

**MONTHLY PROGRESS REPORT #282
FOR SEPTEMBER 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 September to 30 September 2020.

1. SUMMARY OF REMEDIATION ACTIONS

Remediation Actions (RA) Underway at Camp Edwards as of 25 September 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 2.767 billion gallons of water treated and re-injected as of 25 September 2020. The following Frank Perkins Road Treatment Facility shutdowns occurred in September.

- 1950 on 02 September 2020 Extraction well EW-658 shut down due to a “VFD fault” alarm caused by a power supply interruption, and was restarted at 0755 on 03 September 2020.
- 0014 on 21 September 2020 Extraction well EW-658 shut down due to a VFD fault alarm caused by a power supply interruption, and was restarted at 0727 on 21 September 2020.

The Pew Road Mobile Treatment Unit (MTU) continues to operate at a flow rate of 65 GPM. As of 25 September 2020, over 659.0 million gallons of water was treated and re-injected. No Pew Road MTU shutdowns occurred in September.

The Base Boundary MTU continues to operate at a flow rate of 65 gpm. As of 25 September 2020, over 276.3 million gallons of water was treated and re-injected. No Base Boundary MTU shutdowns occurred in September.

The Leading Edge system continues to operate at a flow rate of 100 gpm. As of 25 September 2020, over 216.3 million gallons of water was treated and re-injected. No Leading Edge system shutdowns occurred in September.

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 25 September 2020, over 1.286 billion gallons of water have been treated and re-injected. No Northern Treatment Building G shutdowns occurred in September.

The Northern MTUs E and F continue to operate at a flow rate of 250 gpm. As of 25 September 2020, over 1.742 billion gallons of water have been treated and re-injected. The following J-2 Range Northern MTU shutdowns occurred in late August:

- MTU E shut down at 0445 on 30 August 2020 due to a System Inlet Low Flow alarm and was restarted at 0752 on 31 August 2020
- MTU F shut down at 2240 on 29 August 2020 due to a System Inlet Low Flow alarm and was restarted at 0748 on 31 August 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 25 September 2020, over 1.397 billion gallons of water have been treated and re-injected. No MTU H and I shutdowns occurred in September.

MTU J continues to operate at a flow rate of 120 gpm. As of 25 September 2020, over 644.5 million gallons of water have been treated and re-injected. The following MTU J shutdowns occurred in September:

- MTU Unit J shut down at 2302 on 31 August 2020 due to a VFD fault alarm, and was restarted at 0736 on 01 September 2020.

MTU K continues to operate at a flow rate of 125 gpm. As of 25 September 2020, over 764.2 million gallons of water have been treated and re-injected. No MTU K shutdowns occurred in September.

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 25 September 2020, over 1.401 billion gallons of water have been treated and re-injected. The following J-3 Range system shutdowns occurred in September:

- FS-12 shutdown at 2333 on 31 August 2020 and was restarted at 0840 on 01 September 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 25 September 2020, over 622.3 million gallons of water have been treated and re-injected. No J-1 Range Southern system shutdowns occurred in September.

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 25 September 2020, over 882.5 million gallons of water have been treated and re-injected. No J-1 Range Northern MTU shutdowns occurred in September.

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 25 September 2020, over 2.209 billion gallons of water have been treated and re-injected. No CIA system shutdowns occurred in.

2. SUMMARY OF ACTIONS TAKEN

Operable Unit (OU) Activity as of 30 September 2020

CIA

- Completed 100% of grids SU 6A and 6B grids
- Performed intrusive investigations
- Performed MM cued data collection
- Routine inspections of BEM cover to ensure cover is secure and intact
- Routine MD Processing
- System 1 bag filters were exchanged on 09 September 2020

Demolition Area 1

- Frank Perkins Treatment Facility bag filters were exchanged on 15 September

Demolition Area 2

- No activity

J-1 Range

- J1 Range South bag filters were exchanged on 10 September 2020

J-2 Range

- Groundwater sampling and hydraulic monitoring within the J2 East SPM program
- Groundwater sampling within the J2 North SPM program

J-3 Range

- No activity

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 10 September 2020

Project and Fieldwork Update

All treatment systems are up and running. There have been no issues since the last tech update meeting. Long-term monitoring sampling crews are continuing to perform annual sampling in J-2 Range North, including PFAS sampling. After they finish in J-2 North, then they will move to the J-2 East Range. EPA said they noted in the bi-weekly update that one of the new CIA wells had a hit of RDX and asked which location it was. It was explained that it was the northernmost of the water table wells and was installed downgradient of the 2000-meter berm area, which was location CIA-4 in the project note. MassDEP asked about recently received PFAS results and asked when and how the data would be reported. The group was reminded that it had been previously agreed that the PFAS sampling results would be included as part of the annual monitoring reports for each site. In the meantime, IAGWSP agreed to provide a one-page synopsis of PFAS sampling results with a map showing sampling locations and hits.

Dawson is continuing the 20-acre investigation at the Former E Range. Investigation of discrete targets has been completed in 18 grids, discrete grids/polygons/obstructions have been completed in nine grids and eight grids are in progress. To date, ten MEC items have been found: seven 3.5" rockets, two 20mm projectiles and one 60mm fuze. Work will continue at the Former E Range until February.

In the Central Impact Area, there are two Metal Mapper and two UXO teams working. They have completed advanced geophysical classification surveys on 6A, 6B, 7A and 7B. They are finishing with re-shots in 7B. Survey Unit 9 is underway and is 33% complete. The dig teams have finished in grids 6A and 6B, grid 7A is underway and is approximately 7% complete. The dig list for 7B is in development. The 100% grid in 6B is complete and the one in 6A will be completed this week. EPA and MassDEP noted that they planned to discuss the next 100% grid choices and would provide feedback shortly.

Action Items

The action items were discussed and updated.

JBCC CT Meeting Planning

An update was provided on the planning for a JBCC CT meeting. Discussions for the options for a virtual meeting have been ongoing and AFCEC will work with their contractor to set up an account with a platform that will be accessible to the public and DoD users. AFCEC noted that they are preparing to present three agenda items: updates on PFOS/PFOA/1,4-dioxane and the Military Munitions Response Program and 6-Month Look-Ahead. IAGWSP will present a general program update of ongoing activities and a 6-Month Look-Ahead. IAGWSP will send a draft agenda to the group for review.

JBCC IAGWSP Tech Update Meeting Minutes 24 September 2020Project and Fieldwork Update

All treatment systems are up and running. The Frank Perkins Road treatment system went down briefly Sunday evening but it was brought back online first thing Monday morning. Long-term monitoring sampling crews are continuing to perform annual sampling in J-2 Range North, including PFAS sampling. After they finish in J-2 North, then they will move to the J-2 East Range. IAGWSP is completing a synopsis of PFAS sampling results with a map showing sampling locations and hits and will distribute it to the group soon.

Dawson is continuing the 20-acre investigation at the Former E Range. Investigation of discrete targets/polygons/obstructions has been completed in 24 grids, nine grids are in progress and the team is currently working on discrete targets in grids D6 and E6. To date, eleven MEC items have been found: eight 3.5" rockets, two 4.2" illumination mortars, and one 60mm fuze. Work will continue at the Former E Range until March.

In the Central Impact Area, there are two MetalMapper and two UXO teams working. They expect to be done next week with Metal Mapping and will perform re-shoots as needed. The dig teams have finished in grids 6A and 6B, and are working in grids 7A and 7B. Each are approximately 25% complete.

Central Impact Area 100% Verification Grid Presentation

A presentation was provided on the results of the CIA Phase 3 Area 3 100% dig validation. A figure showing the validation grids (21_56 and 27_61) was displayed and discussed. The group was reminded of the goals set in the Decision Document (remove 75-95% of UXO while maximizing removal of net explosive weight) as well as the goals of the classification (to correctly classify 95% of the targets of interest (TOI) while reducing clutter digs by greater than 70%).

A figure showing the Metal Mapper data was displayed along with the results for grid 21_56. There were 126 EM61 anomaly locations with MetalMapper cued data collection. Of those, 46 met the dig criteria resulting in a recommended dig rate of 36.5%. The remaining 88 anomalies were dug for QA. Fourteen TOI (UXO or UXO-like items) were recovered. For the classification results, 88 clutter items were correctly classified, 26.7% of the clutter was incorrectly classified as "likely- TOI" therefore meeting the goal of reduction of clutter digs by 70%.

A figure showing the Metal Mapper data was displayed along with the results for grid 27_61. There were 198 EM61 anomaly locations with MetalMapper cued data collection. Of those, 39 met the dig criteria resulting in a recommended dig rate of 19.6%. The remaining 160 anomalies were dug for QA. Seventeen TOI (UXO or UXO-like items) were recovered. For the classification results, 157 clutter items were correctly classified, 14.4% of the clutter was incorrectly classified as "likely- TOI" therefore meeting the goal of reduction of clutter digs by 70%.

To date the Phase 3 Area 3 results are passing the Decision Document criteria (75-95%) and are close to the detection goal of 95%.

The current status and path forward was reviewed. In Phase III Area 3, MetalMapper data collection and classification is complete for survey units 6 and 7. The data target lists have been

approved by USACE and all QC/QA seeds were within 1m of a dig location. MetalMapper data collection is complete in survey unit 9 except for reshots and collection is ongoing in survey unit 8. Digs have been completed in survey unit 6 and results have been approved by USACE. All validation grids have been selected. Excavation of grid 38_35 in survey unit 8 will be closer to the end of the year. It was noted that with late start and need to work around delayed firing schedule, Phase 3 Area 3 excavation will likely continue into December. A status map showing work conducted as of September 18, 2020 was displayed.

Action Items

The action items were discussed and updated.

