MONTHLY PROGRESS REPORT #335
FOR FEBRUARY 2025

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 28 February 2025.

1. SUMMARY OF REMEDIATION ACTIONS

Remediation Actions (RA) Underway at Camp Edwards as of 28 February 2025:

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 3.154 billion gallons of water treated and re-injected as of 28 February 2025. No Frank Perkins Road system shutdowns occurred in February.

The Base Boundary Mobile Treatment Unit (MTU) continues to operate at a flow rate of 65 gpm. As of 28 February 2025, over 426.7 million gallons of water were treated and re-injected. No Base Boundary system shutdowns occurred in February.

The flow rate at the Leading-Edge system was increased from 100 gpm to 125 gpm on 26 September 2024 based on regulatory agency concurrence with the 26 September 2024 Demolition Area 1 Extraction Well 5 (EW-5) Optimization presentation. As of 28 February 2025, over 445.1 million gallons of water were treated and re-injected. No Leading Edge system shutdowns occurred in February.

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

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 28 February 2025, over 2.299 billion gallons of water have been treated and re-injected. No MTU E and F system shutdowns occurred in February.

The Northern Treatment Building G continues to operate at a flow rate of 225 gpm. As of 28 February 2025, over 1.797 billion gallons of water have been treated and re-injected. The following MTU G system shutdowns occurred in February:

- 2259 on 31 January 2025 due to a power interruption and was restarted at 0905 on 03 February 2025.

Eastern

The J-2 Range Eastern Treatment system 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 28 February 2025, over 1.943 billion gallons of water have been treated and re-injected. The following MTU H and I system shutdowns occurred in February:

- 1402 on 27 February 2025 due to a power interruption and was restarted at 1502 on 27 February 2025.

MTU J continues to operate at a flow rate of 120 gpm. As of 28 February 2025, over 911.6 million gallons of water have been treated and re-injected. The following MTU J shutdowns occurred in February:

- 1000 on 26 February 2025 to drain GAC Vessels #1, #2, #5, and #6 for a carbon exchange. A carbon exchange was performed and MTU J was restarted at 0745 on 28 February 2025.
- 1000 on 28 February 2025 due to a leaking lid on GAC vessel #6. The lid was repositioned and MTU J was restarted at 1053 on 28 February 2025.

MTU K continues to operate at a flow rate of 125 gpm. As of 28 February 2025, over 1.043 billion gallons of water have been treated and re-injected. No MTU K shutdowns occurred in February.

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

The J-3 Range Groundwater RA consists of removal and treatment of contaminated groundwater to control further migration of explosives compounds and perchlorate. The ETR system includes four extraction wells, 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 28 February 2025, over 1.931 billion gallons of water have been treated and re-injected. The following J-3 system shutdowns occurred in February:

- 2100 on 16 February 2025 due to a power interruption and was restarted at 0750 on 18 February 2025.
- 1402 on 27 February 2025 due to a power outage and was restarted at 0916 on 28 February 2025.

<u>J-1 Range Groundwater RA</u>

Southern

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 has been optimized as part of the ESPM program at J-1 Range Southern. The on-base extraction well J1SEW0001 was turned off with regulatory approval on 28 February2017 (formerly operated at a flow of 35 gpm), and flow was increased from 90 gpm to 125 gpm at the Leading-Edge extraction well J1SEW0002. The Leading-Edge extraction well continues to operate at a flow rate of 125 gpm. As of 28 February 2025, over 849.1 million gallons of water have been treated and re-injected. The following J-1 Range Southern MTU shutdowns occurred in February:

- 1402 on 27 February 2025 due to a power outage and was restarted at 1500 on 27 February 2025.

Northern

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. The flow rates at for the two extraction wells at J-1 Northern were modified on 28 October 2024 based on regulatory agency concurrence with the J-1 Range Northern Data Presentation for January 2023 to December 2023. The flow rate at J1NEW0001 was reduced from 125 gpm to 85 gpm and the flow rate at J1NEW0002 was increased from 125 gpm to 165 gpm. As of 28 February 2025, over 1.458 billion gallons of water have been treated and re-injected. The following J-1 Range Northern MTU shutdowns occurred in February:

- 0002 on 14 February 2025 due to a “Floor Sump” alarm due to a broken camlock fitting on the IX #1 effluent line. A new flange and camlock fitting were installed and the system was restarted at 0842 on 14 February 2025.

<u>Central Impact Area RA</u>

The Central Impact Area (CIA) Groundwater treatment system 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 28 February 2025, over 3.900 billion gallons of water have been treated and re-injected. The following CIA system shutdowns occurred in February:

- 1146 on 20 February 2025 at CIA-3 due to a “High Pressure” alarm and was restarted at 0755 on 25 February 2025.

2. SUMMARY OF ACTIONS TAKEN

Operable Unit (OU) Activity as of 28 February 2025:

<u>CIA</u>

- Source Area investigations
  - No field activity
  - Conducted routine visual checks of Consolidated Shot Structure (CSS) soil cover and surface area around the perimeter of the CSS
- Groundwater sampling within the CIA SPM Program.

<u>Demolition Area 1</u>

- No activity.

<u>Demolition Area 2</u>

- No activity.

<u>J-1 Range</u>

- Bag filters changed at J-1 Range Northern on 11 February 2025

<u>J-2 Range</u>

- Bag filters changed at J-2 Range Northern MTU E on 11 February 2025.

<u>J-3 Range</u>

- No activity.

<u>L Range</u>

- No activity.

<u>Small Arms Ranges</u>

- No activity

<u>Northwest Corner</u>

- No activity

<u>Training Areas</u>

- 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 06 February 2025

Project and Fieldwork Update

Darrin Smith (USACE) provided a groundwater update. He noted that the J-2 semi-annual system performance monitoring (SPM) event was completed 1/23/25. The Central Impact Area (CIA) annual SPM event began on 1/27/25 and will continue into March. The J-2 North semi-annual SPM event will follow. Mr. Smith (USACE) stated that the February monthly treatment system sampling began on 2/3/25 and continues. The January monthly treatment system sampling was completed on 1/9/25. All results are below media changeout criteria. Mr. Smith (USACE) reported that the J-2 East H&I system was turned off on 1/23/25 due to a leak on the firefighting fitting, which was a result of a frozen/ cracked ball valve. A new valve and fittings were installed and the system was restarted on 1/30/25. An annual inspection of the CIA consolidated shot structure (CSS) liner is scheduled for 3/6/25.

Gina Kaso (USACE) provided a UXO update. She noted that the contractors will remobilize to the site in March. Their work will begin with the liner inspection and then some remaining demolition operations will commence. Ms. Kaso (USACE) stated that the Draft Final 2024 Source Removal Report was submitted on 1/31/25.

Document and Project Tracking

Mr. Dvorak (USACE) reviewed the list of deliverables (provided in advance of the meeting).

Demolition Area 1 (Demo 1) Annual Environmental Monitoring Report (EMR) Presentation

Mike Kulbersh (USACE) began a presentation on the Demolition Area 1 Annual EMR. Mr. Kulbersh (USACE) explained that during the reporting period (July 2023 through June 2024), the extraction well D1-EW-3 was further packered in August and this effectively reduced the screen from 60-feet to 40-feet in length (i.e. -70 to -110 ft msl). He also stated that the injection well D1-IW-5, which is one of two injection wells in the Frank Perkins Road (FPR) system, was redeveloped on April 24, 2024. Mr. Kulbersh (USACE) reported that 86 feet of sediment was removed from the well, along with 8,400 gallons of development water and 100 gallons of solids. gauging event in May confirmed there was no buildup of sand in the well. Monitoring wells MW-598M1 and MW-598M2, along County Rd., were decommissioned on 4/29/24 because a failed road box created a nuisance for neighboring residents.

