximately 75% complete, 7B is approximately 78% complete. MetalMapper is complete in all areas and re-shoots are done with the exception of survey unit 8. Last week four cracked open and leaking items were found in survey unit 9 in close proximity to one another and an additional two cracked open and leaking items were found in survey unit 7B. A sample was collected from the base of the excavation of one of the items in survey unit 9.

Action Items

The action items were discussed and updated.

JBCC Cleanup Team Meeting

The next meeting of the JBCC Cleanup Team (JBCCCT) has not been scheduled. The previous meeting was conducted virtually on October 28, 2020, and the materials can be found on the IAGWSP web site at https://jbcc-iagwsp.org/iagwsp/community/impact/presentations/. 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.

3. SUMMARY OF DATA RECEIVED

Table 1 summarizes sampling for all media from 1 October to 31 October 2020. Table 2 summarizes the validated detections of explosives compounds and perchlorate for all groundwater results received from 1 October to 31 October 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:

• Monthly Progress Report No. 282 for September 2020	10 October 2020
• Draft Central Impact Area 2020 Annual Environmental Monitoring Report	10 October 2020
• Agency Draft Demolition Area 1 2020 Annual Environmental Monitoring Report	16 October 2020

5. SCHEDULED ACTIONS

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

- CIA draft 2019 Annual Environmental Monitoring Report.
- CIA and J-2 Range IRA Plan for BEM rocket disposal
- 2019 Source Report
- Land Use Controls Monitoring Report
- Northwest Corner Demonstration of Compliance Report
- Small Arms Ranges Completion of Work Report

TABLE 1
Sampling Progress: 1 October to 31 October 2020

Area Of Concern	Location	Field Sample ID	Sample Type	Date Sampled	Matrix	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)
J1 Range Southern	MW-131S	MW-131S_F20	N	10/30/2020	Ground Water	96	106
J1 Range Southern	MW-360M2	MW-360M2_F20	N	10/30/2020	Ground Water	102	112
Central Impact Area	MW-728M1	MW-728M1_R2	N	10/30/2020	Ground Water	153.4	163.4
Central Impact Area	MW-729M1	MW-729M1_R2	N	10/30/2020	Ground Water	231.5	241.5
Central Impact Area	MW-729M1	MW-729M1_R2D	FD	10/30/2020	Ground Water	231.5	241.5
Central Impact Area	MW-726S	MW-726S_R2	N	10/30/2020	Ground Water	135.5	145.5
J1 Range Southern	MW-398M2	MW-398M2_F20	N	10/29/2020	Ground Water	131.53	141.53
J1 Range Southern	MW-398M1	MW-398M1_F20	N	10/29/2020	Ground Water	172.15	182.15
Central Impact Area	MW-727M1	MW-727M1_R2	N	10/29/2020	Ground Water	145.4	155.4
Central Impact Area	MW-725M1	MW-725M1_R2	N	10/29/2020	Ground Water	145.2	155.2
Central Impact Area	MW-725M1	MW-725M1_R2D	FD	10/29/2020	Ground Water	145.2	155.2
Central Impact Area	MW-695S	MW-695S_F20	N	10/29/2020	Ground Water	130	140
Central Impact Area	MW-695S	MW-695S_F20D	FD	10/29/2020	Ground Water	130	140
J1 Range Southern	MW-480M2	MW-480M2_F20	N	10/27/2020	Ground Water	143.57	153.57
J1 Range Southern	MW-670M2	MW-670M2_F20	N	10/27/2020	Ground Water	198.5	208.5
J1 Range Southern	MW-670M1	MW-670M1_F20	N	10/27/2020	Ground Water	220.5	230.5
J1 Range Southern	MW-647M2	MW-647M2_F20	N	10/27/2020	Ground Water	189.3	199.3
J1 Range Southern	MW-647M1	MW-647M1_F20	N	10/27/2020	Ground Water	211.3	221.3
J1 Range Southern	MW-524M1	MW-524M1_F20	N	10/26/2020	Ground Water	148	158
J1 Range Southern	MW-524M1	MW-524M1_F20D	FD	10/26/2020	Ground Water	148	158
J1 Range Southern	MW-645M2	MW-645M2_F20	N	10/26/2020	Ground Water	143.5	153.5
J1 Range Southern	MW-645M1	MW-645M1_F20	N	10/26/2020	Ground Water	183.5	193.5
J1 Range Southern	MW-645M1	MW-645M1_F20D	FD	10/26/2020	Ground Water	183.5	193.5
J1 Range Southern	MW-481M2	MW-481M2_F20	N	10/26/2020	Ground Water	146.28	156.28
J1 Range Southern	MW-481M1	MW-481M1_F20	N	10/26/2020	Ground Water	189.74	199.74
J1 Range Southern	MW-521M1	MW-521M1_F20	N	10/22/2020	Ground Water	158	168
J1 Range Southern	MW-402M2	MW-402M2_F20	N	10/22/2020	Ground Water	155.24	165.27
J1 Range Southern	MW-402M1	MW-402M1_F20	N	10/22/2020	Ground Water	190.14	200.13
J1 Range Southern	MW-400M2	MW-400M2_F20	N	10/22/2020	Ground Water	138.9	148.9
J1 Range Southern	MW-400M1	MW-400M1_F20	N	10/22/2020	Ground Water	192.76	202.75
J1 Range Southern	MW-483M1	MW-483M1_F20	N	10/21/2020	Ground Water	139.52	149.52
J1 Range Southern	MW-720M2	MW-720M2_F20	N	10/21/2020	Ground Water	126.2	136.2
J1 Range Southern	MW-720M1	MW-720M1_F20	N	10/21/2020	Ground Water	146.6	156.6
J1 Range Southern	MW-721M2	MW-721M2_F20	N	10/21/2020	Ground Water	138.5	148.5
J1 Range Southern	MW-721M1	MW-721M1_F20	N	10/21/2020	Ground Water	168.1	178.1
J1 Range Southern	MW-722M2	MW-722M2_F20	N	10/20/2020	Ground Water	93.9	103.9
J1 Range Southern	MW-722M1	MW-722M1_F20	N	10/20/2020	Ground Water	114.2	124.2
J1 Range Southern	MW-722M1	MW-722M1_F20D	FD	10/20/2020	Ground Water	114.2	124.2
Central Impact Area	MW-616M1	MW-616M1_F20	N	10/20/2020	Ground Water	217.1	227.1
Central Impact Area	MW-617M1	MW-617M1_F20	N	10/20/2020	Ground Water	175.8	185.8
Central Impact Area	MW-623M3	MW-623M3_F20	N	10/19/2020	Ground Water	275	285
Central Impact Area	MW-623M2	MW-623M2_F20	N	10/19/2020	Ground Water	291.8	301.8
Central Impact Area	MW-623M1	MW-623M1_F20	N	10/19/2020	Ground Water	340	350
Central Impact Area	MW-441M2	MW-441M2_F20	N	10/14/2020	Ground Water	109.5	119.5
Central Impact Area	MW-625M2	MW-625M2_F20	N	10/14/2020	Ground Water	230	240
Central Impact Area	MW-625M1	MW-625M1_F20	N	10/14/2020	Ground Water	260	270
Central Impact Area	MW-624M2	MW-624M2_F20	N	10/14/2020	Ground Water	254	264
Central Impact Area	MW-624M1	MW-624M1_F20	N	10/14/2020	Ground Water	284	294
J2 Range Eastern	MW-708S	MW-708S_F20	N	10/08/2020	Ground Water	107.7	117.7
J2 Range Eastern	MW-707S	MW-707S_F20	N	10/08/2020	Ground Water	110.3	120.3
J2 Range Eastern	MW-706S	MW-706S_F20	N	10/08/2020	Ground Water	112.7	122.7
J2 Range Eastern	MW-307M3	MW-307M3_F20	N	10/08/2020	Ground Water	125.8	135.82
J2 Range Eastern	MW-116S	MW-116S_F20	N	10/07/2020	Ground Water	103	113.7
J2 Range Eastern	MW-121S	MW-121S_F20	N	10/07/2020	Ground Water	87.95	97.95
J2 Range Eastern	MW-122S	MW-122S_F20	N	10/07/2020	Ground Water	88	98