JBCC Cleanup Team Meeting

The next meeting of the JBCC Cleanup Team (JBCCCT) has been tentatively scheduled for October 28, 2020. The meeting will be held virtually and information on how to participate will be published soon. Meeting materials from previous meetings 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 September to 30 September 2020. Table 2 summarizes the validated detections of explosives compounds and perchlorate for all groundwater results received from 1 September to 30 September 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. 281 for August 2020 09 September 2020
- L Range 2020 Annual Environmental Monitoring Report 14 September 2020
- J-1 North and J-1 South Ranges Environmental Monitoring Report 30 September 2020

5. SCHEDULED ACTIONS

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

- CIA and J-2 Range IRA Plan for BEM rocket disposal
- J-1 Ranges 2019 Annual Environmental Monitoring Report
- L Range 2020 Annual Environmental Monitoring Report
- 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 September to 30 September 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-366M2	MW-366M2_F20	N	09/29/2020	Ground Water	175	185
J2 Range Eastern	MW-366M1	MW-366M1_F20	N	09/29/2020	Ground Water	215	225
J2 Range Eastern	MW-335M2	MW-335M2_F20	N	09/29/2020	Ground Water	215.25	225.25
J2 Range Eastern	MW-335M1	MW-335M1_F20	N	09/29/2020	Ground Water	255.2	265.2
J2 Range Eastern	MW-705M2	MW-705M2_F20	N	09/28/2020	Ground Water	185.9	195.9
J2 Range Eastern	MW-705M1	MW-705M1_F20	N	09/28/2020	Ground Water	209.7	219.7
J2 Range Eastern	MW-665M3	MW-665M3_F20	N	09/28/2020	Ground Water	175.2	185.2
J2 Range Eastern	MW-665M3	MW-665M3_F20D	FD	09/28/2020	Ground Water	175.2	185.2
J2 Range Eastern	MW-665M2	MW-665M2_F20	N	09/28/2020	Ground Water	205.2	215.2
J2 Range Eastern	MW-665M2	MW-665M2_F20D	FD	09/28/2020	Ground Water	205.2	215.2
J2 Range Eastern	MW-665M1	MW-665M1_F20	N	09/28/2020	Ground Water	225.2	235.2
J2 Range Eastern	MW-365M2	MW-365M2_F20	N	09/24/2020	Ground Water	205.52	215.52
J2 Range Eastern	J2MW-01M2	J2MW-01M2_F20	N	09/24/2020	Ground Water	245	255
J2 Range Eastern	J2MW-01M1	J2MW-01M1_F20	N	09/24/2020	Ground Water	275	285
J2 Range Eastern	MW-170M2	MW-170M2_F20	N	09/24/2020	Ground Water	198	208
J2 Range Eastern	MW-170M1	MW-170M1_F20	N	09/24/2020	Ground Water	265	275
J2 Range Eastern	MW-57D	MW-57D_F20	N	09/23/2020	Ground Water	213	223
J2 Range Eastern	MW-627M1	MW-627M1_F20	N	09/23/2020	Ground Water	269.5	279.5
J2 Range Eastern	MW-357M1	MW-357M1_F20	N	09/23/2020	Ground Water	274.51	284.51
J2 Range Eastern	MW-354M2	MW-354M2_F20	N	09/23/2020	Ground Water	234.8	244.8
J2 Range Eastern	MW-354M1	MW-354M1_F20	N	09/23/2020	Ground Water	274.52	284.52
J2 Range Eastern	MW-372M1	MW-372M1_F20	N	09/22/2020	Ground Water	273.05	283.05
J2 Range Eastern	MW-667M2	MW-667M2_F20	N	09/22/2020	Ground Water	277.3	287.3
J2 Range Eastern	MW-667M2	MW-667M2_F20D	FD	09/22/2020	Ground Water	277.3	287.3
J2 Range Eastern	MW-667M1	MW-667M1_F20	N	09/22/2020	Ground Water	302.3	312.3
J2 Range Eastern	MW-667M1	MW-667M1_F20D	FD	09/22/2020	Ground Water	302.3	312.3
J2 Range Eastern	MW-351M2	MW-351M2_F20	N	09/22/2020	Ground Water	233.67	243.67
J2 Range Eastern	MW-351M1	MW-351M1_F20	N	09/22/2020	Ground Water	278.64	288.64
J2 Range Eastern	MW-436M1	MW-436M1_F20	N	09/21/2020	Ground Water	295.47	305.47
J2 Range Eastern	J2MW-04M2	J2MW-04M2_F20	N	09/21/2020	Ground Water	210	220
J2 Range Eastern	J2MW-04M1	J2MW-04M1_F20	N	09/21/2020	Ground Water	257	267
J2 Range Eastern	MW-324M2	MW-324M2_F20	N	09/21/2020	Ground Water	203.74	214.74
J2 Range Northern	MW-324M2	MW-324M2_F20	N	09/21/2020	Ground Water	203.74	214.74
J2 Range Eastern	MW-324M1	MW-324M1_F20	N	09/21/2020	Ground Water	234.85	244.85
J2 Range Eastern	MW-339M2	MW-339M2_F20	N	09/17/2020	Ground Water	213	223
J2 Range Eastern	MW-339M1	MW-339M1_F20	N	09/17/2020	Ground Water	233	243
J2 Range Eastern	MW-368M3	MW-368M3_F20	N	09/17/2020	Ground Water	155.5	165.5
J2 Range Eastern	MW-368M2	MW-368M2_F20	N	09/17/2020	Ground Water	202.73	212.73
J2 Range Eastern	MW-368M2	MW-368M2_F20D	FD	09/17/2020	Ground Water	202.73	212.73
J2 Range Eastern	MW-368M1	MW-368M1_F20	N	09/17/2020	Ground Water	237.35	247.35
J2 Range Eastern	MW-368M1	MW-368M1_F20D	FD	09/17/2020	Ground Water	237.35	247.35
J2 Range Eastern	MW-393M2	MW-393M2_F20	N	09/16/2020	Ground Water	218.16	228.16
J2 Range Eastern	MW-393M1	MW-393M1_F20	N	09/16/2020	Ground Water	268.02	278.02
J2 Range Eastern	MW-393D	MW-393D_F20	N	09/16/2020	Ground Water	313.56	323.56
J2 Range Northern	MW-340M2	MW-340M2_F20	N	09/16/2020	Ground Water	215.83	225.08
J2 Range Northern	MW-340M1	MW-340M1_F20	N	09/16/2020	Ground Water	255.85	265.85
J2 Range Northern	MW-322M1	MW-322M1_F20	N	09/15/2020	Ground Water	245.77	255.77
J2 Range Northern	MW-327M3	MW-327M3_F20	N	09/15/2020	Ground Water	220.16	230.15
J2 Range Northern	MW-327M2	MW-327M2_F20	N	09/15/2020	Ground Water	265.01	275.01
J2 Range Northern	MW-327M1	MW-327M1_F20	N	09/15/2020	Ground Water	296.06	306.04
J2 Range Northern	J2EW0001	J2EW0001_F20	N	09/10/2020	Ground Water	179	234
J2 Range Northern	J2EW0002	J2EW0002_F20	N	09/10/2020	Ground Water	198	233
J2 Range Northern	J2EW0002	J2EW0002_F20	N	09/10/2020	Ground Water	198	233
J2 Range Northern	J2EW0002	J2EW0002_F20D	FD	09/10/2020	Ground Water	198	233
J2 Range Northern	J2EW0002	J2EW0002_F20D	FD	09/10/2020	Ground Water	198	233

