MONTHLY PROGRESS REPORT #315
FOR JUNE 2023

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 01 to 30 June 2023.

1. SUMMARY OF REMEDIATION ACTIONS

Remediation Actions (RA) Underway at Camp Edwards as of 30 June 2023:

Demolition Area 1 Comprehensive Groundwater RA

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

The Frank Perkins Road Treatment Facility has been optimized as part of the Environmental and System Performance Monitoring (ESPM) program at Demolition Area 1. The treatment facility continues to operate at a flow rate of 175 gallons per minute (gpm), with over 3.015 billion gallons of water treated and re-injected as of 30 June 2023. The following Frank Perkins Road Treatment Facility shutdowns occurred in June:

- 1806 on 06 June 2023 due to a power interruption and was restarted at 0728 on 07 June 2023.
- 0420 on 27 June 2023 due to a power outage caused by thunderstorms and was restarted at 0850 on 27 June 2023.
- 1107 on 28 June 2023 due to a variable frequency drive (VFD) vault and was restarted at 1340 on 28 June 2023.

The Base Boundary Mobile Treatment Unit (MTU) continues to operate at a flow rate of 65 gpm. As of 30 June 2023, over 370.5 million gallons of water were treated and re-injected. No Base Boundary MTU shutdowns occurred in June.

The Leading Edge system continues to operate at a flow rate of 100 gpm. As of 30 June 2023, over 359.3 million gallons of water were treated and re-injected. No Leading Edge system shutdowns occurred in June.

The Pew Road MTU was turned off with regulatory approval on 08 March 2021 (formerly operated at a flow rate of 65 gpm). Over 672.9 million gallons of water were treated and re-injected during the RA.

J-2 Range Groundwater RA

Northern Plant

The J-2 Range Northern Treatment facility consists of removal and treatment of contaminated groundwater to control further migration of explosives compounds and perchlorate. The

Extraction, Treatment, and Re-infiltration system includes three extraction wells, an ex-situ treatment process to remove explosives compounds and perchlorate from the groundwater, and an infiltration basin to return treated water to the aquifer.

The Northern MTUs E and F continue to operate at a flow rate of 250 gpm. As of 30 June 2023, over 2.096 billion gallons of water have been treated and re-injected. The following MTU E and F shutdowns occurred in June:

- 2000 on 14 June 2023 due to a power interruption and was restarted at 0916 on 15 June 2023.
- 1145 on 20 June 2023 to replace a leaking air bleed valve on GAC influent line #3 and was restarted at 1225 on 20 June 2023.
- 0104 on 21 June 2023 to repair a leak on the IX #4 line and was restarted at 1130 on 22 June 2023.

The Northern Treatment Building G continues to operate at a flow rate of 225 gpm. As of 30 June 2023, over 1.609 billion gallons of water have been treated and re-injected. The following Northern MTU G shutdowns occurred in June:

- 2242 on 05 June 2023 with no alarm and was restarted at 1133 on 06 June 2023.

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 enters the vadose zone and infiltrates into the aquifer. The J-2 Range Eastern system is running at a combined total flow rate of 495 gpm.

The MTUs H and I continue to operate at a flow rate of 250 gpm. As of 30 June 2023, over 1.739 billion gallons of water have been treated and re-injected. No MTU H and I shutdowns occurred in June.

MTU J continues to operate at a flow rate of 120 gpm. As of 30 June 2023, over 812.7 million gallons of water have been treated and re-injected. The following MTU J shutdowns occurred in June:

- 2000 on 14 June 2023 due to a power interruption and was restarted at 0749 on 15 June 2023.
- 0420 on 27 June 2023 due to a power outage caused by thunderstorms and was restarted at 0754 on 27 June 2023.

MTU K continues to operate at a flow rate of 125 gpm. As of 30 June 2023, over 936.1 million gallons of water have been treated and re-injected. The following MTU K shutdowns occurred in June:

- 2000 on 14 June 2023 due to a power interruption, Boston Electric and Telephone Company (BETCo) testing of motor and VFD, and was restarted at 0845 on 16 June 2023.
- 1230 on 16 June 2023 to drain the vessels, to perform MTU floor replacement, and was restarted at 1243 on 23 June 2023.

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, an ex-situ treatment process to remove explosives compounds and perchlorate from the groundwater and utilizes the existing Fuel Spill-12 (FS-12) infiltration gallery to return treated water to the aquifer.

The J-3 system is currently operating at a flow rate of 255 gpm. As of 30 June 2023, over 1.728 billion gallons of water have been treated and re-injected. The following J-3 Range system shutdowns occurred in June:

- 1050 on 05 June 2023 due to FS-12 being off and was restarted at 1323 on 05 June 2023.
- 0420 on 27 June 2023 due to a power outage caused by thunderstorms and was restarted at 0740 on 27 June 2023.

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, an ex-situ treatment process to remove explosives compounds from the groundwater, and an infiltration trench to return treated water to the aquifer.

The Southern MTU continues to operate at a flow rate of 125 gpm. As of 30 June 2023, over 761.3 million gallons of water have been treated and re-injected. The following J-1 Range Southern MTU shutdowns occurred in June:

- 1200 on 15 May 2023 to replace the infiltration gallery and normal operations (125 gpm flow) resumed at 0725 on 08 June 2023.

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, an 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 30 June 2023, over 1.239 billion gallons of water have been treated and re-injected. The following J-1 Range Northern MTU shutdowns occurred in June:

- 0425 on 27 June 2023 due to a power outage caused by thunderstorms and was restarted at 0828 on 27 June 2023.

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 resin and granular activated carbon media to treat explosives compounds, and three infiltration galleries to return treated water to the aquifer. The CIA systems 1, 2, and 3 continue to run at a combined total flow rate of 750 gpm. As of 30 June 2023, over 3.264 billion gallons of water have been treated and re-injected. The following CIA system shutdowns occurred in June:

- 1806 on 06 June 2023 due to a power interruption and was restarted at 0823 on 07 June 2023.
- 0930 on 15 June 2023 to replace a leaking flange and camlock fitting on GAC #3 and was restarted at 1014 on 15 June 2023.

2. SUMMARY OF ACTIONS TAKEN

Operable Unit (OU) Activity as of 30 June 2023:

CIA

- Source Area investigations
    - MetalMapper cued surveys in P4A3
    - Intrusive investigations in P4A2 SU6 polygons
    - Intrusive investigations in P4A3
    - Routine visual check of consolidated shot structure (CSS) soil cover and surface area around the perimeter of the CSS

Demolition Area 1

- Hydraulic groundwater monitoring within in Demolition Area 1 SPM
- Groundwater sampling within the Demolition Area 1 SPM

Demolition Area 2

- No activity

J-1 Range

- Bag filters changed
- Groundwater sampling within J-1 North SPM
- Groundwater sampling within J-1 South SPM

J-2 Range

- Bag filters changed
- Drilling, groundwater profile sampling, and soil logging at J-2 Range North

J-3 Range

- No activity

L Range

- No activity

Small Arms Ranges

- No activity

Northwest Corner
- No activity

Training Areas
- No activity

Impact Area Roads
- No activity

Other
- Collected process water samples from Central Impact Area, Demolition Area 1, J-1 Range Northern, J-1 Range Southern, J-2 Range Eastern, J-2 Range Northern, and J-3 Range treatment systems

JBCC Impact Area Groundwater Study Program (IAGWSP) Tech Update Meeting Minutes for 08 June 2023

J-2 Range Northern Data Presentation

Dave Hill (IAGWSP) introduced the J-2 Range Northern data presentation. He noted that during the reporting period (November 2021 through October 2022), the perchlorate and RDX plume shells were updated.

Mr. Hill (IAGWSP) continued with system performance statistics. During the reporting period, the Wood Road extraction, treatment, and reinjection (ETR) system was online about 96.95% and the Jefferson Road ETR facility was online approximately 98.77% of the time. There was no breakthrough of RDX at either system, but there were two breakthroughs of perchlorate at the Wood Road ETR in September and October, resulting in a changeout in October. He said that during the reporting period, each ETR system treated 128 million gallons of groundwater. While there was no RDX mass removed from the Jefferson Road ETR system during this reporting period, there was 0.03 pounds of RDX removed from the Wood Road system. For perchlorate mass removal, 1.87 pounds were removed from Wood Road system and 0.24 pounds from Jefferson Road system. Graphs showing influent concentrations and contaminant mass removal trends were displayed and discussed.

Mr. Hill (IAGWSP) continued with groundwater monitoring results and trends. He noted that perchlorate concentrations ranged from non-detect (ND) to 7.40 µg/L (MW-587M1). There were eight well locations above 2 µg/L, but no well locations were above 15 µg/L. For RDX, concentrations ranged from ND to 2.50 µg/L (MW-289M2).

Ryan Hupfer (USACE) continued with a review of the hydraulic monitoring and capture zone analysis. He said that the aquifer hydraulic analysis from August 2021 showed that water levels ranged from 58.49 ft above mean sea level (msl) at MW-55D in the north to 70.54 ft msl at MW-307M2 in the south. Mr. Hupfer (USACE) noted that the horizontal gradient was approximately 0.00124 ft/ft.

Mr. Hupfer (USACE) continued by showing the model predicted capture zone. He noted that the numerical model indicates the perchlorate plume is being captured and that stagnation points downgradient of each extraction well creates a disjointed plume. The measured and predicted perchlorate plumes were created using the 2022 perchlorate plume shell and measured groundwater concentrations.

The Decision Document (DD) cleanup timelines were discussed. Mr. Hupfer (USACE) explained that the perchlorate measurements indicate that the plume is reasonably well predicted but the expected overall cleanup time is seven years longer than the DD timeline, which is likely the result of the statistical mapping of contamination to lower hydraulic conductivity (K) units that might not be realistic. The DD predicted that perchlorate concentrations would be below 2.0µg/L by 2027. The current model-predicted time to cleanup is 2034.

Mr. Hupfer (USACE) noted that the IAGWSP recommends no modifications to plant operations or sampling, or to the groundwater monitoring program. Mr. Hupfer (USACE) recommended that the plume shell for perchlorate, which was last updated in 2022, be reevaluated in 2027. Elliot Jacobs (MassDEP) noted that MassDEP would be recommending in their comments that PFOS monitoring be added to the plant monitoring program. Len Pinaud (MassDEP) noted that Upper Cape Water Supply Cooperative Well number 2 is permitted to pump at their maximum pumping rate, which should be considered when reviewing monitoring well data in this area.

Project and Fieldwork Update

Darrin Smith (USACE) provided the project and fieldwork update starting with an update on the status of the groundwater sampling crews. He noted that Koman Government Solutions (KGS) crews are currently performing Demolition Area 1 system performance monitoring (SPM) sampling, which consists of 107 well screens. They began that on 25 April, and it is estimated to be completed by the end this week or early next week. Crews will also perform the hydraulic water level monitoring during this event. Mr. Smith (USACE) said that after crews finish at Demolition Area 1, they will move on to J-1 South SPM semi-annual sampling of 27 screens.

Mr. Smith (USACE) continued with a status of operations and maintenance activities. He noted that the June monthly process water samples are ongoing and that PFAS samples were collected at CIA 1, 2, and 3 influent and effluent on 6 June. He said there were no major treatment system shutdowns since the last tech meeting. The J-1 South infiltration gallery has been replaced and was brought slowly back online this morning (8 June 2023) and is operating at 125 gallons per minute. Currently, it appears to be running with no issues. Mr. Smith (USACE) noted that the old infiltration gallery was riddled with plant roots, and he would share photos taken during the replacement.

Mr. Smith (USACE) continued with an update on the drilling activities for the new J-2 North wells. He explained that, since the last tech meeting, crews completed drilling BH-738. The drilling crew is currently at BH-739, and they are starting with the 312 to 317 feet below ground surface (bgs) interval today. He noted they have collected 18 profile samples to date at this location. There is one more location for J- 2 North (BH-740) and then crews will move off-base to the well on Checkerberry Lane for J-1 South.

Gina Kaso (USACE) stated that Weston is not onsite this week due to range firing. Before they demobilized, crews were almost complete with the EM-61 survey. They had two Metal Mappers

operating and a third was recently assembled, so they will be working with three when they return on 12 June. Crews continue to perform polygon investigations in Survey Unit (SU) 6, which is the carry-on area from last year. Ms. Kaso (USACE) noted that maps should be available shortly for EPA and MassDEP to review and make grid selections.

Action Items

Greg Hencir (USACE) used the document tracking list to review and discuss deliverables.

JBCC Cleanup Team Meeting

The next JBCC Cleanup Team (JBCCCT) has not been scheduled (previous meeting was 12 April 2023). Meeting details and presentation materials can be found on the IAGWSP web site at http://jbcc-iagwsp.org/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 01 to 30 June 2023. Table 2 summarizes the validated detections of explosives compounds and perchlorate for all groundwater results received from 01 to 30 June 2023. 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 01 to 30 June 2023. Table 3 PFAS results are compared to the Regional Screening Levels (RSL) published by EPA on 17 May 2022 as well as the EPA Lifetime Health Advisory for PFOS+PFOA and the MassDEP MCL for PFAS6.

The operable units (OUs) under investigation and cleanup at Camp Edwards are the Central Impact Area, Demolition Area 1, Demolition Area 2, J-1 Range, J-2 Range, J-3 Range, L Range, Northwest Corner, Small Arms Ranges, and Training Areas. 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. 314 for May 2023 — 15 June 2023
- Land Use Controls Monitoring Report for 2022 — 05 June 2023
- Proposed Well-Screen Intervals and Sampling Modifications — 09 June 2023
- Draft Stakeholder EDMS Reference Manual Version 10.2 June 2023 — 30 June 2023

5. SCHEDULED ACTIONS

The following actions and/or documents are being prepared in June 2023.

