MONTHLY PROGRESS REPORT #268
FOR JULY 2019

EPA REGION I ADMINISTRATIVE ORDERS SDWA 1-97-1019 and 1-2000-0014

JOINT BASE CAPE COD (JBCC)
TRAINING RANGE AND IMPACT AREA

The following summary of progress is for the period from 1 July to 31 July 2019.

1. SUMMARY OF REMEDIATION ACTIONS

The following is a description of Remediation Actions (RA) underway at Camp Edwards as of July 2019.

Demolition Area 1 Comprehensive Groundwater RA

The Demolition Area 1 Comprehensive Groundwater RA consists of the removal and treatment of contaminated groundwater to control further migration of explosives compounds and perchlorate. Extraction, treatment, and recharge (ETR) systems at Frank Perkins Road, Pew Road, Base Boundary, and the Leading Edge include extraction wells, ex-situ treatment processes to remove explosives compounds and perchlorate from the groundwater, and injection wells to return treated water to the aquifer.

The Frank Perkins Road Treatment Facility has been optimized as part of the Environmental and System Performance Monitoring (ESPM) program at Demolition Area 1. The treatment facility continues to operate at a flow rate of 175 gpm, with over 2.660 billion gallons of water treated and re-injected as of 26 July 2019. The following shutdown of the Frank Perkins Road Treatment Facility occurred during July:

- The Frank Perkins Treatment Facility shut down due to a JBCC power outage (lost phase). The facility shut down at 1200 h on 15 July 2019 and was restarted at 0755 h on 16 July 2019.

The Pew Road Mobile Treatment Unit (MTU) continues to operate at a flow rate of 65 GPM, with over 620.6 million gallons of water treated and re-injected as of 26 July 2019. The following shutdown of the Pew Road MTU occurred during July:

- The Pew Road MTU shut down due to a JBCC power outage (lost phase). The MTU shut down at 1200 h on 15 July 2019 and was restarted at 0830 h on 16 July 2019.

The Base Boundary MTU continues to operate at a flow rate of 65 gpm, with over 236.0 million gallons of water treated and re-injected as of 26 July 2019. No shutdowns of the Base Boundary MTU occurred during July.

The Leading Edge system continues to operate at a flow rate of 100 gpm, with over 156.3 million gallons of water treated and re-injected as of 26 July 2019. The following shutdown of the Leading Edge system occurred during July:

- The Leading Edge System shut down due to a power outage caused by thunderstorms. The System shut down at 2157 h on 22 July 2019 and was restarted at 0958 h on 23 July 2019.

J-2 Range Groundwater RA

Northern Plant

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

The Northern Treatment Building continues to operate at a flow rate of 225 gpm. As of 26 July 2019, over 1.146 billion gallons of water have been treated and re-injected. The following shutdown of the Northern Treatment Building occurred in July:

- The J2 North Treatment Building shut down due to a “VFD Fault” alarm caused by a power supply interruption. The system shut down at 0208 h on 12 July 2019 and was restarted at 0758 h on 12 July 2019.

The Northern MTUs E and F continue to operate at a flow rate of 250 gpm. As of 26 July 2019, over 1.605 billion gallons of water have been treated and re-injected. The following shutdowns of the J-2 Range Northern system occurred during July:

- MTU F shut down due to a “High floor sump” alarm caused by a leak in the IX vessel at MTU E. MTU F shut down at 1711 h on 20 July 2019 and was restarted at 0750 h on 22 July 2019.
- MTU E shut down due to a “High floor sump” alarm caused by a leak in the IX vessel. The leading vessel was isolated until it could be inspected. MTU E shut down at 1711 h on 20 July 2019 and was restarted at 1330 h on 22 July 2019.
- MTUs E and F shut down due to a power outage caused by thunderstorms. The MTUs shut down at 2154 h on 22 July 2019 and were restarted at 0846 h on 23 July 2019.

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 26 July 2019, over 1.255 billion gallons of water have been treated and re-injected. The following shutdown of MTUs H and I occurred during July:

- MTUs H and I shut down due to a “Low pressure” alarm caused by a broken camlock fitting inside a 2” ball valve. A new ball valve, camlock fitting, and hose were installed. MTUs H and I shut down at 1227 h on 26 July 2019 and were restarted at 0858 h on 29 July 2019.

MTU J continues to operate at a flow rate of 120 gpm. As of 26 July 2019, over 571.9 million gallons of water have been treated and re-injected. The following shutdowns of MTU J occurred during July:

- MTU J was turned off to replace a fuse on the powerline. The MTU was turned off at 0810 h on 03 July 2019 and restarted at 0850 h on 03 July 2019.

- MTU J shut down due to a power outage caused by thunderstorms. MTU J shut down at 2205 h on 22 July 2019 and was restarted at 0917 h on 23 July 2019.

MTU K continues to operate at a flow rate of 125 gpm. As of 26 July 2019, over 688.2 million gallons of water have been treated and re-injected. The following shutdowns of MTU K occurred during July:

- MTU K shut down due to a "VFD fault" alarm, caused by a power supply interruption. The MTU shut down at 1623 h on 30 June 2019 and was restarted at 0730 h on 01 July 2019.
- MTU K shut down due to a power surge sometime over the weekend. Since the program was lost, there was no way to determine the exact date and time of the shutdown. Satuit Automation reinstalled the programming and the MTU was restarted at 1410 h on 15 July 2019.

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 26 July 2019, over 1.260 billion gallons of water have been treated and re-injected. The following J-3 Range system shutdowns occurred during July:

- The System shut down due to a power supply interruption. BETCo was onsite to restore power on 02 July 2019 to three of the four extraction wells (90EW0001, J3EWIP2, J3EW0032 operational; J3EWIP1 needed a new pump and motor). The System shut down at 1627 h on 30 June 2019 and was restarted at 0850 h on 02 July 2019.
- Extraction well J3EWIP1 shut down due to a power supply interruption and required a new pump and motor. J3EWIP1 shut down at 1627 h on 30 June 2019 and was restarted at 1450 h on 25 July 2019.
- Extraction well J3EWIP2 shut down due to the vault flooding due to heavy storms. J3EWIP2 shut down at 1150 h on 23 July 2019 and was restarted at 1400 h on 23 July 2019.
- The System was turned off to perform electrical maintenance at J3EWIP1 and the panel at the System. The System was turned off at 0850 h on 24 July 2019 and was restarted at 0945 h on 24 July 2019.
- The System was turned off to perform mechanical maintenance at J3EWIP1. The System was turned off at 0830 h on 25 July 2019 and was restarted at 1450 h on 25 July 2019.

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 26 July 2019, over 549.7 million gallons of water have been treated and re-injected. The following shutdown of the J-1 Range Southern system occurred during July:

- The MTU shut down due to a power supply interruption caused by a bird flying into the transformer. BETCo was onsite on 03 July 2019 to remove the bird, replace two fuses on the powerline, and restore power. The MTU shut down at 0735 h on 02 July 2019 and was restarted at 0930 h on 03 July 2019.

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 26 July 2019, over 728.0 million gallons of water have been treated and re-injected. The following shutdown of the J-1 Range Northern MTU occurred during July:

- Extraction well J1NEW0002 shut down due to a power supply interruption. J1NEW0002 shut down at 2154 h on 22 July 2019 and was restarted at 0805 h on 23 July 2019.

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 26 July 2019, over 1.767 billion gallons of water have been treated and re-injected. The following shutdowns of the CIA treatment facility occurred during July:

- System 2 shut down due to a JBCC power outage (lost phase). The MTU shut down at 1200 h on 15 July 2019 and was restarted at 0910 h on 16 July 2019.
- System 1 shut down due to a JBCC power outage (lost phase). The MTU shut down at 1200 h on 15 July 2019 and was restarted at 0935 h on 16 July 2019.
- System 1 was turned off to replace the 3-inch diameter piping prior to and after the new flow meter. System 1 was turned off at 0855 h on 18 July 2019 and was restarted at 1230 h on 18 July 2019.
- System 2 shut down due to a “Communications Lost” alarm between the MTU and the extraction well. A new Ethernet port with a fiber optic switch was installed. System 2 shut down at 0838 h on 20 July 2019 and was restarted at 1020 h on 24 July 2019.
- System 3 shut down due to a power outage caused by thunderstorms. System 3 shut down at 2157 h on 22 July 2019 and was restarted at 0810 h on 23 July 2019.