N = Normal Sample
FD = Field Duplicate

TABLE 1
Sampling Progress: 1 September to 30 September 2020

Area Of Concern	Location	Field Sample ID	Sample Type	Date Sampled	Matrix	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)
J2 Range Northern	MW-587M2	MW-587M2_F20	N	09/10/2020	Ground Water	220	230
J2 Range Northern	MW-587M2	MW-587M2_F20D	FD	09/10/2020	Ground Water	220	230
J2 Range Northern	MW-587M1	MW-587M1_F20	N	09/10/2020	Ground Water	250	260
J2 Range Northern	MW-587M1	MW-587M1_F20	N	09/10/2020	Ground Water	250	260
J2 Range Northern	MW-587M1	MW-587M1_F20D	FD	09/10/2020	Ground Water	250	260
J2 Range Northern	J2EW0003	J2EW0003_F20	N	09/10/2020	Ground Water	202	232
J2 Range Northern	J2EW3-MW-2-B	J2EW3-MW-2-B_F20	N	09/09/2020	Ground Water	216.16	226.16
J2 Range Northern	J2EW3-MW-2-C	J2EW3-MW-2-C_F20	N	09/09/2020	Ground Water	251.13	261.13
J2 Range Northern	J2EW2-MW2-B	J2EW2-MW2-B_F20	N	09/09/2020	Ground Water	209.79	219.79
J2 Range Northern	J2EW2-MW2-B	J2EW2-MW2-B_F20	N	09/09/2020	Ground Water	209.79	219.79
J2 Range Northern	J2EW2-MW2-C	J2EW2-MW2-C_F20	N	09/09/2020	Ground Water	243.83	253.81
J2 Range Northern	J2EW2-MW2-C	J2EW2-MW2-C_F20	N	09/09/2020	Ground Water	243.83	253.81
Demolition Area 1	PR-EFF	PR-EFF-174A	N	09/08/2020	Process Water	0	0
Demolition Area 1	PR-MID-2	PR-MID-2-174A	N	09/08/2020	Process Water	0	0
Demolition Area 1	PR-MID-1	PR-MID-1-174A	N	09/08/2020	Process Water	0	0
J2 Range Northern	MW-300M3	MW-300M3_F20	N	09/08/2020	Ground Water	135.3	145.3
J2 Range Northern	MW-300M3	MW-300M3_F20	N	09/08/2020	Ground Water	135.31	145.31
Demolition Area 1	PR-INF	PR-INF-174A	N	09/08/2020	Process Water	0	0
Demolition Area 1	FPR-2-EFF-A	FPR-2-EFF-A-174A	N	09/08/2020	Process Water	0	0
Demolition Area 1	FPR-2-GAC-MID1A	FPR-2-GAC-MID1A-174A	N	09/08/2020	Process Water	0	0
Demolition Area 1	FPR2-POST-IX-A	FPR2-POST-IX-A-174A	N	09/08/2020	Process Water	0	0
Demolition Area 1	FPR-2-INF	FPR-2-INF-174A	N	09/08/2020	Process Water	0	0
J2 Range Northern	MW-300M2	MW-300M2_F20	N	09/08/2020	Ground Water	197.2	207.2
J2 Range Northern	MW-300M2	MW-300M2_F20	N	09/08/2020	Ground Water	197.23	207.23
Demolition Area 1	D1LE-EFF	D1LE-EFF-50A	N	09/08/2020	Process Water	0	0
Demolition Area 1	D1LE-MID2	D1LE-MID2-50A	N	09/08/2020	Process Water	0	0
Demolition Area 1	D1LE-MID1	D1LE-MID1-50A	N	09/08/2020	Process Water	0	0
Demolition Area 1	D1LE-INF	D1LE-INF-50A	N	09/08/2020	Process Water	0	0
J2 Range Northern	MW-300M1	MW-300M1_F20	N	09/08/2020	Ground Water	293	303
J2 Range Northern	MW-300M1	MW-300M1_F20	N	09/08/2020	Ground Water	293.03	303.02
Demolition Area 1	D1-EFF	D1-EFF-122A	N	09/08/2020	Process Water	0	0
Demolition Area 1	D1-MID-2	D1-MID-2-122A	N	09/08/2020	Process Water	0	0
Demolition Area 1	D1-MID-1	D1-MID-1-122A	N	09/08/2020	Process Water	0	0
Demolition Area 1	D1-INF	D1-INF-122A	N	09/08/2020	Process Water	0	0
J2 Range Northern	MW-337M1	MW-337M1_F20	N	09/03/2020	Ground Water	243.71	253.71
J2 Range Northern	MW-632M2	MW-632M2_F20	N	09/03/2020	Ground Water	229.5	239.5
J2 Range Northern	MW-632M2	MW-632M2_F20	N	09/03/2020	Ground Water	229.5	239.5
J2 Range Northern	MW-632M2	MW-632M2_F20D	FD	09/03/2020	Ground Water	229.5	239.5
J3 Range	J3-EFF	J3-EFF-168A	N	09/03/2020	Process Water	0	0
J3 Range	J3-MID-2	J3-MID-2-168A	N	09/03/2020	Process Water	0	0
J3 Range	J3-MID-1	J3-MID-1-168A	N	09/03/2020	Process Water	0	0
J3 Range	J3-INF	J3-INF-168A	N	09/03/2020	Process Water	0	0
J2 Range Northern	MW-632M1	MW-632M1_F20	N	09/03/2020	Ground Water	254.5	264.5
J2 Range Northern	MW-632M1	MW-632M1_F20	N	09/03/2020	Ground Water	254.5	264.5
Central Impact Area	CIA2-EFF	CIA2-EFF-80A	N	09/03/2020	Process Water	0	0
Central Impact Area	CIA2-MID2	CIA2-MID2-80A	N	09/03/2020	Process Water	0	0
Central Impact Area	CIA2-MID1	CIA2-MID1-80A	N	09/03/2020	Process Water	0	0
Central Impact Area	CIA2-INF	CIA2-INF-80A	N	09/03/2020	Process Water	0	0
Central Impact Area	CIA1-EFF	CIA1-EFF-80A	N	09/03/2020	Process Water	0	0
J2 Range Northern	MW-640M2	MW-640M2_F20	N	09/03/2020	Ground Water	216	226
J2 Range Northern	MW-640M2	MW-640M2_F20	N	09/03/2020	Ground Water	216	226
Central Impact Area	CIA1-MID2	CIA1-MID2-80A	N	09/03/2020	Process Water	0	0
Central Impact Area	CIA1-MID1	CIA1-MID1-80A	N	09/03/2020	Process Water	0	0
Central Impact Area	CIA1-INF	CIA1-INF-80A	N	09/03/2020	Process Water	0	0
J2 Range Northern	MW-640M1	MW-640M1_F20	N	09/03/2020	Ground Water	246	256

N = Normal Sample
FD = Field Duplicate

TABLE 1
Sampling Progress: 1 September to 30 September 2020

Area Of Concern	Location	Field Sample ID	Sample Type	Date Sampled	Matrix	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)
J2 Range Northern	MW-640M1	MW-640M1_F20	N	09/03/2020	Ground Water	246	256
J2 Range Northern	MW-640M1	MW-640M1_F20D	FD	09/03/2020	Ground Water	246	256
Central Impact Area	CIA3-EFF	CIA3-EFF-51A	N	09/03/2020	Process Water	0	0
Central Impact Area	CIA3-MID2	CIA3-MID2-51A	N	09/03/2020	Process Water	0	0
Central Impact Area	CIA3-MID1	CIA3-MID1-51A	N	09/03/2020	Process Water	0	0
Central Impact Area	CIA3-INF	CIA3-INF-51A	N	09/03/2020	Process Water	0	0
J2 Range Northern	MW-620M1	MW-620M1_F20	N	09/02/2020	Ground Water	268.6	278.6
J2 Range Northern	MW-586M2	MW-586M2_F20	N	09/02/2020	Ground Water	211	221
J2 Range Northern	MW-586M2	MW-586M2_F20	N	09/02/2020	Ground Water	211	221
J2 Range Eastern	J2E-EFF-K	J2E-EFF-K-144A	N	09/02/2020	Process Water	0	0
J2 Range Eastern	J2E-MID-2K	J2E-MID-2K-144A	N	09/02/2020	Process Water	0	0
J2 Range Northern	MW-586M1	MW-586M1_F20	N	09/02/2020	Ground Water	237	247
J2 Range Northern	MW-586M1	MW-586M1_F20	N	09/02/2020	Ground Water	237	247
J2 Range Northern	MW-586M1	MW-586M1_F20D	FD	09/02/2020	Ground Water	237	247
J2 Range Eastern	J2E-MID-1K	J2E-MID-1K-144A	N	09/02/2020	Process Water	0	0
J2 Range Eastern	J2E-INF-K	J2E-INF-K-144A	N	09/02/2020	Process Water	0	0
J2 Range Eastern	J2E-EFF-J	J2E-EFF-J-144A	N	09/02/2020	Process Water	0	0
J2 Range Eastern	J2E-MID-2J	J2E-MID-2J-144A	N	09/02/2020	Process Water	0	0
J2 Range Eastern	J2E-MID-1J	J2E-MID-1J-144A	N	09/02/2020	Process Water	0	0
J2 Range Eastern	J2E-INF-J	J2E-INF-J-144A	N	09/02/2020	Process Water	0	0
J2 Range Northern	MW-589M2	MW-589M2_F20	MS	09/02/2020	Ground Water	211	221
J2 Range Northern	MW-589M2	MW-589M2_F20	N	09/02/2020	Ground Water	211	221
J2 Range Northern	MW-589M2	MW-589M2_F20	N	09/02/2020	Ground Water	211	221
J2 Range Northern	MW-589M2	MW-589M2_F20	SD	09/02/2020	Ground Water	211	221
J2 Range Northern	MW-589M2	MW-589M2_F20D	FD	09/02/2020	Ground Water	211	221
J2 Range Northern	MW-589M1	MW-589M1_F20	N	09/02/2020	Ground Water	240	250
J2 Range Northern	MW-589M1	MW-589M1_F20	N	09/02/2020	Ground Water	240	250
J2 Range Eastern	J2E-EFF-IH	J2E-EFF-IH-144A	N	09/02/2020	Process Water	0	0
J2 Range Eastern	J2E-MID-2H	J2E-MID-2H-144A	N	09/02/2020	Process Water	0	0
J2 Range Eastern	J2E-MID-1H	J2E-MID-1H-144A	N	09/02/2020	Process Water	0	0
J2 Range Eastern	J2E-MID-2I	J2E-MID-2I-144A	N	09/02/2020	Process Water	0	0
J2 Range Eastern	J2E-MID-1I	J2E-MID-1I-144A	N	09/02/2020	Process Water	0	0
J2 Range Eastern	J2E-INF-I	J2E-INF-I-144A	N	09/02/2020	Process Water	0	0
J1 Range Southern	J1S-EFF	J1S-EFF-154A	N	09/01/2020	Process Water	0	0
J1 Range Southern	J1S-MID	J1S-MID-154A	N	09/01/2020	Process Water	0	0
J1 Range Southern	J1S-INF-2	J1S-INF-2-154A	N	09/01/2020	Process Water	0	0
J2 Range Northern	MW-622M2	MW-622M2_F20	N	09/01/2020	Ground Water	220.4	230.4
J2 Range Northern	MW-622M2	MW-622M2_F20	N	09/01/2020	Ground Water	220.4	230.4
J2 Range Northern	MW-622M1	MW-622M1_F20	N	09/01/2020	Ground Water	245.4	255.4
J2 Range Northern	MW-622M1	MW-622M1_F20	N	09/01/2020	Ground Water	245.4	255.4
J2 Range Northern	J2N-EFF-G	J2N-EFF-G-168A	N	09/01/2020	Process Water	0	0
J2 Range Northern	J2N-MID-2G	J2N-MID-2G-168A	N	09/01/2020	Process Water	0	0
J2 Range Northern	J2N-MID-1G	J2N-MID-1G-168A	N	09/01/2020	Process Water	0	0
J2 Range Northern	J2N-INF-G	J2N-INF-G-168A	N	09/01/2020	Process Water	0	0
J2 Range Northern	J2N-EFF-EF	J2N-EFF-EF-168A	N	09/01/2020	Process Water	0	0
J2 Range Northern	J2N-MID-2F	J2N-MID-2F-168A	N	09/01/2020	Process Water	0	0
J2 Range Northern	MW-704M2	MW-704M2_F20	N	09/01/2020	Ground Water	217.8	227.8
J2 Range Northern	MW-704M2	MW-704M2_F20	N	09/01/2020	Ground Water	217.8	227.8
J2 Range Northern	J2N-MID-1F	J2N-MID-1F-168A	N	09/01/2020	Process Water	0	0
J2 Range Northern	J2N-INF-EF	J2N-INF-EF-168A	N	09/01/2020	Process Water	0	0
J2 Range Northern	J2N-MID-2E	J2N-MID-2E-168A	N	09/01/2020	Process Water	0	0
J2 Range Northern	J2N-MID-1E	J2N-MID-1E-168A	N	09/01/2020	Process Water	0	0
J1 Range Northern	J1N-EFF	J1N-EFF-83A	N	09/01/2020	Process Water	0	0
J2 Range Northern	MW-704M1	MW-704M1_F20	N	09/01/2020	Ground Water	244	254
J2 Range Northern	MW-704M1	MW-704M1_F20	N	09/01/2020	Ground Water	244	254