- Memorandum of Resolution on the Draft Small Arms Ranges Environmental Monitoring Work Plan Addendum
- Memorandum of Resolution on the Draft Central Impact Area Source 2023 Quality Assurance Project Plan
- Draft J-2 Range Eastern 2022 Environmental Monitoring Report
- Memorandum of Resolution on the Central Impact Area 2022 Environmental Monitoring Report
- Memorandum of Resolution for the Northwest Corner Demonstration of Compliance Report (*on hold pending resolution of PFAS issues*)
- Draft Demolition Area 2 2022 Environmental Monitoring Report

TABLE 1
Sampling Progress: 01 to 30 June 2023

Area Of Concern	Location	Field Sample ID	Sample Type	Date Sampled	Matrix	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)
J2 Range Northern	BH-740	BH-740-369-372	N	06-29-2023	Water	369	372
J2 Range Northern	BH-740	BH-740-361-366	N	06-29-2023	Water	361	366
J2 Range Northern	BH-740	BH-740-351-356	N	06-28-2023	Water	351	356
J2 Range Northern	FIELDQC	BH-740-GAC-EFF-24	FB	06-28-2023	Water Quality Control Matrix	0	0
J2 Range Northern	FIELDQC	BH-740-GAC-EFF-24	FB	06-28-2023	Water Quality Control Matrix	0	0
J2 Range Northern	FIELDQC	BH-740-GAC-MID1-24	FB	06-28-2023	Water Quality Control Matrix	0	0
J2 Range Northern	FIELDQC	BH-740-GAC-MID1-24	FB	06-28-2023	Water Quality Control Matrix	0	0
J2 Range Northern	BH-740	BH-740-341-346	N	06-27-2023	Water	341	346
J2 Range Northern	BH-740	BH-740-331-336	N	06-27-2023	Water	331	336
J1 Range Southern	MW-403M2	MW-403M2_S23	N	06-27-2023	Ground Water	127.26	137.36
J2 Range Northern	BH-740	BH-740-321-326	N	06-27-2023	Water	321	326
J1 Range Southern	MW-403M1	MW-403M1_S23	N	06-27-2023	Ground Water	159.9	169.89
J2 Range Northern	BH-740	BH-740-311-316	N	06-27-2023	Water	311	316
J1 Range Southern	MW-669M2	MW-669M2_S23	N	06-27-2023	Ground Water	201.7	211.7
J2 Range Northern	FIELDQC	BH-740-GAC-EFF-23	FB	06-27-2023	Water Quality Control Matrix	0	0
J2 Range Northern	FIELDQC	BH-740-GAC-EFF-23	FB	06-27-2023	Water Quality Control Matrix	0	0
J2 Range Northern	FIELDQC	BH-740-GAC-MID1-23	FB	06-27-2023	Water Quality Control Matrix	0	0
J2 Range Northern	FIELDQC	BH-740-GAC-MID1-23	FB	06-27-2023	Water Quality Control Matrix	0	0
J1 Range Southern	MW-669M1	MW-669M1_S23	N	06-27-2023	Ground Water	223.7	233.7
J1 Range Southern	MW-669M1	MW-669M1_S23D	FD	06-27-2023	Ground Water	223.7	233.7
J2 Range Northern	BH-740	BH-740-301-306	N	06-26-2023	Water	301	306
J2 Range Northern	FIELDQC	BH-740-EB-GP-062623	EB	06-26-2023	Water Quality Control Matrix	0	0
J2 Range Northern	FIELDQC	BH-740-EB01-S-062623	EB	06-26-2023	Water Quality Control Matrix	0	0
J2 Range Northern	BH-740	BH-740-291-296	N	06-26-2023	Water	291	296
J1 Range Southern	MW-720M2	MW-720M2_S23	N	06-26-2023	Ground Water	126.2	136.2
J1 Range Southern	MW-720M1	MW-720M1_S23	N	06-26-2023	Ground Water	146.6	156.6
J2 Range Northern	BH-740	BH-740-281-286	N	06-26-2023	Water	281	286
J1 Range Southern	MW-721M2	MW-721M2_S23	N	06-26-2023	Ground Water	138.5	148.5
J1 Range Southern	MW-721M1	MW-721M1_S23	N	06-26-2023	Ground Water	168.1	178.1
J1 Range Southern	MW-722M2	MW-722M2_S23	N	06-26-2023	Ground Water	93.9	103.9
J2 Range Northern	BH-740	BH-740-271-276	N	06-23-2023	Water	271	276
J2 Range Northern	BH-740	BH-740-261-266	N	06-22-2023	Water	261	266
J1 Range Southern	MW-722M1	MW-722M1_S23	N	06-22-2023	Ground Water	114.2	124.2
J1 Range Southern	MW-722M1	MW-722M1_S23D	FD	06-22-2023	Ground Water	114.2	124.2
J2 Range Northern	BH-740	BH-740-251-256	N	06-22-2023	Water	251	256
J1 Range Northern	MW-245M2	MW-245M2_S23	N	06-22-2023	Ground Water	204	214
J1 Range Northern	MW-245M2	MW-245M2_S23D	FD	06-22-2023	Ground Water	204	214
J2 Range Northern	BH-740	BH-740-241-246	N	06-22-2023	Water	241	246
J2 Range Northern	BH-740	BH-740-241-246-D	FD	06-22-2023	Water	241	246
J1 Range Northern	MW-590M2	MW-590M2_S23	N	06-22-2023	Ground Water	238	248
J1 Range Northern	MW-590M2	MW-590M2_S23D	FD	06-22-2023	Ground Water	238	248
J2 Range Northern	FIELDQC	BH-740-GAC-EFF-22	FB	06-22-2023	Water Quality Control Matrix	0	0
J2 Range Northern	FIELDQC	BH-740-GAC-EFF-22	FB	06-22-2023	Water Quality Control Matrix	0	0
J2 Range Northern	FIELDQC	BH-740-GAC-MID1-22	FB	06-22-2023	Water Quality Control Matrix	0	0
J2 Range Northern	FIELDQC	BH-740-GAC-MID1-22	FB	06-22-2023	Water Quality Control Matrix	0	0
J1 Range Northern	MW-590M1	MW-590M1_S23	N	06-22-2023	Ground Water	258	268
J2 Range Northern	BH-740	BH-740-231-236	N	06-21-2023	Water	231	236
J2 Range Northern	BH-740	BH-740-221-226	N	06-21-2023	Water	221	226
J1 Range Northern	MW-430M2	MW-430M2_S23	N	06-21-2023	Ground Water	188.41	198.41
J1 Range Northern	MW-430M1	MW-430M1_S23	N	06-21-2023	Ground Water	245.23	255.23
J2 Range Northern	BH-740	BH-740-211-216	N	06-21-2023	Water	211	216
J2 Range Northern	BH-740	BH-740-211-216-D	FD	06-21-2023	Water	211	216
J1 Range Northern	MW-540M1	MW-540M1_S23	N	06-21-2023	Ground Water	258	268

N = Normal Sample
FD = Field Duplicate

TABLE 1
Sampling Progress: 01 to 30 June 2023

Area Of Concern	Location	Field Sample ID	Sample Type	Date Sampled	Matrix	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)
J2 Range Northern	BH-740	BH-740-201-206	N	06-21-2023	Water	201	206
J2 Range Northern	FIELDQC	BH-740-GAC-EFF-21	FB	06-21-2023	Water Quality Control Matrix	0	0
J2 Range Northern	FIELDQC	BH-740-GAC-EFF-21	FB	06-21-2023	Water Quality Control Matrix	0	0
J2 Range Northern	FIELDQC	BH-740-GAC-MID1-21	FB	06-21-2023	Water Quality Control Matrix	0	0
J2 Range Northern	FIELDQC	BH-740-GAC-MID1-21	FB	06-21-2023	Water Quality Control Matrix	0	0
J1 Range Northern	J1NEW0002	J1NEW0002_S23	N	06-21-2023	Ground Water	200	250
J1 Range Northern	J1NEW0001	J1NEW0001_S23	N	06-21-2023	Ground Water	217	257
J2 Range Northern	FIELDQC	BH-740-EB01-MP-062023	EB	06-20-2023	Water Quality Control Matrix	0	0
J2 Range Northern	BH-740	BH-740-196	N	06-20-2023	Water	196	196
J2 Range Northern	BH-740	BH-740-186	N	06-20-2023	Water	186	186
J1 Range Northern	MW-303M2	MW-303M2_S23	N	06-20-2023	Ground Water	235.09	245.1
J1 Range Northern	MW-303M2	MW-303M2_S23D	FD	06-20-2023	Ground Water	235.09	245.1
J1 Range Northern	MW-401M3	MW-401M3_S23	N	06-20-2023	Ground Water	228.5	238.5
J2 Range Northern	BH-740	BH-740-176	N	06-20-2023	Water	176	176
J1 Range Northern	MW-401M1	MW-401M1_S23	N	06-20-2023	Ground Water	256.1	266.1
J2 Range Northern	BH-740	BH-740-166	N	06-20-2023	Water	166	166
J1 Range Northern	MW-584M2	MW-584M2_S23	N	06-20-2023	Ground Water	228	238
J2 Range Northern	FIELDQC	BH-740-EB01-PA-061923	EB	06-19-2023	Water Quality Control Matrix	0	0
J2 Range Northern	BH-740	BH-740-156	N	06-19-2023	Water	156	156
J2 Range Northern	FIELDQC	BH-740-EB01-B-061923	EB	06-19-2023	Water Quality Control Matrix	0	0
J2 Range Northern	FIELDQC	BH-FRB07-061923	AB	06-19-2023	Water Quality Control Matrix	0	0
J1 Range Northern	MW-584M1	MW-584M1_S23	N	06-19-2023	Ground Water	248	258
J1 Range Northern	MW-606M2	MW-606M2_S23	MS	06-19-2023	Ground Water	193.2	203.2
J1 Range Northern	MW-606M2	MW-606M2_S23	N	06-19-2023	Ground Water	193.2	203.2
J1 Range Northern	MW-606M2	MW-606M2_S23	SD	06-19-2023	Ground Water	193.2	203.2
J1 Range Northern	MW-606M1	MW-606M1_S23	N	06-19-2023	Ground Water	233.3	243.3
J1 Range Northern	MW-566M1	MW-566M1_S23	N	06-19-2023	Ground Water	232	242
J1 Range Northern	MW-549M2	MW-549M2_S23	MS	06-19-2023	Ground Water	187.3	197.3
J1 Range Northern	MW-549M2	MW-549M2_S23	N	06-19-2023	Ground Water	187.3	197.3
J1 Range Northern	MW-549M2	MW-549M2_S23	SD	06-19-2023	Ground Water	187.3	197.3
J1 Range Northern	MW-549M1	MW-549M1_S23	N	06-19-2023	Ground Water	227.4	237.4
J1 Range Northern	MW-567M1	MW-567M1_S23	N	06-13-2023	Ground Water	215.5	225.5
J1 Range Northern	MW-605M2	MW-605M2_S23	N	06-13-2023	Ground Water	182.2	192.2
J1 Range Northern	MW-605M1	MW-605M1_S23	N	06-13-2023	Ground Water	220.2	230.2
J1 Range Southern	J1S-EFF	J1S-EFF-187A	N	06-13-2023	Process Water	0	0
J1 Range Southern	J1S-MID	J1S-MID-187A	N	06-13-2023	Process Water	0	0
J1 Range Southern	J1S-INF-2	J1S-INF-2-187A	N	06-13-2023	Process Water	0	0
J1 Range Northern	MW-547M2	MW-547M2_S23	N	06-13-2023	Ground Water	178	188
J1 Range Northern	MW-547M1	MW-547M1_S23	N	06-13-2023	Ground Water	237	247
J2 Range Northern	BH-739	BH-739-322-327	N	06-12-2023	Water	322	327
J1 Range Northern	MW-541M1	MW-541M1_S23	N	06-12-2023	Ground Water	210	220
J1 Range Northern	MW-689M2	MW-689M2_S23	N	06-12-2023	Ground Water	231.4	241.4
J1 Range Northern	MW-689M1	MW-689M1_S23	N	06-12-2023	Ground Water	253.5	263.5
J1 Range Northern	MW-688M2	MW-688M2_S23	N	06-12-2023	Ground Water	227.8	237.8
J1 Range Northern	MW-688M1	MW-688M1_S23	N	06-12-2023	Ground Water	255.2	265.2
J2 Range Northern	BH-739	BH-739-312-317	N	06-08-2023	Water	312	317
Demolition Area 1	FPR-2-EFF-A	FPR-2-EFF-A-207A	N	06-08-2023	Process Water	0	0
Demolition Area 1	FPR-2-GAC-MID1A	FPR-2-GAC-MID1A-207A	N	06-08-2023	Process Water	0	0
Demolition Area 1	FPR2-POST-IX-A	FPR2-POST-IX-A-207A	N	06-08-2023	Process Water	0	0
Demolition Area 1	FPR-2-INF	FPR-2-INF-207A	N	06-08-2023	Process Water	0	0
Demolition Area 1	D1LE-EFF	D1LE-EFF-83A	N	06-08-2023	Process Water	0	0
Demolition Area 1	D1LE-MID2	D1LE-MID2-83A	N	06-08-2023	Process Water	0	0
Demolition Area 1	D1LE-MID1	D1LE-MID1-83A	N	06-08-2023	Process Water	0	0
Demolition Area 1	D1LE-INF	D1LE-INF-83A	N	06-08-2023	Process Water	0	0
Demolition Area 1	MW-730M3	MW-730M3_S23	N	06-08-2023	Ground Water	115.46	125.46