SUMMARY OF ACTIONS TAKEN

CIA

- Performed routine inspections of BEM cover to ensure cover is secure and intact.
- Performed intrusive investigation/re-digs in P3A1.
- Collected cued MetalMapper data for P3A2.

- Performed intrusive investigation in P3A2.

Demolition Area 1
- Performed first focused Base Boundary post-packer hydraulic event on 01 July 2019.
- Exchanged bag filters at the Leading Edge on 03 and 24 July 2019.

Demolition Area 2
- No activity.

Small Arms Ranges
- Graded site at Former B Range.
- Vegetation clearance at D Range.
- Graded and installed gravel at C and D Ranges.

J-1 Range
- Performed J1 South monitoring well installations.
- Exchanged bag filters on 18 July 2019.
- Replaced pipe heat trace on 24 July 2019.

J-2 Range
- Performed hydraulic monitoring within J2 North SPM program.
- Exchanged bag filters at MTU K on 15 July 2019.

J-3 Range
- No activity.

L Range
- No activity.

Training Areas
- No activity.

Other
- Process water samples were collected from Central Impact Area, Demolition Area 1, J1 Range Northern, J1 Range Southern, J2 Range Eastern, J2 Range Northern, and J3 Range.
- Groundwater samples were collected from Demolition Area 1 and Demolition Area 2.
- Soil samples were collected from D Range and Former B Range.
- Surface water samples were collected from J3 Range.
- Influent and groundwater samples were collected for PFAS from Demolition Area 1, J1 Range Northern, J2 Range Eastern, J2 Range Northern, and J3 Range.

JBCC IAGWSP Tech Update Meeting Minutes 17 July 2019

Advanced Classification at JBCC – Seeding Overview Presentation
A presentation was provided on the CIA advanced classification project focusing on seeding. The definitions of seeds were reviewed and discussed. It was explained that generally, the contractor is responsible for QC seeding and the government/USACE is responsible for QA seeding. In some cases, it is part of a contract (as it is now at JBCC) or a 3rd party contractor is used. At JBCC there is a Blind Seed Firewall Plan as part of the QAPP for the project. The firewall a virtual barrier with specified procedures

and methods that exists to prevent unauthorized personnel from discovering QC or QA blind seed ground truth data. Personnel 'outside the firewall' are those who are not permitted to know QC and/or QA blind seed ground truth and are performing any aspect of geophysical data collection, processing, analysis, classification, or intrusive activities. Personnel 'inside the firewall' are permitted to know. QC/QA geophysicists are responsible for planning/tracking and UXOQCS also has QC Seed information; USACE OESS has all seed information. The seed team deletes all QA seed information after submittal and acceptance by USACE. The number, type, and depth of seed items is based on measurement performance criteria, i.e., items that are similar to those required to be removed and at depths expected for the particular project. MassDEP asked if at JBCC all seed items are placed at once or if it is done on a grid by grid basis. USACE explained that for the JBCC project, all seeds were put in prior to any survey work beginning; especially because a seed team is deployed to install the seed and then leave the site.

The documentation requirements were displayed and reviewed. There are QA and QC seed plans which are developed by QA and QC Geophysicists in accordance with the QAPP and SOPs. They are approved by USACE. QA and QC Seed Reports are developed by QA and QC Geophysicists, and also approved by USACE. The reports document the final seed ground truth, including pictures and tables. The distribution of these documents is limited to help maintain the firewall, but will be shared with Government personnel if requested. Data validation reports summarize QC seed results and the QC geophysicist verifies the intrusive results prior to delivery. The USACE QA geophysicist verifies all QC & QA seed results and documents on QA Forms. Any failures require a Root Cause Analysis.

For the Phase III Area 1 re-digs, to date 5014 anomalies have been investigated, 117 Seeds recovered, including 7 QC seeds and 3 QA seeds remaining from 2018. Most of the old 2018 seeds were originally placed too deep for detection and were not selected from the EM-61 data as targets. Based on re-dig teams going slightly beyond 1-m radii, some 2018 seeds are being found now. The other two QA seeds were on the 2018 dig list, but were moved in the spoils piles and not recovered at that time; however they were recovered in 2019 while re-digging other targets. The Root Cause Analysis for two missed re-dig QC seeds found that the failure was due to moving medium ISOs in spoils, caused by extremely muddy & high wind conditions with large excavated volumes/overlapping targets. The Intrusive SOP has been modified so that in very muddy conditions, excavator movement is limited, tracks/blade are checked, and large clumps of mud are probed. In addition, Minelab F3 is used on windy days as it increases volume and visual indicators. Finally, a 4th UXO Tech is brought in to focus on spoils piles. MassDEP asked if the previous year's seeded items are recovered before the next year's seeds are in place. USACE explained that they tried to recover the previous year's seeds, but they were unsuccessful. If the previous year's seeds are found this season, they can be tracked back to the previous year as there is a database with photos, tags, and GPS coordinates.

The DGM maps for the new areas were displayed and reviewed. It was noted that they have started digging at 1A and the area was a lot less dense than what had been seen at other areas. IAGWSP explained that they had sent all of the figures to the group and asked that the team pick the next 100% grids soon. It was agreed to have a meeting next week to discuss.

Project and Fieldwork Update

All well installations at J-1 South have been completed. The drill rig finishing de-mobbing today. A survey is scheduled for July 22nd, and the development crew will be out on the 23rd. Long-term monitoring sampling is ongoing in J-3; after that they will continue in the southeast ranges with L Range and J-2 Range. The in-plume extraction well #1 at the J-3 Range has been down since an electrical storm the first week in July. The pump and motor need to be replaced. They should be in by next week. The base grid also went down for one day, shutting down several on-base systems. The ROE has been signed for the drive points at the Pocasset Baptist Church, and they will be installed most likely in September.

In the Small Arms Ranges, an 8th lift was excavated at D Range and post-excavation samples were collected. Preliminary results show an average of 100, so excavation is complete. The team is waiting to hear back from Bourne Landfill as to when they can accept the soil for disposal, which should be off-site next week. Grading has been completed on B Range, Former B Range, C Range, Former D Range, and G Range. They will be installing gravel, a retaining wall, and guardrails to continue with site improvements.

In the Central Impact Area, they finished at the EM-61 work, and there are two Metal Mapper crews working. For Metal Mapper, Survey Units 1A, 1B, 2A, and 2B are complete. Unit 3A is approximately 19% complete, and 3B is approximately 5% complete. The dig teams are digging in Phase III Area 1 Survey Units C and D on the re-digs; Survey Units A, B, and E are complete. They started new digs in Phase III Area 2 Survey Unit 1A. The teams expect to finish the re-digs by the end of August and everything is on schedule.

Action Items
The action items were discussed and updated. As part of the action items, a discussion on the PFAS sampling results was held. The tables of the results and figures showing the locations were distributed and reviewed. The team will consider next steps after reviewing the data.

Small Arms Ranges Annual Monitoring Report Presentation
A presentation was provided on the Small Arms Ranges Annual Monitoring Report. It was noted that during the reporting period (March 2018 to March 2019), a total of approximately 1,100 cubic yards of soil from Former B, C, and D Ranges were excavated and disposed of off-site. Fieldwork continues at Former B and D Ranges. No new wells were installed in the Small Arms Range monitoring network during the reporting period. The most recently installed monitoring well is MW-690S on GA/GB Range, installed in 2017. It was noted that a total of sixteen wells were included in the 2019 monitoring program, but only 15 were successfully sampled. A sample could not be collected from MW-538M1 (B Range) due to low water levels. All samples were obtained using low flow methods.

