MONTHLY PROGRESS REPORT #324
FOR MARCH 2024

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 31 March 2024.

1. SUMMARY OF REMEDIATION ACTIONS

Remediation Actions (RA) Underway at Camp Edwards as of 29 March 2024:

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 3.078 billion gallons of water treated and re-injected as of 29 March 2024. The following Frank Perkins Road Treatment Facility shutdowns occurred in March:

- 0511 on 10 March 2024 due to a power interruption and was restarted at 0630 on 11 March 2024.
- 1300 on 27 March 2024 due to a power interruption and was restarted at 1355 on 27 March 2024.

The Base Boundary Mobile Treatment Unit (MTU) continues to operate at a flow rate of 65 gpm. As of 29 March 2024, over 395.7 million gallons of water were treated and re-injected. No Base Boundary MTU shutdowns occurred in March.

The Leading Edge system continues to operate at a flow rate of 100 gpm. As of 29 March 2024, over 398.0 million gallons of water were treated and re-injected. No Leading Edge system shutdowns occurred in March.

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 29 March 2024, over 2.191 billion gallons of water have been treated and re-injected. No MTU E and F shutdowns occurred in March.

The Northern Treatment Building G continues to operate at a flow rate of 225 gpm. As of 29 March 2024, over 1.689 billion gallons of water have been treated and re-injected. No MTU G shutdowns occurred in March.

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 29 March 2024, over 1.829 billion gallons of water have been treated and re-injected. No MTU H and I shutdowns occurred in March.

MTU J continues to operate at a flow rate of 120 gpm. As of 29 March 2024, over 858.4 million gallons of water have been treated and re-injected. The following MTU J shutdowns occurred in March:

- 1600 on 13 March 2024 due to a programming issue, which was resolved by Satuit automation and was restarted at 0900 on 15 March 2024.

MTU K continues to operate at a flow rate of 125 gpm. As of 29 March 2024, over 983.9 million gallons of water have been treated and re-injected. No MTU K shutdowns occurred in March.

<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 29 March 2024, over 1.811 billion gallons of water have been treated and re-injected. The following J3 system shutdowns occurred in March:

- 1141 on 04 March 2024 due to FS-12 being turned off for maintenance and was restarted at 1224 on 04 March 2024.
- 1141 on 07 March 2024 due to FS-12 being turned off for maintenance and was restarted at 1231 on 07 March 2024.

- 0957 on 08 March 2024 due to FS-12 being turned off for maintenance and was restarted at 1056 on 08 March 2024.

J-1 Range Groundwater RA

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 continues to operate at a flow rate of 125 gpm. As of 29 March 2024, over 789.9 million gallons of water have been treated and re-injected. No J-1 Range Southern MTU shutdowns occurred in March.

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. As of 29 March 2024, over 1.337 billion gallons of water have been treated and re-injected. No J-1 Range Northern MTU shutdowns occurred in March.

Central Impact Area RA

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 29 March 2024, over 3.531 billion gallons of water have been treated and re-injected. The following CIA system shutdowns occurred in March:

- 1110 on 05 March 2024 at CIA-2 to replace a leaking sample port on the GAC#2 vessel and was restarted at 1135 on 05 March 2024.
- 0520 on 10 March 2024 at CIA-2 due to a power interruption and was restarted at 0809 on 11 March 2024.
- 1000 on 20 March 2024 at CIA-1 to drain GAC vessels #3 and #6 for a carbon changeout on 21 March 2024 and was restarted at 0735 on 22 March 2024.

2. SUMMARY OF ACTIONS TAKEN

Operable Unit (OU) Activity as of 29 March 2024:

CIA

- Groundwater sampling within the CIA SPM Program
- Groundwater hydraulic monitoring event within the CIA SPM Program
- Carbon changeout at CIA-1
- Source Area investigations
    - Team and equipment mobilization and site setup
    - Conducted staking of P4A4 grids
    - Conducted surface clearance of P4A4 grids
    - Conducted vegetation clearance in P4A4 grids
    - Conducted intrusive investigation in P4A3 grids
    - Conducted QC seeding in P4A4 grids
    - Routine visual check of CSS soil cover and surface area around the perimeter of the CSS

Demolition Area 1

- Bag filters changed

Demolition Area 2

- No activity

J-1 Range

- Bag filters changed at J-1 Range Southern System

J-2 Range

- Bag filters changed

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 14 March 2024

Project and Fieldwork Update

Gina Kaso (USACE) provided a groundwater sampling update. The Central Impact Area (CIA) annual sampling of 162 screens began in January and it should be completed in early April. The next round will be conducted at the Small Arms Ranges for the biannual long-term monitoring (LTM) sampling event of 19 screens.

Ms. Kaso (USACE) continued with a status of operations and maintenance activities. The March monthly treatment plant process water samples were collected in early March. RDX was detected in CIA-1 at 0.25 µg/L, at the action level, and the GAC changeout is scheduled for March 21st. CIA-2 had a power outage for a total of 26 hours and it started back up again on March 11th. At Demolition Area 1, the Frank Perkins Road system also had a one-day power outage and restarted on March 11th. Ms. Kaso (USACE) did not have any other significant downtimes or issues to report.

Ms. Kaso (USACE) moved on to the CIA update and explained that UXO crews remobilized last week. They set up at the site, trained, and staked out the 10-acre grids. This week, they did vegetation regrowth mowing in the carryover acres of Area 3. They started with intrusive investigations in Areas 13 and 14, and they also started preliminary surface clearance in the new 10 acres. The surface clearance is required before vegetation clearance. After vegetation clearance is complete, they will go back and do another surface clearance. Vegetation clearance is set to be completed by early to mid-April. Agency inspection of the liner will be scheduled well in advance.

Shawn Cody (ARNG) explained that there will be a separate meeting for PFAS deliverables. Jodi-Lyn Cutler (IAGWSP) explained that the IAGWSP is planning to provide draft figures for the comprehensive PFAS report to the agencies by March 28th. A small group meeting will be scheduled after that time.

PFAS Investigation Discussion

Mr. Cody (ARNG) explained that while the team had planned to have a discussion today on Ms. Dolan's (EPA) PFAS letter dated January 31, 2024, Jodi Lyn Cutler (IAGWSP) unexpectedly had to miss the meeting due to a family emergency. Mr. Cody (ARNG) noted that the IAGWSP would respond to Ms. Dolan's (EPA) letter in writing by the February 14th deadline and asked that the discussion be tabled until Ms. Cutler (IAGWSP) is available. Ms. Dolan (EPA) agreed.

Document and Project Tracking

Jeff Dvorak (USACE) reviewed the list of deliverables. Bob Lim (EPA) stated that he is planning to provide the EPA Five Year Review letter next week. Mr. Dvorak (USACE) explained that IAGWSP is working through the J-1 Range North and J-2 Range Environmental Monitoring Report (EMR) responses to comments. For Demolition Area 2, the revised project note and responses to comments (RTC) were submitted last week and MassDEP comments have been received. Mr. Lim (EPA) noted that he plans to have comments by the end of the day. The CIA EMR and Demo 1 EMR RTC are still being reviewed. Mr. Dvorak (USACE) noted that the J-3 Range 2023 EMR is in final review and routing for submittal to the agencies. He explained that IAGWSP has received comments from MassDEP on the Land Use Controls monitoring report and are awaiting comments from EPA. The IAGWSP will provide an updated Plume Booklet in March. The J-2 East and L Range reports are being drafted. Mr. Dvorak (USACE) finished by reviewing the schedules for the remainder of the EMRs listed on the document tracking spreadsheet.

