

November 16, 2020 60565355

Mr. Jeff Gill CENWO-PM-HB U.S. Army Corps of Engineers 1616 Capitol Avenue Omaha, NE 68102

#### Subject: Final OU1 Rebound Study Letter Report – Quarter 3 Event Remedial Action Operation Groundwater Treatment Facility at OU1 and Groundwater Monitoring at OU1 and OU3 Cornhusker Army Ammunition Plant, Grand Island, Nebraska Contract W9128F-18-D-0020, Delivery Order Number F0041

Dear Mr. Gill:

This Operable Unit (OU) 1 Rebound Study Letter Report – Quarter 3 (Q3) Event summarizes the third quarter of field activities completed for the OU1 Rebound Study and 2019 subsurface injections performance monitoring. The Letter Report presents the Q3 analytical results for the OU1 Rebound Study and performance monitoring, evaluations of the OU1 Rebound Study and injection performance, a statistical trend evaluation for OU1 Rebound Study, and presents conclusions and recommendations for upcoming OU1 Rebound Study and subsurface injection activities at Cornhusker Army Ammunition Plant (CHAAP).

#### 1.0 INTRODUCTION

#### 1.1 **PROJECT WORK AUTHORITY**

Brice Engineering, LLC (Brice) and AECOM Technical Services (AECOM) have prepared this document as the OU1 Rebound Study Letter Report – Quarter 3 Event for CHAAP located at Grand Island, Nebraska (Figures 1-1 and 1-2). This work is being conducted under contract W9128F-18-D-0020, Delivery Order Number F0041 to the United States Army Corps of Engineers (USACE), Omaha District.

Conceptual basis for performing the OU1 Rebound Study was provided in the CHAAP OU1 2018 Groundwater Monitoring Results and Program Recommendations Technical Memorandum (Program Recommendations Tech Memo [Brice-AECOM 2019a]), the Final 2018 Annual Groundwater Monitoring Report, Remedial Action Operations (RAO), GWTF at OU1 and Groundwater Monitoring at OU1/OU3 (2018 Annual Groundwater Monitoring Report [Brice-AECOM 2019c]), and presented at several stakeholder meetings (April and November 2019). The approved OU1 Rebound Study work planning details are provided in the Final Addendum 3, Uniform Federal Policy – Quality Assurance Project Plan (UFP-QAPP) for RAO, GWTF at OU1 and Groundwater Monitoring at OU1/OU3 at CHAAP (OU1 Rebound Study Work Plan) (Addendum 3, UFP-QAPP [Brice-AECOM 2019b]).

### 1.2 PROJECT PURPOSE AND OBJECTIVE

OU1 consists of explosives-contaminated groundwater plumes (explosives concentrations exceeding regulatory action levels) at CHAAP. Health Advisory Levels (HALs) for explosives compounds hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX), 2,4,6-trinitrotoluene (TNT), and octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX) were established as regulatory action levels for CHAAP in the OU1 Record of Decision (ROD) (United States Army Environmental Center [USAEC] 1994) and the subsequent OU1 ROD Amendment (URS Greiner Woodward-Clyde Federal Services [URSGWCFS] 2001). The HALs for RDX and TNT are 2 micrograms per liter ( $\mu$ g/L) and 400  $\mu$ g/L for HMX. The primary compounds of concern (i.e., compounds with historic concentrations in groundwater exceeding their corresponding HAL) are RDX and TNT. HMX has not historically exceeded the HAL during any past groundwater monitoring events.

Recent groundwater monitoring and subsequent statistical analysis have shown that concentrations of RDX and TNT near the former facility boundary between extraction well (EW) 6 and EW7 have significantly declined over the past 23 years due to the current on-post RAO (pump and treatment). Numerical groundwater modeling predictions with EW7 not pumping indicate that the on-post plume will not migrate further downgradient (Brice-AECOM 2019c). Based on these results and simulations, an OU1 Rebound Study is being performed to temporarily discontinue pumping at EW7 and monitor groundwater near the former facility boundary. Eight total groundwater sampling events (one baseline and seven quarterly events) will be completed to closely monitor potential migration of the RDX and TNT plumes and to document any increases/decreases in explosives concentrations in groundwater. The objective of the OU1 Rebound Study is to establish a sufficient data set to initiate further identified Decision Points and Contingency Actions as presented in the OU1 Rebound Study Work Plan (i.e., groundwater extraction is no longer needed, groundwater extraction should be resumed, alternative actions) (Brice-AECOM 2019b).

Concurrent with the OU1 Rebound Study, subsurface injections (a voluntary action) were completed in 2019 in the area of highest RDX and TNT concentrations near the former facility boundary and are proposed in 2020 for areas with remaining residual RDX and TNT concentrations above HALs to accelerate remedial timeframes. Four total groundwater sampling events (one baseline and three quarterly events) will be completed for each injection event to closely monitor performance of the subsurface injections and remediation of the RDX and TNT plumes and to document any increases/decreases in explosives concentrations in groundwater. The 2019 subsurface injection details and design were included in the Final 2018 Annual Groundwater Monitoring Report (Brice-AECOM 2019c) with the approved procedures outlined in the Final UFP-QAPP (Bay West LLC and URS Group Inc. [BW-URS] 2014). Following the OU1 Rebound Study and the OU1 subsurface injections with associated performance monitoring activities, long-term monitoring (LTM) will continue at OU1.

#### 2.0 FIELD ACTIVITIES

This section summarizes the Q3 OU1 Rebound Study and subsurface injection performance monitoring field activities completed at CHAAP. All field activities were completed in accordance with field protocols and standard operating procedures (SOPs) presented in the *Groundwater Recovery and Treatment System Operation and Maintenance (O&M) Manual* (GWTF O&M Manual [Brice 2019]), the Final UFP-QAPP (BW-URS 2014) and its Final Addendum 2 (Brice-

AECOM 2018) and Final Addendum 3 (Brice-AECOM 2019b), and the recommendations provided in the Final 2018 Annual Groundwater Monitoring Report (Brice-AECOM 2019c).

It should be noted that concurrent with OU1 Rebound Study – Q3 sampling activities (i.e., 36 monitoring wells), the annual OU1 LTM groundwater sampling event (i.e., 94 monitoring wells) was completed and is included within this letter report (i.e., DQCRs, weekly reports, plume interpretations, and laboratory data packages and reviews). Only wells pertinent to OU1 Rebound Study and subsurface injections are further discussed and OU1 LTM sampling event data and discussion will be included in a separate deliverable (i.e., 2020 OU1/OU3 Annual Monitoring Report).

## 2.1 OU1 REBOUND STUDY FIELD ACTIVITIES

This section presents the Q3 OU1 Rebound Study field activities. The Q3 field activities were completed in May/June 2020 to compare and evaluate associated data to previous completed events. The most recent OU1 Rebound Study activities (Q2) are summarized in the Final OU1 Rebound Study Letter Report – Quarter 2 Event (Brice-AECOM 2020c). Additionally, the baseline event is summarized in the Final OU1 Rebound Study Letter Report – Baseline Event (Brice-AECOM 2020a).

#### 2.1.1 Quarter 3 Direct Push Groundwater Sampling Activities (Off-Post)

A total of three direct push groundwater samples were collected on May 26, 2020 from one offpost location (OS001) as shown on **Figure 2-1**. Off-post direct push groundwater sampling was completed to continue monitoring explosives concentrations only (as screening data) from the select OU1 off-post location where permanent monitoring wells are not present and are not able to be installed due to private land ownership. Direct push groundwater sampling was completed at OS001 at predetermined vertical intervals (shallow – screened approximately 21 to 25 feet below ground surface [bgs], shallow-intermediate – screened approximately 31 to 35 feet bgs, and intermediate – screened approximately 41 to 45 feet bgs) within the unconfined shallow aquifer (Grand Island Formation) to verify the vertical extent of the explosives plume. In accordance with the OU1 Rebound Study Work Plan (Brice-AECOM 2019b), no additional direct push groundwater samples were collected further downgradient of OS001.

Brice-AECOM obtained utility clearances prior to the start of intrusive direct push activities. The Nebraska One Call Diggers Hotline was contacted for utility clearances, which were requested a minimum of 48 hours prior to intrusive work. All identified underground utilities were marked with flagging, stakes, and/or paint. Utility locate tasks were documented in field logbooks to aid in subsequent clearance work. No intrusive work was completed within 5 feet of a marked utility.

The direct push location was sited using predetermined horizontal coordinates and a global positioning system (GPS) unit to ensure completion in the planned locations. The final sampling location has been vertically surveyed and referenced to previously surveyed locations (i.e., monitoring wells). The surveyed ground surface elevation and sample interval elevations are provided in **Table 2-1**.

The direct push groundwater samples were collected using a Geoprobe<sup>®</sup> rig (model 7720DT) by Plains Environmental Services (PES) of Salina, Kansas, with full-time oversight by Brice-

AECOM. Nebraska well drilling contractor licenses for PES and Brice-AECOM are provided in **Appendix A**.

Direct push groundwater samples were completed using direct push technology with a Geoprobe<sup>TM</sup> stainless steel screen point sampler (SP15 with exposed screen) and collected from the screened interval using a Geotech Geopump<sup>TM</sup> peristaltic pump and a check valve. Prior to groundwater sample collection, approximately 7 liters (3 to 5 rod volumes) were purged typically at rates of 0.5 to 1.0 liter per minute (lpm) for each sampling interval. Direct push groundwater samples were analyzed for explosives only (including mono-nitroso-RDX [MNX]) (United States Environmental Protection Agency [USEPA] Method 8330A). Quality control (QC) samples (field duplicates) and matrix spike/matrix spike duplicate (MS/MSD) samples were collected at a 5-percent rate (i.e., one per 20 samples collected). Direct push groundwater sample locations, sample identification (ID) numbers, sample screened intervals, sample collection dates, QC locations, and sample parameters are provided in **Table 2-1**. Direct push groundwater sample collection field sheets (SCFSs) are provided in **Appendix B**.

#### 2.1.2 Quarter 3 OU1 Monitoring Well Sampling Activities (Off-Post and On-Post)

During the Q3 OU1 Rebound Study sampling event, 18 off-post and 18 on-post monitoring wells were sampled from June 1 through June 16, 2020. A summary of the OU1 off-post and on-post sampling locations is presented in **Table 2-2** and shown on **Figure 2-1**.

The monitoring wells were purged and sampled with stainless steel ProActive Monsoon<sup>®</sup> submersible pumps. The ProActive Monsoon<sup>®</sup> pump with new disposable tubing was lowered to the middle of the screened interval prior to purging. Modified low-flow purging techniques were completed at each monitoring well location, maintaining less than (<) 0.3 foot of water level drawdown at a pumping rate of 0.5 lpm or less. Field water quality parameters, including dissolved oxygen (DO), oxidation/reduction potential (ORP), temperature, pH, and conductivity were measured at monitoring wells using a Horiba MPS water quality probe fitted with a flow-through cell. Turbidity was measured with a LaMotte 2020 turbidity meter. Ferrous iron (Fe<sup>2+</sup>) was measured using a Hach DR820 colorimeter. Purging continued until field water quality parameters stabilized (i.e., three consecutive readings) within criteria ranges.

After purging was completed, sample containers were filled from the discharge line at a rate of 0.5 lpm or less. Samples were collected and analyzed for explosives (including MNX) and laboratory monitored natural attenuation (MNA) parameters: alkalinity by Method 2320B, ammonia by Method 350.1, carbon dioxide (CO<sub>2</sub>) back calculated by Method 2320B, nitrate/nitrite by Method 353.2, sulfate by Method 9056A, sulfide by Method 9034, total Kjeldahl nitrogen (TKN) by Method 351.2, dissolved organic carbon (DOC) by Method 9060A, and methane by Method Robert S. Kerr Environmental Research Laboratory 175 (RSK-175). QC samples (field duplicates) and MS/MSDs were collected at a 5-percent rate (i.e., one per 20 samples collected) for all parameters (**Table 2-2**). Off-post and on-post monitoring well SCFSs are provided in **Appendix B**.

#### 2.2 OU1 SUBSURFACE INJECTION FIELD ACTIVITIES

This section presents the Q3 performance monitoring activities completed in May/June 2020 to monitor the results of the 2019 OU1 subsurface injections in the area between EW6 and EW7. The

2019 OU1 subsurface injection activities and baseline performance monitoring groundwater sampling event conducted prior to the subsurface injections are summarized in the Final OU1 Rebound Study Letter Report – Baseline Event (Brice-AECOM 2020a) and subsequent Q2 activities summarized in the Final OU1 Rebound Study Letter Report – Quarter 2 Event (Brice-AECOM 2020c).

#### 2.2.1 Quarter 3 Subsurface Injection Performance Monitoring

In the area between EW6 and EW7, 20 performance monitoring locations (two LTM monitoring wells and 18 temporary wells) were sampled in May/June 2020, as shown on **Figure 2-2**. The Q3 event is the third of four quarterly performance monitoring events planned at these performance monitoring wells to gauge the effectiveness of the 2019 subsurface injection activities completed in October/November 2019. The Q3 performance monitoring included:

- Eighteen new temporary wells (EW7-PM21A/B through EW7-PM29A/B) at nine locations (one shallow depth, one shallow-intermediate depth at each location)
- Two existing monitoring wells (piezometers PZ017R and PZ018)

As completed during the baseline and Q2 events, temporary monitoring wells were used to provide a higher quality groundwater sample that has lower turbidity (compared to direct push screen point samples) and is representative of the aquifer. Temporary monitoring wells were installed using direct push technology. The temporary monitoring wells were screened at select vertical intervals based on past direct push vertical profile sampling results. At each location, one shallow temporary well (screened 20 to 30 feet bgs) and one shallow-intermediate temporary well (screened 30 to 40 feet bgs) were installed within the interpreted groundwater explosives plume. Temporary well construction details are provided in **Table 2-3**. Surveyed ground surface elevations are provided in **Tables 2-3** and **2-4**. PZ017R and PZ018 were selected as performance monitoring locations based on current concentrations and proximity to completed 2019 injection activities (**Figure 2-2**).

#### 2.2.1.1 Groundwater Sampling from Temporary Wells

The 18 temporary monitoring wells (at nine locations) were installed, developed, purged, sampled, and abandoned from May 27 through June 2, 2020. Temporary performance monitoring well development, purging, and sampling were completed using a Geotech Geopump<sup>TM</sup> peristaltic pump. Temporary wells were developed by purging approximately 10 well volumes (purge rates between 0.5 and 1.0 lpm) and samples were collected after all field water quality parameters had stabilized. Groundwater samples collected from the temporary monitoring wells were analyzed for explosives (including MNX) and laboratory water quality parameters: alkalinity, ammonia, nitrate/nitrite, sulfate, sulfide, TKN, DOC, and methane. QC samples (field duplicates) and MS/MSDs were collected at a 5-percent rate (i.e., one per 20 samples collected) for all parameters. Performance monitoring groundwater sampling locations and parameters are listed in **Table 2-4**. Performance monitoring SCFSs are provided in **Appendix B**.

Per Nebraska Administrative Code (NAC) Title 178, Chapter 12 (NAC 2014), temporary wells (i.e., test holes) can be used in conjunction with groundwater investigations but may be retained for no more than 10 days unless a surface seal is used and a pre-notification document is submitted to Nebraska Department of Health and Human Services within 30 days prior to construction, then a temporary well may be retained for up to 90 days. However, upon completion of sample

collection, all temporary monitoring wells were abandoned within 10 days of installation by a Nebraska-licensed well driller. Temporary monitoring wells were abandoned by removing the temporary well casing 3 feet bgs and grouting from the bottom of the well up to ground surface following the procedures outlined in SOP 4, Boring and Monitoring Well Abandonment in the Final UFP-QAPP (BW-URS 2014).

#### 2.2.1.2 Groundwater Sampling from OU1 Monitoring Wells

Two existing monitoring wells (piezometers PZ017R and PZ018) were purged and sampled on June 16, 2020. These wells were purged and sampled in accordance with **Section 2.1.2**. Performance monitoring groundwater sampling locations and parameters are listed in **Table 2-4**. Performance monitoring SCFSs are provided in **Appendix B**.

#### 2.3 INVESTIGATION-DERIVED WASTE DISPOSAL PROCEDURES

Investigation-derived waste (IDW) from the Q3 sampling events consisted of purge, decontamination, and development water. IDW disposal was completed in accordance with NDEE IDW procedures as outlined in the Final UFP-QAPP (BW-URS 2014), as follows:

- A visual inspection of the IDW was conducted for evidence of potential contamination (i.e., discoloration, sheen, etc.).
- All IDW water was containerized in an IDW-labeled poly tank located at the GWTF and sampled for site waste characterization analysis (Explosives [including MNX] only [Method 8330A]). All IDW analyses were nondetect, as summarized in **Table 2-5** (included in **Appendix D**) and discharged to ground surface.

# 2.4 FIELD DOCUMENTATION, SAMPLE IDENTIFICATION, SAMPLE HANDLING, AND SHIPPING

Observations and data collected during the Q3 field activities were documented to provide a permanent record of all completed activities. The observations and data collected during field activities were recorded with waterproof ink in a permanently bound, waterproof logbook with consecutively numbered pages, and/or on field sheets (provided in **Appendix B**), if applicable. A photographic record of site activities and progress was maintained throughout the course of the OU1 Rebound Study and subsurface injection activities and is provided in **Appendix C**.

Samples were collected in laboratory-provided containers. Samples collected during the Q3 OU1 Rebound Study and subsurface injection groundwater sampling activities were given discrete ID codes. Each ID code included the sample location number (sample depth for direct push groundwater samples), and collection date. Sample ID labels were attached to each sample container and completed using waterproof, permanent ink. The labels were completed with the sampler's name, sample ID number, date and time of sample collection, preservation type, analyses requested, and sampling matrix. Sample containers were placed into coolers, packed with wet ice (to achieve a temperature of approximately 6 degrees Celsius [°C] or less), and made ready for shipment. The chain-of-custody (CoC) forms were included in each cooler. A copy of each CoC was maintained to document sample handling between the field and the laboratory. Sample coolers

were shipped to TestAmerica Laboratories, Inc. (TAL) in Arvada, Colorado during each sampling event. All samples were shipped via FedEx Priority Overnight.

### 2.5 FIELD REPORTING

#### 2.5.1 Daily Quality Control Reports

Daily Quality Control Reports (DQCRs) were completed for each day of fieldwork associated with the OU1 Rebound Study. DQCRs include a summary of daily field activities, safety activities, quality assurance/QC activities pertaining to all features of work, problems encountered in the field, and any corrective actions that were taken to correct these problems. Copies of the completed DQCRs are provided in **Appendix B**.

#### 2.5.2 Weekly Progress Reports

Weekly progress reports were completed and submitted to the USACE Project Manager throughout the duration of the field activities. The weekly reports included a summary of the work performed in a particular week including mobilization, site preparation, site access, surveying, groundwater sampling, injection, and demobilization actions. The reports also included a summary of the problems encountered, deviations from the scope of work, percentage of work performed, and records of conversations or other correspondence among CHAAP team members. Copies of the weekly progress reports are provided in **Appendix B**.

## 3.0 SUMMARY OF QUARTER 3 RESULTS AND DATA QUALITY REVIEW

## 3.1 QUARTER 3 ANALYTICAL RESULTS

Groundwater samples for the Q3 OU1 Rebound Study and subsurface injection performance monitoring activities were analyzed in accordance with the Final Addendum 2, UFP-QAPP (Brice-AECOM 2018) for various compounds depending on sample location. Groundwater samples for the OU1 Rebound Study off-post direct push locations were analyzed for explosives (including MNX) only (see **Table 2-1**). Groundwater samples for the OU1 Rebound Study off-post and on-post monitoring wells and the subsurface injection performance monitoring activities were analyzed for explosives (including MNX) and laboratory MNA/water quality parameters: alkalinity, ammonia, nitrate/nitrite, sulfate, sulfide, TKN, DOC, and methane (see **Tables 2-2** and **2-4**). All laboratory analyses were completed by TAL. A summary of all Q3 analytical results is presented below.

**Tables 3-1** (off-post direct push samples), **3-2** (off-post and on-post monitoring wells), and **3-3** (performance monitoring wells) summarize the explosives compounds detected in groundwater during the Q3 OU1 Rebound Study and subsurface injection performance monitoring sampling activities. The primary explosives compounds detected in groundwater were RDX, HMX, and TNT (only compounds having HALs). Additionally, the explosives breakdown products 1,3,5-trinitrobenzene, 1,3-dinitrobenzene, 2,4-dinitrotoluene, 2-amino-4,6-dinitrotoluene (2-Am-DNT), 4-amino-2,6-dinitrotoluene (4-Am-DNT), 4-nitrotoluene, MNX, and nitrobenzene were detected. All of the previously listed explosives compounds were detected at on-post performance monitoring wells. Seven of the on-post performance monitoring wells had concentrations of RDX

above the HAL ( $2 \mu g/L$ ) and two of the on-post performance monitoring wells had a concentration of TNT above the HAL ( $2 \mu g/L$ ). The off-post and on-post monitoring wells had all the detected explosives compounds above except 1,3-dinitrobenzene, 2,4-dinitrotoluene, MNX, and nitrobenzene and only had four wells above the TNT HAL (all on-post). The off-post direct push samples only had detections of 1,3,5-trinitrobenzene, TNT, and RDX with all three samples having TNT above the HAL (further discussed in **Section 5**). The data collected during the Q3 OU1 Rebound Study and subsurface injection performance monitoring were used to update the explosives plume in these areas. Data for the Q3 off-post direct push groundwater sample locations and off-post and on-post monitoring wells are shown on **Figure 2-1** and data for the Q3 OU1 subsurface injection performance monitoring are shown on **Figure 2-2**.

**Tables 3-2** and **3-3** also summarizes the laboratory MNA/water quality parameters detected in groundwater at off-post and on-post monitoring wells and performance monitoring wells, respectively. Field duplicate sample pairs were collected to assess both field and laboratory precision. Four field duplicate samples were collected and submitted to the laboratory for analysis. Analytical results for the Q3 OU1 Rebound Study and subsurface injection performance monitoring field duplicate sample pairs are presented in **Table 3-4**.

#### 3.2 FIELD WATER QUALITY PARAMETERS

Field water quality parameter measurements were determined at the time of sample collection in Q3 OU1 Rebound Study (off-post and on-post monitoring wells) and subsurface injection performance monitoring sampling activities. Field water quality parameter measurements included ORP, DO, pH, conductivity, temperature, turbidity, and  $Fe^{2+}$ . Due to an uncertain DO measurement at one off-post well (NW060), the well was repurged for field water quality parameters using a new instrument less than a week later. All field results were recorded on the SCFSs (included in **Appendix B**). OU1 on-post and off-post monitoring well and subsurface injection performance monitoring well field water quality parameter measurements are presented in **Tables 3-5** and **3-6**, respectively.

#### 3.3 DATA QUALITY REVIEW/VALIDATION PROCESS

Analytical data were reviewed and verified in accordance with the Final Addendum 2, UFP-QAPP (Brice-AECOM 2018). The data review process included evaluations of the following elements, as required, including validation of raw data by an AECOM chemist. The validation software ADR.NET was used to supplement the manual validation.

- Laboratory case narrative/cooler receipt form
- Sample documentation
- Sample preservation and holding time compliance
- Instrument performance check (tuning)
- Initial calibration
- Initial calibration verification second source
- Continuing calibration verification (CCV)

- Internal standards
- Blank samples
- Laboratory control samples (LCS)
- Surrogate compounds
- MS/MSDs
- Field duplicates
- Sensitivity
- Additional qualifications, including professional judgment
- Completeness

#### 3.3.1 Analytical Results Verification

The laboratory data reports, complete ADR.NET, and data verification reports are provided in **Appendix D**. Qualifications applied to the analytical results based on the data review findings are included in **Table D-1** (**Appendix D**). As previously indicated, below trends only include discussion regarding the Q3 OU1 Rebound Study and subsurface injection performance monitoring activities.

General trends regarding the data validation are as follows:

- The methane results for the duplicate pairs EW7-PM23A-3-25 / EW7-PM523A-3-25 were qualified as estimated (J) due to field duplicate relative percent differences outside of evaluation criteria.
- The methane result for samples EW7-PM23A-3-25 and EW7-PM27B-3-35 were qualified as J due to the presence of headspace greater than (>) 6 millimeters in the associated sample containers.
- The nitrate-nitrite results for samples EW7-PM24A-3-25 and EW7-PM27A-3-25 were qualified as J due to LCS/LCSD recovery above evaluation criteria.
- The methane results for samples EW7-PM21A-3-25, the sulfate result for sample G0079-20A, the RDX result for sample EW7-PM29B-3-35, and the 2,4,6-trinitrotoluene and 1,3,5-trinitrobenzene results for sample OS001-DP03-25 were qualified as J due to MS/MSD recoveries above evaluation criteria.
- The detected explosives results for nine samples were qualified as estimated due to surrogate recoveries above evaluation criteria.
- The 4-nitrotoluene, 2-amino-4,6-dinitrotoluene, 2-nitrotoluene, 3-nitrotoluene, and 4-amino-2,6-dinitrotoluene results for eleven samples were qualified as estimated/estimated nondetect (J/UJ) due to LCS/LCSD recoveries below evaluation criteria.
- The sulfate result for sample EW7-PM22B-3-35 was qualified as J due to MS/MSD recoveries below evaluation criteria.
- The nitrate-nitrite results for five samples were qualified as J/UJ due to MS/MSD recoveries below evaluation criteria.

- Some explosives results for five samples were qualified as J/UJ due to MS/MSD recoveries below evaluation criteria.
- The TKN results for six samples were qualified as J/UJ due to MS/MSD recoveries below evaluation criteria.
- The explosives results for four samples were all qualified as J/UJ due to surrogate recoveries below evaluation criteria.
- Some explosives results were qualified as J due to relative percent differences >40% between the primary and confirmation columns.

#### 3.3.2 Conclusions of Data and Quality Review

The analytical data were found to be acceptable for the intended use based on the data validation and the automated data review. Completeness, defined to be the percentage of analytical results judged to be valid, including estimated data, was 100 percent for the sampling events. No analytical data were rejected during the data validation. Generally, good precision was noted in the field duplicate samples for analytes reported above the laboratory limits of quantitation.

### 4.0 OU1 STATISTICAL TREND EVALUATION (OU1 REBOUND STUDY WELLS)

As part of the OU1 Rebound Study, statistical trend evaluation of TNT and RDX concentrations will be performed. Once a total of four quarterly groundwater sampling events have been completed, statistical trend evaluations will be performed for all locations sampled as part of the OU1 Rebound Study where sufficient data are available (i.e., locations with a minimum of four data points and less than 50% non-detect results). While trend evaluation will be performed for all locations, only locations with detections will be included in quarterly report figures (e.g, **Figures 4-1** and **4-2**). Until sufficient OU1 Rebound Study data are obtained, quarterly sampling results will be qualitatively evaluated on a well by well basis to assess if explosives concentrations in groundwater are increasing.

#### 4.1 STATISTICAL TREND EVALUATION PROCESS

Once sufficient analytical data are obtained, analytical results will be evaluated using Monitoring and Remediation Optimization System (MAROS) Version 3.0., a groundwater data trend analysis and LTM optimization tool developed by the Technology Transfer Division of the Air Force Civil Engineer Center (AFCEC) (AFCEC 2012). MAROS applies statistical techniques to site data to determine plume trends. The following site data are analyzed by the program:

- Historic and current site analytical data
- Hydrogeologic factors
- Locations of potential receptors

Statistical trends will be assessed using the Mann-Kendall analysis. Using the three statistical metrics for Mann-Kendall analysis (Mann-Kendall statistic [S], Confidence in Trend [CT], and Coefficient of Variation [COV], the Mann-Kendall analyzes the trend in the data over time and is utilized in the analysis of groundwater plume stability. A concentration trend category is then

determined following the Mann-Kendall Analysis Decision Matrix. Generally, positive S values indicate an increase in analyte concentrations over time and negative S values indicate a decrease in analyte concentrations over time. The CT provides a percentage value of confidence for the S validity, and the COV provides a general indicator of the degree of variability. Mann-Kendall analysis will be applied to RDX and TNT results to assess the potential for future RDX and TNT concentration increases.

Individual monitoring well concentration trends are categorized into one of seven categories based on the decision matrix:

Mann-Kendall Statistic (S)	Confidence in Trend (CT)	Concentration Trend
S >0	> 95%	Increasing (I)
S > 0	90% to 95%	Probably Increasing (PI)
S > 0	< 90%	No Trend (NT)
S less than or equal ( $\leq$ ) 0	$< 90\%$ and COV greater than or equal ( $\geq$ ) 1	No Trend (NT)
$S \leq 0$	< 90% and COV < 1	Stable (S)
S < 0	90% to 95%	Probably Decreasing (PD)
S < 0	> 95%	Decreasing (D)
Dataset where al	ll values are nondetect	Nondetect (ND)

#### MANN-KENDALL ANALYSIS DECISION MATRIX

Notes:

No Trend – No statistically significant trend with more variability in concentrations over time (COV)

Stable – No statistically significant trend with less variability in concentrations over time (COV)

The OU1 Rebound Study statistical trend evaluation and Mann-Kendall analysis will be completed following similar procedures as in the annual OU1 LTM statistical trend evaluations, most recently the Final 2019 Annual Groundwater Report (Brice-AECOM 2020b). See Section 5.5 of the Final 2019 Annual Groundwater Report for additional Program Input details (e.g., Data Management, Site Details).

#### 4.2 STATISTICAL RESULTS SUMMARY

Once sufficient analytical data are obtained from monitoring wells (minimum of four sampling results with less than 50% non-detect results), Mann-Kendall analysis will be performed. A qualitative evaluation of the Q3 data indicated that RDX and TNT concentrations were similar to concentrations detected during the previous annual OU1 LTM event (June 2019), the OU1 Rebound Study baseline event (October 2019), and the Q2 event (February/March 2020), with only minimal fluctuations (increases and decreases) observed. Additionally, all monitoring wells sampled during the Q3 OU1 Rebound Study have previously showed RDX and TNT concentration trends were decreasing or had a stable/no trend, as documented in the 2019 statistical trend evaluation (Brice-AECOM 2020b). The OU1 Rebound Study (baseline, Q2, and Q3) and June 2019 RDX and TNT results are shown on **Figure 4-1** (wells near the former facility boundary) and on **Figure 4-2** (upgradient wells). The tabulated groundwater monitoring data set for each well are included in **Appendix E**.

#### 5.0 OU1 REBOUND STUDY AND INJECTION PERFORMANCE EVALUATION

This section presents an evaluation of the Q3 data compared to Q2 and baseline data for the OU1 Rebound Study and the 2019 subsurface injection performance monitoring for the OU1 groundwater explosives plume. This evaluation will compare RDX and TNT concentrations and key MNA/water quality parameters in groundwater and will qualitatively discuss any concentration trends observed.

### 5.1 OU1 REBOUND STUDY EVALUATION

#### 5.1.1 RDX and TNT Concentrations

RDX and TNT concentrations for all OU1 Rebound Study locations are presented in **Table 5-1**. Of the 18 on-post wells sampled during the Q3 event, four wells (G0077, G0086, PZ017R, and PZ020) have TNT concentrations >2  $\mu$ g/L; a decrease from 5 wells during Q2 event. For these four wells, TNT increased slightly at G0077; but decreased at G0086, PZ017R, and PZ020 when compared to baseline/Q2 event results (**Figures 4-1** and **4-2**). All 18 off-post wells continue to be nondetect for TNT during Q3 event, with exception to NW020, which has had minor TNT detections below the HAL, and OS001, which is discussed in the paragraph below. All on-post and off-post OU1 Rebound Study wells continued to have RDX concentrations below the HAL.

At OS001, a comparison of TNT concentrations detected during the baseline, Q2, and Q3 sampling events indicates concentrations increased in the shallow depth (approximately 25 feet bgs) from 12  $\mu$ g/L, to 9.2  $\mu$ g/L, to 32  $\mu$ g/L. Concentrations remained nearly the same in the shallow-intermediate depth (approximately 35 feet bgs) from 11  $\mu$ g/L, to 8.2  $\mu$ g/L, to 11  $\mu$ g/L. In the intermediate depth (approximately 45 feet bgs) concentrations increased to above the HAL (2  $\mu$ g/L) from nondetect, to 1.1  $\mu$ g/L, to 2.2  $\mu$ g/L. These increases in TNT concentrations are likely due to the on-post injection activities pushing remnants of the dissolved explosives plume downgradient. There were no detections of RDX above its HAL (2  $\mu$ g/L) in any of the off-post direct push samples. Baseline, Q2, and Q3 data indicate that TNT concentrations >2  $\mu$ g/L are present on-post slightly upgradient of the former facility boundary and extend off-post approximately 2,200 feet downgradient of the former facility boundary in a narrow and shallow plume (**Figure 2-1**).

#### 5.1.2 MNA Parameter Measurements

MNA parameters for all OU1 Rebound Study wells are presented in **Table 5-2**. MNA occurs through both destructive (biodegradation) and non-destructive (dispersion and dilution) processes. The Q3 MNA parameter results for the OU1 Rebound Study wells were comparable to baseline and Q2 parameters at the same off-post and on-post wells. In general, the data indicate these OU1 Rebound Study off-post and on-post wells continue to have higher ORP, DO (with the exception of the lower portion of the aquifer which has low DO concentrations), nitrate/nitrite, and sulfate measurements and low ammonia, TKN, DOC, CO<sub>2</sub>, methane, alkalinity, sulfide, and Fe<sup>2+</sup> measurements. Geochemical conditions most conducive to biodegradation include negative ORP values, DO concentrations less than 0.5 mg/L, low nitrate/nitrite concentrations, low sulfate concentrations of sulfide, Fe<sup>2+</sup>, and methane can indicate an environment in which biodegradation is occurring. With the exception of the deeper portion of the aquifer, the data do not provide strong

evidence that biodegradation is the primary mechanism of MNA for RDX and TNT for OU1 Rebound Study wells. Given the low and generally decreasing concentrations of RDX and TNT in the areas where the OU1 Rebound Study wells are located (generally surrounding the plume; upgradient, cross gradient, and downgradient), it is likely that dispersion and dilution play a stronger role in MNA for the OU1 Rebound Study wells than biodegradation. Overall, conditions at the OU1 Rebound Study wells continue to indicate the effectiveness of MNA at reducing RDX and TNT concentrations.

#### 5.2 OU1 SUBSURFACE INJECTION PERFORMANCE MONITORING EVALUATION

#### 5.2.1 RDX and TNT Concentrations

Explosives results for all OU1 subsurface injection performance monitoring locations are presented in **Table 5-3**. The Q3 event results continued to verify that TNT concentrations >2  $\mu$ g/L remain at the former facility boundary; however, concentrations have been substantially reduced within the 2019 subsurface injection areas. The Q3 TNT concentrations, when compared to the baseline event and Q2 event, decreased or remained nondetect at all 20 performance monitoring locations, with only three locations remaining above the TNT HAL (2  $\mu$ g/L) (all performance monitoring locations were above the TNT HAL during the baseline event). The Q3 maximum TNT concentration of 11  $\mu$ g/L was detected at shallow well EW7-PM21A-25 and piezometer PZ017R. Between the baseline event and the Q3 event, the total number of locations with TNT concentrations >2  $\mu$ g/L has been reduced from 20 locations, to seven locations, to three locations. Overall, TNT concentrations have decreased at all wells since the baseline event.

The Q3 RDX concentrations, when compared to the baseline event and Q2 event, decreased or remained unchanged at 13 of 20 performance monitoring locations. Of the seven locations where RDX concentrations increased, six locations increased to above the HAL (2  $\mu$ g/L). The maximum RDX concentration of 57  $\mu$ g/L was detected at shallow-intermediate well EW7-PM25B-35. In comparison, during the baseline, Q2, and Q3 events maximum TNT and RDX concentrations were 29  $\mu$ g/L and 1.7  $\mu$ g/L, 38  $\mu$ g/L and 37  $\mu$ g/L, and 11  $\mu$ g/L and 57  $\mu$ g/L, respectively. The on-post groundwater explosives plume was refined based on the Q3 subsurface injection performance monitoring results as shown on **Figure 2-2**.

#### 5.2.2 Water Quality Parameter Measurements

Water quality parameters for all OU1 subsurface injection performance monitoring locations are presented in **Table 5-4**. The Q3 water quality parameters for the performance monitoring wells indicate a continued anaerobic environment is present due to the 2019 subsurface injections. ORP and DO measurements continued to be low during the Q3 event. At most locations directly impacted by injections (with exception to location EW7-PM25A), significant anaerobic conditions are still present (e.g., ORP/DO measurements at shallow temporary wells averaged from -19.9 mV/1.1 mg/L during baseline event to -101.1 mV/0.46 mg/L during Q3 event). Decreases in sulfate and increases in DOC and Fe<sup>2+</sup> are also indicators that anaerobic conditions are present.

### 6.0 CONCLUSIONS AND RECOMMENDATIONS

This section presents the conclusions for the Q3 OU1 Rebound Study and subsurface injection performance monitoring activities, and recommendations for the next sampling event (Quarter 4 [Q4] – October 2020).

Additionally, this section presents the revised proposed 2020 subsurface injection and performance monitoring activity recommendations. The proposed 2020 subsurface injection and performance monitoring activities have been revised slightly from what was provided in the Final 2019 Annual Groundwater Report (Brice-AECOM 2020b). These slight revisions have been made based on current analytical data collected between the baseline and Q3/LTM sampling events. All proposed 2020 subsurface injection methodologies and procedures will remain the same and be completed in accordance with the recommendations provided the in Final 2019 Annual Groundwater Report.

### 6.1 CONCLUSIONS

#### 6.1.1 OU1 Rebound Study

All Q3 OU1 Rebound Study sampling activities were completed successfully, approximately seven months after EW7 shutdown (October 2019). The Q3 analytical results indicate the OU1 on-post TNT plume maintains its general shape and extent from previous sampling events, with detections below HALs to the north and south extent of EW7 (i.e., well cluster NW020 and PZ019). All concentrations of RDX within the OU1 Rebound Study monitoring wells and off-post direct push samples continue to be below the HAL ( $2 \mu g/L$ ). In accordance with the OU1 Rebound Study Work Plan (Brice-AECOM 2019b), only off-post direct push location OS001 was sampled during the Q3 event.

TNT concentrations >2  $\mu$ g/L were identified at four OU1 Rebound Study on-post wells, which was a reduction from five wells above the HAL during the baseline and Q2 events. TNT concentrations at off-post direct push location OS001 were identified >2  $\mu$ g/L at all three intervals and increased at the shallow interval (25 feet bgs) to >20  $\mu$ g/L. However, off-post monitoring wells downgradient of the feedlot (which have been below HALs since 2012 or longer) continue to remain nondetect for both RDX and TNT.

Following future OU1 Rebound Study sampling events (including continued direct push groundwater sampling at location OS001 and additional downgradient locations), concentrations and migration trends will be evaluated, and if necessary, additional off-post direct push sampling will be completed. Future concentrations and MNA parameters will be evaluated by comparing the previous event data to follow-up OU1 Rebound Study sampling data.

#### 6.1.2 OU1 Subsurface Injection Performance Monitoring

All Q3 OU1 subsurface injection performance monitoring sampling was completed successfully approximately six months after the 2019 subsurface injection event (October/November 2019). Significant decreases in explosives concentrations were identified during the Q3 event due to the establishment of a highly anaerobic subsurface environment conducive to explosives biodegradation.

The Q3 performance monitoring sample results indicated most monitoring locations decreased in TNT concentrations to below the HAL, reducing the size of the >2  $\mu$ g/L TNT plume and eliminating the >20  $\mu$ g/L TNT plume, while eliminating a portion of the plume upgradient of EW7. RDX concentrations varied between increasing and decreasing results during the Q3 event, with seven locations having concentrations above the HAL (Q2 event: four locations, baseline event: none). Of the seven Q3 performance monitoring locations with RDX above the HAL, five were previously below the HAL during Q2 event. Additionally, slightly higher concentrations were observed in the shallow-intermediate depths (i.e., 35 feet bgs) compared to shallow depths. These increases in RDX concentrations are likely due to the continued impacts of injection activities causing mobilization of dissolved explosives (as observed during previous subsurface injection activities 2007 through 2016). These increased RDX concentrations are expected to degrade due to existing anaerobic conditions.

#### 6.2 **RECOMMENDATIONS**

#### 6.2.1 OU1 Rebound Study

Proceed with the Q4 sampling event for the OU1 Rebound Study (October 2020) per Addendum 3, UFP-QAPP (Brice-AECOM 2019b). In accordance with the OU1 Rebound Study Work Plan, the off-post direct push locations OS001, OS003, and an additional downgradient will be sampled to continue to evaluate potential explosives migration off-post and delineate the furthest extent off-post of explosives concentrations above HALs. Following future off-post data analysis, explosives concentrations and migration trends will be evaluated, and if necessary, additional off-post direct push sampling will be completed to verify the off-post extent of explosives concentrations above HALs.

#### 6.2.2 OU1 Subsurface Injection Performance Monitoring

Proceed with Q4 OU1 subsurface injection performance monitoring event for the 2019 subsurface injections per Final 2018 Annual Groundwater Monitoring Report (Brice-AECOM 2019c).

#### 6.2.3 Proposed Subsurface Injection and Performance Monitoring 2020

Additional injections are recommended at select locations in 2020. Immediately following completion of the Q4 OU1 subsurface injection performance monitoring activities, it is recommended that the proposed 2020 subsurface injection activities be implemented. The proposed 2020 subsurface injection activities have been revised slightly (at different locations) from what was provided in the Final 2019 Annual Groundwater Monitoring Report (Brice-AECOM 2020b). Additionally, higher volumes of amendment are recommended to be injected at either the shallow depths or shallow-intermediate depths dependent upon higher concentrations observed at select locations accordingly. These slight revisions are based on current analytical data collected between the baseline and Q3/LTM events.

Based on the Q3/LTM events analytical results, the 2020 subsurface injection activities (600 total injection points and 20 performance monitoring locations sampled for four quarters [80 total samples]) are recommended on-post at LL1, LL2, and the Decant Station where explosives concentrations are above HALs; and again at select locations between EW6 and EW7 that showed increases following the 2019 subsurface injections. **Table 6-1** summarizes details of proposed

subsurface injection transects that are shown on **Figures 6-1**, **6-2** (and **Figure 2-2**). Baseline concentrations will be established using Q4 or LTM analytical results for performance monitoring locations in which the 2019 injections have not been implemented. The 2020 performance monitoring locations, sample identification numbers, sample type, sample screened intervals, QC locations, and sample parameters are provided in **Table 6-2**. The 2020 performance monitoring locations are shown highlighted in green on **Figures 6-1**, **6-2** (and **Figure 2-2**).

The 2020 subsurface injection activities are tentatively planned for completion in October/November 2020. It is anticipated that the 2020 subsurface injection activities will take approximately five to six weeks to complete. Following the 2020 subsurface injection, four performance monitoring events (approximately every three months) will be completed. The treatment effects from the 2019 and recommended 2020 subsurface injections are expected to continue to enhance the anaerobic conditions and stimulate biodegradation of explosives.

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We appreciate the opportunity to provide services for this project. If you have any questions, please contact the undersigned.

Sincerely,

Corey Schwabenlander Project Manager **Project Manager** Brice Engineering, LLC AECOM (801) 558-6032 (402) 952-2560 O:\DCS\Projects\Secure\WP\605\65355\OU1 Rebound Study\Q3 Event\Rev3 Final\OU1 Rebound Study Ltr Rpt-Q3\_rev2.docx

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#### ATTACHMENTS

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	Coord	inates <sup>1</sup>						Pa	ramet	ers
Sample Location ID	Northing	Easting	Ground Elevation (feet amsl) <sup>1</sup>	Screened Interval (feet bgs)	Sample Elevation (feet amsl) <sup>1</sup>	Sample ID	Sample Date	Explosives <sup>2</sup>	Field Duplicate Samples <sup>3</sup>	MS/MSD Samples <sup>4</sup>
OU1 Rebound	d Study - Off-post	Direct Push Samp	les <sup>5</sup>							
		-		21.0 - 25.0	1865.05	OS001-DP03-25	5/26/2020	Х	Х	
OS001	403776.40	2067811.90	1890.05	31.0 - 35.0	1855.05	OS001-DP03-35	5/26/2020	Х		
				41.0 - 45.0	1845.05	OS001-DP03-45	5/26/2020	Х		Х
							Totals	3	1	1

Notes:

<sup>1</sup>Horizontal coordinates are in Nebraska State Plane, North American Datum of 1983. Elevation datum based on National Geodetic Vertical Datum of 1929.

<sup>2</sup>Explosives (+MNX) analysis (SW846 Method 8330A) only completed.

<sup>3</sup>Field duplicate samples were collected at a rate of 5% (1 per 20 samples collected) for explosives only. The 21-25 foot depth interval was chosen for a field duplicate sample because, if the explosives plume does extend to that location, it will most likely be observed at that depth.

<sup>4</sup>MS/MSD samples were collected at a rate of 5% (1 per 20 samples collected) for explosives only. The 41-45 foot depth interval was chosen for an MS/MSD sample since that interval is likely clean.

<sup>5</sup>OU1 Rebound Study off-post direct push groundwater samples will be collected over eight total sampling events (one baseline, seven follow-up) at an approximate quarterly frequency, over approximately 2 years. The follow-up direct push sampling events (seven events at approximate quarterly frequency) will be collected from the established baseline location (i.e., OS001), with selective sample depths based on the baseline and/or follow-up events sample results.

% = percent amsl = above mean sea level bgs = below ground surface DP = direct push ID = identification number MNX = mono-nitroso-RDX MS/MSD = matrix spike/matrix spike duplicate OS = off-post sample OU = Operable Unit RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine

#### **TABLE 2-2**

#### OFF-POST AND ON-POST GROUNDWATER MONITORING WELLS SAMPLED OU1 REBOUND STUDY, QUARTER 3 OU1 REBOUND STUDY LETTER REPORT - QUARTER 3

			Laboratory MNA	Field MNA	Field Duplicate	Field MS/MSD
Well Number	Sample Date	Explosives <sup>1</sup>	Parameters <sup>2</sup>	Parameters <sup>3</sup>	Sample ID <sup>4</sup>	Sample ID <sup>5</sup>
OU1 Off-Post	Monitoring Wel	ls				
CA210	6/9/2020	Х	Х	Х		
CA211	6/9/2020	Х	Х	Х		
CA212	6/9/2020	Х	Х	Х		
CA213	6/9/2020	Х	Х	Х		
NW020	6/15/2020	Х	Х	Х		
NW021	6/15/2020	Х	Х	Х	NW023-20A	
NW022	6/15/2020	Х	Х	Х		
NW050	6/10/2020	Х	Х	Х		
NW051	6/10/2020	Х	Х	Х		
NW052	6/10/2020	Х	Х	Х		
NW060	6/10/2020	Х	Х	Х		
NW061	6/10/2020	Х	Х	Х		
NW062	6/10/2020	Х	Х	Х		
NW070	6/9/2020	Х	Х	Х		
NW071	6/9/2020	Х	Х	Х		
NW080	6/8/2020	Х	Х	Х		
NW081R	6/8/2020	Х	Х	Х		
NW082R	6/8/2020	Х	Х	Х		
	Off-Post Totals	18	18	18	1	0
OU1 On-Post	Monitoring Well	ls				
G0024	6/15/2020	Х	Х	Х		
G0070	6/2/2020	Х	Х	Х		G0070-20A MS/MSD
G0075	6/1/2020	Х	Х	Х		
G0076	6/1/2020	Х	Х	Х		
G0077	6/15/2020	Х	Х	Х		
G0078	6/15/2020	Х	Х	Х		
G0079	6/1/2020	Х	Х	Х		
G0080	6/11/2020	Х	Х	Х		
G0081	6/2/2020	Х	Х	Х		
G0082	6/2/2020	Х	Х	Х		
G0086	6/16/2020	Х	Х	Х		
G0087	6/15/2020	Х	Х	Х		
G0091	6/16/2020	Х	Х	Х		
G0092	6/16/2020	Х	Х	Х		
PZ017R	6/16/2020	Х	Х	Х	PZ021-20A	
PZ018	6/16/2020	Х	Х	Х		
PZ019	6/16/2020	Х	Х	Х		PZ019-20A MS/MSD
PZ020	6/15/2020	Х	Х	Х		
	<b>On-Post Totals</b>	18	18	18	1	2
	<b>Overall Totals</b>	36	36	36	2	2

#### **TABLE 2-2**

#### OFF-POST AND ON-POST GROUNDWATER MONITORING WELLS SAMPLED OU1 REBOUND STUDY, QUARTER 3 OU1 REBOUND STUDY LETTER REPORT - QUARTER 3

		Laboratory		Field	
		MNA	Field MNA	Duplicate	Field MS/MSD
Well Number Sample Date	Explosives <sup>1</sup>	Parameters <sup>2</sup>	Parameters <sup>3</sup>	Sample ID <sup>4</sup>	Sample ID <sup>5</sup>

#### Notes:

<sup>1</sup>Explosives (+MNX) analysis (SW846 Method 8330A).

<sup>2</sup>Laboratory MNA parameters for OU1 (on- and off-post) include: methane (Method RSK 175), total Kjeldahl nitrogen (Method 351.2), nitrate/nitrite (Method 353.2), sulfate (Method 9056A), sulfide (Method 9034), ammonia (Method 350.1), dissolved organic carbon (Method 9060A), alkalinity (Method 2320B), and carbon dioxide (back calculated Method 2320B).

<sup>3</sup>Field MNA parameters include: dissolved oxygen, oxidation/reduction potential, ferrous iron, specific conductance, turbidity, pH, and temperature.

<sup>4</sup>Field duplicate samples were collected at a rate of 5% (1 per 20 samples collected) for the full suite of laboratory parameters. NW021 and PZ017R were chosen for field duplicate samples based on presence of historic explosives concentrations at those locations.

<sup>5</sup>MS/MSD samples were collected at a rate of 5% (1 per 20 samples collected) for the full suite of laboratory parameters. G0070 and PZ019 were chosen for MS/MSD samples based on the lack of historic explosives concentrations at those locations.

% = percent

ID = identification number

MNX = mono-nitroso-RDX

MS/MSD = matrix spike/matrix spike duplicate

MNA = monitored natural attenuation

OU = Operable Unit

PZ = piezometer

RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine

RSK = Robert S. Kerr Environmental Research Laboratory

#### TABLE 2-3 SUMMARY OF TEMPORARY PERFORMANCE MONITORING WELL CONSTRUCTION OU1 SUBSURFACE INJECTION, QUARTER 3 OU1 REBOUND STUDY LETTER REPORT - QUARTER 3

Те	mporary Performance Monitoring Well Construction I	Diagram	Well	Date Installed	Time	Α	В	С	F	G	Н	Ι	Ν	0	Р	Q	R	S
	AGS	Elevation	EW7-PM21A	5/27/2020	1110	2.0	1899.12	1897.12	14.1	1883.0	19.9	1877.2	29.9	1867.2	30.0	1867.1	31.0	1866.
		(feet)	EW7-PM21B	5/27/2020	1045	2.0	1899.12	1897.12	27.9	1869.2	29.9	1867.2	39.9	1857.2	40.0	1857.1	41.0	1856.
	Elevation of top of riser A	/ <u>B</u>	EW7-PM22A	5/27/2020	1310	2.0	1900.25	1898.25	14.2	1884.1	19.9	1878.4	29.9	1868.4	30.0	1868.3	31.0	1867.
			EW7-PM22B	5/27/2020	1250	2.0	1900.25	1898.25	27.8	1870.5	29.9	1868.4	39.9	1858.4	40.0	1858.3	41.0	1857.
_	Ground Elevation / Depth of top of seal ZERC	<u> </u>	EW7-PM23A	5/28/2020	1615	2.0	1896.55	1894.55	12.1	1882.5	19.1	1875.5	29.1	1865.5	30.0	1864.6	31.0	1863.
			EW7-PM23B	5/28/2020	1550	2.0	1896.55	1894.55	27.9	1866.7	29.9	1864.7	39.9	1854.7	40.0	1854.6	41.0	1853.
			EW7-PM24A	5/27/2020	1450	2.0	1899.72	1897.72	13.1	1884.6	19.9	1877.8	29.9	1867.8	30.0	1867.7	31.0	1866.
-	I.D./Type of riser pipe <b>D</b>		EW7-PM24B	5/27/2020	1430	2.0	1899.72	1897.72	27.8	1869.9	29.9	1867.8	39.9	1857.8	40.0	1857.7	41.0	1856.
			EW7-PM25A	5/28/2020	1435	2.0	1895.73	1893.73	12.6	1881.1	19.9	1873.8	29.9	1863.8	30.0	1863.7	31.0	1862.
	Type of Seal E BGS	Elevation	EW7-PM25B	5/28/2020	1400	2.0	1895.73	1893.73	27.9	1865.8	29.9	1863.8	39.9	1853.8	40.0	1853.7	41.0	1852.
		(feet)	EW7-PM26A	5/29/2020	0925	2.0	1899.73	1897.73	14.2	1883.5	19.9	1877.8	29.9	1867.8	30.0	1867.7	31.0	1866.
	Depth of top of filter pack	/ <u>G</u>	EW7-PM26B	5/29/2020	0900	2.0	1899.73	1897.73	27.8	1869.9	29.9	1867.8	39.9	1857.8	40.0	1857.7	41.0	1856.
			EW7-PM27A	5/27/2020	1530	2.0	1897.55	1895.55	12.1	1883.5	19.9	1875.7	29.9	1865.7	30.0	1865.6	31.0	1864.
	Depth to top of screen H	/ <u>I</u>	EW7-PM27B	5/28/2020	0845	2.0	1897.55	1895.55	27.8	1867.8	29.9	1865.7	39.9	1855.7	40.0	1855.6	41.0	1854.
			EW7-PM28A	5/28/2020	1250	2.0	1894.82	1892.82	12.0	1880.8	19.9	1872.9	29.9	1862.9	30.0	1862.8	31.0	1861.
	Type of filter pack J		EW7-PM28B	5/28/2020	1145	2.0	1894.82	1892.82	27.8	1865.0	29.9	1862.9	39.9	1852.9	40.0	1852.8	41.0	1851.8
			EW7-PM29A	5/28/2020	1030	2.0	1895.35	1893.35	12.0	1881.4	19.9	1873.5	29.9	1863.5	30.0	1863.4	31.0	1862.4
•	I.D./Type of screen K		EW7-PM29B	5/28/2020	1015	2.0	1895.35	1893.35	27.7	1865.7	29.9	1863.5	39.9	1853.5	40.0	1853.4	41.0	1852.4
	Screen slot size M																	
	Depth of bottom of screen N	/ <b>O</b>																
	Depth of bottom of plugged blank P	/ <u>Q</u>																
•	——————————————————————————————————————																	
	Depth of bottom of boring R	/ <b>S</b>																

#### Notes:

All temporary wells were installed by direct push methods (installation by Plains Environmental Services). All temporary well installation activities were directed by AECOM. Elevation datum based on National Geodetic Vertical Datum of 1929.

Т

AGS = above ground surface

- BGS = below ground surface
- EW = extraction well
- I.D. = inside diameter
- OU = Operable Unit
- PM = performance monitoring

The following information is the same for all temporary wells installed:

Diameter of boring

- D = 1-inch inside diameter, Schedule 80, flush-threaded polyvinyl chloride
- E = High-solids bentonite grount
- J = Number 30-60, clean, washed, silica sand
- K = 1-inch inside diameter, schedule 80, flush threaded, factory slotted polyvinyl chloride
- M = Screen slot size standard 0.010-inch
- T = 2.125-inch diameter for shallow wells (i.e., PM21A), 3.125-inch diameter for deep wells (i.e., PM21B)

#### **TABLE 2-4**

#### PERFORMANCE MONITORING LOCATIONS SAMPLED OU1 SUBSURFACE INJECTION, QUARTER 3 OU1 REBOUND STUDY LETTER REPORT - QUARTER 3

		Coord	linates <sup>1</sup>								Analytic	al Para	meters	
Sample Location ID	Well Type	Northing	Easting	Top of Casing Elevation (feet amsl) <sup>1</sup>	Screened Interval (feet bgs)	Sample Depth (feet bgs)	Sample Elevation (feet amsl) <sup>1</sup>	Sample ID	Sample Date	Explosives <sup>2</sup>	Laboratory Water Quality Parameters <sup>3</sup>	Field Water Quality Parameters <sup>4</sup>	Field Duplicate Samples <sup>5</sup>	MS/MSD Samples <sup>6</sup>
Between EW6	and EW7													
PZ017R	Piezometer			1895.17	10 - 30	22	1873.17	PZ017R-20A	6/16/2020	X	X	X	Х	
PZ018	Piezometer			1896.88	10 - 30	22	1874.88	PZ018-20A	6/16/2020	X	X	X		
EW7-PM21A	Temp. Well	403407.45	2066429.65	1899.12	20 - 30	25	1874.12	EW7-PM21A-3-25	5/28/2020	X	X	Х		
EW7-PM21B	Temp. Well	403407.43	2000429.05	1099.12	30 - 40	35	1864.12	EW7-PM21B-3-35	5/29/2020	X	Х	X		
EW7-PM22A	Temp. Well	403463.08	2066562.14	1900.25	20 - 30	25	1875.25	EW7-PM22A-3-25	5/28/2020	Х	Х	Х		
EW7-PM22B	Temp. Well	403403.08	2000302.14	1900.25	30 - 40	35	1865.25	EW7-PM22B-3-35	5/29/2020	Х	Х	Х		
EW7-PM23A	Temp. Well	403578.28	2066842.98	1896.55	20 - 30	25	1871.55	EW7-PM23A-3-25	5/31/2020	Х	Х	X	Х	
EW7-PM23B	Temp. Well	405570.20	2000042.90	1070.55	30 - 40	35	1861.55	EW7-PM23B-3-35	5/31/2020	Х	Х	X		
EW7-PM24A	Temp. Well	403412.74	2066751.85	1899.72	20 - 30	25	1874.72	EW7-PM24A-3-25	5/29/2020	Х	Х	Χ		
EW7-PM24B	Temp. Well	105 112.71	2000/01:00	1077.72	30 - 40	35	1864.72	EW7-PM24B-3-35	5/29/2020	Х	Х	Χ		
EW7-PM25A	Temp. Well	403432.36	2066962.17	1895.73	20 - 30	25	1870.73	EW7-PM25A-3-25	5/31/2020	Х	Х	Х		
EW7-PM25B	Temp. Well	105 152.50	2000902.17	10/5.75	30 - 40	35	1860.73	EW7-PM25B-3-35	5/31/2020	Х	Х	Х		
EW7-PM26A	Temp. Well	403248.72	2066662.06	1899.73	20 - 30	25	1874.73	EW7-PM26A-3-25	5/31/2020	Х	Х	X		
EW7-PM26B	Temp. Well	105210.72	2000002.00	1077.15	30 - 40	35	1864.73	EW7-PM26B-3-35	6/1/2020	Х	Х	X		
EW7-PM27A	Temp. Well	403170.77	2066860.69	1897.55	20 - 30	25	1872.55	EW7-PM27A-3-25	5/29/2020	Х	Х	Х		
EW7-PM27B	Temp. Well	100170177	200000000	107,100	30 - 40	35	1862.55	EW7-PM27B-3-35	5/30/2020	Х	Х	X		
EW7-PM28A	Temp. Well	403302.80	2067019.15	1894.82	20 - 30	25	1869.82	EW7-PM28A-3-25	5/30/2020	Х	X	X		
EW7-PM28B	Temp. Well			107	30 - 40	35	1859.82	EW7-PM28B-3-35	5/30/2020	Х	Х	Х		
EW7-PM29A	Temp. Well	403108.54	2067050.13	1895.35	20 - 30	25	1870.35	EW7-PM29A-3-25	5/30/2020	Х	X	Х		
EW7-PM29B	Temp. Well				30 - 40	35	1860.35	EW7-PM29B-3-35	5/30/2020	Χ	Χ	Χ		Х
								Between EW6 and I	EW7 Totals	20	20	20	2	1

 $\texttt{O:DCS:Projects:Secure:WPi605i65355:OU1 Rebound Study:Q3 Event:Rev2 Final:Tables:OU1 Rebound Study:LR-Q3_Tables_rev2.xlsx: 11/9/2020 / OMA} Page 1 of 2$ 

#### TABLE 2-4 PERFORMANCE MONITORING LOCATIONS SAMPLED OU1 SUBSURFACE INJECTION, QUARTER 3 OU1 REBOUND STUDY LETTER REPORT - QUARTER 3

	Coord	inates <sup>1</sup>								Analytic	al Para	meters	5
Sample Location ID Well Type	Northing	Easting	Top of Casing Elevation (feet amsl) <sup>1</sup>	Screened Interval (feet bgs)	Sample Depth (feet bgs)	Sample Elevation (feet amsl) <sup>1</sup>	Sample ID	Sample Date	Explosives <sup>2</sup>	Laboratory Water Quality Parameters <sup>3</sup>	Field Water Quality Parameters <sup>4</sup>	Field Duplicate Samples <sup>5</sup>	SM/SI

Notes:

<sup>1</sup>Horizontal coordinates are in Nebraska State Plane, North American Datum of 1983. Elevation datum based on National Geodetic Vertical Datum of 1929.

<sup>2</sup>Explosives (+MNX) analysis (SW846 Method 8330A).

<sup>3</sup>Laboratory water quality parameters for OU1 include: methane (Method RSK 175), total Kjeldahl nitrogen (Method 351.2), nitrate/nitrite (Method 353.2), sulfate (Method 9056A), sulfide (Method 9034), ammonia (Method 350.1), dissolved organic carbon (Method 9060A), alkalinity (Method 2320B), and carbon dioxide (back calculated Method 2320B).

<sup>4</sup>Field water quality parameters include: dissolved oxygen, oxidation/reduction potential, ferrous iron, turbidity, specific conductance, pH, and temperature.

<sup>5</sup>Field duplicate samples were collected at a rate of 5% (1 per 20 samples collected) for laboratory water quality parameters and explosives.

<sup>6</sup>MS/MSD samples were collected at a rate of 5% (1 per 20 samples collected) for laboratory water quality parameters and explosives.

% = percent

amsl = above mean sea level

bgs = below ground surface

EW = extraction well

ID = identification

MNX = mono-nitroso-RDX

MS/MSD = matrix spike/matrix spike duplicate

OU = Operable Unit

PM = performance monitoring

PZ = piezometer

RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine

RSK = Robert S. Kerr Environmental Research Laboratory

#### **TABLE 2-5**

#### SUMMARY OF EXPLOSIVES DETECTED, IDW - WATER OU1 REBOUND STUDY LETTER REPORT - QUARTER 3

FIELD ID	CHAAP		WC-Q	)3-JUN	E20	
SAMPLE DATE	HALs		6/	16/2020	)	
	(µg/L)	Result	Qual	DL	LOD	LOQ
EXPLOSIVES (USEPA Method 8330A) (µg/L)	•					
1,3,5-Trinitrobenzene	NA	<	U	0.21	0.22	0.09
1,3-Dinitrobenzene	NA	<	U	0.11	0.12	0.04
2,4,6-Trinitrotoluene	2	<	U	0.11	0.12	0.05
2,4-Dinitrotoluene	NA	<	U	0.084	0.11	0.03
2,6-Dinitrotoluene	NA	<	U	0.084	0.11	0.04
2-Amino-4,6-dinitrotoluene	NA	<	U	0.11	0.12	0.05
2-Nitrotoluene	NA	<	U	0.21	0.22	0.09
3-Nitrotoluene	NA	<	U	0.42	0.42	0.21
4-Amino-2,6-dinitrotoluene	NA	<	U	0.13	0.16	0.06
4-Nitrotoluene	NA	<	U	0.42	0.43	0.11
HMX	400	<	U	0.21	0.22	0.09
MNX	NA	<	U	0.42	2.1	0.16
Nitrobenzene	NA	<	U	0.21	0.22	0.1
RDX	2	<	U	0.21	0.22	0.05
Tetryl	NA	<	U	0.11	0.12	0.03

Notes:

< = less than LOQ

 $\mu g/L = micrograms \ per \ liter$ 

CHAAP = Cornhusker Army Ammunition Plant

DL = detection limit

HAL = health advisory level

HMX = octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine

ID = identification number

IDW = investigation-derived waste

J = estimated

LOD = limit of detection

LOQ = limit of quantification

MNX = mono-nitroso-RDX

NA = not available

OU = Operable Unit

Qual = qualifier

RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine

U = nondetect

USEPA = United States Environmental Protection Agency

WC = waste characterization (water)

#### TABLE 3-1 SUMMARY OF EXPLOSIVES DETECTED, DIRECT PUSH GROUNDWATER LOCATIONS (OFF-POST) OU1 REBOUND STUDY, QUARTER 3 OU1 REBOUND STUDY LETTER REPORT - QUARTER 3

FIELD ID	CHAAP		OS00	1-DP03	-25			OS00	1-DP03	-35			OS00	1-DP03	6-45	
SAMPLE DATE	HALs		5/2	26/2020	)			5/2	26/2020	1			5/2	26/2020	)	
	(µg/L)	Result	Qual	DL	LOD	LOQ	Result	Qual	DL	LOD	LOQ	Result	Qual	DL	LOD	LOQ
EXPLOSIVES (USEPA Method 8330A) (µg/L)																
1,3,5-Trinitrobenzene	NA	0.41	J	0.09	0.21	0.22	31		0.9	2.1	2.2	49	J	0.9	2.1	2.2
1,3-Dinitrobenzene	NA	<	U	0.039	0.11	0.12	<	U	0.039	0.11	0.12	<	U	0.039	0.11	0.12
2,4,6-Trinitrotoluene	2	32	J	0.48	1.1	1.2	11		0.048	0.11	0.12	2.2	J	0.048	0.11	0.12
2,4-Dinitrotoluene	NA	<	U	0.029	0.086	0.11	<	U	0.029	0.085	0.11	<	U	0.029	0.085	0.11
2,6-Dinitrotoluene	NA	<	U	0.043	0.086	0.11	<	U	0.043	0.085	0.11	<	U	0.043	0.085	0.11
2-Amino-4,6-dinitrotoluene	NA	<	U	0.054	0.11	0.12	<	U	0.054	0.11	0.12	<	U	0.054	0.11	0.12
2-Nitrotoluene	NA	<	U	0.091	0.21	0.22	<	U	0.091	0.21	0.22	<	U	0.091	0.21	0.22
3-Nitrotoluene	NA	<	UJ	0.21	0.43	0.43	<	U	0.21	0.43	0.43	<	U	0.21	0.43	0.43
4-Amino-2,6-dinitrotoluene	NA	<	U	0.062	0.13	0.16	<	U	0.062	0.13	0.16	<	U	0.061	0.13	0.16
4-Nitrotoluene	NA	<	U	0.11	0.43	0.44	<	U	0.11	0.43	0.44	<	U	0.11	0.43	0.44
HMX	400	<	U	0.094	0.21	0.22	<	U	0.093	0.21	0.22	<	U	0.093	0.21	0.22
MNX	NA	<	U	0.16	0.43	2.1	<	U	0.16	0.43	2.1	<	U	0.16	0.43	2.1
Nitrobenzene	NA	<	U	0.097	0.21	0.22	<	U	0.097	0.21	0.22	<	U	0.097	0.21	0.22
RDX	2	0.19	J	0.055	0.21	0.22	0.21	J	0.055	0.21	0.22	0.17	J	0.055	0.21	0.22
Tetryl	NA	<	U	0.034	0.11	0.12	<	U	0.034	0.11	0.12	<	U	0.034	0.11	0.12

#### Notes:

Concentrations exceed HALs

< = less than LOQ

 $\mu$ g/L = micrograms per liter

CHAAP = Cornhusker Army Ammunition Plant

DL = detection limit

DP = direct push

HAL = health advisory level

HMX = octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine

ID = identification number

J = estimated

LOD = limit of detection

LOQ = limit of quantification

MNX = mono-nitroso-RDX

NA = not available

OS = off-post sample OU = Operable Unit Qual = qualifier RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine U = nondetect USEPA = United States Environmental Protection Agency

#### SUMMARY OF EXPLOSIVES DETECTED AND LABORATORY MNA PARAMETERS, OFF-POST AND ON-POST MONITORING WELLS **OU1 REBOUND STUDY, QUARTER 3 OU1 REBOUND STUDY LETTER REPORT - QUARTER 3**

FIELD ID	CHAAP		CA	A210-20	A			CA	211-20	A			CA	212-20	A			CA	4213-20	)A			NW	/020-20	Α			NW	021-20A				NW	022-20	4
SAMPLE DATE	HALs		6	5/9/2020				6/	9/2020				6	/9/2020				6/	/10/202	0			6/	15/2020	)			6/1	15/2020				6/1	15/2020	
	(µg/L)	Result	Qual	DL	LOD	LOQ	Result	Qual	DL	LOD	LOQ	Result	Qual	DL	LOD	LOQ	Result	Qual	DL	LOD	LOQ	Result	Qual	DL	LOD I	JOQ	Result	Qual	DL	LOD	LOQ	Result	Qual	DL	LOD LO
EXPLOSIVES (USEPA Method 8330A) (µg/L)																																			
1,3,5-Trinitrobenzene	NA	<	U	0.09	0.21	0.22	<	U	0.089	0.21	0.22	<	U	0.091	0.22	0.23	<	U	0.087	0.21	0.22	<	U	0.087	0.21	0.22	<	U	0.094	0.22	0.24	<	U	0.088	0.21 0.2
1,3-Dinitrobenzene	NA	<	U	0.039	0.11	0.12	<	U	0.039	0.11	0.12	<	U	0.04	0.11	0.12	<	U	0.038	0.1	0.11	<	U	0.038	0.1	0.11	<	U	0.041	0.11	0.12	<	U	0.039	0.1 0.1
2,4,6-Trinitrotoluene	2	<	U	0.048	0.11	0.12	<	U	0.048	0.11	0.12	<	U	0.049	0.11	0.12	<	U	0.046	0.1	0.11	0.59		0.046	0.1	0.11	<	U	0.05	0.11	0.12	<	U	0.047	0.1 0.1
2,4-Dinitrotoluene	NA	<	U	0.029	0.085	0.11	<	U	0.029	0.085	0.11	<	U	0.03	0.087	0.11	<	U	0.028	0.083	0.1	<	U	0.028	0.082	0.1	<	U	0.031	0.09	0.11	<	U	0.029	0.084 0.
2,6-Dinitrotoluene	NA	<	U	0.043	0.085	0.11	<	U	0.043	0.085	0.11	<	U	0.043	0.087	0.11	<	U	0.041	0.083	0.1	<	U	0.041	0.082	0.1	<	U	0.045	0.09	0.11	<	U	0.042	0.084 0.
2-Amino-4,6-dinitrotoluene	NA	<	UJ	0.054	0.11	0.12	<	UJ	0.054	0.11	0.12	<	UJ	0.055	0.11	0.12	<	U	0.052	0.1	0.11	1.4		0.052	0.1	0.11	2.2		0.057	0.11	0.12	<	U	0.053	0.1 0.1
2-Nitrotoluene	NA	<	UJ	0.091	0.21	0.22	<	UJ	0.091	0.21	0.22	<	UJ	0.093	0.22	0.23	<	U	0.088	0.21	0.22	<	U	0.088	0.21	0.22	<	U	0.096	0.22	0.24	<	U	0.089	0.21 0.2
3-Nitrotoluene	NA	<	UJ	0.21	0.43	0.43	<	UJ	0.21	0.43	0.43	<	UJ	0.21	0.43	0.43	<	U	0.2	0.41	0.41	<	U	0.2	0.41	0.41	<	U	0.22	0.45	0.45	<	U	0.2	0.42 0.4
4-Amino-2,6-dinitrotoluene	NA	<	UJ	0.062	0.13	0.16	<	UJ	0.061	0.13	0.16	<	UJ	0.062	0.13	0.16	<	U	0.06	0.12	0.15	1.8		0.059	0.12	0.15	1		0.065	0.13	0.17	<	U	0.06	0.13 0.1
4-Nitrotoluene	NA	<	UJ	0.11	0.43	0.44	<	UJ	0.11	0.43	0.44	<	UJ	0.11	0.43	0.44	<	U	0.1	0.41	0.42	<	U	0.1	0.41	0.42	<	U	0.11	0.45	0.46	<	U	0.1	0.42 0.4
HMX	400	<	U	0.093	0.21	0.22	<	U	0.093	0.21	0.22	<	U	0.095	0.22	0.23	<	U	0.09	0.21	0.22	<	U	0.09	0.21	0.22	<	U	0.098	0.22	0.24	<	U	0.092	0.21 0.2
MNX	NA	<	U	0.16	0.43	2.1	<	U	0.16	0.43	2.1	<	U	0.17	0.43	2.2	<	U	0.16	0.41	2.1	<	U	0.16	0.41	2.1	<	U	0.17	0.45	2.2	<	U	0.16	0.42 2.
Nitrobenzene	NA	<	U	0.097	0.21	0.22	<	U	0.097	0.21	0.22	<	U	0.099	0.22	0.23	<	U	0.094	0.21	0.22	<	U	0.094	0.21	0.22	<	U	0.1	0.22	0.24	<	U	0.095	0.21 0.2
RDX	2	<	U	0.055	0.21	0.22	<	U	0.055	0.21	0.22	<	U	0.056	0.22	0.23	<	U	0.053	0.21	0.22	1.5		0.053	0.21	0.22	<	U	0.058	0.22	0.24	<	U	0.054	0.21 0.2
Tetryl	NA	<	U	0.034	0.11	0.12	<	U	0.034	0.11	0.12	<	U	0.034	0.11	0.12	<	U	0.033	0.1	0.11	<	U	0.033	0.1	0.11	<	U	0.036	0.11	0.12	<	U	0.033	0.1 0.1
LABORATORY MNA PARAMETERS																																			
Ammonia USEPA 350.1 (mg/L)		0.052	J	0.022	0.05	0.1	<	U	0.022	0.05	0.1	<	U	0.022	0.05	0.1	<	U	0.022	0.05	0.1	<	U	0.022	0.05	0.1	1.4		0.022	0.05	0.1	1.4		0.022	0.05 0.
Total Kjeldahl Nitrogen USEPA 351.2 (mg/L)		0.72	J	0.69	1	1	<	U	0.69	1	1	<	U	0.69	1	1	<	U	0.69	1	1	<	U	0.69	1	1	1.8		0.69	1	1	1.7		0.69	1 1
Nitrate/Nitrite USEPA 353.2 (mg/L)		19		0.095	0.25	0.5	33		0.19	0.5	1	18		0.095	0.25	0.5	1		0.019	0.05	0.1	42		0.19	0.5	1	1.5		0.019	0.05	0.1	<	U	0.019	0.05 0.
Sulfide SM 9034 (mg/L)		<	U	0.79	1.9	4	0.8	J	0.79	1.9	4	<	U	0.79	1.9	4	<	U	0.79	1.9	4	<	U	0.79	1.9	4	<	U	0.79	1.9	4	<	U	0.79	1.9 4
Sulfate USEPA 9056A (mg/L)		150		1	3	5	110		1	3	5	79		1	3	5	57		1	3	5	230		2.1	6	10	220		2.1	6	10	290		2.1	6 10
Dissolved Organic Carbon SM 9060A (mg/L)		14		0.35	1	1	6		0.35	1	1	3.1		0.35	1	1	1.7		0.35	1	1	5.9		0.35	1	1	2.8		0.35	1	1	2.6		0.35	1 1
Alkalinity SM 2320B (mg/L)		340		3.1	10	10	210		3.1	10	10	170		3.1	10	10	120		3.1	10	10	320		3.1	10	10	340		3.1	10	10	400		3.1	10 10
Methane RSK-175 (µg/L)		2.3	J	0.63	2	5	<	U	0.63	2	5	<	U	0.63	2	5	<	U	0.63		5	<	U	0.63	2	5	5.7		0.63	2	5	440		0.63	2 5
Carbon Dioxide SM 2320B (mg/L) <sup>1</sup>		151		3.1	10	10	93		3.1	10	10	76		3.1	10	10	53		3.1	10	10	142		3.1	10	10	151		3.1	10	10	178		3.1	10 10
Notes: Concentrations exceed HALs <sup>1</sup> Carbon dioxide back calculated from alkalinity SM 22	2000																																		
< =  less than LOO	20D.																																		
$\mu g/L = micrograms per liter$																																			

CHAAP = Cornhusker Army Ammunition Plant

DL = detection limit

HAL = health advisory level

HMX = octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine

ID = identification number

J = estimated

LOD = limit of detection

LOQ = limit of quantification mg/L = milligrams per liter

MNA = monitored natural attenuation

MNX = mono-nitroso-RDX

NA = not available

OU = Operable Unit

PZ = piezometer

Qual = qualifier

RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine RSK = Robert S. Kerr Environmental Research Laboratory

SM = Standard Method

U = nondetect

USEPA = United States Environmental Protection Agency

#### SUMMARY OF EXPLOSIVES DETECTED AND LABORATORY MNA PARAMETERS, OFF-POST AND ON-POST MONITORING WELLS **OU1 REBOUND STUDY, QUARTER 3 OU1 REBOUND STUDY LETTER REPORT - QUARTER 3**

FIELD ID	CHAAI	,	N	W050-20	A			NV	/051-20	A			NV	V052-20	)A			NV	V060-20	)A			NW	/061-20	A			NW	062-204	4			NW	/070-20	A
SAMPLE DATE	HALs		6	5/10/2020	)			6/	10/202	)			6/	10/2020	0			6/	10/202	0			6/	10/2020	)			6/	10/2020				6	9/2020	
	(µg/L)	Result	Qual	I DL	LOD	LOQ	Result	Qual	DL	LOD	LOQ	Result	Qual	DL	LOD	LOQ	Result	Qual	DL	LOD	LOQ	Result	Qual	DL	LOD	LOQ	Result	Qual	DL	LOD	LOQ	Result	Qual	DL	LOD LO
EXPLOSIVES (USEPA Method 8330A) (µg/L)																																			
1,3,5-Trinitrobenzene	NA	<	U	0.088	0.21	0.22	<	U	0.088	0.21	0.22	<	U	0.088	0.21	0.22	<	U	0.088	0.21	0.22	<	U	0.088	0.21	0.22	<	U	0.09	0.21	0.22	<	U	0.089	0.21 0.2
1,3-Dinitrobenzene	NA	<	U	0.039	0.1	0.11	<	U	0.038	0.1	0.11	<	U	0.039	0.1	0.12	<	U	0.039	0.1	0.12	<	U	0.039	0.1	0.12	<	U	0.039	0.11	0.12	<	U	0.039	0.11 0.1
2,4,6-Trinitrotoluene	2	<	U	0.047	0.1	0.11	<	U	0.047	0.1	0.11	<	U	0.047	0.1	0.12	<	U	0.047	0.1	0.12	<	U	0.047	0.1	0.12	<	U	0.048	0.11	0.12	<	U	0.048	0.11 0.1
2,4-Dinitrotoluene	NA	<	U	0.029	0.084	0.1	<	U	0.029	0.083	0.1	<	U	0.029	0.084	0.1	<	U	0.029	0.084	0.1	<	U	0.029	0.084	0.1	<	U	0.029	0.086	0.11	<	U	0.029	0.085 0.1
2,6-Dinitrotoluene	NA	<	U	0.042	0.084	0.1	<	U	0.042	0.083	0.1	<	U	0.042	0.084	0.1	<	U	0.042	0.084	0.1	<	U	0.042	0.084	0.1	<	U	0.043	0.086	0.11	<	U	0.043	0.085 0.1
2-Amino-4,6-dinitrotoluene	NA	<	U	0.053	0.1	0.11	<	U	0.053	0.1	0.11	<	U	0.053	0.1	0.12	<	U	0.053	0.1	0.12	<	U	0.053	0.1	0.12	<	U	0.054	0.11	0.12	0.24	J	0.054	0.11 0.1
2-Nitrotoluene	NA	<	U	0.089	0.21	0.22	<	U	0.089	0.21	0.22	<	U	0.09	0.21	0.22	<	U	0.09	0.21	0.22	<	U	0.09	0.21	0.22	<	U	0.091	0.21	0.22	<	UJ	0.091	0.21 0.2
3-Nitrotoluene	NA	<	U	0.2	0.42	0.42	<	U	0.2	0.42	0.42	<	U	0.2	0.42	0.42	<	U	0.2	0.42	0.42	<	U	0.2	0.42	0.42	<	U	0.21	0.43	0.43	<	UJ	0.21	0.42 0.4
4-Amino-2,6-dinitrotoluene	NA	<	U	0.06	0.13	0.16	<	U	0.06	0.13	0.16	<	U	0.06	0.13	0.16	<	U	0.06	0.13	0.16	<	U	0.06	0.13	0.16	<	U	0.062	0.13	0.16	<	UJ	0.061	0.13 0.1
4-Nitrotoluene	NA	<	U	0.1	0.42	0.43	<	U	0.1	0.42	0.43	<	U	0.1	0.42	0.43	<	U	0.1	0.42	0.43	<	U	0.1	0.42	0.43	0.13	J	0.11	0.43	0.44	<	UJ	0.11	0.42 0.4
HMX	400	<	U	0.091	0.21	0.22	<	U	0.091	0.21	0.22	<	U	0.16	0.42	2.1	<	U	0.092	0.21	0.22	<	U	0.092	0.21	0.22	<	U	0.094	0.21	0.22	<	U	0.093	0.21 0.2
MNX	NA	<	U	0.16	0.42	2.1	<	U	0.16	0.42	2.1	<	U	0.092	0.21	0.22	<	U	0.16	0.42	2.1	<	U	0.16	0.42	2.1	<	U	0.16	0.43	2.1	<	U	0.16	0.42 2.
Nitrobenzene	NA	<	U	0.095	0.21	0.22	<	U	0.095	0.21	0.22	<	U	0.095	0.21	0.22	<	U	0.095	0.21	0.22	<	U	0.095	0.21	0.22	<	U	0.097	0.21	0.22	<	U	0.096	0.21 0.2
RDX	2	<	U	0.054	0.21	0.22	<	U	0.054	0.21	0.22	<	U	0.054	0.21	0.22	<	U	0.054	0.21	0.22	<	U	0.054	0.21	0.22	<	U	0.055	0.21	0.22	<	U	0.055	0.21 0.2
Tetryl	NA	<	U	0.033	0.1	0.11	<	U	0.033	0.1	0.11	<	U	0.033	0.1	0.12	<	U	0.033	0.1	0.12	<	U	0.033	0.1	0.12	<	U	0.034	0.11	0.12	<	U	0.034	0.11 0.1
LABORATORY MNA PARAMETERS	•											8																							
Ammonia USEPA 350.1 (mg/L)		0.98		0.022	0.05	0.1	<	U	0.022	0.05	0.1	450		0.63	2	5	<	U	0.022	0.05	0.1	4.5		0.022	0.05	0.1	0.91		0.022	0.05	0.1	0.087	J	0.022	0.05 0.
Total Kjeldahl Nitrogen USEPA 351.2 (mg/L)		<	U	0.69	1	1	<	U	0.69	1	1	1		0.69	1	1	<	U	0.69	1	1	2.5		0.69	1	1	1.5		0.69	1	1	1.3		0.69	1 1
Nitrate/Nitrite USEPA 353.2 (mg/L)		78		0.48	1.3	2.5	24		0.095	0.25	0.5	0.031	J	0.022	0.05	0.1	2.4		0.019	0.05	0.1	5.7		0.019	0.05	0.1	<	U	0.019	0.05	0.1	<	U	0.019	0.05 0.
Sulfide SM 9034 (mg/L)		<	U	0.79	1.9	4	<	U	0.79	1.9	4	0.052	J	0.019	0.05	0.1	<	U	0.79	1.9	4	<	U	0.79	1.9	4	<	U	0.79	1.9	4	<	U	0.79	1.9 4
Sulfate USEPA 9056A (mg/L)		200		5.2	15	25	190		1	3	5	320		3.1	10	10	5.2		1	3	5	170		1	3	5	190		1	3	5	5.9		1	3 5
Dissolved Organic Carbon SM 9060A (mg/L)		6.5		0.35	1	1	9.2		0.35	1	1	140		5.2	15	25	0.96	J	0.35	1	1	4.1		0.35	1	1	2.3		0.35	1	1	10		0.35	1 1
Alkalinity SM 2320B (mg/L)		220		3.1	10	10	330		3.1	10	10	<	U	0.79	1.9	4	28		3.1	10	10	270		3.1	10	10	240		3.1	10	10	72		3.1	10 10
Methane RSK-175 (µg/L)		<	U	0.63	2	5	1.9	J	0.63	2	5	6.6		0.35	1	1	<	U	0.63	2	5	19		0.63	2	5	21		0.63	2	5	3900		0.63	2 5
Carbon Dioxide SM 2320B (mg/L) <sup>1</sup>		98		3.1	10	10	147		3.1	10	10	142		3.1	10	10	12		3.1	10	10	120		3.1	10	10	107		3.1	10	10	32		3.1	10 10
Notes:																																			
Concentrations exceed HALs																																			
<sup>1</sup> Carbon dioxide back calculated from alkalinity SM 2	320B.																																		
< = less than LOQ																																			

 $\mu g/L = micrograms per liter$ 

CHAAP = Cornhusker Army Ammunition Plant

DL = detection limit

HAL = health advisory level

HMX = octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine

ID = identification number J = estimated

LOD = limit of detection

LOQ = limit of quantification

mg/L = milligrams per liter

MNA = monitored natural attenuation

MNX = mono-nitroso-RDX

NA = not available

OU = Operable Unit

PZ = piezometer

Qual = qualifier

RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine

RSK = Robert S. Kerr Environmental Research Laboratory SM = Standard Method

U = nondetect

USEPA = United States Environmental Protection Agency

#### SUMMARY OF EXPLOSIVES DETECTED AND LABORATORY MNA PARAMETERS, OFF-POST AND ON-POST MONITORING WELLS **OU1 REBOUND STUDY, QUARTER 3 OU1 REBOUND STUDY LETTER REPORT - QUARTER 3**

FIELD ID	СНААР	i –	NW	<b>V071-20</b>	A			NW	080-204				NW	081R-2	0A			NW	082R-2	20A			GO	024-20	4		G	0070-	-20A			G	0075-2	A
SAMPLE DATE	HALs			/9/2020					8/2020	-				/8/2020					5/8/202					15/2020				6/2/20					6/1/202	
		D 14				00	D14					14					D14					D 14				00 D.					D			LOD LOO
	(µg/L)	Result	Quai	DL	LOD	JUQ	Result	Quai	DL	LOD	LUUK	cesuit	Quai	DL	LOD		Result	Quai	DL	LOD	LUQ	Result	Quai	DL	LOD L	JQ Res	un Qua		LL	D LO	2 Result	Qua	DL	LOD LO
EXPLOSIVES (USEPA Method 8330A) (µg/L)	r	1																				<b>.</b>												
1,3,5-Trinitrobenzene	NA	<	U	0.09		0.22	<		0.088		0.22	<				0.23	<	U		0.21			U	0.09		.22 <	-		93 0.2			U		0.21 0.22
1,3-Dinitrobenzene	NA	<	U		0.11	-	<		0.039		0.12	<		0.041			<	U			0.12		U		0.11 0		-			11 0.12				0.11 0.12
2,4,6-Trinitrotoluene	2	<	U		0.11		<		0.047		0.12	<	U			0.12	<	U			0.12		J		0.11 0					11 0.12				0.11 0.12
2,4-Dinitrotoluene	NA	<	U		0.085		<		0.029			<	U			9 0.11	<	U		0.085		<			0.086 0					88 0.1		U		0.085 0.11
2,6-Dinitrotoluene	NA	<	U		0.085		<		0.042			<	U	0.045			<	U		3 0.085		<	U		0.086 0					88 0.1		U		0.085 0.11
2-Amino-4,6-dinitrotoluene	NA	<	UJ				<		0.053		0.12	<		0.056			<	UJ			0.12	1.3			0.11 0					11 0.12		U		0.11 0.12
2-Nitrotoluene	NA	<	UJ	0.091	0.21	0.22	<	UJ			0.22	<	UJ	0.095	0.22	0.23	<	UJ	0.091	0.21	0.22	<	U	0.092	0.21 0	.22 <	C U	0.0	94 0.2	22 0.2	3 <	U	0.09	0.21 0.22
3-Nitrotoluene	NA	<	UJ	0.21	0.43	0.43	<	UJ	0.2	0.42	0.42	<	UJ	0.22	0.44	0.44	<	UJ	0.21	0.43	0.43	<	U	0.21	0.43 0	.43 <	U U	0.2	22 0.4	44 0.44	4 <	U	0.21	0.42 0.42
4-Amino-2,6-dinitrotoluene	NA	<	UJ	0.062	0.13	0.16	<	UJ		0.13		<	UJ	0.064	0.13	0.17	<	UJ	0.062	2 0.13	0.16	1.5		0.062	0.13 0	-16 <	UJ	0.0	64 0.	13 0.1	7 <	U	0.06	
4-Nitrotoluene	NA	<	UJ	0.11	0.43	0.44	<	UJ		0.42	0.43	<	UJ	0.11	0.44	0.46	<	UJ	0.11	0.43	0.44	<	U	0.11	0.43 0	.44 <		0.1	11 0.4	44 0.4	5 <	U	0.11	0.42 0.43
HMX	400	<	U	0.094	0.21	0.22	<	U	0.092	0.21	0.22	<	U	0.097	0.22	0.23	<	U	0.093	3 0.21	0.22	<	U	0.094	0.21 0	.22 <	U U	0.0	97 0.2	22 0.2	3 <	U	0.09	0.21 0.22
MNX	NA	<	U	0.16	0.43	2.1	<	U	0.16	0.42	2.1	<	U	0.17	0.44	2.2	<	U	0.16	0.43	2.1	<	U	0.16	0.43 2	.1 <	U	0.1	17 0.4	14 2.2	<	U	0.16	0.42 2.1
Nitrobenzene	NA	<	U	0.097	0.21	0.22	<	U	0.095	0.21	0.22	<	U	0.1	0.22	0.23	<	U	0.097	0.21	0.22	<	U	0.097	0.21 0	-22 <	U	0.	.1 0.2	22 0.2	3 <	U	0.09	0.21 0.22
RDX	2	<	U	0.055	0.21	0.22	<	U	0.054	0.21	0.22	<	U	0.057	0.22	0.23	<	U	0.055	5 0.21	0.22	0.59		0.055	0.21 0	.22 <	C U	0.0	057 0.2	22 0.2	3 <	U	0.05	0.21 0.22
Tetryl	NA	<	U	0.034	0.11	0.12	<	U	0.033	0.1	0.12	<	U	0.035	0.11	0.12	<	U	0.034	4 0.11	0.12	<	U	0.034	0.11 0	.12 <	C U	0.0	035 0.	11 0.12	2 <	U	0.03	0.11 0.12
LABORATORY MNA PARAMETERS																																		
Ammonia USEPA 350.1 (mg/L)		<	U	0.022	0.05	0.1	<	U	0.022	0.05	0.1	<	U	0.022	0.05	0.1	0.024	J	0.022	2 0.05	0.1	<	U	0.022	0.05 (	0.1 0.0	39 J	0.0	0.022 0.0	0.1	0.062	J	0.02	0.05 0.1
Total Kjeldahl Nitrogen USEPA 351.2 (mg/L)		<	UJ	0.69	1	1	<	U	0.69	1	1	<	U	0.69	1	1	<	U	0.69	1	1	<	U	0.69	1	1 <	U	0.6	69 1	1	<	UJ	0.69	
Nitrate/Nitrite USEPA 353.2 (mg/L)		30		0.19	0.5	1	26		0.095	0.25		26			0.25	0.5	17		0.038		0.2	26		0.095	0.25 0	.5 <	0			0.1	2.4	J		0.05 0.1
Sulfide SM 9034 (mg/L)		<	U	0.79	1.9	4	<	U	0.79	1.9		0.8	J	0.79	1.9	4	<	U	0.79	1.9	4	<	U	0.79		4 <	-	0.7	79 1.		<	U	0.79	1.9 4
Sulfate USEPA 9056A (mg/L)		64		1	3	5	130		1	3	5	95		1	3	5	85		1	3	5	150		2.1		10 3		1	1 3	-	150		1	3 5
Dissolved Organic Carbon SM 9060A (mg/L)		3.7		0.35	1	1	3.9		0.35	1	1	5		0.35	1	1	4.2		0.35		1	5.5		0.35	-	1 1		0.3		1	3.4		0.35	
Alkalinity SM 2320B (mg/L)		96		3.1	10	10	210		3.1	10		220		3.1	10	10	230		3.1		10	290		3.1		10 20		3.					3.1	10 10
Methane RSK-175 (µg/L)		<	U	0.63	2	5	<	U	0.63	2	5	<	U	0.63	2	5	2	J	0.63		5	<	U	0.63		5 <		0.6				U	0.63	
Carbon Dioxide SM 2320B (mg/L) <sup>1</sup>		43		3.1	10	10	93		3.1	10	10	98		3.1	10	10	102		3.1	10	10	129		3.1	10	0 8	9	3.	.1 1	0 10	160		3.1	10 10
Notes:																																		
Concentrations exceed HALs																																		
<sup>1</sup> Carbon dioxide back calculated from alkalinity SM 23	20B.																																	
< = less than LOQ																																		
µg/L = micrograms per liter CHAAP = Cornhusker Army Ammunition Plant																																		
DL = detection limit																																		
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HMX = octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	e																																	
ID = identification number																																		
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Qual = qualifier

RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine

RSK = Robert S. Kerr Environmental Research Laboratory

SM = Standard Method

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#### SUMMARY OF EXPLOSIVES DETECTED AND LABORATORY MNA PARAMETERS, OFF-POST AND ON-POST MONITORING WELLS OU1 REBOUND STUDY, QUARTER 3 OU1 REBOUND STUDY LETTER REPORT - QUARTER 3

FIELD ID	CHAAP		G	0076-20	4			G00	)77-20A	L			G0	078-204	A			G	60079-2	20A			G	0080-20	)A			G0	081-20A				GO	082-20	A
SAMPLE DATE	HALs		(	6/1/2020				6/1	5/2020				6/2	15/2020	)				6/1/202	20			6/	/11/202	0			6	2/2020				6	/2/2020	)
	(µg/L)	Result	Qual	DL	LOD I	.OQ R	Result	Qual	DL	LOD I	LOQ	Result	Qual	DL	LOD	D LOQ	Result	Qua	I DL	LO	D LO	Q Result	Qual	DL	LOD	LOQ	Result	Qual	DL	LOD	LOQ	Result	Qual	DL	LOD LO
EXPLOSIVES (USEPA Method 8330A) (µg/L)		•				•																													
1,3,5-Trinitrobenzene	NA	<	U	0.092	0.22	0.23	1.9		0.089	0.21	0.22	<	U	0.089	0.21	0.22	<	U	0.09	0.2	2 0.2	3 <	U	0.088	8 0.21	0.22	0.27		0.089	0.21	0.22	<	U	0.097	0.23 0.
1,3-Dinitrobenzene	NA	<	U	0.04	0.11	0.12	<	U	0.039	0.11	0.12	<	U	0.039	0.11	0.12	<	U	0.04	4 0.1	1 0.12	2 <	U	0.039	0.1	0.11	<	U	0.039	0.11	0.12	<	U	0.042	0.12 0.
2,4,6-Trinitrotoluene	2	<	U	0.049	0.11	0.12	3.3		0.047	0.11	0.12	<	U	0.047	0.11	0.12	<	U	0.04	8 0.1	1 0.12	2 <	U	0.047	0.1	0.11	<	U	0.047	0.11	0.12	<	U	0.052	0.12 0.
2,4-Dinitrotoluene	NA	<	U	0.03	0.087	0.11	<	U	0.029	0.084	0.11	<	U	0.029	0.084	4 0.11	<	U	0.03	3 0.08	86 0.1	<	U	0.029	0.084	0.1	<	U	0.029	0.084	0.11	<	U	0.032	0.092 0.
2,6-Dinitrotoluene	NA	<	U	0.044	0.087	0.11	<	U	0.042	0.084	0.11	<	U	0.042	0.084	4 0.11	<	U	0.04	3 0.08	86 0.1	< ا	U	0.042	2 0.084	0.1	<	U	0.042	0.084	0.11	<	U	0.046	0.092 0.
2-Amino-4,6-dinitrotoluene	NA	<	U	0.055	0.11	0.12	1.2		0.053	0.11	0.12	<	U	0.053	0.11	0.12	<	U	0.05	5 0.1	1 0.12	0.053	J	0.053	0.1	0.11	<	U	0.054	0.11	0.12	0.098	J	0.058	0.12 0.
2-Nitrotoluene	NA	<	U	0.093	0.22	0.23	<	U	0.09	0.21	0.22	<	U	0.09	0.21	0.22	<	U	0.09	0.2	2 0.23	3 <	U	0.089	0.21	0.22	<	U	0.09	0.21	0.22	<	U	0.098	0.23 0.
3-Nitrotoluene	NA	<	U	0.21	0.44	0.44	<	U	0.21	0.42	0.42	<	U	0.21	0.42	0.42	<	U	0.2	1 0.4	3 0.43	3 <	U	0.2	0.42	0.42	<	U	0.21	0.42	0.42	<	U	0.22	0.46 0.
4-Amino-2,6-dinitrotoluene	NA	<	U	0.063	0.13	0.16	1.1		0.061	0.13	0.16	<	U	0.061	0.13	0.16	<	U	0.06	0.1	3 0.10	6 0.15	J	0.06	0.13	0.16	<	U	0.061	0.13	0.16	<	U	0.066	0.14 0.
4-Nitrotoluene	NA	<	U	0.11	0.44	0.45	<	U	0.11	0.42	0.43	<	U	0.11	0.42	0.43	0.22	J	0.1	1 0.4	3 0.44	4 <	U	0.1	0.42	0.43	<	U	0.11	0.42	0.43	<	U	0.12	0.46 0.
HMX	400	<	U	0.096	0.22	0.23	<	U	0.092	0.21	0.22	<	U	0.092	0.21	0.22	<	U	0.09	0.2	2 0.23	3 <	U	0.16	0.42	2.1	<	U	0.092	0.21	0.22	<	U	0.1	0.23 0.
MNX	NA	<	U	0.17	0.44	2.2	<	U	0.16	0.42	2.1	<	U	0.16	0.42	2.1	<	U	0.1	7 0.4	3 2.2	<	U	0.091	0.21	0.22	<	U	0.16	0.42	2.1	<	U	0.18	0.46 2
Nitrobenzene	NA	<	U	0.099	0.22	0.23	<	U	0.096	0.21	0.22	<	U	0.096	0.21	0.22	<	U	0.09	0.2	2 0.23	3 <	U	0.095	5 0.21	0.22	<	U	0.096	0.21	0.22	<	U	0.1	0.23 0.
RDX	2	0.2	J	0.056	0.22	0.23 0	0.46		0.054	0.21	0.22	<	U	0.054	0.21	0.22	<	U	0.05	5 0.2	2 0.23	3 <	U	0.054	0.21	0.22	<	U	0.054	0.21	0.22	0.68	J	0.059	0.23 0.
Tetryl	NA	<	U	0.035	0.11	0.12	<	U	0.034	0.11	0.12	<	U	0.034	0.11	0.12	<	U	0.03	4 0.1	1 0.12	2 <	U	0.033	0.1	0.11	<	U	0.034	0.11	0.12	<	U	0.037	0.12 0.
LABORATORY MNA PARAMETERS																																			
Ammonia USEPA 350.1 (mg/L)		1.4		0.022	0.05	0.1 0	0.052	J	0.022	0.05	0.1	0.46		0.022	0.05	0.1	0.065	J	0.02	2 0.0	5 0.1	8.8		0.63	2	5	0.31		0.022	0.05	0.1	0.11		0.022	0.05 0
Total Kjeldahl Nitrogen USEPA 351.2 (mg/L)		1.3		0.69	1	1	<	U	0.69	1	1	<	U	0.69	1	1	<	UJ	0.6	9 1	1	0.97	J	0.69	1	1	1.1		0.69	1	1	<	U	0.69	1
Nitrate/Nitrite USEPA 353.2 (mg/L)		<	U	0.019	0.05	0.1	13		0.19	0.5	1	<	U	0.019	0.05	0.1	0.83		0.01	9 0.0	5 0.1	0.83		0.022	2 0.05	0.1	<	U	0.019	0.05	0.1	0.46		0.019	0.05 0
Sulfide SM 9034 (mg/L)		<	U	0.79	1.9	4	0.8	J	0.79	1.9	4	<	U	0.79	1.9	4	<	U	0.79	9 1.9	9 4	2.9		0.019	0.05	0.1	<	U	0.79	1.9	4	<	U	0.79	1.9
Sulfate USEPA 9056A (mg/L)		310		5.2	15	25	99		1	3	5	250		5.2	15	25	48	J	1	3	5	310		3.1	10	10	190		1	3	5	130		1	3 :
Dissolved Organic Carbon SM 9060A (mg/L)		3.3		0.35	1	1	3.6		0.35	1	1	3.8		0.35	1	1	6		0.3	5 1	1	87		5.2	15	25	6.6		0.35	1	1	4		0.35	1
Alkalinity SM 2320B (mg/L)		320		3.1	10	10 2	260		3.1	10	10	340		3.1	10	10	310		3.1	10	) 10	<	U	0.79	1.9	4	280		3.1	10	10	260		3.1	10 1
Methane RSK-175 (µg/L)		180		0.63	2	5	<	U	0.63	2	5	130		0.63	2	5	<	U	0.6	3 2	5	2.8		0.35	1	1	1100		0.63	2	5	460		0.63	2 :
Carbon Dioxide SM 2320B (mg/L) <sup>1</sup>		142		3.1	10	10	116		3.1	10	10	151		3.1	10	10	138		3.1	10	0 10	138		3.1	10	10	124		3.1	10	10	116		3.1	10 1

Concentrations exceed HALs

<sup>1</sup>Carbon dioxide back calculated from alkalinity SM 2320B.