Sampling locations, groundwater monitoring results, and trends were reviewed and discussed. Tungsten was detected on B Range in MW-72S (3.2 µg/L total) and MW-537M1 (0.19 J µg/L total). All other wells were non-detect (9 MWs). For Metals, only two wells had metals detections. They were Antimony in MW-470S (G Range) at 0.23 J µg/L (total) and Copper in MW-456S (C Range) at 26.8 µg/L (total). Lead was non-detect in all wells.

A comparison to the Decision Document criteria was discussed. It was noted that there is no timeframe for remedy completion included in DD. The groundwater long-term monitoring for Small Arms Ranges monitoring wells will be continued. After the current Small Arms Ranges soil removal actions are completed and analytical results of subsequent groundwater long-term monitoring events are reviewed, a proposal to reduce the groundwater long-term monitoring at inactive Small Arms Ranges may be considered pending the analytical results. It was noted that metals are below cleanup levels. No changes are recommended for the monitoring well network. IAGWSP will continue annual sampling at Bravo Range (MW-72S, MW-455S, MW-490S, MW- 537M1, MW-538M1, and MW-539M1); Charlie Range (MW-123S, MW456S, and MW-491S); Golf Range (MW-35S, MW-36S, and MW-470S); and GA/GB Range (03MW0709, 03MW0710, 03MW0122A, and MW-690S).

JBCC Cleanup Team Meeting

The next meeting of the JBCC Cleanup Team (JBCCCT) has yet to be scheduled (previous meeting was 10 July 2019). The Cleanup Team meeting discusses late breaking news and responses to action items,

as well as updates from the IAGWSP and the Installation Restoration Program (IRP). The JBCCCT meetings provide a forum for community input regarding issues related to both the IRP and the IAGWSP.

SUMMARY OF DATA RECEIVED

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

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

2. DELIVERABLES SUBMITTED

Deliverables submitted during the reporting period include the following:

- Monthly Progress Report No. 267 for June 2019 — 16 July 2019
- Draft Small Arms Ranges 2019 Annual Environmental Monitoring Report — 8 July 2019
- Certificate of Compliance for the Removal Action and Groundwater Monitoring at the Former A Range — 16 July 2019
- Final Plan for Phase III Area 2, Source Removal Action, Central Impact Area, Joint Base Cape Cod — 24 July 2019

3. SCHEDULED ACTIONS

The following documents are being prepared or revised during August 2019:

- Project Notes on Supplemental Work (Pyrotechnics, Engineer Training Site, and Former E Range)
- J-1 Range Northern and J-1 Range Southern Annual Environmental Monitoring Report
- L Range 2019 Annual Report
- Demolition Area 2 Annual Environmental Monitoring Report
- Addendum for the 2018 Source Report on re-digs
- Five Year Review report
- Work report for J-2 Range geophysical work and additional well locations
- Certificates of Compliance for Western Boundary
- Draft joint IAGWSP/IRP program fact sheet
- Land Use Controls report

TABLE 1
Sampling Progress: 1 July to 31 July 2019

Area Of Concern	Location	Field Sample ID	Sample Type	Date Sampled	Matrix	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)
J2 Range Northern	J2EW2-MW3-B	J2EW2-MW3-B_F19	N	07/30/2019	Ground Water	212.7	222.7
J2 Range Northern	J2EW2-MW3-C	J2EW2-MW3-C_F19	N	07/30/2019	Ground Water	246	256
J3 Range	MW-163S	MW-163S_PFAS19R	N	07/30/2019	Ground Water	38	48
J2 Range Northern	J2N-INF-F	J2N-INF-F_PFAS19R	N	07/30/2019	Process Water	0	0
J1 Range Northern	J1N-INF2	J1N-INF2_PFAS19R	N	07/30/2019	Process Water	0	0
J2 Range Northern	J2N-INF-G	J2N-INF-G_PFAS19	N	07/30/2019	Process Water	0	0
J3 Range	MW-217M3	MW-217M3_F19	N	07/29/2019	Ground Water	101	106
J3 Range	LKSNK0006	LKSNK0006_F19	N	07/29/2019	Surface Water	0	1
J3 Range	LKSNK0007	LKSNK0007_F19	N	07/29/2019	Surface Water	0	4
J3 Range	LKSNK0005	LKSNK0005_F19	N	07/29/2019	Surface Water	0	4
J2 Range Northern	MW-330M2	MW-330M2_F19	N	07/25/2019	Ground Water	238.01	248.04
J2 Range Northern	MW-587M2	MW-587M2_F19	N	07/25/2019	Ground Water	220	230
J2 Range Northern	MW-587M2	MW-587M2_F19D	FD	07/25/2019	Ground Water	220	230
J2 Range Northern	MW-587M1	MW-587M1_F19	N	07/25/2019	Ground Water	250	260
J2 Range Northern	MW-587M1	MW-587M1_F19D	FD	07/25/2019	Ground Water	250	260
J2 Range Northern	MW-289M2	MW-289M2_F19	N	07/25/2019	Ground Water	162	172
J2 Range Northern	MW-289M2	MW-289M2_F19D	FD	07/25/2019	Ground Water	162	172
J2 Range Northern	MW-289M1	MW-289M1_F19	N	07/25/2019	Ground Water	305	315
J2 Range Northern	MW-289M1	MW-289M1_F19D	FD	07/25/2019	Ground Water	305	315
J2 Range Northern	MW-631M2	MW-631M2_F19	N	07/24/2019	Ground Water	200.1	210.1
J2 Range Northern	MW-631M1	MW-631M1_F19	N	07/24/2019	Ground Water	233.1	243.1
J2 Range Northern	MW-621M2	MW-621M2_F19	N	07/24/2019	Ground Water	219.4	229.4
J2 Range Northern	MW-621M1	MW-621M1_F19	N	07/24/2019	Ground Water	249.4	259.4
J2 Range Northern	MW-296M2	MW-296M2_F19	N	07/24/2019	Ground Water	214.98	224.98
J2 Range Northern	MW-296M1	MW-296M1_F19	N	07/24/2019	Ground Water	255.08	265.08
J2 Range Northern	MW-585M3	MW-585M3_F19	N	07/23/2019	Ground Water	198.5	208.5
J2 Range Northern	MW-585M3	MW-585M3_F19D	FD	07/23/2019	Ground Water	198.5	208.5
J2 Range Northern	MW-585M2	MW-585M2_F19	N	07/23/2019	Ground Water	218.5	228.5
J2 Range Northern	MW-585M1	MW-585M1_F19	N	07/23/2019	Ground Water	240	250
J2 Range Northern	MW-634M3	MW-634M3_F19	N	07/23/2019	Ground Water	170.6	180.6
J2 Range Northern	MW-634M2	MW-634M2_F19	N	07/23/2019	Ground Water	200.6	210.6
J2 Range Northern	MW-634M1	MW-634M1_F19	N	07/23/2019	Ground Water	305.6	315.6
J2 Range Northern	MW-640M2	MW-640M2_F19	N	07/22/2019	Ground Water	216	226
J2 Range Northern	MW-640M1	MW-640M1_F19	N	07/22/2019	Ground Water	246	256
J2 Range Northern	MW-640M1	MW-640M1_F19D	FD	07/22/2019	Ground Water	246	256
J2 Range Northern	MW-622M2	MW-622M2_F19	N	07/22/2019	Ground Water	220.4	230.4
J2 Range Northern	MW-622M1	MW-622M1_F19	N	07/22/2019	Ground Water	245.4	255.4
J2 Range Northern	MW-704M2	MW-704M2_F19	N	07/22/2019	Ground Water	217.8	227.8
J2 Range Northern	MW-704M1	MW-704M1_F19	N	07/22/2019	Ground Water	244	254
J2 Range Northern	MW-588M2	MW-588M2_F19	N	07/18/2019	Ground Water	198	208
J2 Range Northern	MW-588M1	MW-588M1_F19	N	07/18/2019	Ground Water	238	248
J2 Range Northern	MW-702M2	MW-702M2_F19	N	07/18/2019	Ground Water	208.1	218.1
J2 Range Northern	MW-702M1	MW-702M1_F19	N	07/18/2019	Ground Water	277.5	287.5
J2 Range Northern	MW-703M2	MW-703M2_F19	N	07/18/2019	Ground Water	224.1	234.1
J2 Range Northern	MW-703M1	MW-703M1_F19	N	07/18/2019	Ground Water	248	258
J3 Range	90PZ0211	90PZ0211_F19	N	07/17/2019	Ground Water	80	110
J3 Range	MW-217M2	MW-217M2_F19	N	07/17/2019	Ground Water	138	143
J3 Range	MW-295M2	MW-295M2_F19	N	07/15/2019	Ground Water	117	127
J3 Range	MW-295M1	MW-295M1_F19	N	07/15/2019	Ground Water	145	155
J3 Range	MW-193S	MW-193S_F19	N	07/15/2019	Ground Water	32.5	37.5
J3 Range	MW-193M1	MW-193M1_F19	N	07/15/2019	Ground Water	57.5	62.5
L Range	MW-242M1	MW-242M1_F19	N	07/11/2019	Ground Water	235	245
L Range	MW-596M1	MW-596M1_F19	N	07/11/2019	Ground Water	231.1	241.1
L Range	MW-651M1	MW-651M1_F19	N	07/11/2019	Ground Water	242.3	252.3
L Range	MW-595M2	MW-595M2_F19	N	07/11/2019	Ground Water	205.3	215.3
L Range	MW-595M1	MW-595M1_F19	N	07/11/2019	Ground Water	255.3	265.3
L Range	MW-595M1	MW-595M1_F19D	FD	07/11/2019	Ground Water	255.3	265.3
J3 Range	90PLT01006	90PLT01006_F19	N	07/10/2019	Process Water	0	0