N = Normal Sample
FD = Field Duplicate

TABLE 1
Sampling Progress: 01 to 30 June 2023

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	D1-EFF	D1-EFF-155A	N	06-08-2023	Process Water	0	0
Demolition Area 1	MW-730M2	MW-730M2_S23	N	06-08-2023	Ground Water	165.87	175.87
Demolition Area 1	D1-MID-2	D1-MID-2-155A	N	06-08-2023	Process Water	0	0
Demolition Area 1	D1-MID-1	D1-MID-1-155A	N	06-08-2023	Process Water	0	0
Demolition Area 1	D1-INF	D1-INF-155A	N	06-08-2023	Process Water	0	0
Demolition Area 1	MW-730M1	MW-730M1_S23	N	06-08-2023	Ground Water	185.82	195.82
J1 Range Northern	J1N-EFF	J1N-EFF-116A	N	06-08-2023	Process Water	0	0
J1 Range Northern	J1N-MID2	J1N-MID2-116A	N	06-08-2023	Process Water	0	0
J1 Range Northern	J1N-MID1	J1N-MID1-116A	N	06-08-2023	Process Water	0	0
J1 Range Northern	J1N-INF2	J1N-INF2-116A	N	06-08-2023	Process Water	0	0
Demolition Area 1	MW-732M2	MW-732M2_S23	N	06-08-2023	Ground Water	96.2	106.2
Demolition Area 1	MW-732M1	MW-732M1_S23	N	06-08-2023	Ground Water	156	166
J2 Range Northern	BH-739	BH-739-302-307	N	06-07-2023	Water	302	307
J2 Range Northern	BH-739	BH-739-302-307-D	FD	06-07-2023	Water	302	307
J3 Range	J3-EFF	J3-EFF-201A	N	06-07-2023	Process Water	0	0
J2 Range Northern	BH-739	BH-739-292-297	N	06-07-2023	Water	292	297
J3 Range	J3-MID-2	J3-MID-2-201A	N	06-07-2023	Process Water	0	0
J3 Range	J3-MID-1	J3-MID-1-201A	N	06-07-2023	Process Water	0	0
J3 Range	J3-INF	J3-INF-201A	N	06-07-2023	Process Water	0	0
Demolition Area 1	MW-611M2	MW-611M2_S23	N	06-07-2023	Ground Water	91	101
J2 Range Northern	FIELDQC	BH-739-EB01-S-060723	EB	06-07-2023	Water Quality Control Matrix	0	0
J2 Range Eastern	J2E-EFF-J	J2E-EFF-J-177A	N	06-07-2023	Process Water	0	0
J2 Range Eastern	J2E-MID-2J	J2E-MID-2J-177A	N	06-07-2023	Process Water	0	0
J2 Range Eastern	J2E-MID-1J	J2E-MID-1J-177A	N	06-07-2023	Process Water	0	0
Demolition Area 1	MW-611M1	MW-611M1_S23	N	06-07-2023	Ground Water	141	151
Demolition Area 1	MW-611M1	MW-611M1_S23D	FD	06-07-2023	Ground Water	141	151
J2 Range Eastern	J2E-INF-J	J2E-INF-J-177A	N	06-07-2023	Process Water	0	0
J2 Range Northern	FIELDQC	BH-739-EB01-B-060723	EB	06-07-2023	Water Quality Control Matrix	0	0
J2 Range Northern	BH-739	BH-739-282-287	N	06-07-2023	Water	282	287
J2 Range Eastern	J2E-EFF-K	J2E-EFF-K-177A	N	06-07-2023	Process Water	0	0
J2 Range Eastern	J2E-MID-2K	J2E-MID-2K-177A	N	06-07-2023	Process Water	0	0
J2 Range Eastern	J2E-MID-1K	J2E-MID-1K-177A	N	06-07-2023	Process Water	0	0
J2 Range Eastern	J2E-INF-K	J2E-INF-K-177A	N	06-07-2023	Process Water	0	0
J2 Range Eastern	J2E-EFF-IH	J2E-EFF-IH-177A	N	06-07-2023	Process Water	0	0
J2 Range Eastern	J2E-MID-2H	J2E-MID-2H-177A	N	06-07-2023	Process Water	0	0
J2 Range Eastern	J2E-MID-1H	J2E-MID-1H-177A	N	06-07-2023	Process Water	0	0
Demolition Area 1	MW-433	MW-433_S23	N	06-07-2023	Process Water	148	228
J2 Range Eastern	J2E-MID-2I	J2E-MID-2I-177A	N	06-07-2023	Process Water	0	0
J2 Range Eastern	J2E-MID-1I	J2E-MID-1I-177A	N	06-07-2023	Process Water	0	0
J2 Range Eastern	J2E-INF-I	J2E-INF-I-177A	N	06-07-2023	Process Water	0	0
J2 Range Northern	BH-739	BH-739-272-277	N	06-07-2023	Water	272	277
J2 Range Northern	FIELDQC	BH-739-GAC-EFF-20	FB	06-07-2023	Water Quality Control Matrix	0	0
J2 Range Northern	FIELDQC	BH-739-GAC-EFF-20	FB	06-07-2023	Water Quality Control Matrix	0	0
J2 Range Northern	FIELDQC	BH-739-GAC-MID1-20	FB	06-07-2023	Water Quality Control Matrix	0	0
J2 Range Northern	FIELDQC	BH-739-GAC-MID1-20	FB	06-07-2023	Water Quality Control Matrix	0	0
Demolition Area 1	MW-610M2	MW-610M2_S23	N	06-06-2023	Ground Water	85	95
Central Impact Area	CIA2-EFF	CIA2-EFF-113A	N	06-06-2023	Process Water	0	0
Central Impact Area	CIA2-EFF	CIA2-EFF_P23	N	06-06-2023	Process Water	0	0
Central Impact Area	CIA2-MID2	CIA2-MID2-113A	N	06-06-2023	Process Water	0	0
Central Impact Area	CIA2-MID1	CIA2-MID1-113A	N	06-06-2023	Process Water	0	0
Central Impact Area	CIA2-INF	CIA2-INF_P23D	FD	06-06-2023	Process Water	0	0
Central Impact Area	CIA2-INF	CIA2-INF-113A	N	06-06-2023	Process Water	0	0
Central Impact Area	CIA2-INF	CIA2-INF_P23	N	06-06-2023	Process Water	0	0
Demolition Area 1	MW-610M1	MW-610M1_S23	N	06-06-2023	Ground Water	110	120
J2 Range Northern	FIELDQC	FRB-CIA_P23	AB	06-06-2023	Water Quality Control Matrix	0	0
Central Impact Area	CIA1-EFF	CIA1-EFF-113A	N	06-06-2023	Process Water	0	0

N = Normal Sample
FD = Field Duplicate

TABLE 1
Sampling Progress: 01 to 30 June 2023

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_P23	N	06-06-2023	Process Water	0	0
Central Impact Area	CIA1-MID2	CIA1-MID2-113A	N	06-06-2023	Process Water	0	0
Central Impact Area	CIA1-MID1	CIA1-MID1-113A	N	06-06-2023	Process Water	0	0
Central Impact Area	CIA1-INF	CIA1-INF-113A	N	06-06-2023	Process Water	0	0
Central Impact Area	CIA1-INF	CIA1-INF_P23	N	06-06-2023	Process Water	0	0
Demolition Area 1	MW-598M2	MW-598M2_S23	N	06-06-2023	Ground Water	88	98
Central Impact Area	CIA3-EFF	CIA3-EFF-84A	N	06-06-2023	Process Water	0	0
Central Impact Area	CIA3-EFF	CIA3-EFF_P23	N	06-06-2023	Process Water	0	0
Central Impact Area	CIA3-MID2	CIA3-MID2-84A	N	06-06-2023	Process Water	0	0
Central Impact Area	CIA3-MID1	CIA3-MID1-84A	N	06-06-2023	Process Water	0	0
J2 Range Northern	BH-739	BH-739-262-267	N	06-06-2023	Water	262	267
Demolition Area 1	MW-598M1	MW-598M1_S23	N	06-06-2023	Ground Water	122	132
Central Impact Area	CIA3-INF	CIA3-INF-84A	N	06-06-2023	Process Water	0	0
Central Impact Area	CIA3-INF	CIA3-INF_P23	N	06-06-2023	Process Water	0	0
J2 Range Northern	BH-739	BH-739-252-257	N	06-05-2023	Water	252	257
J2 Range Northern	BH-739	BH-739-242-247	N	06-05-2023	Water	242	247
J2 Range Northern	BH-739	BH-739-232-237	N	06-05-2023	Water	232	237
Demolition Area 1	MW-73S	MW-73S_S23	N	06-05-2023	Ground Water	38.5	48
Demolition Area 1	MW-73S	MW-73S_S23D	FD	06-05-2023	Ground Water	38.5	48
J2 Range Northern	BH-739	BH-739-222-227	N	06-05-2023	Water	222	227
J2 Range Northern	J2N-EFF-G	J2N-EFF-G-201A	N	06-05-2023	Process Water	0	0
J2 Range Northern	J2N-MID-2G	J2N-MID-2G-201A	N	06-05-2023	Process Water	0	0
J2 Range Northern	J2N-MID-1G	J2N-MID-1G-201A	N	06-05-2023	Process Water	0	0
J2 Range Northern	J2N-INF-G	J2N-INF-G-201A	N	06-05-2023	Process Water	0	0
J2 Range Northern	FIELDQC	BH-739-GAC-EFF-19	FB	06-05-2023	Water Quality Control Matrix	0	0
J2 Range Northern	FIELDQC	BH-739-GAC-EFF-19	FB	06-05-2023	Water Quality Control Matrix	0	0
Demolition Area 1	XX9514	XX9514_S23	N	06-05-2023	Ground Water	0	0
Demolition Area 1	XX9514	XX9514_S23D	FD	06-05-2023	Ground Water	0	0
J2 Range Northern	FIELDQC	BH-739-GAC-MID1-19	FB	06-05-2023	Water Quality Control Matrix	0	0
J2 Range Northern	FIELDQC	BH-739-GAC-MID1-19	FB	06-05-2023	Water Quality Control Matrix	0	0
J2 Range Northern	J2N-EFF-EF	J2N-EFF-EF-201A	N	06-05-2023	Process Water	0	0
J2 Range Northern	J2N-MID-2F	J2N-MID-2F-201A	N	06-05-2023	Process Water	0	0
J2 Range Northern	J2N-MID-1F	J2N-MID-1F-201A	N	06-05-2023	Process Water	0	0
J2 Range Northern	J2N-INF-EF	J2N-INF-EF-201A	N	06-05-2023	Process Water	0	0
J2 Range Northern	BH-739	BH-739-212-217	N	06-05-2023	Water	212	217
J2 Range Northern	J2N-MID-2E	J2N-MID-2E-201A	N	06-05-2023	Process Water	0	0
J2 Range Northern	J2N-MID-1E	J2N-MID-1E-201A	N	06-05-2023	Process Water	0	0
J2 Range Northern	FIELDQC	EB_060523	EB	06-05-2023	Water Quality Control Matrix	0	0
J2 Range Northern	FIELDQC	BH-739-EB01-GP-060223	EB	06-02-2023	Water Quality Control Matrix	0	0
J2 Range Northern	BH-739	BH-739-202-207	N	06-02-2023	Water	202	207
J2 Range Northern	FIELDQC	BH-739-EB01-PA-060223	EB	06-02-2023	Water Quality Control Matrix	0	0
J2 Range Northern	FIELDQC	BH-739-EB01-MP-060223	EB	06-02-2023	Water Quality Control Matrix	0	0
J2 Range Northern	BH-739	BH-739-197	N	06-02-2023	Water	197	197
J2 Range Northern	BH-739	BH-739-187	N	06-02-2023	Water	187	187
J2 Range Northern	BH-739	BH-739-177	N	06-02-2023	Water	177	177
J2 Range Northern	BH-739	BH-739-167	MS	06-01-2023	Water	167	167
J2 Range Northern	BH-739	BH-739-167	N	06-01-2023	Water	167	167
J2 Range Northern	BH-739	BH-739-167	SD	06-01-2023	Water	167	167
J2 Range Northern	BH-739	BH-739-157	N	06-01-2023	Water	157	157
J2 Range Northern	BH-739	BH-739-157-D	FD	06-01-2023	Water	157	157
J2 Range Northern	BH-739	BH-739-147	N	06-01-2023	Water	147	147
J2 Range Northern	BH-739	BH-739-137	N	06-01-2023	Water	137	137
J2 Range Northern	FIELDQC	BH-FRB06-060123	AB	06-01-2023	Water Quality Control Matrix	0	0