J-2 East Annual Groundwater Report Presentation

Ryan Hupfer (USACE) provided a presentation on the J-2 Range Eastern Annual 2022 Environmental Monitoring Report. He noted that the reporting period was November 2022 through October 2023. He explained that there was no new work beyond the annual sampling, which took place during the reporting period.

Mr. Hupfer (USACE) reviewed the J-2 Range Eastern groundwater treatment system performance statistics during the reporting period. HMX was not detected in the influent or removed at any of the treatment systems and no breakthrough or media changeout occurred during the reporting period.

At Treatment System J, influent concentrations ranged from 0.73 to 0.85 µg/L perchlorate and 0.04 to 0.11 µg/L for RDX. There were 0.40 pounds of perchlorate and 0.04 pounds of RDX removed. There was no breakthrough or media changeout.

At Treatment System H&I, influent concentrations ranged from 0.80 to 1.40J µg/L for perchlorate; and 0.11J to 0.18J µg/L for RDX. There were 0.92 pounds of perchlorate and 0.16 pounds of RDX removed.

At Treatment System K, influent concentrations ranged from 0.0 to 0.10J µg/L for perchlorate and 0.0 to 0.08J µg/L for RDX. There were 0.04 pounds of perchlorate and 0.03 pounds of RDX removed.
The groundwater monitoring results for the reporting period were discussed. For perchlorate, detections ranged from non-detect (ND) to 0.33 µg/L at MW-368M1. There were five well locations with detections above 2 µg/L and one well location with a detection above 15 µg/L. For RDX, detections ranged from ND to 5.8 µg/L at MW-368M1. There were five well locations with detections above 0.6 µg/, four well locations with detections above 0.97 µg/L, and three well locations with detections above 2 µg/L.

Mr. Hupfer (USACE) continued with a figure showing the current observed RDX and perchlorate plumes. Sampling locations, groundwater monitoring results, and trends were reviewed and discussed. RDX and perchlorate trend plots were also reviewed. Mr. Hupfer (USACE) presented the hydraulic monitoring and capture zone analyses. There were two synoptic water level

rounds in January 2023 and August 2023. In January, water levels ranged from 69.26' msl at MW-128M1 (south) and 65.54' msl at MW-436M1 (north). The water levels were lower than fall 2022 and the horizontal gradient was approximately 0.00046 ft/ft. In August, water levels ranged from 70.17' msl at MW-128M1 (south) to 66.45' msl at MW-436M1 (north).

A figure with the numerical model capture zone at current pumping ranges was displayed. It was explained that the numerical model indicates perchlorate and RDX are being captured and the stagnation points downgradient of each extraction well create a disjointed plume depiction. The measured and predicted perchlorate and RDX plumes were displayed, and it was noted that they were created using the January 2022 perchlorate and RDX plume shells and measured groundwater concentrations. Mr. Hupfer (USACE) said, in general, they match well.

Mr. Hupfer (USACE) provided a figure with cleanup time comparisons. Decision Document (DD) cleanup timelines were discussed. Perchlorate and RDX measurements indicate that the plumes are reasonably well-predicted but the expected overall cleanup time is 11 years longer than the DD timeline, which is likely the result of the statistical mapping of contamination to lower K units that might not be realistic.

The DD predicted that perchlorate would be below 2.0 µg/L by 2027 and RDX would be below 0.6 µg/L by 2022. The model predicted cleanup times would be below 2.0 µg/L by 2033 for perchlorate and below 0.6 µg/L by 2033 for RDX.

IAGWSP is not recommending any changes to the current plant operations or sampling.
For the hydraulic monitoring program, optimization at J2EW0004 and J2EW0006 was discussed to evaluate the impacts of a reduced extraction well rate on cleanup times. Packering at J2EW0005 was recommended in the 2022 EMR and is planned for Spring 2024.

Jane Dolan (EPA) expressed concern about the well packering and asked for clarification on when that was proposed. Mr. Hupfer (USACE) said it was mentioned last year in the 2022 Final EMR in Section 8 and recommended for spring 2024. Ms. Dolan (EPA) said she will need to revisit that proposal but she did not recall seeing that mentioned in the report. She will need to determine if it is ok to proceed. Ms. Dolan (EPA) also mentioned the EPA request for PFAS sampling in that area. Ms. Culter clarified that the proposed packering is an attempt to optimize for better recovery. She also added that the IAGWSP and the agencies has decided to separate PFAS sampling out of the EMRs and does not want to deviate from that decision. She stated that the EMRs will continue to capture the explosives and perchlorate work and the PFAS work will be captured in the PFAS document.

Ms. Dolan (EPA) stated that she will need more time to review. Mr. Jacobs (MassDEP) commented that he approves of the optimization plan and that it is something he has been recommending for a few years. He believes that after looking at the capture zone and the nature and extent, the system was "certainly right for optimization."

Mr. Kulbersh (USACE) clarified that the packering was recommended for EW-5 in the 2022 report and it is also being recommended for EW-6 in this report. Ms. Dolan (EPA) stated that she is not necessarily opposed to the work, she was just unaware of the packering at EW-6 and would have liked that pointed out more clearly.

Mr. Hupfer (USACE) continued with a review of the recommendations. For the chemical monitoring program, IAGWSP is recommending reduced sampling frequency at 11 screens and removal of 26 screens from the monitoring program for perchlorate. IAGWSP is recommending reduced sampling frequency at eight screens and removal of 43 screens from the monitoring program for RDX.

The plume shells for perchlorate and RDX were last updated in 2022 and it is recommended that they be developed in 2027 to ensure reliability.

J-3 Annual Groundwater Report Presentation

Chris Kilbridge (USACE) provided a presentation on the J-3 Range Annual Environmental Monitoring Report. He noted that the reporting period was September 2022 through August 2023. During the reporting period, in 2022, there was a mechanical problem in J-3EWIP2 with a leaky check valve that triggered other mechanical problems and removal of the well pump. IAGWSP took advantage of that opportunity to redevelop that well.
Mr. Kilbridge (USACE) reviewed the J-3 Range extraction treatment and reinjection system performance statistics. During the reporting period, there was no breakthrough and no changeouts. Influent concentrations ranged from ND to 0.13 µg/L for HMX; 0.23 to 0.51 µg/L for perchlorate; and 0.10 to
0.20 µg/L for RDX. During the reporting period, 0.45 pounds of perchlorate, 0.13 pounds of RDX, and 0.10 pounds of HMX were removed and since system startup, 41.0 pounds of perchlorate, 7.15 pounds of RDX, and 3.38 pounds of HMX have been removed.

Sampling locations, groundwater monitoring results, and trends were reviewed and discussed. In Zone 1 (Source Area to J3EWIP1), there were no perchlorate exceedances of the Massachusetts Maximum Contaminant Level (MMCL) of 2 µg/L and three RDX exceedances of the risk-based concentration (RBC) of 0.6 µg/L. The maximum perchlorate concentration was 1.4 µg/L (J-3EWIP2, August 2023). This was expected and has been trending < 2 µg/L since 2019. The maximum RDX concentration was1.9 µg/L (MW-163S, August 2023). The two other detections were 0.6 µg/L in MW-193S in August 2023 and 1.3 µg/L in MW-143M3 in August 2023. In zone 2 (downgradient of J3EWIP1), the maximum perchlorate concentration was 2.1 µg/L (MW-637M2, January 2023), which is a decrease from 2.3 µg/L in July 2022. The maximum RDX concentration was 3.4 µg/L (90MW0054, July 2023) and is a decrease from the 4.4 µg/L in July 2022. At the extraction wells, the maximum perchlorate concentration was 1.4 µg/L in JEWIP2 in August 2023. The maximum RDX concentration was 0.34 µg/L in J3EW0032 in January 2023. Mr. Kilbridge (USACE) noted that overall, the maximum network concentrations were consistent with past trends.