Mr. Kulbersh (USACE) reviewed the FPR treatment system statistics. The overall system was operational 96.7% of the time, the base boundary system was operational 98.7% of the time, and the leading edge system was operational 97.8% of the time. The perchlorate mass removed during the reporting period was 0.2 pounds total and 0.11 pounds at the base boundary. The total historical mass removed is 120 pounds (including the Pew Rd. system). The RDX mass removed during the reporting period was 0.04 pounds. The historical total of RDX mass removed is approximately 53.5 pounds (including the Pew Rd. system).

Mr. Kulbersh (USACE) displayed and reviewed a chart with influent concentrations over time. The totals for field samples were reviewed: 102 samples were tested for perchlorate and 103 samples were tested for RDX (excluding field duplicates and monthly treatment plant samples). Mr. Kulbersh (USACE) noted that in Zone 1, which is the source to FPR system, the maximum RDX concentration is 2.3 ppb (MW-19S) within the former source area (575 feet upgradient of D1-EW-4). Two samples from MW-19S were above the risk-based concentration (RBC) of 0.6 ppb. No wells are sampled for perchlorate. The maximum perchlorate influent concentration was less than 0.1 ppb. The maximum RDX influent concentration was 0.11 ppb. For Zone 2, which is FPR to Pew Road, the maximum RDX concentration was less than 0.1 ppb (MW-341M2). The maximum perchlorate concentration was 0.25 ppb (MW-211M1). For Zone 3, which is Pew Road to the base boundary, the maximum RDX concentration was 4.3 ppb (MW-730M2). Seven samples from four wells (MW-531M1, MW-533M1, MW-544M1, and MW-730M2) contained RDX above 0.6 ppb. The maximum perchlorate concentration was 12 ppb (MW-730M2). The maximum perchlorate influent concentration was 0.48 ppb. RDX influent concentrations were non detect (ND) in all samples. For Zone 4 (off- base), RDX was ND in 12 of 14 samples with only estimated detections in MW-602M1 (0.15J ppb). The maximum perchlorate concentration was 4.7 ppb. Two out of 28 perchlorate samples were detected above the Massachusetts Maximum Contaminant Level (MMCL) of 2 ppb and both were from MW-602M1. The maximum perchlorate influent concentration was 0.14 ppb. The RDX influent concentration was ND in all samples. Mr. Kulbersh (USACE) displayed figures showing the perchlorate and RDX trends in key wells.

Mr. Kulbersh (USACE) reviewed the methods that were used to delineate the capture zones and the inferred capture zones based on modeling particle tracks and the synoptic water level event. He explained that 3PE analysis was used to review water level data and to determine the flow vectors for an added line of evidence in the report. He displayed figures showing the flow vector changes pre- and post-packering.

The synoptic water level gauging data was reviewed. One site-wide (Zones 1–4) synoptic water level round was collected in May of the reporting period. It included 179 monitoring wells/piezometers, four extraction wells, two injection wells, and the staff gauge at North Pond. Two shallow wells were dry. The hydraulic monitoring observations were consistent with past reporting periods. A post-packering limited gauging event at 64 locations was conducted approximately one month after the packering at D1-EW-3 to determine the changes in groundwater flow. Flow direction towards the extraction well was noticeable in near-field monitoring wells.

Mr. Kulbersh (USACE) explained that the capture zones were developed manually and later compared to model-simulated capture zones. In Zone 1, RDX is adequately captured by D1-EW-4 and D1-EW-501. In Zone 3, perchlorate and RDX between Fredrickson Rd. and the base boundary are within the D1-EW-3 capture zone. Portions of the plumes south of MW-533M1, MW-730M2, and MW-731M2 are either on the edge of the capture zone or outside of the capture zone and simulated to be below MMCLs/RBCs before reaching the base boundary. In Zone 4, perchlorate upgradient of D1-EW-5 is principally within the well's capture zone. Currently only one well (MW-602M1) contained perchlorate above the MMCL of 2 ppb (detected at 4.7 ppb) and this well is within the capture zone but contamination might extend outside the capture zone.

The 2023 perchlorate and RDX plume shells were used when comparing to measured values in this reporting period. The total RDX removed from July 2023 through June 2024 was calculated at 0.04 pounds and simulated at 0.03 pounds. The total perchlorate removed from July 2023 through June 2024 was calculated at 0.20 pounds and simulated at 0.29 pounds. In general, mass removal continues to decline but mass removal is minimal compared to amounts removed during early remediation activities. In total, 120 pounds of perchlorate have been removed and 53.5 pounds of RDX have been removed.

Mr. Kulbersh (USACE) presented the model-predicted concentrations vs. observed concentrations for perchlorate and RDX in June 2024. He noted that the perchlorate cleanup time in the Decision Document (DD) was 2025, which was based on a 2013 Technical Memorandum comparison to the MMCL. Mr. Kulbersh (USACE) noted that perchlorate was conservatively modeled without incorporating dispersion. He reported the following: Zones 1 & 2 are expected to be below the MMCL, Zone 3 attenuation/capture will be below 2 ppb by 2034, Zone 4 attenuation will be below 2 ppb by 2029 (upgradient of D1-EW-5), and downgradient attenuation has been achieved.

Mr. Kulbersh (USACE) stated that the RDX cleanup time in the DD was 2022, which was also based on the 2013 Technical Memorandum comparison to the risk-based concentration (RBC). Mr. Kulbersh (USACE) noted that RDX was modeled using the attenuation factor. He reported the following: Zone 1 is expected to below RBC by 2025 (but is dependent on source concentrations), Zone 2 has achieved attenuation below the RBC, Zone 3 (west of Pew Rd. to base boundary attenuation is expected to be below the RBC by 2025, and Zone 4 attenuation has been achieved.

Mr. Kulbersh (USACE) summarized the 2024 Annual Report recommendations starting with the extraction wells. In Zone 1, based on updated plume shell and monitoring well data, it is recommended to shut down D1-EW-501. Based on the presence of perchlorate in MW-602M1 within the capture zone of D1-EW-5 in Zone 4, it was recommended to increase the system capacity from 100 gallons per minute (gpm) to 125 gpm. Mr. Kulbersh (USACE) noted that the rate was increased on 9/27/2024.

For the hydraulic monitoring network, the IAGWSP recommends removing D1-EW-501 from annual synoptic gauging program. For the chemical monitoring network, 25 monitoring wells are being proposed for optimization (removal or sample reduction). Four monitoring wells are proposed for perchlorate optimization. Eleven monitoring wells are proposed for RDX optimization. Ten monitoring wells are proposed for RDX and perchlorate optimization. IAGWSP also recommends discontinuing sampling of D1-EW-501 for RDX as it is proposed for shut down and discontinuing perchlorate analysis from the FPR system as no samples are collected from Zone 1. Additionally, three new wells are being added to the chemical monitoring program for perchlorate and explosives analysis.

