21 March 2024

Ms. Brenda Fruchtl, PG
Pennsylvania Department of Environmental Protection
Clean Water Program
Southcentral Regional Office Building
909 Elmerton Avenue
Harrisburg, PA 17110-8200

Re: 2023 Annual Operations Report
Former York Naval Ordnance Plant, York, Pennsylvania
Harley-Davidson NPDES Permit No. PA 0085677

Dear Brenda:

On behalf of Harley-Davidson Motor Company Operations, Inc. (Harley-Davidson), Hydro-Terra Group (HTG) is providing you with a copy of the attached report entitled "Groundwater Extraction and Treatment System Annual Operations Report for the Period January 1, 2023, through December 31, 2023."

Please contact me with any questions or comments.

Respectfully submitted,

HYDRO-TERRA GROUP

Emily M. Wade
Senior Geologist/Project Manager

Attachment

cc: James Rea – PADEP (w/ enclosure)
Ignazio Sabella - Harley-Davidson (w/ electronic copy)
Timothy Scripko – Harley-Davidson (w/ electronic copy)
Ralph Golia – AMO Environmental Decisions (w/ electronic copy)
Hamid Rafiee – USACE (w/ electronic copy)
Kristin Koroncai – USEPA (w/ electronic copy)
Deanna Jefferson – NorthPoint Development (w/ electronic copy)
Chantelle Jackson-Gaines - NorthPoint Development (w/ electronic copy)
Todd Eaby – Susquehanna River Basin Commission (w/ electronic copy)
Chris O'Neil – Groundwater Sciences Corporation (w/ electronic copy)
Rodney Myers – HTG (w/enclosure)

www.hydro-terra.com

GROUNDWATER EXTRACTION AND TREATMENT SYSTEM ANNUAL OPERATIONS REPORT FOR THE PERIOD JANUARY 1 THROUGH DECEMBER 31, 2023 FORMER YORK NAVAL ORDNANCE PLANT

Prepared for:

former York Naval Ordnance Plant Remediation Team

March 2024

7420 Derry Street, Harrisburg, PA 17111 717.980.5150 fax 717.980.5937

Groundwater Extraction and Treatment System
Annual Operations Report
for the Period
January 1 through December 31, 2023
Former York Naval Ordnance Plant

Prepared for:

former York Naval Ordnance Plant Remediation Team

By:

Hydro-Terra Group
7420 Derry Street
Harrisburg, PA 17111
(717) 980-5150

March 2024

Respectfully submitted,

Emily M. Wade
Senior Geologist/Project Manager

Rodney G. Myers, CHMM
Senior Program Manager

TABLE OF CONTENTS

Page

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

LIST OF ACRONYMS

1,1-DCE	-	1,1-dichloroethene
Act 2	-	Land Recycling and Environmental Remediation Standards Act
AWQC	-	applicable water quality criteria
cfm	-	cubic feet per minute
cis-1,2-DCE	-	cis-1,2-dichloroethene
DMR	-	Discharge Monitoring Report
EPA	-	United States Environmental Protection Agency
fYNOP	-	former York Naval Ordnance Plant
GAC	-	granular-activated carbon
GIS	-	Global Information Services
gpd	-	gallons per day
gpm	-	gallons per minute
GSC	-	Groundwater Sciences Corporation
GWTS	-	groundwater extraction and treatment system
Harley-Davidson	-	Harley-Davidson Motor Company Operations, Inc.
HDPE	-	high density polyethylene
HTG	-	Hydro-Terra Group
lbs/day	-	pounds per day
NB4	-	North Building 4
NPBA	-	Northeast Property Boundary Area
NPDES	-	National Pollutant Discharge Elimination System
NP York	-	NP York 58, LLC
O&M	-	operation and maintenance
PADEP	-	Pennsylvania Department of Environmental Protection
PCE	-	tetrachloroethene
PLC	-	programmable logic controller
ppm	-	parts per million
PRCP	-	Post-Remediation Care Plan
PTA	-	packed tower aerator
SPBA	-	Southern Property Boundary Area
SRBC	-	Susquehanna River Basin Commission
TCA	-	1,1,1-trichloroethane
TCE	-	trichloroethene
µg/L	-	micrograms per liter
VFD	-	variable frequency drive
VOCs	-	volatile organic compounds
WPL	-	West Parking Lot

EXECUTIVE SUMMARY

This report presents a summary of the groundwater extraction and treatment system (GWTS) operations and maintenance (O&M) and groundwater extraction well monitoring during 2023 at the former York Naval Ordnance Plant (fYNOP). The fYNOP GWTS is located at the Harley-Davidson Motor Company Operations, Inc. (Harley-Davidson) facility in York, Pennsylvania. The fYNOP GWTS has been in operation for over 30 years (since November 1990) and consists of numerous collection wells in two areas (the West Parking Lot (WPL) and Southern Property Boundary Area (SPBA) of fYNOP.