N = Normal Sample
FD = Field Duplicate

TABLE 1
Sampling Progress: 1 October to 31 October 2020

Area Of Concern	Location	Field Sample ID	Sample Type	Date Sampled	Matrix	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)
Demolition Area 1	PR-EFF	PR-EFF-175A	N	10/07/2020	Process Water	0	0
Demolition Area 1	PR-MID-2	PR-MID-2-175A	N	10/07/2020	Process Water	0	0
Demolition Area 1	PR-MID-1	PR-MID-1-175A	N	10/07/2020	Process Water	0	0
Demolition Area 1	PR-INF	PR-INF-175A	N	10/07/2020	Process Water	0	0
Demolition Area 1	FPR-2-EFF-A	FPR-2-EFF-A-175A	N	10/07/2020	Process Water	0	0
Demolition Area 1	FPR-2-GAC-MID1A	FPR-2-GAC-MID1A-175A	N	10/07/2020	Process Water	0	0
Demolition Area 1	FPR2-POST-IX-A	FPR2-POST-IX-A-175A	N	10/07/2020	Process Water	0	0
Demolition Area 1	FPR-2-INF	FPR-2-INF-175A	N	10/07/2020	Process Water	0	0
Demolition Area 1	D1LE-EFF	D1LE-EFF-51A	N	10/07/2020	Process Water	0	0
Demolition Area 1	D1LE-MID2	D1LE-MID2-51A	N	10/07/2020	Process Water	0	0
J2 Range Eastern	MW-154S	MW-154S_F20	N	10/07/2020	Ground Water	98	108
Demolition Area 1	D1LE-MID1	D1LE-MID1-51A	N	10/07/2020	Process Water	0	0
Demolition Area 1	D1LE-INF	D1LE-INF-51A	N	10/07/2020	Process Water	0	0
Demolition Area 1	D1-EFF	D1-EFF-123A	N	10/07/2020	Process Water	0	0
Demolition Area 1	D1-MID-2	D1-MID-2-123A	N	10/07/2020	Process Water	0	0
Demolition Area 1	D1-MID-1	D1-MID-1-123A	N	10/07/2020	Process Water	0	0
Demolition Area 1	D1-INF	D1-INF-123A	N	10/07/2020	Process Water	0	0
J2 Range Eastern	J2E-EFF-K	J2E-EFF-K-145A	N	10/06/2020	Process Water	0	0
J2 Range Eastern	J2E-MID-2K	J2E-MID-2K-145A	N	10/06/2020	Process Water	0	0
J2 Range Eastern	MW-228S	MW-228S_F20	N	10/06/2020	Ground Water	104	114
J2 Range Eastern	MW-228S	MW-228S_F20D	FD	10/06/2020	Ground Water	104	114
J2 Range Eastern	J2E-MID-1K	J2E-MID-1K-145A	N	10/06/2020	Process Water	0	0
J2 Range Eastern	J2E-INF-K	J2E-INF-K-145A	N	10/06/2020	Process Water	0	0
J2 Range Eastern	J2E-EFF-J	J2E-EFF-J-145A	N	10/06/2020	Process Water	0	0
J2 Range Eastern	J2E-MID-2J	J2E-MID-2J-145A	N	10/06/2020	Process Water	0	0
J2 Range Eastern	J2E-MID-1J	J2E-MID-1J-145A	N	10/06/2020	Process Water	0	0
J2 Range Eastern	J2E-INF-J	J2E-INF-J-145A	N	10/06/2020	Process Water	0	0
J2 Range Eastern	MW-709S	MW-709S_F20	N	10/06/2020	Ground Water	106.2	116.2
J2 Range Eastern	J2E-EFF-IH	J2E-EFF-IH-145A	N	10/06/2020	Process Water	0	0
J2 Range Eastern	J2E-MID-2H	J2E-MID-2H-145A	N	10/06/2020	Process Water	0	0
J2 Range Eastern	J2E-MID-1H	J2E-MID-1H-145A	N	10/06/2020	Process Water	0	0
J2 Range Eastern	J2E-MID-2I	J2E-MID-2I-145A	N	10/06/2020	Process Water	0	0
J2 Range Eastern	J2E-MID-1I	J2E-MID-1I-145A	N	10/06/2020	Process Water	0	0
J2 Range Eastern	J2E-INF-I	J2E-INF-I-145A	N	10/06/2020	Process Water	0	0
J2 Range Eastern	MW-321M2	MW-321M2_F20	N	10/06/2020	Ground Water	155.67	165.67
J2 Range Eastern	MW-321M1	MW-321M1_F20	N	10/06/2020	Ground Water	174.61	184.61
J2 Range Eastern	MW-310M1	MW-310M1_F20	N	10/05/2020	Ground Water	171.4	181.41
J2 Range Eastern	MW-319M2	MW-319M2_F20	N	10/05/2020	Ground Water	165.17	175.17
J2 Range Eastern	MW-319M1	MW-319M1_F20	N	10/05/2020	Ground Water	200.25	210.25
J2 Range Northern	J2N-EFF-G	J2N-EFF-G-169A	N	10/05/2020	Process Water	0	0
J2 Range Northern	J2N-MID-2G	J2N-MID-2G-169A	N	10/05/2020	Process Water	0	0
J2 Range Northern	J2N-MID-1G	J2N-MID-1G-169A	N	10/05/2020	Process Water	0	0
J2 Range Northern	J2N-INF-G	J2N-INF-G-169A	N	10/05/2020	Process Water	0	0
J2 Range Eastern	MW-215M2	MW-215M2_F20	N	10/05/2020	Ground Water	205	215
J2 Range Northern	J2N-EFF-EF	J2N-EFF-EF-169A	N	10/05/2020	Process Water	0	0
J2 Range Northern	J2N-MID-2F	J2N-MID-2F-169A	N	10/05/2020	Process Water	0	0
J2 Range Northern	J2N-MID-1F	J2N-MID-1F-169A	N	10/05/2020	Process Water	0	0
J2 Range Northern	J2N-INF-EF	J2N-INF-EF-169A	N	10/05/2020	Process Water	0	0
J2 Range Northern	J2N-MID-2E	J2N-MID-2E-169A	N	10/05/2020	Process Water	0	0
J2 Range Northern	J2N-MID-1E	J2N-MID-1E-169A	N	10/05/2020	Process Water	0	0
J1 Range Northern	J1N-EFF	J1N-EFF-84A	N	10/05/2020	Process Water	0	0
J2 Range Eastern	MW-215M1	MW-215M1_F20	N	10/05/2020	Ground Water	240	250
J1 Range Northern	J1N-MID2	J1N-MID2-84A	N	10/05/2020	Process Water	0	0
J1 Range Northern	J1N-MID1	J1N-MID1-84A	N	10/05/2020	Process Water	0	0
J1 Range Northern	J1N-INF2	J1N-INF2-84A	N	10/05/2020	Process Water	0	0

