MONTHLY PROGRESS REPORT #318
FOR SEPTEMBER 2023

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

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

The following summary of progress is for the period from 01 to 30 September 2023.

1. SUMMARY OF REMEDIATION ACTIONS

Remediation Actions (RA) Underway at Camp Edwards as of 29 September 2023:

Demolition Area 1 Comprehensive Groundwater RA

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

The Frank Perkins Road Treatment Facility has been optimized as part of the Environmental and System Performance Monitoring (ESPM) program at Demolition Area 1. The treatment facility continues to operate at a flow rate of 175 gallons per minute (gpm), with over 3.036 billion gallons of water treated and re-injected as of 29 September 2023. The following Frank Perkins Road Treatment Facility shutdowns occurred in September:

- 0840 on 18 September 2023 to install a new UPS in the PLC cabinet and was restarted at 0905 on 18 September 2023.

The Base Boundary Mobile Treatment Unit (MTU) continues to operate at a flow rate of 65 gpm. As of 29 September 2023, over 378.9 million gallons of water were treated and re-injected. The following Base Boundary MTU shutdowns occurred in September:

- 0913 on 19 September 2023 to install a new UPS in the PLC cabinet and was restarted at 0938 on 19 September 2023.

The Leading Edge system continues to operate at a flow rate of 100 gpm. As of 29 September 2023, over 372.1 million gallons of water were treated and re-injected. The following Leading Edge system shutdowns occurred in September:

- 0957 on 19 September 2023 to install a new UPS in the PLC cabinet and was restarted at 1050 on 19 September 2023.

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

J-2 Range Groundwater RA

Northern Plant

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

The Northern MTUs E and F continue to operate at a flow rate of 250 gpm. As of 29 September 2023, over 2.126 billion gallons of water have been treated and re-injected. No MTU E and F shutdowns occurred in September.

The Northern Treatment Building G continues to operate at a flow rate of 225 gpm. As of 29 September 2023, over 1.635 billion gallons of water have been treated and re-injected. The following MTU G shutdowns occurred in September:

- 1749 on 11 September 2023 due to a VFD Fault alarm and was restarted at 1327 on 12 September 2023.
- 1312 on 18 September 2023 to install a new UPS in the PLC cabinet and was restarted at 1323 on 18 September 2023.

Eastern Plant

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

The MTUs H and I continue to operate at a flow rate of 250 gpm. As of 29 September 2023, over 1.769 billion gallons of water have been treated and re-injected. The following MTU H and I shutdowns occurred in September:

- 2115 on 13 September 2023 due to a “Floor Sump High” alarm due to a broken camlock fitting and bleeder valve on GAC Vessel #5. Repairs were made and MTUs H&I were restarted at 0940 on 14 September 2023.
- 1058 on 18 September 2023 to install a new UPS in the PLC cabinet and was restarted at 1114 on 18 September 2023.

MTU J continues to operate at a flow rate of 120 gpm. As of 29 September 2023, over 827.6 million gallons of water have been treated and re-injected. No MTU J shutdowns occurred in September.

MTU K continues to operate at a flow rate of 125 gpm. As of 29 September 2023, over 951.6 million gallons of water have been treated and re-injected. No MTU K shutdowns occurred in September.

J-3 Range Groundwater RA

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

The J-3 system is currently operating at a flow rate of 255 gpm. As of 29 September 2023, over 1.753 billion gallons of water have been treated and re-injected. The following J3 system shutdowns occurred in September:

- 1655 on 06 September 2023 due to FS12 being turned off for an energy curtailment and was restarted at 0745 on 07 September 2023.
- 1612 on 07 September 2023 due to FS12 being turned off for an energy curtailment and was restarted at 0750 on 08 September 2023
- 0935 on 18 September 2023 to install a new UPS in the PLC cabinet and was restarted at 0949 on 18 September 2023.

J-1 Range Groundwater RA

Southern Plant

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

The Southern MTU continues to operate at a flow rate of 125 gpm. As of 29 September 2023, over 770.1 million gallons of water have been treated and re-injected. The following J-1 Range Southern MTU shutdowns occurred in September:

- 0740 on 01 September 2023 for inspection and maintenance of the underground wiring to EW0002 and was restarted at 0950 on 01 September 2023.

Northern Plant

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

The Northern MTU continues to operate at a total system flow rate of 250 gpm. As of 29 September 2023, over 1.272 billion gallons of water have been treated and re-injected. The following J-1 Range Northern MTU shutdowns occurred in September:

- 1023 on 07 September 2023 due to a “Motor Fault” alarm at EW0002 and was restarted at 1133 on 07 September 2023.
- 0758 on 08 September 2023 to replace the fan in the EW0002 VFD cabinet and was restarted at 0830 on 08 September 2023.
- 1215 on 18 September 2023 to install a new UPS in the PLC cabinet and was restarted at 1254 on 18 September 2023.

Central Impact Area RA

The Central Impact Area (CIA) Groundwater treatment facility consists of removal and treatment of groundwater to minimize downgradient migration of explosives compounds and perchlorate. The ETR system includes the following components: three extraction wells, an ex-situ treatment process consisting of an ion exchange resin and granular activated carbon media to treat explosives compounds, and three infiltration galleries to return treated water to the aquifer. The CIA systems 1, 2, and 3 continue to run at a combined total flow rate of 750 gpm. As of 29 September 2023, over 3.329 billion gallons of water have been treated and re-injected. The following CIA system shutdowns occurred in September:

- 1250 on 06 September 2023 at CIA-2 due to an “RTU COMM LOSS” alarm. A new fiber optic switch was installed, and the system was restarted at 0940 on 08 September 2023.
- 1148 on 19 September 2023 at CIA-1 to install a new UPS in the PLC cabinet and was restarted at 1211 on 19 September 2023.
- 1112 on 19 September 2023 at CIA-2 to install a new UPS in the PLC cabinet and was restarted at 1137 on 19 September 2023.
- 0758 on 19 September 2023 at CIA-3 to install a new UP in the PLC cabinet and was restarted at 0836 on 19 September 2023.

2. SUMMARY OF ACTIONS TAKEN

Operable Unit (OU) Activity as of 29 September 2023:

CIA

- Source Area investigations
    - Intrusive investigations in P4A2 SU 6 (suspended as of 29 September 2023)
    - Intrusive investigations in P4A3 polygons and grids
    - Routine visual check of consolidated shot structure (CSS) soil cover and surface area around the perimeter of the CSS
    - Commencement of BIP demo ops

Demolition Area 1

No activity

Demolition Area 2

No activity

J-1 Range

Bag filters changed at J-1 Range South system

J-2 Range

Monitoring well installations at J-2 Range Northern MW-736, MW-737, MW-738, MW-739 and MW-740

Groundwater sampling within the J-2 Range Northern SPM

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 September 2023

Project and Fieldwork Update

Darrin Smith (USACE) provided the project and fieldwork update starting with the status of the groundwater sampling crews. He said that KGS crews completed the J-2 Range East system performance monitoring (SPM) wells (64 screens) and hydraulic event (65 screens) on August 28th. The team completed sampling at the J-3 Range annual event (66 screens), the J-3 Range hydraulic event (55 screens), and the J-3 Range PFAS sampling (57 screens) on August 30th. They began sampling the J-2 North SPM wells (85 screens) and hydraulic event (65 screens) on September 5th, it is expected to continue into October. PFAS sampling at the Upper Cape Regional Water Supply Cooperative wells WS-2BD, WS-2CD and WS-2DD and Sentry wells C-4 and C-7 (3 screens each) was performed September 11th through the 14th. The J-2 Range semi-annual PFAS sampling at 9 screens is scheduled for October to coincide with first round of sampling at the seven new wells (14 screens) scheduled for mid-October.

Mr. Smith (USACE) continued with a status of operations and maintenance activities. He noted that the September monthly process water samples were collected between September 5th and September 7th and results are pending. The Demolition Area 1 base boundary extraction well EW-3 packering was completed on August 31st.

Mr. Smith (USACE) continued with an update on new well installations. He said that since the last meeting, the rig has returned onsite after undergoing repairs. Crews completed installation of MW-736 and are currently at MW-737 to begin screen installation.

Gina Kaso (USACE) provided a Central Impact Area (CIA) update. There are five UXO teams in the Impact Area. They continue to work on the polygons in area SU6 and the are performing discreet digs and polygons in Phase IV Areas. Teams have completed both 100% verification grids. Results will be presented at a tech meeting in October. Ms. Kaso (USACE) noted that she had distributed a blow-in-place (BIP) notification to the group. Demolition operations will be underway through the end of October, weather permitting. Jane Dolan (EPA) asked for an estimate of what percentage of polygons in SU6 still needed to be completed. Ms. Kaso (USACE) replied that as of September 8th, they were 66% complete for SU6 polygons.

Action Items

Jeff Dvorak (USACE) used the new document tracking list to review and discuss deliverables. He pointed out some changes to the document, namely the addition of the tentative sample collection dates for each operable unit.

PFAS Update

Ms. Dolan (EPA) said that she thought there would be an agenda item to start scoping for PFAS sampling locations at J-2 East but that didn't have to happen at today's meeting. She noted that she is hoping that the response letter that is being provided by IAGWSP to EPA on September 15th will be substantial. Shawn Cody said that IAGWSP have a meeting later today with the head of the research that Colonel Pflueger at West Point is working on and are hoping that the information he provides will be used to give EPA a satisfactory update on the status of their PFAS studies. Ms. Dolan (EPA) noted that she doesn't want to raise the issue to EPA Attorney Dave Peterson and will wait to see what information is provided in the letter to determine next steps.