Mr. Kulbersh (USACE) outlined the future work, which includes decommissioning and removing the leading edge (D1- EW-5) treatment system by November 2025. He displayed figures showing the historic plume outlines vs. January 2024 plume outlines, which show a significant decrease in size.

Jeff Dvorak (USACE) clarified that the term “removal” refers to proposed removal from the monitoring network, but it does not mean well abandonment.

Elliot Jacobs (MassDEP) asked what is involved in the removal of the leading edge system. Mr. Kulbersh (USACE) replied that the CONEX box, the influent and effluent piping, and infiltration galleries would be removed, and the pump would be pulled and closed off with grout by professional drillers.

Bob Lim (EPA) asked about the estimated mass travel time from MW-533 to MW-731. Mr. Kulbersh (USACE) replied that the travel time is approximately size to seven years to the extraction well. He also noted that the plumes are mostly attenuating through advection. He noted that the well packering was intended to focus the expansion of the capture zone laterally.

Len Pinaud (MassDEP) asked if the recommendations are included in the Demo 1 EMR and Mr. Kulbersh (USACE) confirmed that are. He also stated that optimization trend graphs and date are included in the report to rationalize system shutdown.

<u>PFAS Well Locations</u>

Jodi Lyn Cutler (IAGWSP) presented the IAGWSP proposed sampling locations for additional PFAS sampling. She noted that screens would be installed at different depths to bound PFAS in the areas of J-2 and J-3, in the vicinity of prior exceedances. Ms. Cutler (IAGWSP) pointed to the proposed locations, which are adjacent to existing wells, and were selected based on modeling and particle tracks.

Mr. Jacobs (MassDEP) asked if there would be vertical screening at 10-foot intervals for PFAS and Ms. Cutler (IAGWSP) confirmed that was the case. She added that depths are proposed but will be adjusted based the vertical profiling.

Ms. Cutler (IAGWSP) noted that the work has been contracted and needs to be completed this summer. She stated that the IAGWSP has started the required records of action, which includes correspondence with Massachusetts Natural Heritage and Endangered Species Program, the Wampanoag tribe, and the State Historic Preservation Office. She also stated that the contractors are slated to begin vegetation and UXO clearances.

Mr. Pinaud (MassDEP) stated that MassDEP will provide comments on the proposed well locations as part of their comments on the PFAS Report. He noted that MassDEP’s comment letter will be submitted when EPA provides their letter, which is expected next week.

Ms. Cutler (IAGWSP) noted that it would be helpful to know if there were any major issues with the PFAS report as decisions are currently being made for follow-on work. Mr. Lim (EPA) noted that EPA does not have any questions or concern with the proposed PFAS well locations. He added that the EPA comments on the report will mainly address the proposed continued PFAS investigation work and he commented that he expects issues to be resolved through the “Response to Comments” process for the report finalization.

Mr. Pinaud (MassDEP) noted that MassDEP did not have any issues with the proposed well locations. He indicated that MassDEP’s comments on the PFAS report were related to a potential data gap near the J-2 extraction well, which has had detections increase from 10 to 30 parts per billion in the influent over the last several years. Mr. Jacobs (MassDEP) said that MassDEP would like to see more drive points in the immediate vicinity of the extraction well to confirm that PFAS is entirely within the capture and not bypassing it. He commented that the extraction well simulates a public water supply well in terms of screen length and pump rates so MassDEP wants to have a better understanding of the origin of that PFAS.

Ms. Kaso (USACE) noted that six wells are currently on contract and additional wells cannot be contracted until those six wells are installed. She noted that crews need to do all vegetation clearance by 4/15/25 due to protection for bats, so the well pads have to be cleared in the near future. Ms. Kaso (USACE) explained that the Baltimore district is going to return to do all the UXO work. KGS can do the vegetation clearance on the existing contract. The plan is to install the wells over the summer. She noted that drive points are not on contract so that is something that has to be considered and then worked out contractually.

Ms. Cutler (IAGWSP) asked if MassDEP sees any value in moving a proposed location closer to the influent. Mr. Jacobs (MassDEP) replied that his preference would have one of the J-2 PFAS wells closer to EW-2, at the margins of the capture zone but not within the capture zone to make sure that there isn't contamination just outside the capture. Mr. Kulbersh (USACE) clarified that Mr. Jacobs (MassDEP) was referring to MW-702M1 and MW- 702M2, on the western side of the capture zone. He stated that there was sampling inside the capture zone. Mr. Jacobs (MassDEP) noted that the current placement of wells in the capture zone might not be correct. Mr. Kulbersh (USACE) noted that the transect upgradient of the extraction well has been sampled and all samples were ND. Mr. Jacobs (MassDEP) suggested that location could be moved a little farther to the east, just outside the capture zone. Profile samples at 10-foot intervals would provide more clarification on whether PFAS is reaching the extraction, well and is within the capture zone. Mr. Pinaud suggested that IAGWSP might consider asking AFCEC to use their drivepoint rig. Ms. Cutler (IAGWSP) replied that the IAGWSP would discuss internally and looks forward to receiving the agencies’ comments on the PFAS Report on Tuesday.

JBCC Cleanup Team Meeting

The next JBCC Cleanup Team (JBCCCT) is scheduled for 09 April 2025 (previous meeting was 13 November 2024). Meeting details and presentation materials from previous meetings 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 28 February 2025. Table 2 summarizes the validated detections of explosives compounds and perchlorate for all groundwater results received from 01 to 28 February 2025. 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 the validated detections of per- and polyfluoroalkyl substances (PFAS) for influent and groundwater results analyzed by EPA draft Method 1633 and received from 01 to 28 February 2025. Table 3 PFAS results are compared to the Regional Screening Levels (RSLs) published by EPA in November 2023.

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. 334 for January 2025	10 February 2025
• Draft Demolition Area 2 – May 2024 PFAS Sampling Event Technical Memorandum	11 February 2025
• Draft Land Use Controls Monitoring Report for 2024	21 February 2025
• Draft Demolition Area 1 Environmental Monitoring Report for July 2023 through June 2024	28 February 2025
• Comment Resolution for the Draft J-2 Range Northern Environmental Monitoring Report for November 2022 through October 2023	28 February 2025

5. SCHEDULED ACTIONS

The following actions and/or documents are being prepared in March 2025.