During 2023, three active collection wells (CW-21, CW-22, and CW-23) were operational in the SPBA and five collection wells (CW-9, CW-13, CW-15A, CW-17, and CW-20) in the WPL were off, but remain functional.

Approximately two (2) pounds of volatile organic compounds (VOCs) were removed by the GWTS during 2023. The total amount of groundwater extracted during 2023 was approximately 3.6 million gallons. Cumulatively, approximately 49,129 pounds of VOCs and 3.88 billion gallons of groundwater have been removed by the GWTS since 1990.

Monthly, quarterly, and annual sampling data were collected in 2023, and site-wide groundwater elevations were collected in September 2023. These data, along with laboratory analytical data, will be presented in the 2023 annual Groundwater and Surface Water Monitoring Report (to be provided by Groundwater Sciences Corporation [GSC]).

1.0 INTRODUCTION

This report presents a summary of the operating record for the fYNOP GWTS and includes collection well water quality data obtained during 2023. The fYNOP facility consists of the Harley-Davidson York facility and the West Campus property (as described below). The fYNOP is located in Springettsbury Township, York County, Pennsylvania, as shown on **Figure 1-1**. This report covers the 12-month period from January 1 through December 31, 2023. Hydro-Terra Group (HTG) operated the GWTS during the reporting period.

Harley-Davidson sold 58 acres of the western portion of the fYNOP in June 2012. NP York 58, LLC (NP York) constructed a 755,000 square-foot warehouse in 2016. The parcel is now addressed as 1445 Eden Road, York, Pennsylvania, and extends from west of the current manufacturing operations through the WPL and is identified as the "West Campus". The fYNOP retains responsibility for the cleanup of the West Campus and maintains an easement agreement with the owners to continue remediation, monitoring, and maintenance activities.

The GWTS consists of a groundwater extraction system, a groundwater treatment plant, and a force main discharge system. Collectively, the fYNOP GWTS was designed to extract and treat groundwater containing VOCs of concern that consist of trichloroethene (TCE), tetrachloroethene (PCE), 1,1,1-trichloroethane (TCA), and their degradation products, including cis-1,2-dichloroethene (cis-1,2-DCE) and 1,1-dichloroethene (1,1-DCE). The extraction wells, conveyance piping, treatment plant, and force main discharge piping locations are shown on **Figure 1-2.**

During 2023, groundwater was extracted from three (3) collection wells (CW-21, CW-22, and CW-23) operating in the SPBA. The SPBA groundwater extraction system operates to capture shallow groundwater containing VOCs and mitigates potential vapor intrusion in off-site inhabited structures along the southeast corner of the property. Operation, monitoring, and maintenance of the SPBA groundwater extraction system is a required engineering control necessary to comply with the approved Post-Remediation Care Plan (PRCP, GSC, 2023a).

As part of the approved Site-Wide Cleanup Plan (GSC, 2019a), the collection wells in the WPL were shutdown on August 31, 2021 for attainment testing. The shutdown was approved by the Pennsylvania Department of Environmental Protection (PADEP) on February 28, 2020 as part of the Land Recycling and Environmental Remediation Standards Act (Act 2) and the One Cleanup Program for the site. The United States Environmental Protection Agency (EPA) and PADEP acknowledged plans to extend the WPL shutdown study for a second consecutive year (through August 2023) following a shut-down test update report issued on September 1, 2022; and the fYNOP Remediation Team notified regulators on August 8, 2023 that they intended to continue monthly surface water monitoring with the WPL extraction system shut down until input from EPA and PADEP on the Final Report is reviewed and discussed.

