MONTHLY PROGRESS REPORT #284
FOR NOVEMBER 2020

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

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

The following summary of progress is for the period from 1 November to 30 November 2020.

1. SUMMARY OF REMEDIATION ACTIONS

Remediation Actions (RA) Underway at Camp Edwards as of 27 November 2020:

Demolition Area 1 Comprehensive Groundwater RA

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

The Frank Perkins Road Treatment Facility has been optimized as part of the Environmental and System Performance Monitoring (ESPM) program at Demolition Area 1. The treatment facility continues to operate at a flow rate of 175 gpm, with over 2.783 billion gallons of water treated and re-injected as of 27 November 2020. No Frank Perkins Road Treatment Facility shutdowns occurred in November.

The Pew Road Mobile Treatment Unit (MTU) continues to operate at a flow rate of 65 GPM. As of 27 November 2020, over 663.9 million gallons of water was treated and re-injected. The following Pew Road MTU shutdowns occurred in November.

- 1345 on 17 November 2020 due to plumbing and electrical system vandalism.

The Base Boundary MTU continues to operate at a flow rate of 65 gpm. As of 27 November 2020, over 282.2 million gallons of water was treated and re-injected. No Base Boundary MTU shutdowns occurred in November.

The Leading Edge system continues to operate at a flow rate of 100 gpm. As of 27 November 2020, over 225.4 million gallons of water was treated and re-injected. No Leading Edge system shutdowns occurred in November.

J-2 Range Groundwater RA

Northern Plant

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

The Northern Treatment Building G continues to operate at a flow rate of 225 gpm. As of 27 November 2020, over 1.307 billion gallons of water have been treated and re-injected. No Northern Treatment Building G shutdowns occurred in November.

The Northern MTUs E and F continue to operate at a flow rate of 250 gpm. As of 27 November 2020, over 1.765 billion gallons of water have been treated and re-injected. No J-2 Range Northern MTU shutdowns occurred in November.

Eastern Plant

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

The MTUs H and I continue to operate at a flow rate of 250 gpm. As of 27 November 2020, over 1.418 billion gallons of water have been treated and re-injected. The following MTU H and I shutdowns occurred in November.

- 1413 on 30 October 2020 due to blown fuses and damaged motors, and was restarted at 1015 on 04 November 2020.
- 0102 on 18 November 2020 due to a power supply interruption and were restarted at 0740 on 18 November 2020.

MTU J continues to operate at a flow rate of 120 gpm. As of 27 November 2020, over 654.4 million gallons of water have been treated and re-injected. The following MTU J shutdowns occurred in November:

- 1413 on 30 October 2020 due to blown fuses, and was restarted at 0906 on 04 November 2020.

MTU K continues to operate at a flow rate of 125 gpm. As of 27 November 2020, over 774.9 million gallons of water have been treated and re-injected. The following MTU K shutdowns occurred in November.

- 1413 on 30 October 2020 due to blown fuses, and was restarted at 0740 on 03 November 2020

<u>J-3 Range Groundwater RA</u>

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

The J-3 system is currently operating at 255 gpm. As of 27 November 2020, over 1.424 billion gallons of water have been treated and re-injected. The following J-3 Range system shutdowns occurred in November:

- 0103 on 18 November 2020 due to a power supply interruption and was restarted at 0930 on 18 November 2020.

J-1 Range Groundwater RA

Southern Plant

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

The Southern MTU continues to operate at a flow rate of 125 gpm. As of 27 November 2020, over 632.8 million gallons of water have been treated and re-injected. The following J-1 Range Southern system shutdowns occurred in November.

- J1SEW0002 was turned off at 1045 on 09 November 2020 to perform SPM sampling and was restarted at 1143 on 09 November 2020.

Northern Plant

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

The Northern MTU continues to operate at a total system flow rate of 250 gpm. As of 27 November 2020, over 905.0 million gallons of water have been treated and re-injected. No J-1 Range Northern MTU shutdowns occurred in November.

Central Impact Area RA

The Central Impact Area (CIA) Groundwater treatment facility consists of removal and treatment of groundwater to minimize downgradient migration of explosives compounds and perchlorate. The ETR system includes the following components: three extraction wells, an ex-situ treatment process consisting of an ion exchange (IX) resin and granular activated carbon (GAC) media to treat explosives compounds, and three infiltration galleries to return treated water to the aquifer. The CIA systems 1, 2, and 3 continue to run at a combined total flow rate of 750 gpm. As of 27 November 2020, over 2.276 billion gallons of water have been treated and re-injected. The following CIA system shutdowns occurred in November.

- System 2 turned off at 1000 on 16 November 2020 to perform carbon media exchange, and was restarted at 0740 on 18 November 2020.

2. SUMMARY OF ACTIONS TAKEN

Operable Unit (OU) Activity as of 27 November 2020

CIA

- Performed intrusive investigations and demolition operations
- Completed MM recollects including SU 8
- Routine inspections of BEM cover to ensure cover is secure and intact
- Routine MD processing
- System 2 bag filters replaced on 23 November
- Pew Road MTU bag filters replaced on 09 November 2020

- Pew Road MTU plumbing and electrical system repairs 19 through 24 November 2020

Demolition Area 1
- No activity

Demolition Area 2
- No activity

J-1 Range
- J1 North SPM program groundwater sampling and hydraulic monitoring
- J1 South SPM program groundwater sampling

J-2 Range
- MTU K bag filters were exchanged on 03 November 2020
- MTU F bag filters were exchanged on 24 November 2020

J-3 Range
- No activity

L Range
- No activity

Small Arms Ranges
- No activity

Training Areas
- Intrusive investigation in Former E Range geophysical investigation grids

Other
- Collected process water samples from the Central Impact Area (Systems 1 ,2, and 3), Demolition Area 1, J1 Range Northern, J1 Range Southern, J2 Range Eastern, J2 Range Northern, and J3 Range treatment systems

JBCC IAGWSP Tech Update Meeting Minutes for 19 November 2020

Project and Fieldwork Update

There was a significant power outage over the last weekend in October that affected several treatment systems. Electrical fuses on Greenway Road and Route 130 in Sandwich had to be replaced. Eversource fixed repaired the fuses on November 3 and an electrician made the connections on November 4. The systems were back up and running mid-week. There was a carbon exchange at CIA 2 on November 17. The exchange was conducted successfully but when checking the remaining systems after its completion, it was discovered that the Pew Road treatment facility had been broken into and severely damaged. A suspect was apprehended on base shortly after the incident occurred and an image of an unauthorized person was captured on video by the program's cameras during the incident. IAGWSP, USACE and KGS are working with the State Police to file reports. All other treatment systems are running normally. The long-term monitoring sampling crews finished with the last round of water level measurements at Demolition Area 1 leading edge and have moved onto J-1 North.

Dawson is continuing the 20-acre investigation at the Former E Range. The project is approximately fifty percent complete. Investigation of discrete targets/polygons/obstructions has been completed in 48 grids, nine grids are in progress and the team is currently working on discrete targets in grids E9 and E10. To date, thirty-three MEC items have been found: twenty-six 3.5" rockets, one 4.2" illumination mortar, four 60mms, one 40mm practice grenade and one 60mm fuze. In addition, 48 20 mm target practice projectiles were found. Although not considered MEC, the items need to be vented in the BEM in order to be disposed of properly. The team will de-mob for a few months in the winter and work will continue until May 2021.

In the Central Impact Area, there are four dig teams working. Survey Units 6 and 7 are complete. MetalMapper is complete in all areas and re-shoots are done. The dig list for survey unit 8 was recently finalized and they are at 1% complete. Survey Unit 9 is 20% complete. A 4.2" cracked open item was dug today in SU 8. Demolition shots will be occurring from 21 through 24 November.

Action Items

The action items were discussed and updated.

Demolition Area 1 Annual Monitoring Report Presentation

A presentation was provided on the Demolition Area 1 Annual Monitoring Report. During the reporting period (July 20120198 to June 2020). New work included retrofitting the Leading Edge extraction well (D1-EW-5) with a packer assembly and the effective screen length of the well was reduced from 80 feet to 35 feet with the screen effectively open to the aquifer from -50 to -85 ft msl. Also, two vertical profiles DP-723 DP-724 were advanced north of Barlow's Landing Rd in Pocasset however, the geoprobe rig could not achieve the proposed depths. Low levels of perchlorate (max 0.28 µg/L DP-723 and 0.33 µg/L DP 724) was detected and confirmed that the leading edge of the plume was identified.

Treatment system performance, sampling locations, groundwater monitoring results, and trends were reviewed and discussed. For Zone 1 (source to Frank Perkins Road), the maximum RDX concentration was 1.6 µg/L (MW-19S) and the maximum perchlorate concentration was 0.13 µg/L (FPR influent). It was noted that no monitoring wells or extraction wells are being sampled for perchlorate. For Zone 2 (Frank Perkins Road to Pew Road), the maximum RDX concentration was 0.60 µg/L (MW-341M2) and the maximum perchlorate concentration was 0.74 µg/L (MW- 341M2). For Zone 3 (Pew Road to Base Boundary), the maximum RDX concentration was 1.3 µg/L (MW-663D) and the maximum perchlorate concentration was 22.5 µg/L (MW-533M1). For Zone 4 (off-base), RDX was detected in two samples at 0.17 µg/L (MW-556M1) and the maximum perchlorate concentration was 2.73 µg/L (MW-611M1).

Results of hydraulic monitoring and a capture zone analysis were discussed. For the aquifer hydraulic monitoring, one site-wide synoptic water level round was conducted during the reporting period. Hydraulic monitoring observations were consistent with past reporting periods for zones 1 & 2 with. A hydraulic monitoring event was performed in October and January to assess the base boundary extraction well puckering and in February for hydraulic monitoring in Zone 4 as part of the leading edge puckering assessment. For the capture zone analysis, the capture zones were developed manually and later compared to model simulated capture zones. Perchlorate and RDX contamination in Zone 2 located above silt/clay layer is below screening levels. RDX/perchlorate below layer appears to have migrated into Zone 3. The perchlorate contamination in Zone 3 between Fredrickson Rd and Base Boundary is within the D1-EW-3

capture zone due to increase capture due to well puckering. Portions of the plume south of MW-341M2 and centered on MW-663D is outside well capture. The perchlorate plume within Zone 4 is within capture zone of D1-EW5 and packering efforts have expanded capture since implementation in January 2020. Contamination downgradient of County Rd s predicted to attenuate/discharge to Buzzards Bay within 3 to 4 years.