- Draft Central Impact Area Environmental Monitoring Report for July 2023 through June 2024
- Response to Comments on the J-1 Range Southern Environmental Monitoring Report for January 2023 to December 2023
- Draft J-1 Range Northern Environmental Monitoring Report for January 2023 to December 2023
- Draft Small Arms Ranges 2024 Biennial Environmental Monitoring Report
- Final J-3 Range Environmental Monitoring Report for September 2022 through August 2023
- Response to Comments on the Comprehensive PFAS Report
- Draft J-2 Range Eastern Environmental Monitoring Report for November 2023 through October 2024
- Final Five-Year Review 2016-2021

TABLE 1
Sampling Progress: 01 to 28 February 2025

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	MW-180M3	MW-180M3_S25	N	02/27/2025	Ground Water	171	181
Central Impact Area	MW-23M1	MW-23M1_S25	MS	02/27/2025	Ground Water	225	235
Central Impact Area	MW-23M1	MW-23M1_S25	N	02/27/2025	Ground Water	225	235
Central Impact Area	MW-23M1	MW-23M1_S25	SD	02/27/2025	Ground Water	225	235
Central Impact Area	MW-23D	MW-23D_S25	N	02/27/2025	Ground Water	272	282
Central Impact Area	MW-710M1	MW-710M1_S25	N	02/26/2025	Ground Water	247.5	257.5
Central Impact Area	MW-699M2	MW-699M2_S25	N	02/26/2025	Ground Water	221	231
Central Impact Area	MW-699M1	MW-699M1_S25	N	02/26/2025	Ground Water	261.5	271.5
Central Impact Area	MW-628M2	MW-628M2_S25	MS	02/26/2025	Ground Water	120.8	130.8
Central Impact Area	MW-628M2	MW-628M2_S25	N	02/26/2025	Ground Water	120.8	130.8
Central Impact Area	MW-628M2	MW-628M2_S25	SD	02/26/2025	Ground Water	120.8	130.8
Central Impact Area	MW-628M1	MW-628M1_S25	N	02/26/2025	Ground Water	230.8	240.8
Central Impact Area	MW-103M2	MW-103M2_S25	N	02/25/2025	Ground Water	282	292
Central Impact Area	MW-103M1	MW-103M1_S25	MS	02/25/2025	Ground Water	298	308
Central Impact Area	MW-103M1	MW-103M1_S25	N	02/25/2025	Ground Water	298	308
Central Impact Area	MW-103M1	MW-103M1_S25	SD	02/25/2025	Ground Water	298	308
Central Impact Area	MW-207M1	MW-207M1_S25	N	02/25/2025	Ground Water	254	264
Central Impact Area	MW-609M2	MW-609M2_S25	N	02/25/2025	Ground Water	182.4	192.4
Central Impact Area	MW-609M1	MW-609M1_S25	N	02/25/2025	Ground Water	210.4	220.4
Central Impact Area	MW-102M2	MW-102M2_S25	N	02/24/2025	Ground Water	237	247
Central Impact Area	MW-102M1	MW-102M1_S25	N	02/24/2025	Ground Water	267	277
Central Impact Area	MW-108M4	MW-108M4_S25	N	02/24/2025	Ground Water	240	250
Central Impact Area	MW-108M1	MW-108M1_S25	N	02/24/2025	Ground Water	297	307
Central Impact Area	MW-96M2	MW-96M2_S25	N	02/20/2025	Ground Water	160	170
Central Impact Area	MW-96M1	MW-96M1_S25	N	02/20/2025	Ground Water	206	216
Central Impact Area	MW-618M2	MW-618M2_S25	N	02/20/2025	Ground Water	190.5	200.5
Central Impact Area	MW-618M1	MW-618M1_S25	N	02/20/2025	Ground Water	238.5	248.5
Central Impact Area	MW-442M2	MW-442M2_S25	N	02/19/2025	Ground Water	215.31	225.32
Central Impact Area	MW-442M1	MW-442M1_S25	N	02/19/2025	Ground Water	247.64	257.64
Central Impact Area	MW-03M2	MW-03M2_S25	N	02/19/2025	Ground Water	180	185
Central Impact Area	MW-204M2	MW-204M2_S25	N	02/19/2025	Ground Water	76	86
Central Impact Area	MW-204M1	MW-204M1_S25	N	02/19/2025	Ground Water	141	151
Central Impact Area	MW-204M1	MW-204M1_S25D	FD	02/19/2025	Ground Water	141	151
Central Impact Area	MW-209M2	MW-209M2_S25	N	02/18/2025	Ground Water	220	230
Central Impact Area	MW-209M1	MW-209M1_S25	N	02/18/2025	Ground Water	240	250
Central Impact Area	MW-209M1	MW-209M1_S25D	FD	02/18/2025	Ground Water	240	250
Central Impact Area	MW-223M2	MW-223M2_S25	N	02/18/2025	Ground Water	185	195
Central Impact Area	MW-223M1	MW-223M1_S25	N	02/18/2025	Ground Water	211	221
Central Impact Area	MW-223D	MW-223D_S25	N	02/18/2025	Ground Water	260	270
Central Impact Area	MW-249M2	MW-249M2_S25	N	02/13/2025	Ground Water	174	184
Central Impact Area	MW-607M3	MW-607M3_S25	N	02/13/2025	Ground Water	157.4	167.4
Central Impact Area	MW-607M2	MW-607M2_S25	N	02/13/2025	Ground Water	177.4	187.4
Central Impact Area	MW-607M1	MW-607M1_S25	N	02/13/2025	Ground Water	207.4	217.4
Central Impact Area	MW-607M1	MW-607M1_S25D	FD	02/13/2025	Ground Water	207.4	217.4
Central Impact Area	MW-87M2	MW-87M2_S25	N	02/12/2025	Ground Water	169	179
Central Impact Area	MW-87M1	MW-87M1_S25	N	02/12/2025	Ground Water	194	204
Central Impact Area	MW-25	MW-25_S25	N	02/12/2025	Ground Water	108	118
Central Impact Area	MW-728M1	MW-728M1_S25	N	02/12/2025	Ground Water	153.4	163.4
Central Impact Area	MW-184M1	MW-184M1_S25	N	02/12/2025	Ground Water	186	196
Central Impact Area	MW-38M4	MW-38M4_S25	N	02/11/2025	Ground Water	132	142
Central Impact Area	MW-38M3	MW-38M3_S25	N	02/11/2025	Ground Water	170	180
Central Impact Area	MW-27	MW-27_S25	N	02/11/2025	Ground Water	117	127
Central Impact Area	MW-477M2	MW-477M2_S25	N	02/11/2025	Ground Water	145.62	155.62
Central Impact Area	MW-477M2	MW-477M2_S25D	FD	02/11/2025	Ground Water	145.62	155.62
Central Impact Area	MW-477M1	MW-477M1_S25	N	02/11/2025	Ground Water	187.53	197.53
Central Impact Area	MW-485M1	MW-485M1_S25	N	02/10/2025	Ground Water	125.32	135.32
Central Impact Area	MW-485M1	MW-485M1_S25D	FD	02/10/2025	Ground Water	125.32	135.32
Central Impact Area	MW-107M2	MW-107M2_S25	N	02/10/2025	Ground Water	125	135
Central Impact Area	MW-40S	MW-40S_S25	N	02/10/2025	Ground Water	115.5	126
Central Impact Area	MW-40M1	MW-40M1_S25	N	02/10/2025	Ground Water	132.5	142