Mr. Kilbridge (USACE) reviewed the surface water monitoring activities. At Snake Pond, surface water samples were collected from three locations during a sampling event in July 2023. All explosives samples were non-detect and perchlorate was non-detect to J-values. The results are consistent with past reporting periods.

At the J-3 Wetland, the hydraulic data was consistent with previous monitoring events; Potentiometric contours east of MW-637 indicate the wetlands are at the margin of the capture zone, which suggests a weak hydraulic influence by the in-plume extraction wells, J3EWIP1 and

J3EWIP2. There is no evidence of impact from operation of the J-3 treatment system on wetland water levels.
Mr. Kilbridge (USACE) continued the presentation with the hydraulic monitoring and the synoptic water level measuring event that occurred in August 2023. The overall water levels were about 3/4' to 1' lower regionally than measured in 2020 and consistent with previous years. Groundwater flow is north to south and converging near extraction wells and capturing the majority of plume mass. The extent of the measured capture zone and is matching the predicted capture zone with system design external extraction rate of 255 gallons per minute. Mr. Kilbridge (USACE) continued by showing a figure of the modeled capture zones under 2023 system stresses. He explained that the predicted capture zones were developed with reverse particle tracking (MODPATH) and they are similar to the observed capture. He noted that the existing treatment systems adequately capture the plumes. Measured vs. model-predicted perchlorate figures were shown. Mr. Kilbridge (USACE) explained that the measured maximum was 2.0 µg/L at MW-637M2 was not predicted by the new plume shell. The predicted maximum was in 1.65 ug/L at MW-637M2. The predicted maximum at the entire J-3 Range site for perchlorate was 2.55 µg/L, in the vicinity of MW-637M2.

Mr. Kilbridge (USACE) continued with the measured vs. model predicted for RDX. He noted that the measured maximum of 3.4 µg/L at 90MW0054 was not predicted by the plume shell. The other measured levels in August 2023 were: 1.9 µg/L at MW-163S, 0.64 µg/L at MW-193S and 1.3 µg/L at MW-143MS. The predicted maximum was 0.72 ug/L at MW-143M2. The predicted maximum at the entire J-3 Range site for RDX was 1.04 µg/L, in vicinity of MW-163S. A comparison to Decision Document (DD) criteria was discussed. The DD predicted that perchlorate would be below 2.0 µg/L by 2022 and RDX would be below 0.6 µg/L by 2021. Based on the updated 2023 plume shell with Drift model through August 2021, perchlorate would be below 2.0 µg/L off- base by 2028 and below 2.0 µg/L on base by 2036. RDX would be below 0.6 off-base by 2025 and below 0.6 µg/L on-base by 2027.

The migration of the perchlorate plumes after 2026 was discussed and a graph was displayed. The plume to the east of J3EW0032 has limited downgradient migration. The plume downgradient of J3EW0032 has negligible downgradient migration. The plume essentially attenuates by dispersion and is not predicted to migrate at a concentration greater than 2.0 µg/L to Snake Pond.

Recommendations were reviewed and discussed. For hydraulic monitoring, IAGWSP is recommending removing MW-251M1/M2/M3 and MW-217M1/M3/M4 because IAGWSP no longer has active rights-of-entry (ROE). In order to replace the function lost by these wells, IAGWSP recommends adding MW-361M1/M3/M3.

For chemical monitoring, IAGWSP recommends removing 29 well screens that have been non-detect to less than the reporting limit for the last five years. Three wells are recommended to go to biennial sampling. It was noted that trend graphs and historical data are included in Appendices B, C, and E of the 2023 EMR.

IAGWSP will discontinue surface water sampling at Snake Pond due to trends being non-detect to less than the reporting limit for the last five years. The Sandwich Board of Health has been notified.

The perchlorate and RDX plume shells were updated for the 2023 EMR and included as Appendix D. Mr. Kilbridge (USACE) provided detailed information on the wells for which the rights of entry have expired and the wells are no longer administratively and/or physically available for future sampling. Mr. Kilbridge (USACE) surmised that those wells quite possibly are no longer hydrogeologically necessary. Further discussions between USACE, IAGWSP, and the agencies could determine if additional wells are needed to make up for those unavailable data points.

Mr. Lim (EPA) asked if this information was included in the EMR. Mr. Kilbridge (USACE) stated that this information is more for the technical presentation but it is mentioned in the report. Mr. Kilbridge (USACE) clarified that he would need to do further analysis to make a definitive statement regarding the data points. Mr. Lim (EPA) said he would discuss this further with Ms. Dolan (EPA).

Mr. Kilbridge (USACE) explained that the purpose of the report is to outline potential changes to the monitoring network. The agencies can review the proposals and provide feedback. Mr. Hill (IAGWSP) pointed out that water levels will also impact sampling efforts.

JBCC Cleanup Team Meeting

The next JBCC Cleanup Team (JBCCCT) is scheduled for 10 April 2023. 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 31 March 2024. Table 2 summarizes the validated detections of explosives compounds and perchlorate for all groundwater results received from 01 to 31 March 2024. 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 31 March 2024. Table 3 PFAS results are compared to the Regional Screening Levels (RSLs) published by EPA in November 2023. No PFAS validation was completed during March 2024, therefore, Table 3 is not included.

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:

• Final Demolition Area 2 – Discontinuing Chemical Monitoring for Explosives and Proposed One-Time PFAS Sampling Event Project Note and Response to Comments	06 March 2024
• Draft J-3 Range Environmental Monitoring Report for September 2022 through August 2023	19 March 2024
• Draft J-2 Eastern Environmental Monitoring Report for November 2022 through October 2023	29 March 2024

5. SCHEDULED ACTIONS

The following actions and/or documents are being prepared in April 2024.

- Final Demolition Area 1 Environmental Monitoring Report for July 2022 – June 2023 with Plume Shell Technical Memorandum
- Response to Comments on the Five-Year Review
- J-2 Range Eastern Optimization at J2EW0005 Project Note
- Response to Comments on J-1 Range North Environmental Monitoring Report for January 2021 – December 2022 with Plume Shell Technical Memorandum
- Response to Comments on J-3 Range Environmental Monitoring Report for September 2021 – August 2022
- Response to Comments on J-3 Range Environmental Monitoring Report for September 2022 – August 2023 with Plume Shell Technical Memorandum
- Response to Comments on Central Impact Area Environmental Monitoring Report for July 2022 – June 2023
- IAGWSP Comprehensive PFAS Groundwater Sampling Summary Report
- L Range Environmental Monitoring Report for March 2023 – February 2024
- Draft J-2 Range Northern Environmental Monitoring Report for November 2022 – October 2023
- Sitewide Plume Booklet