N = Normal Sample
FD = Field Duplicate

TABLE 2
VALIDATED EXPLOSIVE AND PERCHLORATE RESULTS
Data Received June 2023

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
J1 Range Southern	J1S-MID	J1S-MID-187A	0	0	06-13-2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.10	J	µg/L	0.60		0.037	0.20
J1 Range Southern	J1S-INF-2	J1S-INF-2-187A	0	0	06-13-2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.060	J	µg/L	0.60		0.037	0.20
Demolition Area 1	FPR-2-EFF-A	FPR-2-EFF-A-207A	0	0	06-08-2023	SW6850	Perchlorate	0.073	J	µg/L	2.0		0.058	0.20
Demolition Area 1	FPR-2-GAC-MID1A	FPR-2-GAC-MID1A-207A	0	0	06-08-2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.15	J	µg/L	0.60		0.037	0.20
Demolition Area 1	FPR2-POST-IX-A	FPR2-POST-IX-A-207A	0	0	06-08-2023	SW6850	Perchlorate	0.062	J	µg/L	2.0		0.058	0.20
Demolition Area 1	FPR-2-INF	FPR-2-INF-207A	0	0	06-08-2023	SW6850	Perchlorate	0.064	J	µg/L	2.0		0.058	0.20
Demolition Area 1	FPR-2-INF	FPR-2-INF-207A	0	0	06-08-2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.063	J	µg/L	0.60		0.037	0.20
Demolition Area 1	D1LE-EFF	D1LE-EFF-83A	0	0	06-08-2023	SW6850	Perchlorate	0.092	J	µg/L	2.0		0.058	0.20
Demolition Area 1	D1LE-MID1	D1LE-MID1-83A	0	0	06-08-2023	SW6850	Perchlorate	0.090	J	µg/L	2.0		0.058	0.20
Demolition Area 1	D1LE-INF	D1LE-INF-83A	0	0	06-08-2023	SW6850	Perchlorate	0.13	J	µg/L	2.0		0.058	0.20
Demolition Area 1	D1-EFF	D1-EFF-155A	0	0	06-08-2023	SW6850	Perchlorate	0.15	J	µg/L	2.0		0.058	0.20
Demolition Area 1	D1-MID-1	D1-MID-1-155A	0	0	06-08-2023	SW6850	Perchlorate	0.15	J	µg/L	2.0		0.058	0.20
Demolition Area 1	D1-INF	D1-INF-155A	0	0	06-08-2023	SW6850	Perchlorate	0.43		µg/L	2.0		0.058	0.20
J1 Range Northern	J1N-MID2	J1N-MID2-116A	0	0	06-08-2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.052	J	µg/L	0.60		0.037	0.20
J1 Range Northern	J1N-INF2	J1N-INF2-116A	0	0	06-08-2023	SW6850	Perchlorate	0.69		µg/L	2.0		0.058	0.20
J1 Range Northern	J1N-INF2	J1N-INF2-116A	0	0	06-08-2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.12	J	µg/L	0.60		0.037	0.20
J3 Range	J3-EFF	J3-EFF-201A	0	0	06-07-2023	SW6850	Perchlorate	0.24		µg/L	2.0		0.058	0.20
J3 Range	J3-EFF	J3-EFF-201A	0	0	06-07-2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.20		µg/L	0.60		0.037	0.20
J3 Range	J3-MID-2	J3-MID-2-201A	0	0	06-07-2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.16	J	µg/L	0.60		0.037	0.20
J3 Range	J3-MID-1	J3-MID-1-201A	0	0	06-07-2023	SW6850	Perchlorate	0.24		µg/L	2.0		0.058	0.20
J3 Range	J3-INF	J3-INF-201A	0	0	06-07-2023	SW6850	Perchlorate	0.51		µg/L	2.0		0.058	0.20
J3 Range	J3-INF	J3-INF-201A	0	0	06-07-2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.14	J	µg/L	0.60		0.037	0.20
J2 Range Eastern	J2E-EFF-J	J2E-EFF-J-177A	0	0	06-07-2023	SW6850	Perchlorate	0.15	J	µg/L	2.0		0.058	0.20
J2 Range Eastern	J2E-EFF-J	J2E-EFF-J-177A	0	0	06-07-2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.081	J	µg/L	0.60		0.037	0.20
J2 Range Eastern	J2E-EFF-J	J2E-EFF-J-177A	0	0	06-07-2023	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.16	J	µg/L	400		0.11	0.20
J2 Range Eastern	J2E-MID-2J	J2E-MID-2J-177A	0	0	06-07-2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.088	J	µg/L	0.60		0.037	0.20
J2 Range Eastern	J2E-MID-2J	J2E-MID-2J-177A	0	0	06-07-2023	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.11	J	µg/L	400		0.11	0.20
J2 Range Eastern	J2E-MID-1J	J2E-MID-1J-177A	0	0	06-07-2023	SW6850	Perchlorate	0.13	J	µg/L	2.0		0.058	0.20
J2 Range Eastern	J2E-INF-J	J2E-INF-J-177A	0	0	06-07-2023	SW6850	Perchlorate	0.81		µg/L	2.0		0.058	0.20
J2 Range Eastern	J2E-INF-J	J2E-INF-J-177A	0	0	06-07-2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.073	J	µg/L	0.60		0.037	0.20
J2 Range Eastern	J2E-EFF-K	J2E-EFF-K-177A	0	0	06-07-2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.12	J	µg/L	0.60		0.037	0.20
J2 Range Eastern	J2E-MID-2K	J2E-MID-2K-177A	0	0	06-07-2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.059	J	µg/L	0.60		0.037	0.20
J2 Range Eastern	J2E-INF-K	J2E-INF-K-177A	0	0	06-07-2023	SW6850	Perchlorate	0.095	J	µg/L	2.0		0.058	0.20
J2 Range Eastern	J2E-INF-K	J2E-INF-K-177A	0	0	06-07-2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.063	J	µg/L	0.60		0.037	0.20
J2 Range Eastern	J2E-EFF-IH	J2E-EFF-IH-177A	0	0	06-07-2023	SW6850	Perchlorate	0.071	J	µg/L	2.0		0.058	0.20
J2 Range Eastern	J2E-EFF-IH	J2E-EFF-IH-177A	0	0	06-07-2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.13	J	µg/L	0.60		0.037	0.20
J2 Range Eastern	J2E-MID-2H	J2E-MID-2H-177A	0	0	06-07-2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.16	J	µg/L	0.60		0.037	0.20
J2 Range Eastern	J2E-MID-2I	J2E-MID-2I-177A	0	0	06-07-2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.19	J	µg/L	0.60		0.037	0.20
J2 Range Eastern	J2E-MID-1I	J2E-MID-1I-177A	0	0	06-07-2023	SW6850	Perchlorate	0.095	J	µg/L	2.0		0.058	0.20
J2 Range Eastern	J2E-INF-I	J2E-INF-I-177A	0	0	06-07-2023	SW6850	Perchlorate	1.4		µg/L	2.0		0.058	0.20
J2 Range Eastern	J2E-INF-I	J2E-INF-I-177A	0	0	06-07-2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.17	J	µg/L	0.60		0.037	0.20

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

MCL/HA= Either the MCL or Lowest Health Advisory Limit
July 10, 2023

TABLE 2
VALIDATED EXPLOSIVE AND PERCHLORATE RESULTS
Data Received June 2023

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	CIA2-EFF	CIA2-EFF-113A	0	0	06-06-2023	SW6850	Perchlorate	0.19	J	µg/L	2.0		0.058	0.20
Central Impact Area	CIA2-MID2	CIA2-MID2-113A	0	0	06-06-2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.058	J	µg/L	0.60		0.037	0.20
Central Impact Area	CIA2-MID1	CIA2-MID1-113A	0	0	06-06-2023	SW6850	Perchlorate	0.23		µg/L	2.0		0.058	0.20
Central Impact Area	CIA2-INF	CIA2-INF-113A	0	0	06-06-2023	SW6850	Perchlorate	0.33		µg/L	2.0		0.058	0.20
Central Impact Area	CIA2-INF	CIA2-INF-113A	0	0	06-06-2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.91		µg/L	0.60	X	0.037	0.20
Central Impact Area	CIA1-EFF	CIA1-EFF-113A	0	0	06-06-2023	SW6850	Perchlorate	0.063	J	µg/L	2.0		0.058	0.20
Central Impact Area	CIA1-MID2	CIA1-MID2-113A	0	0	06-06-2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.062	J	µg/L	0.60		0.037	0.20
Central Impact Area	CIA1-MID1	CIA1-MID1-113A	0	0	06-06-2023	SW6850	Perchlorate	0.062	J	µg/L	2.0		0.058	0.20
Central Impact Area	CIA1-INF	CIA1-INF-113A	0	0	06-06-2023	SW6850	Perchlorate	0.41		µg/L	2.0		0.058	0.20
Central Impact Area	CIA1-INF	CIA1-INF-113A	0	0	06-06-2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.65		µg/L	0.60	X	0.037	0.20
Central Impact Area	CIA3-EFF	CIA3-EFF-84A	0	0	06-06-2023	SW6850	Perchlorate	0.075	J	µg/L	2.0		0.058	0.20
Central Impact Area	CIA3-EFF	CIA3-EFF-84A	0	0	06-06-2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.15	J	µg/L	0.60		0.037	0.20
Central Impact Area	CIA3-MID2	CIA3-MID2-84A	0	0	06-06-2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.24	J	µg/L	0.60		0.037	0.20
Central Impact Area	CIA3-MID1	CIA3-MID1-84A	0	0	06-06-2023	SW6850	Perchlorate	0.068	J	µg/L	2.0		0.058	0.20
Central Impact Area	CIA3-INF	CIA3-INF-84A	0	0	06-06-2023	SW6850	Perchlorate	0.15	J	µg/L	2.0		0.058	0.20
Central Impact Area	CIA3-INF	CIA3-INF-84A	0	0	06-06-2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.61		µg/L	0.60	X	0.037	0.20
J2 Range Northern	J2N-EFF-G	J2N-EFF-G-201A	0	0	06-05-2023	SW6850	Perchlorate	0.086	J	µg/L	2.0		0.058	0.20
J2 Range Northern	J2N-INF-G	J2N-INF-G-201A	0	0	06-05-2023	SW6850	Perchlorate	0.20		µg/L	2.0		0.058	0.20
J2 Range Northern	J2N-EFF-EF	J2N-EFF-EF-201A	0	0	06-05-2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.12	J	µg/L	0.60		0.037	0.20
J2 Range Northern	J2N-MID-2F	J2N-MID-2F-201A	0	0	06-05-2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.12	J	µg/L	0.60		0.037	0.20
J2 Range Northern	J2N-INF-EF	J2N-INF-EF-201A	0	0	06-05-2023	SW6850	Perchlorate	1.6		µg/L	2.0		0.058	0.20
J2 Range Northern	J2N-INF-EF	J2N-INF-EF-201A	0	0	06-05-2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.10	J	µg/L	0.60		0.037	0.20
J2 Range Northern	J2N-MID-2E	J2N-MID-2E-201A	0	0	06-05-2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.083	J	µg/L	0.60		0.037	0.20
J2 Range Northern	J2N-MID-1E	J2N-MID-1E-201A	0	0	06-05-2023	SW6850	Perchlorate	0.48		µg/L	2.0		0.058	0.20

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

MCL/HA= Either the MCL or Lowest Health Advisory Limit
July 10, 2023

June 2023
PFAS Summary Report – Groundwater
Joint Base Cape Cod, IAGWSP

KGS 2023 J2 North PFAS Drilling - J2 Range Northern

	Location	BH-739			BH-739		
	Field Sample ID	BH-739-137			BH-739-147		
	Sampling Depth	137.00 - 137.00			147.00 - 147.00		
	Sampling Date	06/01/2023			06/01/2023		
	SDG	23-0659_EDD			23-0659_EDD		
	Sample Type	**Normal**			**Normal**		
PFAS	**Screening Limit♦**	Results (ng/L)	LOD (ng/L)	Qualifer	Results (ng/L)	LOD (ng/L)	Qualifer
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)		ND	1.90	U	ND	2.10	U
2H,2H,3H,3H-Perfluorooctanoic acid (5:3FTCA)		ND	7.78	U	ND	8.58	U
3-Perfluoroheptyl propanoic acid (7:3FTCA)		ND	9.11	U	ND	10.0	U
3-Perfluoropropyl propanoic acid (3:3FTCA)		ND	2.91	U	ND	3.21	U
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)		ND	1.21	U	ND	1.33	U
4:2 Fluorotelomer sulfonic acid (4:2 FTS)		ND	2.30	U	ND	2.54	U
6:2 Fluorotelomer sulfonic acid (6:2 FTS)		ND	2.58	U	ND	2.85	U
8:2 Fluorotelomer sulfonic acid (8:2 FTS)		ND	1.60	U	ND	1.76	U
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)		ND	1.22	U	ND	1.34	U
Hexafluoropropylene oxide dimer acid (HFPO-DA)	6	ND	1.31	U	ND	1.44	U
N-Ethyl perfluorooctanesulfonamide (NEtFOSA)		ND	0.174	U	ND	0.192	U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)		ND	0.997	U	ND	1.10	U
N-Ethyl perfluorooctanesulfonamidoethanol (NEtFOSE)		ND	2.53	U	ND	2.79	U
N-Methyl heptadecafluorooctanesulfonamide (NMeFOSA)		ND	0.347	U	ND	0.383	U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)		ND	1.14	U	ND	1.26	U
N-Methyl perfluorooctanesulfonamidoethanol (NMeFOSE)		ND	2.88	U	ND	3.17	U
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)		ND	1.33	U	ND	1.46	U
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)		ND	0.370	U	ND	0.408	U
Perfluoro-3-methoxypropanoic acid (PFMPA)		ND	1.10	U	ND	1.21	U
Perfluoro-4-methoxybutanoic acid (PFMBA)		ND	1.05	U	ND	1.15	U
Perfluorobutanesulfonic acid (PFBS)	600	ND	0.309	U	ND	0.340	U
Perfluorobutanoic acid (PFBA)	1800	ND	1.04	U	ND	1.15	U