Measured vs. model predicted mass removal statistics were reviewed and discussed. Perchlorate and RDX plume shells developed with data through 2018 were used. The total perchlorate removed for the reporting period for all systems was 0.44 pounds and RDX was 0.10 pounds. In general, mass removal continues to decline, and the most mass removal is associated with the Base Boundary Extraction Well D1 EW 3. Decision Document (DD) cleanup timelines were discussed. For perchlorate, the model predicted the full plume shell will be below 2 µg/L before 2025 consistent with Addendum No 2 to the DD (2013). Contamination west of County Road is expected to discharge to the Pocasset River by 2023.

The plume shell was updated with data through June 2020 using drift function (3.57 lb. of perchlorate > 2 µg/L). Plume cleanup by 2025 with exception of deep contamination that is not within the productive aquifer (0.35 pounds). This contamination is attenuated by 2032.
The DD estimates RDX will clean up by 2022. The plumeshell developed in 2018 indicates RDX reduced to below the RBC of 0.6µg/L by2022 in accordance with timelines outlined in the DD, with the exception of the plume upgradient of D1-EW-501. The plume shell updated with data through June 2020 using drift function indicates 0.115 lb. of RDX above the RBC. Drift indicates by 2022 segment downgradient of MW-663D remains and RDX > 0.6µg/L is 0.03lb in non-productive aquifer. All below RBC by 2026.

IAGWSP is not recommending any changes to the annual synoptic gauging program or to the chemical monitoring program in Zones 1, 2, &4. In Zone 3, at MW-533M1 it is recommended the sample frequency for perchlorate and explosives (notably RDX) be increased from annual to semi-annual at this well (perchlorate concentration increased from 2.1 µg/L in July 2016 to 4 µg/L in June 2017 to 8. 8 µg/L in June 2018 to 11.8 µg/L in June 2019 and to 22.5 µg/L in June 2020). IAGWSP is proposing to install a vertical profile at MW-533M1 in order to determine the extent of contamination at this well location.

JBCC Cleanup Team Meeting

The next meeting of the JBCC Cleanup Team (JBCCCT) has not been scheduled. The previous meeting was conducted virtually on October 28, 2020, and the materials can be found on the IAGWSP web site at https://jbcc-iagwsp.org/iagwsp/community/impact/presentations/. The Cleanup Team meeting discusses late breaking news and responses to action items, as well as updates from the IAGWSP and the Installation Restoration Program (IRP). The JBCCCT meetings provide a forum for community input regarding issues related to both the IRP and the IAGWSP.

3. SUMMARY OF DATA RECEIVED

Table 1 summarizes sampling for all media from 1 November to 30 November 2020. Table 2 summarizes the validated detections of explosives compounds and perchlorate for all groundwater results received from 1 November to 30 November 2020. These results are compared to the Maximum Contaminant Levels/Health Advisory (MCL/HA) values for respective analytes. Explosives and perchlorate are the primary contaminants of concern (COC) at Camp Edwards. Table 3 summarizes sampling of influent and groundwater samples for per- and polyfluoroalkyl substances (PFAS) from 1 June 2019 to present.

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

4. SUBMITTED DELIVERABLES

Deliverables submitted during the reporting period include the following:

• Monthly Progress Report No. 283 for October 2020	10 November 2020
• Final 2019 Source Removal Annual Report at the Central Impact Area	11 November 2020
• Land Use Controls Monitoring Report	11 November 2020
• Demo 1 Draft 2020 EMR RCL	30 November 2020

5. SCHEDULED ACTIONS

The following documents were being prepared or revised in November 2020.

- CIA Draft 2019 Annual Environmental Monitoring Report
- CIA and J-2 Range IRA Plan for BEM rocket disposal
- Northwest Corner Demonstration of Compliance Report
- Small Arms Ranges Completion of Work Report
- Demolition Area 1 2020 Final Annual Environmental Monitoring Report

TABLE 1
Sampling Progress: 1 through 30 November 2020

Area Of Concern	Location	Field Sample ID	Sample Type	Date Sampled	Matrix	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)
J1 Range Northern	MW-541M1	MW-541M1_F20	N	11/24/2020	Ground Water	210	220
J1 Range Northern	MW-401M3	MW-401M3_F20	N	11/24/2020	Ground Water	228.5	238.5
J1 Range Northern	MW-401M1	MW-401M1_F20	N	11/24/2020	Ground Water	256.1	266.1
J1 Range Northern	MW-430M2	MW-430M2_F20	N	11/24/2020	Ground Water	188.41	198.41
J1 Range Northern	MW-430M1	MW-430M1_F20	N	11/24/2020	Ground Water	245.23	255.23
J1 Range Northern	MW-567M1	MW-567M1_F20	N	11/23/2020	Ground Water	215.5	225.5
J1 Range Northern	MW-286M2	MW-286M2_F20	N	11/23/2020	Ground Water	205	215
J1 Range Northern	MW-286M1	MW-286M1_F20	N	11/23/2020	Ground Water	259	269
J1 Range Northern	MW-606M2	MW-606M2_F20	N	11/23/2020	Ground Water	193.2	203.2
J1 Range Northern	MW-606M1	MW-606M1_F20	N	11/23/2020	Ground Water	233.3	243.3
J1 Range Northern	MW-689M2	MW-689M2_F20	N	11/19/2020	Ground Water	231.4	241.4
J1 Range Northern	MW-689M1	MW-689M1_F20	N	11/19/2020	Ground Water	253.5	263.5
J1 Range Northern	MW-688M2	MW-688M2_F20	N	11/19/2020	Ground Water	227.8	237.8
J1 Range Northern	MW-688M1	MW-688M1_F20	N	11/19/2020	Ground Water	255.2	265.2
J1 Range Northern	MW-164M2	MW-164M2_F20	N	11/18/2020	Ground Water	157	167
J1 Range Northern	MW-164M1	MW-164M1_F20	N	11/18/2020	Ground Water	227	237
J2 Range Eastern	MW-164M1	MW-164M1_F20	N	11/18/2020	Ground Water	227	237
J2 Range Northern	MW-164M1	MW-164M1_F20	N	11/18/2020	Ground Water	227	237
J1 Range Northern	MW-166M3	MW-166M3_F20	N	11/18/2020	Ground Water	125	135
J1 Range Northern	MW-166M3	MW-166M3_F20D	FD	11/18/2020	Ground Water	125	135
J1 Range Northern	MW-166M2	MW-166M2_F20	N	11/18/2020	Ground Water	150	160
J1 Range Northern	MW-166M1	MW-166M1_F20	N	11/18/2020	Ground Water	218	223
J1 Range Northern	MW-564M1	MW-564M1_F20	N	11/17/2020	Ground Water	227	237
J1 Range Northern	MW-564M1	MW-564M1_F20D	FD	11/17/2020	Ground Water	227	237
J1 Range Northern	MW-549M2	MW-549M2_F20	N	11/17/2020	Ground Water	187.3	197.3
J1 Range Northern	MW-549M1	MW-549M1_F20	N	11/17/2020	Ground Water	227.4	237.4
J1 Range Northern	MW-605M2	MW-605M2_F20	N	11/17/2020	Ground Water	182.2	192.2
J1 Range Northern	MW-605M1	MW-605M1_F20	N	11/17/2020	Ground Water	220.2	230.2
J1 Range Southern	MW-592M2	MW-592M2_F20	N	11/16/2020	Ground Water	158	168
J1 Range Southern	MW-592M1	MW-592M1_F20	N	11/16/2020	Ground Water	201	211
J1 Range Southern	MW-403M2	MW-403M2_F20	N	11/16/2020	Ground Water	127.26	137.36
J1 Range Southern	MW-403M1	MW-403M1_F20	N	11/16/2020	Ground Water	159.9	169.89
J1 Range Southern	MW-669M2	MW-669M2_F20	N	11/16/2020	Ground Water	201.7	211.7
J1 Range Southern	MW-669M2	MW-669M2_F20D	FD	11/16/2020	Ground Water	201.7	211.7
J1 Range Southern	MW-669M1	MW-669M1_F20	N	11/16/2020	Ground Water	223.7	233.7
J1 Range Southern	MW-669M1	MW-669M1_F20D	FD	11/16/2020	Ground Water	223.7	233.7
J1 Range Southern	MW-526M1	MW-526M1_F20	N	11/10/2020	Ground Water	164	174
J1 Range Southern	MW-525M2	MW-525M2_F20	N	11/10/2020	Ground Water	148	158
J1 Range Southern	MW-525M1	MW-525M1_F20	N	11/10/2020	Ground Water	172	182
J1 Range Northern	MW-245M2	MW-245M2_F20	N	11/10/2020	Ground Water	204	214
J1 Range Northern	MW-245M2	MW-245M2_F20D	FD	11/10/2020	Ground Water	204	214
J1 Range Southern	DP-389	DP-389_F20	N	11/09/2020	Ground Water	157.7	162.7
J1 Range Southern	MW-528M1	MW-528M1_F20	N	11/09/2020	Ground Water	117	127
J1 Range Southern	J1S-EW1-INF	J1S-EW1-INF_F20	N	11/09/2020	Process Water	118	158
J1 Range Southern	J1S-EW2-INF	J1S-EW2-INF_F20	N	11/09/2020	Process Water	155.6	205.6
J1 Range Southern	J1S-EFF	J1S-EFF-156A	N	11/05/2020	Process Water	0	0
J1 Range Southern	J1S-MID	J1S-MID-156A	N	11/05/2020	Process Water	0	0
J1 Range Southern	J1S-INF-2	J1S-INF-2-156A	N	11/05/2020	Process Water	0	0
J1 Range Southern	MW-488PZ	MW-488PZ_F20	N	11/05/2020	Ground Water	119.28	129.28
J3 Range	J3-EFF	J3-EFF-170A	N	11/05/2020	Process Water	0	0
J3 Range	J3-MID-2	J3-MID-2-170A	N	11/05/2020	Process Water	0	0
J3 Range	J3-MID-1	J3-MID-1-170A	N	11/05/2020	Process Water	0	0
J3 Range	J3-INF	J3-INF-170A	N	11/05/2020	Process Water	0	0
J2 Range Eastern	J2E-EFF-K	J2E-EFF-K-146A	N	11/05/2020	Process Water	0	0
J2 Range Eastern	J2E-MID-2K	J2E-MID-2K-146A	N	11/05/2020	Process Water	0	0