N = Normal Sample
FD = Field Duplicate

TABLE 1
Sampling Progress: 01 to 28 February 2025

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	MW-37M2	MW-37M2_S25	MS	02/10/2025	Ground Water	145	155
Central Impact Area	MW-37M2	MW-37M2_S25	N	02/10/2025	Ground Water	145	155
Central Impact Area	MW-37M2	MW-37M2_S25	SD	02/10/2025	Ground Water	145	155
J3 Range	J3-EFF	J3-EFF-221A	N	02/06/2025	Process Water	0	0
J3 Range	J3-MID-2	J3-MID-2-221A	N	02/06/2025	Process Water	0	0
J3 Range	J3-MID-1	J3-MID-1-221A	N	02/06/2025	Process Water	0	0
J3 Range	J3-INF	J3-INF-221A	N	02/06/2025	Process Water	0	0
Central Impact Area	MW-01S	MW-01S_S25	N	02/06/2025	Ground Water	114	124
Central Impact Area	MW-01M2	MW-01M2_S25	N	02/06/2025	Ground Water	160	165
J2 Range Northern	J2N-EFF-G	J2N-EFF-G-221A	N	02/06/2025	Process Water	0	0
J2 Range Northern	J2N-MID-2G	J2N-MID-2G-221A	N	02/06/2025	Process Water	0	0
J2 Range Northern	J2N-MID-1G	J2N-MID-1G-221A	N	02/06/2025	Process Water	0	0
J2 Range Northern	J2N-INF-G	J2N-INF-G-221A	N	02/06/2025	Process Water	0	0
Central Impact Area	MW-90S	MW-90S_S25	N	02/06/2025	Ground Water	118	128
J2 Range Northern	J2N-EFF-EF	J2N-EFF-EF-221A	N	02/06/2025	Process Water	0	0
J2 Range Northern	J2N-MID-2F	J2N-MID-2F-221A	N	02/06/2025	Process Water	0	0
J2 Range Northern	J2N-MID-1F	J2N-MID-1F-221A	N	02/06/2025	Process Water	0	0
J2 Range Northern	J2N-INF-EF	J2N-INF-EF-221A	N	02/06/2025	Process Water	0	0
Central Impact Area	MW-90M1	MW-90M1_S25	N	02/06/2025	Ground Water	145	155
J2 Range Northern	J2N-MID-2E	J2N-MID-2E-221A	N	02/06/2025	Process Water	0	0
J2 Range Northern	J2N-MID-1E	J2N-MID-1E-221A	N	02/06/2025	Process Water	0	0
J1 Range Northern	J1N-EFF	J1N-EFF-136A	N	02/06/2025	Process Water	0	0
J1 Range Northern	J1N-MID2	J1N-MID2-136A	N	02/06/2025	Process Water	0	0
J1 Range Northern	J1N-MID1	J1N-MID1-136A	N	02/06/2025	Process Water	0	0
Central Impact Area	MW-85S	MW-85S_S25	N	02/06/2025	Ground Water	116	126
J1 Range Northern	J1N-INF2	J1N-INF2-136A	N	02/06/2025	Process Water	0	0
Central Impact Area	MW-235M1	MW-235M1_S25	N	02/05/2025	Ground Water	154	164
Central Impact Area	MW-44M1	MW-44M1_S25	N	02/05/2025	Ground Water	182	192
Demolition Area 1	FPR-2-EFF-A	FPR-2-EFF-A-227A	N	02/05/2025	Process Water	0	0
Demolition Area 1	FPR-2-GAC-MID1A	FPR-2-GAC-MID1A-227A	N	02/05/2025	Process Water	0	0
Demolition Area 1	FPR2-POST-IX-A	FPR2-POST-IX-A-227A	N	02/05/2025	Process Water	0	0
Demolition Area 1	FPR-2-INF	FPR-2-INF-227A	N	02/05/2025	Process Water	0	0
Central Impact Area	MW-487M2	MW-487M2_S25	N	02/05/2025	Ground Water	195.84	205.84
J1 Range Northern	MW-487M2	MW-487M2_S25	N	02/05/2025	Ground Water	195.84	205.84
Demolition Area 1	D1LE-EFF	D1LE-EFF-103A	N	02/05/2025	Process Water	0	0
Demolition Area 1	D1LE-MID2	D1LE-MID2-103A	N	02/05/2025	Process Water	0	0
Demolition Area 1	D1LE-MID1	D1LE-MID1-103A	N	02/05/2025	Process Water	0	0
Demolition Area 1	D1LE-INF	D1LE-INF-103A	N	02/05/2025	Process Water	0	0
Central Impact Area	MW-487M1	MW-487M1_S25	N	02/05/2025	Ground Water	240.29	250.29
J1 Range Northern	MW-487M1	MW-487M1_S25	N	02/05/2025	Ground Water	240.29	250.29
Demolition Area 1	D1-EFF	D1-EFF-175A	N	02/05/2025	Process Water	0	0
Demolition Area 1	D1-MID-2	D1-MID-2-175A	N	02/05/2025	Process Water	0	0
Central Impact Area	MW-106M1	MW-106M1_S25	N	02/05/2025	Ground Water	170.5	180.5
Demolition Area 1	D1-MID-1	D1-MID-1-175A	N	02/05/2025	Process Water	0	0
Demolition Area 1	D1-INF	D1-INF-175A	N	02/05/2025	Process Water	0	0
Central Impact Area	MW-729M1	MW-729M1_S25	N	02/05/2025	Ground Water	231.5	241.5
Central Impact Area	OW-1	OW-1_S25	N	02/04/2025	Ground Water	126	136
Central Impact Area	OW-1	OW-1_S25D	FD	02/04/2025	Ground Water	126	136
Central Impact Area	OW-2	OW-2_S25	N	02/04/2025	Ground Water	175	185
Central Impact Area	CIA2-EFF	CIA2-EFF-133A	N	02/04/2025	Process Water	0	0
Central Impact Area	CIA2-MID2	CIA2-MID2-133A	N	02/04/2025	Process Water	0	0
Central Impact Area	CIA2-MID1	CIA2-MID1-133A	N	02/04/2025	Process Water	0	0
Central Impact Area	MW-91S	MW-91S_S25	N	02/04/2025	Ground Water	124	134
Central Impact Area	MW-91S	MW-91S_S25D	FD	02/04/2025	Ground Water	124	134
Central Impact Area	CIA2-INF	CIA2-INF-133A	N	02/04/2025	Process Water	0	0
Central Impact Area	CIA1-EFF	CIA1-EFF-133A	N	02/04/2025	Process Water	0	0
Central Impact Area	CIA1-MID2	CIA1-MID2-133A	N	02/04/2025	Process Water	0	0
Central Impact Area	CIA1-MID1	CIA1-MID1-133A	N	02/04/2025	Process Water	0	0
Central Impact Area	MW-91M1	MW-91M1_S25	N	02/04/2025	Ground Water	170	180
Central Impact Area	CIA1-INF	CIA1-INF-133A	N	02/04/2025	Process Water	0	0