N = Normal Sample
FD = Field Duplicate

TABLE 1
Sampling Progress: 1 July to 31 July 2019

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-163S	MW-163S_F19	N	07/09/2019	Ground Water	38	48
J3 Range	MW-163S	MW-163S_F19D	FD	07/09/2019	Ground Water	38	48
J3 Range	MW-232M2	MW-232M2_F19	N	07/09/2019	Ground Water	61	66
J3 Range	MW-232M1	MW-232M1_F19	N	07/09/2019	Ground Water	77.5	82.5
J3 Range	J3-EFF	J3-EFF-154A	N	07/08/2019	Process Water	0	0
J3 Range	J3-MID-2	J3-MID-2-154A	N	07/08/2019	Process Water	0	0
J3 Range	J3-MID-1	J3-MID-1-154A	N	07/08/2019	Process Water	0	0
J3 Range	J3-INF	J3-INF-154A	N	07/08/2019	Process Water	0	0
Demolition Area 1	PR-EFF	PR-EFF-160A	N	07/08/2019	Process Water	0	0
Demolition Area 1	PR-MID-2	PR-MID-2-160A	N	07/08/2019	Process Water	0	0
Demolition Area 1	PR-MID-1	PR-MID-1-160A	N	07/08/2019	Process Water	0	0
Demolition Area 1	PR-INF	PR-INF-160A	N	07/08/2019	Process Water	0	0
Demolition Area 1	FPR-2-EFF-A	FPR-2-EFF-A-160A	N	07/08/2019	Process Water	0	0
Demolition Area 1	FPR-2-GAC-MID1A	FPR-2-GAC-MID1A-160A	N	07/08/2019	Process Water	0	0
Demolition Area 1	FPR2-POST-IX-A	FPR2-POST-IX-A-160A	N	07/08/2019	Process Water	0	0
Demolition Area 1	FPR-2-INF	FPR-2-INF-160A	N	07/08/2019	Process Water	0	0
Demolition Area 1	D1LE-EFF	D1LE-EFF-36A	N	07/08/2019	Process Water	0	0
Demolition Area 1	D1LE-MID2	D1LE-MID2-36A	N	07/08/2019	Process Water	0	0
Demolition Area 1	D1LE-MID1	D1LE-MID1-36A	N	07/08/2019	Process Water	0	0
Demolition Area 1	D1LE-INF	D1LE-INF-36A	N	07/08/2019	Process Water	0	0
Demolition Area 1	D1-EFF	D1-EFF-108A	N	07/08/2019	Process Water	0	0
Demolition Area 1	D1-MID-2	D1-MID-2-108A	N	07/08/2019	Process Water	0	0
Demolition Area 1	D1-MID-1	D1-MID-1-108A	N	07/08/2019	Process Water	0	0
Demolition Area 1	D1-INF	D1-INF-108A	N	07/08/2019	Process Water	0	0
J2 Range Eastern	J2E-EFF-K	J2E-EFF-K-130A	N	07/02/2019	Process Water	0	0
J2 Range Eastern	J2E-MID-2K	J2E-MID-2K-130A	N	07/02/2019	Process Water	0	0
J2 Range Eastern	J2E-MID-1K	J2E-MID-1K-130A	N	07/02/2019	Process Water	0	0
J2 Range Eastern	J2E-INF-K	J2E-INF-K-130A	N	07/02/2019	Process Water	0	0
J3 Range	90PZ0204	90PZ0204_F19	N	07/02/2019	Ground Water	80	85
Central Impact Area	CIA2-EFF	CIA2-EFF-66A	N	07/02/2019	Process Water	0	0
Central Impact Area	CIA2-MID2	CIA2-MID2-66A	N	07/02/2019	Process Water	0	0
Central Impact Area	CIA2-MID1	CIA2-MID1-66A	N	07/02/2019	Process Water	0	0
Central Impact Area	CIA2-INF	CIA2-INF-66A	N	07/02/2019	Process Water	0	0
Central Impact Area	CIA1-EFF	CIA1-EFF-66A	N	07/02/2019	Process Water	0	0
Central Impact Area	CIA1-MID2	CIA1-MID2-66A	N	07/02/2019	Process Water	0	0
Central Impact Area	CIA1-MID1	CIA1-MID1-66A	N	07/02/2019	Process Water	0	0
Central Impact Area	CIA1-INF	CIA1-INF-66A	N	07/02/2019	Process Water	0	0
J3 Range	MW-329M2	MW-329M2_F19	N	07/02/2019	Ground Water	150.05	160.05
Central Impact Area	CIA3-EFF	CIA3-EFF-37A	N	07/02/2019	Process Water	0	0
Central Impact Area	CIA3-MID2	CIA3-MID2-37A	N	07/02/2019	Process Water	0	0
Central Impact Area	CIA3-MID1	CIA3-MID1-37A	N	07/02/2019	Process Water	0	0
Central Impact Area	CIA3-INF	CIA3-INF-37A	N	07/02/2019	Process Water	0	0
J3 Range	MW-329M1	MW-329M1_F19	N	07/02/2019	Ground Water	179.96	189.96
J1 Range Southern	J1S-EFF	J1S-EFF-140A	N	07/01/2019	Process Water	0	0
J1 Range Southern	J1S-MID	J1S-MID-140A	N	07/01/2019	Process Water	0	0
J1 Range Southern	J1S-INF-2	J1S-INF-2-140A	N	07/01/2019	Process Water	0	0
J2 Range Eastern	J2E-EFF-J	J2E-EFF-J-130A	N	07/01/2019	Process Water	0	0
J2 Range Eastern	J2E-MID-2J	J2E-MID-2J-130A	N	07/01/2019	Process Water	0	0
J2 Range Eastern	J2E-MID-1J	J2E-MID-1J-130A	N	07/01/2019	Process Water	0	0
J2 Range Eastern	J2E-INF-J	J2E-INF-J-130A	N	07/01/2019	Process Water	0	0
J2 Range Eastern	J2E-EFF-IH	J2E-EFF-IH-130A	N	07/01/2019	Process Water	0	0
J2 Range Eastern	J2E-MID-2H	J2E-MID-2H-130A	N	07/01/2019	Process Water	0	0
J2 Range Eastern	J2E-MID-1H	J2E-MID-1H-130A	N	07/01/2019	Process Water	0	0
J2 Range Eastern	J2E-MID-2I	J2E-MID-2I-130A	N	07/01/2019	Process Water	0	0
J2 Range Eastern	J2E-MID-1I	J2E-MID-1I-130A	N	07/01/2019	Process Water	0	0
J2 Range Eastern	J2E-INF-I	J2E-INF-I-130A	N	07/01/2019	Process Water	0	0
J2 Range Northern	J2N-EFF-G	J2N-EFF-G-154A	N	07/01/2019	Process Water	0	0
J2 Range Northern	J2N-MID-2G	J2N-MID-2G-154A	N	07/01/2019	Process Water	0	0