< = less than LOQ

 $\mu g/L = micrograms per liter$ 

CHAAP = Cornhusker Army Ammunition Plant

DL = detection limit

HAL = health advisory level

HMX = octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine

ID = identification number

J = estimated

LOD = limit of detection

LOQ = limit of quantification mg/L = milligrams per liter

MNA = monitored natural attenuation

MNX = mono-nitroso-RDX

NA = not available

OU = Operable Unit

PZ = piezometer

Qual = qualifier

RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine

RSK = Robert S. Kerr Environmental Research Laboratory

SM = Standard Method

U = nondetect

USEPA = United States Environmental Protection Agency

#### SUMMARY OF EXPLOSIVES DETECTED AND LABORATORY MNA PARAMETERS, OFF-POST AND ON-POST MONITORING WELLS OU1 REBOUND STUDY, QUARTER 3 OU1 REBOUND STUDY LETTER REPORT - QUARTER 3

FIELD ID	CHAAF	•	G	<b>0086-20</b> A	۹.		G	0087-20	A			G00	091-20A			G	092-20	A			PZ0	17R-20	)A			PZ	018-20A	1			PZ	2019-20	A
SAMPLE DATE	HALs		6	/16/2020			6	/15/202	0			6/1	6/2020			6/	16/202	0			6/	16/20A				6/	16/2020				6/	16/202	0
	(µg/L)	Result	Qual	DL	LOD L	DQ Result	t Qual	DL	LOD LO	DQ Re	esult Qu	ual	DL LO	D LOC	Result	Qual	DL	LOD	LOQ	Result	Qual	DL	LOD I	LOQ	Result	Qual	DL	LOD	LOQ	Result	Qual	DL	LOD LO
EXPLOSIVES (USEPA Method 8330A) (µg/L)																																	
1,3,5-Trinitrobenzene	NA	9.4		0.088	0.21 0	22 <	U	0.09	0.21 0.	23	< 1	U	0.089 0.2	21 0.22	<	U	0.088	0.21	0.22	1.1		0.09	0.21	0.23	<	U	0.091	0.22	0.23	<	U	0.088	0.21 0.2
1,3-Dinitrobenzene	NA	<	U	0.039	0.1 0	12 <	U	0.04	0.11 0.	12	< 1	U	0.039 0.1	0.12	<	U	0.039	0.11	0.12	<	U	0.04	0.11 (	0.12	<	U	0.04	0.11	0.12	<	U	0.039	0.11 0.1
2,4,6-Trinitrotoluene	2	3.6		0.047	0.1 0	12 <	U	0.048	0.11 0.	12	< 1	U	0.048 0.1	0.12	<	U	0.047	0.11	0.12	11		0.048	0.11 (	0.12	<	U	0.049	0.11	0.12	<	U	0.047	0.11 0.1
2,4-Dinitrotoluene	NA	<	U	0.029	0.084 (	.1 <	U	0.029	0.086 0.	11	< 1	U	0.029 0.0	85 0.11	<	U	0.029	0.084	0.11	<	U	0.029	0.086	0.11	<	U	0.03	0.087	0.11	<	U	0.029	0.084 0.1
2,6-Dinitrotoluene	NA	<	U	0.042	0.084 (	.1 <	U	0.043	0.086 0.	11	< 1	U	0.042 0.0	85 0.11	<	U	0.042	0.084	0.11	<	U	0.043	0.086	0.11	<	U	0.043	0.087	0.11	<	U	0.042	0.084 0.1
2-Amino-4,6-dinitrotoluene	NA	1.6		0.053	0.1 0	12 <	U	0.054	0.11 0.	12 0.	.15		0.054 0.1	0.12	<	U	0.053	0.11	0.12	4.9		0.054	0.11 (	0.12	0.28	J	0.055	0.11	0.12	<	U	0.053	0.11 0.1
2-Nitrotoluene	NA	<	U	0.09	0.21 0	22 <	U	0.092	0.21 0.	23	< 1	U	0.091 0.2	0.22	<	U	0.09	0.21	0.22	<	U	0.092	0.21	0.23	<	U	0.093	0.22	0.23	<	U	0.09	0.21 0.2
3-Nitrotoluene	NA	<	U	0.2	0.42 0	42 <	U	0.21	0.43 0.	43	< 1	U	0.21 0.4	42 0.42	<	U	0.21	0.42	0.42	<	U	0.21	0.43	0.43	<	U	0.21	0.43	0.43	<	U	0.2	0.42 0.4
4-Amino-2,6-dinitrotoluene	NA	1.1		0.061	0.13 0	16 <	U	0.062	0.13 0.	16 0.	.21	J	0.061 0.1	0.16	<	U	0.061	0.13	0.16	5.9		0.062	0.13	0.16	0.17	J	0.063	0.13	0.16	<	U	0.061	0.13 0.1
4-Nitrotoluene	NA	<	U	0.1	0.42 0	43 <	U	0.11	0.43 0.	44	< 1	U	0.11 0.4	42 0.43	<	U	0.11	0.42	0.43	<	U	0.11	0.43 (	0.44	<	U	0.11	0.43	0.44	<	U	0.11	0.42 0.4
HMX	400	<	U	0.092	0.21 0	22 0.37		0.094	0.21 0.	23	< 1	U	0.093 0.2	21 0.22	<	U	0.092	0.21	0.22	1.5		0.094	0.21	0.23	0.89	J	0.095	0.22	0.23	<	U	0.092	0.21 0.2
MNX	NA	<	U	0.16	0.42 2	.1 <	U	0.17	0.43 2	.1	< 1	U	0.16 0.4	42 2.1	<	U	0.16	0.42	2.1	<	U	0.17	0.43	2.1	<	U	0.17	0.43	2.2	<	U	0.16	0.42 2.
Nitrobenzene	NA	<	U	0.096	0.21 0	22 <	U	0.098	0.21 0.	23	< 1	U	0.096 0.2	21 0.22	<	U	0.096	0.21	0.22	<	U	0.098	0.21	0.23	<	U	0.099	0.22	0.23	<	U	0.09€	0.21 0.2
RDX	2	0.21	J	0.054	0.21 0	22 0.15	J	0.055	0.21 0.	23 0.	.59		0.055 0.2	21 0.22	<	U	0.054	0.21	0.22	1.4		0.055	0.21	0.23	1		0.056	0.22	0.23	<	U	0.054	0.21 0.2
Tetryl	NA	<	U	0.033	0.1 0	12 <	U	0.034	0.11 0.	12	< 1	U	0.034 0.1	0.12	<	U	0.033	0.11	0.12	<	U	0.034	0.11	0.12	<	U	0.034	0.11	0.12	<	U	0.033	0.11 0.1
LABORATORY MNA PARAMETERS																																	
Ammonia USEPA 350.1 (mg/L)		0.025	J	0.022	0.05 (	.1 0.032	J	0.022	0.05 0	.1	< 1	U	0.022 0.0	0.1	0.031	J	0.022	0.05	0.1	<	U	0.022	0.05	0.1	<	U	0.022	0.05	0.1	<	U	0.022	0.05 0.
Total Kjeldahl Nitrogen USEPA 351.2 (mg/L)		<	U	0.69	1	1 1.1		0.69	1	1	< 1	U	0.69 1	1	<	U	0.69	1	1	<	U	0.69	1	1	<	U	0.69	1	1	<	U	0.69	1 1
Nitrate/Nitrite USEPA 353.2 (mg/L)		6.5		0.019	0.05 (	.1 2.7		0.019	0.05 0	.1 4	40		0.48 1.	3 2.5	0.18		0.019	0.05	0.1	30		0.076	0.2	0.4	26		0.095	0.25	0.5	34	J	0.095	0.25 0.
Sulfide SM 9034 (mg/L)		<	U	0.79	1.9	4 <	U	0.79	1.9	4	< 1	U	0.79 1.	94	0.8	J	0.79	1.9	4	<	U	0.79	1.9	4	<	U	0.79	1.9	4	<	U	0.79	1.9 4
Sulfate USEPA 9056A (mg/L)		130		1	3	5 110		1	3	5 1	90		1 3	5	330		5.2	15	25	62		1	2.5	5	67		1	2.5	5	58		1	3 5
Dissolved Organic Carbon SM 9060A (mg/L)		3.6		0.35	1	1 2.9		0.35	1	1 3	3.8		0.35 1	1	2.9		0.35	1	1	5.1		0.35	1	1	4		0.35	1	1	2		0.35	1 1
Alkalinity SM 2320B (mg/L)		280		3.1	10	0 310		3.1	10 1	0 2	80		3.1 10	0 10	350		3.1	10	10	190		3.1	10	10	96		3.1	10	10	75		3.1	10 10
Methane RSK-175 (µg/L)		22		0.63	2	5 <	U	0.63	2	5	< 1	U	0.63 2	5	18		0.63	2	5	1800		0.63	2	5	<	U	0.63	2	5	<	U	0.63	2 5
Carbon Dioxide SM 2320B (mg/L) <sup>1</sup>		124		3.1	10	0 138		3.1	10 1	0 1	24		3.1 10	0 10	156		3.1	10	10	84		3.1	10	10	43		3.1	10	10	33		3.1	10 10
Notes:																																	
Concentrations exceed HALs																																	
<sup>1</sup> Carbon dioxide back calculated from alkalinity SM 22	320B.																																
< = less than LOQ																																	
< = less than LOQ																																	

μg/L = micrograms per liter CHAAP = Cornhusker Army Ammunition Plant

DL = detection limit

HAL = health advisory level

HMX = octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine

ID = identification number

J = estimated

LOD = limit of detection

LOQ = limit of quantification

mg/L = milligrams per liter

MNA = monitored natural attenuation

MNX = mono-nitroso-RDX

NA = not available

OU = Operable Unit

PZ = piezometer

Qual = qualifier

RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine

RSK = Robert S. Kerr Environmental Research Laboratory

SM = Standard Method

U = nondetect

USEPA = United States Environmental Protection Agency

#### SUMMARY OF EXPLOSIVES DETECTED AND LABORATORY MNA PARAMETERS, OFF-POST AND ON-POST MONITORING WELLS **OU1 REBOUND STUDY, QUARTER 3 OU1 REBOUND STUDY LETTER REPORT - QUARTER 3**

HALs (µg/L)	Result		15/2020	)	
(µg/L)	Result	Qual			
		-	DL	LOD	LOQ
NA	1.5		0.088	0.21	0.22
NA	<	U	0.038	0.1	0.11
2	2.2		0.047	0.1	0.11
NA	<	U	0.029	0.083	0.1
NA	<	U	0.042	0.083	0.1
NA	<	U	0.053	0.1	0.11
NA	<	U	0.089	0.21	0.22
NA	<	U	0.2	0.42	0.42
NA	<	U	0.06	0.12	0.16
NA	<	U	0.1	0.42	0.43
400	<	U	0.091	0.21	0.22
NA	<	U	0.16	0.42	2.1
NA	<	Ū			0.22
2	0.58		0.054		0.22
NA	<	U			0.11
					-
	0.032	J	0.022	0.05	0.1
	<	U	0.69	1	1
	38		0.38	1	2
	<	U	0.79	1.9	4
	190		1	3	5
	6.4		0.35	1	1
	310		3.1	10	10
	<	U	0.63	2	5
	138		3.1	10	10
	2 NA NA NA NA NA 400 NA NA	2 2.2 NA < NA < 0.58 NA < 0.032 < 38 < 190 6.4 310 < 138 320B.	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$

#### SUMMARY OF EXPLOSIVES DETECTED AND LABORATORY MNA PARAMETERS, PERFORMANCE MONITORING WELLS **OU1 SUBSURFACE INJECTION, QUARTER 3 OU1 REBOUND STUDY LETTER REPORT - QUARTER 3**

FIELD ID	СНААР		EW7-l	PM21A	-3-25			EW7-F	M21B-	3-35			EW7-I	PM22A-	-3-25			EW7-	PM22B	-3-35			EW7-I	PM23A	-3-25			EW7-P	M23B-	3-35			EW7-	PM24A	-3-25	
SAMPLE DATE	HALs		5/	28/2020	)			5/2	29/2020				5/2	28/2020	)				29/2020				5/	31/2020	)			5/3	31/2020				5/	29/2020	)	
		Result	Qual	DL	LOD	LOQ	Result	Qual	DL	LOD	LOQ	Result				LOQ	Result				LOQ	Result				LOQ	Result				LOQ	Result				LOQ
EXPLOSIVES (USEPA Method 8330A) (µg/L)																																				
1,3,5-Trinitrobenzene	NA	6.6	J	0.091	0.22	0.23	<	U	0.21	0.23	0.09	<	U	0.09	0.21	0.22	<	U	0.23	0.24	0.1	<	U	0.093	0.22	0.23	<	U	0.91	2.2	2.3	3.3	J	0.21	0.22	0.09
1,3-Dinitrobenzene	NA	<	U	0.04	0.11	0.12	<	U	0.11	0.12	0.04	<	U	0.04	0.11	0.12	<	U	0.11	0.13	0.04	<	U	0.041	0.11	0.12	<	U	0.4	1.1	1.2	<	U	0.11	0.12	0.04
2,4,6-Trinitrotoluene	2	11	J	0.048	0.11	0.12	<	U	0.11	0.12	0.05	<	U	0.048	0.11	0.12	<	U	0.11	0.13	0.05	<	U	0.05	0.11	0.12	<	U	0.49	1.1	1.2	8.3	J	0.11	0.12	0.05
2,4-Dinitrotoluene	NA	0.44	J	0.03	0.086	0.11	<	U	0.086	0.11	0.03	<	U	0.029	0.086	0.11	<	U	0.092	0.11	0.03	<	U	0.03	0.089	0.11	<	U	0.3	0.86	1.1	<	U	0.086	0.11	0.03
2,6-Dinitrotoluene	NA	<	U	0.043	0.086	0.11	<	U	0.086	0.11	0.04	<	U	0.043	0.086	0.11	<	U	0.092	0.11	0.05	<	U	0.044	0.089	0.11	<	U	0.43	0.86	1.1	<	U	0.086	0.11	0.04
2-Amino-4,6-dinitrotoluene	NA	2.1	J	0.055	0.11	0.12	<	U	0.11	0.12	0.05	<	U	0.054	0.11	0.12	<	U	0.11	0.13	0.06	1.1	J	0.056	0.11	0.12	<	U	0.55	1.1	1.2	<	U	0.11	0.12	0.05
2-Nitrotoluene	NA	<	U	0.092	0.22	0.23	<	U	0.21	0.23	0.09	<	U	0.092	0.21	0.22	<	U	0.23	0.24	0.1	<	U	0.095	0.22	0.23	<	U	0.92	2.2	2.3	<	U	0.21	0.22	0.09
3-Nitrotoluene	NA	<	U	0.21	0.43	0.43	<	U	0.43	0.43	0.21	<	U	0.21	0.43	0.43	<	U	0.46	0.46	0.22	<	U	0.22	0.44	0.44	<	U	2.1	4.3	4.3	<	U	0.43	0.43	0.21
4-Amino-2,6-dinitrotoluene	NA	<	U	0.062	0.13	0.16	<	U	0.13	0.16	0.06	<	U	0.062	0.13	0.16	<	U	0.14	0.17	0.07	<	U	0.064	0.13	0.17	<	U	0.62	1.3	1.6	2.5	J	0.13	0.16	0.06
4-Nitrotoluene	NA	0.53	J	0.11	0.43	0.44	<	U	0.43	0.44	0.11	<	U	0.11	0.43	0.44	<	U	0.46	0.47	0.11	<	U	0.11	0.44	0.45	<	U	1.1	4.3	4.4	<	U	0.43	0.44	0.11
HMX	400	<	U	0.094	0.22	0.23	<	U	0.21	0.23	0.09	<	U	0.094	0.21	0.22	<	U	0.23	0.24	0.1	5.3	J	0.097	0.22	0.23	<	U	0.95	2.2	2.3	4.7	J	0.21	0.22	0.09
MNX	NA	<	U	0.17	0.43	2.2	<	U	0.43	2.1	0.17	<	U	0.16	0.43	2.1	<	U	0.46	2.3	0.18	<	U	0.17	0.44	2.2	<	U	1.7	4.3	22	<	U	0.43	2.1	0.16
Nitrobenzene	NA	<	U	0.098	0.22	0.23	<	U	0.21	0.23	0.1	0.97	J	0.097	0.21	0.22	<	U	0.23	0.24	0.1	<	U	0.1	0.22	0.23	<	U	0.98	2.2	2.3	<	U	0.21	0.22	0.1
RDX	2	7.3	J	0.055	0.22	0.23	<	U	0.21	0.23	0.06	<	U	0.055	0.21	0.22	<	U	0.23	0.24	0.06	<	U	0.057	0.22	0.23	<	U	0.56	2.2	2.3	<	U	0.21	0.22	0.06
Tetryl	NA	<	U	0.034	0.11	0.12	<	U	0.11	0.12	0.03	<	U	0.034	0.11	0.12	<	U	0.11	0.13	0.04	<	U	0.035	0.11	0.12	<	U	0.34	1.1	1.2	<	U	0.11	0.12	0.03
LABORATORY WATER QUALITY PARAMETE	RS																																			
Ammonia USEPA 350.1 (mg/L)		0.8		0.11	0.25	0.5	1.5		0.5	1	0.22	2.3		0.22	0.5	1	1		0.5	1	0.22	1.6		0.22	0.5	1	2.4		0.22	0.5	1	0.2		0.05	0.1	0.02
Total Kjeldahl Nitrogen USEPA 351.2 (mg/L)		1.8		0.69	1	1	4.6		1.3	1.3	0.86	7.5		1.7	2.5	2.5	6.4		2.5	2.5	1.7	3.7		0.69	1	1	8		1.1	1.7	1.7	2.1		1	1	0.69
Nitrate/Nitrite USEPA 353.2 (mg/L)		8		0.019	0.05	0.1	<	U	0.05	0.1	0.02	5.4		0.019	0.05	0.1	<	U	0.05	0.1	0.02	0.26		0.019	0.05	0.1	0.032	J	0.019	0.05	0.1	6.9	J	0.05	0.1	0.02
Sulfide SM 9034 (mg/L)		<	U	0.79	1.9	4	<	U	1.9	4	0.79	<	U	0.79	1.9	4	<	U	1.9	4	0.79	<	U	0.79	1.9	4	<	U	0.79	1.9	4	<	U	1.9	4	0.79
Sulfate USEPA 9056A (mg/L)		49		1	3	5	70		3	5	1	30		1	3	5	14	J	3	5	1	44		1	3	5	1.1	J	1	3	5	40		3	5	1
Dissolved Organic Carbon SM 9060A (mg/L)		11		0.35	1	1	63		1.7	1.7	0.58	68		0.69	2	2	96		2	2	0.69	12		0.35	1	1	66		0.58	1.7	1.7	20		1	1	0.35
Alkalinity SM 2320B (mg/L)		390		3.1	10	10	410		10	10	3.1	470		3.1	10	10	490		10	10	3.1	420		3.1	10	10	570		3.1	10	10	480		10	10	3.1
Methane RSK-175 (µg/L)		4700	J	0.63	2	5	6700		2	5	0.63	13000		1.9	6	15	15000		12	30	3.8	8400	J	1.9	6	15	21000		3.8	12	30	9000		6	15	1.9
Carbon Dioxide SM 2320B (mg/L) <sup>1</sup>		173		3.1	10	10	182		10	10	3.1	209		3.1	10	10	218		10	10	3.1	187		3.1	10	10	253		3.1	10	10	213		10	10	3.1
Notes:																																				
Concentrations exceed HALs																																				
<sup>1</sup> Carbon dioxide back calculated from alkalinity SM 23	20B.																																			
< = less than LOQ																																				
$\mu g/L = micrograms per liter$																																				
CHAAP = Cornhusker Army Ammunition Plant DL = detection limit																																				
DL = detection limit EW = extraction well																																				

HAL = health advisory level HMX = octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine

ID = identification number

J = estimated

LOD = limit of detection

LOQ = limit of quantification

mg/L = milligrams per liter

MNX = mono-nitroso-RDX

NA = not available

OU = Operable Unit

PM = performance monitoring

Qual = qualifier

RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine

RSK = Robert S. Kerr Environmental Research Laboratory

SM = Standard Method

U = nondetect

USEPA = United States Environmental Protection Agency

#### SUMMARY OF EXPLOSIVES DETECTED AND LABORATORY MNA PARAMETERS, PERFORMANCE MONITORING WELLS **OU1 SUBSURFACE INJECTION, QUARTER 3 OU1 REBOUND STUDY LETTER REPORT - QUARTER 3**

FIELD ID	CHAAP		EW7-	PM24B	-3-35			EW7-]	PM25A	-3-25			EW7-]	PM25B	-3-25			EW7-]	PM26A	-3-25			EW7-I	PM26B	-3-35			EW7-I	PM27A	-3-25			EW7	-PM27	B-3-35	
SAMPLE DATE	HALs		5/	/29/2020	)			5/	31/2020	)			5/	31/2020	)			5/	31/2020	)			6/	/1/2020				5/	29/2020	)			5	5/30/202	20	
	(µg/L)	Result	Qual	DL	LOD	LOQ	Result	Qual	DL	LOD	LOQ	Result	Qual	DL	LOD	LOQ	Result	Qual	DL	LOD	LOQ	Result	Qual	DL	LOD	LOQ	Result	Qual	DL	LOD	LOQ	Result	Qua	I DL	LOD	LO
EXPLOSIVES (USEPA Method 8330A) (µg/L)																																				
1,3,5-Trinitrobenzene	NA	<	U	0.21	0.22	0.09	<	U	0.093	0.22	0.23	<	U	0.91	2.2	2.3	0.24		0.09	0.21	0.23	<	U	0.92	2.2	2.3	<	U	0.21	0.23	0.09	<	U	0.09	4 0.22	0.23
1,3-Dinitrobenzene	NA	<	U	0.11	0.12	0.04	<	U	0.041	0.11	0.12	<	U	0.4	1.1	1.2	<	U	0.04	0.11	0.12	<	U	0.4	1.1	1.2	<	U	0.11	0.12	0.04	0.15	J	0.04	1 0.11	0.12
2,4,6-Trinitrotoluene	2	<	U	0.11	0.12	0.05	<	U	0.05	0.11	0.12	<	U	0.49	1.1	1.2	0.87		0.048	0.11	0.12	<	U	0.49	1.1	1.2	0.45	J	0.11	0.12	0.05	<	U	0.05	0.11	0.12
2,4-Dinitrotoluene	NA	<	U	0.085	0.11	0.03	<	U	0.03	0.088	0.11	<	U	0.3	0.87	1.1	<	U	0.029	0.086	0.11	<	U	0.3	0.87	1.1	<	U	0.086	0.11	0.03	<	U	0.03	1 0.089	0.1
2,6-Dinitrotoluene	NA	<	U	0.085	0.11	0.04	<	U	0.044	0.088	0.11	<	U	0.44	0.87	1.1	<	U	0.043	0.086	0.11	<	U	0.44	0.87	1.1	<	U	0.086	0.11	0.04	<	U	0.04	5 0.089	0.1
2-Amino-4,6-dinitrotoluene	NA	<	U	0.11	0.12	0.05	<	U	0.056	0.11	0.12	<	U	0.55	1.1	1.2	<	U	0.054	0.11	0.12	<	U	0.55	1.1	1.2	<	U	0.11	0.12	0.05	<	U	0.05	6 0.11	0.12
2-Nitrotoluene	NA	<	U	0.21	0.22	0.09	<	U	0.094	0.22	0.23	<	U	0.93	2.2	2.3	<	U	0.092	0.21	0.23	<	U	0.93	2.2	2.3	<	U	0.21	0.23	0.09	<	U	0.09	5 0.22	0.23
3-Nitrotoluene	NA	<	U	0.42	0.42	0.21	<	U	0.22	0.44	0.44	<	U	2.1	4.3	4.3	<	U	0.21	0.43	0.43	<	U	2.1	4.4	4.4	<	U	0.43	0.43	0.21	<	U	0.22	0.45	0.45
4-Amino-2,6-dinitrotoluene	NA	<	U	0.13	0.16	0.06	<	U	0.064	0.13	0.17	<	U	0.63	1.3	1.6	<	U	0.062	0.13	0.16	<	U	0.63	1.3	1.6	<	U	0.13	0.16	0.06	<	U	0.06	4 0.13	0.1
4-Nitrotoluene	NA	<	U	0.42	0.44	0.11	<	U	0.11	0.44	0.45	<	U	1.1	4.3	4.5	<	U	0.11	0.43	0.44	<	U	1.1	4.4	4.5	<	U	0.43	0.44	0.11	<	U	0.11	0.45	0.46
HMX	400	<	U	0.21	0.22	0.09	<	U	0.097	0.22	0.23	<	U	0.95	2.2	2.3	<	U	0.094	0.21	0.23	<	U	0.96	2.2	2.3	<	U	0.21	0.23	0.09	<	U	0.09	8 0.22	0.23
MNX	NA	<	U	0.42	2.1	0.16	<	U	0.17	0.44	2.2	56	J	1.7	4.3	22	<	U	0.17	0.43	2.1	<	U	1.7	4.4	22	<	U	0.43	2.1	0.17	<	U	0.17	0.45	2.2
Nitrobenzene	NA	<	U	0.21	0.22	0.1	<	U	0.1	0.22	0.23	<	U	0.99	2.2	2.3	<	U	0.098	0.21	0.23	<	U	0.99	2.2	2.3	<	U	0.21	0.23	0.1	<	U	0.1	0.22	0.23
RDX	2	<	U	0.21	0.22	0.06	<	U	0.057	0.22	0.23	57	J	0.56	2.2	2.3	0.46		0.055	0.21	0.23	34	J	0.56	2.2	2.3	<	U	0.21	0.23	0.06	17	J	0.05	7 0.22	0.23
Tetryl	NA	<	U	0.11	0.12	0.03	<	U	0.035	0.11	0.12	<	U	0.35	1.1	1.2	<	U	0.034	0.11	0.12	<	U	0.35	1.1	1.2	<	U	0.11	0.12	0.03	<	U	0.03	5 0.11	0.12
LABORATORY WATER QUALITY PARAMETH	ERS																																			
Ammonia USEPA 350.1 (mg/L)		1.7		0.5	1	0.22	1.4		0.22	0.5	1	3.1		0.22	0.5	1	0.085	J	0.022	0.05	0.1	1.8		0.22	0.5	1	1.1		0.5	1	0.22	1.8		0.22	0.5	1
Total Kjeldahl Nitrogen USEPA 351.2 (mg/L)		8.2		2.5	2.5	1.7	6.8		1.1	1.7	1.7	6.8		1.1	1.7	1.7	1.5		0.69	1	1	7.2		1.1	1.7	1.7	3.6		1	1	0.69	5.7		1.1	1.7	1.7
Nitrate/Nitrite USEPA 353.2 (mg/L)		<	U	0.05	0.1	0.02	3		0.019	0.05	0.1	0.053	J	0.019	0.05	0.1	1.9		0.019	0.05	0.1	0.055	J	0.019	0.05	0.1	4.2	J	0.05	0.1	0.02	0.16		0.01	9 0.05	0.1
Sulfide SM 9034 (mg/L)		0.8	J	1.9	4	0.79	0.8	J	0.79	1.9	4	<	U	0.79	1.9	4	<	U	0.79	1.9	4	<	U	0.79	1.9	4	<	U	1.9	4	0.79	<	U	0.79	1.9	4
Sulfate USEPA 9056A (mg/L)		6		3	5	1	38		1	3	5	<	U	1	3	5	36		1	3	5	6.8		1	3	5	47		3	5	1	37		1	3	5
Dissolved Organic Carbon SM 9060A (mg/L)		150		4.2	4.2	1.4	130		1.2	3.5	3.5	72		0.69	2	2	9.6		0.35	1	1	220		1.9	5.6	5.6	42		1	1	0.35	47		0.35	5 1	1
Alkalinity SM 2320B (mg/L)		500		10	10	3.1	520		3.1	10	10	770		3.1	10	10	500		3.1	10	10	520		3.1	10	10	440		10	10	3.1	490		3.1	10	10
Methane RSK-175 (µg/L)		14000		12	30	3.8	5000		0.63	2	5	18000		3.8	12	30	2600		0.63	2	5	19000		1.9	6	15	6400		2	5	0.63	16000	J	3.8	12	30
Carbon Dioxide SM 2320B (mg/L) <sup>1</sup>		222		10	10	3.1	231		3.1	10	10	342		3.1	10	10	222		3.1	10	10	231		3.1	10	10	196		10	10	3.1	218		3.1	10	10

Concentrations exceed HALs

<sup>1</sup>Carbon dioxide back calculated from alkalinity SM 2320B.

< = less than LOQ

μg/L = micrograms per liter CHAAP = Cornhusker Army Ammunition Plant

DL = detection limit

EW = extraction well

HAL = health advisory level

HMX = octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine

ID = identification number

J = estimated

LOD = limit of detection LOQ = limit of quantification

mg/L = milligrams per liter

MNX = mono-nitroso-RDX

NA = not available

OU = Operable Unit

PM = performance monitoring

Qual = qualifier

RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine

RSK = Robert S. Kerr Environmental Research Laboratory

SM = Standard Method

U = nondetect

USEPA = United States Environmental Protection Agency

### TABLE 3-3

## SUMMARY OF EXPLOSIVES DETECTED AND LABORATORY MNA PARAMETERS, PERFORMANCE MONITORING WELLS OU1 SUBSURFACE INJECTION, QUARTER 3 OU1 REBOUND STUDY LETTER REPORT - QUARTER 3

FIELD ID	CHAAP		EW7-I	PM28A	-3-25			EW7-I	PM28B-	3-35			EW7-I	PM29A-	-3-25			EW7-P	PM29B-	3-35	
SAMPLE DATE	HALs		5/	30/2020	)			5/3	30/2020				5/.	30/2020	)			5/3	30/2020		
	(µg/L)	Result	Qual	DL	LOD	LOQ	Result	Qual	DL	LOD	LOQ	Result	Qual	DL	LOD	LOQ	Result	Qual	DL	LOD	LO
EXPLOSIVES (USEPA Method 8330A) (µg/L)		1																			
1,3,5-Trinitrobenzene	NA	<	U	0.091	0.22	0.23	<	U	0.9	2.1	2.2	<	U	0.9	2.1	2.2	<	U	0.89	2.1	2.2
1,3-Dinitrobenzene	NA	<	U	0.04	0.11	0.12	<	U	0.39	1.1	1.2	<	U	0.4	1.1	1.2	<	U	0.39	1.1	1.2
2,4,6-Trinitrotoluene	2	<	U	0.049	0.11	0.12	<	U	0.48	1.1	1.2	<	U	0.48	1.1	1.2	<	UJ	0.48	1.1	1.2
2,4-Dinitrotoluene	NA	<	U	0.03	0.086	0.11	<	U	0.29	0.86	1.1	<	U	0.29	0.86	1.1	<	U	0.29	0.85	1.1
2,6-Dinitrotoluene	NA	<	U	0.043	0.086	0.11	<	U	0.43	0.86	1.1	<	U	0.43	0.86	1.1	<	U	0.43	0.85	1.1
2-Amino-4,6-dinitrotoluene	NA	<	U	0.055	0.11	0.12	<	U	0.54	1.1	1.2	<	U	0.54	1.1	1.2	<	J	0.54	1.1	1.2
2-Nitrotoluene	NA	<	U	0.092	0.22	0.23	<	U	0.92	2.1	2.2	<	U	0.92	2.1	2.2	<	UJ	0.91	2.1	2.2
3-Nitrotoluene	NA	<	U	0.21	0.43	0.43	<	U	2.1	4.3	4.3	<	U	2.1	4.3	4.3	<	UJ	2.1	4.3	4.3
4-Amino-2,6-dinitrotoluene	NA	<	U	0.062	0.13	0.16	<	U	0.62	1.3	1.6	<	U	0.62	1.3	1.6	<	UJ	0.61	1.3	1.6
4-Nitrotoluene	NA	<	Ū	0.11	0.43	0.44	<	Ū	1.1	4.3	4.4	<	Ū	1.1	4.3	4.4	<	UJ	1.1	4.3	4.4
HMX	400	<	Ū	0.094	0.22	0.23	<	U	0.94	2.1	2.2	<	U	0.94	2.1	2.2	<	UJ	0.93	2.1	2.2
MNX	NA	<	Ū	0.17	0.43	2.2	<	U	1.6	4.3	21	<	U	1.6	4.3	21	59	J	1.6	4.3	21
Nitrobenzene	NA	<	U	0.098		0.23	<	U	0.97	2.1	2.2	<	U	0.97	2.1	2.2	<	UJ	0.97	2.1	2.2
RDX	2	15	J	0.056		0.23	<	U	0.55	2.1	2.2	26	J	0.55	2.1	2.2	44	J	0.55	2.1	2.2
Tetryl	NA	<	Ŭ	0.034		0.12	<	U	0.34	1.1	1.2	<	Ŭ	0.34	1.1	1.2	<	ŬĴ	0.34	1.1	1.2
LABORATORY WATER QUALITY PARAMET			Ū	0.051	0.11	0.12		Ū	0.51	1.1	1.2	-	U	0.51	1.1	1.2		0.	0.51	1.1	1.2
Ammonia USEPA 350.1 (mg/L)	ERS	3		0.22	0.5	1	5.8		0.22	0.5	1	0.35		0.022	0.05	0.1	1.6		0.22	0.5	1
Total Kjeldahl Nitrogen USEPA 351.2 (mg/L)		5.6		0.69	1	1	9.2		1.1	1.7	1.7	5.3		1.1	1.7	1.7	7.2	J	3.4	5	5
Nitrate/Nitrite USEPA 353.2 (mg/L)		0.15		0.019	0.05	0.1	0.035	J	0.019	0.05	0.1	0.064	J	0.019	0.05	0.1	0.049	J	0.019	0.05	0.1
Sulfide SM 9034 (mg/L)		<	U	0.79	1.9	4	0.035	J	0.79	1.9	4	<	U U	0.79	1.9	4	<	U U	0.79	1.9	4
Sulfate USEPA 9056A (mg/L)		28	0	1	3	5	<	Ŭ	1	3	5	7.1	0	1	3	5	<	U	1	3	5
Dissolved Organic Carbon SM 9060A (mg/L)		46		0.69	2	2	23	-	0.35	1	1	38		0.35	1	1	64	-	0.69	2	2
Alkalinity SM 2320B (mg/L)		470		3.1	10	10	740		3.1	10	10	440		3.1	10	10	480		3.1	10	10
Methane RSK-175 (µg/L)		15000		1.9	6	15	16000		1.9	6	15	22000		3.8	12	30	9600	J	3.8	12	30
Carbon Dioxide SM 2320B $(mg/L)^1$		209		3.1	10	10	329		3.1	10	10	196		3.1	10	10	213		3.1	10	10
Notes:																					
Concentrations exceed HALs																					
<sup>1</sup> Carbon dioxide back calculated from alkalinity SM 2	2320B.																				
< = less than LOQ																					
$\mu g/L =$ micrograms per liter																					
CHAAP = Cornhusker Army Ammunition Plant																					
DL = detection limit																					
EW = extraction well HAL = health advisory level																					
HMX = octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazoci	ne																				
ID = identification number	inc																				
J = estimated																					
LOD = limit of detection																					
LOQ = limit of quantification																					
mg/L = milligrams per liter																					
MNX = mono-nitroso-RDX																					
NA = not available																					
OU = Operable Unit PM = performance monitoring																					
Qual = qualifier																					
RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine																					
RSK = Robert S. Kerr Environmental Research Labor	ratory																				
SM = Standard Method																					
U = nondetect																					
USEPA = United States Environmental Protection Ag																					

# TABLE 3-4SUMMARY OF OU1 FIELD DUPLICATE SAMPLE PAIRSOU1 REBOUND STUDY LETTER REPORT - QUARTER 3

WELL NUMBER					OS0	01-DP03	3-25									]	NW021					
FIELD ID		OS0	)1-DP0	3-25			<b>OS5</b>	01-DP0	3-25				N	W021-2	0A			NV	V023-20	)A		
SAMPLE DATE		5/	26/202	0			5.	26/202	0				6	/15/202	0			6	/15/202	0		
	Result	Qual	DL	LOD	LOQ	Result	Qual	DL	LOD	LOQ	RPD	Result	Qual	DL	LOD	LOQ	Result	Qual	DL	LOD	LOQ	RPD
EXPLOSIVES (USEPA Method 8330A) (µg/L)																						
1,3,5-Trinitrobenzene	0.41	J	0.09	0.21	0.22	0.35		0.094	0.22	0.23	<2x	<	U	0.094	0.22	0.24	<	U	0.091	0.22	0.23	
1,3-Dinitrobenzene	<	U	0.039	0.11	0.12	<	U	0.041	0.11	0.12		<	U	0.041	0.11	0.12	<	U	0.04	0.11	0.12	
2,4,6-Trinitrotoluene	32	J	0.48	1.1	1.2	29		0.5	1.1	1.2	10	<	U	0.05	0.11	0.12	<	U	0.049	0.11	0.12	
2,4-Dinitrotoluene	<	U	0.029	0.086	0.11	<	U	0.031	0.089	0.11		<	U	0.031	0.09	0.11	<	U	0.03	0.086	0.11	
2,6-Dinitrotoluene	<	U	0.043	0.086	0.11	<	U	0.045	0.089	0.11		<	U	0.045	0.09	0.11	<	U	0.043	0.086	0.11	
2-Amino-4,6-dinitrotoluene	<	U	0.054	0.11	0.12	<	U	0.057	0.11	0.12		2.2		0.057	0.11	0.12	2.2		0.055	0.11	0.12	0
2-Nitrotoluene	<	U	0.091	0.21	0.22	<	U	0.096	0.22	0.23		<	U	0.096	0.22	0.24	<	U	0.092	0.22	0.23	
3-Nitrotoluene	<	UJ	0.21	0.43	0.43	<	U	0.22	0.45	0.45		<	U	0.22	0.45	0.45	<	U	0.21	0.43	0.43	
4-Amino-2,6-dinitrotoluene	<	U	0.062	0.13	0.16	<	U	0.064	0.13	0.17		1		0.065	0.13	0.17	1.1		0.062	0.13	0.16	10
4-Nitrotoluene	<	U	0.11	0.43	0.44	<	U	0.11	0.45	0.46		<	U	0.11	0.45	0.46	<	U	0.11	0.43	0.44	
HMX	<	U	0.094	0.21	0.22	<	U	0.098	0.22	0.23		<	U	0.098	0.22	0.24	<	U	0.095	0.22	0.23	
MNX	<	U	0.16	0.43	2.1	<	U	0.17	0.45	2.2		<	U	0.17	0.45	2.2	<	U	0.17	0.43	2.2	
Nitrobenzene	<	U	0.097	0.21	0.22	<	U	0.1	0.22	0.23		<	U	0.1	0.22	0.24	<	U	0.098	0.22	0.23	
RDX	0.19	J	0.055	0.21	0.22	<	U	0.058	0.22	0.23	<2x	<	U	0.058	0.22	0.24	<	U	0.056	0.22	0.23	
Tetryl	<	U	0.034	0.11	0.12	<	U	0.036	0.11	0.12		<	U	0.036	0.11	0.12	<	U	0.034	0.11	0.12	
LABORATORY MNA PARAMETERS																						
Ammonia USEPA 350.1 (mg/L)												1.4		0.022	0.05	0.1	1.4		0.022	0.05	0.1	0
Total Kjeldahl Nitrogen USEPA 351.2 (mg/L)												1.8		0.69	1	1	2.6		0.69	1	1	<2x
Nitrate/Nitrite USEPA 353.2 (mg/L)												1.5		0.019	0.05	0.1	1.5		0.019	0.05	0.1	0
Sulfide SM 9034 (mg/L)		No	Analys	sis			No	Analys	sis			<	U	0.79	1.9	4	<	U	0.79	1.9	4	
Sulfate USEPA 9056A (mg/L)												220		2.1	6	10	220		2.1	6	10	0
Dissolved Organic Carbon SM 9060A (mg/L)												2.8		0.35	1	1	2.7		0.35	1	1	<2x
Alkalinity SM 2320B (mg/L)												340		3.1	10	10	360		3.1	10	10	6
Methane RSK-175 (µg/L)												5.7		0.63	2	5	4.3	J	0.63	2	5	<2x
Carbon Dioxide SM 2320B (mg/L) <sup>1</sup>												151		3.1	10	10	160		3.1	10	10	6
Notes:																						
<sup>1</sup> Carbon dioxide back calculated from alkalinity SM 2320.		ID = id	lentifica	tion nu	mber			OU = 0	Operabl	e Unit				USEPA	A = Uni	ited Stat	tes Enviro	onmen	tal Prote	ection A	gency	
field duplicate RPD $> 30$ or $>2X$ the LOQ		J = esti	mated					PM = p	berform	ance m	onitori	ng		X = tin	nes							
< = less than LOQ		LOD =	limit o	f detect	ion			Qual =	qualifi	er		-										
$\mu g/L = micrograms per liter$		LOQ =	limit o	f quanti	ificatio	n		RDX =	hexah	ydro-1,	3,5-trir	itro-1,3,5	5-triazi	ine								
DL = detection limit		0	millig						relative	*												
DP = direct push						tenuatio	n					onmenta	l Resea	arch Lab	oratory	/						
EW = extraction well HMX = actabudge 1.2.5.7 totrapites 1.2.5.7 totraggering			= mono-						Standar		bd											
HMX = octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine		OS = 0	off-post	sample				U = no	ndetect													

# TABLE 3-4SUMMARY OF OU1 FIELD DUPLICATE SAMPLE PAIRSOU1 REBOUND STUDY LETTER REPORT - QUARTER 3

WELL NUMBER					]	PZ017R										EW7	7-PM23A	-25				
FIELD ID		PZ	017R-2	0A			PZ	2021-20	A				EW7-	PM23A	-3-25			EW7-	PM523	A-3-25		
SAMPLE DATE		6	/16/20A				6	/16/20A	<b>L</b>				5	/31/202	0			5	/31/202	0		
	Result	Qual	DL	LOD	LOQ	Result	Qual	DL	LOD	LOQ	RPD	Result	Qual	DL	LOD	LOQ	Result	Qual	DL	LOD	LOQ	RPD
EXPLOSIVES (USEPA Method 8330A) (µg/L)																						
1,3,5-Trinitrobenzene	1.1		0.09	0.21	0.23	1.2		0.092	0.22	0.23	9	<	U	0.093	0.22	0.23	<	U	0.092	0.22	0.23	
1,3-Dinitrobenzene	<	U	0.04	0.11	0.12	<	U	0.04	0.11	0.12		<	U	0.041	0.11	0.12	<	U	0.04	0.11	0.12	
2,4,6-Trinitrotoluene	11		0.048	0.11	0.12	11		0.049	0.11	0.12	0	<	U	0.05	0.11	0.12	<	U	0.049	0.11	0.12	
2,4-Dinitrotoluene	<	U	0.029	0.086	0.11	<	U	0.03	0.087	0.11		<	U	0.03	0.089	0.11	<	U	0.03	0.088	0.11	
2,6-Dinitrotoluene	<	U	0.043	0.086	0.11	<	U	0.044	0.087	0.11		<	U	0.044	0.089	0.11	<	U	0.044	0.088	0.11	
2-Amino-4,6-dinitrotoluene	4.9		0.054	0.11	0.12	4.8		0.055	0.11	0.12	2	1.1	J	0.056	0.11	0.12	1.3	J	0.056	0.11	0.12	17
2-Nitrotoluene	<	U	0.092	0.21	0.23	<	U	0.093	0.22	0.23		<	U	0.095	0.22	0.23	<	U	0.094	0.22	0.23	
3-Nitrotoluene	<	U	0.21	0.43	0.43	<	U	0.21	0.44	0.44		<	U	0.22	0.44	0.44	<	U	0.21	0.44	0.44	
4-Amino-2,6-dinitrotoluene	5.9		0.062	0.13	0.16	5.8		0.063	0.13	0.16	2	<	U	0.064	0.13	0.17	<	U	0.063	0.13	0.16	
4-Nitrotoluene	<	U	0.11	0.43	0.44	<	U	0.11	0.44	0.45		<	U	0.11	0.44	0.45	<	U	0.11	0.44	0.45	
HMX	1.5		0.094	0.21	0.23	1.6		0.096	0.22	0.23	6	5.3	J	0.097	0.22	0.23	6.4	J	0.096	0.22	0.23	19
MNX	<	U	0.17	0.43	2.1	<	U	0.17	0.44	2.2		<	U	0.17	0.44	2.2	<	U	0.17	0.44	2.2	
Nitrobenzene	<	U	0.098	0.21	0.23	<	U	0.099	0.22	0.23		<	U	0.1	0.22	0.23	<	U	0.1	0.22	0.23	
RDX	1.4		0.055	0.21	0.23	1.4		0.056	0.22	0.23	0	<	U	0.057	0.22	0.23	<	U	0.056	0.22	0.23	
Tetryl	<	U	0.034	0.11	0.12	<	U	0.035	0.11	0.12		<	U	0.035	0.11	0.12	<	U	0.035	0.11	0.12	
LABORATORY MNA PARAMETERS																						
Ammonia USEPA 350.1 (mg/L)	<	U	0.022	0.05	0.1	<	U	0.022	0.05	0.1		1.6		0.22	0.5	1	1.6		0.22	0.5	1	0
Total Kjeldahl Nitrogen USEPA 351.2 (mg/L)	<	U	0.69	1	1	<	U	0.69	1	1		3.7		0.69	1	1	3.3		0.69	1	1	<2x
Nitrate/Nitrite USEPA 353.2 (mg/L)	30		0.076	0.2	0.4	30		0.076	0.2	0.4	0	0.26		0.019	0.05	0.1	0.27		0.019	0.05	0.1	<2x
Sulfide SM 9034 (mg/L)	<	U	0.79	1.9	4	<	U	0.79	1.9	4		<	U	0.79	1.9	4	<	U	0.79	1.9	4	
Sulfate USEPA 9056A (mg/L)	62		1	2.5	5	63		1	2.5	5	2	44		1	3	5	43		1	3	5	2
Dissolved Organic Carbon SM 9060A (mg/L)	5.1		0.35	1	1	6.3		0.35	1	1	21	12		0.35	1	1	11		0.35	1	1	9
Alkalinity SM 2320B (mg/L)	190		3.1	10	10	190		3.1	10	10	0	420		3.1	10	10	420		3.1	10	10	0
Methane RSK-175 (µg/L)	1800		0.63	2	5	2000		0.63	2	5	11	8400	J	1.9	6	15	12000	J	1.9	6	15	35
Carbon Dioxide SM 2320B (mg/L) <sup>1</sup>	84		3.1	10	10	84		3.1	10	10	0	187		3.1	10	10	187		3.1	10	10	0
Notes:																						
<sup>1</sup> Carbon dioxide back calculated from alkalinity SM 2320	•	ID = ic	lentifica	tion nu	mber			OU = 0	Operabl	e Unit				USEPA	A = Uni	ited Sta	tes Envir	onmer	ntal Prot	ection .	Agency	
field duplicate RPD $> 30$ or $>2X$ the LOQ																						
< = less than LOQ			limit o					· ·	qualifi													
$\mu g/L = micrograms per liter$		~	limit o			n			•		·	itro-1,3,	5-triaz	ine								
DL = detection limit		0	= milligr						relative	*			1.0									
DP = direct push	MNA = monitored natural attenuation RSK = Robert S. Kerr Environmental Research Laboratory MNX = mono-nitroso-RDX SM = Standard Method																					
EW = extraction well HMX = octahydro_1 3 5 7-tetrapitro_1 3 5 7-tetrazocine			= mono- off-post :		-ΚIJΆ				ndetect	1 ivietno	u											
HMX = octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine		0s = c	m-post	sampie				U - no	ndetect													

#### **TABLE 3-5**

#### FIELD WATER QUALITY PARAMETERS, OFF-POST AND ON-POST MONITORING WELLS OU1 REBOUND STUDY, QUARTER 3 OU1 REBOUND STUDY LETTER REPORT - QUARTER 3

				Specific				Ferrous
Well	Sample		Temperature	Conductance	DO	ORP	Turbidity	Iron
Number	Date	pН	(°C)	(mS/cm)	(mg/L)	(mV)	(NTU)	(mg/L)
OU1 Off-Post	Monitoring W	ells						
CA210	6/9/2020	6.40	15.57	1.550	0.48	70	0.00	1.13
CA211	6/9/2020	6.46	12.81	1.110	0.78	94	0.00	0.91
CA212	6/9/2020	6.64	12.48	0.732	0.41	98	0.00	0.93
CA213	6/9/2020	7.56	12.98	0.501	0.48	95	0.00	1.02
NW020	6/15/2020	6.57	14.06	1.450	6.30	153	0.00	0.96
NW021	6/15/2020	6.84	15.25	1.180	0.34	150	0.00	1.09
NW022	6/15/2020	7.05	15.64	1.390	0.33	85	0.00	1.94
NW050	6/10/2020	5.97	14.04	0.567	0.40	130	0.80	0.30
NW051	6/10/2020	6.14	15.00	0.442	0.37	126	0.50	0.41
NW052	6/10/2020	6.26	13.63	0.312	0.36	27	1.50	0.96
NW060	6/16/2020	5.88	16.37	0.065	10.63	130	0.00	0.10
NW061	6/10/2020	6.59	13.37	0.308	0.38	180	1.40	0.20
NW062	6/10/2020	6.71	13.31	0.270	0.33	-67	1.30	0.84
NW070	6/9/2020	6.51	13.08	0.195	0.40	-7	0.00	1.21
NW071	6/9/2020	6.40	13.85	0.745	3.00	88	0.00	0.95
NW080	6/8/2020	6.26	14.33	1.070	7.66	186.0	0.00	0.26
NW081R	6/8/2020	6.42	14.87	1.050	1.46	161	0.00	0.62
NW082R	6/8/2020	6.64	14.98	0.916	0.49	153	0.00	0.33
OU1 On-Post	Monitoring W	ells						
G0024	6/15/2020	6.71	13.75	1.170	7.26	119	0.00	1.26
G0070	6/2/2020	7.01	13.67	0.511	1.40	120	3.42	0.32
G0075	6/1/2020	6.83	16.06	0.987	0.71	73	1.54	0.25
G0076	6/1/2020	6.93	14.76	1.260	0.56	-27	2.61	0.25
G0077	6/15/2020	6.68	15.09	0.874	2.67	115	0.00	1.28
G0078	6/15/2020	6.91	15.06	1.280	0.31	68	0.00	1.11
G0079	6/1/2020	6.63	13.31	0.706	5.90	69	1.24	0.25
G0080	6/11/2020	6.70	12.60	0.884	0.39	36	0.10	0.78
G0081	6/2/2020	6.43	15.50	1.020	0.59	52	2.41	0.71
G0082	6/2/2020	6.47	15.82	0.858	0.47	-12	2.07	0.10
G0086	6/16/2020	7.03	12.71	0.923	1.14	111	6.03	0.16
G0087	6/15/2020	7.03	12.78	0.851	0.40	111	5.23	0.16
G0091	6/16/2020	7.29	14.23	1.300	6.55	105	5.98	0.28
G0092	6/16/2020	7.54	16.26	1.240	0.41	103	7.44	0.22
PZ017R	6/16/2020	6.90	13.94	0.788	3.44	111	8.40	0.42
PZ018	6/16/2020	6.46	13.66	0.590	9.26	127	7.94	0.42
PZ019	6/16/2020	6.49	13.30	0.616	10.83	112	6.03	0.23
PZ020	6/15/2020	6.86	14.30	1.350	7.07	104	0.00	0.91

#### Notes:

Field water quality parameters for all wells were measured using a Horiba U-52 MPS equipped with a flow-through cell with the exception of turbidity and ferrous iron. Turbidity was measured using a LaMotte turbidity meter (2020). Ferrous iron was measured using a Hach colorimeter (DR/820).

°C = degrees Celsius DO = dissolved oxygen mg/L = milligrams per liter MPS = multiprobe system

mV = millivolts NTU = nephelometric turbidity units

mS/cm = milliSiemens per centimeter

ORP = oxidation/reduction potential

OU = Operable Unit PZ = piezometer

#### TABLE 3-6

#### FIELD WATER QUALITY PARAMETERS, PERFORMANCE MONITORING WELLS OU1 SUBSURFACE INJECTION, QUARTER 3 OU1 REBOUND STUDY LETTER REPORT - QUARTER 3

Well Number	Sample Date	рН	Temperature (°C)	Specific Conductance (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Ferrous Iron (mg/L)
Between EW6	and EW7	•						
EW7-PM21A	5/28/20	6.38	14.26	0.920	0.69	-235	12.00	5.73
EW7-PM21B	5/29/20	6.29	12.91	0.952	0.39	-122	26.90	>15
EW7-PM22A	5/28/20	6.16	18.57	0.932	0.53	-148	59.10	>15
EW7-PM22B	5/29/20	6.15	13.93	1.090	0.34	-123	63.70	>15
EW7-PM23A	5/31/20	6.54	16.46	0.949	0.41	-91	7.90	10.28
EW7-PM23B	5/31/20	6.14	14.51	1.270	0.40	-91	5.34	>15
EW7-PM24A	5/29/20	6.44	13.49	1.070	0.54	-68	18.30	>15
EW7-PM24B	5/29/20	6.13	14.20	1.160	0.34	-135	50.60	>15
EW7-PM25A	5/31/20	6.21	12.44	1.230	8.07	7	12.30	3.30
EW7-PM25B	5/31/20	6.46	13.64	1.530	0.42	-79	6.43	4.28
EW7-PM26A	5/31/20	6.54	15.25	1.050	0.49	-53	0.00	4.52
EW7-PM26B	6/1/20	6.06	13.60	1.280	0.41	-82	6.11	>15
EW7-PM27A	5/29/20	6.07	13.03	1.010	0.31	-99	26.90	6.60
EW7-PM27B	5/30/20	6.41	13.01	1.180	0.36	-107	10.10	4.32
EW7-PM28A	5/30/20	6.23	12.59	1.110	0.35	-53	38.90	7.05
EW7-PM28B	5/30/20	6.74	14.01	1.460	0.29	-141	9.60	5.48
EW7-PM29A	5/30/20	6.25	12.24	0.955	0.37	-62	16.30	2.64
EW7-PM29B	5/30/20	6.32	13.11	1.110	0.29	-105	43.80	6.51

Notes:

Field water quality parameters for all wells were measured using a Horiba U-52 MPS equipped with a flow-through cell with the exception of turbidity and ferrous iron. Turbidity was measured using a LaMotte turbidity meter (2020). Ferrous iron was measured using a Hach colorimeter (DR/820).

> = greater than

°C = degrees Celsius

DO = dissolved oxygen

EW = extraction well

mg/L = milligrams per liter

MPS = multiprobe system

 $mS/cm = milliSiemens \ per \ centimeter$ 

mV = millivolts

NTU = nephelometric turbidity units

ORP = oxidation/reduction potential

OU = Operable Unit

PM = performance monitoring

#### TABLE 5-1 SUMMARY OF RDX AND TNT CONCENTRATIONS OU1 REBOUND STUDY LOCATIONS OU1 REBOUND STUDY LETTER REPORT - QUARTER 3

	BAS	ELINE	QUAR	RTER 2	QUAR	TER 3
Well Number / Sample	RDX	TNT	RDX	TNT	RDX	TNT
Interval	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
OU1 Off-Post Wells						
CA210	ND	ND	ND	ND	ND	ND
CA211	ND	ND	ND	ND	ND	ND
CA212	ND	ND	ND	ND	ND	ND
CA213	ND	ND	ND	ND	ND	ND
NW020	0.2	ND	0.94	0.6	1.5	0.59
NW021	ND	ND	ND	ND	ND	ND
NW022	ND	ND	ND	ND	ND	ND
NW050	ND	ND	ND	ND	ND	ND
NW051	ND	ND	ND	ND	ND	ND
NW052	ND	ND	ND	ND	ND	ND
NW060	ND	ND	ND	ND	ND	ND
NW061	ND	ND	ND	ND	ND	ND
NW062	ND	ND	ND	ND	ND	ND
NW070	ND	ND	ND	ND	ND	ND
NW071	ND	ND	ND	ND	ND	ND
NW080	ND	ND	ND	ND	ND	ND
NW081R	ND	ND	ND	ND	ND	ND
NW082R	ND	ND	ND	ND	ND	ND
OU1 On-Post Wells						
G0024	ND	ND	ND	ND	0.59	0.63
G0070	ND	ND	ND	ND	ND	ND
G0075	ND	ND	ND	ND	ND	ND
G0076	ND	ND	ND	ND	0.2	ND
G0077	0.91	3.2	0.19	2.7	0.46	3.3
G0078	ND	ND	ND	ND	ND	ND
G0079	ND	ND	ND	ND	ND	ND
G0080	ND	ND	ND	ND	ND	ND
G0081	ND	0.29	ND	ND	ND	ND
G0082	0.63	ND	ND	ND	0.68	ND
G0086	ND	3.8	ND	5.9	0.21	3.6
G0087	ND	ND	ND	ND	0.15	ND
G0091	0.81	ND	0.83	ND	0.59	ND
G0092	ND	ND	ND	ND	ND	ND
PZ017R	0.87	15	1.4	17	1.4	11
PZ018	0.88	8	ND	19	1	ND
PZ019	ND	ND	ND	ND	ND	ND
PZ020	0.42	3.7	0.62	3.2	0.58	2.2

#### TABLE 5-1 SUMMARY OF RDX AND TNT CONCENTRATIONS OU1 REBOUND STUDY LOCATIONS OU1 REBOUND STUDY LETTER REPORT - QUARTER 3

	BASE	ELINE	QUAR	RTER 2	QUAR	TER 3
Well Number / Sample Interval	RDX (µg/L)	TNT (µg/L)	RDX (µg/L)	TNT (µg/L)	RDX (µg/L)	TNT (µg/L)
Direct Push Samples (Off-Post	)					
OS001-25	ND	12	ND	9.2	0.19	32
OS001-35	ND	11	ND	8.2	0.21	11
OS001-45	ND	ND	ND	1.1	0.17	2.2
OS002-25	0.63	1.3	N	IS	N	IS
OS002-35	ND	ND	N	IS	N	IS
OS002-45	ND	3.3	Ň	IS	N	IS
OS003-25	ND	ND	N	IS	N	IS
OS003-35	ND	3	N	IS	N	IS
OS003-45	ND	ND	N	IS	N	IS

Notes:

Concentrations exceed HALs

 $\mu g/L = micrograms per liter$ 

ND = nondetect

NS = not sampled

OS = off-post sample

OU = Operable Unit

PZ = piezometer

RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine

TNT = 2,4,6-trinitrotoluene

#### **TABLE 5-2** SUMMARY OF MNA PARAMETERS, OFF-POST AND ON-POST MONITORING WELLS **OU1 REBOUND STUDY OU1 REBOUND STUDY LETTER REPORT - QUARTER 3**

Well Number		ORP (mV)			DO (mg/L)		Nitra	ate/Nitrite (n	ng/L)	А	mmonia (mg	/L)		TKN (mg/L)			DOC (mg/L)	)		CO <sub>2</sub> (mg/L)	
	Oct-19	Mar-20	Jun-20	Oct-19	Mar-20	Jun-20	Oct-19	Mar-20	Jun-20	Oct-19	Mar-20	Jun-20	Oct-19	Mar-20	Jun-20	Oct-19	Mar-20	Jun-20	Oct-19	Mar-20	Jun-20
Shallow Wells																					
CA210	165.5	61.3	70	0.45	1.99	0.48	22	13	19	ND	ND	0.052	ND	1.5	0.72	9.7	14	14	138	156	151
NW020	113.9	41.1	153	3.30	6.04	6.30	62	49	42	0.46	0.025	ND	ND	ND	ND	3.6	6.1	5.9	129	138	142
NW050	112.8	140.3	130	0.24	0.37	0.40	62	79	78	4.8	0.72	0.98	ND	ND	ND	8.1	8.7	6.5	107	116	98
NW060	171.6	29.2	130	10.75	10.20	10.63	1.8	3.0	2.4	0.14	ND	ND	ND	ND	ND	1.8	1.6	0.96	15	14	12
NW070	127.0	-307.4	-7	0.38	1.59	0.40	0.03	ND	ND	0.024	0.059	0.087	ND	1.1	1.3	7.2	9.3	10	23	49	32
NW080	197.0	146.2	186	7.28	8.38	7.66	47	32	26	0.029	ND	ND	ND	ND	ND	4.7	3.9	3.9	111	116	93
G0024	156.5	22.5	119	4.88	5.57	7.26	40	32	26	ND	0.025	ND	ND	ND	ND	4.9	5.8	5.5	49	89	129
G0079	144.0	170.4	69	3.82	5.13	5.90	0.21	0.36	0.83	ND	0.058	0.065	0.76	ND	ND	3.2	2.6	6.0	58	58	138
G0091	156.8	27.4	105	2.79	3.13	6.55	32	27	40	ND	ND	ND	ND	ND	ND	3.6	3.4	3.8	160	160	124
PZ017R	173.9	154.3	111	5.68	2.63	3.44	41	26	30	0.060	0.13	ND	ND	ND	ND	3.5	4.5	5.1	62	116	84
PZ018	167.4	177.2	127	1.34	9.09	9.26	24	31	26	0.21	0.023	ND	ND	ND	ND	3.3	3.3	4.0	89	32	43
PZ019	77.3	-4.3	112	6.44	9.44	10.83	34	31	34	ND	ND	ND	ND	ND	ND	2.2	2.1	2.0	39	32	33
PZ020	160.2	166.3	104	2.54	4.17	7.07	29	28	38	ND	ND	0.032	ND	ND	ND	3.8	4.6	6.4	124	142	138
Shallow-Intermediate Wells																					
CA211	161.2	33.6	94	0.44	0.93	0.78	30	34	33	0.11	ND	ND	ND	ND	ND	4.3	4.9	6.0	89	93	93
NW021	112.2	26.7	150	0.26	0.83	0.34	0.84	0.43	1.5	3.8	2.7	1.4	3.5	2.8	1.8	2.9	2.8	2.8	182	178	151
NW051	132.3	157.2	126	0.32	7.01	0.37	27	36	24	ND	0.033	ND	ND	ND	ND	9.0	9.4	9.2	156	156	147
NW061	137.4	0.1	180	0.18	0.68	0.38	4.6	10	5.7	5.7	3.8	4.5	4.9	2.6	2.5	4.4	4.2	4.1	133	124	120
NW071	158.1	-151.2	88	2.18	3.43	3.00	2.9	32	30	ND	ND	ND	ND	ND	ND	ND	3.3	3.7	49	44	43
NW081R	171.2	144.8	161	0.65	0.62	1.46	29	29	26	ND	ND	ND	ND	ND	ND	4.5	4.6	5.0	111	111	98
G0075	132.7	154.9	73	6.86	1.05	0.71	1.2	0.94	2.4	0.056	ND	0.062	0.92	ND	ND	3.4	3.1	3.4	173	164	160
G0077	144.8	20.4	115	1.86	5.43	2.67	20	16	13	ND	ND	0.052	ND	ND	ND	4.5	4.0	3.6	138	111	116
G0080	-16.4	32.0	36	1.23	1.02	0.39	2.7	2.8	2.9	0.064	0.41	0.83	ND	0.70	0.97	2.9	2.7	2.8	156	151	138
G0081	14.9	24.2	52	0.18	0.75	0.59	0.36	0.051	ND	0.26	0.26	0.31	ND	0.69	1.1	7.8	6.5	6.6	164	156	124
G0082	32.9	14.4	-12	0.20	0.51	0.47	3.4	0.31	0.46	ND	ND	0.11	ND	ND	ND	ND	4.5	4.0	111	138	116
G0086	156.2	12.2	111	0.52	0.69	1.14	4.8	2.6	6.5	ND	0.039	0.025	ND	ND	ND	2.6	2.7	3.6	138	151	124
G0087	164.9	14.3	111	0.39	0.80	0.40	1.3	2.0	2.7	ND	ND	0.032	ND	ND	1.1	2.9	2.8	2.9	138	142	138
G0092	122.9	14.7	103	0.26	0.74	0.41	0.45	0.19	0.18	ND	ND	0.031	ND	ND	ND	2.9	2.8	2.9	182	169	156
Intermediate Wells																					
CA212	149.6	22.3	98	0.46	0.89	0.41	14	17	18	ND	ND	ND	ND	ND	ND	2.6	2.7	3.1	84	102	76
NW022	26.7	15.4	85	0.19	0.72	0.33	53	ND	ND	0.42	0.47	1.4	ND	0.70	1.7	2.9	2.7	2.6	182	191	178
NW052	134.5	87.4	27	0.66	0.31	0.36	0.12	0.022	0.052	0.027	0.039	0.031	0.80	0.80	1.0	6.3	6.7	6.6	169	160	142
NW062	38.6	-15.8	-67	0.26	0.65	0.33	ND	ND	ND	0.59	0.63	0.91	1.0	1.3	1.5	2.8	2.5	2.3	120	120	107
NW082R	153.8	144.8	153	0.50	0.51	0.49	20	18	17	ND	ND	0.024	ND	ND	ND	ND	4.0	4.2	107	107	107
G0076	-36.2	83.2	-27	1.91	0.23	0.56	ND	ND	ND	1.1	1.1	1.4	1.3	1.2	1.3	ND	2.9	3.3	156	156	142
G0078	28.1	9.9	68	0.25	0.45	0.31	ND	ND	ND	0.53	0.48	0.46	ND	ND	ND	2.8	2.9	3.8	187	182	151
Deep Wells	20.1			0.20	00	0.01		1.2	1.2	0.00	00		1.2	1.2	1.2	2.0	2.0	2.0	107		101
CA213	118.3	17.4	95	0.22	1.51	0.48	1.3	1.4	1.0	ND	ND	ND	0.97	ND	ND	2.2	2.0	1.7	58	53	53
G0070	16.5	87.3	93 120	0.22 3.29	0.58	0.48	0.025	ND	ND	ND	0.023	0.039	0.97 ND	ND	ND	2.2 1.0	0.89	1.7	58 98	102	33 89
00070	10.3	87.3	120	3.29	0.38	1.40	0.025	ND	ND	ND	0.025	0.039	ND	ND	ND	1.0	0.89	1.0	98	102	85

Notes:

 $\mu g/L = micrograms per liter$ 

 $CO_2$ = carbon dioxide

DO = dissolved oxygen

DOC = dissolved organic carbon

mg/L = milligrams per liter

MNA = monitored natural attenuation

mS/cm = milliSiemens per centimeter

mV = millivolts

NA = no analysis

ND = nondetect

NS = not sampled

ORP = oxidation/reduction potential

OU = Operable Unit

PZ = piezometer

TKN = total Kjeldahl nitrogen

#### **TABLE 5-2** SUMMARY OF MNA PARAMETERS, OFF-POST AND ON-POST MONITORING WELLS **OU1 REBOUND STUDY OU1 REBOUND STUDY LETTER REPORT - QUARTER 3**

Well Number	Ν	/lethane (µg/	L)	Al	kalinity (mg	/L)	Fer	rous Iron (m	ig/L)	S	Sulfate (mg/I	.)	S	ulfide (mg/I	L)		pН		Con	ductance (m	S/cm)
	Oct-19	Mar-20	Jun-20	Oct-19	Mar-20	Jun-20	Oct-19	Mar-20	Jun-20	Oct-19	Mar-20	Jun-20	Oct-19	Mar-20	Jun-20	Oct-19	Mar-20	Jun-20	Oct-19	Mar-20	Jun-20
hallow Wells																					
CA210	23	6.6	2.3	310	350	340	ND	0.44	1.13	120	99	150	ND	ND	ND	6.55	5.83	6.40	0.977	0.708	1.550
NW020	ND	ND	ND	290	310	320	0.07	0.14	0.96	150	200	230	ND	NA	ND	6.53	6.45	6.57	1.118	0.994	1.450
NW050	1.4	ND	ND	240	260	220	ND	0.02	0.30	120	210	200	ND	NA	ND	6.71	6.50	5.97	1.178	1.916	0.567
NW060	ND	ND	ND	33	31	28	ND	ND	0.10	3.8	7.5	5.2	ND	0.8	ND	6.01	5.82	5.88	0.075	0.077	0.065
NW070	18	630	3900	51	110	72	ND	0.35	1.21	3.9	6.4	5.9	ND	0.8	ND	7.10	6.59	6.51	0.096	0.184	0.19
NW080	ND	ND	ND	250	260	210	ND	0.02	0.26	200	160	130	ND	ND	ND	6.23	6.12	6.26	1.161	0.991	1.070
G0024	ND	ND	ND	110	200	290	ND	0.07	1.26	50	110	150	ND	NA	ND	6.36	6.60	6.71	0.670	0.729	1.170
G0079	ND	ND	ND	130	130	310	0.06	ND	0.25	17	12	48	ND	ND	ND	6.34	5.73	6.63	0.278	0.273	0.706
G0091	ND	ND	ND	360	360	280	ND	ND	0.28	190	200	190	ND	ND	ND	6.83	6.65	7.29	1.325	0.973	1.300
PZ017R	140	520	1800	140	260	190	ND	0.04	0.42	74	83	62	ND	NA	ND	6.34	6.16	6.90	0.652	0.797	0.788
PZ018	240	ND	ND	200	73	96	ND	0.02	0.42	100	62	67	ND	NA	ND	6.57	5.52	6.46	0.664	0.520	0.590
PZ019	ND	ND	ND	88	73	75	0.07	0.02	0.23	67	57	58	ND	0.8	ND	6.16	6.03	6.49	0.602	0.320	0.616
PZ020	ND	ND	ND	280	320	310	0.11	0.06	0.91	160	160	190	ND	NA	ND	6.67	6.54	6.86	1.061	1.049	1.350
allow-Intermediate Wells	1,0	THE	112	200	520	510	0.11	0.00	0.71	100	100	170	112	1111	112	0.07	0.01	0.00	1.001	1.017	1.550
CA211	ND	ND	ND	200	210	210	ND	ND	0.91	93	99	110	ND	ND	0.8	6.49	6.45	6.46	0.662	0.705	1.110
NW021	55	1.2	5.7	410	400	340	ND	0.06	1.09	210	210	220	ND	NA	ND	6.77	6.69	6.84	1.154	0.825	1.110
NW021 NW051	8.3	4.9	1.9	350	350	340	ND	0.08	0.41	170	180	190	ND	NA	ND	6.47	6.32	6.14	1.134	1.451	0.442
NW051 NW061	21	4.9	1.9	300	280	270	ND	0.08 NS	0.41	170	160	190	ND	ND	ND	7.00	7.01	6.59	0.790	0.685	0.442
NW001 NW071	ND	ND	ND	110	100	270 96	ND	0.12	0.20	60	54	64	ND	ND	ND	6.32	6.32	6.40	0.790	0.085	0.308
NW071 NW081R	ND	ND	ND	250	250	220	ND	0.12 ND	0.93	98	91	95	ND	ND	0.8	6.51	6.48	6.42	0.303	0.925	1.050
G0075	12	ND	ND	230 390	370	360	ND	ND	0.82	98 150	170	93 150	ND	ND	0.8 ND				0.997	0.923	0.987
G0075 G0077	26	ND	ND		250	260		0.06	1.28	150		99			0.8	6.57 6.63	6.44 6.65	6.83 6.68	1.012	0.928	0.987
	26	ND 4.6		310	230 340		ND				100	99 87	ND 2.0	NA							
G0080	3500	4.6 2400	8.8	350	340	310	0.45	ND 0.62	0.78	ND	72	87 190	2.9	ND	ND	6.64	6.48	6.70	0.795	0.557 0.664	0.884
G0081 G0082	3300 1100	2400	1100	370	330	280 260	0.68	1.35	0.71	120 76	140		ND	0.8 ND	ND	6.19	6.22	6.43	0.910	0.664	0.858
			460	250			0.04		0.1		130	130	ND		ND	6.28	6.29	6.47	0.652		0.858
G0086	110	150	22 ND	310	340	280	ND	0.04	0.16	140	150	130	ND	NA	ND	6.84	6.69	7.03	0.684	0.725 0.663	
G0087 G0092	ND	ND	ND	310	320 380	310 350	0.06	0.23	0.16 0.22	120 300	120	110 330	ND	NA	ND 0.8	6.70 7.14	6.75 7.06	7.03	0.808 1.269	0.663	0.851
	1.1	1.4	18	410	380	330	ND	ND	0.22	300	290	330	ND	ND	0.8	/.14	/.06	7.54	1.209	0.940	1.240
itermediate Wells			ND	100	220	170		2 00	0.02	73	72	70				6.70	6.00		0.407	0.572	0 722
CA212	ND	ND	ND	190	230	170	ND	2.98	0.93	72	73	79	ND	ND	ND	6.70	6.88	6.64	0.496	0.573	0.732
NW022	290	250	440	410	430	400	0.27	1.02	1.94	360	260	290	ND	NA	ND	6.96	7.02	7.05	1.270	1.019	1.390
NW052	150	240	450	380	360	320	ND	0.39	0.96	130	130	140	ND	NA	ND	7.24	6.15	6.26	0.738	0.920	0.312
NW062	18	21	21	270	270	240	0.18	0.94	0.84	180	180	190	ND	ND	ND	8.11	6.97	6.71	0.701	0.584	0.270
NW082R	ND	0.66	2.0	240	240	230	0.34	ND	0.33	86	88	85	ND	NA	ND	6.84	6.48	6.64	0.687	0.884	0.916
G0076	330	200	180	350	350	320	1.68	1.21	0.25	280	280	310	ND	ND	ND	6.66	6.62	6.93	1.189	1.116	1.26
G0078	350	240	130	420	410	340	0.48	0.79	1.11	250	260	250	ND	NA	ND	6.90	6.94	6.91	1.213	0.972	1.280
eep Wells																					
CA213	ND	ND	ND	130	120	120	ND	0.09	1.02	63	60	57	ND	NA	ND	7.47	7.64	7.56	0.373	0.378	0.501
G0070	ND	ND	ND	220	230	200	ND	ND	0.32	34	33	39	ND	ND	ND	7.12	6.88	7.01	0.461	0.452	0.511

Notes:

 $\mu g/L = micrograms per liter$ 

 $CO_2$ = carbon dioxide

DO = dissolved oxygen

DOC = dissolved organic carbon

mg/L = milligrams per liter

MNA = monitored natural attenuation

mS/cm = milliSiemens per centimeter

mV = millivolts

NA = no analysis

ND = nondetect

NS = not sampled

ORP = oxidation/reduction potential

OU = Operable Unit

PZ = piezometer

TKN = total Kjeldahl nitrogen

#### TABLE 5-3

#### SUMMARY OF RDX AND TNT CONCENTRATIONS OU1 PERFORMANCE MONITORING LOCATIONS OU1 REBOUND STUDY LETTER REPORT - QUARTER 3

	BASE	ELINE	QUAR	TER 2	QUAR	TER 3
Performance Monitoring Location	RDX (µg/L)	TNT (µg/L)	RDX (µg/L)	TNT (µg/L)	RDX (µg/L)	TNT (µg/L)
Between EW6 and EW7						
PZ017R	0.87	15	1.4	17	1.4	11
PZ018	0.88	8	ND	19	1	ND
EW7-PM21A-25	1	29	6.2	17	7.3	11
EW7-PM21B-35	0.39	5.7	ND	ND	ND	ND
EW7-PM22A-25	0.47	27	ND	1.1	ND	ND
EW7-PM22B-35	0.28	5.7	ND	ND	ND	ND
EW7-PM23A-25	1	28	2.2	38	ND	ND
EW7-PM23B-35	0.32	5.2	ND	ND	ND	ND
EW7-PM24A-25	1.4	9.8	0.19	0.53	ND	8.3
EW7-PM24B-35	0.41	11	ND	ND	ND	ND
EW7-PM25A-25	1.6	13	ND	2.3	ND	ND
EW7-PM25B-35	ND	4.1	ND	ND	57	ND
EW7-PM26A-25	0.97	14	ND	0.73	0.46	0.87
EW7-PM26B-35	0.38	7.2	37	ND	34	ND
EW7-PM27A-25	1.7	9.5	2.2	9.8	ND	0.45
EW7-PM27B-35	0.62	4.9	ND	0.26	17	ND
EW7-PM28A-25	1.1	13	1.1	8.2	15	ND
EW7-PM28B-35	0.22	5.6	ND	ND	ND	ND
EW7-PM29A-25	1.2	5.9	ND	ND	26	ND
EW7-PM29B-35	ND	3.6	ND	ND	44	ND

#### Notes:

Concentrations exceed HALs

µg/L = micrograms per liter

EW = extraction well

ND = nondetect

OU = Operable Unit

PM = performance monitoring

PZ = piezometer

RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine

TNT = 2,4,6-trinitrotoluene

#### TABLE 5-4

#### SUMMARY OF WATER QUALITY PARAMETERS, PERFORMANCE MONITORING LOCATIONS OU1 SUBSURFACE INJECTION OU1 REBOUND STUDY LETTER REPORT - QUARTER 3

Performance Monitroing		ORP (mV)			DO (mg/L)		Nitra	ate/Nitrite (1	ng/L)	Aı	nmonia (mg	/L)		TKN (mg/L	)		DOC (mg/L	)		CO <sub>2</sub> (mg/L)	)
Well Number	Oct-19	Feb-20	May-20	Oct-19	Feb-20	May-20	Oct-19	Feb-20	May-20	Oct-19	Feb-20	May-20	Oct-19	Feb-20	May-20	Oct-19	Feb-20	May-20	Oct-19	Feb-20	May-20
Shallow Wells																					
PZ017R	173.9	159.3	111	5.68	2.63	3.44	41	26	30.0	0.06	0.13	ND	ND	ND	ND	3.5	4.5	5.1	62	116	84
PZ018	167.4	177.2	127	1.34	9.09	9.26	24	31	26	0.21	0.023	ND	ND	ND	ND	3.3	3.3	4.0	89	32	43
EW7-PM21A	-36.9	-307.7	-235	0.57	1.45	0.69	23	11	8	1.1	0.77	0.8	ND	1.3	1.8	3.7	7.6	11	142	173	173
EW7-PM22A	-10.3	-326.1	-148	0.32	1.04	0.53	13	2.3	5.4	1.8	0.59	2.3	ND	3.9	7.5	3.5	84	68	147	227	209
EW7-PM23A	-26.7	-325.2	-91	0.36	1.18	0.41	24	24	0.26	1.8	1.3	1.6	ND	ND	3.7	3.6	3.8	12	147	147	187
EW7-PM24A	-28.7	-288.4	-68	1.49	0.35	0.54	51	10	6.9	0.33	0.34	0.20	ND	1.3	2.1	3.8	14	20	151	178	213
EW7-PM25A	17.9	-331.9	7	3.48	0.33	8.07	25	6.8	3.0	0.13	1.2	1.4	ND	3.8	6.8	4.4	100	130	142	182	231
EW7-PM26A	-39.0	-321.4	-53	0.83	0.16	0.49	11	2.1	1.9	0.086	1.0	0.09	ND	2.0	1.5	3.9	27	9.6	147	196	222
EW7-PM27A	-6.6	222.5	-99	2.02	2.95	0.31	26	22	4.2	0.15	0.21	1.1	ND	ND	3.6	4.2	13	42	124	164	196
EW7-PM28A	-28.2	-211.3	-53	0.12	0.40	0.35	16	3.9	0.15	0.53	2.4	3.0	ND	3.9	5.6	4.8	29	46	164	187	209
EW7-PM29A	-20.7	-137.6	-62	0.35	0.61	0.37	12	0.13	0.06	0.12	0.19	0.35	ND	2.4	5.3	3.1	93	38	102	160	196
Shallow-Intermediate Wells																					
EW7-PM21B	-121.5	-160.7	-122	0.16	0.25	0.39	2.5	0.18	ND	1.5	0.68	1.5	1.4	2.3	4.6	3.2	43	63	133	160	182
EW7-PM22B	-36.6	-33.1	-123	0.20	0.32	0.34	1.9	ND	ND	1.3	4.4	1.0	1.2	21	6.4	3.3	480	96	133	142	218
EW7-PM23B	-51.6	-20.1	-91	0.18	0.52	0.40	4.4	ND	0.032	1.2	1.5	2.4	1.6	7.4	8.0	3.2	270	66	138	196	253
EW7-PM24B	-92.2	-321.0	-135	0.30	0.67	0.34	11	0.053	ND	1.3	0.27	1.70	ND	5.0	8.2	3.8	140	150	147	178	222
EW7-PM25B	4.6	-330.7	-79	0.15	0.34	0.42	1.7	ND	0.053	1.5	3.1	3.1	1.5	1.0	6.8	4.8	69	72	182	271	342
EW7-PM26B	-108.3	-318.6	-82	0.28	1.07	0.41	7.5	ND	0.055	0.57	1.3	1.8	0.7	11	7.2	4.7	490	220	173	196	231
EW7-PM27B	-86.3	-297.6	-107	0.24	0.50	0.36	8.3	0.056	0.16	1.1	1.8	1.8	1.1	3.9	5.7	5.1	120	47	173	222	218
EW7-PM28B	-12.2	-240.9	-141	0.23	0.29	0.29	2.7	0.031	0.035	1.0	9.9	5.8	5.2	12	9.2	6.5	25	23	200	311	329
EW7-PM29B	-55.6	-300.9	-105	0.20	0.54	0.29	2.5	0.037	0.049	2.4	0.33	1.6	2.4	8.1	7.2	3.7	280	64	156	244	213

Notes:

 $\mu g/L = micrograms per liter$ 

CO<sub>2</sub>= dissolved oxygen

DO = dissolved oxygen

DOC = dissolved organic carbon

EW = extraction well

mg/L = milligrams per liter

mS/cm = milliSiemens per centimeter

mV = millivolts

ND = nondetect

ORP = oxidation/reduction potential

OU = Operable Unit

PM = performance monitoring

PZ = piezometer

TKN = total Kjeldahl nitrogen

#### TABLE 5-4

#### SUMMARY OF WATER QUALITY PARAMETERS, PERFORMANCE MONITORING LOCATIONS OU1 SUBSURFACE INJECTION OU1 REBOUND STUDY LETTER REPORT - QUARTER 3

Performance Monitroing	N	/lethane (µg/	L)	All	kalinity (mg	/L)	Fer	rous Iron (m	ng/L)	S	Sulfate (mg/I	.)	S	Sulfide (mg/l	L)		pН		Con	ductance (m	ıS/cm)
Well Number	Oct-19	Feb-20	May-20	Oct-19	Feb-20	May-20	Oct-19	Feb-20	May-20	Oct-19	Feb-20	May-20	Oct-19	Feb-20	May-20	Oct-19	Feb-20	May-20	Oct-19	Feb-20	May-20
Shallow Wells																					
PZ017R	140	520	1800	140	260	190	ND	0.04	0.42	74	83	62	ND	ND	ND	6.34	6.16	6.90	0.652	0.797	0.788
PZ018	240	ND	ND	200	73	96	ND	0.02	0.42	100	62	67	ND	ND	ND	6.57	5.52	6.46	0.664	0.520	0.590
EW7-PM21A	340	320	4700	320	390	390	0.99	2.62	5.73	84	61	49	ND	ND	ND	7.66	6.12	6.38	0.724	0.700	0.920
EW7-PM22A	800	2700	13000	330	510	470	2.89	3.06	>15	85	22	30	ND	0.8	ND	7.05	6.11	6.16	0.673	0.817	0.932
EW7-PM23A	420	460	8400	330	330	420	2.73	0.90	10.28	90	91	44	ND	ND	ND	8.21	6.53	6.54	0.740	0.705	0.949
EW7-PM24A	380	760	9000	340	400	480	2.62	3.30	>15	84	57	40	ND	0.8	ND	7.56	6.33	6.44	0.903	0.716	1.070
EW7-PM25A	590	1600	5000	320	410	520	1.56	7.68	3.30	87	39	38	ND	0.8	0.8	7.23	5.87	6.21	0.794	0.814	1.230
EW7-PM26A	1600	1300	2600	330	440	500	2.89	2.83	4.52	73	20	36	ND	ND	ND	7.69	6.18	6.54	0.684	0.674	1.050
EW7-PM27A	610	170	6400	280	370	440	2.89	2.48	6.60	120	83	47	ND	ND	ND	7.01	6.35	6.07	0.771	0.753	1.010
EW7-PM28A	1600	3300	15000	370	420	470	3.30	4.42	7.05	80	53	28	ND	ND	ND	7.45	6.11	6.23	0.797	0.731	1.110
EW7-PM29A	450	1900	22000	230	360	440	3.30	11.28	2.64	97	7.9	7.1	ND	ND	ND	7.29	5.71	6.25	0.600	0.623	0.955
Shallow-Intermediate Wells																					
EW7-PM21B	770	1300	6700	300	360	410	2.89	>15	>15	150	29	70	ND	ND	ND	9.46	6.15	6.29	0.697	0.646	0.952
EW7-PM22B	690	1500	15000	300	320	490	2.89	>15	>15	160	45	14	ND	ND	ND	7.64	5.32	6.15	0.734	0.933	1.090
EW7-PM23B	620	3300	21000	310	440	570	2.89	>15	>15	150	4.0	1.1	ND	ND	ND	7.98	5.72	6.14	0.750	0.870	1.270
EW7-PM24B	1300	1100	14000	330	400	500	3.30	9.56	>15	110	43	6	ND	ND	0.8	8.84	5.80	6.13	0.707	0.786	1.160
EW7-PM25B	3900	1600	18000	410	610	770	0.72	2.12	4.28	110	4.0	ND	ND	ND	ND	7.11	6.38	6.46	0.791	0.971	1.530
EW7-PM26B	2900	3700	19000	390	440	520	2.78	>15	>15	79	29	6.8	ND	ND	ND	9.22	5.28	6.06	0.792	1.091	1.280
EW7-PM27B	1700	3400	16000	390	500	490	2.89	6.20	4.32	90	16	37	ND	0.8	ND	8.70	5.80	6.41	0.798	0.897	1.180
EW7-PM28B	3500	2200	16000	450	700	740	3.30	11.28	5.48	71	3.40	ND	ND	ND	0.8	7.09	6.44	6.74	0.802	1.028	1.460
EW7-PM29B	750	3100	9600	350	550	480	3.30	12.08	6.51	140	ND	ND	ND	0.8	ND	8.07	5.66	6.32	0.769	1.099	1.11

Notes:

 $\mu g/L = micrograms per liter$ 

CO<sub>2</sub>= dissolved oxygen

DO = dissolved oxygen

DOC = dissolved organic carbon

EW = extraction well

mg/L = milligrams per liter

mS/cm = milliSiemens per centimeter

mV = millivolts

ND = nondetect

ORP = oxidation/reduction potential

OU = Operable Unit

PM = performance monitoring

PZ = piezometer

TKN = total Kjeldahl nitrogen

#### TABLE 6-1 2020 OU1 PROPOSED SUBSURFACE INJECTION LOCATIONS OU1 SUBSURFACE INJECTION OU1 REBOUND STUDY LETTER REPORT - QUARTER 3

	Point	Injection In	ximate terval Depth bgs)	Injection Interval	Number of	Injection Transect	Planned Volume of	i interio i ci	Required Volume of Mixture Per 5-	
Injection Transect ID	Spacings (ft)	Тор	Bottom	Thickness (ft)	Injection Points	Length (ft)	Mixture <sup>1</sup> Per Point (gallons)	Transect (gallons)	Foot Interval (gallons) <sup>2</sup>	
Between EW6 and E	EW7 Transe	cts								
EW7-T17	15	15	40	25	12	165	1000	12000	А	
EW7-T18	15	15	40	25	12	165	1000	12000	А	
EW7-T19	15	15	40	25	12	165	1000	12000	В	
EW7-T20	15	15	40	25	12	165	1000	12000	В	
EW7-T21	15	15	40	25	24	345	1000	24000	В	
EW7-T22	15	15	40	25	12	165	1000	12000	В	
EW7-T23	15	15	40	25	36	525	1000	36000	В	
EW7-T24	15	15	40	25	36	525	1000	36000	В	
EW7-T25	15	15	40	25	36	525	1000	36000	В	
EW7-T26	15	15	40	25	30	435	1000	30000	В	
EW7-T27	15	15	40	25	12	165	1000	12000	В	
		Between EW	/6 and EW7 T	ransect Totals	234	3345		234000		
Load Line 1										
LL1-T129	15	12	37	25	12	165	1000	12000	А	
LL1-T130	15	12	37	25	18	255	1000	18000	А	

Notes:

<sup>1</sup>Amendment and mixture percentage used: WB 66-10 at 9.8 percent (by volume).