N = Normal Sample
FD = Field Duplicate

TABLE 1
Sampling Progress: 1 through 30 November 2020

Area Of Concern	Location	Field Sample ID	Sample Type	Date Sampled	Matrix	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)
J2 Range Eastern	J2E-MID-1K	J2E-MID-1K-146A	N	11/05/2020	Process Water	0	0
J2 Range Eastern	J2E-INF-K	J2E-INF-K-146A	N	11/05/2020	Process Water	0	0
J1 Range Southern	MW-488M1	MW-488M1_F20	N	11/05/2020	Ground Water	149.62	159.62
J2 Range Eastern	J2E-EFF-J	J2E-EFF-J-146A	N	11/05/2020	Process Water	0	0
J2 Range Eastern	J2E-MID-2J	J2E-MID-2J-146A	N	11/05/2020	Process Water	0	0
J2 Range Eastern	J2E-MID-1J	J2E-MID-1J-146A	N	11/05/2020	Process Water	0	0
J2 Range Eastern	J2E-INF-J	J2E-INF-J-146A	N	11/05/2020	Process Water	0	0
J2 Range Eastern	J2E-EFF-IH	J2E-EFF-IH-146A	N	11/05/2020	Process Water	0	0
J2 Range Eastern	J2E-MID-2H	J2E-MID-2H-146A	N	11/05/2020	Process Water	0	0
J2 Range Eastern	J2E-MID-1H	J2E-MID-1H-146A	N	11/05/2020	Process Water	0	0
J2 Range Eastern	J2E-MID-2I	J2E-MID-2I-146A	N	11/05/2020	Process Water	0	0
J2 Range Eastern	J2E-MID-1I	J2E-MID-1I-146A	N	11/05/2020	Process Water	0	0
J2 Range Eastern	J2E-INF-I	J2E-INF-I-146A	N	11/05/2020	Process Water	0	0
J1 Range Southern	DP-379	DP-379_F20	N	11/04/2020	Ground Water	184.3	189.3
J2 Range Northern	J2N-EFF-G	J2N-EFF-G-170A	N	11/04/2020	Process Water	0	0
J2 Range Northern	J2N-MID-2G	J2N-MID-2G-170A	N	11/04/2020	Process Water	0	0
J2 Range Northern	J2N-MID-1G	J2N-MID-1G-170A	N	11/04/2020	Process Water	0	0
J2 Range Northern	J2N-INF-G	J2N-INF-G-170A	N	11/04/2020	Process Water	0	0
J2 Range Northern	J2N-EFF-EF	J2N-EFF-EF-170A	N	11/04/2020	Process Water	0	0
J2 Range Northern	J2N-MID-2F	J2N-MID-2F-170A	N	11/04/2020	Process Water	0	0
J2 Range Northern	J2N-MID-1F	J2N-MID-1F-170A	N	11/04/2020	Process Water	0	0
J2 Range Northern	J2N-INF-EF	J2N-INF-EF-170A	N	11/04/2020	Process Water	0	0
J2 Range Northern	J2N-MID-2E	J2N-MID-2E-170A	N	11/04/2020	Process Water	0	0
J2 Range Northern	J2N-MID-1E	J2N-MID-1E-170A	N	11/04/2020	Process Water	0	0
J1 Range Northern	J1N-EFF	J1N-EFF-85A	N	11/04/2020	Process Water	0	0
J1 Range Northern	J1N-MID2	J1N-MID2-85A	N	11/04/2020	Process Water	0	0
J1 Range Northern	J1N-MID1	J1N-MID1-85A	N	11/04/2020	Process Water	0	0
J1 Range Northern	J1N-INF2	J1N-INF2-85A	N	11/04/2020	Process Water	0	0
J1 Range Southern	MW-523M1	MW-523M1_F20	N	11/03/2020	Ground Water	158	168
Central Impact Area	CIA2-EFF	CIA2-EFF-82A	N	11/03/2020	Process Water	0	0
Central Impact Area	CIA2-MID2	CIA2-MID2-82A	N	11/03/2020	Process Water	0	0
Central Impact Area	CIA2-MID1	CIA2-MID1-82A	N	11/03/2020	Process Water	0	0
Central Impact Area	CIA2-INF	CIA2-INF-82A	N	11/03/2020	Process Water	0	0
J1 Range Southern	MW-591M2	MW-591M2_F20	N	11/03/2020	Ground Water	165	175
J1 Range Southern	MW-591M1	MW-591M1_F20	N	11/03/2020	Ground Water	200	210
Central Impact Area	CIA1-EFF	CIA1-EFF-82A	N	11/03/2020	Process Water	0	0
Central Impact Area	CIA1-MID2	CIA1-MID2-82A	N	11/03/2020	Process Water	0	0
Central Impact Area	CIA1-MID1	CIA1-MID1-82A	N	11/03/2020	Process Water	0	0
J1 Range Southern	MW-646M2	MW-646M2_F20	N	11/03/2020	Ground Water	168	178
Central Impact Area	CIA1-INF	CIA1-INF-82A	N	11/03/2020	Process Water	0	0
Central Impact Area	CIA3-EFF	CIA3-EFF-53A	N	11/03/2020	Process Water	0	0
Central Impact Area	CIA3-MID2	CIA3-MID2-53A	N	11/03/2020	Process Water	0	0
J1 Range Southern	MW-646M1	MW-646M1_F20	N	11/03/2020	Ground Water	198	208
Central Impact Area	CIA3-MID1	CIA3-MID1-53A	N	11/03/2020	Process Water	0	0
Central Impact Area	CIA3-INF	CIA3-INF-53A	N	11/03/2020	Process Water	0	0
J1 Range Southern	MW-527M1	MW-527M1_F20	N	11/02/2020	Ground Water	165	175
J1 Range Southern	MW-522M2	MW-522M2_F20	N	11/02/2020	Ground Water	165	175
Demolition Area 1	PR-EFF	PR-EFF-176A	N	11/02/2020	Process Water	0	0
Demolition Area 1	PR-MID-2	PR-MID-2-176A	N	11/02/2020	Process Water	0	0
Demolition Area 1	PR-MID-1	PR-MID-1-176A	N	11/02/2020	Process Water	0	0
Demolition Area 1	PR-INF	PR-INF-176A	N	11/02/2020	Process Water	0	0
J1 Range Southern	MW-522M1	MW-522M1_F20	N	11/02/2020	Ground Water	198	208
Demolition Area 1	FPR-2-EFF-A	FPR-2-EFF-A-176A	N	11/02/2020	Process Water	0	0
Demolition Area 1	FPR-2-GAC-MID1A	FPR-2-GAC-MID1A-176A	N	11/02/2020	Process Water	0	0
Demolition Area 1	FPR2-POST-IX-A	FPR2-POST-IX-A-176A	N	11/02/2020	Process Water	0	0

N = Normal Sample
FD = Field Duplicate

TABLE 1
Sampling Progress: 1 through 30 November 2020

Area Of Concern	Location	Field Sample ID	Sample Type	Date Sampled	Matrix	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)
Demolition Area 1	FPR-2-INF	FPR-2-INF-176A	N	11/02/2020	Process Water	0	0
J1 Range Southern	MW-482M3	MW-482M3_F20	N	11/02/2020	Ground Water	98.18	108.18
Demolition Area 1	D1LE-EFF	D1LE-EFF-52A	N	11/02/2020	Process Water	0	0
Demolition Area 1	D1LE-MID2	D1LE-MID2-52A	N	11/02/2020	Process Water	0	0
Demolition Area 1	D1LE-MID1	D1LE-MID1-52A	N	11/02/2020	Process Water	0	0
Demolition Area 1	D1LE-INF	D1LE-INF-52A	N	11/02/2020	Process Water	0	0
J1 Range Southern	MW-482M2	MW-482M2_F20	N	11/02/2020	Ground Water	172.64	182.64
Demolition Area 1	D1-EFF	D1-EFF-124A	N	11/02/2020	Process Water	0	0
Demolition Area 1	D1-MID-2	D1-MID-2-124A	N	11/02/2020	Process Water	0	0
Demolition Area 1	D1-MID-1	D1-MID-1-124A	N	11/02/2020	Process Water	0	0
Demolition Area 1	D1-INF	D1-INF-124A	N	11/02/2020	Process Water	0	0