N = Normal Sample
FD = Field Duplicate

TABLE 1
Sampling Progress: 1 July to 31 July 2019

Area Of Concern	Location	Field Sample ID	Sample Type	Date Sampled	Matrix	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)
J2 Range Northern	J2N-MID-1G	J2N-MID-1G-154A	N	07/01/2019	Process Water	0	0
J2 Range Northern	J2N-INF-G	J2N-INF-G-154A	N	07/01/2019	Process Water	0	0
J2 Range Northern	J2N-EFF-EF	J2N-EFF-EF-154A	N	07/01/2019	Process Water	0	0
J2 Range Northern	J2N-MID-2F	J2N-MID-2F-154A	N	07/01/2019	Process Water	0	0
J2 Range Northern	J2N-MID-1F	J2N-MID-1F-154A	N	07/01/2019	Process Water	0	0
J2 Range Northern	J2N-INF-EF	J2N-INF-EF-154A	N	07/01/2019	Process Water	0	0
J2 Range Northern	J2N-MID-2E	J2N-MID-2E-154A	N	07/01/2019	Process Water	0	0
J2 Range Northern	J2N-MID-1E	J2N-MID-1E-154A	N	07/01/2019	Process Water	0	0
J1 Range Northern	J1N-EFF	J1N-EFF-69A	N	07/01/2019	Process Water	0	0
J1 Range Northern	J1N-MID2	J1N-MID2-69A	N	07/01/2019	Process Water	0	0
J1 Range Northern	J1N-MID1	J1N-MID1-69A	N	07/01/2019	Process Water	0	0
J1 Range Northern	J1N-INF2	J1N-INF2-69A	N	07/01/2019	Process Water	0	0

N = Normal Sample
FD = Field Duplicate

TABLE 2
VALIDATED EXPLOSIVES AND PERCHLORATE RESULTS
Data Received July 2019

Area of Concern	Location ID	Field Sample ID	Top Depth (ft bgs)	Bottom Depth (ft bgs)	Date Sampled	Test Method	Analyte	Result Value	Qualifier	Units	MCL/HA	> MCL/HA	MDL	RL
Demolition Area 1	MW-611M2	MW-611M2_S19	91	101	06/27/2019	SW6850	Perchlorate	2.3	J	ug/L	2.0	X	0.027	0.20
Demolition Area 1	MW-611M1	MW-611M1_S19	141	151	06/27/2019	SW6850	Perchlorate	2.7	J	ug/L	2.0	X	0.027	0.20
Demolition Area 1	MW-598M2	MW-598M2_S19	88	98	06/27/2019	SW6850	Perchlorate	0.51	J	ug/L	2.0		0.027	0.20
Demolition Area 1	MW-598M1	MW-598M1_S19	122	132	06/27/2019	SW6850	Perchlorate	1.2	J	ug/L	2.0		0.027	0.20
Demolition Area 1	MW-598M1	MW-598M1_S19D	122	132	06/27/2019	SW6850	Perchlorate	1.3	J	ug/L	2.0		0.027	0.20
Demolition Area 1	MW-610M2	MW-610M2_S19	85	95	06/26/2019	SW6850	Perchlorate	0.10	J	ug/L	2.0		0.027	0.20
Demolition Area 1	MW-610M1	MW-610M1_S19	110	120	06/26/2019	SW6850	Perchlorate	0.88	J	ug/L	2.0		0.027	0.20
Demolition Area 1	MW-663D	MW-663D_S19	240.6	250.6	06/24/2019	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.4		ug/L	0.60	X	0.036	0.20
Demolition Area 1	MW-663D	MW-663D_S19	240.6	250.6	06/24/2019	SW6850	Perchlorate	11.6		ug/L	2.0	X	0.027	0.20
Demolition Area 1	MW-663D	MW-663D_S19D	240.6	250.6	06/24/2019	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.4		ug/L	0.60	X	0.036	0.20
Demolition Area 1	MW-663D	MW-663D_S19D	240.6	250.6	06/24/2019	SW6850	Perchlorate	12.2		ug/L	2.0	X	0.027	0.20
J2 Range Northern	MW-330M1	MW-330M1_S19	313.1	323.1	06/18/2019	SW6850	Perchlorate	0.81		ug/L	2.0		0.027	0.20
J2 Range Northern	MW-331M2	MW-331M2_S19	195.3	205.3	06/13/2019	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.13	J	ug/L	0.60		0.036	0.20
J2 Range Northern	MW-331M1	MW-331M1_S19	235.4	245.4	06/13/2019	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.096	J	ug/L	0.60		0.036	0.20
J2 Range Northern	MW-331M1	MW-331M1_S19D	235.4	245.4	06/13/2019	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.11	J	ug/L	0.60		0.036	0.20
Demolition Area 1	MW-659M2	MW-659M2_S19	85	95	06/12/2019	SW6850	Perchlorate	0.081	J	ug/L	2.0		0.027	0.20
Demolition Area 1	MW-659M1	MW-659M1_S19	120	130	06/12/2019	SW6850	Perchlorate	0.67		ug/L	2.0		0.027	0.20
Demolition Area 1	MW-700M2	MW-700M2_S19	147.7	157.7	06/12/2019	SW6850	Perchlorate	0.070	J	ug/L	2.0		0.027	0.20
Demolition Area 1	MW-700M1	MW-700M1_S19	197.9	207.9	06/12/2019	SW6850	Perchlorate	0.083	J	ug/L	2.0		0.027	0.20
J2 Range Northern	MW-63M3	MW-63M3_S19	182	192	06/10/2019	SW6850	Perchlorate	0.034	J	ug/L	2.0		0.027	0.20
J2 Range Northern	MW-63M2	MW-63M2_S19	214	224	06/10/2019	SW6850	Perchlorate	0.029	J	ug/L	2.0		0.027	0.20
Demolition Area 1	MW-231M2	MW-231M2_S19	165.5	175.5	06/06/2019	SW6850	Perchlorate	0.75		ug/L	2.0		0.027	0.20
Demolition Area 1	MW-231M1	MW-231M1_S19	210.5	220.5	06/06/2019	SW6850	Perchlorate	0.80		ug/L	2.0		0.027	0.20
Demolition Area 1	MW-231M1	MW-231M1_S19	210.5	220.5	06/06/2019	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.089	J	ug/L	0.60		0.036	0.20
Demolition Area 1	MW-231M1	MW-231M1_S19D	210.5	220.5	06/06/2019	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.087	J	ug/L	0.60		0.036	0.20
Demolition Area 1	MW-542M1	MW-542M1_S19	144	154	06/06/2019	SW6850	Perchlorate	0.030	J	ug/L	2.0		0.027	0.20
Demolition Area 1	MW-532M2	MW-532M2_S19	138	148	06/06/2019	SW6850	Perchlorate	0.95		ug/L	2.0		0.027	0.20
Demolition Area 1	MW-532M1	MW-532M1_S19	168	178	06/06/2019	SW6850	Perchlorate	0.25		ug/L	2.0		0.027	0.20
Demolition Area 1	MW-19S	MW-19S_S19	52.7	62.7	06/05/2019	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.92		ug/L	400		0.025	0.20
Demolition Area 1	MW-19S	MW-19S_S19	52.7	62.7	06/05/2019	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	2.7		ug/L	0.60	X	0.036	0.20
Demolition Area 1	MW-19S	MW-19S_S19	52.7	62.7	06/05/2019	SW8330	4-Amino-2,6-dinitrotoluene	0.15	J	ug/L	7.3		0.015	0.20
Demolition Area 1	MW-19S	MW-19S_S19D	52.7	62.7	06/05/2019	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	2.9		ug/L	0.60	X	0.036	0.20
Demolition Area 1	MW-19S	MW-19S_S19D	52.7	62.7	06/05/2019	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.98		ug/L	400		0.025	0.20
Demolition Area 1	MW-19S	MW-19S_S19D	52.7	62.7	06/05/2019	SW8330	4-Amino-2,6-dinitrotoluene	0.14	J	ug/L	7.3		0.015	0.20
Demolition Area 1	MW-173M2	MW-173M2_S19	208	218	06/05/2019	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.22		ug/L	0.60		0.036	0.20
Demolition Area 1	MW-173M2	MW-173M2_S19	208	218	06/05/2019	SW6850	Perchlorate	0.32		ug/L	2.0		0.027	0.20
Demolition Area 1	EW-658	EW-658_S19	96	136	06/05/2019	SW6850	Perchlorate	0.054	J	ug/L	2.0		0.027	0.20
Demolition Area 1	EW-658	EW-658_S19	96	136	06/05/2019	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.090	J	ug/L	400		0.025	0.20
Demolition Area 1	EW-658	EW-658_S19	96	136	06/05/2019	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.095	J	ug/L	0.60		0.036	0.20
Demolition Area 1	MW-431	MW-431_S19	88	188	06/05/2019	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.16	J	ug/L	0.60		0.036	0.20
Demolition Area 1	MW-431	MW-431_S19	88	188	06/05/2019	SW6850	Perchlorate	0.045	J	ug/L	2.0		0.027	0.20
Demolition Area 1	MW-431	MW-431_S19	88	188	06/05/2019	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.17	J	ug/L	400		0.025	0.20