<sup>2</sup>Amendment mixture will be injected vertically at 5-foot intervals. Volume of mixed amendment injected per 5-foot interval (from shallow depths to deep depths) will be as follows:

A) 200 gallons (10-18 ft bgs), 300 gallons (15-23 ft bgs), 300 gallons (20-28 ft bgs), 100 gallons (25-33 ft bgs), and 100 gallons (30-38 ft bgs).

B) 100 gallons (18 ft bgs), 200 gallons (23 ft bgs), 200 gallons (28 ft bgs), 300 gallons (33 ft bgs), and 200 gallons (38 ft bgs).

bgs = below ground surface

DS = Decant Station

EW = extraction well

ft = feet

ID = identification number

LL = load line

OU = operable unit

T = transect

WB 66-10 = Wesblend 66 with 10% oil

#### TABLE 6-1 2020 OU1 PROPOSED SUBSURFACE INJECTION LOCATIONS OU1 SUBSURFACE INJECTION OU1 REBOUND STUDY LETTER REPORT - QUARTER 3

	Point	Injection In	oximate hterval Depth t bgs)	Injection Interval	Number of	Injection Transect	Planned Volume of	Minture I er	Required Volume of Mixture Per 5-	
Injection Transect	Spacings	Ton Bottom		Thickness	Injection	Length	Mixture <sup>1</sup> Per Point		Foot Interval	
ID	(ft)	Тор	Bottom	(ft)	Points	(ft)	(gallons)	(gallons)	(gallons) <sup>2</sup>	
LL1-T131	15	12	37	25	18	255	1000	18000	А	
LL1-T132	15	12	37	25	18	255	1000	18000	А	
LL1-T133	15	12	37	25	18	255	1000	18000	А	
LL1-T134	15	12	37	25	18	255	1000	18000	А	
LL1-T135	15	12	37	25	12	165	1000	12000	А	
LL1-T136	15	12	37	25	6	75 1000 60		6000	А	
LL1-T137	15	12	37	25	12	165	1000	12000	А	
LL1-T138	15	12	37	25	12	165	1000	12000	А	
LL1-T139	15	12	37	25	6	75	1000	6000	А	
			Load Line 1 T	ransect Totals	150	2085		150000		
Load Line 2										
LL2-T125	15	12	37	25	6	75	1000	6000	А	
LL2-T126	15	12	37	25	12	165	1000	12000	А	
LL2-T127	15	12	37	25	12	165	1000	12000	А	
LL2-T128	15	12	37	25	12	165	1000	12000	А	
LL2-T129	15	12	37	25	6	75	1000	6000	А	

Notes:

<sup>1</sup>Amendment and mixture percentage used: WB 66-10 at 9.8 percent (by volume).

<sup>2</sup>Amendment mixture will be injected vertically at 5-foot intervals. Volume of mixed amendment injected per 5-foot interval (from shallow depths to deep depths) will be as follows:

A) 200 gallons (10-18 ft bgs), 300 gallons (15-23 ft bgs), 300 gallons (20-28 ft bgs), 100 gallons (25-33 ft bgs), and 100 gallons (30-38 ft bgs).

B) 100 gallons (18 ft bgs), 200 gallons (23 ft bgs), 200 gallons (28 ft bgs), 300 gallons (33 ft bgs), and 200 gallons (38 ft bgs).

bgs = below ground surface

DS = Decant Station

EW = extraction well

ft = feet

ID = identification number

LL = load line

OU = operable unit

T = transect

WB 66-10 = Wesblend 66 with 10% oil

			OU1 REBO	DUND STUD	Y LETTER	REPORT -	QUARTER 3			
	Approximate Injection Interval De Point (feet bgs)		terval Depth	Interval	Number of	Injection Transect	Planned Volume of	Planned Volume of Mixture Per	Required Volume of Mixture Per 5-	
Injection Transect	Spacings	Ter	Dattan	Thickness	Injection	Length	Mixture <sup>1</sup> Per Point		Foot Interval	
	(ft)	Тор	Bottom	(ft)	Points	(ft)	(gallons)	(gallons)	(gallons) <sup>2</sup>	
LL2-T130	15	12	37	25	6	75	1000	6000	A A	
LL2-T131	15	12	37	25	12	165		1000 12000		
LL2-T132	15	12	37	25	12	165	1000	12000	А	
LL2-T133	15	12	37	25	6	75	1000	6000	А	
LL2-T134	15	12	37	25	12	165	1000	12000	А	
LL2-T135	15	12	37	25	24	345	1000	24000	А	
LL2-T136	15	12	37	25	24	345	1000	24000	А	
LL2-T137	15	12	37	25	24	345	1000	24000	А	
LL2-T138	15	12	37	25	18	255	1000	18000	А	
LL2-T139	15	12	37	25	6	75	1000	6000	А	
			Load Line 2 T	ransect Totals	192	2655		192000		
<b>Decant Station</b>										
DS-T24	15	7	32	25	3	30	1000	3000	А	
DS-T25	15	7	32	25	6	75	1000	6000	А	
DS-T26	15	7	32	25	6	75	1000	6000	А	
DS-T27	15	7	32	25	6	75	1000	6000	А	
DS-T28	15	7	32	25	3	30	1000	3000	А	
		De	cant Station T	ransect Totals	24	285		24000		
			Overall 2020 T	ransect Totals	600	8370		600000		

#### TABLE 6-1 2020 OU1 PROPOSED SUBSURFACE INJECTION LOCATIONS OU1 SUBSURFACE INJECTION OU1 REBOUND STUDY LETTER REPORT - OUARTER 3

Notes:

<sup>1</sup>Amendment and mixture percentage used: WB 66-10 at 9.8 percent (by volume).

<sup>2</sup>Amendment mixture will be injected vertically at 5-foot intervals. Volume of mixed amendment injected per 5-foot interval (from shallow depths to deep depths) will be as follows:

A) 200 gallons (10-18 ft bgs), 300 gallons (15-23 ft bgs), 300 gallons (20-28 ft bgs), 100 gallons (25-33 ft bgs), and 100 gallons (30-38 ft bgs).

B) 100 gallons (18 ft bgs), 200 gallons (23 ft bgs), 200 gallons (28 ft bgs), 300 gallons (33 ft bgs), and 200 gallons (38 ft bgs).

OU = operable unit

bgs = below ground surface LL = load line

DS = Decant Station

EW = extraction well T = transect

ft = feet WB 66-10 = Wesblend 66 with 10% oil

ID = identification number

# TABLE 6-22020 PROPOSED PERFORMANCE MONITORING LOCATIONS AND PARAMETERS<br/>OU1 SUBSURFACE INJECTION<br/>OU1 REBOUND STUDY LETTER REPORT - QUARTER 3

							Analytical Parameters				
Sample Location ID	Groundwater Sample Type	Approximate Screened Interval (feet bgs)		Pump Placement Depth (feet bgs)	Sample ID	<b>Explosives</b> <sup>1</sup>	Laboratory Water Quality Parameters <sup>2</sup>	Field Water Quality Parameters <sup>3</sup>	Field Duplicate Samples <sup>4</sup>	MS/MSD Samples <sup>5</sup>	
Between EW6 a	nd EW7 <sup>6</sup>										
G0022	Monitoring Well	18	-	33	25	G0022-5	X	X	X		
PZ017R	Piezometer	10	-	30	25	PZ017R-4	X	X	X	Х	
PZ018	Piezometer	10	-	30	25	PZ018-4	X	X	X		
EW7-PM21A	Temp. Well	20	-	30	25	EW7-PM21A-4-25	X	X	X		
EW7-PM24A	Temp. Well	20	-	30	25	EW7-PM24A-4-25	Х	X	X		
EW7-PM25A	Temp. Well	20	-	30	25	EW7-PM25A-4-25	Х	Х	X		Х
EW7-PM25B	Temp. Well	30	-	40	35	EW7-PM25B-4-35	Х	Х	Х		
EW7-PM26A	Temp. Well	20	-	30	25	EW7-PM26A-4-25	Х	Х	Х		
EW7-PM26B	Temp. Well	30	-	40	35	EW7-PM26B-4-35	Х	Х	Х		
EW7-PM27B	Temp. Well	30	-	40	35	EW7-PM27B-4-35	Х	Х	X		
EW7-PM28A	Temp. Well	20	-	30	25	EW7-PM28A-4-25	Х	Х	Х		
EW7-PM29A	Temp. Well	20	-	30	25	EW7-PM29A-4-25	Х	Χ	Χ		
EW7-PM29B	Temp. Well	30	-	40	35	EW7-PM29B-4-35	Х	Χ	Χ		
					Between	EW6 and EW7 Totals	13	13	13	1	1
Load Line 1											
G0094	Monitoring Well	15	-	25	20	G0094-5	Х	Х	Х		
G0096	Monitoring Well	15	-	25	20	G0096-5	Х	Х	Χ		
						Load Line 1 Totals	2	2	2	0	0
Load Line 2											
G0111	Monitoring Well	15	-	25	20	G0111-5	Х	Х	Х		
G0121	Monitoring Well	20	-	30	25	G0121-5	Х	Х	Х		
G0122	Monitoring Well	20	-	30	25	G0122-5	Х	X	X		
G0123	Monitoring Well	20	-	30	25	G0123-5	Χ	X	Χ		
						Load Line 2 Totals	4	4	4	0	0
Decant Station											
G0102	Monitoring Well	14	-	24	20	G0102-5	X	Χ	Χ		
						<b>Decant Station Totals</b>	1	1	1	0	0
						<b>Overall Totals</b>	20	20	20	1	1

#### **TABLE 6-2**

#### 2020 PROPOSED PERFORMANCE MONITORING LOCATIONS AND PARAMETERS OU1 SUBSURFACE INJECTION OU1 REBOUND STUDY LETTER REPORT - QUARTER 3

					Analytical Parameters			6	
Sample Location ID	Groundwater Sample Type	Approximate Screened Interval (feet bgs)	Pump Placement Depth (feet bgs)	Sample ID	Explosives <sup>1</sup>	Laboratory Water Quality Parameters <sup>2</sup>	Field Water Quality Parameters <sup>3</sup>	Field Duplicate Samples <sup>4</sup>	MS/MSD Samples <sup>5</sup>

Notes:

\*For the 2020 subsurface injection performance monitoring, baseline concentrations will be established using Quarter 4 or LTM analytical results for performance monitoring locations in which the 2019 injections have not been implemented (i.e., wells G0022, G0094, G0096, G0102, G0111, G0121, G0122, and G0123). All wells/temporary wells will be sampled during future quarterly 2020 subsurface injection performance monitoring events (four total).

<sup>1</sup>Explosives (+ MNX) analysis (SW846 Method 8330A) and laboratory water quality parameter analysis will be completed on normal turnaround basis (21 day). <sup>2</sup>Laboratory water quality parameters: methane (Method RSK 175), total Kjeldahl nitrogen (Method 351.2), nitrate/nitrite (Method 353.2), sulfate (Method 9056A), sulfide (Method 9034), ammonia (Method 350.1), dissolved organic carbon (Method 9060A), alkalinity (Method 2320B), and carbon dioxide (back calculated Method 2320B).

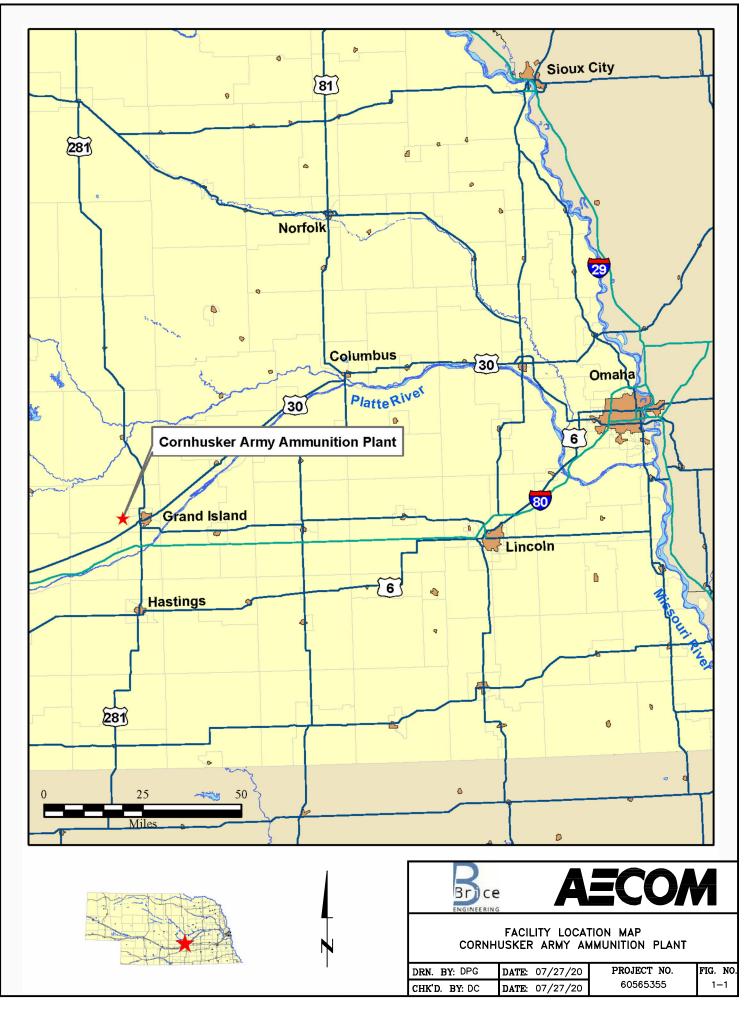
<sup>3</sup>Field water quality parameters include: dissolved oxygen, oxidation/reduction potential, ferrous iron, turbidity, specific conductance, pH, and temperature. <sup>4</sup>Field duplicate samples will be collected at a rate of 5% (1 per 20 samples collected) for the full suite of laboratory parameters.

<sup>5</sup>MS/MSD samples will be collected at a rate of 5% (1 per 20 samples collected) for the full suite of laboratory parameters.

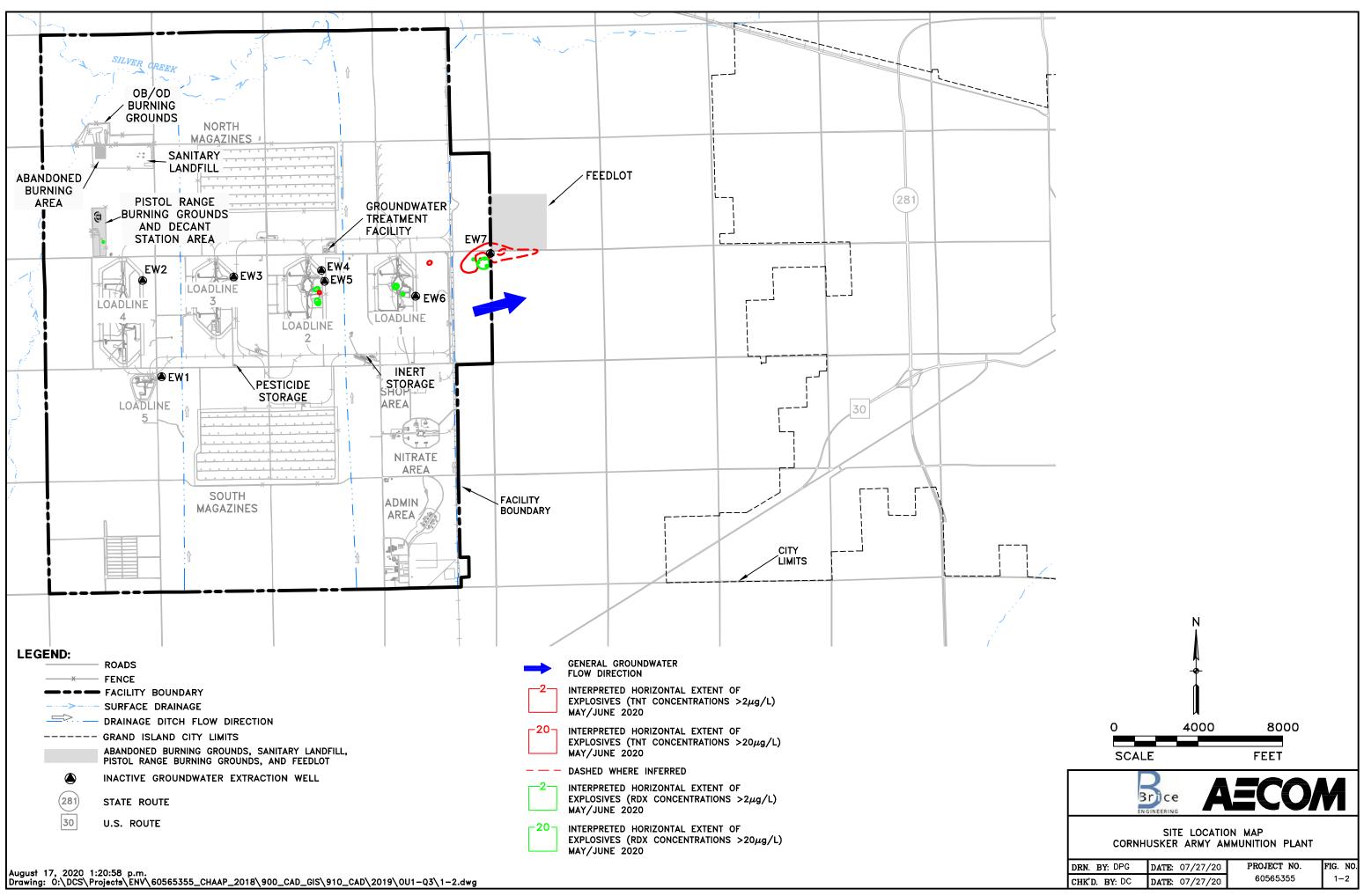
<sup>6</sup>Temporary well locations and interval depths selected based upon previous PM analytical results (i.e., baseline, Quarter 2, and Quarter 3).

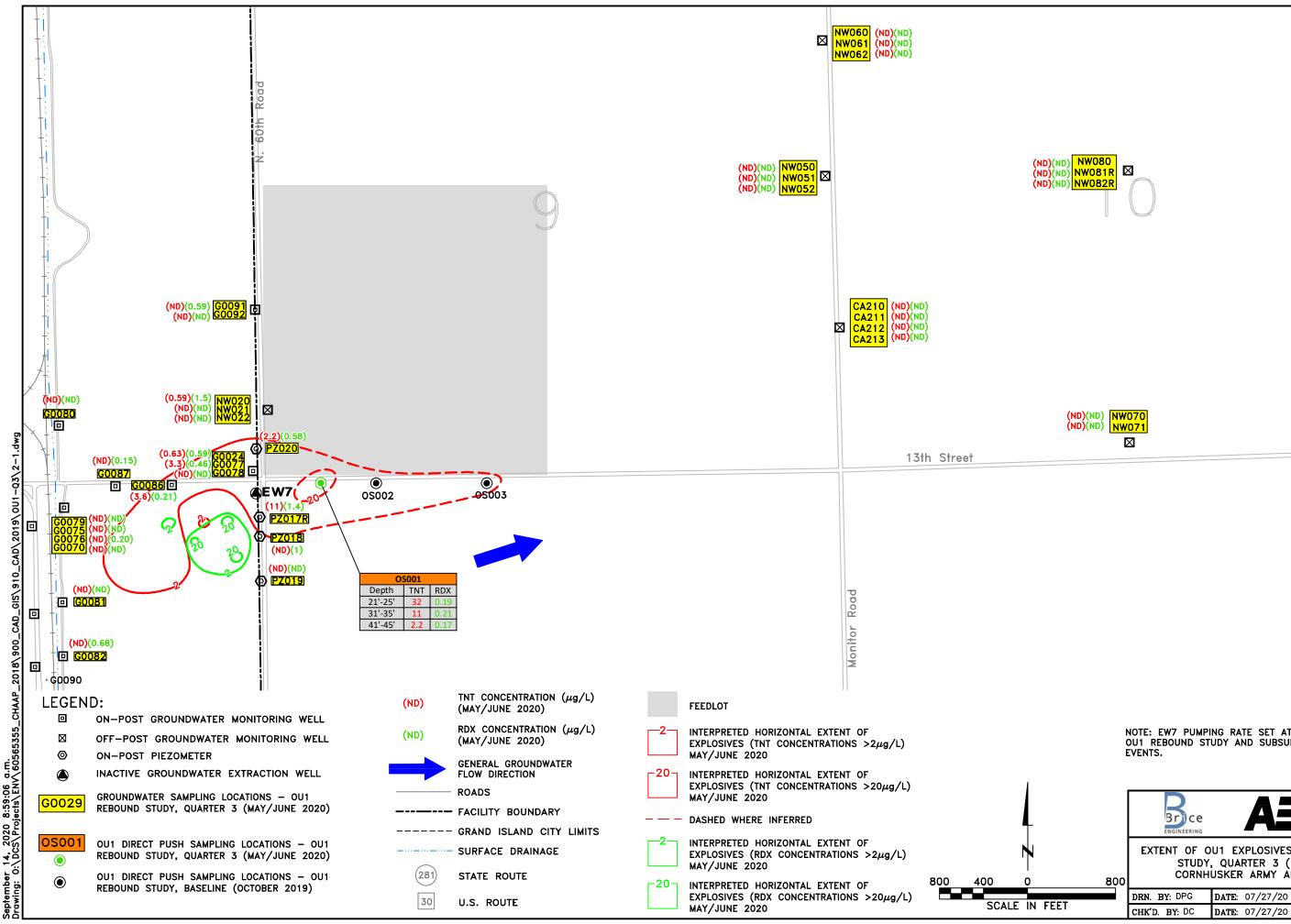
Laboratory analysis will be completed by TestAmerica, Inc., Denver, Colorado.

% = percent amsl = above mean sea level bgs = below ground surface EW = extraction well ID = identification LTM = long term monitoring MNX = mono-nitroso-RDX MS/MSD = matrix spike/matrix spike duplicate OU = Operable Unit PM = performance monitoring PZ = piezometer RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine RSK = Robert S. Kerr Environmental Research Laboratory Figures

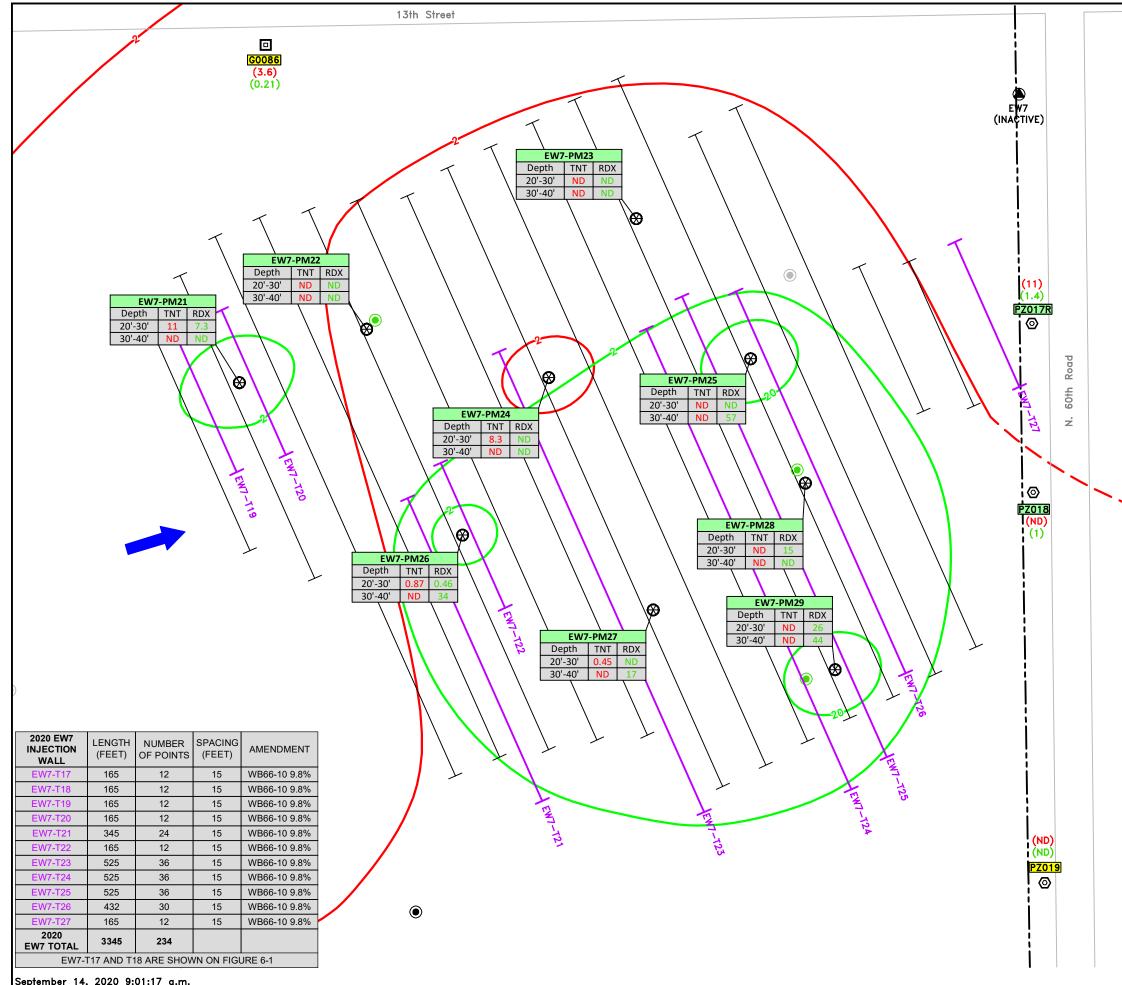


Drawing: 0:\DCS\Projects\ENV\60565355\_CHAAP\_2018\900\_CAD\_GIS\910\_CAD\2019\0U1-Q3\1-1.dwg July 27, 2020 9:07:12 a.m.



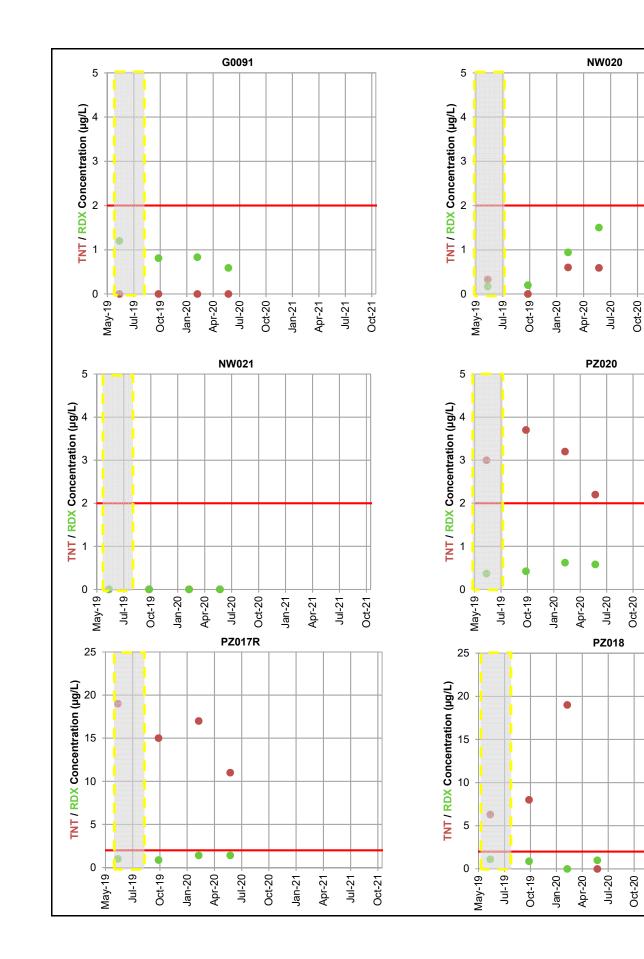


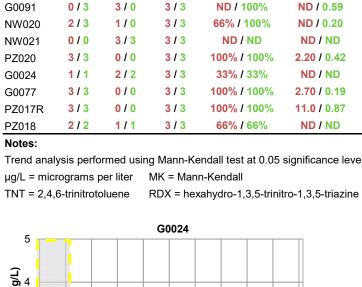
(		ING RATE SET AT UDY AND SUBSUR		
	Brice	A	COM	
800	STUDY,	, QUARTER 3 (M	PLUME, OU1 REBO MAY/JUNE 2020) MMUNITION PLANT	DUND
-	DRN. BY: DPG	DATE: 07/27/20	PROJECT NO.	FIG. NO.
	CHK'D. BY: DC	DATE: 07/27/20	60565355	2-1

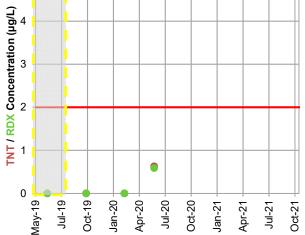


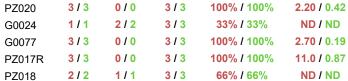
September 14, 2020 9:01:17 a.m. Drawing: 0:\DCS\Projects\ENV\60565355\_CHAAP\_2018\900\_CAD\_GIS\910\_CAD\2019\0U1-Q3\2-2.dwg

LEGEND	GROUNDWATER SAMI	PLING LOCATIONS -	
G0121	OU1 REBOUND STUE (MAY/JUNE 2020)	DY, QUARTER 3	
EW7-PM21	GROUNDWATER SAMI PERFORMANCE MONI (MAY/JUNE 2020)		
(ND)	TNT CONCENTRATION (MAY/JUNE 2020)	N (μg/L)	
(ND)	RDX CONCENTRATION (MAY/JUNE 2020)	N (μg/L)	
н	2020 PROPOSED WE WALL LOCATION (9.8		ATMENT
$\vdash$	WESBLEND 66-10 T (9.8% BY VOLUME)		
BLDG 14		RES	
	ROADS FACILITY BOUNDARY		
EW7 (INAC			
G0015	EXTRACTION WELL ON-POST GROUNDW		
回 PZ007	MONITORING WELL		
@	ON-POST PIEZOM		
⊗	PERFORMANCE MONI		
۲	2018 DIRECT PUSH SAMPLING LOCATION		
۲	2016 DIRECT PUSH SAMPLING LOCATION		
۲	2015 DIRECT PUSH SAMPLING LOCATION		
	INTERPRETED HORIZO EXPLOSIVES (TNT CO MAY/JUNE 2020		g/L)
— — I	DASHED WHERE INFE	RRED	
	INTERPRETED HORIZO EXPLOSIVES (RDX CC MAY/JUNE 2020		g/L)
	INTERPRETED HORIZO EXPLOSIVES (RDX CC MAY/JUNE 2020		µg∕L)
	GENERAL GROUNDWA	FER	
	MPING RATE SET AT STUDY AND SUBSU		/ENTS.
100	50 0	100	
100	50 0 SCALE IN FI	100 EET	
		COM	
EXTE SUBSURF#	NT OF OU1 EXPLO ACE INJECTION PER QUARTER 3 (MAY	FORMANCE MONITO	1 DRING,
	RNHUSKER ARMY A		THO NO
DRN. BY: DPG CHK'D. BY: DC	DATE: 07/27/20 REVISION: 0	PROJECT NO. 60565355	FIG. NO. 2-2
1			









Non-

Detect detect

Nonparametric Trend Analysis for TNT and RDX (OU1 Rebound Study)

Detection

Frequency

Min (µg/L)

0

3

0

3

1

1

Total

Samples

Trend analysis performed using Mann-Kendall test at 0.05 significance level.

TNT / RDX

Well

Jan-21

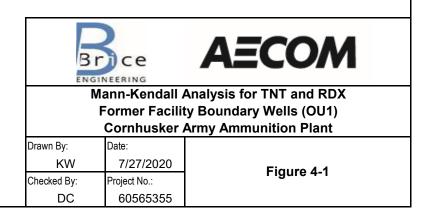
Jan-21 Apr-21 Jul-21

Jan-21 Apr-21 Jul-21 Oct-21

Apr-21

Jul-21 Oct-21

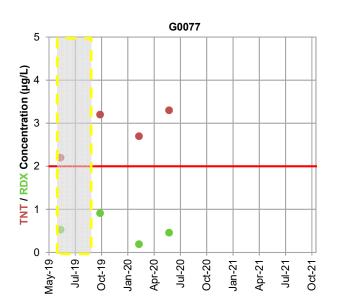
Oct-21

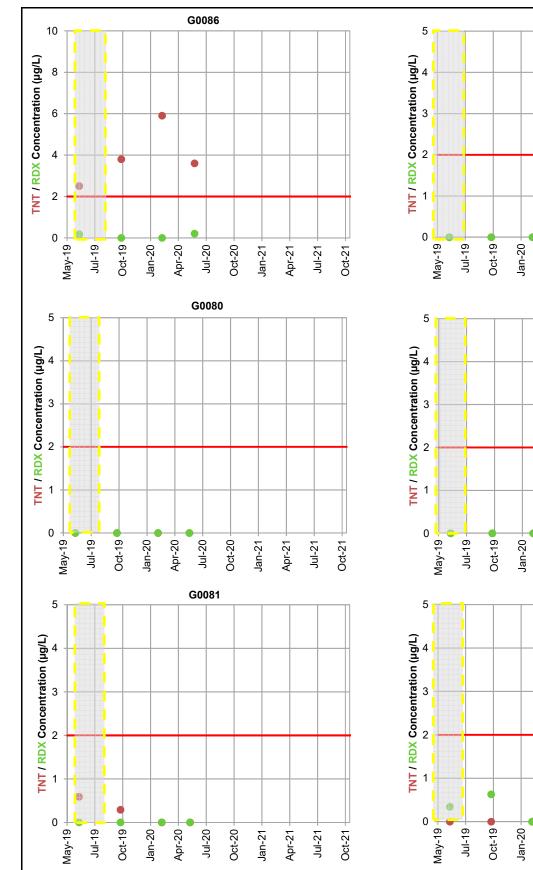


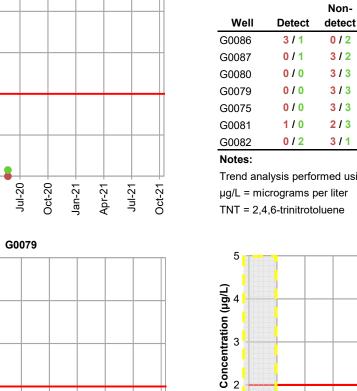
Max (µg/L)	Mean (µg/L)	Median (µg/L)	MK Result	Trend
ND / 0.83	ND / 0.74	ND / 0.81	NA/NA	NA / NA
.60 / 1.50	0.40 / 0.88	0.59 / 0.94	NA / NA	NA / NA
ND / ND	ND / ND	ND / ND	NA / NA	NA / NA
.70 / 0.62	3.03 / 0.54	<b>3.20 / 0.58</b>	NA / NA	NA / NA
.63 / 0.59	0.21 / 0.20	ND / ND	NA / NA	NA / NA
.30 / 0.91	3.07 / 0.52	3.20 / 0.46	NA / NA	NA / NA
7.0 / 1.40	14.3 / 1.22	<b>15.0 / 1.40</b>	NA / NA	NA / NA
9.0 / 1.00	9.00 / 0.63	<b>8.00 / 0.88</b>	NA/NA	NA / NA

= Historic data not used for OU1 Rebound Study 

NA = not applicable for MK until minimum of 4 sample results

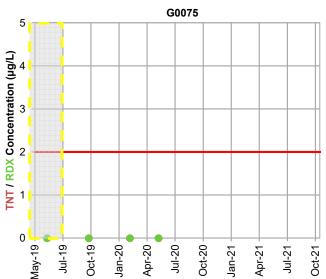


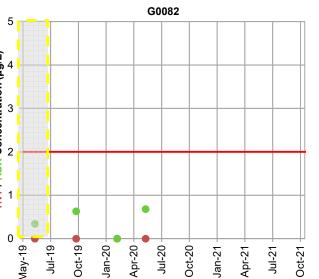




		Non-	Total	Detection	Min	Max	Mean	Median	МК	
Well	Detect	detect	Samples	Frequency	(µg/L)	(µg/L)	(µg/L)	(µg/L)	Result	Trend
G0086	<mark>3 / 1</mark>	0/2	3/3	100% / 33%	3.60 / ND	5.90 / 0.21	4.43 / 0.07	3.80 / ND	NA / NA	NA / NA
G0087	0/1	<u>3 / 2</u>	3/3	ND / 33%	ND / ND	ND / 0.15	ND / 0.05	ND / ND	NA/NA	NA / NA
G0080	0/0	3/3	3/3	ND / ND	ND / ND	ND / ND	ND / ND	ND / ND	NA/NA	NA / NA
G0079	0/0	3/3	3/3	ND / ND	ND / ND	ND / ND	ND / ND	ND / ND	NA / NA	NA / NA
G0075	0/0	3/3	3/3	ND / ND	ND / ND	ND / ND	ND / ND	ND / ND	NA / NA	NA / NA
G0081	1/0	<b>2/3</b>	3/3	33% / ND	ND / ND	0.29 / ND	0.10 / ND	ND / ND	NA / NA	NA / NA
G0082	0/2	3/1	3/3	ND / 66%	ND / ND	ND / 0.68	ND / 0.44	ND / 0.63	NA / NA	NA / NA

Trend analysis performed using Mann-Kendall test at 0.05 significance level. µg/L = micrograms per liter MK = Mann-Kendall RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine





Apr-20 -

Jul-20

Oct-20

Jan-21

Apr-21

Jul-21

Oct-21

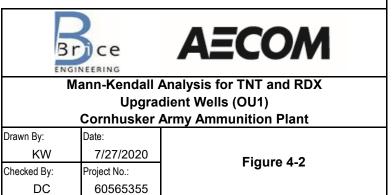
G0087

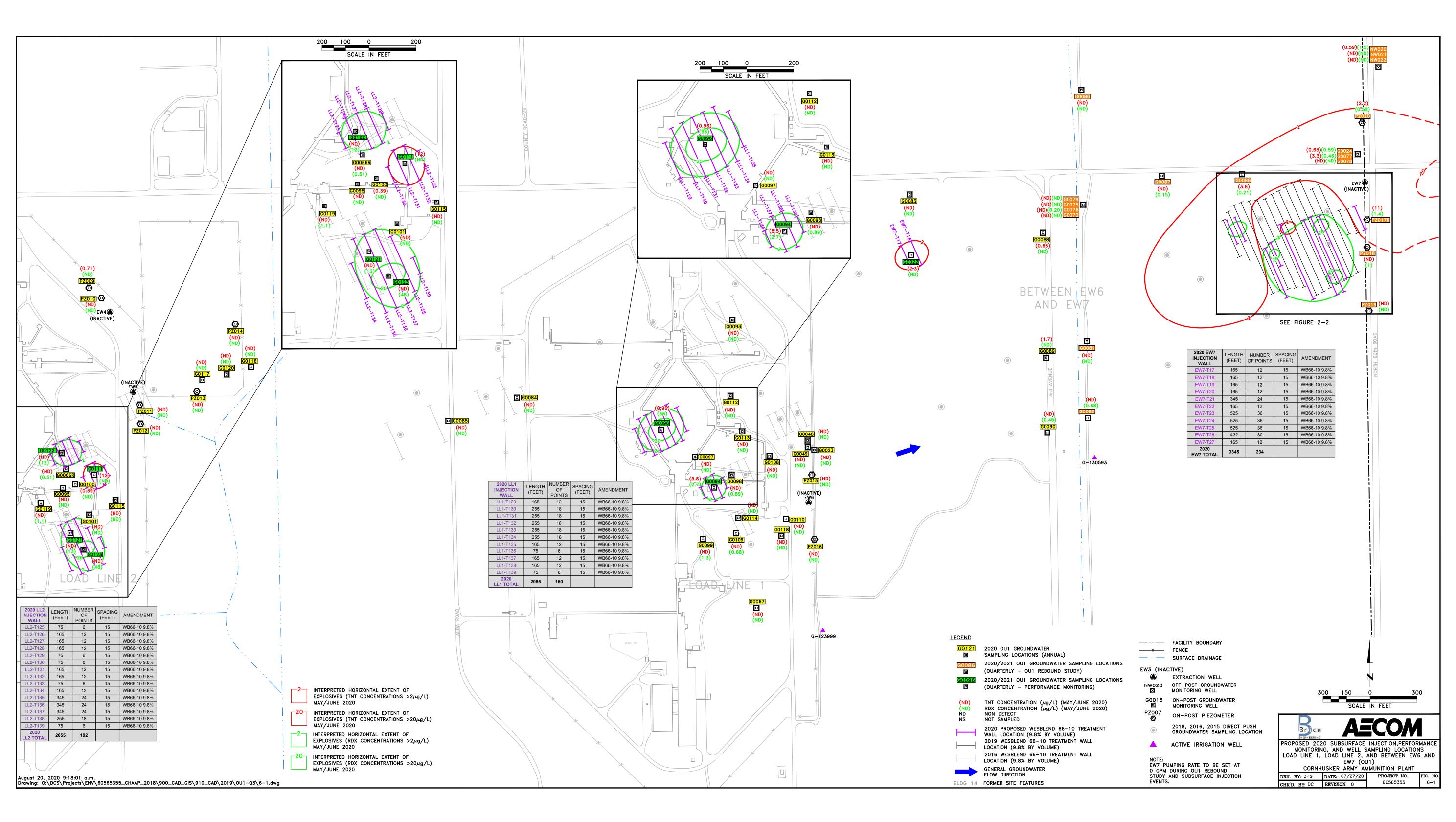
Apr-20

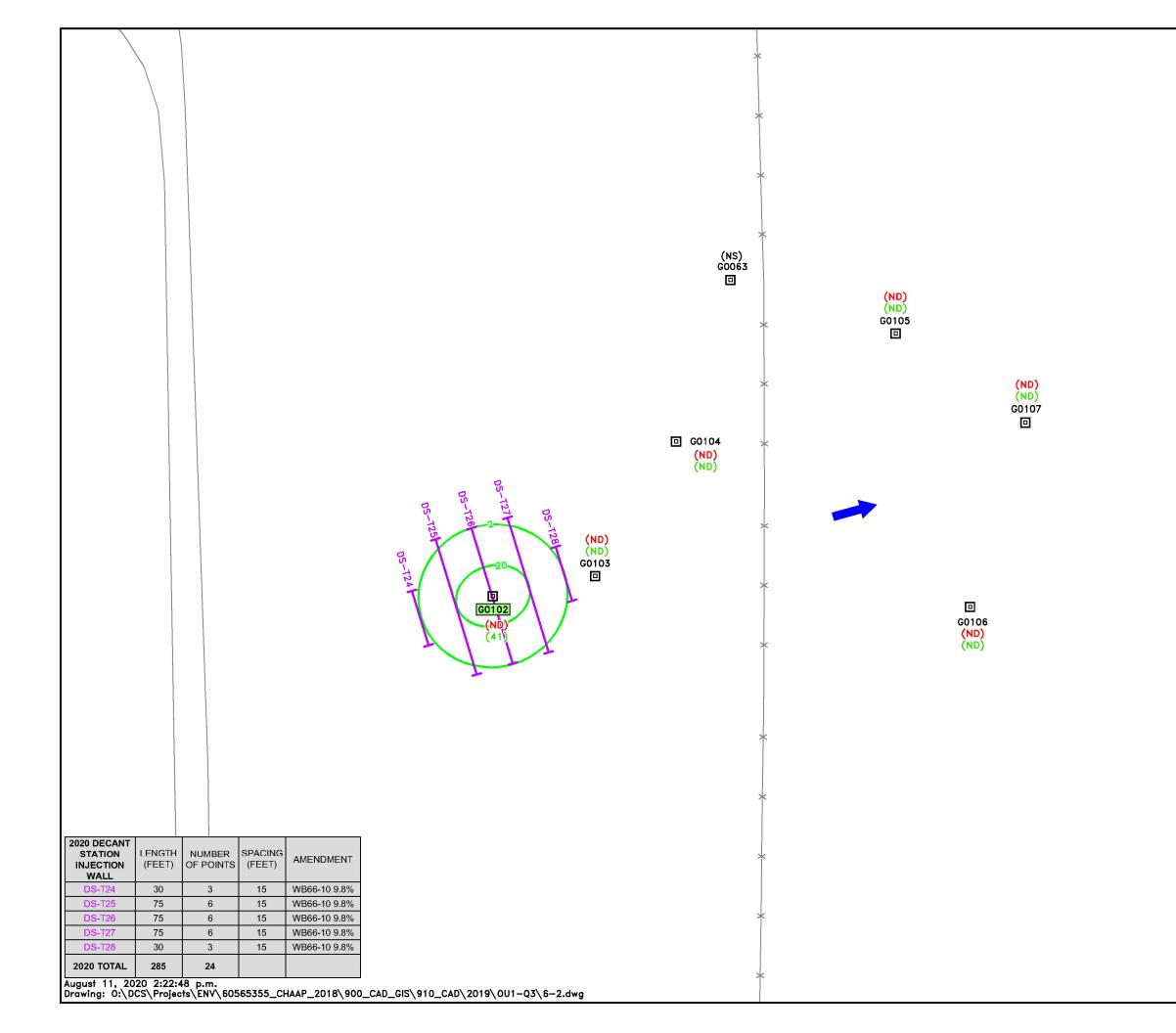
Jul-20

= Historic data not used for OU1 Rebound Study = HAL (1994) TNT/RDX

NA = not applicable for MK until minimum of 4 sample results







#### LEGEND:



2020/2021 OU1 GROUNDWATER SAMPLING LOCATIONS (QUARTERLY-PERFORMANCE MONITORING)

- (ND) RDX CONCENTRATION ( $\mu$ g/L) (MAY/JUNE 2020)
- (ND) TNT CONCENTRATION ( $\mu$ g/L) (MAY/JUNE 2020)
- NS = NOT SAMPLED ND = NON DETECT

2020 PROPOSED WESBLEND 66-10 TREATMENT WALL LOCATION (9.8% BY VOLUME)



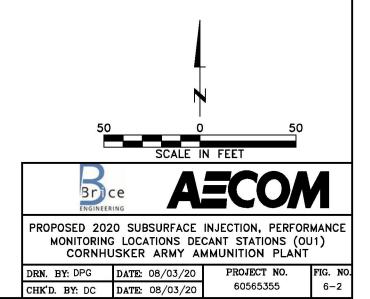
GENERAL GROUNDWATER



INTERPRETED HORIZONTAL EXTENT OF EXPLOSIVES (RDX CONCENTRATIONS >2µg/L) MAY/JUNE 2020



INTERPRETED HORIZONTAL EXTENT OF EXPLOSIVES (RDX CONCENTRATIONS >20µg/L) MAY/JUNE 2020



Appendix A Well Drilling Licenses



DEPT. OF HEALTH AND HUMAN SERVICES



#### Public Health Licensure Unit Certification of Licensure

This certificate serves as primary source verification of licensure in the State of Nebraska as of the close of the business day before 10/ 9/2019.

Name:	Corey S Anderson
Туре:	WD-PIC
Number:	39516
Status:	Active
Issued:	01/02/2011
Expiration:	12/31/2020
Education:	None on record at this time

#### **Disciplinary/Non-Disciplinary Information:**

No disciplinary/non-disciplinary actions taken against this license.

If you have questions about this information, please contact the Licensure Unit at (402) 471-2115 or DHHS.LicensureUnit@nebraska.gov.



DEPT. OF HEALTH AND HUMAN SERVICES



#### Public Health Licensure Unit Certification of Licensure

This certificate serves as primary source verification of licensure in the State of Nebraska as of the close of the business day before 10/ 9/2019.

Name:	Jesse V Kalvig
Туре:	Well Drilling Contractor
Number:	19210
Status:	Active
Issued:	09/19/2000
Expiration:	12/31/2020
Education:	None on record at this time

#### **Disciplinary/Non-Disciplinary Information:**

No disciplinary/non-disciplinary actions taken against this license.

If you have questions about this information, please contact the Licensure Unit at (402) 471-2115 or DHHS.LicensureUnit@nebraska.gov.

Appendix B OU1 Rebound Study and Performance Monitoring Completed Field Forms

					25	
PROJECT NAME CHAAP OUI	Rebound Study- Dir	rect Push GW (Scr	een Point)	PROJECT NO.	60565355	-
SAMPLE NO. 0500	1-DP03-	25	SA	AMPLE DEPTH.	21-24 bas	-
DATE/TIME COLLECTED SAMPLE METHOD	F-26·20Peristaltic Pump w		)	PERSONNEL	T. Young J. Ortiz	-
SAMPLE MEDIA: SAMPLE QA SPLIT: SAMPLE QC DUPLICATE: MS/MSD REQUESTED	Groundwater YES YES YES	NO NO	DUPLICAT	T SAMPLE NO. E SAMPLE NO. D SAMPLE NO.	NA 05501-DP02-25 NA	0000
SAMPLE CONTAINERS, PRESE	CRVATIVES, ANAI	LYSIS				
<u>Y</u> <u>Sample Container</u> Z-500mL Amber		Preservativ 6°C	<u>ve</u>	· _	<u>Analysis Requested</u> Explosives + MNX (8330A)	-
				τγ		-
WELL PURGING DATA						:
Date	5-26-2	0	<u>PI</u>	D Measurements		
Time Started	1355				ND	-
Time Completed	1410			Breathing Zone	a constitue a second	-
Purge Volume (gal)	TISS	t 4		-	ND	-
Sample Turbidity Depth to Water (ft bgs)	<u>47NT</u> <u>4.1</u>	<u> </u>		Purge Water	ND.	
GENERAL COMMENTS	<u></u>	·····				: -
			· · · · · · · · · · · · · · · · · · ·			

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				~ /		
PROJECT NAME CHAAP OUL	Rebound Study- Di	rect Push GW	(Screen Point) PROJECT NO.	<u>5</u> 60565355		
SAMPLE NO. OSOOJ-	DP03-31	5	SAMPLE DEPTH	-3H bas		
DATE/TIME COLLECTED SAMPLE METHOD	<mark>ケースし-2</mark> Peristaltic Pump w		1505 PERSONNEL	T. young J. Ortiz		
SAMPLE MEDIA:	Groundwater	0				
SAMPLE QA SPLIT: SAMPLE QC DUPLICATE:	YES YES	NO	SPLIT SAMPLE NO.			
MS/MSD REQUESTED	YES		DUPLICATE SAMPLE NO. MS/MSD SAMPLE NO.	$- \Lambda A$		
SAMPLE CONTAINERS, PRESE	RVATIVES, ANA	LYSIS				
Sample ContainerPreserver2 - 500mL Amber6%				<u>Analysis Requested</u> Explosives + MNX (8330A)		
WELL PURGING DATA						
Date	5-26-	20	PID Measurements			
Time Started	1445	· •	Background	ND		
Time Completed	1505		Breathing Zone	ND		
Purge Volume (gal)	3+1 5		Well Head	ND		
Sample Turbidity	76.1NTU		Purge Water	ND		
Depth to Water (ft bgs)	3.90					
GENERAL COMMENTS			<u> </u>			
				<u> </u>		

		TY	45'
PROJECT NAME CHAAP OUT	Rebound Study- Direct Push (	GW (Screen Point) PROJECT NO.	60565355
SAMPLE NO. OSOO	1-DP03-45	SAMPLE DEPTH.	11-44- vas
DATE/TIME COLLECTED SAMPLE METHOD	Fi - 24-20 Peristaltic Pump w/ Tubing	1545 PERSONNEL	T. Young J. Ortiz
SAMPLE MEDIA: SAMPLE QA SPLIT: SAMPLE QC DUPLICATE: MS/MSD REQUESTED	Groundwater YES NO YES NO	SPLIT SAMPLE NO. DUPLICATE SAMPLE NO. MS/MSD SAMPLE NO.	- NA - NA 05001-DP02-45
SAMPLE CONTAINERS, PRES Sample Container (9 2-500mL Amber		r <u>eservative</u> 6°C	<u>Analysis Requested</u> Explosives + MNX (8330A)
Ty			`````````````````````````````
		TY	
WELL PURGING DATA			
Date Time Started Time Completed Purge Volume (gal) Sample Turbidity Depth to Water (ft bgs)	5-24.20 1530 1545 27.5 NTU 3.90	PID Measurements Background Breathing Zone Well Head Purge Water	ND ND ND ND
GENERAL COMMENTS			

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SITE NAME	СНААР	PROJECT NO.	6	0565355	
SAMPLE NO.	CA 210 - 20A Ch CA210-2	WELL NO.		CA210	
DATE/TIME COLLECTED SAMPLE METHOD	6/9/20 1230 PRO-ACTIVE SS MONSO	PERSONNEL	CH/JO		
SAMPLE MEDIA: SAMPLE QA SPLIT: SAMPLE QC DUPLICATE: MS/MSD REQUESTED	Groundwater YES NO YES NO DU YES NO	SPLIT SAMPLE NO PLICATE SAMPLE NO MS/MSD SAMPLE NO	N.A		
SAMPLE CONTAINERS, F	PRESERVATIVES, ANALYSIS				
Sample Container	Preservative	Analysis Requeste	<u>d</u>		
2 - 500 mL Amber	6°C	Explosives + MNX	(8330A)		
3 - 40 mL VOA	6°C, HCl	Methane (RSK 17	5)		
1 - 500 mL HDPE	6°C, H <sub>2</sub> S0 <sub>4</sub>		(350.1), NO <sub>2</sub> /NO <sub>3</sub> (353	.2)	
1 - 250 mL HDPE	6°C	SO4 (9056A), Alka	ılinity (2320B)		
1 - 250 mL HDPE	6°C, ZnOAc/NaOH				
1 - 250 mL Amber	6°C	DOC (9060A)			
WELL PURGING DATA Date Time Started Time Completed <u>PID Measurements Background Breathing Zone Well Head Purge Water </u>	6/9/20 140 1230 ND ND ND ND ND ND	Depth to Water Water Colu Well Casing Volu Volume of Water i Casing Volum Minimum te	Imm Length Ime (per ft) n Well (L) es to Purge	16.85 6,38 10.47 2,47 25.86 NA 20L 25	
FIELD MEASUREMENTS				<u>.</u>	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	(Celsius) (n) (n) (n) (n) (n) (n) (n) (n) (n) (n	S/cm)       Oxygen (mg/L)         \$\$7       1,11         \$\$8       0.77         \$\$8       0.61         \$\$7       0.58         \$\$5       0.51         \$\$5       0.45         \$\$5       0.46         \$\$5       0.48	$\begin{array}{c} \text{dox} (\text{ORP}) \\ (\text{mV}) \\ \end{array} \\ \begin{array}{c} 133 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\$	Depth to Water (ft BTOC) 6, 39 6, 39	Purge Rate (L/min) O, S T.S De
Water Level Probe Water Quality Meter <b>J0</b>	Model Solinst 102 <u>YSI 556 Multi-Parameter Prob</u> e- oc? ba	Calibration Checked Against C Twice Daily Calibra	alibrated Length ation Verification also C	Calibrated Weekly	
GENERAL COMMENTS Ferrous Iron = 1, 12 mg/ Multi-Parameter Probe Unit # Field Parameters Measured in I Pump Placement Depth = 13	/L 5 9600 #	<u>Historic (7-</u> ORP	year average low and hi 61.3 165.5		
Screen Interval = $7.9 - 17.9$		DO	0.45 1.99	<u>61.3</u> 1.99	<u>113.4</u> 1.22
	······································	<u>DO</u> PH	5.83 6.55	6.19	6.19
		········	0.708 0.977	0.843	0.843

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#### **GENERAL INFORMATION**

SITE NAME	СНААР		PROJECT NO		60	565355	
SAMPLE NO.	To CALL- 204	(	WELL NO			CA211	
DATE/TIME COLLECTED	6/9/20	1400	PERSONNEL	. JO	C	H	
SAMPLE METHOD	PRO-ACTIVE SS MO					• <i>J</i>	
	<b>A</b>						· · · · ·
SAMPLE MEDIA: SAMPLE QA SPLIT:	Groundwater YES NO		T SAMPLE NO	٨	Å		
SAMPLE QC DUPLICATE:	YES NO		E SAMPLE NO.		<u>/†</u>		
MS/MSD REQUESTED	YES NO		D SAMPLE NO.		A A		
SAMPLE CONTAINERS, I	PRESERVATIVES ANALY						
Sample Container	Preservative	515	Analysis Requ	lested			
2 - 500 mL Amber	6°C			MNX (8330A)			
3 - 40 mL VOA	6°C, HC1		Methane (RSk	(175)			
1 - 500 mL HDPE	6°C, H <sub>2</sub> S0 <sub>4</sub>		TKN (351.2),	NH <sub>3</sub> (350.1), NO	O <sub>2</sub> /NO <sub>3</sub> (353.2	2)	
1 - 250 mL HDPE	6°C		SO <sub>4</sub> (9056A),	Alkalinity (2320	0B)		
1 - 250 mL HDPE	6°C, ZnOAc/	NaOH	Sulfide (9034)				
1 - 250 mL Amber	6°C		DOC (9060A)				
WELL PURGING DATA							
	(1917)			epth (ft BTOC)		43.10	
Date Time Started	<u> </u>			/ater (ft BTOC)		<u>_6,47</u>	
Time Completed				Column Length Volume (per ft)		<u> 26.63</u>	
PID Measurements		· · · ·		ter in Well (L)		90,5	
Background	N.D			olumes to Purge		N/A	
Breathing Zone	ND			um to Purge (L)		20	
Well Head	ND		A	ctual Purge (L)		20	
Purge Water	ND						
FIELD MEASUREMENTS Time Amount Purged (L)	pH Temperature (Celsius)	Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	Redox (ORP) (mV)	Turbidity (NTU)	Depth to Water (ft BTOC) 6:49	Purge Rate (L/min)
1325 2.5 1330 5.0	6.59 13.02 6.46 12.97	1.13	1,62	4   4	0.0	64750	0,5
1335 7.5	6,44 13.00	1.12	1.02	91	Ŏ,Ŏ_	6.49	
1340 10.0	6.43 13.07	1.12	0.99	42	0.0	6.49	
1345 12.5	6.44 12.86	1,12	0,88	42	0.0	6.49	
1350 15.0	B.44 12.81	1.12	0.84	93	0.0	6.49	
1355 17.5	6.45 12.77	1.12	0.81	93	<u>0.0</u>	6.49	
1400 20.0	6.46 12.81		0.78	94	0.0	6.49	¥
P-C	emeter Stat	10 (	ollect	Samp	10	· ·	
1 47	mile stat	le, (	Ulleci-	- J ump	45		\
		1					×
					11 1101		
FIELD EQUIPMENT AND							
	Model		Calibration				
Water Level Probe Water Quality Meter	Solinst 102 VSI 556 Multi-Parameter Pro	_ h_		st Calibrated Le		alibrated Weekly	
	Here Ba		Twice Daily Ca		cation also Ca	anorated weekly	······
GENERAL COMMENTS							<u></u>
Ferrous Iron = $O.4$ mg	/L						
Multi-Parameter Probe Unit #							
Field Parameters Measured in				<u>-</u> .			
Pump Placement Depth = $37$ Pump Rate = $0.5 L/r$			Lliste-	o (7 voor come	a low and his	h / 2010 / A :	Dold)
Well Diameter = $4"$	<u>Min</u>	,,,	ORP	<u>c (7-year averag</u> 33.6	<u>e low and hig</u> 177.2	<u>h / 2019 / Avg in</u> 33.6	<u>Bold)</u> 124.0
Screen Interval = $32.8 - 42.8$			DO	0.44	0.93	0.93	0.70
	· · · · · · · · · · · · · · · · · · ·	······	PH	6.17	6.49	6.17	6.37
			Cond.	0.662	0.811	0.811	0.726

#### GENERAL INFORMATION

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SITE NAME	СНААР		PROJECT NO.		605	565355	
SAMPLE NO.	CA212 - 201	4	WELL NO.		С	A212	
DATE/TIME COLLECTED SAMPLE METHOD	PRO-ACTIVE SS MC	1515 INSOON	_ PERSONNEL _	50	Ci	+	
SAMPLE MEDIA: SAMPLE QA SPLIT:	Groundwater YES NO	1 splr	Γ SAMPLE NO.		MA		
SAMPLE QC DUPLICATE:	YES NO	-	E SAMPLE NO.	~	NA NA		
MS/MSD REQUESTED	YES NO		SAMPLE NO.		NA		
SAMPLE CONTAINERS, I	PRESERVATIVES, ANALYS						
Sample Container	Preservative		Analysis Reque	sted			
2 - 500 mL Amber	6°C		Explosives + M	NX (8330A)			
3 - 40 mL VOA	6℃, HCl		Methane (RSK			···	
1 - 500 mL HDPE	6°C, H <sub>2</sub> S0 <sub>4</sub>		TKN (351.2), N		0 <sub>2</sub> /NO <sub>3</sub> (353.2	)	···
1 - 250 mL HDPE	6°C		SO <sub>4</sub> (9056A), A	lkalinity (2320	B)		
1 - 250 mL HDPE	6°C, ZnOAc/N	laOH	Sulfide (9034)				
1 - 250 mL Amber	6°C		DOC (9060A)				
WELL PURGING DATA							
	[ la h			pth (ft BTOC)		67.12	
Date	6/9/20			ater (ft BTOC)		6.44	
Time Started				olumn Length		<u>60.68</u>	
Time Completed PID Measurements	<u>13 15'</u>		Well Casing V		î	1.47	
Background	ND		Volume of Wate	umes to Purge			
Breathing Zone				n to Purge (L)		56	
Well Head	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			tual Purge (L)		30	
Purge Water	ND		-	<u> </u>		····	
FIELD MEASUREMENTS Time Amount Purged (L)	pH Temperature (Celsius)	Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	Redox (ORP) (mV)	Turbidity (NTU)	Depth to Water (ft BTOC)	Purge Rate (L/min)
1440 2.5	6.97 12.58	0.775	0.68	101	0.0	6.46	0.5
1445 5.0	6.79 12.48	0.735	0.54	101	0.0	6.46	1
1450 7.5	6.66 12.57	0.735	0.53	100	(), Ŏ	6.46	
1455 10.0	6.64 12.36	0.734	0.48	qq	0.0	6.46	
1200 12.5	6.63 2.56	0,733_	0.46	<u>q</u> q	0.0	6.46	
1505 15.0	6.63 2.53	0.732	0.44	<u>49</u>	_Q.0_	6.46	
1510 17.5	6.64 2.51	_ <u>0,73</u> 2_	Q.43	98	Q	6.46	
1515 20.0	6.64 12.48	0,732	0.41	98	0.0	6: 46	₩
Par	Meters Sta	tele 1-	Coilect	Samp	0		
1410			L'otrai	Jump	<u>ι</u>		
				/		-/	1
						1	
FIELD EQUIPMENT AND	CALIBRATION					<u> </u>	
	Model		<b>Calibration</b>				
	Solinst 102		Checked Agains				
Water Quality Meter	YSL 556 Multi-Parameter Prob	e	Twice Daily Cal	ibration Verific	ation also Cal	librated Weekly	
GENERAL COMMENTS	Horvba					<u></u>	
Ferrous Iron = $0.93$ mg							
Multi-Parameter Probe Unit #	59610 \$						
Field Parameters Measured in 1	Flow-Through Cell						
Pump Placement Depth = $6$	λ ft					·	
	MIA		Historic	(7-year average	low and high	n / 2019 / Avg in	Bold)
Well Diameter = 4"			ORP	22.3	187.4	22.3	119.8
Screen Interval = 57.0 - 67.0			DO	0.16	0.89	0.89	0.50
·····			PH	6.50	6.88	6.50	6.69
			Cond.	0.496	0.648	0.648	0.572

SITE NAME		AAP		PROJECT NO.		605	65355	
SAMPLE NO.	CAC	213-201	4	WELL NO.			A213	
DATE/TIME COLLECTED	6/9/;	) ()	640	PERSONNEL	JO	(	H	
SAMPLE METHOD		CTIVE SS MO	¥ ¥.					
				_				
SAMPLE MEDIA:	Groundwater		<b>.</b>					
SAMPLE QA SPLIT:	YES	NO		Γ SAMPLE NO.		<u>N</u> A		
SAMPLE QC DUPLICATE:	YES	NO		E SAMPLE NO.		<u>N A</u>		
MS/MSD REQUESTED	YES	NO	MS/MSI	O SAMPLE NO.		N A		
SAMPLE CONTAINERS,	PRESERVATI	VES, ANALYS	SIS					
Sample Container		Preservative		Analysis Requ	<u>ested</u>			•
2 - 500 mL Amber	· · · · ·	6°C	·····	Explosives + N	ANX (8330A)			
3 - 40 mL VOA		6℃, HCl		Methane (RSK				
1 - 500 mL HDPE		6°C, H <sub>2</sub> S0 <sub>4</sub>			$NH_3(350.1), NC$		)	
1 - 250 mL HDPE		6℃			Alkalinity (2320	)B)		
1 - 250 mL HDPE		6°C, ZnOAc/N	aOH	Sulfide (9034)				
1 - 250 mL Amber		6°C		DOC (9060A)				
WELL PURGING DATA	-			Well D	epth (ft BTOC)		91.34	
Date	6/9	120			ater (ft BTOC)		7.25	
Time Started	160	6			Column Length		4.09	
Time Completed	164	0			Volume (per ft)	ວ.	47	
PID Measurements					ter in Well (L)	<u> </u>	7.7	
Background	N	<u>p</u>			lumes to Purge	<u>N</u>	Ą	
Breathing Zone Well Head	<u>Ŗ</u>	<u>R</u>		-	m to Purge (L) ctual Purge (L)	<u> </u>	0	
Purge Water		ľn				<u> </u>	0	
_		<u> </u>					· · · · · · · · · · · · · · · · · · ·	
FIELD MEASUREMENTS		T		- 		<b>—</b> 1.11.	<b>D</b> 1 . W	
Time Amount Purged (L)	рН	Temperature (Celsius)	Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	Redox (ORP) (mV)	Turbidity (NTU)	Depth to Water (ft BTOC)	Purge Rate (L/min)
r uigou (2)		(Constas)	(1115/0111)	Oxygen (mg/L)	(1117)	(((10)	(ILDIOC)	(Dimit)
1605 2.5	7.45	12.64	0,506	0.54	104	7.4	7.26	0.5
1610 5.0	7,65	12.69	0.505	0.51	105	0.0	7,26	1
1615 7,5	7.60	12.65	0.507	0.49	103	0, Ŏ	7.26	
620 10.0	7.57	13,80	0,498	0.48	102	O, O	7.26	
1625 12,5	7.56	15.80	0,446	Q.48	100	0.0	7.26	)
1630 15.0	7.56	12.92	0.504	0.47	98	0,0	7,26	
1635 17.5	7.56	12.47	0.503	0.48	97	0.0	7,26	
1640 20.0	7.56	12.98	0.501	0.48	95	0.0	7,26	4
,								
FIELD EQUIPMENT AND	CALIBRATIO	N						
-	Model			<b>Calibration</b>				
Water Level Probe	Solinst 102			Checked Again				
Water Quality Meter	YSL556 Multi-	Parameter Prob	e	Twice Daily Ca	libration Verific	cation also Ca	librated Weekly	
GENERAL COMMENTS	-Houp	<u> </u>					· . · · · · · · · · · · · · · · · · · ·	
	2/L	-						
Multi-Parameter Probe Unit #		<b>4</b>						
Field Parameters Measured in	Flow-Through (	Cell						
Pump Placement Depth = $8^{1}$	<b>1.6</b> ft							
Pump Rate = $0.5$	-/mia						<u>1 / 2019 / Avg in</u>	
$\frac{\text{Well Diameter} = 4"}{\text{Summer last operations}}$				ORP	17.4	183.9	17.4	106.5
Screen Interval = $79.6 - 89.6$				DO PH	0.22	1.51	1.51	0.65
				Cond.	7.25	7.64	7.25	7.45
				Cond.	0.575	0.400	0.400	0.300

SITE NAME	<del></del>	СН	IAAP		PROJECT NO	)	60	565355	
SAMPLE NO.	·		020-20A-			)		W020	
DATE/TIME ( SAMPLE ME		PRO-A	5/15/20 CACTIVE SS MOI	3 820 NSOON	PERSONNEI	L	CH/S	8	
SAMPLE ME	DIA:	Groundwater	ŗ						
SAMPLE QA		YES	NO	SPLIT	SAMPLE NO	<b>)</b>	ALA		
	DUPLICATE:	YES	NO		SAMPLE NO		NA		
MS/MSD REC		YES	NO		SAMPLE NO		NA		
SAMPLE CO	NTAINERS, P	RESERVATI	VES, ANALYS						
Sample Contai			Preservative		Analysis Requ	uested			
2 - 500 mL An	nber		6°C			MNX (8330A)			
3 - 40 mL VO			6°C, HCl		Methane (RSI				
1 - 500 mL HI			6°C, H₂S0₄			NH <sub>3</sub> (350.1), NO		')	
1 - 250 mL HI			6℃			Alkalinity (232)			
1 - 250 mL HI				ÓU	$SO_4$ (9030A), Sulfide (9034)		<u>,</u>		
1 - 250 mL An			6°C, ZnOAc/Na 6°C	юн	• •	·			
WELL PURG			00		DOC (9060A)	)			
WELL PURG	ING DATA				Waltr			00.00	
Date		F	6/15/20G)			Depth (ft BTOC)		29.92	
Time Started			740			Vater (ft BTOC)		11.02	
Time Started	ad		740 320			Column Length		18.9	
PID Measurem		2	310			Volume (per ft) ater in Well (L)	-	2.47	
Background			ND			olumes to Purge		46.7 NA	
Breathing Z			ND			um to Purge (L)		20	
Well Head			NP			Actual Purge (L)		0	
Purge Water	•	,	ND		, F	totual Fulge (L)			
Turge Water	· ·								
FIELD MEAS	SUREMENTS								
Time	Amount Purged (L)	рН	Temperature (Celsius)	Conductivity (mS/cm)	Dissolved Oxygen (mg/L	Redox (ORP) (mV)	Turbidity (NTU)	Depth to Water (ft BTOC)	Purge Rate (L/min)
745	2.5	6.25	15.67	1.40	7.91	189	0.0	11.00	0.5
750	5.0	6.35	14.44	1.43	7.10	178	0.0	11.01	1
755	7.5	6.40	14.29	1.43	6.86	169	0.0	11.01	
600	10.0	6.46	13.84	1.44	6.84	162	0.0	11.0(	
Bas	12.5	6.49	13.85	1.44	6.64	159	0.0	11.01	
810	15.0	6.52	13.90	1.45	6.50				
815	17.5	6.55	13.90	1.45	6.40	157	0.0	11.00	
		6.57		1.45	6.30		0.0	11.01	
820	20.0		14.06 Cullect			153	0.0	11.01	
je a ra	ntos Sta	1610	Collact	_ Serf	le -				
· \		<u> </u>			<u>\</u>		<u> </u>		
					$ \longrightarrow $		<u> </u>		$\overline{}$
`		·					<u> </u>		<u>}</u>
FIELD EQUI	DMENT AND	AL IDDATIO	N	•	<u>`</u>				
FIELD EQUI		Model			Calibration				
Water Level Pro		Heron				nst Calibrated Le	un arth		
Water Quality I			Iulti-Parameter F			alibration Verific		11	
Water Quality I			iuni-raiameter r	1000	Twice Daily C	andiation vermo	cation also Ca	indiated weekly	
GENERAL CO	OMMENTS								
Ferrous Iron $= 0$		'L	4.						
Multi-Paramete		5960	FI						
Field Parameter		Flow-Through (	Cell						
Pump Placemer			·						
Pump Rate =	0.5 L/n.8				Histori	ic (7-year averag	e low and high	h / 2019 / Avg in 1	Bold)
Well Diameter					ORP	41.1	195.7	41.1	130.0
Screen Interval					DO	2.72	6.04	6.04	4.04
					PH	6.11	6.53	6.45	6.35
					Cond.	0.713	1.118	0.994	0.921
								0.771	

SITE NAME		СН	AAP		PROJECT NO		605	65355	
SAMPLE NO			021-20A			)	N	W021	
DATE/TME	COLLECTED	61	15/40	93	DEDSONNIEI	Ĺ	CHL	~)	
SAMPLE ME			CTIVE SS MO			L		<u> </u>	
SAMPLE ME	DIA	Groundwater							
SAMPLE QA		YES	NO	1 SPLD	Γ SAMPLE NO	1	NA		
	DUPLICATE:		NO		E SAMPLE NO		•	1023-20A	0 000
MS/MSD REG		YES	NO		) SAMPLE NO		NA	023-207 <del>4</del>	000
SAMPLE CO	NTAINERS, I	PRESERVATI	VES, ANALYS	SIS					
Sample Conta			Preservative		Analysis Requ	rested			
2 - 500 mL Ai			6°C			MNX (8330A)			
3 - 40 mL VO			6°C, HCl						
					Methane (RSI		0.010.(252.0		
1 - 500 mL HI			6°C, H <sub>2</sub> S0 <sub>4</sub>			NH <sub>3</sub> (350.1), N		)	
1 - 250 mL HI			6°C			Alkalinity (232	0B)		
1 - 250 mL HI			6°C, ZnOAc/N	laOH	Sulfide (9034				
<u>1 - 250 mL Ar</u>			6°C		DOC (9060A)	)			
WELL PURC	SING DATA								
		<u></u>	-1			Depth (ft BTOC)		45.75	
Date			(5/20			Vater (ft BTOC)		11.27	
Time Started		8	50			Column Length		<u>34.48</u>	
Time Complet			1.30			Volume (per ft)		2.47	
PID Measurem		-				ater in Well (L)		85.2	
Background			<u>up</u>			olumes to Purge		NA	
Breathing Z	one	/	VD QV		-	um to Purge (L)		20	
Well Head			10		_ A	Actual Purge (L)		20	
Purge Water	•	/	D		-				
FIFI D MEAS	SUREMENTS								
Time	Amount Purged (L)	рН	Temperature (Celsius)	Conductivity (mS/cm)	Dissolved Oxygen (mg/L	Redox (ORP) (mV)	Turbidity (NTU)	Depth to Water (ft BTOC)	Purge Rate (L/min)
10000	2-5	170	20000	1.10	0(-	100	<b>A a</b>	11 20	0~
855 900	5.0	6.78	15.36	1.19	0.65	150	0.0	11.28	0.5
905	7.5	6.79	15.19	1.17	0.54	151	00	11,29	
910	•	6.83	15,08	1.19	0,48	150	0.0	11.28	
	10.0	6.84	15,07	1.19	0,41	150	0.0	11.28	
915	12-5	6.83	14.37	1.19	0.39	151	0.0	11,28	
920	15.0	6.83	14.85	1.19	0.36	151	0.0	11.28	
925	17-5 20:0	6.83	14.86	1.19	6,35	151	0.0	11.29	$\mathcal{V}$
930		6.84	15.25	1.18	0.34	150	0.0	11.28	
Poer 1	the Ce	pllect	Song	k		,		-	~ ,
· · /	<i>F</i>	r/	/	/	/		/		
				/					
			_/						_/
EIELD EOLU	DATENT AND	CALIBRATIO							
FIELD EQUI		CALIBRATIO Model	/1N		Calibration				
Water Level Pr		Heron				nst Calibrated L			
Water Quality			Dommeter Drok		v	·			
water Quanty	vieter	XSL556 Multi-	Parameter Proc	e	Twice Daily C	alibration Verifi	cation also Cal	ibrated weekly	
GENERAL C	OMMENTS	Mogo	<b></b>						
Ferrous Iron =	1.09 mg	·/T.							
Multi-Paramete		r9600							
		Flow-Through (	Cell						
Pump Placeme						·			
Pump Rate =	01511		·		Histor	ic (7-year average	e low and high	1/2019/Avg in	Bold)
Well Diameter		· ~			ORP	26.7	182.3	26.7	110.6
Screen Interval					DO	0.06	1.18	0.83	0.48
			· · · · · ·		PH	6.53	6.91	6.69	6.73
					Cond.	0.800	1.154	0.825	0.907
					-				

SITE NAME		СН	AAP		PROJECT NO	•	60:	565355	
SAMPLE NO.		NW	022-20A		WELL NO	•	N	W022	
DATE/TIME C	OI I FCTED	6/1	5/200 1	050	DEDSONNEL		04/50	<b>つ</b>	
SAMPLE MET			CTIVE SS MO		-		CH/00		
SAMPLE MED	IA:	Groundwater							
SAMPLE QA S		YES	NO	] SPLIT	SAMPLE NO.		NA		
SAMPLE QC D			NO	DUPLICATE	SAMPLE NO	 	NA		
MS/MSD REQU		YES	NO		SAMPLE NO.		NA		
SAMPLE CON	TAINERS, I	PRESERVATI	VES. ANALYS	as					
Sample Contain			Preservative		Analysis Requ	rested			
2 - 500 mL Am			6°C			MNX (8330A)			
3 - 40 mL VOA			6°C, HCl		Methane (RSk	· · · · · · · ·			
1 - 500 mL HDF			6°C, H <sub>2</sub> S0 <sub>4</sub>	· · · ·		$NH_3(350.1), NO(100)$	D./NO. (353.2	<u></u>	
1 - 250 mL HDI			6°C	···-		Alkalinity (232		.)	
1 - 250 mL HDF			6°C, ZnOAc/N	-0H			<b>(U</b> )		
1 - 250 mL Amt	_		6℃, 210AC/N	aon	Sulfide (9034) DOC (9060A)				
WELL PURGI					DOC (9000A)				
WELLIUNGI	DAIA				Well D	epth (ft BTOC)		66.60	
Date		6/1	5/20		Depth to W	vater (ft BTOC)		11.20	
Time Started			1010	·····	Water	Column Length			
Time Completed	1		050			Volume (per ft)		55.4 2.47	
PID Measureme	<u>nts</u>	t	<u> </u>		Volume of Wa	ater in Well (L)	1	36.8	
Background			ND			olumes to Purge		NA	
Breathing Zon	ne		ND		Minim	um to Purge (L)		20	
Well Head			NO		A	ctual Purge (L)		0	
Purge Water			NO						
FIELD MEASU									
Time	Amount Purged (L)	pH	Temperature (Celsius)	•	Dissolved Oxygen (mg/L)	Redox (ORP) ) (mV)	Turbidity (NTU)	Depth to Water (ft BTOC)	Purge Rate (L/min)
1015	2.5	6.98	15.32	1.39	0.39	141	0.0	11.21	0.5
1020	5.0	10:90	16-89	1.40	0,42	135	0.0	11.21	$-\frac{U_{i}}{i}$
1025	7.5	6.92	17.27	1.40	0.42	127	0.0	11.21	
1630	10.0	6.98	16,64	1.40	0,39	116	0.0	11.22	
1035	12.5	7.01	16,36	1.40	0.37	107	0.0	11.22	
1040	15.0	7,03	16,16	1.39	6-3603	5 99	0.0	11.22	
1045	17.5	7.05	19.97	1.39	0,34	92	0.0	11,22	
1050	20.0	7.05	15.64	1.39	0.33	85	0.0	11 2 2	
Daran			Collect		0.75	03	0.0	11. ~3	
Para	<del>«+«~&gt; ~</del>	prove 1	CONCO	Saple					
			_/				_/_		
	/	/	/						
FIELD EQUIP	MENT AND	CALIBRATIO	N			· · · · · · · · · · · · · · · · · · ·			
		Model			<b>Calibration</b>				
Water Level Prob	be	Heron				st Calibrated Le	ngth		
Water Quality M	eter	YSI 556 Multi-	Parameter Prob					librated Weekly	
. <u> </u>		Mach							
GENERAL CO		- Morian	-						
Ferrous Iron = Multi-Parameter	<u>], 99 mg</u> Probe Unit #		#1-						
Field Parameters		Flow-Through (		<u> </u>					
Pump Placement									
	215	f			<u>Histori</u>	c (7-year average	e low and hig	h / 2019 / Avg in	Bold)
Well Diameter =	4"				ORP	-45.3	207.7	15.4	52.6
Screen Interval =	59 - 64		· · · · · · · · · · · · · · · · · · ·		DO	0.08	1.15	0.72	0.46
					РН	6.77	7.34	7.02	7.01
					Cond.	0.964	1.270	1.019	1.075

SITE NAME			AAP		PROJECT NO	<b>)</b> .	60:	565355	
SAMPLE NO	)	inter CH-NH	1050-201 1 <del>51-2</del>	t	- WELL NC			W050	
DATE/TRAE	COLLECTED	6/1	0/20 @	1320			CH/5	2	
SAMPLE MI	COLLECTED ETHOD		CTIVE SS MO		_ PERSONNE _	L	CHIS	0	
SAMPLE ME	EDIA:	Groundwater							
SAMPLE QA		YES	NO	SPLT	r sample no	)	NA		
	DUPLICATE:	YES	NO			). ).			
MS/MSD RE		YES	NO			)			
SAMPLE CO	ONTAINERS, F	PRESERVATI	VES ANALYS						
Sample Conta		RESERVICIT	Preservative		Analysis Req	uested			
2 - 500 mL A			6°C			MNX (8330A)			
3 - 40 mL VC			6°C, HCl		Methane (RS				
$\frac{3-40 \text{ mL}}{1-500 \text{ mL H}}$			6°C, H <sub>2</sub> S0 <sub>4</sub>			NH <sub>3</sub> (350.1), N	0 / 10 (252 )		
1 - 250 mL H			6°C					.)	
1 - 250 mL H				-011		, Alkalinity (232	08)		
1 - 250 mL A		<u> </u>	6°C, ZnOAc/N 6°C	aOH	Sulfide (9034				
WELL PUR					DOC (9060A	.)			
WELLIUK	SING DATA				Well I	Depth (ft BTOC)		20.11	
Date		61	10/20			Water (ft BTOC)	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	5.98	10 97
Time Started			240	·		Column Length		14.13	3.1+
Time Comple	ted	132	0		-	Volume (per ft)		2.47	
PID Measurer						ater in Well (L)		<u><u>Š</u><u>4</u>.q</u>	
Background		,	ND			olumes to Purge		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	
Breathing 2			ND			um to Purge (L)	Y00	20	
Well Head			ND		-	Actual Purge (L)		20	
Purge Wate	r		JA		_	5 ( )		~ ~	
Time	SUREMENTS Amount	pH	Temperature		Dissolved	Redox (ORP)	Turbidity	Depth to Wate	
	Purged (L)		(Celsius)	(mS/cm)	Oxygen (mg/L	L) (mV)	(NTU)	(ft BTOC)	(L/min)
1245	2.5	6,19	13.96	A CIR	A 90	110	00		
1250	5.0	6.07		0.568	0.98 0.71	119	0.0	5.95	Dis
1255	7.5		13.76	0-573		123		5,95	
1300	10.0	6.02	13.82	0.571	0.59	125	0,9	5.95	
1305	12.5	5.99	13.81	0,570	0.52	127	1.3	5.95	
1310		5.97	13.90	0.569	0.47	129	0.7.7-8	5.96	
	15.0	5.96		0.569	0.43	130	1.2	5.96	
1315	(7.5	5.96		0.567	0.41	130	1.5	5-96	
1320	20.0	5.97 H3 Sta	14.04	0.567	0.40	130	0.8	5.96	V
	parame	ns sp	e co	licet .	Sagle				
					$\sim$				
EIELD FOUL	PMENT AND		N					<u> </u>	
FIELD EQUI		Model	IN		Calibration				
Water Level Pr		Heron				nst Calibrated L	an ath		
Water Quality	-		Parameter-Prob	•		alibration Verifi		librated Westeley	
Water Quality	C#2	HORI	6	•	Twice Daily C		cation also Ca	Indiated weekiy	
GENERAL C	OMMENTS								
Ferrous Iron =	0.30 mg	′L	11. 1						
Multi-Paramet	er Probe Unit #	5960						· ·	
Field Paramete	rs Measured in I								
Pump Placeme	ent Depth = 15	7. / ft							
Pump Rate =	0.5 U	min			Histor	ic (7-year average	e low and high	h / 2019 / Avg ir	Bold)
Well Diameter	= 4"				ORP	112.8	166.4	140.3	139.8
Screen Interval	= 10.1 - 20.1				DO	0.24	4.31	0.37	1.64
					PH	6.50	6.71	6.56	6.59
					1 1 1	0.50	0.71	0.50	0.07
					Cond.	1.178	1.916	1.259	1.451