Ms. Dolan (EPA) thanked IAGWSP for providing the most recent data and preliminary assessment quickly. Mr. Cody reiterated that the program is doing a lot of work behind the scenes to ensure that we are being protective of any potential receptors, which is the goal. Jodi Cutler (IAGWSP) stated that since the team last met, the elevated level of PFAS at monitoring well MW-125 came in. She explained that while this detection was found at the J-3 Range, IAGWSP is moving forward with PFAS as its own separate operable unit, not tied to any specific site. Ms. Cutler (IAGWSP) noted that the first batch of data has been validated and by the end of October, all of the J-3 data, as well as data from the additional sampling of the J-2 Northern new wells and the Upper Cape Water Supply Cooperative sentry wells, also will be validated. Ms. Cutler (IAGWSP) explained that once all this data is received, it will give the group a better understanding of where PFAS investigative efforts should be focused.

Elliot Jacobs (MassDEP) asked if MW-125 would be resampled and noted that while it is most likely a valid detection, it is appropriate to resample to confirm the result. Ms. Cutler (IAGWSP) said that is being considered but felt it was prudent to wait and get all the results to see if there is additional PFAS in that area so that, if there are additional locations to be sampled, they could all be performed at the same time. She explained that what was done immediately were forward particle tracks to make sure that the detection wouldn't migrate to the Sandwich Water District's nearby Weeks Pond Well. The results showed that the detection would be captured by the treatment system and is too deep to enter the area ponds. She noted that IAGWSP is obtaining additional well construction and operational details from the Sandwich Water District. She noted the conductivity in this area is very low and it would be approximately 100 years before movement from this area down towards the pond. Mr. Jacobs (MassDEP) said that he saw in one of the figures that was provided with the J-3 PFAS workplan that MW-125 was in the capture zone of the extraction wells and while it may not be picked up by the first extraction well, it would be captured by the downgradient extraction well. Ms. Dolan (EPA) noted that she had asked for a figure with the flow lines. Ms. Cutler (IAGWSP) explained that the figures were not quite "agency ready" yet but Chris Kilbridge (USACE) had prepared a slide to show the particles. Ms. Dolan (EPA) asked if the figure could be emailed to her once it is finished.

Mr. Kilbridge (USACE) displayed the figure and pointed out that north, towards the top of the mound, was displayed at the top of the page and regional groundwater flow is moving towards the bottom of the page southward, towards Snake and Weeks Ponds. He explained that the two particle tracks were run in the simulation and the particle path line in this figure was shown in red and blue are the water table contours. He explained that the simulation represented a scenario where the J-3 Range pump and treat system was not operating. Two particles were released from the MW-125S and MW-125M1 deeper screen. The deeper screen is deep enough that the particle at the angle that it dives, it only moves about 1,000 feet and then it dead ends. The particle from MW-125S continues to migrate and its path starts to the southwest and follows the contours as it migrates. Under the simulated conditions, that assumed there were there is no extraction and treatment system operating at the J-3 Range, a particle at MW-125S is predicted to take over 100 years to get off the base boundary and down to the vicinity of Snake and Weeks Ponds. Mr. Kilbridge (USACE) said that the biggest influence he noted is that by the time the particle has dived under the hydraulic gradients in this area, it gets into a lower hydraulic conductivity material, which has been seen in cross sections presented the J-3 Range Environmental Monitoring Reports, and those areas start to have an impact on travel times. Mr. Jacobs (MassDEP) noted that the shift in direction from the southwest towards the southeast appears to be from the influence of the ponds. He added that it could also be due to the nature of the groundwater table, where to the west there is a very sudden bend in the groundwater contours, which makes sense that it is moving this way. Mr. Kilbridge (USACE) also explained that by the time the particle makes it to the pond, it is down at a depth of approximately 200 feet, which corresponds to an elevation of -100 to -110. The Weeks Pond well is 68 feet depth which would be far above the predicted particle depth at that point. Mr. Jacobs (MassDEP) asked if the low conductivity unit in the model due to calibration of the model or it is something that has been seen in field data from boring. Mr. Kilbridge (USACE) said it was a combination of both and noted that it was commonly encountered and most recently seen in the Checkerberry Lane boring at J-1 Range South. Mike Kulbersh (USACE) noted that you could see from the contours and the time markers in the mid-section where it enters the low conductivity area because the time markers are "bunching" indicated that it is moving slower in that section of the aquifer.

Ms. Cutler (IAGWSP) said she wanted to thank Ms. Dolan (EPA) for the recommendation to look at the 104E information request from Textron. While it seemed apparent that this was an anomaly, this well is immediately adjacent to and downgradient of the leach field and septic system for the former ordnance assembly and X-Ray building. The X-Ray fluids contain PFAS and there were floor drains and sinks that drained directly into the septic system from the X-Ray room, so that appears to be a good candidate for a source. Mr. Jacobs (MassDEP) asked if IAGWSP thought that this PFAS detection has any relationship to some of the other detections seen in J-3. Ms. Cutler (IAGWSP) replied that she didn't know enough yet to make that determination.

Len Pinaud (MassDEP) asked what the next steps were. Ms. Cutler (IAGWSP) replied that IAGWSP proposes waiting for the remainder of the J-3 data to come in to give a better view of this area. She noted that currently the comprehensive PFAS report is scheduled to be submitted in March of 2024, with a data cutoff of September 30th. Since a lot of additional data will be coming in shortly after September 30th, IAGWSP proposes pushing the data cutoff for the report to the end of the year so that all of the data being collected under the J-2 and J-3 workplans can be included in the report. Ms. Dolan (EPA) replied that she is in support of delaying the report so that it will include all the data. MassDEP agreed. Mr. Pinaud (MassDEP) asked when the rest of the J-3 data would be coming in and noted that his concern was Snake Pond and the Weeks Pond Well. He continued by explaining that he is working with the Drinking Water Program Office and they are going to ask for a plan going forward. Yixian Zhang (USACE) noted that all the preliminary J-3 data would be available by the end of September and the data would be validated by the end of October. Ms. Cutler (IAGWSP) said she hoped that the preliminary data would help to inform the next steps. Mr. Jacobs (MassDEP) said when you look at the data, the team will have to determine if it is sufficient data set or if there are data gaps that need to be addressed as the data has come in.

Ms. Cutler (IAGWSP) said the report would be delayed by five months by extending the data cutoff. Mr. Pinaud (MassDEP) noted that we don't have to wait for the PFAS report to act on this issue. Ms. Cutler (IAGWSP) agreed.

Mr. Pinaud (MassDEP) said based on his conversations with the Drinking Water Program Office, the Sandwich Water District is aware of this issue. He noted that the last time the Weeks Pond Well was sampled for PFAS was 2021 and they are due for sampling in April and October of 2024. Mr. Pinaud (MassDEP) said that the Drinking Water Program Office asked him if the well should be sampled before then. Mr. Cody said he wasn't sure that IAGWSP could sample it since, if there was PFAS in that area, it isn't likely from this well location based on the current data and particle tracks that we have. Mr. Jacobs (MassDEP) asked if Snake Pond had been sampled for PFAS. Ms. Cutler (IAGWSP) replied that it had through a program where the Massachusetts Department of Public Health (MassDPH) sampled all of the ponds around the base and Snake Pond was the least impacted of those around Joint Base Cape Cod. Mr. Kilbridge (USACE) reminded the group that the MassDPH report was included as an appendix to the J-3 PFAS work plan. Mr. Pinaud (MassDEP) said he would relay this information to the Drinking Water Program Office, but he assumes that they will want the Weeks Pond well sampled for PFAS. Mr. Cody said that while he can't commit at this time to using federal funds to sample the well because currently there is no evidence to link it to IAGWSP investigations, the program will continue to perform sampling to ensure we remain protective.

Mr. Jacobs (MassDEP) reminded the group that the United States Geological Survey (USGS) has done analysis to determine what thickness of the aquifer, downgradient of Ashumet and Johns Pond, is pond-derived water and questioned whether a similar study had been done at Snake Pond. He remarked it would be interesting to know if they can show all the water that Weeks Pond well is pumping is pond-derived water. Mr. Cody replied that IAGWSP would ask USGS. Ms. Dolan (EPA) clarified that the MassDPH Snake Pond surface water sampling results did have some low-level detections of PFOA and PfHpA and below reporting limits for the others. PFAS6 was reported a 1.4 ppt for Snake Pond. Mr. Jacobs (MassDEP) noted if it's below 2ppt, MassDEP would consider it a non-detect. Ms. Dolan (EPA) suggested that before he retires, IAGWSP ask Denis Leblanc of USGS to come to a tech meeting in October or November to talk about what they know about PFAS in the areas. Mr. Cody said IAGWSP would reach out to Mr. Leblanc. Ms. Cutler (IAGWSP) noted there was a USGS workshop coming up at the end of the month hosted by Mr. Leblanc on PFAS.

JBCC Impact Area Groundwater Study Program (IAGWSP) Tech Update Meeting Minutes for 28 September 2023

Project and Fieldwork Update

Darrin Smith provided the project and fieldwork update starting with the status of the groundwater sampling crews. He said that KGS crews began sampling the J-2 North system performance monitoring (SPM) wells (85 screens) and hydraulic event (65 screens) on September 5th and it is expected to continue into October. The J-2 Range semi-annual PFAS sampling at 9 screens is scheduled for October to coincide with first round of sampling at the seven new wells (14 screens) scheduled for mid-October. After J-2 North is complete, crews will move to perform sampling at the J-1 South SPM (52 screens) and hydraulic monitoring (72 screens) wells.

Mr. Smith (USACE) continued with a status of operations and maintenance activities. He noted that the September monthly process water samples were collected between September 5th and September 7th and results are pending. The Demolition Area 1 base boundary extraction well EW-3 packering was completed on August 31st and a synoptic event to be performed at 64 wells between 14 to 60 days after packering has been scheduled for October 10th to 11th.

Mr. Smith (USACE) provided an update on new well installations. Crews recently completed installation of MW-737, MW-738 and MW-739. They will move to MW-740 and finally MW-733 at Checkerberry Lane. They have finished well development at MW-734, MW-735 and MW-736.