N = Normal Sample
FD = Field Duplicate

TABLE 1
Sampling Progress: 1 October to 31 October 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	MW-685M1	MW-685M1_F20	N	10/01/2020	Ground Water	166.2	176.2
J1 Range Southern	J1S-EFF	J1S-EFF-155A	N	10/01/2020	Process Water	0	0
J1 Range Southern	J1S-MID	J1S-MID-155A	N	10/01/2020	Process Water	0	0
J1 Range Southern	J1S-INF-2	J1S-INF-2-155A	N	10/01/2020	Process Water	0	0
J2 Range Eastern	MW-334M1	MW-334M1_F20	N	10/01/2020	Ground Water	285	295
J3 Range	J3-EFF	J3-EFF-169A	N	10/01/2020	Process Water	0	0
J3 Range	J3-MID-2	J3-MID-2-169A	N	10/01/2020	Process Water	0	0
J3 Range	J3-MID-1	J3-MID-1-169A	N	10/01/2020	Process Water	0	0
J3 Range	J3-INF	J3-INF-169A	N	10/01/2020	Process Water	0	0
Central Impact Area	CIA2-EFF	CIA2-EFF-81A	N	10/01/2020	Process Water	0	0
Central Impact Area	CIA2-MID2	CIA2-MID2-81A	N	10/01/2020	Process Water	0	0
J2 Range Eastern	J2MW-02PZ	J2MW-02PZ_F20	N	10/01/2020	Ground Water	191	201
Central Impact Area	CIA2-MID1	CIA2-MID1-81A	N	10/01/2020	Process Water	0	0
Central Impact Area	CIA2-INF	CIA2-INF-81A	N	10/01/2020	Process Water	0	0
Central Impact Area	CIA1-EFF	CIA1-EFF-81A	N	10/01/2020	Process Water	0	0
Central Impact Area	CIA1-MID2	CIA1-MID2-81A	N	10/01/2020	Process Water	0	0
Central Impact Area	CIA1-MID1	CIA1-MID1-81A	N	10/01/2020	Process Water	0	0
Central Impact Area	CIA1-INF	CIA1-INF-81A	N	10/01/2020	Process Water	0	0
J2 Range Eastern	J2MW-02M2	J2MW-02M2_F20	N	10/01/2020	Ground Water	236	246
J2 Range Eastern	J2MW-02M2	J2MW-02M2_F20D	FD	10/01/2020	Ground Water	236	246
Central Impact Area	CIA3-EFF	CIA3-EFF-52A	N	10/01/2020	Process Water	0	0
Central Impact Area	CIA3-MID2	CIA3-MID2-52A	N	10/01/2020	Process Water	0	0
Central Impact Area	CIA3-MID1	CIA3-MID1-52A	N	10/01/2020	Process Water	0	0
J2 Range Eastern	J2MW-02M1	J2MW-02M1_F20	N	10/01/2020	Ground Water	271	281
Central Impact Area	CIA3-INF	CIA3-INF-52A	N	10/01/2020	Process Water	0	0

N = Normal Sample
FD = Field Duplicate

TABLE 2
VALIDATED EXPLOSIVE AND PERCHLORATE RESULTS
Data Received October 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 Northern	MW-322M1	MW-322M1_F20	245.77	255.77	09/15/2020	SW6850	Perchlorate	0.088	J	µg/L	2.0		0.030	0.20
J2 Range Northern	MW-327M2	MW-327M2_F20	265.01	275.01	09/15/2020	SW6850	Perchlorate	0.12	J	µg/L	2.0		0.030	0.20
J2 Range Northern	J2EW0001	J2EW0001_F20	179	234	09/10/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.098	J	µg/L	0.60		0.034	0.20
J2 Range Northern	J2EW0001	J2EW0001_F20	179	234	09/10/2020	SW6850	Perchlorate	0.72		µg/L	2.0		0.030	0.20
J2 Range Northern	J2EW0002	J2EW0002_F20	198	233	09/10/2020	SW6850	Perchlorate	4.4		µg/L	2.0	X	0.030	0.20
J2 Range Northern	J2EW0002	J2EW0002_F20D	198	233	09/10/2020	SW6850	Perchlorate	4.1		µg/L	2.0	X	0.030	0.20
J2 Range Northern	MW-587M2	MW-587M2_F20	220	230	09/10/2020	SW6850	Perchlorate	29.7		µg/L	2.0	X	0.30	2.0
J2 Range Northern	MW-587M2	MW-587M2_F20D	220	230	09/10/2020	SW6850	Perchlorate	30.1		µg/L	2.0	X	0.30	2.0
J2 Range Northern	MW-587M1	MW-587M1_F20	250	260	09/10/2020	SW6850	Perchlorate	31.6		µg/L	2.0	X	0.30	2.0
J2 Range Northern	MW-587M1	MW-587M1_F20D	250	260	09/10/2020	SW6850	Perchlorate	29.8		µg/L	2.0	X	0.30	2.0
J2 Range Northern	J2EW0003	J2EW0003_F20	202	232	09/10/2020	SW6850	Perchlorate	0.32		µg/L	2.0		0.030	0.20
J2 Range Northern	J2EW2-MW2-C	J2EW2-MW2-C_F20	243.83	253.81	09/09/2020	SW6850	Perchlorate	0.46		µg/L	2.0		0.030	0.20
J2 Range Northern	MW-300M2	MW-300M2_F20	197.2	207.2	09/08/2020	SW6850	Perchlorate	0.086	J	µg/L	2.0		0.030	0.20
J2 Range Northern	MW-337M1	MW-337M1_F20	243.71	253.71	09/03/2020	SW6850	Perchlorate	0.11	J	µg/L	2.0		0.030	0.20
J2 Range Northern	MW-632M1	MW-632M1_F20	254.5	264.5	09/03/2020	SW6850	Perchlorate	0.077	J	µg/L	2.0		0.030	0.20
J2 Range Northern	MW-640M2	MW-640M2_F20	216	226	09/03/2020	SW6850	Perchlorate	0.92		µg/L	2.0		0.030	0.20
J2 Range Northern	MW-640M1	MW-640M1_F20	246	256	09/03/2020	SW6850	Perchlorate	1.6		µg/L	2.0		0.030	0.20
J2 Range Northern	MW-640M1	MW-640M1_F20D	246	256	09/03/2020	SW6850	Perchlorate	1.6		µg/L	2.0		0.030	0.20
J2 Range Northern	MW-620M1	MW-620M1_F20	268.6	278.6	09/02/2020	SW6850	Perchlorate	0.087	J	µg/L	2.0		0.030	0.20
J2 Range Northern	MW-586M2	MW-586M2_F20	211	221	09/02/2020	SW6850	Perchlorate	0.093	J	µg/L	2.0		0.030	0.20
J2 Range Northern	MW-586M1	MW-586M1_F20	237	247	09/02/2020	SW6850	Perchlorate	2.0		µg/L	2.0	X	0.030	0.20
J2 Range Northern	MW-586M1	MW-586M1_F20D	237	247	09/02/2020	SW6850	Perchlorate	2.0		µg/L	2.0		0.030	0.20
J2 Range Northern	MW-589M2	MW-589M2_F20	211	221	09/02/2020	SW6850	Perchlorate	5.9		µg/L	2.0	X	0.030	0.20
J2 Range Northern	MW-589M2	MW-589M2_F20D	211	221	09/02/2020	SW6850	Perchlorate	6.0		µg/L	2.0	X	0.030	0.20
J2 Range Northern	MW-589M1	MW-589M1_F20	240	250	09/02/2020	SW6850	Perchlorate	0.22		µg/L	2.0		0.030	0.20
J2 Range Northern	MW-622M2	MW-622M2_F20	220.4	230.4	09/01/2020	SW6850	Perchlorate	0.92		µg/L	2.0		0.030	0.20
J2 Range Northern	MW-622M1	MW-622M1_F20	245.4	255.4	09/01/2020	SW6850	Perchlorate	0.72		µg/L	2.0		0.030	0.20
J2 Range Northern	MW-704M2	MW-704M2_F20	217.8	227.8	09/01/2020	SW6850	Perchlorate	1.4		µg/L	2.0		0.030	0.20
J2 Range Northern	MW-704M1	MW-704M1_F20	244	254	09/01/2020	SW6850	Perchlorate	0.048	J	µg/L	2.0		0.030	0.20
J2 Range Northern	MW-703M2	MW-703M2_F20	224.1	234.1	08/31/2020	SW6850	Perchlorate	2.3		µg/L	2.0	X	0.030	0.20
J2 Range Northern	MW-703M1	MW-703M1_F20	248	258	08/31/2020	SW6850	Perchlorate	0.51		µg/L	2.0		0.030	0.20
J2 Range Northern	MW-348M2	MW-348M2_F20	206.54	216.54	08/31/2020	SW6850	Perchlorate	0.34		µg/L	2.0		0.030	0.20
J2 Range Northern	MW-588M2	MW-588M2_F20	198	208	08/27/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.35		µg/L	0.60		0.034	0.20
J2 Range Northern	MW-588M2	MW-588M2_F20	198	208	08/27/2020	SW6850	Perchlorate	0.59		µg/L	2.0		0.030	0.20
J2 Range Northern	MW-588M1	MW-588M1_F20	238	248	08/27/2020	SW6850	Perchlorate	0.073	J	µg/L	2.0		0.030	0.20
J2 Range Northern	MW-293M2	MW-293M2_F20	196.42	206.42	08/27/2020	SW6850	Perchlorate	0.16	J	µg/L	2.0		0.030	0.20
J2 Range Northern	MW-621M2	MW-621M2_F20	219.4	229.4	08/26/2020	SW6850	Perchlorate	2.8		µg/L	2.0	X	0.030	0.20
J2 Range Northern	MW-631M2	MW-631M2_F20	200.1	210.1	08/26/2020	SW6850	Perchlorate	0.17	J	µg/L	2.0		0.030	0.20
J2 Range Northern	MW-631M1	MW-631M1_F20	233.1	243.1	08/26/2020	SW6850	Perchlorate	0.12	J	µg/L	2.0		0.030	0.20
J2 Range Northern	MW-634M3	MW-634M3_F20	170.6	180.6	08/25/2020	SW6850	Perchlorate	0.23		µg/L	2.0		0.030	0.20
J2 Range Northern	MW-634M2	MW-634M2_F20	200.6	210.6	08/25/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.31		µg/L	0.60		0.034	0.20
J2 Range Northern	MW-634M2	MW-634M2_F20	200.6	210.6	08/25/2020	SW6850	Perchlorate	1.5		µg/L	2.0		0.030	0.20
J2 Range Northern	MW-634M1	MW-634M1_F20	305.6	315.6	08/25/2020	SW6850	Perchlorate	0.13	J	µg/L	2.0		0.030	0.20