N = Normal Sample
FD = Field Duplicate

TABLE 1
Sampling Progress: 01 to 28 February 2025

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	CIA3-EFF	CIA3-EFF-104A	N	02/04/2025	Process Water	0	0
Central Impact Area	CIA3-MID2	CIA3-MID2-104A	N	02/04/2025	Process Water	0	0
Central Impact Area	MW-105M1	MW-105M1_S25	N	02/04/2025	Ground Water	205	215
Central Impact Area	CIA3-MID1	CIA3-MID1-104A	N	02/04/2025	Process Water	0	0
Central Impact Area	CIA3-INF	CIA3-INF-104A	N	02/04/2025	Process Water	0	0
J1 Range Southern	J1S-EFF	J1S-EFF-207A	N	02/03/2025	Process Water	0	0
J1 Range Southern	J1S-MID	J1S-MID-207A	N	02/03/2025	Process Water	0	0
J1 Range Southern	J1S-INF-2	J1S-INF-2-207A	N	02/03/2025	Process Water	0	0
J2 Range Eastern	J2E-EFF-K	J2E-EFF-K-197A	N	02/03/2025	Process Water	0	0
J2 Range Eastern	J2E-MID-2K	J2E-MID-2K-197A	N	02/03/2025	Process Water	0	0
Central Impact Area	MW-93M2	MW-93M2_S25	N	02/03/2025	Ground Water	145	155
J2 Range Eastern	J2E-MID-1K	J2E-MID-1K-197A	N	02/03/2025	Process Water	0	0
J2 Range Eastern	J2E-INF-K	J2E-INF-K-197A	N	02/03/2025	Process Water	0	0
Central Impact Area	MW-93M1	MW-93M1_S25	N	02/03/2025	Ground Water	185	195
Central Impact Area	MW-101S	MW-101S_S25	N	02/03/2025	Ground Water	131	141
J2 Range Eastern	J2E-EFF-J	J2E-EFF-J-197A	N	02/03/2025	Process Water	0	0
J2 Range Eastern	J2E-MID-2J	J2E-MID-2J-197A	N	02/03/2025	Process Water	0	0
J2 Range Eastern	J2E-MID-1J	J2E-MID-1J-197A	N	02/03/2025	Process Water	0	0
J2 Range Eastern	J2E-INF-J	J2E-INF-J-197A	N	02/03/2025	Process Water	0	0
Central Impact Area	MW-101M1	MW-101M1_S25	N	02/03/2025	Ground Water	158	168
Central Impact Area	MW-101M1	MW-101M1_S25D	FD	02/03/2025	Ground Water	158	168
J2 Range Eastern	J2E-EFF-IH	J2E-EFF-IH-197A	N	02/03/2025	Process Water	0	0
J2 Range Eastern	J2E-MID-2H	J2E-MID-2H-197A	N	02/03/2025	Process Water	0	0
J2 Range Eastern	J2E-MID-1H	J2E-MID-1H-197A	N	02/03/2025	Process Water	0	0
Central Impact Area	MW-726S	MW-726S_S25	N	02/03/2025	Ground Water	135.5	145.5
J2 Range Eastern	J2E-MID-2I	J2E-MID-2I-197A	N	02/03/2025	Process Water	0	0
J2 Range Eastern	J2E-MID-1I	J2E-MID-1I-197A	N	02/03/2025	Process Water	0	0
J2 Range Eastern	J2E-INF-I	J2E-INF-I-197A	N	02/03/2025	Process Water	0	0

N = Normal Sample
FD = Field Duplicate

March 06, 2025

TABLE 2
VALIDATED EXPLOSIVE AND PERCHLORATE RESULTS
Data Received February 2025

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
J3 Range	MW-653M2	MW-653M2_S25	59.3	69.3	01/22/2025	SW6850	Perchlorate	0.053	J	µg/L	2.0		0.047	0.20
J3 Range	MW-653M2	MW-653M2_S25	59.3	69.3	01/22/2025	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.15	J	µg/L	400		0.013	0.20
J3 Range	MW-636M2	MW-636M2_S25	110.5	120.5	01/15/2025	SW6850	Perchlorate	0.074	J	µg/L	2.0		0.047	0.20
J3 Range	MW-637M2	MW-637M2_S25	214.1	224.1	01/15/2025	SW6850	Perchlorate	1.6		µg/L	2.0		0.047	0.20
J3 Range	MW-637M2	MW-637M2_S25	214.1	224.1	01/15/2025	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.54		µg/L	0.60		0.092	0.20
Lima Range	MW-242M1	MW-242M1_S25	235	245	01/13/2025	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.21		µg/L	0.60		0.092	0.20
Lima Range	MW-651M1	MW-651M1_S25	242.3	252.3	01/13/2025	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.20		µg/L	0.60		0.092	0.20
Lima Range	MW-595M2	MW-595M2_S25	205.3	215.3	01/09/2025	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.91		µg/L	0.60	X	0.092	0.20
J2 Range Eastern	MW-368M2	MW-368M2_S25D	202.73	212.73	01/02/2025	SW6850	Perchlorate	1.1		µg/L	2.0		0.047	0.20
J2 Range Eastern	MW-368M2	MW-368M2_S25D	202.73	212.73	01/02/2025	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.45		µg/L	0.60		0.092	0.20
J2 Range Eastern	MW-368M2	MW-368M2_S25D	202.73	212.73	01/02/2025	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	4.0		µg/L	400		0.013	0.20
J2 Range Eastern	MW-368M2	MW-368M2_S25	202.73	212.73	01/02/2025	SW6850	Perchlorate	1.1		µg/L	2.0		0.047	0.20
J2 Range Eastern	MW-368M2	MW-368M2_S25	202.73	212.73	01/02/2025	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.47		µg/L	0.60		0.092	0.20
J2 Range Eastern	MW-368M2	MW-368M2_S25	202.73	212.73	01/02/2025	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	4.0		µg/L	400		0.013	0.20
J2 Range Eastern	MW-324M2	MW-324M2_S25	203.74	214.74	01/02/2025	SW6850	Perchlorate	0.79		µg/L	2.0		0.047	0.20
J2 Range Eastern	MW-324M2	MW-324M2_S25	203.74	214.74	01/02/2025	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.10	J	µg/L	400		0.013	0.20
J2 Range Eastern	MW-324M1	MW-324M1_S25	234.85	244.85	01/02/2025	SW6850	Perchlorate	0.14	J	µg/L	2.0		0.047	0.20

J = Estimated Result
MDL = Method Detection Limit
RL = Reporting Limit
ND = Non-Detect

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

March 06, 2025

TABLE 3
VALIDATED PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS) RESULTS
Data Received February 2025