TABLE 1
Sampling Progress: 01 to 31 March 2024

Area Of Concern	Location	Field Sample ID	Sample Type	Date Sampled	Matrix	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)
Western Boundary	MW-267M1	MW-267M1_S24	N	03/28/2024	Ground Water	248	258
Central Impact Area	MW-270D	MW-270D_S24	N	03/27/2024	Ground Water	132	137
Former D Range	MW-174S	MW-174S_S24	N	03/27/2024	Ground Water	190	200
Central Impact Area	MW-284M2	MW-284M2_S24	N	03/27/2024	Ground Water	45	55
Northwest Corner	MW-284M2	MW-284M2_S24	N	03/27/2024	Ground Water	45	55
Central Impact Area	MW-284M1	MW-284M1_S24	N	03/27/2024	Ground Water	115	125
Northwest Corner	MW-284M1	MW-284M1_S24	N	03/27/2024	Ground Water	115	125
Central Impact Area	MW-123M2	MW-123M2_S24	N	03/25/2024	Ground Water	236	246
Central Impact Area	MW-123M1	MW-123M1_S24	N	03/25/2024	Ground Water	291	301
Central Impact Area	MW-625M2	MW-625M2_S24	N	03/25/2024	Ground Water	230	240
Central Impact Area	MW-625M1	MW-625M1_S24	N	03/25/2024	Ground Water	260	270
Central Impact Area	MW-624M2	MW-624M2_S24	N	03/25/2024	Ground Water	254	264
Central Impact Area	MW-624M1	MW-624M1_S24	N	03/25/2024	Ground Water	284	294
Western Boundary	MW-282M2	MW-282M2_S24	N	03/21/2024	Ground Water	206	216
Western Boundary	MW-282M1	MW-282M1_S24	N	03/21/2024	Ground Water	310	320
Central Impact Area	MW-629M2	MW-629M2_S24	N	03/21/2024	Ground Water	186.9	196.9
Central Impact Area	MW-629M1	MW-629M1_S24	N	03/21/2024	Ground Water	216.9	226.9
Central Impact Area	MW-638M2	MW-638M2_S24	N	03/21/2024	Ground Water	204.2	214.2
Central Impact Area	MW-638M1	MW-638M1_S24	N	03/21/2024	Ground Water	261.2	271.2
Central Impact Area	MW-212M1	MW-212M1_S24	N	03/20/2024	Ground Water	333	343
Central Impact Area	MW-623M3	MW-623M3_S24	N	03/20/2024	Ground Water	275	285
Central Impact Area	MW-623M2	MW-623M2_S24	N	03/20/2024	Ground Water	291.8	301.8
Central Impact Area	MW-623M1	MW-623M1_S24	N	03/20/2024	Ground Water	340	350
Central Impact Area	MW-615M2	MW-615M2_S24	N	03/19/2024	Ground Water	200	210
Central Impact Area	MW-615M1	MW-615M1_S24	N	03/19/2024	Ground Water	260	270
Central Impact Area	MW-615M1	MW-615M1_S24D	FD	03/19/2024	Ground Water	260	270
Central Impact Area	MW-609M2	MW-609M2_S24	N	03/19/2024	Ground Water	182.4	192.4
Central Impact Area	MW-609M1	MW-609M1_S24	N	03/19/2024	Ground Water	210.4	220.4
Central Impact Area	MW-223M2	MW-223M2_S24	N	03/19/2024	Ground Water	185	195
Central Impact Area	MW-223M1	MW-223M1_S24	N	03/19/2024	Ground Water	211	221
Central Impact Area	MW-223D	MW-223D_S24	N	03/19/2024	Ground Water	260	270
Central Impact Area	MW-614M2	MW-614M2_S24	MS	03/18/2024	Ground Water	215	225
Central Impact Area	MW-614M2	MW-614M2_S24	N	03/18/2024	Ground Water	215	225
Central Impact Area	MW-614M2	MW-614M2_S24	SD	03/18/2024	Ground Water	215	225
Central Impact Area	MW-614M1	MW-614M1_S24	N	03/18/2024	Ground Water	275	285
Central Impact Area	MW-616M2	MW-616M2_S24	N	03/18/2024	Ground Water	107.1	117.1
Central Impact Area	MW-616M1	MW-616M1_S24	N	03/18/2024	Ground Water	217.1	227.1
Central Impact Area	MW-617M2	MW-617M2_S24	N	03/18/2024	Ground Water	118.3	128.3
Central Impact Area	MW-617M1	MW-617M1_S24	N	03/18/2024	Ground Water	175.8	185.8
Central Impact Area	MW-644M2	MW-644M2_S24	N	03/14/2024	Ground Water	230.9	240.9
Central Impact Area	MW-644M1	MW-644M1_S24	N	03/14/2024	Ground Water	275.9	285.9
Central Impact Area	MW-644M1	MW-644M1_S24D	FD	03/14/2024	Ground Water	275.9	285.9
Central Impact Area	MW-607M3	MW-607M3_S24	N	03/14/2024	Ground Water	157.4	167.4
Central Impact Area	MW-607M2	MW-607M2_S24	N	03/14/2024	Ground Water	177.4	187.4
Central Impact Area	MW-607M2	MW-607M2_S24D	FD	03/14/2024	Ground Water	177.4	187.4
Central Impact Area	MW-607M1	MW-607M1_S24	N	03/14/2024	Ground Water	207.4	217.4
Central Impact Area	MW-607M1	MW-607M1_S24D	FD	03/14/2024	Ground Water	207.4	217.4
Central Impact Area	MW-178M1	MW-178M1_S24	N	03/13/2024	Ground Water	257	267
Central Impact Area	MW-108M4	MW-108M4_S24	N	03/13/2024	Ground Water	240	250
Central Impact Area	MW-108M1	MW-108M1_S24	N	03/13/2024	Ground Water	297	307
Central Impact Area	MW-51M2	MW-51M2_S24	N	03/13/2024	Ground Water	203	213
Central Impact Area	MW-51M1	MW-51M1_S24	N	03/13/2024	Ground Water	234	244
Central Impact Area	MW-51D	MW-51D_S24	N	03/13/2024	Ground Water	264	274
Central Impact Area	MW-626M2	MW-626M2_S24	N	03/12/2024	Ground Water	237.2	247.2
Central Impact Area	MW-626M1	MW-626M1_S24	N	03/12/2024	Ground Water	282.2	292.2
Central Impact Area	MW-323M2	MW-323M2_S24	N	03/12/2024	Ground Water	120	130
Central Impact Area	MW-42M3	MW-42M3_S24	N	03/12/2024	Ground Water	165.8	176
Central Impact Area	MW-323M1	MW-323M1_S24	N	03/12/2024	Ground Water	195	205
Central Impact Area	MW-42M2	MW-42M2_S24	N	03/12/2024	Ground Water	185.8	196