Gina Kaso (USACE) provided a Central Impact Area (CIA) update. There are five UXO teams in the Impact Area. One team is performing blow-in-place (BIP) operations, one is working on the polygons and the others are performing discreet digs. Ms. Kaso (USACE) said that they have suspended chasing polygons in SU6 and instead will focus on finishing polygons in grids that will result in completed grids. She explained that they are trying to get as many completed grids as possible. A way forward regarding polygons will be discussed at the October 12th tech meeting. She noted regulators should be receiving the revised 2021 report, which was updated to include demolition operations. Jane Dolan (EPA) said she thought the IAGWSP had mentioned that there would be a one year gap in working in the CIA and asked what year that

would be. Shawn Cody explained that IE-Weston would need to go into FY25 to finish so, during FY25, they'll be finishing work from the previous season and then will start new fieldwork in FY26. Mr. Cody said he didn't think there would be a full year break and there is a chance that old money becomes available. Ms. Dolan (EPA) said EPA would prefer as minimal a break as possible and Mr. Cody agreed.

Action Items

Mr. Dvorak (USACE) used the new tracking list to review and discuss documents and upcoming presentations.

J-3 Annual Groundwater Report Presentation

Dave Hill (IAGWSP) introduced a presentation on the J-3 Range Annual Environmental Monitoring Report. He was noted that the reporting period was September 2021 through August 2022. He began by reviewing the J-3 Range extraction treatment and reinjection system performance statistics. During the reporting period, there was no breakthrough, .44 pounds of perchlorate and .14 pounds of RDX were removed, and 117.1 million gallons of water was treated.

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 only one RDX exceedance of the risk-based concentration (RBC) of 0.6 µg/L. The maximum perchlorate concentration was 1.4 µg/L (MW-163S, July 2022, a decrease from 3.1 µg/L July 2021). This location has fluctuated slightly above and below the MMCL since 2009. The maximum RDX concentration was 1.4 µg/L (MW 163S, August 2022, which has been the same since 2020). In zone 2 (downgradient of J3EWIP1), the maximum perchlorate concentration was 2.3 µg/L (MW MW-637M2, July 2022), which is a decrease from 2.8 µg/L in January 2021. The maximum RDX concentration was 4.4 µg/L (90MW0054, July 2022) and is consistent with past trends. Mr. Hill (IAGWSP) noted that overall, the maximum network concentrations were consistent with past trends.

Chris Kilbridge (USACE) continued the presentation with the hydraulic monitoring. He noted that there was one synoptic gauging round in July of 2022 and that hydraulic gradients were consistent with past years. Water levels overall were approximately one half to one foot higher than in 2021. The top of the mound USGS 537 537-0107 was 70.15 ft msl (70.15 ft msl July 2021). Groundwater flow is north to south, converging near extraction wells capturing plumes.

Mr. Kilbridge (USACE) continued by showing a figure of the modeled capture zones under 2022 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 2.3 µg/L at MW-637M2, and the predicted maximum was in 1.65 ug/L at MW-637M2. The predicted maximum at the entire J-3 Range site 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 4.4 µg/L at 90MW0054 and the predicted maximum was 0.72 ug/L at

MW-143M2. The predicted maximum at the entire J-3 Range site was 1.04 µg/L, in vicinity of MW-163S.

A comparison to Decision Document (DD) criteria was discussed. The DD predicted 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 2018 plume shell with drift update through August 2021, perchlorate would be below 2.0 µg/L off-base by 2028 and on base by 2036. RDX would be below 0.6 off-base by 2025 and on-base by 2027. The additional years to attenuate is attributed to a delay as it migrates through the relatively low hydraulic conductivity materials. Mr. Kilbridge (USACE) noted that the new plume shells that are currently being worked on will updated the cleanup times.

Mr. Kilbridge (USACE) reviewed the surface water monitoring activities. At Snake Pond, surface water samples were collected from three locations during two sampling events (May and August). All explosives samples were non-detect and perchlorate was non-detect to J-values, except for one sample at 0.35 µg/L. 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 system on wetland water levels.

Recommendations were reviewed and discussed. For hydraulic monitoring, IAGWSP is recommending deleting MW-251M1/M2/M3 because IAGWSP no longer has an active right-of-entry (ROE) with the property owner and MW-217M1/M3/M4 was owned and abandoned by AFCEC in 2021. In order to replace the function lost by these wells, IAGWSP recommends adding MW-361M1/M3/M3. Ms. Dolan (EPA) noted that she was surprised that MW-217 was one of AFCEC wells and not an IAGWSP well based on the number designation. Pam Richardson (IAGWSP) explained that IAGWSP had also thought it was AFCEC's well but when she researched ownership, realized it was an AFCEC well that IAGWSP had taken over sampling of it many years ago. Ms. Dolan (EPA) asked why AFCEC didn't abandon MW-218 nearby. Ms. Richardson (IAGWSP) explained that in 2021, AFCEC had provided a list of wells that they wanted to abandon and asked IAGWSP if they wanted any retained. IAGWSP requested that they leave MW-218 in place.

Ms. Dolan (EPA) asked if there was an active request with the Town of Sandwich to discontinue sampling at Snake Pond. Ms. Richardson (IAGWSP) explained that the previous Health Agent, Mr. Dave Mason, had verbally agreed to let IAGWSP discontinue sampling but had asked for the request to be sent again in writing so he could officially respond. The letter was sent just prior to the COVID-19 pandemic, and the Health Department became unresponsive. Ms. Richardson (IAGWSP) explained that earlier this year, Mr. Mason retired, and the town appointed a new health agent. IAGWSP has drafted a new letter to inform the new agent of the situation and hopefully get resolution.

Mr. Kilbridge (USACE) continued with recommendations. He said that for chemical monitoring, IAGWSP recommends deleting MW-171M2 located on the small island in the north section of Snake Pond as IAGWSP does not have an ROE for this location. It was last sampled in 2018. In addition, surface water sampling will continue according to the currently approved schedule pending a final decision by the Board of Health. It was noted that the perchlorate and RDX plume shells are currently being updated and will be presented in 2023 EMR.

Mr. Kilbridge (USACE) explained that samples for PFAS analysis are collected semiannually from J-3 influent and effluent and that historical and new validated PFAS samples are reported in Table 3 of the Monthly Progress Reports. The PFAS well sampling has been executed during summer 2023 and results will be presented in the comprehensive PFAS groundwater sampling report which will include all validated data collected 2017 through December 31, 2023. He noted that any recommendations or PFAS investigative activities will be presented in that report.

JBCC Cleanup Team Meeting

The next JBCC Cleanup Team (JBCCCT) has not yet been scheduled (previous meeting was 30 August 2023). Meeting details and presentation materials can be found on the IAGWSP web site at http://jbcc-iagwsp.org/community/impact/presentations/. The Cleanup Team meeting discusses late breaking news and responses to action items, as well as updates from the IAGWSP and the Installation Restoration Program (IRP). The JBCCCT meetings provide a forum for community input regarding issues related to both the IRP and the IAGWSP.

3. SUMMARY OF DATA RECEIVED

Table 1 summarizes sampling for all media from 01 to 30 September 2023. Table 2 summarizes the validated detections of explosives compounds and perchlorate for all groundwater results received from 01 to 30 September 2023. These results are compared to the Maximum Contaminant Levels/Health Advisory (MCL/HA) values for respective analytes. Explosives and perchlorate are the primary contaminants of concern (COC) at Camp Edwards. Table 3 summarizes sampling of influent and groundwater samples for per- and polyfluoroalkyl substances (PFAS) from 01 to 30 September 2023. Table 3 PFAS results are compared to the Regional Screening Levels (RSL) published by EPA on 17 May 2022 as well as the EPA Lifetime Health Advisory for PFOS+PFOA and the MassDEP MCL for PFAS6.

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

4. SUBMITTED DELIVERABLES

Deliverables submitted during the reporting period include the following:

• Monthly Progress Report No. 317 for August 2023	14 September 2023
• Response to EPA Region 1 Requests to Conduct Extensive Research and Testing for PFAS at multiple operable units under the Safe Drinking Water Administrative Orders	15 September 2023
Final Technical Memorandum: Small Arms Range Environmental Monitoring Work Plan Addendum	22 September 2023
Final Revision 1 – 2021 Source Removal Annual Report at the Central Impact Area	27 September 2023

5. SCHEDULED ACTIONS

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

Response to Comments on the Draft Five Year Review Report
Response to Comments on the Draft J-1 Range South 2022 Environmental Monitoring Report
Response to Comments on the Draft J-1 Range North 2022 Environmental Monitoring Report with Plume Shell Tech Memo
Draft Central Impact Area Environmental Monitoring Report for July 2022 – June 2023
Draft J-3 Range Environmental Monitoring Report for September 2021 – August 2022
Response to Comments on the Demolition Area 2 2023 Environmental Monitoring Report
Response to Comments on the Draft J-2 Range North November 2021 to October 2022 Environmental Monitoring Report
Memorandum of Resolution for the Northwest Corner Demonstration of Compliance Report (*on hold pending resolution of PFAS issues*)