N = Normal Sample
FD = Field Duplicate

TABLE 1
Sampling Progress: 1 September to 30 September 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 Northern	J1N-MID2	J1N-MID2-83A	N	09/01/2020	Process Water	0	0
J1 Range Northern	J1N-MID1	J1N-MID1-83A	N	09/01/2020	Process Water	0	0
J1 Range Northern	J1N-INF2	J1N-INF2-83A	N	09/01/2020	Process Water	0	0

**TABLE 2
VALIDATED EXPLOSIVE AND PERCHLORATE RESULTS
Data Received September 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
Northwest Corner	RSNW06	RSNW06_S20	0	0	08/18/2020	SW6850	Perchlorate	0.13	J	µg/L	2.0		0.030	0.20
J2 Range Northern	MW-230M1	MW-230M1_F20	130	140	08/18/2020	SW6850	Perchlorate	0.11	J	µg/L	2.0		0.030	0.20
J2 Range Northern	MW-289M2	MW-289M2_F20	162	172	08/18/2020	SW8330	4-Amino-2,6-dinitrotoluene	0.43		µg/L	7.3		0.027	0.20
J2 Range Northern	MW-289M2	MW-289M2_F20	162	172	08/18/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	1.1		µg/L	400		0.036	0.20
J2 Range Northern	MW-289M2	MW-289M2_F20	162	172	08/18/2020	SW6850	Perchlorate	1.2		µg/L	2.0		0.030	0.20
J2 Range Northern	MW-289M2	MW-289M2_F20	162	172	08/18/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	4.3		µg/L	0.60	X	0.034	0.20
J2 Range Northern	MW-289M2	MW-289M2_F20D	162	172	08/18/2020	SW8330	4-Amino-2,6-dinitrotoluene	0.46		µg/L	7.3		0.027	0.20
J2 Range Northern	MW-289M2	MW-289M2_F20D	162	172	08/18/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	1.1		µg/L	400		0.036	0.20
J2 Range Northern	MW-289M2	MW-289M2_F20D	162	172	08/18/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	4.3		µg/L	0.60	X	0.034	0.20
J2 Range Northern	MW-289M1	MW-289M1_F20	305	315	08/18/2020	SW6850	Perchlorate	0.17	J	µg/L	2.0		0.030	0.20
J2 Range Northern	MW-289M1	MW-289M1_F20	305	315	08/18/2020	SW8330	4-Amino-2,6-dinitrotoluene	0.20		µg/L	7.3		0.027	0.20
J2 Range Northern	MW-289M1	MW-289M1_F20	305	315	08/18/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.33		µg/L	400		0.036	0.20
J2 Range Northern	MW-289M1	MW-289M1_F20	305	315	08/18/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.90		µg/L	0.60	X	0.034	0.20
J2 Range Northern	MW-585M3	MW-585M3_F20	198.5	208.5	08/17/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.34		µg/L	0.60		0.034	0.20
J2 Range Northern	MW-585M3	MW-585M3_F20	198.5	208.5	08/17/2020	SW6850	Perchlorate	0.89		µg/L	2.0		0.030	0.20
J2 Range Northern	MW-585M3	MW-585M3_F20	198.5	208.5	08/17/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.89		µg/L	400		0.036	0.20
J2 Range Northern	MW-585M3	MW-585M3_F20D	198.5	208.5	08/17/2020	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-585M3	MW-585M3_F20D	198.5	208.5	08/17/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.95	J	µg/L	400		0.036	0.20
J2 Range Northern	MW-585M2	MW-585M2_F20	218.5	228.5	08/17/2020	SW6850	Perchlorate	1.1		µg/L	2.0		0.030	0.20
J2 Range Northern	J2EW2-MW3-B	J2EW2-MW3-B_F20	212.65	222.65	08/17/2020	SW6850	Perchlorate	0.78		µg/L	2.0		0.030	0.20
J2 Range Northern	J2EW2-MW3-C	J2EW2-MW3-C_F20	246	256	08/17/2020	SW6850	Perchlorate	0.15	J	µg/L	2.0		0.030	0.20
J2 Range Northern	MW-619M2	MW-619M2_F20	234.1	244.1	08/13/2020	SW6850	Perchlorate	0.048	J	µg/L	2.0		0.030	0.20
J2 Range Northern	MW-619M1	MW-619M1_F20	255.1	265.1	08/13/2020	SW6850	Perchlorate	0.078	J	µg/L	2.0		0.030	0.20
J2 Range Northern	MW-313M2	MW-313M2_F20	215.46	225.49	08/13/2020	SW6850	Perchlorate	0.067	J	µg/L	2.0		0.030	0.20
J2 Range Northern	MW-313M1	MW-313M1_F20	255.42	265.42	08/13/2020	SW6850	Perchlorate	1.9		µg/L	2.0		0.030	0.20
J2 Range Northern	MW-313M1	MW-313M1_F20D	255.42	265.42	08/13/2020	SW6850	Perchlorate	1.9		µg/L	2.0		0.030	0.20
J2 Range Northern	MW-318M1	MW-318M1_F20	305.79	315.81	08/12/2020	SW6850	Perchlorate	0.078	J	µg/L	2.0		0.030	0.20
J2 Range Northern	MW-635M1	MW-635M1_F20	265.4	275.4	08/12/2020	SW6850	Perchlorate	0.085	J	µg/L	2.0		0.030	0.20
J2 Range Northern	MW-702M2	MW-702M2_F20	208.1	218.1	08/12/2020	SW6850	Perchlorate	0.59		µg/L	2.0		0.030	0.20
J2 Range Northern	MW-702M1	MW-702M1_F20	277.5	287.5	08/12/2020	SW6850	Perchlorate	0.69		µg/L	2.0		0.030	0.20
J2 Range Northern	J2EW1-MW1-B	J2EW1-MW1-B_F20	205.82	215.82	08/11/2020	SW6850	Perchlorate	0.13	J	µg/L	2.0		0.030	0.20
J2 Range Northern	J2EW1-MW1-C	J2EW1-MW1-C_F20	240.8	250.8	08/11/2020	SW6850	Perchlorate	8.5		µg/L	2.0	X	0.030	0.20
J2 Range Northern	J2EW1-MW1-C	J2EW1-MW1-C_F20D	240.8	250.8	08/11/2020	SW6850	Perchlorate	8.6		µg/L	2.0	X	0.030	0.20
J3 Range	MW-250M3	MW-250M3_F20	95	105	08/11/2020	SW6850	Perchlorate	0.12	J	µg/L	2.0		0.030	0.20
J3 Range	MW-250M3	MW-250M3_F20	95	105	08/11/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.16	J	µg/L	400		0.036	0.20
J3 Range	MW-250M3	MW-250M3_F20	95	105	08/11/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.97		µg/L	0.60	X	0.034	0.20
J3 Range	MW-250M2	MW-250M2_F20	145	155	08/11/2020	SW8330	2,6-Dinitrotoluene	0.15	J	µg/L	5.0		0.070	0.20
J3 Range	MW-250M2	MW-250M2_F20	145	155	08/11/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.72		µg/L	400		0.036	0.20
J3 Range	MW-250M2	MW-250M2_F20	145	155	08/11/2020	SW6850	Perchlorate	1.3		µg/L	2.0		0.030	0.20
J3 Range	MW-250M2	MW-250M2_F20D	145	155	08/11/2020	SW6850	Perchlorate	1.3		µg/L	2.0		0.030	0.20
J3 Range	MW-250M1	MW-250M1_F20	185	195	08/11/2020	SW6850	Perchlorate	0.080	J	µg/L	2.0		0.030	0.20
J3 Range	MW-227M3	MW-227M3_F20	65	75	08/10/2020	SW6850	Perchlorate	0.092	J	µg/L	2.0		0.030	0.20
J3 Range	MW-227M2	MW-227M2_F20	110	120	08/10/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.18	J	µg/L	400		0.036	0.20
J3 Range	MW-227M2	MW-227M2_F20	110	120	08/10/2020	SW6850	Perchlorate	1.9		µg/L	2.0		0.030	0.20
J3 Range	MW-227M2	MW-227M2_F20D	110	120	08/10/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.15	J	µg/L	400		0.036	0.20