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

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

TABLE 2
VALIDATED EXPLOSIVE AND PERCHLORATE RESULTS
Data Received October 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 Northern	MW-634M1	MW-634M1_F20	305.6	315.6	08/25/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.14	J	µg/L	0.60		0.034	0.20
J2 Range Northern	J2EW3-MW1-C	J2EW3-MW1-C_F20	245.66	255.66	08/25/2020	SW6850	Perchlorate	1.6		µg/L	2.0		0.030	0.20
J2 Range Northern	MW-296M1	MW-296M1_F20	255.08	265.08	08/24/2020	SW6850	Perchlorate	0.22	J	µg/L	2.0		0.030	0.20
J2 Range Northern	MW-330M1	MW-330M1_F20	313.1	323.1	08/20/2020	SW6850	Perchlorate	0.61		µg/L	2.0		0.030	0.20
J2 Range Northern	MW-331M2	MW-331M2_F20	195.27	205.27	08/20/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.046	J	µg/L	0.60		0.034	0.20
J2 Range Northern	MW-331M1	MW-331M1_F20	235.41	245.41	08/20/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.15	J	µg/L	0.60		0.034	0.20
J2 Range Northern	MW-130S	MW-130S_F20	103	113	08/19/2020	SW6850	Perchlorate	0.12	J	µg/L	2.0		0.030	0.20
J2 Range Northern	MW-130S	MW-130S_F20	103	113	08/19/2020	SW8330	2-Amino-4,6-dinitrotoluene	0.18	J	µg/L	7.3		0.020	0.20
J2 Range Northern	MW-130S	MW-130S_F20	103	113	08/19/2020	SW8330	4-Amino-2,6-dinitrotoluene	0.54		µg/L	7.3		0.027	0.20
J2 Range Northern	MW-234M2	MW-234M2_F20	110	120	08/19/2020	SW8330	1,3,5-Trinitrobenzene	0.099	J	µg/L	1090		0.023	0.20
J2 Range Northern	MW-234M2	MW-234M2_F20	110	120	08/19/2020	SW6850	Perchlorate	0.12	J	µg/L	2.0		0.030	0.20
J2 Range Northern	MW-234M2	MW-234M2_F20	110	120	08/19/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.39	J	µg/L	0.60		0.034	0.20
J2 Range Northern	MW-234M2	MW-234M2_F20	110	120	08/19/2020	SW8330	2,4,6-Trinitrotoluene	1.1		µg/L	2.0		0.041	0.20
J2 Range Northern	MW-234M2	MW-234M2_F20	110	120	08/19/2020	SW8330	2-Amino-4,6-dinitrotoluene	1.6		µg/L	7.3		0.020	0.20
J2 Range Northern	MW-234M2	MW-234M2_F20	110	120	08/19/2020	SW8330	4-Amino-2,6-dinitrotoluene	1.6		µg/L	7.3		0.027	0.20
J2 Range Northern	MW-234M2	MW-234M2_F20D	110	120	08/19/2020	SW8330	1,3,5-Trinitrobenzene	0.12	J	µg/L	1090		0.023	0.20
J2 Range Northern	MW-234M2	MW-234M2_F20D	110	120	08/19/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.39	J	µg/L	0.60		0.034	0.20
J2 Range Northern	MW-234M2	MW-234M2_F20D	110	120	08/19/2020	SW8330	2,4,6-Trinitrotoluene	1.1		µg/L	2.0		0.041	0.20
J2 Range Northern	MW-234M2	MW-234M2_F20D	110	120	08/19/2020	SW8330	4-Amino-2,6-dinitrotoluene	1.6		µg/L	7.3		0.027	0.20
J2 Range Northern	MW-234M2	MW-234M2_F20D	110	120	08/19/2020	SW8330	2-Amino-4,6-dinitrotoluene	1.6		µg/L	7.3		0.020	0.20
J2 Range Northern	MW-234M1	MW-234M1_F20	130	140	08/19/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.099	J	µg/L	400		0.036	0.20
J2 Range Northern	MW-234M1	MW-234M1_F20	130	140	08/19/2020	SW8330	2-Amino-4,6-dinitrotoluene	0.29		µg/L	7.3		0.020	0.20
J2 Range Northern	MW-234M1	MW-234M1_F20	130	140	08/19/2020	SW8330	4-Amino-2,6-dinitrotoluene	0.32		µg/L	7.3		0.027	0.20
J2 Range Northern	MW-234M1	MW-234M1_F20	130	140	08/19/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.34	J	µg/L	0.60		0.034	0.20
J2 Range Northern	MW-234M1	MW-234M1_F20	130	140	08/19/2020	SW8330	2,4,6-Trinitrotoluene	0.46		µg/L	2.0		0.041	0.20
J2 Range Northern	MW-234M1	MW-234M1_F20	130	140	08/19/2020	SW6850	Perchlorate	2.9		µg/L	2.0	X	0.030	0.20

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

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

PFAS Summary Report – Groundwater
Joint Base Cape Cod, IAGWSP
KGS 2019 PFAS MW&INF
Demolition Area 1

Location	MW-258M1	MW-663D
Field Sample ID	MW-258M1_PFAS19	MW-663D_PFAS19
Sampling Depth	109.00 - 119.00	240.60 - 250.60
Sampling Date	06/19/2019	06/24/2019
SDG	320515981	320517141
Sample Type	**Normal**	**Normal**
PFAS 21 Cmps	Results (ng/L)	Results (ng/L)
6:2 Fluorotelomer sulfonate (6:2 FTS)	20.0 U	20.0 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	9.80 U	9.80 U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	9.80 U	9.80 U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	9.80 U	9.80 U
Perfluoro-1-heptanesulfonate (PFHpS)	0.980 U	0.980 U
Perfluorobutanesulfonic acid (PFBS)	0.980 U	0.980 U
Perfluorobutanoic acid (PFBA)	1.50 U	1.50 U
Perfluorodecane sulfonate	1.50 U	1.50 U
Perfluorodecanoic acid (PFDA)	0.980 U	**2.20**
Perfluorododecanoic acid (PFDoA)	1.50 U	1.50 U
Perfluoroheptanoic acid (PFHpA)	1.50 U	1.50 U
Perfluorohexanesulfonic acid (PFHxS)	0.980 U	0.980 U
Perfluorohexanoic acid (PFHxA)	0.980 U	0.980 U
Perfluorononanoic acid (PFNA)	1.50 U	**1.00 J**
Perfluorooctanesulfonamide (FOSA)	2.90 U	3.00 U
Perfluorooctanesulfonic acid (PFOS)	2.90 U	3.00 U
Perfluorooctanoic acid (PFOA)	1.50 U	1.50 U
Perfluoropentanoic acid (PFPA)	0.980 U	**0.460 J**
Perfluorotetradecanoic acid (PFTA)	2.90 U	3.00 U
Perfluorotridecanoic acid (PFTrDA)	2.90 U	3.00 U
Perfluoroundecanoic acid (PFUnA)	1.50 U	**1.20 J**
†PFOS + PFOA (EPA)	**0.00**	**0.00**
‡PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP)	**0.00**	**3.20**
§Sum of All Compounds Collected	**0.00**	**4.86**

