MONTHLY PROGRESS REPORT #292
FOR JULY 2021

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 to 31 July 2021.

1. SUMMARY OF REMEDIATION ACTIONS

Remediation Actions (RA) Underway at Camp Edwards as of 30 July 2021:

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, 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 gallons per minute (gpm), with over 2.844 billion gallons of water treated and re-injected as of 30 July 2021. No Frank Perkins Road Treatment Facility shutdowns occurred in July.

The Base Boundary MTU continues to operate at a flow rate of 65 gpm. As of 30 July 2021, over 305.1 million gallons of water was treated and re-injected. No Base Boundary MTU shutdowns occurred in July.

The Leading Edge system continues to operate at a flow rate of 100 gpm. As of 02 July 2021, over 260.3 million gallons of water was treated and re-injected. No Leading Edge system shutdowns occurred in July.

The Pew Road Mobile Treatment Unit (MTU) was turned off on 08 March 2021 (formally operated at a flow rate of 65 GPM). Over 672.9 million gallons of water were treated and re-injected during the RA.

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 MTUs E and F continue to operate at a flow rate of 250 gpm. As of 30 July 2021, over 1.852 billion gallons of water have been treated and re-injected. No MTU E and F shutdowns occurred in July.

The Northern Treatment Building G continues to operate at a flow rate of 225 gpm. As of 30 July 2021, over 1.386 billion gallons of water have been treated and re-injected. No Northern MTU G shutdowns occurred in July.

Eastern Plant

The J-2 Range Eastern Treatment facility consists of removal and treatment of groundwater to minimize downgradient migration of explosives compounds and perchlorate. The ETI system includes the following components: three extraction wells in an axial array, an ex-situ treatment process consisting of an ion exchange (IX) resin and granular activated carbon (GAC) media to treat perchlorate and explosives compounds, and three infiltration trenches located along the lateral boundaries of the plume where treated water will enter the vadose zone and infiltrate into the aquifer. The J-2 Range Eastern system is running at a combined total flow rate of 495 gpm.

The MTUs H and I continue to operate at a flow rate of 250 gpm. As of 30 July 2021, over 1.498 billion gallons of water have been treated and re-injected. The following MTU H and I shutdowns occurred in July:

- 1403 on 17 July 2021 on MTUs H and I due to a “High floor sump” alarm due to the dehumidifier leaking at MTU H and restarted at 0830 on 19 July 2021.perform a carbon exchange on GAC

MTU J continues to operate at a flow rate of 120 gpm. As of 30 July 2021, over 696.7 million gallons of water have been treated and re-injected. No MTU J shutdowns occurred in July:

MTU K continues to operate at a flow rate of 125 gpm. As of 30 July 2021, over 818.5 million gallons of water have been treated and re-injected. No MTU K shutdowns occurred in July.

J-3 Range Groundwater RA

The J-3 Range Groundwater RA consists of removal and treatment of contaminated groundwater to control further migration of explosives compounds and perchlorate. The ETR system includes four extraction wells, ex-situ treatment process to remove explosives compounds and perchlorate from the groundwater and use of the existing Fuel Spill-12 (FS-12) infiltration gallery to return treated water to the aquifer.

The J-3 system is currently operating at 255 gpm. As of 30 July 2021, over 1.506 billion gallons of water have been treated and re-injected. The following J-3 Range system shutdowns occurred in July.

- Extraction well J3EWIP1 was turned off at 0953 on 16 July 2021 to replace a leaking pipe and ball valve on the sampling port and was restarted at 1029 on 16 July 2021.

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 July 2021, over 676.6 million gallons of water have been treated and re-injected. No J-1 Range Southern system shutdowns occurred in July.

Northern Plant

The J-1 Range Northern Groundwater RA consists of removal and treatment of contaminated groundwater to control further migration of explosives compounds and perchlorate. The ETR system includes two extraction wells, ex-situ treatment process to remove explosives compounds and perchlorate from the groundwater, and an infiltration trench to return treated water to the aquifer.

The Northern MTU continues to operate at a total system flow rate of 250 gpm. As of 02 July 2021, over 992.6 million gallons of water have been treated and re-injected. No J-1 Range Northern MTU shutdowns occurred in July.

Central Impact Area RA

The Central Impact Area (CIA) Groundwater treatment facility consists of removal and treatment of groundwater to minimize downgradient migration of explosives compounds and perchlorate. The ETR system includes the following components: three extraction wells, an ex-situ treatment process consisting of an ion exchange (IX) resin and granular activated carbon (GAC) media to treat explosives compounds, and three infiltration galleries to return treated water to the aquifer. The CIA systems 1, 2, and 3 continue to run at a combined total flow rate of 750 gpm. As of 30 July 2021, over 2.537 billion gallons of water have been treated and re-injected. The following CIA system shutdowns occurred in July:

- 0219 on 19 July 2021, CIA System 2, to replace a fiber optic switch and restarted 1230 on 22 July 2021.

2. SUMMARY OF ACTIONS TAKEN

Operable Unit (OU) Activity As of 30 July 2021

CIA
- Complete DGM survey.
- Perform intrusive investigation in SU 8 and SU 9.
- Perform MM setup.
- Commence cued data collection.
- Routine check of CSS cover.
- Routine processing of MD
- Replaced CIA1 bag filters on 30 July 2021.

Demolition Area 1
- Annual fire extinguishers inspections completed on all systems on 21 July 2021.
- USDA filled a 100-gallon tank of water from Frank Perkins on 27 July 2021.

Demolition Area 2
- No activity.

J-1 Range
- J1 South bag filters replaced on 12 July 2021
- J1 South vegetation removal on 14 July 2021, for access for future floor repairs.

J-2 Range
- J2 North MTUs E and F electric meter replaced by Eversource on 12 July 2021.

J-3 Range
- SPM program groundwater sampling.
- Project Note PFAS sampling.
- SPM program surface water sampling.
- SPM program hydraulic monitoring.
- Extraction well J3EW0032 flow meter display replaced on 20 July 2021.

L Range
- LTM program groundwater sampling.

Small Arms Ranges
- No activity.

Northwest Corner
- 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 15 July 2021

Project and Fieldwork Update

The order for Demolition Area 1 pumps for the new wells has been delayed until July 28th. As soon as the pumps are installed the wells will be turned over to KGS for sampling. All the systems have been running since the last tech meeting. There have been a few small power related issues but none resulting in significant downtime. J-3 was taken off-line for a couple days during the heat wave based on an agreement between AFCEC and Eversource to turn off FS-12 during peak power times. There are several maintenance issues that are going to be addressed over the summer. J-2 East Unit H and I (which treats EW-5) is going to get a new VFD and an upgraded pump and motor. At the same time that work is being completed, EW-5 will be redeveloped. The VFD from that unit will be installed at J-2N MTU E (which treats EW-1). EW-1 will also get a new pump and motor, a camera survey and be redeveloped. The VFD from J2N will be put in the Demo 1 base boundary system where there currently is no VFD. J-1 South is also getting a new VFD and the work will hopefully be scheduled at the same time the floor is being replaced in the unit. Getting into J-1 South MTU will require cutting a few trees. Groundwater sampling is underway at J-3. They are collecting LTM and PFAS samples. By the end of August the T Range well should be raised, the USGS drainage issues at MW-126 will be fixed and there are a couple of road boxes out in the neighborhood that will be repaired. In addition, yearly vegetation removal, primarily on utility right-of-ways, reinjection galleries and select well pads will be completed.

It was noted that the Former E Range status figure was sent to the group. Dawson is investigating discrete targets in DGM grids C-17 and C-18. To date, 95 of the 121 grids have been completed. Since the last technical update meeting they found four MEC items: one 40mm practice grenade one 3.5 inch HEAT Rocket, one 3.5 inch Rocket and one 37 mm projectile. A total of 51 MEC items have been found to date: 29 3.5 inch rockets, one 4.2 inch, mortar, five 60mm mortars, nine 40mm practice grenades and one fuze from a 60mm mortar, one 75mm projectile, three .3 pound supplemental charges and two 37mm projectiles. They have also uncovered 62 20mm and 8 30mm target practice projectiles that are likely inert but they need to be opened up in the BEM so they can be disposed of as munitions debris. Crews are still scheduled to finish in early August with all of the intrusive investigations.

In the Central Impact Area, IE-Weston currently has two DGM teams on-site. They have completed DGM in Survey Units 1, 2 and 4 and were just about completed in Survey Unit3. They are scheduled to complete DGM next week. They have mobilized two Metal Mappers to the site and are in the process of putting them together and building the skid steer platform. They plan to start Metal Mapper the first week in August and currently they are digging on “Parson leftovers” in Survey Unit 8 (discrete digs) and Survey Unit 9 (polygons with a few discrete digs). They have two dig teams and will mob additional teams as needed.

J-1 Range Southern Plume Shell Presentation

A presentation was provided on the J-1 South Plume Shell update. A figure displaying the current 2020 model predicted vs observed RDX plume was displayed and discussed. It was explained that RDX plume shells for IAGWSP sites are updated every five years and the J-1 Range southern plume shell was last updated with data through October of 2015, with a drift function “mini update” with data through July 2017. The group was reminded that while the system has two extraction wells, only EW-2 is currently operating as on base well EW-1 was shut off in January 2017. Leading edge well EW-2 is operating at the system maximum capacity

of 125 gallons per minute. The purpose of the presentation is to present the 2D contours and get the team's concurrence before proceeding to the 3D geostatistical interpolation.
EPA noted that they are a little concerned about EW-1 being shut off after looking at some of the data points and asked that the group keep that in mind during the presentation.

To update the plume shell the following steps were taken: EDMS was queried for RDX data for the J-1 South Range. A simulation was started at the earliest date of groundwater sample collection November 1997 and was ended at November 2020. Representative groundwater extraction rates were used for the simulation period. Particles were initiated in MODPATH at locations and times of each sample collection point and migrated using results of the MODFLOW groundwater flow model. MODPATH simulations were run to migrate particles (x, y, and z) to November 16, 2020. The model predicted x, y, z and c values were imported to Excel and matched to their respected measured concentrations. It was noted that the RDX concentrations were decayed using the new sensitivity attenuation curve that was developed for the L Range and that RDX concentrations are decayed using exponential function (maximum decay 98% after 20 years vs. maximum decay of 55% after five years using the previous Jacobs Quadratic Function. The values were then inputted into ArcView and used as a guide to manually develop the plume in contours representing 10-foot intervals.

The start date was November 11, 1997 and concentrations ranged from ND to 14.92 µg/L. The number of points migrated was 1691 with 427 points were extracted and 1184 deleted (primarily ND) and 80 used for the plume shell contouring.

A figures showing forward migrated wells and profiles was displayed and discussed. It was noted that of the migrated 1,691 samples, 427 were removed by extraction wells and 1,264 samples were retained for contouring. The dates of the detections were November 1997 through November 2020 and the data range was primarily sub 6 µg/L maximum. The maximum projected attenuated concentration was14.92 µg/L (DPJ1S718 +8.53 ft msl 9/2018). EPA noted that J-1 South had seen higher concentrations and asked why one of these wasn't used. It was explained that it either had been extracted out of the system or decayed to a lower concentration.

A figure showing all the contours layered on top of one another showing the general areas of the three separate plume areas was displayed and explained. EPA asked that the data range be further explained. It was noted that at the last plume shell update (2015) there was some old data that went back to the mid-2000s that started out in triple figure concentrations which in reality was higher than what was seen in actual chemistry results. By a combination of more time for extraction and applying decay over the life of the transport of the sample in the groundwater, the range of concentrations left to consider for contouring is primarily lower than 6 µg/L. This is validated by what is seen in the chemical network.