According to the Act 2 Final Report for this site (GSC, 2023b), surface water monitoring results collected to date demonstrate that operation of the WPL extraction system is not necessary to attain or maintain compliance with applicable water quality criteria (AWQC) in Codorus Creek, and continued monitoring of surface water quality in Codorus Creek with the WPL extraction system off will be conducted in accordance with the PRCP contained within the Final Report. Therefore, the WPL system will not be operated unless necessary to meet AWQC in the creek but will remain in-place while continued surface water sampling is conducted in accordance with the PRCP.

All extracted groundwater is piped to the groundwater treatment building (Building 41A) for processing through a packed tower aerator (PTA) prior to discharge to the Codorus Creek, designated as Outfall No. 003 (see **Figures 1-1** and **1-2**). Operation, monitoring and maintenance of the groundwater treatment system is also a required engineering control necessary to comply with the approved Post-Remediation Care Plan (PRCP, GSC, 2023a).

Figure 1-3 presents a schematic flow diagram for the treatment system. A chemical sequestering agent (Redux 525) injection system reduces mineral fouling of the GWTS PTA, effluent discharge pumps, and components. This sequestrant chemical injection system continued to operate throughout 2023. PTA off-gases are treated by a vapor phase, granular-activated carbon (GAC) filter system for removal of VOCs prior to emitting to the atmosphere.

Treated groundwater is collected in a wet well pump station located immediately north of Building 41A and pumped from the wet well through a force main, to Outfall 003 near the confluence of Johnsons Run and Codorus Creek (refer to **Figure 1-2**).

The treatment system operates and discharges under a National Pollutant Discharge Elimination System (NPDES) permit No. PA0085677 issued by PADEP. The permit is effective through November 20, 2024. The GWTS operated in full compliance with the NPDES permit during 2023.

2.0 GEOLOGY AND HYDROGEOLOGY

Two geologic rock formations underlie the site. Solution-prone (karst) gray carbonate bedrock (limestone and dolostone) underlies the flat lowland (western) portion of the site (i.e. the WPL extraction area). Quartzitic sandstone underlies the more steeply sloping hills or upland area present on the eastern part of the site. The SPBA extraction area lies near a contact between the quartzitic sandstone and limestone geologic formations. Natural groundwater flow direction is generally westward, from the upland area at the eastern part of the site towards Codorus Creek. A detailed discussion of the regional and site geology and hydrogeology is included in the revised report entitled “Supplemental Remedial Investigation Groundwater Report (Part 2).” (GSC, 2018).

3.0 SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING

The groundwater monitoring program at the fYNOP site in 2023 consisted of:

- Measuring depth to water in all available monitoring and observation wells one time.
- Sampling and chemical analysis of groundwater from the collection wells throughout the year (see results summary in **Table A-1 in Appendix A**).
- Sampling and chemical analysis of the GWTS influent from the combined active collection wells throughout the year (see results summary in **Table A-2 in Appendix A**).
- Site-wide groundwater and surface water sampling (onsite and offsite wells, and Codorus Creek) was conducted monthly, quarterly, or annually during 2023 following the program detailed in the fYNOP Site-Wide Cleanup Plan (GSC, 2019a).
- The results of this monitoring and sampling program, including evaluation of groundwater extraction goals, will be provided and discussed in a separate annual groundwater monitoring report.

4.0 GROUNDWATER TREATMENT SYSTEM

4.1 System Description

Collection wells within the WPL groundwater extraction area and the SPBA remove groundwater by means of electric submersible pumps. The pumping water level within each collection well in the WPL is maintained by liquid level probes and control circuitry between the "on" and "off" probes. The pumping water level is controlled by a transducer in the SPBA wells. The groundwater extraction portion of the system consists of eight (8) potentially active wells (CW-9, CW-13, CW-15A, CW-17, CW-20, CW-21, CW-22, and CW-23). The WPL wells were shutdown in 2023. An average of 5.8 gpm is extracted by the SPBA wells. The extracted groundwater is conveyed via underground piping to the treatment system where the dissolved VOCs are removed from the groundwater.