TABLE 1
Sampling Progress: 01 to 30 September 2023

Area Of Concern	Location	Field Sample ID	Sample Type	Date Sampled	Matrix	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)
J2 Range Northern	MW-619M2	MW-619M2_F23	N	09/28/2023	Ground Water	234.1	244.1
J2 Range Northern	MW-619M1	MW-619M1_F23	N	09/28/2023	Ground Water	255.1	265.1
J2 Range Northern	MW-612M2	MW-612M2_F23	N	09/28/2023	Ground Water	267	277
J2 Range Northern	MW-612M1	MW-612M1_F23	MS	09/28/2023	Ground Water	297	307
J2 Range Northern	MW-612M1	MW-612M1_F23	N	09/28/2023	Ground Water	297	307
J2 Range Northern	MW-612M1	MW-612M1_F23	SD	09/28/2023	Ground Water	297	307
J2 Range Northern	MW-640M2	MW-640M2_F23	N	09/27/2023	Ground Water	216	226
J2 Range Northern	MW-640M1	MW-640M1_F23	N	09/27/2023	Ground Water	246	256
J2 Range Northern	MW-703M2	MW-703M2_F23	N	09/27/2023	Ground Water	224.1	234.1
J2 Range Northern	MW-703M2	MW-703M2_F23D	FD	09/27/2023	Ground Water	224.1	234.1
J2 Range Northern	MW-703M1	MW-703M1_F23	N	09/27/2023	Ground Water	248	258
J2 Range Northern	MW-587M2	MW-587M2_F23	N	09/27/2023	Ground Water	220	230
J2 Range Northern	MW-587M2	MW-587M2_F23D	FD	09/27/2023	Ground Water	220	230
J2 Range Northern	MW-587M1	MW-587M1_F23	N	09/27/2023	Ground Water	250	260
J2 Range Northern	MW-635M1	MW-635M1_F23	N	09/26/2023	Ground Water	265.4	275.4
J2 Range Northern	MW-621M2	MW-621M2_F23	N	09/26/2023	Ground Water	219.4	229.4
J2 Range Northern	MW-621M2	MW-621M2_F23D	FD	09/26/2023	Ground Water	219.4	229.4
J2 Range Northern	MW-621M1	MW-621M1_F23	N	09/26/2023	Ground Water	249.4	259.4
J2 Range Northern	MW-702M2	MW-702M2_F23	N	09/26/2023	Ground Water	208.1	218.1
J2 Range Northern	MW-702M1	MW-702M1_F23	N	09/26/2023	Ground Water	277.5	287.5
J2 Range Northern	MW-305M1	MW-305M1_F23	N	09/25/2023	Ground Water	202.82	212.82
J2 Range Northern	MW-622M2	MW-622M2_F23	N	09/25/2023	Ground Water	220.4	230.4
J2 Range Northern	MW-622M1	MW-622M1_F23	N	09/25/2023	Ground Water	245.4	255.4
J2 Range Northern	MW-704M2	MW-704M2_F23	N	09/25/2023	Ground Water	217.8	227.8
J2 Range Northern	MW-704M1	MW-704M1_F23	N	09/25/2023	Ground Water	244	254
J2 Range Northern	MW-130S	MW-130S_F23	N	09/21/2023	Ground Water	103	113
J2 Range Northern	MW-327M3	MW-327M3_F23	N	09/21/2023	Ground Water	220.16	230.15
J2 Range Northern	MW-327M2	MW-327M2_F23	N	09/21/2023	Ground Water	265.01	275.01
J2 Range Northern	MW-327M1	MW-327M1_F23	N	09/21/2023	Ground Water	296.06	306.04
J2 Range Northern	MW-296M2	MW-296M2_F23	MS	09/20/2023	Ground Water	214.98	224.98
J2 Range Northern	MW-296M2	MW-296M2_F23	N	09/20/2023	Ground Water	214.98	224.98
J2 Range Northern	MW-296M2	MW-296M2_F23	SD	09/20/2023	Ground Water	214.98	224.98
J2 Range Northern	MW-296M1	MW-296M1_F23	N	09/20/2023	Ground Water	255.08	265.08
J2 Range Northern	MW-289S	MW-289S_F23	N	09/20/2023	Ground Water	0	0
J2 Range Northern	MW-289M2	MW-289M2_F23	N	09/20/2023	Ground Water	0	0
J2 Range Northern	MW-289M2	MW-289M2_F23D	FD	09/20/2023	Ground Water	0	0
J2 Range Northern	MW-289M1	MW-289M1_F23	N	09/20/2023	Ground Water	0	0
J2 Range Northern	J2EW2-MW3-B	J2EW2-MW3-B_F23	N	09/19/2023	Ground Water	212.65	222.65
J2 Range Northern	J2EW2-MW3-C	J2EW2-MW3-C_F23	N	09/19/2023	Ground Water	246	256
J2 Range Northern	MW-313M3	MW-313M3_F23	N	09/19/2023	Ground Water	195.07	205.57
J2 Range Northern	MW-313M2	MW-313M2_F23	N	09/19/2023	Ground Water	215.46	225.49
J2 Range Northern	MW-313M1	MW-313M1_F23	N	09/19/2023	Ground Water	255.42	265.42
J2 Range Northern	MW-313M1	MW-313M1_F23D	FD	09/19/2023	Ground Water	255.42	265.42
J2 Range Northern	MW-630M1	MW-630M1_F23	MS	09/18/2023	Ground Water	217	227
J2 Range Northern	MW-630M1	MW-630M1_F23	N	09/18/2023	Ground Water	217	227
J2 Range Northern	MW-630M1	MW-630M1_F23	SD	09/18/2023	Ground Water	217	227
J2 Range Northern	MW-632M2	MW-632M2_F23	N	09/18/2023	Ground Water	229.5	239.5
J2 Range Northern	MW-632M1	MW-632M1_F23	N	09/18/2023	Ground Water	254.5	264.5
J2 Range Northern	MW-318M2	MW-318M2_F23	N	09/18/2023	Ground Water	205.8	215.82
J2 Range Northern	MW-318M1	MW-318M1_F23	N	09/18/2023	Ground Water	305.79	315.81
J2 Range Northern	C-4S	C-4S_P23	N	09/14/2023	Ground Water	200	250
J2 Range Northern	C-4M	C-4M_P23	N	09/14/2023	Ground Water	260	300
J2 Range Northern	C-4D	C-4D_P23	N	09/13/2023	Ground Water	310	350
J2 Range Northern	C-7S	C-7S_P23	N	09/13/2023	Ground Water	199	239
J2 Range Northern	C-7M	C-7M_P23	N	09/13/2023	Ground Water	247	287
J2 Range Northern	C-7D	C-7D_P23	N	09/12/2023	Ground Water	295	335
Joint Base Cape Code - IAGWSP	FIELDQC	EB_091123	EB	09/11/2023	Water Quality Control Matrix	0	0
Joint Base Cape Code - IAGWSP	FIELDQC	FRB_J2N_091123R	AB	09/11/2023	Water Quality Control Matrix	0	0

N = Normal Sample
FD = Field Duplicate

TABLE 1
Sampling Progress: 01 to 30 September 2023

Area Of Concern	Location	Field Sample ID	Sample Type	Date Sampled	Matrix	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)
J2 Range Northern	WS-2CD	WS-2CD_P23R	N	09/11/2023	Ground Water	284	294
J2 Range Northern	WS-2BD	WS-2BD_P23R	N	09/11/2023	Ground Water	283	293
J2 Range Northern	WS-2DD	WS-2DD_P23R	N	09/11/2023	Ground Water	284.5	294.5
J2 Range Northern	MW-631M2	MW-631M2_F23	N	09/07/2023	Ground Water	200.1	210.1
J2 Range Northern	MW-631M1	MW-631M1_F23	N	09/07/2023	Ground Water	233.1	243.1
J2 Range Northern	MW-586M2	MW-586M2_F23	N	09/07/2023	Ground Water	211	221
J2 Range Northern	MW-586M1	MW-586M1_F23	N	09/07/2023	Ground Water	237	247
J1 Range Southern	J1S-EFF	J1S-EFF-190A	N	09/07/2023	Process Water	0	0
J1 Range Southern	J1S-MID	J1S-MID-190A	N	09/07/2023	Process Water	0	0
J1 Range Southern	J1S-INF-2	J1S-INF-2-190A	N	09/07/2023	Process Water	0	0
J2 Range Northern	J2N-EFF-EF	J2N-EFF-EF-204A	N	09/07/2023	Process Water	0	0
J2 Range Northern	J2N-MID-2F	J2N-MID-2F-204A	N	09/07/2023	Process Water	0	0
J2 Range Northern	J2N-MID-1F	J2N-MID-1F-204A	N	09/07/2023	Process Water	0	0
J2 Range Northern	J2N-INF-EF	J2N-INF-EF-204A	N	09/07/2023	Process Water	0	0
J2 Range Northern	MW-588M2	MW-588M2_F23	N	09/07/2023	Ground Water	198	208
J2 Range Northern	J2N-MID-2E	J2N-MID-2E-204A	N	09/07/2023	Process Water	0	0
J2 Range Northern	J2N-MID-1E	J2N-MID-1E-204A	N	09/07/2023	Process Water	0	0
J2 Range Northern	J2N-EFF-G	J2N-EFF-G-204A	N	09/07/2023	Process Water	0	0
J2 Range Northern	MW-588M1	MW-588M1_F23	N	09/07/2023	Ground Water	238	248
J2 Range Northern	J2N-MID-2G	J2N-MID-2G-204A	N	09/07/2023	Process Water	0	0
J2 Range Northern	J2N-MID-1G	J2N-MID-1G-204A	N	09/07/2023	Process Water	0	0
J2 Range Northern	J2N-INF-G	J2N-INF-G-204A	N	09/07/2023	Process Water	0	0
J1 Range Northern	J1N-EFF	J1N-EFF-119A	N	09/07/2023	Process Water	0	0
J1 Range Northern	J1N-MID2	J1N-MID2-119A	N	09/07/2023	Process Water	0	0
J1 Range Northern	J1N-MID1	J1N-MID1-119A	N	09/07/2023	Process Water	0	0
J1 Range Northern	J1N-INF2	J1N-INF2-119A	N	09/07/2023	Process Water	0	0
J2 Range Eastern	J2E-EFF-K	J2E-EFF-K-180A	N	09/06/2023	Process Water	0	0
J2 Range Eastern	J2E-MID-2K	J2E-MID-2K-180A	N	09/06/2023	Process Water	0	0
J2 Range Eastern	J2E-MID-1K	J2E-MID-1K-180A	N	09/06/2023	Process Water	0	0
J2 Range Eastern	J2E-INF-K	J2E-INF-K-180A	N	09/06/2023	Process Water	0	0
J2 Range Eastern	J2E-EFF-J	J2E-EFF-J-180A	N	09/06/2023	Process Water	0	0
J2 Range Eastern	J2E-MID-2J	J2E-MID-2J-180A	N	09/06/2023	Process Water	0	0
J2 Range Eastern	J2E-MID-1J	J2E-MID-1J-180A	N	09/06/2023	Process Water	0	0
J2 Range Eastern	J2E-INF-J	J2E-INF-J-180A	N	09/06/2023	Process Water	0	0
J2 Range Eastern	J2E-EFF-IH	J2E-EFF-IH-180A	N	09/06/2023	Process Water	0	0
J2 Range Eastern	J2E-MID-2H	J2E-MID-2H-180A	N	09/06/2023	Process Water	0	0
J2 Range Eastern	J2E-MID-1H	J2E-MID-1H-180A	N	09/06/2023	Process Water	0	0
J2 Range Eastern	J2E-MID-2I	J2E-MID-2I-180A	N	09/06/2023	Process Water	0	0
J2 Range Eastern	J2E-MID-1I	J2E-MID-1I-180A	N	09/06/2023	Process Water	0	0
J2 Range Eastern	J2E-INF-I	J2E-INF-I-180A	N	09/06/2023	Process Water	0	0
Demolition Area 1	FPR-2-EFF-A	FPR-2-EFF-A-210A	N	09/06/2023	Process Water	0	0
Demolition Area 1	FPR-2-GAC-MID1A	FPR-2-GAC-MID1A-210A	N	09/06/2023	Process Water	0	0
Demolition Area 1	FPR2-POST-IX-A	FPR2-POST-IX-A-210A	N	09/06/2023	Process Water	0	0
Demolition Area 1	FPR-2-INF	FPR-2-INF-210A	N	09/06/2023	Process Water	0	0
Demolition Area 1	D1LE-EFF	D1LE-EFF-86A	N	09/06/2023	Process Water	0	0
Demolition Area 1	D1LE-MID2	D1LE-MID2-86A	N	09/06/2023	Process Water	0	0
Demolition Area 1	D1LE-MID1	D1LE-MID1-86A	N	09/06/2023	Process Water	0	0
Demolition Area 1	D1LE-INF	D1LE-INF-86A	N	09/06/2023	Process Water	0	0
Demolition Area 1	D1-EFF	D1-EFF-158A	N	09/06/2023	Process Water	0	0
Demolition Area 1	D1-MID-2	D1-MID-2-158A	N	09/06/2023	Process Water	0	0
Demolition Area 1	D1-MID-1	D1-MID-1-158A	N	09/06/2023	Process Water	0	0
Demolition Area 1	D1-INF	D1-INF-158A	N	09/06/2023	Process Water	0	0
J3 Range	J3-EFF	J3-EFF-204A	N	09/05/2023	Process Water	0	0
J2 Range Northern	MW-589M2	MW-589M2_F23	N	09/05/2023	Ground Water	211	221
J3 Range	J3-MID-2	J3-MID-2-204A	N	09/05/2023	Process Water	0	0
J3 Range	J3-MID-1	J3-MID-1-204A	N	09/05/2023	Process Water	0	0
J3 Range	J3-INF	J3-INF-204A	N	09/05/2023	Process Water	0	0
J2 Range Northern	MW-589M1	MW-589M1_F23	N	09/05/2023	Ground Water	240	250
J2 Range Northern	MW-585M3	MW-585M3_F23	N	09/05/2023	Ground Water	198.5	208.5

