MONTHLY PROGRESS REPORT #278
FOR MAY 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 May to 31 May 2020.

1. SUMMARY OF REMEDIATION ACTIONS

Remediation Actions (RA) underway at Camp Edwards as of 1 May 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 2.737 billion gallons of water treated and re-injected as of 29 May 2020. No Frank Perkins Road Treatment Facility shutdowns occurred in May.

The Pew Road Mobile Treatment Unit (MTU) continues to operate at a flow rate of 65 GPM, with over 647.9 million gallons of water treated and re-injected as of 29 May 2020. The following Pew Road MTU shutdowns occurred in May.

- 0056 on 02 May 2020 due to a “VFD fault” alarm caused by a power supply interruption, and was restarted at 0733 h on 04 May 2020.
- 1940 on 07 May 2020 due to a power supply interruption (no alarm), and was restarted at 0738 on 08 May 2020.

The Base Boundary MTU continues to operate at a flow rate of 65 gpm, with over 262.4 million gallons of water treated and re-injected as of 29 May 2020. No Base Boundary MTU shutdowns occurred in May.

The Leading Edge system continues to operate at a flow rate of 100 gpm, with over 199.1 million gallons of water treated and re-injected as of 29 May 2020. No Leading Edge system shutdowns occurred in May.

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 29 May 2020, over 1.247 billion gallons of water have been treated and re-injected. No Northern Treatment Building G shutdowns occurred in May.

The Northern MTUs E and F continue to operate at a flow rate of 250 gpm. As of 29 May 2020, over 1.701 billion gallons of water have been treated and re-injected. No J-2 Range Northern MTU shutdowns occurred in May.

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 29 May 2020, over 1.355 billion gallons of water have been treated and re-injected. The following MTUs H and I shutdowns occurred in May:

- 1130 on 15 May 2020 due to a due to a leak on the MTU H GAC Vessel #3 effluent pipe MTU I was restarted at 1215 on 15 May 2020. J2EW0005 was returned to 250 GPM and MTU H brought back online excluding GAC Vessel #3 at 1012 on 18 May 2020.

MTU J continues to operate at a flow rate of 120 gpm. As of 29 May 2020, over 624.3 million gallons of water have been treated and re-injected. No MTU J shutdowns occurred in May.

MTU K continues to operate at a flow rate of 125 gpm. As of 29 May 2020, over 743.0 million gallons of water have been treated and re-injected. No MTU K shutdowns occurred in May.

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 29 May 2020, over 1.363 billion gallons of water have been treated and re-injected. No J-3 Range system shutdowns occurred in May.

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 29 May 2020, over 601.9 million gallons of water have been treated and re-injected. No J-1 Range Southern system shutdowns occurred in May.

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 29 May 2020, over 839.0 million gallons of water have been treated and re-injected. No J-1 Range Northern MTU shutdowns occurred in May.

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 29 May 2020, over 2.085 billion gallons of water have been treated and re-injected. No CIA2 system shutdowns occurred in May.

SUMMARY OF ACTIONS TAKEN

CIA

- Performed routine inspections of BEM cover to ensure cover is secure and intact.
- Complete surface sweep prior to vegetation clearance in P3A3 grids and transects.
- Process MD.
- Perform seed operations.

Demolition Area 1

- Completed monitor well development.
- Groundwater sampling within the Demo 1 SPM program.

Demolition Area 2

- Groundwater sampling within the Demo 2 SPM program.

J-1 Range
- Groundwater sampling within the J1 North SPM program.

J-2 Range
- MTU H GAC Vessel #3 off-line due to a leak on the effluent pipe that must be replaced.

J-3 Range
- Surface water sampling within the J3 Range SPM program.
- Groundwater sampling within the Demo 1 SPM program.
- Barrage Rocket Area geophysical anomaly reacquisition and grid intrusive investigations.

L Range
- No activity.

Small Arms Ranges
- No activity.

Training Areas
- No activity.

Other
- Collected process water samples from the Central Impact Area (Systems 1 and 2), Demolition Area 1, J1 Range Northern, J1 Range Southern, J2 Range Eastern, J2 Range Northern, and J3 Range treatment systems.
- Exchanged bag filters on the Pew Road and J-2 MTU F systems.

JBCC IAGWSP Tech Update Meeting Minutes 14 May 2020

Project and Fieldwork Update

Drilling and well development has been completed. The new wells will be surveyed next Friday. The pumps are on order and once they arrive, Dawson will install the pumps and the wells will be turned over to KGS to perform sampling. It was noted that the pumps are a special order and USACE will follow-up and let the group know the schedule for delivery and installation. All treatment systems are up and running. Long term monitoring sampling crews are performing the J-1 N biannual round. Crews will perform sampling next in Demolition Area 1, which will take up most of June.

Dawson is currently at the J-3 Range flagging EM-61 anomalies. They will start intrusive later today while they proceed with pin flagging. Crews will start in the north and work their way south. Intrusive investigations at J-3 will last through next week after which they will begin investigating polygons. Once the dig list is provided for Former E Range, the crew will split so they can investigate Former E and J-3 Ranges. At this point the teams will break off has completed the EM-61 survey of 20 acres at Former E Range and one acre at J-3 Range. KGS took the samples in the excavation area at the KD Range. Results are anticipated in a couple of weeks. Under their site restoration contract work, KGS is taking down two buildings and some fence at the Former Otis Rod and Gun Club and demolishing sheds in the CSA. The contract will be modified to include some Impact Area road improvements in the future.