PFAS Summary Report – Groundwater
Joint Base Cape Cod, IAGWSP
KGS 2019 PFAS MW&INF
J1 Range Northern

Location	MW-136S	MW-564M1	MW-590M2
Field Sample ID	MW-136S_PFAS19	MW-564M1_PFAS19	MW-590M2_PFAS19
Sampling Depth	107.00 - 117.00	227.00 - 237.00	238.00 - 248.00
Sampling Date	06/24/2019	06/24/2019	06/24/2019
SDG	320517141	320517141	320517141
Sample Type	**Normal**	**Normal**	**Normal**
PFAS 21 Cmps	Results (ng/L)	Results (ng/L)	Results (ng/L)
6:2 Fluorotelomer sulfonate (6:2 FTS)	20.0 U	18.0 U	19.0 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	9.80 U	9.20 U	9.60 U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	9.80 U	9.20 U	9.60 U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	9.80 U	9.20 U	9.60 U
Perfluoro-1-heptanesulfonate (PFHpS)	0.980 U	0.920 U	0.960 U
Perfluorobutanesulfonic acid (PFBS)	0.980 U	0.920 U	0.960 U
Perfluorobutanoic acid (PFBA)	**0.990 J**	1.40 U	1.40 U
Perfluorodecane sulfonate	1.50 U	1.40 U	1.40 U
Perfluorodecanoic acid (PFDA)	0.980 U	0.920 U	0.960 U
Perfluorododecanoic acid (PFDoA)	1.50 U	1.40 U	1.40 U
Perfluoroheptanoic acid (PFHpA)	1.50 U	1.40 U	1.40 U
Perfluorohexanesulfonic acid (PFHxS)	2.00 U	1.80 U	0.960 U
Perfluorohexanoic acid (PFHxA)	0.980 U	0.920 U	0.960 U
Perfluorononanoic acid (PFNA)	1.50 U	1.40 U	1.40 U
Perfluorooctanesulfonamide (FOSA)	2.90 U	2.80 U	2.90 U
Perfluorooctanesulfonic acid (PFOS)	**1.40 J**	2.80 U	2.90 U
Perfluorooctanoic acid (PFOA)	**2.40**	1.40 U	1.40 U
Perfluoropentanoic acid (PFPA)	0.980 U	0.920 U	0.960 U
Perfluorotetradecanoic acid (PFTA)	2.90 U	2.80 U	2.90 U
Perfluorotridecanoic acid (PFTrDA)	2.90 U	2.80 U	2.90 U
Perfluoroundecanoic acid (PFUnA)	1.50 U	1.40 U	1.40 U
†PFOS + PFOA (EPA)	**3.80**	**0.00**	**0.00**
‡PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP)	**3.80**	**0.00**	**0.00**
§Sum of All Compounds Collected	**4.79**	**0.00**	**0.00**

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J2 Range Eastern

Location	MW-307M3	MW-307M3	MW-368M1	MW-368M2	MW-667M1
Field Sample ID	MW-307M3_PFAS19	MW-307M3_PFAS19D	MW-368M1_PFAS19	MW-368M2_PFAS19	MW-667M1_PFAS19
Sampling Depth	125.80 - 135.82	125.80 - 135.82	237.35 - 247.35	202.73 - 212.73	302.30 - 312.30
Sampling Date	06/18/2019	06/18/2019	06/18/2019	06/18/2019	06/17/2019
SDG	320514662	320514662	320514662	320514662	320514661
Sample Type	**Normal**	**Field Duplicate**	**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	17.0 U	18.0 U	18.0 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	9.00 U	9.60 U	8.50 U	8.80 U	9.00 U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	9.00 U	9.60 U	8.50 U	8.80 U	9.00 U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	9.00 U	9.60 U	8.50 U	8.80 U	9.00 U
Perfluoro-1-heptanesulfonate (PFHpS)	0.900 U	0.960 U	0.850 U	0.880 U	0.900 U
Perfluorobutanesulfonic acid (PFBS)	0.900 U	0.960 U	0.850 U	0.880 U	0.900 U
Perfluorobutanoic acid (PFBA)	1.80 U	1.90 U	1.70 U	1.30 U	1.80 U
Perfluorodecane sulfonate	1.30 U	1.40 U	1.30 U	1.30 U	1.40 U
Perfluorodecanoic acid (PFDA)	0.900 U	0.960 U	**1.40 J**	**0.800 J**	**4.30**
Perfluorododecanoic acid (PFDoA)	1.30 U	1.40 U	**0.450 J**	1.30 U	1.40 U
Perfluoroheptanoic acid (PFHpA)	1.30 U	1.40 U	1.30 U	1.30 U	1.40 U
Perfluorohexanesulfonic acid (PFHxS)	0.900 U	0.960 U	0.850 U	0.880 U	0.900 U
Perfluorohexanoic acid (PFHxA)	0.900 U	0.960 U	0.850 U	0.880 U	0.900 U
Perfluorononanoic acid (PFNA)	**0.880 J**	**0.730 J**	**0.650 J**	1.30 U	**2.80**
Perfluorooctanesulfonamide (FOSA)	2.70 U	2.90 U	2.60 U	2.60 U	2.70 U
Perfluorooctanesulfonic acid (PFOS)	2.70 U	2.90 U	2.60 U	2.60 U	2.70 U
Perfluorooctanoic acid (PFOA)	1.30 U	1.40 U	1.30 U	1.30 U	1.40 U
Perfluoropentanoic acid (PFPA)	0.900 U	0.960 U	0.850 U	0.880 U	0.900 U
Perfluorotetradecanoic acid (PFTA)	2.70 U	2.90 U	2.60 U	2.60 U	2.70 U
Perfluorotridecanoic acid (PFTrDA)	2.70 U	2.90 U	2.60 U	2.60 U	2.70 U
Perfluoroundecanoic acid (PFUnA)	1.30 U	1.40 U	**4.90**	**2.40**	**1.60 J**
†PFOS + PFOA (EPA)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
‡PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP)	**0.880**	**0.730**	**2.05**	**0.800**	**7.10**
§Sum of All Compounds Collected	**0.880**	**0.730**	**7.40**	**3.20**	**8.70**