N = Normal Sample
FD = Field Duplicate

TABLE 1
Sampling Progress: 01 to 31 March 2024

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-42M1	MW-42M1_S24	N	03/12/2024	Ground Water	205.8	216
Central Impact Area	MW-42M1	MW-42M1_S24D	FD	03/12/2024	Ground Water	205.8	216
Former A Range	MW-42M1	MW-42M1_S24	N	03/12/2024	Ground Water	205.8	216
Former A Range	MW-42M1	MW-42M1_S24D	FD	03/12/2024	Ground Water	205.8	216
Central Impact Area	MW-618M2	MW-618M2_S24	N	03/12/2024	Ground Water	190.5	200.5
Central Impact Area	MW-618M1	MW-618M1_S24	N	03/12/2024	Ground Water	238.5	248.5
Central Impact Area	MW-441M2	MW-441M2_S24	N	03/11/2024	Ground Water	109.45	119.45
Central Impact Area	MW-441M1	MW-441M1_S24	N	03/11/2024	Ground Water	204.63	214.63
Central Impact Area	MW-338S	MW-338S_S24	N	03/11/2024	Ground Water	72	82
Central Impact Area	MW-338M2	MW-338M2_S24	N	03/11/2024	Ground Water	119	129
Northwest Corner	MW-338M2	MW-338M2_S24	N	03/11/2024	Ground Water	119	129
Central Impact Area	MW-338M1	MW-338M1_S24	N	03/11/2024	Ground Water	189	199
Northwest Corner	MW-338M1	MW-338M1_S24	N	03/11/2024	Ground Water	189	199
Central Impact Area	MW-102M2	MW-102M2_S24	N	03/07/2024	Ground Water	237	247
Demolition Area 1	D1LE-EFF	D1LE-EFF-92A	N	03/07/2024	Process Water	0	0
Demolition Area 1	D1LE-MID2	D1LE-MID2-92A	N	03/07/2024	Process Water	0	0
Demolition Area 1	D1LE-MID1	D1LE-MID1-92A	N	03/07/2024	Process Water	0	0
Demolition Area 1	D1LE-INF	D1LE-INF-92A	N	03/07/2024	Process Water	0	0
Central Impact Area	MW-102M1	MW-102M1_S24	N	03/07/2024	Ground Water	267	277
Central Impact Area	MW-23M1	MW-23M1_S24	MS	03/07/2024	Ground Water	225	235
Central Impact Area	MW-23M1	MW-23M1_S24	N	03/07/2024	Ground Water	225	235
Central Impact Area	MW-23M1	MW-23M1_S24	SD	03/07/2024	Ground Water	225	235
Demolition Area 1	FPR-2-EFF-A	FPR-2-EFF-A-216A	N	03/07/2024	Process Water	0	0
Demolition Area 1	FPR-2-GAC-MID1A	FPR-2-GAC-MID1A-216A	N	03/07/2024	Process Water	0	0
Demolition Area 1	FPR2-POST-IX-A	FPR2-POST-IX-A-216A	N	03/07/2024	Process Water	0	0
Demolition Area 1	FPR-2-INF	FPR-2-INF-216A	N	03/07/2024	Process Water	0	0
Central Impact Area	MW-23D	MW-23D_S24	N	03/07/2024	Ground Water	272	282
J3 Range	J3-EFF	J3-EFF-210A	N	03/07/2024	Process Water	0	0
J3 Range	J3-MID-2	J3-MID-2-210A	N	03/07/2024	Process Water	0	0
J3 Range	J3-MID-1	J3-MID-1-210A	N	03/07/2024	Process Water	0	0
J3 Range	J3-INF	J3-INF-210A	N	03/07/2024	Process Water	0	0
Demolition Area 1	D1-EFF	D1-EFF-164A	N	03/07/2024	Process Water	0	0
Demolition Area 1	D1-MID-2	D1-MID-2-164A	N	03/07/2024	Process Water	0	0
Central Impact Area	MW-124M1	MW-124M1_S24	MS	03/07/2024	Ground Water	234	244
Central Impact Area	MW-124M1	MW-124M1_S24	N	03/07/2024	Ground Water	234	244
Central Impact Area	MW-124M1	MW-124M1_S24	SD	03/07/2024	Ground Water	234	244
Demolition Area 1	D1-MID-1	D1-MID-1-164A	N	03/07/2024	Process Water	0	0
Demolition Area 1	D1-INF	D1-INF-164A	N	03/07/2024	Process Water	0	0
Central Impact Area	MW-350M2	MW-350M2_S24	N	03/06/2024	Ground Water	126	136
J1 Range Southern	J1S-EFF	J1S-EFF-196A	N	03/06/2024	Process Water	0	0
J1 Range Southern	J1S-MID	J1S-MID-196A	N	03/06/2024	Process Water	0	0
J1 Range Southern	J1S-INF-2	J1S-INF-2-196A	N	03/06/2024	Process Water	0	0
Central Impact Area	MW-710M1	MW-710M1_S24	N	03/06/2024	Ground Water	247.5	257.5
J2 Range Eastern	J2E-EFF-K	J2E-EFF-K-186A	N	03/06/2024	Process Water	0	0
J2 Range Eastern	J2E-MID-2K	J2E-MID-2K-186A	N	03/06/2024	Process Water	0	0
J2 Range Eastern	J2E-MID-1K	J2E-MID-1K-186A	N	03/06/2024	Process Water	0	0
J2 Range Eastern	J2E-INF-K	J2E-INF-K-186A	N	03/06/2024	Process Water	0	0
Central Impact Area	MW-699M2	MW-699M2_S24	N	03/06/2024	Ground Water	221	231
J2 Range Eastern	J2E-EFF-J	J2E-EFF-J-186A	N	03/06/2024	Process Water	0	0
J2 Range Eastern	J2E-MID-2J	J2E-MID-2J-186A	N	03/06/2024	Process Water	0	0
J2 Range Eastern	J2E-MID-1J	J2E-MID-1J-186A	N	03/06/2024	Process Water	0	0
J2 Range Eastern	J2E-INF-J	J2E-INF-J-186A	N	03/06/2024	Process Water	0	0
Central Impact Area	MW-699M1	MW-699M1_S24	N	03/06/2024	Ground Water	261.5	271.5
Central Impact Area	MW-628M2	MW-628M2_S24	MS	03/06/2024	Ground Water	120.8	130.8
Central Impact Area	MW-628M2	MW-628M2_S24	N	03/06/2024	Ground Water	120.8	130.8
Central Impact Area	MW-628M2	MW-628M2_S24	SD	03/06/2024	Ground Water	120.8	130.8
J2 Range Eastern	J2E-EFF-IH	J2E-EFF-IH-186A	N	03/06/2024	Process Water	0	0
J2 Range Eastern	J2E-MID-2H	J2E-MID-2H-186A	N	03/06/2024	Process Water	0	0
J2 Range Eastern	J2E-MID-1H	J2E-MID-1H-186A	N	03/06/2024	Process Water	0	0