In the Central Impact Area, Parsons' crews mobilized to the site on April 27th. They began with training and equipment set up. They began surface sweeps using a staggered approach where they perform UXO clearance, then mark MD too large to carry, then perform more surface clearance. During operations, a piece of equipment hit a LITR round (inert). They determined that they were not doing a thorough enough escort of the vegetation team. Going forward they will reduce the area that they are working in and reeducate the teams. A corrective action report will be provided in the next weekly CIA update.

L Range Annual Environmental Monitoring Report Presentation

A presentation was provided on the L Range Annual Environmental Monitoring Report. It was noted that during the reporting period (February 2019 to January 2020), no new work was conducted. Sampling locations, groundwater monitoring results, and trends were reviewed and discussed. The July 2019 semi-annual event, included MW-242M1, MW-595M1/M2, MW-596M1, MW-651M1 and RDX was seen at 1.4 µg/L (MW-651M1), 1.3 µg/L (MW-595M1), and 0.75 µg/L (MW-242M1). The January 2020 annual event included 12 wells. RDX was detected at 0.71 µg/L (MW-651M1), 2.0 µg/L (MW- 595M1), 0.13J µg/L (MW-242M1), 0.15J µg/L (MW-650M1) and 0.41 µg/L (90MW0031).

Model predicated vs. observed plume comparison was discussed. It was noted that the plume shell was adjusted in 2018 using the drift function protocol to incorporate the measured RDX concentration data from samples collected between December 2015 and January 2018. As previously documented, transport model comparisons performed as part of the 2019 Annual Report indicated that the 2018 Drift-adjusted Plume Shell provided a more accurate representation of the current RDX plume. Utilizing the 2018 Drift-adjusted Plume Shell, a model run simulating contaminant transport to January 2020 was compared with the plume contoured based on January 2020 measured concentrations. The observed and predicted plumes are similar in size. Model-predicted plume resulting from transport of the 2018 drift-adjusted plume shell compares well with measured plume without additional adjustment using the drift function.

Transport model results and time to cleanup goals were reviewed and discussed. The transport simulations using the drift function updated plume shell predicted RDX concentrations would fall below 2.0 µg/L at L Range in 2028, and below the 0.6 µg/L risk-based concentrations by 2070.

Due to spikes in RDX concentrations at MW-242M1 (3.7 µg/L in July 2017, 3.0 µg/L in January 2018) and MW-595M1 (4.4 µg/L in January 2017, 3.3 µg/L in July 2017, 2.5 µg/L in January 2018) observed after the November 2015 data cut-off for development of the 2016 plume Shell, earlier transport model predictions of RDX attenuating completely below 2 µg/L by 2018 were inaccurate. This point was discussed in the 2018 annual report as well. The 2018 Drift-adjusted plume shell accounts for these spikes in concentrations. Based on attenuation rates, distance, and the April 2018 100-year groundwater flow and transport simulation, the entirety of the RDX plume is still expected to attenuate below the 0.6 µg/L RBC prior to reaching the operational FS-12 extraction wells.

Recommendations include removing MW-288M1 from the sampling program as the well is located northwest of MW-242M1 and is 175 feet upgradient of the current delineated plume and has been ND for RDX since 2006. EPA and MassDEP comments on the report are pending.

Action Items

The action items were discussed and updated.

JBCC IAGWSP Tech Update Meeting Minutes 28 May 2020

Project and Fieldwork Update

Drilling and well development has been completed. The new wells were surveyed on May 22. The pumps are on order and once they arrive, Dawson will install the pumps and the wells will be turned over to KGS to perform sampling. All treatment systems are up and running. CIA systems 1 and 2 had breakthrough for explosives, however the chemists had concerns that there have been lab contamination with the data. They plan to re-run and if the results are still above action levels, the media will be changed out. J-2 Range East unit E had a leak in a fitting in the GAC effluent line. GAC unit #3 was taken off line. There is a plumber coming to the site this afternoon and hopes to get it back online today. Long term monitoring sampling crews are performing Snake Pond surface water sampling and annual sampling in Demolition Area 1.

Dawson finished with the 422 discrete targets at the J-3 Range. They found one 4.5” Barrage Rocket at 39” deep in Grid 4 and one 81mm Mortar 36” deep in Grid 3. Most of the targets investigated were munitions debris, there was approximately 500 pounds, and it consisted mostly of frag. They began work on the polygons yesterday in Grid 4. They anticipate finishing the polygons sometime next week then they will move to the KD Range to collect the additional samples. The crews are planning to begin UXO clearance activities in support of the upcoming road improvement projects including any vegetation clearance. While the have the vegetation cutting equipment available, they may begin cutting at the J-2 Range to prepare for the 8 grids in the M19/M20 area that were required as part of the Phase 2 completion of work report for the Post-DD work on J-2. They will finish any UXO clearance of the roads before they begin the anomaly investigations at the Former E Range. There will be some adjusting and jumping around of the scheduling due to range operations. KGS is currently installing fence at the Former Otis Rod and Gun Club behind the Demolition Area 1 base boundary treatment system. They also recently removed asbestos-containing siding from two sheds and old fencing.

In the Central Impact Area, Parsons’ crews have completed vegetation clearance to include tree felling. They are also processing munitions debris from last season. A large shipment was sent off-site this week and another is scheduled for next. In addition, they began planting the QC seeds and the geophysical team will mobilized to the site on next week. Beginning the second week of June, they will perform demolition operations to include the BIPs and consolidated shots for items left over from last year. After the consolidated shots are finished, the BEM liner will be inspected and the sand and soil will be sampled.