	Location	BH-739			BH-739		
	Field Sample ID	BH-739-157			BH-739-157-D		
	Sampling Depth	157.00 - 157.00			157.00 - 157.00		
	Sampling Date	06/01/2023			06/01/2023		
	SDG	23-0659_EDD			23-0659_EDD		
	Sample Type	**Normal**			**Field Duplicate**		
PFAS	**Screening Limit♦**	Results (ng/L)	LOD (ng/L)	Qualifer	Results (ng/L)	LOD (ng/L)	Qualifer
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)		ND	1.94	U	ND	1.94	U
2H,2H,3H,3H-Perfluorooctanoic acid (5:3FTCA)		ND	7.92	U	ND	7.95	U
3-Perfluoroheptyl propanoic acid (7:3FTCA)		ND	9.27	U	ND	9.30	U
3-Perfluoropropyl propanoic acid (3:3FTCA)		ND	2.97	U	ND	2.98	U
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)		ND	1.23	U	ND	1.24	U
4:2 Fluorotelomer sulfonic acid (4:2 FTS)		ND	2.34	U	ND	2.35	U
6:2 Fluorotelomer sulfonic acid (6:2 FTS)		ND	2.63	U	ND	2.64	U
8:2 Fluorotelomer sulfonic acid (8:2 FTS)		ND	1.63	U	ND	1.63	U
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)		ND	1.24	U	ND	1.25	U
Hexafluoropropylene oxide dimer acid (HFPO-DA)	6	ND	1.33	U	ND	1.33	U
N-Ethyl perfluorooctanesulfonamide (NEtFOSA)		ND	0.177	U	ND	0.178	U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)		ND	1.01	U	ND	1.02	U
N-Ethyl perfluorooctanesulfonamidoethanol (NEtFOSE)		ND	2.58	U	ND	2.58	U
N-Methyl heptadecafluorooctanesulfonamide (NMeFOSA)		ND	0.353	U	ND	0.355	U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)		ND	1.16	U	ND	1.17	U
N-Methyl perfluorooctanesulfonamidoethanol (NMeFOSE)		ND	2.93	U	ND	2.94	U
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)		ND	1.35	U	ND	1.35	U
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)		ND	0.377	U	ND	0.378	U
Perfluoro-3-methoxypropanoic acid (PFMPA)		ND	1.12	U	ND	1.12	U
Perfluoro-4-methoxybutanoic acid (PFMBA)		ND	1.07	U	ND	1.07	U
Perfluorobutanesulfonic acid (PFBS)	600	ND	0.314	U	ND	0.316	U
Perfluorobutanoic acid (PFBA)	1800	ND	1.06	U	ND	1.06	U

	Location	BH-739			BH-739		
	Field Sample ID	BH-739-167			BH-739-177		
	Sampling Depth	167.00 - 167.00			177.00 - 177.00		
	Sampling Date	06/01/2023			06/02/2023		
	SDG	23-0659_EDD			23-0659_EDD		
	Sample Type	**Normal**			**Normal**		
PFAS	**Screening Limit♦**	Results (ng/L)	LOD (ng/L)	Qualifer	Results (ng/L)	LOD (ng/L)	Qualifer
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)		ND	2.08	U	ND	2.15	U
2H,2H,3H,3H-Perfluorooctanoic acid (5:3FTCA)		ND	8.53	U	ND	8.78	U
3-Perfluoroheptyl propanoic acid (7:3FTCA)		ND	9.98	U	ND	10.3	U
3-Perfluoropropyl propanoic acid (3:3FTCA)		ND	3.19	U	ND	3.29	U
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)		ND	1.33	U	ND	1.37	U
4:2 Fluorotelomer sulfonic acid (4:2 FTS)		ND	2.52	U	ND	2.60	U
6:2 Fluorotelomer sulfonic acid (6:2 FTS)		ND	2.83	U	ND	2.91	U
8:2 Fluorotelomer sulfonic acid (8:2 FTS)		ND	1.75	U	ND	1.80	U
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)		ND	1.34	U	ND	1.38	U
Hexafluoropropylene oxide dimer acid (HFPO-DA)	6	ND	1.43	U	ND	1.47	U
N-Ethyl perfluorooctanesulfonamide (NEtFOSA)		ND	0.191	U	ND	0.196	U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)		ND	1.09	U	ND	1.12	U
N-Ethyl perfluorooctanesulfonamidoethanol (NEtFOSE)		ND	2.77	U	ND	2.85	U
N-Methyl heptadecafluorooctanesulfonamide (NMeFOSA)		ND	0.380	U	ND	0.392	U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)		ND	1.25	U	ND	1.29	U
N-Methyl perfluorooctanesulfonamidoethanol (NMeFOSE)		ND	3.15	U	ND	3.25	U
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)		ND	1.45	U	ND	1.50	U
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)		ND	0.405	U	ND	0.417	U
Perfluoro-3-methoxypropanoic acid (PFMPA)		ND	1.20	U	ND	1.24	U
Perfluoro-4-methoxybutanoic acid (PFMBA)		ND	1.15	U	ND	1.18	U
Perfluorobutanesulfonic acid (PFBS)	600	ND	0.338	U	ND	0.348	U
Perfluorobutanoic acid (PFBA)	1800	ND	1.14	U	ND	1.18	U

	Location	BH-739			BH-739		
	Field Sample ID	BH-739-187			BH-739-197		
	Sampling Depth	187.00 - 187.00			197.00 - 197.00		
	Sampling Date	06/02/2023			06/02/2023		
	SDG	23-0659_EDD			23-0659_EDD		
	Sample Type	**Normal**			**Normal**		
PFAS	**Screening Limit♦**	Results (ng/L)	LOD (ng/L)	Qualifer	Results (ng/L)	LOD (ng/L)	Qualifer
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)		ND	2.03	U	ND	2.01	U
2H,2H,3H,3H-Perfluorooctanoic acid (5:3FTCA)		ND	8.31	U	ND	8.24	U
3-Perfluoroheptyl propanoic acid (7:3FTCA)		ND	9.72	U	ND	9.65	U
3-Perfluoropropyl propanoic acid (3:3FTCA)		ND	3.11	U	ND	3.09	U
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)		ND	1.29	U	ND	1.28	U
4:2 Fluorotelomer sulfonic acid (4:2 FTS)		ND	2.46	U	ND	2.44	U
6:2 Fluorotelomer sulfonic acid (6:2 FTS)		ND	2.76	U	ND	2.74	U
8:2 Fluorotelomer sulfonic acid (8:2 FTS)		ND	1.71	U	ND	1.69	U
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)		ND	1.30	U	ND	1.29	U
Hexafluoropropylene oxide dimer acid (HFPO-DA)	6	ND	1.39	U	ND	1.38	U
N-Ethyl perfluorooctanesulfonamide (NEtFOSA)		ND	0.186	U	ND	0.184	U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)		ND	1.06	U	ND	1.06	U
N-Ethyl perfluorooctanesulfonamidoethanol (NEtFOSE)		ND	2.70	U	ND	2.68	U
N-Methyl heptadecafluorooctanesulfonamide (NMeFOSA)		ND	0.371	U	ND	0.368	U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)		ND	1.22	U	ND	1.21	U
N-Methyl perfluorooctanesulfonamidoethanol (NMeFOSE)		ND	3.07	U	ND	3.05	U
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)		ND	1.42	U	ND	1.40	U
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)		ND	0.395	U	ND	0.392	U
Perfluoro-3-methoxypropanoic acid (PFMPA)		ND	1.17	U	ND	1.16	U
Perfluoro-4-methoxybutanoic acid (PFMBA)		ND	1.12	U	ND	1.11	U
Perfluorobutanesulfonic acid (PFBS)	600	ND	0.330	U	ND	0.327	U
Perfluorobutanoic acid (PFBA)	1800	ND	1.11	U	ND	1.10	U

	Location	BH-739			BH-739		
	Field Sample ID	BH-739-202-207			BH-739-212-217		
	Sampling Depth	202.00 - 207.00			212.00 - 217.00		
	Sampling Date	06/02/2023			06/05/2023		
	SDG	23-0659_EDD			23-0693_EDD		
	Sample Type	**Normal**			**Normal**		
PFAS	**Screening Limit♦**	Results (ng/L)	LOD (ng/L)	Qualifer	Results (ng/L)	LOD (ng/L)	Qualifer
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)		ND	2.06	U	ND	2.13	U
2H,2H,3H,3H-Perfluorooctanoic acid (5:3FTCA)		ND	8.45	U	ND	8.71	U
3-Perfluoroheptyl propanoic acid (7:3FTCA)		ND	9.89	U	ND	10.2	U
3-Perfluoropropyl propanoic acid (3:3FTCA)		ND	3.16	U	ND	3.26	U
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)		ND	1.31	U	ND	1.36	U
4:2 Fluorotelomer sulfonic acid (4:2 FTS)		ND	2.50	U	ND	2.58	U
6:2 Fluorotelomer sulfonic acid (6:2 FTS)		ND	2.80	U	ND	2.89	U
8:2 Fluorotelomer sulfonic acid (8:2 FTS)		ND	1.73	U	ND	1.79	U
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)		ND	1.32	U	ND	1.37	U
Hexafluoropropylene oxide dimer acid (HFPO-DA)	6	ND	1.42	U	ND	1.46	U
N-Ethyl perfluorooctanesulfonamide (NEtFOSA)		ND	0.189	U	ND	0.195	U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)		ND	1.08	U	ND	1.12	U
N-Ethyl perfluorooctanesulfonamidoethanol (NEtFOSE)		ND	2.75	U	ND	2.83	U
N-Methyl heptadecafluorooctanesulfonamide (NMeFOSA)		ND	0.377	U	ND	0.389	U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)		ND	1.24	U	ND	1.28	U
N-Methyl perfluorooctanesulfonamidoethanol (NMeFOSE)		ND	3.13	U	ND	3.22	U
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)		ND	1.44	U	ND	1.48	U
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)		ND	0.402	U	ND	0.414	U
Perfluoro-3-methoxypropanoic acid (PFMPA)		ND	1.19	U	ND	1.23	U
Perfluoro-4-methoxybutanoic acid (PFMBA)		ND	1.14	U	ND	1.17	U
Perfluorobutanesulfonic acid (PFBS)	600	ND	0.335	U	ND	0.346	U
Perfluorobutanoic acid (PFBA)	1800	ND	1.13	U	ND	1.17	U

	Location	BH-739			BH-739		
	Field Sample ID	BH-739-222-227			BH-739-232-237		
	Sampling Depth	222.00 - 227.00			232.00 - 237.00		
	Sampling Date	06/05/2023			06/05/2023		
	SDG	23-0693_EDD			23-0693_EDD		
	Sample Type	**Normal**			**Normal**		
PFAS	**Screening Limit♦**	Results (ng/L)	LOD (ng/L)	Qualifer	Results (ng/L)	LOD (ng/L)	Qualifer
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)		ND	2.09	U	ND	2.09	U
2H,2H,3H,3H-Perfluorooctanoic acid (5:3FTCA)		ND	8.54	U	ND	8.56	U
3-Perfluoroheptyl propanoic acid (7:3FTCA)		ND	10.0	U	ND	10.0	U
3-Perfluoropropyl propanoic acid (3:3FTCA)		ND	3.20	U	ND	3.21	U
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)		ND	1.33	U	ND	1.33	U
4:2 Fluorotelomer sulfonic acid (4:2 FTS)		ND	2.53	U	ND	2.53	U
6:2 Fluorotelomer sulfonic acid (6:2 FTS)		ND	2.84	U	ND	2.84	U
8:2 Fluorotelomer sulfonic acid (8:2 FTS)		ND	1.75	U	ND	1.76	U
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)		ND	1.34	U	ND	1.34	U
Hexafluoropropylene oxide dimer acid (HFPO-DA)	6	ND	1.43	U	ND	1.44	U
N-Ethyl perfluorooctanesulfonamide (NEtFOSA)		ND	0.191	U	ND	0.192	U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)		ND	1.09	U	ND	1.10	U
N-Ethyl perfluorooctanesulfonamidoethanol (NEtFOSE)		ND	2.78	U	ND	2.78	U
N-Methyl heptadecafluorooctanesulfonamide (NMeFOSA)		ND	0.381	U	ND	0.382	U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)		ND	1.25	U	ND	1.26	U
N-Methyl perfluorooctanesulfonamidoethanol (NMeFOSE)		ND	3.16	U	ND	3.17	U
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)		ND	1.46	U	ND	1.46	U
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)		ND	0.406	U	ND	0.407	U
Perfluoro-3-methoxypropanoic acid (PFMPA)		ND	1.20	U	ND	1.21	U
Perfluoro-4-methoxybutanoic acid (PFMBA)		ND	1.15	U	ND	1.15	U
Perfluorobutanesulfonic acid (PFBS)	600	ND	0.339	U	ND	0.340	U
Perfluorobutanoic acid (PFBA)	1800	ND	1.14	U	ND	1.15	U

	Location	BH-739			BH-739		
	Field Sample ID	BH-739-242-247			BH-739-252-257		
	Sampling Depth	242.00 - 247.00			252.00 - 257.00		
	Sampling Date	06/05/2023			06/05/2023		
	SDG	23-0693_EDD			23-0693_EDD		
	Sample Type	**Normal**			**Normal**		
PFAS	**Screening Limit♦**	Results (ng/L)	LOD (ng/L)	Qualifer	Results (ng/L)	LOD (ng/L)	Qualifer
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)		ND	2.01	U	ND	2.05	U
2H,2H,3H,3H-Perfluorooctanoic acid (5:3FTCA)		ND	8.24	U	ND	8.38	U
3-Perfluoroheptyl propanoic acid (7:3FTCA)		ND	9.65	U	ND	9.81	U
3-Perfluoropropyl propanoic acid (3:3FTCA)		ND	3.09	U	ND	3.14	U
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)		ND	1.28	U	ND	1.30	U
4:2 Fluorotelomer sulfonic acid (4:2 FTS)		ND	2.44	U	ND	2.48	U
6:2 Fluorotelomer sulfonic acid (6:2 FTS)		ND	2.74	U	ND	2.78	U
8:2 Fluorotelomer sulfonic acid (8:2 FTS)		ND	1.69	U	ND	1.72	U
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)		ND	1.29	U	ND	1.31	U
Hexafluoropropylene oxide dimer acid (HFPO-DA)	6	ND	1.38	U	ND	1.41	U
N-Ethyl perfluorooctanesulfonamide (NEtFOSA)		ND	0.184	U	ND	0.188	U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)		ND	1.06	U	ND	1.07	U
N-Ethyl perfluorooctanesulfonamidoethanol (NEtFOSE)		ND	2.68	U	ND	2.73	U
N-Methyl heptadecafluorooctanesulfonamide (NMeFOSA)		ND	0.368	U	ND	0.374	U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)		ND	1.21	U	ND	1.23	U
N-Methyl perfluorooctanesulfonamidoethanol (NMeFOSE)		ND	3.05	U	ND	3.10	U
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)		ND	1.40	U	ND	1.43	U
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)		ND	0.392	U	ND	0.398	U
Perfluoro-3-methoxypropanoic acid (PFMPA)		ND	1.16	U	ND	1.18	U
Perfluoro-4-methoxybutanoic acid (PFMBA)		ND	1.11	U	ND	1.13	U
Perfluorobutanesulfonic acid (PFBS)	600	ND	0.327	U	ND	0.333	U
Perfluorobutanoic acid (PFBA)	1800	ND	1.10	U	ND	1.12	U