N = Normal Sample
FD = Field Duplicate

TABLE 2
VALIDATED EXPLOSIVE AND PERCHLORATE RESULTS
Data Received November 2020

Area of Concern	Location ID	Field Sample ID	Top Depth (ft bgs)	Bottom Depth (ft bgs)	Date Sampled	Test Method	Analyte	Result Value	Qualifier	Units	MCL/HA	> MCL/HA	MDL	RL
J2 Range Eastern	MW-708S	MW-708S_F20	107.7	117.7	10/08/2020	SW6850	Perchlorate	0.058	J	µg/L	2.0		0.030	0.20
J2 Range Eastern	MW-707S	MW-707S_F20	110.3	120.3	10/08/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.051	J	µg/L	400		0.036	0.20
J2 Range Eastern	MW-707S	MW-707S_F20	110.3	120.3	10/08/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.23		µg/L	0.60		0.034	0.20
J2 Range Eastern	MW-706S	MW-706S_F20	112.7	122.7	10/08/2020	SW6850	Perchlorate	0.30	J	µg/L	2.0		0.030	0.20
J2 Range Eastern	MW-307M3	MW-307M3_F20	125.8	135.82	10/08/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.35		µg/L	0.60		0.034	0.20
J2 Range Eastern	MW-307M3	MW-307M3_F20	125.8	135.82	10/08/2020	SW6850	Perchlorate	2.3	J	µg/L	2.0	X	0.030	0.20
J2 Range Eastern	MW-116S	MW-116S_F20	103	113.7	10/07/2020	SW6850	Perchlorate	0.40	J	µg/L	2.0		0.030	0.20
J2 Range Eastern	MW-121S	MW-121S_F20	87.95	97.95	10/07/2020	SW6850	Perchlorate	0.048	J	µg/L	2.0		0.030	0.20
J2 Range Eastern	MW-122S	MW-122S_F20	88	98	10/07/2020	SW6850	Perchlorate	0.076	J	µg/L	2.0		0.030	0.20
J2 Range Eastern	MW-122S	MW-122S_F20	88	98	10/07/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.097	J	µg/L	0.60		0.034	0.20
J2 Range Eastern	MW-154S	MW-154S_F20	98	108	10/07/2020	SW6850	Perchlorate	0.11	J	µg/L	2.0		0.030	0.20
J2 Range Eastern	MW-228S	MW-228S_F20	104	114	10/06/2020	SW6850	Perchlorate	0.055	J	µg/L	2.0		0.030	0.20
J2 Range Eastern	MW-228S	MW-228S_F20	104	114	10/06/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.68		µg/L	400		0.036	0.20
J2 Range Eastern	MW-228S	MW-228S_F20D	104	114	10/06/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.67		µg/L	400		0.036	0.20
J2 Range Eastern	MW-709S	MW-709S_F20	106.2	116.2	10/06/2020	SW6850	Perchlorate	0.12	J	µg/L	2.0		0.030	0.20
J2 Range Eastern	MW-321M2	MW-321M2_F20	155.67	165.67	10/06/2020	SW6850	Perchlorate	0.17	J	µg/L	2.0		0.030	0.20
J2 Range Eastern	MW-321M1	MW-321M1_F20	174.61	184.61	10/06/2020	SW6850	Perchlorate	0.14	J	µg/L	2.0		0.030	0.20
J2 Range Eastern	MW-319M2	MW-319M2_F20	165.17	175.17	10/05/2020	SW6850	Perchlorate	0.033	J	µg/L	2.0		0.030	0.20
J2 Range Eastern	MW-319M1	MW-319M1_F20	200.25	210.25	10/05/2020	SW6850	Perchlorate	0.063	J	µg/L	2.0		0.030	0.20
J2 Range Eastern	MW-319M1	MW-319M1_F20	200.25	210.25	10/05/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.076	J	µg/L	400		0.036	0.20
J2 Range Eastern	MW-319M1	MW-319M1_F20	200.25	210.25	10/05/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.091	J	µg/L	0.60		0.034	0.20
J2 Range Eastern	MW-215M2	MW-215M2_F20	205	215	10/05/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.11	J	µg/L	400		0.036	0.20
J2 Range Eastern	MW-215M2	MW-215M2_F20	205	215	10/05/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.17	J	µg/L	0.60		0.034	0.20
J2 Range Eastern	MW-215M2	MW-215M2_F20	205	215	10/05/2020	SW6850	Perchlorate	1.2	J	µg/L	2.0		0.030	0.20
J2 Range Eastern	MW-215M1	MW-215M1_F20	240	250	10/05/2020	SW6850	Perchlorate	0.53	J	µg/L	2.0		0.030	0.20
J2 Range Eastern	MW-685M1	MW-685M1_F20	166.2	176.2	10/01/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.13	J	µg/L	0.60		0.034	0.20
J2 Range Eastern	MW-685M1	MW-685M1_F20	166.2	176.2	10/01/2020	SW6850	Perchlorate	0.23		µg/L	2.0		0.030	0.20
J2 Range Eastern	MW-685M1	MW-685M1_F20	166.2	176.2	10/01/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.34		µg/L	400		0.036	0.20
J2 Range Eastern	J2MW-02M2	J2MW-02M2_F20	236	246	10/01/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.11	J	µg/L	0.60		0.034	0.20
J2 Range Eastern	J2MW-02M2	J2MW-02M2_F20	236	246	10/01/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.38		µg/L	400		0.036	0.20
J2 Range Eastern	J2MW-02M2	J2MW-02M2_F20	236	246	10/01/2020	SW6850	Perchlorate	0.80		µg/L	2.0		0.030	0.20
J2 Range Eastern	J2MW-02M2	J2MW-02M2_F20D	236	246	10/01/2020	SW6850	Perchlorate	0.78		µg/L	2.0		0.030	0.20
J2 Range Eastern	J2MW-02M1	J2MW-02M1_F20	271	281	10/01/2020	SW6850	Perchlorate	0.64		µg/L	2.0		0.030	0.20
J2 Range Eastern	MW-668M1	MW-668M1_F20	168.7	178.7	09/30/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.3		µg/L	0.60	X	0.034	0.20
J2 Range Eastern	MW-668M1	MW-668M1_F20	168.7	178.7	09/30/2020	SW6850	Perchlorate	34.3		µg/L	2.0	X	0.30	2.0
J2 Range Eastern	MW-668M1	MW-668M1_F20D	168.7	178.7	09/30/2020	SW6850	Perchlorate	34.2		µg/L	2.0	X	0.30	2.0
J2 Range Eastern	MW-666M3	MW-666M3_F20	199.8	209.8	09/30/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.11	J	µg/L	400		0.036	0.20
J2 Range Eastern	MW-666M3	MW-666M3_F20	199.8	209.8	09/30/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.14	J	µg/L	0.60		0.034	0.20
J2 Range Eastern	MW-666M3	MW-666M3_F20	199.8	209.8	09/30/2020	SW6850	Perchlorate	0.99		µg/L	2.0		0.030	0.20
J2 Range Eastern	MW-666M2	MW-666M2_F20	219.8	229.8	09/30/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.13	J	µg/L	0.60		0.034	0.20
J2 Range Eastern	MW-666M2	MW-666M2_F20	219.8	229.8	09/30/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.14	J	µg/L	400		0.036	0.20
J2 Range Eastern	MW-666M2	MW-666M2_F20	219.8	229.8	09/30/2020	SW6850	Perchlorate	0.86		µg/L	2.0		0.030	0.20
J2 Range Eastern	MW-666M1	MW-666M1_F20	244.8	254.8	09/30/2020	SW6850	Perchlorate	0.55		µg/L	2.0		0.030	0.20

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

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

TABLE 2
VALIDATED EXPLOSIVE AND PERCHLORATE RESULTS
Data Received November 2020

Area of Concern	Location ID	Field Sample ID	Top Depth (ft bgs)	Bottom Depth (ft bgs)	Date Sampled	Test Method	Analyte	Result Value	Qualifier	Units	MCL/HA	> MCL/HA	MDL	RL
J2 Range Eastern	MW-666M1	MW-666M1_F20D	244.8	254.8	09/30/2020	SW6850	Perchlorate	0.52		µg/L	2.0		0.030	0.20
J2 Range Eastern	MW-366M2	MW-366M2_F20	175	185	09/29/2020	SW6850	Perchlorate	0.037	J	µg/L	2.0		0.030	0.20
J2 Range Eastern	MW-366M2	MW-366M2_F20	175	185	09/29/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.12	J	µg/L	0.60		0.034	0.20
J2 Range Eastern	MW-366M1	MW-366M1_F20	215	225	09/29/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.27		µg/L	0.60		0.034	0.20
J2 Range Eastern	MW-366M1	MW-366M1_F20	215	225	09/29/2020	SW6850	Perchlorate	1.8		µg/L	2.0		0.030	0.20
J2 Range Eastern	MW-665M3	MW-665M3_F20	175.2	185.2	09/28/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.064	J	µg/L	0.60		0.034	0.20
J2 Range Eastern	MW-665M3	MW-665M3_F20	175.2	185.2	09/28/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.19	J	µg/L	400		0.036	0.20
J2 Range Eastern	MW-665M3	MW-665M3_F20	175.2	185.2	09/28/2020	SW6850	Perchlorate	3.0		µg/L	2.0	X	0.030	0.20
J2 Range Eastern	MW-665M3	MW-665M3_F20D	175.2	185.2	09/28/2020	SW6850	Perchlorate	3.1		µg/L	2.0	X	0.030	0.20
J2 Range Eastern	MW-665M2	MW-665M2_F20	205.2	215.2	09/28/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.26		µg/L	400		0.036	0.20
J2 Range Eastern	MW-665M2	MW-665M2_F20	205.2	215.2	09/28/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	2.1		µg/L	0.60	X	0.034	0.20
J2 Range Eastern	MW-665M2	MW-665M2_F20	205.2	215.2	09/28/2020	SW6850	Perchlorate	3.3		µg/L	2.0	X	0.030	0.20
J2 Range Eastern	MW-665M2	MW-665M2_F20D	205.2	215.2	09/28/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.26		µg/L	400		0.036	0.20
J2 Range Eastern	MW-665M2	MW-665M2_F20D	205.2	215.2	09/28/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	2.1		µg/L	0.60	X	0.034	0.20
J2 Range Eastern	MW-665M2	MW-665M2_F20D	205.2	215.2	09/28/2020	SW6850	Perchlorate	3.4		µg/L	2.0	X	0.030	0.20
J2 Range Eastern	MW-665M1	MW-665M1_F20	225.2	235.2	09/28/2020	SW8330	Nitroglycerin	7.7	J	µg/L	4.8	X	2.2	8.0
J2 Range Eastern	MW-365M2	MW-365M2_F20	205.52	215.52	09/24/2020	SW6850	Perchlorate	0.043	J	µg/L	2.0		0.030	0.20
J2 Range Eastern	MW-365M2	MW-365M2_F20	205.52	215.52	09/24/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.070	J	µg/L	400		0.036	0.20
J2 Range Eastern	MW-365M2	MW-365M2_F20	205.52	215.52	09/24/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.11	J	µg/L	0.60		0.034	0.20
J2 Range Eastern	J2MW-01M2	J2MW-01M2_F20	245	255	09/24/2020	SW6850	Perchlorate	1.2		µg/L	2.0		0.030	0.20
J2 Range Eastern	MW-170M2	MW-170M2_F20	198	208	09/24/2020	SW6850	Perchlorate	0.058	J	µg/L	2.0		0.030	0.20
J2 Range Eastern	MW-170M1	MW-170M1_F20	265	275	09/24/2020	SW6850	Perchlorate	0.15	J	µg/L	2.0		0.030	0.20
J2 Range Eastern	MW-57D	MW-57D_F20	213	223	09/23/2020	SW6850	Perchlorate	0.14	J	µg/L	2.0		0.030	0.20
J2 Range Eastern	MW-627M1	MW-627M1_F20	269.5	279.5	09/23/2020	SW6850	Perchlorate	0.13	J	µg/L	2.0		0.030	0.20
J2 Range Eastern	MW-357M1	MW-357M1_F20	274.51	284.51	09/23/2020	SW6850	Perchlorate	0.21		µg/L	2.0		0.030	0.20
J2 Range Eastern	MW-667M2	MW-667M2_F20	277.3	287.3	09/22/2020	SW6850	Perchlorate	0.27		µg/L	2.0		0.030	0.20
J2 Range Eastern	MW-667M2	MW-667M2_F20	277.3	287.3	09/22/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.56		µg/L	400		0.036	0.20
J2 Range Eastern	MW-667M2	MW-667M2_F20	277.3	287.3	09/22/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.3		µg/L	0.60	X	0.034	0.20
J2 Range Eastern	MW-667M2	MW-667M2_F20D	277.3	287.3	09/22/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.62		µg/L	400		0.036	0.20
J2 Range Eastern	MW-667M2	MW-667M2_F20D	277.3	287.3	09/22/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.4		µg/L	0.60	X	0.034	0.20
J2 Range Eastern	MW-667M1	MW-667M1_F20	302.3	312.3	09/22/2020	SW6850	Perchlorate	0.57		µg/L	2.0		0.030	0.20
J2 Range Eastern	MW-667M1	MW-667M1_F20	302.3	312.3	09/22/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.82		µg/L	400		0.036	0.20
J2 Range Eastern	MW-667M1	MW-667M1_F20	302.3	312.3	09/22/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	2.0		µg/L	0.60	X	0.034	0.20
J2 Range Eastern	MW-667M1	MW-667M1_F20D	302.3	312.3	09/22/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.84		µg/L	400		0.036	0.20
J2 Range Eastern	MW-667M1	MW-667M1_F20D	302.3	312.3	09/22/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	2.1		µg/L	0.60	X	0.034	0.20
J2 Range Eastern	J2MW-04M2	J2MW-04M2_F20	210	220	09/21/2020	SW6850	Perchlorate	0.033	J	µg/L	2.0		0.030	0.20
J2 Range Eastern	J2MW-04M1	J2MW-04M1_F20	257	267	09/21/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.043	J	µg/L	0.60		0.034	0.20
J2 Range Eastern	J2MW-04M1	J2MW-04M1_F20	257	267	09/21/2020	SW6850	Perchlorate	0.081	J	µg/L	2.0		0.030	0.20
J2 Range Eastern	J2MW-04M1	J2MW-04M1_F20	257	267	09/21/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.10	J	µg/L	400		0.036	0.20
J2 Range Eastern	MW-324M2	MW-324M2_F20	203.74	214.74	09/21/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.081	J	µg/L	0.60		0.034	0.20
J2 Range Eastern	MW-324M2	MW-324M2_F20	203.74	214.74	09/21/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.25		µg/L	400		0.036	0.20
J2 Range Eastern	MW-324M2	MW-324M2_F20	203.74	214.74	09/21/2020	SW6850	Perchlorate	0.61		µg/L	2.0		0.030	0.20
J2 Range Eastern	MW-324M1	MW-324M1_F20	234.85	244.85	09/21/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.088	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