Conclusions were displayed and discussed. It was explained that the plume consists of on and off base plumes and that migrated historical data was attenuated using the new "sensitivity curve" (as used for L Range) which appears to be consistent with observed concentrations in chemical network. The model predicted capture zone appears to contain on and off base plumes and the observed capture zone based on synoptic water levels contains larger area. Low concentrations of RDX at J1SEW0002 confirm relatively low concentration mass is currently being extracted. The plume core off base contains lower concentrations and less mass above 6 µg/L, and there is no mass above 20 µg/L (Grand Oak Road MW 524M1 < 20 µg/L since March 2012). The chemical monitoring network trends indicate contracting extent of off base RDX above 0.6 µg/L along eastern perimeter of capture zone near Song Bird Circle (MW

592M1) and Windsong Road (MW 645M1). The leading edge plume not captured indicates decline of mass above 0.6 µg/L (MW647M1) and attenuation of migrating mass less than 2 µg/L (MW 669M1) as the plume disperses downgradient.

Recommendations were displayed and discussed. It was noted that the team would like to obtain agency concurrence on the 2D layer contours of 10' elevation ranges. Once that is received, they will convert the 2D layers of contour data into a 3 D interpolation for a new plume shell to create new set of initial concentrations for RDX plume in contaminant transport model. Then they will perform the contaminant transport simulation with new plume shell to confirm estimated time to cleanup to 0.6 ppb. The 2021 J-1 Range Southern Annual Report will be updated and submitted to the agencies for review and a technical memorandum that describes updated plume shell information will be prepared to be included as appendix in 2021 Annual Report.

IAGWSP requested that EPA and MassDEP send an email concurring with the recommendations in the presentation and USACE will move forward with the modeling. EPA and MassDEP said they would send concurrence today.

Action Items

The action items were discussed and updated.

JBCC IAGWSP Tech Update Meeting Minutes for 29 July 2021

Project and Fieldwork Update

Demolition Area 1 pumps were scheduled to ship on July 28th. As soon as the pumps are installed by Dawson the wells will be turned over to KGS and prioritized for sampling. There were no breakthroughs in June, and all the systems are up and running. Since the last tech meeting, here was an issue with CIA-2; the VFD lost communication with the extraction well. The programmer was able to come on site and diagnose the issue as a faulty fiber optic switch. A new switch was ordered and installed and the system was brought back online quickly. Groundwater sampling crews are working in the J-3 Range, collecting LTM and PFAS samples. They will move to J-2 North at the end of the month and J-2 East in September. Crews filled a 100-gallon water tank with water from Demolition Area 1 for USDA. They are testing the dispersion and distance of a new mist sprayer and needed a clean water source. Yearly vegetation removal, primarily on utility corridors, reinjection galleries and select well pads has started. PFAS data from J-3 was distributed to the group before the meeting. There was a detection of 2 parts per trillion at in-plume EW#2, which is not unexpected as it is right downgradient of the two wells where we had detections in previous sampling. The treatment plant data looks good, there was nothing detected in the effluent and there were no detections above any standards.

At the Former E Range, Dawson is investigating discrete targets in Geo grids E-17 and F-17. To date, 105 of the 121 grids have been completed, three are in progress. Since the last technical update meeting they found two MEC items: two 40mm target practice grenades which will need to be BIP. A total of 53 MEC items have been found to date: 29 3.5 inch rockets, one 4.2 inch mortar, five 60mm mortars, eleven 40mm practice grenades and one fuze from a 60mm mortar, one 75mm projectile, three .3 pound supplemental charges and two 37mm projectiles. Crews are still scheduled to finish around the second week of August with all of the intrusive investigations.

In the Central Impact Area, IE-Weston currently has two Geo teams and two dig teams. They have completed for the most part the DGM, they have some data gaps but will defer collecting those and begin Metal Mapper. They purchased two new Metal Mappers for the project, one had to be returned and they are waiting for a replacement. They are still going through set up and testing but should begin any day now. They are currently digging on "Parson leftovers" in Survey Unit 8 and Survey Unit 9 and expect that to continue for a few more weeks. DGM figures will be provided to the group soon so 100% grids can be selected.

Action Items

The action items were discussed and updated.

JBCC Cleanup Team Meeting

The JBCC Cleanup Team (JBCCCT) meeting was conducted virtually on July 28, 2021. Presentation materials can be found on the IAGWSP web site at https://jbcc-iagwsp.org/iagwsp/community/impact/presentations/. The Cleanup Team meeting discussed late breaking news and responses to action items, as well as updates from the IAGWSP and the Installation Restoration Program (IRP). The next meeting date has not been scheduled. Upcoming meeting dates will be posted at http://jbcc-iagwsp.org/community/public/ in the near future. 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 to 31 July 2021. Table 2 summarizes the validated detections of explosives compounds and perchlorate for all groundwater results received from 1 to 31 July 2021. 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. 291 for June 2021 — 13 July 2021
- Agency Draft J-1 Range Northern 2021 Annual Environmental Monitoring Report — 19 July 2021

5. SCHEDULED ACTIONS

The following actions and/or documents were being prepared or revised in July 2021 and will be in progress in August 2021.

- CIA Revised Draft 2020 Source Removal Annual Report
- CIA Source Area QAPP.
- IRA Status and Completion Report
- J-2 Range, Phase-2, Addendum to Post-DD Confirmation Geophysical and Soil Investigation Findings Project Note
- J-3 2020 Final Annual Environmental Monitoring Report Pending MassDEP Approval
- J-3 Range Post-DD Confirmation Geophysical and Soil Investigation Findings Revised Final Project Note
- Northwest Corner Draft Demonstration of Compliance Report MOR to RCL
- Small Arms Ranges Revised Completion of Work Report
- Demolition Area 2 2021 Draft Annual Environmental Monitoring Report

TABLE 1
Sampling Progress: 1 to 31 July 2021

Area Of Concern	Location	Field Sample ID	Sample Type	Date Sampled	Matrix	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)
J3 Range	MW-636M2	MW-636M2_F21	N	07/29/2021	Ground Water	110.5	120.5
J3 Range	MW-636M2	MW-636M2_F21	N	07/29/2021	Ground Water	110.5	120.5
J3 Range	MW-636M1	MW-636M1_F21	N	07/29/2021	Ground Water	141.6	151.6
J3 Range	MW-636M1	MW-636M1_F21	N	07/29/2021	Ground Water	141.6	151.6
J3 Range	MW-653M2	MW-653M2_F21	MS	07/29/2021	Ground Water	59.3	69.3
J3 Range	MW-653M2	MW-653M2_F21	N	07/29/2021	Ground Water	59.3	69.3
J3 Range	MW-653M2	MW-653M2_F21	N	07/29/2021	Ground Water	59.3	69.3
J3 Range	MW-653M2	MW-653M2_F21	SD	07/29/2021	Ground Water	59.3	69.3
J3 Range	MW-653M1	MW-653M1_F21	N	07/29/2021	Ground Water	147.5	157.5
J3 Range	MW-653M1	MW-653M1_F21	N	07/29/2021	Ground Water	147.5	157.5
J3 Range	MW-232M2	MW-232M2_F21	N	07/28/2021	Ground Water	61	66
J3 Range	MW-232M1	MW-232M1_F21	N	07/28/2021	Ground Water	77.5	82.5
J3 Range	MW-232M1	MW-232M1_F21	N	07/28/2021	Surface Water	77.5	82.5
J3 Range	MW-232M1	MW-232M1_F21D	FD	07/28/2021	Ground Water	77.5	82.5
J3 Range	LKSNK0006	LKSNK0006_F21	N	07/28/2021	Surface Water	0	1
J3 Range	LKSNK0007	LKSNK0007_F21	N	07/28/2021	Surface Water	0	4
J3 Range	LKSNK0005	LKSNK0005_F21	N	07/28/2021	Surface Water	0	4
J3 Range	MW-142S	MW-142S_F21	N	07/27/2021	Ground Water	42	52
J3 Range	MW-142M2	MW-142M2_F21	N	07/27/2021	Ground Water	140	150
J3 Range	MW-142M2	MW-142M2_F21	N	07/27/2021	Ground Water	140	150
J3 Range	MW-144S	MW-144S_F21	N	07/27/2021	Ground Water	26	36
J3 Range	MW-144M2	MW-144M2_F21	N	07/27/2021	Ground Water	130	140
J3 Range	MW-144M2	MW-144M2_F21	N	07/27/2021	Ground Water	130	140
J3 Range	MW-143M3	MW-143M3_F21	N	07/26/2021	Ground Water	107	112
J3 Range	MW-143M2	MW-143M2_F21	N	07/26/2021	Ground Water	117	122
J3 Range	MW-143M2	MW-143M2_F21	N	07/26/2021	Ground Water	117	122
J3 Range	MW-143M2	MW-143M2_F21D	FD	07/26/2021	Ground Water	117	122
J3 Range	MW-143M1	MW-143M1_F21	N	07/26/2021	Ground Water	144	154
J3 Range	MW-143M1	MW-143M1_F21	N	07/26/2021	Ground Water	144	154
J3 Range	MW-155M1	MW-155M1_F21	N	07/23/2021	Ground Water	124	134
J3 Range	MW-329M2	MW-329M2_F21	N	07/23/2021	Ground Water	150.05	160.05
J3 Range	MW-329M2	MW-329M2_F21D	FD	07/23/2021	Ground Water	150.05	160.05
J3 Range	MW-329M1	MW-329M1_F21	N	07/23/2021	Ground Water	179.96	189.96
J3 Range	MW-701M2	MW-701M2_F21	N	07/22/2021	Ground Water	147.5	157.5
J3 Range	MW-701M1	MW-701M1_F21	N	07/22/2021	Ground Water	177	187
J3 Range	MW-343M2	MW-343M2_F21	N	07/22/2021	Ground Water	166.82	171.82
J3 Range	MW-343M1	MW-343M1_F21	N	07/22/2021	Ground Water	214.83	224.83
J3 Range	MW-227M3	MW-227M3_F21	N	07/21/2021	Ground Water	65	75
J3 Range	MW-227M2	MW-227M2_F21	N	07/21/2021	Ground Water	110	120
J3 Range	MW-227M2	MW-227M2_F21D	FD	07/21/2021	Ground Water	110	120
J3 Range	MW-227M1	MW-227M1_F21	N	07/21/2021	Ground Water	130	140
J3 Range	90MW0054	90MW0054_F21	N	07/20/2021	Ground Water	107	112
J3 Range	90MW0054	90MW0054_F21D	FD	07/20/2021	Ground Water	107	112
J3 Range	MW-247M3	MW-247M3_F21	N	07/20/2021	Ground Water	95	105
J3 Range	MW-247M2	MW-247M2_F21	N	07/20/2021	Ground Water	125	135
J3 Range	MW-247M1	MW-247M1_F21	N	07/20/2021	Ground Water	180	190
J3 Range	MW-250M3	MW-250M3_F21	MS	07/15/2021	Ground Water	95	105
J3 Range	MW-250M3	MW-250M3_F21	N	07/15/2021	Ground Water	95	105
J3 Range	MW-250M3	MW-250M3_F21	N	07/15/2021	Ground Water	95	105
J3 Range	MW-250M3	MW-250M3_F21	SD	07/15/2021	Ground Water	95	105
J3 Range	MW-250M3	MW-250M3_F21D	FD	07/15/2021	Ground Water	95	105
J3 Range	MW-250M2	MW-250M2_F21	N	07/15/2021	Ground Water	145	155
J3 Range	MW-250M2	MW-250M2_F21D	FD	07/15/2021	Ground Water	145	155
J3 Range	MW-250M1	MW-250M1_F21	N	07/15/2021	Ground Water	185	195
J3 Range	MW-250M1	MW-250M1_F21	N	07/15/2021	Ground Water	185	195
J3 Range	MW-163S	MW-163S_F21	N	07/14/2021	Ground Water	38	48
J3 Range	MW-163S	MW-163S_F21	N	07/14/2021	Ground Water	38	48
J3 Range	MW-163S	MW-163S_F21D	FD	07/14/2021	Ground Water	38	48
J3 Range	MW-157M3	MW-157M3_F21	N	07/14/2021	Ground Water	70	80