	Location	BH-739			BH-739		
	Field Sample ID	BH-739-262-267			BH-739-272-277		
	Sampling Depth	262.00 - 267.00			272.00 - 277.00		
	Sampling Date	06/06/2023			06/07/2023		
	SDG	23-0693_EDD			23-0693_EDD		
	Sample Type	**Normal**			**Normal**		
PFAS	**Screening Limit♦**	Results (ng/L)	LOD (ng/L)	Qualifer	Results (ng/L)	LOD (ng/L)	Qualifer
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)		ND	2.21	U	ND	2.28	U
2H,2H,3H,3H-Perfluorooctanoic acid (5:3FTCA)		ND	9.05	U	ND	9.31	U
3-Perfluoroheptyl propanoic acid (7:3FTCA)		ND	10.6	U	ND	10.9	U
3-Perfluoropropyl propanoic acid (3:3FTCA)		ND	3.39	U	ND	3.49	U
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)		ND	1.41	U	ND	1.45	U
4:2 Fluorotelomer sulfonic acid (4:2 FTS)		ND	2.68	U	ND	2.76	U
6:2 Fluorotelomer sulfonic acid (6:2 FTS)		ND	3.00	U	ND	3.09	U
8:2 Fluorotelomer sulfonic acid (8:2 FTS)		ND	1.86	U	ND	1.91	U
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)		ND	1.42	U	ND	1.46	U
Hexafluoropropylene oxide dimer acid (HFPO-DA)	6	ND	1.52	U	ND	1.56	U
N-Ethyl perfluorooctanesulfonamide (NEtFOSA)		ND	0.202	U	ND	0.208	U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)		ND	1.16	U	ND	1.19	U
N-Ethyl perfluorooctanesulfonamidoethanol (NEtFOSE)		ND	2.94	U	ND	3.03	U
N-Methyl heptadecafluorooctanesulfonamide (NMeFOSA)		ND	0.404	U	ND	0.415	U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)		ND	1.33	U	ND	1.37	U
N-Methyl perfluorooctanesulfonamidoethanol (NMeFOSE)		ND	3.35	U	ND	3.44	U
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)		ND	1.54	U	ND	1.59	U
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)		ND	0.430	U	ND	0.443	U
Perfluoro-3-methoxypropanoic acid (PFMPA)		ND	1.27	U	ND	1.31	U
Perfluoro-4-methoxybutanoic acid (PFMBA)		ND	1.22	U	ND	1.25	U
Perfluorobutanesulfonic acid (PFBS)	600	ND	0.359	U	ND	0.370	U
Perfluorobutanoic acid (PFBA)	1800	ND	1.21	U	ND	1.25	U

	Location	BH-739			BH-739		
	Field Sample ID	BH-739-282-287			BH-739-292-297		
	Sampling Depth	282.00 - 287.00			292.00 - 297.00		
	Sampling Date	06/07/2023			06/07/2023		
	SDG	23-0693_EDD			23-0693_EDD		
	Sample Type	**Normal**			**Normal**		
PFAS	**Screening Limit♦**	Results (ng/L)	LOD (ng/L)	Qualifer	Results (ng/L)	LOD (ng/L)	Qualifer
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)		ND	2.06	U	ND	1.99	U
2H,2H,3H,3H-Perfluorooctanoic acid (5:3FTCA)		ND	8.42	U	ND	8.14	U
3-Perfluoroheptyl propanoic acid (7:3FTCA)		ND	9.85	U	ND	9.53	U
3-Perfluoropropyl propanoic acid (3:3FTCA)		ND	3.15	U	ND	3.05	U
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)		ND	1.31	U	ND	1.27	U
4:2 Fluorotelomer sulfonic acid (4:2 FTS)		ND	2.49	U	ND	2.41	U
6:2 Fluorotelomer sulfonic acid (6:2 FTS)		ND	2.79	U	ND	2.70	U
8:2 Fluorotelomer sulfonic acid (8:2 FTS)		ND	1.73	U	ND	1.67	U
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)		ND	1.32	U	ND	1.28	U
Hexafluoropropylene oxide dimer acid (HFPO-DA)	6	ND	1.41	U	ND	1.36	U
N-Ethyl perfluorooctanesulfonamide (NEtFOSA)		ND	0.188	U	ND	0.182	U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)		ND	1.08	U	ND	1.04	U
N-Ethyl perfluorooctanesulfonamidoethanol (NEtFOSE)		ND	2.74	U	ND	2.65	U
N-Methyl heptadecafluorooctanesulfonamide (NMeFOSA)		ND	0.375	U	ND	0.363	U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)		ND	1.24	U	ND	1.20	U
N-Methyl perfluorooctanesulfonamidoethanol (NMeFOSE)		ND	3.11	U	ND	3.01	U
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)		ND	1.43	U	ND	1.39	U
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)		ND	0.400	U	ND	0.387	U
Perfluoro-3-methoxypropanoic acid (PFMPA)		ND	1.18	U	ND	1.15	U
Perfluoro-4-methoxybutanoic acid (PFMBA)		ND	1.13	U	ND	1.09	U
Perfluorobutanesulfonic acid (PFBS)	600	ND	0.334	U	ND	0.323	U
Perfluorobutanoic acid (PFBA)	1800	ND	1.13	U	ND	1.09	U

	Location	BH-739			BH-739		
	Field Sample ID	BH-739-302-307			BH-739-302-307-D		
	Sampling Depth	302.00 - 307.00			302.00 - 307.00		
	Sampling Date	06/07/2023			06/07/2023		
	SDG	23-0693_EDD			23-0693_EDD		
	Sample Type	**Normal**			**Field Duplicate**		
PFAS	**Screening Limit♦**	Results (ng/L)	LOD (ng/L)	Qualifer	Results (ng/L)	LOD (ng/L)	Qualifer
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)		ND	2.07	U	ND	2.22	U
2H,2H,3H,3H-Perfluorooctanoic acid (5:3FTCA)		ND	8.46	U	ND	9.07	U
3-Perfluoroheptyl propanoic acid (7:3FTCA)		ND	9.91	U	ND	10.6	U
3-Perfluoropropyl propanoic acid (3:3FTCA)		ND	3.17	U	ND	3.39	U
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)		ND	1.32	U	ND	1.41	U
4:2 Fluorotelomer sulfonic acid (4:2 FTS)		ND	2.50	U	ND	2.68	U
6:2 Fluorotelomer sulfonic acid (6:2 FTS)		ND	2.81	U	ND	3.01	U
8:2 Fluorotelomer sulfonic acid (8:2 FTS)		ND	1.74	U	ND	1.86	U
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)		ND	1.33	U	ND	1.42	U
Hexafluoropropylene oxide dimer acid (HFPO-DA)	6	ND	1.42	U	ND	1.52	U
N-Ethyl perfluorooctanesulfonamide (NEtFOSA)		ND	0.189	U	ND	0.203	U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)		ND	1.08	U	ND	1.16	U
N-Ethyl perfluorooctanesulfonamidoethanol (NEtFOSE)		ND	2.75	U	ND	2.95	U
N-Methyl heptadecafluorooctanesulfonamide (NMeFOSA)		ND	0.378	U	ND	0.404	U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)		ND	1.24	U	ND	1.33	U
N-Methyl perfluorooctanesulfonamidoethanol (NMeFOSE)		ND	3.13	U	ND	3.35	U
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)		ND	1.44	U	ND	1.54	U
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)		ND	0.402	U	ND	0.431	U
Perfluoro-3-methoxypropanoic acid (PFMPA)		ND	1.19	U	ND	1.28	U
Perfluoro-4-methoxybutanoic acid (PFMBA)		ND	1.14	U	ND	1.22	U
Perfluorobutanesulfonic acid (PFBS)	600	ND	0.336	U	ND	0.360	U
Perfluorobutanoic acid (PFBA)	1800	ND	1.13	U	ND	1.21	U

	Location	BH-739			BH-739		
	Field Sample ID	BH-739-312-317			BH-739-322-327		
	Sampling Depth	312.00 - 317.00			322.00 - 327.00		
	Sampling Date	06/08/2023			06/12/2023		
	SDG	23-0750_EDD			23-0750_EDD		
	Sample Type	**Normal**			**Normal**		
PFAS	**Screening Limit♦**	Results (ng/L)	LOD (ng/L)	Qualifer	Results (ng/L)	LOD (ng/L)	Qualifer
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)		ND	3.77	U	ND	3.91	U
2H,2H,3H,3H-Perfluorooctanoic acid (5:3FTCA)		ND	15.4	U	ND	16.0	U
3-Perfluoroheptyl propanoic acid (7:3FTCA)		ND	18.1	U	ND	18.7	U
3-Perfluoropropyl propanoic acid (3:3FTCA)		ND	5.78	U	ND	5.99	U
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)		ND	2.40	U	ND	2.49	U
4:2 Fluorotelomer sulfonic acid (4:2 FTS)		ND	4.57	U	ND	4.73	U
6:2 Fluorotelomer sulfonic acid (6:2 FTS)		ND	5.12	U	ND	5.30	U
8:2 Fluorotelomer sulfonic acid (8:2 FTS)		ND	3.17	U	ND	3.28	U
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)		ND	2.42	U	ND	2.51	U
Hexafluoropropylene oxide dimer acid (HFPO-DA)	6	ND	2.59	U	ND	2.68	U
N-Ethyl perfluorooctanesulfonamide (NEtFOSA)		ND	0.345	U	ND	0.358	U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)		ND	1.98	U	ND	2.05	U
N-Ethyl perfluorooctanesulfonamidoethanol (NEtFOSE)		ND	5.02	U	ND	5.20	U
N-Methyl heptadecafluorooctanesulfonamide (NMeFOSA)		ND	0.689	U	ND	0.713	U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)		ND	2.27	U	ND	2.35	U
N-Methyl perfluorooctanesulfonamidoethanol (NMeFOSE)		ND	5.71	U	ND	5.91	U
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)		ND	2.63	U	ND	2.72	U
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)		ND	0.734	U	ND	0.760	U
Perfluoro-3-methoxypropanoic acid (PFMPA)		ND	2.17	U	ND	2.25	U
Perfluoro-4-methoxybutanoic acid (PFMBA)		ND	2.08	U	ND	2.15	U
Perfluorobutanesulfonic acid (PFBS)	600	ND	0.612	U	ND	0.634	U
Perfluorobutanoic acid (PFBA)	1800	ND	2.07	U	ND	2.14	U

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	Location	BH-739			BH-739		
	Field Sample ID	BH-739-137			BH-739-147		
	Sampling Depth	137.00 - 137.00			147.00 - 147.00		
	Sampling Date	06/01/2023			06/01/2023		
	SDG	23-0659_EDD			23-0659_EDD		
	Sample Type	**Normal**			**Normal**		
PFAS	**Screening Limit♦**	Results (ng/L)	LOD (ng/L)	Qualifer	Results (ng/L)	LOD (ng/L)	Qualifer
Perfluorodecanesulfonic acid (PFDS)		ND	0.283	U	ND	0.312	U
Perfluorodecanoic acid (PFDA)		ND	0.389	U	ND	0.429	U
Perfluorododecanesulfonic acid (PFDoS)		ND	0.314	U	ND	0.346	U
Perfluorododecanoic acid (PFDoA)		ND	0.525	U	ND	0.579	U
Perfluoroheptanesulfonic acid (PFHpS)		ND	0.356	U	ND	0.392	U
Perfluoroheptanoic acid (PFHpA)		ND	0.302	U	ND	0.333	U
Perfluorohexanesulfonic acid (PFHxS)	39	ND	0.508	U	ND	0.560	U
Perfluorohexanoic acid (PFHxA)	990	ND	0.719	U	ND	0.792	U
Perfluorononanesulfonic acid (PFNS)		ND	0.435	U	ND	0.479	U
Perfluorononanoic acid (PFNA)	5.9	ND	0.436	U	ND	0.481	U
Perfluorooctanesulfonamide (PFOSA)		ND	0.328	U	ND	0.362	U
Perfluorooctanesulfonic acid (PFOS)	4	ND	0.433	U	ND	0.477	U
Perfluorooctanoic acid (PFOA)	6	ND	0.506	U	ND	0.558	U
Perfluoropentanesulfonic acid (PFPeS)		ND	0.225	U	ND	0.248	U
Perfluoropentanoic acid (PFPeA)		ND	0.983	U	ND	1.08	U
Perfluorotetradecanoic acid (PFTeDA)		ND	0.749	U	ND	0.825	U
Perfluorotridecanoic acid (PFTrDA)		ND	0.634	U	ND	0.698	U
Perfluoroundecanoic acid (PFUnA)		ND	0.354	U	ND	0.390	U
†PFOS + PFOA (EPA)		**0.00**			**0.00**		
‡PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP)		**0.0**			**0.0**		
***EPA MCL Hazard Index**		**0.0**			**0.0**		
§Sum of All Compounds Detected		**0.00**			**0.00**		