N = Normal Sample
FD = Field Duplicate

TABLE 1
Sampling Progress: 01 to 30 September 2023

Area Of Concern	Location	Field Sample ID	Sample Type	Date Sampled	Matrix	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)
J2 Range Northern	MW-585M3	MW-585M3_F23D	FD	09/05/2023	Ground Water	198.5	208.5
Central Impact Area	CIA1-EFF	CIA1-EFF-116A	N	09/05/2023	Process Water	0	0
Central Impact Area	CIA1-MID2	CIA1-MID2-116A	N	09/05/2023	Process Water	0	0
Central Impact Area	CIA1-MID1	CIA1-MID1-116A	N	09/05/2023	Process Water	0	0
Central Impact Area	CIA1-INF	CIA1-INF-116A	N	09/05/2023	Process Water	0	0
J2 Range Northern	MW-585M2	MW-585M2_F23	N	09/05/2023	Ground Water	218.5	228.5
Central Impact Area	CIA3-EFF	CIA3-EFF-87A	N	09/05/2023	Process Water	0	0
Central Impact Area	CIA3-MID2	CIA3-MID2-87A	N	09/05/2023	Process Water	0	0
Central Impact Area	CIA3-MID1	CIA3-MID1-87A	N	09/05/2023	Process Water	0	0
Central Impact Area	CIA3-INF	CIA3-INF-87A	N	09/05/2023	Process Water	0	0
J2 Range Northern	MW-585M1	MW-585M1_F23	MS	09/05/2023	Ground Water	240	250
J2 Range Northern	MW-585M1	MW-585M1_F23	N	09/05/2023	Ground Water	240	250
J2 Range Northern	MW-585M1	MW-585M1_F23	SD	09/05/2023	Ground Water	240	250
Central Impact Area	CIA2-EFF	CIA2-EFF-116A	N	09/05/2023	Process Water	0	0
Central Impact Area	CIA2-MID2	CIA2-MID2-116A	N	09/05/2023	Process Water	0	0
Central Impact Area	CIA2-MID1	CIA2-MID1-116A	N	09/05/2023	Process Water	0	0
Central Impact Area	CIA2-INF	CIA2-INF-116A	N	09/05/2023	Process Water	0	0

N = Normal Sample
FD = Field Duplicate

TABLE 2
VALIDATED EXPLOSIVE AND PERCHLORATE RESULTS
Data Received September 2023

Area of Concern	Location ID	Field Sample ID	Top Depth (ft bgs)	Bottom Depth (ft bgs)	Date Sampled	Test Method	Analyte	Result Value	Qualifier	Units	MCL/HA	> MCL/HA	MDL	RL
J2 Range Eastern	J2MW-02PZ	J2MW-02PZ_F23	191	201	08/28/2023	SW6850	Perchlorate	0.090	J	µg/L	2.0		0.039	0.20
J2 Range Eastern	MW-307M3	MW-307M3_F23	125.8	135.82	08/24/2023	SW6850	Perchlorate	0.19	J	µg/L	2.0		0.039	0.20
J2 Range Eastern	MW-307M3	MW-307M3_F23	125.8	135.82	08/24/2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.27		µg/L	0.60		0.043	0.20
J2 Range Eastern	MW-307M3	MW-307M3_F23D	125.8	135.82	08/24/2023	SW6850	Perchlorate	0.19	J	µg/L	2.0		0.039	0.20
J2 Range Eastern	MW-307M3	MW-307M3_F23D	125.8	135.82	08/24/2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.25		µg/L	0.60		0.043	0.20
J2 Range Eastern	MW-324M2	MW-324M2_F23	203.74	214.74	08/24/2023	SW6850	Perchlorate	0.81		µg/L	2.0		0.039	0.20
J2 Range Eastern	MW-324M2	MW-324M2_F23	203.74	214.74	08/24/2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.15	J	µg/L	0.60		0.043	0.20
J2 Range Eastern	MW-324M2	MW-324M2_F23	203.74	214.74	08/24/2023	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.17	J	µg/L	400		0.091	0.20
J2 Range Eastern	MW-324M1	MW-324M1_F23	234.85	244.85	08/24/2023	SW6850	Perchlorate	0.38		µg/L	2.0		0.039	0.20
J2 Range Eastern	MW-324M1	MW-324M1_F23	234.85	244.85	08/24/2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.11	J	µg/L	0.60		0.043	0.20
J2 Range Eastern	MW-324M1	MW-324M1_F23	234.85	244.85	08/24/2023	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.093	J	µg/L	400		0.091	0.20
J2 Range Eastern	MW-319M2	MW-319M2_F23	165.17	175.17	08/23/2023	SW6850	Perchlorate	0.063	J	µg/L	2.0		0.039	0.20
J2 Range Eastern	MW-319M1	MW-319M1_F23	200.25	210.25	08/23/2023	SW6850	Perchlorate	0.062	J	µg/L	2.0		0.039	0.20
J2 Range Eastern	MW-709S	MW-709S_F23	106.2	116.2	08/23/2023	SW6850	Perchlorate	0.27		µg/L	2.0		0.039	0.20
J2 Range Eastern	MW-708S	MW-708S_F23	107.7	117.7	08/23/2023	SW6850	Perchlorate	0.084	J	µg/L	2.0		0.039	0.20
J2 Range Eastern	MW-707S	MW-707S_F23	110.3	120.3	08/23/2023	SW6850	Perchlorate	0.24		µg/L	2.0		0.039	0.20
J2 Range Eastern	MW-707S	MW-707S_F23	110.3	120.3	08/23/2023	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.38		µg/L	400		0.091	0.20
J2 Range Eastern	MW-706S	MW-706S_F23	112.7	122.7	08/23/2023	SW6850	Perchlorate	0.66		µg/L	2.0		0.039	0.20
J2 Range Eastern	MW-706S	MW-706S_F23	112.7	122.7	08/23/2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.048	J	µg/L	0.60		0.043	0.20
J2 Range Eastern	MW-365M2	MW-365M2_F23	205.52	215.52	08/22/2023	SW6850	Perchlorate	0.076	J	µg/L	2.0		0.039	0.20
J2 Range Eastern	MW-365M2	MW-365M2_F23	205.52	215.52	08/22/2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.12	J	µg/L	0.60		0.043	0.20
J2 Range Eastern	MW-436M1	MW-436M1_F23	295.47	305.47	08/22/2023	SW6850	Perchlorate	0.36		µg/L	2.0		0.039	0.20
J2 Range Eastern	MW-393M2	MW-393M2_F23	218.16	228.16	08/22/2023	SW6850	Perchlorate	0.063	J	µg/L	2.0		0.039	0.20
J2 Range Eastern	MW-393M1	MW-393M1_F23	268.02	278.02	08/22/2023	SW6850	Perchlorate	0.040	J	µg/L	2.0		0.039	0.20
J2 Range Eastern	MW-170M2	MW-170M2_F23	198	208	08/21/2023	SW6850	Perchlorate	0.075	J	µg/L	2.0		0.039	0.20
J2 Range Eastern	MW-170M1	MW-170M1_F23	265	275	08/21/2023	SW6850	Perchlorate	0.11	J	µg/L	2.0		0.039	0.20
J2 Range Eastern	MW-321M2	MW-321M2_F23	155.67	165.67	08/21/2023	SW6850	Perchlorate	0.12	J	µg/L	2.0		0.039	0.20
J2 Range Eastern	MW-321M1	MW-321M1_F23	174.61	184.61	08/21/2023	SW6850	Perchlorate	0.10	J	µg/L	2.0		0.039	0.20
J2 Range Eastern	MW-667M2	MW-667M2_F23	277.3	287.3	08/21/2023	SW6850	Perchlorate	0.35		µg/L	2.0		0.039	0.20
J2 Range Eastern	MW-667M2	MW-667M2_F23	277.3	287.3	08/21/2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.27		µg/L	0.60		0.043	0.20
J2 Range Eastern	MW-667M2	MW-667M2_F23	277.3	287.3	08/21/2023	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.39		µg/L	400		0.091	0.20
J2 Range Eastern	MW-667M1	MW-667M1_F23	302.3	312.3	08/21/2023	SW6850	Perchlorate	0.52	J	µg/L	2.0		0.039	0.20
J2 Range Eastern	MW-667M1	MW-667M1_F23	302.3	312.3	08/21/2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.3		µg/L	0.60	X	0.043	0.20
J2 Range Eastern	MW-667M1	MW-667M1_F23	302.3	312.3	08/21/2023	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.80		µg/L	400		0.091	0.20
J2 Range Eastern	J2MW-04M1	J2MW-04M1_F23	257	267	08/21/2023	SW6850	Perchlorate	0.079	J	µg/L	2.0		0.039	0.20
J2 Range Eastern	MW-335M2	MW-335M2_F23	215.25	225.25	08/17/2023	SW6850	Perchlorate	0.055	J	µg/L	2.0		0.039	0.20
J2 Range Eastern	MW-335M1	MW-335M1_F23	255.2	265.2	08/17/2023	SW6850	Perchlorate	0.071	J	µg/L	2.0		0.039	0.20
J2 Range Eastern	J2MW-02M2	J2MW-02M2_F23	236	246	08/17/2023	SW6850	Perchlorate	0.30		µg/L	2.0		0.039	0.20
J2 Range Eastern	J2MW-02M1	J2MW-02M1_F23	271	281	08/17/2023	SW6850	Perchlorate	1.3		µg/L	2.0		0.039	0.20
J2 Range Eastern	J2MW-02M1	J2MW-02M1_F23D	271	281	08/17/2023	SW6850	Perchlorate	1.5		µg/L	2.0		0.039	0.20
J2 Range Eastern	J2MW-01M2	J2MW-01M2_F23	245	255	08/17/2023	SW6850	Perchlorate	0.93		µg/L	2.0		0.039	0.20