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

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

**TABLE 2
VALIDATED EXPLOSIVE AND PERCHLORATE RESULTS
Data Received September 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
J3 Range	MW-227M2	MW-227M2_F20D	110	120	08/10/2020	SW6850	Perchlorate	1.9		µg/L	2.0		0.030	0.20
J3 Range	MW-636M2	MW-636M2_F20	110.5	120.5	08/10/2020	SW6850	Perchlorate	0.090	J	µg/L	2.0		0.030	0.20
J3 Range	MW-636M1	MW-636M1_F20	141.6	151.6	08/10/2020	SW6850	Perchlorate	0.037	J	µg/L	2.0		0.030	0.20
J3 Range	MW-576M3	MW-576M3_F20	98.9	108.9	08/06/2020	SW6850	Perchlorate	0.060	J	µg/L	2.0		0.030	0.20
J3 Range	MW-576M2	MW-576M2_F20	133.9	143.9	08/06/2020	SW6850	Perchlorate	0.78		µg/L	2.0		0.030	0.20
J3 Range	MW-576M1	MW-576M1_F20	173.9	183.9	08/06/2020	SW6850	Perchlorate	0.45		µg/L	2.0		0.030	0.20
J3 Range	MW-653M1	MW-653M1_F20	147.5	157.5	08/05/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.11	J	µg/L	400		0.036	0.20
J3 Range	MW-653M1	MW-653M1_F20	147.5	157.5	08/05/2020	SW6850	Perchlorate	0.17	J	µg/L	2.0		0.030	0.20
J3 Range	MW-142M2	MW-142M2_F20	140	150	08/03/2020	SW6850	Perchlorate	0.12	J	µg/L	2.0		0.030	0.20
J3 Range	MW-247M3	MW-247M3_F20	95	105	08/03/2020	SW6850	Perchlorate	0.084	J	µg/L	2.0		0.030	0.20
J3 Range	MW-247M2	MW-247M2_F20	125	135	08/03/2020	SW6850	Perchlorate	0.13	J	µg/L	2.0		0.030	0.20
J3 Range	J3EW0032	J3EW0032_F20	102	152	07/29/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.19	J	µg/L	400		0.036	0.20
J3 Range	J3EW0032	J3EW0032_F20	102	152	07/29/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.46		µg/L	0.60		0.034	0.20
J3 Range	J3EW0032	J3EW0032_F20	102	152	07/29/2020	SW6850	Perchlorate	0.56		µg/L	2.0		0.030	0.20
J3 Range	J3EW0032	J3EW0032_F20D	102	152	07/29/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.20		µg/L	400		0.036	0.20
J3 Range	J3EW0032	J3EW0032_F20D	102	152	07/29/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.50		µg/L	0.60		0.034	0.20
J3 Range	90EW0001	90EW0001_F20	83.1	143.8	07/29/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.062	J	µg/L	0.60		0.034	0.20
J3 Range	90EW0001	90EW0001_F20	83.1	143.8	07/29/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.069	J	µg/L	400		0.036	0.20
J3 Range	90EW0001	90EW0001_F20	83.1	143.8	07/29/2020	SW6850	Perchlorate	0.20		µg/L	2.0		0.030	0.20
J3 Range	MW-155M1	MW-155M1_F20	124	134	07/28/2020	SW6850	Perchlorate	0.16	J	µg/L	2.0		0.030	0.20
J3 Range	90PZ0204	90PZ0204_F20	80	85	07/28/2020	SW6850	Perchlorate	0.055	J	µg/L	2.0		0.030	0.20
J3 Range	J3-MW-1-B	J3-MW-1-B_F20	175.6	185.6	07/28/2020	SW6850	Perchlorate	1.1		µg/L	2.0		0.030	0.20
J3 Range	J3-MW-1-B	J3-MW-1-B_F20D	175.6	185.6	07/28/2020	SW6850	Perchlorate	1.2		µg/L	2.0		0.030	0.20
Lima Range	MW-242M1	MW-242M1_F20	235	245	07/27/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.13	J	µg/L	0.60		0.034	0.20
Lima Range	MW-651M1	MW-651M1_F20	242.3	252.3	07/27/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.68		µg/L	0.60	X	0.034	0.20
Lima Range	MW-595M1	MW-595M1_F20	255.3	265.3	07/27/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.8		µg/L	0.60	X	0.034	0.20
J3 Range	J3EWIP2	J3EWIP2_F20	149.5	169.5	07/23/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.25		µg/L	400		0.036	0.20
J3 Range	J3EWIP2	J3EWIP2_F20	149.5	169.5	07/23/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.35		µg/L	0.60		0.034	0.20
J3 Range	J3EWIP2	J3EWIP2_F20	149.5	169.5	07/23/2020	SW6850	Perchlorate	1.4		µg/L	2.0		0.030	0.20
J3 Range	J3EWIP2	J3EWIP2_F20D	149.5	169.5	07/23/2020	SW6850	Perchlorate	1.4		µg/L	2.0		0.030	0.20
J3 Range	J3EWIP1	J3EWIP1_F20	153	193	07/23/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.076	J	µg/L	400		0.036	0.20
J3 Range	J3EWIP1	J3EWIP1_F20	153	193	07/23/2020	SW6850	Perchlorate	0.28		µg/L	2.0		0.030	0.20
J3 Range	MW-143M3	MW-143M3_F20	107	112	07/21/2020	SW6850	Perchlorate	0.074	J	µg/L	2.0		0.030	0.20
J3 Range	MW-143M1	MW-143M1_F20	144	154	07/20/2020	SW6850	Perchlorate	0.37		µg/L	2.0		0.030	0.20
J3 Range	MW-197M3	MW-197M3_F20	60.2	65.2	07/20/2020	SW6850	Perchlorate	0.060	J	µg/L	2.0		0.030	0.20
J3 Range	MW-197M3	MW-197M3_F20	60.2	65.2	07/20/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.12	J	µg/L	400		0.036	0.20
J3 Range	MW-197M2	MW-197M2_F20	80.2	85.2	07/20/2020	SW6850	Perchlorate	0.11	J	µg/L	2.0		0.030	0.20
J3 Range	MW-197M2	MW-197M2_F20	80.2	85.2	07/20/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	2.0		µg/L	400		0.036	0.20
J3 Range	MW-163S	MW-163S_F20	38	48	07/16/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.22		µg/L	400		0.036	0.20
J3 Range	MW-163S	MW-163S_F20	38	48	07/16/2020	SW6850	Perchlorate	0.76		µg/L	2.0		0.030	0.20
J3 Range	MW-163S	MW-163S_F20	38	48	07/16/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.4		µg/L	0.60	X	0.034	0.20
J3 Range	MW-163S	MW-163S_F20D	38	48	07/16/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.22		µg/L	400		0.036	0.20
J3 Range	MW-163S	MW-163S_F20D	38	48	07/16/2020	SW6850	Perchlorate	0.76		µg/L	2.0		0.030	0.20
J3 Range	MW-163S	MW-163S_F20D	38	48	07/16/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.3		µg/L	0.60	X	0.034	0.20
J3 Range	MW-232M2	MW-232M2_F20	61	66	07/16/2020	SW6850	Perchlorate	0.31		µg/L	2.0		0.030	0.20

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

TABLE 2
VALIDATED EXPLOSIVE AND PERCHLORATE RESULTS
Data Received September 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
J3 Range	MW-232M1	MW-232M1_F20	77.5	82.5	07/16/2020	SW6850	Perchlorate	0.25		µg/L	2.0		0.030	0.20
J3 Range	MW-232M1	MW-232M1_F20	77.5	82.5	07/16/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.36		µg/L	400		0.036	0.20
J3 Range	MW-232M1	MW-232M1_F20	77.5	82.5	07/16/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	2.5		µg/L	0.60	X	0.034	0.20
J3 Range	MW-193S	MW-193S_F20	32.5	37.5	07/16/2020	SW6850	Perchlorate	0.15	J	µg/L	2.0		0.030	0.20
J3 Range	MW-193M1	MW-193M1_F20	57.5	62.5	07/16/2020	SW6850	Perchlorate	0.085	J	µg/L	2.0		0.030	0.20
J3 Range	MW-198M4	MW-198M4_F20	70	75	07/15/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.24	J	µg/L	0.60		0.034	0.20
J3 Range	MW-198M4	MW-198M4_F20	70	75	07/15/2020	SW6850	Perchlorate	0.58		µg/L	2.0		0.030	0.20
J3 Range	MW-198M4	MW-198M4_F20	70	75	07/15/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.70		µg/L	400		0.036	0.20
J3 Range	MW-198M4	MW-198M4_F20D	70	75	07/15/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.27	J	µg/L	0.60		0.034	0.20
J3 Range	MW-198M4	MW-198M4_F20D	70	75	07/15/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.70		µg/L	400		0.036	0.20
J3 Range	MW-198M3	MW-198M3_F20	100	105	07/15/2020	SW6850	Perchlorate	0.50		µg/L	2.0		0.030	0.20
J3 Range	MW-198M3	MW-198M3_F20D	100	105	07/15/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.13	J	µg/L	0.60		0.034	0.20
J3 Range	MW-198M3	MW-198M3_F20D	100	105	07/15/2020	SW6850	Perchlorate	0.50		µg/L	2.0		0.030	0.20
J3 Range	MW-198M2	MW-198M2_F20	120	125	07/15/2020	SW6850	Perchlorate	0.68		µg/L	2.0		0.030	0.20
J3 Range	MW-637M2	MW-637M2_F20	214.1	224.1	07/09/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.078	J	µg/L	0.60		0.034	0.20
J3 Range	MW-637M2	MW-637M2_F20	214.1	224.1	07/09/2020	SW6850	Perchlorate	3.1	J	µg/L	2.0	X	0.030	0.20
J3 Range	MW-637M2	MW-637M2_F20D	214.1	224.1	07/09/2020	SW6850	Perchlorate	3.1	J	µg/L	2.0	X	0.030	0.20
J3 Range	90MW0054	90MW0054_F20	107	112	07/08/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.13	J	µg/L	0.60		0.034	0.20
J3 Range	90MW0054	90MW0054_F20	107	112	07/08/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	3.2		µg/L	400		0.036	0.20
J3 Range	90MW0054	90MW0054_F20D	107	112	07/08/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.14	J	µg/L	0.60		0.034	0.20
J3 Range	90MW0054	90MW0054_F20D	107	112	07/08/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	3.0		µg/L	400		0.036	0.20
J3 Range	MW-329M2	MW-329M2_F20	150.05	160.05	07/08/2020	SW6850	Perchlorate	1.5	J	µg/L	2.0		0.030	0.20
J3 Range	MW-329M1	MW-329M1_F20	179.96	189.96	07/08/2020	SW6850	Perchlorate	0.38	J	µg/L	2.0		0.030	0.20
Central Impact Area	MW-728M1	MW-728M1_R1	153.4	163.4	07/07/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.18	J	µg/L	0.60		0.034	0.20
Central Impact Area	MW-729M1	MW-729M1_R1	231.5	241.5	07/07/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.049	J	µg/L	400		0.036	0.20
Central Impact Area	MW-729M1	MW-729M1_R1	231.5	241.5	07/07/2020	SW6850	Perchlorate	0.83	J	µg/L	2.0		0.030	0.20
Central Impact Area	MW-729M1	MW-729M1_R1	231.5	241.5	07/07/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.1		µg/L	0.60	X	0.034	0.20
Central Impact Area	MW-726S	MW-726S_R1	135.5	145.5	07/07/2020	SW8330	1,3,5-Trinitrobenzene	0.060	J	µg/L	1090		0.023	0.20
Central Impact Area	MW-726S	MW-726S_R1	135.5	145.5	07/07/2020	SW8330	2-Amino-4,6-dinitrotoluene	0.27		µg/L	7.3		0.020	0.20
Central Impact Area	MW-726S	MW-726S_R1	135.5	145.5	07/07/2020	SW8330	2,4,6-Trinitrotoluene	0.47		µg/L	2.0		0.041	0.20
Central Impact Area	MW-726S	MW-726S_R1	135.5	145.5	07/07/2020	SW8330	4-Amino-2,6-dinitrotoluene	0.76		µg/L	7.3		0.027	0.20
Central Impact Area	MW-726S	MW-726S_R1	135.5	145.5	07/07/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.78		µg/L	0.60	X	0.034	0.20
J3 Range	MW-243M1	MW-243M1_F20	114.5	124.5	07/06/2020	SW6850	Perchlorate	0.41	J	µg/L	2.0		0.030	0.20
J3 Range	MW-295M1	MW-295M1_F20	145	155	07/06/2020	SW6850	Perchlorate	0.29	J	µg/L	2.0		0.030	0.20