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	Location	BH-739			BH-739		
	Field Sample ID	BH-739-157			BH-739-157-D		
	Sampling Depth	157.00 - 157.00			157.00 - 157.00		
	Sampling Date	06/01/2023			06/01/2023		
	SDG	23-0659_EDD			23-0659_EDD		
	Sample Type	**Normal**			**Field Duplicate**		
PFAS	**Screening Limit♦**	Results (ng/L)	LOD (ng/L)	Qualifer	Results (ng/L)	LOD (ng/L)	Qualifer
Perfluorodecanesulfonic acid (PFDS)		ND	0.288	U	ND	0.289	U
Perfluorodecanoic acid (PFDA)		ND	0.396	U	ND	0.398	U
Perfluorododecanesulfonic acid (PFDoS)		ND	0.320	U	ND	0.321	U
Perfluorododecanoic acid (PFDoA)		ND	0.535	U	ND	0.537	U
Perfluoroheptanesulfonic acid (PFHpS)		ND	0.362	U	ND	0.364	U
Perfluoroheptanoic acid (PFHpA)		ND	0.307	U	ND	0.308	U
Perfluorohexanesulfonic acid (PFHxS)	39	ND	0.517	U	ND	0.519	U
Perfluorohexanoic acid (PFHxA)	990	ND	0.732	U	ND	0.734	U
Perfluorononanesulfonic acid (PFNS)		ND	0.442	U	ND	0.444	U
Perfluorononanoic acid (PFNA)	5.9	ND	0.444	U	ND	0.446	U
Perfluorooctanesulfonamide (PFOSA)		ND	0.334	U	ND	0.335	U
Perfluorooctanesulfonic acid (PFOS)	4	ND	0.440	U	ND	0.442	U
Perfluorooctanoic acid (PFOA)	6	ND	0.515	U	ND	0.517	U
Perfluoropentanesulfonic acid (PFPeS)		ND	0.229	U	ND	0.230	U
Perfluoropentanoic acid (PFPeA)		ND	1.00	U	ND	1.00	U
Perfluorotetradecanoic acid (PFTeDA)		ND	0.762	U	ND	0.765	U
Perfluorotridecanoic acid (PFTrDA)		ND	0.645	U	ND	0.647	U
Perfluoroundecanoic acid (PFUnA)		ND	0.361	U	ND	0.362	U
†PFOS + PFOA (EPA)		**0.00**			**0.00**		
‡PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP)		**0.0**			**0.0**		
***EPA MCL Hazard Index**		**0.0**			**0.0**		
§Sum of All Compounds Detected		**0.00**			**0.00**		

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	Location	BH-739			BH-739		
	Field Sample ID	BH-739-167			BH-739-177		
	Sampling Depth	167.00 - 167.00			177.00 - 177.00		
	Sampling Date	06/01/2023			06/02/2023		
	SDG	23-0659_EDD			23-0659_EDD		
	Sample Type	**Normal**			**Normal**		
PFAS	**Screening Limit♦**	Results (ng/L)	LOD (ng/L)	Qualifer	Results (ng/L)	LOD (ng/L)	Qualifer
Perfluorodecanesulfonic acid (PFDS)		ND	0.310	U	ND	0.319	U
Perfluorodecanoic acid (PFDA)		ND	0.426	U	ND	0.439	U
Perfluorododecanesulfonic acid (PFDoS)		ND	0.344	U	ND	0.354	U
Perfluorododecanoic acid (PFDoA)		ND	0.576	U	ND	0.593	U
Perfluoroheptanesulfonic acid (PFHpS)		ND	0.390	U	ND	0.402	U
Perfluoroheptanoic acid (PFHpA)		ND	0.331	U	ND	0.341	U
Perfluorohexanesulfonic acid (PFHxS)	39	ND	0.556	U	ND	0.573	U
Perfluorohexanoic acid (PFHxA)	990	ND	0.788	U	ND	0.811	U
Perfluorononanesulfonic acid (PFNS)		ND	0.476	U	ND	0.490	U
Perfluorononanoic acid (PFNA)	5.9	ND	0.478	U	ND	0.492	U
Perfluorooctanesulfonamide (PFOSA)		ND	0.359	U	ND	0.370	U
Perfluorooctanesulfonic acid (PFOS)	4	ND	0.474	U	ND	0.488	U
Perfluorooctanoic acid (PFOA)	6	ND	0.554	U	ND	0.571	U
Perfluoropentanesulfonic acid (PFPeS)		ND	0.247	U	ND	0.254	U
Perfluoropentanoic acid (PFPeA)		ND	1.08	U	ND	1.11	U
Perfluorotetradecanoic acid (PFTeDA)		ND	0.820	U	ND	0.844	U
Perfluorotridecanoic acid (PFTrDA)		ND	0.694	U	ND	0.715	U
Perfluoroundecanoic acid (PFUnA)		ND	0.388	U	ND	0.400	U
†PFOS + PFOA (EPA)		**0.00**			**0.00**		
‡PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP)		**0.0**			**0.0**		
***EPA MCL Hazard Index**		**0.0**			**0.0**		
§Sum of All Compounds Detected		**0.00**			**0.00**		

June 2023
PFAS Summary Report – Groundwater
Joint Base Cape Cod, IAGWSP

	Location	BH-739			BH-739		
	Field Sample ID	BH-739-187			BH-739-197		
	Sampling Depth	187.00 - 187.00			197.00 - 197.00		
	Sampling Date	06/02/2023			06/02/2023		
	SDG	23-0659_EDD			23-0659_EDD		
	Sample Type	**Normal**			**Normal**		
PFAS	**Screening Limit♦**	Results (ng/L)	LOD (ng/L)	Qualifer	Results (ng/L)	LOD (ng/L)	Qualifer
Perfluorodecanesulfonic acid (PFDS)		ND	0.302	U	ND	0.299	U
Perfluorodecanoic acid (PFDA)		ND	0.415	U	ND	0.412	U
Perfluorododecanesulfonic acid (PFDoS)		ND	0.335	U	ND	0.333	U
Perfluorododecanoic acid (PFDoA)		ND	0.561	U	ND	0.556	U
Perfluoroheptanesulfonic acid (PFHpS)		ND	0.380	U	ND	0.377	U
Perfluoroheptanoic acid (PFHpA)		ND	0.322	U	ND	0.320	U
Perfluorohexanesulfonic acid (PFHxS)	39	ND	0.542	U	ND	0.538	U
Perfluorohexanoic acid (PFHxA)	990	ND	0.767	U	ND	0.762	U
Perfluorononanesulfonic acid (PFNS)		ND	0.464	U	ND	0.460	U
Perfluorononanoic acid (PFNA)	5.9	ND	0.466	U	ND	0.462	U
Perfluorooctanesulfonamide (PFOSA)		ND	0.350	U	ND	0.348	U
Perfluorooctanesulfonic acid (PFOS)	4	ND	0.462	U	ND	0.458	U
Perfluorooctanoic acid (PFOA)	6	ND	0.540	U	ND	0.536	U
Perfluoropentanesulfonic acid (PFPeS)		ND	0.240	U	ND	0.238	U
Perfluoropentanoic acid (PFPeA)		ND	1.05	U	ND	1.04	U
Perfluorotetradecanoic acid (PFTeDA)		ND	0.799	U	ND	0.793	U
Perfluorotridecanoic acid (PFTrDA)		ND	0.676	U	ND	0.671	U
Perfluoroundecanoic acid (PFUnA)		ND	0.378	U	ND	0.375	U
†PFOS + PFOA (EPA)		**0.00**			**0.00**		
‡PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP)		**0.0**			**0.0**		
***EPA MCL Hazard Index**		**0.0**			**0.0**		
§Sum of All Compounds Detected		**0.00**			**0.00**		

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PFAS Summary Report – Groundwater
Joint Base Cape Cod, IAGWSP

	Location	BH-739			BH-739		
	Field Sample ID	BH-739-202-207			BH-739-212-217		
	Sampling Depth	202.00 - 207.00			212.00 - 217.00		
	Sampling Date	06/02/2023			06/05/2023		
	SDG	23-0659_EDD			23-0693_EDD		
	Sample Type	**Normal**			**Normal**		
PFAS	**Screening Limit♦**	Results (ng/L)	LOD (ng/L)	Qualifer	Results (ng/L)	LOD (ng/L)	Qualifer
Perfluorodecanesulfonic acid (PFDS)		ND	0.307	U	ND	0.316	U
Perfluorodecanoic acid (PFDA)		ND	0.422	U	ND	0.436	U
Perfluorododecanesulfonic acid (PFDoS)		ND	0.341	U	ND	0.352	U
Perfluorododecanoic acid (PFDoA)		ND	0.570	U	ND	0.588	U
Perfluoroheptanesulfonic acid (PFHpS)		ND	0.386	U	ND	0.398	U
Perfluoroheptanoic acid (PFHpA)		ND	0.328	U	ND	0.338	U
Perfluorohexanesulfonic acid (PFHxS)	39	ND	0.551	U	ND	0.568	U
Perfluorohexanoic acid (PFHxA)	990	ND	0.780	U	ND	0.805	U
Perfluorononanesulfonic acid (PFNS)		ND	0.472	U	ND	0.486	U
Perfluorononanoic acid (PFNA)	5.9	ND	0.473	U	ND	0.488	U
Perfluorooctanesulfonamide (PFOSA)		ND	0.356	U	ND	0.367	U
Perfluorooctanesulfonic acid (PFOS)	4	ND	0.470	U	ND	0.484	U
Perfluorooctanoic acid (PFOA)	6	ND	0.549	U	ND	0.566	U
Perfluoropentanesulfonic acid (PFPeS)		ND	0.244	U	ND	0.252	U
Perfluoropentanoic acid (PFPeA)		ND	1.07	U	ND	1.10	U
Perfluorotetradecanoic acid (PFTeDA)		ND	0.813	U	ND	0.838	U
Perfluorotridecanoic acid (PFTrDA)		ND	0.688	U	ND	0.709	U
Perfluoroundecanoic acid (PFUnA)		ND	0.384	U	ND	0.396	U
†PFOS + PFOA (EPA)		**0.00**			**0.00**		
‡PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP)		**0.0**			**0.0**		
***EPA MCL Hazard Index**		**0.0**			**0.0**		
§Sum of All Compounds Detected		**0.00**			**0.00**		

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PFAS Summary Report – Groundwater
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	Location	BH-739			BH-739		
	Field Sample ID	BH-739-222-227			BH-739-232-237		
	Sampling Depth	222.00 - 227.00			232.00 - 237.00		
	Sampling Date	06/05/2023			06/05/2023		
	SDG	23-0693_EDD			23-0693_EDD		
	Sample Type	**Normal**			**Normal**		
PFAS	**Screening Limit♦**	Results (ng/L)	LOD (ng/L)	Qualifer	Results (ng/L)	LOD (ng/L)	Qualifer
Perfluorodecanesulfonic acid (PFDS)		ND	0.310	U	ND	0.311	U
Perfluorodecanoic acid (PFDA)		ND	0.427	U	ND	0.428	U
Perfluorododecanesulfonic acid (PFDoS)		ND	0.345	U	ND	0.345	U
Perfluorododecanoic acid (PFDoA)		ND	0.577	U	ND	0.578	U
Perfluoroheptanesulfonic acid (PFHpS)		ND	0.391	U	ND	0.392	U
Perfluoroheptanoic acid (PFHpA)		ND	0.331	U	ND	0.332	U
Perfluorohexanesulfonic acid (PFHxS)	39	ND	0.557	U	ND	0.559	U
Perfluorohexanoic acid (PFHxA)	990	ND	0.789	U	ND	0.791	U
Perfluorononanesulfonic acid (PFNS)		ND	0.477	U	ND	0.478	U
Perfluorononanoic acid (PFNA)	5.9	ND	0.479	U	ND	0.480	U
Perfluorooctanesulfonamide (PFOSA)		ND	0.360	U	ND	0.361	U
Perfluorooctanesulfonic acid (PFOS)	4	ND	0.475	U	ND	0.476	U
Perfluorooctanoic acid (PFOA)	6	ND	0.556	U	ND	0.557	U
Perfluoropentanesulfonic acid (PFPeS)		ND	0.247	U	ND	0.248	U
Perfluoropentanoic acid (PFPeA)		ND	1.08	U	ND	1.08	U
Perfluorotetradecanoic acid (PFTeDA)		ND	0.822	U	ND	0.823	U
Perfluorotridecanoic acid (PFTrDA)		ND	0.695	U	ND	0.697	U
Perfluoroundecanoic acid (PFUnA)		ND	0.389	U	ND	0.390	U
†PFOS + PFOA (EPA)		**0.00**			**0.00**		
‡PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP)		**0.0**			**0.0**		
***EPA MCL Hazard Index**		**0.0**			**0.0**		
§Sum of All Compounds Detected		**0.00**			**0.00**		