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

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

TABLE 2
VALIDATED EXPLOSIVE AND PERCHLORATE RESULTS
Data Received September 2023

Area of Concern	Location ID	Field Sample ID	Top Depth (ft bgs)	Bottom Depth (ft bgs)	Date Sampled	Test Method	Analyte	Result Value	Qualifier	Units	MCL/HA	> MCL/HA	MDL	RL
J2 Range Eastern	MW-366M2	MW-366M2_F23	175	185	08/16/2023	SW6850	Perchlorate	0.11	J	µg/L	2.0		0.039	0.20
J2 Range Eastern	MW-366M1	MW-366M1_F23	215	225	08/16/2023	SW6850	Perchlorate	1.2		µg/L	2.0		0.039	0.20
J2 Range Eastern	MW-366M1	MW-366M1_F23	215	225	08/16/2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.059	J	µg/L	0.60		0.043	0.20
J2 Range Eastern	MW-339M2	MW-339M2_F23	213	223	08/16/2023	SW6850	Perchlorate	0.060	J	µg/L	2.0		0.039	0.20
J2 Range Eastern	MW-339M1	MW-339M1_F23	233	243	08/16/2023	SW6850	Perchlorate	0.26		µg/L	2.0		0.039	0.20
J2 Range Eastern	MW-705M2	MW-705M2_F23	185.9	195.9	08/16/2023	SW6850	Perchlorate	0.44		µg/L	2.0		0.039	0.20
J2 Range Eastern	MW-705M1	MW-705M1_F23	209.7	219.7	08/16/2023	SW6850	Perchlorate	0.071	J	µg/L	2.0		0.039	0.20
J2 Range Eastern	MW-705M1	MW-705M1_F23	209.7	219.7	08/16/2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.047	J	µg/L	0.60		0.043	0.20
J2 Range Eastern	MW-368M3	MW-368M3_F23	155.5	165.5	08/15/2023	SW6850	Perchlorate	0.058	J	µg/L	2.0		0.039	0.20
J2 Range Eastern	MW-368M2	MW-368M2_F23	202.73	212.73	08/15/2023	SW6850	Perchlorate	6.5		µg/L	2.0	X	0.039	0.20
J2 Range Eastern	MW-368M2	MW-368M2_F23	202.73	212.73	08/15/2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	3.3		µg/L	0.60	X	0.043	0.20
J2 Range Eastern	MW-368M2	MW-368M2_F23	202.73	212.73	08/15/2023	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	3.9		µg/L	400		0.091	0.20
J2 Range Eastern	MW-368M1	MW-368M1_F23	237.35	247.35	08/15/2023	SW6850	Perchlorate	33.0		µg/L	2.0	X	0.20	1.0
J2 Range Eastern	MW-368M1	MW-368M1_F23	237.35	247.35	08/15/2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	5.8		µg/L	0.60	X	0.043	0.20
J2 Range Eastern	MW-368M1	MW-368M1_F23D	237.35	247.35	08/15/2023	SW6850	Perchlorate	32.0		µg/L	2.0	X	0.20	1.0
J2 Range Eastern	MW-368M1	MW-368M1_F23D	237.35	247.35	08/15/2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	5.8		µg/L	0.60	X	0.043	0.20
J2 Range Eastern	MW-668M1	MW-668M1_F23	168.7	178.7	08/15/2023	SW6850	Perchlorate	8.8		µg/L	2.0	X	0.039	0.20
J2 Range Eastern	MW-668M1	MW-668M1_F23	168.7	178.7	08/15/2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.89		µg/L	0.60	X	0.043	0.20
J2 Range Eastern	MW-668M1	MW-668M1_F23D	168.7	178.7	08/15/2023	SW6850	Perchlorate	9.0		µg/L	2.0	X	0.039	0.20
J2 Range Eastern	MW-668M1	MW-668M1_F23D	168.7	178.7	08/15/2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.89		µg/L	0.60	X	0.043	0.20
Lima Range	MW-242M1	MW-242M1_F23	235	245	08/15/2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.11	J	µg/L	0.60		0.043	0.20
J2 Range Eastern	J2MW-05M2	J2MW-05M2_F23	185	195	08/15/2023	SW6850	Perchlorate	0.063	J	µg/L	2.0		0.039	0.20
Lima Range	MW-595M2	MW-595M2_F23	205.3	215.3	08/15/2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.22	J	µg/L	0.60		0.043	0.20
J2 Range Eastern	J2MW-05M1	J2MW-05M1_F23	225	235	08/15/2023	SW6850	Perchlorate	0.043	J	µg/L	2.0		0.039	0.20
Lima Range	MW-595M1	MW-595M1_F23	255.3	265.3	08/15/2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.66		µg/L	0.60	X	0.043	0.20
J2 Range Eastern	MW-685M1	MW-685M1_F23	166.2	176.2	08/14/2023	SW6850	Perchlorate	0.15	J	µg/L	2.0		0.039	0.20
J2 Range Eastern	MW-685M1	MW-685M1_F23	166.2	176.2	08/14/2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.050	J	µg/L	0.60		0.043	0.20
Lima Range	MW-651M1	MW-651M1_F23	242.3	252.3	08/14/2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.21	J	µg/L	0.60		0.043	0.20
J2 Range Eastern	MW-665M3	MW-665M3_F23	175.2	185.2	08/14/2023	SW6850	Perchlorate	0.19	J	µg/L	2.0		0.039	0.20
J2 Range Eastern	MW-665M2	MW-665M2_F23	205.2	215.2	08/14/2023	SW6850	Perchlorate	2.6		µg/L	2.0	X	0.039	0.20
J2 Range Eastern	MW-665M2	MW-665M2_F23	205.2	215.2	08/14/2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	2.0		µg/L	0.60	X	0.043	0.20
J2 Range Eastern	MW-665M2	MW-665M2_F23	205.2	215.2	08/14/2023	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.23		µg/L	400		0.091	0.20
J2 Range Eastern	MW-665M2	MW-665M2_F23D	205.2	215.2	08/14/2023	SW6850	Perchlorate	2.6		µg/L	2.0	X	0.039	0.20
J2 Range Eastern	MW-665M2	MW-665M2_F23D	205.2	215.2	08/14/2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.9		µg/L	0.60	X	0.043	0.20
J2 Range Eastern	MW-665M2	MW-665M2_F23D	205.2	215.2	08/14/2023	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.22		µg/L	400		0.091	0.20
J2 Range Eastern	MW-215M2	MW-215M2_F23	205	215	08/14/2023	SW6850	Perchlorate	1.1		µg/L	2.0		0.039	0.20
J2 Range Eastern	MW-215M2	MW-215M2_F23	205	215	08/14/2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.46		µg/L	0.60		0.043	0.20
J2 Range Eastern	MW-215M2	MW-215M2_F23	205	215	08/14/2023	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.10	J	µg/L	400		0.091	0.20
J2 Range Eastern	MW-665M1	MW-665M1_F23	225.2	235.2	08/14/2023	SW6850	Perchlorate	0.043	J	µg/L	2.0		0.039	0.20
J2 Range Eastern	MW-215M1	MW-215M1_F23	240	250	08/14/2023	SW6850	Perchlorate	3.3		µg/L	2.0	X	0.039	0.20
J2 Range Eastern	MW-666M3	MW-666M3_F23	199.8	209.8	08/11/2023	SW6850	Perchlorate	0.86		µg/L	2.0		0.039	0.20