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

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/ORSG)	0.00	0.00	0.00	3.20	0.00
§Sum of All Compounds Collected	0.00	0.00	0.00	4.86	0.00

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

Location	J1N-INF2	J1N-INF2	MW-136S	MW-564M1	MW-590M2
Field Sample ID	J1N-INF2_PFA19	J1N-INF2_PFA19R	MW-136S_PFA19	MW-564M1_PFA19	MW-590M2_PFA19
Sampling Depth	0.00 - 0.00	0.00 - 0.00	107.00 - 117.00	227.00 - 237.00	238.00 - 248.00
Sampling Date	06/17/2019	07/30/2019	06/24/2019	06/24/2019	06/24/2019
SDG	320514661	320528231	320517141	320517141	320517141
Sample Type	Normal	Normal	Normal	Normal	Normal
PFAS 21 Cmps	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)
6:2 Fluorotelomer sulfonate (6:2 FTS)	19.0 U	19.0 U	20.0 U	18.0 U	19.0 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	9.30 U	9.60 U	9.80 U	9.20 U	9.60 U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	9.30 U	9.60 U	9.80 U	9.20 U	9.60 U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	9.30 U	9.60 U	9.80 U	9.20 U	9.60 U
Perfluoro-1-heptanesulfonate (PFHpS)	0.930 U	0.960 U	0.980 U	0.920 U	0.960 U
Perfluorobutanesulfonic acid (PFBS)	0.930 U	0.960 U	0.980 U	0.920 U	0.960 U
Perfluorobutanoic acid (PFBA)	1.90 U	1.40 U	0.990 J	1.40 U	1.40 U
Perfluorodecane sulfonate	1.40 U	1.40 U	1.50 U	1.40 U	1.40 U
Perfluorodecanoic acid (PFDA)	0.930 U	0.960 U	0.980 U	0.920 U	0.960 U
Perfluorododecanoic acid (PFDoA)	1.40 U	1.40 U	1.50 U	1.40 U	1.40 U
Perfluoroheptanoic acid (PFHpA)	1.40 U	1.40 U	1.50 U	1.40 U	1.40 U
Perfluorohexanesulfonic acid (PFHxS)	0.930 U	1.90 U	2.00 U	1.80 U	0.960 U
Perfluorohexanoic acid (PFHxA)	0.930 U	0.960 U	0.980 U	0.920 U	0.960 U
Perfluorononanoic acid (PFNA)	1.40 U	1.40 U	1.50 U	1.40 U	1.40 U
Perfluorooctanesulfonamide (FOSA)	1.80 J	2.90 U	2.90 U	2.80 U	2.90 U
Perfluorooctanesulfonic acid (PFOS)	4.90	2.90 U	1.40 J	2.80 U	2.90 U
Perfluorooctanoic acid (PFOA)	1.40 U	1.40 U	2.40	1.40 U	1.40 U
Perfluoropentanoic acid (PFPA)	0.930 U	0.960 U	0.980 U	0.920 U	0.960 U
Perfluorotetradecanoic acid (PFTA)	2.80 U	2.90 U	2.90 U	2.80 U	2.90 U
Perfluorotridecanoic acid (PFTrDA)	2.80 U	2.90 U	2.90 U	2.80 U	2.90 U
Perfluoroundecanoic acid (PFUnA)	1.40 U	1.40 U	1.50 U	1.40 U	1.40 U
†PFOS + PFOA (EPA)	4.90	0.00	3.80	0.00	0.00
*PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP/ORSG)	4.90	0.00	3.80	0.00	0.00
§Sum of All Compounds Collected	6.70	0.00	4.79	0.00	0.00

PFAS Summary Report – Groundwater
Joint Base Cape Cod, IAGWSP
 KGS 2019 PFAS MW&INF
 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_PFA19	J2E-INF-J_PFA19	J2E-INF-K_PFA19	MW-307M3_PFA19	MW-307M3_PFA19D	MW-368M1_PFA19
Sampling Depth	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	125.80 - 135.82	125.80 - 135.82	237.35 - 247.35
Sampling Date	06/20/2019	06/20/2019	06/20/2019	06/18/2019	06/18/2019	06/18/2019
SDG	320515981	320515981	320515981	320514662	320514662	320514662
Sample Type	Normal	Normal	Normal	Normal	Field Duplicate	Normal
PFAS 21 Cmps	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)
6:2 Fluorotelomer sulfonate (6:2 FTS)	19.0 U	19.0 U	20.0 U	18.0 U	19.0 U	17.0 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	9.70 U	9.30 U	9.80 U	9.00 U	9.60 U	8.50 U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	9.70 U	9.30 U	9.80 U	9.00 U	9.60 U	8.50 U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	9.70 U	9.30 U	9.80 U	9.00 U	9.60 U	8.50 U
Perfluoro-1-heptanesulfonate (PFHpS)	0.970 U	0.930 U	0.980 U	0.900 U	0.960 U	0.850 U
Perfluorobutanesulfonic acid (PFBS)	0.970 U	0.930 U	0.980 U	0.900 U	0.960 U	0.850 U
Perfluorobutanoic acid (PFBA)	1.50 U	1.40 U	1.50 U	1.80 U	1.90 U	1.70 U
Perfluorodecane sulfonate	1.50 U	1.40 U	1.50 U	1.30 U	1.40 U	1.30 U
Perfluorodecanoic acid (PFDA)	0.970 U	0.930 U	0.980 U	0.900 U	0.960 U	1.40 J
Perfluorododecanoic acid (PFDoA)	1.50 U	1.40 U	1.50 U	1.30 U	1.40 U	0.450 J
Perfluoroheptanoic acid (PFHpA)	1.50 U	1.40 U	1.50 U	1.30 U	1.40 U	1.30 U
Perfluorohexanesulfonic acid (PFHxS)	0.970 U	0.930 U	0.980 U	0.900 U	0.960 U	0.850 U
Perfluorohexanoic acid (PFHxA)	0.970 U	0.930 U	0.980 U	0.900 U	0.960 U	0.850 U
Perfluorononanoic acid (PFNA)	1.50 U	1.40 U	1.50 U	0.880 J	0.730 J	0.650 J
Perfluorooctanesulfonamide (FOSA)	2.90 U	2.80 U	2.90 U	2.70 U	2.90 U	2.60 U
Perfluorooctanesulfonic acid (PFOS)	2.90 U	2.80 U	2.90 U	2.70 U	2.90 U	2.60 U
Perfluorooctanoic acid (PFOA)	1.50 U	1.40 U	1.50 U	1.30 U	1.40 U	1.30 U
Perfluoropentanoic acid (PFPA)	0.970 U	0.930 U	0.980 U	0.900 U	0.960 U	0.850 U
Perfluorotetradecanoic acid (PFTA)	2.90 U	2.80 U	2.90 U	2.70 U	2.90 U	2.60 U
Perfluorotridecanoic acid (PFTrDA)	2.90 U	2.80 U	2.90 U	2.70 U	2.90 U	2.60 U
Perfluoroundecanoic acid (PFUnA)	1.50 U	1.40 U	1.50 U	1.30 U	1.40 U	4.90
†PFOS + PFOA (EPA)	0.00	0.00	0.00	0.00	0.00	0.00
*PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP/ORSG)	0.00	0.00	0.00	0.880	0.730	2.05
§Sum of All Compounds Collected	0.00	0.00	0.00	0.880	0.730	7.40

PFAS Summary Report – Groundwater
Joint Base Cape Cod, IAGWSP
 KGS 2019 PFAS MW&INF
 J2 Range Eastern

	Location	MW-368M2	MW-667M1
Field Sample ID		MW-368M2_PFAS19	MW-667M1_PFAS19
Sampling Depth		202.73 - 212.73	302.30 - 312.30
Sampling Date		06/18/2019	06/17/2019
SDG		320514662	320514661
Sample Type	Normal		Normal
PFAS 21 Cmps	Results (ng/L)	Results (ng/L)	
6:2 Fluorotelomer sulfonate (6:2 FTS)	18.0 U	18.0 U	
8:2 Fluorotelomer sulfonate (8:2 FTS)	8.80 U	9.00 U	
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	8.80 U	9.00 U	
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	8.80 U	9.00 U	
Perfluoro-1-heptanesulfonate (PFHpS)	0.880 U	0.900 U	
Perfluorobutanesulfonic acid (PFBS)	0.880 U	0.900 U	
Perfluorobutanoic acid (PFBA)	1.30 U	1.80 U	
Perfluorodecane sulfonate	1.30 U	1.40 U	
Perfluorodecanoic acid (PFDA)	0.800 J	4.30	
Perfluorododecanoic acid (PFDoA)	1.30 U	1.40 U	
Perfluoroheptanoic acid (PFHpA)	1.30 U	1.40 U	
Perfluorohexanesulfonic acid (PFHxS)	0.880 U	0.900 U	
Perfluorohexanoic acid (PFHxA)	0.880 U	0.900 U	
Perfluorononanoic acid (PFNA)	1.30 U	2.80	
Perfluorooctanesulfonamide (FOSA)	2.60 U	2.70 U	
Perfluorooctanesulfonic acid (PFOS)	2.60 U	2.70 U	
Perfluorooctanoic acid (PFOA)	1.30 U	1.40 U	
Perfluoropentanoic acid (PFPA)	0.880 U	0.900 U	
Perfluorotetradecanoic acid (PFTA)	2.60 U	2.70 U	
Perfluorotridecanoic acid (PFTrDA)	2.60 U	2.70 U	
Perfluoroundecanoic acid (PFUnA)	2.40	1.60 J	
	†PFOS + PFOA (EPA)	0.00	0.00
	*PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP/ORSG)	0.800	7.10
	§Sum of All Compounds Collected	3.20	8.70