TABLE 2
VALIDATED EXPLOSIVE AND PERCHLORATE RESULTS
Data Received November 2020

Area of Concern	Location ID	Field Sample ID	Top Depth (ft bgs)	Bottom Depth (ft bgs)	Date Sampled	Test Method	Analyte	Result Value	Qualifier	Units	MCL/HA	> MCL/HA	MDL	RL
J2 Range Eastern	MW-324M1	MW-324M1_F20	234.85	244.85	09/21/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.33		µg/L	400		0.036	0.20
J2 Range Eastern	MW-324M1	MW-324M1_F20	234.85	244.85	09/21/2020	SW6850	Perchlorate	0.51		µg/L	2.0		0.030	0.20
J2 Range Eastern	MW-339M2	MW-339M2_F20	213	223	09/17/2020	SW6850	Perchlorate	0.037	J	µg/L	2.0		0.030	0.20
J2 Range Eastern	MW-339M2	MW-339M2_F20	213	223	09/17/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.091	J	µg/L	0.60		0.034	0.20
J2 Range Eastern	MW-339M1	MW-339M1_F20	233	243	09/17/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.083	J	µg/L	400		0.036	0.20
J2 Range Eastern	MW-339M1	MW-339M1_F20	233	243	09/17/2020	SW6850	Perchlorate	0.33		µg/L	2.0		0.030	0.20
J2 Range Eastern	MW-368M3	MW-368M3_F20	155.5	165.5	09/17/2020	SW6850	Perchlorate	0.075	J	µg/L	2.0		0.030	0.20
J2 Range Eastern	MW-368M2	MW-368M2_F20	202.73	212.73	09/17/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	3.5		µg/L	0.60	X	0.034	0.20
J2 Range Eastern	MW-368M2	MW-368M2_F20	202.73	212.73	09/17/2020	SW6850	Perchlorate	6.7		µg/L	2.0	X	0.030	0.20
J2 Range Eastern	MW-368M2	MW-368M2_F20	202.73	212.73	09/17/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	7.6		µg/L	400		0.036	0.20
J2 Range Eastern	MW-368M2	MW-368M2_F20D	202.73	212.73	09/17/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	3.4		µg/L	0.60	X	0.034	0.20
J2 Range Eastern	MW-368M2	MW-368M2_F20D	202.73	212.73	09/17/2020	SW6850	Perchlorate	7.0		µg/L	2.0	X	0.030	0.20
J2 Range Eastern	MW-368M2	MW-368M2_F20D	202.73	212.73	09/17/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	7.7		µg/L	400		0.036	0.20
J2 Range Eastern	MW-368M1	MW-368M1_F20	237.35	247.35	09/17/2020	SW6850	Perchlorate	68.0		µg/L	2.0	X	0.30	2.0
J2 Range Eastern	MW-368M1	MW-368M1_F20	237.35	247.35	09/17/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	8.8		µg/L	0.60	X	0.034	0.20
J2 Range Eastern	MW-368M1	MW-368M1_F20D	237.35	247.35	09/17/2020	SW6850	Perchlorate	67.8		µg/L	2.0	X	0.30	2.0
J2 Range Eastern	MW-368M1	MW-368M1_F20D	237.35	247.35	09/17/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	8.8		µg/L	0.60	X	0.034	0.20
J2 Range Eastern	MW-393M2	MW-393M2_F20	218.16	228.16	09/16/2020	SW6850	Perchlorate	0.037	J	µg/L	2.0		0.030	0.20

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

MCL/HA= Either the MCL or Lowest Health Advisory Limit
December 07, 2020

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

Location	D1-INF	FPR-2-INF	MW-258M1	MW-663D	PR-INF
Field Sample ID	D1-INF_PFAS19	FPR-2-INF_PFAS19	MW-258M1_PFAS19	MW-663D_PFAS19	PR-INF_PFAS19
Sampling Depth	0.00 - 0.00	0.00 - 0.00	109.00 - 119.00	240.60 - 250.60	0.00 - 0.00
Sampling Date	06/24/2019	06/25/2019	06/19/2019	06/24/2019	06/25/2019
SDG	320517141	320517141	320515981	320517141	320517141
Sample Type	**Normal**	**Normal**	**Normal**	**Normal**	**Normal**
PFAS 21 Cmps	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)
6:2 Fluorotelomer sulfonate (6:2 FTS)	18.0 U	19.0 U	20.0 U	20.0 U	20.0 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	9.10 U	9.50 U	9.80 U	9.80 U	9.80 U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	9.10 U	9.50 U	9.80 U	9.80 U	9.80 U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	9.10 U	9.50 U	9.80 U	9.80 U	9.80 U
Perfluoro-1-heptanesulfonate (PFHpS)	0.910 U	0.950 U	0.980 U	0.980 U	0.980 U
Perfluorobutanesulfonic acid (PFBS)	0.910 U	0.950 U	0.980 U	0.980 U	0.980 U
Perfluorobutanoic acid (PFBA)	1.40 U	1.40 U	1.50 U	1.50 U	1.50 U
Perfluorodecane sulfonate	1.40 U	1.40 U	1.50 U	1.50 U	1.50 U
Perfluorodecanoic acid (PFDA)	0.910 U	0.950 U	0.980 U	**2.20**	0.980 U
Perfluorododecanoic acid (PFDoA)	1.40 U	1.40 U	1.50 U	1.50 U	1.50 U
Perfluoroheptanoic acid (PFHpA)	1.40 U	1.40 U	1.50 U	1.50 U	1.50 U
Perfluorohexanesulfonic acid (PFHxS)	0.910 U	0.950 U	0.980 U	0.980 U	2.00 U
Perfluorohexanoic acid (PFHxA)	0.910 U	0.950 U	0.980 U	0.980 U	0.980 U
Perfluorononanoic acid (PFNA)	1.40 U	1.40 U	1.50 U	**1.00 J**	1.50 U
Perfluorooctane sulfonate (PFOS)	2.70 U	2.80 U	2.90 U	3.00 U	2.90 U
Perfluorooctanesulfonamide (FOSA)	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**
§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
Perfluoro-1-heptanesulfonate (PFHpS)	0.930 U	0.960 U	0.980 U	0.920 U	0.960 U
Perfluorobutanesulfonic acid (PFBS)	0.930 U	0.960 U	0.980 U	0.920 U	0.960 U
Perfluorobutanoic acid (PFBA)	1.90 U	1.40 U	**0.990 J**	1.40 U	1.40 U
Perfluorodecane sulfonate	1.40 U	1.40 U	1.50 U	1.40 U	1.40 U
Perfluorodecanoic acid (PFDA)	0.930 U	0.960 U	0.980 U	0.920 U	0.960 U
Perfluorododecanoic acid (PFDoA)	1.40 U	1.40 U	1.50 U	1.40 U	1.40 U
Perfluoroheptanoic acid (PFHpA)	1.40 U	1.40 U	1.50 U	1.40 U	1.40 U
Perfluorohexanesulfonic acid (PFHxS)	0.930 U	1.90 U	2.00 U	1.80 U	0.960 U
Perfluorohexanoic acid (PFHxA)	0.930 U	0.960 U	0.980 U	0.920 U	0.960 U
Perfluorononanoic acid (PFNA)	1.40 U	1.40 U	1.50 U	1.40 U	1.40 U
Perfluorooctane sulfonate (PFOS)	**4.90**	2.90 U	**1.40 J**	2.80 U	2.90 U
Perfluorooctanesulfonamide (FOSA)	**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 (PFPA)	0.930 U	0.960 U	0.980 U	0.920 U	0.960 U
Perfluorotetradecanoic acid (PFTA)	2.80 U	2.90 U	2.90 U	2.80 U	2.90 U
Perfluorotridecanoic acid (PFTrDA)	2.80 U	2.90 U	2.90 U	2.80 U	2.90 U
Perfluoroundecanoic acid (PFUnA)	1.40 U	1.40 U	1.50 U	1.40 U	1.40 U
†PFOS + PFOA (EPA)	**4.90**	**0.00**	**3.80**	**0.00**	**0.00**
‡PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP)	**4.90**	**0.00**	**3.80**	**0.00**	**0.00**
§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
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**
Perfluorooctane sulfonate (PFOS)	2.90 U	2.80 U	2.90 U	2.70 U	2.90 U	2.60 U
Perfluorooctanesulfonamide (FOSA)	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**
§Sum of All Compounds Collected	**0.00**	**0.00**	**0.00**	**0.880**	**0.730**	**7.40**