The GWTS is housed in Building 41A. The process flow diagram for the system is presented on **Figure 1-3**. The treatment system consists of a 2,600-gallon equalization tank; a PTA capable of treating up to 400 gallons per minute (gpm) of groundwater; and a 10,000-pound vapor-phase GAC unit for PTA off-gas treatment. Operation of the GWTS was modified from continuous treatment to batch treatment when the WPL wells were shutdown in 2021. In batch treatment mode the PTA will cycle on and off in response to the equalization tank level. The PTA remains off until the equalization tank fills to a level of 100 inches. Then the influent/transfer pump will activate, once the blower has established adequate airflow, and extracted groundwater will be pumped out of the equalization tank and through the PTA until the tank level reaches 25 inches, the influent/transfer pump will cycle off, and the blower will continue to run for three minutes before cycling off.

Extracted groundwater is pumped from the equalization tank through the PTA for treatment. Redux 525 sequestering agent is injected into this flow at a rate of approximately 20 parts per million (ppm) to prevent calcium scale deposits on the packing material and effluent pumping system. Simultaneous with the downward flow of contaminated water, a 4,000-cubic-foot-per-minute (cfm) centrifugal blower directs fresh air into the lower section of the tower, and up through the packing material. VOCs present in the influent groundwater are "stripped" from the water, transferred into the air, and then adsorbed to the GAC in the air-phase. The treated groundwater flows by gravity to a wet well (effluent pump station) on the north side of Building 41A. It is then pumped approximately 1,600 feet via an 8-inch underground force main to Outfall No. 003 and discharged to Codorus Creek (see **Figure 1-2**).

Automated monitoring and control of the GWTS are facilitated through a series of control panels, Allen-Bradley programmable logic controllers (PLCs) and patented operator software packages called RS View® and Factory View Talk®. Remote computer terminals monitor collection well pumping rates and treatment processes, and the collection wells may be

remotely adjusted. System operational data, recorded in an Excel® database during 2023, are provided in **Appendix B**.

4.2 System Maintenance and Modifications

One preventive maintenance inspection and one general maintenance visit are completed each month when the GWTS is operating. These inspections ensure effective operation of the system. A summary of O&M data recorded during these visits is included in **Appendix C**. Inspections include the following:

- Check for system alarms and address as required.
- Inspect control panels for proper conditions and settings.
- Check water conveyance line pressures.
- Check pressure differential across the stripping tower.
- Check piping and pumps for leaks.
- Clean Y-strainers of buildup, etc., as necessary.
- Check and record amperage draw on all motors (quarterly).
- Record flow rates on recovery wells and transfer pump.

The GWTS operated under normal conditions in 2023, except for the following interruptions:

- A brief shutdown occurred on February 23 due to a PTA blower fault, the blown fuses were replaced and the GWTS was restarted within 24 hours. After evaluation, the fuse size was increased to accommodate the initial loading when the PTA blower starts.
- Brief shutdowns occurred on May 16 and October 3 to remove the primary and secondary effluent pumps for routine annual maintenance.
- A brief shutdown occurred on June 8 due to an emergency stop alarm. The GWTS was inspected, and no issues were noted. The GWTS was restarted within 24 hours.
- A shutdown occurred on June 21 for a planned site-wide plant power outage. The GWTS was restarted with 24 hours.
- A brief shutdown occurred on July 26 to complete GWTS annual maintenance checks.

Several noteworthy treatment system maintenance, repairs, or modifications were identified and addressed during 2023. A summary is presented below:

- Two GWTS effluent discharge pumps were removed for annual routine inspection, cleaning, and repair (as needed).
- Annual pH meter calibration was completed.
- Five-year certification of the influent, CW-9, CW-13, CW-15A, CW-17, CW-20 flow meters, and the EQ tank transducer were completed by a third party.
- New electrical usage meters were installed in Building 41A.

- Annual maintenance was completed to clean the PTA tower windows, remove debris from the PTA sump pit, calibrate the influent pH meter, check PTA tower plumbness, exercise effluent pump valves, and verify that the sequestrant (Redux 525) chemical pump is dosing at 20 ppm.
- A new PC and touch screen were installed in control panel CP-1 located in Building 41A.
- A new datalogging PC was installed in the GWTS office.
- A new influent flow meter was installed after the existing flow meter stopped recording flow.

4.3 Groundwater Withdrawal and VOC Removal

Table 4-1 presents the recorded monthly and annual groundwater withdrawals and VOC mass removals by the GWTS. A system-wide total of approximately 49,129 pounds of VOCs were removed since the GWTS began operation in November 1990.