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

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

TABLE 2
VALIDATED EXPLOSIVE AND PERCHLORATE RESULTS
Data Received September 2023

Area of Concern	Location ID	Field Sample ID	Top Depth (ft bgs)	Bottom Depth (ft bgs)	Date Sampled	Test Method	Analyte	Result Value	Qualifier	Units	MCL/HA	> MCL/HA	MDL	RL
J2 Range Eastern	MW-666M3	MW-666M3_F23	199.8	209.8	08/11/2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.11	J	µg/L	0.60		0.043	0.20
J2 Range Eastern	MW-666M2	MW-666M2_F23	219.8	229.8	08/11/2023	SW6850	Perchlorate	0.74		µg/L	2.0		0.039	0.20
J2 Range Eastern	MW-666M2	MW-666M2_F23	219.8	229.8	08/11/2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.085	J	µg/L	0.60		0.043	0.20
J2 Range Eastern	MW-666M1	MW-666M1_F23	244.8	254.8	08/11/2023	SW6850	Perchlorate	0.40		µg/L	2.0		0.039	0.20
J3 Range	J3EWIP2	J3EWIP2_F23	150.5	170.5	08/11/2023	SW6850	Perchlorate	1.4		µg/L	2.0		0.039	0.20
J3 Range	J3EWIP2	J3EWIP2_F23	150.5	170.5	08/11/2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.21		µg/L	0.60		0.043	0.20
J3 Range	J3EWIP2	J3EWIP2_F23	150.5	170.5	08/11/2023	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.20		µg/L	400		0.091	0.20
J3 Range	J3EWIP2	J3EWIP2_F23D	150.5	170.5	08/11/2023	SW6850	Perchlorate	1.4		µg/L	2.0		0.039	0.20
J3 Range	J3EWIP2	J3EWIP2_F23D	150.5	170.5	08/11/2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.26		µg/L	0.60		0.043	0.20
J3 Range	J3EWIP2	J3EWIP2_F23D	150.5	170.5	08/11/2023	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.22		µg/L	400		0.091	0.20
J3 Range	MW-653M1	MW-653M1_F23	147.5	157.5	08/09/2023	SW6850	Perchlorate	0.12	J	µg/L	2.0		0.039	0.20
J3 Range	MW-653M1	MW-653M1_F23	147.5	157.5	08/09/2023	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.10	J	µg/L	400		0.091	0.20
J3 Range	MW-143M3	MW-143M3_F23	107	112	08/09/2023	SW6850	Perchlorate	0.062	J	µg/L	2.0		0.039	0.20
J3 Range	MW-143M3	MW-143M3_F23	107	112	08/09/2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.3		µg/L	0.60	X	0.043	0.20
J3 Range	MW-143M3	MW-143M3_F23	107	112	08/09/2023	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.14	J	µg/L	400		0.091	0.20
J3 Range	MW-143M2	MW-143M2_F23	117	122	08/09/2023	SW6850	Perchlorate	0.071	J	µg/L	2.0		0.039	0.20
J3 Range	MW-143M1	MW-143M1_F23	144	154	08/09/2023	SW6850	Perchlorate	0.093	J	µg/L	2.0		0.039	0.20
J3 Range	MW-247M3	MW-247M3_F23	95	105	08/09/2023	SW6850	Perchlorate	0.068	J	µg/L	2.0		0.039	0.20
J3 Range	J3EWIP1	J3EWIP1_F23	153	193	08/08/2023	SW6850	Perchlorate	0.16	J	µg/L	2.0		0.039	0.20
J3 Range	J3EWIP1	J3EWIP1_F23	153	193	08/08/2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.090	J	µg/L	0.60		0.043	0.20
J3 Range	J3EW0032	J3EW0032_F23	102	152	08/08/2023	SW6850	Perchlorate	0.44		µg/L	2.0		0.039	0.20
J3 Range	J3EW0032	J3EW0032_F23	102	152	08/08/2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.34		µg/L	0.60		0.043	0.20
J3 Range	J3EW0032	J3EW0032_F23	102	152	08/08/2023	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.27		µg/L	400		0.091	0.20
J3 Range	90EW0001	90EW0001_F23	83.1	143.8	08/08/2023	SW6850	Perchlorate	0.11	J	µg/L	2.0		0.039	0.20
J3 Range	90PLT01006	90PLT01006_F23	0	0	08/08/2023	SW6850	Perchlorate	0.086	J	µg/L	2.0		0.039	0.20
J3 Range	MW-197M3	MW-197M3_F23	60.2	65.2	08/07/2023	SW6850	Perchlorate	0.082	J	µg/L	2.0		0.039	0.20
J3 Range	MW-197M2	MW-197M2_F23	80.2	85.2	08/07/2023	SW6850	Perchlorate	0.077	J	µg/L	2.0		0.039	0.20
J3 Range	MW-197M2	MW-197M2_F23	80.2	85.2	08/07/2023	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.18	J	µg/L	400		0.091	0.20
J3 Range	MW-197M2	MW-197M2_F23D	80.2	85.2	08/07/2023	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.19	J	µg/L	400		0.091	0.20
J3 Range	MW-197M1	MW-197M1_F23	120	125	08/07/2023	SW6850	Perchlorate	0.064	J	µg/L	2.0		0.039	0.20
J3 Range	MW-163S	MW-163S_F23	38	48	08/02/2023	SW6850	Perchlorate	1.1		µg/L	2.0		0.039	0.20
J3 Range	MW-163S	MW-163S_F23	38	48	08/02/2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.9		µg/L	0.60	X	0.043	0.20
J3 Range	MW-163S	MW-163S_F23	38	48	08/02/2023	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.44		µg/L	400		0.091	0.20
J3 Range	MW-163S	MW-163S_F23D	38	48	08/02/2023	SW6850	Perchlorate	1.1		µg/L	2.0		0.039	0.20
J3 Range	MW-163S	MW-163S_F23D	38	48	08/02/2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.9		µg/L	0.60	X	0.043	0.20
J3 Range	MW-163S	MW-163S_F23D	38	48	08/02/2023	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.43		µg/L	400		0.091	0.20
J3 Range	MW-359M2	MW-359M2_F23	148.62	158.62	08/02/2023	SW6850	Perchlorate	0.075	J	µg/L	2.0		0.039	0.20
J3 Range	MW-193S	MW-193S_F23	32.5	37.5	08/02/2023	SW6850	Perchlorate	0.16	J	µg/L	2.0		0.039	0.20
J3 Range	MW-193S	MW-193S_F23	32.5	37.5	08/02/2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.64		µg/L	0.60	X	0.043	0.20
J3 Range	MW-193M1	MW-193M1_F23	57.5	62.5	08/02/2023	SW6850	Perchlorate	0.084	J	µg/L	2.0		0.039	0.20
J3 Range	MW-295M2	MW-295M2_F23	117	127	08/01/2023	SW6850	Perchlorate	0.14	J	µg/L	2.0		0.039	0.20