Action Items

The action items were discussed and updated.

JBCC Cleanup Team Meeting

The next meeting of the JBCC Cleanup Team (JBCCCT) has not be scheduled. Meeting materials from the cancelled March 11, 2020 meeting 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.

SUMMARY OF DATA RECEIVED

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

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. SUBMITTED DELIVERABLES

Deliverables submitted during the reporting period include the following:

- Monthly Progress Report No. 277 for April 2020 — 10 May 2020
- Draft L Range 2020 Annual Environmental Monitoring Report — 13 May 2020
- Northwest Corner Operable Unit Residual Risk Assessment Work Plan — 25 May 2020

3. SCHEDULED ACTIONS

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

- CIA 2019 Source Removal Annual Report
- CIA and J-2 Range IRA Plan for BEM rocket disposal
- Five-Year Review Report
- J Ranges and Demolition Area 1 PFAS sampling Project Note
- J-1 Range 2019 Annual Environmental Monitoring Report
- L Range 2020 Annual Environmental Monitoring Report
- Northwest Corner Demonstration of Compliance Report and Project Note
- Small Arms Ranges Completion of Work Report

TABLE 1
Sampling Progress: 1 May to 31 May 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	MW-210M2	MW-210M2_S20	N	05/28/2020	Ground Water	156	166
Demolition Area 1	MW-210M1	MW-210M1_S20	N	05/28/2020	Ground Water	201	211
Demolition Area 1	MW-165M2	MW-165M2_S20	N	05/28/2020	Ground Water	124.5	134.5
Demolition Area 1	MW-165M1	MW-165M1_S20	N	05/28/2020	Ground Water	184.5	194.5
Demolition Area 1	MW-114M2	MW-114M2_S20	N	05/28/2020	Ground Water	120	130
Demolition Area 1	MW-114M1	MW-114M1_S20	N	05/28/2020	Ground Water	177	187
Demolition Area 1	MW-129M3	MW-129M3_S20	N	05/27/2020	Ground Water	96	106
Demolition Area 1	MW-129M2	MW-129M2_S20	N	05/27/2020	Ground Water	116	126
Demolition Area 1	MW-129M1	MW-129M1_S20	N	05/27/2020	Ground Water	136	146
J3 Range	LKSNK0006	LKSNK0006_S20	N	05/27/2020	Surface Water	0	1
J3 Range	LKSNK0007	LKSNK0007_S20	N	05/27/2020	Surface Water	0	4
J3 Range	LKSNK0005	LKSNK0005_S20	N	05/27/2020	Surface Water	0	4
Demolition Area 1	MW-431	MW-431_S20	N	05/26/2020	Ground Water	88	188
Demolition Area 1	MW-431	MW-431_S20D	FD	05/26/2020	Ground Water	88	188
Demolition Area 1	MW-78M2	MW-78M2_S20	N	05/26/2020	Ground Water	115	125
Demolition Area 1	MW-78M1	MW-78M1_S20	N	05/26/2020	Ground Water	135	145
Demolition Area 1	MW-76S	MW-76S_S20	N	05/26/2020	Ground Water	85	95
Demolition Area 1	MW-76M2	MW-76M2_S20	N	05/26/2020	Ground Water	105	115
Demolition Area 1	MW-76M1	MW-76M1_S20	N	05/26/2020	Ground Water	125	135
Demolition Area 1	MW-75M2	MW-75M2_S20	N	05/21/2020	Ground Water	115	125
Demolition Area 1	MW-75M1	MW-75M1_S20	N	05/21/2020	Ground Water	140	150