N = Normal Sample
FD = Field Duplicate

TABLE 1
Sampling Progress: 1 to 31 July 2021

Area Of Concern	Location	Field Sample ID	Sample Type	Date Sampled	Matrix	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)
J3 Range	MW-157M3	MW-157M3_F21	N	07/14/2021	Ground Water	70	80
J3 Range	MW-157M2	MW-157M2_F21	N	07/14/2021	Ground Water	110	120
J3 Range	MW-157M2	MW-157M2_F21	N	07/14/2021	Ground Water	110	120
J3 Range	MW-157M1	MW-157M1_F21	N	07/14/2021	Ground Water	154	164
J3 Range	MW-157M1	MW-157M1_F21	N	07/14/2021	Ground Water	154	164
J2 Range Eastern	J2E-MID-2K	J2E-MID-2K-154A	N	07/14/2021	Process Water	0	0
J2 Range Eastern	J2E-INF-K	J2E-INF-K-154A	N	07/14/2021	Process Water	0	0
J2 Range Eastern	J2E-EFF-J	J2E-EFF-J-154A	N	07/14/2021	Process Water	0	0
J2 Range Eastern	J2E-MID-2J	J2E-MID-2J-154A	N	07/14/2021	Process Water	0	0
J2 Range Eastern	J2E-MID-1J	J2E-MID-1J-154A	N	07/14/2021	Process Water	0	0
J2 Range Eastern	J2E-INF-J	J2E-INF-J-154A	N	07/14/2021	Process Water	0	0
J3 Range	J3-EFF	J3-EFF_F21	N	07/13/2021	Ground Water	0	0
J3 Range	J3-INF	J3-INF_F21	N	07/13/2021	Ground Water	0	0
J3 Range	J3EWIP2	J3EWIP2_F21	N	07/13/2021	Ground Water	149.5	169.5
J3 Range	J3EWIP2	J3EWIP2_F21	N	07/13/2021	Ground Water	150.5	170.5
J3 Range	J3EWIP2	J3EWIP2_F21D	FD	07/13/2021	Ground Water	149.5	169.5
J3 Range	J3EWIP1	J3EWIP1_F21	N	07/13/2021	Ground Water	153	193
J3 Range	J3EWIP1	J3EWIP1_F21	N	07/13/2021	Ground Water	153	193
J3 Range	90EW0001	90EW0001_F21	N	07/13/2021	Ground Water	0	0
J3 Range	90EW0001	90EW0001_F21	N	07/13/2021	Ground Water	83.08	143.83
J3 Range	J3EW0032	J3EW0032_F21	N	07/13/2021	Ground Water	102	152
J3 Range	J3EW0032	J3EW0032_F21	N	07/13/2021	Ground Water	102	152
J3 Range	J3-MW-1-B	J3-MW-1-B_F21	N	07/12/2021	Ground Water	175.61	185.61
J3 Range	J3-MW-1-B	J3-MW-1-B_F21D	FD	07/12/2021	Ground Water	175.61	185.61
J3 Range	J3-MW-1-C	J3-MW-1-C_F21	N	07/12/2021	Ground Water	203.61	213.61
J3 Range	MW-637M3	MW-637M3_F21	N	07/12/2021	Ground Water	174.1	184.1
J3 Range	MW-637M2	MW-637M2_F21	N	07/12/2021	Ground Water	214.1	224.1
J3 Range	MW-637M2	MW-637M2_F21D	FD	07/12/2021	Ground Water	214.1	224.1
J3 Range	MW-637M1	MW-637M1_F21	N	07/12/2021	Ground Water	236.1	246.1
J3 Range	MW-243M2	MW-243M2_F21	N	07/08/2021	Ground Water	84.5	94.5
J2 Range Northern	J2N-EFF-EF	J2N-EFF-EF-178A	N	07/08/2021	Process Water	0	0
J2 Range Northern	J2N-MID-2F	J2N-MID-2F-178A	N	07/08/2021	Process Water	0	0
J3 Range	MW-243M1	MW-243M1_F21	N	07/08/2021	Ground Water	114.5	124.5
J2 Range Northern	J2N-MID-1F	J2N-MID-1F-178A	N	07/08/2021	Process Water	0	0
J2 Range Northern	J2N-INF-EF	J2N-INF-EF-178A	N	07/08/2021	Process Water	0	0
J2 Range Northern	J2N-MID-2E	J2N-MID-2E-178A	N	07/08/2021	Process Water	0	0
J2 Range Northern	J2N-MID-1E	J2N-MID-1E-178A	N	07/08/2021	Process Water	0	0
J3 Range	MW-295M2	MW-295M2_F21	N	07/08/2021	Ground Water	117	127
J2 Range Northern	J2N-EFF-G	J2N-EFF-G-178A	N	07/08/2021	Process Water	0	0
J2 Range Northern	J2N-MID-2G	J2N-MID-2G-178A	N	07/08/2021	Process Water	0	0
J2 Range Northern	J2N-MID-1G	J2N-MID-1G-178A	N	07/08/2021	Process Water	0	0
J3 Range	MW-295M1	MW-295M1_F21	N	07/08/2021	Ground Water	145	155
J2 Range Northern	J2N-INF-G	J2N-INF-G-178A	N	07/08/2021	Process Water	0	0
J1 Range Northern	J1N-EFF	J1N-EFF-93A	N	07/08/2021	Process Water	0	0
J1 Range Northern	J1N-MID2	J1N-MID2-93A	N	07/08/2021	Process Water	0	0
J1 Range Northern	J1N-MID1	J1N-MID1-93A	N	07/08/2021	Process Water	0	0
J1 Range Northern	J1N-INF2	J1N-INF2-93A	N	07/08/2021	Process Water	0	0
J3 Range	MW-359M2	MW-359M2_F21	N	07/08/2021	Ground Water	148.62	158.62
Lima Range	MW-242M1	MW-242M1_F21	N	07/07/2021	Ground Water	235	245
J2 Range Eastern	J2E-EFF-K	J2E-EFF-K-154A	N	07/07/2021	Process Water	0	0
J2 Range Eastern	J2E-MID-1K	J2E-MID-1K-154A	N	07/07/2021	Process Water	0	0
J2 Range Eastern	J2E-INF-K	J2E-INF-K-154A	N	07/07/2021	Process Water	0	0
Lima Range	MW-651M1	MW-651M1_F21	N	07/07/2021	Ground Water	242.3	252.3
J2 Range Eastern	J2E-EFF-IH	J2E-EFF-IH-154A	N	07/07/2021	Process Water	0	0
J2 Range Eastern	J2E-MID-2H	J2E-MID-2H-154A	N	07/07/2021	Process Water	0	0
Lima Range	MW-595M2	MW-595M2_F21	N	07/07/2021	Ground Water	205.3	215.3
J2 Range Eastern	J2E-MID-1H	J2E-MID-1H-154A	N	07/07/2021	Process Water	0	0
J2 Range Eastern	J2E-MID-2I	J2E-MID-2I-154A	N	07/07/2021	Process Water	0	0
J2 Range Eastern	J2E-MID-1I	J2E-MID-1I-154A	N	07/07/2021	Process Water	0	0

N = Normal Sample
FD = Field Duplicate

TABLE 1
Sampling Progress: 1 to 31 July 2021

Area Of Concern	Location	Field Sample ID	Sample Type	Date Sampled	Matrix	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)
J2 Range Eastern	J2E-INF-I	J2E-INF-I-154A	N	07/07/2021	Process Water	0	0
Lima Range	MW-595M1	MW-595M1_F21	N	07/07/2021	Ground Water	255.3	265.3
Lima Range	MW-595M1	MW-595M1_F21D	FD	07/07/2021	Ground Water	255.3	265.3
Demolition Area 1	FPR-2-EFF-A	FPR-2-EFF-A-184A	N	07/07/2021	Process Water	0	0
Demolition Area 1	FPR-2-GAC-MID1A	FPR-2-GAC-MID1A-184A	N	07/07/2021	Process Water	0	0
Demolition Area 1	FPR2-POST-IX-A	FPR2-POST-IX-A-184A	N	07/07/2021	Process Water	0	0
Demolition Area 1	FPR-2-INF	FPR-2-INF-184A	N	07/07/2021	Process Water	0	0
Lima Range	MW-596M1	MW-596M1_F21	N	07/07/2021	Ground Water	231.1	241.1
Demolition Area 1	D1LE-EFF	D1LE-EFF-60A	N	07/07/2021	Process Water	0	0
Demolition Area 1	D1LE-MID2	D1LE-MID2-60A	N	07/07/2021	Process Water	0	0
Demolition Area 1	D1LE-MID1	D1LE-MID1-60A	N	07/07/2021	Process Water	0	0
Demolition Area 1	D1LE-INF	D1LE-INF-60A	N	07/07/2021	Process Water	0	0
Demolition Area 1	D1-EFF	D1-EFF-132A	N	07/07/2021	Process Water	0	0
Demolition Area 1	D1-MID-2	D1-MID-2-132A	N	07/07/2021	Process Water	0	0
Demolition Area 1	D1-MID-1	D1-MID-1-132A	N	07/07/2021	Process Water	0	0
Demolition Area 1	D1-INF	D1-INF-132A	N	07/07/2021	Process Water	0	0
J1 Range Southern	J1S-EFF	J1S-EFF-164A	N	07/06/2021	Process Water	0	0
J1 Range Southern	J1S-MID	J1S-MID-164A	N	07/06/2021	Process Water	0	0
J1 Range Southern	J1S-INF-2	J1S-INF-2-164A	N	07/06/2021	Process Water	0	0
J3 Range	J3-EFF	J3-EFF-178A	N	07/06/2021	Process Water	0	0
J3 Range	J3-MID-2	J3-MID-2-178A	N	07/06/2021	Process Water	0	0
J3 Range	J3-MID-1	J3-MID-1-178A	N	07/06/2021	Process Water	0	0
J3 Range	J3-INF	J3-INF-178A	N	07/06/2021	Process Water	0	0
Central Impact Area	CIA2-EFF	CIA2-EFF-90A	N	07/06/2021	Process Water	0	0
Central Impact Area	CIA2-MID2	CIA2-MID2-90A	N	07/06/2021	Process Water	0	0
Central Impact Area	CIA2-MID1	CIA2-MID1-90A	N	07/06/2021	Process Water	0	0
Central Impact Area	CIA2-INF	CIA2-INF-90A	N	07/06/2021	Process Water	0	0
Central Impact Area	CIA1-EFF	CIA1-EFF-90A	N	07/06/2021	Process Water	0	0
Central Impact Area	CIA1-MID2	CIA1-MID2-90A	N	07/06/2021	Process Water	0	0
Central Impact Area	CIA1-MID1	CIA1-MID1-90A	N	07/06/2021	Process Water	0	0
Central Impact Area	CIA1-INF	CIA1-INF-90A	N	07/06/2021	Process Water	0	0
Central Impact Area	CIA3-EFF	CIA3-EFF-61A	N	07/06/2021	Process Water	0	0
Central Impact Area	CIA3-MID2	CIA3-MID2-61A	N	07/06/2021	Process Water	0	0
Central Impact Area	CIA3-MID1	CIA3-MID1-61A	N	07/06/2021	Process Water	0	0
Central Impact Area	CIA3-INF	CIA3-INF-61A	N	07/06/2021	Process Water	0	0