N = Normal Sample
FD = Field Duplicate

TABLE 1
Sampling Progress: 01 to 31 March 2024

Area Of Concern	Location	Field Sample ID	Sample Type	Date Sampled	Matrix	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)
J2 Range Eastern	J2E-MID-2I	J2E-MID-2I-186A	N	03/06/2024	Process Water	0	0
Central Impact Area	MW-628M1	MW-628M1_S24	N	03/06/2024	Ground Water	230.8	240.8
J2 Range Eastern	J2E-MID-1I	J2E-MID-1I-186A	N	03/06/2024	Process Water	0	0
J2 Range Eastern	J2E-INF-I	J2E-INF-I-186A	N	03/06/2024	Process Water	0	0
Central Impact Area	MW-103M2	MW-103M2_S24	N	03/05/2024	Ground Water	282	292
Central Impact Area	MW-103M1	MW-103M1_S24	MS	03/05/2024	Ground Water	298	308
Central Impact Area	MW-103M1	MW-103M1_S24	N	03/05/2024	Ground Water	298	308
Central Impact Area	MW-103M1	MW-103M1_S24	SD	03/05/2024	Ground Water	298	308
Central Impact Area	MW-149M1	MW-149M1_S24	N	03/05/2024	Ground Water	237.5	247.5
Central Impact Area	CIA2-EFF	CIA2-EFF-122A	N	03/05/2024	Process Water	0	0
Central Impact Area	CIA2-MID2	CIA2-MID2-122A	N	03/05/2024	Process Water	0	0
Central Impact Area	CIA2-MID1	CIA2-MID1-122A	N	03/05/2024	Process Water	0	0
Central Impact Area	CIA2-INF	CIA2-INF-122A	N	03/05/2024	Process Water	0	0
Central Impact Area	MW-608M4	MW-608M4_S24	N	03/05/2024	Ground Water	185.4	195.4
Central Impact Area	CIA1-EFF	CIA1-EFF-122A	N	03/05/2024	Process Water	0	0
Central Impact Area	CIA1-MID2	CIA1-MID2-122A	N	03/05/2024	Process Water	0	0
Central Impact Area	CIA1-MID1	CIA1-MID1-122A	N	03/05/2024	Process Water	0	0
Central Impact Area	CIA1-INF	CIA1-INF-122A	N	03/05/2024	Process Water	0	0
Central Impact Area	MW-608M3	MW-608M3_S24	N	03/05/2024	Ground Water	220.4	230.4
Central Impact Area	CIA3-EFF	CIA3-EFF-93A	N	03/05/2024	Process Water	0	0
Central Impact Area	CIA3-MID2	CIA3-MID2-93A	N	03/05/2024	Process Water	0	0
Central Impact Area	CIA3-MID1	CIA3-MID1-93A	N	03/05/2024	Process Water	0	0
Central Impact Area	CIA3-INF	CIA3-INF-93A	N	03/05/2024	Process Water	0	0
Central Impact Area	MW-608M2	MW-608M2_S24	N	03/05/2024	Ground Water	253.4	263.4
Central Impact Area	MW-608M1	MW-608M1_S24	N	03/05/2024	Ground Water	267.4	277.4
Central Impact Area	MW-209M2	MW-209M2_S24	N	03/04/2024	Ground Water	220	230
Central Impact Area	MW-209M1	MW-209M1_S24	N	03/04/2024	Ground Water	240	250
Central Impact Area	MW-209M1	MW-209M1_S24D	FD	03/04/2024	Ground Water	240	250
J2 Range Northern	J2N-EFF-G	J2N-EFF-G-210A	N	03/04/2024	Process Water	0	0
J2 Range Northern	J2N-MID-2G	J2N-MID-2G-210A	N	03/04/2024	Process Water	0	0
Central Impact Area	MW-50M1	MW-50M1_S24	N	03/04/2024	Ground Water	207	217
J2 Range Northern	J2N-MID-1G	J2N-MID-1G-210A	N	03/04/2024	Process Water	0	0
J2 Range Northern	J2N-INF-G	J2N-INF-G-210A	N	03/04/2024	Process Water	0	0
J2 Range Northern	J2N-EFF-EF	J2N-EFF-EF-210A	N	03/04/2024	Process Water	0	0
J2 Range Northern	J2N-MID-2F	J2N-MID-2F-210A	N	03/04/2024	Process Water	0	0
J2 Range Northern	J2N-MID-1F	J2N-MID-1F-210A	N	03/04/2024	Process Water	0	0
J2 Range Northern	J2N-INF-EF	J2N-INF-EF-210A	N	03/04/2024	Process Water	0	0
Central Impact Area	MW-249M2	MW-249M2_S24	N	03/04/2024	Ground Water	174	184
J2 Range Northern	J2N-MID-2E	J2N-MID-2E-210A	N	03/04/2024	Process Water	0	0
J2 Range Northern	J2N-MID-1E	J2N-MID-1E-210A	N	03/04/2024	Process Water	0	0
Central Impact Area	MW-633M2	MW-633M2_S24	N	03/04/2024	Ground Water	197	207
J1 Range Northern	J1N-EFF	J1N-EFF-125A	N	03/04/2024	Process Water	0	0
J1 Range Northern	J1N-MID2	J1N-MID2-125A	N	03/04/2024	Process Water	0	0
J1 Range Northern	J1N-MID1	J1N-MID1-125A	N	03/04/2024	Process Water	0	0
Central Impact Area	MW-633M1	MW-633M1_S24	N	03/04/2024	Ground Water	282	292
J1 Range Northern	J1N-INF2	J1N-INF2-125A	N	03/04/2024	Process Water	0	0