Demolition Area 1	MW-77S	MW-77S_S20	N	05/21/2020	Ground Water	83	93
Demolition Area 1	MW-77M2	MW-77M2_S20	N	05/21/2020	Ground Water	120	130
Demolition Area 1	MW-77M2	MW-77M2_S20D	FD	05/21/2020	Ground Water	120	130
Demolition Area 1	MW-77M1	MW-77M1_S20	N	05/21/2020	Ground Water	180	190
Demolition Area 1	EW-658	EW-658_S20	N	05/21/2020	Ground Water	96	136
Demolition Area 1	MW-648M1	MW-648M1_S20	N	05/21/2020	Ground Water	112	122
Demolition Area 1	MW-31S	MW-31S_S20	N	05/20/2020	Ground Water	98	103
Demolition Area 1	MW-31S	MW-31S_S20D	FD	05/20/2020	Ground Water	98	103
Demolition Area 1	MW-31M	MW-31M_S20	N	05/20/2020	Ground Water	113	123
Demolition Area 1	MW-31D	MW-31D_S20	N	05/20/2020	Ground Water	133	138
Demolition Area 1	MW-19S	MW-19S_S20	N	05/20/2020	Ground Water	52.7	62.7
Demolition Area 1	MW-19S	MW-19S_S20D	FD	05/20/2020	Ground Water	52.7	62.7
Demolition Area 1	MW-73S	MW-73S_S20	N	05/20/2020	Ground Water	52.2	61.7
J1 Range Northern	MW-245M2	MW-245M2_S20	N	05/20/2020	Ground Water	204	214
J1 Range Northern	MW-245M2	MW-245M2_S20D	FD	05/20/2020	Ground Water	204	214
J1 Range Northern	MW-590M2	MW-590M2_S20	N	05/19/2020	Ground Water	238	248
J1 Range Northern	MW-590M2	MW-590M2_S20D	FD	05/19/2020	Ground Water	238	248
J1 Range Northern	MW-590M1	MW-590M1_S20	N	05/19/2020	Ground Water	258	268
J1 Range Northern	MW-540M1	MW-540M1_S20	N	05/19/2020	Ground Water	258	268
J1 Range Northern	J1N-INF1B	J1N-INF1B_S20	N	05/19/2020	Process Water	0	0
J1 Range Northern	J1N-INF1A	J1N-INF1A_S20	N	05/19/2020	Process Water	0	0
J1 Range Northern	MW-303M2	MW-303M2_S20	N	05/18/2020	Ground Water	235.09	245.1
J1 Range Northern	MW-689M2	MW-689M2_S20	N	05/18/2020	Ground Water	231.4	241.4
J1 Range Northern	MW-689M1	MW-689M1_S20	N	05/18/2020	Ground Water	253.5	263.5
J1 Range Northern	MW-688M2	MW-688M2_S20	N	05/18/2020	Ground Water	227.8	237.8
J1 Range Northern	MW-688M1	MW-688M1_S20	N	05/18/2020	Ground Water	255.2	265.2
J1 Range Northern	MW-566M1	MW-566M1_S20	N	05/14/2020	Ground Water	232	242
J1 Range Northern	MW-401M3	MW-401M3_S20	N	05/14/2020	Ground Water	228.5	238.5
J1 Range Northern	MW-401M1	MW-401M1_S20	N	05/14/2020	Ground Water	256.1	266.1
J1 Range Northern	MW-541M1	MW-541M1_S20	N	05/13/2020	Ground Water	210	220
J1 Range Northern	MW-430M2	MW-430M2_S20	N	05/13/2020	Ground Water	188.41	198.41
J1 Range Northern	MW-430M1	MW-430M1_S20	N	05/13/2020	Ground Water	245.23	255.23
J1 Range Northern	MW-370M2	MW-370M2_S20	N	05/13/2020	Ground Water	215.54	225.54
J1 Range Northern	MW-370M1	MW-370M1_S20	N	05/13/2020	Ground Water	245	255
J1 Range Northern	MW-370M1	MW-370M1_S20D	FD	05/13/2020	Ground Water	245	255
J1 Range Northern	MW-606M2	MW-606M2_S20	N	05/12/2020	Ground Water	193.2	203.2
J1 Range Northern	MW-606M1	MW-606M1_S20	N	05/12/2020	Ground Water	233.3	243.3
J1 Range Northern	MW-567M1	MW-567M1_S20	N	05/12/2020	Ground Water	215.5	225.5