N = Normal Sample
FD = Field Duplicate

TABLE 2
VALIDATED EXPLOSIVE AND PERCHLORATE RESULTS
Data Received July 2021

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_S21	0	0	06/30/2021	SW6850	Perchlorate	0.11	J	µg/L	2.0		0.086	0.20
Demolition Area 1	MW-582M2	MW-582M2_S21	84	94	06/30/2021	SW6850	Perchlorate	0.17	J	µg/L	2.0		0.086	0.20
Demolition Area 1	MW-582M1	MW-582M1_S21	134	144	06/30/2021	SW6850	Perchlorate	0.75		µg/L	2.0		0.086	0.20
Demolition Area 1	MW-641M2	MW-641M2_S21	86.2	96.2	06/29/2021	SW6850	Perchlorate	0.34		µg/L	2.0		0.086	0.20
Demolition Area 1	MW-641M1	MW-641M1_S21	113.2	123.2	06/29/2021	SW6850	Perchlorate	1.3		µg/L	2.0		0.086	0.20
Demolition Area 1	MW-642M2	MW-642M2_S21	77.3	87.3	06/29/2021	SW6850	Perchlorate	0.23		µg/L	2.0		0.086	0.20
Demolition Area 1	MW-642M1	MW-642M1_S21	104.3	114.3	06/29/2021	SW6850	Perchlorate	0.36		µg/L	2.0		0.086	0.20
Demolition Area 1	MW-559M2	MW-559M2_S21	87	97	06/29/2021	SW6850	Perchlorate	0.13	J	µg/L	2.0		0.086	0.20
Demolition Area 1	MW-559M1	MW-559M1_S21	135.6	145.6	06/29/2021	SW6850	Perchlorate	0.26		µg/L	2.0		0.086	0.20
Demolition Area 1	MW-433	MW-433_S21	180.2	190.2	06/28/2021	SW6850	Perchlorate	0.12	J	µg/L	2.0		0.086	0.20
Demolition Area 1	MW-659M2	MW-659M2_S21	85	95	06/24/2021	SW6850	Perchlorate	0.12	J	µg/L	2.0		0.086	0.20
Demolition Area 1	MW-571M2	MW-571M2_S21	74	84	06/24/2021	SW6850	Perchlorate	0.21		µg/L	2.0		0.086	0.20
Demolition Area 1	MW-571M1	MW-571M1_S21	114	124	06/24/2021	SW6850	Perchlorate	0.73		µg/L	2.0		0.086	0.20
Demolition Area 1	MW-569M2	MW-569M2_S21	84	94	06/24/2021	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.12	J	µg/L	0.60		0.034	0.20
Demolition Area 1	MW-569M2	MW-569M2_S21	84	94	06/24/2021	SW6850	Perchlorate	0.14	J	µg/L	2.0		0.086	0.20
Demolition Area 1	MW-569M1	MW-569M1_S21	114	124	06/24/2021	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.19	J	µg/L	0.60		0.034	0.20
Demolition Area 1	MW-569M1	MW-569M1_S21	114	124	06/24/2021	SW6850	Perchlorate	0.43		µg/L	2.0		0.086	0.20
Demolition Area 1	MW-611M2	MW-611M2_S21	91	101	06/23/2021	SW6850	Perchlorate	1.5		µg/L	2.0		0.086	0.20
Demolition Area 1	MW-611M1	MW-611M1_S21	141	151	06/23/2021	SW6850	Perchlorate	2.4		µg/L	2.0	X	0.086	0.20
Demolition Area 1	MW-611M1	MW-611M1_S21D	141	151	06/23/2021	SW6850	Perchlorate	2.3		µg/L	2.0	X	0.086	0.20
Demolition Area 1	MW-610M2	MW-610M2_S21	85	95	06/23/2021	SW6850	Perchlorate	0.12	J	µg/L	2.0		0.086	0.20
Demolition Area 1	MW-610M1	MW-610M1_S21	110	120	06/23/2021	SW6850	Perchlorate	0.40		µg/L	2.0		0.086	0.20
Demolition Area 1	MW-598M2	MW-598M2_S21	88	98	06/23/2021	SW6850	Perchlorate	0.093	J	µg/L	2.0		0.086	0.20
Demolition Area 1	MW-598M1	MW-598M1_S21	122	132	06/23/2021	SW6850	Perchlorate	0.49		µg/L	2.0		0.086	0.20
Demolition Area 1	MW-173M2	MW-173M2_S21	208	218	06/22/2021	SW6850	Perchlorate	0.11	J	µg/L	2.0		0.086	0.20
Demolition Area 1	MW-173M2	MW-173M2_S21	208	218	06/22/2021	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.23	J	µg/L	0.60		0.034	0.20
Demolition Area 1	MW-558M2	MW-558M2_S21	98	108	06/22/2021	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.35	J	µg/L	0.60		0.034	0.20
Demolition Area 1	MW-558M2	MW-558M2_S21	98	108	06/22/2021	SW6850	Perchlorate	0.16	J	µg/L	2.0		0.086	0.20
Demolition Area 1	MW-558M1	MW-558M1_S21	134	144	06/22/2021	SW6850	Perchlorate	0.22		µg/L	2.0		0.086	0.20
Demolition Area 1	MW-556M2	MW-556M2_S21	111	121	06/22/2021	SW6850	Perchlorate	0.12	J	µg/L	2.0		0.086	0.20
Demolition Area 1	MW-556M1	MW-556M1_S21	153	163	06/22/2021	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.50	J	µg/L	0.60		0.034	0.20
Demolition Area 1	MW-556M1	MW-556M1_S21	153	163	06/22/2021	SW6850	Perchlorate	1.6		µg/L	2.0		0.086	0.20
Demolition Area 1	MW-664M2	MW-664M2_S21	218.5	228.5	06/21/2021	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.39		µg/L	0.60		0.034	0.20
Demolition Area 1	MW-697M1	MW-697M1_S21	243	253	06/21/2021	SW6850	Perchlorate	0.35		µg/L	2.0		0.086	0.20
Demolition Area 1	MW-248M3	MW-248M3_S21	143	153	06/21/2021	SW6850	Perchlorate	0.11	J	µg/L	2.0		0.086	0.20
Demolition Area 1	MW-248M1	MW-248M1_S21	216.3	226.3	06/21/2021	SW6850	Perchlorate	1.1		µg/L	2.0		0.086	0.20
Demolition Area 1	MW-597M1	MW-597M1_S21	148	158	06/17/2021	SW6850	Perchlorate	0.12	J	µg/L	2.0		0.086	0.20
Demolition Area 1	MW-546M2	MW-546M2_S21	100	110	06/17/2021	SW6850	Perchlorate	0.094	J	µg/L	2.0		0.086	0.20
Demolition Area 1	MW-546M1	MW-546M1_S21	140	150	06/17/2021	SW6850	Perchlorate	0.11	J	µg/L	2.0		0.086	0.20
Demolition Area 1	MW-353M1	MW-353M1_S21	107	117	06/16/2021	SW6850	Perchlorate	0.11	J	µg/L	2.0		0.086	0.20
Demolition Area 1	MW-544M3	MW-544M3_S21	77.5	87.5	06/16/2021	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.063	J	µg/L	0.60		0.034	0.20
Demolition Area 1	MW-544M3	MW-544M3_S21	77.5	87.5	06/16/2021	SW6850	Perchlorate	0.086	J	µg/L	2.0		0.086	0.20
Demolition Area 1	MW-544M2	MW-544M2_S21	112	122	06/16/2021	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.10	J	µg/L	0.60		0.034	0.20
Demolition Area 1	MW-544M2	MW-544M2_S21	112	122	06/16/2021	SW6850	Perchlorate	0.29		µg/L	2.0		0.086	0.20