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J2 Range Northern

Location	J2EW0001	J2EW0002	MW-234M2	MW-313M1	MW-587M2
Field Sample ID	J2EW0001_PFAS19	J2EW0002_PFAS19	MW-234M2_PFAS19	MW-313M1_PFAS19	MW-587M2_PFAS19
Sampling Depth	179.00 - 234.00	198.00 - 233.00	110.00 - 120.00	255.40 - 265.40	220.00 - 230.00
Sampling Date	11/20/2019	11/20/2019	06/17/2019	06/19/2019	06/19/2019
SDG	320565491	320565491	320514661	320515981	320515981
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	40.0 U	18.0 U	20.0 U	19.0 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	19.0 U	20.0 U	8.80 U	9.80 U	9.70 U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	9.60 U	10.0 U	8.80 U	9.80 U	9.70 U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	9.60 U	10.0 U	8.80 U	9.80 U	9.70 U
Perfluoro-1-heptanesulfonate (PFHpS)	0.960 U	**0.370 J**	0.880 U	0.980 U	0.970 U
Perfluorobutanesulfonic acid (PFBS)	0.960 U	1.00 U	0.880 U	0.980 U	0.970 U
Perfluorobutanoic acid (PFBA)	1.40 U	1.50 U	1.80 U	**0.700 J**	1.50 U
Perfluorodecane sulfonate	1.40 U	1.50 U	1.30 U	1.50 U	1.50 U
Perfluorodecanoic acid (PFDA)	0.960 U	1.00 U	0.880 U	**1.20 J**	0.970 U
Perfluorododecanoic acid (PFDoA)	1.40 U	1.50 U	1.30 U	1.50 U	1.50 U
Perfluoroheptanoic acid (PFHpA)	1.40 U	**1.00 J**	1.30 U	1.50 U	1.50 U
Perfluorohexanesulfonic acid (PFHxS)	0.960 U	**11.0**	**0.600 J**	0.980 U	0.970 U
Perfluorohexanoic acid (PFHxA)	0.960 U	**1.30 J**	0.880 U	0.980 U	0.970 U
Perfluorononanoic acid (PFNA)	1.40 U	1.50 U	1.30 U	**1.10 J**	1.50 U
Perfluorooctanesulfonamide (FOSA)	2.90 U	3.00 U	2.60 U	2.90 U	2.90 U
Perfluorooctanesulfonic acid (PFOS)	2.90 U	**1.30 J**	**1.90 J**	2.90 U	2.90 U
Perfluorooctanoic acid (PFOA)	1.40 U	**1.50 J**	**0.550 J**	1.50 U	1.50 U
Perfluoropentanoic acid (PFPA)	0.960 U	**0.910 J**	0.880 U	**0.680 J**	0.970 U
Perfluorotetradecanoic acid (PFTA)	2.90 U	3.00 U	2.60 U	2.90 U	2.90 U
Perfluorotridecanoic acid (PFTrDA)	2.90 U	3.00 U	2.60 U	2.90 U	2.90 U
Perfluoroundecanoic acid (PFUnA)	1.40 U	1.50 U	1.30 U	**1.40 J**	1.50 U
†PFOS + PFOA (EPA)	**0.00**	**2.80**	**2.45**	**0.00**	**0.00**
‡PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP)	**0.00**	**14.8**	**3.05**	**2.30**	**0.00**
§Sum of All Compounds Collected	**0.00**	**17.4**	**3.05**	**5.08**	**0.00**

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J3 Range

Location	MW-163S	MW-163S	MW-163S	MW-227M2	MW-250M2
Field Sample ID	MW-163S_PFAS19	MW-163S_PFAS19D	MW-163S_PFAS19R	MW-227M2_PFAS19	MW-250M2_PFAS19
Sampling Depth	38.00 - 48.00	38.00 - 48.00	38.00 - 48.00	110.00 - 120.00	145.00 - 155.00
Sampling Date	06/18/2019	06/18/2019	07/30/2019	06/19/2019	06/20/2019
SDG	320514662	320514662	320528231	320515981	320515981
Sample Type	**Normal**	**Field Duplicate**	**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)	17.0 U	17.0 U	19.0 U	19.0 U	19.0 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	8.60 U	8.60 U	9.30 U	9.60 U	9.70 U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	8.60 U	8.60 U	9.30 U	9.60 U	9.70 U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	8.60 U	8.60 U	9.30 U	9.60 U	9.70 U
Perfluoro-1-heptanesulfonate (PFHpS)	0.860 U	0.860 U	0.930 U	0.960 U	0.970 U
Perfluorobutanesulfonic acid (PFBS)	0.860 U	0.860 U	0.930 U	0.960 U	0.970 U
Perfluorobutanoic acid (PFBA)	1.70 U	1.70 U	**0.560 J**	1.40 U	**0.710 J**
Perfluorodecane sulfonate	1.30 U	1.30 U	1.40 U	1.40 U	1.40 U
Perfluorodecanoic acid (PFDA)	0.860 U	0.860 U	0.930 U	0.960 U	0.970 U
Perfluorododecanoic acid (PFDoA)	1.30 U	1.30 U	1.40 U	1.40 U	1.40 U
Perfluoroheptanoic acid (PFHpA)	1.30 U	1.30 U	1.40 U	1.40 U	1.40 U
Perfluorohexanesulfonic acid (PFHxS)	**0.690 J**	**0.610 J**	1.90 U	**0.540 J**	0.970 U
Perfluorohexanoic acid (PFHxA)	**0.410 J**	0.860 U	0.930 U	0.960 U	0.970 U
Perfluorononanoic acid (PFNA)	1.30 U	1.30 U	1.40 U	1.40 U	1.40 U
Perfluorooctanesulfonamide (FOSA)	2.60 U	2.60 U	2.80 U	2.90 U	2.90 U
Perfluorooctanesulfonic acid (PFOS)	**12.0**	**12.0**	**12.0**	2.90 U	2.90 U
Perfluorooctanoic acid (PFOA)	**1.70**	**1.60 J**	**1.30 J**	1.40 U	1.40 U
Perfluoropentanoic acid (PFPA)	0.860 U	0.860 U	0.930 U	0.960 U	0.970 U
Perfluorotetradecanoic acid (PFTA)	2.60 U	2.60 U	2.80 U	2.90 U	2.90 U
Perfluorotridecanoic acid (PFTrDA)	2.60 U	2.60 U	2.80 U	2.90 U	2.90 U
Perfluoroundecanoic acid (PFUnA)	1.30 U	1.30 U	1.40 U	1.40 U	1.40 U
†PFOS + PFOA (EPA)	**13.7**	**13.6**	**13.3**	**0.00**	**0.00**
‡PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP)	**14.4**	**14.2**	**13.3**	**0.540**	**0.00**
§Sum of All Compounds Collected	**14.8**	**14.2**	**13.9**	**0.540**	**0.710**

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J2 Range Northern

Location	J2EW0002	J2EW0002	J2EW2-MW2-B	J2EW2-MW2-C	MW-293M2	MW-293M2
Field Sample ID	J2EW0002_F20	J2EW0002_F20D	J2EW2-MW2-B_F20	J2EW2-MW2-C_F20	MW-293M2_F20	MW-293M2_F20D
Sampling Depth	198.00 - 233.00	198.00 - 233.00	209.79 - 219.79	243.83 - 253.81	196.42 - 206.42	196.42 - 206.42
Sampling Date	09/10/2020	09/10/2020	09/09/2020	09/09/2020	08/27/2020	08/27/2020
SDG	320645641	320645641	320645661	320645661	320641331	320641331
Sample Type	**Normal**	**Field Duplicate**	**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)	20.0 U	19.0 U	19.0 U	19.0 U	18.0 U	19.0 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	9.90 U	9.50 U	9.40 U	9.70 U	9.20 U	9.50 U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	9.90 U	9.50 U	9.40 U	9.70 U	9.20 U	9.50 U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	9.90 U	9.50 U	9.40 U	9.70 U	9.20 U	9.50 U
Perfluoro-1-heptanesulfonate (PFHpS)	0.990 U	0.950 U	0.940 U	0.970 U	0.920 U	0.950 U
Perfluorobutanesulfonic acid (PFBS)	0.990 U	0.950 U	0.940 U	0.970 U	**3.40**	**3.60**
Perfluorobutanoic acid (PFBA)	1.50 U	1.40 U	1.40 U	1.50 U	1.40 U	1.40 U
Perfluorodecane sulfonate	1.50 U	1.40 U	1.40 U	1.50 U	1.40 U	1.40 U
Perfluorodecanoic acid (PFDA)	0.990 U	0.950 U	0.940 U	0.970 U	**4.90**	**4.50**
Perfluorododecanoic acid (PFDoA)	1.50 U	1.40 U	1.40 U	1.50 U	**3.50**	**3.60**
Perfluoroheptanoic acid (PFHpA)	**0.930 J**	**0.910 J**	1.40 U	1.50 U	1.40 U	1.40 U
Perfluorohexanesulfonic acid (PFHxS)	**9.80**	**9.30**	0.940 U	0.970 U	0.920 U	0.950 U
Perfluorohexanoic acid (PFHxA)	**1.10 J**	**1.10 J**	0.940 U	0.970 U	0.920 U	0.950 U
Perfluorononanoic acid (PFNA)	1.50 U	1.40 U	1.40 U	1.50 U	**2.00**	**1.50 J**
Perfluorooctanesulfonamide (FOSA)	3.00 U	2.80 U	2.80 U	2.90 U	2.80 U	2.80 U
Perfluorooctanesulfonic acid (PFOS)	3.00 U	2.80 U	2.80 U	2.90 U	2.80 U	2.80 U
Perfluorooctanoic acid (PFOA)	**1.70 J**	**1.70 J**	1.40 U	1.50 U	1.40 U	1.40 U
Perfluoropentanoic acid (PFPA)	**1.10 J**	**1.20 J**	0.940 U	0.970 U	**0.460 J**	**0.410 J**
Perfluorotetradecanoic acid (PFTA)	3.00 U	2.80 U	2.80 U	2.90 U	2.80 U	2.80 U
Perfluorotridecanoic acid (PFTrDA)	3.00 U	2.80 U	2.80 U	2.90 U	**1.50 J**	**1.90 J**
Perfluoroundecanoic acid (PFUnA)	1.50 U	1.40 U	1.40 U	1.50 U	**25.0**	**28.0**
†PFOS + PFOA (EPA)	**1.70**	**1.70**	**0.00**	**0.00**	**0.00**	**0.00**
‡PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP)	**12.4**	**11.9**	**0.00**	**0.00**	**6.90**	**6.00**
§Sum of All Compounds Collected	**14.6**	**14.2**	**0.00**	**0.00**	**40.8**	**43.5**