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

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

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

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

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Joint Base Cape Cod, IAGWSP
KGS 2019 PFAS MW&INF
J2 Range Northern

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

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

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

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

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

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

Location	J2EW0002	J2EW0002	J2EW2-MW2-B	J2EW2-MW2-C	MW-293M2	MW-293M2
Field Sample ID	J2EW0002_F20	J2EW0002_F20D	J2EW2-MW2-B_F20	J2EW2-MW2-C_F20	MW-293M2_F20	MW-293M2_F20D
Sampling Depth	198.00 - 233.00	198.00 - 233.00	209.79 - 219.79	243.83 - 253.81	196.42 - 206.42	196.42 - 206.42
Sampling Date	09/10/2020	09/10/2020	09/09/2020	09/09/2020	08/27/2020	08/27/2020
SDG	320645641	320645641	320645661	320645661	320641331	320641331
Sample Type	**Normal**	**Field Duplicate**	**Normal**	**Normal**	**Normal**	**Field Duplicate**
PFAS 21 Cmps	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)
6:2 Fluorotelomer sulfonate (6:2 FTS)	20.0 U	19.0 U	19.0 U	19.0 U	18.0 U	19.0 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	9.90 U	9.50 U	9.40 U	9.70 U	9.20 U	9.50 U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	9.90 U	9.50 U	9.40 U	9.70 U	9.20 U	9.50 U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	9.90 U	9.50 U	9.40 U	9.70 U	9.20 U	9.50 U
Perfluoro-1-heptanesulfonate (PFHpS)	0.990 U	0.950 U	0.940 U	0.970 U	0.920 U	0.950 U
Perfluorobutanesulfonic acid (PFBS)	0.990 U	0.950 U	0.940 U	0.970 U	**3.40**	**3.60**
Perfluorobutanoic acid (PFBA)	1.50 U	1.40 U	1.40 U	1.50 U	1.40 U	1.40 U
Perfluorodecane sulfonate	1.50 U	1.40 U	1.40 U	1.50 U	1.40 U	1.40 U
Perfluorodecanoic acid (PFDA)	0.990 U	0.950 U	0.940 U	0.970 U	**4.90**	**4.50**
Perfluorododecanoic acid (PFDoA)	1.50 U	1.40 U	1.40 U	1.50 U	**3.50**	**3.60**
Perfluoroheptanoic acid (PFHpA)	**0.930 J**	**0.910 J**	1.40 U	1.50 U	1.40 U	1.40 U
Perfluorohexanesulfonic acid (PFHxS)	**9.80**	**9.30**	0.940 U	0.970 U	0.920 U	0.950 U
Perfluorohexanoic acid (PFHxA)	**1.10 J**	**1.10 J**	0.940 U	0.970 U	0.920 U	0.950 U
Perfluorononanoic acid (PFNA)	1.50 U	1.40 U	1.40 U	1.50 U	**2.00**	**1.50 J**
Perfluorooctane sulfonate (PFOS)	3.00 U	2.80 U	2.80 U	2.90 U	2.80 U	2.80 U
Perfluorooctanesulfonamide (FOSA)	3.00 U	2.80 U	2.80 U	2.90 U	2.80 U	2.80 U
Perfluorooctanoic acid (PFOA)	**1.70 J**	**1.70 J**	1.40 U	1.50 U	1.40 U	1.40 U
Perfluoropentanoic acid (PFPA)	**1.10 J**	**1.20 J**	0.940 U	0.970 U	**0.460 J**	**0.410 J**
Perfluorotetradecanoic acid (PFTA)	3.00 U	2.80 U	2.80 U	2.90 U	2.80 U	2.80 U
Perfluorotridecanoic acid (PFTrDA)	3.00 U	2.80 U	2.80 U	2.90 U	**1.50 J**	**1.90 J**
Perfluoroundecanoic acid (PFUnA)	1.50 U	1.40 U	1.40 U	1.50 U	**25.0**	**28.0**
†PFOS + PFOA (EPA)	**1.70**	**1.70**	**0.00**	**0.00**	**0.00**	**0.00**
‡PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP)	**12.4**	**11.9**	**0.00**	**0.00**	**6.90**	**6.00**
§Sum of All Compounds Collected	**14.6**	**14.2**	**0.00**	**0.00**	**40.8**	**43.5**

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

Location	MW-300M1	MW-300M2	MW-300M3	MW-302M2	MW-305M1	MW-348M2
Field Sample ID	MW-300M1_F20	MW-300M2_F20	MW-300M3_F20	MW-302M2_F20	MW-305M1_F20	MW-348M2_F20
Sampling Depth	293.03 - 303.02	197.23 - 207.23	135.31 - 145.31	194.35 - 204.43	202.82 - 212.82	206.54 - 216.54
Sampling Date	09/08/2020	09/08/2020	09/08/2020	08/27/2020	08/31/2020	08/31/2020
SDG	320644781	320644781	320644781	320641331	320642421	320642421
Sample Type	**Normal**	**Normal**	**Normal**	**Normal**	**Normal**	**Normal**
PFAS 21 Cmps	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)
6:2 Fluorotelomer sulfonate (6:2 FTS)	19.0 U	18.0 U	19.0 U	18.0 U	18.0 U	20.0 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	9.50 U	9.00 U	9.40 U	9.20 U	9.10 U	9.80 U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	9.50 U	9.00 U	9.40 U	9.20 U	9.10 U	9.80 U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	9.50 U	9.00 U	9.40 U	9.20 U	9.10 U	9.80 U
Perfluoro-1-heptanesulfonate (PFHpS)	0.950 U	0.900 U	0.940 U	0.920 U	0.910 U	0.980 U
Perfluorobutanesulfonic acid (PFBS)	0.950 U	0.900 U	0.940 U	0.920 U	0.910 U	0.980 U
Perfluorobutanoic acid (PFBA)	1.40 U	1.40 U	**0.550 J**	1.40 U	1.40 U	**1.00 J**
Perfluorodecane sulfonate	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U	1.50 U
Perfluorodecanoic acid (PFDA)	**3.10**	**3.60**	**1.50 J**	**2.80**	**2.40**	**2.50**
Perfluorododecanoic acid (PFDoA)	**0.800 J**	**1.10 J**	**0.610 J**	**1.70 J**	1.40 U	**2.20**
Perfluoroheptanoic acid (PFHpA)	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U	1.50 U
Perfluorohexanesulfonic acid (PFHxS)	1.90 U	0.900 U	0.940 U	0.920 U	0.910 U	0.980 U
Perfluorohexanoic acid (PFHxA)	0.950 U	0.900 U	0.940 U	0.920 U	0.910 U	0.980 U
Perfluorononanoic acid (PFNA)	**3.90**	**2.30**	**0.960 J**	**1.00 J**	**1.40 J**	1.50 U
Perfluorooctane sulfonate (PFOS)	2.90 U	2.70 U	2.80 U	2.80 U	2.70 U	2.90 U
Perfluorooctanesulfonamide (FOSA)	2.90 U	2.70 U	2.80 U	2.80 U	2.70 U	2.90 U
Perfluorooctanoic acid (PFOA)	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U	1.50 U
Perfluoropentanoic acid (PFPA)	**0.580 J**	**0.430 J**	0.940 U	**1.40 J**	0.910 U	**1.20 J**
Perfluorotetradecanoic acid (PFTA)	2.90 U	2.70 U	2.80 U	2.80 U	2.70 U	2.90 U
Perfluorotridecanoic acid (PFTrDA)	2.90 U	**0.880 J**	2.80 U	2.80 U	2.70 U	2.90 U
Perfluoroundecanoic acid (PFUnA)	**8.50**	**9.20**	**4.80**	**22.0**	**1.40 J**	**8.10**
†PFOS + PFOA (EPA)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
‡PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP)	**7.00**	**5.90**	**2.46**	**3.80**	**3.80**	**2.50**
§Sum of All Compounds Collected	**16.9**	**17.5**	**8.42**	**28.9**	**5.20**	**15.0**

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

Location	MW-586M1	MW-586M2	MW-587M1	MW-588M1	MW-588M2	MW-589M1
Field Sample ID	MW-586M1_F20	MW-586M2_F20	MW-587M1_F20	MW-588M1_F20	MW-588M2_F20	MW-589M1_F20
Sampling Depth	237.00 - 247.00	211.00 - 221.00	250.00 - 260.00	238.00 - 248.00	198.00 - 208.00	240.00 - 250.00
Sampling Date	09/02/2020	09/02/2020	09/10/2020	08/27/2020	08/27/2020	09/02/2020
SDG	320643521	320643521	320645641	320641331	320641331	320643521
Sample Type	**Normal**	**Normal**	**Normal**	**Normal**	**Normal**	**Normal**
PFAS 21 Cmps	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)
6:2 Fluorotelomer sulfonate (6:2 FTS)	18.0 U	19.0 U	19.0 U	19.0 U	18.0 U	18.0 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	9.20 U	9.60 U	9.40 U	9.30 U	9.20 U	9.00 U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	9.20 U	9.60 U	9.40 U	9.30 U	9.20 U	9.00 U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	9.20 U	9.60 U	9.40 U	9.30 U	9.20 U	9.00 U
Perfluoro-1-heptanesulfonate (PFHpS)	0.920 U	0.960 U	0.940 U	0.930 U	0.920 U	0.900 U
Perfluorobutanesulfonic acid (PFBS)	0.920 U	0.960 U	0.940 U	0.930 U	**3.60**	0.900 U
Perfluorobutanoic acid (PFBA)	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U
Perfluorodecane sulfonate	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U
Perfluorodecanoic acid (PFDA)	0.920 U	0.960 U	0.940 U	0.930 U	0.920 U	0.900 U
Perfluorododecanoic acid (PFDoA)	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U
Perfluoroheptanoic acid (PFHpA)	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U
Perfluorohexanesulfonic acid (PFHxS)	0.920 U	0.960 U	0.940 U	0.930 U	0.920 U	0.900 U
Perfluorohexanoic acid (PFHxA)	0.920 U	0.960 U	0.940 U	0.930 U	0.920 U	0.900 U
Perfluorononanoic acid (PFNA)	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U
Perfluorooctane sulfonate (PFOS)	2.80 U	2.90 U	2.80 U	2.80 U	2.80 U	2.70 U
Perfluorooctanesulfonamide (FOSA)	2.80 U	2.90 U	2.80 U	2.80 U	2.80 U	2.70 U
Perfluorooctanoic acid (PFOA)	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U	**0.600 J**
Perfluoropentanoic acid (PFPA)	**0.490 J**	**0.490 J**	0.940 U	**0.420 J**	0.920 U	**0.600 J**
Perfluorotetradecanoic acid (PFTA)	2.80 U	2.90 U	2.80 U	2.80 U	2.80 U	2.70 U
Perfluorotridecanoic acid (PFTrDA)	2.80 U	2.90 U	2.80 U	2.80 U	2.80 U	2.70 U
Perfluoroundecanoic acid (PFUnA)	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U
†PFOS + PFOA (EPA)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.600**
‡PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.600**
§Sum of All Compounds Collected	**0.490**	**0.490**	**0.00**	**0.420**	**3.60**	**1.20**