PFAS Summary Report – Groundwater
Joint Base Cape Cod, IAGWSP
 KGS 2019 PFAS MW&INF
 J2 Range Northern

Location	J2EW0001	J2EW0002	J2N-INF-E	J2N-INF-F	J2N-INF-F	J2N-INF-G
Field Sample ID	J2EW0001_PFAS19	J2EW0002_PFAS19	J2N-INF-E_PFAS19	J2N-INF-F_PFAS19	J2N-INF-F_PFAS19R	J2N-INF-G_PFAS19
Sampling Depth	179.00 - 234.00	198.00 - 233.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Sampling Date	11/20/2019	11/20/2019	06/18/2019	06/18/2019	07/30/2019	07/30/2019
SDG	320565491	320565491	320514662	320514662	320528231	320528231
Sample Type	Normal	Normal	Normal	Normal	Normal	Normal
PFAS 21 Cmps	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)
6:2 Fluorotelomer sulfonate (6:2 FTS)	19.0 U	40.0 U	19.0 U	19.0 U	19.0 U	19.0 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	19.0 U	20.0 U	9.30 U	9.30 U	9.60 U	9.70 U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	9.60 U	10.0 U	9.30 U	9.30 U	9.60 U	9.70 U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	9.60 U	10.0 U	9.30 U	9.30 U	9.60 U	9.70 U
Perfluoro-1-heptanesulfonate (PFHpS)	0.960 U	0.370 J	0.930 U	0.400 J	0.500 J	0.970 U
Perfluorobutanesulfonic acid (PFBS)	0.960 U	1.00 U	0.930 U	0.930 U	0.960 U	1.40 J
Perfluorobutanoic acid (PFBA)	1.40 U	1.50 U	1.40 U	1.90 U	1.40 U	1.50 U
Perfluorodecane sulfonate	1.40 U	1.50 U	1.40 U	1.40 U	1.40 U	1.50 U
Perfluorodecanoic acid (PFDA)	0.960 U	1.00 U	0.930 U	0.930 U	0.960 U	0.970 U
Perfluorododecanoic acid (PFDoA)	1.40 U	1.50 U	1.40 U	1.40 U	1.40 U	1.50 U
Perfluoroheptanoic acid (PFHpA)	1.40 U	1.00 J	1.40 U	0.940 J	1.00 J	1.50 U
Perfluorohexanesulfonic acid (PFHxS)	0.960 U	11.0	0.930 U	9.90	9.00	1.90 U
Perfluorohexanoic acid (PFHxA)	0.960 U	1.30 J	0.930 U	1.20 J	1.30 J	2.30
Perfluorononanoic acid (PFNA)	1.40 U	1.50 U	1.40 U	1.40 U	1.40 U	1.50 U
Perfluorooctanesulfonamide (FOSA)	2.90 U	3.00 U	2.80 U	2.80 U	2.90 U	2.90 U
Perfluorooctanesulfonic acid (PFOS)	2.90 U	1.30 J	2.80 U	2.80 U	1.10 J	2.90 U
Perfluorooctanoic acid (PFOA)	1.40 U	1.50 J	1.40 U	1.70 J	1.50 J	1.50 U
Perfluoropentanoic acid (PFPA)	0.960 U	0.910 J	0.930 U	0.840 J	1.00 J	1.20 J
Perfluorotetradecanoic acid (PFTA)	2.90 U	3.00 U	2.80 U	2.80 U	2.90 U	2.90 U
Perfluorotridecanoic acid (PFTrDA)	2.90 U	3.00 U	2.80 U	2.80 U	2.90 U	2.90 U
Perfluoroundecanoic acid (PFUnA)	1.40 U	1.50 U	1.40 U	1.40 U	1.40 U	1.50 U
†PFOS + PFOA (EPA)	0.00	2.80	0.00	1.70	2.60	0.00
*PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP/ORSG)	0.00	14.8	0.00	12.5	12.6	0.00
§Sum of All Compounds Collected	0.00	17.4	0.00	15.0	15.4	4.90

PFAS Summary Report – Groundwater
Joint Base Cape Cod, IAGWSP
 KGS 2019 PFAS MW&INF
 J2 Range Northern

	Location	MW-234M2	MW-313M1	MW-587M2
	Field Sample ID	MW-234M2_PFAS19	MW-313M1_PFAS19	MW-587M2_PFAS19
	Sampling Depth	110.00 - 120.00	255.40 - 265.40	220.00 - 230.00
	Sampling Date	06/17/2019	06/19/2019	06/19/2019
	SDG	320514661	320515981	320515981
	Sample Type	Normal	Normal	Normal
PFAS 21 Cmps		Results (ng/L)	Results (ng/L)	Results (ng/L)
6:2 Fluorotelomer sulfonate (6:2 FTS)		18.0 U	20.0 U	19.0 U
8:2 Fluorotelomer sulfonate (8:2 FTS)		8.80 U	9.80 U	9.70 U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)		8.80 U	9.80 U	9.70 U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)		8.80 U	9.80 U	9.70 U
Perfluoro-1-heptanesulfonate (PFHpS)		0.880 U	0.980 U	0.970 U
Perfluorobutanesulfonic acid (PFBS)		0.880 U	0.980 U	0.970 U
Perfluorobutanoic acid (PFBA)		1.80 U	0.700 J	1.50 U
Perfluorodecane sulfonate		1.30 U	1.50 U	1.50 U
Perfluorodecanoic acid (PFDA)		0.880 U	1.20 J	0.970 U
Perfluorododecanoic acid (PFDoA)		1.30 U	1.50 U	1.50 U
Perfluoroheptanoic acid (PFHpA)		1.30 U	1.50 U	1.50 U
Perfluorohexanesulfonic acid (PFHxS)		0.600 J	0.980 U	0.970 U
Perfluorohexanoic acid (PFHxA)		0.880 U	0.980 U	0.970 U
Perfluorononanoic acid (PFNA)		1.30 U	1.10 J	1.50 U
Perfluorooctanesulfonamide (FOSA)		2.60 U	2.90 U	2.90 U
Perfluorooctanesulfonic acid (PFOS)		1.90 J	2.90 U	2.90 U
Perfluorooctanoic acid (PFOA)		0.550 J	1.50 U	1.50 U
Perfluoropentanoic acid (PFPA)		0.880 U	0.680 J	0.970 U
Perfluorotetradecanoic acid (PFTA)		2.60 U	2.90 U	2.90 U
Perfluorotridecanoic acid (PFTrDA)		2.60 U	2.90 U	2.90 U
Perfluoroundecanoic acid (PFUnA)		1.30 U	1.40 J	1.50 U
	†PFOS + PFOA (EPA)	2.45	0.00	0.00
	‡PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP/ORSG)	3.05	2.30	0.00
	§Sum of All Compounds Collected	3.05	5.08	0.00

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

Location	J3-INF	J3-INF	MW-163S	MW-163S	MW-163S	MW-227M2
Field Sample ID	J3-INF_PFAS19	J3-INF_PFAS19D	MW-163S_PFAS19	MW-163S_PFAS19D	MW-163S_PFAS19R	MW-227M2_PFAS19
Sampling Depth	0.00 - 0.00	0.00 - 0.00	38.00 - 48.00	38.00 - 48.00	38.00 - 48.00	110.00 - 120.00
Sampling Date	06/17/2019	06/17/2019	06/18/2019	06/18/2019	07/30/2019	06/19/2019
SDG	320514661	320514661	320514662	320514662	320528231	320515981
Sample Type	Normal	Field Duplicate	Normal	Field Duplicate	Normal	Normal
PFAS 21 Cmps	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)
6:2 Fluorotelomer sulfonate (6:2 FTS)	19.0 U	18.0 U	17.0 U	17.0 U	19.0 U	19.0 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	9.40 U	9.20 U	8.60 U	8.60 U	9.30 U	9.60 U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	9.40 U	9.20 U	8.60 U	8.60 U	9.30 U	9.60 U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	9.40 U	9.20 U	8.60 U	8.60 U	9.30 U	9.60 U
Perfluoro-1-heptanesulfonate (PFHpS)	0.940 U	0.920 U	0.860 U	0.860 U	0.930 U	0.960 U
Perfluorobutanesulfonic acid (PFBS)	0.940 U	0.920 U	0.860 U	0.860 U	0.930 U	0.960 U
Perfluorobutanoic acid (PFBA)	1.90 U	1.80 U	1.70 U	1.70 U	0.560 J	1.40 U
Perfluorodecane sulfonate	1.40 U	1.40 U	1.30 U	1.30 U	1.40 U	1.40 U
Perfluorodecanoic acid (PFDA)	0.940 U	0.920 U	0.860 U	0.860 U	0.930 U	0.960 U
Perfluorododecanoic acid (PFDoA)	1.70 J	1.40 U	1.30 U	1.30 U	1.40 U	1.40 U
Perfluoroheptanoic acid (PFHpA)	1.40 U	1.40 U	1.30 U	1.30 U	1.40 U	1.40 U
Perfluorohexanesulfonic acid (PFHxS)	1.50 J	1.50 J	0.690 J	0.610 J	1.90 U	0.540 J
Perfluorohexanoic acid (PFHxA)	0.940 U	0.920 U	0.410 J	0.860 U	0.930 U	0.960 U
Perfluorononanoic acid (PFNA)	1.40 U	1.40 U	1.30 U	1.30 U	1.40 U	1.40 U
Perfluorooctanesulfonamide (FOSA)	2.80 U	2.80 U	2.60 U	2.60 U	2.80 U	2.90 U
Perfluorooctanesulfonic acid (PFOS)	2.80 U	2.80 U	12.0	12.0	12.0	2.90 U
Perfluorooctanoic acid (PFOA)	0.520 J	1.40 U	1.70	1.60 J	1.30 J	1.40 U
Perfluoropentanoic acid (PFPA)	0.940 U	0.920 U	0.860 U	0.860 U	0.930 U	0.960 U
Perfluorotetradecanoic acid (PFTA)	2.80 U	2.80 U	2.60 U	2.60 U	2.80 U	2.90 U
Perfluorotridecanoic acid (PFTrDA)	1.40 J	2.80 U	2.60 U	2.60 U	2.80 U	2.90 U
Perfluoroundecanoic acid (PFUnA)	1.40 U	1.40 U	1.30 U	1.30 U	1.40 U	1.40 U
†PFOS + PFOA (EPA)	0.520	0.00	13.7	13.6	13.3	0.00
*PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP/ORSG)	2.02	1.50	14.4	14.2	13.3	0.540
§Sum of All Compounds Collected	5.12	1.50	14.8	14.2	13.9	0.540