Area of Concern	Location ID	Field Sample ID	Top Depth (ft bgs)	Bottom Depth (ft bgs)	Date Sampled	Test Method	Analyte	Result Value	Qualifier	Units	MCL/HA	> MCL/HA	MDL	RL
J2 Range Northern	MW-293M1	MW-293M1_FALL24	296.26	306.27	01/08/2025	E1633	Perfluorodecanoic acid (PFDA)	3.2		ng/L	20.0		0.41	1.6
J2 Range Northern	MW-293M1	MW-293M1_FALL24	296.26	306.27	01/08/2025	E1633	Perfluorododecanoic acid (PFDoA)	0.72	J	ng/L	100		0.45	1.6
J2 Range Northern	MW-293M1	MW-293M1_FALL24	296.26	306.27	01/08/2025	E1633	Perfluorononanoic acid (PFNA)	2.0		ng/L	5.9		0.41	1.6
J2 Range Northern	MW-293M1	MW-293M1_FALL24	296.26	306.27	01/08/2025	E1633	Perfluoroundecanoic acid (PFUnA)	8.4		ng/L	600		0.41	1.6
J2 Range Northern	J2EW0002	J2EW0002_FALL24	198	233	01/08/2025	E1633	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	12.0		ng/L			0.87	3.5
J2 Range Northern	J2EW0002	J2EW0002_FALL24	198	233	01/08/2025	E1633	Perfluoroheptanesulfonic acid (PFHpS)	1.0	J	ng/L			0.44	1.7
J2 Range Northern	J2EW0002	J2EW0002_FALL24	198	233	01/08/2025	E1633	Perfluoroheptanoic acid (PFHpA)	0.75	J	ng/L	20.0		0.44	1.7
J2 Range Northern	J2EW0002	J2EW0002_FALL24	198	233	01/08/2025	E1633	Perfluorohexanesulfonic acid (PFHxS)	9.4		ng/L	20.0		0.44	1.7
J2 Range Northern	J2EW0002	J2EW0002_FALL24	198	233	01/08/2025	E1633	Perfluorohexanoic acid (PFHxA)	1.1	J	ng/L	990		0.44	1.7
J2 Range Northern	J2EW0002	J2EW0002_FALL24	198	233	01/08/2025	E1633	Perfluorooctanesulfonic acid (PFOS)	13.0		ng/L	4.0	X	0.44	1.7
J2 Range Northern	J2EW0002	J2EW0002_FALL24	198	233	01/08/2025	E1633	Perfluorooctanoic acid (PFOA)	4.1		ng/L	6.0		0.44	1.7
J2 Range Northern	MW-05D	MW-05D_FALL24	335	340	01/07/2025	E1633	Perfluorohexanesulfonic acid (PFHxS)	0.41	J	ng/L	20.0		0.41	1.7
J2 Range Northern	MW-05D	MW-05D_FALL24	335	340	01/07/2025	E1633	Perfluorooctanesulfonic acid (PFOS)	5.8		ng/L	4.0	X	0.41	1.7
J2 Range Northern	MW-05D	MW-05D_FALL24	335	340	01/07/2025	E1633	Perfluorooctanoic acid (PFOA)	2.4		ng/L	6.0		0.41	1.7
J2 Range Northern	MW-337D	MW-337D_FALL24	310	320	01/07/2025	E1633	Perfluorodecanoic acid (PFDA)	5.8		ng/L	20.0		0.40	1.6
J2 Range Northern	MW-337D	MW-337D_FALL24	310	320	01/07/2025	E1633	Perfluorododecanoic acid (PFDoA)	0.47	J	ng/L	100		0.45	1.6
J2 Range Northern	MW-337D	MW-337D_FALL24	310	320	01/07/2025	E1633	Perfluorononanoic acid (PFNA)	6.2		ng/L	5.9	X	0.40	1.6
J2 Range Northern	MW-337D	MW-337D_FALL24	310	320	01/07/2025	E1633	Perfluoroundecanoic acid (PFUnA)	8.1		ng/L	600		0.40	1.6
J2 Range Northern	MW-340D	MW-340D_FALL24	329.6	339.6	01/07/2025	E1633	Perfluorodecanoic acid (PFDA)	4.9		ng/L	20.0		0.40	1.6
J2 Range Northern	MW-340D	MW-340D_FALL24	329.6	339.6	01/07/2025	E1633	Perfluorododecanoic acid (PFDoA)	0.85	J	ng/L	100		0.44	1.6
J2 Range Northern	MW-340D	MW-340D_FALL24	329.6	339.6	01/07/2025	E1633	Perfluorononanoic acid (PFNA)	6.5		ng/L	5.9	X	0.40	1.6
J2 Range Northern	MW-340D	MW-340D_FALL24	329.6	339.6	01/07/2025	E1633	Perfluorooctanesulfonic acid (PFOS)	2.5		ng/L	4.0		0.40	1.6
J2 Range Northern	MW-340D	MW-340D_FALL24	329.6	339.6	01/07/2025	E1633	Perfluoroundecanoic acid (PFUnA)	6.0		ng/L	600		0.40	1.6
J2 Range Northern	MW-345M2	MW-345M2_FALL24	236.62	246.62	01/07/2025	E1633	Perfluorodecanoic acid (PFDA)	0.91	J	ng/L	20.0		0.43	1.7
J2 Range Northern	MW-345M2	MW-345M2_FALL24	236.62	246.62	01/07/2025	E1633	Perfluorononanoic acid (PFNA)	1.9		ng/L	5.9		0.43	1.7
J2 Range Northern	MW-345M2	MW-345M2_FALL24	236.62	246.62	01/07/2025	E1633	Perfluoroundecanoic acid (PFUnA)	2.2		ng/L	600		0.43	1.7
J2 Range Northern	J2N-EFF-F	J2N-EFF-F_JAN25	0	0	01/07/2025	E1633	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	14.0		ng/L			0.75	3.0
J2 Range Northern	J2N-EFF-F	J2N-EFF-F_JAN25	0	0	01/07/2025	E1633	Perfluoroheptanoic acid (PFHpA)	0.67	J	ng/L	20.0		0.37	1.5
J2 Range Northern	J2N-EFF-F	J2N-EFF-F_JAN25	0	0	01/07/2025	E1633	Perfluorohexanoic acid (PFHxA)	0.84	J	ng/L	990		0.37	1.5
J2 Range Northern	J2N-EFF-F	J2N-EFF-F_JAN25	0	0	01/07/2025	E1633	Perfluorooctanoic acid (PFOA)	2.1		ng/L	6.0		0.37	1.5
J2 Range Northern	J2N-INF-F	J2N-INF-F_JAN25D	0	0	01/07/2025	E1633	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8.3		ng/L			0.78	3.1
J2 Range Northern	J2N-INF-F	J2N-INF-F_JAN25D	0	0	01/07/2025	E1633	Perfluoroheptanesulfonic acid (PFHpS)	0.94	J	ng/L			0.39	1.6
J2 Range Northern	J2N-INF-F	J2N-INF-F_JAN25D	0	0	01/07/2025	E1633	Perfluoroheptanoic acid (PFHpA)	0.59	J	ng/L	20.0		0.39	1.6
J2 Range Northern	J2N-INF-F	J2N-INF-F_JAN25D	0	0	01/07/2025	E1633	Perfluorohexanesulfonic acid (PFHxS)	7.1		ng/L	20.0		0.39	1.6
J2 Range Northern	J2N-INF-F	J2N-INF-F_JAN25D	0	0	01/07/2025	E1633	Perfluorooctanesulfonic acid (PFOS)	14.0	J	ng/L	4.0	X	0.39	1.6
J2 Range Northern	J2N-INF-F	J2N-INF-F_JAN25D	0	0	01/07/2025	E1633	Perfluorooctanoic acid (PFOA)	3.4		ng/L	6.0		0.39	1.6
J2 Range Northern	J2N-INF-F	J2N-INF-F_JAN25	0	0	01/07/2025	E1633	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8.0		ng/L			0.81	3.2
J2 Range Northern	J2N-INF-F	J2N-INF-F_JAN25	0	0	01/07/2025	E1633	Perfluoroheptanesulfonic acid (PFHpS)	0.78	J	ng/L			0.40	1.6
J2 Range Northern	J2N-INF-F	J2N-INF-F_JAN25	0	0	01/07/2025	E1633	Perfluoroheptanoic acid (PFHpA)	0.56	J	ng/L	20.0		0.40	1.6
J2 Range Northern	J2N-INF-F	J2N-INF-F_JAN25	0	0	01/07/2025	E1633	Perfluorohexanesulfonic acid (PFHxS)	7.1		ng/L	20.0		0.40	1.6
J2 Range Northern	J2N-INF-F	J2N-INF-F_JAN25	0	0	01/07/2025	E1633	Perfluorooctanesulfonic acid (PFOS)	9.8	J	ng/L	4.0	X	0.40	1.6
J2 Range Northern	J2N-INF-F	J2N-INF-F_JAN25	0	0	01/07/2025	E1633	Perfluorooctanoic acid (PFOA)	3.2		ng/L	6.0		0.40	1.6
J2 Range Northern	MW-345M1	MW-345M1_FALL24	311.5	321.5	01/06/2025	E1633	Perfluorodecanoic acid (PFDA)	1.8		ng/L	20.0		0.43	1.7