SITE NAME			IAAP		PROJECT NO	)	605	65355	
SAMPLE NO	)	NW	051-200	~				W051	
		6/1		1117			1 1		
SAMPLE ME	COLLECTED ETHOD	·/	CTIVE SS MO	NSOON	_ PERSONNEI -		1750		
SAMPLE ME		Groundwater	•						
SAMPLE QA		YES	NO	l spin	SAMPLE NO	).	NA		
-	DUPLICATE:	YES	NO			 ).			
MS/MSD RE		YES	NO			·			·····
	-		· · · · ·			·			
	ONTAINERS, I	PRESERVATI		SIS					
Sample Conta			<u>Preservative</u>		Analysis Requ				
2 - 500 mL A			6°C		Explosives +	MNX (8330A)			
3 - 40 mL VC			6°C, HCl		Methane (RSI	,			
1 - 500 mL H			6°C, H <sub>2</sub> S0 <sub>4</sub>		TKN (351.2),	NH <sub>3</sub> (350.1), NO	0 <sub>2</sub> /NO <sub>3</sub> (353.2	)	
1 - 250 mL H	DPE		6°C		SO <sub>4</sub> (9056A),	Alkalinity (2320	B)		
1 - 250 mL H			6°C, ZnOAc/N	aOH	Sulfide (9034				
1 - 250 mL A			6℃		DOC (9060A)	)			
WELL PUR	GING DATA				10.0				
_		//	inter.			Depth (ft BTOC)		34.53	
Date		6/0	10/22	· · ·		Vater (ft BTOC)		6.20	·
Time Started	_		55			Column Length		28.33	
Time Comple			135			Volume (per ft)		1.47	
PID Measurer			0-			ater in Well (L)		70.0	
Background			ND			olumes to Purge		NA	
Breathing 2 Well Head	Lone		NP			um to Purge (L)		20	
Purge Wate	-	·	ND ND		F	Actual Purge (L)		20	
ruige wate	1				-				
FIELD MEA	SUREMENTS								
Time	Amount	pН	Temperature	Conductivity	Dissolved	Redox (ORP)	Turbidity	Depth to Water	Purge Rate
	Purged (L)		(Celsius)	(mS/cm)	Oxygen (mg/L	) (mV)	(NTU)	(ft BTOC)	(L/min)
1400	2.5	6.19	14.00	0.440	0.78	124	0.0	6.22	0.5
1905	5.0	6.17	13.94	0.442	0.60	125	0.9	6.22	
1410	75	6.15	13-61	0.443	0.52	125	1.7	6.22	
1415-	10.0	6.14	13.70	0,443	0.46	126	1.8	6.22	
1420	12.5	6.14	14.20	0.442	0.43	126	1.5	6.22	
142.5	15.0	6,14	14.11	0.446	0.40	125	1.9	6.22	
1430	17.5	6.14	14.48	0-443	0.38	175	1.6	6.22	
1435	20.0	6.14	15.00	0 447	0.30	126	0.5		
	poran		teble c	Dirit_	0.ST	126	2-3	6-27	<u></u>
	poran	$c_{\mu}c_{\beta}$	roble i	ollect	Suspe				
	<b>`</b>	·			<u> </u>				<u> </u>
							**************************************		
FIELD FOU	PMENT AND	CALIBRATIC	)N						
FIELD EQU		Model			Calibration				
Water Level P		Heron				nst Calibrated Le	noth		
Water Quality			Parameter Prob	e		alibration Verific		ibrated Weekly	
	OH	Horif			Three Build o		Junion under Cu	nonuted weeking	
GENERAL C	OMMENTS	······							······
Ferrous Iron =	0.41 mg		- 1 - 1	-					
Multi-Paramet			the last						
	er Probe Unit #		TI						
	er Probe Unit # ers Measured in I	Flow-Through (	Cell						
Pump Placeme	er Probe Unit #	Flow-Through (	Cell						
Pump Placeme Pump Rate =	er Probe Unit # ers Measured in 1 ent Depth = $3$ . 0.5 U/w	Flow-Through ( 2.0 ft				ic (7-year averag	e low and high	1 / 2019 / Avg in	Bold)
Pump Placeme Pump Rate = Well Diameter	er Probe Unit # ers Measured in 1 ent Depth = $3$ ; 0.5 U/w; = 4"	Flow-Through ( 2.0 ft	Cell		ORP	132.3	179.4	157.2	156.3
Pump Placeme Pump Rate = Well Diameter	er Probe Unit # ers Measured in 1 ent Depth = $3$ ; 0.5 U/w; = 4"	Flow-Through ( 2.0 ft			ORP DO	132.3 0.32	179.4 7.01	157.2 7.01	156.3 2.56
Pump Placeme Pump Rate =	er Probe Unit # ers Measured in 1 ent Depth = $3$ ; 0.5 U/w; = 4"	Flow-Through ( 2.0 ft	Cell		ORP	132.3	179.4	157.2	156.3

SITE NAME			[AAP		PROJECT NO	•	605	565355	
SAMPLE NO.		NU CH-NW	1052-2 152-2	OA	WELL NO	•		W052	
DATE/TIME C		61	intra (2)	1550	DEDSONNEL		CH	1	
SAMPLE MET		PRO-A	CTIVE SS MO	NSOON	_ PERSONNEL			50	
SAMPLE MED	DIA ·	Groundwater							
SAMPLE QA S		YES	NO		SAMPLE NO	•	110		
SAMPLE QC E		YES	NO	DUPUCATE	E SAMPLE NO	·	DA	·	
MS/MSD REQ		YES	NO	MS/MSF	SAMPLE NO		NA		
SAMPLE CON		PRESERVATI		SIS					
Sample Contain			Preservative		Analysis Requ				
2 - 500 mL Am			6℃			MNX (8330A)			
3 - 40 mL VOA			6℃, HCl	·	Methane (RSk				
1 - 500 mL HD			6°C, H <sub>2</sub> S0 <sub>4</sub>			NH <sub>3</sub> (350.1), NO		)	
1 - 250 mL HD			6°C			Alkalinity (2320	)B)		
1 - 250 mL HD			6°C, ZnOAc/N	aOH	Sulfide (9034)				
1 - 250 mL Am			6℃		DOC (9060A)				
WELL PURGI	ING DATA								
Dete	· .	6/10	1-			epth (ft BTOC)		60.95	
Date Time Started		- 0110	100		Depth to W	/ater (ft BTOC)		5.51	
Time Started	đ		550			Column Length Volume (per ft)	· · · · · · · · · · · · · · · · · · ·	55.44	
PID Measureme		[2	50			ater in Well (L)		2.47	
Background	2110	٨	D			olumes to Purge		6.9 NA	
Breathing Zon	ne		כונ			im to Purge (L)	-	20.0	
Well Head			UD		-	ctual Purge (L)		2.5	
Purge Water			10		-			~~~	
					-				
FIELD MEAS			T		<b>D</b> : 1 1		-		
Time	Amount Purged (L)	pН	Temperature (Celsius)	•	Dissolved Oxygen (mg/L)	Redox (ORP) (mV)	Turbidity (NTU)	Depth to Wate (ft BTOC)	L/min)
1510	2.5	6.42	14.18	0.318	0.92		0-		
1515	5.0	6.31	14.08	0.317	0.69	70 52	0.5	5.54	0.5
1515			14.29			32	0.6	5.54	
1525	7.5	6.27 6.26	14.41	0,317	0.57	43 36		5154	
1530	12.5	6.26	14.69	0.316	0.51	30	1.7	5.54	
1535	15.0			0.316	0.46	3/ 28	1.5	5,54	
1555	17.5	6.26			0,46		1.3	5.54	
1545	20.0	6.26	13.96	6-313 0-313	0.40	27	1-4	5.54	
1550	2205	6.26	13.63	0,3(3	0.38	26	1-2	5.54	
1330			stable			17	1.5	5.57	
	$-\overline{1}$	~ +05	STEPRE	CO[l	eer-	Sapk_			
└── <b>\</b>			$\sim$		$\overline{}$				
						· · · · · · · · · · · · · · · · · · ·	-		
FIELD EQUIP	MENT AND	CALIBRATIO	N						
		Model			Calibration		,		
Water Level Prol		Heron				nst Calibrated Le	ngth		
Water Quality M	leter	YSI-556 Multi-	Parameter Prob			alibration Verific		librated Weekly	
	64	HORIBE	<u></u>						
GENERAL CO									
Ferrous Iron =			-41-						
Multi-Parameter		59600							
Field Parameters			Jell						
Pump Placement					U!	0 (7 1/00 0000	- low 1-1-1	/2010/*	Dalah
Pump Rate = Well Diameter =	015 L/r 4"	~11			<u>Histori</u> ORP	c (7-year averag			
Screen Interval =	· · · · · · · · · · · · · · · · · · ·				DO	-34.5	<u>134.5</u> 0.66	87.4	62.5
Serven interval	55.0-00.0				PH	6.15	7.24	0.31 6.80	<u>0.44</u> 6.73
					Cond.	0.738	0.920	0.906	0.855
			·		<u></u>	0.750	0.720	0.300	0.033

GENERAL INFORMATION

SITE NAME					PROJECT NO	•	60	565355	
SAMPLE NO	)		)060-20 <del>168-2</del>	A 	WELL NO	•	N	W060	
DATE/TIME SAMPLE ME	COLLECTED ETHOD		o <i>l 20 O</i> Active SS MC		_ PERSONNEL		CH/50	>	
SAMPLE ME		Groundwater		-					
SAMPLE QA		YES	NO		<b>FSAMPLE NO</b>		NA	· · · · · · · · · · · · · · · · · · ·	·
	DUPLICATE:	YES	NO	-	E SAMPLE NO		NA		
MS/MSD RE	`	YES	NO		D SAMPLE NO.		NM		
SAMPLE CO Sample Conta	ONTAINERS, F	PRESERVATI	VES, ANALYS Preservative	SIS	Analysis Requ				
2 - 500 mL A			<u>11cservative</u> 6℃						
						MNX (8330A)			
<u>3 - 40 mL VO</u>			6°C, HCl		Methane (RSk				
1 - 500 mL H			6°C, H₂S0 <sub>4</sub>			NH <sub>3</sub> (350.1), N		!)	
1 - 250 mL H	DPE		6°C		SO <sub>4</sub> (9056A),	Alkalinity (232	0B)		
1 - 250 mL H			6°C, ZnOAc/N	laOH	Sulfide (9034)				
<u>1 - 250 mL A</u>	mber		6°C		DOC (9060A)				
WELL PURC	GING DATA								
			1. 1.			epth (ft BTOC)		20.15	
Date		6	110/20			/ater (ft BTOC)		18 45 8	3.35
Time Started		é	315		Water	Column Length		11.7	
Time Complet	ted	<u> </u>	55		Well Casing	Volume (per ft)		2.47	· · · · · · · · · · · · · · · · · · ·
PID Measuren	nents				Volume of Wa	ater in Well (L)		28.9	
Background	f		NA		Casing Vo	lumes to Purge		JA	
Breathing 2	Lone		ND			um to Purge (L)		202	·
Well Head			ND			ctual Purge (L)			
Purge Wate	r		NO				ele		·
									<u>.</u>
FIELD MEA	SUREMENTS								
Time	Amount	pH	Temperature	•	Dissolved	Redox (ORP)	Turbidity	Depth to Wate	Purge Rate
	Purged (L)	. '	(Celsius)	(mS/cm)	Oxygen (mg/L)	) (mV)	(NTU)	(ft BTOC)	(L/min)
820	2.5	5,44	11.48	0.031	13.10	185	0.0	8,33	0.5
825	5.0	5.17	11.46	6.031	13.02	183	0.0	8.33	
830	7.5	5.11	11.44	0.031	12.97	181	0.0	8.33	
835	10.0	5.09	11.43	0.031	12.90	178	0.0	8.33	
840	12.5			0.030	12.80				
845	15.0	5.10	11.46	0.030		176	0.0	8.33	
850		5.13	11.54		12.74	176	0.0	8.33	
	17.5	5.15	11.53	0.031	12.72	176	0.0	8.33	
865	200	5.18	11.66	0.031	11.64				
·	Paranetos				12.64	176	0.0	8.3.3	$\checkmark$
	Parado	5 Stable	Colle	et G	pin	170	0.0	8.3.3	V
	Paranta	state	Colle		pin	170	0.0	8.33	V 
		: State	Colle		pin	//0	0.6	8.33	V 
/	Permanent	State	Collé		pin	110	0.6	8.33	
					pin		0.6	8.3.3	
FIELD EQUI	PMENT AND				pin	//	0.6	8.33	
FIELD EQUI	PMENT AND	CALIBRATIO Model			Calibration	//~	0.6	8.33	
Water Level Pr	PMENT AND o	CALIBRATIO Model Solinst 102		et Sr	Calibration Checked Again	nst Calibrated L	ength		
	PMENT AND o	CALIBRATIO Model Solinst 102 YSI 556 Multi-	N Parameter Prob	et Sr	Calibration Checked Again	nst Calibrated L	ength	8-3.3	
Water Level Pr Water Quality	PMENT AND C	CALIBRATIO Model Solinst 102 YSI 556 Multi-		et Sr	Calibration Checked Again	nst Calibrated L	ength		
Water Level Pr Water Quality GENERAL C	PMENT AND robe Meter $\mathcal{C}$ OMMENTS	CALIBRATIO Model Solinst 102 YS1556-Multi- HeR	N Parameter Prob	et Sr	Calibration Checked Again	nst Calibrated L	ength		
Water Level Pr Water Quality GENERAL C Ferrous Iron =	PMENT AND robe Meter $\mathcal{L}$ OMMENTS $\mathcal{O}, \mathcal{ID}$ mg,	CALIBRATIO Model Solinst 102 YSI 556-Multi HoR	N Parameter Prob	et Sr	Calibration Checked Again	nst Calibrated L	ength		
Water Level Pr Water Quality GENERAL C Ferrous Iron = Multi-Paramete	PMENT AND robe Meter $\mathcal{C}$ OMMENTS $\mathcal{O}, \mathcal{I}\mathcal{D}$ mg, er Probe Unit #	CALIBRATIO Model Solinst 102 YSI 556-Multi HeR /L 59 600	Parameter Prob	et Sr	Calibration Checked Again	nst Calibrated L	ength		
Water Level Pr Water Quality GENERAL C Ferrous Iron = Multi-Paramete Field Paramete	PMENT AND robe Meter CH OMMENTS O, ID mg er Probe Unit # rrs Measured in I	CALIBRATIO Model Solinst 102 YSI 556-Multi- HeR /L S9 600 Flow-Through (	Parameter Prob	et Sr	Calibration Checked Again	nst Calibrated L	ength		
Water Level Pr Water Quality GENERAL C Ferrous Iron = Multi-Paramete Field Paramete Pump Placeme	PMENT AND robe Meter CH OMMENTS O, ID mg er Probe Unit # rrs Measured in H ant Depth = f	CALIBRATIO Model Solinst 102 YSI 556 Multi- HeR /L S9 600 Flow-Through ( ft	Parameter Prob	et Sr	Calibration Checked Again Twice Daily Ca	ist Calibrated L alibration Verifi	ength cation also Ca	librated Weekly	
Water Level PI Water Quality GENERAL C Ferrous Iron = Multi-Paramete Field Paramete Pump Placeme Pump Rate =	PMENT AND         robe         Meter $\mathcal{C}$ OMMENTS         O, ID       mg         er Probe Unit #         rss Measured in I         nt Depth = $\mathcal{L}$ $\mathcal{O}$ $\mathcal{L}$	CALIBRATIO Model Solinst 102 YSI 556 Multi- HeR /L S9 600 Flow-Through ( ft	Parameter Prob	et Sm e	Calibration Checked Again Twice Daily Cz Histori	ist Calibrated L alibration Verifi	ength cation also Ca		
Water Level Pr Water Quality GENERAL C Ferrous Iron = Multi-Paramete Field Paramete Pump Placeme Pump Rate = Well Diameter	PMENT AND         robe         Meter $\mathcal{C}$ OMMENTS         O, iD       mg,         er Probe Unit #         rss Measured in I         nt Depth = $f_{\mathcal{L}}$ $\mathcal{O}$ , $\mathcal{S}$ $\mathcal{L}$ = 4"	CALIBRATIO Model Solinst 102 YS1556-Multi- HeR /L S9600 Flow-Through (C ft	Parameter Prob	et Sm e	Calibration Checked Again Twice Daily Ca	ist Calibrated L alibration Verifi	ength cation also Ca	librated Weekly	<u>Bold</u> ) 133.8
Water Level PI Water Quality GENERAL C Ferrous Iron = Multi-Paramete Field Paramete Pump Placeme Pump Rate =	PMENT AND         robe         Meter $\mathcal{C}$ OMMENTS         O, iD       mg,         er Probe Unit #         rss Measured in I         nt Depth = $f_{\mathcal{L}}$ $\mathcal{O}$ , $\mathcal{S}$ $\mathcal{L}$ = 4"	CALIBRATIO Model Solinst 102 YS1556-Multi- HeR /L S9600 Flow-Through (C ft	Parameter Prob	et Gy	Calibration Checked Again Twice Daily Cz Histori	ast Calibrated L alibration Verifi	ength cation also Ca	librated Weekly	
Water Level Pr Water Quality GENERAL C Ferrous Iron = Multi-Paramete Field Paramete Pump Placeme Pump Rate = Well Diameter	PMENT AND         robe         Meter $\mathcal{C}$ OMMENTS         O, iD       mg,         er Probe Unit #         rss Measured in I         nt Depth = $f_{\mathcal{L}}$ $\mathcal{O}$ , $\mathcal{S}$ $\mathcal{L}$ = 4"	CALIBRATIO Model Solinst 102 YS1556-Multi- HeR /L S9600 Flow-Through (C ft	Parameter Prob	et Sm	Calibration Checked Again Twice Daily Ca Histori ORP	e (7-year average 29.2	ength cation also Ca ge low and hig 200.5	librated Weekly h/2019 / Avg in 29.2	133.8
Water Level Pr Water Quality GENERAL C Ferrous Iron = Multi-Paramete Field Paramete Pump Placeme Pump Rate = Well Diameter	PMENT AND         robe         Meter $\mathcal{C}$ OMMENTS         O, iD       mg,         er Probe Unit #         rss Measured in I         nt Depth = $f_{\mathcal{L}}$ $\mathcal{O}$ , $\mathcal{S}$ $\mathcal{L}$ = 4"	CALIBRATIO Model Solinst 102 YS1556-Multi- HeR /L S9600 Flow-Through (C ft	Parameter Prob	ct Sm	Calibration Checked Again Twice Daily Ca Historic ORP DO	e (7-year average 29.2 9.09	ength cation also Ca ge low and hig 200.5 10.75	librated Weekly h/2019 / Avg in 29.2 10.20	133.8 10.01

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							epurg	e)
		ER SAMI	PLE COL	LECTION	N FIELD	SHEET		
GENERAL INFORMAT	ION							
SITE NAME	СН	AAP		PROJECT NO		605	565355	
SAMPLE NO.	NW	060-20A	··· -	WELL NO	·	N	W060	
DATE/TIME COLLECTE				_ PERSONNEI	<u> </u>	Youn	9	
SAMPLE METHOD	PRO-A	CTIVE SS MC	DNSOON	_	Ga.	Cerso	34	
SAMPLE MEDIA: SAMPLE QA SPLIT:	Groundwater YES	NO		Γ SAMPLE NO	ΛIΑ			
SAMPLE QC DUPLICATI		NO		E SAMPLE NO		1		
MS/MSD REQUESTED	YES	NO		O SAMPLE NO				
SAMPLE CONTAINERS	, PRESERVATI	VES, ANALY	SIS					
Sample Container		Preservative		Analysis Requ				
2 - 500 mL Amber		6°C			MNX (8330A)			
3 - 40 mL VOA 1 - 500 mL HDPE		6°C, HCl €°C, H <sub>2</sub> S0 <sub>4</sub>		Methane (RSk TKN (351.2)	/	10 <sub>2</sub> /NO <sub>3</sub> (353.2	<u></u>	
1 - 250 mL HDPE		6°C			Alkalinity (23)		)	
1 - 250 mL HDPE		6°C, ZnOAc/N	NaOH	Sulfide (9034)		.00)		
1 - 250 mL Amber		6°C		DOC (9060A)				
WELL PURGING DATA								
Dete	6-16-	20			epth (ft BTOC		20.15	
Date Time Started		$\omega$			Vater (ft BTOC Column Lengtl		8.50 65	
Time Completed	1615				Volume (per ft			2.476
PID Measurements			· · · · · · · · · · · · · · · · · · ·		ater in Well (L		8.78	<u>a. 170</u>
Background	ND			_ Casing Vo	olumes to Purge			
Breathing Zone	ND				um to Purge (L		)	
Well Head Purge Water	ND ND			_ A	ctual Purge (L	22.1	<u>ก</u>	
				-				
FIELD MEASUREMENT	-		~					
Time Amount Purged (L)	рН	Temperature (Celsius)	Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	Redox (ORP) ) (mV)	Turbidity (NTU)	Depth to Wate (ft BTOC)	I Purge Rate (L/min)
1620 2.5	638	16.52	0.043	11.38	121	6.62	8.52	0.5
1025 5.0	F.90	16.13	0.043		130	6.33	7.MQ	OF
1030 7.5		16.37	0.005		136	5.68	8.52	0.5
1635 10.0	5.17	16.27	0.065		135	6.32	8.52	O.F
1640 12.5	5.78	16.39	0.064	10.62	134	6.42	8.52	0.5
1045 15.0	5.80	16.40	0.064		133	5.18	8.572	0.5
1650 17.5	<u>17,83</u>	16.26	0.0UF	10.58	132	5.37	8.52	O.F
1655 20.0	5.87	16.37	0.06F	10.61	131	<u>5.04</u>	8.52	0.5
1780 22.5	1.00	10.57	O. Jun	10.05	130	4.80	8.52	0.1
·								
FIELD EQUIPMENT AN	D CALIBRATIO Model	N		Calibration		I		
Water Level Probe	Solinst 102			Checked Again	nst Calibrated I	ength		
Water Quality Meter	TSI 556 Multi-	Parameter Prob	pe				ibrated Weekly	
GENERAL COMMENTS	<del>√ #0^/</del> 5	ř <del>í –</del>						
Ferrous Iron = U. 349 r	ng/L							
Multi-Parameter Probe Unit	# 3							
Field Parameters Measured i		Cell						
Pump Placement Depth = $\frac{1}{Pump Rate} = 0$ , $\overline{P} = \frac{1}{Pump L}$				TT! *	o (7		/ 2010 / 1 1	BUN
$\frac{\text{Pump Rate} = 0,         $	VIIM			ORP Historie	<u>c (7-year avera</u> 29.2	ge low and high 200.5	<u>1 / 2019 / Avg ir</u> 29.2	
Screen Interval = $10.0 - 20.0$				DO	9.09	10.75	10.20	<u>133.8</u> 10.01
				PH	5.77	6.01	5.77	5.87
				Cond.	0.075	0.130	0.130	0.094

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SITE NAME		СН	IAAP		PROJECT NO		60	565355	
		pl	2061-20	A					
SAMPLE NC	)	CA NW		<u> </u>	WELL NO			W061	
DATE/TIME	COLLECTED	61	10/20 6	2 lors	PERSONNE	C	CH/50		
SAMPLE ME	ETHOD		CTIVE SS MC		-				
		_			-				
SAMPLE ME		Groundwater		7			211		
SAMPLE QA		YES	NO	SPLIT	SAMPLE NO	•	NA		
	DUPLICATE:	YES	NO	DUPLICATE	E SAMPLE NO	•	NA		
MS/MSD RE	QUESTED	YES	NO	MS/MSE	SAMPLE NO		NA		
SAMPLE CO	ONTAINERS, I	PRESERVATI	VES, ANALYS	SIS					
Sample Conta	ainer		Preservative		Analysis Requ	uested			
2 - 500 mL A	mber		6°C		Explosives + ]	MNX (8330A)			
3 - 40 mL VC	DA		6°C, HCl		Methane (RSI	K 175)			
1 - 500 mL H	DPE		6°C, H <sub>2</sub> S0 <sub>4</sub>		TKN (351.2),	NH <sub>3</sub> (350.1), N	O <sub>2</sub> /NO <sub>3</sub> (353.2	!)	
1 - 250 mL H	DPE		6°C		SO4 (9056A),	Alkalinity (232	0B)		
1 - 250 mL H	DPE		6°C, ZnOAc/N	laOH	Sulfide (9034	)		· · · ·	
1 - 250 mL A	mber		6°C		DOC (9060A)				
WELL PUR	GING DATA								· ·
		11.	120		Well D	Pepth (ft BTOC)		44.90	
Date		6/10	5/20			Vater (ft BTOC)		8.05	
Time Started		9	35		-	Column Length	,	36.85	
Time Comple			1015			Volume (per ft)		2.47	
PID Measurer			ND			ater in Well (L)	·	91.0	
Background Breathing Z					-	olumes to Purge		NA	
Well Head	Lone		00 00		-	um to Purge (L) Actual Purge (L)	V	9.0 9.0	
Purge Wate	r					(Cluar Furge (L)		9.0	
					-				
	SUREMENTS								
Time	Amount	pH	Temperature	Conductivity	Dissolved	Redox (ORP)	Turbidity	Depth to Water	ç
	Purged (L)		(Celsius)	(mS/cm)	Oxygen (mg/L	) (mV)	(NTU)	(ft BTOC)	(L/min)
Quo	2.5	6.30	12 12	A 210	A 73	178	·····	<i>a</i> ~	
940	25	6.35	13.43	0.310	0.73	170	7.4	8.05	0.5
945	5.0	6.46	13:15	0.310	0.55	178 <del>0:319</del> 181	4.2	8.05	
945 550	5.0 7.5	6.46	13.15	0.310 0.310	0.55 0.49	170 <del>0:319</del> 181 182	42 3.4	8.05	
945 750 755	5-0 7-5 10-0	6.46 6.50 6.52	13.15 13.30 13.20	0.310 0.310 0.311	0-55 0-49 0.46	170 0-319 181 182 182	4.2 3.4 2.7	8.05 8.05 8.05	
945 550 955 1000	5.0 <b>7.</b> 5 10.0 12.5	6:46 6:50 6:52	13,15 13.30 13.20 13.26	0.310 0.310 0.311 0.310	0.55 0.49 0.46 0.43	170 0-319 181 182 182 182 181	4.2 3.4 2.7	8.05 8.05 8.05	
945 750 755 1000 1005	5-0 <b>7</b> -5 10-0 12-5 15-0	6.46 6.50 6.52 6.55 6.56	13,15 13.30 13.20 13.26 13.26 13.31	0,310 0,310 0,311 0,310 0,309	0.55 0.49 0.46 0.43 0.41	170 0-319 181 182 182 182 181 181	4.2 3.4 2.7 2.5 2.6	8.05 8.05 8.05 8.05	
945 550 755 1000 1005 1010	5-0 7.5 10.0 12.5 15.0 17.5	6:46 6:50 6:52 6:52 6:58	13,15 13.30 13.20 13.26 13.26 13.31	0,310 0,310 0,311 0,310 0,309	0.55 0.49 0.46 0.43 0.43 0.41 0.39	170 0-319 181 182 182 181 181 181 181	4.2 3.4 2.7 2.5 2.6 5.0	8.55 8.05 8.05 8.05	
945 750 755 1000 1005	5-0 7.5 10.0 12.5 15.0 17.5 20.0	6.46 6.50 6.52 6.55 6.58 6.58 6.59	13.30 13.30 13.20 13.26 13.31 13.44 13.44 13.37	0,310 0,310 0,311 0,310 0,309	0.55 0.49 0.46 0.43 0.43 0.41 0.39 0.38	170 0-319 181 182 182 182 181 181	4.2 3.4 2.7 2.5 2.6	8.05 8.05 8.05 8.05	
945 550 755 1000 1005 1010	5-0 7.5 10.0 12.5 15.0 17.5 20.0	6:46 6:50 6:52 6:52 6:58	13.30 13.30 13.20 13.26 13.31 13.44 13.44 13.37	0,310 0,310 0,311 0,310 0,309	0.55 0.49 0.46 0.43 0.43 0.41 0.39	170 0-319 181 182 182 181 181 181 181	4.2 3.4 2.7 2.5 2.6 5.0	8.55 8.05 8.05 8.05	
945 550 755 1000 1005 1010	5-0 7.5 10.0 12.5 15.0 17.5 20.0	6.46 6.50 6.52 6.55 6.58 6.58 6.59	13.30 13.30 13.20 13.26 13.31 13.44 13.44 13.37	0,310 0,310 0,311 0,310 0,309	0.55 0.49 0.46 0.43 0.43 0.41 0.39 0.38	170 0-319 181 182 182 181 181 181 181	4.2 3.4 2.7 2.5 2.6 5.0	8.55 8.05 8.05 8.05	
945 550 755 1000 1005 1010	5-0 7-5 10-0 12-5 15-0 17-5 20.0	6.46 6.50 6.52 6.55 6.58 6.58 6.59	13.30 13.30 13.20 13.26 13.31 13.44 13.44 13.37	0,310 0,310 0,311 0,310 0,309	0.55 0.49 0.46 0.43 0.43 0.41 0.39 0.38	170 0-319 181 182 182 181 181 181 181	4.2 3.4 2.7 2.5 2.6 5.0	8.55 8.05 8.05 8.05	
945 550 755 1000 1005 1010	5-0 7-5 10-0 12-5 15-0 17-5 20.0	6:46 6:50 6:52 6:55 6:58 6:58	13.30 13.30 13.20 13.26 13.31 13.44 13.44 13.37	0,310 0,310 0,311 0,310 0,309	0.55 0.49 0.46 0.43 0.43 0.41 0.39 0.38	170 0-319 181 182 182 181 181 181 181	4.2 3.4 2.7 2.5 2.6 5.0	8.55 8.05 8.05 8.05	
945 550 555 1000 1005 1010 1015	5-0 7.5 10.0 12.5 15.0 17.5 20.0 Pere	6:46 6.50 6.52 6.55 6.58 6.58 6.58 6.58	13.15 13.20 13.20 13.26 13.31 13.44 13.44 13.37 13.44 13.37 13.44	0,310 0,310 0,311 0,310 0,309	0.55 0.49 0.46 0.43 0.43 0.41 0.39 0.38	170 0-319 181 182 182 181 181 181 181	4.2 3.4 2.7 2.5 2.6 5.0	8.55 8.05 8.05 8.05	
945 550 555 1000 1005 1010 1015	5-0 <b>2.</b> 5 10.0 12.5 15.0 17.5 20.0 Pere	6:46 6.50 6.52 6.55 6.58 6.58 6.58 6.58	13.15 13.20 13.20 13.26 13.31 13.44 13.44 13.37 13.44 13.37 13.44	0.310 0.310 0.311 0.309 0.309 0.309 0.309	0.55 0.49 0.46 0.43 0.43 0.41 0.39 0.38	170 0-319 181 182 182 181 181 181 181	4.2 3.4 2.7 2.5 2.6 5.0	8.55 8.05 8.05 8.05	
945 550 555 1000 1005 1010 1015	5-0 7-5 10-0 12-5 15-0 17-5 20.0 Pere	6.46 6.50 6.50 6.56 6.58 6.58 6.58 6.58 6.59 Mus Stel	13.15 13.20 13.20 13.26 13.31 13.44 13.44 13.37 13.44 13.37 13.44	0.310 0.310 0.311 0.309 0.309 0.307 0.307	0.55 0.49 0.46 0.43 0.41 0.39 0.38 2.fu Calibration	170 0-319 181 182 182 181 181 181 181	42 3.4 2.7 2.5 2.6 5.0 1.4	8.55 8.05 8.05 8.05	
945 550 555 1000 1015 1010 1015	5-0 <b>2.</b> 5 10.0 12.5 15.0 17.5 20.0 Pere	6.46 6.50 6.55 6.55 6.56 6.58 6.58 6.59 MLS Stel NLS Stel Solinst 102 YS1556 Multi-	13.20 13.20 13.20 13.20 13.20 13.20 13.21 13.31 13.44 13.37 13.44 13.37 13.44 13.37 13.44 13.37 13.44 13.20 10	0.310 0.310 0.310 0.309 0.309 0.307 0.307	C-55 D-49 C-46 D-43 D-41 D-39 D-38 Calibration Checked Again	170 0-319 181 182 182 181 181 181 181 180 180 180	4.2 3.4 2.7 2.5 2.6 5.0 1.4	8.55 8.05 8.05 8.05	
945 550 555 1000 1015 FIELD EQUI Water Level Pr Water Quality	5-0 <b>2.</b> 5 10.0 12.5 15.0 17.5 20.0 Pere PMENT AND Reter CH	6.46 6.50 6.50 6.56 6.58 6.58 6.58 6.58 6.59 nuse Stel	13.20 13.20 13.20 13.20 13.20 13.20 13.21 13.31 13.44 13.37 13.44 13.37 13.44 13.37 13.44 13.37 13.44 13.20 10	0.310 0.310 0.310 0.309 0.309 0.307 0.307	C-55 D-49 C-46 D-43 D-41 D-39 D-38 Calibration Checked Again	170 0-319 181 182 182 181 181 181 181 180 180 180	4.2 3.4 2.7 2.5 2.6 5.0 1.4	8.05 8.05 8.05 8.05 8.05 8.05	
945 550 555 1000 1015 FIELD EQUI Water Level Pr Water Quality GENERAL C	5-0 <b>2</b> -5 10-0 12-5 15.0 17-5 20.0 Pere Pere Meter 24 COMMENTS	6.46 6.50 6.55 6.55 6.56 6.58 6.58 6.59 MLS Stel NLS Stel Solinst 102 <del>YSI 556 Multi</del> HOCIG	13.20 13.20 13.20 13.20 13.20 13.20 13.21 13.31 13.44 13.37 13.44 13.37 13.44 13.37 13.44 13.37 13.44 13.20 10	0.310 0.310 0.310 0.309 0.309 0.307 0.307	C-55 D-49 C-46 D-43 D-41 D-39 D-38 Calibration Checked Again	170 0-319 181 182 182 181 181 181 181 180 180 180	4.2 3.4 2.7 2.5 2.6 5.0 1.4	8.05 8.05 8.05 8.05 8.05 8.05	
945 550 555 1000 1015 FIELD EQUI Water Level Pr Water Quality GENERAL C Ferrous Iron =	5-0 <b>2.</b> 5 10-0 12.5 15.0 17.5 20.0 Pere Pere Meter 24 COMMENTS 0:20 mg	6.46 6.50 6.50 6.55 6.58 6.58 6.58 6.58 Mus Stel Nus Stel Solinst 102 YS1556 Multi- HOK112	13.30 13.30 13.20 13.20 13.31 13.44 13.44 13.37 20 20 20 20 20 20 20 20 20 20	0.310 0.310 0.311 0.309 0.309 0.307 0.307	C-55 D-49 C-46 D-43 D-41 D-39 D-38 Calibration Checked Again	170 0-319 181 182 182 181 181 181 181 180 180 180	4.2 3.4 2.7 2.5 2.6 5.0 1.4	8.05 8.05 8.05 8.05 8.05 8.05	
945 550 555 1000 1015 1010 1015 FIELD EQUI Water Level Pr Water Quality GENERAL C Ferrous Iron = Multi-Paramet	5-0 <b>2.</b> 5 10-0 12.5 15.0 17.5 20.0 Pere Pere PMENT AND Pere COMMENTS 0-20 mg er Probe Unit #	6.46 6.50 6.50 6.55 6.58 6.58 6.58 6.58 Mus Stel Nus Stel Solinst 102 YS1556 Multi HORIG	13.75 13.30 13.20 13.20 13.21 13.31 13.44 13.44 13.37 20 Control Control Con	0.310 0.310 0.311 0.309 0.309 0.307 0.307	C-55 D-49 C-46 D-43 D-41 D-39 D-38 Calibration Checked Again	170 0-319 181 182 182 181 181 181 181 180 180 180	4.2 3.4 2.7 2.5 2.6 5.0 1.4	8.05 8.05 8.05 8.05 8.05 8.05	
945         955         1000         1015         1015         FIELD EQUI         Water Level Pr         Water Quality         GENERAL C         Ferrous Iron =         Multi-Paramete         Field Paramete	5-0 <b>2.</b> 5 10-0 12.5 15.0 17.5 20.0 Pere Pere Pere Comment and Comments 0-20 mg er Probe Unit # rs Measured in 1	6.46 6.50 6.50 6.55 6.58 6.58 6.58 6.58 6.58 Mus Stel Nus Stel Solinst 102 YS1556 Multi HORIO YS1556 Multi HORIO YS1556 Multi	$\begin{array}{c} 13.75 \\ 13.30 \\ 13.26 \\ 13.26 \\ 13.31 \\ 13.44 \\ 13.44 \\ 13.37 \\ 13.44 \\ 13.37 \\ 13.44 \\$	0.310 0.310 0.311 0.309 0.309 0.307 0.307	C-55 D-49 C-46 D-43 D-41 D-39 D-38 Calibration Checked Again	170 0-319 181 182 182 181 181 181 181 180 180 180	4.2 3.4 2.7 2.5 2.6 5.0 1.4	8.05 8.05 8.05 8.05 8.05 8.05	
945         550         1000         1010         1015         FIELD EQUI         Water Level Pr         Water Quality         GENERAL C         Ferrous Iron =         Multi-Paramete         Field Paramete         Pump Placemee	5 - 0 $2 - 5$ $10 - 0$ $12 - 5$ $15 - 0$ $17 - 5$ $2 0 - 0$ $Pere$ PMENT AND Probe Meter $C + -$ COMMENTS $0 - 20  mg$ er Probe Unit # ers Measured in Int Depth = -	6.46 6.50 6.50 6.55 6.58 6.58 6.58 6.58 6.58 Mus Stel Nus Stel Nus Stel Solinst 102 YSI 556 Multi HOCIUS	$\begin{array}{c} 13.75 \\ 13.30 \\ 13.26 \\ 13.26 \\ 13.31 \\ 13.44 \\ 13.44 \\ 13.37 \\ 13.44 \\ 13.37 \\ 13.44 \\$	0.310 0.310 0.311 0.309 0.309 0.307 0.307	C-55 D-49 C-46 D-46 D-43 O-41 O-39 D-38 Calibration Checked Again Twice Daily C	170 0-319 181 182 182 181 181 181 181 180 () 180 () 180 () 180 () 180 () 180 () 180 () 180 () 181 () 182 ()	<i>4.2</i> <i>3.4</i> <i>2.7</i> <i>2.5</i> <i>2.6</i> <i>5.0</i> <i>1.4</i> ength cation also Ca	8.05 8.05 8.05 8.05 8.05 8.05	
945         550         1000         1010         1015         FIELD EQUI         Water Level Pr         Water Quality         GENERAL C         Ferrous Iron =         Multi-Paramete         Field Paramete         Pump Placemee	5-0 $2.5$ $10-0$ $12-5$ $15.0$ $17-5$ $20.0$ $Pere$ Pere Pose Meter CH Pere Pose CH Pere Pose CH Pere Pose Pose Pose Pose Pose Pose Pose Pos	6.46 6.50 6.50 6.55 6.58 6.58 6.58 6.58 6.58 Mus Stel Nus Stel Nus Stel Solinst 102 YSI 556 Multi HOCIUS	$\begin{array}{c} 13.75 \\ 13.30 \\ 13.26 \\ 13.26 \\ 13.31 \\ 13.44 \\ 13.44 \\ 13.37 \\ 13.44 \\ 13.37 \\ 13.44 \\$	0.310 0.310 0.311 0.309 0.309 0.309 0.309	Calibration Checked Again Twice Daily C	170 0-319 181 182 182 182 181 181 181 180 ( 180 ( 180 ( 180 ( 180 ( 180 ( 180 ( 180 ( 180 ( 180 ( 182 ( 186 ( 182 ( 186 ( 182 ( 186) ( 186 ( 186 ( 186 ( 186 ( 186 ( 186 ( 186 ( 186 ( 186 ( 186 ( 186 ( 186 ( 186) ( 186 ( 186) ( 186 ( 186) ( 186) ( 186 ( 186) ( 18)	$\begin{array}{c}                                     $	8.05 8.05 8.05 8.05 8.05 8.05	
945         550         1000         1010         1015    FIELD EQUI Water Quality GENERAL C Ferrous Iron = Multi-Paramete Field Paramete Pump Placemee Pump Rate =	5-0 $2.5$ $10-0$ $12-5$ $15-0$ $17-5$ $20.0$ $Pere$ Pere Pose Pose Pose Pose Pose Pose Pose Pos	6.46 6.50 6.50 6.55 6.58 6.58 6.58 6.58 6.58 Mus Stel Nus Stel Nus Stel Solinst 102 YSI 556 Multi HOCIUS	$\begin{array}{c} 13.75 \\ 13.30 \\ 13.26 \\ 13.26 \\ 13.31 \\ 13.44 \\ 13.44 \\ 13.37 \\ 13.44 \\ 13.37 \\ 13.44 \\$	(),310 (),310 (),310 (),309 (),309 (),309 (),309 (),309 (),309 (),309 (),309	C-55 D-49 C-46 D-46 D-43 O-41 O-39 D-38 Calibration Checked Again Twice Daily C	170 0-319 181 182 182 181 181 181 181 180 () 180 () 180 () 180 () 180 () 180 () 180 () 180 () 181 () 182 ()	<i>4.2</i> <i>3.4</i> <i>2.7</i> <i>2.5</i> <i>2.6</i> <i>5.0</i> <i>1.4</i> ength cation also Ca	8.05 8.05 8.05 8.05 8.05 8.05	<u>D.5</u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u>_</u> <u></u>
945         555         1000         1010         1015    FIELD EQUI Water Level Pr Water Quality GENERAL C Ferrous Iron = Multi-Paramete Field Paramete Pump Placemee Pump Rate = Well Diameter	5-0 $2.5$ $10-0$ $12-5$ $15-0$ $17-5$ $20.0$ $Pere$ Pere Pose Pose Pose Pose Pose Pose Pose Pos	6.46 6.50 6.50 6.55 6.58 6.58 6.58 6.58 6.58 Mus Stel Nus Stel Nus Stel Solinst 102 YSI 556 Multi HOCIUS	$\begin{array}{c} 13.75 \\ 13.30 \\ 13.26 \\ 13.26 \\ 13.31 \\ 13.44 \\ 13.44 \\ 13.37 \\ 13.44 \\ 13.37 \\ 13.44 \\$	(),310 (),310 (),310 (),309 (),309 (),309 (),309 (),309 (),309 (),309 (),309	Co-55 O-49 O-43 O-43 O-43 O-39 O-38 Calibration Checked Again Twice Daily Co- Histori ORP	170 0-319 181 182 182 182 181 181 181 180 (181 180 (181 180 (181 180 (181 180 (182 (182 181 182 (182 (182 182 (18	<i>4.2</i> <i>3.4</i> <i>2.7</i> <i>2.5</i> <i>1.4</i> <i>1.4</i> ength cation also Ca	8.05 8.05 8.05 8.05 8.05 8.05	<u>D.5</u> <u>Bold)</u> 96.2 0.59
945         555         1000         1010         1015    FIELD EQUI Water Level Pr Water Quality GENERAL C Ferrous Iron = Multi-Paramete Field Paramete Pump Placemee Pump Rate = Well Diameter	5-0 $2.5$ $10-0$ $12-5$ $15-0$ $17-5$ $20.0$ $Pere$ Pere Pose Pose Pose Pose Pose Pose Pose Pos	6.46 6.50 6.50 6.55 6.58 6.58 6.58 6.58 6.58 Mus Stel Nus Stel Nus Stel Solinst 102 YSI 556 Multi HOCIUS	$\begin{array}{c} 13.75 \\ 13.30 \\ 13.26 \\ 13.26 \\ 13.31 \\ 13.44 \\ 13.44 \\ 13.37 \\ 13.44 \\ 13.37 \\ 13.44 \\$	(),310 (),310 (),310 (),309 (),309 (),309 (),309 (),309 (),309 (),309 (),309 (),309 (),309	C-55 D-49 C-46 D-46 D-46 D-46 D-46 D-39 D-38 Calibration Checked Again Twice Daily Co Histori ORP DO	170 0-319 181 182 182 182 181 181 180 (181 180 (181 180 (181 180 (181 180 (181 180 (182) (182) 182 182 182 182 182 182 182 182	4.2 3.4 2.7 2.5 1.4 ength cation also Ca e low and hig 151.1 0.91	8.05 8.05 8.05 8.05 8.05 8.05 8.05	<u>D.5</u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u>_</u> <u></u>

SITE NAME		СН	AAP		PROJECT NO	)	605	565355	
SAMPLE NC	)	CU NW	1062-20	A		)		W062	
DATE/TIME	COLLECTED		10/20 C		DEDCONNIE	L	141		
SAMPLE ME			CTIVE SS MC		_ FERSONNEI				
SAMPLE ME	EDIA:	Groundwater							
SAMPLE QA	SPLIT:	YES	NO	] SPLI	SAMPLE NO	)	NA		
	DUPLICATE:	YES	NO			)			
MS/MSD RE		YES	NO	MS/MSE	SAMPLE NO	)	NA	····	
SAMPLE CO	ONTAINERS, F	PRESERVATI	VES. ANALYS						
Sample Conta			Preservative		Analysis Requ	uested			
2 - 500 mL A	mber		6°C			MNX (8330A)			
3 - 40 mL VC			6°C, HC1		Methane (RSI				
1 - 500 mL H			6°C, H <sub>2</sub> S0 <sub>4</sub>			NH <sub>3</sub> (350.1), NC	) <sub>2</sub> /NO <sub>2</sub> (353.2	)	- 10 - 10 - 10 - 10 - 10 - 10 - 10 - 10
1 - 250 mL H	DPE		6°C			Alkalinity (2320		/	
1 - 250 mL H			6°C, ZnOAc/N	IaOH	Sulfide (9034		2)		
1 - 250 mL A			6°C		DOC (9060A)				
WELL PUR									
			•		Well D	Depth (ft BTOC)		63.45	
Date			10/20		Depth to V	Water (ft BTOC)		8.19	
Time Started			100		-	Column Length		55.26	
Time Comple		12	60			Volume (per ft)		.47	
PID Measurer						ater in Well (L)		6.5	
Background			ND			olumes to Purge	$\nu$		
Breathing Z Well Head	Lone		ND		-	um to Purge (L)		0-0	
Purge Wate			ND		_ F	Actual Purge (L)	30	2	
Turge wate	4	/	ND		-				
FIELD MEA	SUREMENTS								
Time	Amount Purged (L)	рН	Temperature (Celsius)		Dissolved Oxygen (mg/L	Redox (ORP) .) (mV)	Turbidity (NTU)	Depth to Water (ft BTOC)	Purge Rate (L/min)
1105	2.5	6.82	(3.37	0.275	1.25	119	1.7	8.19	0.5
1110	5.0	6.68	13.50	0-274	0.83	80	1.4	8.19	1
1115	7.5	6.65	13.43	0.274	0.66	50	1.0	8.19	
1120	10.0	6.64	13-31	0.274	0.53	28	1.2	8.19	
1125	12.5	6.65	13.36	0.273	0-46	8	1.4	8.19	
1130	15.0	6.66	13.33	0-273	0.43	-13	0.9	8.19	
1135	17.5	6.67	13.24	0.273	0.40	-30	1.3	8,19	
1140	20.0	6.68	13.31	0.272	0.38	-44	1.2	8.19	
1145	22.5	6.69	13.25	0.272	0.36	~52	1.4	8.19	
1150	25.0	6.70	13.41	6.271	0.35	-58	1.1	8.19	
1155	27.5	6.71	13.37	0.270	6.34	-63	1.0	8.19	
1200	30.0	6.71	13.31	0.270	0.33	-67	1.3	8.19	$\nabla$
	P4	radet3	Stable	- celle	et Sur	10			
FIELD EQUI	PMENT AND	CALIBRATIO	N						
		Model			<u>Calibration</u>				
Water Level Pr		Solinst 102				nst Calibrated Le			
Water Quality	Meter CH	Y <del>SI 556 Multi</del> HoR		e	Twice Daily C	alibration Verific	ation also Cal	librated Weekly	
GENERAL C	OMMENTS	<u></u>							
Ferrous Iron =		/L	. 1 .						
		59600	#1					·	
	ers Measured in l	Flow-Through C	Cell						
	ent Depth = 6								
Pump Rate =		Inn				ic (7-year average			Bold)
Well Diameter					ORP	-15.8	133.1	-15.8	52.0
Screen Interval	1 = 58.1 - 63.1				DO	0.17	0.65	0.65	0.36
···-,					PH Cond	6.97	8.11	7.01	7.36
		······································			Cond.	0.584	0.701	0.646	0.644
		,							

0.434007 2220			AAP		PROJECT NO		60	565355	
SAMPLE NC	)	NU NW	070-201 <sup>070-2</sup> ен	<b>\</b>	WELL NO		N	W070	
DATE/TIME	COLLECTED	61	9/200	945	PERSONNEL		CH/ TO	~	
SAMPLE ME	ETHOD		CTIVE SS MC						
		Carrier							
SAMPLE ME SAMPLE QA		Groundwater YES	NO	] spir	Γ SAMPLE NO		NA		
-	DUPLICATE:	YES	NO		E SAMPLE NO		NA		
MS/MSD RE		YES	NO		D SAMPLE NO.		NA		
	ONTAINERS, I					·			
SAMPLE CO Sample Conta		RESERVAII	VES, ANALY: Preservative	818	Analysis Requ	rested			
2 - 500 mL A			<u>r reservative</u> 6℃			MNX (8330A)			
$\frac{2-300 \text{ mL}}{3-40 \text{ mL VO}}$			6°C, HCl		Methane (RSk				
$\frac{3}{1-500}$ mL H			6°C, H2S04			NH <sub>3</sub> (350.1), N	0./NO. (353 )	<u></u>	
1 - 250 mL H			6°C			Alkalinity (232		·)	
1 - 250 mL H			6°C, ZnOAc/N	JaOH	Sulfide (9034)				
1 - 250 mL A			6°C		DOC (9060A)			·	
WELL PURC	GING DATA				······				
		La	100		Well D	epth (ft BTOC)	)	20.91	
Date			120			ater (ft BTOC)		5.47	
Time Started		8	45			Column Length		5.44 '	
Time Complet PID Measurer		9	45			Volume (per ft)		TLA	
Background		A	D			ater in Well (L)		12	
Breathing Z						um to Purge (L)		NA 20L	
Well Head			0			ctual Purge (L)		D.OL	
Purge Wate	r		D.	· · · · · · · · · · · · · · · · · · ·			/		
					-				
FIELD MEA	SUREMENTS		<b>T</b>	0 1 4 4	D: 1 1		<b>—</b> 1111		
Time	Amount Purged (L)	pH	(Celsius)	Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	Redox (ORP) (mV)	Turbidity (NTU)	(ft BTOC)	er Purge Rate (L/min)
	1 41604 (12)		(0010100)	(mo/om)	Oxygen (mg/L)	, (mv)	(110)	(II BIOC)	
850	2-5	6.34	13.47	0.213	1.35	158	0.0	5.49	
855	5.0	6.33	12.94	0.212					05
900	7.5	e a a				111	0.0	5.49	0.5
_		6.28	13.12		0.84	) (  BE	0-0	5.49	0.5
905	10.0	6.28	13.07	0.209	0.64 0.68	82	0-0 0-0	5.50	0.5
905 900	12.5		13.07		0.84	88 70 57	0-0	5.50	0.5
905 910 915		6-27 6:31 6.35	13.07	0.209	0.64 0.68 0.59	82	0-0	5.50	0.5 0.5 0.5
905 910 915 420	12.5 15.0 17.5	6.27 6:31	13.07 13.23 13.22 13.12	0.209 0.205 0.201 0.199 0.198	0.64 0.68 0.53 8.53	88 70 57 43 27	0-0 0.0 0.0	5.50 5.50 5.50 5.50	0.5 0.5 0.5 0.5 0.5
905 910 915 928 928	12.5 15.0 17.5 20.0	6.27 6.31 6.35 6.39 6.42	13.07 13.23 13.22 13.12	0.209 0.205 0.201 0.199	0.84 0.68 0.53 0.53 0.50	88 70 57	0-0 0.0 0.0	5.50 5.50 5.50	0.5 0.5 0.5
905 910 915 920 925 925 930	12.5 15.0 17.5 20.0 22.5	6.27 6.31 6.35 6.39 6.42 6.42 6.44	13.07 13.23 13.22 13.12	0.209 0.205 0.201 0.199 0.198 0.198 0.197 0.196	0.64 0.68 0.53 0.50 0.46 0.45 0.44	88 70 57 43 27 19 10	0-0 0-0 0.0 0.0	5.50 5.50 5.50 5.50 5.50	0.5 0.5 0.5 0.5 0.5 0.5
905 910 915 920 925 930 435	12.5 15.0 17.5 20.0 22.5 25.0	6.27 6:31 6.35 6.35 6.42 6.44 6.44	3.07 3.23 3.22 3.12 3.12 13.12 13.10 13.10	0.209 0.205 0.201 0.199 0.198 0.198 0.198 0.196 0.196	0.84 0.68 0.53 0.50 0.46 0.45 0.45 0.44 0.43	88 70 57 43 27 19	0-0 0.0 0.0 0.0 0.0	5.50 5.50 5.50 5.50 5.50 5.50	0.5 0.5 0.5 0.5 0.5 0.5 0.5
905 910 915 920 925 925 930 435 940	12.5 15.0 17.5 20.0 22.5 25.0 27.5	6.27 6:31 6.35 6.35 6.42 6.44 6.44 6.46	3.07 3.23 3.22 3.12 3.12 13.12 13.10 13.10 13.00 13.03	0.209 0.201 0.199 0.198 0.198 0.198 0.198 0.196 0.195	0.64 0.68 0.53 0.50 0.46 0.45 0.44 0.42 0.42	88 70 57 43 27 19 10	0-0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	5.50 5.50 5.50 5.50 5.50 5.50 5.50 5.50	0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5
905 910 915 920 925 930 435	12.5 15.0 17.5 20.0 22.5 25.0	6.27 6:31 6.35 6.35 6.42 6.44 6.44	3.07 3.23 3.22 3.12 3.12 13.12 13.10 13.10	0.209 0.205 0.201 0.199 0.198 0.198 0.198 0.196 0.196	0.84 0.68 0.53 0.50 0.46 0.45 0.45 0.44 0.43	88 70 57 43 27 19 10	0-0 0.0 0.0 0.0 0.0 0.0 0.0	5.50 5.50 5.50 5.50 5.50 5.50 5.50 5.50	0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5
905 910 915 920 925 925 925 930 935 940 945	12.5 15.0 17.5 20.0 27.5 25.0 27.5 30.0	6-27 6:31 6.35 6.37 6.42 6.44 6.46 6.49 6.49 6.49	3.07 3.23 3.22 3.12 3.12 3.10 3.10 3.10 13.0 13.0 13.0 13.0 13.0 3.0 3.0 13	0.209 0.201 0.199 0.198 0.198 0.198 0.198 0.196 0.195	0.64 0.68 0.53 0.50 0.46 0.45 0.44 0.42 0.42	88 70 57 43 27 19 10 4 -2	0-0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	5.50 5.50 5.50 5.50 5.50 5.50 5.50 5.50	0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5
905 910 915 920 925 925 925 930 935 940 945	12.5 15.0 17.5 20.0 22.5 25.0 27.5	6-27 6:31 6.35 6.37 6.42 6.42 6.44 6.46 6.49 6.49 6.49	3.07 3.23 3.22 3.12 3.12 3.10 3.10 3.10 13.0 13.0 13.0 13.0 13.0 3.0 3.0 13	0.209 0.201 0.199 0.198 0.198 0.198 0.198 0.196 0.195	0.64 0.68 0.53 0.53 0.46 0.45 0.45 0.44 0.43 0.41 0.42	88 70 57 43 27 19 10 4 -2	0-0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	5.50 5.50 5.50 5.50 5.50 5.50 5.50 5.50	0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5
905 910 915 920 925 925 930 935 940 945 FIELD EQUI	12.5 15.0 17.5 20.0 27.5 25.0 27.5 30.0 PMENT AND	6-27 6:31 6.35 6.37 6.42 6.44 6.44 6.49 6.49 6.49 6.49 6.49 6.49	3.07 3.23 3.22 3.12 3.12 3.10 3.10 3.10 13.0 13.0 13.0 13.0 13.0 3.0 3.0 13	0.209 0.201 0.199 0.198 0.198 0.198 0.198 0.196 0.195	0.64 0.68 0.53 0.50 0.46 0.45 0.44 0.43 0.41 0.42 0.41 0.40	88 70 57 43 27 19 10 4 -2 -7	0-0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	5.50 5.50 5.50 5.50 5.50 5.50 5.50 5.50	0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5
905 910 915 920 925 925 925 920 935 940 945 FIELD EQUI Water Level Pr	12-55 15-0 17-55 20-0 22-55 25-0 27-55 30-0 PMENT AND	6-27 6:31 6:35 6:37 6:42 6:44 6:44 6:49 6:49 6:49 6:49 6:51 CALIBRATIO Model Solinst 102	13.07 13.23 13.22 13.12 13.10 13.10 13.00 13.03 13.05	0.209 0.201 0.199 0.198 0.198 0.198 0.196 0.195 0.195	0-64 0-68 0-53 0-53 0-50 0-46 0-45 0-44 0-42 0-41 0-42 0-41 0-42	88 70 57 43 27 19 19 4 -2 -7 -7	0-0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	5.50 5.50 5.50 5.50 5.50 5.50 5.50 5.50	0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5
905         910         915         920         925         930         935         940         945    FIELD EQUI Water Level Pr Water Quality	12-55 15-0 17-5 20-0 22-5 25-0 27-5 30-0 PMENT AND robe Meter C#	6-27 6:31 6.35 6.37 6.42 6.44 6.44 6.49 6.49 6.49 6.49 6.49 6.49	13.07 13.23 13.22 13.12 13.10 13.10 13.00 13.03 13.05	0.209 0.201 0.199 0.198 0.198 0.198 0.196 0.195 0.195	0.64 0.68 0.53 0.50 0.46 0.45 0.44 0.43 0.41 0.42 0.41 0.40	88 70 57 43 27 19 19 4 -2 -7 -7	0-0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	5.50 5.50 5.50 5.50 5.50 5.50 5.50 5.50	0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5
905         910           915         920           925         920           925         930           935         940           945         945   FIELD EQUI Water Level Pr Water Quality GENERAL C	12-55         15.0         17.5         20.0         22.5         25.0         27-5         30.0    PMENT AND robe Meter C# OMMENTS	6-27 6:31 6.35 6.37 6.42 6.44 6.44 6.49 6.49 6.49 6.49 6.51 CALIBRATIO Model Solinst 102 <del>VSI 556 Multi-</del>	13.07 13.23 13.22 13.12 13.10 13.10 13.00 13.03 13.05	0.209 0.201 0.199 0.198 0.198 0.198 0.196 0.195 0.195	0-64 0-68 0-53 0-53 0-50 0-46 0-45 0-44 0-42 0-41 0-42 0-41 0-42	88 70 57 43 27 19 19 4 -2 -7 -7	0-0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	5.50 5.50 5.50 5.50 5.50 5.50 5.50 5.50	0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5
905         910         915         920         925         925         930         935         940         945    FIELD EQUI Water Level Pr Water Quality GENERAL C Ferrous Iron =	12 - 55 $15 \cdot 0$ $17 \cdot 5^{-}$ $20 \cdot 0$ $27 \cdot 5^{-}$ $25 \cdot 0$ $27 \cdot 5^{-}$ $30 \cdot 0$ PMENT AND robe Meter C# OMMENTS 1, 2( mg	6-27 6:31 6:35 6:37 6:42 6:44 6:49 6:49 6:49 6:49 6:49 6:51 CALIBRATIO Model Solinst 102 VSL556 Multi-	13.07 13.23 13.22 13.12 13.10 13.10 13.00 13.03 13.05	0.209 0.201 0.199 0.198 0.198 0.198 0.196 0.195 0.195	0-64 0-68 0-53 0-53 0-50 0-46 0-45 0-44 0-43 0-41 0-42 0-41 0-42 0-41 0-42	88 70 57 43 27 19 19 4 -2 -7 -7	0-0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	5.50 5.50 5.50 5.50 5.50 5.50 5.50 5.50	0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5
905910915920925920925940945 FIELD EQUI Water Level Pr Water Quality GENERAL C Ferrous Iron = Multi-Parameter	$\begin{array}{c} 12 \cdot 5^{-} \\ 15 \cdot 0 \\ 17 \cdot 5^{-} \\ 20 \cdot 0 \\ 27 \cdot 5^{-} \\ 25 \cdot 0 \\ 27 \cdot 5^{-} \\ 30 \cdot 0 \\ \end{array}$ PMENT AND TObe Meter $\begin{array}{c} 0 \\ \text{MENTS} \\ 1 \cdot 2 \\ 1 \cdot 2 \\ 1 \cdot 2 \\ \end{array}$ OMMENTS $\begin{array}{c} 1 \\ 1 \cdot 2 \\ 1 \cdot 2$	6-27 6:31 6:35 6:37 6:42 6:44 6:49 6:49 6:49 6:49 6:49 6:49 6:49 6:49 6:49 6:49 6:49 5:51 CALIBRATIO Model Solinst 102 VSI 556 Multi-	13.07 13.23 13.22 13.12 13.10 13.10 13.03 13.03 13.05 N	0.209 0.201 0.199 0.198 0.198 0.198 0.196 0.195 0.195	0-64 0-68 0-53 0-53 0-50 0-46 0-45 0-44 0-43 0-41 0-42 0-41 0-42 0-41 0-42	88 70 57 43 27 19 19 4 -2 -7 -7	0-0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	5.50 5.50 5.50 5.50 5.50 5.50 5.50 5.50	0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5
905910915920925920925940945 FIELD EQUI Water Level Pr Water Quality GENERAL C Ferrous Iron = Multi-Paramete Field Paramete	$\begin{array}{c} 12 - 5^{-} \\ 15 \cdot 0 \\ 17 \cdot 5^{-} \\ 20 \cdot 0 \\ 27 \cdot 5^{-} \\ 25 \cdot 0 \\ 27 \cdot 5^{-} \\ 30 \cdot 0 \\ 27 \cdot 5^{-} \\ 30 \cdot 0 \\ \hline \end{array}$ PMENT AND TObe Meter $\begin{array}{c} 0 \\ \text{MENTS} \\ j \\ c \\ j \\ c \\ measured in \\ c \\ measured in \\ \end{array}$	6-27 6:31 6:35 6:37 6:42 6:44 6:44 6:49 6:49 6:49 6:49 6:49 6:49 6:49 6:49 6:49 6:49 6:49 6:51 CALIBRATIO Model Solinst 102 VSI 556 Multi- Flow-Through C	13.07 13.23 13.22 13.12 13.10 13.10 13.03 13.03 13.05 N	0.209 0.201 0.199 0.198 0.198 0.198 0.196 0.195 0.195	0-64 0-68 0-53 0-53 0-50 0-46 0-45 0-44 0-43 0-41 0-42 0-41 0-42 0-41 0-42	88 70 57 43 27 19 19 4 -2 -7 -7	0-0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	5.50 5.50 5.50 5.50 5.50 5.50 5.50 5.50	0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5
905         910         915         920         925         920         925         940         945         945         FIELD EQUI         Water Level Pr         Water Quality         GENERAL C         Ferrous Iron =         Multi-Paramete         Field Paramete         Pump Placemee	$\begin{array}{c} 12 \cdot 5^{-} \\ 15 \cdot 0 \\ 17 \cdot 5^{-} \\ 20 \cdot 0 \\ 27 \cdot 5^{-} \\ 25 \cdot 0 \\ 27 \cdot 5^{-} \\ 30 \cdot 0 \\ \end{array}$ PMENT AND TObe Meter $\begin{array}{c} 27 \cdot 5^{-} \\ 30 \cdot 0 \\ \end{array}$ PMENT AND TObe Meter $\begin{array}{c} 0 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\$	6.27 6.31 6.35 6.37 6.42 6.42 6.44 6.49 6.49 6.49 6.49 6.49 6.49 6.49 6.49 6.49 6.49 6.49 6.49 6.51 CALIBRATIO Model Solinst 102 VSI 556 Multi- Flow-Through C 7.6 ft	13.07 13.23 13.22 13.12 13.10 13.10 13.03 13.03 13.05 N	0.209 0.201 0.199 0.198 0.198 0.198 0.196 0.195 0.195	0-64 0-68 0-53 0-53 0-50 0-46 0-45 0-42 0-42 0-41 0-42 0-41 0-42 Calibration Checked Again Twice Daily Ca	88         70         57         43         2.7         19         -2         -7    set Calibrated L alibration Verification Ve	0-0 0-0 0.0 0.0 0.0 0-0 0-0 0-0	5.50 5.50 5.50 5.50 5.50 5.50 5.50 5.50	0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5
905         910         915         920         925         920         925         920         925         920         925         926         925         926         927         928         929         920         925         920         925         920         925         926         927         928         929         920         925         926         927         928         929         929         920         925         926         927         928         929         920         920         920         920         920         920         920         920         920         920         920         920         920         9	$\begin{array}{c} 12 \cdot 5^{-} \\ 15 \cdot 0 \\ 17 \cdot 5^{-} \\ 20 \cdot 0 \\ 27 \cdot 5^{-} \\ 25 \cdot 0 \\ 27 \cdot 5^{-} \\ 30 \cdot 0 \\ 10 \\ 10 \\ 10 \\ 10 \\ 10 \\ 10 \\ 10$	6.27 6.31 6.35 6.37 6.42 6.42 6.44 6.49 6.49 6.49 6.49 6.49 6.49 6.49 6.49 6.49 6.49 6.49 6.49 6.51 CALIBRATIO Model Solinst 102 VSI 556 Multi- Flow-Through C 7.6 ft	13.07 13.23 13.22 13.12 13.10 13.10 13.03 13.03 13.05 N	0.209 0.201 0.199 0.198 0.198 0.198 0.196 0.195 0.195	0-64 0-68 0-53 0-53 0-50 0-46 0-45 0-42 0-42 0-42 0-41 0-42 0-42 0-41 0-42 0-41 0-42 0-42	BE           70           57           4/3           2.7           19           -2           -7   ast Calibrated L alibration Verification Verifi	0-0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	5.50 5.50 5.50 5.50 5.50 5.50 5.50 5.50	0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5
905         910         915         920         925         920         925         940         945         945         FIELD EQUI         Water Level Pr         Water Quality         GENERAL C         Ferrous Iron =         Multi-Paramete         Field Paramete         Pump Placemee	$\begin{array}{c} 12.55\\ 15.0\\ 17.5\\ 20.0\\ 27.5\\ 25.0\\ 27.5\\ 30.0\\ \hline \end{array}$ PMENT AND TObe Meter $\begin{array}{c} 0\\ 0\\ 1\\ 1\\ 1\\ 1\\ 1\\ 1\\ 1\\ 1\\ 1\\ 1\\ 1\\ 1\\ 1\\$	6.27 6.31 6.35 6.37 6.42 6.42 6.44 6.49 6.49 6.49 6.49 6.49 6.49 6.49 6.49 6.49 6.49 6.49 6.49 6.51 CALIBRATIO Model Solinst 102 VSI 556 Multi- Flow-Through C 7.6 ft	13.07 13.23 13.22 13.12 13.10 13.10 13.03 13.03 13.05 N	0.209 0.201 0.199 0.198 0.198 0.198 0.196 0.195 0.195	0-64 0-68 0-53 0-53 0-50 0-46 0-45 0-42 0-42 0-41 0-42 0-41 0-42 Calibration Checked Again Twice Daily Ca	88         70         57         43         2.7         19         -2         -7    set Calibrated L alibration Verification Ve	0-0 0-0 0.0 0.0 0.0 0-0 0-0 0-0	5.50 5.50 5.50 5.50 5.50 5.50 5.50 5.50	0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5
905         910         915         920         925         920         925         940         925         940         945 <b>FIELD EQUI</b> Water Level Pr Water Quality <b>GENERAL C</b> Ferrous Iron = Multi-Paramete Field Paramete Pump Placemee Pump Rate = Well Diameter	$\begin{array}{c} 12.55\\ 15.0\\ 17.5\\ 20.0\\ 27.5\\ 25.0\\ 27.5\\ 30.0\\ \hline \end{array}$ PMENT AND TObe Meter $\begin{array}{c} 0\\ 0\\ 1\\ 1\\ 1\\ 1\\ 1\\ 1\\ 1\\ 1\\ 1\\ 1\\ 1\\ 1\\ 1\\$	6.27 6.31 6.35 6.37 6.42 6.42 6.44 6.49 6.49 6.49 6.49 6.49 6.49 6.49 6.49 6.49 6.49 6.49 6.49 6.51 CALIBRATIO Model Solinst 102 VSI 556 Multi- Flow-Through C 7.6 ft	13.07 13.23 13.22 13.12 13.10 13.10 13.03 13.03 13.05 N	0.209 0.201 0.199 0.198 0.198 0.198 0.196 0.195 0.195	0-64 0-68 0-53 0-53 0-46 0-45 0-44 0-42 0-42 0-41 0-42 0-41 0-42 0-41 0-42 0-41 0-42 0-41 0-42 0-41 0-42 0-41 0-42 0-41 0-42	BE           70           57           4/3           2.7           19           40           90           57           4/3           2.7           19           40           -2           -7	0-0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	5.50 5.50 5.50 5.50 5.50 5.50 5.50 5.50	0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5
905         910         915         920         925         920         925         940         925         940         945 <b>FIELD EQUI</b> Water Level Pr Water Quality <b>GENERAL C</b> Ferrous Iron = Multi-Paramete Field Paramete Pump Placemee Pump Rate = Well Diameter	$\begin{array}{c} 12.55\\ 15.0\\ 17.5\\ 20.0\\ 27.5\\ 25.0\\ 27.5\\ 30.0\\ \hline \end{array}$ PMENT AND TObe Meter $\begin{array}{c} 0\\ 0\\ 1\\ 1\\ 1\\ 1\\ 1\\ 1\\ 1\\ 1\\ 1\\ 1\\ 1\\ 1\\ 1\\$	6.27 6.31 6.35 6.37 6.42 6.42 6.44 6.49 6.49 6.49 6.49 6.49 6.49 6.49 6.49 6.49 6.49 6.49 6.49 6.51 CALIBRATIO Model Solinst 102 VSI 556 Multi- Flow-Through C 7.6 ft	13.07 13.23 13.22 13.12 13.10 13.10 13.03 13.03 13.05 N	0.209 0.201 0.199 0.198 0.198 0.198 0.196 0.195 0.195	0-64 0-68 0-53 0-53 0-50 0-46 0-45 0-47 0-42 0-41 0-42 0-41 0-42 0-41 0-42 0-41 0-42 0-41 0-42 0-41 0-42 0-41 0-42 0-41 0-42	88         70         57         4/3         2.7         19         4/3         -7         -2         -7         ast Calibrated L         alibration Verif         c         (7-year average)         127.0         0.35	0-0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	5.50 5.50 5.50 5.50 5.50 5.50 5.50 5.50	0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5

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SITE NAME		СНААР			PROJECT NO. 60565355				
SAMPLE NO		N: 	2- 71 ن ليل <del>1-2-</del>	ĴĄ	WELL NC	)		NW071	
DATE/TIME	COLLECTED	61	9/200	1050	PERSONNE	r	CH/	50	
SAMPLE ME			CTIVE SS MC			۵ <u></u>			
		<u> </u>			_				
SAMPLE ME SAMPLE QA		Groundwater YES	NO	1 spin	SAMPLE NC		NA		
	DUPLICATE:	YES	NO		E SAMPLE NC		NA		
MS/MSD RE		YES	NO		SAMPLE NO		NA		
			·			·			
Sample Conta	ONTAINERS, H	KESEKVAII	VES, ANALYS Preservative	515	Analysis Reg	uested			
2 - 500 mL Ai			6°C			MNX (8330A)			
3 - 40 mL VO			6°C, HCl		Methane (RS)				
1 - 500 mL HI	DPE		6°C, H <sub>2</sub> S0 <sub>4</sub>		``	NH <sub>3</sub> (350.1), NO	D <sub>2</sub> /NO <sub>3</sub> (35	3.2)	
1 - 250 mL HI	DPE		6°C		SO <sub>4</sub> (9056A), Alkalinity (2320B)				
1 - 250 mL HI	DPE		6°C, ZnOAc/N	laOH	Sulfide (9034)				
1 - 250 mL Ar	nber		6℃		DOC (9060A)				
WELL PURC	GING DATA								
		1	lala			Depth (ft BTOC)		60.43	,
Date Time Started			19/20			Vater (ft BTOC) Column Length		5,30	
Time Complet	ed	10	010		-	Volume (per ft)		55.13'	
PID Measuren		<u>IC</u>				ater in Well (L)		1.47 LIFT 136.2L	
Background	1	N	0			olumes to Purge		NA	
Breathing Z	lone	NC	>		Minim	um to Purge (L)		201	
Well Head			2			Actual Purge (L)		DOL	
Purge Wate	r				-			U	
FIELD MEAS	SUREMENTS						· · · · · ·		
Time	Amount Purged (L)	рН	Temperature (Celsius)	•	Dissolved Oxygen (mg/L	Redox (ORP)	Turbidit (NTU)	• I	Purge Rate (L/min)
1015	2.5	6.52	13.66	0.718	5.15	74	0.0	5.30	45
1020	5.0	6.46	13.74	0.727	4.37	77	0.0		0.5
1025	7.5	6.43	13,74	0.732	3.92	79	0.0	5.30	
1030				0.72					
	10.0	6.42	13.73	0,735					
1035	10.0	6.42	13.78	0,735 0,736	3.68	81	0.0	5.30	
1035 1040	12-5 15.2	6.42 6.42 6.41	13,73 13,78 13,72	0.736 0.740		81 82			
	12.5 15.0 (7.5	6.42 6.41 6.40	13.78 13.72 13.80	0.736	3.68 3.65 3.25 3.11	B1 82 84 86	0.0 0,0	5.30 5.30	
1040	12-5 15.2	6.42 6.41 6.40 6.40	13.78 13.72 13.80 13.85	0.736 0.740 0.742 0,745	3.68 3.55 3.25 3.11 3.00	81 82 84	0.0 0.0 0.0	5.30 5.30 5.30	
'1040 1045	12.5 15.0 (7.5	6.42 6.41 6.40	13.78 13.72 13.80 13.85	0.736 0.740 0.742 0,745	3.68 3.55 3.25 3.11 3.00	B1 82 84 86	0.0 0.0 0.0 0.0	5.30 5.30 5.30 5.30	
'1040 1045	12.5 15.2 (7.5 20.0	6.42 6.41 6.40 6.40	13.78 13.72 13.80 13.85	0.736 0.740 0.742 0,745	3.68 3.55 3.25 3.11 3.00	B1 82 84 86	0.0 0.0 0.0 0.0	5.30 5.30 5.30 5.30	
'1040 1045	12.5 15.2 (7.5 20.0	6.42 6.41 6.40 6.40	13.78 13.72 13.80 13.85	0.736 0.740 0.742 0,745	3.68 3.55 3.25 3.11 3.00	B1 82 84 86	0.0 0.0 0.0 0.0	5.30 5.30 5.30 5.30	
'1040 1045	12.5 15.2 (7.5 20.0	6.42 6.41 6.40 6.40	13.78 13.72 13.80 13.85	0.736 0.740 0.742 0,745	3.68 3.55 3.25 3.11 3.00	B1 82 84 86	0.0 0.0 0.0 0.0	5.30 5.30 5.30 5.30	
' (040   045   050	12.5 15.2 (7.5 20.0	6.42 6.41 6.40 6.40 570	13.78 13.72 13.80 13.85 coille	0.736 0.740 0.742 0,745	3.68 3.55 3.25 3.11 3.00	B1 82 84 86	0.0 0.0 0.0 0.0	5.30 5.30 5.30 5.30	
' (040   045   050	12-5 15.2 (7:5 20.0 ρετομείτα PMENT AND	6.42 6.41 6.40 6.40 570	13.78 13.72 13.80 13.85 coille	0.736 0.740 0.742 0,745	3.68 3.55 3.25 3.11 3.00	B1 82 84 86	0.0 0.0 0.0 0.0	5.30 5.30 5.30 5.30	
(مربی امبح ادچی FIELD EQUI	12-5 15.2 (7:5 20.0 ρετομείτε PMENT AND 0 robe	6.42 6.40 6.40 5.40 5.40 5.40 5.40 5.40 8.40 5.40 8.40 5.40 8.40 5.40 6.42 6.42 6.42 6.42 6.42 6.42 6.42 6.42	13.78 13.72 13.80 13.85 coille	0.736 0.740 0.742 0.745 + Stur	3.68 3.55 3.25 3.11 3.00 77 Calibration Checked Agai	BI B2 B4 BB	0.0 0.0 0.0 0.0 0.0	5.30 5.50 5.30 5.30 5.30	
' (040   045   050   050   FIELD EQUI	12-5 15.2 (7:5 20.0 ρετομείτε PMENT AND 0 robe	6.42 6.40 6.40 5.40 5.40 5.40 5.40 5.40 8.40 5.40 8.40 5.40 8.40 5.40 6.42 6.42 6.42 6.42 6.42 6.42 6.42 6.42	13.78 13.72 13.80 13.85 coille	0.736 0.740 0.742 0.745 + Stur	3.68 3.55 3.25 3.11 3.00 77 Calibration Checked Agai	BI B2 B4 BB	0.0 0.0 0.0 0.0 0.0	5.30 5.30 5.30 5.30	
(040 (045 (050 FIELD EQUI Water Level Pr Water Quality	12-5 15.2 (7.5 2.0 Ο ρατομείος PMENT AND wheter CH-	6.42 6.40 6.40 5.40 5.40 5.40 5.40 5.40 8.40 5.40 8.40 5.40 8.40 5.40 6.42 6.42 6.42 6.42 6.42 6.42 6.42 6.42	13.78 13.72 13.80 13.85 coille	0.736 0.740 0.742 0.745 + Stur	3.68 3.55 3.25 3.11 3.00 77 Calibration Checked Agai	BI B2 B4 BB	0.0 0.0 0.0 0.0 0.0	5.30 5.50 5.30 5.30 5.30	
(مربی امبح ادچی FIELD EQUI	12-5 15.2 (7.5 2.0 Ο ρατομείος PMENT AND wheter CH-	6.42 6.40 6.40 5.40 5.40 5.40 5.40 5.40 5.40 5.40 5	13.78 13.72 13.80 13.85 coille	0.736 0.740 0.742 0.745 + Stur	3.68 3.55 3.25 3.11 3.00 77 Calibration Checked Agai	BI B2 B4 BB	0.0 0.0 0.0 0.0 0.0	5.30 5.50 5.30 5.30 5.30	
I Q45         I Q45         I 050         FIELD EQUI         Water Level Pr         Water Quality         GENERAL C         Ferrous Iron =         Multi-Parameter	12-5 15-2 15-2 2-2 2-2 2-2 2-2 2-2 2-2 2-2	6.42 6.40 6.40 5.40 5.40 5.40 5.40 5.40 5.40 5.40 5	13.78 13.72 13.80 13.85 Coille	0.736 0.740 0.742 0.745 + Stur	3.68 3.55 3.25 3.11 3.00 77 Calibration Checked Agai	BI B2 B4 BB	0.0 0.0 0.0 0.0 0.0	5.30 5.50 5.30 5.30 5.30	
I @45         I @45         I @50         FIELD EQUI         Water Level Pr         Water Quality         GENERAL C         Ferrous Iron =         Multi-Paramete         Field Paramete	12-5 15-3 (7-5 20 Ο ρεταμείας PMENT AND obe Meter CH OMMENTS 0, 95 mg er Probe Unit # rs Measured in l	6.42 6.41 6.40 6.40 5.40 5.40 5.40 5.40 5.40 5.40 5.40 5	13.78 13.72 13.80 13.85 Coille	0.736 0.740 0.742 0.745 + Stur	3.68 3.55 3.25 3.11 3.00 77 Calibration Checked Agai	BI B2 B4 BB	0.0 0.0 0.0 0.0 0.0	5.30 5.50 5.30 5.30 5.30	
I 040         I 045         I 050         I 050         FIELD EQUI         Water Level Pr         Water Quality         GENERAL C         Ferrous Iron =         Multi-Paramete         Field Paramete         Pump Placemete	$\frac{12-5}{15-2}$ $\frac{12-5}{15-2$	6.42 6.40 6.40 5.40 5.40 5.40 5.40 5.40 5.40 5.40 5	13.78 13.72 13.80 13.85 Coille	0.736 0.740 0.742 0.745 + Stur	3.68 3.55 3.25 3.11 3.00 72 Calibration Checked Again Twice Daily C	BI B2 B4 B8 B8	O.O O.O O.O O.O O.O	5.30 5.50 5.30 5.30 5.30	
I 040         I 045         I 050         I 050         FIELD EQUI         Water Level Pr         Water Quality         GENERAL C         Ferrous Iron =         Multi-Paramete         Field Paramete         Pump Placemet         Pump Rate =	$\frac{12-5}{15.3}$ $\frac{17.5}{20.0}$ $\frac{12.5}{15.3}$	6.42 6.41 6.40 6.40 6.40 6.40 6.40 6.40 7.00 6.40 6.40 6.40 6.40 6.40 6.40 6.40 6	13.78 13.72 13.80 13.85 Coille	0.736 0.740 0.742 0.745 + Stur	3.68 3.55 3.25 3.11 3.00 72 Calibration Checked Again Twice Daily C	BI B2 B4 B8 B8 Inst Calibrated Le alibration Verific	O.O O.O O.O O.O O.O O.O O.O O O O O O O	5.30 5.50 5.30 5.30 5.30 5.30 5.30 Calibrated Weekly	Bold)
I 040         I 045         I 050         I 050 <tdi 050<="" td="">         I 050     &lt;</tdi>	$\frac{12-5}{15.3}$	6.42 6.41 6.40 6.40 6.40 6.40 6.40 6.40 7.00 6.40 6.40 6.40 6.40 6.40 6.40 6.40 6	13.78 13.72 13.80 13.85 Coille	0.736 0.740 0.742 0.745 + Stur + Stur	3.68 3.55 3.25 3.11 3.00 72 72 Calibration Checked Agai Twice Daily C	BI B2 B4 B8 B8 is Calibrated Le alibration Verific	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	5.30 5.50 5.30 5.30 5.30 5.30 Calibrated Weekly	<u>Bold</u> ) 157.9
I 040         I 045         I 050         I 050         FIELD EQUI         Water Level Pr         Water Quality         GENERAL C         Ferrous Iron =         Multi-Paramete         Field Paramete         Pump Placemet         Pump Rate =	$\frac{12-5}{15.3}$	6.42 6.41 6.40 6.40 6.40 6.40 6.40 6.40 7.00 6.40 6.40 6.40 6.40 6.40 6.40 6.40 6	13.78 13.72 13.80 13.85 Coille	0.736 0.740 0.742 0.745 + Stur + Stur	3.68 3.55 3.25 3.11 3.00 72 72 Calibration Checked Agai Twice Daily C Histor ORP DO	BI B2 B4 B8 B8 is Calibrated Le alibration Verific	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	5.30 5.50 5.30 5.30 5.30 5.30 5.30 Calibrated Weekly	Bold) 157.9 2.34
I 040         I 045         I 050         I 050 <tdi 050<="" td="">         I 050     &lt;</tdi>	$\frac{12-5}{15.3}$	6.42 6.41 6.40 6.40 6.40 6.40 6.40 6.40 7.00 6.40 6.40 6.40 6.40 6.40 6.40 6.40 6	13.78 13.72 13.80 13.85 Coille	0.736 0.740 0.742 0.745 + Stur + Stur	3.68 3.55 3.25 3.11 3.00 72 72 Calibration Checked Agai Twice Daily C	BI B2 B4 B8 B8 is Calibrated Le alibration Verific	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	5.30 5.50 5.30 5.30 5.30 5.30 Calibrated Weekly	<u>Bold</u> ) 157.9