N = Normal Sample
FD = Field Duplicate

TABLE 2
VALIDATED EXPLOSIVE AND PERCHLORATE RESULTS
Data Received March 2024

Area of Concern	Location ID	Field Sample ID	Top Depth (ft bgs)	Bottom Depth (ft bgs)	Date Sampled	Test Method	Analyte	Result Value	Qualifier	Units	MCL/HA	> MCL/HA	MDL	RL
Central Impact Area	MW-485M1	MW-485M1_S24	125.32	135.32	02/15/2024	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	2.6		µg/L	0.60	X	0.043	0.20
Central Impact Area	MW-485M1	MW-485M1_S24	125.32	135.32	02/15/2024	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.65		µg/L	400		0.091	0.20
Central Impact Area	MW-485M1	MW-485M1_S24D	125.32	135.32	02/15/2024	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	2.6		µg/L	0.60	X	0.043	0.20
Central Impact Area	MW-485M1	MW-485M1_S24D	125.32	135.32	02/15/2024	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.68		µg/L	400		0.091	0.20
Central Impact Area	MW-477M2	MW-477M2_S24	145.62	155.62	02/14/2024	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.6		µg/L	0.60	X	0.043	0.20
Central Impact Area	MW-477M2	MW-477M2_S24	145.62	155.62	02/14/2024	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.23		µg/L	400		0.091	0.20
Central Impact Area	MW-477M2	MW-477M2_S24D	145.62	155.62	02/14/2024	SW8330	2,6-Dinitrotoluene	0.075	J	µg/L	5.0		0.063	0.20
Central Impact Area	MW-477M2	MW-477M2_S24D	145.62	155.62	02/14/2024	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.5		µg/L	0.60	X	0.043	0.20
Central Impact Area	MW-477M2	MW-477M2_S24D	145.62	155.62	02/14/2024	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.21		µg/L	400		0.091	0.20
Central Impact Area	MW-40S	MW-40S_S24	115.5	126	02/12/2024	SW8330	2,6-Dinitrotoluene	0.077	J	µg/L	5.0		0.063	0.20
Central Impact Area	MW-40M1	MW-40M1_S24	132.5	142	02/12/2024	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.61		µg/L	0.60	X	0.043	0.20
Central Impact Area	MW-85S	MW-85S_S24	116	126	02/12/2024	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.41		µg/L	0.60		0.043	0.20
Central Impact Area	MW-37M2	MW-37M2_S24	145	155	02/12/2024	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.31		µg/L	0.60		0.043	0.20
Central Impact Area	MW-01S	MW-01S_S24	114	124	02/08/2024	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.25		µg/L	0.60		0.043	0.20
Central Impact Area	MW-01S	MW-01S_S24	114	124	02/08/2024	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.12	J	µg/L	400		0.091	0.20
Central Impact Area	MW-01M2	MW-01M2_S24	160	165	02/08/2024	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	2.2		µg/L	0.60	X	0.043	0.20
Central Impact Area	MW-01M2	MW-01M2_S24	160	165	02/08/2024	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.42		µg/L	400		0.091	0.20
Central Impact Area	OW-1	OW-1_S24	126	136	02/08/2024	SW8330	1,3,5-Trinitrobenzene	0.18	J	µg/L	1090		0.11	0.20
Central Impact Area	OW-1	OW-1_S24	126	136	02/08/2024	SW8330	1,3-Dinitrobenzene	0.045	J	µg/L	1.0		0.039	0.20
Central Impact Area	OW-1	OW-1_S24	126	136	02/08/2024	SW8330	2,4,6-Trinitrotoluene	4.0		µg/L	2.0	X	0.096	0.20
Central Impact Area	OW-1	OW-1_S24	126	136	02/08/2024	SW8330	2,4-Dinitrotoluene	0.14	J	µg/L	5.0		0.045	0.20
Central Impact Area	OW-1	OW-1_S24	126	136	02/08/2024	SW8330	2-Amino-4,6-dinitrotoluene	0.33		µg/L	7.3		0.038	0.20
Central Impact Area	OW-1	OW-1_S24	126	136	02/08/2024	SW8330	4-Amino-2,6-dinitrotoluene	0.59		µg/L	7.3		0.075	0.20
Central Impact Area	OW-1	OW-1_S24	126	136	02/08/2024	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.40	J	µg/L	0.60		0.043	0.20
Central Impact Area	OW-1	OW-1_S24D	126	136	02/08/2024	SW8330	1,3,5-Trinitrobenzene	0.19	J	µg/L	1090		0.11	0.20
Central Impact Area	OW-1	OW-1_S24D	126	136	02/08/2024	SW8330	1,3-Dinitrobenzene	0.047	J	µg/L	1.0		0.039	0.20
Central Impact Area	OW-1	OW-1_S24D	126	136	02/08/2024	SW8330	2,4,6-Trinitrotoluene	3.9		µg/L	2.0	X	0.096	0.20
Central Impact Area	OW-1	OW-1_S24D	126	136	02/08/2024	SW8330	2,4-Dinitrotoluene	0.13	J	µg/L	5.0		0.045	0.20
Central Impact Area	OW-1	OW-1_S24D	126	136	02/08/2024	SW8330	2-Amino-4,6-dinitrotoluene	0.31		µg/L	7.3		0.038	0.20
Central Impact Area	OW-1	OW-1_S24D	126	136	02/08/2024	SW8330	4-Amino-2,6-dinitrotoluene	0.52		µg/L	7.3		0.075	0.20
Central Impact Area	OW-1	OW-1_S24D	126	136	02/08/2024	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.39	J	µg/L	0.60		0.043	0.20
Central Impact Area	OW-2	OW-2_S24	175	185	02/08/2024	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.13	J	µg/L	0.60		0.043	0.20
Central Impact Area	MW-235M1	MW-235M1_S24	154	164	02/08/2024	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.085	J	µg/L	0.60		0.043	0.20
Central Impact Area	MW-91S	MW-91S_S24	124	134	02/07/2024	SW8330	1,3,5-Trinitrobenzene	0.33		µg/L	1090		0.11	0.20
Central Impact Area	MW-91S	MW-91S_S24	124	134	02/07/2024	SW8330	2,4,6-Trinitrotoluene	2.0		µg/L	2.0		0.096	0.20
Central Impact Area	MW-91S	MW-91S_S24	124	134	02/07/2024	SW8330	2-Amino-4,6-dinitrotoluene	0.18	J	µg/L	7.3		0.038	0.20
Central Impact Area	MW-91S	MW-91S_S24	124	134	02/07/2024	SW8330	4-Amino-2,6-dinitrotoluene	0.17	J	µg/L	7.3		0.075	0.20
Central Impact Area	MW-91S	MW-91S_S24	124	134	02/07/2024	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.7	J	µg/L	0.60	X	0.043	0.20
Central Impact Area	MW-91S	MW-91S_S24	124	134	02/07/2024	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.23		µg/L	400		0.091	0.20
Central Impact Area	MW-91S	MW-91S_S24D	124	134	02/07/2024	SW8330	1,3,5-Trinitrobenzene	0.21		µg/L	1090		0.11	0.20
Central Impact Area	MW-91S	MW-91S_S24D	124	134	02/07/2024	SW8330	2,4,6-Trinitrotoluene	2.0		µg/L	2.0		0.096	0.20
Central Impact Area	MW-91S	MW-91S_S24D	124	134	02/07/2024	SW8330	2,4-Dinitrotoluene	0.062	J	µg/L	5.0		0.045	0.20
Central Impact Area	MW-91S	MW-91S_S24D	124	134	02/07/2024	SW8330	2-Amino-4,6-dinitrotoluene	0.17	J	µg/L	7.3		0.038	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
4/9/2024