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PFAS Summary Report – Groundwater
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	Location	BH-739			BH-739		
	Field Sample ID	BH-739-242-247			BH-739-252-257		
	Sampling Depth	242.00 - 247.00			252.00 - 257.00		
	Sampling Date	06/05/2023			06/05/2023		
	SDG	23-0693_EDD			23-0693_EDD		
	Sample Type	**Normal**			**Normal**		
PFAS	**Screening Limit♦**	Results (ng/L)	LOD (ng/L)	Qualifer	Results (ng/L)	LOD (ng/L)	Qualifer
Perfluorodecanesulfonic acid (PFDS)		ND	0.299	U	ND	0.305	U
Perfluorodecanoic acid (PFDA)		ND	0.412	U	ND	0.419	U
Perfluorododecanesulfonic acid (PFDoS)		ND	0.333	U	ND	0.338	U
Perfluorododecanoic acid (PFDoA)		ND	0.556	U	ND	0.566	U
Perfluoroheptanesulfonic acid (PFHpS)		ND	0.377	U	ND	0.383	U
Perfluoroheptanoic acid (PFHpA)		ND	0.320	U	ND	0.325	U
Perfluorohexanesulfonic acid (PFHxS)	39	ND	0.538	U	ND	0.547	U
Perfluorohexanoic acid (PFHxA)	990	ND	0.762	U	ND	0.774	U
Perfluorononanesulfonic acid (PFNS)		ND	0.460	U	ND	0.468	U
Perfluorononanoic acid (PFNA)	5.9	ND	0.462	U	ND	0.470	U
Perfluorooctanesulfonamide (PFOSA)		ND	0.348	U	ND	0.353	U
Perfluorooctanesulfonic acid (PFOS)	4	ND	0.458	U	ND	0.466	U
Perfluorooctanoic acid (PFOA)	6	ND	0.536	U	ND	0.545	U
Perfluoropentanesulfonic acid (PFPeS)		ND	0.238	U	ND	0.242	U
Perfluoropentanoic acid (PFPeA)		ND	1.04	U	ND	1.06	U
Perfluorotetradecanoic acid (PFTeDA)		ND	0.793	U	ND	0.806	U
Perfluorotridecanoic acid (PFTrDA)		ND	0.671	U	ND	0.682	U
Perfluoroundecanoic acid (PFUnA)		ND	0.375	U	ND	0.382	U
†PFOS + PFOA (EPA)		**0.00**			**0.00**		
‡PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP)		**0.0**			**0.0**		
***EPA MCL Hazard Index**		**0.0**			**0.0**		
§Sum of All Compounds Detected		**0.00**			**0.00**		

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PFAS Summary Report – Groundwater
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	Location	BH-739			BH-739		
	Field Sample ID	BH-739-262-267			BH-739-272-277		
	Sampling Depth	262.00 - 267.00			272.00 - 277.00		
	Sampling Date	06/06/2023			06/07/2023		
	SDG	23-0693_EDD			23-0693_EDD		
	Sample Type	**Normal**			**Normal**		
PFAS	**Screening Limit♦**	Results (ng/L)	LOD (ng/L)	Qualifer	Results (ng/L)	LOD (ng/L)	Qualifer
Perfluorodecanesulfonic acid (PFDS)		ND	0.329	U	ND	0.338	U
Perfluorodecanoic acid (PFDA)		ND	0.452	U	ND	0.466	U
Perfluorododecanesulfonic acid (PFDoS)		ND	0.365	U	ND	0.376	U
Perfluorododecanoic acid (PFDoA)		ND	0.611	U	ND	0.628	U
Perfluoroheptanesulfonic acid (PFHpS)		ND	0.414	U	ND	0.426	U
Perfluoroheptanoic acid (PFHpA)		ND	0.351	U	ND	0.361	U
Perfluorohexanesulfonic acid (PFHxS)	39	ND	0.590	U	ND	0.608	U
Perfluorohexanoic acid (PFHxA)	990	ND	0.836	U	ND	0.860	U
Perfluorononanesulfonic acid (PFNS)		ND	0.505	U	ND	0.520	U
Perfluorononanoic acid (PFNA)	5.9	ND	0.507	U	ND	0.522	U
Perfluorooctanesulfonamide (PFOSA)		ND	0.381	U	ND	0.392	U
Perfluorooctanesulfonic acid (PFOS)	4	ND	0.503	U	ND	0.518	U
Perfluorooctanoic acid (PFOA)	6	ND	0.588	U	ND	0.605	U
Perfluoropentanesulfonic acid (PFPeS)		ND	0.262	U	ND	0.269	U
Perfluoropentanoic acid (PFPeA)		ND	1.14	U	ND	1.18	U
Perfluorotetradecanoic acid (PFTeDA)		ND	0.870	U	ND	0.896	U
Perfluorotridecanoic acid (PFTrDA)		ND	0.736	U	ND	0.758	U
Perfluoroundecanoic acid (PFUnA)		ND	0.412	U	ND	0.424	U
†PFOS + PFOA (EPA)		**0.00**			**0.00**		
‡PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP)		**0.0**			**0.0**		
***EPA MCL Hazard Index**		**0.0**			**0.0**		
§Sum of All Compounds Detected		**0.00**			**0.00**		

June 2023
PFAS Summary Report – Groundwater
Joint Base Cape Cod, IAGWSP

	Location	BH-739			BH-739		
	Field Sample ID	BH-739-282-287			BH-739-292-297		
	Sampling Depth	282.00 - 287.00			292.00 - 297.00		
	Sampling Date	06/07/2023			06/07/2023		
	SDG	23-0693_EDD			23-0693_EDD		
	Sample Type	**Normal**			**Normal**		
PFAS	**Screening Limit♦**	Results (ng/L)	LOD (ng/L)	Qualifer	Results (ng/L)	LOD (ng/L)	Qualifer
Perfluorodecanesulfonic acid (PFDS)		ND	0.306	U	ND	0.296	U
Perfluorodecanoic acid (PFDA)		ND	0.421	U	ND	0.407	U
Perfluorododecanesulfonic acid (PFDoS)		ND	0.340	U	ND	0.328	U
Perfluorododecanoic acid (PFDoA)		ND	0.568	U	ND	0.549	U
Perfluoroheptanesulfonic acid (PFHpS)		ND	0.385	U	ND	0.372	U
Perfluoroheptanoic acid (PFHpA)		ND	0.326	U	ND	0.316	U
Perfluorohexanesulfonic acid (PFHxS)	39	ND	0.549	U	ND	0.531	U
Perfluorohexanoic acid (PFHxA)	990	ND	0.777	U	ND	0.752	U
Perfluorononanesulfonic acid (PFNS)		ND	0.470	U	ND	0.454	U
Perfluorononanoic acid (PFNA)	5.9	ND	0.472	U	ND	0.456	U
Perfluorooctanesulfonamide (PFOSA)		ND	0.355	U	ND	0.343	U
Perfluorooctanesulfonic acid (PFOS)	4	ND	0.468	U	ND	0.453	U
Perfluorooctanoic acid (PFOA)	6	ND	0.547	U	ND	0.529	U
Perfluoropentanesulfonic acid (PFPeS)		ND	0.243	U	ND	0.235	U
Perfluoropentanoic acid (PFPeA)		ND	1.06	U	ND	1.03	U
Perfluorotetradecanoic acid (PFTeDA)		ND	0.809	U	ND	0.783	U
Perfluorotridecanoic acid (PFTrDA)		ND	0.685	U	ND	0.662	U
Perfluoroundecanoic acid (PFUnA)		ND	0.383	U	ND	0.370	U
†PFOS + PFOA (EPA)		**0.00**			**0.00**		
‡PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP)		**0.0**			**0.0**		
***EPA MCL Hazard Index**		**0.0**			**0.0**		
§Sum of All Compounds Detected		**0.00**			**0.00**		

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PFAS Summary Report – Groundwater
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	Location	BH-739			BH-739		
	Field Sample ID	BH-739-302-307			BH-739-302-307-D		
	Sampling Depth	302.00 - 307.00			302.00 - 307.00		
	Sampling Date	06/07/2023			06/07/2023		
	SDG	23-0693_EDD			23-0693_EDD		
	Sample Type	**Normal**			**Field Duplicate**		
PFAS	**Screening Limit♦**	Results (ng/L)	LOD (ng/L)	Qualifer	Results (ng/L)	LOD (ng/L)	Qualifer
Perfluorodecanesulfonic acid (PFDS)		ND	0.307	U	ND	0.329	U
Perfluorodecanoic acid (PFDA)		ND	0.423	U	ND	0.453	U
Perfluorododecanesulfonic acid (PFDoS)		ND	0.342	U	ND	0.366	U
Perfluorododecanoic acid (PFDoA)		ND	0.571	U	ND	0.612	U
Perfluoroheptanesulfonic acid (PFHpS)		ND	0.387	U	ND	0.415	U
Perfluoroheptanoic acid (PFHpA)		ND	0.328	U	ND	0.352	U
Perfluorohexanesulfonic acid (PFHxS)	39	ND	0.552	U	ND	0.591	U
Perfluorohexanoic acid (PFHxA)	990	ND	0.782	U	ND	0.837	U
Perfluorononanesulfonic acid (PFNS)		ND	0.472	U	ND	0.506	U
Perfluorononanoic acid (PFNA)	5.9	ND	0.474	U	ND	0.508	U
Perfluorooctanesulfonamide (PFOSA)		ND	0.357	U	ND	0.382	U
Perfluorooctanesulfonic acid (PFOS)	4	ND	0.471	U	ND	0.504	U
Perfluorooctanoic acid (PFOA)	6	ND	0.550	U	ND	0.589	U
Perfluoropentanesulfonic acid (PFPeS)		ND	0.245	U	ND	0.262	U
Perfluoropentanoic acid (PFPeA)		ND	1.07	U	ND	1.14	U
Perfluorotetradecanoic acid (PFTeDA)		ND	0.814	U	ND	0.872	U
Perfluorotridecanoic acid (PFTrDA)		ND	0.689	U	ND	0.738	U
Perfluoroundecanoic acid (PFUnA)		ND	0.385	U	ND	0.413	U
†PFOS + PFOA (EPA)		**0.00**			**0.00**		
‡PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP)		**0.0**			**0.0**		
***EPA MCL Hazard Index**		**0.0**			**0.0**		
§Sum of All Compounds Detected		**0.00**			**0.00**		

June 2023
PFAS Summary Report – Groundwater
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	Location	BH-739			BH-739		
	Field Sample ID	BH-739-312-317			BH-739-322-327		
	Sampling Depth	312.00 - 317.00			322.00 - 327.00		
	Sampling Date	06/08/2023			06/12/2023		
	SDG	23-0750_EDD			23-0750_EDD		
	Sample Type	**Normal**			**Normal**		
PFAS	**Screening Limit♦**	Results (ng/L)	LOD (ng/L)	Qualifer	Results (ng/L)	LOD (ng/L)	Qualifer
Perfluorodecanesulfonic acid (PFDS)		ND	0.561	U	ND	0.581	U
Perfluorodecanoic acid (PFDA)		ND	0.772	U	ND	0.799	U
Perfluorododecanesulfonic acid (PFDoS)		ND	0.623	U	ND	0.645	U
Perfluorododecanoic acid (PFDoA)		ND	1.04	U	ND	1.08	U
Perfluoroheptanesulfonic acid (PFHpS)		ND	0.706	U	ND	0.731	U
Perfluoroheptanoic acid (PFHpA)		ND	0.599	U	ND	0.620	U
Perfluorohexanesulfonic acid (PFHxS)	39	ND	1.01	U	ND	1.04	U
Perfluorohexanoic acid (PFHxA)	990	ND	1.43	U	ND	1.48	U
Perfluorononanesulfonic acid (PFNS)		ND	0.862	U	ND	0.892	U
Perfluorononanoic acid (PFNA)	5.9	ND	0.865	U	ND	0.896	U
Perfluorooctanesulfonamide (PFOSA)		ND	0.651	U	ND	0.674	U
Perfluorooctanesulfonic acid (PFOS)	4	ND	0.858	U	ND	0.889	U
Perfluorooctanoic acid (PFOA)	6	**0.616**	1.00	J	ND	1.04	U
Perfluoropentanesulfonic acid (PFPeS)		ND	0.446	U	ND	0.462	U
Perfluoropentanoic acid (PFPeA)		ND	1.95	U	ND	2.02	U
Perfluorotetradecanoic acid (PFTeDA)		ND	1.48	U	ND	1.54	U
Perfluorotridecanoic acid (PFTrDA)		ND	1.26	U	ND	1.30	U
Perfluoroundecanoic acid (PFUnA)		ND	0.702	U	ND	0.728	U
†PFOS + PFOA (EPA)		**0.616**			**0.00**		
‡PFOS + PFOA + PFDA + PFHpA + PFHxS + PFNA (MassDEP)		**0.0**			**0.0**		
***EPA MCL Hazard Index**		**0.0**			**0.0**		
§Sum of All Compounds Detected		**0.616**			**0.00**		

June 2023
PFAS Summary Report – Groundwater
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Notes:

ng/L = nanograms per liter; ug/kg = micrograms per kilogram; U = not detected; J = estimated; UJ = estimated non detect, ND = not detected
Non detects are calculated as zero in the summations.

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

Bolded and highlighted results indicate detection of PFAS above the 2023 May EPA Tapwater (THQ 0.1)

Bolded and highlighted results indicate detection of PFAS above the EPA PFAS National Primary Drinking Water Regulation.

♦ 2023 May EPA Tapwater (THQ 0.1)

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

The PFOS and PFOA summation includes all detections at and above the DL.

‡ PFAS Maximum Contaminant Level (MCL) Final Amendments ("MCL", 310 CMR 22.00 PFAS MCL Amendments), Massachusetts Department of Environmental Protection, October 2, 2020

The MassDEP PFAS summation includes all quantifiable results reported at and above the LOQ.

PFHxS represents the reported presence of Perfluorohexanesulfonic acid or Perfluorohexane sulfonate as reported for the project.

§ Sum of All Compounds Detected includes all detections at and above the DL.

* Proposed PFAS National Primary Drinking Water Regulation 3/14/23. Hazard Index = ([GenXwater] / [10 ppt]) + ([PFBSwater] / [2000 ppt]) + ([PFNAwater] / [10 ppt]) + ([PFHxSwater] / [9.0 ppt]). This information is provided for informational purposes only.