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

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

PFAS Summary Report – Groundwater
Joint Base Cape Cod, IAGWSP
 KGS 2020 J2 Ranges SPM Fall
 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/ORSG)	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

PFAS Summary Report – Groundwater
Joint Base Cape Cod, IAGWSP
 KGS 2020 J2 Ranges SPM Fall
 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 (PFTTrDA)	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/ORSG)	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

PFAS Summary Report – Groundwater
Joint Base Cape Cod, IAGWSP
 KGS 2020 J2 Ranges SPM Fall
 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 (PFTTrDA)	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/ORSG)	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

PFAS Summary Report – Groundwater
Joint Base Cape Cod, IAGWSP
 KGS 2020 J2 Ranges SPM Fall
 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/ORSG)	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

PFAS Summary Report – Groundwater
Joint Base Cape Cod, IAGWSP
 KGS 2020 J2 Ranges SPM Fall
 J2 Range Northern

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/ORSG)	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

PFAS Summary Report – Groundwater
Joint Base Cape Cod, IAGWSP
 KGS 2020 J2 Ranges SPM Fall
 J2 Range Northern

	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)	Results (ng/L)
6:2 Fluorotelomer sulfonate (6:2 FTS)	18.0 U	18.0 U	19.0 U	18.0 U	18.0 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	9.10 U	9.20 U	9.70 U	9.20 U	9.20 U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	9.10 U	9.20 U	9.70 U	9.20 U	9.20 U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	9.10 U	9.20 U	9.70 U	9.20 U	9.20 U
Perfluoro-1-heptanesulfonate (PFHpS)	0.910 U	0.920 U	0.970 U	0.920 U	0.920 U
Perfluorobutanesulfonic acid (PFBS)	0.910 U	0.920 U	0.970 U	0.920 U	0.920 U
Perfluorobutanoic acid (PFBA)	1.40 U	1.40 U	1.40 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)	3.20	1.60 J	1.50 J	1.90	1.90
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)	0.910 U	0.920 U	0.970 U	0.920 U	0.920 U
Perfluorohexanoic acid (PFHxA)	0.910 U	0.920 U	0.970 U	0.920 U	0.920 U
Perfluorononanoic acid (PFNA)	1.80	0.900 J	1.50 U	0.890 J	0.890 J
Perfluorooctanesulfonamide (FOSA)	1.30 J	2.20 J	2.90 U	2.80 U	2.80 U
Perfluorooctanesulfonic acid (PFOS)	2.70 U	2.70 U	2.90 U	2.80 U	2.80 U
Perfluorooctanoic acid (PFOA)	1.40 U	1.40 U	1.50 U	1.40 U	1.40 U
Perfluoropentanoic acid (PFPA)	0.650 J	0.830 J	1.10 J	0.400 J	0.400 J
Perfluorotetradecanoic acid (PFTA)	2.70 U	2.70 U	2.90 U	2.80 U	2.80 U
Perfluorotridecanoic acid (PFTrDA)	2.70 U	2.70 U	2.90 U	2.80 U	2.80 U
Perfluoroundecanoic acid (PFUnA)	0.650 J	1.40 U	1.00 J	1.40 U	1.40 U
	†PFOS + PFOA (EPA)	0.00	0.00	0.00	0.00
	#PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP/ORSG)	5.00	2.50	1.50	2.79
	§Sum of All Compounds Collected	7.60	5.53	5.00	3.19

PFAS Summary Report – Groundwater
Joint Base Cape Cod, IAGWSP
 KGS 2020 J3 Range SPM Fall
 J3 Range

	Location	MW-143M2	MW-143M3	MW-163S	MW-163S	MW-181S	MW-193M1
	Field Sample ID	MW-143M2_F20	MW-143M3_F20	MW-163S_F20	MW-163S_F20D	MW-181S_F20	MW-193M1_F20
	Sampling Depth	117.00 - 122.00	107.00 - 112.00	38.00 - 48.00	38.00 - 48.00	32.25 - 42.25	57.50 - 62.50
	Sampling Date	07/20/2020	07/21/2020	07/16/2020	07/16/2020	07/21/2020	07/16/2020
	SDG	320629171	320629171	320627321	320627321	320629171	320627321
	Sample Type	Normal	Normal	Normal	Field Duplicate	Normal	Normal
PFAS 21 Cmps	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)	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/ORSG)	26.0	4.20	5.74	5.94	16.5	0.00
	§Sum of All Compounds Collected	27.2	4.82	6.74	7.40	16.5	1.06

PFAS Summary Report – Groundwater
Joint Base Cape Cod, IAGWSP
 KGS 2020 J3 Range SPM Fall
 J3 Range

	Location	MW-193S	MW-196M1	MW-196S	MW-197M1	MW-197M2	MW-197M3
	Field Sample ID	MW-193S_F20	MW-196M1_F20	MW-196S_F20	MW-197M1_F20	MW-197M2_F20	MW-197M3_F20D
	Sampling Depth	32.50 - 37.50	45.00 - 50.00	32.00 - 37.00	120.00 - 125.00	80.20 - 85.20	60.20 - 65.20
	Sampling Date	07/16/2020	07/23/2020	07/23/2020	07/20/2020	07/20/2020	07/20/2020
	SDG	320627321	320630121	320630121	320629171	320629171	320629171
	Sample Type	Normal	Normal	Normal	Normal	Normal	Field Duplicate
PFAS 21 Cmps	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)
6:2 Fluorotelomer sulfonate (6:2 FTS)	18.0 U	18.0 U	18.0 U	19.0 U	19.0 U	18.0 U	
8:2 Fluorotelomer sulfonate (8:2 FTS)	9.20 U	9.20 U	9.00 U	9.40 U	9.30 U	9.20 U	
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	9.20 U	9.20 U	9.00 U	9.40 U	9.30 U	9.20 U	
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	9.20 U	9.20 U	9.00 U	9.40 U	9.30 U	9.20 U	
Perfluoro-1-heptanesulfonate (PFHpS)	0.920 U	0.920 U	0.900 U	0.940 U	0.930 U	0.920 U	
Perfluorobutanesulfonic acid (PFBS)	2.20	0.920 U	0.900 U	0.940 U	1.80 J	0.920 U	
Perfluorobutanoic acid (PFBA)	1.20 J	1.80 U	1.80 U	1.40 U	4.90	1.40 J	
Perfluorodecane sulfonate	1.40 U	1.40 U	1.30 U	1.40 U	1.40 U	1.40 U	
Perfluorodecanoic acid (PFDA)	0.920 U	0.550 J	0.900 U	0.940 U	0.930 U	0.920 U	
Perfluorododecanoic acid (PFDoA)	1.40 U	1.40 U	1.30 U	1.40 U	1.40 U	1.40 U	
Perfluoroheptanoic acid (PFHpA)	1.40 U	1.40 U	1.30 U	1.40 U	4.00	1.40 U	
Perfluorohexanesulfonic acid (PFHxS)	19.0	1.00 J	0.900 U	1.90 U	37.0	1.80 U	
Perfluorohexanoic acid (PFHxA)	0.830 J	0.950 J	0.510 J	0.940 U	8.40	0.450 J	
Perfluorononanoic acid (PFNA)	1.40 U	1.40 U	1.30 U	1.40 U	1.40 U	1.40 U	
Perfluorooctanesulfonamide (FOSA)	2.80 U	2.80 U	2.70 U	2.80 U	2.80 U	2.80 U	
Perfluorooctanesulfonic acid (PFOS)	2.80 U	1.10 J	3.80	2.80 U	10.0	2.80 U	
Perfluorooctanoic acid (PFOA)	1.40 U	2.10	1.10 J	0.550 J	3.10	1.10 J	
Perfluoropentanoic acid (PFPA)	1.30 J	0.660 J	0.440 J	0.400 J	6.50	0.440 J	
Perfluorotetradecanoic acid (PFTA)	2.80 U	2.80 U	2.70 U	2.80 U	2.80 U	2.80 U	
Perfluorotridecanoic acid (PFTTrDA)	2.80 U	2.80 U	2.70 U	2.80 U	2.80 U	2.80 U	
Perfluoroundecanoic acid (PFUnA)	1.40 U	1.40 U	1.30 U	1.40 U	1.40 U	1.40 U	
	†PFOS + PFOA (EPA)	0.00	3.20	4.90	0.550	13.1	1.10
	#PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP/ORSG)	19.0	4.75	4.90	0.550	54.1	1.10
	§Sum of All Compounds Collected	24.5	6.36	5.85	0.950	75.7	3.39

PFAS Summary Report – Groundwater
Joint Base Cape Cod, IAGWSP
 KGS 2020 J3 Range SPM Fall
 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/ORSG)	1.99	0.00	0.00	0.00	10.8	0.640
§Sum of All Compounds Collected	3.92	0.460	0.740	0.740	23.8	3.26

PFAS Summary Report – Groundwater
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 (PFTTrDA)		3.00 U	2.80 U
Perfluoroundecanoic acid (PFUnA)		1.50 U	1.40 U
	†PFOS + PFOA (EPA)	1.10	15.8
	#PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP/ORSG)	1.10	15.8
	§Sum of All Compounds Collected	4.82	15.8

PFAS Summary Report – Groundwater Joint Base Cape Cod, IAGWSP

Notes:

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

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

Bolded results indicate detections of PFAS

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

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

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

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

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

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

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

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