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

MCL/HA= Either the MCL or Lowest Health Advisory Limit
August 06, 2021

TABLE 2
VALIDATED EXPLOSIVE AND PERCHLORATE RESULTS
Data Received July 2021

Area of Concern	Location ID	Field Sample ID	Top Depth (ft bgs)	Bottom Depth (ft bgs)	Date Sampled	Test Method	Analyte	Result Value	Qualifier	Units	MCL/HA	> MCL/HA	MDL	RL
Demolition Area 1	MW-544M1	MW-544M1_S21	162	172	06/16/2021	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.53	J	µg/L	0.60		0.034	0.20
Demolition Area 1	MW-544M1	MW-544M1_S21	162	172	06/16/2021	SW6850	Perchlorate	4.8		µg/L	2.0	X	0.086	0.20
Demolition Area 1	MW-544M1	MW-544M1_S21D	162	172	06/16/2021	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.55	J	µg/L	0.60		0.034	0.20
Demolition Area 1	MW-544M1	MW-544M1_S21D	162	172	06/16/2021	SW6850	Perchlorate	4.9		µg/L	2.0	X	0.086	0.20
Demolition Area 1	MW-532M2	MW-532M2_S21	138	148	06/16/2021	SW6850	Perchlorate	0.69		µg/L	2.0		0.086	0.20
Demolition Area 1	MW-532M1	MW-532M1_S21	168	178	06/16/2021	SW6850	Perchlorate	0.24		µg/L	2.0		0.086	0.20
Demolition Area 1	MW-352M1	MW-352M1_S21	115	125	06/15/2021	SW6850	Perchlorate	0.095	J	µg/L	2.0		0.086	0.20
Demolition Area 1	MW-545M4	MW-545M4_S21	72	82	06/15/2021	SW6850	Perchlorate	0.27		µg/L	2.0		0.086	0.20
Demolition Area 1	MW-545M3	MW-545M3_S21	101.5	111.5	06/15/2021	SW6850	Perchlorate	0.50		µg/L	2.0		0.086	0.20
Demolition Area 1	MW-545M2	MW-545M2_S21	142	152	06/15/2021	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.19	J	µg/L	0.60		0.034	0.20
Demolition Area 1	MW-545M2	MW-545M2_S21	142	152	06/15/2021	SW6850	Perchlorate	2.7		µg/L	2.0	X	0.086	0.20
Demolition Area 1	MW-545M2	MW-545M2_S21D	142	152	06/15/2021	SW6850	Perchlorate	2.8		µg/L	2.0	X	0.086	0.20
Demolition Area 1	MW-545M1	MW-545M1_S21	162	172	06/15/2021	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.13	J	µg/L	0.60		0.034	0.20
Demolition Area 1	MW-545M1	MW-545M1_S21	162	172	06/15/2021	SW6850	Perchlorate	1.1		µg/L	2.0		0.086	0.20
Demolition Area 1	MW-533M1	MW-533M1_S21	160	170	06/14/2021	SW6850	Perchlorate	23.7		µg/L	2.0	X	0.86	2.0
Demolition Area 1	MW-533M1	MW-533M1_S21	160	170	06/14/2021	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.5		µg/L	0.60	X	0.034	0.20
Demolition Area 1	MW-533M1	MW-533M1_S21D	160	170	06/14/2021	SW6850	Perchlorate	22.9		µg/L	2.0	X	0.86	2.0
Demolition Area 1	MW-533M1	MW-533M1_S21D	160	170	06/14/2021	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.4		µg/L	0.60	X	0.034	0.20
Demolition Area 1	MW-531M1	MW-531M1_S21	138	148	06/14/2021	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.43		µg/L	0.60		0.034	0.20
Demolition Area 1	MW-531M1	MW-531M1_S21	138	148	06/14/2021	SW6850	Perchlorate	10.4		µg/L	2.0	X	0.086	0.20
Demolition Area 1	MW-531M1	MW-531M1_S21D	138	148	06/14/2021	SW6850	Perchlorate	10.4		µg/L	2.0	X	0.086	0.20
Demolition Area 1	MW-696M1	MW-696M1_S21	175.2	185.2	06/14/2021	SW6850	Perchlorate	0.69		µg/L	2.0		0.086	0.20
Demolition Area 1	MW-258M2	MW-258M2_S21	87	92	06/14/2021	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.20		µg/L	0.60		0.034	0.20
Demolition Area 1	MW-258M1	MW-258M1_S21	109	119	06/14/2021	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.19	J	µg/L	0.60		0.034	0.20
Demolition Area 1	MW-258M1	MW-258M1_S21	109	119	06/14/2021	SW6850	Perchlorate	1.5		µg/L	2.0		0.086	0.20
Demolition Area 1	MW-662D	MW-662D_S21	202.3	212.3	06/08/2021	SW6850	Perchlorate	1.6		µg/L	2.0		0.086	0.20
Demolition Area 1	MW-662D	MW-662D_S21	202.3	212.3	06/08/2021	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.039	J	µg/L	0.60		0.034	0.20
Demolition Area 1	MW-225M3	MW-225M3_S21	125	135	06/08/2021	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.22	J	µg/L	0.60		0.034	0.20
Demolition Area 1	MW-225M1	MW-225M1_S21	175	185	06/08/2021	SW6850	Perchlorate	0.086	J	µg/L	2.0		0.086	0.20
Demolition Area 1	MW-240M2	MW-240M2_S21	125	135	06/08/2021	SW6850	Perchlorate	0.099	J	µg/L	2.0		0.086	0.20
Demolition Area 1	MW-663D	MW-663D_S21	240.6	250.6	06/07/2021	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.1		µg/L	0.60	X	0.034	0.20
Demolition Area 1	MW-663D	MW-663D_S21	240.6	250.6	06/07/2021	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.046	J	µg/L	400		0.036	0.20
Demolition Area 1	MW-663D	MW-663D_S21	240.6	250.6	06/07/2021	SW6850	Perchlorate	6.3		µg/L	2.0	X	0.086	0.20
Demolition Area 1	MW-663D	MW-663D_S21D	240.6	250.6	06/07/2021	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.048	J	µg/L	400		0.036	0.20
Demolition Area 1	MW-663D	MW-663D_S21D	240.6	250.6	06/07/2021	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.1		µg/L	0.60	X	0.034	0.20
Demolition Area 1	MW-663D	MW-663D_S21D	240.6	250.6	06/07/2021	SW6850	Perchlorate	6.1		µg/L	2.0	X	0.086	0.20
Demolition Area 1	MW-231M2	MW-231M2_S21	165.5	175.5	06/07/2021	SW6850	Perchlorate	0.78		µg/L	2.0		0.086	0.20
Demolition Area 1	MW-231M1	MW-231M1_S21	210.5	220.5	06/07/2021	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.24		µg/L	0.60		0.034	0.20
Demolition Area 1	MW-231M1	MW-231M1_S21	210.5	220.5	06/07/2021	SW6850	Perchlorate	0.39		µg/L	2.0		0.086	0.20
Demolition Area 1	MW-211M1	MW-211M1_S21	200	210	06/03/2021	SW6850	Perchlorate	0.43		µg/L	2.0		0.086	0.20
Demolition Area 1	MW-341M3	MW-341M3_S21	209.5	219.5	06/03/2021	SW6850	Perchlorate	0.28		µg/L	2.0		0.086	0.20
Demolition Area 1	MW-341M2	MW-341M2_S21	264.5	269.5	06/03/2021	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.58	J	µg/L	0.60		0.034	0.20
Demolition Area 1	MW-341M2	MW-341M2_S21	264.5	269.5	06/03/2021	SW6850	Perchlorate	0.37		µg/L	2.0		0.086	0.20
Demolition Area 1	MW-341M2	MW-341M2_S21D	264.5	269.5	06/03/2021	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.39	J	µg/L	0.60		0.034	0.20

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

MCL/HA= Either the MCL or Lowest Health Advisory Limit
August 06, 2021

TABLE 2
VALIDATED EXPLOSIVE AND PERCHLORATE RESULTS
Data Received July 2021

Area of Concern	Location ID	Field Sample ID	Top Depth (ft bgs)	Bottom Depth (ft bgs)	Date Sampled	Test Method	Analyte	Result Value	Qualifier	Units	MCL/HA	> MCL/HA	MDL	RL
Demolition Area 1	MW-341M1	MW-341M1_S21	289.5	299.5	06/03/2021	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.24		µg/L	0.60		0.034	0.20
Demolition Area 1	XX9514	XX9514_S21	102	112	06/02/2021	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.10	J	µg/L	0.60		0.034	0.20
Demolition Area 1	XX9514	XX9514_S21	102	112	06/02/2021	SW6850	Perchlorate	1.9		µg/L	2.0		0.086	0.20
Demolition Area 1	XX9514	XX9514_S21D	102	112	06/02/2021	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.061	J	µg/L	0.60		0.034	0.20
Demolition Area 1	XX9514	XX9514_S21D	102	112	06/02/2021	SW6850	Perchlorate	1.9		µg/L	2.0		0.086	0.20
Demolition Area 1	MW-431	MW-431_S21	88	188	06/01/2021	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.12	J	µg/L	400		0.036	0.20
Demolition Area 1	MW-431	MW-431_S21	88	188	06/01/2021	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.18	J	µg/L	0.60		0.034	0.20
Demolition Area 1	EW-658	EW-658_S21	96	136	06/01/2021	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.19	J	µg/L	0.60		0.034	0.20
Demolition Area 1	EW-658	EW-658_S21	96	136	06/01/2021	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.080	J	µg/L	400		0.036	0.20
Demolition Area 1	MW-73S	MW-73S_S21	52.2	61.7	06/01/2021	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.55		µg/L	0.60		0.034	0.20