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

Location	MW-589M2	MW-621M1	MW-621M2	MW-622M1	MW-622M2	MW-631M1
Field Sample ID	MW-589M2_F20	MW-621M1_F20	MW-621M2_F20	MW-622M1_F20	MW-622M2_F20	MW-631M1_F20
Sampling Depth	211.00 - 221.00	249.40 - 259.40	219.40 - 229.40	245.40 - 255.40	220.40 - 230.40	233.10 - 243.10
Sampling Date	09/02/2020	08/26/2020	08/26/2020	09/01/2020	09/01/2020	08/26/2020
SDG	320643521	320641331	320641331	320642411	320642411	320641331
Sample Type	**Normal**	**Normal**	**Normal**	**Normal**	**Normal**	**Normal**
PFAS 21 Cmps	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)
6:2 Fluorotelomer sulfonate (6:2 FTS)	19.0 U	19.0 U	19.0 U	19.0 U	19.0 U	19.0 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	9.40 U	9.60 U	9.40 U	9.30 U	9.40 U	9.60 U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	9.40 U	9.60 U	9.40 U	9.30 U	9.40 U	9.60 U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	9.40 U	9.60 U	9.40 U	9.30 U	9.40 U	9.60 U
Perfluoro-1-heptanesulfonate (PFHpS)	0.940 U	0.960 U	0.940 U	0.930 U	0.940 U	0.960 U
Perfluorobutanesulfonic acid (PFBS)	0.940 U	0.960 U	0.940 U	0.930 U	0.940 U	0.960 U
Perfluorobutanoic acid (PFBA)	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U
Perfluorodecane sulfonate	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U
Perfluorodecanoic acid (PFDA)	0.940 U	0.960 U	0.940 U	0.930 U	0.940 U	0.960 U
Perfluorododecanoic acid (PFDoA)	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U
Perfluoroheptanoic acid (PFHpA)	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U
Perfluorohexanesulfonic acid (PFHxS)	0.940 U	0.960 U	0.940 U	0.930 U	0.940 U	0.960 U
Perfluorohexanoic acid (PFHxA)	0.940 U	0.960 U	0.940 U	0.930 U	0.940 U	0.960 U
Perfluorononanoic acid (PFNA)	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U
Perfluorooctane sulfonate (PFOS)	2.80 U	2.90 U	2.80 U	2.80 U	2.80 U	2.90 U
Perfluorooctanesulfonamide (FOSA)	2.80 U	2.90 U	2.80 U	2.80 U	2.80 U	2.90 U
Perfluorooctanoic acid (PFOA)	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U
Perfluoropentanoic acid (PFPA)	0.940 U	**0.440 J**	0.940 U	**0.400 J**	0.940 U	**0.420 J**
Perfluorotetradecanoic acid (PFTA)	2.80 U	2.90 U	2.80 U	2.80 U	2.80 U	2.90 U
Perfluorotridecanoic acid (PFTrDA)	2.80 U	2.90 U	2.80 U	2.80 U	2.80 U	2.90 U
Perfluoroundecanoic acid (PFUnA)	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U
†PFOS + PFOA (EPA)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
‡PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
§Sum of All Compounds Collected	**0.00**	**0.440**	**0.00**	**0.400**	**0.00**	**0.420**

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KGS 2020 J2 Ranges SPM Fall
J2 Range Northern

Location	MW-631M2	MW-632M1	MW-632M2	MW-632M2	MW-640M1	MW-640M2
Field Sample ID	MW-631M2_F20	MW-632M1_F20	MW-632M2_F20	MW-632M2_F20D	MW-640M1_F20	MW-640M2_F20
Sampling Depth	200.10 - 210.10	254.50 - 264.50	229.50 - 239.50	229.50 - 239.50	246.00 - 256.00	216.00 - 226.00
Sampling Date	08/26/2020	09/03/2020	09/03/2020	09/03/2020	09/03/2020	09/03/2020
SDG	320641331	320643511	320643511	320643511	320643511	320643511
Sample Type	**Normal**	**Normal**	**Normal**	**Field Duplicate**	**Normal**	**Normal**
PFAS 21 Cmps	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)
6:2 Fluorotelomer sulfonate (6:2 FTS)	18.0 U	19.0 U	18.0 U	19.0 U	19.0 U	19.0 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	9.20 U	9.40 U	9.00 U	9.60 U	9.40 U	9.30 U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	9.20 U	9.40 U	9.00 U	9.60 U	9.40 U	9.30 U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	9.20 U	9.40 U	9.00 U	9.60 U	9.40 U	9.30 U
Perfluoro-1-heptanesulfonate (PFHpS)	0.920 U	0.940 U	0.900 U	0.960 U	0.940 U	0.930 U
Perfluorobutanesulfonic acid (PFBS)	**8.50**	0.940 U	0.900 U	0.960 U	0.940 U	0.930 U
Perfluorobutanoic acid (PFBA)	**1.70 J**	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U
Perfluorodecane sulfonate	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U
Perfluorodecanoic acid (PFDA)	0.920 U	0.940 U	0.900 U	0.960 U	0.940 U	0.930 U
Perfluorododecanoic acid (PFDoA)	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U
Perfluoroheptanoic acid (PFHpA)	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U
Perfluorohexanesulfonic acid (PFHxS)	1.80 U	0.940 U	0.900 U	0.960 U	**0.360 J**	0.930 U
Perfluorohexanoic acid (PFHxA)	**5.40**	0.940 U	0.900 U	0.960 U	0.940 U	0.930 U
Perfluorononanoic acid (PFNA)	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U
Perfluorooctane sulfonate (PFOS)	2.80 U	2.80 U	2.70 U	2.90 U	2.80 U	2.80 U
Perfluorooctanesulfonamide (FOSA)	2.80 U	2.80 U	2.70 U	2.90 U	2.80 U	2.80 U
Perfluorooctanoic acid (PFOA)	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U
Perfluoropentanoic acid (PFPA)	**1.90**	**0.450 J**	0.900 U	0.960 U	**0.630 J**	0.930 U
Perfluorotetradecanoic acid (PFTA)	2.80 U	2.80 U	2.70 U	2.90 U	2.80 U	2.80 U
Perfluorotridecanoic acid (PFTrDA)	2.80 U	2.80 U	2.70 U	2.90 U	2.80 U	2.80 U
Perfluoroundecanoic acid (PFUnA)	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U
†PFOS + PFOA (EPA)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
‡PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP)	**0.00**	**0.00**	**0.00**	**0.00**	**0.360**	**0.00**
§Sum of All Compounds Collected	**17.5**	**0.450**	**0.00**	**0.00**	**0.990**	**0.00**

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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
Perfluoro-1-heptanesulfonate (PFHpS)	0.910 U	0.920 U	0.970 U	0.920 U
Perfluorobutanesulfonic acid (PFBS)	0.910 U	0.920 U	0.970 U	0.920 U
Perfluorobutanoic acid (PFBA)	1.40 U	1.40 U	**1.40 J**	1.40 U
Perfluorodecane sulfonate	1.40 U	1.40 U	1.50 U	1.40 U
Perfluorodecanoic acid (PFDA)	**3.20**	**1.60 J**	**1.50 J**	**1.90**
Perfluorododecanoic acid (PFDoA)	1.40 U	1.40 U	1.50 U	1.40 U
Perfluoroheptanoic acid (PFHpA)	1.40 U	1.40 U	1.50 U	1.40 U
Perfluorohexanesulfonic acid (PFHxS)	0.910 U	0.920 U	0.970 U	0.920 U
Perfluorohexanoic acid (PFHxA)	0.910 U	0.920 U	0.970 U	0.920 U
Perfluorononanoic acid (PFNA)	**1.80**	**0.900 J**	1.50 U	**0.890 J**
Perfluorooctane sulfonate (PFOS)	2.70 U	2.70 U	2.90 U	2.80 U
Perfluorooctanesulfonamide (FOSA)	**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 (PFPA)	**0.650 J**	**0.830 J**	**1.10 J**	**0.400 J**
Perfluorotetradecanoic acid (PFTA)	2.70 U	2.70 U	2.90 U	2.80 U
Perfluorotridecanoic acid (PFTrDA)	2.70 U	2.70 U	2.90 U	2.80 U
Perfluoroundecanoic acid (PFUnA)	**0.650 J**	1.40 U	**1.00 J**	1.40 U
†PFOS + PFOA (EPA)	**0.00**	**0.00**	**0.00**	**0.00**
‡PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP)	**5.00**	**2.50**	**1.50**	**2.79**
§Sum of All Compounds Collected	**7.60**	**5.53**	**5.00**	**3.19**