SITE NAME	СН	IAAP		PROJECT NO	•	605	65355	
SAMPLE NO. NWOSO				_ WELL NO	•	N	W080	
DATE/TIME COLLECTED	6/8/	20 @ 1	345	PERSONNEI	CP	4/50		
SAMPLE METHOD		CTIVE SS MO			<u>_</u>			
				_				1 112
SAMPLE MEDIA:	Groundwater		-					
SAMPLE QA SPLIT:	YES	NO			•			
SAMPLE QC DUPLICATE:		NO		E SAMPLE NO		ンナ		
MS/MSD REQUESTED	YES	NO	J MS/MSI	O SAMPLE NO	·N	4		
SAMPLE CONTAINERS, Sample Container	PRESERVATI	VES, ANALYS Preservative	SIS	Analysis Requ	uested	<u> </u>		
2 - 500 mL Amber		 6℃			MNX (8330A)			
3 - 40 mL VOA	···	6°C, HC1		Methane (RSI				
1 - 500 mL HDPE		6°C, H <sub>2</sub> S0 <sub>4</sub>	· · ·		NH <sub>3</sub> (350.1), N	$O_2/NO_2$ (353.2	)	
1 - 250 mL HDPE		6°C			Alkalinity (232		)	
1 - 250 mL HDPE		6°C, ZnOAc/N	aOH	Sulfide (9034				
1 - 250 mL Amber		6°C		DOC (9060A)				
WELL PURGING DATA								
				Well D	epth (ft BTOC)		25th 2	140
Date	6/8	1200			Vater (ft BTOC)		7.10'	170
Time Started	13				Column Length		.31	······································
Time Completed	(30				Volume (per ft)		476	
PID Measurements				Volume of Wa	ater in Well (L)	3.	5.3L	
Background		ND			olumes to Purge	ע 🗌	4-	
Breathing Zone		VA			um to Purge (L)		lol	
Well Head		I.D		A	ctual Purge (L)	2	OC	
Purge Water	7			-				
FIELD MEASUREMENTS								
<b>T</b> ' <b>1</b>								
Time Amount Purged (L)	рН	Temperature (Celsius)	Conductivity (mS/cm)	Dissolved Oxygen (mg/L	Redox (ORP) ) (mV)	Turbidity (NTU)	Depth to Water (ft BTOC)	Purge Rate (L/min)
Purged (L)	рН 6.35		-		) (mV)		(ft BTOC)	(L/min)
Purged (L)	6.35	(Celsius) 14-87 14-45	(mS/cm)	Oxygen (mg/L		(NTU)		<b>U</b>
Purged (L) 1510 2.5 1315 5-0 1320 7.5	6.35 6.27 6.20	(Celsius)	(mS/cm)	Oxygen (mg/L	) (mV) <b>Z64</b>	(NTU) 0.0 0.0	(ft BTOC)	(L/min)
Purged (L) 1510 2.5 1315 5.0 1320 7.5 1325 10.0	6.35 6.27 6.20 6.15	(Celsius) 14.87 14.45 14.26 13.98	(mS/cm) 1.07 1.07 1.07 1.07	Oxygen (mg/L <b>3'. 19</b> <b>7. 98</b> <b>7. 77</b> <b>7. 86</b>	(mV) 202 199 195	(NTU) 0.0 0.0 0.0	(ft BTOC) 7.10 7.16 7.10 7.10	(L/min)
Purged (L) 1510 2.5 1315 5.0 1320 7.5 1325 10.0 1320 12.5	6.35 6.27 6.20 6.15 6.15	(Celsius) 14.87 14.45 14.26 13.98 14.04	(mS/cm) 1.07 1.07 1.07	Oxygen (mg/L <b>S. 19</b> <b>7. 98</b> <b>7. 77</b> <b>7. 86</b> <b>7.87</b>	(mV) 202 199 195 193	(NTU) 0.0 0.0	(ft BTOC) 7.10 7.16 7.10 7.10 7.10	(L/min)
Purged (L) 1510 2.5 1315 5.0 1320 7.5 1325 10.0 1330 12.5 1335 15.0	6.35 6.27 6.20 6.15 6.15 6.19	(Celsius) 14.87 14.45 14.26 13.96 14.04 14.37	(mS/cm) 1.07 1.07 1.07 1.07	Oxygen (mg/L <b>S. 19</b> <b>7. 98</b> <b>7. 77</b> <b>7. 86</b> <b>7.87</b>	(mV) 202 199 195 193 190	(NTU) 0.0 0.0 0.0 0.0 0.0 0.0	(ft BTOC) 7.10 7.16 7.10 7.10 7.10 7.10	(L/min)
Purged (L) 1510 2.5 1315 5.0 1320 7.5 1325 10.0 1330 12.5 1335 15.0 1340 12.5	6.35 6.27 6.20 6.15 6.15 6.15 6.19 6.22	(Celsius) 14.45 14.26 13.98 14.24 14.26 14.25 14.26 14.25 14.26 14.25 14.26 14.25 14.26 14.25 14.35 14.55	(mS/cm) 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07	Oxygen (mg/L <b>3</b> .19 <b>7</b> .98 <b>7</b> .77 <b>7</b> .86 <b>7</b> .87 <b>7</b> .68 <b>7</b> .74	(mV) 202 199 195 193 190 188	(NTU) 0.0 0.0 0.0 0.0 0.0 0.0 0.0	(ft BTOC) 7.10 7.10 7.10 7.10 7.10 7.10 7.10 7.10	(L/min)
Purged (L) 1510 2.5 1315 5.0 1320 7.5 1325 10.0 1330 12.5 1335 15.0	6.35 6.27 6.15 6.15 6.15 6.19 6.22 6.26	(Celsius) 14.45 14.26 13.98 14.04 14.26 14.26 14.26 14.37 14.33	(mS/cm) 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07	Oxygen (mg/L <b>8</b> .19 <b>7</b> .98 <b>7</b> .98 <b>7</b> .86 <b>7</b> .87 <b>7</b> .68 <b>7</b> .74 <b>7</b> .66	(mV) 204 202 199 195 193 190 188 1 <b>8</b> 8 1 <b>8</b> 6	(NTU) 0.0 0.0 0.0 0.0 0.0 0.0	(ft BTOC) 7.10 7.16 7.10 7.10 7.10 7.10	(L/min)
Purged (L) 1510 2.5 1315 5.0 1320 7.5 1325 10.0 1330 12.5 1335 15.0 1340 12.5	6.35 6.27 6.20 6.15 6.15 6.19 6.22 6.26	(Celsius) 14.45 14.26 13.98 14.04 14.26 14.26 14.26 14.37 14.33	(mS/cm) 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07	Oxygen (mg/L <b>3</b> . 19 <b>7</b> . 98 <b>7</b> . 98 <b>7</b> . 98 <b>7</b> . 86 <b>7</b> . 87 <b>7</b> . 86 <b>7</b> . 87 <b>7</b> . 48 <b>7</b> . 74 <b>7</b> . 66	(mV) 204 202 199 195 193 190 188 1 <b>8</b> 8 1 <b>8</b> 6	(NTU) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	(ft BTOC) 7.10 7.10 7.10 7.10 7.10 7.10 7.10 7.10	(L/min)
Purged (L) 1510 2.5 1315 5.0 1320 7.5 1325 10.0 1330 12.5 1340 125 1345 20.0	6.35 6.27 6.15 6.15 6.15 6.19 6.22 6.26	(Celsius) 14.45 14.26 13.98 14.04 14.26 14.26 14.26 14.37 14.33	(mS/cm) 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07	Oxygen (mg/L <b>3</b> . 19 <b>7</b> . 98 <b>7</b> . 98 <b>7</b> . 98 <b>7</b> . 86 <b>7</b> . 87 <b>7</b> . 86 <b>7</b> . 87 <b>7</b> . 48 <b>7</b> . 74 <b>7</b> . 66	(mV) 204 202 199 195 193 190 188 1 <b>8</b> 8 1 <b>8</b> 6	(NTU) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	(ft BTOC) 7.10 7.10 7.10 7.10 7.10 7.10 7.10 7.10	(L/min)
Purged (L) 1510 2.5 1315 5.0 1320 7.5 1325 10.0 1330 12.5 1340 125 1345 20.0	6.35 6.27 6.15 6.15 6.15 6.19 6.22 6.26	(Celsius) 14.45 14.26 13.98 14.04 14.26 14.26 14.26 14.37 14.33	(mS/cm) 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07	Oxygen (mg/L <b>3</b> . 19 <b>7</b> . 98 <b>7</b> . 98 <b>7</b> . 98 <b>7</b> . 86 <b>7</b> . 87 <b>7</b> . 86 <b>7</b> . 87 <b>7</b> . 48 <b>7</b> . 74 <b>7</b> . 66	(mV) 204 202 199 195 193 190 188 1 <b>8</b> 8 1 <b>8</b> 6	(NTU) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	(ft BTOC) 7.10 7.10 7.10 7.10 7.10 7.10 7.10 7.10	(L/min)
Purged (L) 1510 2.5 1315 5.0 1320 7.5 1325 10.0 1330 12.5 1340 125 1345 20.0	6.35 6.27 6.15 6.15 6.15 6.19 6.22 6.26	(Celsius) 14.45 14.26 13.98 14.04 14.26 14.26 14.26 14.37 14.33	(mS/cm) 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07	Oxygen (mg/L <b>3</b> . 19 <b>7</b> . 98 <b>7</b> . 98 <b>7</b> . 98 <b>7</b> . 86 <b>7</b> . 87 <b>7</b> . 86 <b>7</b> . 87 <b>7</b> . 48 <b>7</b> . 74 <b>7</b> . 66	(mV) 204 202 199 195 193 190 188 1 <b>8</b> 8 1 <b>8</b> 6	(NTU) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	(ft BTOC) 7.10 7.10 7.10 7.10 7.10 7.10 7.10 7.10	(L/min)
Purged (L) 1510 2.5 1315 5.0 1320 7.5 1325 10.0 1325 15.0 1340 12.5 1345 20.0 Pcrassi	6.35 6.27 6.20 6.15 6.15 6.15 6.19 6.22 6.26 3 Ste	(Celsius) 14.45 14.26 13.98 14.04 14.37 14.33 blu m	(mS/cm) 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07	Oxygen (mg/L <b>3</b> . 19 <b>7</b> . 98 <b>7</b> . 98 <b>7</b> . 98 <b>7</b> . 86 <b>7</b> . 87 <b>7</b> . 86 <b>7</b> . 87 <b>7</b> . 48 <b>7</b> . 74 <b>7</b> . 66	(mV) 204 202 199 195 193 190 188 1 <b>8</b> 8 1 <b>8</b> 6	(NTU) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	(ft BTOC) 7.10 7.10 7.10 7.10 7.10 7.10 7.10 7.10	(L/min)
Purged (L) 1510 2.5 1315 5.0 1320 7.5 1325 10.0 1330 12.5 1340 125 1345 20.0	6.35 6.27 6.20 6.15 6.15 6.19 6.22 6.26 3 5 to CALIBRATIO	(Celsius) 14.45 14.26 13.98 14.04 14.37 14.33 blu m	(mS/cm) 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07	Oxygen (mg/L <b>S</b> . 19 <b>7</b> . 98 <b>7</b> . 77 <b>7</b> . 86 <b>7</b> . 87 <b>7</b> . 87 <b>7</b> . 68 <b>7</b> . 74 <b>7</b> . 66 <b>4</b> <b>2</b>	(mV) 204 202 199 195 193 190 188 1 <b>8</b> 8 1 <b>8</b> 6	(NTU) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	(ft BTOC) 7.10 7.10 7.10 7.10 7.10 7.10 7.10 7.10	(L/min)
Purged (L)           1510         2.5           1315         5.0           1320         7.5           1325         10.0           1330         12.5           1335         15.0           1340         17.5           1345         20.0           1345         20.0           FIELD EQUIPMENT AND	6.35 6.27 6.20 6.15 6.15 6.19 6.22 6.26 3.5 6.26 3.5 6.26 7 6.26 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	(Celsius) 14.45 14.26 13.98 14.04 14.37 14.33 blu m	(mS/cm) 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07	Oxygen (mg/L S. 19 7. 98 7.77 7.86 7.87 7.68 7.74 7.66 20 Calibration	(mV) 202 199 195 193 190 188 1.86 2 Puly	(NTU) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	(ft BTOC) 7.10 7.10 7.10 7.10 7.10 7.10 7.10 7.10	(L/min)
Purged (L) 1510 2.5 1315 5.0 1320 7.5 1325 10.0 1325 10.0 1325 15.0 1340 17.5 1340 17.5 1345 20.0 FIELD EQUIPMENT AND Water Level Probe	6.35 6.27 6.20 6.15 6.15 6.19 6.22 6.26 3.54 CALIBRATIO Model Heron	(Celsius) 14.87 14.45 14.26 13.96 14.07 14.37 14.33 ble m	(mS/cm) 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07	Oxygen (mg/L S. 19 7. 98 7.77 7.86 7.87 7.66 7.66 7.66 Calibration Checked Again	(mV) 204 202 199 195 195 195 195 198 198 198 296 296 209 198 198 198 198 198 198 198 19	(NTU) (N	(ft BTOC) 7.10 7.10 7.10 7.10 7.10 7.10 7.10 7.10	(L/min)
Purged (L) 1510 2.5 1315 5.0 1320 7.5 1325 10.0 1325 10.0 1325 15.0 1340 17.5 1340 17.5 1345 20.0 FIELD EQUIPMENT AND Water Level Probe	6.35 6.27 6.20 6.15 6.15 6.19 6.22 6.26 3.5 6.26 3.5 6.26 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	(Celsius) 14.87 14.45 14.26 13.96 14.07 14.37 14.33 ble m	(mS/cm) 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07	Oxygen (mg/L S. 19 7. 98 7.77 7.86 7.87 7.66 7.66 7.66 Calibration Checked Again	(mV) 202 199 195 193 190 188 1.86 2 Puly	(NTU) (N	(ft BTOC) 7.10 7.10 7.10 7.10 7.10 7.10 7.10 7.10	(L/min)
Purged (L) 1510 2.5 1315 5.0 1320 7.5 1325 10.0 1330 12.5 1535 15.0 1340 12.5 1345 20.0 FIELD EQUIPMENT AND Water Level Probe Water Quality Meter CA	6.35 6.27 6.20 6.15 6.15 6.19 6.22 6.26 3.54 CALIBRATIO Model Heron	(Celsius) 14.87 14.45 14.26 13.96 14.07 14.37 14.33 ble m	(mS/cm) 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07	Oxygen (mg/L S. 19 7. 98 7.77 7.86 7.87 7.66 7.66 7.66 Calibration Checked Again	(mV) 204 202 199 195 195 195 195 195 296 296 209 198 200 198 198 198 198 198 198 198 198	(NTU) (N	(ft BTOC) 7.10 7.10 7.10 7.10 7.10 7.10 7.10 7.10	(L/min)
Purged (L) 1510 2.5 1315 5.0 1320 7.5 1325 10.0 1325 10.0 1325 15.0 1340 17.5 1340 17.5 1345 20.0 FIELD EQUIPMENT AND Water Level Probe	6.35 6.27 6.26 6.15 6.15 6.22 6.26 3.5 6.26 3.5 6.26 3.5 6.26 7 3.5 6.26 7 3.5 6.26 7 3.5 6.26 7 3.5 6.26 7 3.5 6.26 7 6.26 7 6.22 6.26 7 7 6.22 6.26 7 7 6.22 7 6.22 7 6.22 7 6.22 7 6.25 6.15 7 6.27 6.27 6.27 6.15 7 6.22 7 6.25 6.15 7 6.27 6.27 6.25 6.15 7 6.22 7 6.22 7 6.22 7 6.22 7 6.22 7 6.22 7 6.22 6.25 6.25 6.25 6.25 6.25 6.25 6.25	(Celsius) 14.87 14.45 14.26 13.96 14.07 14.37 14.33 ble m	(mS/cm) 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07	Oxygen (mg/L S. 19 7. 98 7.77 7.86 7.87 7.66 7.66 7.66 Calibration Checked Again	(mV) 204 202 199 195 195 195 195 195 296 296 209 198 200 198 198 198 198 198 198 198 198	(NTU) (N	(ft BTOC) 7.10 7.10 7.10 7.10 7.10 7.10 7.10 7.10	(L/min)
Purged (L) 1510 2.5 1315 5.0 1320 7.5 1325 10.0 1330 12.5 1340 12.5 1340 12.5 1345 20.0 PCrant	6.35 6.27 6.20 6.15 6.15 6.22 6.26 3.5 6.26 3.5 6.26 3.5 6.26 3.5 6.26 3.5 6.26 3.5 6.26 3.5 7 6.26 3.5 7 6.26 3.5 7 6.26 3.5 7 6.22 6.26 7 7 6.22 6.26 7 7 6.22 6.25 7 6.22 6.25 7 6.22 7 6.22 6.25 7 6.22 7 6.22 7 6.22 7 6.25 6.27 7 6.22 6.25 7 6.25 6.27 7 6.22 6.25 6.25 7 6.22 7 6.22 6.25 6.25 6.25 6.25 6.25 6.25 6.25	(Celsius) 14.87 14.45 14.26 13.98 14.04 14.37 14.33 b(2 m Parameter Prob	(mS/cm) 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07	Oxygen (mg/L S. 19 7. 98 7.77 7.86 7.87 7.66 7.66 7.66 Calibration Checked Again	(mV) 204 202 199 195 195 195 195 195 296 296 209 198 200 198 198 198 198 198 198 198 198	(NTU) (N	(ft BTOC) 7.10 7.10 7.10 7.10 7.10 7.10 7.10 7.10	(L/min)
Purged (L) 1510 2.5 315 5.0 1320 7.5 325 10.0 1325 10.0 1330 12.5 1535 15.0 1340 12.5 1340 12.5 1345 20.0 PCrass FIELD EQUIPMENT AND Water Level Probe Water Quality Meter CA GENERAL COMMENTS Ferrous Iron = 0.26 mp	6.35 6.27 6.26 6.15 6.15 6.22 6.26 3.56 3.56 Multi- XSI556 Multi- XSI556 Multi-	(Celsius) 14.87 14.45 14.26 13.98 14.04 14.37 14.33 b(2 m Parameter Prob	(mS/cm) 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07	Oxygen (mg/L S. 19 7. 98 7.77 7.86 7.87 7.66 7.66 7.66 Calibration Checked Again	(mV) 204 202 199 195 195 195 195 195 296 296 209 198 200 198 198 198 198 198 198 198 198	(NTU) (N	(ft BTOC) 7.10 7.10 7.10 7.10 7.10 7.10 7.10 7.10	(L/min)
Purged (L) $ \begin{array}{c cccc} 15 & 0 & 2.5 \\ 3 & 15 & 5.0 \\ 13 & 20 & 7.5 \\ 3 & 25 & 10.0 \\ 13 & 25 & 10.0 \\ 13 & 25 & 15.0 \\ 13 & 40 & 12.5 \\ 13 & 40 & 12.5 \\ 13 & 40 & 12.5 \\ 13 & 40 & 12.5 \\ 13 & 40 & 12.5 \\ 13 & 40 & 12.5 \\ 13 & 40 & 12.5 \\ 13 & 40 & 12.5 \\ 13 & 40 & 12.5 \\ 13 & 40 & 12.5 \\ 15 & 20.0 \\ 15 $	6.35 6.27 6.26 6.15 6.15 6.22 6.26 3.56 3.56 Multi- XSI556 Multi- XSI556 Multi-	(Celsius) 14.87 14.45 14.26 13.98 14.04 14.37 14.33 b(2 m Parameter Prob	(mS/cm) 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07	Oxygen (mg/L S. 19 7. 98 7.77 7.86 7.87 7.66 7.66 7.66 Calibration Checked Again	(mV) 204 202 199 195 195 195 195 195 296 296 209 198 200 198 198 198 198 198 198 198 198	(NTU) (N	(ft BTOC) 7.10 7.10 7.10 7.10 7.10 7.10 7.10 7.10	(L/min)
Purged (L) $ \begin{array}{c ccccc} 15(0 & 2.5 \\ 3 & 5.0 \\ 13 & 20 & 7.5 \\ 3 & 25 & 10.0 \\ 13 & 25 & 10.0 \\ 13 & 25 & 15.0 \\ 13 & 25 & 15.0 \\ 13 & 40 & 12.5 \\ 13 & 40 & 12.5 \\ 13 & 40 & 12.5 \\ 13 & 40 & 12.5 \\ 13 & 40 & 12.5 \\ 13 & 40 & 12.5 \\ 13 & 40 & 12.5 \\ 13 & 40 & 12.5 \\ 13 & 40 & 12.5 \\ 13 & 40 & 12.5 \\ 13 & 40 & 12.5 \\ 15 & 20.0 \\ 15 & 40 & 12.5 $	6.35 6.27 6.28 6.15 6.15 6.15 6.22 6.26 3.55 6.26 3.55 3.55 Multi- XSI 556 Multi- XSI 556 Multi- XSI 556 Multi-	(Celsius) 14.87 14.45 14.26 13.98 14.04 14.37 14.33 b(2 m Parameter Prob	(mS/cm) 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07	Oxygen (mg/L S. 19 7. 98 7. 77 7. 86 7. 87 7. 68 7. 74 7. 66 2. Calibration Checked Again Twice Daily C	(mV) 204 202 199 195 195 195 195 195 296 296 209 198 200 198 198 198 198 198 198 198 198	(NTU) (NTU	(ft BTOC) 7.10 7.10 7.10 7.10 7.10 7.10 7.10 7.10	(L'min)
Purged (L) $ \begin{array}{c cccc} I & S & O \\ I & S & O \\ I & Z & S \\ I & Z & I \\ I & & Z & I \\ I & Z & Z & Z & Z \\ I & Z & Z & Z & Z \\ I & Z & Z & Z & Z \\ I & Z & Z & Z & Z \\ I & Z & Z & Z & Z \\ I & Z & Z & Z & Z \\ I & Z & Z & Z & Z \\ I & Z & Z & Z & Z \\ I & Z & Z & Z & Z & Z \\ I & Z & Z & Z & Z & Z \\ I & Z & Z & Z & Z & Z \\ I & Z & Z & Z & Z & Z \\ I & Z & Z & Z & Z & Z \\ I & Z & Z & Z & Z & Z & Z \\ I & Z & Z & Z & Z & Z & Z & Z \\ I & Z & Z & Z & Z & Z & Z & Z & Z \\ I & Z & Z & Z & Z & Z & Z & Z & Z & Z \\ I & Z & Z & Z & Z & Z & Z & Z & Z & Z &$	6.35 6.27 6.20 6.15 6.15 6.22 6.26 3.55 6.26 3.55 6.26 3.55 6.26 3.55 6.26 3.55 6.26 7 3.55 6.26 7 3.55 6.26 7 5.26 7 7 8 7 8 7 8 7 8 7 8 7 8 7 8 7 8 7 8	(Celsius) 14.87 14.45 14.26 13.98 14.04 14.37 14.33 b(2 m Parameter Prob	(mS/cm) 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07	Oxygen (mg/L S. 19 7. 98 7. 98 7. 98 7. 86 7. 87 7. 66 7. 74 7. 66 7. 66 7. 74 7. 74 7. 76 7. 74 7. 76 7. 74 7. 76 7. 74 7. 74 7. 76 7. 74 7.	) (mV) 264 202 199 195 195 195 196 296 296 209 188 200 188 1.86 200 200 188 200 195 195 195 195 195 195 195 195	(NTU) (NTU	(ft BTOC) 7.10 7.10 7.10 7.10 7.10 7.10 7.10 7.10	(L'min)
Purged (L) $ \begin{array}{c ccccc} 15(0 & 2.5 \\ 3 & 5.0 \\ 13 & 20 & 7.5 \\ 3 & 25 & 10.0 \\ 13 & 25 & 10.0 \\ 13 & 25 & 15.0 \\ 13 & 25 & 15.0 \\ 13 & 40 & 12.5 \\ 13 & 40 & 12.5 \\ 13 & 40 & 12.5 \\ 13 & 40 & 12.5 \\ 13 & 40 & 12.5 \\ 13 & 40 & 12.5 \\ 13 & 40 & 12.5 \\ 13 & 40 & 12.5 \\ 13 & 40 & 12.5 \\ 13 & 40 & 12.5 \\ 13 & 40 & 12.5 \\ 15 & 20.0 \\ 15 & 40 & 12.5 $	6.35 6.27 6.20 6.15 6.15 6.22 6.26 3.55 6.26 3.55 6.26 3.55 6.26 3.55 6.26 3.55 6.26 7 3.55 6.26 7 3.55 6.26 7 5.26 7 7 8 7 8 7 8 7 8 7 8 7 8 7 8 7 8 7 8	(Celsius) 14.87 14.45 14.26 13.98 14.04 14.37 14.33 b(2 m Parameter Prob	(mS/cm) 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07	Oxygen (mg/L S. 19 7. 98 7. 77 7. 86 7. 87 7. 66 7. 74 7. 66 7. 66 7. 74 7. 76 7. 74 7. 76 7.	(mV) 264 202 199 195 195 195 195 296 296 209 188 209 188 209 188 200 188 200 195 195 195 195 195 195 195 195	(NTU)	(ft BTOC) 7.10 7.10 7.10 7.10 7.10 7.10 7.10 7.10	(L/min)
Purged (L) $ \begin{array}{c cccc} I & S & O \\ I & S & O \\ I & Z & S \\ I & Z & I \\ I & & Z & I \\ I & Z & Z & Z & Z \\ I & Z & Z & Z & Z \\ I & Z & Z & Z & Z \\ I & Z & Z & Z & Z \\ I & Z & Z & Z & Z \\ I & Z & Z & Z & Z \\ I & Z & Z & Z & Z \\ I & Z & Z & Z & Z \\ I & Z & Z & Z & Z & Z \\ I & Z & Z & Z & Z & Z \\ I & Z & Z & Z & Z & Z \\ I & Z & Z & Z & Z & Z \\ I & Z & Z & Z & Z & Z \\ I & Z & Z & Z & Z & Z & Z \\ I & Z & Z & Z & Z & Z & Z & Z \\ I & Z & Z & Z & Z & Z & Z & Z & Z \\ I & Z & Z & Z & Z & Z & Z & Z & Z & Z \\ I & Z & Z & Z & Z & Z & Z & Z & Z & Z &$	6.35 6.27 6.20 6.15 6.15 6.22 6.26 3.55 6.26 3.55 6.26 3.55 6.26 3.55 6.26 3.55 6.26 7 3.55 6.26 7 3.55 6.26 7 5.26 7 7 8 7 8 7 8 7 8 7 8 7 8 7 8 7 8 7 8	(Celsius) 14.87 14.45 14.26 13.98 14.04 14.37 14.33 b(2 m Parameter Prob	(mS/cm) 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.07	Oxygen (mg/L S. 19 7. 98 7. 98 7. 98 7. 86 7. 87 7. 66 7. 74 7. 66 7. 66 7. 74 7. 74 7. 76 7. 74 7. 76 7. 74 7. 76 7. 74 7. 74 7. 76 7. 74 7.	) (mV) 264 202 199 195 195 195 196 296 296 209 188 200 188 1.86 200 200 188 200 195 195 195 195 195 195 195 195	(NTU)	(ft BTOC) 7.10 7.10 7.10 7.10 7.10 7.10 7.10 7.10	(L/min)

SITE NAME		CH	IAAP		PROJECT NO		60:	565355	
SAMPLE NC	NWOBIR	-20A NW	<del>081R-2</del>					W081R	
DATE/TIME	COLLECTED	10	18/10 15	5/5	PERSONNEL	C	11/20		
SAMPLE ME			ACTIVE SS MO			C	4750	····	
			101112.001110				-		
SAMPLE ME	EDIA:	Groundwate	r				. 1 0		
SAMPLE QA	SPLIT:	YES	NO	SPLI	T SAMPLE NO		NA		
-	DUPLICATE:	YES	NO		E SAMPLE NO		V/7-		
MS/MSD RE	QUESTED	YES	NO	MS/MS	D SAMPLE NO	·	NA		
SAMPLE CO	DNTAINERS, I	PRESERVATI	VES, ANALYS	IS					
Sample Conta			Preservative		Analysis Requ	iested			
2 - 500 mL A	mber		6°C		Explosives +	MNX (8330A)	I		
3 - 40 mL VO	)A		6°C, HCl		Methane (RSI				
1 - 500 mL H	DPE		6°C, H <sub>2</sub> S0 <sub>4</sub>		TKN (351.2),	NH <sub>3</sub> (350.1), 1	NO <sub>2</sub> /NO <sub>3</sub> (353.2	:)	
1 - 250 mL H	DPE		6°C		SO <sub>4</sub> (9056A),	·····			
1 - 250 mL H	DPE		6°C, ZnOAc/N	aOH	Sulfide (9034)				····
1 - 250 mL A	mber		6°C		DOC (9060A)				
WELL PUR	GING DATA							CH.	
		1100	1.			epth (ft BTOC		47.75 4	7-72'
Date		6/81				Vater (ft BTOC		6.67	
Time Started		143	35			Column Lengt	h	11.05	
Time Complet		151	5			Volume (per f	·	.62 4.	
PID Measuren Background		N	<b>A</b>		Volume of Wa			5.56	
Breathing Z			67			olumes to Purg um to Purge (I		VA-	
Well Head	lone	N	-			uni to Furge (1 Actual Purge (1			
Purge Wate	r	NA			_ 1	iotaal 1 algo (1	.) <u> </u>		·····
-									
	SUREMENTS		-	~					
Time	Amount Purged (L)	pH	Temperature (Celsius)	(mS/cm)		Redox (ORP	, <b>,</b>	Depth to Wate	•
	Turgett (L)		(Ceisius)	(ms/cm)	Oxygen (mg/L	) (mV)	(NTU)	(ft BTOC)	(L/min)
1440	2.5	6.59	15.18	1.05	2.30	148	0.0	6.65	A
1445	5.0	6.45	15.67	1.05	2.08	153	0.0	6.65	05
1450	7.5	6.42	15.55	1.05	1.86	ISC	0.0	6.65	
1455	10.0	6.42	14.85	1.05	1.63	158	0.0	6.65	
1500	12.5	6.40	1472	1.05	1.49	160	0.0	6.65	
1505	15.0	6,40	15.12	1.05	1.58	160	0.6	6.65	
1510	17.5	6.42	14.93	1-05	1.54	161	0.0	6-65	
1515	20.0	6.42	14-87	1.05	1.46	161	0.0	6.65	
	Perame		table A	mini	· · ·	it c	Collect	Supl	
$\sim$		1		~			y		
	L								
							<b>\</b>		
									in the second
FIELD EQUI	PMENT AND		DN		~				C
Water Level Pr	<b>h</b> -	<u>Model</u>			<u>Calibration</u>				
Water Level PI Water Quality		Heron	-Parameter Prob	11 -1 PA	Checked Again			11	
	Micici CH	A DI LOG IVIUIUI	-I alameter 7100	MOUDA	Twice Daily Ca	andration veri	fication also Ca	librated Weekly	
GENERAL C									
	0,62-mg								
	er Probe Unit #	5960	o #1						
	rs Measured in		Cell						
	nt Depth = $\mathcal{U}$			· · · ·					
rump Rate =	0 5 cfmi-	<b>`</b>						<u>n / 2019 / Avg ir</u>	
Screen Interval		·			ORP	61.2	173.9	144.8	146.5
Screen interval	- 55 - 45				DO PH	0.62	2.35	0.62	1.51
					Cond.	<u>6.48</u> 0.797	6.64	6.58 0.931	6.56
					Cond.	0.171	1.107	0.931	0.933

SITE NAME		СН	AAP		PROJECT NO	)	6	0565355	
SAMPLE NO	NWOB2R	-20A NWO	82R3		WELL NO	)	N	W082R	
DATE/TIME	COLLECTED	6/8	1200/6	35	PERSONNEI	L CH	150		
SAMPLE ME	THOD	PRO-A	CTIVE SS MO	NSOON	_				
SAMPLE ME	DIA	Groundwater							
SAMPLE QA		YES	NO	] SPLD	SAMPLE NO	. N.	<b>A</b> -		
	DUPLICATE:	YES	NO		E SAMPLE NO		A		
MS/MSD REG		YES	NO		SAMPLE NO	· NA	<u>}</u>		
SAMPLE CO	NTAINERS, P	RESERVATI	VES ANALYS	- NS					
Sample Conta			Preservative		Analysis Requ	uested			
2 - 500 mL Ar	nber		6℃		Explosives + 1	MNX (8330A)			
3 - 40 mL VO	A		6℃, HCl		Methane (RSI	K 175)			
1 - 500 mL HI	OPE		6°C, H <sub>2</sub> S0 <sub>4</sub>		TKN (351.2),	NH <sub>3</sub> (350.1), N	O <sub>2</sub> /NO <sub>3</sub> (353	.2)	
1 - 250 mL HI	OPE		6°C		SO <sub>4</sub> (9056A),	Alkalinity (232	0B)		
1 - 250 mL HI	OPE		6°C, ZnOAc/N	laOH	Sulfide (9034	)			
1 - 250 mL Ar	nber		6℃		DOC (9060A)	)			
WELL PURC	GING DATA							CH, ~	3 (1-5
_		6	lor las			Depth (ft BTOC)		CH 59.49 5	1-48
Date			710			Vater (ft BTOC)		6.70	
Time Started Time Complet	ed	/	SUS			Column Length Volume (per ft)		52.78	
PID Measurem		/	635			ater in Well (L)		0.62	
Background		л	4			olumes to Purge		NA	
Breathing Z	one	٨	4		Minim	um to Purge (L)		20-0	
Well Head		N	4		A	Actual Purge (L)	2	5.0	
Purge Water	r.	$\sim$	<b>b</b>		_				
FIELD MEAS	SUREMENTS		131.3						
Time	Amount	pH	Temperature	Conductivity	Dissolved	Redox (ORP)	Turbidity	Depth to Water	Purge Rate
	Purged (L)		(Celsius)	(mS/cm)	Oxygen (mg/L	) (mV)	(NTU)	(ft BTOC)	(L/min)
1550	2.5	6.79	15.37	0.913	1,30	147	22.8	5 6.65	0.5
1555	5.0	6.72	15.38	0.917	0-91	149	0.3		
1600	7-5	6.63	15.20	0.917		154	0.0	6.65	
1605	10.0	6.58	15.36	0.916	0.70	156	0.0	6.65	
1610	12.5	6.57	15.22		D.64	156	0.0	6.65	
1615	15.0	6.59	15.12	0.916	0.60	155	0.0	6.65	
1620	17.5	6.61	14.84	0,916	0.62	154	0.0	6.65	
1630	20.0	6.62	14-78	0.917	0.53	154	0.0	6.65	
	22.5	6.64	15.17 14.98	0.916	0,51	153	0.0	6.65	
1635	25.0		Lepie	Colle	0.49	153	0.0	0-55	
	incre n	ang g	pene	Conce	9 6	efle			
						-			
FIELD EQUI	PMENT AND	CALIBRATIO	N		·		<u> </u>		
		Model			<b>Calibration</b>				
Water Level Pr	obe	Heron			Checked Again	nst Calibrated L	ength		
Water Quality	Meter	1 556 Multi-	Parameter Prob	e Horiba	Twice Daily C	alibration Verifi	cation also (	Calibrated Weekly	
GENERAL C	OMMENTS					· · · · · ·			
	0.33 mg	<u>и</u> .							
Multi-Paramete		59600	14						
	rs Measured in I								
Pump Placemen	nt Depth = 🔰	<u>1</u> ft							
Pump Rate =	0.5 Umin							igh / 2019 / Avg in	Bold)
Well Diameter					ORP	82.0	166.8	144.8	142.5
Screen Interval	= 46 - 56				DO	0.22	0.51	0.51	0.38
			,		PH	6.48	6.84	6.70	6.67
					Cond.	0.687	1.041	0.869	0.859

SITE NAME	СНААР		PROJECT NO.		60:	565355	
SAMPLE NO.	G0024-20A		WELL NO		G	60024	
DATE/TIME COLLECTED	6/15/20 G	1205	_PERSONNEL_	7	0	CH	
SAMPLE METHOD	PRO-ACTIVE SS				0	<u> </u>	
SAMPLE MEDIA:	Groundwater						
SAMPLE QA SPLIT:	YES NO		SAMPLE NO.		NA		
SAMPLE QC DUPLICATE:	YES NO		E SAMPLE NO.				
MS/MSD REQUESTED	YES NO		SAMPLE NO		NA	•	
		MIS/MISD	SAMPLE NO		<u>IV A</u>		
SAMPLE CONTAINERS, I	PRESERVATIVES, ANA	LYSIS					<u> </u>
Sample Container	Preservativ	<u>ve</u>	Analysis Reques				
2 - 500 mL Amber	6°C		Explosives + MI				
3 - 40 mL VOA	6°C, HCl		Methane (RSK 1				
1 - 500 mL HDPE	6°C, H <sub>2</sub> S0	L	TKN (351.2), N			:)	
1 - 250 mL HDPE	6°C		SO <sub>4</sub> (9056A), A	lkalinity (2320	)B)		
1 - 250 mL HDPE	6°C, ZnOA	c/NaOH	Sulfide (9034)				
1 - 250 mL Amber	6°C		DOC (9060A)				
WELL PURGING DATA			Wall Dar			22.20	
Date	6/15/2	D		ter (ft BTOC)		33.28	
Time Started		· · · · ·		olumn Length		24 97	
Time Completed	1205		Well Casing Vo		· · · · ·	2.47	
PID Measurements			Volume of Wate		Tr	61,6	61.7
Background	ŇD			mes to Purge		ŇĂ	
Breathing Zone	ND			to Purge $(L)^{-1}$		201	
Well Head	ND			ual Purge (L)		201	
Purge Water	ND *		•				
FIELD MEASUREMENTS							
Time Amount	pH Temperat	re Conductivity	Dissolved	Redox	Turbidity	Depth to Water	Durgo Doto
Purged (L)	(Celsius	•	Oxygen (mg/L)	(mV)	(NTU)	(ft BTOC)	(L/min)
1130 d.5	6.98 14.0		7,55	104	0,0	8.53	0.5
1135 5.0	6.75 13.4	6 1,18	7,25	113	O, O	8.51	Ĩ
1190 7.5	6.62 3.7	) <u>17</u>	7.24	120	0.0	8.52	
1145 10.0	6.63 3.6	7 1,17	7.26	21	0.0	8.53	
1150 14.5	6.65 3.64	E 1.17	7.25	121	0.0	8.53	
1155 15.0	6,68 13,62	1.17	7.26	20	$\vec{0}$	8,53	
200 17.5	6.69 13.7	F 1,17	7,25	120	0:0	8.52	
1205 20.0	6.71 3.7	5 1.17	7,26	119	6.0	8,53	V
		bla (		C as I			
Param	eters sto	ble Co	rllect	Samt	10		
FIELD EQUIPMENT AND		T I			· · ·		
	Model		Calibration				
	Heron		Checked Against	Calibrated Le	nath		
	Horiba U-52 Multi-Parame		Twice Daily Cali			librated Weekly	
						notated weekly	
GENERAL COMMENTS							
				· ···			
Multi-Parameter Probe Unit #	59600 4				· · ·		
Field Parameters Measured in D							
Pump Placement Depth = $2$ Pump Rate = $0.5$ L/	3, 5 ft		LI:	7 100- 01	a low and h!	h / 2010 / Arrow 1	Deld)
$\frac{\text{Pump Rate} = 0, 5 L}{\text{Well Diameter} = 4"}$	min		ORP			h / 2019 / Avg in 101 8	
Screen Interval = 16-31			DO	<u> </u>	<u> </u>	8.09	122.2
			<u>рн</u>	6.19	6.93	6.42	<u>6.59</u> 6.63
······································			Cond.	0.226	1.201	0.42	0.03
	•		conu.	0.220	1.201	0.220	0.700

SITE NAME		СН	IAAP		PROJECT NO.		605	565355	
SAMPLE NO.			70-20A		WELL NO.		G	0070	
DATE/TIME C	OLLECTED	Frank	<i>■ 06-02</i>	-20/092	PERSONNEL	TΥ			
SAMPLE MET	HOD		CTIVE SS MC		_	20			
	NT A .	Course down to			_			÷.	
SAMPLE MED SAMPLE QA S		Groundwate YES	NO	SPI T	SAMPLE NO.	A1A			
SAMPLE QC E		YES	NO		E SAMPLE NO.				
MS/MSD REQ		YES	NO		SAMPLE NO.		G0070-20	A MS/MSD	
SAMPLE CON		PRESERVATI		SIS				· · · · · · · · · · · · · · · · · · ·	
Sample Contain			Preservative		Analysis Reque				
$\frac{2-500 \text{ mL Aml}}{3-40 \text{ mL VOA}}$			6°C 6°C, HCl		Explosives + N				
$\frac{3-40 \text{ InL VOA}}{1-500 \text{ mL HDI}}$			6°C, H <sub>2</sub> S0 <sub>4</sub>		Methane (RSK TKN (351.2), N		)./NO. (353 7	)	
1 - 250 mL HD			6°C		SO <sub>4</sub> (9056A), A			)	
1 - 250 mL HDI	PE		6°C, ZnOAc/N	laOH	Sulfide (9034)	<u>_</u>	-)		
1 - 250 mL Am	ber		6°C		DOC (9060A)	· · · · · · · · · · · · · · · · · · ·			
WELL PURGI	NG DATA								
		21. 22	<b>a</b> -			epth (ft BTOC)		82.65	
Date	Č	06-02-	20			ater (ft BTOC)	10	91	
Time Started Time Completed	4	0735				Column Length	71.74		
PID Measureme		0864			Volume of Wat	ter in Well (I)	2471	-	······
Background	<u></u>	ND				lumes to Purge	NA		
Breathing Zon	ne	ND				m to Purge (L)	20		
Well Head	,	ND				ctual Purge (L)			
Purge Water		ND			-				
FIELD MEASU	IREMENTS								
Time	Amount	pН	Temperature	Conductivity	Dissolved	Redox	Turbidity	Depth to Water	Purge Rate
	Purged (L)	P	(Celsius)	(mS/cm)	Oxygen (mg/L)	(mV)	(NTU)	(ft BTOC)	(L/min)
0740	2.55	6.71	13-73	0.008	4.78	202	37.3	11.19	0.5
0745	6.0	6.78	13.60	0.512	3.29	195	40.2	11.19	0.5
0750	7.5.	482	13.70	0.512	2.39	181	24.8	11.19	0.5
0755	10.0	688	13.70	0.512	2.09	170	18.3	11.19	0.5
0800	12.5	6.91	13.72	0.0712	1.88	601	12.7	11.19	0.57
0805	15.0	6.94	13.69	OFIO	1.79	155	10.67	11.19	0.5
0810	17.5	6.96	13.74	0.511	1.63	146	6.97	1119	0.5
0815	20.0	6.98	13.76	0.511	1.47	138	4.53	11.19	0.5
0820	22.5	7.00	13.66	0.911	1.42	120	3.99	11.19	O.A
0825	25.0	7.01	13.67	ORIL	1.40	120	3.42	11.19	0.5
FIELD EQUIP	MENT AND	CALIBRATIC	N						
		Model			<b>Calibration</b>				
Water Level Prol	be	Heron			Checked Agains	st Calibrated Le	ngth		
Water Quality M	leter	Horiba U-52 M	lulti-Parameter	Probe	Twice Daily Cal	libration Verific	cation also Ca	librated Weekly	
GENERAL CO	MMENTS								<u> </u>
Ferrous Iron = $C$		ng/L							
Multi-Parameter			141					- <u></u>	
Field Parameters			Cell		·····				
Pump Placement									
Pump Rate = C		<u>n</u>						n / 2019 / Avg in	
Well Diameter =					ORP	6.3	138.1	114.4	61.1
Screen Interval =	· / J-0U		<del>.</del>		DO PH	0.23 6.35	2.76 7.22	2.76	0.95
					Cond.	0.354	0.490	<u>6.78</u> 0.374	<u>6.96</u> 0.408
					<u></u>	0.004	0.790	0.374	0.700

SITE NAME		CH	IAAP		PROJECT NO.		605	65355	
SAMPLE NO		G00	75-20A		WELL NO.		G	0075	
DATE/TIME		<u> ОС-0</u> PRO-А	1-20 /15 ACTIVE SS MO	NSOON	_ PERSONNEL	<u> </u>			
SAMPLE ME		Groundwate		-					
SAMPLE QA		YES	NO		SAMPLE NO.				
SAMPLE QC		YES	NO	DUPLICATE	E SAMPLE NO.	NA			
MS/MSD REC	QUESTED	YES	NO	MS/MSI	O SAMPLE NO.	NA			
SAMPLE CO	NTAINERS, I	PRESERVATI	VES, ANALYS	SIS			. —		
Sample Conta			<b>Preservative</b>		Analysis Reque				
2 - 500 mL Ar			6°C		Explosives + M	INX (8330A)			
3 - 40 mL VO			6°C, HCl		Methane (RSK				
1 - 500 mL HI			6°C, H <sub>2</sub> S0 <sub>4</sub>			NH <sub>3</sub> (350.1), NC		)	
1 - 250 mL HI			6℃			Alkalinity (2320	B)		
1 - 250 mL HI			6°C, ZnOAc/N	aOH	Sulfide (9034)				
<u>1 - 250 mL An</u>			6°C		DOC (9060A)				
WELL PURC	SING DATA								
Date		06-0	1-20			epth (ft BTOC) ater (ft BTOC)	10.	37.71 R ()	
Time Started		TIYA				Column Length	26.		
Time Complet	ed	1225				/olume (per ft)	2.47		
PID Measurem		1001	· · · · · · · · · · · · · · · · · · ·		Volume of Wat				
Background		ND				lumes to Purge	66.4 NA	1	
Breathing Z		ND				m to Purge (L)	204		
Well Head		ND			-	ctual Purge (L)	201		
Purge Water	•	ND			- 78				
					-		<u> </u>		
FIELD MEAS									
Time	Amount	pH	Temperature	•	Dissolved	Redox	Turbidity	Depth to Water	0
	Purged (L)		(Celsius)	(mS/cm)	Oxygen (mg/L)	(mV) ORP	(NTU)	(ft BTOC)	(L/min)
1150	2.5	6.82	15.51	0.994	2.28	81	2.15	10.80	0.5
1155	5-0	6.84	15.71	0.994	1.110	80	1-67	10.00	0.5
17.00	7.5	10.85	15.01	0.994	0.87	77	1-01		
			15.93	0.984			1.28	10.79	0.5
1205	10.0	6.85			0.84	76	1.37	10.79	0.5
1210	12.5	6.84	16.00			76	1.39	10.86	D.A
1215	15.0	6.84	16.00	0.982	0.71	75	1.64	10.79	0.57
1220	17.5	6.82	16.26	0.984	0.69	73	1.80	10.80	0.57
1225	20.0	6.83	16.00	0.987	0.71	73	1.54	10.80	0.5
	DATENT AND		NT.		3				
FIELD EQUI	PWIENT AND	Model	VIN		Calibration				
Water Level Pro	obe	Heron			Checked Agains	et Calibante d I a			
Water Quality I			ulti-Parameter	Droho	Twice Daily Ca		<u> </u>	1	
			tuiti-Parameter	Probe	Twice Daily Ca	libration verific	ation also Cal	ibrated Weekly	
GENERAL CO									
Ferrous Iron =	<u>()・2り</u> n	ng/L							
Multi-Parameter Field Parameter	a Probe Unit #	<u>') 1600</u>							
Pump Placemer			Jell -						
Pump Placement	n Deptn = 30	2 ft			TT	(7	1	10010 ( ) (	<b>D</b> 11
Pump Rate = 4 Well Diameter	-n cim	in		· · · · · · · · · · · · · · · · · · ·				1/2019/Avg in	
					ORP	36.8	143.0	36.8	107.4
Screen Interval	- 23-33				DO	0.35	1.51	1.51	0.76
					PH	6.10	6.86	6.52	6.52
					Cond.	0.624	0.757	0.757	0.680

SITE NAME		СНААР			PROJECT NO.		605	65355	
SAMPLE NO.		G007	76-20A		WELL NO.	<b>R</b>	G	0076	
DATE/TIME ( SAMPLE ME		06-01 PRO-A	- <u>20</u> /1 .CTIVE SS MO	345 NSOON	_ PERSONNEL	77			
SAMPLE ME SAMPLE QA SAMPLE QC MS/MSD REC	SPLIT: DUPLICATE:	Groundwater YES YES YES	NO NO NO	DUPLICATI	F SAMPLE NO. E SAMPLE NO. D SAMPLE NO.	NA NA NA			
		PRESERVATI	VES, ANALYS	IS					
Sample Contai			Preservative		Analysis Reque				
2 - 500 mL An			6°C		Explosives + M				
$\frac{3 - 40 \text{ mL VO}}{1 - 500 \text{ mL HI}}$			6°C, HCl		Methane (RSK		NO (252.0	<u>`````````````````````````````````````</u>	
$\frac{1-300 \text{ mL HL}}{1-250 \text{ mL HL}}$			6°C, H <sub>2</sub> S0 <sub>4</sub> 6°C			NH <sub>3</sub> (350.1), NC Alkalinity (2320		)	
1 - 250 mL HE	·		6°C, ZnOAc/N	<u>ุ ภ</u> าห	$SU_4 (9030A), 7$ Sulfide (9034)	Alkanning (2320	<u>(</u>		
1 - 250 mL An			6°C	a011	DOC (9060A)				
WELL PURG									
		/ •			Well De	epth (ft BTOC)		65.20	
Date	(	0(2-01	-20			ater (ft BTOC)	10.4	75	
Time Started		1305			Water C	Column Length	F4.(	05	
Time Complete		1345				/olume (per ft)	24	7	
PID Measurem					Volume of Wa	· · -	134.9	9	
Background		ND				lumes to Purge_	NA		
Breathing Z	one	ND				m to Purge $(L)_{-}$	20		
Well Head		ND_			Ao	ctual Purge (L)	20		
Purge Water	•	ND			-				
FIELD MEAS	UREMENTS								
Time	Amount Purged (L)	рН	Temperature (Celsius)	Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	Redox (mV) OFP	Turbidity (NTU)	Depth to Water (ft BTOC)	Purge Rate (L/min)
1310	2.5	6.87	14.75	1.27	1.17	29	7.21	10.56	O.T
1315	5.0	6.87	1481	1.26	0.72	18	6.00	10.56	O.F.
1320	75	10.88	14.84	1.20	0.68	<u>í</u>	4.85		O.Tr
1325	10.0	6.90	14.91	1.280	0.63	-5	4.27	10.56	0.5
1330	12.5	6.92	1497	1.20	0.17	-13	5.09		0.5
1535	15.0	6.93	14.82	1.20	0.770	-20	2.99	10.50	0.5
	17.5	6.93	14.74	1.20	0 59	-23	2.51	10.56	O.F
1340	20.0	6.93		1.26	0.56	-27	2.61	10.50	0.5
				· · · ·					
								-	
								1	
FIELD EQUI	PMENT AND	CALIBRATIC	N						
FIELD EQUI		Model	11		Calibration				
Water Level Pro		Heron				st Calibrated Le	noth		
Water Quality I	-		ulti-Parameter	Probe		libration Verific		librated Weekly	
	-								
GENERAL CO	OMMENTS (	2.25	· · · · · · · · · · · · · · · · · · ·						
Ferrous Iron =	596000 m	īg/L							
Multi-Paramete			*						
Field Parameter			Cell		·				
Pump Placemer					· · ·	/7		/ 2010 /	
Pump Rate =	0. FL/n	11N						<u>1/2019/Avg in</u>	· · ·
Well Diameter - Screen Interval					ORP DO	-30.9	69.3	31.1	17.7
Selecti mierval	- 34-04				DO PH	0.08 6.20	1.71	<u>1.71</u> 6.59	0.48
					Cond.	0.748	6.88	0.870	<u>6.72</u> 0.873
					Colla.	0.740	1.024	0.070	0.073

SITENAME		СН	IAAP		PROJECT NO		60	565355	
SAMPLE NO	•	G00′	77-20A		_ WELL NO			60077	
DATE/TIME SAMPLE ME	COLLECTED THOD	6/15/ pro-a	LO OI	<u>320</u> NSOON	_ PERSONNEL	. Jo	<u> </u>	H	
SAMPLE ME SAMPLE QA SAMPLE QC MS/MSD REG	SPLIT: DUPLICATE:	Groundwater YES YES YES	NO NO NO	DUPLICATE	SAMPLE NO SAMPLE NO SAMPLE NO		N A N A NA		
	ONTAINERS, F	RESERVATI	VES, ANALYS	SIS					
Sample Conta			Preservative		Analysis Requ				
$\frac{2 - 500 \text{ mL Au}}{3 - 40 \text{ mL VO}}$			6°C 6°C, HCl		Explosives + Methane (RSK				
$\frac{3-40 \text{ Inc} + 00}{1-500 \text{ mL HI}}$			6°C, H <sub>2</sub> S0 <sub>4</sub>			$\frac{173}{NH_3(350.1), N}$	0./NO. (353.2	2)	
1 - 250 mL HI		· · · ·	6°C			Alkalinity (232		.)	
1 - 250 mL HI	OPE		6°C, ZnOAc/N						
1 - 250 mL Ar			6°C	DOC (9060A)					
WELL PURC	GING DATA								
<b>D</b> .		ŕ	(IC/) A			epth (ft BTOC)		37.70	
Date Time Started		6/_	D/ LO	) 		/ater (ft BTOC)		8,72	
Time Started	ed	I	270		-	Column Length Volume (per ft)		_ <u>X, 18</u>	
PID Measurem			Jau			ter in Well (L)			
Background		/	10			olumes to Purge		NA NA	
Breathing Z		-t	AND			im to Purge (L)	*****	201	
Well Head			M.D		-	ctual Purge (L)		26 L	
Purge Water	r .		<u>N P</u>		- -			~~~	
FIELD MEAS	TIDEMENTS				12-				
Time	Amount Purged (L)	рН	Temperature (Celsius)	•	Dissolved Oxygen (mg/L)	Redox (mV)	Turbidity (NTU)	Depth to Water (ft BTOC)	Purge Rate (L/min)
1245	2.5 5.0	6.72	14,76	0.895	3,80 3,61	123	0.0	8.76 8.76	0,5
1255	7.5	6.54	13.98	0.891	3.40	125	Q. O	8.76	
130Q	10.Q	6.56	14.07	Q.887	3.18	124	0.0	8,76	
1302	12.5	6.58	14.61	0.885	2,44	121	0,0	\$.76	
1210	15.0	6.6	14.80	0.883	7.81	119	Q. Q	X.76	
1320	12.5	6.65	150	0.881	444		<u> </u>	8,1)	<u> </u>
1520	20.0	6.68	DIUT	0,874	2,67	115	0,0	8.75	
FIELD EQUI	PMENT AND	CALIBRATIC	N						
		Model			<b>Calibration</b>				
Water Level Pr	-	Heron			Checked Again				
Water Quality	vieter	Horiba U-52 M	ulti-Parameter	Probe	Twice Daily Ca	alibration Verifi	ication also Ca	librated Weekly	
GENERAL C	OMMENTS								
Ferrous Iron =	1.28 m	ıg/L							
Multi-Paramete		59600	4						
**************************************	rs Measured in I		Cell	·					
Pump Placemen		$O_{1}$ ft							
Pump Rate = Well Diameter		η'Λ					-	h / 2019 / Avg in ]	
Screen Interval					ORP DO	48.3	<u>187.5</u> 3.63	73.2	<u>106.2</u> 1.79
					PH	6.35	6.94	6.75	6.72
			·····		Cond.	0.716	1.006	0.835	0.857

SITE NAME	СНААР	PROJECT NO.		60565355	
SAMPLE NO.	G0078-20A	WELL NO.		G0078	
DATE/TIME COLLECTED SAMPLE METHOD	6/15/20 @ 1 PRO-ACTIVE SS MC		JO	CH	
SAMPLE MEDIA: SAMPLE QA SPLIT: SAMPLE QC DUPLICATE: MS/MSD REQUESTED	Groundwater YES NO YES NO YES NO	SPLIT SAMPLE NO. DUPLICATE SAMPLE NO. MS/MSD SAMPLE NO.	N A NA NA	·	
SAMPLE CONTAINERS,	PRESERVATIVES, ANALY	SIS			
Sample Container 2 - 500 mL Amber 3 - 40 mL VOA	Preservative 6°C 6°C, HCl	<u>Analysis Reques</u> Explosives + M Methane (RSK	NX (8330A)		
1 - 500 mL HDPE	6°C, H₂S0₄		H <sub>3</sub> (350.1), NO <sub>2</sub> /NO <sub>3</sub> (.	353.2)	
1 - 250 mL HDPE 1 - 250 mL HDPE	6°C		lkalinity (2320B)		
1 - 250 mL Amber	<u> </u>	DOC (9060A)			
WELL PURGING DATA					
Date Time Started Time Completed <u>PID Measurements</u> Background Breathing Zone Well Head Purge Water	6/15/20 1350 1430 ND ND ND ND ND	Depth to Wa Water Co Well Casing V Volume of Wate Casing Volume of Wate Minimun	··· /	62.80 5 4 4 4 2 4 4 7 133 7 NA 20 L 20 L	
FIELD MEASUREMENTS Time Amount	pH Temperature	Conductivity Dissolved	Redox Turbio	lity Depth to Water	Purge Rate
Purged (L) 1355 2,5 1400 5.0 1405 7,5 140 10,0 1415 12,5 1420 15.0 1425 17,5 1430 20.0 FIELD EQUIPMENT AND	(Celsius) 6,96 15,32 6,83 15,04 6,80 15,14 6,80 15,14 6,82 15,20 6,82 15,16 6,87 15,15 6,87 15,10 6,91 15,06 Parameters CALIBRATION Model	(mS/cm) Oxygen (mg/L)  0,44 1,30 0,38 1,30 0,38 1,20 0,34 1,29 0,32 1,29 0,32 1,29 0,32 1,29 0,31 1,29 0,31 1,29 0,31 1,29 0,31 1,29 0,31 1,29 0,31 1,29 0,31 1,29 0,31 1,29 0,31 1,29 0,31 1,29 0,31 1,29 0,31 1,29 0,31 1,29 0,31 1,29 0,31 1,29 0,31 1,29 0,31 1,29 0,31 1,29 0,32 1,29 0,420 1,20 0,420 1,20 0,420 1,20 0,420 1,20 0,420 1,20 0,420 1,20 0,420 1,20 0,420 1	(mV) (NT) 111 0. ( 107 0. ( 101 0. ( 93 0. C 86 0. C 79 0. C 79 0. C 79 0. C 79 0. C 79 0. C 68 0. C (ollect	$\begin{array}{c} (ft BTOC) \\ \hline & 8.72 \\ \hline & & 8.72 \\ \hline & & & \\ \hline \end{array}$	
Water Level Probe Water Quality Meter	Heron Horiba U-52 Multi-Parameter	Checked Against	Calibrated Length bration Verification als	o Calibrated Weekly	
Multi-Parameter Probe Unit # Field Parameters Measured in Pump Placement Depth = 5	Flow-Through Cell	Historic	(7-year average low an	1 high / 2019 / Avg in	Bold)
Well Diameter = 4"	· · · · · ·	ORP	-25.8 99.4		15.8
Screen Interval = 50-60		DO	0.12 0.42		0.25
		PH	<u>6.75</u> 7.28		7.04
		Cond.	0.878 1.20	7 1.065	1.030

SITE NAME		CHAAP PROJECT NO. 60565355							
SAMPLE NO.		G007	79-20A		WELL NO.	•	G	0079	
DATE/TIME COI	LLECTED	06-0	1-201	1115	PERSONNEL	TV	RH	4	
SAMPLE METHO	DD		CTIVE SS MO	NSOON		-50	<u> </u>		
SAMPLE MEDIA		Groundwater							
SAMPLE QA SPI		YES	NO	SPLE	Γ SAMPLE NO.	NA			
SAMPLE QC DU		YES	NO		E SAMPLE NO.	1.4			
MS/MSD REQUE		YES	NO		D SAMPLE NO.	<u></u>			
SAMPLE CONT	AINEDS	DECEDVATI	VEC ANALVO						
Sample Container		RESERVAII	Preservative	515	Analysis Requ	ested			
2 - 500 mL Amber			6℃		Explosives + N				
3 - 40 mL VOA			6°C, HCl		Methane (RSK				
1 - 500 mL HDPE			6°C, H <sub>2</sub> S0 <sub>4</sub>			NH <sub>3</sub> (350.1), NO	D <sub>2</sub> /NO <sub>3</sub> (353.2	) .	
1 - 250 mL HDPE	,		6°C			Alkalinity (2320		<u> </u>	
1 - 250 mL HDPE			6°C, ZnOAc/N	aOH	Sulfide (9034)				
1 - 250 mL Amber			6°C		DOC (9060A)				
WELL PURGIN	G DATA								
Data		Dr nl	0.0			epth (ft BTOC)		19.62	
Date Time Started		06-01	-20			/ater (ft BTOC)		11.00	
Time Completed		1030			-	Column Length Volume (per ft)		22	
PID Measurements	8	1110				ter in Well (L)		•	
Background		ND				olumes to Purge			
Breathing Zone		ND				im to Purge (L)		0	
Well Head		ND	80.00.08 · ·		-	ctual Purge (L)		5.0	
Purge Water		ND					J <sup>_</sup>		
<u>/</u>					-				
FIELD MEASUR			The second secon	a	<b>.</b>				
	Amount	pН	Temperature	Conductivity	Dissolved	Redox	Turbidity	Depth to Water	0
r	urged (L)		(Celsius)	(mS/cm)	Oxygen (mg/L)	(mV)	(NTU)	(ft <b>BTOC)</b> איז <del>פופיל</del>	(L/min)
1035	5.0	6.64	11.71	0.756	6.34	52	3.19	11.08	1.0
1040	10.0	10.52	11.75	0.740	6.52	61	2.02	11.08	1.0
1045	15.0	6.49	11.76	0.130	5.64	45	1.75	11.05	1.0
1050	20.0		11.80	0.721	5.55	60	1.69	11.07	1.0
1055	25.0	6.572	11.74	0,711	5.43	68	1.85	11.06	1.0
	27.5	6.55	12.72	0.713	4.99	68	1.71	11.02	0.5
1105	30.0	6.60	12.97	0.708	5.90	(98	1.40	1101	0.5
110		6.62	13.10	0.704		68	1 +	11.01	0.5
	35.0	6.03	13.31	0.706	5.90	69	1.24	11.01	0.5
	<u> </u>		19.00				1.01		0.17
FIELD EQUIPM			N		<b>G</b> 17				
Witten Tarrel Durch -		<u>Model</u>			Calibration				
Water Level Probe Water Quality Meter	-	Heron	ulti-Parameter	D		st Calibrated Le	<u> </u>		
	-	Horiba U-32 M	ulti-Parameter	FIODE	Twice Daily Ca	libration Verifi	cation also Ca	librated weekly	
GENERAL COM	MENTS								
Ferrous Iron = $\mathcal{O}$	.25 m	ng/L							
Multi-Parameter Pr	obe Unit #	79600	<u>_</u>						
Field Parameters M	leasured in I	Flow-Through C	Cell T						
Pump Placement D									
Pump Rate = 1 L		->0.FL	Imin			<u>c (7-year averag</u>	e low and high	n / 2019 / Avg in	Bold)
Well Diameter = 4					ORP	128.8	128.8	128.8	128.8
Screen Interval = 8-	-18				DO	7.99	7.99	7.99	7.99
					PH	6.11	6.11	6.11	6.11
	-				Cond.	0.174	0.174	0.174	0.174

GENERAL	INFORMA	TION
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SITE NAME		CH	СНААР			PROJECT NO. 60565355				
SAMPLE NO.		G00	80-20A		WELL NO	•	G	60080		
DATE/TIME (	COLLECTED	6/1	1/20 @	P 171	PERSONNEL		11	10		
SAMPLE ME		PRO-4	CTIVE SS MC		- FERSOININEL	·	$\mathcal{U}$	<u> </u>		
SAMELLINE.	mob	1 KO-7			-					
SAMPLE ME	DIA:	Groundwate	r							
SAMPLE QA	SPLIT:	YES	NO	SPLIT	SAMPLE NO.		NA			
SAMPLE QC	DUPLICATE:	YES	NO	DUPLICATE	E SAMPLE NO.		NA			
MS/MSD REC	QUESTED	YES	NO	MS/MSE	SAMPLE NO.	•	NA			
							70 N			
		PRESERVATI	VES, ANALYS	SIS						
Sample Contai			<u>Preservative</u>		Analysis Requ					
2 - 500 mL An			6°C		Explosives + N					
3 - 40 mL VO			6°C, HCl		Methane (RSK					
1 - 500 mL HE			6°C, H <sub>2</sub> S0 <sub>4</sub>			NH <sub>3</sub> (350.1), NO		.)		
1 - 250 mL HE			6°C			Alkalinity (2320	)B)			
<u>1 - 250 mL HE</u> <u>1 - 250 mL An</u>			6°C, ZnOAc/N	laOH	Sulfide (9034) DOC (9060A)					
WELL PURG			00		DOC (9000A)					
WELL FUKG	UNU DATA		, /		ת اا⊿W	epth (ft BTOC)		37.70		
Date		61	11/20			ater (ft BTOC)				
Time Started		01	1395			Column Length	<u> </u>	9.88		
Time Complete	ed		1345			Volume (per ft)		782		
PID Measurem			1275			ater in Well (L)		68 7		
Background			ND			olumes to Purge	ĸ	TA T		
Breathing Zo			ND			um to Purge (L)		20		
Well Head			NID		-	ctual Purge (L)		50		
Purge Water			ND		-	• • • •		<u> </u>		
			• /		-					
FIELD MEAS	-	••	-	~						
Time	Amount	pH	Temperature	Conductivity	Dissolved	Redox	Turbidity	Depth to Water	•	
	Purged (L)		(Celsius)	(mS/cm)	Oxygen (mg/L)	) (mV)	(NTU)	(ft BTOC)	(L/min)	
1210	2	1.02	12 07	man	0 0 0		5-	0.00		
1310	2.5	6.93	12,87	0.818		9/	12.5	9,88	0.5	
1315	5.0	6.79	12.65	0.820	0.68	39	<u></u>	9.88		
1320	7.5	6.74	12.57	0.820	0,57	38	2.2	9,88		
1325	10.0	6.64	12.51	0.825	0,51	41	1.4	9.98		
1330	12.5	6.64	12.58	6,847	0,46	40	1.5	4.88		
1335	15.0	6.66	12.66	0.868	0.43	38	1.2	9.48		
1340	17.5	6.68	12.47	0.874	0.41	37	12	9,88		
1345	20.0	6.70	12.60	0.884	<b>1</b>	36	0.1	9.08	¥	
	Para	Mitty	Stel	ne	00//ec	+ 50	pre			
							/		<b>\</b>	
								×	$\searrow$	
FIELD EQUIP	MENT AND									
FIELD EQUI		Model	<b>N</b>		Calibration					
Water Level Pro		Heron				st Calibrated Le	- oth			
Water Quality N			lulti-Parameter			alibration Verific		librated Weakly		
		101104 0 52 11	fulli i uraineter		Twice Daily Ca			notated weekly		
GENERAL CO										
Ferrous Iron =	<u>0,78</u> п	ig/L	24 1							
Multi-Paramete	r Probe Unit #	59600	2 41							
Field Parameter		low-Through (	Cell							
Pump Placemen	nt Depth = 32	) ft								
	0.5 C/	way				c (7-year averag	-	h / 2019 / Avg in	Bold)	
Well Diameter =	= 2"	R			ORP	25.8	160.8	50.8	69.0	
Screen Interval	= 25-35				DO	0.08	3.68	0.18	1.43	
					PH	6.58	6.82	6.67	6.69	
					Cond.	0.413	0.724	0.610	0.600	

SITE NAME		CH	CHAAP PROJECT NO			60565355			
SAMPLE NO.		G00	81-20A		WELL NO.		G	0081	
DATE/TIME C	OLLECTED	06-09	2-20/	09415	PERSONNEL	TY			
SAMPLE MET			ACTIVE SS MO		_	<u> </u>			·····
SAMPLE MED	114.	Groundwate							
SAMPLE QA S		YES	NO	SPI I	I SAMPLE NO.	A 1 A			
SAMPLE QC I		YES	NO		E SAMPLE NO.				
MS/MSD REQ		YES	NO		O SAMPLE NO.		·····		
		DECEDIA							
SAMPLE CON Sample Contain		PRESERVATI	VES, ANALYS	515	Analysis Requ	ected			
2 - 500 mL Am			6℃		Explosives + N				
3 - 40 mL VOA			6°C, HCl		Methane (RSK				
1 - 500 mL HD			6°C, H <sub>2</sub> S0 <sub>4</sub>			NH <sub>3</sub> (350.1), N	O <sub>2</sub> /NO <sub>3</sub> (353.2	)	
1 - 250 mL HD	PE	·····	6°C			Alkalinity (232			
1 - 250 mL HD			6°C, ZnOAc/N	aOH	Sulfide (9034)	1			
1 - 250 mL Am			6℃		DOC (9060A)				
WELL PURG	NG DATA				Wall	anth (& DTOC)		41.20	
Date		06-02	1-20			epth (ft BTOC) /ater (ft BTOC)		41.30	
Time Started		0905				Column Length			
Time Completed	đ	094			_	Volume (per ft)			
PID Measureme	ents		•			ter in Well (L)			
Background		ND			Casing Vo	lumes to Purge	ŇĂ		
Breathing Zor	ne	ND			Minimu	im to Purge (L)	201		
Well Head		ND			A	ctual Purge (L)			
Purge Water		ND	······		_				
FIELD MEAS	UREMENTS								
Time	Amount	pH	Temperature	Conductivity	Dissolved	Redox	Turbidity	Depth to Water	Purge Rate
	Purged (L)	P	(Celsius)	(mS/cm)	Oxygen (mg/L)		(NTU)	(ft BTOC)	(L/min)
	0 ( )		()	()		ORP	(	(112100)	(21111)
0910	2.57	6.43	1438	0.929	2.72	110	4.17	11.18	O.F
OPIL	5.0	6.32	14.50		1.00	89	3.28	11.17	0.5
0920	7.5	6.34	14.78	1.01	0.79	79	2.66	11.17	0.5
0925	10.0	6.38	14.80	1.01	0.69	72	2.25	11.17	0.5
0930	12.5	6.40	15-14	1.02	0.03	65	2.60	11.17	0.5
0935	15.0	6.42	15.26	1.02	0.01	60	2.41	11.17	O.F
0940	17.5	6.43	15.35	1.02	0.65	55	2.18	11.17	0.5
0945		10.42	16.50	1.02	0.59	ガン	2.41	11.17	0.M
<i>• • • • • • • • • • • • • • • • • • • </i>			W. AC	10-	0,		2111		
· ·									
-									
FIELD EQUIP	MENT AND								
FIELD EQUIF		Model			Calibration				
Water Level Pro		Heron			Checked Again	st Calibrated L	enath		
Water Quality M	-		Iulti-Parameter	Probe				librated Weekly	
	-						oution uso ou		
GENERAL CO									
Ferrous Iron = (	<u>0.7 n</u>	ng/L							
Multi-Parameter	Probe Unit #	$\underline{r}4\underline{v}00$	<u> </u>						
Field Parameters			Lell						
Pump Placement					TT! '	0 (7		/ 2010 / 4	D-14
Pump Rate = <i>O</i> Well Diameter =	<u>・ホレ/MIN</u> 2"				ORP Histori			<u>1/2019 / Avg in</u>	
Screen Interval =					DO	43.9	211.5	174.2	129.9
Sereen miler val -	0-00				PH	5.93	6.65	<u>1.63</u> 6.11	<u>0.64</u> 6.30
					Cond.	0.659	0.881	0.659	0.30
						0.009	0.001	0.033	V./41

SITE NAME		СН	IAAP		PROJECT NO.		605	565355	
SAMPLE NO.		G008	82-20A		WELL NO.		G	0082	
DATE/TIME COLLI SAMPLE METHOD		06-02- PRO-A	20 / 101 CTIVE SS MO	nsoon	_ PERSONNEL		/ · · · ·		
SAMPLE MEDIA: SAMPLE QA SPLIT SAMPLE QC DUPL MS/MSD REQUEST	ICATE:	Groundwater YES YES YES	NO NO NO	DUPLICATE	SAMPLE NO. SAMPLE NO. SAMPLE NO.	NA			
SAMPLE CONTAI	NERS, P	RESERVATI	VES, ANALYS	SIS					
Sample Container			Preservative		Analysis Requ				
2 - 500 mL Amber			6°C		Explosives + N				
3 - 40 mL VOA 1 - 500 mL HDPE			6°C, HCl		Methane (RSK		2 210 (252.0	、	
1 - 250 mL HDPE			6°C, H <sub>2</sub> S0 <sub>4</sub> 6°C			NH <sub>3</sub> (350.1), N Alkalinity (232		)	
1 - 250 mL HDPE			6°C, ZnOAc/N	aOH	Sulfide (9034)		<b>(B</b> )		
1 - 250 mL Amber			6°C		DOC (9060A)				
WELL PURGING I	DATA						-		
					Well D	epth (ft BTOC)		41.01	
Date		010-07-	20		Depth to W	ater (ft BTOC)	10.	70	
Time Started		1010				Column Length		i	
Time Completed		IURE				Volume (per ft)			
PID Measurements		-				ter in Well (L)			
Background Breathing Zone		ND				lumes to Purge im to Purge (L)			
Well Head		ND			-	ctual Purge (L)			
Purge Water		ND			- 11	otdar i urge (L)	22.5	<b>`</b>	
	-				-				
FIELD MEASUREN	MENTS								
	nount ged (L)	pH	Temperature (Celsius)	Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	Redox (mV) のとP	Turbidity (NTU)	Depth to Water (ft BTOC)	Purge Rate (L/min)
1015 2.	Б	6.42	15.95	0.867	0.85	Ц	8.03	10.70	0.5
	0	6.41	16.47	0.866	0.59	- 3	6.37	10.70	0.5
1025 7.	.5	6.44	1630	0.862	0.59	~8	7.04	10.69	0.5
	0.0	646	15.93	0.852	0.40	-10	3.35	10.69	0.5
	2.17	6.46	15.75	0.849	0.46	-11	2.77	10.69	O.F.
	5.0	646	15.31	0.853	0.41	-11	2.40	10.69	0.5
	7.5	6.46	15.86	0.856	0.48		223	10.69	0.5
	<u>).0</u>	6.47	15.78	0.857	0.48	-11	2.44	10.69	0.5
1055 22	.5	6.47	5.82	0.858	0.47	-12	2.07	10.69	0.5
		and the second se							
					Statistics of the local division of the loca	CHORE AND A COMPANY			
FIELD EQUIPMEN	T AND O	CALIBRATIC	N IN			A CONTRACTOR OF A CONT			
		Model			Calibration				
Water Level Probe		Heron			Checked Again	st Calibrated L	ength		
Water Quality Meter	-	Horiba U-52 M	ulti-Parameter	Probe				librated Weekly	
GENERAL COMMI									
Ferrous Iron = 0		ig/L							
Multi-Parameter Probe Field Parameters Meas	sured in I	<u>h MCOO</u> How-Through (							
Pump Placement Dept									······································
Pump Rate = $O.Fil$				· ·	Historia	c (7-vear average	e low and high	n / 2019 / Avg in	Bold)
Well Diameter = $2"$	- 10000	·			ORP	43.3	205.9	164.0	110.3
Screen Interval = 28-3	8				DO	0.06	1.40	1.40	0.61
			- · · · · ·		PH	6.06	6.72	6.21	6.39
					Cond.	0.488	0.799	0.488	0.655

SITE NAME	СНААР	PROJECT NO.	PROJECT NO. 60565355					
SAMPLE NO.	G0086-20A	WELL NO.		G0086				
DATE/TIME COLLECTED SAMPLE METHOD	6-16-20/081F PRO-ACTIVE SS MONSO		<u>T.</u> Young <u>G. Carson</u>					
SAMPLE MEDIA:	Groundwater							
SAMPLE QA SPLIT:	YES NO	SPLIT SAMPLE NO.						
SAMPLE QC DUPLICATE:		PLICATE SAMPLE NO.						
MS/MSD REQUESTED	YES NO	MS/MSD SAMPLE NO.	NA	· · · · · · · · · · · · · · · · · · ·				
	PRESERVATIVES, ANALYSIS							
Sample Container 2 - 500 mL Amber	Preservative 6°C	Analysis Requ						
3 - 40 mL VOA	6°C, HCl	Explosives + M Methane (RSK						
1 - 500 mL HDPE	<u>6°C, H<sub>2</sub>S0<sub>4</sub></u>		NH <sub>3</sub> (350.1), NO <sub>2</sub> /NO <sub>3</sub> (353.	2)				
1 - 250 mL HDPE	6°C		Alkalinity (2320B)					
1 - 250 mL HDPE	6°C, ZnOAc/NaOH	Sulfide (9034)						
1 - 250 mL Amber	6°C	DOC (9060A)						
WELL PURGING DATA		Wall D	epth (ft BTOC)	40.20				
Date	6-16-20		ater (ft BTOC)	40.30 <b>S</b> ·72				
Time Started	0736		Column Length 31.5	<u> </u>				
Time Completed	0815			02L				
PID Measurements		Volume of Wa	ter in Well (L) 19.1	58				
Background	ND		lumes to Purge NA					
Breathing Zone	ND	···	im to Purge (L) 2	0				
Well Head Purge Water	ND	A	ctual Purge (L) 2 こ					
ruige water	ND							
FIELD MEASUREMENTS Time Amount Purged (L)	pH Temperature Con-	ductivity Dissolved nS/cm) Oxygen (mg/L)	Redox Turbidity (mV) (NTU)	Depth to Water Purge Rate (ft BTOC) (L/min)				
0740 2.5	604 1240 01	948 1.90	10	<i><i>4</i> 7 7 <i>6 –</i></i>				
0745 5.0	6.94 12.62 0.	948 1.90	124 5.49					
0760 7.5	7.03 12.66 0.	136 1.44	121 (0.73	873 OF 873 OF				
0755 10.0		932 1.34	118 4.63	8.73 O.M				
0800 12.5		929 1.28	115 5.34	8.73 O.F				
0805 15.0		925 1.24	114 5.50					
0810 17.5	7.04 12.640.		113 5.66					
0815 20.0		123 1.14	111 6.03					
				The second				
FIELD EQUIPMENT AND	CALIBRATION							
	Model	<b>Calibration</b>						
Water Level Probe	Heron		st Calibrated Length					
Water Quality Meter	Horiba U-52 Multi-Parameter Probe	Twice Daily Ca	libration Verification also C	alibrated Weekly				
GENERAL COMMENTS		<u></u>						
Ferrous Iron = $(0, 1)$	mg/L							
Multi-Parameter Probe Unit #				· · · · · · · · · · · · · · · · · · ·				
Field Parameters Measured in								
Pump Placement Depth = $3$		<b>TT1</b> . <b>1</b>	- (7	1 /0010 / 4				
$\frac{\text{Pump Rate} = \bigcirc \cdot \overrightarrow{m} / \cancel{W}}{\text{Well Diameter} = 2"}$	1110		c (7-year average low and hig					
Screen Interval = $2^{-3}$		ORP DO	<u> </u>	<u>49.7</u> <b>86.4</b> 0.24 <b>0.28</b>				
5010011 Interval = 20-30		DO PH	<u> </u>	<u>0.24</u> 0.28 6.77 6.74				
		Cond.	0.585 0.782	0.742 0.678				
			0.702	0.7.12 0.070				

SITE NAME	СНААР	PROJECT NO.	60:	565355
SAMPLE NO.	G0087-20A	WELL NO.		60087
DATE/TIME COLLECTED SAMPLE METHOD	U-15-20/ PRO-ACTIVE SS MO	1640 personnel	T. Young G. Carson	
SAMPLE MEDIA: SAMPLE QA SPLIT: SAMPLE QC DUPLICATE: MS/MSD REQUESTED	Groundwater YES NO YES NO YES NO	SPLIT SAMPLE NO. DUPLICATE SAMPLE NO. MS/MSD SAMPLE NO.	NA	
SAMPLE CONTAINERS,	PRESERVATIVES, ANALY	SIS		
Sample Container 2 - 500 mL Amber 3 - 40 mL VOA	Preservative 6°C 6°C, HCl	<u>Analysis Reques</u> Explosives + M Methane (RSK	NX (8330A) 175)	
1 - 500 mL HDPE 1 - 250 mL HDPE 1 - 250 mL HDPE	6°C, H <sub>2</sub> S0 <sub>4</sub> 6°C 6°C, ZnOAc/I	SO <sub>4</sub> (9056A), A	H <sub>3</sub> (350.1), NO <sub>2</sub> /NO <sub>3</sub> (353.2 Ikalinity (2320B)	)
1 - 250 mL Amber	6°C	DOC (9060A)		
WELL PURGING DATA Date Time Started Time Completed PID Measurements Background Breathing Zone Well Head Purge Water	0-15-20 1400 1640 ND ND ND	Depth to Wa Water Ca Well Casing V Volume of Wate Casing Volume Minimum	olumn Length 2	
FIELD MEASUREMENTS				
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	7.11 12.72 7.06 12.70 7.09 12.57 7.06 12.66	(mS/cm) Oxygen (mg/L) 0.846 1.33 0.847 0.64 0.848 0.51 0.849 0.47 0.850 0.45	Redox         Turbidity $(mV)$ $(NTU)$ 101         7.64           109         9.70           110         8.16           100         8.16           110         8.16           110         8.16           110         4.86           11         4.86           11         4.75	Depth to Water       Purge Rate         (ft BTOC)       (L/min) $\Im \cdot \Im \cdot 5$ $\mathcal{O} \cdot 5$
1640 20.0		0.851 0.40	111 5.23	8.85 0.5
· · · · · · · · · · · · · · · · · · ·				
FIELD EQUIPMENT AND Water Level Probe Water Quality Meter	CALIBRATION Model Heron Horiba U-52 Multi-Parameter		Calibrated Length bration Verification also Ca	librated Weekly
GENERAL COMMENTS Ferrous Iron = O.   (o Multi-Parameter Probe Unit # Field Parameters Measured in Pump Placement Depth = 20	3 Flow-Through Cell			
Pump Rate = 0.5-1/mi		Historic	(7-year average low and hig	h / 2019 / Avg in Bold)
Well Diameter = 2" Screen Interval = 25-35		ORP DO	37.2         136.4           0.08         0.87	<b>37.2 92.6</b> 0.21 <b>0.43</b>
		PH Cond.	6.446.870.4480.655	6.74 6.69 0.655 0.566
			0.000	0.000 0.000

#### **GENERAL INFORMATION**

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SITE NAME	СНААР	PROJECT NO.	60	565355
SAMPLE NO.	G0091-20A	WELL NO.		G0091
DATE/TIME COLLECTED SAMPLE METHOD	6-10-20 0935 PRO-ACTIVE SS MONSOO	PERSONNEL	T. Young G. Carsor	٦
SAMPLE MEDIA: SAMPLE QA SPLIT: SAMPLE QC DUPLICATE: MS/MSD REQUESTED	Groundwater YES NO YES NO DUP YES NO M	SPLIT SAMPLE NO. LICATE SAMPLE NO. MS/MSD SAMPLE NO.	NA	
	PRESERVATIVES, ANALYSIS			
Sample Container	Preservative	Analysis Reques		
2 - 500 mL Amber 3 - 40 mL VOA	6°C 6°C, HCl	Explosives + M		
1 - 500 mL HDPE	<u>6°C, H2S04</u>	Methane (RSK)	$H_3(350.1), NO_2/NO_3(353.1)$	2)
1 - 250 mL HDPE	6°C		lkalinity (2320B)	2)
1 - 250 mL HDPE	6°C, ZnOAc/NaOH	Sulfide (9034)		
1 - 250 mL Amber	6°C	DOC (9060A)		
WELL PURGING DATA				
			oth (ft BTOC)	31.85
Date	6-10-20		ter (ft BTOC)	9.9.8
Time Started	0855			57
Time Completed	093Fi	Well Casing V		02L
PID Measurements Background		Volume of Wate		ริษ
Breathing Zone	ND		imes to Purge <u>NA</u> n to Purge (L) <u>2</u>	
Well Head	ND ND		n to Purge (L) 2 ( tual Purge (L) 2 (	
Purge Water	ND		$(L) \longrightarrow C$	<u></u>
FIELD MEASUREMENTS			<u> </u>	
Time Amount Purged (L)		uctivity Dissolved S/cm) Oxygen (mg/L)	Redox Turbidity (mV) (NTU)	Depth to Water Purge Rate (ft BTOC) (L/min)
0900 2.5	7.44 14.21 1.3	30 6.70	107 8.08	10.02 0.5
0905 5.0		31 6.52	109 8.13	10.02 0.5
0910 7.5		32 6.69	109 7.02	10.02 0.5
0915 10.0	7.27 14.33 1.3		108 6.37	10.02 0.5
0920 12.5	7.27 14.431.3	31 6.67	107 6.67	10.02 0.5
0925 15.0	7.26 14.19 1.3	51 6.59	107 6.18	10.02 0.5
0930 17.5	7.27 14.19 1.3	$\lambda$ (0.54	100 0.54	10.02 0.5
0935 20.0	7.29 14.23 1.3	0 6.55	105 5.98	10.02 0.5
			·	
FIELD EQUIPMENT AND	CALIBRATION			
	Model	Calibration		
Water Level Probe	Heron		Calibrated Length	
Water Quality Meter	Horiba U-52 Multi-Parameter Probe	Twice Daily Cali	bration Verification also Ca	alibrated Weekly
GENERAL COMMENTS				
	mg/L			
Multi-Parameter Probe Unit #				· · · · · · · · · · · · · · · · · · ·
Field Parameters Measured in				
Pump Placement Depth = 7	ਸ ft			
Pump Rate = $O \cdot \overline{D} - \overline{D}$ Well Diameter = 2"		Historic	(7-year average low and hig	h / 2019 / Avg in Bold)
	•	ORP	59.9 197.0	168.8 132.6
Screen Interval = 20-30		DO	2.11 5.57	2.11 <b>4.2</b> 7
		PH	6.15 6.94	6.92 <b>6.76</b>
		Cond.	0.847 1.362	1.362 <b>1.088</b>

#### GENERAL INFORMATION

SITE NAME	СНААР		PROJECT NO. 60565355				
SAMPLE NO.	G0092-20A	N	WELL NO.		G	0092	
DATE/TIME COLLECTED SAMPLE METHOD	<u>6-16-20</u> PRO-ACTIV	E SS MONSOON	PERSONNEL		Voung	N	
SAMPLE MEDIA: SAMPLE QA SPLIT: SAMPLE QC DUPLICATE: MS/MSD REQUESTED	Groundwater YES YES YES	NO DUPLICAT	T SAMPLE NO. E SAMPLE NO. D SAMPLE NO.	NA			
SAMPLE CONTAINERS,	PRESERVATIVES,	ANALYSIS					
Sample Container		rvative	Analysis Reque				
2 - 500 mL Amber	6°C		Explosives + M		A)		
3 - 40 mL VOA	6℃,		Methane (RSK				
1 - 500 mL HDPE 1 - 250 mL HDPE	<u> </u>	H <sub>2</sub> S0 <sub>4</sub>			, NO <sub>2</sub> /NO <sub>3</sub> (353.2	)	
1 - 250 mL HDPE		7-04-01-011	SO <sub>4</sub> (9056A), A	Alkalinity (2	2320B)		
<u>1 - 250 mL HDPE</u> <u>1 - 250 mL Amber</u>	6°C,	ZnOAc/NaOH	Sulfide (9034) DOC (9060A)				
WELL PURGING DATA			DOC (9000A)				
WELL'I OROLIG DATA			Well De	pth (ft BTC	) C)	52.78	
Date	6-16-20		Depth to Wa				
Time Started	1000			Column Len			
Time Completed	1040		Well Casing V			1.622	
PID Measurements			Volume of Wat				
Background	ND		Casing Vol				
Breathing Zone	ND			m to Purge	(L) 2	0	
Well Head	ND		Ao	ctual Purge	(L) 20		
Purge Water	ND		_				
FIELD MEASUREMENTS							
		nomtura Conductivity	Discolved	Dadau	T	Double to Wester	December 1
Time Amount Purged (L)	•	perature Conductivity elsius) (mS/cm)	Dissolved Oxygen (mg/L)	Redox (mV)	Turbidity (NTU)	Depth to Water (ft BTOC)	Purge Rate (L/min)
1005 2.5	7.56 14	581.24	0.67	100	7.08	10.15	O.F
1010 5.0		.541.25	0.54	102	6.59		0.5
1015 7.5		52125	0.46	100	7.15	10.18	0.5
1020 10.0		.441.24	0.43	99	10.97	10.18	0.5
1025 12.5		.631.24	0.41	98	6.84	10.18	O.h
1030 15.0		14 1.24	0.42	104	8.10	10.18	0.5
1035 17.5	7.55 11		0.41	103	7.92	10.18	On
1040 20.0	7.54 10	1.261.24	0.41	103		10.18	0.5
_							
FIELD EQUIPMENT AND			~				
117-1-1 T 1 D - 1 -	Model		<u>Calibration</u>				
Water Level Probe	Heron Horiba U-52 Multi-Pa		Checked Agains			14 . 1 <b>.</b>	
Water Quality Meter	Honda U-52 Multi-Pa	arameter Probe	Twice Daily Ca	libration Ve	erification also Ca	librated Weekly	
GENERAL COMMENTS							
Ferrous Iron = $0.22$ i	ng/L						
Multi-Parameter Probe Unit #	3			-			
Field Parameters Measured in							
Pump Placement Depth = $4$	Б ft						<u> </u>
Pump Rate = $(), \overline{n} - 1w$			Historic	(7-year av	erage low and high	1 / 2019 / Avg in	Bold)
Well Diameter = 2"			ORP	66.2	170.4	102.3	110.2
Screen Interval = 40-50			DO	0.15	2.15	0.31	0.59
			PH	6.94	7.55	7.22	7.26
			Cond.	0.899	1.289	1.289	1.077

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SITE NAME	СНААР	PROJECT NO. 60565355
SAMPLE NO.	PZ017R-20A	WELL NO PZ017R
DATE/TIME COLLECTED SAMPLE METHOD	6-16-20/1355 PRO-ACTIVE SS MONSOON	PERSONNEL T. YOUNG G. Carson
SAMPLE MEDIA: SAMPLE QA SPLIT: SAMPLE QC DUPLICATE MS/MSD REQUESTED	YES NO DUPLICAT	T SAMPLE NO. NA E SAMPLE NO. PZ021-20A (2) 0800 D SAMPLE NO. NA
	PRESERVATIVES, ANALYSIS	
Sample Container	Preservative	Analysis Requested
2 - 500 mL Amber	<u>6°C</u>	Explosives + MNX (8330A)
3 - 40 mL VOA 1 - 500 mL HDPE	6℃, HCl 6℃, H <sub>2</sub> S0 <sub>4</sub>	Methane (RSK 175)
1 - 250 mL HDPE	<u> </u>	TKN (351.2), NH <sub>3</sub> (350.1), NO <sub>2</sub> /NO <sub>3</sub> (353.2) SO <sub>4</sub> (9056A), Alkalinity (2320B)
1 - 250 mL HDPE	6°C, ZnOAc/NaOH	Sulfide (9034)
1 - 250 mL Amber	6°C	DOC (9060A)
WELL PURGING DATA		
Date Time Started Time Completed <u>PID Measurements</u> Background Breathing Zone Well Head Purge Water	U-1U-20 1310 13555 ND ND ND ND	Well Depth (ft. BTOC)32.42Depth to Water (ft. BTOC)7.55Water Column Length24.87Well Casing Volume (per ft)0.62LVolume of Water in Well (L)5.42Casing Volumes to PurgeNAMinimum to Purge (L)20Actual Purge (L)22.55
	NU	······································
FIELD MEASUREMENTS	8	
Time Amount Purged (L)	pH Temperature Conductivity (Celsius) (mS/cm)	DissolvedRedoxTurbidityDepth to WaterPurge RateOxygen (mg/L)(mV)(NTU)(ft BTOC)(L/min)
1315 2.5	687 13.45 0.763	7.96 120 6.54 7.60 0.5
1320 5.0	(0.73 13.35 0.76F	
1325 7.5	6 73 13 37 0 762	
1330 10.0	6.78 13.52 0.778	
1335 12.5	6.84 13.46 0.78	416 117 7.02 7.60 0.5
1340 15.0	686 13.49 0.791	3.92 114 11.27 7.60 0.5
1345 17.5	6.89 13.86 0.787	3.64 113 8.21 7.60 05
1350 20.0	691 13.91 0.787	
1355 22.5	690 13.94 0.788	3.44 111 8.40 7.60 0.5
FIELD EQUIPMENT AND	CALIBRATION Model	Calibration
Water Level Probe	Heron	Checked Against Calibrated Length
Water Quality Meter	Horiba U-52 Multi-Parameter Probe	Twice Daily Calibration Verification also Calibrated Weekly
GENERAL COMMENTS		
Ferrous Iron = 0.42 Multi-Parameter Probe Unit #		· · · · · · · · · · · · · · · · · · ·
Field Parameters Measured in		
Pump Placement Depth = $20$		
Pump Rate = $0, 54$		Historic (7-year average low and high / 2019 / Avg in Bold)
Well Diameter = 2"	· · · · · · · · · · · · · · · · · · ·	ORP         90.5         202.6         120.9         130.8
Screen Interval = 10-30		DO 1.12 5.92 5.92 3.03
		PH 6.22 6.71 6.45 6.47
		Cond. 0.516 0.820 0.820 0.638

SITE NAME	СНААР	PROJECT NO. 60565355
SAMPLE NO.	PZ018-20A	WELL NO. <b>PZ018</b>
DATE/TIME COLLECTED SAMPLE METHOD	6-16-20/1万1万 PRO-ACTIVE SS MONSOON	PERSONNEL T. Young G. Ceurson
SAMPLE MEDIA: SAMPLE QA SPLIT: SAMPLE QC DUPLICATE: MS/MSD REQUESTED	YES NO DUPLI	SPLIT SAMPLE NO. NA CATE SAMPLE NO. NA /MSD SAMPLE NO. NA
SAMPLE CONTAINERS,	PRESERVATIVES, ANALYSIS	
Sample Container	Preservative	Analysis Requested
2 - 500 mL Amber	6°C	Explosives + MNX (8330A)
3 - 40 mL VOA	6°C, HCl	Methane (RSK 175)
1 - 500 mL HDPE	6°C, H <sub>2</sub> S0 <sub>4</sub>	TKN (351.2), NH <sub>3</sub> (350.1), NO <sub>2</sub> /NO <sub>3</sub> (353.2)
1 - 250 mL HDPE	6°C	SO <sub>4</sub> (9056A), Alkalinity (2320B)
1 - 250 mL HDPE	6°C, ZnOAc/NaOH	Sulfide (9034)
1 - 250 mL Amber	6°C	DOC (9060A)
WELL PURGING DATA		
	1011 - 200	Well Depth (ft. BTOC) 31.90
Date	6-16-20	Depth to Water (ft. BTOC) 9.18
Time Started	1435	Water Column Length
Time Completed <u>PID Measurements</u>	1515	$\frac{1}{14.09}$ Well Casing Volume (per ft) $0.(22L)$ Volume of Water in Well (L) $14.09$
Background	ND	
Breathing Zone	ND	
Well Head	ND	Minimum to Purge (L) Q Actual Purge (L)
Purge Water	ND	
FIELD MEASUREMENTS		
Time Amount Purged (L)	pH Temperature Conduc (Celsius) (mS/c	
1440 2.5	(e.5) 13.72 0.5	67 9.58 126 7.67 9.20 0.5
1445 5.0	6.30 13.660 5	
1450 7.5	6.28 13-59 0.5	
1455 10.0	6.30 13.69 0.7	
1500 12.5	6.32 13.62 0.7	859.49 131 9.18 9.20 O.F
1505 15.0	6.37 13.77 0.58	
1510 17.5	6.42 13.40 0.50	
1515 20.0	6.46 13.66 0.5	10 9.20 127 7.94 9.20 O.F
<		10 9.20 127 7.94 9.20 O.F
FIELD EQUIPMENT AND	CALIBRATION	
	Model	Calibration
Water Level Probe	Heron	Checked Against Calibrated Length
Water Quality Meter	Horiba U-52 Multi-Parameter Probe	Twice Daily Calibration Verification also Calibrated Weekly
GENERAL COMMENTS		
Ferrous Iron = $\bigcirc$ . $\bigcirc$		
Field Parameters Measured in		
Pump Placement Depth = $3$		
Pump Rate = $O.\overline{D} - IN$		Historic (7-year average low and high / 2019 / Avg in Bold)
Well Diameter = $2"$		ORP 77.0 187.6 94.4 124.4
Screen Interval = 10-30		DO 0.26 6.54 0.33 1.48
	· · · · · · · · · · · · · · · · · · ·	PH 6.37 6.78 6.45 6.55
		Cond.         0.527         0.822         0.822         0.657
	······································	

SITE NAME		CH	IAAP		PROJECT NO	•	605	565355	
SAMPLE NO	•	PZ0	19-20A	<u>.</u>	WELL NO		P	Z019	
DATE/TIME SAMPLE ME		() - 1 () - PRO-A	-2_0/12 ACTIVE SS MO		_PERSONNEI	T. Ya	oung		~
SAMPLE ME		Groundwater	1		-			•	
SAMPLE QA	SPLIT: DUPLICATE:	YES YES	NO NO		SAMPLE NO				
MS/MSD REG		YES	NO		SAMPLE NO		PZ019-20	A MS/MSD	
SAMPLE CO	NTAINERS,	PRESERVATI	VES, ANALYS	SIS					
Sample Conta			Preservative		Analysis Requ				
$\frac{2-500 \text{ mL Ar}}{2-40 \text{ mL }}$			6°C			MNX (8330A)			
3 - 40 mL VO 1 - 500 mL HI		·····	6°C, HCl 6°C, H <sub>2</sub> S0 <sub>4</sub>		Methane (RSF		0 00 (252.2	、	
1 - 250 mL HI			6°С, п <sub>2</sub> S0 <sub>4</sub>			NH <sub>3</sub> (350.1), N Alkalinity (232		)	
1 - 250 mL HI			6°C, ZnOAc/N	IaOH	Sulfide (9034)		.0.6)		
1 - 250 mL Ar		···	6°C		DOC (9060A)				
WELL PURC					······				
					Well De	epth (ft. BTOC)	)	32.23	
Date	•	6-16-2	20			ater (ft. BTOC)		3.40	
Time Started		1120			Water	Column Length	18.	83	
Time Complet		1200		·		Volume (per ft)		22L	
PID Measurem						ater in Well (L)		<u> </u>	
Background		ND				olumes to Purge			
Breathing Z Well Head	one	ND			-	um to Purge (L)			
Purge Water		ND			A	ctual Purge (L)	20	>	
					-				
FIELD MEAS	SUREMENTS				-				
Time	Amount Purged (L)	рН	Temperature (Celsius)	•	Dissolved Oxygen (mg/L)	Redox ) (mV)	Turbidity (NTU)	Depth to Water (ft BTOC)	Purge Rate (L/min)
1125	2.5	7.34	14.37	<b><b>Ø</b>.দদষ্ঠ</b>	11 27	98	F. 88	13.40	0.57
1130	5.0	6.83	13.74	0.585		100	10.59	13.40	0.5
1135	7.5	6.05		0.590	10.77	107	8.27	13.40	0.5
1140	10.0	6.50		0.603	10.78	109	9.2.0	13.40	0.n
1145	12.5	6.51	13.42	0.007	10.47	ίιο	8.07	13.40	0.5
1150	15.0	6.551	13.43	0.613		····	5.37	13.40	0.5
1155	17.5	6.51	13.35	0.015	10.85	111	5.98	13.40	0.5
1200	20.0	6.49	13.30	0.616	10.83	112	6.03	13.40	0.5
P				<u> </u>		1.00			- 1
FIELD EQUI	PMENT AND	CALIBRATIC	N						
		Model			<u>Calibration</u>				
Water Level Pr		Heron				st Calibrated L			<u></u>
Water Quality	Meter	Horiba U-52 M	lulti-Parameter	Probe	Twice Daily C	alibration Verif	ication also Cal	ibrated Weekly	
GENERAL C	OMMENTS								
Ferrous Iron $= 6$	0,23 1	ng/L							
Multi-Paramete							· . ·		
Field Parameter	rs Measured in	Flow-Through (	Cell						
Pump Placemer	nt Depth = 2	<b>D.7</b> ft							
Pump Rate = (	2.5-1m	in				c (7-year avera	ge low and high	n / 2019 / Avg in	Bold)
Well Diameter					ORP	112.7	287.2	287.2	169.6
Screen Interval	= 10-30				DO	3.06	9.76	9.76	7.10
					PH	5.92	6.52	5.92	6.18
			· · · · · · · · · · · · · · · · · · ·		Cond.	0.402	1.003	0.502	0.587