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

MCL/HA= Either the MCL or Lowest Health Advisory Limit
March 06, 2025

TABLE 3
VALIDATED PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS) RESULTS
Data Received February 2025

Area of Concern	Location ID	Field Sample ID	Top Depth (ft bgs)	Bottom Depth (ft bgs)	Date Sampled	Test Method	Analyte	Result Value	Qualifier	Units	MCL/HA	> MCL/HA	MDL	RL
J2 Range Northern	MW-345M1	MW-345M1_FALL24	311.5	321.5	01/06/2025	E1633	Perfluorododecanoic acid (PFDoA)	0.54	J	ng/L	100		0.48	1.7
J2 Range Northern	MW-345M1	MW-345M1_FALL24	311.5	321.5	01/06/2025	E1633	Perfluorononanoic acid (PFNA)	6.6		ng/L	5.9	X	0.43	1.7
J2 Range Northern	MW-345M1	MW-345M1_FALL24	311.5	321.5	01/06/2025	E1633	Perfluoroundecanoic acid (PFUnA)	6.4		ng/L	600		0.43	1.7
J2 Range Northern	MW-330M3	MW-330M3_FALL24	154.97	164.99	01/06/2025	E1633	Perfluorodecanoic acid (PFDA)	13.0		ng/L	20.0		0.41	1.6
J2 Range Northern	MW-330M3	MW-330M3_FALL24	154.97	164.99	01/06/2025	E1633	Perfluorododecanoic acid (PFDoA)	0.82	J	ng/L	100		0.45	1.6
J2 Range Northern	MW-330M3	MW-330M3_FALL24	154.97	164.99	01/06/2025	E1633	Perfluorononanoic acid (PFNA)	5.8		ng/L	5.9		0.41	1.6
J2 Range Northern	MW-330M3	MW-330M3_FALL24	154.97	164.99	01/06/2025	E1633	Perfluoroundecanoic acid (PFUnA)	11.0		ng/L	600		0.41	1.6
J2 Range Northern	MW-330M2	MW-330M2_FALL24	238.01	248.04	01/06/2025	E1633	Perfluorodecanoic acid (PFDA)	2.7		ng/L	20.0		0.43	1.7
J2 Range Northern	MW-330M2	MW-330M2_FALL24	238.01	248.04	01/06/2025	E1633	Perfluorononanoic acid (PFNA)	4.5		ng/L	5.9		0.43	1.7
J2 Range Northern	MW-330M2	MW-330M2_FALL24	238.01	248.04	01/06/2025	E1633	Perfluoroundecanoic acid (PFUnA)	2.2		ng/L	600		0.43	1.7
J2 Range Northern	MW-330M1	MW-330M1_FALL24	313.1	323.13	01/06/2025	E1633	Perfluorodecanoic acid (PFDA)	2.9		ng/L	20.0		0.40	1.6
J2 Range Northern	MW-330M1	MW-330M1_FALL24	313.1	323.13	01/06/2025	E1633	Perfluorododecanoic acid (PFDoA)	8.3		ng/L	100		0.44	1.6
J2 Range Northern	MW-330M1	MW-330M1_FALL24	313.1	323.13	01/06/2025	E1633	Perfluoroheptanoic acid (PFHpA)	0.94	J	ng/L	20.0		0.40	1.6
J2 Range Northern	MW-330M1	MW-330M1_FALL24	313.1	323.13	01/06/2025	E1633	Perfluorohexanoic acid (PFHxA)	0.68	J	ng/L	990		0.40	1.6
J2 Range Northern	MW-330M1	MW-330M1_FALL24	313.1	323.13	01/06/2025	E1633	Perfluorononanoic acid (PFNA)	2.3		ng/L	5.9		0.40	1.6
J2 Range Northern	MW-330M1	MW-330M1_FALL24	313.1	323.13	01/06/2025	E1633	Perfluorooctanoic acid (PFOA)	0.82	J	ng/L	6.0		0.40	1.6
J2 Range Northern	MW-330M1	MW-330M1_FALL24	313.1	323.13	01/06/2025	E1633	Perfluoropentanoic acid (PFPeA)	2.3		ng/L			0.40	1.6
J2 Range Northern	MW-330M1	MW-330M1_FALL24	313.1	323.13	01/06/2025	E1633	Perfluorotetradecanoic acid (PFTeDA)	5.0		ng/L	2000		0.65	1.6
J2 Range Northern	MW-330M1	MW-330M1_FALL24	313.1	323.13	01/06/2025	E1633	Perfluorotridecanoic acid (PFTrDA)	14.0		ng/L			0.47	1.6
J2 Range Northern	MW-330M1	MW-330M1_FALL24	313.1	323.13	01/06/2025	E1633	Perfluoroundecanoic acid (PFUnA)	22.0		ng/L	600		0.40	1.6
J2 Range Northern	MW-330M1	MW-330M1_FALL24D	313.1	323.13	01/06/2025	E1633	Perfluorodecanoic acid (PFDA)	2.7		ng/L	20.0		0.43	1.7
J2 Range Northern	MW-330M1	MW-330M1_FALL24D	313.1	323.13	01/06/2025	E1633	Perfluorododecanoic acid (PFDoA)	7.4		ng/L	100		0.48	1.7
J2 Range Northern	MW-330M1	MW-330M1_FALL24D	313.1	323.13	01/06/2025	E1633	Perfluoroheptanoic acid (PFHpA)	0.96	J	ng/L	20.0		0.43	1.7
J2 Range Northern	MW-330M1	MW-330M1_FALL24D	313.1	323.13	01/06/2025	E1633	Perfluorohexanoic acid (PFHxA)	0.68	J	ng/L	990		0.43	1.7
J2 Range Northern	MW-330M1	MW-330M1_FALL24D	313.1	323.13	01/06/2025	E1633	Perfluorononanoic acid (PFNA)	2.0		ng/L	5.9		0.43	1.7
J2 Range Northern	MW-330M1	MW-330M1_FALL24D	313.1	323.13	01/06/2025	E1633	Perfluorooctanoic acid (PFOA)	0.92	J	ng/L	6.0		0.43	1.7
J2 Range Northern	MW-330M1	MW-330M1_FALL24D	313.1	323.13	01/06/2025	E1633	Perfluoropentanoic acid (PFPeA)	2.2		ng/L			0.43	1.7
J2 Range Northern	MW-330M1	MW-330M1_FALL24D	313.1	323.13	01/06/2025	E1633	Perfluorotetradecanoic acid (PFTeDA)	5.2		ng/L	2000		0.70	1.7
J2 Range Northern	MW-330M1	MW-330M1_FALL24D	313.1	323.13	01/06/2025	E1633	Perfluorotridecanoic acid (PFTrDA)	13.0		ng/L			0.50	1.7
J2 Range Northern	MW-330M1	MW-330M1_FALL24D	313.1	323.13	01/06/2025	E1633	Perfluoroundecanoic acid (PFUnA)	18.0		ng/L	600		0.43	1.7

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

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

March 06, 2025