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

MCL/HA= Either the MCL or Lowest Health Advisory Limit
August 06, 2021

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
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
Perfluorodecanesulfonic acid (PFDS)	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
Perfluoroheptanesulfonic acid (PFHpS)	0.910 U	0.950 U	0.980 U	0.980 U	0.980 U
Perfluoroheptanoic acid (PFHpA)	1.40 U	1.40 U	1.50 U	1.50 U	1.50 U
Perfluorohexane sulfonate (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
Perfluorooctane sulfonate (PFOS)	2.70 U	2.80 U	2.90 U	3.00 U	2.90 U
Perfluorooctanesulfonamide (PFOSA)	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 (PFPeA)	0.910 U	0.950 U	0.980 U	**0.460 J**	0.980 U
Perfluorotetradecanoic acid (PFTeDA)	2.70 U	2.80 U	2.90 U	3.00 U	2.90 U
Perfluorotridecanoic acid (PFTrDA)	2.70 U	2.80 U	2.90 U	3.00 U	2.90 U
Perfluoroundecanoic acid (PFUnA)	1.40 U	1.40 U	1.50 U	**1.20 J**	1.50 U
†PFOS + PFOA (EPA)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
‡PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP)	**0.00**	**0.00**	**0.00**	**3.20**	**0.00**
§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_PFAS19	J1N-INF2_PFAS19R	MW-136S_PFAS19	MW-564M1_PFAS19	MW-590M2_PFAS19
Sampling Depth	0.00 - 0.00	0.00 - 0.00	107.00 - 117.00	227.00 - 237.00	238.00 - 248.00
Sampling Date	06/17/2019	07/30/2019	06/24/2019	06/24/2019	06/24/2019
SDG	320514661	320528231	320517141	320517141	320517141
Sample Type	**Normal**	**Normal**	**Normal**	**Normal**	**Normal**
PFAS 21 Cmps	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)
6:2 Fluorotelomer sulfonate (6:2 FTS)	19.0 U	19.0 U	20.0 U	18.0 U	19.0 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	9.30 U	9.60 U	9.80 U	9.20 U	9.60 U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	9.30 U	9.60 U	9.80 U	9.20 U	9.60 U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	9.30 U	9.60 U	9.80 U	9.20 U	9.60 U
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
Perfluorodecanesulfonic acid (PFDS)	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
Perfluoroheptanesulfonic acid (PFHpS)	0.930 U	0.960 U	0.980 U	0.920 U	0.960 U
Perfluoroheptanoic acid (PFHpA)	1.40 U	1.40 U	1.50 U	1.40 U	1.40 U
Perfluorohexane sulfonate (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
Perfluorooctane sulfonate (PFOS)	**4.90**	2.90 U	**1.40 J**	2.80 U	2.90 U
Perfluorooctanesulfonamide (PFOSA)	**1.80 J**	2.90 U	2.90 U	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 (PFPeA)	0.930 U	0.960 U	0.980 U	0.920 U	0.960 U
Perfluorotetradecanoic acid (PFTeDA)	2.80 U	2.90 U	2.90 U	2.80 U	2.90 U
Perfluorotridecanoic acid (PFTrDA)	2.80 U	2.90 U	2.90 U	2.80 U	2.90 U
Perfluoroundecanoic acid (PFUnA)	1.40 U	1.40 U	1.50 U	1.40 U	1.40 U
†PFOS + PFOA (EPA)	**4.90**	**0.00**	**3.80**	**0.00**	**0.00**
‡PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP)	**4.90**	**0.00**	**3.80**	**0.00**	**0.00**
§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_PFAS19	J2E-INF-J_PFAS19	J2E-INF-K_PFAS19	MW-307M3_PFAS19	MW-307M3_PFAS19D	MW-368M1_PFAS19
Sampling Depth	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	125.80 - 135.82	125.80 - 135.82	237.35 - 247.35
Sampling Date	06/20/2019	06/20/2019	06/20/2019	06/18/2019	06/18/2019	06/18/2019
SDG	320515981	320515981	320515981	320514662	320514662	320514662
Sample Type	**Normal**	**Normal**	**Normal**	**Normal**	**Field Duplicate**	**Normal**
PFAS 21 Cmps	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)
6:2 Fluorotelomer sulfonate (6:2 FTS)	19.0 U	19.0 U	20.0 U	18.0 U	19.0 U	17.0 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	9.70 U	9.30 U	9.80 U	9.00 U	9.60 U	8.50 U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	9.70 U	9.30 U	9.80 U	9.00 U	9.60 U	8.50 U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	9.70 U	9.30 U	9.80 U	9.00 U	9.60 U	8.50 U
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
Perfluorodecanesulfonic acid (PFDS)	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**
Perfluoroheptanesulfonic acid (PFHpS)	0.970 U	0.930 U	0.980 U	0.900 U	0.960 U	0.850 U
Perfluoroheptanoic acid (PFHpA)	1.50 U	1.40 U	1.50 U	1.30 U	1.40 U	1.30 U
Perfluorohexane sulfonate (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**
Perfluorooctane sulfonate (PFOS)	2.90 U	2.80 U	2.90 U	2.70 U	2.90 U	2.60 U
Perfluorooctanesulfonamide (PFOSA)	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 (PFPeA)	0.970 U	0.930 U	0.980 U	0.900 U	0.960 U	0.850 U
Perfluorotetradecanoic acid (PFTeDA)	2.90 U	2.80 U	2.90 U	2.70 U	2.90 U	2.60 U
Perfluorotridecanoic acid (PFTrDA)	2.90 U	2.80 U	2.90 U	2.70 U	2.90 U	2.60 U
Perfluoroundecanoic acid (PFUnA)	1.50 U	1.40 U	1.50 U	1.30 U	1.40 U	**4.90**
†PFOS + PFOA (EPA)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
‡PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP)	**0.00**	**0.00**	**0.00**	**0.880**	**0.730**	**2.05**
§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
Perfluorobutanesulfonic acid (PFBS)	0.880 U	0.900 U
Perfluorobutanoic acid (PFBA)	1.30 U	1.80 U
Perfluorodecanesulfonic acid (PFDS)	1.30 U	1.40 U
Perfluorodecanoic acid (PFDA)	**0.800 J**	**4.30**
Perfluorododecanoic acid (PFDoA)	1.30 U	1.40 U
Perfluoroheptanesulfonic acid (PFHpS)	0.880 U	0.900 U
Perfluoroheptanoic acid (PFHpA)	1.30 U	1.40 U
Perfluorohexane sulfonate (PFHxS)	0.880 U	0.900 U
Perfluorohexanoic acid (PFHxA)	0.880 U	0.900 U
Perfluorononanoic acid (PFNA)	1.30 U	**2.80**
Perfluorooctane sulfonate (PFOS)	2.60 U	2.70 U
Perfluorooctanesulfonamide (PFOSA)	2.60 U	2.70 U
Perfluorooctanoic acid (PFOA)	1.30 U	1.40 U
Perfluoropentanoic acid (PFPeA)	0.880 U	0.900 U
Perfluorotetradecanoic acid (PFTeDA)	2.60 U	2.70 U
Perfluorotridecanoic acid (PFTrDA)	2.60 U	2.70 U
Perfluoroundecanoic acid (PFUnA)	**2.40**	**1.60 J**
†PFOS + PFOA (EPA)	**0.00**	**0.00**
‡PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP)	**0.800**	**7.10**
§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
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
Perfluorodecanesulfonic acid (PFDS)	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
Perfluoroheptanesulfonic acid (PFHpS)	0.960 U	**0.370 J**	0.930 U	**0.400 J**	**0.500 J**	0.970 U
Perfluoroheptanoic acid (PFHpA)	1.40 U	**1.00 J**	1.40 U	**0.940 J**	**1.00 J**	1.50 U
Perfluorohexane sulfonate (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
Perfluorooctane sulfonate (PFOS)	2.90 U	**1.30 J**	2.80 U	2.80 U	**1.10 J**	2.90 U
Perfluorooctanesulfonamide (PFOSA)	2.90 U	3.00 U	2.80 U	2.80 U	2.90 U	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 (PFPeA)	0.960 U	**0.910 J**	0.930 U	**0.840 J**	**1.00 J**	**1.20 J**
Perfluorotetradecanoic acid (PFTeDA)	2.90 U	3.00 U	2.80 U	2.80 U	2.90 U	2.90 U
Perfluorotridecanoic acid (PFTrDA)	2.90 U	3.00 U	2.80 U	2.80 U	2.90 U	2.90 U
Perfluoroundecanoic acid (PFUnA)	1.40 U	1.50 U	1.40 U	1.40 U	1.40 U	1.50 U
†PFOS + PFOA (EPA)	**0.00**	**2.80**	**0.00**	**1.70**	**2.60**	**0.00**
‡PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP)	**0.00**	**14.8**	**0.00**	**12.5**	**12.6**	**0.00**
§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
Perfluorobutanesulfonic acid (PFBS)	0.880 U	0.980 U	0.970 U
Perfluorobutanoic acid (PFBA)	1.80 U	**0.700 J**	1.50 U
Perfluorodecanesulfonic acid (PFDS)	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
Perfluoroheptanesulfonic acid (PFHpS)	0.880 U	0.980 U	0.970 U
Perfluoroheptanoic acid (PFHpA)	1.30 U	1.50 U	1.50 U
Perfluorohexane sulfonate (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
Perfluorooctane sulfonate (PFOS)	**1.90 J**	2.90 U	2.90 U
Perfluorooctanesulfonamide (PFOSA)	2.60 U	2.90 U	2.90 U
Perfluorooctanoic acid (PFOA)	**0.550 J**	1.50 U	1.50 U
Perfluoropentanoic acid (PFPeA)	0.880 U	**0.680 J**	0.970 U
Perfluorotetradecanoic acid (PFTeDA)	2.60 U	2.90 U	2.90 U
Perfluorotridecanoic acid (PFTrDA)	2.60 U	2.90 U	2.90 U
Perfluoroundecanoic acid (PFUnA)	1.30 U	**1.40 J**	1.50 U
†PFOS + PFOA (EPA)	**2.45**	**0.00**	**0.00**
‡PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP)	**3.05**	**2.30**	**0.00**
§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
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
Perfluorodecanesulfonic acid (PFDS)	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
Perfluoroheptanesulfonic acid (PFHpS)	0.940 U	0.920 U	0.860 U	0.860 U	0.930 U	0.960 U
Perfluoroheptanoic acid (PFHpA)	1.40 U	1.40 U	1.30 U	1.30 U	1.40 U	1.40 U
Perfluorohexane sulfonate (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
Perfluorooctane sulfonate (PFOS)	2.80 U	2.80 U	**12.0**	**12.0**	**12.0**	2.90 U
Perfluorooctanesulfonamide (PFOSA)	2.80 U	2.80 U	2.60 U	2.60 U	2.80 U	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 (PFPeA)	0.940 U	0.920 U	0.860 U	0.860 U	0.930 U	0.960 U
Perfluorotetradecanoic acid (PFTeDA)	2.80 U	2.80 U	2.60 U	2.60 U	2.80 U	2.90 U
Perfluorotridecanoic acid (PFTrDA)	**1.40 J**	2.80 U	2.60 U	2.60 U	2.80 U	2.90 U
Perfluoroundecanoic acid (PFUnA)	1.40 U	1.40 U	1.30 U	1.30 U	1.40 U	1.40 U
†PFOS + PFOA (EPA)	**0.520**	**0.00**	**13.7**	**13.6**	**13.3**	**0.00**
‡PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP)	**2.02**	**1.50**	**14.4**	**14.2**	**13.3**	**0.540**
§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
Perfluorobutanesulfonic acid (PFBS)	0.970 U
Perfluorobutanoic acid (PFBA)	**0.710 J**
Perfluorodecanesulfonic acid (PFDS)	1.40 U
Perfluorodecanoic acid (PFDA)	0.970 U
Perfluorododecanoic acid (PFDoA)	1.40 U
Perfluoroheptanesulfonic acid (PFHpS)	0.970 U
Perfluoroheptanoic acid (PFHpA)	1.40 U
Perfluorohexane sulfonate (PFHxS)	0.970 U
Perfluorohexanoic acid (PFHxA)	0.970 U
Perfluorononanoic acid (PFNA)	1.40 U
Perfluorooctane sulfonate (PFOS)	2.90 U
Perfluorooctanesulfonamide (PFOSA)	2.90 U
Perfluorooctanoic acid (PFOA)	1.40 U
Perfluoropentanoic acid (PFPeA)	0.970 U
Perfluorotetradecanoic acid (PFTeDA)	2.90 U
Perfluorotridecanoic acid (PFTrDA)	2.90 U
Perfluoroundecanoic acid (PFUnA)	1.40 U
†PFOS + PFOA (EPA)	**0.00**
‡PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP)	**0.00**
§Sum of All Compounds Collected	**0.710**

PFAS Summary Report – Groundwater
Joint Base Cape Cod, IAGWSP
KGS 2020 J1 Ranges SPM Fall
J1 Range Northern

Location	MW-136M1	MW-136M1	MW-191M2	MW-245M1	MW-245M2	MW-303M2
Field Sample ID	MW-136M1_F20	MW-136M1_F20D	MW-191M2_F20	MW-245M1_F20	MW-245M2_F20	MW-303M2_F20
Sampling Depth	124.00 - 134.00	124.00 - 134.00	120.00 - 130.00	244.00 - 254.00	204.00 - 214.00	235.09 - 245.10
Sampling Date	12/07/2020	12/07/2020	12/07/2020	12/07/2020	11/10/2020	12/08/2020
SDG	320677691	320677691	320677691	320677691	320665921	320677701
Sample Type	**Normal**	**Field Duplicate**	**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	19.0 U	19.0 U	19.0 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	9.60 U	9.20 U	9.70 U	9.30 U	9.30 U	9.50 U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	9.60 U	9.20 U	**15.0 J**	9.30 U	9.30 U	9.50 U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	9.60 U	9.20 U	**2.90 J**	9.30 U	9.30 U	9.50 U
Perfluorobutanesulfonic acid (PFBS)	0.960 U	0.920 U	0.970 U	0.930 U	0.930 U	0.950 U
Perfluorobutanoic acid (PFBA)	**0.920 J**	**0.670 J**	1.50 U	1.40 U	**4.00**	1.40 U
Perfluorodecanesulfonic acid (PFDS)	1.40 U	1.40 U	1.50 U	1.40 U	1.40 U	1.40 U
Perfluorodecanoic acid (PFDA)	0.960 U	0.920 U	0.970 U	0.930 U	0.930 U	**0.700 J**
Perfluorododecanoic acid (PFDoA)	1.40 U	1.40 U	1.50 U	1.40 U	1.40 U	**1.70 J**
Perfluoroheptanesulfonic acid (PFHpS)	0.960 U	0.920 U	0.970 U	0.930 U	0.930 U	0.950 U
Perfluoroheptanoic acid (PFHpA)	1.40 U	1.40 U	1.50 U	1.40 U	**0.700 J**	1.40 U
Perfluorohexane sulfonate (PFHxS)	**0.360 J**	0.920 U	0.970 U	0.930 U	0.930 U	0.950 U
Perfluorohexanoic acid (PFHxA)	0.960 U	0.920 U	0.970 U	0.930 U	**0.850 J**	0.950 U
Perfluorononanoic acid (PFNA)	1.40 U	1.40 U	1.50 U	1.40 U	1.40 U	1.40 U
Perfluorooctane sulfonate (PFOS)	2.90 U	2.80 U	2.90 U	2.80 U	2.80 U	2.90 U
Perfluorooctanesulfonamide (PFOSA)	2.90 U	2.80 U	2.90 U	2.80 U	2.80 U	2.90 U
Perfluorooctanoic acid (PFOA)	1.40 U	1.40 U	1.50 U	1.40 U	1.40 U	1.40 U
Perfluoropentanoic acid (PFPeA)	0.960 U	0.920 U	0.970 U	0.930 U	**4.00**	**0.410 J**
Perfluorotetradecanoic acid (PFTeDA)	2.90 U	2.80 U	2.90 U	2.80 U	2.80 U	2.90 U
Perfluorotridecanoic acid (PFTrDA)	2.90 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	1.50 U	1.40 U	1.40 U	**2.80**
†PFOS + PFOA (EPA)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
‡PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP)	**0.360**	**0.00**	**0.00**	**0.00**	**0.700**	**0.700**
§Sum of All Compounds Collected	**1.28**	**0.670**	**17.9**	**0.00**	**9.55**	**5.61**

PFAS Summary Report – Groundwater
Joint Base Cape Cod, IAGWSP
KGS 2020 J1 Ranges SPM Fall
J1 Range Northern