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GENERAL INFORMATIC	DN						
SITE NAME	СНААР		PROJECT NO.		605	565355	
SAMPLE NO.	PZ020-20A		WELL NO.		Р	Z020	
DATE/TIME COLLECTED SAMPLE METHOD	6/15/20 PRO-ACTIVE SS	a 1540 MONSOON	PERSONNEL	Jo	СН	, 	
SAMPLE MEDIA: SAMPLE QA SPLIT: SAMPLE QC DUPLICATE: MS/MSD REQUESTED	Groundwater YES NO YES NO YES NO	DUPLICAT	IT SAMPLE NO. È SAMPLE NO. D SAMPLE NO.		N A N A N A		
SAMPLE CONTAINERS, Sample Container 2 - 500 mL Amber 3 - 40 mL VOA 1 - 500 mL HDPE 1 - 250 mL HDPE 1 - 250 mL HDPE 1 - 250 mL Amber WELL PURCINC DATA	Preservat 6°C 6°C, HCl 6°C, H2S 6°C	<u></u>	Analysis Requ Explosives + M Methane (RSK TKN (351.2), SO <sub>4</sub> (9056A), Sulfide (9034) DOC (9060A)	MNX (8330A) ( 175) NH <sub>3</sub> (350.1), N Alkalinity (232	(O <sub>2</sub> /NO <sub>3</sub> (353.2 20B)	)	
WELL PURGING DATA Date Time Started Time Completed <u>PID Measurements</u> Background Breathing Zone Well Head Purge Water	6/15/20 1590 1540 ND ND ND ND		Depth to Water ( Well Casing Y Volume of Wa Casing Vo Minimu	epth (ft. BTOC ater (ft. BTOC Column Length Volume (per ft tter in Well (L clumes to Purge um to Purge (L ctual Purge (L	) 1 ) 2	32.33 11.69 20.64 0.62 12.8 NA 201 201 201	
FIELD MEASUREMENTS Time Amount Purged (L)		ture Conductivity s) (mS/cm)	y Dissolved Oxygen (mg/L)	Redox (mV)	Turbidity (NTU)	Depth to Water (ft BTOC)	Purge Rate (L/min)
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	8 1.38 0 1.36 4 1.34 8 1.34 8 1.34 7 1.34 7 1.34 0 1.35	8,24 7,55 7,27 7,09 7,02 7,01 6,89 7,07	97 101 106 107 106 106 106	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	11,71 11,71 11,72 11,72 11,72 11,72 11,72	0.5
FIELD EQUIPMENT AND							
Water Level Probe Water Quality Meter	Model Heron Horiba U-52 Multi-Paran	eter Probe	Calibration Checked Again Twice Daily Ca			librated Weekly	
GENERAL COMMENTS Ferrous Iron = 6,91 r Multi-Parameter Probe Unit # Field Parameters Measured in Pump Placement Depth = $2$							· · · · · · · · · · · · · · · · · · ·
	nin			c (7-year avera	ge low and hig	h / 2019 / Avg in	Bold)
Well Diameter = 2"			ORP	21.7	203.1	68.6	101.0
Screen Interval = 10-30			DO PH	1.73	4.72	3.65	3.21
			Cond.	<u>6.31</u> 0.796	<u>6.84</u> 1.047	6.73	6.65 0.911