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J2 Range Northern

Location	MW-300M1	MW-300M2	MW-300M3	MW-302M2	MW-305M1	MW-348M2
Field Sample ID	MW-300M1_F20	MW-300M2_F20	MW-300M3_F20	MW-302M2_F20	MW-305M1_F20	MW-348M2_F20
Sampling Depth	293.03 - 303.02	197.23 - 207.23	135.31 - 145.31	194.35 - 204.43	202.82 - 212.82	206.54 - 216.54
Sampling Date	09/08/2020	09/08/2020	09/08/2020	08/27/2020	08/31/2020	08/31/2020
SDG	320644781	320644781	320644781	320641331	320642421	320642421
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	18.0 U	19.0 U	18.0 U	18.0 U	20.0 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	9.50 U	9.00 U	9.40 U	9.20 U	9.10 U	9.80 U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	9.50 U	9.00 U	9.40 U	9.20 U	9.10 U	9.80 U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	9.50 U	9.00 U	9.40 U	9.20 U	9.10 U	9.80 U
Perfluoro-1-heptanesulfonate (PFHpS)	0.950 U	0.900 U	0.940 U	0.920 U	0.910 U	0.980 U
Perfluorobutanesulfonic acid (PFBS)	0.950 U	0.900 U	0.940 U	0.920 U	0.910 U	0.980 U
Perfluorobutanoic acid (PFBA)	1.40 U	1.40 U	**0.550 J**	1.40 U	1.40 U	**1.00 J**
Perfluorodecane sulfonate	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U	1.50 U
Perfluorodecanoic acid (PFDA)	**3.10**	**3.60**	**1.50 J**	**2.80**	**2.40**	**2.50**
Perfluorododecanoic acid (PFDoA)	**0.800 J**	**1.10 J**	**0.610 J**	**1.70 J**	1.40 U	**2.20**
Perfluoroheptanoic acid (PFHpA)	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U	1.50 U
Perfluorohexanesulfonic acid (PFHxS)	1.90 U	0.900 U	0.940 U	0.920 U	0.910 U	0.980 U
Perfluorohexanoic acid (PFHxA)	0.950 U	0.900 U	0.940 U	0.920 U	0.910 U	0.980 U
Perfluorononanoic acid (PFNA)	**3.90**	**2.30**	**0.960 J**	**1.00 J**	**1.40 J**	1.50 U
Perfluorooctanesulfonamide (FOSA)	2.90 U	2.70 U	2.80 U	2.80 U	2.70 U	2.90 U
Perfluorooctanesulfonic acid (PFOS)	2.90 U	2.70 U	2.80 U	2.80 U	2.70 U	2.90 U
Perfluorooctanoic acid (PFOA)	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U	1.50 U
Perfluoropentanoic acid (PFPA)	**0.580 J**	**0.430 J**	0.940 U	**1.40 J**	0.910 U	**1.20 J**
Perfluorotetradecanoic acid (PFTA)	2.90 U	2.70 U	2.80 U	2.80 U	2.70 U	2.90 U
Perfluorotridecanoic acid (PFTrDA)	2.90 U	**0.880 J**	2.80 U	2.80 U	2.70 U	2.90 U
Perfluoroundecanoic acid (PFUnA)	**8.50**	**9.20**	**4.80**	**22.0**	**1.40 J**	**8.10**
†PFOS + PFOA (EPA)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
‡PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP)	**7.00**	**5.90**	**2.46**	**3.80**	**3.80**	**2.50**
§Sum of All Compounds Collected	**16.9**	**17.5**	**8.42**	**28.9**	**5.20**	**15.0**

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J2 Range Northern

Location	MW-586M1	MW-586M2	MW-587M1	MW-588M1	MW-588M2	MW-589M1
Field Sample ID	MW-586M1_F20	MW-586M2_F20	MW-587M1_F20	MW-588M1_F20	MW-588M2_F20	MW-589M1_F20
Sampling Depth	237.00 - 247.00	211.00 - 221.00	250.00 - 260.00	238.00 - 248.00	198.00 - 208.00	240.00 - 250.00
Sampling Date	09/02/2020	09/02/2020	09/10/2020	08/27/2020	08/27/2020	09/02/2020
SDG	320643521	320643521	320645641	320641331	320641331	320643521
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	18.0 U	18.0 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	9.20 U	9.60 U	9.40 U	9.30 U	9.20 U	9.00 U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	9.20 U	9.60 U	9.40 U	9.30 U	9.20 U	9.00 U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	9.20 U	9.60 U	9.40 U	9.30 U	9.20 U	9.00 U
Perfluoro-1-heptanesulfonate (PFHpS)	0.920 U	0.960 U	0.940 U	0.930 U	0.920 U	0.900 U
Perfluorobutanesulfonic acid (PFBS)	0.920 U	0.960 U	0.940 U	0.930 U	**3.60**	0.900 U
Perfluorobutanoic acid (PFBA)	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U
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	0.960 U	0.940 U	0.930 U	0.920 U	0.900 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	1.40 U	1.40 U
Perfluorohexanesulfonic acid (PFHxS)	0.920 U	0.960 U	0.940 U	0.930 U	0.920 U	0.900 U
Perfluorohexanoic acid (PFHxA)	0.920 U	0.960 U	0.940 U	0.930 U	0.920 U	0.900 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	2.90 U	2.80 U	2.80 U	2.80 U	2.70 U
Perfluorooctanesulfonic acid (PFOS)	2.80 U	2.90 U	2.80 U	2.80 U	2.80 U	2.70 U
Perfluorooctanoic acid (PFOA)	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U	**0.600 J**
Perfluoropentanoic acid (PFPA)	**0.490 J**	**0.490 J**	0.940 U	**0.420 J**	0.920 U	**0.600 J**
Perfluorotetradecanoic acid (PFTA)	2.80 U	2.90 U	2.80 U	2.80 U	2.80 U	2.70 U
Perfluorotridecanoic acid (PFTrDA)	2.80 U	2.90 U	2.80 U	2.80 U	2.80 U	2.70 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)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.600**
‡PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.600**
§Sum of All Compounds Collected	**0.490**	**0.490**	**0.00**	**0.420**	**3.60**	**1.20**