TABLE 2
VALIDATED EXPLOSIVE AND PERCHLORATE RESULTS
Data Received March 2024

Area of Concern	Location ID	Field Sample ID	Top Depth (ft bgs)	Bottom Depth (ft bgs)	Date Sampled	Test Method	Analyte	Result Value	Qualifier	Units	MCL/HA	> MCL/HA	MDL	RL
Central Impact Area	MW-91S	MW-91S_S24D	124	134	02/07/2024	SW8330	4-Amino-2,6-dinitrotoluene	0.17	J	µg/L	7.3		0.075	0.20
Central Impact Area	MW-91S	MW-91S_S24D	124	134	02/07/2024	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.7	J	µg/L	0.60	X	0.043	0.20
Central Impact Area	MW-91S	MW-91S_S24D	124	134	02/07/2024	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.25		µg/L	400		0.091	0.20
Central Impact Area	MW-91M1	MW-91M1_S24	170	180	02/07/2024	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	3.4		µg/L	0.60	X	0.043	0.20
Central Impact Area	MW-91M1	MW-91M1_S24	170	180	02/07/2024	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.19	J	µg/L	400		0.091	0.20
Central Impact Area	MW-695S	MW-695S_S24	130	140	02/06/2024	SW6850	Perchlorate	0.19	J	µg/L	2.0		0.039	0.20
Central Impact Area	MW-695S	MW-695S_S24	130	140	02/06/2024	SW8330	1,3,5-Trinitrobenzene	0.13	J	µg/L	1090		0.11	0.20
Central Impact Area	MW-695S	MW-695S_S24	130	140	02/06/2024	SW8330	2,4,6-Trinitrotoluene	2.2		µg/L	2.0	X	0.096	0.20
Central Impact Area	MW-695S	MW-695S_S24	130	140	02/06/2024	SW8330	2,4-Dinitrotoluene	0.14	J	µg/L	5.0		0.045	0.20
Central Impact Area	MW-695S	MW-695S_S24	130	140	02/06/2024	SW8330	2-Amino-4,6-dinitrotoluene	0.32		µg/L	7.3		0.038	0.20
Central Impact Area	MW-695S	MW-695S_S24	130	140	02/06/2024	SW8330	4-Amino-2,6-dinitrotoluene	0.27		µg/L	7.3		0.075	0.20
Central Impact Area	MW-695S	MW-695S_S24	130	140	02/06/2024	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	3.1	J	µg/L	0.60	X	0.043	0.20
Central Impact Area	MW-695S	MW-695S_S24	130	140	02/06/2024	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.19	J	µg/L	400		0.091	0.20
Central Impact Area	MW-695S	MW-695S_S24D	130	140	02/06/2024	SW6850	Perchlorate	0.20		µg/L	2.0		0.039	0.20
Central Impact Area	MW-695S	MW-695S_S24D	130	140	02/06/2024	SW8330	1,3,5-Trinitrobenzene	0.12	J	µg/L	1090		0.11	0.20
Central Impact Area	MW-695S	MW-695S_S24D	130	140	02/06/2024	SW8330	2,4,6-Trinitrotoluene	2.1		µg/L	2.0	X	0.096	0.20
Central Impact Area	MW-695S	MW-695S_S24D	130	140	02/06/2024	SW8330	2,4-Dinitrotoluene	0.12	J	µg/L	5.0		0.045	0.20
Central Impact Area	MW-695S	MW-695S_S24D	130	140	02/06/2024	SW8330	2-Amino-4,6-dinitrotoluene	0.32		µg/L	7.3		0.038	0.20
Central Impact Area	MW-695S	MW-695S_S24D	130	140	02/06/2024	SW8330	4-Amino-2,6-dinitrotoluene	0.25		µg/L	7.3		0.075	0.20
Central Impact Area	MW-695S	MW-695S_S24D	130	140	02/06/2024	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	2.8	J	µg/L	0.60	X	0.043	0.20
Central Impact Area	MW-695S	MW-695S_S24D	130	140	02/06/2024	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.17	J	µg/L	400		0.091	0.20
Central Impact Area	MW-726S	MW-726S_S24	135.5	145.5	02/06/2024	SW8330	1,3,5-Trinitrobenzene	0.13	J	µg/L	1090		0.11	0.20
Central Impact Area	MW-726S	MW-726S_S24	135.5	145.5	02/06/2024	SW8330	2,4,6-Trinitrotoluene	0.31		µg/L	2.0		0.096	0.20
Central Impact Area	MW-726S	MW-726S_S24	135.5	145.5	02/06/2024	SW8330	2-Amino-4,6-dinitrotoluene	0.55		µg/L	7.3		0.038	0.20
Central Impact Area	MW-726S	MW-726S_S24	135.5	145.5	02/06/2024	SW8330	4-Amino-2,6-dinitrotoluene	0.44		µg/L	7.3		0.075	0.20
Central Impact Area	MW-726S	MW-726S_S24	135.5	145.5	02/06/2024	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.33	J	µg/L	0.60		0.043	0.20
Central Impact Area	MW-729M1	MW-729M1_S24	231.5	241.5	02/06/2024	SW6850	Perchlorate	0.81		µg/L	2.0		0.039	0.20
Central Impact Area	MW-729M1	MW-729M1_S24	231.5	241.5	02/06/2024	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	2.7		µg/L	0.60	X	0.043	0.20
Central Impact Area	MW-90S	MW-90S_S24	118	128	02/05/2024	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.7		µg/L	0.60	X	0.043	0.20
Central Impact Area	MW-90S	MW-90S_S24	118	128	02/05/2024	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.34		µg/L	400		0.091	0.20
Central Impact Area	MW-727M1	MW-727M1_S24	145.4	155.4	02/05/2024	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.45		µg/L	0.60		0.043	0.20
Central Impact Area	MW-725M1	MW-725M1_S24	145.2	155.2	02/05/2024	SW6850	Perchlorate	1.6		µg/L	2.0		0.039	0.20
Central Impact Area	MW-725M1	MW-725M1_S24	145.2	155.2	02/05/2024	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.2		µg/L	0.60	X	0.043	0.20
Central Impact Area	MW-725M1	MW-725M1_S24	145.2	155.2	02/05/2024	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.19	J	µg/L	400		0.091	0.20
Central Impact Area	MW-725M1	MW-725M1_S24D	145.2	155.2	02/05/2024	SW6850	Perchlorate	1.5		µg/L	2.0		0.039	0.20
Central Impact Area	MW-725M1	MW-725M1_S24D	145.2	155.2	02/05/2024	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.2		µg/L	0.60	X	0.043	0.20
Central Impact Area	MW-725M1	MW-725M1_S24D	145.2	155.2	02/05/2024	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.17	J	µg/L	400		0.091	0.20
Central Impact Area	MW-90M1	MW-90M1_S24	145	155	02/01/2024	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.47		µg/L	0.60		0.043	0.20
Central Impact Area	MW-96M2	MW-96M2_S24	160	170	01/31/2024	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.60		µg/L	0.60		0.043	0.20
Central Impact Area	MW-105M1	MW-105M1_S24	205	215	01/30/2024	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.52		µg/L	0.60		0.043	0.20
Central Impact Area	MW-93M2	MW-93M2_S24	145	155	01/30/2024	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.1		µg/L	0.60	X	0.043	0.20
Central Impact Area	MW-93M1	MW-93M1_S24	185	195	01/30/2024	SW6850	Perchlorate	0.062	J	µg/L	2.0		0.039	0.20
Central Impact Area	MW-93M1	MW-93M1_S24	185	195	01/30/2024	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.089	J	µg/L	0.60		0.043	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
4/9/2024

TABLE 2
VALIDATED EXPLOSIVE AND PERCHLORATE RESULTS
Data Received March 2024

Area of Concern	Location ID	Field Sample ID	Top Depth (ft bgs)	Bottom Depth (ft bgs)	Date Sampled	Test Method	Analyte	Result Value	Qualifier	Units	MCL/HA	> MCL/HA	MDL	RL
Central Impact Area	MW-101M1	MW-101M1_S24	158	168	01/29/2024	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	3.3		µg/L	0.60	X	0.043	0.20
Central Impact Area	MW-101M1	MW-101M1_S24	158	168	01/29/2024	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.22		µg/L	400		0.091	0.20
Central Impact Area	MW-101M1	MW-101M1_S24D	158	168	01/29/2024	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	3.3		µg/L	0.60	X	0.043	0.20
Central Impact Area	MW-101M1	MW-101M1_S24D	158	168	01/29/2024	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.23		µg/L	400		0.091	0.20
Central Impact Area	MW-100M1	MW-100M1_S24	179	189	01/29/2024	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.068	J	µg/L	0.60		0.043	0.20
Central Impact Area	MW-98S	MW-98S_S24	137	147	01/25/2024	SW8330	2,4,6-Trinitrotoluene	0.28		µg/L	2.0		0.096	0.20
Central Impact Area	MW-98S	MW-98S_S24	137	147	01/25/2024	SW8330	2-Amino-4,6-dinitrotoluene	0.19	J	µg/L	7.3		0.038	0.20
Central Impact Area	MW-98S	MW-98S_S24	137	147	01/25/2024	SW8330	4-Amino-2,6-dinitrotoluene	0.35		µg/L	7.3		0.075	0.20
Central Impact Area	MW-98M1	MW-98M1_S24	164	174	01/25/2024	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	9.1		µg/L	0.60	X	0.043	0.20
Central Impact Area	MW-98M1	MW-98M1_S24	164	174	01/25/2024	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.27		µg/L	400		0.091	0.20
Central Impact Area	MW-99M1	MW-99M1_S24	195	205	01/25/2024	SW8330	2-Amino-4,6-dinitrotoluene	0.059	J	µg/L	7.3		0.038	0.20
Central Impact Area	MW-112M1	MW-112M1_S24	195	205	01/24/2024	SW8330	2-Amino-4,6-dinitrotoluene	0.053	J	µg/L	7.3		0.038	0.20
Central Impact Area	MW-112M1	MW-112M1_S24	195	205	01/24/2024	SW8330	4-Amino-2,6-dinitrotoluene	0.11	J	µg/L	7.3		0.075	0.20
Central Impact Area	MW-112M1	MW-112M1_S24	195	205	01/24/2024	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	2.1		µg/L	0.60	X	0.043	0.20
Central Impact Area	MW-112M1	MW-112M1_S24	195	205	01/24/2024	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.15	J	µg/L	400		0.091	0.20
Central Impact Area	MW-179M1	MW-179M1_S24	187	197	01/24/2024	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.15	J	µg/L	0.60		0.043	0.20

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RL = Reporting Limit
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MCL/HA= Either the MCL or Lowest Health Advisory Limit
4/9/2024