### WELL DEVELOPMENT LOG

Project: CHAAP OU	1 RAO Pe	rformance	Monitoring	5		_	Well No	<b></b>	NAL	A
Project No: <u>60565355</u> Develo. Method Peristaltic pu	imp and tu	bing				-	Date Samplers		<u>· 5-28</u> РН	-20
Develo, moulou remaine pr	unp una ta		WI	ELL MEA	SUREME	- <u>NTS</u>	Bampiers	•	<u>к</u> н	
	We	ll inside dia				1"				
	~~~		length (ft)			10'	<u></u>		<u> </u>	-
		of well casi				30 1	રેલ્ટ			-
		al water lev f Casing St			7.50	2'				-
F		asing volu			75)	<u>~</u> =11.5	X , I	6 = 3	6 L	-
			conditions		Iear-	Windy		<u> </u>		-
•			<u>SAM</u>	PLING M	EASURE	<u>MENT</u>				
DISCHARGE	<b></b>				1 .	T		T		
Time	0940	0945	0950	0955	1000	1005	1010	1015	1020	1025
Water level (ft. bgs)	7,53	7.53	7.53	7.53	7.53	7.53	7.53	7.53	7.53	7.5 <b>3</b>
Pump Placement Depth (ft bgs)	29	27	25	22	20	25	25	25	<b>d</b> 45	25
Discharge (Liters)	5	10	15	20	25	30	35	40	45	50
WATER QUALITY DATA										
рН	6.33	6.26	624	624	6-23	6.23	6.24	6-28	6.30	6-30
Temperature (°C)	12.49	12,59	12.52	12.63	12.61	12.65	12.85	13.02	13.07	13.01
Conductivity (mS/cm)	0.951	0.939	0.929	0.930	0.928	6.425	0.927	0.424	0.930	0,922
Dissolved Oxygen (mg/L)	1.67	1.09	0.67	0.66	0.62	0,60	0.59	0.58	0.54	0.56
Redox (ORP) (mV)	-82	-179	-213	-213	-222	-229	-230	-237	-239	-239
Turbidity (NTUs) initial/end	68.5 36.1	42.1	37.2	36.1	43.0	50.5	48.7	44.6	40.2	33.4
Color	H. BIN To clear	Clear	Clear	clear	Clear	c left		chear	clear	CleAt
Odor	None	None	Nome	word	None	Name	Nome	None	None	Nent
	L								1.7	<u> </u>
Total discharge: <u>50</u> Method of disposal of discharge		· ·	τO	(.)		Casir	ng volumes	removed:	13.	88
whether of disposar of discharge	u water.	-			<u>AK</u> SSURANO	CE				
Water Level I	ndicator:		Solinst Inc					Calibrated	•	1
Water Quality				riha - c	152			Calibrated		~
Comments:		I GA	llan A		3.8L	x 3	= /]	42		
	/	Q						_		
- As	(3.4	LXI	0)+	11,4	L =	47.4				
u.39 9										

-1

### WELL DEVELOPMENT LOG

Project: CHAAP OU1 RAO Performance Monitoring							Well No: PM-21B				
								5-29			
WELL MEASUREMENTS											
Well inside diameter (in): Screen length (ft): $10$ Depth of well casing (ft bgs): $40$ Initial water level (ft bgs): $7.72$ Top of Casing Stick-up (ft): $2$ Fluid well casing volume (Liters): $(40-7.72) = 32.28 \times .10 = 5.10 L$											
Weather conditions: <u>Cloudy</u> , <u>Calm</u> , <u>Lepe</u> F											
SAMPLING MEASUREMENT											
<b>DISCHARGE</b>			1	1	].	<u>,</u>	<u>r                                     </u>	1			
Time	0810	0815	0570	0825	0830	0840	0850	0900	01100	0920	
Water level (ft. bgs)	7.72	7.72	7.72	7.72	7:72	7.72	7.72	7.72	7.72	7.72	
Pump Placement Depth (ft bgs)	39	37	355	32	30	355	35	35	35	35	
Discharge (Liters)	5	10	15	20	25	355	45	515	65	757	
WATER QUALITY DATA											
рН	6.20	6.23	6.22	6-20	6:20	6.22	6:26	6.28	6.29	6.29	
Temperature (°C)	12:30	12.00	12,15	12.1万	12.27	12.lel	12.12	12.70	12.58	12.63	
Conductivity (mS/cm)	0.989	0.986	0.967	0.967	0.967	0.960	0.957	O.9F4	0.953	0.963	
Dissolved Oxygen (mg/L)	2.33	0.91	0.79	0.71	0.64	0.57	0.48	0.46	0.43	0.41	
Redox (ORP) (mV)	-7	-63	-755	-85	-93	-101	-108	-113	-117	-119	
Turbidity (NTUs) initial/end	87.8	61.3	F7.7 FD.3	49.1	Fn2.8 44.4	43.3	45.0	42.2	37.57	31.8	
Color	(leav	Clear	Ucew	Ciear	Ckar	Clear	Clear	Clear	Cleev	Clear	
Odor	none	none	none	none	none	none	none	none	none	none	
Total discharge: 75		-				Casir	ng volumes	removed:	TARE	14.53	
Total discharge:       Int       Casing volumes removed:       Int       Int       Casing volumes removed:       Int       Int </td											
QUALITY ASSURANCE											
Water Level Indicator: Water Quality Meters:			Solinst Indicator Horiba - V52					Calibrated:			
Comments:	gallon added = 7.62 x 3 = 29.82										
$(F.16L \times 10) + 22.8 = 74.4L$											

Project: CHAAP OU	1 RAO Pe	rformance	Monitoring	5		_	Well No		-224	
Project No: <u>60565355</u> Develo. Method Peristaltic pu	ump and tu	bing				_	Date Samplers		<del>:28-20</del> H	
F	£	0	WI	ELL MEA	SUREME	- NTS	Sumptors	· <u> </u>	<u>''</u>	
	Wa	11 incide di	-		· · · · · · · · · · · · · · · · · · ·					
	we		ameter (in) length (ft)		10			<u> </u>		-
			ing (ft bgs)		30'	BG-S				_
			vel (ft bgs): tick-up (ft):		8.6	<u>,</u>				-
F			ne (Liters):		8,62)=	= 21.38	· X . 16	; = 3,0	42	<b>_</b>
		Weather	conditions	<u> </u>		Wind				-
<b>DISCHARGE</b>			<u>SAM</u>	PLING M	EASURE	MENT	J			
Time	1120	1125	1130	1135	1140	1145	1150	1155	1200	1205
Water level (ft. bgs)	8,67	8.67	8.67	8.67	8.67	8.67	8.67	8.67	8.67	8.67
Pump Placement Depth (ft bgs)	29	27	25	22	20	25	25	25	25	25
Discharge (Liters)	5	10	15	20	25	Z	35	40	45	50
WATER QUALITY DATA	·									
рН	6.18	6.14	6.12	6.12	6.11	6.10	6.11	6.12	6,13	6.14
Temperature (°C)	13.01	17.55	74,47	17,47	17.23	17,44	17.44	17.51	17,54	17.63
Conductivity (mS/cm)	. 940	.944	, 936	.927	,932	.935	.926	,929	.929	-933
Dissolved Oxygen (mg/L)	0.41	0.38	0.37	0.35	0.35	0.45	0,36	0.35	0.34	0.34
Redox (ORP) (mV)	-178	-171	-167	-164	-160	-158	- 154	-152	-15)	-150
Turbidity (NTUs) initial/end	43.8	42.1	67.1	77.5	54.1	57.8	55.4	56.2	53.4	52,2
	29.7 L+:	<u> </u>	53:8 Yellow	70.7 Yellow	/57,3 Ye/lau	61.3 Yellow	/36.7 Yellow	<u>/55,2</u> Yellow	/65,0 Yellow	<u> </u>
Color	Brown	Tint	Tint	Tint	tint-	Tint	Tint	Tiut	Tint	Tint
Odor	5light	Slight	Shight	<i>Slig</i> h+	Slight	Slight	57.jg/ +	5%ight	Slight	Slight
Total discharge:50	12					Casi	ng volumes	removed:	14.6	5(
Method of disposal of discharge	d water:			FAW J	TANK					
			<u>01</u>	ALITY A	SSURAN	<u>CE</u>				_
Water Level I			Solinst Inc					Calibrated		<u> </u>
Water Quality Comments:	/ Meters:	1 GAI	HONI Ion Ada		3.8L >	< 3=	11.0	Calibrated	:	<u> </u>
				int Pr		Reason	For	Turb	Readin	95
		Bein			L `					1
(3,42×10)+	. 11.4	12 =	g high 45	.6 L						

Project: CHAAP OU1 RAO Performance Monitoring Well No: PM - 22B														
Project No: 60565355		•				-		5-20						
Develo. Method Peristaltic pu	imp and tul	bing				-	Samplers:	TYI	24 5	0				
			WE	ELL MEA	SUREME	<u>NTS</u>								
	Wel		ameter (in): length (ft):							-				
	-	of well casi	ng (ft bgs):	ЧO			181 I	-		-				
			vel (ft bgs):		<u> </u>					-				
FI			ick-up (ft): ne (Liters):		.72)=	Z1 28 x	110 =	<u> </u>		-				
		Weather	conditions:	Cloud	14.10	Im, Ce	-h°	11.00		_				
	SAMPLING MEASUREMENT													
<b>DISCHARGE</b>	·	T	T	T	<u></u>			·····						
Time	1000	1005	1010	1015	1020	1030	1040	VORO	1100	1110				
Water level (ft. bgs)	8.77	8.77	8.77	8.77	8.77	8.77	8.77	8.77	8.77	8.77				
Pump Placement Depth (ft bgs)	39	37	317	33	ЗФ	30	35	35	35	35				
Discharge (Liters)														
WATER QUALITY DATA														
рН	6.2h	25 6.14 6.11 6.11 6.11 6.13 6.13 6.13 6.14 6.15												
Temperature (°C)	12.77	12.45	1259	12.73	1267	12.82	12.86	12.98	13.07	13.23				
Conductivity (mS/cm)	111	1.11	1.11	1.13	1.10	1.10	1.09	1.09	1.09	1.09				
Dissolved Oxygen (mg/L)	0.75	0.51	0.44	0.41	0.39	037	0.36	0.34	0.34	033				
Redox (ORP) (mV)	-101	-109	-111	-114	-115	-110	-118	-120	-121	-122				
Turbidity (NTUs) initial/end	124	333	171 90.9	174 95-6	129	239	130/417	73.8	82.4	45.9				
Color	light brun	ht. brwn	nore	none	none	Lł. Brwn	none	none	nore	none				
Odor	none	none	vione	none	none	none	none	none	none	none				
Total discharge: 75L						Casir	ng volumes	removed:	15	· · · · · · · · · · · · · · · · · · ·				
Method of disposal of discharged	d water:			IDW .	Tank									
			<u>QU</u>	ALITY A	<u>SSURANC</u>	<u>)</u>								
Water Level I			Solinst Inc					Calibrated		V				
Water Quality Comments:	Meters:		Hovit	NA-UF	52			Calibrated	:	V				
Comments:	-	20	allon a	dded =	-7.6L	x3=2	2.8							
	-	1	)											
	(F.OOL ×10)+22.8 = 72.8L													

Project: CHAAP OU1 RAO Performance Monitoring Well No: PM23A													
Project No: <u>60565355</u> Develo. Method Peristaltic pu	mn and tul	ning				-	Date: Samplers:	-5-31 TV					
Develo. Method <u>Terislatile pu</u>		, Jing				-	Samplers.		30.				
			<u></u>	LL NEA	SUREME	112							
	Well		meter (in):	Contra Co						_			
	Denth o		length (ft): ng (ft bgs):							-			
			/el (ft bgs):		8			<u>_</u>		-			
_	Top of	f Casing St	ick-up (ft):	(30-5		(16=	3.89	7		-			
Fl	uid well ca	-	ne (Liters):		2	7-05	22	P	1 10	-			
Weather conditions: <u>Sunary, 75°F, 23mph winds</u> SAMPLING MEASUREMENT													
ISCHARGE													
Time	11255	1130	11355	1140	1145	1150	1155	1200	12055	1215			
Water level (ft. bgs)	5.82	<b>F</b> .77	5.77	5.77	h.77	ห.77	দ্য.77	<u> </u>	6.77	5-77			
Pump Placement Depth (ft bgs)	29	27	25	23	21	20	25	255	2.5	25			
bischarge (Liters) $\overline{11}$ $10$ $15$ $20$ $25$ $36$ $35$ $40$ $45$ $55$													
WATER QUALITY DATA													
рН	(o. h(c	6.43	6.40	6.44	6.45	6.47	6.52	6.52	6.53	657			
Temperature (°C)	1292	13.04	13.26	13.32	13.58	13.62	13.50	13.68	13.75	13.81			
Conductivity (mS/cm)	0.973	0.965	0.958	0.9F3	0.952	0.943	0.950	0.953	0.947	0.949			
Dissolved Oxygen (mg/L)	1.14	0.83	0.64	0.57	D.F. 3	0.50	0.69	0.51	0.48	0.44			
Redox (ORP) (mV)	-32	-45	-50		-68	-71	-79	-80	-83	-87			
Turbidity (NTUs) initial/end	67.1 24.6	49.1	27.05	31.7	20.6 i1.72	33.6	16.8	9.67	13,9 7.71	623			
Color	U. Yellow	(t. Yellow	Yellow	nove	None	none	none	none	none	hone			
Odor	none	none	none	none	none	none	none	none	none	None			
Total discharge: <u>「万万し</u>						Casir	ng volumes	removed:	14.1	4			
Method of disposal of discharged	l water:			IDW	Tan	<u> </u>							
			<u>QU</u>	ALITY A	SSURANC	<u>CE</u>				,			
Water Level I Water Quality			Solinst Ind	licator 0 a · U	-52			Calibrated Calibrated	-	<u> </u>			
Comments: <u> </u>													
	(3.8	59LX	10)+	11.41	'_ =	70.	Z						

Project: CHAAP OU1 RAO Performance Monitoring Well No: PM23B											
Project No: 60565355 Develo. Method Peristaltic pu	mp and tul	bing		· · · · · · · · · · · · · · · · · · ·		-		7-31- TY			
<b>_</b>			WE	LL MEAS	SUREME	<u>NTS</u>	ľ		<u> </u>	····	
Fl	Depth of Initia Top of	f well casir I water lev Casing Sti Ising volum	length (ft): ng (ft bgs): el (ft bgs): ck-up (ft): ne (Liters): conditions:	10 40 7.70 2 (40-5 500	5.79) ny, 8	sorf,	5.4 25n				
<b>DISCHARGE</b>			SAMI	PLING MI	EASUREN	<u>AENT</u>					
Time	1255	1300	1305	1310	1320	1330	1340	1350	1400	1410	
Water level (ft. BTOC) begs	F.92	5.87	<u> મ</u> િ.જી	h.87	5.87	F.87	ନ୍ଟ୍ୟ	5.87	5.87	5.87	
Pump Placement Depth (ft <del>BTOC</del> ) bg S	39	31	317	33	31	30	35	35	35	35	
Discharge (Liters)	5	61	15	20	30	40	50	60	70	80	
WATER QUALITY DATA											
рН	6.24	6.16	0.11	6-10	6.09	6.16	6.08	6.17	6.17	6.19	
Temperature (°C)	13.79	14.26	13.92	14.07	14.42	14.50	14.21	14.02	14.3я́	[4.]]	
Conductivity (mS/cm)	1.27	1.29	1.29	1.30	1.29	127	1.29	1.29	1.29	1.28	
Dissolved Oxygen (mg/L)	0.42	0.42	0.41	0.40	0.40	0.42	0.39	0.40	0.53	0.39	
Redox (ORP) (mV)	-62	-69	-72	-74	-79	-82	-84	-8 <del>5</del>	-87	-88	
Turbidity (NTUs) initial/end	49.29	33:4	29.4	11.7 8.49	7.90 5.46	12.0	34.8 F.32	5.73	7.66	6.01	
Color	Lt. Yellow	H. yellow	L+. Yellow	Lt. Yellow	none	none	none	none	none	none	
Odor	none	none	none	none	nonp	hone	none	none	none	none	
Total discharge: <u>SOL</u> Method of disposal of discharge	duriatam			101			ig volumes	removed:	14.0	13	
Method of disposal of discharge	u water.		QU	IDW	<u>Tan</u>						
	Water Level Indicator: Water Quality Meters: Comments:Solinst Indicator TY TSI 556 MPS, LaMotte turb Hoviba U-F2Calibrated:VComments:Ty ASI 556 MPS, LaMotte turb Hoviba U-F2Calibrated:VZ gallens addeel = 7.6L + 3=22.8L										
			) —					-			
(F.	$(F_1.47L \times 10) + 22.8L = 77.55$										

Project: CHAAP OU1 RAO Performance Monitoring Well No: PM-248A														
Project No: 60565355		•				-		5-20	7-20					
Develo. Method Peristaltic pu	mp and tub	oing				_	Samplers	TY	1 20					
			<u>WE</u>	LL MEA	SUREME	<u>NTS</u>								
	Depth o Initia Top of	Screen f well casi: I water lev Casing St	umeter (in): length (ft): ng (ft bgs): vel (ft bgs): ick-up (ft):	10 30 9.00 2						-				
FI	uid well ca						y = 3	36		-				
		Weather	conditions:		0.	alm	70-1	<u> </u>		-				
DISCHARGE			<u>SAMI</u>	PLING M	EASŬREN	<u>AENT</u>								
Time	1155	12.00	1205	1210	1215	1220	12255	1230	1236					
Water level (ft. bgs)	9.00	9.00					9.00	9.00						
Pump Placement Depth (ft bgs)	29	27	25	23	21	20	25	25	25					
Discharge (Liters)	15	10	15	20	25	30	35	210	45					
WATER QUALITY DATA														
рН	6.45	45 6.47 6.42 6.43 6.45 6.45 6.44 6.44 6.45												
Temperature (°C)	12.76	13.08	12.89	13-37	13.34	13.46	13.14	13.41	13.54					
Conductivity (mS/cm)	1.05	1.07	1.07	1-07	1-07	1.07	1.08	1.08	1.08					
Dissolved Oxygen (mg/L)	0.62	0.58	0.60	0.55	0.55	0.57	0.49	0.57	0.56					
Redox (ORP) (mV)	-114	-104	-94	-87	-82	-77	-80	-76	-73					
Turbidity (NTUs) initial/end	267	67.9	4167	160 46.9	105	74.10	160	33.0	25.5					
Color	Lt. brun	none	Lt. brwn	none	none	none	NONP		none	-				
Odor	none	none	none	none	neve	none	none	none	none	Ty hone				
Total discharge: <u> </u>	l water:			IDU	) Tan		ig volumes	removed:	13.39					
- •		•	QU		SSURANC					<u></u> _				
Water Level Indicator: Solinst Indicator Calibrated:														
Water Quality Comments:		-	Horik	201-ULe				Calibrated		Ň.				
	-	190	allon.	addee	1=3.	8L X 3	5711.6	16						
$(3.36\times10) + 11.4L = 45$														

Project: CHAAP OU1 RAO Performance Monitoring Well No: 19M24B										
Project No: 60565355 Develo. Method Peristaltic pu	mp and tu	hing				-	Date: Samplers	5-2		I
Develo. Method <u>Teristance pe</u>	inp and tu	onig	X/E	TT MEA	SIDEME	-	Samplers	· <u> </u>	30	
• •			WE		<u>SUREME</u>	<u>N15</u>				
		Screen	ameter (in): length (ft): ng (ft bgs):	10						-
	Initia	al water lev	vel (ft bgs):	8.8	7					_
FI			ick-up (ft): ne (Liters):		5772	1105	4.98	1		_
		Weather	conditions:	Sunn	$\frac{1}{N}$ , (a)	$m_{i}$	72°F			-
					EASUREN	•				-
DISCHARGE		<u>r</u>		<u></u>						
Time	1305	1310	1315	1320	1325	1335	1345	1355	1405	1415
Water level (ft. bgs)	8.85	8.85	8.85	ন্ত.ন্তচ	8.85	8-85	8.85	8.85	8.8F	8.85
Pump Placement Depth (ft bgs)	39	37	35	33	31	30	35	35	35	35
Discharge (Liters)	n	10	15	20	25	35	45	55	65	75
WATER QUALITY DATA										
рН	10-29	6.20	6.18	6.10	6.17	6.14	613	6.13	6.12	6.12
Temperature (°C)	13.60	13.72	13.79	13.74	13.66	13.71	13.75	13.69	14.08	13.88
Conductivity (mS/cm)	1.24	1.23	1.21	1.19	1.19	1.18	1.19	1.18	1.18	1.19
Dissolved Oxygen (mg/L)	0.36	0.32	0-34	0.32	0-30	0.31	0.31	0-31	0.29	0.30
Redox (ORP) (mV)		-121	-1255	-128	-129		-132	-133		-134
Turbidity (NTUs) initial/end	724/207	433	155 328	123	103	146	189	63.3	FO.8 46.7	49.7
Color	Lt. Yellow	H. Yellow	H.	4. brun	none	nore	none	none	none	none
Odor	none	none	none	none	none	nore	non	hone	none	none
Total discharge: $75$ Method of disposal of discharged	l water:		101	N Tar	15	Casir	ng volumes	removed:	15.0	6
					SSURANC	CE				
Water Level I	ndicator:		Solinst Ind			_		Calibrated	:	
Water Quality Comments:		•		201- V(	02			Calibrated		Ž
	1	2 gal	lons ad	deel=	7.61 x	3= 2	2.8L			
ſ		J								
l	4.98	LXI	0) +	22.	8=	72.6	0			

Project: CHAAP OU1 RAO Performance Monitoring Well No: 12M25A													
Project No: <u>60565355</u> Develo. Method Peristaltic pu	mn and tul	hing				<b>-</b> .	Date: Samplers:		1-20				
Develo. Method <u>Tenstanie pe</u>	mp and tu	onig				-	Samplers:	TY	10	R-14			
			<u>WE</u>	ELL MEAS	<u>SUREME</u>	<u>NTS</u>							
		Screen	umeter (in): length (ft):	10						-			
			ng (ft bgs):		<del>.</del>					-			
			/el (ft bgs): ick-up (ft):						. <u></u> .	-			
F			ne (Liters):		(17.0)	x.167	- 4.10	9		-			
Weather conditions: <u>Clear</u> , 10 m°F, 16 mph winds													
SAMPLING MEASUREMENT													
DISCHARGE	F	T-101-2+101-						· · · · · · · · · · · · · · · · · · ·	· · · ·				
Time	0750	0755	0800	08057	0810	0ন্তাদ	0825	08357	08455	৩৪নন			
Water level (ft. bgs)	1.66	1.90	2.66	2.99	3.22	3.157	3.57	3.57	4.12	4.12			
Pump Placement Depth (ft bgs)	29	27	257	23	21	20	25	25	25	25			
Discharge (Liters)	5	10	15	20	25	30	40	50	60	70			
WATER QUALITY DATA													
pH	6.16	6.16 6.13 6.11 6.10 6.06 6.11 6.11 6.18 6.20 6.21											
Temperature (°C)	1223	12.19	12-21	12.33	12:32	12.11	1225	12.19	12.15	12.33			
Conductivity (mS/cm)	1.42	1.43	1.43	1.37	1.355	1.34	\$ 1.33	1.31	1.28	1-255			
Dissolved Oxygen (mg/L)	10.01	9.10	8.83	8.52	8.50	7.19	8.30	8.18	8.13	8:40			
Redox (ORP) (mV)	24	7	1	0	0	-2	١	Б	8	В			
Turbidity (NTUs) initial/end	221 78.1	162	134	27.0	28.4	16.4	27.8 8.13	7.60	9.71 4.46	15.9			
Color	Ut. Yellow	Lt. Yellow	4. Vellow	nore	hone	none	none	none	none	none			
Odor	none	none	none	wne	nonc	none	none	none	none	none			
Total discharge: 70L Method of disposal of discharged	l water:			100	2 Tan		ig volumes	removed:	14.9	3			
			OU	•	SSURANC								
Water Level I	ndicator		Solinst Ind					Calibrated					
Water Quality		-	Horik		1-52			Calibrated					
Comments:		Air bu	bbles			the o		1		·····			
	-	-	allons	11 .	= 7.6	LX3=		36					
r		J	-										
$(4.691\times10) + 22.8L = 69.7$													

Project: CHAAP OU	_	Well No:	PMZ	БB						
Project No: 60565355 Develo. Method Peristaltic p	ump and tu	hing				-	Date: Samplers:	19.31. TV		RH
Develo. Method <u>Teristatile p</u>	ump and tu	onig	WE	LL MEAS	SUREMEI	NTS	Samplers.	<u> </u>		<u>K</u> H
					SURGATE	115				
	Well		meter (in): length (ft):							-
		f well casin	ng (ft bgs):	40		· · · · · · · · ·			·	-
			vel (ft bgs): ick-up (ft):							-
F	luid well ca				90) x .	10=5	.78			-
		Weather	conditions:		- 1		22 mp	h wind	5	-
<b>DISCHARGE</b>			<u>SAM</u>	PLING M	EASUREN	<u>AENT</u>				
Time		1020								
Thic	0926	0930	0935	0945	0955	1005	1015	1025	1035	1045
Water level (ft. BFOC) bรร	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90
Pump Placement Depth (ft BTOC) bqS	39	37	35	33	31	30	35	35	35	35
Discharge (Liters)	Ψ	10	15	215	357	45	Б፹	65	75	85
WATER QUALITY DATA										
рН	6-30	6.38	6.38	6.34	6.38	6.38	6.41	6.42	6.42	6.43
Temperature (°C)	12.91	12.83	13.04	13.17	13.28	13.65	13.571	13.42	13.50	13.66
Conductivity (mS/cm)	151	1.52	<u>।</u> .দ3	1.572	1.53	1.49	1.53	1.51	1.53	1.52
Dissolved Oxygen (mg/L)	1.69	0.55	0.48	0.44	0.69	0.46	0.43	0.42	0.49	0.43
Redox (ORP) (mV)	0	-28	-42	-50	-60	-63	-66	-70 -	-72	-75
Turbidity (NTUs) initial/end	17.5	28.5	37.0		11.0	9.39 5.36	6.21 5.69	11.0	9.1 4.28	17.71 4.39
Color	none	None	none	none	None	None	none	none	none	none
Odor	none	none	none	none	hone	none	none	none	none	none
Total discharge: <u>85</u> L	-					Casir	ng volumes	removed:	14.7	1
Method of disposal of discharge	ed water:			IDW	Tan	5		<u></u> .		
				ALITY A	SSURAN	<u>CE</u>				,
Water Level Water Qualit		TV	Solinst Inc XSI 556 N		tta turh			Calibrated		
Comments:	y wieleis:		toriba					Calibrated		
			gallon		1 = 7.6	L X.3	= 22.8L	-		
			,							
,										

 $(5.78L \times 10) + 22.8L = 80.0L$ 

Project: CHAAP OU1 RAO Performance Monitoring Well No: PM1() A												
	Project No: <u>60565355</u> Develo. Method Peristaltic pu	umn and tul	ning				-	Date: Samplers:	5-31- TV	20		
	Povero. monou <u>remound</u> pu	inp und tu	5.mg	WF	LL MEAS	SUREME	NTS	Gampiers.		<u> </u>		
		337 11	, ,.		, –	JORDAVILL	110					
		Well	inside dia Screen	meter (1n): length (ft):							-	
		Depth of	f well casir	ng (ft bgs):	30							
			l water lev Casing Sti			-	· .			··	-	
	Fl	uid well ca	sing volum	ne (Liters):	(30-8	.447x	-16=	3.46				
			Weather c		CLOU	···· / /	·····			<u>.</u>	-	
	DISCHARGE			<u>SAM</u>	PLING MI	EASUREN	AENT					
	Time	1500	1505	1510	1515	1520	1525	1530	1535	1540	1545	
2	Water level (ft. BTOC)	29	27	25	23	21		25		25	25	
4	bq S Pump Placement Depth (ft		-	<u>~~</u>	63		20		25	25	27	
•	BTOC)	8.50	8.50	8.50	8.40	B.50	8.50	8.70	୫.50	8.40	8.50	
	Discharge (Liters)	5	10	15	20	Ch	30	35	40	45	50	
	WATER QUALITY DATA	*** ••										
	pH	6.45 6.32 6.32 6.33 6.36 6.41 6.43 6.49 6.49 6.										
	Temperature (°C)	12.87 13.22 13.17 13.50 13.86 14.43 13.62 13.69 13.76 13										
	Conductivity (mS/cm)	1.05	1.65	1.65	1.05	1.05	1.05	1.0斤	1.06	1.00	1.06	
	Dissolved Oxygen (mg/L)	1.07	0.86	0.73	0.66	0.61	0.56	0.60	0.54	0.51	0.51	
	Redox (ORP) (mV)	-8	-16	-21	-26	-32	-37	-41	-45	-46	-47	
	Turbidity (NTUs) initial/end	20.5	34.60	49.5 27.2	30.4	24.4	19.0 8.7h	15.2	10.6	5.99	12.4 3.54	
	Color	1+. Nellow	none	none	none	none	none	none	none	none	none	
	Odor	none	none	none	none	None	none	none	none	none	none	
	Total discharge: 50L					· .		g volumes	removed:	14.4	9	
	Method of disposal of discharge	d water:			IDU							
					JALITY A	SSURAN	<u>CE</u>				. /	
,	Water Level I Water Quality			Solinst Ind YSI 556 N	dicator APS, LaMo	otte turh			Calibrated Calibrated			
	Comments:	,	· '	Horiba	U-52							
				Jallov	adde	d= 3.8	LX3=	11.46			<u> </u>	
	(3.45L×10)+11.4L=45.9											
		(2)	451	- XI	0).	+ 1   .	UL:	= 45	. 9			
			• • -		-							

Project: CHAAP OU1 RAO Performance Monitoring

Project No: 60565355

Develo. Method Peristaltic pump and tubing

Well No:	PM26B	
Date:	06-01-20	
Samplers:	OG YT	

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#### WELL MEASUREMENTS

Well inside diameter (in): 1

Screen length (ft): <u>IO</u> Depth of well casing (ft bgs): <u>UO</u>

Initial water level (ft bgs): 8.55

Top of Casing Stick-up (ft):

Fluid well casing volume (Liters):  $(40-8.55) \times 10=5.03$ 

SAMPLING MEASUREMENT

Weather conditions: Sunny, 71°F, 20mph winds

#### DISCHARGE

Water level (ft. BTOC)

Pump Placement Depth (ft

bgs

Time

BTOC) 695 Discharge (Liters)

0815 6820 0830 0825 0835 0845 0915 0855 0925 0905 8.67 8.67 8.67 8.67 8.61 8.67 8.67 8.67 8.67 8.67 39 33 37 35 31 35 35 30 35 35 25 35 45 55 75 20 5 10 15 65

#### WATER QUALITY DATA

рН	F.87	<b>দ.</b> 77	5-77	5.80	5.82	H.87	5.94	17.99	6.00	6.03
Temperature (°C)	14.19	13.43	13.47	13.70	13.70	13.73	13.85	13.81	13.62	13.69
Conductivity (mS/cm)	1.50	1.40	1.38	1.36	1.36	133	1.32	1-30	1.30	1.28
Dissolved Oxygen (mg/L)	1.34	0.84	0.70	0.60	0.57	0.68	0.50	0.47	0.50	0.43
Redox (ORP) (mV)	0	-25	-37	-49	-53	-(01	-67	-72	-75	-78
Turbidity (NTUs) initial/end	45.7	44.5	36.2	39.5	34.4	20.7	8.88	(0.11 7.31	6.71	7.47
Color	1t. gray	nove	none	none	none	none	nore	none	none	nonp
Odor	none	none	none	none	none	none	none	Nove	none	none
Total discharge: 755 Method of disposal of discharge	d water:		····	15	w Tr	Casir	ıg volumes	removed:	14.4	71
			OU	ALITY A						
Water Level I Water Quality		~*	Solinst Inc	licator				Calibrated		V,
Water Quality Comments:	/ Meters:	F	loniba 1	1PS, LaMc リーらよ	otte turb		· · · · · · · · · · · · · · · · · · ·	Calibrated	1:	
				aeld eo	I= 7. U	2LX 3	=22.8	3		
(F).	03l	x10	) †	2.81	-= 7	3.12				

		v	VELL DE	VELOPN	MENT LO	<b>)</b> G					
Project: <u>CHAAP OU</u> Project No: <u>60565355</u> Develo. Method Peristaltic pu			Monitoring	<u> </u>	\	-		PM 2			
<b>_</b>			WE	ELL MEA	SUREME	- NTS	<b>T</b>				
Well inside diameter (in):1Screen length (ft):10Depth of well casing (ft bgs):30Initial water level (ft bgs): $6.72$ Top of Casing Stick-up (ft):2Fluid well casing volume (Liters): $(30 - (6.72) \times 0.1) = 3.72$ Weather conditions: $partly (1 ovely), (alm, 74)^{\circ}$ SAMPLING MEASUREMENTDISCHARGETime											
Time	1455	1500	1505	1510	1515	1520	1525	1530	1535	1540	
Water level (ft. bgs)	6.72	6.72	6.72	6-72	6-72	6.72	6.72	6.72	6.72	6.72	
Pump Placement Depth (ft bgs)	29	27	25	23	21	20	25	25	25	25	
Discharge (Liters)	ń	10	115	20	25	30	3ñ	40	45	50	
WATER QUALITY DATA		**.								· · · · · · · · · · · · · · · · · · ·	
pH	6.11	6.09	6.08	6-07	6.08	6.08	6.05	6.05	6.05	6.04	
Temperature (°C)	12.85	12.79	12.66	12.77	12.70	12.79	12.98	12.66	12.70	12.78	
Conductivity (mS/cm)	1.03	1.02	1.02	6.993	0.991	1.00	1.01	1.0)	1.01	1.02	
Dissolved Oxygen (mg/L)	0.39 7477	0.35	0-35	0.33	0-32	0.40	0.32	0.31	0.31	0-30	
Redox (ORP) (mV)	-121	-120	-117	-113	-110	-109	-109	-106	-103	-101	
Turbidity (NTUs) initial/end	79.9	287	78.9	40.4	105-145	88.3	103 <b>5</b> 78.4	174.9 3 R.4	31.8	23.4	
Color	none	none	none	neve	nove			none	none	nonp	
Odor	none	none	Gene	Nene	none	none	none	none	none	none	
Total discharge: <u><b>「</b></u> つし						Casir	ng volumes	removed:	13.4	4	
Method of disposal of discharged water:											

### **QUALITY ASSURANCE**

Water Level Indicator: Water Quality Meters: Comments:	Solinst Indicator Horiba-Ulez	Calibrated: Calibrated:	<u> </u>
	Igallon added= 3.86 × 3	S=11.4L	
(3.72	×10)+11.4 =48.6L		

Project: CHAAP OU1 RAO Performance Monitoring Well No: PM 27 B										
Project No: <u>60565355</u> Develo. Method Peristaltic pr	ump and tul	hing				-		5-30 TV		
Develo. Method <u>Tenstante p</u>	inp and tu	onig	WE	LL MEAS	SUPFME	- NTS	Samplets.			
			<u>WI</u>		SUREME	15				
	Well		meter (in):							-
	Depth of		length (ft): ng (ft bgs):							-
	Initia	l water lev	vel (ft bgs):	6.71						-
			ick-up (ft):		······································					
r.	luid well ca		conditions:			<u>X.167</u>				
				PLING M	}'					•
DISCHARGE			BAN							
Time	0750	6755	0900	ORAE	ene					
	0100	0755	0800	0805	0815	0825	০৪3দ	0845	0855	0905
Water level (ft. B <del>TOC</del> ) bq S	6.79	6.79	6.79	6.79	6.79	6.79	6.79	6.79	6.79	6.79
Pump Placement Depth (ft BTOC) b9S	39	37	355	33	31	30	357	35	35	35
Discharge (Liters)	5	10	1দ	20	30	40	<b>FO</b>	60	70	80
WATER QUALITY DATA	<b></b>									
pH	6.24	6.28	6.27	6.26	6.24	6.28	6.34	6.35	6.38	6.39
Temperature (°C)	12.40	12.39	12.43	12.48	12.573	12.64	12.61	12.84	12.68	12.62
Conductivity (mS/cm)	1.18	1.18	1.18	1.19	1.18	1.18	1.17	1.17	1.17	1.17
Dissolved Oxygen (mg/L)	0.62	0.52	0.49	0.47	0.hh	0.4FT	0.42	0.63	0.38	0.36
Redox (ORP) (mV)	9	-40	-64	-74	-82	-89	-97	-103	-104	-105
Turbidity (NTUs) initial/end	210	224	240 36.8	200/38.0	93.57	43.1	61.0	17.4	12.0	11.4
Color	Lt. Yeilow	Lt. Yellow	none	none	none	none		hone	none	
Odor		none	none	none	none	Nove	pone	none	none	none
Total discharge: <u>ROL</u> Method of disposal of discharge	ed water:			IDU	Tan		ig volumes	removed:	15.01	
			<u></u>	ALITY A				···		
Water Level	Indicator:		Solinst Inc					Calibrated	ŀ	
Water Quality		TY		<del>IPS, LaMe</del>	tte turb	toriba-U		Calibrated		~
Comments:			7	. ī		7 ( . ]	2 - 00	81		
			<u>L gallo</u>	ns ada	1ed = 1	leLx.	5 = 22	.86		
	(	~								
	(石.3	33L.	( U)	+22	. 8L =	76.1	L			

Project: CHAAP OU	1 RAO Per	formance	Monitoring			_	Well No:	PM2	8A	
Project No: 60565355 Develo. Method Peristaltic pu	man and tai					-	Date		<u>0-20</u>	
Develo. Method Perstanc pt	imp and tu	oing			· · · ·	-	Samplers:		20	
			<u>WF</u>	ELL MEA	SUREME	<u>NTS</u>				
F	Depth o Initia	Screen of well casi al water lev f Casing St	umeter (in): length (ft): ng (ft bgs): vel (ft bgs): ick-up (ft): ne (Liters):	30 H 30 4.27 2				······		-
		Weather	conditions:	Partly	1 CLOUD	$\frac{0}{4} - \frac{1}{4}$	, bre	eru		-
					EASUREN	J	-1-02-0			-
<b>DISCHARGE</b>	. <u> </u>			1			**		·	
Time	1325	1330	1335	1340	1345	1350	1355 55	1400	1405	1415
Water level (ft. bgs)	4.40	4.40	440	4.40	4.40	4.40	4.4D	4.40	21.40	4.40
Pump Placement Depth (ft bgs)	29	27	25	23	2\$	20	25	25	25	25
Discharge (Liters)	5	10	15	20	25	30	35	40	45	দদ
WATER QUALITY DATA										
рН	6.15	6.03	6.14	6-14	6.10	6.17	6.18	6.18	6.18	6.20
Temperature (°C)	11.84	11.79	11.92	12.36	12.39	12.21	11.97	12.12	12.39	12.47
Conductivity (mS/cm)	1.12	1.12	1-12	1.11	1.12	1.11	1.11	1.11	1.10	1.10
Dissolved Oxygen (mg/L)	0.39	0.75	0.65	0.57	0-52	0.49	0.44	0.42	0.40	0.39
Redox (ORP) (mV)	-11	-19	-30	-35	-39	-41	-44	-45	-46	-48
Turbidity (NTUs) initial/end	620	225	289	1650	155	132 98.1	118 92.7	89.5 69.2	73.3 61.4	Б1.6 49.9
Color	Lt. brwn	lt. brwn	Lt. Brwn	Lt. brwn	1+. brwn	Lt. brwn	none	none	none	none
Odor	None	none	none	none	none	none	none	none	none	none
Total discharge: <u>「「」」</u> Method of disposal of discharged	1 water:			10	W TO	Casir	ig volumes	removed:	13.3	5
			QU	ALITY A	SSURANC					
Water Level In Water Quality Comments:			Solinst Ind 1-10vik		52			Calibrated Calibrated	-	<u> </u>
	-	Igal	lon ad	ded = 3	1-8L X?	3=11.4	11			
(	4.12L	×10)	)+11.0	UL=1	F2.(	eL				

m . -

Project: CHAAP OU	1 RAO Per	formance	Monitoring			_		PMG		
Project No: <u>60565355</u> Develo. Method Peristaltic pu	mp and tu	bing				-		<u>5-30</u> TY		
		<u></u>	WF	LL MEAS	SUREME	- NTS	Sumptors.			
	Wel		umeter (in):	1						-
	Depth o		length (ft): ng (ft bgs):				· • •			
	Initia	al water lev	/el (ft bgs):	4.4	1					-
Fl			ick-up (ft): ne (Liters):		1.41)x	-16=	5.60	7		-
			conditions:				, 70°F			- -
<b>DISCHARGE</b>			<u>SAMI</u>	PLING M	EASUREN	<u>AENT</u>				
		1	T	<u> </u>						
Time	1446		1455	1500	1510	1520	1530	1540	1500	1600
Water level (ft. bgs)	4.39	4.41	4.41	4.41	4.41	4.41	4.41	4.41	4.41	4.41
Pump Placement Depth (ft bgs)	39	37	355	33	31	30	35	35	35	35
Discharge (Liters)	n	16	15	20	30	40	50	60	70	80
WATER QUALITY DATA										
pH	6.70	6.70	6.67	6.60	6.B	6.70	6.70	6.68	6.70	6.72
Temperature (°C)	13.13	13.12	13.41	13.44	13.70	13.69	13.23	13.42	13.56	13.44
Conductivity (mS/cm)	1.50	I.FO	1.48	1.49	1.44	1.46	1.46	1.47	1.46	1.47
Dissolved Oxygen (mg/L)	0.73	0.48	0.40	0.38	0.35	0.40	0.31	0-30	୦.29	0.29
Redox (ORP) (mV)	-127	-130	-131	-132	-130	-135	-136	-136	-138	-139
Turbidity (NTUs) initial/end	219 48.0	514	132	250	109 9.h	40.7	67.1	7.4	6.4	12.9
Color	Lt. brwn	ct. brwn	none	none	none	none	none	none	none	none
Odor	none	none	none	none	none	none	nove	none	None	none
Total discharge: 80L					<b>.</b>	Casin	ig volumes	removed:	14.0	6
Method of disposal of discharged	l water:			10		ank				
·					SSURANC	<u>:</u>				./
Water Level In Water Quality			Solinst Ind		U-56	2		Calibrated: Calibrated:	-	
Comments:	-				Ŭ				-	<u> </u>
~	· -		jallons							· · · ·
(ñ.69	LXIC	)+;	22.8	L = d	70	9.7L				

Project: CHAAP OU1 RAO Performance Monitoring Well No: PM29A														
Project No: <u>60565355</u> Develo. Method Peristaltic pu	umn and tul	aina				_	Date:		0-20	,				
Develo. Method refisiance pr	imp and tu	Jillg			~~~~~	_	Samplers:		20					
			<u>WE</u>	LL MEA	<u>SUREME</u>	<u>NTS</u>								
	Wel		ameter (in):							_				
	Depth o		length (ft): ng (ft bgs):							-				
			/el (ft bgs):		1.1					-				
	Top of	f Casing St	ick-up (ft):	2						-				
F	luid well ca	asing volun	ne (Liters):	(30-4	67) × (					-				
Weather conditions: <u>Cloudy</u> , <u>U3°F</u> , <u>15mph</u> winds SAMPLING MEASUREMENT														
DISCHARGE SAMPLING MEASUREMENT														
Time	have		00.00			1			<u></u>					
	0945	0950	0955	1000	1005	1010	1015	1020	10255	10355				
Water level (ft. bgs)	4.86	4.86	4.86	4.86	4.Xo	4.86	4.86	4.86	486	4.86				
Pump Placement Depth (ft bgs)	29	27	255	23	21	20	25	25	25	25				
Discharge (Liters)	5	10	15	20	25	30	35	40	45	55				
WATER QUALITY DATA														
рН	6.17	6.13	6.17	6.19	6.21	6.22	6.21	6.22	6.22	6.22				
Temperature (°C)	11.73	11.83	11.81	11.90	11.98	12.00	11.91	11.83	11.83	11.82				
Conductivity (mS/cm)	0.997	0.971	0.973	<u>0.95</u> 6	0.961	0.950	0.958	6.957	0.954	0.955				
Dissolved Oxygen (mg/L)	0.65	0.4Б	0.42	0.39	0.37	0.35	0.36	0.35	0.34	0.34				
Redox (ORP) (mV)	-255	-355	-43	-46	-49	-52	-54	-56	-57	ন্দস্থ				
Turbidity (NTUs) initial/end	108	122	118	103	96.6	89.6 FI.8	188	31.5	44.3 39.9	28.9				
Color	NONe	none	none	nore		none	none	mone	none	none				
Odor	none	none	none	none	None	none	none	none	none	none				
Total discharge: 万万 Method of disposal of discharged	l water:			IDU	U Tar		ig volumes	removed:	13.58	8				
		_	QU		SSURANC									
Water Level I	ndicator:		Solinst Ind	icator —				Calibrated		$\mathbf{V}$				
Water Quality		. –	Horiba		うみ			Calibrated	-	V				
Comments:														
	-	19	allon	adder	<u>v1= 3.</u>	8L X 3	5 = 11.4	16		······				
$(4.051 \times 10) + 11.41 = 51.91$														

Project: CHAAP OU1 RAO Performance Monitoring Well No: PM29B													
Project No: <u>60565355</u> Develo. Method Peristaltic pu	mp and tul	oing				-	Date Samplers		<u>2-20</u> 50 1	RH			
<u></u>			WF	LL MEAS	SUREME	- NTS	Sumptors						
	Wel	l inside dia	umeter (in):										
		Screen	length (ft):	10						-			
			ng (ft bgs): /el (ft bgs):							-			
in	Top of	f Casing St	ick-up (ft):	2						-			
FI	uid well ca	Weather	ne (Liters): conditions:	(40-0 (1000)	$\frac{1.72}{10.01}$	<u>XO16</u> PP711	= h.L			-			
SAMPLING MEASUREMENT													
DISCHARGE		I	1			T	1	<u></u>	<u> </u>	<u> </u>			
Time	1110	1115	1120	1125	11355	1145	1155	12017	1215	1225			
Water level (ft. bgs)	4.77	4.77	477	4.77	4.77	4.77	4.77	4.77	4.77	4.77			
Pump Placement Depth (ft bgs)	39	37	35	33	31	30	35	35	35	35			
Discharge (Liters)	n	10	15	20	30	46	60	100	70	80			
WATER QUALITY DATA	·												
pH	6.257	6.15	6.25	6.23	6.29	6.29	6.30	6.31	6.32	6.33			
Temperature (°C)	12.45	12.38	12.00	12.52	12.64	12.70	12.69	12.74	12.79	12.72			
Conductivity (mS/cm)	1.14	1.13	113	1.14	1.13	1.13	1.12	1.12	1.12	1.12			
Dissolved Oxygen (mg/L)	0.38	0.355	0.32	0-32	0.31	0:31	0.30	0-30	0.29	0.29			
Redox (ORP) (mV)	-85	-87	-91	-91	-97	-99	-100	-102	-103	-164			
Turbidity (NTUs) initial/end	93.9 174.0	175	180	135	117	67.1	66.4	34.7	30.9	31.3			
Color	Lt. Yellow	14. Yellow	Lt. Yellow	i+. Yellow	40	none	None		None	none			
Odor		none	none	none	none	none	none	none	none	none			
Total discharge: <u>SOL</u> Method of disposal of discharged	water						ng volumes	removed:	14.12	<u> </u>			
method of disposal of disenargee	water.								<u> </u>				
Water Level In			Solinst Ind	icator		<u>26</u>		Calibrated		$\checkmark$			
Water Quality Comments:	Meters:		Hoviba	x U-1	52			Calibrated					
	-	2 9	rillons a	dded =	7.6LX	3-22	.8L						
								1					
Color Odor Total discharge: <u>SOL</u> Method of disposal of discharged Water Level In Water Quality	NON E water:	17.5 24. 40llow none	18.5 Lt. Yellow None <u>OU</u> Solinst Ind Hoviba	47.7 it. yellow none IDh ALITY AS icator 2 U-1	VIDO NOME Nome J Tan SSURANC	None none Casir CE 3 = 22	None None ng volumes	DONE NONE removed:	30.0 None none 14.15	none none			

(5-64LX10)+22.8L=79.2L

SITE NAME CHAAP	OU1 RAO_P	erformance M	lonitoring	PROJECT NO	•	605	65355	
sample no. $E\omega$ 7	- Pm2	1A-3-	25	WELL NO	ρ	m-21	I A	
DATE/TIME COLLECTED SAMPLE METHOD	<b>5-28</b> Perist	taltic Pump and	1045 I tubing	_ PERSONNEL		RH		
SAMPLE MEDIA: SAMPLE QA SPLIT: SAMPLE QC DUPLICATE: MS/MSD REQUESTED	<b>Groundwater</b> YES YES YES		DUPLICATI	T SAMPLE NO. E SAMPLE NO. D SAMPLE NO.				
SAMPLE CONTAINERS, PI	RESERVATI	VES ANALY	SIS	• •				
Sample Container 2 - 500 mL Amber		<u>Preservative</u> 6°C		<u>Analysis Requ</u> Explosives + 1	MNX (8330A)			
3 - 40 mL VOA 1 - 500 mL HDPE		6°C, HCl 6°C, H <sub>2</sub> S0 <sub>4</sub>		Methane (RSk	C 175) NH <sub>3</sub> (350.1), NC	NO (252.2)		
1 - 250 mL HDPE		6°С, п <sub>2</sub> 50 <sub>4</sub> 6°С			Alkalinity (2320		)	
1 - 250 mL HDPE		6°C, ZnOAc/l	NaOH	Sulfide (9034)				
1 - 250 mL Amber		6°C		DOC (9060A)				
WELL PURGING DATA							7.	
Date Time Started Time Completed	(	28-20 030 040		_ Depth t _ Water _ Well Casing	ll Depth (ft bgs) o Water (ft bgs) Column Length Volume (per ft)		50 .50 22,5 +16	
PID Measurements	^	VD			ater in Well (L)		3.6 L	
Background		<u>い</u> ル			olumes to Purge		<u> </u>	
Breathing Zone					um to Purge (L) Actual Purge (L)		7.5 L	
Purge Water		vD			······································			······
	· · ·	~~~						
FIELD MEASUREMENTS Time Amount Purged (L)	рН	Temperature (Celsius)	Conductivity (mS/cm)	Dissolved Oxygen (mg/L	Redox (ORP) ) (mV)	Turbidity (NTU)	Depth to Water (ft BTOC)	Purge Rate (L/min)
1030 2.5	6-35	14.20	0-924	0.53	-236	15.0	7,50	.5
1035 5	6.37	14.21	0.919	0.54	-235	13.3	7.50	.5
1040 7.5	6.38	14.26	0.920	0.69	-235	12.0	7.50	•5
			D	11				
				A/			1	
				<i>v</i>				
								<u> </u>
Water Level Probe	<u>Model</u> Heron	DN Iti-Parameter P	rohe		nst Calibrated Le alibration Verifi		librated Weekly	
Water Quality Meter	Much u=49 Mu							
GENERAL COMMENTS		<del>//</del>	<u>ب</u>					
Ferrous Iron = m Multi-Parameter Probe Unit #	** *	1 X 3=	0.15					<u> </u>
Field Parameters Measured in F	Horbe							
$\frac{1}{\text{Sample Depth (ft bgs)}} = 2$								
Pump Rate = 15	/							
Temp Well Diameter =	" 2030'							

**GENERAL INFORMATION** 

#### CHAAP OU1 RAO\_Performance Monitoring SITE NAME PROJECT NO. 60565355 SAMPLE NO. EW7-PM21B-3-35 PM-21B WELL NO. DATE/TIME COLLECTED 5-29-20 / 0935 PERSONNEL SAMPLE METHOD Peristaltic Pump and tubing RΗ SAMPLE MEDIA: Groundwater SAMPLE QA SPLIT: YES SPLIT SAMPLE NO. NA SAMPLE QC DUPLICATE: YES DUPLICATE SAMPLE NO. NA MS/MSD REQUESTED MS/MSD SAMPLE NO. NA YES МÓ SAMPLE CONTAINERS, PRESERVATIVES, ANALYSIS Sample Container Preservative Analysis Requested 2 - 500 mL Amber 6°C Explosives + MNX (8330A) 3 - 40 mL VOA Methane (RSK 175) 6°C, HCl 1 - 500 mL HDPE 6°C, H<sub>2</sub>S0<sub>4</sub> TKN (351.2), NH<sub>3</sub> (350.1), NO<sub>2</sub>/NO<sub>3</sub> (353.2) 1 - 250 mL HDPE SO4 (9056A), Alkalinity (2320B) 6℃ 1 - 250 mL HDPE 6°C, ZnOAc/NaOH Sulfide (9034) 1 - 250 mL Amber 6°C DOC (9060A) WELL PURGING DATA Well Depth (ft bgs) 5-29-20 Date Depth to Water (ft bgs) 810 Water Column Length Time Started 32.28 Time Completed 093h Well Casing Volume (per ft) 0.10L Volume of Water in Well (L) 5.10 PID Measurements Background ND Casing Volumes to Purge 3-TV Breathing Zone ND Minimum to Purge (L) Well Head ND Actual Purge (L) 7.56 Purge Water ND FIELD MEASUREMENTS Time Amount pН Temperature Conductivity Dissolved Redox (ORP) Turbidity Depth to Water Purge Rate (ft BTOC) 695 Purged (L) (Celsius) (mS/cm) Oxygen (mg/L) (mV) (NTU) (L/min) 2.5 0925 6.29 12.78 0.952 0.40 -120 26.5 7.72 Om 12.83 0.951 -121 6930 5 10.30 0.40 24.6 7.72 0.5 7.5 10.29 1291 0.39 09377 0.952 -122 26.9 7.72 0.5 FIELD EQUIPMENT AND CALIBRATION Model Calibration Water Level Probe Heron Checked Against Calibrated Length Water Quality Meter Hach u-49 Multi-Parameter Probe Twice Daily Calibration Verification also Calibrated Weekly GENERAL COMMENTS Ferrous Iron = >15 nellow at Water liant mg/L 11/113 Multi-Parameter Probe Unit # 59600 sample time Field Parameters Measured in Flow-Through Cell Sample Depth (ft bgs) = 35Pump Rate = O. FL/Min Temp Well Diameter = | " Screen Interval (ft bgs) = 30-40

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SITE NAME	CHAAI	OU1 RAO_P	Performance M	onitoring	PROJECT NO	)	605	65355	
SAMPLE NO	. Εω7-	Pm22A	- 3-25		_ WELL NO		Pm22	4	
DATE/TIME SAMPLE ME	COLLECTED THOD	<u>5-28-</u> Peris	20 / 12 taltic Pump and	225 tubing	_ PERSONNEI	د	RH		
SAMPLE ME SAMPLE QA	SPLIT:	Groundwater YES		SPLI	– F SAMPLE NO		·		
SAMPLE QC MS/MSD RE(	DUPLICATE: QUESTED	YES YES	NO		E SAMPLE NO D SAMPLE NO	·			
SAMPLE CO	NTAINERS, F	RESERVATI	VES, ANALYS	SIS					
Sample Conta			Preservative		Analysis Requ	uested			
2 - 500 mL Ar	nber		6°C		Explosives +	MNX (8330A)			
3 - 40 mL VO			6°C, HCl		Methane (RSI				
1 - 500 mL HI			6°C, H <sub>2</sub> S0 <sub>4</sub>			NH <sub>3</sub> (350.1), N			
1 - 250 mL HI			6°C		SO <sub>4</sub> (9056A),	Alkalinity (232	0B)		
1 - 250 mL HI			6°C, ZnOAc/N	laOH	Sulfide (9034				
1 - 250 mL Ar	nber		6°C		DOC (9060A)	) .			
WELL PURC	GING DATA								
			-		We	ll Depth (ft bgs)	_	30	
Date			-28.20		Depth t	o Water (ft bgs)			
Time Started			1210		Water	Column Length		8.62 21.38	
Time Complet	ed		1220			Volume (per ft)	<b>`</b>	.16	
PID Measurem	<u>ents</u>					ater in Well (L)		3.42	
Background	l		ND			olumes to Purge		3	
Breathing Z	one		ND			um to Purge (L)			
Well Head			ND	·····		Actual Purge (L)		7.5	
Purge Water			ND		-	0 ( )			
		· · · · · ·			-				
Time	SUREMENTS Amount Purged (L)	рН	Temperature (Celsius)	Conductivity (mS/cm)	Dissolved Oxygen (mg/L	Redox (ORP) ) (mV)	Turbidity (NTU)	Depth to Water (ft BTOC)	Purge Rate (L/min)
1210	2.5	6.16	17.88	0,945	0.34	-148	61.4	8.67	.5
1215	5	6.18	18.32	0.938	0.33	-146	58.7	8.67	.5
1220	7.5	6.14	18.57	0-932	0.53	-148	59.1	8.67	•5
					RA				
					RA				
FIELD EQUI Water Level Pr Water Quality	obe	<u>Model</u> Heron	DN Iti-Parameter Pr	obe		nst Calibrated L alibration Verifi		ibrated Weekly	
Water Level Pr Water Quality	obe Meter <	<u>Model</u> Heron		obe	Checked Again			ibrated Weekly	
Water Level Pr Water Quality GENERAL C	obe Meter <	<u>Model</u> Heron <del>Hach u-49</del> Mu		obe	Checked Again			ibrated Weekly	
Water Level Pr Water Quality GENERAL Co Ferrous Iron =	obe Meter OMMENTS	Model Heron Hach u-49 Mu ng/L	lti-Parameter Pr	obe	Checked Again			ibrated Weekly	
Water Level Pr Water Quality GENERAL C Ferrous Iron = Multi-Paramete	obe Meter C MMENTS 15 m r Probe Unit #	Model Heron Hach u-49 Mu Ig/L Hovida	lti-Parameter Pr	obe	Checked Again			ibrated Weekly	
Water Level Pr Water Quality GENERAL C Ferrous Iron = Multi-Paramete Field Paramete	obe Meter C MMENTS 15 m ar Probe Unit # rs Measured in 1	Model Heron Hach u-49 Mu ng/L Horiga Flow-Through G	lti-Parameter Pr	obe	Checked Again			ibrated Weekly	
Water Level Pr Water Quality GENERAL C Ferrous Iron = Multi-Paramete Field Paramete Sample Depth	obe Meter OMMENTS r Probe Unit # rs Measured in 1 (ft bgs) =	Model Heron Hach u-49 Mu Ig/L Hovida	lti-Parameter Pr	obe	Checked Again			ibrated Weekly	
Water Level Pr Water Quality GENERAL CC Ferrous Iron = Multi-Paramete Sample Depth Pump Rate =	obe Meter C MMENTS Masured in 1 (ft bgs) =	Model Heron Hach u-49 Mu ng/L Horiga Flow-Through of 25'	lti-Parameter Pr	obe	Checked Again			ibrated Weekly	
Water Level Pr Water Quality GENERAL CC Ferrous Iron = Multi-Paramete Sample Depth Pump Rate = Temp Well Dia	obe Meter OMMENTS 15 m r Probe Unit # rs Measured in 1 (ft bgs) = 5 meter = 1	Model Heron Hach u-49 Mu ng/L Flow-Through of C5 1	lti-Parameter Pr	obe	Checked Again			ibrated Weekly	
Water Level Pr Water Quality GENERAL CC Ferrous Iron = Multi-Paramete Sample Depth Pump Rate =	obe Meter OMMENTS 15 m r Probe Unit # rs Measured in 1 (ft bgs) = 5 meter = 1	Model Heron Hach u-49 Mu ng/L Horiga Flow-Through of 25'	lti-Parameter Pr	obe	Checked Again			ibrated Weekly	

GENERAL INFORMATION

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SITE NAME	СНААН	OU1 RAO_Pe	erformance Mo	onitoring	_PROJECT NO.		6056	5355	
SAMPLE NC	EW7-	PM22R	3-3-34	<u>.</u>	_ WELL NO.	PM-	-22B		
DATE/TIME	COLLECTED	5-29-	20/11	2.5	PERSONNEL	TV	RH		
SAMPLE ME			altic Pump and				50		
SAMPLE ME	-DIA	Groundwater							
SAMPLE QA		YES	NO)	SPLI	SAMPLE NO.	MA			
SAMPLE QC	DUPLICATE:	YES	NO		E SAMPLE NO.				
MS/MSD RE		YES	(NGP		SAMPLE NO.				·
SAMPLE CO	ONTAINERS, P	DESEDVATIN	TEC ANALVO						
Sample Conta			Preservative	15	Analysis Requ	ested			
2 - 500 mL A			6°C		Explosives + N				
3 - 40 mL VO	DA		6°C, HCl	·	Methane (RSK				
1 - 500 mL H	DPE		6°C, H <sub>2</sub> S0 <sub>4</sub>			NH <sub>3</sub> (350.1), NO	D <sub>2</sub> /NO <sub>3</sub> (353.2)		
1 - 250 mL H			6°C		SO <sub>4</sub> (9056A),	Alkalinity (2320	)B)	-	
<u>1 - 250 mL H</u>			6°C, ZnOAc/Na	aOH	Sulfide (9034)				
1 - 250 mL A			6°C		DOC (9060A)				
WELL PURC	GING DATA				Wal	l Depth (ft bgs)	Un		
Date		5-29-2	20			Water (ft bgs)	8.77		
Time Started		1000				Column Length			
Time Complet	ted .	1025				Volume (per ft)			
PID Measuren	nents					ter in Well (L)			
Background	-	ND			Casing Vo	lumes to Purge		_	······································
Breathing Z	lone	ND			-	im to Purge (L)		-	
Well Head		ND			A	ctual Purge (L)	7.	5L	
Purge Wate	r .	ND			-				
FIELD MEA	SUREMENTS								
Time	A								
	Amount	pH	Temperature	Conductivity	Dissolved	Redox (ORP)	Turbidity 1	Depth to Water	Purge Rate
	Amount Purged (L)	рН	Temperature (Celsius)	•	Dissolved Oxygen (mg/L)	. ,	Turbidity I (NTU)	(ft BTOC)	Purge Rate (L/min)
1115	Purged (L)	G.17	•	•		(mV)	(NTU)	(ft BTOC) 695	(L/min)
1120	Purged (L)	6.17	(Celsius)	(mS/cm)	Oxygen (mg/L)	. ,	(NTU)	(ft BFOC) 695 8.77	÷
	Purged (L)		(Celsius)	(mS/cm)	Oxygen (mg/L)	(mV) -124	(NTU)	(ft BTOC) 695	(L/min)
1120	Purged (L)	6.17	(Celsius) 13.91 13.89	(mS/cm)	Oxygen (mg/L) の・33 の・34	(mV) -124 -125	(NTU) (03.4) (01.57	(ft BFOC) 695 8.77 8.77	(L/min) <i>0.</i> 万 <i>0.</i> 万
1120	Purged (L)	6.17	(Celsius) 13.91 13.89	(mS/cm)	Oxygen (mg/L) の・33 の・34	(mV) -124 -125	(NTU) (03.4) (01.57	(ft BFOC) 695 8.77 8.77	(L/min) <i>0.</i> 万 <i>0.</i> 万
1120	Purged (L)	6.17	(Celsius) 13.91 13.89	(mS/cm)	Oxygen (mg/L) の・33 の・34	(mV) -124 -125	(NTU) (03.4) (01.57	(ft BFOC) 695 8.77 8.77	(L/min) <i>0.</i> 万 <i>0.</i> 万
1120	Purged (L)	6.17	(Celsius) 13.91 13.89	(mS/cm)	Oxygen (mg/L) の・33 の・34	(mV) -124 -125	(NTU) (03.4) (01.57	(ft BFOC) 695 8.77 8.77	(L/min) <i>0.</i> 万 <i>0.</i> 万
1120	Purged (L)	6.17	(Celsius) 13.91 13.89	(mS/cm)	Oxygen (mg/L) の・33 の・34	(mV) -124 -125	(NTU) (03.4) (01.57	(ft BFOC) 695 8.77 8.77	(L/min) <i>0.</i> 万 <i>0.</i> 万
1120	Purged (L)	6.17	(Celsius) 13.91 13.89	(mS/cm)	Oxygen (mg/L) の・33 の・34	(mV) -124 -125	(NTU) (03.4) (01.57	(ft BFOC) 695 8.77 8.77	(L/min) <i>0.</i> 万 <i>0.</i> 万
1120	Purged (L)	6.17	(Celsius) 13.91 13.89	(mS/cm)	Oxygen (mg/L) の・33 の・34	(mV) -124 -125	(NTU) (03.4) (01.57	(ft BFOC) 695 8.77 8.77	(L/min) <i>0.</i> 万 <i>0.</i> 万
1120	Purged (L)	6.17	(Celsius) 13.91 13.89	(mS/cm)	Oxygen (mg/L) の・33 の・34	(mV) -124 -125	(NTU) (03.4) (01.57	(ft BFOC) 695 8.77 8.77	(L/min) <i>0.</i> 万 <i>0.</i> 万
	Purged (L)	6.17 6.15 6.15	(Celsius) 13.91 13.89 13.93	(mS/cm)	Oxygen (mg/L) の・33 の・34	(mV) -124 -125	(NTU) (03.4) (01.57	(ft BFOC) 695 8.77 8.77	(L/min) <i>0.</i> 万 <i>0.</i> 万
	Purged (L)	6.17 6.15 6.15	(Celsius) 13.91 13.89 13.93	(mS/cm)	Oxygen (mg/L) <u> の</u> .34 <u> の</u> .34	(mV) -124 -125	(NTU) (03.4) (01.57	(ft BFOC) 695 8.77 8.77	(L/min) <i>0.</i> 万 <i>0.</i> 万
	Purged (L)	6.17 6.15 6.15 6.15	(Celsius) 13.91 13.89 13.93	(mS/cm)	Oxygen (mg/L) の・33 の・34	(mV) -124 -127 -123	(NTU) (03.4 (01.F (03.7	(ft BFOC) 695 8.77 8.77	(L/min) <i>0.</i> 万 <i>0.</i> 万
II20 II25	Purged (L)	G. 17 G. 15 G. 15 CALIBRATION Model Heron Hachgr-49 Mult	(Celsius) 13.91 13.89 13.93	(mS/cm)	Oxygen (mg/L) O.33 O.34 O.34 O.34 Calibration	(mV) -124 -127 -123 st Calibrated Le	(NTU) (03.4 (01.5 (03.7)	(ft BFOC) b95 8.77 8.77 5.77	(L/min) <i>0.</i> 万 <i>0.</i> 万
FIELD EQUI Water Level Pr Water Quality	Purged (L)	G.17 G.15 G.15 CALIBRATION Model Heron	(Celsius) 13.91 13.89 13.93	(mS/cm)	Oxygen (mg/L) O.33 O.34 O.34 O.34 Calibration Checked Again	(mV) -124 -127 -123 st Calibrated Le	(NTU) (03.4 (01.5 (03.7)	(ft BFOC) b95 8.77 8.77 5.77	(L/min) <i>0.</i> 万 <i>0.</i> 万
FIELD EQUI Water Level Pr Water Quality	Purged (L)	G.17 G.15 G.15 CALIBRATION Model Heron Hachyr-49 Mult	(Celsius) 13.91 13.89 13.93	(mS/cm)	Oxygen (mg/L) O.33 O.34 O.34 O.34 Calibration Checked Again Twice Daily Ca	(mV) -124 -125 -123 st Calibrated Le	(NTU) (a 3. 4 (a 1. F (a 3. 7) (a 3. 7) (b 3. 7) (b 3. 7) (c 3. 7) (c 3. 7) (c 3. 7) (c 3. 2) (c 3. 4) (c 1. F) (c 3. 4) (c 1. F) (c 3. 4) (c 1. F) (c 3. 2) (c 3. 2) (	(ft BFOC) b95 8.77 8.77 8.77 8.77	
FIELD EQUI Water Level Pr Water Quality GENERAL C Ferrous Iron =	Purged (L)	G.17 G.15 G.15 G.15 CALIBRATION Model Heron Hachar 49 Mult	(Celsius) 13.91 13.89 13.93	(mS/cm)	Oxygen (mg/L) O.33 O.34 O.34 O.34 Calibration Checked Again Twice Daily Ca	(mV) -124 -125 -123 st Calibrated Le	(NTU) (a 3. 4 (a 1. F (a 3. 7) (a 3. 7) (b 3. 7) (b 3. 7) (c 3. 7) (c 3. 7) (c 3. 7) (c 3. 2) (c 3. 4) (c 1. F) (c 3. 4) (c 1. F) (c 3. 4) (c 1. F) (c 3. 2) (c 3. 2) (	(ft BFOC) b95 8.77 8.77 8.77 8.77	
FIELD EQUI Water Level Pr Water Quality GENERAL C Ferrous Iron = Multi-Paramete	Purged (L)	G.17 G.15 G.15 G.15 CALIBRATION Model Heron Hachar-49 Mult Horon Hachar-49 Mult Horon Hachar-49 Mult	(Celsius) 13.91 13.89 13.93 	(mS/cm)	Oxygen (mg/L) O.33 O.34 O.34 O.34 Calibration Checked Again	(mV) -124 -125 -123 st Calibrated Le	(NTU) (a 3. 4 (a 1. F (a 3. 7) (a 3. 7) (b 3. 7) (b 3. 7) (c 3. 7) (c 3. 7) (c 3. 7) (c 3. 2) (c 3. 4) (c 1. F) (c 3. 4) (c 1. F) (c 3. 4) (c 1. F) (c 3. 2) (c 3. 2) (	(ft BFOC) b95 8.77 8.77 8.77 8.77	
FIELD EQUI Water Level Pr Water Quality GENERAL C Ferrous Iron = Multi-Paramete Field Paramete Sample Depth	Purged (L)	G.17 G.15 G.15 G.15 G.15 CALIBRATION Model Heron Hachar 49 Mult From ba- g/L Sg/L Sg/L Sg/L Sg/L Sg/L Sg/L Sg/L	(Celsius) 13.91 13.89 13.93 	(mS/cm)	Oxygen (mg/L) O.33 O.34 O.34 O.34 Calibration Checked Again Twice Daily Ca	(mV) -124 -125 -123 st Calibrated Le	(NTU) (a 3. 4 (a 1. F (a 3. 7)	(ft BFOC) b95 8.77 8.77 8.77 8.77	
FIELD EQUI Water Level Pr Water Quality GENERAL C Ferrous Iron = Multi-Paramete Field Paramete Sample Depth Pump Rate = (	Purged (L)	G.17 G.15 G.15 G.15 G.15 CALIBRATION Model Heron Hachar 49 Mult From ba- g/L Sg/L Sg/L Sg/L Sg/L Sg/L Sg/L Sg/L	(Celsius) 13.91 13.89 13.93 	(mS/cm)	Oxygen (mg/L) O.33 O.34 O.34 O.34 Calibration Checked Again Twice Daily Ca	(mV) -124 -125 -123 st Calibrated Le	(NTU) (a 3. 4 (a 1. F (a 3. 7)	(ft BFOC) b95 8.77 8.77 8.77 8.77	
FIELD EQUI Water Level Pr Water Quality GENERAL C Ferrous Iron = Multi-Paramete Field Paramete Sample Depth ( Pump Rate = ( Temp Well Dia	Purged (L) $2 \cdot 5$ $5 \cdot 0$ $7 \cdot 5$ PMENT AND ( pheter ) Meter ) $2 \cdot 5$ mer Probe Unit # 1 rs Measured in F (ft bgs) = $3 \cdot 5$ $2 \cdot 5 \cdot L / W$ meter = $1^{10}$	G.17 G.15 G.15 G.15 G.15 G.15 G.15 CALIBRATION Model Heron Hachar 49 Mult Fron ba g/L Sg/L Sg/L Sg/L Sg/L Sg/L Sg/L Sg/L	(Celsius) 13.91 13.89 13.93 	(mS/cm)	Oxygen (mg/L) O.33 O.34 O.34 O.34 Calibration Checked Again Twice Daily Ca	(mV) -124 -125 -123 st Calibrated Le	(NTU) (a 3. 4 (a 1. F (a 3. 7)	(ft BFOC) b95 8.77 8.77 8.77 8.77	
FIELD EQUI Water Level Pr Water Quality GENERAL C Ferrous Iron = Multi-Paramete Field Paramete Sample Depth ( Pump Rate = ( Temp Well Dia	Purged (L)	G.17 G.15 G.15 G.15 G.15 G.15 G.15 CALIBRATION Model Heron Hachar 49 Mult Fron ba g/L Sg/L Sg/L Sg/L Sg/L Sg/L Sg/L Sg/L	(Celsius) 13.91 13.89 13.93 	(mS/cm)	Oxygen (mg/L) O.33 O.34 O.34 O.34 Calibration Checked Again Twice Daily Ca	(mV) -124 -125 -123 st Calibrated Le	(NTU) (a 3. 4 (a 1. F (a 3. 7)	(ft BFOC) b95 8.77 8.77 8.77 8.77	

SITE NAME	CHAAI	POU1 RAO_P	erformance Mo	onitoring	PROJECT NO.		605	65355	
SAMPLE NO	EW7-	рмаза-	-3-2ñ	_	WELL NO.	PMa	23A		
DATE/TIME SAMPLE ME		<u>5-31-2</u> Perist	$\frac{0}{12}$	3 <i>0</i> tubing	_ PERSONNEL	<u> </u>			
SAMPLE ME		Groundwater							
SAMPLE QA		YES	NO	SPLT	r sample no.				
SAMPLE QC		(TES	NO				MAR 73A	-3-75	@ 0800
MS/MSD REC		YES	Ň	MS/MSI	SAMPLE NO.	2001 4			0800
SAMPLE CO	NTAINERS, P	RESERVATIV	VES ANALVS	IS					
Sample Contai		RESERVICE	Preservative	10	Analysis Requ	ested			
2 - 500 mL An			6°C		Explosives + N				
3 - 40 mL VO	A	······································	6°C, HCl		Methane (RSK				
1 - 500 mL HI	OPE		6°C, H <sub>2</sub> S0 <sub>4</sub>			NH <sub>3</sub> (350.1), NO		)	
1 - 250 mL HI			6°C			Alkalinity (2320	)B)		
1 - 250 mL HI			6°C, ZnOAc/N	aOH	Sulfide (9034)				
1 - 250 mL An		- Mart	6°C		DOC (9060A)				
WELL PURG	SING DATA						20		
D.		15 71 0	A		Wel	l Depth (ft bgs)	30		
Date		5-31-2	<u>_</u> U		_ Depth to	Water (ft bgs)	<u>5.77</u>		
Time Started	ađ	1125				Column Length		?	
Time Complete PID Measurem		1230			_ Well Casing	Volume (per ft) tter in Well (L)	0.10		·
Background		ND				lumes to Purge	3.70		
Breathing Z		NO	·			im to Purge (L)			
Well Head		ND				ctual Purge (L)	76		
Purge Water	•	ND							
					_				
FIELD MEAS	Amount Purged (L)	рН	Temperature (Celsius)	Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	Redox (ORP) (mV)	Turbidity (NTU)	Depth to Wate (ft.BTOC) 595	er Purge Rate (L/min)
1220	2.5	6.53	16.41	0.953	0.43	-88	6.70	n.77	0.5
1225	5.0	6.55	16.52	0.945		-90	5.44	5.77	0.5
1230	7.5	6.54	16.46	0.949		-91	7.90	3.77	0.5
V									
							_		
								<u> </u>	
FIELD EQUI		CALIBRATIO Model	Ν		Calibration				
Water Level Pr		Heron				st Calibrated Le	ength		
Water Quality I	Meter Ty	YSI 556 Multi-	Parameter Prob	e		alibration Verifi		ibrated Weekly	/
	-	Horiba U	-52						
GENERAL CO Ferrous Iron =		nα/Ι							
Multi-Paramete			_						
Field Parameter		the second se							
Sample Depth (									
Pump Rate = (									······································
Temp Well Dia									·
Screen Interval		)-30							

SITE NAME	CHAA	POU1 RAO_P	erformance Mo	onitoring	PROJECT NO.		605	5355	
SAMPLE NO.	EW7	- PM2?	3B-3-3	35	WELL NO.	PM2	3B		
DATE/TIME ( SAMPLE MET		5-31-2 Perist	2 <u>0   14</u> altic Pump and		_ PERSONNEL	<u>77</u>			
		C1							
SAMPLE MEI		Groundwater YES	NO	CDI F	T SAMPLE NO.	A DA			
SAMPLE QC		YES	NO NO		E SAMPLE NO.				:
MS/MSD REQ		YES	NO NO		D SAMPLE NO.			······.	
				-				·····	
SAMPLE CO		PRESERVATI		IS					
Sample Contai 2 - 500 mL An			<u>Preservative</u> 6°C		Analysis Reque				
3 - 40 mL VO			6°C, HCl		Explosives + M Methane (RSK				
1 - 500 mL HE			6°C, H <sub>2</sub> S0 <sub>4</sub>			$\overline{\rm NH}_3$ (350.1), NC	) <sub>2</sub> /NO <sub>3</sub> (353.2)		·····
1 - 250 mL HE	PE		6°C			Alkalinity (2320			
1 - 250 mL HD			6°C, ZnOAc/N	aOH	Sulfide (9034)				
1 - 250 mL An			6°C	<u></u>	DOC (9060A)				
WELL PURG	ING DATA						110	<b>`</b>	
Date		5-21-	20			Depth (ft bgs)	40		
Time Started		5-31-	20			Water (ft bgs)	5.8		
Time Complete	he	1425				Volume (per ft)	34.1		
PID Measurem		1929			- *	ter in Well (L)			
Background		ND				lumes to Purge	13.90	-	
Breathing Zo	one	ND				m to Purge (L)		_	
Well Head		ND		1997		ctual Purge (L)		.5	
Purge Water	•	ND			_		· · · · · · · · · ·		
FIELD MEAS						<del></del>			
Time	Amount Purged (L)	рН	Temperature (Celsius)	Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	Redox (ORP) (mV)	Turbidity (NTU)	Depth to Water (ft B <del>TOC)</del> 695	Purge Rate (L/min)
1415	2.5	6.17	14.00	1.28	0.38	-88	4.87	5.87	0.5
1420	5.0	6.12	14.33	1.29	0.39	-91	5.58	5.87	0.5
1425	7.5	10.14	14.51	1.27	0.40	-91	5.34	5.87	0.5
				<i>y</i>					
							-		
FIELD EQUIP	MENT AND		N .						
FIELD EQUI	IVIEINI AIND	Model	1 <b>.</b> 1		<b>Calibration</b>				
Water Level Pro		Heron			Checked Again	st Calibrated Le	ngth		
Water Quality N	Aleter	<del>YSI 556</del> Multi-		e	Twice Daily Ca	libration Verific	cation also Cal	brated Weekly	
GENERAL CO	MMENTS	Horiba V	- 10	<u></u>	<u> </u>				
Ferrous Iron =		ng/L							
Multi-Paramete									
Field Parameter			Cell						
Sample Depth (							· .		
Pump Rate = C									
Temp Well Dian	meter = $1^{11}$								
Screen Interval	(ft bgs) = 30	-40							
				··· · ··· · · ·					

GENERAL INFORMATION

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SITE NAME CHAAI	POU1 RAO_Pe	erformance M	onitoring	PROJECT NO.		605	65355	
SAMPLE NO. EW7	- PM24	1A-3-	25	_ WELL NO.	PM-2	4A		
DATE/TIME COLLECTED SAMPLE METHOD		D / 125 altic Pump and		PERSONNEL	7V 30			
SAMPLE MEDIA: SAMPLE QA SPLIT: SAMPLE QC DUPLICATE: MS/MSD REQUESTED	Groundwater YES YES YES	633	DUPLICATE	SAMPLE NO. SAMPLE NO. SAMPLE NO.	NA			
SAMPLE CONTAINERS, F           Sample Container           2 - 500 mL Amber           3 - 40 mL VOA           1 - 500 mL HDPE           1 - 250 mL HDPE           1 - 250 mL HDPE           1 - 250 mL Amber		<b>7ES, ANALYS</b> <u>Preservative</u> 6℃ 6℃, HCl 6℃, H <sub>2</sub> S0 <sub>4</sub> 6℃ 6℃, ZnOAc/N 6℃		Analysis Reque Explosives + M Methane (RSK TKN (351.2), N $SO_4$ (9056A), A Sulfide (9034) DOC (9060A)	NX (8330A) 175) NH <sub>3</sub> (350.1), NO			
WELL PURGING DATA Date Time Started Time Completed <u>PID Measurements Background Breathing Zone Well Head Purge Water </u>	ND ND ND	20		Depth to Water C Well Casing V Volume of Wat Casing Vol Minimut	Depth (ft bgs) Water (ft bgs) Jolumn Length Volume (per ft) er in Well (L) umes to Purge m to Purge (L) tual Purge (L)	21.0 0.16 (21 x.11	e)= 3.3(	0
FIELD MEASUREMENTS Time Amount Purged (L)	рН	Temperature (Celsius)	Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	Redox (ORP) (mV)	Turbidity (NTU)	Depth to Water (ft BTOC) bq S	Purge Rate (L/min)
1240 2.5 1245 5.0 1250 7.5	6.45 6.45 6.44	13.39 13.59 13.49	1.67 1.07 1.07	0.56 0.576 0.574	-70 -68 -68	22.2 18.3	9-00 9.00 9.00	0.5 0.5 0.5
Water Level Probe	CALIBRATION Model Heron Hachru-49 Multi			<u>Calibration</u> Checked Agains Twice Daily Cal			ibrated Weekly	
GENERAL COMMENTS Ferrous Iron = $2/5$ m Multi-Parameter Probe Unit # I Field Parameters Measured in F Sample Depth (ft bgs) = $255$ Pump Rate = $0.55$ / W Temp Well Diameter = $1'$ Screen Interval (ft bgs) = $200$	Now-Through Co	ell						

GENERAL INFORMATION

SITE NAME CHAA	P OU1 RAO_P	erformance M	onitoring	PROJECT NO.	·	6056	5355	
SAMPLE NO. EW7-	-PM241	3-3-3	5	WELL NO.	PM24	В		
DATE/TIME COLLECTED	5-29	-20/1	430	PERSONNEL	TV			
SAMPLE METHOD		taltic Pump and			50		·	×
				_				
SAMPLE MEDIA: SAMPLE QA SPLIT:	Groundwater YES	r xrô	CDI P	Γ SAMPLE NO.	AIA			
SAMPLE QC DUPLICATE:	YES			E SAMPLE NO.				
MS/MSD REQUESTED	YES	NO		D SAMPLE NO.				
SAMPLE CONTAINERS, I Sample Container	PRESERVATI	VES, ANALYS Preservative	SIS	Analysis Requ				
2 - 500 mL Amber		6°C		Explosives + N				
3 - 40 mL VOA		6°C, HCl		Methane (RSK				
1 - 500 mL HDPE		6°C, H <sub>2</sub> S0 <sub>4</sub>			NH <sub>3</sub> (350.1), NO	D <sub>2</sub> /NO <sub>3</sub> (353.2)		
1 - 250 mL HDPE		6°C		SO <sub>4</sub> (9056A),	Alkalinity (2320	)B)		
1 - 250 mL HDPE		6°C, ZnOAc/N	laOH	Sulfide (9034)				
1 - 250 mL Amber		6°C		DOC (9060A)				
WELL PURGING DATA			~ ~	Wal	l Depth (ft bgs)	40		
Date	5-29-	20			Water (ft bgs)	5.85		
Time Started	1305	$\sim$			Column Length			
Time Completed	1430			-	Volume (per ft)	0.10		
PID Measurements					ter in Well (L)	4.98		
Background	$\mathcal{M}$				lumes to Purge		-	
Breathing Zone	ND			-	im to Purge (L)		-	
Well Head Purge Water	ND			_ A	ctual Purge (L)	7.5		
	ND	·						
FIELD MEASUREMENTS								
Time Amount								
	pH	Temperature	· •	Dissolved	Redox (ORP)	•	Depth to Water	•
Purged (L)	рН	(Celsius)	Conductivity (mS/cm)	Dissolved Oxygen (mg/L)		Turbidity (NTU)	(ft BTOC)	Purge Rate (L/min)
Purged (L)	_	(Celsius)	(mS/cm)	Oxygen (mg/L)	(mV)	(NTU)	(ft BT <del>OC)</del> boy S	(L/min)
Purged (L)	6.11	(Celsius)	(mS/cm)	Oxygen (mg/L)	(mV)	(NTU) 46.8	(ft B <del>TOC)</del> bog S B·BH	(L/min)
Purged (L)	6.14 6.14	(Celsius) 14.26 14.17	(mS/cm)	Oxygen (mg/L) <i>0</i> -37 <i>0</i> -33	(mV) -133 -135	(NTU) 46.8 46.5	(ft BIOC) boj S <u>罗·罗片</u> 罗·罗片	(L/min) O.万 O.万
Purged (L)	6.11	(Celsius)	(mS/cm)	Oxygen (mg/L)	(mV)	(NTU) 46.8	(ft B <del>TOC)</del> bog S B·BH	(L/min)
Purged (L)	6.14 6.14	(Celsius) 14.26 14.17	(mS/cm)	Oxygen (mg/L) <i>0</i> -37 <i>0</i> -33	(mV) -133 -135	(NTU) 46.8 46.5	(ft BIOC) boj S <u>罗·罗片</u> 罗·罗片	(L/min) O.万 O.万
Purged (L)	6.14 6.14	(Celsius) 14.26 14.17	(mS/cm)	Oxygen (mg/L) <i>0</i> -37 <i>0</i> -33	(mV) -133 -135	(NTU) 46.8 46.5	(ft BIOC) boj S ダ・ <i>SF</i> <i>▼</i> ・ <i>SF</i>	(L/min) O.万 O.万
Purged (L)	6.14 6.14	(Celsius) 14.26 14.17	(mS/cm)	Oxygen (mg/L) <i>0</i> -37 <i>0</i> -33	(mV) -133 -135	(NTU) 46.8 46.5	(ft BIOC) boj S ダ・ <i>SF</i> <i>▼</i> ・ <i>SF</i>	(L/min) O.万 O.万
Purged (L)	6.14 6.14	(Celsius) 14.26 14.17	(mS/cm)	Oxygen (mg/L) <i>0</i> -37 <i>0</i> -33	(mV) -133 -135	(NTU) 46.8 46.5	(ft BIOC) boj S ダ・ <i>SF</i> <i>▼</i> ・ <i>SF</i>	(L/min) O.万 O.万
Purged (L)	6.14 6.14	(Celsius) 14.26 14.17	(mS/cm)	Oxygen (mg/L) <i>0</i> -37 <i>0</i> -33	(mV) -133 -135	(NTU) 46.8 46.5	(ft BIOC) boj S ダ・ <i>SF</i> <i>▼</i> ・ <i>SF</i>	(L/min) O.万 O.万
Purged (L)	6.14 6.14	(Celsius) 14.26 14.17	(mS/cm)	Oxygen (mg/L) <i>0</i> -37 <i>0</i> -33	(mV) -133 -135	(NTU) 46.8 46.5	(ft BIOC) boj S ダ・ <i>SF</i> <i>▼</i> ・ <i>SF</i>	(L/min) O.万 O.万
Purged (L)	6.14 6.14	(Celsius) 14.26 14.17	(mS/cm)	Oxygen (mg/L) <i>0</i> -37 <i>0</i> -33	(mV) -133 -135	(NTU) 46.8 46.5	(ft BIOC) boj S ダ・ <i>SF</i> <i>▼</i> ・ <i>SF</i>	(L/min) O.万 O.万
Purged (L)	6.14 6.14	(Celsius) 14.26 14.17	(mS/cm)	Oxygen (mg/L) <i>0</i> -37 <i>0</i> -33	(mV) -133 -135	(NTU) 46.8 46.5	(ft BIOC) boj S ダ・ <i>SF</i> <i>▼</i> ・ <i>SF</i>	(L/min) O.万 O.万
Purged (L)	(o · 11 (o · 14 (o · 13	(Celsius) 14.26 14.17 14.20	(mS/cm)	Oxygen (mg/L) <i>0</i> -37 <i>0</i> -33	(mV) -133 -135	(NTU) 46.8 46.5	(ft BIOC) boj S ダ・ <i>SF</i> <i>▼</i> ・ <i>SF</i>	(L/min) O.万 O.万
Purged (L)	(o · 11 (o · 14 (o · 13	(Celsius) 14.26 14.17 14.20	(mS/cm)	Oxygen (mg/L) <i>0</i> -37 <i>0</i> -33	(mV) -133 -135	(NTU) 46.8 46.5	(ft BIOC) boj S ダ・ <i>SF</i> <i>▼</i> ・ <i>SF</i>	(L/min) O.万 O.万
Purged (L)	(ه . ) ۱ (ه . ) ۲ زه . ا ۲ د . ا ۲ CALIBRATIO <u>Model</u> Heron	(Celsius)	(mS/cm) 1.1 0 1.17 1.10	Oxygen (mg/L)	(mV) -133 -135 -135 -135 st Calibrated Le	(NTU) <u>46.</u> <u>46.</u> 「 ちひ. し	(ft BT <del>OC</del> ) bg5 इ. <i>८१७</i> इ.४४७ इ.४४७	(L/min) O.万 O.万
Purged (L)	(ه . ) ۱ (ه . ) ۲ زه . ا ۲ د . ا ۲ CALIBRATIO <u>Model</u> Heron	(Celsius) 14.26 14.17 14.20	(mS/cm) 1.1 0 1.17 1.10	Oxygen (mg/L)	(mV) -133 -135 -135	(NTU) <u>46.</u> <u>46.</u> 「 ちひ. し	(ft BT <del>OC</del> ) bg5 इ. <i>८१७</i> इ.४४७ इ.४४७	(L/min) O.万 O.万
Purged (L)	(0.14) (0.14) (0.13) (0.13) (0.13) (0.13) (0.13) (0.13) (0.13) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0.14) (0	(Celsius) 14.26 14.17 14.20	(mS/cm) 1.1 0 1.17 1.10	Oxygen (mg/L)	(mV) -133 -135 -135 -135 st Calibrated Le	(NTU) <u>46.</u> <u>46.</u> 「 ちひ. し	(ft BT <del>OC</del> ) bg5 इ. <i>८१७</i> इ.४४७ इ.४४७	(L/min) O.万 O.万
Purged (L)	CALIBRATIO Model Heron Hach p-49 Mul	(Celsius) 14.26 14.17 14.20	(mS/cm) 1.1 0 1.17 1.10	Oxygen (mg/L)	(mV) -133 -135 -135 -135 st Calibrated Le	(NTU) <u>46.</u> <u>46.</u> 「 ちひ. し	(ft BT <del>OC</del> ) bg5 इ. <i>८१७</i> इ.४४७ इ.४४७	(L/min) O.万 O.万
Purged (L)	CALIBRATIO Model Heron Hach - 49 Mul	(Celsius) 14.26 14.17 14.20 N N ti-Parameter Provide the second se	(mS/cm) 1.1 0 1.17 1.10	Oxygen (mg/L)	(mV) -133 -135 -135 -135 st Calibrated Le	(NTU) <u>46.</u> <u>46.</u> 「 ちひ. し	(ft BT <del>OC</del> ) bg5 इ. <i>८१७</i> इ.४४७ इ.४४७	(L/min) O.万 O.万
Purged (L)	CALIBRATIO Model Heron Hach - 49 Mul	(Celsius) 14.26 14.17 14.20 N N ti-Parameter Provide the second se	(mS/cm) 1.1 0 1.17 1.10	Oxygen (mg/L)	(mV) -133 -135 -135 -135 st Calibrated Le	(NTU) <u>46.</u> <u>46.</u> 「 ちひ. し	(ft BT <del>OC</del> ) bg5 इ. <i>८१७</i> इ.४४७ इ.४४७	(L/min) O.万 O.万
Purged (L)	CALIBRATIO Model Heron Hach p-49 Mul (To A) Elow-Through (	(Celsius) 14.26 14.17 14.20 N N ti-Parameter Provide the second se	(mS/cm) 1.1 0 1.17 1.10	Oxygen (mg/L)	(mV) -133 -135 -135 -135 st Calibrated Le	(NTU) <u>46.</u> <u>46.</u> 「 ちひ. し	(ft BT <del>OC</del> ) bg5 इ. <i>८१७</i> इ.४४७ इ.४४७	(L/min) O.万 O.万
Purged (L)	CALIBRATIO Model Heron Hach p-49 Mul (To A) Elow-Through (	(Celsius) 14.26 14.17 14.20 N N ti-Parameter Provide the second se	(mS/cm) 1.1 0 1.17 1.10	Oxygen (mg/L)	(mV) -133 -135 -135 -135 st Calibrated Le	(NTU) <u>46.</u> <u>46.</u> 「 ちひ. し	(ft BT <del>OC</del> ) bg5 इ. <i>८१७</i> इ.४४७ इ.४४७	(L/min) O.万 O.万
Purged (L) 1420 2.5 $1425 5.0$ $1430 7.5$ $1430 7.5$ FIELD EQUIPMENT AND Water Level Probe Water Quality Meter GENERAL COMMENTS Ferrous Iron = 715 m Multi-Parameter Probe Unit # Field Parameters Measured in Sample Depth (ft bgs) = 35 Pump Rate = 0 - $57$ L/L Temp Well Diameter = 1 "	$(G \cdot 1)$ $(G \cdot 1')$ $(G \cdot $	(Celsius) 14.26 14.17 14.20 N N ti-Parameter Provide the second se	(mS/cm) 1.1 0 1.17 1.10	Oxygen (mg/L)	(mV) -133 -135 -135 -135 st Calibrated Le	(NTU) <u>46.</u> <u>46.</u> 「 ちひ. し	(ft BT <del>OC</del> ) bg5 इ. <i>८१७</i> इ.४४७ इ.४४७	(L/min) O.万 O.万
Purged (L)	$(G \cdot 1)$ $(G \cdot 1')$ $(G \cdot $	(Celsius) 14.26 14.17 14.20 N N ti-Parameter Provide the second se	(mS/cm) 1.1 0 1.17 1.10	Oxygen (mg/L)	(mV) -133 -135 -135 -135 st Calibrated Le	(NTU) <u>46.</u> <u>46.</u> 「 ちひ. し	(ft BT <del>OC</del> ) bg5 इ. <i>८१७</i> इ.४४७ इ.४४७	(L/min) O.万 O.万

SITE NAME	CHAAI	P OU1 RAO_P	erformance M	onitoring	PROJECT NO.		6056	5355	
SAMPLE NO.	EW7-	PM25A	-3-25		WELL NO.	PM2	БA		
DATE/TIME ( SAMPLE MET			taltic Pump and	910 tubing	PERSONNEL	TY JO	PH		
SAMPLE MEI	۵۱۵۰	Groundwate	-						
SAMPLE QA		YES	NO	SPLT	SAMPLE NO.	٨IA			
SAMPLE OC I		YES	ND ND		E SAMPLE NO.	NA			
MS/MSD REQ		YES	NO		SAMPLE NO.				
SAMPLE CO	NTAINERS, F	PRESERVATI	VES, ANALYS	SIS		<u> </u>			
Sample Contain	-		Preservative		Analysis Reque	ested			
2 - 500 mL Am			6°C		Explosives + M	INX (8330A)			
3 - 40 mL VOA			6°C, HC1		Methane (RSK				
1 - 500 mL HD			6°C, H <sub>2</sub> S0 <sub>4</sub>		TKN (351.2), N				· · · · · · · · · · · · · · · · · · ·
1 - 250 mL HD			6°C		SO <sub>4</sub> (9056A), A	Alkalinity (2320	B)		
1 - 250 mL HD 1 - 250 mL Am			6°C, ZnOAc/N	aOH	Sulfide (9034)				
1			00		DOC (9060A)				
WELL PURG	ING DATA				337.11	D. 4 (01 )	20		
Dete		10-21	20			Depth (ft bgs)			
Date Time Started		<u>h-31</u>				Water (ft bgs)		<u></u> .	
Time Complete	•d	0750				/olume (per ft)			
PID Measurem					Volume of Wat				
Background		ND				umes to Purge	4.14	-	
Breathing Zo		ND				m to Purge (L)			
Well Head		ND			-	ctual Purge (L)	7. 6		
Purge Water		ND			-	0 ( / _		L	
					-	*17.4	-		
FIELD MEAS									
Time	Amount Purged (L)	рН	Temperature (Celsius)	Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	Redox (ORP) (mV)	Turbidity (NTU)	Depth to Water (ft BFOC) いらら	Purge Rate (L/min)
0900	2.55	6-21	12.37	1.27	8.02	7	18.91	4.12	0.5
0905	5.0	6.21	12.42	1.26	8.07	8	7.56	4.12	0.5
0910	7.5	6.21	12.44	1:23	3.07	7	12.3	4.12	0.5
<u> </u>				-					
				•					
			·						
FIELD EQUIF	PMENT AND		DN						
		Model			Calibration				
Water Level Pro		Heron			Checked Agains				······
Water Quality N		Horiba U	-Parameter Prob	e	Twice Daily Ca	libration Verific	cation also Cal	brated Weekly	
GENERAL CO		HOLLOW D	<u>-</u> ე <i>ტ</i>						
Ferrous Iron =		ng/L							
Multi-Paramete			 ר			······································			
Field Parameter					· · · ·				
Sample Depth (									
Pump Rate = $($					· · · · · · · · · ·				
Temp Well Dian									
Screen Interval		-30							

SITE NAME	CHAA	P OU1 RAO_P	erformance M	onitoring	PROJECT NO.		605	65355	
SAMPLE NO	. <u>EW7-</u>	PMZFIE	<u>3-3-3i</u>	$\overline{\mathbf{c}}$	WELL NO.	PM2	1B		
DATE/TIME SAMPLE ME	COLLECTED THOD		$\frac{O}{10}$		_ PERSONNEL	TY	RIT		
		<u> </u>			_				
SAMPLE ME		Groundwater	-			A . O			
SAMPLE QA		YES	NO	SPLI	T SAMPLE NO.	NA_			
MS/MSD REG	DUPLICATE:	YES YES	NO NO	DUPLICAT: MS/MSI	E SAMPLE NO. D SAMPLE NO.	NA MA			
			<u> </u>			<u> </u>			
	ONTAINERS, I	PRESERVATI		IS					
Sample Conta			Preservative		Analysis Requ				
2 - 500 mL A			6°C		Explosives + N				
3 - 40 mL VO 1 - 500 mL HI			6°C, HCl 6°C, H <sub>2</sub> S0 <sub>4</sub>		Methane (RSK TKN (351.2), 1		ANO (252 0		
1 - 250  mL HI 1 - 250 mL HI			6℃, 112304		SO <sub>4</sub> (9056A), <i>J</i>			)	
1 - 250 mL HI			6°C, ZnOAc/N	<u>م</u>	Sulfide (9034)		(8,		
1 - 250 mL Ar			6°C	a011	DOC (9060A)				
WELL PURC	GING DATA								<u></u>
		1			Well	Depth (ft bgs)	40		
Date		5-31-	20			Water (ft bgs)			
Time Started		0925				Column Length			
Time Complet		_1100				Volume (per ft)		<u> </u>	
PID Measuren						ter in Well (L)		,	
Background		N,D				lumes to Purge		-	
Breathing Z	lone	_ <u>NO</u>				m to Purge (L)		-	
Well Head	_ ·	NP			_ A	ctual Purge (L)	7.5		
Purge Water	ľ	ND		• · · · · · · · · · · · · · · · · · · ·	_				
FIELD MEAS	SUREMENTS								
Time	Amount Purged (L)	рН	Temperature (Celsius)	Conductivity (mS/cm) 1.52	Dissolved Oxygen (mg/L)		Turbidity (NTU)	Depth to Water (ft BTOC) DGS	Purge Rate (L/min)
1050	2.5	6.47	13.55	Carles		-17	11.9	1 AL	200.0
1055	<u>Б.О</u>	6.46	13.69	1.52	0.43	-78	8.02	3.90	0.6
NOO	7.55	10.40	13.64	1.53	0.42	-79m	6.43	3.90	0.5
				·					
				-					
		CLL IDD LTVO							
TELD EQUI	PMENT AND	CALIBRATIO Model	PIN .		Calibration				
Water Level Pr	rohe	Heron			Checked Again	at Calibrated L	an ath		
Water Quality		YSI-556 Multi-	Parameter Proh	e				librated Weekly	
and Quanty		Toriba U-		· · · · · ·	Twice Daily C			IDIated Weekly	
GENERAL C	OMMENTS								
Ferrous Iron =		ng/L							
	er Probe Unit #								
	rs Measured in		Cell						
	(ft bgs) = 30								
Pump Rate =	O.RL/W	nin							
Temp Well Dia						_			
creen Interval	l(ft bgs) = 30	-40							

SITE NAME	СНААН	OU1 RAO_P	erformance M	onitoring	PROJECT NO.		60565	5355	
SAMPLE NO.	EW7-PI	<u> 1264 - 2</u>	5-25		WELL NO.	PM260	Α		, <u></u>
DATE/TIME (	COLLECTED	5-31-2	20/10	00	PERSONNEL	TY			
SAMPLE ME			altic Pump and		_	70			
					-				
SAMPLE MEI		Groundwater	$\sim$			A 1 A			
SAMPLE QA		YES	(NO)		SAMPLE NO.				
SAMPLE QC		YES			E SAMPLE NO.				
MS/MSD REQ	UESTED	YES	NO	MS/MSL	SAMPLE NO.	<u>N(</u>			
SAMPLE CO	NTAINERS, P	RESERVATI	VES, ANALYS	IS				<u>.</u>	
Sample Contai	ner		Preservative		Analysis Requ	<u>ested</u>			
2 - 500 mL An			6°C		Explosives + N				
3 - 40 mL VOA			6°C, HCl		Methane (RSK				
1 - 500 mL HE 1 - 250 mL HE			6°C, H <sub>2</sub> S0 <sub>4</sub> 6°C			NH <sub>3</sub> (350.1), NO Alkalinity (2320			
1 - 250 mL HL			6°C, ZnOAc/N		Sulfide (9034)		љ)		
1 - 250 mL An			6°C		DOC (9060A)				
WELL PURG	ING DATA				<u>`</u>				
					Wel	l Depth (ft bgs)	30		
Date		<u>h-31-</u>	20		Depth to	Water (ft bgs)	8.50		
Time Started		1500				Column Length	21.50		
Time Complete		1600	·····			Volume (per ft)	0.16		
PID Measurem	ents					ter in Well (L)	3.44		
Background Breathing Zo	-	ND				olumes to Purge	· · · ·		
Well Head	She	ND			-	im to Purge (L) ctual Purge (L)	7.5		
Purge Water		ND				etuur i urge (D)	<u></u>		•
									<u> </u>
FIELD MEAS			_						
Time	Amount	pН	Temperature	Conductivity		Redox (ORP)	-	Depth to Water	-
[ <del></del>	Purged (L)		(Celsius)	(mS/cm)	Oxygen (mg/L)	(mV)	(NTU)	(ft BTOC) bgS	(L/min)
1550	2.5	6.55	19.51	1.05	0.49	-52	12.8	8.50	0.A
1555	5.0	6.50	17.64	1.05	0.50	-53	6.41	8.50	0.5
1600	7.K	6.574	15.25	1.05	0.49	-53	0.0	8.50	O.K
				~					
·····				•			<		
				····-					
FIELD EQUI	PMENT AND	CALIBRATIO	N						
		Model			<u>Calibration</u>				
Water Level Pro		Heron <del>XSI 556 M</del> ulti-	Demonster Duch		·	ist Calibrated L			
Water Quality I		Horiba U		e	Twice Daily Ca	andradon verm	cation also Calil	brated weekly	
GENERAL CO	OMMENTS								
Ferrous Iron =		ng/L							
Multi-Paramete									
Field Parameter			Cell						
Sample Depth (									
Pump Rate = $C$ Temp Well Dia	<u>1.6 - [Mi]</u>	/1							
Screen Interval		)-30							
		<u>- v</u>							
			• • • • • • • • • • • • • • • • • • • •						

SITE NAME	CHAA	P OU1 RAO_P	erformance M	onitoring	PROJECT NO.		605	65355	
SAMPLE NO. E	EW7-1	PM26B	- 3-35		WELL NO.	PM2	UB		
DATE/TIME COI SAMPLE METHO			- <u>20</u> / C taltic Pump and		PERSONNEL	TV JOC			
			·						
SAMPLE MEDIA		Groundwate							
SAMPLE QA SPL		YES YES	89		T SAMPLE NO. E SAMPLE NO.				:
MS/MSD REQUE		YES	NO		D SAMPLE NO.				
		11.5		1413/14131	SAMILE NO.	NA			
SAMPLE CONT.	AINERS, I	PRESERVATI	VES, ANALYS	SIS					
Sample Container			Preservative		Analysis Reque				
$\frac{2-500 \text{ mL Amber}}{2}$	•		6°C		Explosives + M				
3 - 40 mL VOA 1 - 500 mL HDPE			6°C, HCl 6°C, H <sub>2</sub> S0 <sub>4</sub>	<u> </u>	Methane (RSK TKN (351.2), N		1 /NO (353 )	<u></u>	
1 - 250 mL HDPE			6°C		SO <sub>4</sub> (9056A), A			)	
1 - 250 mL HDPE			6°C, ZnOAc/N	laOH	Sulfide (9034)				
1 - 250 mL Amber	• •	· ···· ·· ·	6°C		DOC (9060A)				
WELL PURGING	G DATA								
_			~ ~ ~	<b>`</b>		Depth (ft bgs)			
Date		00-0	01-2C	/		Water (ft bgs)			
Time Started		OB				olumn Length			
Time Completed PID Measurements		094	10			volume (per ft)		_	
Background	<u>i</u>				Volume of Wat	umes to Purge			
Breathing Zone		ND ND				m to Purge (L)			
Well Head		ND			_	tual Purge (L)		7.5	
Purge Water	•	ND			-				
	EMENTS Amount urged (L)	рН	Temperature (Celsius)	Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	Redox (ORP) (mV)	Turbidity (NTU) Co29	Depth to Water (ft <del>BTOC</del> ) ちゃら	Purge Rate (L/min)
0930	2.55	6.05	13.86	1.29	0.42	-80	ALCON	8.67	O.F
0935	5.0	6.06	13.87	1-29	0.42	-81	6.55	8.67	0.5
0940	7.55	0.06	13.60	1.28	6.41	-82	6.11	8.67	0.5
					i				
	· · · ·								
								+	
FIELD EQUIPMI	ENT AND	CALIBRATIC	DN				<u>~</u>	the state	
_		Model			<b>Calibration</b>				
Water Level Probe		Heron			Checked Agains	st Calibrated L	ength		
Water Quality Meter	er -v	XSI 556 Multi-		e	Twice Daily Ca	libration Verifi	cation also Ca	librated Weekly	
GENERAL COM	MENTS	Horiba U	<u>-62</u>						<u></u>
Ferrous Iron = $>$		ng/L							
Multi-Parameter Pr	obe Unit #	ইবচন্য	)	· · · · · · ·					
Field Parameters M									
Sample Depth (ft b									
Pump Rate = $O$ .	FIL/M								
Temp Well Diamete	$er = 1^{\prime\prime}$								
Screen Interval (ft b	ogs) = 30	0-40							

SITE NAMECHAA	P OU1 RAO_P	erformance M	onitoring	_PROJĘCT NO.	·	605	65355	
SAMPLE NO. <u>EW</u>	7- PM27	A-3-2	Б	WELL NO.	PMa	74		
DATE/TIME COLLECTED	5-20	1-20	1555	PERSONNEL				
SAMPLE METHOD		altic Pump and	tubing		30	)		
SAMPLE MEDIA:	Currendouster							<u> </u>
SAMPLE MEDIA: SAMPLE QA SPLIT:	Groundwater YES	кõ	SPLI	T SAMPLE NO	A IA			
SAMPLE QC DUPLICATE		NO NO	DUPLICAT	T SAMPLE NO. E SAMPLE NO.				
MS/MSD REQUESTED	YES	MO	MS/MSI	D SAMPLE NO.	ŇA			
SAMPLE CONTAINERS,	DESEDVATI							
Sample Container	I KESEK VAIIV	Preservative	515	Analysis Requ	ested			
2 - 500 mL Amber		6°C		Explosives + N				
3 - 40 mL VOA		6°C, HCl		Methane (RSK		······	····	·····
1 - 500 mL HDPE		6°C, H <sub>2</sub> S0 <sub>4</sub>				O <sub>2</sub> /NO <sub>3</sub> (353.2)		
1 - 250 mL HDPE		6°C			Alkalinity (232	0B)		
1 - 250 mL HDPE 1 - 250 mL Amber		6°C, ZnOAc/N 6°C	aOH	Sulfide (9034) DOC (9060A)				
WELL PURGING DATA			-	DOC (9000A)				
		• -		Wel	l Depth (ft bgs)	30		
Date	<u>F-29-</u>	20		Depth to	Water (ft bgs)	4.72		
Time Started	1455			_ Water (	Column Length	23.28		·····
Time Completed PID Measurements	<b>MAR</b>				Volume (per ft)			
Background	NA				ter in Well (L) lumes to Purge			
Breathing Zone			····		im to Purge (L)			
Well Head	NA				ctual Purge (L)			
Purge Water	_NA_			_		<b>F</b>		
FIELD MEASUREMENTS								
Time Amount	, pH	Temperature	Conductivity	Dissolved	Redox (ORP)	Turbidity	Depth to Water	Purge Rate
Purged (L)	<b>F</b>	(Celsius)	(mS/cm)	Oxygen (mg/L)	• • •	(NTU)	(ft-BTOC) bqS	(L/min)
1545 2.5	1.000	3-11	1.01	0.31	-101	28.5	6.72	0.5
1	1 10.0101							
1550 5.0	$\binom{0.00}{0.07}$	13.05	1.01		-100	27.8	6.72	0.5
1555 7.5 1555 7.5	6.007	13.05	1.01	0.31		27.8 26.9	6.72	0.5
	6.07			0-31	-100	27.8 26.9		
	6.07			0-31	-100	27.8 26.9		
	6.07			0-31	-100	27.8 26.9		
	6.07			0-31	-100	27.8 26.9		
	6.07			0-31	-100	27.8 26.9		
	6.07			0-31	-100	27.8 26.9		
	6.07			0-31	-100	27.8 26.9		
	6.07			0-31	-100	27.8		
	(0.07 (0.07	13.03		0-31	-100	27.8 26.9		
	(0.07 (0.07	13.03		0.31	-100	27.8 26.9		
	(0.07 (0.07	13.03		O-31 O-31 Calibration	-100 -99	26.9		
ISSS 7.5	CALIBRATIO Model	13.03	<u>1</u> . O 1	0.31	-100 -99	جرب میں ج	Co. 72	
1555       7.5         Image: State of the	CALIBRATIO Model Heron Hachu-49 Mult	13.03	<u>1</u> . O 1	Calibration Checked Again	-100 -99	جرب میں ج	Co. 72	
1555       7.5         Image: Constraint of the second	CALIBRATIO Model Heron Hach u-49 Mult	13.03	<u>1</u> . O 1	Calibration Checked Again	-100 -99	جرب میں ج	Co. 72	
1555       7.5         Image: Constraint of the second	CALIBRATIO Model Heron Hach u-49 Mult	13.03	<u>1</u> . O 1	Calibration Checked Again	-100 -99	جرب میں ج	Co. 72	
1555       7.5         Image: State of the	CALIBRATIO Model Heron Hech u 49 Mult	13.03	<u>1</u> . O 1	Calibration Checked Again	-100 -99	جرب میں ج	Co. 72	
1555       7.5         Image: Constraint of the second	CALIBRATIO Model Heron Hech u-49 Mult 107 bac mg/L Mg L OO Flow-Through C	13.03	<u>1</u> . O 1	Calibration Checked Again	-100 -99	جرب میں ج	Co. 72	
$1555$ $7.5$ <b>FIELD EQUIPMENT AND</b> Water Level Probe         Water Quality Meter <b>GENERAL COMMENTS</b> Ferrous Iron = $(\mathcal{O} \cdot \mathcal{Q} \circ \mathcal{O})$ Multi-Parameter Probe Unit #         Field Parameters Measured in         Sample Depth (ft bgs) = $\mathcal{Q} \not \mathcal{P}$ Pump Rate = $\mathcal{O} \cdot \mathcal{F} \mid \mathcal{M}$	CALIBRATIO Model Heron Hach u-49 Mult / 107 b- mg/L Flow-Through C	13.03	<u>1</u> . O 1	Calibration Checked Again	-100 -99	جرب میں ج	Co. 72	
$1555$ $7.5$ FIELD EQUIPMENT AND         Water Level Probe         Water Quality Meter         GENERAL COMMENTS         Ferrous Iron = $(0 \cdot (0 \circ 0))$ Multi-Parameter Probe Unit #         Field Parameters Measured in         Sample Depth (ft bgs) = $2F$ Pump Rate = $0.55 L$ [m]         Temp Well Diameter = $1^{11}$	CALIBRATIO Model Heron Hach u-49 Mult I I I I I I Flow-Through C	13.03	<u>1</u> . O 1	Calibration Checked Again	-100 -99	جرب میں ج	Co. 72	
$1555$ $7.5$ <b>FIELD EQUIPMENT AND</b> Water Level Probe         Water Quality Meter <b>GENERAL COMMENTS</b> Ferrous Iron = $(\mathcal{O} \cdot \mathcal{Q} \circ \mathcal{O})$ Multi-Parameter Probe Unit #         Field Parameters Measured in         Sample Depth (ft bgs) = $\mathcal{Q} \not \mathcal{P}$ Pump Rate = $\mathcal{O} \cdot \mathcal{F} \mid \mathcal{M}$	CALIBRATIO Model Heron Hach u-49 Mult I I I I I I Flow-Through C	13.03	<u>1</u> . O 1	Calibration Checked Again	-100 -99	جرب میں ج	Co. 72	

SITE NAME	CHAAl	P OU1 RAO_F	Performance M	onitoring	PROJECT NO		605	65355	
SAMPLE NO	. EW7.	-PM27	B-3-31	Б	WELL NO	PM 2-	7B		
DATE/TIME SAMPLE ME	COLLECTED THOD		$\frac{20}{109}$ taltic Pump and	20 tubing	PERSONNEL	TY 50			
SAMPLE ME SAMPLE QA SAMPLE QC MS/MSD REG	SPLIT: DUPLICATE:	Groundwater YES YES YES	r 1983	DUPLICATI	F SAMPLE NO. E SAMPLE NO. D SAMPLE NO.	NA			
	-				SAMILE NO.				
Sample Conta 2 - 500 mL Ar	mber	PRESERVATI	Preservative 6°C	SIS	<u>Analysis Requ</u> Explosives + N	MNX (8330A)	-		
3 - 40 mL VO 1 - 500 mL HI			6°C, HCl 6°C, H <sub>2</sub> S0 <sub>4</sub>		Methane (RSk	C 175) NH <sub>3</sub> (350.1), NO	2 010 (252.0	<u></u>	
1 - 250 mL HI			6°C			Alkalinity (232)		)	
1 - 250 mL HI	DPE		6°C, ZnOAc/N	laOH	Sulfide (9034)		(2)		
1 - 250 mL Ar			6°C		DOC (9060A)				
WELL PURC	GING DATA						110		·····
Date Time Started Time Complet PID Measurem		5-30- 0750 0920			Depth to Water Water	l Depth (ft bgs) o Water (ft bgs) Column Length Volume (per ft)	6.79 33.21 0.16	1	
Background		ND				ter in Well (L) olumes to Purge	h. 31		
Breathing Z		ND				um to Purge (L)		-	·
Well Head		ND				ctual Purge (L)	7.55	,	
Purge Water	r	ND			-				
FIELD MEAS	SUREMENTS								
Time	Amount Purged (L)	рН	Temperature (Celsius)	Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	Redox (ORP) (mV)	Turbidity (NTU)	Depth to Water (ft.BTOC) bgS	Purge Rate (L/min)
0910	2.5	6.40	12.96	1.17	0.37	-106	12.2	6.79	0.5
0915	5.0	6.41	12.94	1.17	0.37	-106	11.8	6.79	0.5
0920	7.57	641	13.01	1.18	0.30	-107	10.1	6.79	O.F
(									
								i	·
						<b>_</b>			
					_		_		
Water Level Pr		CALIBRATIC <u>Model</u> Heron	N		Calibration	st Calibrated Le	n eth		
Water Quality			lti-Parameter Pr	obe	Q	alibration Verifi		ibrated Weekly	
	ł	toriba-UP	72						
GENERAL C		17				4			
	<u>4.32 n</u> er Probe Unit #		<u>ר</u>						
	rs Measured in 1								
	(ft bgs) = 35		~~						
	O.F. LIM	in							
Temp Well Dia	imeter = j "							· · · · · · · · · · · · · · · · · · ·	
Screen Interval	(ft bgs) = 3C	)-40							
								••••••••••••••••••••••••••••••••••••••	

SITE NAME	CHAA	POU1 RAO_P	erformance Mo	onitoring	PROJECT NO.		6056	5355	
SAMPLE NO	EW7-	PM28	A-3-2	25	WELL NO.	PMa	18A	·	
DATE/TIME	COLLECTED	5-30	-20/1	430	PERSONNEL	TV			
SAMPLE ME			altic Pump and			50			
				<u>~</u>	_				
SAMPLE ME		Groundwater				<b>A I A</b>			
SAMPLE QA		YES	NG	SPLI	T SAMPLE NO.	NOT			······································
SAMPLE QC		YES	Ŵ	DUPLICAT	E SAMPLE NO.				· · ·
MS/MSD REG	LOESTED	YES	NO	MS/MS	D SAMPLE NO.	NA	••••••••••••••••••••••••••••••••••••••		
SAMPLE CO	NTAINERS, I	PRESERVATI	VES, ANALYS	SIS					
Sample Contai			Preservative		Analysis Requ				
2 - 500 mL An			6°C	·	Explosives + N			· · · · · · · · · · · · · · · · · · ·	
$\frac{3-40 \text{ mL VO}}{1-500 \text{ mL UT}}$			6°C, HCl		Methane (RSK		0.010.(050.0)		
1 - 500 mL HI 1 - 250 mL HI			6°C, H <sub>2</sub> S0 <sub>4</sub> 6°C		$SO_4$ (9056A), A		$O_2/NO_3$ (353.2)		
1 - 250 mL HI			6°C, ZnOAc/N	aOH	Sulfide (9034)		00)		
1 - 250 mL An			6°C		DOC (9060A)				
WELL PURG	· · · · · · · · · · · · · · · · · · ·								
		1				l Depth (ft bgs)			
Date		5-30-	20			Water (ft bgs)			
Time Started		1325			-	Column Length			
Time Complete PID Measurem		_1430				Volume (per ft)			
Background		A 10			Volume of Wa				
Breathing Z		ND				lumes to Purge im to Purge (L)			
Well Head		ND				ctual Purge (L)			
Purge Water	•	ND		•	_				
FIELD MEAS			Town	O d i i			<b>m</b> 1.11.		<b>D</b>
Time	Amount Purged (L)	pН	Temperature (Celsius)	Conductivity (mS/cm)	<ul> <li>Dissolved</li> <li>Oxygen (mg/L)</li> </ul>	Redox (ORP) (mV)	Turbidity (NTU)	Depth to Water (ft_BTOC)	-
	Turged (E)		(Censilus)	(morem)	Oxygen (ing/L)	(1114)	$(\mathbf{N}\mathbf{I}\mathbf{U})$	695	(L/min)
1420	2.5	ju.20	12.44	F12	0.37	-49	47.55	4.40	0.5
1425	5.0	6.23	12.07	1.09	0.30	-54	46.6	4.40	0.5
1430	7.5	6.23	12,59	1.11	0.35	-53	38.9	4.40	OF
			· · · ·						
	PMENT AND		N						
FIELD EQUI					Calibration				
FIELD EQUID Water Level Pr		CALIBRATIO Model Heron	N		Calibration Checked Again	st Calibrated L	ength		
-	obe	<u>Model</u> Heron	N Parameter Probe	e	Checked Again		ength ication also Cali	brated Weekly	
Water Level Pr Water Quality 1	obe Meter	<u>Model</u> Heron <u>YSL556</u> Multi-	Parameter Prob	e	Checked Again			brated Weekly	
Water Level Pr Water Quality I	obe Meter	Model Heron YSL556 Multi-	Parameter Prob	e	Checked Again			brated Weekly	
Water Level Pr Water Quality I GENERAL CO Ferrous Iron =	obe Meter 7.05 n	Model Heron YSL556 Multi- Ho7, Ig/L	Parameter Prob	e	Checked Again			brated Weekly	
Water Level Pr Water Quality I GENERAL CO Ferrous Iron = Multi-Parameter	obe Meter フ・ロラ n r Probe Unit #	Model Heron YSL556 Multi- HOT I ng/L F9(600	Parameter Prob	e	Checked Again			brated Weekly	
Water Level Pr Water Quality I GENERAL CO Ferrous Iron = Multi-Parameter Field Parameter	obe Meter 7.05 n r Probe Unit # rs Measured in	Model Heron YSL556 Multi- HOT A ng/L Fig(400 Flow-Through (	Parameter Prob	e	Checked Again			brated Weekly	
Water Level Pr Water Quality I GENERAL CO Ferrous Iron = Multi-Parameter Field Parameter Sample Depth (	obe Meter 7.05 n r Probe Unit # rs Measured in ft bgs) = $25$	Model Heron YSL556 Multi- HOT 1 mg/L Figle OO Flow-Through (	Parameter Prob	e	Checked Again			brated Weekly	
Water Level Pr Water Quality I GENERAL CO Ferrous Iron = Multi-Parameter Field Parameter Sample Depth ( Pump Rate = Temp Well Dia	bobe Meter $7 \cdot 0 + 5  n$ r Probe Unit # rs Measured in ft bgs) = $2 + 5$ $0 \cdot 5 \cdot \frac{1}{2} / \nu$ meter = $1^{11}$	$\frac{Model}{Heron}$ $\frac{1}{2555} Multi-$ $\frac{1}{107} \frac{1}{10}$ $\frac{1}{107} \frac{1}{10}$ $\frac{1}{100} \frac{1}{10}$ $\frac{1}{100} \frac{1}{100}$ $\frac{1}{100} \frac{1}{100}$	Parameter Prob	e	Checked Again			brated Weekly	
Water Level Pr Water Quality I GENERAL CO Ferrous Iron = Multi-Parameter Field Parameter Sample Depth ( Pump Rate =	bobe Meter $7 \cdot 0 + 5  n$ r Probe Unit # rs Measured in ft bgs) = $2 + 5$ $0 \cdot 5 \cdot \frac{1}{2} / \nu$ meter = $1^{11}$	$\frac{Model}{Heron}$ $\frac{1}{2555} Multi-$ $\frac{1}{107} \frac{1}{10}$ $\frac{1}{107} \frac{1}{10}$ $\frac{1}{100} \frac{1}{10}$ $\frac{1}{100} \frac{1}{100}$ $\frac{1}{100} \frac{1}{100}$	Parameter Prob	e	Checked Again			brated Weekly	

SAMPLE NO. $EW7 - PM23B - 3 - 35$ WELL NO. $PM23B$ SAMPLE NO. $EW7 - PM23B - 3 - 35$ WELL NO. $PM23B$ DATE/TIME COLLECTED $F-30 - 20$ / $I(UIF)$ presonnel. $T + /$ Pretrakle Promp and tubing $T - 30$ - 20 / $I(UIF)$ presonnel. $T + /$ SAMPLE QASHLT YES $FUNCTIONEL TO THE SAMPLE NO. NA SAMPLE QC DUPLCATE YES FUNCTIONEL TO THE SAMPLE NO. NA SAMPLE CONTAINERS, PRESERVATIVES, ANALYSIS SAMPLE CONTAINERS, PRESERVATIVES, ANALYSIS, SAMPLE NO. (CHAINERS, PRESERVATIONE, ANALYSIS, SAMPLE NO. (CHAINERS, $	SITE NAME	CHAAI	P OU1 RAO_F	erformance M	onitoring	PROJECT NO.		605	565355		
SAMPLE METHOD     Peristatic Pump and tubing     Image: Control tubing       SAMPLE MEDIA:     Groundwater       SAMPLE ON THE     YES     SPLIT SAMPLE NO. ALA       SAMPLE OC DUPLICATE:     YES     DUPLICATE SAMPLE NO. ALA       SAMPLE OCTATIONES, PRESERVATIVES, ANALYSIS     MISMASD SAMPLE NO. ALA       Sample Container     Description     Analysis Requested       - 90 al. Asher     O'C. HC.     Mediance (RSK 175)       - 90 al. Asher     O'C. HC.     Mediance (RSK 175)       - 90 al. Mather     O'C. LO.     Mediance (RSK 175)       - 90 al. Mather     O'C. C. SO, (2050A), Akalani (2350B)     C.       - 250 al. InDPE     O'C. SO, (2050A), Akalani (2350B)     C.       - 250 al. InDPE     O'C. C. SO, (2050A), Akalani (2350B)     C.       - 250 al. InDPE     O'C. SO, (2050A), Akalani (2350B)     C.       - 250 al. InDPE     O'C. SO, (2050A), Akalani (2350B)     C.       - 250 al. Janker     O'C. SO, (2050A), Akalani (2350B)     C.       - 250 al. Janker     O'C. SO, (2050A), Akalani (2350B)     C.       - 250 al. Janker     O'C. SO, (2050A), Akalani (2350B)     C.       - 250 al. Janker     O'C. SO, (2050A), Akalani (2350B)     C.       - 250 al. Janker     O'C. SO, (2050A)     C.       - 250 al. Janker     O'C. SO, (2050A)     C.	SAMPLE NO	EW1	- PM28	B-3-3	3দ	WELL NO.	PMQ	8B			
AMPLE MEDIA: Groundwater SAMPLE OA SPLIT: VES DUPLICATE: VES DUPLICATE: VES DUPLICATE: VES DUPLICATE: VES MISMSD SAMPLE NO. AIA MISMSD SAMPLE NO. AIA						PERSONNEL	TY	)			
SAMPLE QA SPLIT:       YES       YES       YES       YES       DUPLICATE SAMPLE NO. $\Lambda$ A         SAMPLE QC DUPLICATES       YES       DUPLICATE SAMPLE NO. $\Lambda$ A       A         SAMPLE CONTAINERS, PRESERVATIVES, ANALYSIS       Sample Container       Descrutive       Analysis Requested         Sample Container       0:0: 0. Andre       0: 0. Andre       0: 0. Andre       0: 0. Andre         - 40 mL VOA       0: C. HCI       Mediane (SK 175)       0: 0. Malianity (2020)       0: 0. Solutioner         - 40 mL VOA       0: C. HCI       Mediane (SK 175)       0: 0. Malianity (2020)       0: 0. Malianity (2020)         - 40 mL VOA       0: C. HCI       Mediane (SK 175)       0: 0. Malianity (2020)       0: 0. Malianity (2020)         - 50 mL HDPE       0: C. C. SOL (006A)       Well Depth (ft bgs)       9(D         - 50 mL HDPE       0: C. C. AOL/AOH       Suifade (0034)       0: 0. C. Malianity (2020)         - 25 mL HDPE       0: C. C. AOL/AOH       Well Depth (ft bgs)       9(D         Minimum Compoled       1/L/L/L5       Wear Column Length $\frac{1}{2}$ 3/5: $\frac{1}{2}$ 0: $\frac{1}{2}$ 0: 0. C. Malianity (2020)         Background $\Delta D$ Casing Volumes to Purge: $\frac{1}{2}$ Minimum to Purge (1)       0: C. C. Malianity Casing (0)         Well Hepde $\Lambda$ D				······································						· · · · · · · · · · · · · · · · · · ·	
AMPLE CONTRINERS, PRESERVATIVES, ANALYSIS       DUPLICATE SAMPLE NO. $MA$ MSMSD REQUESTED       YES       MSMSD SAMPLE NO. $MA$ Signals Container       YES       MSMSD SAMPLE NO. $MA$ Signals Container       Presentative       Analytis Resented         Signals Container       Presentative       Container         Signals Container       Presentative       Container         Signals Container       Presentative       Container         Signals Container       Presentative       Container       Presentative         Signals Container       Presentative       Conductivity Disolved Redox (ORP)       Trebidity Depth to Water Purge Rate         Mill Head       AD       Colstative (ms/m)       Trebidity Depth to Water Purge Rate         Time       Amount pH       Temperature Conductivity Disolved Redox (ORP)       Turbidity Depth to Water Purge Rate         Mold       Colstative (ms/m)       Co											
MSMSD REQUESTED       YES       MSMSD SAMPLE NO. [J] A         AMPLE CONTAINERS, PRESERVATIVES, ANALYSIS         ample Container       Passervalue					SPLI	T SAMPLE NO.	<u> </u>				
AMPLE CONTAINERS, PRESERVATIVES, ANALYSIS         Amplies CONTAINERS, PRESERVATIVES, ANALYSIS         Amplies Analysis Requested         Som of Amber       OC         Som of Amber       OC         Som of Amber       OC         Som of Amber       OC         Som of Amber       OC       DECIDING SOL         Som of Amber       OC       DOC (9060A).         VEIL PRESERVATIVES, ANALYSIS         Method Solution Colspan="2">Method Solution (SSE 175)         Som of Amber       OC       DOC (9060A).         VEIL PRESERVATIVES, ANALYSIS         Method Solution (SSE 175)       ON (SSE 2)         Som of Amber       OC (9060A).         VEIL PRESERVATIVES, MALYSIS       Method Solution (SSE 175)         Method Solution (SSE 175) <th col<="" td=""><td></td><td></td><td></td><td>MQ</td><td>DUPLICAT</td><td>E SAMPLE NO.</td><td>NA</td><td></td><td></td><td>·</td></th>	<td></td> <td></td> <td></td> <td>MQ</td> <td>DUPLICAT</td> <td>E SAMPLE NO.</td> <td>NA</td> <td></td> <td></td> <td>·</td>				MQ	DUPLICAT	E SAMPLE NO.	NA			·
Sample Container       Preservative       Analysis Regressed         - 40 mL VOA       6°C. HCI       Mehane (RSK 175)         - 40 mL VOA       6°C. HCI       Mehane (RSK 175)         - 500 mL HDPE       6°C.       TKN (53.0, NB, (50.1), NO, NO, (53.2)         - 250 mL HDPE       6°C.       Suffike (0034)         - 250 mL HDPE       6°C.       DC (9060A)         VELL PURGING DATA       Well Depth (ft bgs) $\frac{90}{2.5 \cdot P.4}$ ine Started       124 L/1       Water (St bgs) $\frac{24.9}{2.5 \cdot P.4}$ ine Started       124 L/1       Well Casing Volume (pt ft bgs) $\frac{90}{2.5 \cdot P.4}$ Background $\Delta D$ Casing Volume (pt ft bgs) $\frac{90}{2.5 \cdot P.4}$ Background $\Delta D$ Casing Volume (pt ft bgs) $\frac{90}{2.5 \cdot P.4}$ Breathing Zone $\Delta D$ Casing Volume (pt ft) $\frac{9.16}{2.5 \cdot P.4}$ Well Head $\Delta D$ Casing Volume (pt ft) $\frac{9.16}{2.5 \cdot P.4}$ $\frac{9.16}{2.5 \cdot P.4}$ Time       Amount       pH       Temperature       Conductivity       Disolved       Redox (ORP)       Turbidity       Depth to Water Parge Rate         (10 D       F. O       (A + 1)       O $\frac{9.2}{2}$ $\frac{14.9}{2}$	MS/MSD REC	QUESTED	YES	dip.	MS/MS	D SAMPLE NO.	NA				
Sample Container       Preservative       Aubrish Represended         - 40 mL VOA       6°C. HC       Methans (RSK 175)         - 50 mL HDPE       6°C. HS, SQ,       TKN (S3.0A), NG, NO, (S3.2)         - 30 mL HDPE       6°C. C, AucNoAOH       Sulfide (03.4)         - 25 mL, HDPE       6°C. C, C, C, AucNoAOH       Sulfide (03.4)         - 25 mL, HDPE       6°C. C, C, C, AucNoAOH       Sulfide (03.4)         - 25 mL, Amber       6°C       DCC (9060A)         VELL PURGING DATA       Well Depth (ft bgs) $\frac{q}{Q}$ Ime Started $I_{12}U_{15}$ Well Cosing Volume (pt ft)         Ime Started $I_{12}U_{15}$ Well Cosing Volume (pt ft)         Background $\Delta D$ Casing Volume (pt ft) $G_{2}$ ( $G_{1}$ Background $\Delta D$ Casing Volume (pt ft) $G_{2}$ ( $G_{1}$ $G_{2}$ ( $G_{1}$ Breathing Zone $\Delta D$ Casing Volume (pt ft) $G_{2}$ ( $G_{1}$ $G_{2}$ ( $G_{1}$ $G_{2}$ ( $G_{1}$ Breathing Zone $\Delta D$ Casing Volume (pt ft) $G_{2}$ ( $G_{1}$ $G_{2}$ ( $G_{1}$ $G_{2}$ ( $G_{1}$ $G_{2}$ $G_{2}$ $G_{2}$ $G_{2}$ $G_{2}$ $G_{2}$ $G_{2}$ $G_{2}$ $G_{2}$	AMPLE CO	NTAINERS F	PRESERVATI	VES ANAL VS	PIE				<u> </u>		
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $					340	Analysis Requi	ested				
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	-										
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	- 40 mL VO	A		6°C, HCl							
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	- 500 mL HI	OPE		6°C, H <sub>2</sub> SO <sub>4</sub>		TKN (351.2), 1	NH <sub>3</sub> (350.1), N	O <sub>2</sub> /NO <sub>3</sub> (353.2	)		
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	- 250 mL HI	OPE		6°C		SO4 (9056A), A	Alkalinity (232	0B)			
Well PURGING DATA         Well Depth (ft bgs) $\frac{90}{20}$ Well Casing Volume (pr ft) $\frac{10}{20}$ . (L         Woll meet in Well Depth (ft bgs) $\frac{90}{20}$ Well Casing Volume (pr ft) $\frac{10}{20}$ . (L         Well Mead         Minimum to Purge (L)         Temperature Conductivity Dissolved Redox (ORP) Turbicity Depth to Water Purge Rate         Minimum to Purge (L)         Temperature Conductivity Dissolved Redox (ORP) Turbicity Depth to Water Purge Rate         Minimum to Purge (L)         Temperature Conductivity Dissolved Redox (ORP) Turbicity Depth to Water Purge Rate         (Log 0         (Log 1 - 1 - 4 - 0 - 2 - 9 - 13 - 9 - 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4					laOH						
Date $\overline{F} - 30 - 20$ Well Depth (Figs) $\frac{4}{9}$ Time Started $14415$ Water Colume Length $\frac{2}{35.56}$ Time Completed $16215$ Well Casing Volume (ref ft) $0.162$ Background $M0$ Casing Volume (ref ft) $0.162$ Breathing Zone $MD$ Casing Volume to Purge $0.162$ Purge Water $ND$ Casing Volume to Purge $0.162$ Purge Water $ND$ Casing Volume to Purge $0.162$ Time Amount pH       Temperature Conductivity Dissolved Redox (ORP) Turbidity Depth to Water Purge Rate $0.175$ Time Amount pH       Temperature Conductivity Dissolved Redox (ORP) Turbidity Depth to Water Purge Rate $0.29$ $1(2057)$ $2.57$ $(0.71)$ $142.00$ $1.47$ $0.29$ $-139$ $10.0$ $4.41$ $0.56$ $1(210)$ $7.57$ $6.711$ $14.00$ $1.470$ $0.29$ $-141$ $9.40441$ $0.56$ $1(210)$ $7.57$ $6.744$ $34.01$ $1.4100$ $0.29$ $-141$ $9.40441$ $0.56$ $1(210)$ $7.57$ $6.744$ <t< td=""><td></td><td></td><td></td><td>6℃</td><td></td><td>DOC (9060A)</td><td></td><td></td><td></td><td></td></t<>				6℃		DOC (9060A)					
bale $F_{-3}O_{-2}O_{-2}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-2}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3}O_{-3$	VELL PURG	ING DATA						110			
Ime Started       IUU5       Water Column Length $\overline{g}$ 35.5.9.9         Ime Completed       ILo15       Well Casing Volume (pr. ft) $\overline{c}$ .10         Background       AUD       Casing Volume of Water in Well (L) $\overline{c}$ .0.10         Background       AUD       Casing Volume to Purge $\overline{c}$ .0.10         Well Read       AUD       Casing Volumes to Purge $\overline{c}$ .0.10         Well Head       AUD       Actual Purge (L) $\overline{c}$ .0.0         Purge Water       ADD       Actual Purge (L) $\overline{c}$ .0.0         Time       Amount       pH       Temperature Conductivity Dissolved Redox (ORP)       Turbidity Depth to Water Purge Rate         Purged (L)       Celsius)       (mS/m)       Oxygen (mg/L)       (NV)       (NT thidity Depth to Water Purge Rate         I(g/D       5.0       G-71       14.00       1.47       0.29 $-139$ 10.00       4.41       0.5         I(g/D       7.5       G.74       14.01       1.416       G.29 $-139$ 10.00       4.41       0.5         I(g/D       7.5       G.74       14.01       1.416       G.29 $-141$ 9.60       4.41       0.5         I(g/D       7.5       G.74	)ata		10-20	200							
Ime Completed $1665$ Well Casing Volume (per Well () $5.69$ Background $100$ Casing Volume (per Well () $5.69$ Background $100$ Casing Volume (per Well () $5.69$ Breathing Zone $100$ Casing Volume (per Well () $5.69$ Breathing Zone $100$ Casing Volume (per Well () $5.69$ Breathing Zone $100$ Casing Volume (per Well () $7.6$ Minimum to Purge () $7.5$ Time Amount pH Temperature Conductivity Dissolved Redox (ORP) Turbidity Depth to Water Purge Rate (Celsius) (mS/cm) $0xyen (mgL)$ (mV) (ft BTOC) (Umin) 1607 $2.5$ $6.71$ $14.00$ $1.47$ $0.29$ $-139$ $10.0$ $4.41$ $0.51010$ $5.0$ $6.74$ $14.01$ $1.40$ $0.29$ $-139$ $10.0$ $4.41$ $0.51010$ $5.0$ $6.74$ $14.01$ $1.40$ $0.29$ $-141$ $9.0$ $4.41$ $0.51015$ $7.5$ $6.74$ $14.01$ $1.40$ $0.29$ $-141$ $9.0$ $4.41$ $0.51015$ $7.5$ $6.74$ $14.01$ $1.40$ $0.29$ $-141$ $9.0$ $4.41$ $0.51015$ $7.5$ $6.74$ $14.01$ $1.40$ $0.29$ $-141$ $9.0$ $4.41$ $0.51015$ $7.5$ $6.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.74$ $5.7$									- 6		
Volume of Water in Well ()       Solved Gasing Volumes to Purge         Background $\Delta D$ Casing Volumes to Purge       Casing Volumes to Purge         Breathing Zone $\Delta D$ Minimum Durge () $\overline{D}$ $\overline{D}$ Well Head $\overline{D}$ $\overline{D}$ $\overline{D}$ $\overline{D}$ $\overline{D}$ Time       A mount       pH       Temperature       Conductivity       Dissolved       Redox (ORP)       Turbidity       Depth to Water       Purge Rate         Iteld Purged (J. $\overline{D}$		eđ			-	- Well Cosine V	Joiumn Length	B Sh.I	74	<u> </u>	
Background $AUO$ Casing Volumes to Purge Breathing Zone $AUO$ Minimum to Purge (J) Well Head $AOO$ Actual Purge (L) Purge Water $AOO$ <b>TELD MEASUREMENTS</b> Time Amount pH Temperature Conductivity Dissolved Redox (ORP) Turbidity Depth to Water Purge Rate (Celsius) (mS/cm) Oxygen (mg/L) (mV) (NTU) (ft BTOC) (L/min) I(QOT) 2.55 ( $Q$ .71 14.00 1.47 0.29 -139 9.4 4.41 0.5 I(010 5.0 6.71 14.00 1.47 0.29 -139 9.4 4.41 0.5 I(010 5.0 6.74 14.01 1.40 0.29 -139 10.0 4.44 0.5 I(015 7.5 6.74 14.01 1.40 0.29 -141 9.0 4.44 0.5 I(015 7.5 6.74 14.01 1.40 0.29 -141 9.0 4.44 0.5 I(015 7.5 6.74 14.01 1.40 0.29 -141 9.0 4.44 0.5 IELD EQUIPMENT AND CALIBRATION Model Calibration Heron Checked Against Calibrated Length Aret Level Probe $\frac{1}{Horn Exp}$ Twice Daily Calibration Verification also Calibrated Weekly Horn Exp Component Co	-		1010			Volume of Wa	ter in Well (I)	0.10			
Breathing Zone $MD$ $MD$ $Actual Purge (L)$ $Actual Purge (L)$ Purge Water $MD$ $Actual Purge (L)$ $T.5^{-}$ TELD MEASUREMENTS       Time       Amount       pH       Temperature       Conductivity       Dissolved       Redox (ORP)       Turbidity       Depth to Water       Purge Rate         If ( $DOT$ 2.5       ( $D$ -71       14.00       1.47 $O$ -29 $-139$ $9.4$ $4.41$ $0.5$ I ( $DID$ $5$ ( $O$ -71       14.00       1.410 $O$ -29 $-139$ $9.4$ $4.41$ $0.5$ I ( $DID$ $7.5^{-}$ ( $O.74$ $14.00$ $1.410$ $O$ -29 $-139$ $9.4$ $4.41$ $0.5$ I ( $DID$ $7.5^{-}$ ( $O.74$ $14.00$ $1.410$ $O$ -29 $-139$ $9.4$ $4.41$ $0.5$ I ( $DID$ $7.5^{-}$ $(O.74)$ $14.00$ $1.410$ $0.29$ $-141$ $9.00$ $4.411$ $0.5$ I ( $DID$ $7.5^{-}$ $0.724$ $14.00$ $1.4100$ $0.294$ $-141$ $9.00$ $4.411$ $0.5$			110								
Well Head $NO$ $Actual Purge (L)$ $7.5$ Purge Water $NO$ $Actual Purge (L)$ $7.5$ TELD MEASUREMENTS       Time       Amount       pH       Temperature       Conductivity       Dissolved       Redox (ORP)       Turbidity       Depth to Water       Purge Rate         Import $2.57$ $(Q \cdot 71)$ $14 \cdot OO$ $1.47$ $O.2Q$ $-139$ $9.4$ $4.41$ $O.57$ Import $G = 71$ $14 \cdot OO$ $1.47$ $O.2Q$ $-139$ $10 \cdot O$ $4.41$ $O.57$ Import $G = 74$ $14 \cdot OI$ $1.416$ $O.2Q$ $-139$ $10 \cdot O$ $4.411$ $O.57$ Import $G = 74$ $14 \cdot OI$ $1.416$ $O.2Q$ $-1411$ $9.6$ $4.411$ $O.57$ Import $G = 74$ $14 \cdot OI$ $1.416$ $O.2Q$ $-1411$ $9.6$ $4.411$ $O.57$ Import $G = 74$ $94 \cdot OI$ $1.416$ $O.2Q$ $-1411$ $9.6$ $4.411$ $O.57$ Import $Model$ Calibration       Character $Character$	-				-				-		
Purge Water $\square$ TELD MEASUREMENTS         Time       Amount       pH       Temperature       Conductivity       Dissolved       Redox (ORP)       Turbidity       Depth to Water       Purge Rate $Purged (L)$ provided       (Celsius)       (mS/cm)       Oxygen (mg/L)       (mV)       (NTU)       (ft BTOC)       (L/min) $I(\varrho O T)$ 2.5       ( $\wp$ -71       14.00       1.47       0.29       -139       9.4       4.41       0.5 $I(\varrho I D)$ 5.0       ( $\wp$ -71       14.00       1.410       0.29       -139       10.0       4.41       0.5 $I(\varrho I D)$ 7.5       ( $\wp$ -74       14.01       1.410       0.29       -141       9.0       4.41       0.5 $I(\varrho I D)$ 7.5       ( $\wp$ -74       14.01       0.29       -141       9.0       4.41       0.5 $I(\varrho I D)$ 7.5       ( $\wp$ -74       14.00       1.410       0.29       -141       9.0       4.41       0.5         Itel D EQUIPMENT AND CALIBRATION       Model       Calibration       Calibration       Checked Against Calibrated Length       1.410       1.410       1.410       1.410       1.410       1.	Well Head								5	······································	
Time       Amount       pH       Temperature       Conductivity       Dissolved       Redox (ORP)       Turbidity       Depth to Water       Purge Rate $Purged (L)$ (Celsius)       (mS/cm)       Oxygen (mg/L)       (mV)       (NTU)       (ft BTOC)       (L/min) $I(\varrho O = 2.5)$ $(O.71)$ $I4.00$ $1.47$ $O.29$ $-139$ $9.4$ $4.41$ $O.5$ $I(\varrho IO = 5.0)$ $G.741$ $I4.10$ $1.416$ $O.29$ $-139$ $I0.0$ $4.41$ $O.5$ $I(\varrho IO = 7.5)$ $G.741$ $I4.01$ $1.416$ $O.29$ $-141$ $9.60$ $44.41$ $O.5$ $I(\varrho IO = 7.5)$ $G.741$ $I4.01$ $1.416$ $O.29$ $-141$ $9.60$ $44.41$ $O.5$ $I(\varrho IO = 7.5)$ $G.741$ $I4.01$ $1.416$ $O.29$ $-1411$ $9.60$ $44.41$ $O.5$ IELD EQUIPMENT AND CALIBRATION       Model       Calibration       Checked Against Calibrated Length $Aeer Quality Meter       Aeer Sel56 Multi-Parameter Probe       Twice Daily Calibration Verification also Calibrated Weekly       O.75.2         IENERAL COMMENTS       errous Iron = $	Purge Water	•	ND			_		·····			
Time       Amount       pH       Temperature       Conductivity       Dissolved       Redox (ORP)       Turbidity       Depth to Water       Purge Rate $Purged (L)$ (Celsius)       (mS/cm)       Oxygen (mg/L)       (mV)       (NTU)       (ft BTOC)       (L/min) $I(\varrho O = 2.5)$ $(O.71)$ $I4.00$ $1.47$ $O.29$ $-139$ $9.4$ $4.41$ $O.5$ $I(\varrho IO = 5.0)$ $G.741$ $I4.10$ $1.416$ $O.29$ $-139$ $I0.0$ $4.41$ $O.5$ $I(\varrho IO = 7.5)$ $G.741$ $I4.01$ $1.416$ $O.29$ $-141$ $9.60$ $44.41$ $O.5$ $I(\varrho IO = 7.5)$ $G.741$ $I4.01$ $1.416$ $O.29$ $-141$ $9.60$ $44.41$ $O.5$ $I(\varrho IO = 7.5)$ $G.741$ $I4.01$ $1.416$ $O.29$ $-1411$ $9.60$ $44.41$ $O.5$ IELD EQUIPMENT AND CALIBRATION       Model       Calibration       Checked Against Calibrated Length $Aeer Quality Meter       Aeer Sel56 Multi-Parameter Probe       Twice Daily Calibration Verification also Calibrated Weekly       O.75.2         IENERAL COMMENTS       errous Iron = $											
$\frac{ (0 0  \overline{5} \cdot 0  (0.71   4.10   .40  0.29  -139   0.0  4.41  0.5}{ (0 5  7.5  (0.74  )4.01   .40  0.29  -141  9.0  4.41  0.5}{ (0 5  7.5  (0.74  )4.01   .40  0.29  -141  9.0  4.41  0.5}{ (0 5  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -141  -$		Purged (L)	-	(Celsius)	(mS/cm)	Oxygen (mg/L)	(mV)	(NTU)	(ft BTOC)	(L/min)	
$\frac{ (\mu 5  7.5 (\omega.74   14.01   14.0   1.40   0.29 - 141   9.0   4.41   0.5}{ 0.29 - 141   9.0   4.41   0.5}$	1010	5.0	6.71	14.10	1.40	0.29	-139	10.0			
IELD EQUIPMENT AND CALIBRATION         Model       Calibration         IELD EQUIPMENT AND CALIBRATION         Model       Calibration         Vater Level Probe       Heron         Checked Against Calibrated Length         Yater Quality Meter $\checkmark$ SS SS6 Multi-Parameter Probe         Twice Daily Calibration Verification also Calibrated Weekly         HOY: Lect $U = 5$ , $\Delta$ ENERAL COMMENTS         errous Iron = $f_1$ , $\Box$ $f_1$ mg/L         Julti-Parameter Probe Unit # $p_1 f_{LOO}$ Held Parameters Measured in Flow-Through Cell         ample Depth (ft bgs) = $3$ , $5$ ump Rate = $0$ , $f_2$ , $L$ / $mn$ emp Well Diameter = $1^n$	1015	7.5	6.74	14.01	1.46		-141		4.41		
Model       Calibration         /ater Level Probe       Heron       Checked Against Calibrated Length         //ater Quality Meter $\neg$ SL 556 Multi-Parameter Probe       Twice Daily Calibration Verification also Calibrated Weekly         ENERAL COMMENTS       Hori box U-502       Twice Daily Calibration Verification also Calibrated Weekly         ENERAL COMMENTS       mg/L         Iulti-Parameter Probe Unit # $PGL_{OOO}$ Heron         ield Parameters Measured in Flow-Through Cell       Imp Rate = $O \cdot F L / Min$ ample Depth (ft bgs) = $36$ Imp Rate = $O \cdot F L / Min$									• ****		
Model       Calibration         /ater Level Probe       Heron       Checked Against Calibrated Length         /ater Quality Meter $\checkmark$ SL556 Multi-Parameter Probe       Twice Daily Calibration Verification also Calibrated Weekly         ENERAL COMMENTS       errous Iron = $\checkmark$ $\checkmark$ $\checkmark$ $\checkmark$ mg/L         iulti-Parameter Probe Unit # $\neg g/L_{OOO}$ eld Parameters Measured in Flow-Through Cell         ample Depth (ft bgs) = $\Im$ $\Im$ imp Rate = $0 \cdot \sqsubset L/min$ $\square$											
Model       Calibration         /ater Level Probe       Heron       Checked Against Calibrated Length         //ater Quality Meter $\neg$ SL 556 Multi-Parameter Probe       Twice Daily Calibration Verification also Calibrated Weekly         ENERAL COMMENTS       Hori box U-502       Twice Daily Calibration Verification also Calibrated Weekly         ENERAL COMMENTS       mg/L         Iulti-Parameter Probe Unit # $PGL_{OOO}$ Heron         ield Parameters Measured in Flow-Through Cell       Imp Rate = $O \cdot F L / Min$ ample Depth (ft bgs) = $36$ Imp Rate = $O \cdot F L / Min$											
Model       Calibration         /ater Level Probe       Heron       Checked Against Calibrated Length         /ater Quality Meter $\checkmark$ SL556 Multi-Parameter Probe       Twice Daily Calibration Verification also Calibrated Weekly         ENERAL COMMENTS       errous Iron = $\checkmark$ $\checkmark$ $\checkmark$ $\checkmark$ mg/L         iulti-Parameter Probe Unit # $\neg g/L_{OOO}$ eld Parameters Measured in Flow-Through Cell         ample Depth (ft bgs) = $\Im$ $\Im$ imp Rate = $0 \cdot \sqsubset L/min$ $\square$											
Model       Calibration         Vater Level Probe       Heron       Checked Against Calibrated Length         Vater Quality Meter       VSL556 Multi-Parameter Probe       Twice Daily Calibration Verification also Calibrated Weekly         VENERAL COMMENTS       Horibox       U-52         Verification       Image: State											
Model       Calibration         Vater Level Probe       Heron       Checked Against Calibrated Length         Vater Quality Meter       VSL556 Multi-Parameter Probe       Twice Daily Calibration Verification also Calibrated Weekly         VENERAL COMMENTS       Horibox       U-52         Verification       Image: State											
Model       Calibration         /ater Level Probe       Heron       Checked Against Calibrated Length         //ater Quality Meter $\neg$ SL 556 Multi-Parameter Probe       Twice Daily Calibration Verification also Calibrated Weekly         ENERAL COMMENTS       Hori box U-502       Twice Daily Calibration Verification also Calibrated Weekly         ENERAL COMMENTS       mg/L         Iulti-Parameter Probe Unit # $PGL_{OOO}$ Heron         ield Parameters Measured in Flow-Through Cell       Imp Rate = $O \cdot F L / Min$ ample Depth (ft bgs) = $36$ Imp Rate = $O \cdot F L / Min$											
Model       Calibration         /ater Level Probe       Heron       Checked Against Calibrated Length         //ater Quality Meter $\neg$ SL 556 Multi-Parameter Probe       Twice Daily Calibration Verification also Calibrated Weekly         ENERAL COMMENTS       Hori box U-502       Twice Daily Calibration Verification also Calibrated Weekly         ENERAL COMMENTS       mg/L         Iulti-Parameter Probe Unit # $PGL_{OOO}$ Heron         ield Parameters Measured in Flow-Through Cell       Imp Rate = $O \cdot F L / Min$ ample Depth (ft bgs) = $36$ Imp Rate = $O \cdot F L / Min$											
Model       Calibration         /ater Level Probe       Heron       Checked Against Calibrated Length         //ater Quality Meter $\neg$ SL 556 Multi-Parameter Probe       Twice Daily Calibration Verification also Calibrated Weekly         ENERAL COMMENTS       Hori box U-502       Twice Daily Calibration Verification also Calibrated Weekly         ENERAL COMMENTS       mg/L         Iulti-Parameter Probe Unit # $PGL_{OOO}$ Heron         ield Parameters Measured in Flow-Through Cell       Imp Rate = $O \cdot F L / Min$ ample Depth (ft bgs) = $36$ Imp Rate = $O \cdot F L / Min$											
Model       Calibration         /ater Level Probe       Heron       Checked Against Calibrated Length         //ater Quality Meter $\neg$ SL 556 Multi-Parameter Probe       Twice Daily Calibration Verification also Calibrated Weekly         ENERAL COMMENTS       Horibox U-52       Twice Daily Calibration Verification also Calibrated Weekly         ENERAL COMMENTS       mg/L         Iulti-Parameter Probe Unit # $rg(Loo)$ Horibox U-52         ield Parameters Measured in Flow-Through Cell       Imp Rate = $0 \cdot rr L/min$ ample Depth (ft bgs) = $3ric       Imp Rate = 0 \cdot rr L/min         emp Well Diameter = 1^{11}       Imp Rate = 1^{11} $	IFI D FOID	PMENT AND		1 )N		_[		<u> </u>	<u></u>		