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

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

TABLE 2
VALIDATED EXPLOSIVES AND PERCHLORATE RESULTS
Data Received July 2019

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-431	MW-431_S19D	88	188	06/05/2019	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.16	J	ug/L	0.60		0.036	0.20
Demolition Area 1	MW-431	MW-431_S19D	88	188	06/05/2019	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.15	J	ug/L	400		0.025	0.20
Demolition Area 1	MW-432	MW-432_S19	88	188	06/05/2019	SW6850	Perchlorate	0.14	J	ug/L	2.0		0.027	0.20
Demolition Area 1	MW-696M1	MW-696M1_S19	175.2	185.2	06/04/2019	SW6850	Perchlorate	0.28		ug/L	2.0		0.027	0.20
Demolition Area 1	MW-531M1	MW-531M1_S19	138	148	06/04/2019	SW6850	Perchlorate	4.5		ug/L	2.0	X	0.027	0.20
Demolition Area 1	MW-531M1	MW-531M1_S19D	138	148	06/04/2019	SW6850	Perchlorate	4.5		ug/L	2.0	X	0.027	0.20
Demolition Area 1	MW-258M1	MW-258M1_S19	109	119	06/04/2019	SW6850	Perchlorate	3.6		ug/L	2.0	X	0.027	0.20
Demolition Area 1	MW-258M1	MW-258M1_S19	109	119	06/04/2019	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.78		ug/L	0.60	X	0.036	0.20
Demolition Area 1	MW-258M1	MW-258M1_S19D	109	119	06/04/2019	SW6850	Perchlorate	3.7		ug/L	2.0	X	0.027	0.20
Demolition Area 1	MW-258M1	MW-258M1_S19D	109	119	06/04/2019	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.77		ug/L	0.60	X	0.036	0.20
Demolition Area 1	MW-533M1	MW-533M1_S19	160	170	06/04/2019	SW6850	Perchlorate	11.3		ug/L	2.0	X	0.027	0.20
Demolition Area 1	MW-533M1	MW-533M1_S19	160	170	06/04/2019	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.089	J	ug/L	0.60		0.036	0.20
Demolition Area 1	MW-533M1	MW-533M1_S19D	160	170	06/04/2019	SW6850	Perchlorate	11.8		ug/L	2.0	X	0.027	0.20
Demolition Area 1	MW-582M2	MW-582M2_S19	84	94	06/03/2019	SW6850	Perchlorate	0.33		ug/L	2.0		0.027	0.20
Demolition Area 1	MW-582M1	MW-582M1_S19	134	144	06/03/2019	SW6850	Perchlorate	1.7		ug/L	2.0		0.027	0.20
Demolition Area 1	MW-582M1	MW-582M1_S19D	134	144	06/03/2019	SW6850	Perchlorate	1.6		ug/L	2.0		0.027	0.20
Demolition Area 1	MW-571M2	MW-571M2_S19	74	84	06/03/2019	SW6850	Perchlorate	0.16	J	ug/L	2.0		0.027	0.20
Demolition Area 1	MW-571M1	MW-571M1_S19	114	124	06/03/2019	SW6850	Perchlorate	1.2		ug/L	2.0		0.027	0.20
Demolition Area 1	MW-569M2	MW-569M2_S19	84	94	06/03/2019	SW6850	Perchlorate	0.29		ug/L	2.0		0.027	0.20
Demolition Area 1	MW-569M1	MW-569M1_S19	114	124	06/03/2019	SW6850	Perchlorate	0.19	J	ug/L	2.0		0.027	0.20
Demolition Area 1	MW-558M2	MW-558M2_S19	98	108	05/31/2019	SW6850	Perchlorate	0.20		ug/L	2.0		0.027	0.20
Demolition Area 1	MW-558M1	MW-558M1_S19	134	144	05/31/2019	SW6850	Perchlorate	0.37		ug/L	2.0		0.027	0.20
Demolition Area 1	MW-554M2	MW-554M2_S19	89.1	99.1	05/31/2019	SW6850	Perchlorate	0.22		ug/L	2.0		0.027	0.20
Demolition Area 1	MW-554M1	MW-554M1_S19	120	130	05/31/2019	SW6850	Perchlorate	0.51		ug/L	2.0		0.027	0.20
Demolition Area 1	MW-559M2	MW-559M2_S19	87	97	05/31/2019	SW6850	Perchlorate	0.14	J	ug/L	2.0		0.027	0.20
Demolition Area 1	MW-559M1	MW-559M1_S19	135.6	145.6	05/31/2019	SW6850	Perchlorate	0.28		ug/L	2.0		0.027	0.20
Demolition Area 1	MW-556M2	MW-556M2_S19	111	121	05/30/2019	SW6850	Perchlorate	0.17	J	ug/L	2.0		0.027	0.20
Demolition Area 1	MW-556M1	MW-556M1_S19	153	163	05/30/2019	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.15	J	ug/L	0.60		0.036	0.20
Demolition Area 1	MW-556M1	MW-556M1_S19	153	163	05/30/2019	SW6850	Perchlorate	1.8		ug/L	2.0		0.027	0.20
Demolition Area 1	MW-597M1	MW-597M1_S19	148	158	05/30/2019	SW6850	Perchlorate	0.093	J	ug/L	2.0		0.027	0.20
Demolition Area 1	MW-353M1	MW-353M1_S19	107	117	05/30/2019	SW6850	Perchlorate	0.10	J	ug/L	2.0		0.027	0.20
Demolition Area 1	MW-352M1	MW-352M1_S19	115	125	05/29/2019	SW6850	Perchlorate	0.042	J	ug/L	2.0		0.027	0.20
Demolition Area 1	MW-274	MW-274_S19	109	199	05/28/2019	SW6850	Perchlorate	0.078	J	ug/L	2.0		0.027	0.20
Demolition Area 1	XX9514	XX9514_S19	102	112	05/28/2019	SW6850	Perchlorate	4.2		ug/L	2.0	X	0.027	0.20
Demolition Area 1	XX9514	XX9514_S19D	102	112	05/28/2019	SW6850	Perchlorate	4.3		ug/L	2.0	X	0.027	0.20