N = Normal Sample
FD = Field Duplicate

TABLE 1
Sampling Progress: 1 May to 31 May 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-584M2	MW-584M2_S20	N	05/12/2020	Ground Water	228	238
J1 Range Northern	MW-584M1	MW-584M1_S20	N	05/12/2020	Ground Water	248	258
J1 Range Northern	MW-564M1	MW-564M1_S20	N	05/11/2020	Ground Water	227	237
J1 Range Northern	MW-564M1	MW-564M1_S20D	FD	05/11/2020	Ground Water	227	237
J1 Range Northern	MW-549M2	MW-549M2_S20	N	05/11/2020	Ground Water	187.3	197.3
J1 Range Northern	MW-549M1	MW-549M1_S20	N	05/11/2020	Ground Water	227.4	237.4
J1 Range Northern	MW-605M2	MW-605M2_S20	N	05/11/2020	Ground Water	182.2	192.2
J1 Range Northern	MW-605M1	MW-605M1_S20	N	05/11/2020	Ground Water	220.2	230.2
Demolition Area 2	MW-161S	MW-161S_S20	N	05/07/2020	Ground Water	145.5	155.5
Demolition Area 2	MW-161S	MW-161S_S20D	FD	05/07/2020	Ground Water	145.5	155.5
Demolition Area 1	PR-EFF	PR-EFF-170A	N	05/07/2020	Process Water	0	0
Demolition Area 1	PR-MID-2	PR-MID-2-170A	N	05/07/2020	Process Water	0	0
Demolition Area 1	PR-MID-1	PR-MID-1-170A	N	05/07/2020	Process Water	0	0
Demolition Area 1	PR-INF	PR-INF-170A	N	05/07/2020	Process Water	0	0
Demolition Area 2	MW-160S	MW-160S_S20	N	05/07/2020	Ground Water	137.5	147.5
Demolition Area 1	FPR-2-EFF-A	FPR-2-EFF-A-170A	N	05/07/2020	Process Water	0	0
Demolition Area 1	FPR-2-GAC-MID1A	FPR-2-GAC-MID1A-170A	N	05/07/2020	Process Water	0	0
Demolition Area 1	FPR2-POST-IX-A	FPR2-POST-IX-A-170A	N	05/07/2020	Process Water	0	0
Demolition Area 1	FPR-2-INF	FPR-2-INF-170A	N	05/07/2020	Process Water	0	0
Demolition Area 2	MW-573M2	MW-573M2_S20	N	05/07/2020	Ground Water	155.4	165.4
Demolition Area 2	MW-573M2	MW-573M2_S20D	FD	05/07/2020	Ground Water	155.4	165.4
Demolition Area 1	D1LE-EFF	D1LE-EFF-46A	N	05/07/2020	Process Water	0	0
Demolition Area 1	D1LE-MID2	D1LE-MID2-46A	N	05/07/2020	Process Water	0	0
Demolition Area 1	D1LE-MID1	D1LE-MID1-46A	N	05/07/2020	Process Water	0	0
Demolition Area 1	D1LE-INF	D1LE-INF-46A	N	05/07/2020	Process Water	0	0
Demolition Area 2	MW-573M1	MW-573M1_S20	N	05/07/2020	Ground Water	176.4	186.4
Demolition Area 1	D1-EFF	D1-EFF-118A	N	05/07/2020	Process Water	0	0
Demolition Area 1	D1-MID-2	D1-MID-2-118A	N	05/07/2020	Process Water	0	0
Demolition Area 1	D1-MID-1	D1-MID-1-118A	N	05/07/2020	Process Water	0	0
Demolition Area 1	D1-INF	D1-INF-118A	N	05/07/2020	Process Water	0	0
J3 Range	J3-EFF	J3-EFF-164A	N	05/06/2020	Process Water	0	0
J3 Range	J3-MID-2	J3-MID-2-164A	N	05/06/2020	Process Water	0	0
J3 Range	J3-MID-1	J3-MID-1-164A	N	05/06/2020	Process Water	0	0
J3 Range	J3-INF	J3-INF-164A	N	05/06/2020	Process Water	0	0
J1 Range Southern	J1S-EFF	J1S-EFF-150A	N	05/06/2020	Process Water	0	0
J1 Range Southern	J1S-MID	J1S-MID-150A	N	05/06/2020	Process Water	0	0
Demolition Area 2	MW-572M1	MW-572M1_S20	N	05/06/2020	Ground Water	164.9	174.9
J1 Range Southern	J1S-INF-2	J1S-INF-2-150A	N	05/06/2020	Process Water	0	0
J2 Range Eastern	J2E-EFF-K	J2E-EFF-K-140A	N	05/06/2020	Process Water	0	0
J2 Range Eastern	J2E-MID-2K	J2E-MID-2K-140A	N	05/06/2020	Process Water	0	0
J2 Range Eastern	J2E-MID-1K	J2E-MID-1K-140A	N	05/06/2020	Process Water	0	0
Demolition Area 2	MW-435M2	MW-435M2_S20	N	05/06/2020	Ground Water	149.57	159.93
J2 Range Eastern	J2E-INF-K	J2E-INF-K-140A	N	05/06/2020	Process Water	0	0
J2 Range Eastern	J2E-EFF-J	J2E-EFF-J-140A	N	05/06/2020	Process Water	0	0
J2 Range Eastern	J2E-MID-2J	J2E-MID-2J-140A	N	05/06/2020	Process Water	0	0
J2 Range Eastern	J2E-MID-1J	J2E-MID-1J-140A	N	05/06/2020	Process Water	0	0
J2 Range Eastern	J2E-INF-J	J2E-INF-J-140A	N	05/06/2020	Process Water	0	0
Demolition Area 2	MW-435M1	MW-435M1_S20	N	05/06/2020	Ground Water	169.94	179.95
J2 Range Eastern	J2E-EFF-IH	J2E-EFF-IH-140A	N	05/06/2020	Process Water	0	0
J2 Range Eastern	J2E-MID-2H	J2E-MID-2H-140A	N	05/06/2020	Process Water	0	0
J2 Range Eastern	J2E-MID-1H	J2E-MID-1H-140A	N	05/06/2020	Process Water	0	0
J2 Range Eastern	J2E-MID-2I	J2E-MID-2I-140A	N	05/06/2020	Process Water	0	0
J2 Range Eastern	J2E-MID-1I	J2E-MID-1I-140A	N	05/06/2020	Process Water	0	0
J2 Range Eastern	J2E-INF-I	J2E-INF-I-140A	N	05/06/2020	Process Water	0	0
Demolition Area 2	MW-654M1	MW-654M1_S20	N	05/05/2020	Ground Water	154	164
Central Impact Area	CIA2-EFF	CIA2-EFF-76A	N	05/05/2020	Process Water	0	0
Central Impact Area	CIA2-MID2	CIA2-MID2-76A	N	05/05/2020	Process Water	0	0
Central Impact Area	CIA2-MID1	CIA2-MID1-76A	N	05/05/2020	Process Water	0	0
Central Impact Area	CIA2-INF	CIA2-INF-76A	N	05/05/2020	Process Water	0	0