PFAS Summary Report – Groundwater
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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
Perfluoro-1-heptanesulfonate (PFHpS)	0.940 U	0.950 U	0.970 U	0.980 U	0.940 U	0.960 U
Perfluorobutanesulfonic acid (PFBS)	**1.20 J**	**0.620 J**	0.970 U	0.980 U	0.940 U	0.960 U
Perfluorobutanoic acid (PFBA)	1.40 U	1.40 U	**1.00 J**	**1.00 J**	1.40 U	**0.570 J**
Perfluorodecane sulfonate	1.40 U	1.40 U	1.50 U	1.50 U	1.40 U	1.40 U
Perfluorodecanoic acid (PFDA)	0.940 U	0.950 U	0.970 U	0.980 U	0.940 U	0.960 U
Perfluorododecanoic acid (PFDoA)	1.40 U	1.40 U	1.50 U	1.50 U	1.40 U	1.40 U
Perfluoroheptanoic acid (PFHpA)	1.40 U	1.40 U	1.50 U	1.50 U	1.40 U	1.40 U
Perfluorohexanesulfonic acid (PFHxS)	**26.0**	**4.20**	1.90 U	2.00 U	1.90 U	1.90 U
Perfluorohexanoic acid (PFHxA)	0.940 U	0.950 U	0.970 U	0.980 U	0.940 U	0.960 U
Perfluorononanoic acid (PFNA)	1.40 U	1.40 U	1.50 U	1.50 U	1.40 U	1.40 U
Perfluorooctane sulfonate (PFOS)	2.80 U	2.80 U	**4.90**	**5.00**	**16.0**	2.90 U
Perfluorooctanesulfonamide (FOSA)	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 (PFPA)	0.940 U	0.950 U	0.970 U	**0.460 J**	0.940 U	**0.490 J**
Perfluorotetradecanoic acid (PFTA)	2.80 U	2.80 U	2.90 U	2.90 U	2.80 U	2.90 U
Perfluorotridecanoic acid (PFTrDA)	2.80 U	2.80 U	2.90 U	2.90 U	2.80 U	2.90 U
Perfluoroundecanoic acid (PFUnA)	1.40 U	1.40 U	1.50 U	1.50 U	1.40 U	1.40 U
†PFOS + PFOA (EPA)	**0.00**	**0.00**	**5.74**	**5.94**	**16.5**	**0.00**
‡PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP)	**26.0**	**4.20**	**5.74**	**5.94**	**16.5**	**0.00**
§Sum of All Compounds Collected	**27.2**	**4.82**	**6.74**	**7.40**	**16.5**	**1.06**

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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
Perfluoro-1-heptanesulfonate (PFHpS)	0.920 U	0.920 U	0.900 U	0.940 U	0.930 U	0.920 U
Perfluorobutanesulfonic acid (PFBS)	**2.20**	0.920 U	0.900 U	0.940 U	**1.80 J**	0.920 U
Perfluorobutanoic acid (PFBA)	**1.20 J**	1.80 U	1.80 U	1.40 U	**4.90**	**1.40 J**
Perfluorodecane sulfonate	1.40 U	1.40 U	1.30 U	1.40 U	1.40 U	1.40 U
Perfluorodecanoic acid (PFDA)	0.920 U	**0.550 J**	0.900 U	0.940 U	0.930 U	0.920 U
Perfluorododecanoic acid (PFDoA)	1.40 U	1.40 U	1.30 U	1.40 U	1.40 U	1.40 U
Perfluoroheptanoic acid (PFHpA)	1.40 U	1.40 U	1.30 U	1.40 U	**4.00**	1.40 U
Perfluorohexanesulfonic acid (PFHxS)	**19.0**	**1.00 J**	0.900 U	1.90 U	**37.0**	1.80 U
Perfluorohexanoic acid (PFHxA)	**0.830 J**	**0.950 J**	**0.510 J**	0.940 U	**8.40**	**0.450 J**
Perfluorononanoic acid (PFNA)	1.40 U	1.40 U	1.30 U	1.40 U	1.40 U	1.40 U
Perfluorooctane sulfonate (PFOS)	2.80 U	**1.10 J**	**3.80**	2.80 U	**10.0**	2.80 U
Perfluorooctanesulfonamide (FOSA)	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 (PFPA)	**1.30 J**	**0.660 J**	**0.440 J**	**0.400 J**	**6.50**	**0.440 J**
Perfluorotetradecanoic acid (PFTA)	2.80 U	2.80 U	2.70 U	2.80 U	2.80 U	2.80 U
Perfluorotridecanoic acid (PFTrDA)	2.80 U	2.80 U	2.70 U	2.80 U	2.80 U	2.80 U
Perfluoroundecanoic acid (PFUnA)	1.40 U	1.40 U	1.30 U	1.40 U	1.40 U	1.40 U
†PFOS + PFOA (EPA)	**0.00**	**3.20**	**4.90**	**0.550**	**13.1**	**1.10**
‡PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP)	**19.0**	**4.75**	**4.90**	**0.550**	**54.1**	**1.10**
§Sum of All Compounds Collected	**24.5**	**6.36**	**5.85**	**0.950**	**75.7**	**3.39**

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J3 Range

Location	MW-197M3	MW-198M1	MW-198M2	MW-198M3	MW-198M4	MW-232M1
Field Sample ID	MW-197M3_F20	MW-198M1_F20	MW-198M2_F20	MW-198M3_F20	MW-198M4_F20	MW-232M1_F20
Sampling Depth	60.20 - 65.20	150.00 - 155.00	120.00 - 125.00	100.00 - 105.00	70.00 - 75.00	77.50 - 82.50
Sampling Date	07/20/2020	07/15/2020	07/15/2020	07/15/2020	07/15/2020	07/16/2020
SDG	320629171	320627321	320627321	320627321	320627321	320627321
Sample Type	**Normal**	**Normal**	**Normal**	**Normal**	**Normal**	**Normal**
PFAS 21 Cmps	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)	Results (ng/L)
6:2 Fluorotelomer sulfonate (6:2 FTS)	18.0 U	19.0 U	19.0 U	19.0 U	19.0 U	19.0 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	9.20 U	9.50 U	9.50 U	9.50 U	9.50 U	9.50 U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	9.20 U	9.50 U	9.50 U	9.50 U	9.50 U	9.50 U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	9.20 U	9.50 U	9.50 U	9.50 U	9.50 U	9.50 U
Perfluoro-1-heptanesulfonate (PFHpS)	0.920 U	0.950 U	0.950 U	0.950 U	0.950 U	0.950 U
Perfluorobutanesulfonic acid (PFBS)	0.920 U	0.950 U	0.950 U	0.950 U	0.950 U	0.950 U
Perfluorobutanoic acid (PFBA)	**1.50 J**	1.40 U	**0.740 J**	**0.740 J**	**6.50**	**2.20**
Perfluorodecane sulfonate	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U
Perfluorodecanoic acid (PFDA)	0.920 U	0.950 U	0.950 U	0.950 U	0.950 U	0.950 U
Perfluorododecanoic acid (PFDoA)	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U
Perfluoroheptanoic acid (PFHpA)	1.40 U	1.40 U	1.40 U	1.40 U	**1.80 J**	1.40 U
Perfluorohexanesulfonic acid (PFHxS)	1.80 U	0.950 U	0.950 U	1.90 U	**4.40**	0.950 U
Perfluorohexanoic acid (PFHxA)	0.920 U	0.950 U	0.950 U	0.950 U	**3.70**	0.950 U
Perfluorononanoic acid (PFNA)	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U
Perfluorooctane sulfonate (PFOS)	**1.00 J**	2.80 U	2.90 U	2.80 U	**2.30 J**	2.90 U
Perfluorooctanesulfonamide (FOSA)	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 (PFPA)	**0.430 J**	**0.460 J**	0.950 U	0.950 U	**2.80**	**0.420 J**
Perfluorotetradecanoic acid (PFTA)	2.80 U	2.80 U	2.90 U	2.80 U	2.80 U	2.90 U
Perfluorotridecanoic acid (PFTrDA)	2.80 U	2.80 U	2.90 U	2.80 U	2.80 U	2.90 U
Perfluoroundecanoic acid (PFUnA)	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U	1.40 U
†PFOS + PFOA (EPA)	**1.99**	**0.00**	**0.00**	**0.00**	**4.60**	**0.640**
‡PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP)	**1.99**	**0.00**	**0.00**	**0.00**	**10.8**	**0.640**
§Sum of All Compounds Collected	**3.92**	**0.460**	**0.740**	**0.740**	**23.8**	**3.26**

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J3 Range

Location	MW-232M2	MW-30
Field Sample ID	MW-232M2_F20	MW-30_F20
Sampling Depth	61.00 - 66.00	26.00 - 36.00
Sampling Date	07/16/2020	07/21/2020
SDG	320627321	320629171
Sample Type	**Normal**	**Normal**
PFAS 21 Cmps	Results (ng/L)	Results (ng/L)
6:2 Fluorotelomer sulfonate (6:2 FTS)	20.0 U	19.0 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	10.0 U	9.40 U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	10.0 U	9.40 U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	10.0 U	9.40 U
Perfluoro-1-heptanesulfonate (PFHpS)	1.00 U	0.940 U
Perfluorobutanesulfonic acid (PFBS)	1.00 U	0.940 U
Perfluorobutanoic acid (PFBA)	**3.20**	1.40 U
Perfluorodecane sulfonate	1.50 U	1.40 U
Perfluorodecanoic acid (PFDA)	1.00 U	0.940 U
Perfluorododecanoic acid (PFDoA)	1.50 U	1.40 U
Perfluoroheptanoic acid (PFHpA)	1.50 U	1.40 U
Perfluorohexanesulfonic acid (PFHxS)	1.00 U	0.940 U
Perfluorohexanoic acid (PFHxA)	1.00 U	0.940 U
Perfluorononanoic acid (PFNA)	1.50 U	1.40 U
Perfluorooctane sulfonate (PFOS)	3.00 U	**15.0**
Perfluorooctanesulfonamide (FOSA)	3.00 U	2.80 U
Perfluorooctanoic acid (PFOA)	**1.10 J**	**0.790 J**
Perfluoropentanoic acid (PFPA)	**0.520 J**	0.940 U
Perfluorotetradecanoic acid (PFTA)	3.00 U	2.80 U
Perfluorotridecanoic acid (PFTrDA)	3.00 U	2.80 U
Perfluoroundecanoic acid (PFUnA)	1.50 U	1.40 U
†PFOS + PFOA (EPA)	**1.10**	**15.8**
‡PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP)	**1.10**	**15.8**
§Sum of All Compounds Collected	**4.82**	**15.8**

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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