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

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

PFAS Summary Report – Groundwater

Joint Base Cape Cod, IAGWSP

KGS 2019 PFAS MW&INF

Demolition Area 1

Location	D1-INF	FPR-2-INF	MW-258M1	MW-663D	PR-INF
Field Sample ID	D1-INF_PFAS19	FPR-2-INF_PFAS19	MW-258M1_PFAS19	MW-663D_PFAS19	PR-INF_PFAS19
Sampling Depth	0.00 - 0.00	0.00 - 0.00	109.00 - 119.00	240.60 - 250.60	0.00 - 0.00
Sampling Date	06/24/2019	06/25/2019	06/19/2019	06/24/2019	06/25/2019
SDG	320517141	320517141	320515981	320517141	320517141
Sample Type	Normal	Normal	Normal	Normal	Normal
PFAS 21 Cmps	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)
6:2 Fluorotelomer sulfonate (6:2 FTS)	18.0 U	19.0 U	20.0 U	20.0 U	20.0 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	9.10 U	9.50 U	9.80 U	9.80 U	9.80 U
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	9.10 U	9.50 U	9.80 U	9.80 U	9.80 U
N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	9.10 U	9.50 U	9.80 U	9.80 U	9.80 U
Perfluoro-1-heptanesulfonate (PFHpS)	0.910 U	0.950 U	0.980 U	0.980 U	0.980 U
Perfluorobutanesulfonic acid (PFBS)	0.910 U	0.950 U	0.980 U	0.980 U	0.980 U
Perfluorobutanoic acid (PFBA)	1.40 U	1.40 U	1.50 U	1.50 U	1.50 U
Perfluorodecane sulfonate	1.40 U	1.40 U	1.50 U	1.50 U	1.50 U
Perfluorodecanoic acid (PFDA)	0.910 U	0.950 U	0.980 U	**2.20**	0.980 U
Perfluorododecanoic acid (PFDoA)	1.40 U	1.40 U	1.50 U	1.50 U	1.50 U
Perfluoroheptanoic acid (PFHpA)	1.40 U	1.40 U	1.50 U	1.50 U	1.50 U
Perfluorohexanesulfonic acid (PFHxS)	0.910 U	0.950 U	0.980 U	0.980 U	2.00 U
Perfluorohexanoic acid (PFHxA)	0.910 U	0.950 U	0.980 U	0.980 U	0.980 U
Perfluorononanoic acid (PFNA)	1.40 U	1.40 U	1.50 U	**1.00 J**	1.50 U
Perfluorooctanesulfonamide (FOSA)	2.70 U	2.80 U	2.90 U	3.00 U	2.90 U
Perfluorooctanesulfonic acid (PFOS)	2.70 U	2.80 U	2.90 U	3.00 U	2.90 U
Perfluorooctanoic acid (PFOA)	1.40 U	1.40 U	1.50 U	1.50 U	1.50 U
Perfluoropentanoic acid (PFPA)	0.910 U	0.950 U	0.980 U	**0.460 J**	0.980 U
Perfluorotetradecanoic acid (PFTA)	2.70 U	2.80 U	2.90 U	3.00 U	2.90 U
Perfluorotridecanoic acid (PFTrDA)	2.70 U	2.80 U	2.90 U	3.00 U	2.90 U
Perfluoroundecanoic acid (PFUnA)	1.40 U	1.40 U	1.50 U	**1.20 J**	1.50 U
†PFOS + PFOA (EPA)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
‡PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP)	**0.00**	**0.00**	**0.00**	**3.20**	**0.00**

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KGS 2019 PFAS MW&INF

J1 Range Northern

Location	J1N-INF2	MW-136S	MW-564M1	MW-590M2
Field Sample ID	J1N-INF2_PFAS19	MW-136S_PFAS19	MW-564M1_PFAS19	MW-590M2_PFAS19
Sampling Depth	0.00 - 0.00	107.00 - 117.00	227.00 - 237.00	238.00 - 248.00
Sampling Date	06/17/2019	06/24/2019	06/24/2019	06/24/2019
SDG	320514661	320517141	320517141	320517141
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)	19.0 U	20.0 U	18.0 U	19.0 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	9.30 U	9.80 U	9.20 U	9.60 U
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	9.30 U	9.80 U	9.20 U	9.60 U
N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	9.30 U	9.80 U	9.20 U	9.60 U
Perfluoro-1-heptanesulfonate (PFHpS)	0.930 U	0.980 U	0.920 U	0.960 U
Perfluorobutanesulfonic acid (PFBS)	0.930 U	0.980 U	0.920 U	0.960 U
Perfluorobutanoic acid (PFBA)	1.90 U	**0.990 J**	1.40 U	1.40 U
Perfluorodecane sulfonate	1.40 U	1.50 U	1.40 U	1.40 U
Perfluorodecanoic acid (PFDA)	0.930 U	0.980 U	0.920 U	0.960 U
Perfluorododecanoic acid (PFDoA)	1.40 U	1.50 U	1.40 U	1.40 U
Perfluoroheptanoic acid (PFHpA)	1.40 U	1.50 U	1.40 U	1.40 U
Perfluorohexanesulfonic acid (PFHxS)	0.930 U	2.00 U	1.80 U	0.960 U
Perfluorohexanoic acid (PFHxA)	0.930 U	0.980 U	0.920 U	0.960 U
Perfluorononanoic acid (PFNA)	1.40 U	1.50 U	1.40 U	1.40 U
Perfluorooctanesulfonamide (FOSA)	**1.80 J**	2.90 U	2.80 U	2.90 U
Perfluorooctanesulfonic acid (PFOS)	**4.90**	**1.40 J**	2.80 U	2.90 U
Perfluorooctanoic acid (PFOA)	1.40 U	**2.40**	1.40 U	1.40 U
Perfluoropentanoic acid (PFPA)	0.930 U	0.980 U	0.920 U	0.960 U
Perfluorotetradecanoic acid (PFTA)	2.80 U	2.90 U	2.80 U	2.90 U
Perfluorotridecanoic acid (PFTrDA)	2.80 U	2.90 U	2.80 U	2.90 U
Perfluoroundecanoic acid (PFUnA)	1.40 U	1.50 U	1.40 U	1.40 U
†PFOS + PFOA (EPA)	**4.90**	**3.80**	**0.00**	**0.00**
‡PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP)	**4.90**	**3.80**	**0.00**	**0.00**

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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
Perfluoro-1-heptanesulfonate (PFHpS)	0.970 U	0.930 U	0.980 U	0.900 U	0.960 U	0.850 U
Perfluorobutanesulfonic acid (PFBS)	0.970 U	0.930 U	0.980 U	0.900 U	0.960 U	0.850 U
Perfluorobutanoic acid (PFBA)	1.50 U	1.40 U	1.50 U	1.80 U	1.90 U	1.70 U
Perfluorodecane sulfonate	1.50 U	1.40 U	1.50 U	1.30 U	1.40 U	1.30 U
Perfluorodecanoic acid (PFDA)	0.970 U	0.930 U	0.980 U	0.900 U	0.960 U	**1.40 J**
Perfluorododecanoic acid (PFDoA)	1.50 U	1.40 U	1.50 U	1.30 U	1.40 U	**0.450 J**
Perfluoroheptanoic acid (PFHpA)	1.50 U	1.40 U	1.50 U	1.30 U	1.40 U	1.30 U
Perfluorohexanesulfonic acid (PFHxS)	0.970 U	0.930 U	0.980 U	0.900 U	0.960 U	0.850 U
Perfluorohexanoic acid (PFHxA)	0.970 U	0.930 U	0.980 U	0.900 U	0.960 U	0.850 U
Perfluorononanoic acid (PFNA)	1.50 U	1.40 U	1.50 U	**0.880 J**	**0.730 J**	**0.650 J**
Perfluorooctanesulfonamide (FOSA)	2.90 U	2.80 U	2.90 U	2.70 U	2.90 U	2.60 U
Perfluorooctanesulfonic acid (PFOS)	2.90 U	2.80 U	2.90 U	2.70 U	2.90 U	2.60 U
Perfluorooctanoic acid (PFOA)	1.50 U	1.40 U	1.50 U	1.30 U	1.40 U	1.30 U
Perfluoropentanoic acid (PFPA)	0.970 U	0.930 U	0.980 U	0.900 U	0.960 U	0.850 U
Perfluorotetradecanoic acid (PFTA)	2.90 U	2.80 U	2.90 U	2.70 U	2.90 U	2.60 U
Perfluorotridecanoic acid (PFTrDA)	2.90 U	2.80 U	2.90 U	2.70 U	2.90 U	2.60 U
Perfluoroundecanoic acid (PFUnA)	1.50 U	1.40 U	1.50 U	1.30 U	1.40 U	**4.90**
†PFOS + PFOA (EPA)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
‡PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP)	**0.00**	**0.00**	**0.00**	**0.880**	**0.730**	**2.05**