N = Normal Sample
FD = Field Duplicate

TABLE 1
Sampling Progress: 1 May to 31 May 2020

Area Of Concern	Location	Field Sample ID	Sample Type	Date Sampled	Matrix	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)
Central Impact Area	CIA1-EFF	CIA1-EFF-76A	N	05/05/2020	Process Water	0	0
Central Impact Area	CIA1-MID2	CIA1-MID2-76A	N	05/05/2020	Process Water	0	0
Demolition Area 2	MW-655M2	MW-655M2_S20	N	05/05/2020	Ground Water	156	166
Central Impact Area	CIA1-MID1	CIA1-MID1-76A	N	05/05/2020	Process Water	0	0
Central Impact Area	CIA1-INF	CIA1-INF-76A	N	05/05/2020	Process Water	0	0
Demolition Area 2	MW-655M1	MW-655M1_S20	N	05/05/2020	Ground Water	178	188
Central Impact Area	CIA3-EFF	CIA3-EFF-47A	N	05/05/2020	Process Water	0	0
Central Impact Area	CIA3-MID2	CIA3-MID2-47A	N	05/05/2020	Process Water	0	0
Central Impact Area	CIA3-MID1	CIA3-MID1-47A	N	05/05/2020	Process Water	0	0
Central Impact Area	CIA3-INF	CIA3-INF-47A	N	05/05/2020	Process Water	0	0
Demolition Area 2	MW-16S	MW-16S_S20	N	05/05/2020	Ground Water	125	135
Demolition Area 2	MW-259M1	MW-259M1_S20	N	05/04/2020	Ground Water	189	199
Demolition Area 2	MW-262M1	MW-262M1_S20	N	05/04/2020	Ground Water	226	236
J2 Range Northern	J2N-EFF-G	J2N-EFF-G-164A	N	05/04/2020	Process Water	0	0
J2 Range Northern	J2N-MID-2G	J2N-MID-2G-164A	N	05/04/2020	Process Water	0	0
J2 Range Northern	J2N-MID-1G	J2N-MID-1G-164A	N	05/04/2020	Process Water	0	0
J2 Range Northern	J2N-INF-G	J2N-INF-G-164A	N	05/04/2020	Process Water	0	0
Demolition Area 2	MW-311M2	MW-311M2_S20	N	05/04/2020	Ground Water	200	210
J2 Range Northern	J2N-EFF-EF	J2N-EFF-EF-164A	N	05/04/2020	Process Water	0	0
J2 Range Northern	J2N-MID-2F	J2N-MID-2F-164A	N	05/04/2020	Process Water	0	0
J2 Range Northern	J2N-MID-1F	J2N-MID-1F-164A	N	05/04/2020	Process Water	0	0
J2 Range Northern	J2N-INF-EF	J2N-INF-EF-164A	N	05/04/2020	Process Water	0	0
J2 Range Northern	J2N-MID-2E	J2N-MID-2E-164A	N	05/04/2020	Process Water	0	0
J2 Range Northern	J2N-MID-1E	J2N-MID-1E-164A	N	05/04/2020	Process Water	0	0
Demolition Area 2	MW-311M1	MW-311M1_S20	N	05/04/2020	Ground Water	222	232
J1 Range Northern	J1N-EFF	J1N-EFF-79A	N	05/04/2020	Process Water	0	0
J1 Range Northern	J1N-MID2	J1N-MID2-79A	N	05/04/2020	Process Water	0	0
J1 Range Northern	J1N-MID1	J1N-MID1-79A	N	05/04/2020	Process Water	0	0
J1 Range Northern	J1N-INF2	J1N-INF2-79A	N	05/04/2020	Process Water	0	0