Location	MW-303M3	MW-326M1	MW-326M2	MW-326M3	MW-346M1	MW-346M2
Field Sample ID	MW-303M3_F20	MW-326M1_F20	MW-326M2_F20	MW-326M3_F20	MW-346M1_F20	MW-346M2_F20
Sampling Depth	139.74 - 149.69	250.01 - 260.01	196.27 - 206.28	165.24 - 175.26	0.00 - 0.00	0.00 - 0.00
Sampling Date	12/08/2020	12/09/2020	12/09/2020	12/09/2020	12/02/2020	12/02/2020
SDG	320677701	320678771	320678771	320678771	320675551	320675551
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	20.0 U	20.0 U	19.0 U	19.0 U	19.0 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	8.90 U	10.0 U	10.0 U	9.50 U	9.70 U	9.30 U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	8.90 U	10.0 U	10.0 U	9.50 U	9.70 U	9.30 U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	8.90 U	10.0 U	10.0 U	9.50 U	9.70 U	9.30 U
Perfluorobutanesulfonic acid (PFBS)	0.890 U	1.00 U	1.00 U	0.950 U	0.970 U	0.930 U
Perfluorobutanoic acid (PFBA)	**0.920 J**	1.50 U	1.50 U	1.40 U	1.40 U	1.40 U
Perfluorodecanesulfonic acid (PFDS)	1.30 U	1.50 U	1.50 U	1.40 U	1.40 U	1.40 U
Perfluorodecanoic acid (PFDA)	**1.60 J**	**0.950 J**	**5.40**	**3.50**	**2.50**	**2.40**
Perfluorododecanoic acid (PFDoA)	1.30 U	1.50 U	**1.20 J**	**0.600 J**	1.40 U	1.40 U
Perfluoroheptanesulfonic acid (PFHpS)	0.890 U	1.00 U	1.00 U	0.950 U	0.970 U	0.930 U
Perfluoroheptanoic acid (PFHpA)	1.30 U	1.50 U	1.50 U	1.40 U	1.40 U	1.40 U
Perfluorohexane sulfonate (PFHxS)	0.890 U	1.00 U	1.00 U	0.950 U	0.970 U	0.930 U
Perfluorohexanoic acid (PFHxA)	0.890 U	1.00 U	1.00 U	0.950 U	0.970 U	0.930 U
Perfluorononanoic acid (PFNA)	**2.60**	**1.50 J**	**1.40 J**	**2.70**	**3.40**	**3.50**
Perfluorooctane sulfonate (PFOS)	2.70 U	3.00 U	3.00 U	2.90 U	2.90 U	2.80 U
Perfluorooctanesulfonamide (PFOSA)	2.70 U	3.00 U	3.00 U	2.90 U	2.90 U	2.80 U
Perfluorooctanoic acid (PFOA)	1.30 U	1.50 U	1.50 U	1.40 U	1.40 U	1.40 U
Perfluoropentanoic acid (PFPeA)	0.890 U	**0.440 J**	1.00 U	0.950 U	**0.620 J**	**0.870 J**
Perfluorotetradecanoic acid (PFTeDA)	2.70 U	3.00 U	3.00 U	2.90 U	2.90 U	2.80 U
Perfluorotridecanoic acid (PFTrDA)	2.70 U	3.00 U	3.00 U	2.90 U	2.90 U	2.80 U
Perfluoroundecanoic acid (PFUnA)	1.30 U	**1.00 J**	**13.0**	**6.90**	**5.90**	**2.50**
†PFOS + PFOA (EPA)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
‡PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP)	**4.20**	**2.45**	**6.80**	**6.20**	**5.90**	**5.90**
§Sum of All Compounds Collected	**5.12**	**3.89**	**21.0**	**13.7**	**12.4**	**9.27**

PFAS Summary Report – Groundwater
Joint Base Cape Cod, IAGWSP
KGS 2020 J1 Ranges SPM Fall
J1 Range Northern

Location	MW-346M3	MW-346M4	MW-58S
Field Sample ID	MW-346M3_F20	MW-346M4_F20	MW-58S_F20
Sampling Depth	0.00 - 0.00	0.00 - 0.00	100.00 - 110.00
Sampling Date	12/02/2020	12/02/2020	12/07/2020
SDG	320675551	320675551	320677691
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	9.30 U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	9.80 U	9.20 U	9.30 U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	9.80 U	9.20 U	9.30 U
Perfluorobutanesulfonic acid (PFBS)	0.980 U	0.920 U	0.930 U
Perfluorobutanoic acid (PFBA)	1.50 U	1.40 U	1.40 U
Perfluorodecanesulfonic acid (PFDS)	1.50 U	1.40 U	1.40 U
Perfluorodecanoic acid (PFDA)	**0.730 J**	**1.70 J**	0.930 U
Perfluorododecanoic acid (PFDoA)	1.50 U	1.40 U	1.40 U
Perfluoroheptanesulfonic acid (PFHpS)	0.980 U	0.920 U	0.930 U
Perfluoroheptanoic acid (PFHpA)	1.50 U	1.40 U	1.40 U
Perfluorohexane sulfonate (PFHxS)	0.980 U	0.920 U	0.930 U
Perfluorohexanoic acid (PFHxA)	0.980 U	0.920 U	0.930 U
Perfluorononanoic acid (PFNA)	**2.20**	**0.650 J**	1.40 U
Perfluorooctane sulfonate (PFOS)	2.90 U	2.80 U	2.80 U
Perfluorooctanesulfonamide (PFOSA)	2.90 U	2.80 U	2.80 U
Perfluorooctanoic acid (PFOA)	1.50 U	1.40 U	1.40 U
Perfluoropentanoic acid (PFPeA)	**0.750 J**	**0.410 J**	0.930 U
Perfluorotetradecanoic acid (PFTeDA)	2.90 U	2.80 U	2.80 U
Perfluorotridecanoic acid (PFTrDA)	2.90 U	2.80 U	2.80 U
Perfluoroundecanoic acid (PFUnA)	**1.00 J**	**6.00**	1.40 U
†PFOS + PFOA (EPA)	**0.00**	**0.00**	**0.00**
‡PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP)	**2.93**	**2.35**	**0.00**
§Sum of All Compounds Collected	**4.68**	**8.76**	**0.00**

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
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
Perfluorodecanesulfonic acid (PFDS)	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**
Perfluoroheptanesulfonic acid (PFHpS)	0.990 U	0.950 U	0.940 U	0.970 U	0.920 U	0.950 U
Perfluoroheptanoic acid (PFHpA)	**0.930 J**	**0.910 J**	1.40 U	1.50 U	1.40 U	1.40 U
Perfluorohexane sulfonate (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**
Perfluorooctane sulfonate (PFOS)	3.00 U	2.80 U	2.80 U	2.90 U	2.80 U	2.80 U
Perfluorooctanesulfonamide (PFOSA)	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 (PFPeA)	**1.10 J**	**1.20 J**	0.940 U	0.970 U	**0.460 J**	**0.410 J**
Perfluorotetradecanoic acid (PFTeDA)	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**

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
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**
Perfluorodecanesulfonic acid (PFDS)	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**
Perfluoroheptanesulfonic acid (PFHpS)	0.950 U	0.900 U	0.940 U	0.920 U	0.910 U	0.980 U
Perfluoroheptanoic acid (PFHpA)	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U	1.50 U
Perfluorohexane sulfonate (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
Perfluorooctane sulfonate (PFOS)	2.90 U	2.70 U	2.80 U	2.80 U	2.70 U	2.90 U
Perfluorooctanesulfonamide (PFOSA)	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 (PFPeA)	**0.580 J**	**0.430 J**	0.940 U	**1.40 J**	0.910 U	**1.20 J**
Perfluorotetradecanoic acid (PFTeDA)	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**

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
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
Perfluorodecanesulfonic acid (PFDS)	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
Perfluoroheptanesulfonic acid (PFHpS)	0.920 U	0.960 U	0.940 U	0.930 U	0.920 U	0.900 U
Perfluoroheptanoic acid (PFHpA)	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U
Perfluorohexane sulfonate (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
Perfluorooctane sulfonate (PFOS)	2.80 U	2.90 U	2.80 U	2.80 U	2.80 U	2.70 U
Perfluorooctanesulfonamide (PFOSA)	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 (PFPeA)	**0.490 J**	**0.490 J**	0.940 U	**0.420 J**	0.920 U	**0.600 J**
Perfluorotetradecanoic acid (PFTeDA)	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**

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
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
Perfluorodecanesulfonic acid (PFDS)	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
Perfluoroheptanesulfonic acid (PFHpS)	0.940 U	0.960 U	0.940 U	0.930 U	0.940 U	0.960 U
Perfluoroheptanoic acid (PFHpA)	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U
Perfluorohexane sulfonate (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
Perfluorooctane sulfonate (PFOS)	2.80 U	2.90 U	2.80 U	2.80 U	2.80 U	2.90 U
Perfluorooctanesulfonamide (PFOSA)	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 (PFPeA)	0.940 U	**0.440 J**	0.940 U	**0.400 J**	0.940 U	**0.420 J**
Perfluorotetradecanoic acid (PFTeDA)	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**

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
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
Perfluorodecanesulfonic acid (PFDS)	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
Perfluoroheptanesulfonic acid (PFHpS)	0.920 U	0.940 U	0.900 U	0.960 U	0.940 U	0.930 U
Perfluoroheptanoic acid (PFHpA)	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U
Perfluorohexane sulfonate (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
Perfluorooctane sulfonate (PFOS)	2.80 U	2.80 U	2.70 U	2.90 U	2.80 U	2.80 U
Perfluorooctanesulfonamide (PFOSA)	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 (PFPeA)	**1.90**	**0.450 J**	0.900 U	0.960 U	**0.630 J**	0.930 U
Perfluorotetradecanoic acid (PFTeDA)	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**

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)
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
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
Perfluorodecanesulfonic acid (PFDS)	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
Perfluoroheptanesulfonic acid (PFHpS)	0.910 U	0.920 U	0.970 U	0.920 U
Perfluoroheptanoic acid (PFHpA)	1.40 U	1.40 U	1.50 U	1.40 U
Perfluorohexane sulfonate (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**
Perfluorooctane sulfonate (PFOS)	2.70 U	2.70 U	2.90 U	2.80 U
Perfluorooctanesulfonamide (PFOSA)	**1.30 J**	**2.20 J**	2.90 U	2.80 U
Perfluorooctanoic acid (PFOA)	1.40 U	1.40 U	1.50 U	1.40 U
Perfluoropentanoic acid (PFPeA)	**0.650 J**	**0.830 J**	**1.10 J**	**0.400 J**
Perfluorotetradecanoic acid (PFTeDA)	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**

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)
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
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**
Perfluorodecanesulfonic acid (PFDS)	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
Perfluoroheptanesulfonic acid (PFHpS)	0.940 U	0.950 U	0.970 U	0.980 U	0.940 U	0.960 U
Perfluoroheptanoic acid (PFHpA)	1.40 U	1.40 U	1.50 U	1.50 U	1.40 U	1.40 U
Perfluorohexane sulfonate (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
Perfluorooctane sulfonate (PFOS)	2.80 U	2.80 U	**4.90**	**5.00**	**16.0**	2.90 U
Perfluorooctanesulfonamide (PFOSA)	2.80 U	2.80 U	2.90 U	2.90 U	2.80 U	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 (PFPeA)	0.940 U	0.950 U	0.970 U	**0.460 J**	0.940 U	**0.490 J**
Perfluorotetradecanoic acid (PFTeDA)	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**

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)
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
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**
Perfluorodecanesulfonic acid (PFDS)	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
Perfluoroheptanesulfonic acid (PFHpS)	0.920 U	0.920 U	0.900 U	0.940 U	0.930 U	0.920 U
Perfluoroheptanoic acid (PFHpA)	1.40 U	1.40 U	1.30 U	1.40 U	**4.00**	1.40 U
Perfluorohexane sulfonate (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
Perfluorooctane sulfonate (PFOS)	2.80 U	**1.10 J**	**3.80**	2.80 U	**10.0**	2.80 U
Perfluorooctanesulfonamide (PFOSA)	2.80 U	2.80 U	2.70 U	2.80 U	2.80 U	2.80 U
Perfluorooctanoic acid (PFOA)	1.40 U	**2.10**	**1.10 J**	**0.550 J**	**3.10**	**1.10 J**
Perfluoropentanoic acid (PFPeA)	**1.30 J**	**0.660 J**	**0.440 J**	**0.400 J**	**6.50**	**0.440 J**
Perfluorotetradecanoic acid (PFTeDA)	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**