Vater Quality Meter $\sqrt{\text{VSL556 Multi-Parameter Probe}}$ Twice Daily Calibration Verification also Calibrated Weekly         ENERAL COMMENTS       errous Iron = $\overline{f_1}$ , $4/3^{\circ}$ mg/L       interference         Iulti-Parameter Probe Unit # $rrg(_{LOO})$ interference       interference         ield Parameters Measured in Flow-Through Cell       interference       interference         ample Depth (ft bgs) = $3f_1$ imp Rate = $0 \cdot f_1 L/(min)$ imp Rate = $1^{1/1}$	-		Model	//1			et Calibrated I	enath			
Horiba U-52 ENERAL COMMENTS errous Iron = $\overline{f_1} \cdot 4 \frac{g}{g}$ mg/L Iulti-Parameter Probe Unit # $\overline{f_1} \frac{g}{g_0}$ ield Parameters Measured in Flow-Through Cell ample Depth (ft bgs) = $3\overline{f_1}$ imp Rate = $0 \cdot \overline{f_1} L / \frac{w_1}{v}$ emp Well Diameter = $1^{v_1}$				-Parameter Proh					librated Weekly		
errous Iron = $5.48$ mg/L Iulti-Parameter Probe Unit # $59(100)$ ield Parameters Measured in Flow-Through Cell ample Depth (ft bgs) = $35$ ump Rate = $0.524$ /min emp Well Diameter = $1^{11}$		H							actuated trookly		
Iulti-Parameter Probe Unit # $mq_{LOO}$ ield Parameters Measured in Flow-Through Cell         ample Depth (ft bgs) = $3\pi$ ump Rate = $O \cdot \pi L/Min$ emp Well Diameter = $1^{11}$											
ield Parameters Measured in Flow-Through Cell ample Depth (ft bgs) = 377 ump Rate = $0.57L/min$ emp Well Diameter = 111	errous Iron =	<u>15.48 "</u>	ng/L	· · · · · · · · · · · · · · · · · · ·							
$ample Depth (ft bgs) = 3\pi$ $amp Rate = 0 \cdot \pi L/min$ $emp Well Diameter = 1''$	Iulti-Paramete	r Probe Unit #	n9600	<u> </u>	-						
$  mp Rate = 0.5 \pi L/min $ $  mp Well Diameter = 1'' $				Cell			<u> </u>				
emp Well Diameter = $\frac{n}{2}$											
			111								
$\int (f(r) g(s)) = \frac{g}{r} \int (r) f(r)$			11/1								
	sicen mierväl	(11  ogs) = 30				······					

#### GENERAL INFORMATION

SITE NAME	CHAAJ	P OU1 RAO_P	erformance M	onitoring	PROJECT NO.		605	65355	
SAMPLE NO	EW7	-PM291	9-3-		-	PM20	1A		
DATE/TIME	COLLECTED7	10-30-	20/106	0	PERSONNEL	TV			
SAMPLE ME			altic Pump and			50	· · · ·		
					_				
SAMPLE ME		Groundwater							
SAMPLE QA		YES	NO		SAMPLE NO.		·····		
SAMPLE QC		YES	No		E SAMPLE NO.				
MS/MSD REC	QUESTED	YES		MS/MSL	O SAMPLE NO.	NA			
SAMPLE CO	NTAINERS, F	PRESERVATI	VES, ANALYS	IS					
Sample Contai			Preservative		Analysis Requ				
2 - 500 mL An			6°C		Explosives + N		· · · · · · · · · · · · · · · · · · ·		
3 - 40 mL VO 1 - 500 mL HI			6°C, HCl 6°C, H <sub>2</sub> S0 <sub>4</sub>		Methane (RSK	. 175) NH <sub>3</sub> (350.1), NO	NO (252.2)		
1 - 250 mL HI			6℃, H <sub>2</sub> S0 <sub>4</sub>			Alkalinity (232)		)	
1 - 250 mL HI			6°C, ZnOAc/N	aOH	Sulfide (9034)		(0)		
1 - 250 mL An			6°C		DOC (9060A)				
WELL PURC	SING DATA								
_			0.0			l Depth (ft bgs)			
Date		5-30-1	20		Depth to	Water (ft bgs)	4.86		
Time Started Time Complete	ed	094F			- Water (	Column Length Volume (per ft)	55.14		
PID Measurem		1040				ter in Well (L)			
Background		ND				lumes to Purge	-100-	<u> </u>	
Breathing Z		ND				m to Purge (L)		-	
Well Head		ND			A	ctual Purge (L)	7.0	5	
Purge Water	;	ND			_				
FIELD MEAS	SUREMENTS					<u></u>	· · · · · · · · · · · · · · · · · · ·		
Time	Amount Purged (L)	рН	Temperature (Celsius)	Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	Redox (ORP) (mV)	Turbidity (NTU)	Depth to Water (ft BTOC) 698	Purge Rate (L/min)
1040	2.5	6-20	12.04	0.959	0.33	-62	15.3	4.86	0.5
1045	5.0	6.25	12.21	0.952	0.37	-62	13.9	4.86	0.5
1050	7.57	6.25	12.24	0.955	0.37	-62	16.3	4.86	0.5
<u> </u>									
-									
FIELD EQUI		<u>Model</u>	'n		<u>Calibration</u>				
Water Level Pro Water Quality I		Heron Hocker 40 Mul	ti-Parameter Pro	ha	Checked Again Twice Daily Ca			iberta d XX/- alala	
		HONDO		000	Twice Daily Ca	indiation verific	cation also Cal	ibrated weekly	
GENERAL CO	OMMENTS								5
Ferrous Iron =	hey "	ng/L							·
Multi-Paramete			7-11						
Field Parameter Sample Depth (			ell						
Pump Rate =									
Temp Well Dia									
Screen Interval		-30							

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SITE NAME CHAA	P OU1 RAO_P	erformance Mo	nitoring	PROJECT NO.	·	605	65355	
sample no. <u>EW7-1</u>	PM29B-	3-35		WELL NO.	PM:	29B		
DATE/TIME COLLECTED SAMPLE METHOD	F-30-2 Perist	$\frac{20}{124}$		_ PERSONNEL	TY JO	RH		
SAMPLE MEDIA: SAMPLE QA SPLIT: SAMPLE QC DUPLICATE: MS/MSD REQUESTED	Groundwater YES YES	R NO NO	DUPLICATI	- F SAMPLE NO. E SAMPLE NO. D SAMPLE NO.	NA	129B-3-	-35 ms	lmsd
SAMPLE CONTAINERS, I	PRESERVATI	VES, ANALYSI	IS					
Sample Container		Preservative		Analysis Requ				
2 - 500 mL Amber		6°C		Explosives + N				
3 - 40 mL VOA		6°C, HCl		Methane (RSK				
1 - 500 mL HDPE 1 - 250 mL HDPE		6°C, H <sub>2</sub> S0 <sub>4</sub> 6°C			$NH_3$ (350.1), NO		)	· · · · · · · · · · · · · · · · · · ·
1 - 250 mL HDPE		6°C, ZnOAc/Na	011		Alkalinity (2320	JB)		
1 - 250 mL Amber		6°C	IOH	Sulfide (9034) DOC (9060A)				
WELL PURGING DATA		<u></u>		DOC (DOODA)				
Date Time Started Time Completed <u>PID Measurements</u> Background Breathing Zone	Б-30- 1110 1240 ND	20		Depth to Water ( Well Casing Volume of Wa Casing Vo	l Depth (ft bgs) o Water (ft bgs) Column Length Volume (per ft) ter in Well (L) olumes to Purge um to Purge (L)	4.77 38.23 0.16 5.64		
Well Head	ND			-	ctual Purge (L)		-	
Purge Water	ND			- 7	ciuai Fuige (L)	7.6	า	
				-				
FIELD MEASUREMENTS Time Amount Purged (L)	рН	Temperature (Celsius)	Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	Redox (ORP) (mV)	Turbidity (NTU)	Depth to Water (ft BFOC) 695	Purge Rate (L/min)
1230 2.5	6.34	13.07	1.12	0.29	-105	48.4	4.77	0.5
1235 5.0	6.33	13.15	1.12	0.29	-105	42.4	4.77	0.5
1240 7.55	6.32	13.11	1.11	0.29	-105	43.8	4.77	0.5
	CALIBRATIO Model Heron YSI 556 Multi- Horiba L	Parameter Probe	,	<u>Calibration</u> Checked Agair Twice Daily Ca			librated Weekly	
GENERAL COMMENTS	A	<u> </u>						<u> </u>
1 -1		5						
Multi-Parameter Probe Unit #		· · · · · · · · · · · · · · · · · · ·						
Field Parameters Measured in				· · · · · · · · · · · · · · · · · · ·				
Sample Depth (ft bgs) = $36$								
Pump Rate = O. FL/W								
Temp Well Diameter = 1 <sup>11</sup>								
Screen Interval (ft bgs) = $3\dot{O}$	-40							
	·····				· · · · · · · · · · · · · · · · · · ·			

# DAILY QUALITY CONTROL REPORT

Date 05/26/20 W Day S S Μ Т Т F Х On Site Hours 1000 - 1730 Travel Time 2.5 Office Time Weather Bright Sun Clear Overcast Rain Snow Х Х Temp To 32 32-50 50-70 70-85 85 up Х Report No. Wind Still Moderate High Х 1 Humidity Dry Moderate Humid Х

#### Subcontractors on Site:

Plains Environmental Services (PES) (Direct Push Subcontractor) - Jason Auernheimer

W9128F-18-D-0020

CHAAP OU1 Rebound Study/

PMs-Q#3 & OU1-OU3 LTM

Jeff Gill

60565355

#### Equipment on Site:

**COE Project Manager** 

Project

Project No.

Contract No.

One direct push rig (Geoprobe 6620DT), Screen point sampler (SP15), support trucks, hand-held GPS unit, performance monitoring (PM) temporary well materials (1"-OD PVC., 10' screens, filter pack sand, granular bentonite, coated chips, grout mix), peristaltic pump and tubing, laboratory provided sample containers, IDW buckets, decon supplies, Horiba MPS, LaMotte turbidity meter, Hach Colormeter, water level meters, MiniRAE PID, level D PPE, first-aid/safety supplies, and field/safety paperwork.

#### Visitors on Site:

None.

#### AECOM/Brice Personnel on Site:

AECOM - Taylor Young, Ryan Herold, Jonathan Ortiz

#### Field Work Performed (including sampling):

-Began OU1 Rebound Study Q#3 and OU1-OU3 LTM sampling events (install/sample/abandon performance monitoring wells, DP screen point sampling, and MW sampling).

#### Direct Push (Screen Point) Groundwater Samples Collected

OS001-DP03-25 (+Dup OS001-DP503-25) OS001-DP03-35

OS001-DP03-45 (+MS/MSD)

-OU1 and OU3 sample analysis will be completed in accordance with Addendum 2, and Addendum 3 UFP-QAPPs. -Containerized IDW purge/decontamination water in a designated labeled 1000-gallon poly tank at GWTF.

#### Quality Control Activities (including field calibration):

-Completed staking of sample locations using hand-held GPS with predetermined coordinates. Utility locates and notifying property owners of field activities were completed week of 5/18/20.

-Calibration check of PIDs (serial #'s 110-014926, 110-014888) and water level indicators (#'s 1324-T, 1323-T). -Duplicate sample OS001-DP503-25 and MS/MSD was collected.

## Health and Safety and Activities:

Had the initial H&S meeting with all personnel on site. All persons on site completed required paperwork/checklists and discussed sections of QAPP-APP/SSHP and H&S procedures including: PPE, hazards with direct push rigs, traffic safety, potential exposure to explosives contamination, fire hazards, hearing protection, slip-trip-falls, and lifting hazards. Discussed route to hospital, severe weather procedures, farming activities, and trains and railroad track safety.

-Completed Daily Tailgate Meeting Sheet

-Completed Daily Task Hazard Assessment Sheet

#### Observations/Problems Encountered/Corrective Action Taken: None.

Office Work Performed:

-Organized paperwork and equipment, scanned SCFSs. -Completed DQCR.

By Ryan Herold

Title Field Manager

# DAILY QUALITY Dat CONTROL REPORT Day

Jeff Gill

60565355

Date	05/27/20									
Day	S	S	М	Т	W X	Т	F			
On Site He Travel Tir Office Tin	0700 - 1600 0.5									
Weather			CI	Clear Overcast Rain Sno						
weather	Brigh	ıt Sun	X		X	Kain	Snow			
Temp	То	32	32-50		-70 X	70-85	85 up			
Wind	Still		Moderate X		gh	Repo	ort No.			
Humidity	Dry	Moderate X		Hu	mid	2				

0 = 10 = 100

#### Subcontractors on Site:

Plains Environmental Services (PES) (Direct Push Subcontractor) - Jason Auernheimer

W9128F-18-D-0020

CHAAP OU1 Rebound Study/

PMs-Q#3 & OU1-OU3 LTM

#### Equipment on Site:

**COE Project Manager** 

Project

Project No.

Contract No.

One direct push rig (Geoprobe 6620DT), Screen point sampler (SP15), support trucks, hand-held GPS unit, performance monitoring (PM) temporary well materials (1"-OD PVC., 10' screens, filter pack sand, granular bentonite, coated chips, grout mix), peristaltic pump and tubing, laboratory provided sample containers, IDW buckets, decon supplies, Horiba MPS, LaMotte turbidity meter, Hach Colormeter, water level meters, MiniRAE PID, level D PPE, first-aid/safety supplies, and field/safety paperwork.

#### Visitors on Site:

None.

#### AECOM/Brice Personnel on Site:

AECOM - Taylor Young, Ryan Herold, Jonathan Ortiz

#### Field Work Performed (including sampling):

-Continued OU1 Rebound Study Q#3 and OU1-OU3 LTM sampling events (install/sample/abandon performance monitoring wells, DP screen point sampling, and MW sampling).

#### Installed (7) temp wells

EW7-PM21A-30 EW7-PM24B-40 EW7-PM21B-40 EW7-PM27A-30 EW7-PM22A-30 EW7-PM22B-40 EW7-PM24A-30

-OU1 and OU3 sample analysis will be completed in accordance with Addendum 2, and Addendum 3 UFP-QAPPs. -Containerized IDW purge/decontamination water in a designated labeled 1000-gallon poly tank at GWTF.

#### Quality Control Activities (including field calibration):

-Calibration check of PIDs (serial #'s 110-014926, 110-014888) and water level indicators (#'s 1324-T, 1323-T).

#### Health and Safety and Activities:

Had the daily H&S meeting with all personnel on site. All persons on site completed required paperwork/checklists and discussed sections of QAPP-APP/SSHP and H&S procedures including: PPE, hazards with direct push rigs, traffic safety, potential exposure to explosives contamination, fire hazards, hearing protection, slip-trip-falls, and lifting hazards. Discussed route to hospital, severe weather procedures, farming activities, and trains and railroad track safety.

-Re-capped overall health and safety concerns, stressed road, COVID-19, and direct push safety.

-Completed Daily Tailgate Meeting Sheet

#### Office Work Performed: -Organized paperwork and equipment. -Completed DQCR.

By Ryan Herold

# DAILY QUALITY

Date

05/28/20

	Day	S	S	М	Т	W	Т Х	F	
		On Site H					0700 -		
		Travel Tir	ne				0.5		
		Office Tir	ne				1		
COE Project Manager	Jeff Gill	Weather	Brigh	nt Sun	Clear	Ove	rcast	Rain	Snow
Project	CHAAP OU1 Rebound Study/				Х				
	PMs-Q#3 & OU1-OU3 LTM	Temp	То	32	32-50	50-	-70	70-85	85 up
Project No.	60565355					2	X		
Contract No.	W9128F-18-D-0020	Wind	Still	Mod	lerate	Hi	gh	Repo	ort No.
						2	Χ		
		Humidity	Dry	Mod	lerate	Hu	mid	]	3
					Х				

#### Subcontractors on Site:

Plains Environmental Services (PES) (Direct Push Subcontractor) - Jason Auernheimer

#### Equipment on Site:

One direct push rig (Geoprobe 6620DT), Screen point sampler (SP15), support trucks, hand-held GPS unit, performance monitoring (PM) temporary well materials (1"-OD PVC., 10' screens, filter pack sand, granular bentonite, coated chips, grout mix), peristaltic pump and tubing, laboratory provided sample containers, IDW buckets, decon supplies, Horiba MPS, LaMotte turbidity meter, Hach Colormeter, water level meters, MiniRAE PID, level D PPE, first-aid/safety supplies, and field/safety paperwork.

#### Visitors on Site:

Safety-Kleen - Mark Schmidt

#### AECOM/Brice Personnel on Site:

AECOM - Taylor Young, Ryan Herold and John Ortiz

#### Field Work Performed (including sampling):

-Continued OU1 Rebound Study Q#3 and OU1-OU3 LTM sampling events (install/sample/abandon performance monitoring wells, DP screen point sampling, and MW sampling).

Installed (7) temp wells		Sampled (2) PM wells
EW7-PM27B-40	EW7-PM29A-30	EW7-PM21A-3-25
EW7-PM25A-30	EW7-PM29B-40	EW7-PM22A-3-25
EW7-PM25B-40	EW7-PM23A-30	
EW7-PM28A-30	EW7-PM23B-40	
EW7-PM28B-40		

-OU1 and OU3 sample analysis will be completed in accordance with Addendum 2, and Addendum 3 UFP-QAPPs. -Containerized IDW purge/decontamination water in a designated labeled 1000-gallon poly tank at GWTF.

#### **Quality Control Activities (including field calibration):**

-Calibration check of PIDs (serial #'s 110-014926, 110-014888), water level indicators (#'s 1324-T, 1323-T), Horiba-U52 (serial #'s U61502X).

#### Health and Safety and Activities:

Had the daily H&S meeting with all personnel on site. All persons on site completed required paperwork/checklists and discussed sections of QAPP-APP/SSHP and H&S procedures including: PPE, hazards with direct push rigs, traffic safety, potential exposure to explosives contamination, fire hazards, hearing protection, slip-trip-falls, and lifting hazards. Discussed route to hospital, severe weather procedures, farming activities, and trains and railroad track safety.

-Re-capped overall health and safety concerns, stressed road, COVID-19, and direct push safety.

-Completed Daily Tailgate Meeting Sheet

Safety-Kleen onsite to collect additional water IDW sample (from MW install activities - 4/2020).

#### Office Work Performed:

-Organized paperwork and equipment, scanned SCFSs. -Completed DQCR.

By Ryan Herold

DAILY QUA	Date	05/29/20							
	Day	s	S	М	Т	W	Т	F	
		On Site H Travel Tir Office Tir	ne			07	700 - 1 0.5 1		
COE Project Manager Project	Jeff Gill CHAAP OU1 Rebound Study/	Weather	Brigh	nt Sun	Clear X	Overc	ast	Rain	Snow
Project No.	PMs-Q#3 & OU1-OU3 LTM 60565355	Temp	То	32	32-50	50-7	0	70-85 X	85 up
Contract No.	W9128F-18-D-0020	Wind	Still X	Moo	lerate	Higl	h	Repo	ort No.
		Humidity	Dry		lerate X	Hum	id		4

#### Subcontractors on Site:

Plains Environmental Services (PES) (Direct Push Subcontractor) - Jason Auernheimer

#### Equipment on Site:

One direct push rig (Geoprobe 6620DT), Screen point sampler (SP15), support trucks, hand-held GPS unit, performance monitoring (PM) temporary well materials (1"-OD PVC., 10' screens, filter pack sand, granular bentonite, coated chips, grout mix), peristaltic pump and tubing, laboratory provided sample containers, IDW buckets, decon supplies, Horiba MPS, LaMotte turbidity meter, Hach Colormeter, water level meters, MiniRAE PID, level D PPE, first-aid/safety supplies, and field/safety paperwork.

#### Visitors on Site:

None.

#### AECOM/Brice Personnel on Site:

AECOM - Taylor Young, Ryan Herold, Jonathan Ortiz

#### Field Work Performed (including sampling):

-Continued OU1 Rebound Study Q#3 and OU1-OU3 LTM sampling events (install/sample/abandon performance monitoring wells, DP screen point sampling, and MW sampling).

Installed (2) temp wells EW7-PM26A-30 EW7-PM26B-40 
 Sampled (5) PM wells

 EW7-PM21B-3-35
 EW7-PM27A-3-25

 EW7-PM22B-3-35
 EW7-PM24A-3-25

 EW7-PM24B-3-35
 EW7-PM24B-3-35

-OU1 and OU3 sample analysis will be completed in accordance with Addendum 2, and Addendum 3 UFP-QAPPs. -Containerized IDW purge/decontamination water in a designated labeled 1000-gallon poly tank at GWTF.

#### Quality Control Activities (including field calibration):

-Calibration check of PIDs (serial #'s 110-014926, 110-014888), water level indicators (#'s 1324-T, 1323-T), Horiba-U52 (serial #'s U61502X).

#### Health and Safety and Activities:

Had the daily H&S meeting with all personnel on site. All persons on site completed required paperwork/checklists and discussed sections of QAPP-APP/SSHP and H&S procedures including: PPE, hazards with direct push rigs, traffic safety, potential exposure to explosives contamination, fire hazards, hearing protection, slip-trip-falls, and lifting hazards. Discussed route to hospital, severe weather procedures, farming activities, and trains and railroad track safety.

-Re-capped overall health and safety concerns, stressed road, COVID-19, and direct push safety.

-Completed Daily Tailgate Meeting Sheet

Office Work Performed:

-Organized paperwork and equipment, scanned SCFSs. -Completed DQCR.

By Ryan Herold

Date

05/30/20

	Day	S X	S	М	Т	W	Т	F	
		On Site H	ours			(	0700 -	1700	
		Travel Tir	ne				0.5		
		Office Tin	ne				0.5		
COE Project Manager	Jeff Gill	Weather	Brigh	nt Sun	Clear	Over	rcast	Rain	Snow
Project	CHAAP OU1 Rebound Study/				Х	У	Κ		
	PMs-Q#3 & OU1-OU3 LTM	Temp	То	32	32-50	50-	-70	70-85	85 up
Project No.	60565355					У	Κ		
Contract No.	W9128F-18-D-0020	Wind	Still	Mod	lerate	Hi	gh	Repo	ort No.
				2	X				
		Humidity	Dry	Mod	lerate	Hui	mid		5
					X				

#### Subcontractors on Site:

None.

#### Equipment on Site:

Support trucks, hand-held GPS unit, peristaltic pump and tubing, laboratory provided sample containers, IDW buckets, decon supplies, Horiba MPS, LaMotte turbidity meter, MiniRAE PID, Hach Colormeter, water level meters, level D PPE, first-aid/safety supplies, and field/safety paperwork.

#### Visitors on Site:

None.

#### AECOM/Brice Personnel on Site:

AECOM - Taylor Young, Ryan Herold, Jonathan Ortiz

#### Field Work Performed (including sampling):

-Continued OU1 Rebound Study Q#3 and OU1-OU3 LTM sampling events (install/sample/abandon performance monitoring wells, DP screen point sampling, and MW sampling).

Sampled (5) PM wells EW7-PM27B-3-35 EW7-PM29A-3-25 EW7-PM29B-3-35 (+ MS/MSD) EW7-PM28A-3-25 EW7-PM28B-3-35

-OU1 and OU3 sample analysis will be completed in accordance with Addendum 2, and Addendum 3 UFP-QAPPs. -Containerized IDW purge/decontamination water in a designated labeled 1000-gallon poly tank at GWTF.

#### Quality Control Activities (including field calibration):

-Calibration check of PIDs (serial #'s 110-014926, 110-014888), water level indicators (#'s 1324-T, 1323-T), Horiba-U52 (serial #'s U61502X).

-MS/MSD was collected.

#### Health and Safety and Activities:

Had the daily H&S meeting with all personnel on site. All persons on site completed required paperwork/checklists and discussed sections of QAPP-APP/SSHP and H&S procedures including: PPE, hazards with direct push rigs, traffic safety, potential exposure to explosives contamination, fire hazards, hearing protection, slip-trip-falls, and lifting hazards. Discussed route to hospital, severe weather procedures, farming activities, and trains and railroad track safety.

-Re-capped overall health and safety concerns, stressed road, COVID-19, and direct push safety.

-Completed Daily Tailgate Meeting Sheet

Office Work Performed:

-Organized paperwork and equipment, scanned SCFSs. -Completed DQCR.

By Ryan Herold

Date

05/31/20

	Day	S	S X	М	Т	W	Т	F		
		On Site H	ours			(	0700 -	1700		
		Travel Time			0.5					
		Office Tin	ne				0.5			
COE Project Manager	Jeff Gill	Weather	Brigh	nt Sun	Clear	Ove	rcast	Rain	Snow	
Project	CHAAP OU1 Rebound Study/				Х	У	X			
	PMs-Q#3 & OU1-OU3 LTM	Temp	То	32	32-50	50-	-70	70-85	85 up	
Project No.	60565355					У	Χ			
Contract No.	W9128F-18-D-0020	Wind	Still	Mod	lerate	erate High		Repo	ort No.	
						У	Χ			
		Humidity	Dry	Mod	lerate	Hu	mid		6	
					X					

#### Subcontractors on Site:

None.

#### Equipment on Site:

Support trucks, hand-held GPS unit, peristaltic pump and tubing, laboratory provided sample containers, IDW buckets, decon supplies, Horiba MPS, LaMotte turbidity meter, Hach Colormeter, water level meters, MiniRAE PID, level D PPE, first-aid/safety supplies, and field/safety paperwork.

#### Visitors on Site:

None.

#### AECOM/Brice Personnel on Site:

AECOM - Taylor Young, Ryan Herold, Jonathan Ortiz

#### Field Work Performed (including sampling):

-Continued OU1 Rebound Study Q#3 and OU1-OU3 LTM sampling events (install/sample/abandon performance monitoring wells, DP screen point sampling, and MW sampling).

Sampled (5) PM wells EW7-PM25A-3-25 EW7-PM25B-3-35 EW7-PM23A-3-25 (+ duplicate) EW7-PM23B-3-25 EW7-PM26A-3-25

-OU1 and OU3 sample analysis will be completed in accordance with Addendum 2, and Addendum 3 UFP-QAPPs. -Containerized IDW purge/decontamination water in a designated labeled 1000-gallon poly tank at GWTF.

#### Quality Control Activities (including field calibration):

-Calibration check of PIDs (serial #'s 110-014926, 110-014888), water level indicators (#'s 1324-T, 1323-T), Horiba-U52 (serial #'s U61502X).

-Duplicate sample EW7-PM523A-3-25 was collected.

#### Health and Safety and Activities:

Had the daily H&S meeting with all personnel on site. All persons on site completed required paperwork/checklists and discussed sections of QAPP-APP/SSHP and H&S procedures including: PPE, hazards with direct push rigs, traffic safety, potential exposure to explosives contamination, fire hazards, hearing protection, slip-trip-falls, and lifting hazards. Discussed route to hospital, severe weather procedures, farming activities, and trains and railroad track safety.

-Re-capped overall health and safety concerns, stressed road, COVID-19, and direct push safety.

-Completed Daily Tailgate Meeting Sheet

None.

### Office Work Performed:

-Organized paperwork and equipment, scanned SCFSs. -Completed DQCR.

By Ryan Herold

Date

06/01/20

	Day	S	S	M X	Т	W	Т	F	
		On Site H	ours			(	0700 -	1600	
		Travel Tir		0.5					
		Office Tin	ne				0.5		
COE Project Manager	Jeff Gill	Weather	Brigh	nt Sun	Clear	Over	rcast	Rain	Snow
Project	CHAAP OU1 Rebound Study/		2	X					
	PMs-Q#3 & OU1-OU3 LTM	Temp	То	32	32-50	50-	-70	70-85	85 up
Project No.	60565355								Х
Contract No.	W9128F-18-D-0020	Wind	Still	Mod	lerate	Hi	gh	Repo	ort No.
						У	K		
		Humidity	Dry	Mod	lerate	Hu	mid		7
					X				

#### Subcontractors on Site:

None.

#### Equipment on Site:

Support trucks, hand-held GPS unit, peristaltic and Monsoon pumps and tubing, laboratory provided sample containers, IDW buckets, decon supplies, Horiba MPS, LaMotte turbidity meter, Hach Colormeter, water level meters, MiniRAE PID, level D PPE, first-aid/safety supplies, and field/safety paperwork.

#### Visitors on Site:

None.

#### AECOM/Brice Personnel on Site:

AECOM - Taylor Young, Ryan Herold, Jonathan Ortiz

#### Field Work Performed (including sampling):

-Continued OU1 Rebound Study Q#3 and OU1-OU3 LTM sampling events (install/sample/abandon performance monitoring wells, DP screen point sampling, and MW sampling).

Sampled (1) PM wells	Sampled (3) OU1 wells
EW7-PM26B-3-35	G0079-20A
	G0075-20A
	G0076-20A
	00070 2011

-OU1 and OU3 sample analysis will be completed in accordance with Addendum 2, and Addendum 3 UFP-QAPPs. -Containerized IDW purge/decontamination water in a designated labeled 1000-gallon poly tank at GWTF.

#### Quality Control Activities (including field calibration):

-Calibration check of PIDs (serial #'s 110-014926, 110-014888), water level indicators (#'s 1324-T, 1323-T), Horiba-U52 (serial #'s U61502X).

#### Health and Safety and Activities:

Had the daily H&S meeting with all personnel on site. All persons on site completed required paperwork/checklists and discussed sections of QAPP-APP/SSHP and H&S procedures including: PPE, hazards with direct push rigs, traffic safety, potential exposure to explosives contamination, fire hazards, hearing protection, slip-trip-falls, and lifting hazards. Discussed route to hospital, severe weather procedures, farming activities, and trains and railroad track safety.

-Re-capped overall health and safety concerns, stressed road, COVID-19, and direct push safety.

-Completed Daily Tailgate Meeting Sheet

Office Work Performed:

-Organized paperwork and equipment, scanned SCFSs. -Completed DQCR.

By Ryan Herold

Date

06/02/20

	Day	S	S	М	Т <b>Х</b>	W	Т	F		
		On Site H	ours			0	)630 -	1300		
	Travel Tir	ne			2.5					
		Office Tin	ne				0.5			
COE Project Manager	Jeff Gill	Weather	Brigh	nt Sun	Clear	Over	cast	Rain	Snow	
Project	CHAAP OU1 Rebound Study/		2	X						
	PMs-Q#3 & OU1-OU3 LTM	Temp	То	32	32-50	50-	70	70-85	85 up	
Project No.	60565355								Х	
Contract No.	W9128F-18-D-0020	Wind	Still Moderate High			Repo	ort No.			
						Х	ζ.			
		Humidity	Dry	Mod	lerate	Hun	nid		8	
					X					

#### Subcontractors on Site:

None.

#### Equipment on Site:

Support trucks, hand-held GPS unit, Monsoon pump and tubing, laboratory provided sample containers, IDW buckets, decon supplies, Horiba MPS, LaMotte turbidity meter, Hach Colormeter, water level meters, MiniRAE PID, level D PPE, first-aid/safety supplies, and field/safety paperwork.

#### Visitors on Site:

None.

#### AECOM/Brice Personnel on Site:

AECOM - Taylor Young, Ryan Herold, Jonathan Ortiz

#### Field Work Performed (including sampling):

-Continued OU1 Rebound Study Q#3 and OU1-OU3 LTM sampling events (install/sample/abandon performance monitoring wells, DP screen point sampling, and MW sampling).

#### Sampled (3) OU1 wells Abandoned (18) temp wells

G0070-20A (+MS/MSD) G0081-20A G0082-20A

-OU1 and OU3 sample analysis will be completed in accordance with Addendum 2, and Addendum 3 UFP-QAPPs. -Containerized IDW purge/decontamination water in a designated labeled 1000-gallon poly tank at GWTF.

#### Quality Control Activities (including field calibration):

-Calibration check of PIDs (serial #'s 110-014926, 110-014888), water level indicators (#'s 1324-T, 1323-T), Horiba-U52 (serial #'s U61502X).

-MS/MSD was collected.

#### Health and Safety and Activities:

Had the daily H&S meeting with all personnel on site. All persons on site completed required paperwork/checklists and discussed sections of QAPP-APP/SSHP and H&S procedures including: PPE, hazards with direct push rigs, traffic safety, potential exposure to explosives contamination, fire hazards, hearing protection, slip-trip-falls, and lifting hazards. Discussed route to hospital, severe weather procedures, farming activities, and trains and railroad track safety.

-Re-capped overall health and safety concerns, stressed road, COVID-19, and direct push safety.

-Completed Daily Tailgate Meeting Sheet

Demobed from site to resume activities on 6/8/20.

### Office Work Performed:

-Organized paperwork and equipment, scanned SCFSs. -Completed DQCR.

By Ryan Herold

Jeff Gill

60565355

CHAAP OU1 Rebound Study/

PMs-Q#3 & OU1-OU3 LTM

W9128F-18-D-0020

Date	06/08/20										
Day	S	S	M X	Т	W	Т	F				
	On Site Hours Travel Time				0700-1730						
Office Tin				0.5							
Weather	Brigh	ıt Sun	Clear X	Overcast		Rain	Snow				
Temp	То	32	32-50	50-	-70	70-85	85 up X				
Wind	Still		Moderate X		gh K	Repo	ort No.				
Humidity	Dry	Mod	lerate		mid K		9				

#### Subcontractors on Site:

None.

Project

Project No.

Contract No.

#### Equipment on Site:

**COE Project Manager** 

Support trucks, Monsoon pumps and tubing, laboratory provided sample containers, IDW buckets, decon supplies, Horiba-U52s, LaMotte turbidity meters, Hach Colormeters, water level meters, MiniRAE PIDs, level D PPE, first-aid/safety supplies, and field/safety paperwork.

#### Visitors on Site:

None.

#### AECOM/Brice Personnel on Site:

AECOM - Taylor Young, Ryan Herold, Jonathan Ortiz Brice - Chris Holt, Gary Carson

#### Field Work Performed (including sampling):

-Continued OU1 Rebound Study Q#3 and OU1-OU3 LTM sampling events (install/sample/abandon performance monitoring wells, DP screen point sampling, and MW sampling).

Began site-wide water level measurement round.

Collected (3) OU1 monitoring well samples NW080-20A NW081R-20A NW082R-20A

-OU1/OU3 sample analysis will be completed in accordance with Addendum 2, and Addendum 3 UFP-QAPPs. -Containerized IDW purge/decontamination water in a designated labeled 1000-gallon poly tank at GWTF.

#### Quality Control Activities (including field calibration):

-Calibration check of PIDs (serial #'s 110-014926, 110-014888), water level indicators (#'s 1324-T, 1323-T), Horiba-U52 #1 (serial #U61502X) #2 (Serial #T272TRPO).

#### Health and Safety and Activities:

Had the initial/daily H&S meeting with all personnel on site. All persons on site completed required paperwork/checklists and discussed sections of QAPP-APP/SSHP and H&S procedures including: PPE, traffic safety, potential exposure to explosives contamination, fire hazards, heat stress, slip-trip-falls, and lifting hazards. Discussed route to hospital, severe weather procedures, farming activities, and trains and railroad track safety.

-Re-capped overall health and safety concerns, stressed road, COVID-19, and sampling safety.

-Completed Daily Tailgate Meeting Sheet

None.

#### Office Work Performed:

-Organized paperwork and equipment, scanned SCFSs. -Completed DQCR.

By Ryan Herold

Jeff Gill

60565355

CHAAP OU1 Rebound Study/

PMs-Q#3 & OU1-OU3 LTM

W9128F-18-D-0020

Date	06/09/20									
Day	S	S	М	T X	W	Т	F			
On Site He	0 001 0			0700-1800						
Travel Tin Office Tin				0 0.5						
Weather	Brigh	ıt Sun	Clear			Rain	Snow			
Temp	То	32	32-50	50-	X -70 X	X 70-85	85 up			
Wind	Still		Moderate X		gh K	Repo	ort No.			
Humidity	Dry	_	lerate	Hu	nid K	10				

#### Subcontractors on Site:

None.

Project

Project No.

Contract No.

#### Equipment on Site:

**COE Project Manager** 

Support trucks, Monsoon pumps and tubing, laboratory provided sample containers, IDW buckets, decon supplies, Horiba-U52s, LaMotte turbidity meters, Hach Colormeters, water level meters, MiniRAE PIDs, level D PPE, first-aid/safety supplies, and field/safety paperwork.

#### Visitors on Site:

None.

#### AECOM/Brice Personnel on Site:

AECOM - Taylor Young, Ryan Herold, Jonathan Ortiz Brice - Chris Holt, Gary Carson

#### Field Work Performed (including sampling):

-Continued OU1 Rebound Study Q#3 and OU1-OU3 LTM sampling events (install/sample/abandon performance monitoring wells, DP screen point sampling, and MW sampling).

Completed site-wide water level measurement round.

#### Collected (7) OU1 monitoring well samples

NW070-20A	CA211-20A
NW071-20A	CA212-20A
CA210-20A	CA213-20A

PZ001-20A (+MS/MSD)

-OU1/OU3 sample analysis will be completed in accordance with Addendum 2, and Addendum 3 UFP-QAPPs. -Containerized IDW purge/decontamination water in a designated labeled 1000-gallon poly tank at GWTF.

#### **Quality Control Activities (including field calibration):**

-Calibration check of PIDs (serial #'s 110-014926, 110-014888), water level indicators (#'s 1324-T, 1323-T), Horiba-U52 #1 (serial #U61502X) #2 (Serial #T272TRPO).

-MS/MSD was collected.

#### Health and Safety and Activities:

Had the daily H&S meeting with all personnel on site. All persons on site completed required paperwork/checklists and discussed sections of QAPP-APP/SSHP and H&S procedures including: PPE, traffic safety, potential exposure to explosives contamination, fire hazards, heat stress, slip-trip-falls, and lifting hazards. Discussed route to hospital, severe weather procedures, farming activities, and trains and railroad track safety.

-Re-capped overall health and safety concerns, stressed road, COVID-19, and sampling safety.

-Completed Daily Tailgate Meeting Sheet

None.

#### Office Work Performed:

-Organized paperwork and equipment, scanned SCFSs. -Completed DQCR.

By Ryan Herold

 
 Date
 06/10/20

 Day
 S
 S
 M
 T
 W
 T

 On Site Hours Travel Time
 0700-1730

 Office Time
 0.5

COE Project Manager Project

Project No. Contract No.

Jeff Gill
CHAAP OU1 Rebound Study
PMs-Q#3 & OU1-OU3 LTM
60565355
W9128F-18-D-0020

On Site He	ours		0/00-1/30						
Travel Time				0					
Office Tin	ne			0.5					
Weather	Bright Sun		Clear X	Overcast	Rain	Snow			
Temp	То 32		32-50	50-70 X	70-85	85 up			
Wind	Still	Moderate X		High X	Report No.				
Humidity	Dry	Mod	lerate	Humid X	11				

F

#### Subcontractors on Site:

None.

#### Equipment on Site:

Support trucks, Monsoon pumps and tubing, laboratory provided sample containers, IDW buckets, decon supplies, Horiba-U52s, LaMotte turbidity meters, Hach Colormeters, water level meters, MiniRAE PIDs, level D PPE, first-aid/safety supplies, and field/safety paperwork.

#### Visitors on Site:

None.

#### AECOM/Brice Personnel on Site:

AECOM - Taylor Young, Ryan Herold, Jonathan Ortiz Brice - Chris Holt, Gary Carson

#### Field Work Performed (including sampling):

-Continued OU1 Rebound Study Q#3 and OU1-OU3 LTM sampling events (install/sample/abandon performance monitoring wells, DP screen point sampling, and MW sampling).

PZ012-20A G0044-20A

#### Collected (12) OU1 monitoring well samples

NW050-20A	NW062-20A
NW051-20A	PZ004-20A
NW052-20A	PZ009-20A
NW060-20A	PZ010-20A
NW061-20A	PZ011-20A

-OU1/OU3 sample analysis will be completed in accordance with Addendum 2, and Addendum 3 UFP-QAPPs. -Containerized IDW purge/decontamination water in a designated labeled 1000-gallon poly tank at GWTF.

#### Quality Control Activities (including field calibration):

-Calibration check of PIDs (serial #'s 110-014926, 110-014888), water level indicators (#'s 1324-T, 1323-T), Horiba-U52 #1 (serial #U61502X) #2 (Serial #T272TRPO).

#### Health and Safety and Activities:

Had the daily H&S meeting with all personnel on site. All persons on site completed required paperwork/checklists and discussed sections of QAPP-APP/SSHP and H&S procedures including: PPE, traffic safety, potential exposure to explosives contamination, fire hazards, heat stress, slip-trip-falls, and lifting hazards. Discussed route to hospital, severe weather procedures, farming activities, and trains and railroad track safety.

-Re-capped overall health and safety concerns, stressed road, COVID-19, and sampling safety.

-Completed Daily Tailgate Meeting Sheet

None.

#### Office Work Performed:

-Organized paperwork and equipment, scanned SCFSs. -Completed DQCR.

By Ryan Herold

Date

06/11/20

CONTROL REPORT		Day	S	S	М	Т	W	Т Х	F		
		On Site Hours 0700-1800					800				
		Travel Tir	ne				0				
		Office Tin	ne				0.5				
COE Project Manager	Jeff Gill	Weather	Brigh	nt Sun	Clear	Ove	rcast	Rain	Snow		
Project	CHAAP OU1 Rebound Study/				Х						
	PMs-Q#3 & OU1-OU3 LTM	Temp	То	32	32-50	50-	-70	70-85	85 up		
Project No.	60565355							Х			
Contract No.	W9128F-18-D-0020	Wind	Still Moderate High			Report No.					
			Х			Х					
		Humidity	Dry Mod		Moderate		derate Humid		mid	12	
						2	X				

#### Subcontractors on Site:

None.

#### Equipment on Site:

Support trucks, Monsoon pumps and tubing, laboratory provided sample containers, IDW buckets, decon supplies, Horiba-U52s, LaMotte turbidity meters, Hach Colormeters, water level meters, MiniRAE PIDs, level D PPE, first-aid/safety supplies, and field/safety paperwork.

#### Visitors on Site:

None.

#### AECOM/Brice Personnel on Site:

AECOM - Taylor Young, Ryan Herold, Jonathan Ortiz Brice - Chris Holt, Gary Carson

#### Field Work Performed (including sampling):

-Continued OU1 Rebound Study Q#3 and OU1-OU3 LTM sampling events (install/sample/abandon performance monitoring wells, DP screen point sampling, and MW sampling).

#### Collected (10) OU1 monitoring well and (2) OU3 monitoring well samples

SHGW02-20A (+ duplicate)	G0102-20A (+MS/MSD)	PZ005-20A
SHGW03-20A	G0103-20A	PZ007-20A (+MS/MSD)
G0017-20A	G0105-20A	
G0045-20A	G0106-20A	
G0080-20A	G0107-20A	

-OU1/OU3 sample analysis will be completed in accordance with Addendum 2, and Addendum 3 UFP-QAPPs. -Containerized IDW purge/decontamination water in a designated labeled 1000-gallon poly tank at GWTF.

#### Quality Control Activities (including field calibration):

-Calibration check of PIDs (serial #'s 110-014926, 110-014888), water level indicators (#'s 1324-T, 1323-T), Horiba-U52 #1 (serial #U61502X) #2 (Serial #T272TRPO) #3 (Serial # PHKKGNSB).

-Duplicate sample SHGW05-20A was collected. Two MS/MSDs were collected.

#### Health and Safety and Activities:

Had the daily H&S meeting with all personnel on site. All persons on site completed required paperwork/checklists and discussed sections of QAPP-APP/SSHP and H&S procedures including: PPE, traffic safety, potential exposure to explosives contamination, fire hazards, heat stress, slip-trip-falls, and lifting hazards. Discussed route to hospital, severe weather procedures, farming activities, and trains and railroad track safety.

-Re-capped overall health and safety concerns, stressed road, COVID-19, and sampling safety.

-Completed Daily Tailgate Meeting Sheet

Horiba #2 was identified as giving inaccurate dissolved oxygen measurements at several wells during purging; however, stabilization was verified from other parameters and samples were collected. Horiba #2 was replaced (with #3) and wells will be repurged for parameters at later dates.

#### Office Work Performed:

-Organized paperwork and equipment, scanned SCFSs. -Completed DQCR.

By Ryan Herold

Date

06/12/20

CONTROL REPORT		Day	S	S	М	Т	W	Т	F X		
		On Site Hours 0700-1730						730			
		Travel Time 0									
		Office Tin	ne				0.5				
COE Project Manager	Jeff Gill	Weather	Bright Sun		Clear	Ove	rcast	Rain	Snow		
Project	CHAAP OU1 Rebound Study/				Х						
	PMs-Q#3 & OU1-OU3 LTM	Temp	То	32	32-50	50-	-70	70-85	85 up		
Project No.	60565355								Х		
Contract No.	W9128F-18-D-0020	Wind	Still Moderate X		8		igh	Report No.			
		Humidity	7 Dry Mode		Moderate		Moderate		mid X		13

#### Subcontractors on Site:

None.

#### Equipment on Site:

Support trucks, Monsoon pumps and tubing, laboratory provided sample containers, IDW buckets, decon supplies, Horiba-U52s, LaMotte turbidity meters, Hach Colormeters, water level meters, MiniRAE PIDs, level D PPE, first-aid/safety supplies, and field/safety paperwork.

#### Visitors on Site:

None.

#### AECOM/Brice Personnel on Site:

AECOM - Taylor Young, Ryan Herold, Jonathan Ortiz Brice - Chris Holt, Gary Carson

#### Field Work Performed (including sampling):

-Continued OU1 Rebound Study Q#3 and OU1-OU3 LTM sampling events (install/sample/abandon performance monitoring wells, DP screen point sampling, and MW sampling).

#### Collected (11) OU1 monitoring well samples

)95-20A	G0115-20A	PZ013-20A
00-20A	G0116-20A	PZ013-20A
01-20A	G0117-20A	
04-20A	G0120-20A	
11-20A	PZ013-20A	

-OU1/OU3 sample analysis will be completed in accordance with Addendum 2, and Addendum 3 UFP-QAPPs. -Containerized IDW purge/decontamination water in a designated labeled 1000-gallon poly tank at GWTF.

#### Quality Control Activities (including field calibration):

-Calibration check of PIDs (serial #'s 110-014926, 110-014888), water level indicators (#'s 1324-T, 1323-T), Horiba-U52 #1 (serial #U61502X) #3 (Serial # PHKKGNSB).

#### Health and Safety and Activities:

Had the daily H&S meeting with all personnel on site. All persons on site completed required paperwork/checklists and discussed sections of QAPP-APP/SSHP and H&S procedures including: PPE, traffic safety, potential exposure to explosives contamination, fire hazards, heat stress, slip-trip-falls, and lifting hazards. Discussed route to hospital, severe weather procedures, farming activities, and trains and railroad track safety.

-Re-capped overall health and safety concerns, stressed road, COVID-19, and sampling safety.

-Completed Daily Tailgate Meeting Sheet

OU3 monitoring wells SHGW02 and SHGW03 were repurged for parameters. No additional samples were collected.

#### Office Work Performed:

-Organized paperwork and equipment, scanned SCFSs. -Completed DQCR.

By Ryan Herold

Date

06/13/20

CONTROL REPORT		Day	S X	S	М	Т	W	Т	F		
		On Site Hours 0700-1700									
		Travel Tin	Travel Time 0								
		Office Tin	ne				0.5				
COE Project Manager	Jeff Gill	Weather	Brigh	nt Sun	Clear	Ove	rcast	Rain	Snow		
Project	CHAAP OU1 Rebound Study/				Х						
	PMs-Q#3 & OU1-OU3 LTM	Temp	То	32	32-50	50	-70	70-85	85 up		
Project No.	60565355								Х		
Contract No.	W9128F-18-D-0020	Wind	Still	Mod	lerate	Hi	gh	Repo	ort No.		
				2	X	Σ	X				
		Humidity	Dry	Moderate		Moderate		oderate Humid		14	
						2	X				

#### Subcontractors on Site:

None.

#### Equipment on Site:

Support trucks, Monsoon pumps and tubing, laboratory provided sample containers, IDW buckets, decon supplies, Horiba-U52s, LaMotte turbidity meters, Hach Colormeters, water level meters, MiniRAE PIDs, level D PPE, first-aid/safety supplies, and field/safety paperwork.

#### Visitors on Site:

None.

#### AECOM/Brice Personnel on Site:

AECOM - Taylor Young, Ryan Herold, Jonathan Ortiz Brice - Chris Holt, Gary Carson

#### Field Work Performed (including sampling):

-Continued OU1 Rebound Study Q#3 and OU1-OU3 LTM sampling events (install/sample/abandon performance monitoring wells, DP screen point sampling, and MW sampling).

#### Collected (11) OU1 monitoring well samples

G0023-20A	
G0048-20A	
G0049-20A	
G0066R-20A	
G0067-20A	

G0084-20A G0085-20A (+ duplicate) G0110-20A G0119-20A G0121-20A

PZ015-20A PZ016-20A

-OU1/OU3 sample analysis will be completed in accordance with Addendum 2, and Addendum 3 UFP-QAPPs. -Containerized IDW purge/decontamination water in a designated labeled 1000-gallon poly tank at GWTF.

#### Quality Control Activities (including field calibration):

-Calibration check of PIDs (serial #'s 110-014926, 110-014888), water level indicators (#'s 1324-T, 1323-T), Horiba-U52 #1 (serial #U61502X) #3 (Serial # PHKKGNSB).

-Duplicate sample G0285-20A was collected.

#### Health and Safety and Activities:

Had the daily H&S meeting with all personnel on site. All persons on site completed required paperwork/checklists and discussed sections of QAPP-APP/SSHP and H&S procedures including: PPE, traffic safety, potential exposure to explosives contamination, fire hazards, heat stress, slip-trip-falls, and lifting hazards. Discussed route to hospital, severe weather procedures, farming activities, and trains and railroad track safety.

-Re-capped overall health and safety concerns, stressed road, COVID-19, and sampling safety.

-Completed Daily Tailgate Meeting Sheet

None.

#### Office Work Performed:

-Organized paperwork and equipment, scanned SCFSs. -Completed DQCR.

By Ryan Herold

Date

06/14/20

CONTROL REPORT		Day	S	S X	М	Т	W	Т	F		
		On Site Hours 0800-1700									
		Travel Time 0									
		Office Tin	ne		0.5						
COE Project Manager	Jeff Gill	Weather	Brigh	nt Sun	Clear	Over	rcast	Rain	Snow		
Project	CHAAP OU1 Rebound Study/				Х						
	PMs-Q#3 & OU1-OU3 LTM	Temp	То	To 32		50-70	-70	70-85	85 up		
Project No.	60565355								Х		
Contract No.	W9128F-18-D-0020	Wind	Still Mod		Moderate		erate High		gh	Repo	ort No.
						Х					
		Humidity	Dry Mod		lerate	Hur	nid	15			
					X						

#### Subcontractors on Site:

None.

#### Equipment on Site:

Support trucks, Monsoon pumps and tubing, laboratory provided sample containers, IDW buckets, decon supplies, Horiba-U52s, LaMotte turbidity meters, Hach Colormeters, water level meters, MiniRAE PIDs, level D PPE, first-aid/safety supplies, and field/safety paperwork.

#### Visitors on Site:

None.

#### AECOM/Brice Personnel on Site:

AECOM - Taylor Young, Ryan Herold, Jonathan Ortiz Brice - Chris Holt, Gary Carson

#### Field Work Performed (including sampling):

-Continued OU1 Rebound Study Q#3 and OU1-OU3 LTM sampling events (install/sample/abandon performance monitoring wells, DP screen point sampling, and MW sampling).

#### Collected (8) OU1 monitoring well samples

G0083-20A	G0113-20A
G0097-20A	G0114-20A
G0098-20A	G0118-20A
G0108-20A	
C0112 20 A	

G0112-20A

-OU1/OU3 sample analysis will be completed in accordance with Addendum 2, and Addendum 3 UFP-QAPPs. -Containerized IDW purge/decontamination water in a designated labeled 1000-gallon poly tank at GWTF.

#### Quality Control Activities (including field calibration):

-Calibration check of PIDs (serial #'s 110-014926, 110-014888), water level indicators (#'s 1324-T, 1323-T), Horiba-U52 #1 (serial #U61502X) #3 (Serial # PHKKGNSB).

#### Health and Safety and Activities:

Had the daily H&S meeting with all personnel on site. All persons on site completed required paperwork/checklists and discussed sections of QAPP-APP/SSHP and H&S procedures including: PPE, traffic safety, potential exposure to explosives contamination, fire hazards, heat stress, slip-trip-falls, and lifting hazards. Discussed route to hospital, severe weather procedures, farming activities, and trains and railroad track safety.

-Re-capped overall health and safety concerns, stressed road, COVID-19, and sampling safety.

-Completed Daily Tailgate Meeting Sheet

OU1 monitoring wells PZ010, PZ011, PZ012 were repurged for parameters. No additional samples were collected.

#### Office Work Performed:

-Organized paperwork and equipment, scanned SCFSs. -Completed DQCR.

By Ryan Herold

Jeff Gill

60565355

CHAAP OU1 Rebound Study/

PMs-Q#3 & OU1-OU3 LTM

W9128F-18-D-0020

Date									
Day	S	S	M X	Т	W	Т	F		
On Site He Travel Tir	0 001 0		0700-1700						
Office Tin	Office Time				0.5				
Weather	Brigh	nt Sun	Clear X	Ove	rcast	Rain	Snow		
Temp	То 32		32-50	32-50 50-70			85 up X		
Wind	Still	Mod	lerate	rate High X		Report No.			
Humidity	Dry		lerate X		mid K	16			

#### Subcontractors on Site:

None.

Project

Project No.

Contract No.

#### Equipment on Site:

**COE Project Manager** 

Support trucks, Monsoon pumps and tubing, laboratory provided sample containers, IDW buckets, decon supplies, Horiba-U52s, LaMotte turbidity meters, Hach Colormeters, water level meters, MiniRAE PIDs, level D PPE, first-aid/safety supplies, and field/safety paperwork.

#### Visitors on Site:

None.

#### AECOM/Brice Personnel on Site:

AECOM - Taylor Young, Ryan Herold, Jonathan Ortiz Brice - Chris Holt, Gary Carson

#### Field Work Performed (including sampling):

-Continued OU1 Rebound Study Q#3 and OU1-OU3 LTM sampling events (install/sample/abandon performance monitoring wells, DP screen point sampling, and MW sampling).

#### Collected (14) OU1 monitoring well samples

NW020-20A	G0077-20A	G0094-20A
NW021-20A (+ duplicate)	G0078-20A	G0099-20A
NW022-20A	G0087-20A	G0109-20A
G0022-20A	G0088-20A	PZ020-20A
G0024-20A	G0089-20A	

-OU1/OU3 sample analysis will be completed in accordance with Addendum 2, and Addendum 3 UFP-QAPPs. -Containerized IDW purge/decontamination water in a designated labeled 1000-gallon poly tank at GWTF.

#### Quality Control Activities (including field calibration):

-Calibration check of PIDs (serial #'s 110-014926, 110-014888), water level indicators (#'s 1324-T, 1323-T), Horiba-U52 #1 (serial #U61502X) #3 (Serial # PHKKGNSB).

-Duplicate sample NW023-20A was collected.

#### Health and Safety and Activities:

Had the daily H&S meeting with all personnel on site. All persons on site completed required paperwork/checklists and discussed sections of QAPP-APP/SSHP and H&S procedures including: PPE, traffic safety, potential exposure to explosives contamination, fire hazards, heat stress, slip-trip-falls, and lifting hazards. Discussed route to hospital, severe weather procedures, farming activities, and trains and railroad track safety.

-Re-capped overall health and safety concerns, stressed road, COVID-19, and sampling safety.

-Completed Daily Tailgate Meeting Sheet

None.

#### Office Work Performed:

-Organized paperwork and equipment, scanned SCFSs. -Completed DQCR.

By Ryan Herold

Jeff Gill

60565355

CHAAP OU1 Rebound Study/

PMs-Q#3 & OU1-OU3 LTM

W9128F-18-D-0020

Date	06/16/20							
Day	S	S	М	T X	W	Т	F	
On Site He	Iours 0700-1800							
Travel Tin	me 0							
Office Tin	ne 0.5							
Weather	Brigh	nt Sun	Clear X	Ove	rcast	Rain Snow		
Temp	То	32	32-50	50	-70	70-85 85 up X		
Wind	Still	Mod	lerate		gh	Report No.		
				2	X			
Humidity	Dry	Mod	lerate	Hu	mid	17		
		X X						

#### Subcontractors on Site:

None.

Project

Project No.

Contract No.

#### Equipment on Site:

**COE Project Manager** 

Support trucks, Monsoon pumps and tubing, laboratory provided sample containers, IDW buckets, decon supplies, Horiba-U52s, LaMotte turbidity meters, Hach Colormeters, water level meters, MiniRAE PIDs, level D PPE, first-aid/safety supplies, and field/safety paperwork.

#### Visitors on Site:

None.

#### AECOM/Brice Personnel on Site:

AECOM - Taylor Young, Ryan Herold, Jonathan Ortiz Brice - Chris Holt, Gary Carson

#### Field Work Performed (including sampling):

-Continued OU1 Rebound Study Q#3 and OU1-OU3 LTM sampling events (install/sample/abandon performance monitoring wells, DP screen point sampling, and MW sampling).

MS/MSD)

#### Collected (11) OU1 monitoring well samples

G0086-20A	G0096-20A (+ duplicate)	PZ019-20A (+
G0090-20A	G0122-20A	
G0091-20A	G0123-20A	
G0092-20A	PZ017R-20A (+ duplicate)	
G0093-20A	PZ018-20A	

#### Collected IDW water sample

WaterWC-Q3-Jun20

-OU1/OU3 sample analysis will be completed in accordance with Addendum 2, and Addendum 3 UFP-QAPPs. -Containerized IDW purge/decontamination water in a designated labeled 1000-gallon poly tank at GWTF.

#### Quality Control Activities (including field calibration):

-Calibration check of PIDs (serial #'s 110-014926, 110-014888), water level indicators (#'s 1324-T, 1323-T), Horiba-U52 #1 (serial #U61502X) #3 (Serial # PHKKGNSB).

-Duplicate samples PZ021-20A and G00296-20A were collected. MS/MSD was collected.

#### Health and Safety and Activities:

Had the daily H&S meeting with all personnel on site. All persons on site completed required paperwork/checklists and discussed sections of QAPP-APP/SSHP and H&S procedures including: PPE, traffic safety, potential exposure to explosives contamination, fire hazards, heat stress, slip-trip-falls, and lifting hazards. Discussed route to hospital, severe weather procedures, farming activities, and trains and railroad track safety.

-Re-capped overall health and safety concerns, stressed road, COVID-19, and sampling safety.

-Completed Daily Tailgate Meeting Sheet

-Completed Daily Task Hazard Assessment Sheet

#### Observations/Problems Encountered/Corrective Action Taken:

OU1 monitoring wells PZ001, NW060 were repurged for parameters. No additional samples were collected.

#### Office Work Performed:

-Organized paperwork and equipment, scanned SCFSs. -Completed DQCR.

By Ryan Herold

Date

06/17/20

CONTROL REPORT		Day	S	S	М	Т	W X	Т	F
		On Site H	ours				0800-1	000	
		Travel Tir	ne				2.5		
		Office Tin	ne				0.5		
COE Project Manager	Jeff Gill	Weather	Brigh	nt Sun	Clear	Over	rcast	Rain	Snow
Project	CHAAP OU1 Rebound Study/				Х				
	PMs-Q#3 & OU1-OU3 LTM	Temp	То	32	32-50	50-	-70	70-85	85 up
Project No.	60565355								Х
Contract No.	W9128F-18-D-0020	Wind	Still	Mod	lerate	Hi	gh	Repo	ort No.
						У	Κ		
		Humidity	Dry	Mod	lerate	Huı	mid		8
						У	Κ		

#### Subcontractors on Site:

None.

#### Equipment on Site:

Support trucks, Monsoon pumps and tubing, laboratory provided sample containers, IDW buckets, decon supplies, Horiba-U52s, LaMotte turbidity meters, Hach Colormeters, water level meters, MiniRAE PIDs, level D PPE, first-aid/safety supplies, and field/safety paperwork.

#### Visitors on Site:

None.

#### AECOM/Brice Personnel on Site:

AECOM - Taylor Young, Ryan Herold, Jonathan Ortiz Brice - Chris Holt

#### Field Work Performed (including sampling):

-Continued OU1 Rebound Study Q#3 and OU1-OU3 LTM sampling events (install/sample/abandon performance monitoring wells, DP screen point sampling, and MW sampling).

Sampling events complete. Completed site restoration, equipment organization, and clean-up activities.

#### Quality Control Activities (including field calibration):

None.

#### Health and Safety and Activities:

Had the daily H&S meeting with all personnel on site. All persons on site completed required paperwork/checklists and discussed sections of QAPP-APP/SSHP and H&S procedures including: PPE, traffic safety, potential exposure to explosives contamination, fire hazards, heat stress, slip-trip-falls, and lifting hazards. Discussed route to hospital, severe weather procedures, farming activities, and trains and railroad track safety.

-Re-capped overall health and safety concerns, stressed road, COVID-19, and sampling safety.

-Completed Daily Tailgate Meeting Sheet

-Completed Daily Task Hazard Assessment Sheet

#### Observations/Problems Encountered/Corrective Action Taken:

None.

#### Office Work Performed:

-Organized paperwork and equipment, scanned SCFSs. -Completed DQCR.

By Ryan Herold

### WEEKLY REPORT

COE Project Manager	Jeff Gill	Report No.	1
Project	CHAAP - OU1 Rebound Study/	Date	5/26/20 to 5/29/20
	PMs-Quarter #3 & OU1-OU3 LTM	Brice/AECOM On-site Hours	109
Project No.	60565355	Subcontractor Hours	29
Contract No.	Brice W9128F-18-D-0020		
Delivery Order No.	F0041		

#### AECOM/Brice Personnel on Site:

Ryan Herold, Taylor Young, Jonathan Ortiz (AECOM)

#### Subcontractors on Site:

Plains Environmental Services (PES) (Direct Push Subcontractor) - Jason Auernheimer

#### Visitors on Site:

Safety-Kleen Systems - Mark Schmidt

#### Summary of Work Performed:

-Contacted private land owners and informed them of the upcoming OU1 Rebound Study/subsurface injection field activities. Completed utility locates prior to subsurface activities (week of 5/18/20).

-Mobilized to site, conducted initial health and safety meeting, prepped field equipment, and staked all direct push (DP) locations using hand-held GPS including: 1 off-site (screen point) location - OS001; and 18 temporary wells for performance monitoring (PM) - EW7-PM21A/B through PM29A/B.

-Calibration (weekly) and calibration checks (daily) of field PIDs, water level indicators, and Horiba MPS.

#### BEGAN QUARTER #3 (Q3) OU1 REBOUND STUDY AND INJECTION PM SAMPLING ACTIVITIES:

-<u>Collected 3 DP</u> groundwater samples (screen point) at depths 25 feet, 35 feet, and 45 feet bgs for explosives + MNX (Method 8330A) analysis only (**OS001-DP03-25**, **OS001-DP03-35**, **OS001-DP03-45**).

-Onsite, <u>installed 18 temporary PM wells</u> (1" PVC via DP techniques) at 9 locations for subsurface injection PM. Each location included one shallow well (10-foot screen, 20 to 30 feet bgs) and shallow intermediate well (10-foot screen, 30-40 feet bgs).

-Collected 7 of the 18 groundwater samples at temporary PM wells (EW7-PM21A, PM21B, PM22A, PM22B, PM24A,

**PM24B, PM27A**). Each PM well was developed prior to sample collection and sampled using low-flow groundwater sampling techniques. Each PM well sample will be analyzed for explosives+MNX (Method 8330A) and water quality parameters including: TKN (351.2), NH3 (350.1), NO2/NO3 (353.2), SO4 (9056A), Alkalinity (2320B), Sulfide (9034), DOC (9060A), and Methane (RSK 175). CO2 will be back calculated from 2320B.

-IDW water (purge and decon) from all sample locations were containerized in an IDW-labeled poly tank located at GWTF. At the completion of Q3-LTM field activities, the IDW water will be sampled for site waste characterization analysis (Explosives + MNX [Method 8330A]) prior to disposal or discharge to ground surface.

-All field and sampling activities were completed in accordance with the 2019 Final Addendum 3 UFP-QAPP, the 2018 Final Addendum 2 UFP-QAPP, and recommendations provided in the 2018 and 2019 Annual Groundwater Monitoring Reports and OU1 Rebound Study Letter Report - Quarter 2 Event.

#### Percentage of Work Completed:

Mobilization, 3 of 3 planned off-site DP (screen point) groundwater samples were completed, 18 of 18 temporary PM wells were installed, 7 of 18 temporary PM wells were sampled. 0 of 96 OU1-OU3 wells (including 36 for OU1 Rebound Study) sampled. <u>Approximately 9%</u> of the Q3 OU1 Rebound Study/injection PM and 2020 annual OU1/OU3 LTM sampling field work is now complete.

#### Schedule for Next Week:

Calibration of water quality equipment. Complete Q3 PM well sampling (11 PM wells remain). Abandon all temporary PM wells. Complete groundwater purge and sample collection activities at 96 OU1-OU3 monitoring wells for the 2020 annual OU1/OU3 LTM event (includes 36 OU1 Rebound Study wells).

### WEEKLY REPORT

COE Project Manager	Jeff Gill	Report No.	1
Project	CHAAP - OU1 Rebound Study/	Date	5/26/20 to 5/29/20
	PMs-Quarter #3 & OU1-OU3 LTM	Brice/AECOM On-site Hours	109
Project No.	60565355	Subcontractor Hours	29
Contract No.	Brice W9128F-18-D-0020		
Delivery Order No.	F0041		

#### Health and Safety and Activities:

-Had the initial and daily H&S meetings with all personnel on site. All persons on site completed required

paperwork/checklists and discussed sections of QAPP-APP/SSHP and H&S procedures including: PPE, potential exposure to explosives contamination, direct push equipment hazards and safety, cold stress, slip-trip-falls, traffic hazards, and lifting hazards. Discussed route to hospital, severe weather procedures, farming activities, and trains and railroad track safety. -Completed equipment and vehicle safety checks.

-Completed Daily Tailgate Meeting Sheets.

-Completed Daily Task Hazard Assessment Sheets.

#### Deviations from SOW and/or WP:

None.

#### Problems Encountered/Corrective Action Taken:

None.

#### **Recommendations:**

None.

#### Communication Notice This Week:

Safety-Kleen on site 5/28/20 to sample IDW water (monitoring well installation activities) prior to disposal.

#### Key Personnel Changes:

Jason Auernheimer (PES) off site 5/29/20.



Installation of temporary PM wells: EW7-PM26A (shallow) and PM26B (shallow intermediate) (facing northeast).



Development and sample purging of EW7-PM24B.

By: Ryan Herold

### WEEKLY REPORT

COE Project Manager	Jeff Gill	Report No.	2
Project	CHAAP - OU1 Rebound Study/	Date	5/30/20 to 6/2/20
	PMs-Quarter #3 & OU1-OU3 LTM	Brice/AECOM On-site Hours	107
Project No.	60565355	Subcontractor Hours	0
Contract No.	Brice W9128F-18-D-0020		
Delivery Order No.	F0041		

#### AECOM/Brice Personnel on Site:

Ryan Herold, Taylor Young, Jonathan Ortiz (AECOM)

#### Subcontractors on Site:

None.

#### Visitors on Site:

None.

#### Summary of Work Performed:

<u>CONTINUED QUARTER #3 (Q3) OU1 REBOUND STUDY / INJECTION PERFORMANCE MONITORING, AND</u> <u>ANNUAL OU1-OU3 LTM SAMPLING ACTIVITIES</u>:

-<u>Collected 11 of the 18 groundwater samples at temporary PM wells</u> (EW7-PM23A, PM23B, PM25A, PM25B, PM26A, PM26B, PM27B, PM28A, PM28B, PM29A, PM29B). Each PM well was developed prior to sample collection and sampled using low-flow groundwater sampling techniques. Each PM well sample will be analyzed for explosives+MNX (Method 8330A) and water quality parameters including: TKN (351.2), NH3 (350.1), NO2/NO3 (353.2), SO4 (9056A), Alkalinity (2320B), Sulfide (9034), DOC (9060A), and Methane (RSK 175). CO2 will be back calculated from 2320B. -Abandoned all 18 temporary PM wells.

-<u>Collected groundwater samples from 6 of the 94 annual OU1 LTM wells/piezometers</u> (G0070, G0075, G0076, G0079, G0081, G0082). Each well will be analyzed for explosives+MNX (Method 8330A) and MNA water quality parameters (see above).

-IDW water (purge and decon) from all sample locations were containerized in an IDW-labeled poly tank located at GWTF. At the completion of Q3-LTM field activities, the IDW water will be sampled for site waste characterization analysis (Explosives + MNX [Method 8330A]) prior to disposal or discharge to ground surface.

-All field and sampling activities were completed in accordance with the 2019 Final Addendum 3 UFP-QAPP, the 2018 Final Addendum 2 UFP-QAPP, and recommendations provided in the 2018 and 2019 Annual Groundwater Monitoring Reports and OU1 Rebound Study Letter Report - Quarter 2 Event.

-Calibration (weekly) and calibration checks (daily) of field PIDs, water level indicators, and Horiba MPS.

#### Percentage of Work Completed:

Mobilization, 3 of 3 planned off-site DP (screen point) groundwater samples were completed, 18 of 18 temporary PM wells were installed, developed, sampled, and abandoned, and 6 of 96 OU1-OU3 wells (including 36 for OU1 Rebound Study) were sampled. <u>Approximately 23%</u> of the Q3 OU1 Rebound Study/injection PM and 2020 annual OU1/OU3 LTM sampling field work is now complete.

#### Schedule for Next Week:

Calibration of water quality equipment, complete sitewide water level measurement round, and continue groundwater purge and sample collection activities at 96 OU1-OU3 monitoring wells for the 2020 annual OU1/OU3 LTM event (includes 36 OU1 Rebound Study wells).

COE Project Manager	Jeff Gill	Report No.	2
Project	CHAAP - OU1 Rebound Study/	Date	5/30/20 to 6/2/20
	PMs-Quarter #3 & OU1-OU3 LTM	Brice/AECOM On-site Hours	107
Project No.	60565355	Subcontractor Hours	0
Contract No.	Brice W9128F-18-D-0020		
Delivery Order No.	F0041		

# Health and Safety and Activities:

-Had the initial and daily H&S meetings with all personnel on site. All persons on site completed required

paperwork/checklists and discussed sections of QAPP-APP/SSHP and H&S procedures including: PPE, potential exposure to explosives contamination, direct push equipment hazards and safety, cold stress, slip-trip-falls, traffic hazards, and lifting hazards. Discussed route to hospital, severe weather procedures, farming activities, and trains and railroad track safety. -Completed equipment and vehicle safety checks.

-Completed Daily Tailgate Meeting Sheets.

-Completed Daily Task Hazard Assessment Sheets.

# Deviations from SOW and/or WP:

None.

# Problems Encountered/Corrective Action Taken:

None.

## **Recommendations:**

None.

## Communication Notice This Week:

None.

## Key Personnel Changes:

Field personnel off site on 6/2/20 and will resume field activities on 6/8/20.



Groundwater purging at OU1 on-post monitoring well G0082 (facing north).



Groundwater sample collection at OU1 on-post monitoring well G0070.

By: Ryan Herold

**Title: Field Manager** 

COE Project Manager	Jeff Gill	Report No.	3
Project	CHAAP - OU1 Rebound Study/	Date	6/8/20 to 6/12/
	PMs-Quarter #3 & OU1-OU3 LTM	Brice/AECOM On-site Hours	267
Project No.	60565355	Subcontractor Hours	0
Contract No.	Brice W9128F-18-D-0020		
Delivery Order No.	F0041		

# AECOM/Brice Personnel on Site:

Ryan Herold, Taylor Young, Jonathan Ortiz (AECOM) Chris Holt, Gary Carson (Brice)

#### Subcontractors on Site:

None.

#### Visitors on Site:

None.

## Summary of Work Performed:

### <u>CONTINUED QUARTER #3 (Q3) OU1 REBOUND STUDY / INJECTION PERFORMANCE MONITORING, AND</u> <u>ANNUAL OU1-OU3 LTM SAMPLING ACTIVITIES</u>:

-Completed site-wide water level measurement round at OU1 off-post and OU1/OU3 on-post monitoring wells and piezometers.

-Source water sample was collected and analyzed for explosives+MNX (8330A) and VOCs (8260B).

-<u>Collected groundwater samples from 43 of the 94 annual OU1 LTM wells/piezometers</u> (CA210, CA211, CA212, CA213, NW050, NW051, NW052, NW060, NW061, NW062, NW070, NW071, NW080, NW081R, NW082R, G0017, G0044, G0045, G0080, G0095, G0100, G0101, G0102, G0103, G0104, G0105, G0106, G0107, G0111, G0115, G0116, G0117, G0120, PZ001, PZ004, PZ005, PZ007, PZ009, PZ010, PZ011, PZ012, PZ013, PZ014). Each well sample will be analyzed for explosives+MNX (Method 8330A) and MNA parameters including: TKN (351.2), NH3 (350.1), NO2/NO3 (353.2), SO4 (9056A), Alkalinity (2320B), Sulfide (9034), DOC (9060A), and Methane (RSK 175). CO2 will be back calculated from 2320B. Field water quality parameters were also measured at all wells (ORP, pH, specific conductivity, dissolved oxygen, turbidity, and ferrous iron).

-<u>Collected groundwater samples from 2 of the 2 annual OU3-Shop Area LTM wells</u> (**SHGW02**, **SHGW03**). Each well sample will be analyzed for VOCs (Method 8260B) and MNA parameters including: NO2/NO3 (353.2), SO4 (9056A), Alkalinity (2320B), and Methane, Ethane, Ethene (RSK 175). One well (SHGW03) was additionally sampled for DRO (Method 8015B). Field water quality parameters were also measured at all wells (ORP, pH, specific conductivity, dissolved oxygen, turbidity, and ferrous iron).

-IDW water (purge and decon) from all sample locations were containerized in an IDW-labeled poly tank located at GWTF. At the completion of Q3-LTM field activities, the IDW water will be sampled for site waste characterization analysis (Explosives+MNX and VOCs) prior to disposal or discharge to ground surface.

-All field and sampling activities were completed in accordance with the 2019 Final Addendum 3 UFP-QAPP, the 2018 Final Addendum 2 UFP-QAPP, and recommendations provided in the 2018 and 2019 Annual Groundwater Monitoring Reports and OU1 Rebound Study Letter Report - Quarter 2 Event.

-Calibration (weekly) and calibration checks (daily) of field PIDs, water level indicators, and Horiba MPS.

# Percentage of Work Completed:

Mobilization, 3 of 3 planned off-site DP (screen point) groundwater samples were completed, 18 of 18 temporary PM wells were installed, developed, sampled, and abandoned, site-wide water level measurement round, and 51 of 96 OU1-OU3 wells (including 36 for OU1 Rebound Study) were sampled. <u>Approximately 62%</u> of the Q3 OU1 Rebound Study/injection PM and 2020 annual OU1/OU3 LTM sampling field work is now complete.

COE Project Manager	Jeff Gill	Report No.	3
Project	CHAAP - OU1 Rebound Study/	Date	6/8/20 to 6/12/20
	PMs-Quarter #3 & OU1-OU3 LTM	Brice/AECOM On-site Hours	267
Project No.	60565355	Subcontractor Hours	0
Contract No.	Brice W9128F-18-D-0020		
Delivery Order No.	F0041		

# Schedule for Next Week:

Calibration of water quality equipment, complete groundwater purge and sample collection activities at 96 OU1-OU3 monitoring wells for the 2020 annual OU1/OU3 LTM event (includes 36 OU1 Rebound Study wells), site restoration activities, and demobilize.

## Health and Safety and Activities:

-Had the initial and daily H&S meetings with all personnel on site. All persons on site completed required paperwork/checklists and discussed sections of QAPP-APP/SSHP and H&S procedures including: PPE, potential exposure to explosives contamination, direct push equipment hazards and safety, cold stress, slip-trip-falls, traffic hazards, and lifting hazards. Discussed route to hospital, severe weather procedures, farming activities, and trains and railroad track safety. -Completed equipment and vehicle safety checks.

-Completed Daily Tailgate Meeting Sheets.

-Completed Daily Task Hazard Assessment Sheets.

## Deviations from SOW and/or WP:

None.

Problems Encountered/Corrective Action Taken:

None.

Recommendations:

None.

Communication Notice This Week: None.

None.

Key Personnel Changes:

None.



Water level measurements at extraction well 5 observation wells (facing north).



Groundwater purge setup at OU1 off-post monitoring well NW082R (facing south).

**By: Ryan Herold** 

Title: Field Manager

6/13/20 to 6/17/20

210 0

# WEEKLY REPORT

COE Project Manager	Jeff Gill	Report No.
Project	CHAAP - OU1 Rebound Study/	Date
	PMs-Quarter #3 & OU1-OU3 LTM	Brice/AECOM On-site Hours
Project No.	60565355	Subcontractor Hours
Contract No.	Brice W9128F-18-D-0020	
Delivery Order No.	F0041	

# AECOM/Brice Personnel on Site:

Ryan Herold, Taylor Young, Jonathan Ortiz (AECOM) Chris Holt, Gary Carson (Brice)

#### Subcontractors on Site:

None.

#### Visitors on Site:

None.

## Summary of Work Performed:

<u>CONTINUED QUARTER #3 (Q3) OU1 REBOUND STUDY / INJECTION PERFORMANCE MONITORING, AND</u> <u>ANNUAL OU1-OU3 LTM SAMPLING ACTIVITIES</u>:

-<u>Collected groundwater samples from 45 of the 94 annual OU1 LTM wells/piezometers</u> (NW020, NW021, NW022, G0022, G0023, G0024, G0048, G0049, G0066R, G0067, G0077, G0078, G0083, G0084, G0085, G0086, G0087, G0088, G0089, G0090, G0091, G0092, G0093, G0094, G0096, G0097, G0098, G0099, G0108, G0109, G0110, G0112, G0113, G0114, G0118, G0119, G0121, G0122, G0123, PZ015, PZ016, PZ017R, PZ018, PZ019, PZ020). Each well sample will be analyzed for explosives+MNX (Method 8330A) and MNA parameters including: TKN (351.2), NH3 (350.1), NO2/NO3 (353.2), SO4 (9056A), Alkalinity (2320B), Sulfide (9034), DOC (9060A), and Methane (RSK 175). CO2 will be back calculated from 2320B. Field water quality parameters were also measured at all wells (ORP, pH, specific conductivity, dissolved oxygen, turbidity, and ferrous iron).

-IDW water (purge and decon) from all sample locations were containerized in an IDW-labeled poly tank located at GWTF. At the completion of Q3-LTM field activities, the IDW water was sampled for site waste characterization analysis (Explosives+MNX and VOCs) prior to disposal or discharge to ground surface.

-All field and sampling activities were completed in accordance with the 2019 Final Addendum 3 UFP-QAPP, the 2018 Final Addendum 2 UFP-QAPP, and recommendations provided in the 2018 and 2019 Annual Groundwater Monitoring Reports and OU1 Rebound Study Letter Report - Quarter 2 Event.

-Calibration (weekly) and calibration checks (daily) of field PIDs, water level indicators, and Horiba MPS.

#### Percentage of Work Completed:

Mobilization, 3 of 3 planned off-site DP (screen point) groundwater samples were completed, 18 of 18 temporary PM wells were installed, developed, sampled, and abandoned, site-wide water level measurement round completed, 45 of 96 OU1-OU3 wells (including 36 for OU1 Rebound Study) were sampled, purge water was sampled, completed site restoration activities, and demobilized from site. <u>100%</u> of the Q3 OU1 Rebound Study/injection PM and 2020 annual OU1/OU3 LTM sampling field work is now complete.

## Schedule for Next Week:

None.

COE Project Manager	Jeff Gill	Report No.	4
Project	CHAAP - OU1 Rebound Study/	Date	6/13/20 to 6/17/20
	PMs-Quarter #3 & OU1-OU3 LTM	Brice/AECOM On-site Hours	210
Project No.	60565355	Subcontractor Hours	0
Contract No.	Brice W9128F-18-D-0020		
Delivery Order No.	F0041		

# Health and Safety and Activities:

-Had daily H&S meetings with all personnel on site. All persons on site completed required paperwork/checklists and discussed sections of QAPP-APP/SSHP and H&S procedures including: PPE, potential exposure to explosives contamination, direct push equipment hazards and safety, cold stress, slip-trip-falls, traffic hazards, and lifting hazards. Discussed route to hospital, severe weather procedures, farming activities, and trains and railroad track safety.

-Completed equipment and vehicle safety checks.

-Completed Daily Tailgate Meeting Sheets.

-Completed Daily Task Hazard Assessment Sheets.

#### Deviations from SOW and/or WP:

None.

#### Problems Encountered/Corrective Action Taken:

On 6/11/20, one Horiba U-52 multi-parameter instrument was identified giving invalid dissolved oxygent (DO) parameter readings during purging at seven monitoring wells; however, stabilizations were verified from other parameters. The unit was replaced and five OU1 wells and two OU3 wells were repurged for water quality parameters on 6/12, 6/14, and 6/16/20 (no additional samples were collected).

#### Recommendations:

None.

#### Communication Notice This Week:

None.

## Key Personnel Changes:

All AECOM and Brice personnel demobilized from site on 6/17/20.



Sample collection at OU1 piezometer PZ017R (facing east).



Purge and decon water transfer to IDW tank at GWTF (facing north).

**By: Ryan Herold** 

**Title: Field Manager** 

Appendix C Photographic Log

Field Activities: OU1 Rebound Study and Subsurface Injections – Quarter 3 Event Cornhusker Army Ammunition Plant, Nebraska

USACE – Omaha District

Contract No. W9128F-18-D-0020 Delivery Order No. F0041

# Photograph No. 1

#### **Description:**

#### OU1 Rebound Study Q3 Sampling

Purging at off-site location OS001. Groundwater samples were collected (via Direct Push technology) at screen point depths 25 feet, 35 feet, and 45 feet and analyzed for explosives +MNX only.

Date: 11/14/2019\* Direction: west Photographer: RH Location: OS001

\*OS001 photos from Q3 event (5/26/2020) unavailable; however, at same location shown.



## Photograph No. 2

#### **Description:**

#### OU1 Rebound Study Q3 Sampling

Monitoring wells were purged, and groundwater samples were collected using low-flow techniques with submersible pumps. All purging and sample collection were completed in accordance with UFP-QAPP.

Date: 6/2/2020 Direction: north Photographer: RH Location: G0082



Field Activities: OU1 Rebound Study and Subsurface Injections – Quarter 3 Event Cornhusker Army Ammunition Plant, Nebraska

**USACE – Omaha District** 

Contract No. W9128F-18-D-0020 Delivery Order No. F0041

# Photograph No. 3

#### **Description:**

#### OU1 Rebound Study Q3 Sampling

Groundwater samples were collected in laboratoryprovided containers and analyzed for explosives +MNX and laboratory MNA parameters by TestAmerica laboratory.

Date: 6/16/2020 Direction: east Photographer: TY Location: PZ017R



## Photograph No. 4

#### **Description:**

#### OU1 Rebound Study Q3 Sampling

The pump and water level meter were decontaminated after every well.

Date: 6/2/2020 Direction: -Photographer: RH Location: G0070



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Field Activities: OU1 Rebound Study and Subsurface Injections – Quarter 3 Event Cornhusker Army Ammunition Plant, Nebraska

USACE – Omaha District

Contract No. W9128F-18-D-0020 Delivery Order No. F0041

## Photograph No. 5

#### **Description:**

#### <u>OU1 Q3 Performance</u> <u>Monitoring</u>

For Q3 subsurface injection performance monitoring, 1" PVC temporary wells were installed (via Direct Push technology). Two nested temporary wells (one shallow, one shallow-intermediate depths) were each installed at 9 locations.

Date: 5/29/2020 Direction: south Photographer: RH Location: EW7-PM26



# Photograph No. 6

#### **Description:**

#### <u>OU1 Q3 Performance</u> <u>Monitoring</u>

All performance monitoring wells were developed, purged, and sampled for explosives + MNX and laboratory water quality parameters analysis.

Date: 5/29/2020 Direction: west Photographer: RH Location: EW7-PM24A



Field Activities: OU1 Rebound Study and Subsurface Injections – Quarter 3 Event Cornhusker Army Ammunition Plant, Nebraska

USACE – Omaha District

Contract No. W9128F-18-D-0020 Delivery Order No. F0041

## Photograph No. 7

#### **Description:**

#### OU1 Q3 Performance Monitoring

Each temporary well PVC stickup was retracted, and the well was abandoned within 10 days of installation using timerelease bentonite pellets and hydrated granular bentonite.

Date: 6/2/2020 Direction: -Photographer: RH Location: EW7-PM28A



# Photograph No. 8

#### **Description:**

#### OU1 Q3 Rebound Study and Performance Monitoring

All decontamination, development, and purge IDW water from sampling activities were collected in field poly tanks, transferred to an IDW tank at GWTF, and sampled at conclusion of event for explosives +MNX only analysis.

Date: 6/03/2020 Direction: north Photographer: TY Location: GWTF



Appendix D Analytical Data and Validation Appendix E OU1 Statistical Trend Data Sheets

# TABLE E.1 FORMER FACILITY BOUNDARY WELLS CORNHUSKER ARMY AMMUNITION PLANT MAROS DATA INPUTS

WellName	XCoord	YCoord	Constituent	SampleDate	Result	Units	DetLim	Flags
G0024	2,067,195	403,887	2,4,6-TRINITROTOLUENE	6/15/2020	0.63	$\mu g/L$	0.05	TR
G0024	2,067,195	403,887	2,4,6-TRINITROTOLUENE	3/4/2020		μg/L	0.16	ND
G0024	2,067,195	403,887	2,4,6-TRINITROTOLUENE	10/23/2019		μg/L	0.16	ND
G0024	2,067,195	403,887	2,4,6-TRINITROTOLUENE	6/10/2019		μg/L	0.16	ND
G0024	2,067,195	403,887	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/15/2020	0.59	μg/L	0.06	
G0024	2,067,195	403,887	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	3/4/2020		μg/L	0.15	ND
G0024	2,067,195	403,887	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	10/23/2019		μg/L	0.15	ND
G0024	2,067,195	403,887	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/10/2019		μg/L	0.16	ND
G0077	2,067,218	403,894	2,4,6-TRINITROTOLUENE	6/15/2020	3.3	μg/L	0.05	
G0077	2,067,218	403,894	2,4,6-TRINITROTOLUENE	3/4/2020	2.7	μg/L	0.16	
G0077	2,067,218	403,894	2,4,6-TRINITROTOLUENE	10/23/2019	3.2	μg/L	0.16	
G0077	2,067,218	403,894	2,4,6-TRINITROTOLUENE	6/10/2019	2.2	μg/L	0.15	
G0077	2,067,218	403,894	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/15/2020	0.46	μg/L	0.05	
G0077	2,067,218	403,894	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	3/4/2020	0.19	μg/L	0.16	TR
G0077	2,067,218	403,894	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	10/23/2019	0.91	μg/L	0.15	
G0077	2,067,218	403,894	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/10/2019	0.53	μg/L	0.15	
G0078	2,067,199	403,930	2,4,6-TRINITROTOLUENE	6/15/2020		μg/L	0.05	ND
G0078	2,067,199	403,930	2,4,6-TRINITROTOLUENE	3/4/2020		μg/L	0.16	ND
G0078	2,067,199	403,930	2,4,6-TRINITROTOLUENE	10/23/2019		μg/L	0.15	ND
G0078	2,067,199	403,930	2,4,6-TRINITROTOLUENE	6/10/2019		μg/L	0.16	ND
G0078	2,067,199	403,930	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/15/2020		μg/L	0.05	ND
G0078	2,067,199	403,930	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	3/4/2020		μg/L	0.15	ND
G0078	2,067,199	403,930	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	10/23/2019		μg/L	0.15	ND
G0078	2,067,199	403,930	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/10/2019		μg/L	0.16	ND
G0091	2,067,221	405,336	2,4,6-TRINITROTOLUENE	6/16/2020		μg/L	0.05	ND
G0091	2,067,221	405,336	2,4,6-TRINITROTOLUENE	3/2/2020		μg/L	0.16	ND
G0091	2,067,221	405,336	2,4,6-TRINITROTOLUENE	10/22/2019		μg/L	0.15	ND
G0091	2,067,221	405,336	2,4,6-TRINITROTOLUENE	6/11/2019		μg/L	0.16	ND
G0091	2,067,221	405,336	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/16/2020	0.59	μg/L	0.06	
G0091	2,067,221	405,336	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	3/2/2020	0.83	μg/L	0.16	
G0091	2,067,221	405,336	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	10/22/2019	0.81	μg/L	0.15	
G0091	2,067,221	405,336	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/11/2019	1.2	µg/L	0.15	TR
G0092	2,067,222	405,350	2,4,6-TRINITROTOLUENE	6/16/2020		μg/L	0.05	ND

# TABLE E.1 FORMER FACILITY BOUNDARY WELLS CORNHUSKER ARMY AMMUNITION PLANT MAROS DATA INPUTS

WellName	XCoord	YCoord	Constituent	SampleDate	Result	Units	DetLim	Flags
G0092	2,067,222	405,350	2,4,6-TRINITROTOLUENE	3/2/2020		μg/L	0.15	ND
G0092	2,067,222	405,350	2,4,6-TRINITROTOLUENE	10/22/2019		μg/L	0.15	ND
G0092	2,067,222	405,350	2,4,6-TRINITROTOLUENE	6/11/2019		μg/L	0.15	ND
G0092	2,067,222	405,350	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/16/2020		μg/L	0.05	ND
G0092	2,067,222	405,350	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	3/2/2020		μg/L	0.15	ND
G0092	2,067,222	405,350	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	10/22/2019		μg/L	0.20	ND
G0092	2,067,222	405,350	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/11/2019		μg/L	0.15	ND
NW020	2,067,328	404,441	2,4,6-TRINITROTOLUENE	6/15/2020	0.59	μg/L	0.05	
NW020	2,067,328	404,441	2,4,6-TRINITROTOLUENE	3/4/2020	0.6	μg/L	0.16	
NW020	2,067,328	404,441	2,4,6-TRINITROTOLUENE	10/22/2019		μg/L	0.16	ND
NW020	2,067,328	404,441	2,4,6-TRINITROTOLUENE	6/10/2019	0.33	μg/L	0.16	TR
NW020	2,067,328	404,441	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/15/2020	1.5	μg/L	0.05	
NW020	2,067,328	404,441	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	3/4/2020	0.94	μg/L	0.15	
NW020	2,067,328	404,441	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	10/22/2019	0.2	μg/L	0.15	TR
NW020	2,067,328	404,441	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/10/2019	0.17	μg/L	0.15	TR
NW021	2,067,301	404,393	2,4,6-TRINITROTOLUENE	6/15/2020		μg/L	0.05	ND
NW021	2,067,301	404,393	2,4,6-TRINITROTOLUENE	3/4/2020		μg/L	0.15	ND
NW021	2,067,301	404,393	2,4,6-TRINITROTOLUENE	10/22/2019		μg/L	0.15	ND
NW021	2,067,301	404,393	2,4,6-TRINITROTOLUENE	6/10/2019		μg/L	0.15	ND
NW021	2,067,301	404,393	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/15/2020		μg/L	0.06	ND
NW021	2,067,301	404,393	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	3/4/2020		μg/L	0.15	ND
NW021	2,067,301	404,393	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	10/22/2019		μg/L	0.15	ND
NW021	2,067,301	404,393	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/10/2019		μg/L	0.15	ND
NW022	2,067,310	404,436	2,4,6-TRINITROTOLUENE	6/15/2020		μg/L	0.05	ND
NW022	2,067,310	404,436	2,4,6-TRINITROTOLUENE	3/4/2020		μg/L	0.16	ND
NW022	2,067,310	404,436	2,4,6-TRINITROTOLUENE	10/22/2019		μg/L	0.15	ND
NW022	2,067,310	404,436	2,4,6-TRINITROTOLUENE	6/10/2019		μg/L	0.16	ND
NW022	2,067,310	404,436	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/15/2020		μg/L	0.05	ND
NW022	2,067,310	404,436	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	3/4/2020		$\mu g/L$	0.15	ND
NW022	2,067,310	404,436	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	10/22/2019		μg/L	0.15	ND

# TABLE E.1 FORMER FACILITY BOUNDARY WELLS CORNHUSKER ARMY AMMUNITION PLANT MAROS DATA INPUTS

NW022 PZ017R PZ017R PZ017R PZ017R PZ017R PZ017R	2,067,310 2,067,255 2,067,255 2,067,255 2,067,255 2,067,255 2,067,255	404,436 403,469 403,469 403,469 403,469 403,469	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE 2,4,6-TRINITROTOLUENE 2,4,6-TRINITROTOLUENE 2,4,6-TRINITROTOLUENE	6/10/2019 6/16/2020 3/4/2020	11 17	μg/L μg/L μg/I	0.16 0.05	ND
PZ017R PZ017R PZ017R PZ017R	2,067,255 2,067,255 2,067,255 2,067,255	403,469 403,469 403,469	2,4,6-TRINITROTOLUENE	3/4/2020				
PZ017R PZ017R PZ017R	2,067,255 2,067,255 2,067,255	403,469 403,469			17			
PZ017R PZ017R	2,067,255 2,067,255	403,469	2,4,6-TRINITROTOLUENE	10/00/06:0		μg/L	0.15	
PZ017R	2,067,255			10/23/2019	15	μg/L	0.16	
		403,469	2,4,6-TRINITROTOLUENE	6/11/2019	19	μg/L	0.16	TR
PZ017R	2,067,255	,	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/16/2020	1.4	μg/L	0.06	
		403,469	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	3//42020	1.4	μg/L	0.15	
PZ017R	2,067,255	403,469	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	10/23/2019	0.87	μg/L	0.16	
PZ017R	2,067,255	403,469	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/11/2019	1	μg/L	0.16	TR
PZ018	2,067,257	403,293	2,4,6-TRINITROTOLUENE	6/16/2020		μg/L	0.05	ND
PZ018	2,067,257	403,293	2,4,6-TRINITROTOLUENE	3/4/2020	19	μg/L	0.16	
PZ018	2,067,257	403,293	2,4,6-TRINITROTOLUENE	10/23/2019	8	μg/L	0.16	TR
PZ018	2,067,257	403,293	2,4,6-TRINITROTOLUENE	6/11/2019	6.3	μg/L	0.16	TR
PZ018	2,067,257	403,293	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/16/2020	1	μg/L	0.06	
PZ018	2,067,257	403,293	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	3/4/2020		μg/L	0.16	ND
PZ018	2,067,257	403,293	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	10/23/2019	0.88	μg/L	0.16	TR
PZ018	2,067,257	403,293	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/11/2019	1.1	μg/L	0.16	TR
PZ019	2,067,268	402,887	2,4,6-TRINITROTOLUENE	6/16/2020		μg/L	0.05	ND
PZ019	2,067,268	402,887	2,4,6-TRINITROTOLUENE	3/2/2020		μg/L	0.16	ND
PZ019	2,067,268	402,887	2,4,6-TRINITROTOLUENE	10/22/2019		μg/L	0.16	ND
PZ019	2,067,268	402,887	2,4,6-TRINITROTOLUENE	6/10/2019		μg/L	0.16	ND
PZ019	2,067,268	402,887	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/16/2020		μg/L	0.05	ND
PZ019	2,067,268	402,887	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	3/2/2020		μg/L	0.16	ND
PZ019	2,067,268	402,887	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	10/22/2019		μg/L	0.16	ND
PZ019	2,067,268	402,887	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/10/2019		μg/L	0.16	ND
PZ020	2,067,224	404,088	2,4,6-TRINITROTOLUENE	6/15/2020	2.2	μg/L	0.05	
PZ020	2,067,224	404,088	2,4,6-TRINITROTOLUENE	3/4/2020	3.2	μg/L	0.15	
PZ020	2,067,224	404,088	2,4,6-TRINITROTOLUENE	10/23/2019	3.7	μg/L	0.15	
PZ020	2,067,224	404,088	2,4,6-TRINITROTOLUENE	6/10/2019	3	μg/L	0.16	
PZ020	2,067,224	404,088	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/15/2020	0.58	μg/L	0.05	
PZ020	2,067,224	404,088	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	3/4/2020	0.62	μg/L	0.15	
PZ020	2,067,224	404,088	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	10/23/2019	0.42	μg/L	0.15	
PZ020	2,067,224	404,088	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/10/2019	0.37	μg/L	0.15	TR

# TABLE E.2 UPGRADIENT WELLS CORNHUSKER ARMY AMMUNITION PLANT MAROS DATA INPUTS

	WAROS DATA INPUTS							
WellName	XCoord	YCoord	Constituent	SampleDate	Result	Units	DetLim	Flags
G0070	2,065,484	403,541	2,4,6-TRINITROTOLUENE	6/2/2020		μg/L	0.05	ND
G0070	2,065,484	403,541	2,4,6-TRINITROTOLUENE	3/1/2020		μg/L	0.15	ND
G0070	2,065,484	403,541	2,4,6-TRINITROTOLUENE	10/21/2019		μg/L	0.16	ND
G0070	2,065,484	403,541	2,4,6-TRINITROTOLUENE	6/9/2019		μg/L	0.16	ND
G0070	2,065,484	403,541	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/2/2020		μg/L	0.06	ND
G0070	2,065,484	403,541	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	3/1/2020		μg/L	0.15	ND
G0070	2,065,484	403,541	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	10/21/2019		μg/L	0.16	ND
G0070	2,065,484	403,541	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/9/2019		μg/L	0.15	ND
G0075	2,065,479	403,559	2,4,6-TRINITROTOLUENE	6/1/2020		μg/L	0.05	ND
G0075	2,065,479	403,559	2,4,6-TRINITROTOLUENE	3/1/2020		μg/L	0.16	ND
G0075	2,065,479	403,559	2,4,6-TRINITROTOLUENE	10/21/2019		μg/L	0.15	ND
G0075	2,065,479	403,559	2,4,6-TRINITROTOLUENE	6/9/2019		μg/L	0.16	ND
G0075	2,065,479	403,559	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/1/2020		μg/L	0.05	ND
G0075	2,065,479	403,559	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	3/1/2020		μg/L	0.16	ND
G0075	2,065,479	403,559	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	10/21/2019		μg/L	0.15	ND
G0075	2,065,479	403,559	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/9/2019		μg/L	0.16	ND
G0076	2,065,469	403,583	2,4,6-TRINITROTOLUENE	6/1/2020		μg/L	0.05	ND
G0076	2,065,469	403,583	2,4,6-TRINITROTOLUENE	3/1/2020		μg/L	0.16	ND
G0076	2,065,469	403,583	2,4,6-TRINITROTOLUENE	10/21/2019		μg/L	0.15	ND
G0076	2,065,469	403,583	2,4,6-TRINITROTOLUENE	6/9/2019		μg/L	0.16	ND
G0076	2,065,469	403,583	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/1/2020	0.2	μg/L	0.06	TR
G0076	2,065,469	403,583	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	3/1/2020		μg/L	0.16	ND
G0076	2,065,469	403,583	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	10/21/2019		μg/L	0.15	ND
G0076	2,065,469	403,583	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/9/2019		μg/L	0.15	ND
G0079	2,065,479	403,553	2,4,6-TRINITROTOLUENE	6/1/2020		μg/L	0.05	ND
G0079	2,065,479	403,553	2,4,6-TRINITROTOLUENE	3/1/2020		μg/L	0.16	ND
G0079	2,065,479	403,553	2,4,6-TRINITROTOLUENE	10/21/2019		μg/L	0.15	ND
G0079	2,065,479	403,553	2,4,6-TRINITROTOLUENE	6/9/2019		μg/L	0.16	ND
G0079	2,065,479	403,553	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/1/2020		μg/L	0.06	ND
G0079	2,065,479	403,553	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	3/1/2020		μg/L	0.16	ND
G0079	2,065,479	403,553	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	10/21/2019		μg/L	0.15	ND
G0079	2,065,479	403,553	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/9/2019		μg/L	0.15	ND

# TABLE E.2 UPGRADIENT WELLS CORNHUSKER ARMY AMMUNITION PLANT MAROS DATA INPUTS

MAROS DATA INPUTS								
WellName	XCoord	YCoord	Constituent	SampleDate	Result	Units	DetLim	Flags
G0080	2,065,443	404,329	2,4,6-TRINITROTOLUENE	6/11/2020		μg/L	0.05	ND
G0080	2,065,443	404,329	2,4,6-TRINITROTOLUENE	3/2/2020		μg/L	0.16	ND
G0080	2,065,443	404,329	2,4,6-TRINITROTOLUENE	10/21/2019		μg/L	0.15	ND
G0080	2,065,443	404,329	2,4,6-TRINITROTOLUENE	6/9/2019		μg/L	0.16	ND
G0080	2,065,443	404,329	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/11/2020		μg/L	0.05	ND
G0080	2,065,443	404,329	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	3/2/2020		μg/L	0.16	ND
G0080	2,065,443	404,329	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	10/21/2019		μg/L	0.15	ND
G0080	2,065,443	404,329	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/9/2019		μg/L	0.16	ND
G0081	2,065,490	402,722	2,4,6-TRINITROTOLUENE	6/2/2020		μg/L	0.05	ND
G0081	2,065,490	402,722	2,4,6-TRINITROTOLUENE	3/2/2020		μg/L	0.18	ND
G0081	2,065,490	402,722	2,4,6-TRINITROTOLUENE	10/21/2019	0.29	μg/L	0.16	TR
G0081	2,065,490	402,722	2,4,6-TRINITROTOLUENE	6/9/2019	0.59	μg/L	0.16	TR
G0081	2,065,490	402,722	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/2/2020		μg/L	0.05	ND
G0081	2,065,490	402,722	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	3/2/2020		μg/L	0.17	ND
G0081	2,065,490	402,722	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	10/21/2019		μg/L	0.15	ND
G0081	2,065,490	402,722	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/9/2019		μg/L	0.16	ND
G0082	2,065,493	402,207	2,4,6-TRINITROTOLUENE	6/2/2020		μg/L	0.05	ND
G0082	2,065,493	402,207	2,4,6-TRINITROTOLUENE	3/2/2020		μg/L	0.16	ND
G0082	2,065,493	402,207	2,4,6-TRINITROTOLUENE	10/21/2019		μg/L	0.15	ND
G0082	2,065,493	402,207	2,4,6-TRINITROTOLUENE	6/9/2019		μg/L	0.16	ND
G0082	2,065,493	402,207	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/2/2020	0.68	μg/L	0.06	TR
G0082	2,065,493	402,207	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	3/2/2020		μg/L	0.16	ND
G0082	2,065,493	402,207	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	10/21/2019	0.63	μg/L	0.15	TR
G0082	2,065,493	402,207	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/9/2019	0.34	μg/L	0.15	TR
G0086	2,066,457	403,759	2,4,6-TRINITROTOLUENE	6/16/2020	3.6	μg/L	0.05	
G0086	2,066,457	403,759	2,4,6-TRINITROTOLUENE	3/3/2020	5.9	μg/L	0.16	TR
G0086	2,066,457	403,759	2,4,6-TRINITROTOLUENE	10/23/2019	3.8	μg/L	0.16	
G0086	2,066,457	403,759	2,4,6-TRINITROTOLUENE	6/9/2019	2.5	μg/L	0.16	
G0086	2,066,457	403,759	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/16/2020	0.21	μg/L	0.05	TR
G0086	2,066,457	403,759	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	3/3/2020		μg/L	0.15	ND
G0086	2,066,457	403,759	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	10/23/2019		μg/L	0.16	ND
G0086	2,066,457	403,759	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/9/2019	0.18	μg/L	0.16	TR

# TABLE E.2 UPGRADIENT WELLS CORNHUSKER ARMY AMMUNITION PLANT MAROS DATA INPUTS

WellName	XCoord	YCoord	Constituent	SampleDate	Result	Units	DetLim	Flags
G0087	2,065,944	403,749	2,4,6-TRINITROTOLUENE	6/15/2020		μg/L	0.05	ND
G0087	2,065,944	403,749	2,4,6-TRINITROTOLUENE	3/3/2020		μg/L	0.15	ND
G0087	2,065,944	403,749	2,4,6-TRINITROTOLUENE	10/22/2019		μg/L	0.15	ND
G0087	2,065,944	403,749	2,4,6-TRINITROTOLUENE	6/9/2019		μg/L	0.16	ND
G0087	2,065,944	403,749	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/15/2020	0.15	μg/L	0.06	TR
G0087	2,065,944	403,749	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	3/3/2020		μg/L	0.15	ND
G0087	2,065,944	403,749	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	10/22/2019		μg/L	0.15	ND
G0087	2,065,944	403,749	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/9/2019		μg/L	0.16	ND

# TABLE E.3 DOWNGRADIENT WELLS CORNHUSKER ARMY AMMUNITION PLANT MAROS DATA INPUTS

WellName	XCoord	YCoord	Constituent	SampleDate	Result	Units	DetLim	Flags
CA210	2,072,527	405,191	2,4,6-TRINITROTOLUENE	6/9/2020		µg/L	0.05	ND
CA210	2,072,527	405,191	2,4,6-TRINITROTOLUENE	3/3/2020		μg/L	0.15	ND
CA210	2,072,527	405,191	2,4,6-TRINITROTOLUENE	10/21/2019		μg/L	0.16	ND
CA210	2,072,527	405,191	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/9/2020		μg/L	0.06	ND
CA210	2,072,527	405,191	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	3/3/2020		μg/L	0.15	ND
CA210	2,072,527	405,191	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	10/21/2019		μg/L	0.16	ND
CA211	2,072,573	405,210	2,4,6-TRINITROTOLUENE	6/9/2020		μg/L	0.05	ND
CA211	2,072,573	405,210	2,4,6-TRINITROTOLUENE	3/3/2020		μg/L	0.16	ND
CA211	2,072,573	405,210	2,4,6-TRINITROTOLUENE	10/21/2019		μg/L	0.16	ND
CA211	2,072,573	405,210	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/9/2020		μg/L	0.06	ND
CA211	2,072,573	405,210	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	3/3/2020		μg/L	0.16	ND
CA211	2,072,573	405,210	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	10/21/2019		μg/L	0.16	ND
CA212	2,072,578	405,192	2,4,6-TRINITROTOLUENE	6/9/2020		μg/L	0.05	ND
CA212	2,072,578	405,192	2,4,6-TRINITROTOLUENE	3/3/2020		μg/L	0.16	ND
CA212	2,072,578	405,192	2,4,6-TRINITROTOLUENE	10/21/2019		μg/L	0.16	ND
CA212	2,072,578	405,192	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/9/2020		μg/L	0.06	ND
CA212	2,072,578	405,192	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	3/3/2020		μg/L	0.15	ND
CA212	2,072,578	405,192	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	10/21/2019		μg/L	0.16	ND
CA213	2,072,600	405,217	2,4,6-TRINITROTOLUENE	6/10/2020		μg/L	0.05	ND
CA213	2,072,600	405,217	2,4,6-TRINITROTOLUENE	3/3/2020		μg/L	0.16	ND
CA213	2,072,600	405,217	2,4,6-TRINITROTOLUENE	10/21/2019		μg/L	0.16	ND
CA213	2,072,600	405,217	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/10/2020		μg/L	0.05	ND
CA213	2,072,600	405,217	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	3/3/2020		μg/L	0.15	ND
CA213	2,072,600	405,217	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	10/21/2019		μg/L	0.16	ND
NW050	2,072,396	406,567	2,4,6-TRINITROTOLUENE	6/10/2020		μg/L	0.05	ND
NW050	2,072,396	406,567	2,4,6-TRINITROTOLUENE	3/3/2020		μg/L	0.16	ND
NW050	2,072,396	406,567	2,4,6-TRINITROTOLUENE	10/22/2019		μg/L	0.16	ND
NW050	2,072,396	406,567		6/10/2020		μg/L	0.05	ND
NW050	2,072,396	,	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	3/3/2020		μg/L	0.16	ND
NW050	2,072,396		HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	10/22/2019		μg/L	0.16	ND
NW051	2,072,401		2,4,6-TRINITROTOLUENE	6/10/2020		μg/L	0.05	ND
NW051	2,072,401	406,543	2,4,6-TRINITROTOLUENE	3/3/2020		μg/L	0.16	ND
NW051	2,072,401	406,543	2,4,6-TRINITROTOLUENE	10/22/2019		μg/L	0.16	ND

# TABLE E.3 DOWNGRADIENT WELLS CORNHUSKER ARMY AMMUNITION PLANT MAROS DATA INPUTS

VellName	XCoord	YCoord	Constituent	SampleDate	Result	Units	DetLim	Flags
NW051	2,072,401	406,543	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/10/2020		µg/L	0.05	ND
NW051	2,072,401	406,543	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	3/3/2020		μg/L	0.16	ND
NW051	2,072,401	406,543	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	10/22/2019		μg/L	0.16	ND
NW052	2,072,410	406,561	2,4,6-TRINITROTOLUENE	6/10/2020		μg/L	0.05	ND
NW052	2,072,410	406,561	2,4,6-TRINITROTOLUENE	3/3/2020		μg/L	0.16	ND
NW052	2,072,410	406,561	2,4,6-TRINITROTOLUENE	10/23/2019		μg/L	0.16	ND
NW052	2,072,410	406,561	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/10/2020		μg/L	0.05	ND
NW052	2,072,410	406,561	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	3/3/2020		μg/L	0.15	ND
NW052	2,072,410	406,561	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	10/23/2019		μg/L	0.16	ND
NW060	2,072,369	407,799	2,4,6-TRINITROTOLUENE	6/10/2020		μg/L	0.05	ND
NW060	2,072,369	407,799	2,4,6-TRINITROTOLUENE	3/2/2020		μg/L	0.16	ND
NW060	2,072,369	407,799	2,4,6-TRINITROTOLUENE	10/22/2019		μg/L	0.16	ND
NW060	2,072,369	407,799	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/10/2020		μg/L	0.05	ND
NW060	2,072,369	407,799	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	3/2/2020		μg/L	0.16	ND
NW060	2,072,369	407,799	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	10/22/2019		μg/L	0.16	ND
NW061	2,072,392	407,806	2,4,6-TRINITROTOLUENE	6/10/2020		μg/L	0.05	ND
NW061	2,072,392	407,806	2,4,6-TRINITROTOLUENE	3/2/2020		μg/L	0.15	ND
NW061	2,072,392	407,806	2,4,6-TRINITROTOLUENE	10/22/2019		μg/L	0.16	ND
NW061	2,072,392	407,806	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/10/2020		μg/L	0.05	ND
NW061	2,072,392	407,806	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	3/2/2020		μg/L	0.15	ND
NW061	2,072,392	407,806	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	10/22/2019		μg/L	0.16	ND
NW062	2,072,383	407,787	2,4,6-TRINITROTOLUENE	6/10/2020		μg/L	0.05	ND
NW062	2,072,383	407,787	2,4,6-TRINITROTOLUENE	3/2/2020		μg/L	0.15	ND
NW062	2,072,383	407,787	2,4,6-TRINITROTOLUENE	10/22/2019		μg/L	0.16	ND
NW062	2,072,383	407,787	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/10/2020		μg/L	0.06	ND
NW062	2,072,383	407,787	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	3/2/2020		μg/L	0.15	ND
NW062	2,072,383	407,787	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	10/22/2019		μg/L	0.16	ND
NW070	2,075,161	404,146	2,4,6-TRINITROTOLUENE	6/10/2020		μg/L	0.05	ND
NW070	2,075,161	404,146	2,4,6-TRINITROTOLUENE	3/2/2020		μg/L	0.16	ND
NW070	2,075,161	404,146	2,4,6-TRINITROTOLUENE	10/21/2019		μg/L	0.16	ND
NW070	2,075,161	404,146	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/10/2020		μg/L	0.06	ND
NW070	2,075,161	404,146	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	3/2/2020		μg/L	0.16	ND
NW070	2,075,161		HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	10/21/2019		μg/L	0.16	ND

# TABLE E.3 DOWNGRADIENT WELLS CORNHUSKER ARMY AMMUNITION PLANT MAROS DATA INPUTS

XCoord	YCoord	Constituent	SampleDate	Result	Units	DetLim	Flags
2,075,166	404,140	2,4,6-TRINITROTOLUENE	6/9/2020		μg/L	0.05	ND
2,075,166	404,140	2,4,6-TRINITROTOLUENE	3/2/2020		μg/L	0.16	ND
2,075,166	404,140	2,4,6-TRINITROTOLUENE	10/21/2019		μg/L	0.16	ND
2,075,166	404,140	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/9/2020		μg/L	0.06	ND
2,075,166	404,140	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	3/2/2020		μg/L	0.16	ND
2,075,166	404,140	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	10/21/2019		μg/L	0.16	ND
2,075,116	406,616	2,4,6-TRINITROTOLUENE	6/8/2020		μg/L	0.05	ND
2,075,116	406,616	2,4,6-TRINITROTOLUENE	3/3/2020		μg/L	0.17	ND
2,075,116	406,616	2,4,6-TRINITROTOLUENE	10/22/2019		μg/L	0.16	ND
2,075,116	406,616	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/8/2020		μg/L	0.05	ND
2,075,116	406,616	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	3/3/2020		μg/L	0.17	ND
2,075,116	406,616	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	10/22/2019		μg/L	0.16	ND
2,075,149	406,617	2,4,6-TRINITROTOLUENE	6/8/2020		μg/L	0.05	ND
2,075,149	406,617	2,4,6-TRINITROTOLUENE	3/3/2020		μg/L	0.16	ND
2,075,149	406,617	2,4,6-TRINITROTOLUENE	10/22/2019		μg/L	0.16	ND
2,075,149	406,617	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/8/2020		μg/L	0.06	ND
2,075,149	406,617	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	3/3/2020		μg/L	0.16	ND
2,075,149	406,617	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	10/22/2019		μg/L	0.16	ND
2,075,190	406,618	2,4,6-TRINITROTOLUENE	6/8/2020		μg/L	0.05	ND
2,075,190	406,618	2,4,6-TRINITROTOLUENE	3/3/2020		μg/L	0.16	ND
2,075,190	406,618	2,4,6-TRINITROTOLUENE	10/22/2019		μg/L	0.16	ND
2,075,190	406,618	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	6/8/2020		μg/L	0.06	ND
2,075,190	406,618	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	3/3/2020		μg/L	0.16	ND
2,075,190	406,618	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	10/22/2019		μg/L	0.16	ND
	2,075,166 2,075,166 2,075,166 2,075,166 2,075,166 2,075,166 2,075,116 2,075,116 2,075,116 2,075,116 2,075,116 2,075,116 2,075,116 2,075,149 2,075,149 2,075,149 2,075,149 2,075,149 2,075,149 2,075,149 2,075,149 2,075,190 2,075,190 2,075,190	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	2,075,166         404,140         2,4,6-TRINITROTOLUENE           2,075,166         404,140         2,4,6-TRINITROTOLUENE           2,075,166         404,140         2,4,6-TRINITROTOLUENE           2,075,166         404,140         HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE           2,075,166         404,140         HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE           2,075,166         404,140         HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE           2,075,166         404,140         HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE           2,075,116         406,616         2,4,6-TRINITROTOLUENE           2,075,116         406,616         2,4,6-TRINITROTOLUENE           2,075,116         406,616         2,4,6-TRINITROTOLUENE           2,075,116         406,616         HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE           2,075,116         406,616         HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE           2,075,116         406,617         2,4,6-TRINITROTOLUENE           2,075,116         406,617         2,4,6-TRINITROTOLUENE           2,075,149         406,617         2,4,6-TRINITROTOLUENE           2,075,149         406,617         2,4,6-TRINITROTOLUENE           2,075,149         406,617         2,4,6-TRINITROTOLUENE           2,075,149         406,617	2,075,166404,1402,4,6-TRINITROTOLUENE6/9/20202,075,166404,1402,4,6-TRINITROTOLUENE3/2/20202,075,166404,1402,4,6-TRINITROTOLUENE10/21/20192,075,166404,140HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE6/9/20202,075,166404,140HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE3/2/20202,075,166404,140HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE3/2/20202,075,166404,140HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE10/21/20192,075,116406,6162,4,6-TRINITROTOLUENE6/8/20202,075,116406,6162,4,6-TRINITROTOLUENE3/3/20202,075,116406,6162,4,6-TRINITROTOLUENE10/22/20192,075,116406,6164,4,6-TRINITROTOLUENE10/22/20192,075,116406,616HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE3/3/20202,075,116406,616HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE10/22/20192,075,116406,616HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE10/22/20192,075,116406,6172,4,6-TRINITROTOLUENE3/3/20202,075,149406,6172,4,6-TRINITROTOLUENE3/3/20202,075,149406,6172,4,6-TRINITROTOLUENE3/3/20202,075,149406,617HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE3/3/20202,075,149406,617HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE3/3/20202,075,149406,617HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE3/3/20202,075,190406,6182,4,	2.075,166         404,140         2,4,6-TRINITROTOLUENE         69/2020           2.075,166         404,140         2,4,6-TRINITROTOLUENE         3/2/2020           2.075,166         404,140         2,4,6-TRINITROTOLUENE         10/21/2019           2.075,166         404,140         HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE         6/9/2020           2.075,166         404,140         HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE         3/2/2020           2.075,166         404,140         HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE         3/2/2020           2.075,166         404,140         HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE         10/21/2019           2.075,116         406,616         2,4,6-TRINITROTOLUENE         10/21/2019           2.075,116         406,616         2,4,6-TRINITROTOLUENE         3/3/2020           2.075,116         406,616         4,4,6-TRINITROTOLUENE         10/22/2019           2.075,116         406,616         HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE         10/22/2019           2.075,116         406,616         HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE         10/22/2019           2.075,149         406,617         2,4,6-TRINITROTOLUENE         10/22/2019           2.075,149         406,617         2,4,6-TRINITROTOLUENE         10/22/2019	2,075,166         404,140         2,4,6-TRINITROTOLUENE         69/2020         µg/L           2,075,166         404,140         2,4,6-TRINITROTOLUENE         3/2/2020         µg/L           2,075,166         404,140         2,4,6-TRINITROTOLUENE         10/21/2019         µg/L           2,075,166         404,140         HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE         6/9/2020         µg/L           2,075,166         404,140         HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE         3/2/2020         µg/L           2,075,166         404,140         HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE         3/2/2020         µg/L           2,075,166         404,140         HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE         10/21/2019         µg/L           2,075,116         406,616         2,4,6-TRINITROTOLUENE         3/3/2020         µg/L           2,075,116         406,616         2,4,6-TRINITROTOLUENE         10/22/2019         µg/L           2,075,116         406,616         HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE         10/22/2019         µg/L           2,075,116         406,616         HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE         10/22/2019         µg/L           2,075,116         406,617         2,4,6-TRINITROTOLUENE         10/22/2019         µg/L           2,075,14	2,075,166         404,140         2,4,6-TRINITROTOLUENE         6/9/2020         µg/L         0.05           2,075,166         404,140         2,4,6-TRINITROTOLUENE         3/2/2020         µg/L         0.16           2,075,166         404,140         2,4,6-TRINITROTOLUENE         10/21/2019         µg/L         0.16           2,075,166         404,140         HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE         6/9/2020         µg/L         0.06           2,075,166         404,140         HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE         3/2/2020         µg/L         0.16           2,075,166         404,140         HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE         3/2/2020         µg/L         0.16           2,075,116         406,616         2,4,6-TRINITROTOLUENE         6/8/2020         µg/L         0.17           2,075,116         406,616         2,4,6-TRINITROTOLUENE         3/3/2020         µg/L         0.16           2,075,116         406,616         HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE         6/8/2020         µg/L         0.16           2,075,116         406,616         HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE         10/22/2019         µg/L         0.16           2,075,116         406,617         2,4,6-TRINITROTOLUENE         3/3/2020         µg/L