N = Normal Sample
FD = Field Duplicate

TABLE 2
VALIDATED EXPLOSIVE AND PERCHLORATE RESULTS
Data Received May 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
Demolition Area 2	MW-161S	MW-161S_S20	145.5	155.5	05/07/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.051	J	µg/L	400		0.036	0.20
Demolition Area 2	MW-161S	MW-161S_S20	145.5	155.5	05/07/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.57		µg/L	0.60		0.034	0.20
Demolition Area 2	MW-161S	MW-161S_S20D	145.5	155.5	05/07/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.057	J	µg/L	400		0.036	0.20
Demolition Area 2	MW-161S	MW-161S_S20D	145.5	155.5	05/07/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.59		µg/L	0.60		0.034	0.20
Demolition Area 2	MW-573M2	MW-573M2_S20	155.4	165.4	05/07/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.43		µg/L	0.60		0.034	0.20
Demolition Area 2	MW-573M2	MW-573M2_S20D	155.4	165.4	05/07/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.41		µg/L	0.60		0.034	0.20
Demolition Area 2	MW-572M1	MW-572M1_S20	164.9	174.9	05/06/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.049	J	µg/L	0.60		0.034	0.20
Demolition Area 2	MW-16S	MW-16S_S20	125	135	05/05/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.12	J	µg/L	0.60		0.034	0.20
Demolition Area 2	MW-259M1	MW-259M1_S20	189	199	05/04/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.33		µg/L	0.60		0.034	0.20
Demolition Area 2	MW-262M1	MW-262M1_S20	226	236	05/04/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.12	J	µg/L	0.60		0.034	0.20
Demolition Area 2	MW-311M2	MW-311M2_S20	200	210	05/04/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.034	J	µg/L	0.60		0.034	0.20
Demolition Area 2	MW-380M2	MW-380M2_S20	205.66	215.66	04/30/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.44		µg/L	0.60		0.034	0.20
Demolition Area 2	MW-404M2	MW-404M2_S20	200.04	210.04	04/30/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.063	J	µg/L	400		0.036	0.20
Demolition Area 2	MW-404M2	MW-404M2_S20	200.04	210.04	04/30/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.6		µg/L	0.60	X	0.034	0.20
J1 Range Southern	MW-670M2	MW-670M2_S20	198.5	208.5	04/20/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.13	J	µg/L	0.60		0.034	0.20
J1 Range Southern	MW-524M1	MW-524M1_S20	148	158	04/15/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.051	J	µg/L	400		0.036	0.20
J1 Range Southern	MW-524M1	MW-524M1_S20	148	158	04/15/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.54		µg/L	0.60		0.034	0.20
J1 Range Southern	MW-647M1	MW-647M1_S20	211.3	221.3	04/15/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.21		µg/L	0.60		0.034	0.20
J1 Range Southern	MW-402M1	MW-402M1_S20	190.14	200.13	04/14/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.30		µg/L	0.60		0.034	0.20
J1 Range Southern	MW-400M1	MW-400M1_S20	192.76	202.75	04/14/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.15	J	µg/L	0.60		0.034	0.20
J1 Range Southern	MW-669M2	MW-669M2_S20	201.7	211.7	04/13/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.3		µg/L	0.60	X	0.034	0.20
J1 Range Southern	MW-669M1	MW-669M1_S20	223.7	233.7	04/13/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.98		µg/L	0.60	X	0.034	0.20
J1 Range Southern	MW-669M1	MW-669M1_S20D	223.7	233.7	04/13/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.1		µg/L	0.60	X	0.034	0.20
J1 Range Southern	MW-592M1	MW-592M1_S20	201	211	04/13/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.10	J	µg/L	0.60		0.034	0.20
Central Impact Area	MW-270D	MW-270D_S20	132	137	04/09/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.10	J	µg/L	0.60		0.034	0.20
Central Impact Area	MW-614M2	MW-614M2_S20	215	225	04/09/2020	SW6850	Perchlorate	0.064	J	µg/L	2.0		0.027	0.20
Central Impact Area	MW-614M1	MW-614M1_S20	275	285	04/09/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.20		µg/L	400		0.036	0.20
Central Impact Area	MW-614M1	MW-614M1_S20	275	285	04/09/2020	SW6850	Perchlorate	0.43	J	µg/L	2.0		0.027	0.20
Central Impact Area	MW-614M1	MW-614M1_S20	275	285	04/09/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.5		µg/L	0.60	X	0.034	0.20
Central Impact Area	MW-608M4	MW-608M4_S20	185.4	195.4	04/08/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.21		µg/L	0.60		0.034	0.20
Central Impact Area	MW-608M3	MW-608M3_S20	220.4	230.4	04/08/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.034	J	µg/L	0.60		0.034	0.20
Central Impact Area	MW-608M2	MW-608M2_S20	253.4	263.4	04/08/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.21		µg/L	400		0.036	0.20
Central Impact Area	MW-608M2	MW-608M2_S20	253.4	263.4	04/08/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	2.8		µg/L	0.60	X	0.034	0.20
Central Impact Area	MW-608M2	MW-608M2_S20D	253.4	263.4	04/08/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.22		µg/L	400		0.036	0.20
Central Impact Area	MW-608M2	MW-608M2_S20D	253.4	263.4	04/08/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	2.8		µg/L	0.60	X	0.034	0.20
Central Impact Area	MW-608M1	MW-608M1_S20	267.4	277.4	04/08/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.11	J	µg/L	400		0.036	0.20
Central Impact Area	MW-608M1	MW-608M1_S20	267.4	277.4	04/08/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.91		µg/L	0.60	X	0.034	0.20
Central Impact Area	MW-615M2	MW-615M2_S20	200	210	04/07/2020	SW6850	Perchlorate	0.056	J	µg/L	2.0		0.027	0.20
Central Impact Area	MW-615M1	MW-615M1_S20	260	270	04/07/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.27		µg/L	400		0.036	0.20
Central Impact Area	MW-615M1	MW-615M1_S20	260	270	04/07/2020	SW6850	Perchlorate	1.4		µg/L	2.0		0.027	0.20
Central Impact Area	MW-615M1	MW-615M1_S20	260	270	04/07/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	2.9		µg/L	0.60	X	0.034	0.20
Central Impact Area	MW-615M1	MW-615M1_S20D	260	270	04/07/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.27		µg/L	400		0.036	0.20
Central Impact Area	MW-615M1	MW-615M1_S20D	260	270	04/07/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	3.0		µg/L	0.60	X	0.034	0.20