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
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**
Perfluorodecanesulfonic acid (PFDS)	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
Perfluoroheptanesulfonic acid (PFHpS)	0.920 U	0.950 U	0.950 U	0.950 U	0.950 U	0.950 U
Perfluoroheptanoic acid (PFHpA)	1.40 U	1.40 U	1.40 U	1.40 U	**1.80 J**	1.40 U
Perfluorohexane sulfonate (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
Perfluorooctane sulfonate (PFOS)	**1.00 J**	2.80 U	2.90 U	2.80 U	**2.30 J**	2.90 U
Perfluorooctanesulfonamide (PFOSA)	2.80 U	2.80 U	2.90 U	2.80 U	2.80 U	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 (PFPeA)	**0.430 J**	**0.460 J**	0.950 U	0.950 U	**2.80**	**0.420 J**
Perfluorotetradecanoic acid (PFTeDA)	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**

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
Perfluorobutanesulfonic acid (PFBS)	1.00 U	0.940 U
Perfluorobutanoic acid (PFBA)	**3.20**	1.40 U
Perfluorodecanesulfonic acid (PFDS)	1.50 U	1.40 U
Perfluorodecanoic acid (PFDA)	1.00 U	0.940 U
Perfluorododecanoic acid (PFDoA)	1.50 U	1.40 U
Perfluoroheptanesulfonic acid (PFHpS)	1.00 U	0.940 U
Perfluoroheptanoic acid (PFHpA)	1.50 U	1.40 U
Perfluorohexane sulfonate (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
Perfluorooctane sulfonate (PFOS)	3.00 U	**15.0**
Perfluorooctanesulfonamide (PFOSA)	3.00 U	2.80 U
Perfluorooctanoic acid (PFOA)	**1.10 J**	**0.790 J**
Perfluoropentanoic acid (PFPeA)	**0.520 J**	0.940 U
Perfluorotetradecanoic acid (PFTeDA)	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**

PFAS Summary Report – Groundwater
Joint Base Cape Cod, IAGWSP
KGS 2021 J2 Ranges SPM Spring
J2 Range Northern

Location	J2EW0002
Field Sample ID	J2EW0002_521
Sampling Depth	198.00 - 233.00
Sampling Date	01/13/2021
SDG	320689351
Sample Type	**Normal**
PFAS 21 Cmps	Results (ng/L)
6:2 Fluorotelomer sulfonate (6:2 FTS)	**7.40 J**
8:2 Fluorotelomer sulfonate (8:2 FTS)	9.40 U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	9.40 U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	9.40 U
Perfluorobutanesulfonic acid (PFBS)	0.940 U
Perfluorobutanoic acid (PFBA)	1.40 U
Perfluorodecanesulfonic acid (PFDS)	1.40 U
Perfluorodecanoic acid (PFDA)	0.940 U
Perfluorododecanoic acid (PFDoA)	1.40 U
Perfluoroheptanesulfonic acid (PFHpS)	**0.430 J**
Perfluoroheptanoic acid (PFHpA)	**0.860 J**
Perfluorohexane sulfonate (PFHxS)	**11.0**
Perfluorohexanoic acid (PFHxA)	**0.900 J**
Perfluorononanoic acid (PFNA)	1.40 U
Perfluorooctane sulfonate (PFOS)	**1.00 J**
Perfluorooctanesulfonamide (PFOSA)	**1.80 J**
Perfluorooctanoic acid (PFOA)	**1.80 J**
Perfluoropentanoic acid (PFPeA)	1.90 U
Perfluorotetradecanoic acid (PFTeDA)	2.80 U
Perfluorotridecanoic acid (PFTrDA)	2.80 U
Perfluoroundecanoic acid (PFUnA)	1.40 U
†PFOS + PFOA (EPA)	**2.80**
‡PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP)	**14.7**
§Sum of All Compounds Collected	**25.2**

PFAS Summary Report – Groundwater
Joint Base Cape Cod, IAGWSP
KGS 2021 J3 Range SPM Fall
J3 Range

Location	90EW0001	J3-EFF	J3EW0032	J3EWIP1	J3EWIP2	J3-INF
Field Sample ID	90EW0001_F21	J3-EFF_F21	J3EW0032_F21	J3EWIP1_F21	J3EWIP2_F21	J3-INF_F21
Sampling Depth	0.00 - 0.00	0.00 - 0.00	102.00 - 152.00	153.00 - 193.00	150.50 - 170.50	0.00 - 0.00
Sampling Date	07/13/2021	07/13/2021	07/13/2021	07/13/2021	07/13/2021	07/13/2021
SDG	320762631	320762631	320762631	320762631	320762631	320762631
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	20.0 U	19.0 U	20.0 U	19.0 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	9.20 U	9.50 U	9.80 U	9.40 U	9.80 U	9.50 U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	9.20 U	9.50 U	9.80 U	9.40 U	9.80 U	9.50 U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	9.20 U	9.50 U	9.80 U	9.40 U	9.80 U	9.50 U
Perfluorobutanesulfonic acid (PFBS)	0.920 U	0.950 U	0.980 U	0.940 U	0.980 U	0.950 U
Perfluorobutanoic acid (PFBA)	1.40 U	1.40 U	1.50 U	1.40 U	1.50 U	1.40 U
Perfluorodecanesulfonic acid (PFDS)	1.40 U	1.40 U	1.50 U	1.40 U	1.50 U	1.40 U
Perfluorodecanoic acid (PFDA)	0.920 U	0.950 U	0.980 U	0.940 U	0.980 U	0.950 U
Perfluorododecanoic acid (PFDoA)	1.40 U	1.40 U	1.50 U	1.40 U	1.50 U	1.40 U
Perfluoroheptanesulfonic acid (PFHpS)	0.920 U	0.950 U	0.980 U	0.940 U	0.980 U	0.950 U
Perfluoroheptanoic acid (PFHpA)	1.40 U	1.40 U	1.50 U	1.40 U	1.50 U	1.40 U
Perfluorohexane sulfonate (PFHxS)	**0.500 J**	0.950 U	**0.720 J**	**0.520 J**	**2.80**	**1.20 J**
Perfluorohexanoic acid (PFHxA)	0.920 U	0.950 U	0.980 U	0.940 U	0.980 U	0.950 U
Perfluorononanoic acid (PFNA)	1.40 U	1.40 U	1.50 U	1.40 U	1.50 U	1.40 U
Perfluorooctane sulfonate (PFOS)	2.70 U	2.90 U	2.90 U	2.80 U	2.90 U	2.80 U
Perfluorooctanesulfonamide (PFOSA)	2.70 U	2.90 U	2.90 U	2.80 U	2.90 U	2.80 U
Perfluorooctanoic acid (PFOA)	1.40 U	1.40 U	1.50 U	1.40 U	1.50 U	1.40 U
Perfluoropentanoic acid (PFPeA)	0.920 U	0.950 U	0.980 U	0.940 U	0.980 U	0.950 U
Perfluorotetradecanoic acid (PFTeDA)	2.70 U	2.90 U	2.90 U	2.80 U	2.90 U	2.80 U
Perfluorotridecanoic acid (PFTrDA)	2.70 U	2.90 U	2.90 U	2.80 U	2.90 U	2.80 U
Perfluoroundecanoic acid (PFUnA)	1.40 U	1.40 U	1.50 U	1.40 U	1.50 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)	**0.500**	**0.00**	**0.720**	**0.520**	**2.80**	**1.20**
§Sum of All Compounds Collected	**0.500**	**0.00**	**0.720**	**0.520**	**2.80**	**1.20**

PFAS Summary Report – Groundwater
Joint Base Cape Cod, IAGWSP
KGS 2021 J3 Range SPM Fall
J3 Range

Location	MW-157M1	MW-157M2	MW-157M3	MW-163S	MW-250M1	MW-250M3
Field Sample ID	MW-157M1_F21	MW-157M2_F21	MW-157M3_F21	MW-163S_F21	MW-250M1_F21	MW-250M3_F21
Sampling Depth	154.00 - 164.00	110.00 - 120.00	70.00 - 80.00	38.00 - 48.00	185.00 - 195.00	95.00 - 105.00
Sampling Date	07/14/2021	07/14/2021	07/14/2021	07/14/2021	07/15/2021	07/15/2021
SDG	320763871	320763871	320763871	320763871	320763871	320763871
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	20.0 U	19.0 U	18.0 U	18.0 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	9.30 U	9.70 U	10.0 U	9.40 U	9.00 U	9.00 U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	9.30 U	9.70 U	10.0 U	9.40 U	9.00 U	9.00 U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	9.30 U	9.70 U	10.0 U	9.40 U	9.00 U	9.00 U
Perfluorobutanesulfonic acid (PFBS)	0.930 U	**9.40**	1.00 U	0.940 U	0.900 U	0.900 U
Perfluorobutanoic acid (PFBA)	1.40 U	1.50 U	1.50 U	1.40 U	1.40 U	1.30 U
Perfluorodecanesulfonic acid (PFDS)	1.40 U	1.50 U	1.50 U	1.40 U	1.40 U	1.30 U
Perfluorodecanoic acid (PFDA)	0.930 U	0.970 U	1.00 U	0.940 U	0.900 U	0.900 U
Perfluorododecanoic acid (PFDoA)	1.40 U	1.50 U	1.50 U	1.40 U	1.40 U	1.30 U
Perfluoroheptanesulfonic acid (PFHpS)	0.930 U	0.970 U	1.00 U	0.940 U	0.900 U	0.900 U
Perfluoroheptanoic acid (PFHpA)	1.40 U	1.50 U	1.50 U	1.40 U	1.40 U	1.30 U
Perfluorohexane sulfonate (PFHxS)	0.930 U	**0.720 J**	**1.50 J**	**0.450 J**	**0.550 J**	**1.90**
Perfluorohexanoic acid (PFHxA)	0.930 U	0.970 U	1.00 U	0.940 U	0.900 U	0.900 U
Perfluorononanoic acid (PFNA)	1.40 U	1.50 U	1.50 U	1.40 U	1.40 U	1.30 U
Perfluorooctane sulfonate (PFOS)	2.80 U	2.90 U	3.00 U	**4.80**	2.70 U	**1.00 J**
Perfluorooctanesulfonamide (PFOSA)	2.80 U	2.90 U	3.00 U	2.80 U	2.70 U	2.70 U
Perfluorooctanoic acid (PFOA)	1.40 U	1.50 U	**0.730 J**	**1.10 J**	1.40 U	1.30 U
Perfluoropentanoic acid (PFPeA)	0.930 U	0.970 U	1.00 U	0.940 U	0.900 U	0.900 U
Perfluorotetradecanoic acid (PFTeDA)	2.80 U	2.90 U	3.00 U	2.80 U	2.70 U	2.70 U
Perfluorotridecanoic acid (PFTrDA)	2.80 U	2.90 U	3.00 U	2.80 U	2.70 U	2.70 U
Perfluoroundecanoic acid (PFUnA)	1.40 U	1.50 U	1.50 U	1.40 U	1.40 U	1.30 U
†PFOS + PFOA (EPA)	**0.00**	**0.00**	**0.730**	**5.90**	**0.00**	**1.00**
‡PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP)	**0.00**	**0.720**	**2.23**	**6.35**	**0.550**	**2.90**
§Sum of All Compounds Collected	**0.00**	**10.1**	**2.23**	**6.35**	**0.550**	**2.90**

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