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10/10/2023

TABLE 2
VALIDATED EXPLOSIVE AND PERCHLORATE RESULTS
Data Received September 2023

Area of Concern	Location ID	Field Sample ID	Top Depth (ft bgs)	Bottom Depth (ft bgs)	Date Sampled	Test Method	Analyte	Result Value	Qualifier	Units	MCL/HA	> MCL/HA	MDL	RL
J3 Range	MW-295M1	MW-295M1_F23	145	155	08/01/2023	SW6850	Perchlorate	0.13	J	µg/L	2.0		0.039	0.20
J3 Range	MW-232M2	MW-232M2_F23	61	66	08/01/2023	SW6850	Perchlorate	0.21		µg/L	2.0		0.039	0.20
J3 Range	MW-232M1	MW-232M1_F23	77.5	82.5	08/01/2023	SW6850	Perchlorate	0.14	J	µg/L	2.0		0.039	0.20
J3 Range	MW-232M1	MW-232M1_F23	77.5	82.5	08/01/2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.062	J	µg/L	0.60		0.043	0.20
J3 Range	MW-232M1	MW-232M1_F23D	77.5	82.5	08/01/2023	SW6850	Perchlorate	0.19	J	µg/L	2.0		0.039	0.20
J3 Range	MW-198M4	MW-198M4_F23	70	75	07/31/2023	SW6850	Perchlorate	0.18	J	µg/L	2.0		0.039	0.20
J3 Range	MW-198M4	MW-198M4_F23	70	75	07/31/2023	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.12	J	µg/L	400		0.091	0.20
J3 Range	MW-198M3	MW-198M3_F23	100	105	07/31/2023	SW6850	Perchlorate	0.25		µg/L	2.0		0.039	0.20
J3 Range	MW-198M2	MW-198M2_F23	120	125	07/31/2023	SW6850	Perchlorate	1.1		µg/L	2.0		0.039	0.20
J3 Range	MW-653M2	MW-653M2_F23	59.3	69.3	07/28/2023	SW6850	Perchlorate	0.073	J	µg/L	2.0		0.039	0.20
J3 Range	MW-653M2	MW-653M2_F23	59.3	69.3	07/28/2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.13	J	µg/L	0.60		0.043	0.20
J3 Range	MW-329M2	MW-329M2_F23	150.05	160.05	07/28/2023	SW6850	Perchlorate	1.8		µg/L	2.0		0.039	0.20
J3 Range	MW-329M2	MW-329M2_F23D	150.05	160.05	07/28/2023	SW6850	Perchlorate	1.8		µg/L	2.0		0.039	0.20
J3 Range	MW-329M1	MW-329M1_F23	179.96	189.96	07/28/2023	SW6850	Perchlorate	0.55		µg/L	2.0		0.039	0.20
J3 Range	90MW0054	90MW0054_F23	107	112	07/28/2023	SW6850	Perchlorate	0.19	J	µg/L	2.0		0.039	0.20
J3 Range	90MW0054	90MW0054_F23	107	112	07/28/2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	3.4		µg/L	0.60	X	0.043	0.20
J3 Range	90MW0054	90MW0054_F23	107	112	07/28/2023	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	1.6		µg/L	400		0.091	0.20
J3 Range	90MW0054	90MW0054_F23D	107	112	07/28/2023	SW6850	Perchlorate	0.20		µg/L	2.0		0.039	0.20
J3 Range	90MW0054	90MW0054_F23D	107	112	07/28/2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	3.4		µg/L	0.60	X	0.043	0.20
J3 Range	90MW0054	90MW0054_F23D	107	112	07/28/2023	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	1.6		µg/L	400		0.091	0.20
J3 Range	90MP0059B	90MP0059B_F23	116.4	118.9	07/28/2023	SW6850	Perchlorate	0.090	J	µg/L	2.0		0.039	0.20
J3 Range	MW-144M2	MW-144M2_F23	130	140	07/26/2023	SW6850	Perchlorate	0.053	J	µg/L	2.0		0.039	0.20
J3 Range	MW-243M2	MW-243M2_F23	84.5	94.5	07/26/2023	SW6850	Perchlorate	0.090	J	µg/L	2.0		0.039	0.20
J3 Range	MW-243M1	MW-243M1_F23	114.5	124.5	07/26/2023	SW6850	Perchlorate	0.17	J	µg/L	2.0		0.039	0.20
J3 Range	MW-250M3	MW-250M3_F23	95	105	07/26/2023	SW6850	Perchlorate	0.073	J	µg/L	2.0		0.039	0.20
J3 Range	MW-250M2	MW-250M2_F23	145	155	07/26/2023	SW6850	Perchlorate	0.17	J	µg/L	2.0		0.039	0.20
J3 Range	MW-250M2	MW-250M2_F23	145	155	07/26/2023	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.24		µg/L	400		0.091	0.20
J3 Range	MW-247M2	MW-247M2_F23	125	135	07/25/2023	SW6850	Perchlorate	0.24		µg/L	2.0		0.039	0.20
J3 Range	MW-157M3	MW-157M3_F23	70	80	07/25/2023	SW6850	Perchlorate	0.070	J	µg/L	2.0		0.039	0.20
J3 Range	MW-157M2	MW-157M2_F23	110	120	07/25/2023	SW6850	Perchlorate	0.053	J	µg/L	2.0		0.039	0.20
J3 Range	MW-157M1	MW-157M1_F23	154	164	07/25/2023	SW6850	Perchlorate	0.040	J	µg/L	2.0		0.039	0.20
J3 Range	MW-636M2	MW-636M2_F23	110.5	120.5	07/24/2023	SW6850	Perchlorate	0.080	J	µg/L	2.0		0.039	0.20
J3 Range	MW-636M1	MW-636M1_F23	141.6	151.6	07/24/2023	SW6850	Perchlorate	0.048	J	µg/L	2.0		0.039	0.20
J3 Range	MW-576M3	MW-576M3_F23	98.9	108.9	07/24/2023	SW6850	Perchlorate	0.045	J	µg/L	2.0		0.039	0.20
J3 Range	MW-576M2	MW-576M2_F23	133.9	143.9	07/24/2023	SW6850	Perchlorate	0.34		µg/L	2.0		0.039	0.20
J3 Range	MW-576M1	MW-576M1_F23	173.9	183.9	07/24/2023	SW6850	Perchlorate	0.12	J	µg/L	2.0		0.039	0.20
J3 Range	MW-637M2	MW-637M2_F23	214.1	224.1	07/20/2023	SW6850	Perchlorate	2.0		µg/L	2.0		0.039	0.20
J3 Range	MW-637M2	MW-637M2_F23	214.1	224.1	07/20/2023	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.32		µg/L	0.60		0.043	0.20
J3 Range	MW-343M2	MW-343M2_F23	166.8	171.8	07/20/2023	SW6850	Perchlorate	0.061	J	µg/L	2.0		0.039	0.20
J3 Range	MW-343M1	MW-343M1_F23	214.8	224.8	07/20/2023	SW6850	Perchlorate	0.92		µg/L	2.0		0.039	0.20
J3 Range	MW-142M2	MW-142M2_F23	140	150	07/19/2023	SW6850	Perchlorate	0.059	J	µg/L	2.0		0.039	0.20

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TABLE 2
VALIDATED EXPLOSIVE AND PERCHLORATE RESULTS
Data Received September 2023

Area of Concern	Location ID	Field Sample ID	Top Depth (ft bgs)	Bottom Depth (ft bgs)	Date Sampled	Test Method	Analyte	Result Value	Qualifier	Units	MCL/HA	> MCL/HA	MDL	RL
J3 Range	MW-227M3	MW-227M3_F23	65	75	07/19/2023	SW6850	Perchlorate	0.052	J	µg/L	2.0		0.039	0.20
J3 Range	MW-227M2	MW-227M2_F23	110	120	07/19/2023	SW6850	Perchlorate	0.25		µg/L	2.0		0.039	0.20
J3 Range	MW-227M2	MW-227M2_F23D	110	120	07/19/2023	SW6850	Perchlorate	0.27		µg/L	2.0		0.039	0.20
J3 Range	MW-155M1	MW-155M1_F23	124	134	07/18/2023	SW6850	Perchlorate	0.28		µg/L	2.0		0.039	0.20
J3 Range	J3-MW-1-B	J3-MW-1-B_F23	175.61	185.61	07/18/2023	SW6850	Perchlorate	0.52		µg/L	2.0		0.039	0.20

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10/10/2023

TABLE 3
VALIDATED PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS) RESULTS
Data Received September 2023

Area of Concern	Location ID	Field Sample ID	Top Depth (ft bgs)	Bottom Depth (ft bgs)	Date Sampled	Test Method	Analyte	Result Value	Qualifier	Units	MCL/HA	> MCL/HA	MDL	RL
J3 Range	MW-232M2	MW-232M2_P23	61	66	08/01/2023	E1633DR	Perfluorobutanoic acid (PFBA)	1.1	J	ng/L	1800		0.92	7.8
J3 Range	MW-232M2	MW-232M2_P23	61	66	08/01/2023	E1633DR	Perfluorooctanesulfonic acid (PFOS)	1.8	J	ng/L	4.0		0.43	1.9
J3 Range	MW-232M2	MW-232M2_P23	61	66	08/01/2023	E1633DR	Perfluorooctanoic acid (PFOA)	1.1	J	ng/L	6.0		0.36	1.9
J3 Range	MW-232M1	MW-232M1_P23	77.5	82.5	08/01/2023	E1633DR	Perfluorobutanoic acid (PFBA)	1.9	J	ng/L	1800		0.91	7.8
J3 Range	MW-232M1	MW-232M1_P23	77.5	82.5	08/01/2023	E1633DR	Perfluorooctanesulfonic acid (PFOS)	0.79	J	ng/L	4.0		0.43	1.9
J3 Range	MW-232M1	MW-232M1_P23	77.5	82.5	08/01/2023	E1633DR	Perfluorooctanoic acid (PFOA)	0.57	J	ng/L	6.0		0.36	1.9
Central Impact Area	CIA1-EFF	CIA1-EFF_080123	0	0	08/01/2023	E1633DR	Perfluorohexanesulfonic acid (PFHxS)	0.41	J	ng/L	39.0		0.34	1.7
J3 Range	MW-125S	MW-125S_P23	50	60	08/01/2023	E1633DR	N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	0.81	J	ng/L			0.54	2.0
J3 Range	MW-125S	MW-125S_P23	50	60	08/01/2023	E1633DR	Perfluorobutanesulfonic acid (PFBS)	0.42	J	ng/L	600		0.28	2.0
J3 Range	MW-125S	MW-125S_P23	50	60	08/01/2023	E1633DR	Perfluorobutanoic acid (PFBA)	2.1	J	ng/L	1800		0.92	7.8
J3 Range	MW-125S	MW-125S_P23	50	60	08/01/2023	E1633DR	Perfluoroheptanesulfonic acid (PFHpS)	13.0		ng/L			0.39	2.0
J3 Range	MW-125S	MW-125S_P23	50	60	08/01/2023	E1633DR	Perfluoroheptanoic acid (PFHpA)	8.0		ng/L			0.49	2.0
J3 Range	MW-125S	MW-125S_P23	50	60	08/01/2023	E1633DR	Perfluorohexanesulfonic acid (PFHxS)	12.0		ng/L	39.0		0.38	2.0
J3 Range	MW-125S	MW-125S_P23	50	60	08/01/2023	E1633DR	Perfluorohexanoic acid (PFHxA)	2.3		ng/L	990		0.44	2.0
J3 Range	MW-125S	MW-125S_P23	50	60	08/01/2023	E1633DR	Perfluorononanoic acid (PFNA)	2.1		ng/L	5.9		0.64	2.0
J3 Range	MW-125S	MW-125S_P23	50	60	08/01/2023	E1633DR	Perfluorooctanesulfonamide (PFOSA)	0.95	J	ng/L			0.34	2.0
J3 Range	MW-125S	MW-125S_P23	50	60	08/01/2023	E1633DR	Perfluorooctanesulfonic acid (PFOS)	190		ng/L	4.0	X	0.43	2.0
J3 Range	MW-125S	MW-125S_P23	50	60	08/01/2023	E1633DR	Perfluorooctanoic acid (PFOA)	120		ng/L	6.0	X	0.36	2.0
J3 Range	MW-125S	MW-125S_P23	50	60	08/01/2023	E1633DR	Perfluoropentanesulfonic acid (PFPeS)	1.1	J	ng/L			0.34	2.0
J3 Range	MW-125S	MW-125S_P23	50	60	08/01/2023	E1633DR	Perfluoropentanoic acid (PFPeA)	1.3	J	ng/L			0.54	3.9

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10/10/2023