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J2 Range Eastern

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

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KGS 2019 PFAS MW&INF

J2 Range Northern

Location	J2N-INF-E	J2N-INF-F	MW-234M2	MW-313M1	MW-587M2
Field Sample ID	J2N-INF-E_PFAS19	J2N-INF-F_PFAS19	MW-234M2_PFAS19	MW-313M1_PFAS19	MW-587M2_PFAS19
Sampling Depth	0.00 - 0.00	0.00 - 0.00	110.00 - 120.00	255.40 - 265.40	220.00 - 230.00
Sampling Date	06/18/2019	06/18/2019	06/17/2019	06/19/2019	06/19/2019
SDG	320514662	320514662	320514661	320515981	320515981
Sample Type	Normal	Normal	Normal	Normal	Normal
PFAS 21 Cmps	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)
6:2 Fluorotelomer sulfonate (6:2 FTS)	19.0 U	19.0 U	18.0 U	20.0 U	19.0 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	9.30 U	9.30 U	8.80 U	9.80 U	9.70 U
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	9.30 U	9.30 U	8.80 U	9.80 U	9.70 U
N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	9.30 U	9.30 U	8.80 U	9.80 U	9.70 U
Perfluoro-1-heptanesulfonate (PFHpS)	0.930 U	**0.400 J**	0.880 U	0.980 U	0.970 U
Perfluorobutanesulfonic acid (PFBS)	0.930 U	0.930 U	0.880 U	0.980 U	0.970 U
Perfluorobutanoic acid (PFBA)	1.40 U	1.90 U	1.80 U	**0.700 J**	1.50 U
Perfluorodecane sulfonate	1.40 U	1.40 U	1.30 U	1.50 U	1.50 U
Perfluorodecanoic acid (PFDA)	0.930 U	0.930 U	0.880 U	**1.20 J**	0.970 U
Perfluorododecanoic acid (PFDoA)	1.40 U	1.40 U	1.30 U	1.50 U	1.50 U
Perfluoroheptanoic acid (PFHpA)	1.40 U	**0.940 J**	1.30 U	1.50 U	1.50 U
Perfluorohexanesulfonic acid (PFHxS)	0.930 U	**9.90**	**0.600 J**	0.980 U	0.970 U
Perfluorohexanoic acid (PFHxA)	0.930 U	**1.20 J**	0.880 U	0.980 U	0.970 U
Perfluorononanoic acid (PFNA)	1.40 U	1.40 U	1.30 U	**1.10 J**	1.50 U
Perfluorooctanesulfonamide (FOSA)	2.80 U	2.80 U	2.60 U	2.90 U	2.90 U
Perfluorooctanesulfonic acid (PFOS)	2.80 U	2.80 U	**1.90 J**	2.90 U	2.90 U
Perfluorooctanoic acid (PFOA)	1.40 U	**1.70 J**	**0.550 J**	1.50 U	1.50 U
Perfluoropentanoic acid (PFPA)	0.930 U	**0.840 J**	0.880 U	**0.680 J**	0.970 U
Perfluorotetradecanoic acid (PFTA)	2.80 U	2.80 U	2.60 U	2.90 U	2.90 U
Perfluorotridecanoic acid (PFTrDA)	2.80 U	2.80 U	2.60 U	2.90 U	2.90 U
Perfluoroundecanoic acid (PFUnA)	1.40 U	1.40 U	1.30 U	**1.40 J**	1.50 U
†PFOS + PFOA (EPA)	**0.00**	**1.70**	**2.45**	**0.00**	**0.00**
‡PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP)	**0.00**	**12.5**	**3.05**	**2.30**	**0.00**

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KGS 2019 PFAS MW&INF

J3 Range

Location	J3-INF	J3-INF	MW-163S	MW-163S	MW-227M2	MW-250M2
Field Sample ID	J3-INF_PFAS19	J3-INF_PFAS19D	MW-163S_PFAS19	MW-163S_PFAS19D	MW-227M2_PFAS19	MW-250M2_PFAS19
Sampling Depth	0.00 - 0.00	0.00 - 0.00	38.00 - 48.00	38.00 - 48.00	110.00 - 120.00	145.00 - 155.00
Sampling Date	06/17/2019	06/17/2019	06/18/2019	06/18/2019	06/19/2019	06/20/2019
SDG	320514661	320514661	320514662	320514662	320515981	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	9.60 U	9.70 U
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	9.40 U	9.20 U	8.60 U	8.60 U	9.60 U	9.70 U
N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	9.40 U	9.20 U	8.60 U	8.60 U	9.60 U	9.70 U
Perfluoro-1-heptanesulfonate (PFHpS)	0.940 U	0.920 U	0.860 U	0.860 U	0.960 U	0.970 U
Perfluorobutanesulfonic acid (PFBS)	0.940 U	0.920 U	0.860 U	0.860 U	0.960 U	0.970 U
Perfluorobutanoic acid (PFBA)	1.90 U	1.80 U	1.70 U	1.70 U	1.40 U	**0.710 J**
Perfluorodecane sulfonate	1.40 U	1.40 U	1.30 U	1.30 U	1.40 U	1.40 U
Perfluorodecanoic acid (PFDA)	0.940 U	0.920 U	0.860 U	0.860 U	0.960 U	0.970 U
Perfluorododecanoic acid (PFDoA)	**1.70 J**	1.40 U	1.30 U	1.30 U	1.40 U	1.40 U
Perfluoroheptanoic acid (PFHpA)	1.40 U	1.40 U	1.30 U	1.30 U	1.40 U	1.40 U
Perfluorohexanesulfonic acid (PFHxS)	**1.50 J**	**1.50 J**	**0.690 J**	**0.610 J**	**0.540 J**	0.970 U
Perfluorohexanoic acid (PFHxA)	0.940 U	0.920 U	**0.410 J**	0.860 U	0.960 U	0.970 U
Perfluorononanoic acid (PFNA)	1.40 U	1.40 U	1.30 U	1.30 U	1.40 U	1.40 U
Perfluorooctanesulfonamide (FOSA)	2.80 U	2.80 U	2.60 U	2.60 U	2.90 U	2.90 U
Perfluorooctanesulfonic acid (PFOS)	2.80 U	2.80 U	**12.0**	**12.0**	2.90 U	2.90 U
Perfluorooctanoic acid (PFOA)	**0.520 J**	1.40 U	**1.70**	**1.60 J**	1.40 U	1.40 U
Perfluoropentanoic acid (PFPA)	0.940 U	0.920 U	0.860 U	0.860 U	0.960 U	0.970 U
Perfluorotetradecanoic acid (PFTA)	2.80 U	2.80 U	2.60 U	2.60 U	2.90 U	2.90 U
Perfluorotridecanoic acid (PFTrDA)	**1.40 J**	2.80 U	2.60 U	2.60 U	2.90 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**	**0.00**	**0.00**
‡PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP)	**2.02**	**1.50**	**14.4**	**14.2**	**0.540**	**0.00**

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Notes:

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

UJ = estimated non detect

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

Bolded results indicate detections of PFAS

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

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

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

‡ PFAS-Related revisions to the Massachusetts Contingency Plan ("MCP", 310 CMR 40.0000), Massachusetts Department of Environmental Protection, April 19, 2019