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

MCL/HA= Either the MCL or Lowest Health Advisory Limit
June 09, 2020

TABLE 2
VALIDATED EXPLOSIVE AND PERCHLORATE RESULTS
Data Received May 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
Central Impact Area	MW-123M2	MW-123M2_S20	236	246	04/06/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.10	J	µg/L	0.60		0.034	0.20
Central Impact Area	MW-123M1	MW-123M1_S20	291	301	04/06/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.20		µg/L	0.60		0.034	0.20
Central Impact Area	MW-103M2	MW-103M2_S20	282	292	04/06/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.052	J	µg/L	0.60		0.034	0.20
Central Impact Area	MW-102M2	MW-102M2_S20	237	247	04/02/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.10	J	µg/L	400		0.036	0.20
Central Impact Area	MW-102M2	MW-102M2_S20	237	247	04/02/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.46		µg/L	0.60		0.034	0.20
Central Impact Area	MW-102M2	MW-102M2_S20	237	247	04/02/2020	SW6850	Perchlorate	0.57		µg/L	2.0		0.027	0.20
Central Impact Area	MW-102M1	MW-102M1_S20	267	277	04/02/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.24		µg/L	0.60		0.034	0.20
Central Impact Area	MW-628M1	MW-628M1_S20	230.8	240.8	04/02/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.32		µg/L	0.60		0.034	0.20
Central Impact Area	MW-209M2	MW-209M2_S20	220	230	04/01/2020	SW6850	Perchlorate	0.49		µg/L	2.0		0.027	0.20
Central Impact Area	MW-209M1	MW-209M1_S20	240	250	04/01/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.32		µg/L	400		0.036	0.20
Central Impact Area	MW-209M1	MW-209M1_S20	240	250	04/01/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.8		µg/L	0.60	X	0.034	0.20
Central Impact Area	MW-209M1	MW-209M1_S20	240	250	04/01/2020	SW6850	Perchlorate	2.7		µg/L	2.0	X	0.027	0.20
Central Impact Area	MW-209M1	MW-209M1_S20D	240	250	04/01/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.33		µg/L	400		0.036	0.20
Central Impact Area	MW-209M1	MW-209M1_S20D	240	250	04/01/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.9		µg/L	0.60	X	0.034	0.20
Central Impact Area	MW-209M1	MW-209M1_S20D	240	250	04/01/2020	SW6850	Perchlorate	2.7		µg/L	2.0	X	0.027	0.20
Central Impact Area	MW-51M1	MW-51M1_S20	234	244	04/01/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.34		µg/L	0.60		0.034	0.20
Central Impact Area	MW-51D	MW-51D_S20	264	274	04/01/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.073	J	µg/L	0.60		0.034	0.20
Central Impact Area	MW-108M4	MW-108M4_S20	240	250	03/31/2020	SW6850	Perchlorate	0.20		µg/L	2.0		0.027	0.20
Central Impact Area	MW-108M1	MW-108M1_S20	297	307	03/31/2020	SW6850	Perchlorate	0.35		µg/L	2.0		0.027	0.20
Central Impact Area	MW-644M1	MW-644M1_S20	275.9	285.9	03/31/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.4		µg/L	0.60	X	0.034	0.20
Central Impact Area	MW-617M2	MW-617M2_S20	118.3	128.3	03/30/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.088	J	µg/L	0.60		0.034	0.20
Central Impact Area	MW-617M1	MW-617M1_S20	175.8	185.8	03/30/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.51		µg/L	0.60		0.034	0.20
Central Impact Area	MW-616M1	MW-616M1_S20	217.1	227.1	03/30/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.28		µg/L	0.60		0.034	0.20
Central Impact Area	MW-178M1	MW-178M1_S20	257	267	03/24/2020	SW8330	4-Amino-2,6-dinitrotoluene	0.055	J	µg/L	7.3		0.027	0.20
Central Impact Area	MW-223M1	MW-223M1_S20	211	221	03/24/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.082	J	µg/L	0.60		0.034	0.20
Central Impact Area	MW-623M3	MW-623M3_S20	275	285	03/23/2020	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.054	J	µg/L	400		0.036	0.20
Central Impact Area	MW-623M3	MW-623M3_S20	275	285	03/23/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.11	J	µg/L	0.60		0.034	0.20
Central Impact Area	MW-623M2	MW-623M2_S20	291.8	301.8	03/23/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.084	J	µg/L	0.60		0.034	0.20
Central Impact Area	MW-623M1	MW-623M1_S20	340	350	03/23/2020	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.049	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

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KGS 2019 PFAS MW&INF
Demolition Area 1

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

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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
Perfluorooctanesulfonamide (FOSA)	**1.80 J**	2.90 U	2.90 U	2.80 U	2.90 U
Perfluorooctanesulfonic acid (PFOS)	**4.90**	2.90 U	**1.40 J**	2.80 U	2.90 U
Perfluorooctanoic acid (PFOA)	1.40 U	1.40 U	**2.40**	1.40 U	1.40 U
Perfluoropentanoic acid (PFPA)	0.930 U	0.960 U	0.980 U	0.920 U	0.960 U
Perfluorotetradecanoic acid (PFTA)	2.80 U	2.90 U	2.90 U	2.80 U	2.90 U
Perfluorotridecanoic acid (PFTrDA)	2.80 U	2.90 U	2.90 U	2.80 U	2.90 U
Perfluoroundecanoic acid (PFUnA)	1.40 U	1.40 U	1.50 U	1.40 U	1.40 U
†PFOS + PFOA (EPA)	**4.90**	**0.00**	**3.80**	**0.00**	**0.00**
‡PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP/ORSG)	**4.90**	**0.00**	**3.80**	**0.00**	**0.00**

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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/ORSG)	**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/ORSG)	**0.800**	**7.10**

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J2 Range Northern

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

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J2 Range Northern

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

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J3 Range

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

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

Location	MW-250M2
Field Sample ID	MW-250M2_PFAS19
Sampling Depth	145.00 - 155.00
Sampling Date	06/20/2019
SDG	320515981
Sample Type	**Normal**

PFAS 21 Cmps	Results (ng/L)
6:2 Fluorotelomer sulfonate (6:2 FTS)	19.0 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	9.70 U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	9.70 U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	9.70 U
Perfluoro-1-heptanesulfonate (PFHpS)	0.970 U
Perfluorobutanesulfonic acid (PFBS)	0.970 U
Perfluorobutanoic acid (PFBA)	**0.710 J**
Perfluorodecane sulfonate	1.40 U
Perfluorodecanoic acid (PFDA)	0.970 U
Perfluorododecanoic acid (PFDoA)	1.40 U
Perfluoroheptanoic acid (PFHpA)	1.40 U
Perfluorohexanesulfonic acid (PFHxS)	0.970 U
Perfluorohexanoic acid (PFHxA)	0.970 U
Perfluorononanoic acid (PFNA)	1.40 U
Perfluorooctanesulfonamide (FOSA)	2.90 U
Perfluorooctanesulfonic acid (PFOS)	2.90 U
Perfluorooctanoic acid (PFOA)	1.40 U
Perfluoropentanoic acid (PFPA)	0.970 U
Perfluorotetradecanoic acid (PFTA)	2.90 U
Perfluorotridecanoic acid (PFTrDA)	2.90 U
Perfluoroundecanoic acid (PFUnA)	1.40 U
†PFOS + PFOA (EPA)	**0.00**
‡PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP/ORSG)	**0.00**

PFAS Summary Report – Groundwater
Joint Base Cape Cod, IAGWSP

Notes:

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

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

Bolded results indicate detections of PFAS

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

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

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

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

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

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