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J2 Range Northern

Location	MW-589M2	MW-621M1	MW-621M2	MW-622M1	MW-622M2	MW-631M1
Field Sample ID	MW-589M2_F20	MW-621M1_F20	MW-621M2_F20	MW-622M1_F20	MW-622M2_F20	MW-631M1_F20
Sampling Depth	211.00 - 221.00	249.40 - 259.40	219.40 - 229.40	245.40 - 255.40	220.40 - 230.40	233.10 - 243.10
Sampling Date	09/02/2020	08/26/2020	08/26/2020	09/01/2020	09/01/2020	08/26/2020
SDG	320643521	320641331	320641331	320642411	320642411	320641331
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	19.0 U	19.0 U	19.0 U	19.0 U	19.0 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	9.40 U	9.60 U	9.40 U	9.30 U	9.40 U	9.60 U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	9.40 U	9.60 U	9.40 U	9.30 U	9.40 U	9.60 U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	9.40 U	9.60 U	9.40 U	9.30 U	9.40 U	9.60 U
Perfluoro-1-heptanesulfonate (PFHpS)	0.940 U	0.960 U	0.940 U	0.930 U	0.940 U	0.960 U
Perfluorobutanesulfonic acid (PFBS)	0.940 U	0.960 U	0.940 U	0.930 U	0.940 U	0.960 U
Perfluorobutanoic acid (PFBA)	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U
Perfluorodecane sulfonate	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U
Perfluorodecanoic acid (PFDA)	0.940 U	0.960 U	0.940 U	0.930 U	0.940 U	0.960 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	1.40 U	1.40 U
Perfluorohexanesulfonic acid (PFHxS)	0.940 U	0.960 U	0.940 U	0.930 U	0.940 U	0.960 U
Perfluorohexanoic acid (PFHxA)	0.940 U	0.960 U	0.940 U	0.930 U	0.940 U	0.960 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	2.90 U	2.80 U	2.80 U	2.80 U	2.90 U
Perfluorooctanesulfonic acid (PFOS)	2.80 U	2.90 U	2.80 U	2.80 U	2.80 U	2.90 U
Perfluorooctanoic acid (PFOA)	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U
Perfluoropentanoic acid (PFPA)	0.940 U	**0.440 J**	0.940 U	**0.400 J**	0.940 U	**0.420 J**
Perfluorotetradecanoic acid (PFTA)	2.80 U	2.90 U	2.80 U	2.80 U	2.80 U	2.90 U
Perfluorotridecanoic acid (PFTrDA)	2.80 U	2.90 U	2.80 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)	**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**	**0.00**	**0.00**	**0.00**
§Sum of All Compounds Collected	**0.00**	**0.440**	**0.00**	**0.400**	**0.00**	**0.420**

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Location	MW-631M2	MW-632M1	MW-632M2	MW-632M2	MW-640M1	MW-640M2
Field Sample ID	MW-631M2_F20	MW-632M1_F20	MW-632M2_F20	MW-632M2_F20D	MW-640M1_F20	MW-640M2_F20
Sampling Depth	200.10 - 210.10	254.50 - 264.50	229.50 - 239.50	229.50 - 239.50	246.00 - 256.00	216.00 - 226.00
Sampling Date	08/26/2020	09/03/2020	09/03/2020	09/03/2020	09/03/2020	09/03/2020
SDG	320641331	320643511	320643511	320643511	320643511	320643511
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)	18.0 U	19.0 U	18.0 U	19.0 U	19.0 U	19.0 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	9.20 U	9.40 U	9.00 U	9.60 U	9.40 U	9.30 U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	9.20 U	9.40 U	9.00 U	9.60 U	9.40 U	9.30 U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	9.20 U	9.40 U	9.00 U	9.60 U	9.40 U	9.30 U
Perfluoro-1-heptanesulfonate (PFHpS)	0.920 U	0.940 U	0.900 U	0.960 U	0.940 U	0.930 U
Perfluorobutanesulfonic acid (PFBS)	**8.50**	0.940 U	0.900 U	0.960 U	0.940 U	0.930 U
Perfluorobutanoic acid (PFBA)	**1.70 J**	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U
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	0.940 U	0.900 U	0.960 U	0.940 U	0.930 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	1.40 U	1.40 U
Perfluorohexanesulfonic acid (PFHxS)	1.80 U	0.940 U	0.900 U	0.960 U	**0.360 J**	0.930 U
Perfluorohexanoic acid (PFHxA)	**5.40**	0.940 U	0.900 U	0.960 U	0.940 U	0.930 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	2.70 U	2.90 U	2.80 U	2.80 U
Perfluorooctanesulfonic acid (PFOS)	2.80 U	2.80 U	2.70 U	2.90 U	2.80 U	2.80 U
Perfluorooctanoic acid (PFOA)	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U
Perfluoropentanoic acid (PFPA)	**1.90**	**0.450 J**	0.900 U	0.960 U	**0.630 J**	0.930 U
Perfluorotetradecanoic acid (PFTA)	2.80 U	2.80 U	2.70 U	2.90 U	2.80 U	2.80 U
Perfluorotridecanoic acid (PFTrDA)	2.80 U	2.80 U	2.70 U	2.90 U	2.80 U	2.80 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)	**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**	**0.00**	**0.360**	**0.00**
§Sum of All Compounds Collected	**17.5**	**0.450**	**0.00**	**0.00**	**0.990**	**0.00**

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Location	MW-703M1	MW-703M2	MW-704M1	MW-704M2
Field Sample ID	MW-703M1_F20	MW-703M2_F20	MW-704M1_F20	MW-704M2_F20
Sampling Depth	248.00 - 258.00	224.10 - 234.10	244.00 - 254.00	217.80 - 227.80
Sampling Date	08/31/2020	08/31/2020	09/01/2020	09/01/2020
SDG	320642421	320642421	320642411	320642411
Sample Type	**Normal**	**Normal**	**Normal**	**Normal**
PFAS 21 Cmps	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	19.0 U	18.0 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	9.10 U	9.20 U	9.70 U	9.20 U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	9.10 U	9.20 U	9.70 U	9.20 U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	9.10 U	9.20 U	9.70 U	9.20 U
Perfluoro-1-heptanesulfonate (PFHpS)	0.910 U	0.920 U	0.970 U	0.920 U
Perfluorobutanesulfonic acid (PFBS)	0.910 U	0.920 U	0.970 U	0.920 U
Perfluorobutanoic acid (PFBA)	1.40 U	1.40 U	**1.40 J**	1.40 U
Perfluorodecane sulfonate	1.40 U	1.40 U	1.50 U	1.40 U
Perfluorodecanoic acid (PFDA)	**3.20**	**1.60 J**	**1.50 J**	**1.90**
Perfluorododecanoic acid (PFDoA)	1.40 U	1.40 U	1.50 U	1.40 U
Perfluoroheptanoic acid (PFHpA)	1.40 U	1.40 U	1.50 U	1.40 U
Perfluorohexanesulfonic acid (PFHxS)	0.910 U	0.920 U	0.970 U	0.920 U
Perfluorohexanoic acid (PFHxA)	0.910 U	0.920 U	0.970 U	0.920 U
Perfluorononanoic acid (PFNA)	**1.80**	**0.900 J**	1.50 U	**0.890 J**
Perfluorooctanesulfonamide (FOSA)	**1.30 J**	**2.20 J**	2.90 U	2.80 U
Perfluorooctanesulfonic acid (PFOS)	2.70 U	2.70 U	2.90 U	2.80 U
Perfluorooctanoic acid (PFOA)	1.40 U	1.40 U	1.50 U	1.40 U
Perfluoropentanoic acid (PFPA)	**0.650 J**	**0.830 J**	**1.10 J**	**0.400 J**
Perfluorotetradecanoic acid (PFTA)	2.70 U	2.70 U	2.90 U	2.80 U
Perfluorotridecanoic acid (PFTrDA)	2.70 U	2.70 U	2.90 U	2.80 U
Perfluoroundecanoic acid (PFUnA)	**0.650 J**	1.40 U	**1.00 J**	1.40 U
†PFOS + PFOA (EPA)	**0.00**	**0.00**	**0.00**	**0.00**
‡PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP)	**5.00**	**2.50**	**1.50**	**2.79**
§Sum of All Compounds Collected	**7.60**	**5.53**	**5.00**	**3.19**

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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 (PFTrDA)	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)	**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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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 (PFTrDA)	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)	**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 (PFTrDA)	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)	**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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Joint Base Cape Cod, IAGWSP
KGS 2020 J3 Range SPM Fall
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 (PFTrDA)	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)	**1.10**	**15.8**
§Sum of All Compounds Collected	**4.82**	**15.8**

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Joint Base Cape Cod, IAGWSP

Notes:

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

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

Bolded results indicate detections of PFAS

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

Bolded and highlighted results indicate detection of PFAS6 above the MassDEP MCL: PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA > 20 ng/L

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

‡ PFAS Maximum Contaminant Level (MCL) Final Amendments ("MCL", 310 CMR 22.00 PFAS MCL Amendments), Massachusetts Department of Environmental Protection, October 2, 2020

§ PFAS compounds used in the summation of all analytes are listed in the above table