The total amount of groundwater extracted during 2023 was approximately 3.64 million gallons (an average of 9,969 gallons per day [gpd] or 7 gpm) using the PTA totalizer. The 2023 extraction volumes are slightly higher than the previous year (2022) when the flows were approximately 3.37 million gallons (or 9,237 gpd, or 6.4 gpm). The primary reason for the slight increase in treatment systems flows during 2023 is due to treatment of groundwater from other remedial activities at the site. Approximately 676,000 gallons of groundwater were treated as part of other remedial activities that are ongoing at the site during 2023. A graphical comparison of groundwater volumes treated is presented on **Figure 4-1**. The additional treated groundwater was extracted from the former Bunker and Shell Range area of the site, as part of other on-site remedial activities conducted in 2023, and from the WPL wells that were briefly restarted to certify the accuracy of the flow meters and ensure function.

Quarterly PTA influent (untreated) analyses (shown in **Table A-2, Appendix A**), along with the measured extraction volumes, are used to calculate the mass of VOCs removed from site groundwater during the reporting period. Quarterly influent samples were collected in January, April, July, and October 2023. These samples represent combined flow-weighted sampling of the three active collection wells in the SPBA (CW-21, CW-22, and CW-23).

The untreated influent samples contained total VOCs ranging in concentrations from 56 micrograms per liter (µg/L) to 83 µg/L during 2023. Using these data, the total estimated mass of VOCs removed from January through December 2023 was approximately 2 pounds. The calculated VOC mass removal rates (pounds per day [lbs/day]) extracted by the GWTS for the last five calendar years are shown below:

- 2023 – 0.005 lbs/day
- 2022 – 0.005 lbs/day
- 2021 Average – 1.1 lbs/day

    - 2021 January through August - 1.7 lbs/day
    - 2021 September through December - 0.007 lbs/day
- 2020 – 1.9 lbs/day
- 2019 – 2.3 lbs/day

The predominant VOCs identified in the PTA influent samples have historically included TCE, TCA, and PCE (see **Figure 4-2)**. Levels of influent total VOCs were somewhat stable over the last few years but have decreased during this reporting period. The predominant influent VOC was PCE with traces of TCE and cis 1,2 DCE in the last five years (see **Figure 4-2**).

4.4 Groundwater System Inspection and Reporting

Groundwater system compliance reporting includes routine monthly and quarterly NPDES permit required Discharge Monitoring Reports (DMRs), and an annual operations report for the GWTS. Additionally, PADEP requires an annual Chapter 110 (formerly Act 220) groundwater withdrawal report for this facility.

In accordance with the NPDES permit, the PTA effluent was sampled and reported quarterly in 2023. Analytical testing results for the 2023 PTA effluent and influent sampling is presented in **Table A-2 (Appendix A)**. The treatment system effluent has maintained non-detectable concentrations of target VOCs during this reporting period.

The Susquehanna River Basin Commission (SRBC) requires submittal of quarterly groundwater withdrawal reports regarding non-consumptive groundwater withdrawals identified in SRBC docket No. 19980901-1. Docket 19980901-1 includes the active WPL extraction wells and the SPBA extraction wells. Information provided to the SRBC includes daily groundwater withdrawal totals (i.e., groundwater volumes extracted) from all collection wells identified in the respective dockets.

SRBC Docket No. 1998091-1 expired in September 2023 and an application for continued withdrawal under General Permit (GP-01) was submitted to the SRBC in March 2023. On January 23, 2024, the SRBC issued approval of General Permit No. GP-01-20240101 to Harley-Davidson for the GWTS. The GP-01 permit applies only to groundwater withdrawals associated with remediation systems having state or federal environmental regulatory agency oversight; is valid for groundwater discharges averaging up to 0.576 million gpd; and expires on December 31, 2050.

5.0 WEST PARKING LOT GROUNDWATER EXTRACTION SYSTEM

Four (4) groundwater collection wells (CW-9, CW-13, CW-17, and CW-20) are in the WPL Area of the West Campus. One additional collection well (CW-15A) is in a trailer parking area of the West Campus (formerly NB4 area).

Groundwater extraction from the five WPL wells is conducted via underground piping to the GWTS in Building 41A. The wells are individually piped to the GWTS so that flow control, flow measurements, and water samples may be obtained for each well at this central location. Water is piped the following distances from the wells to the treatment plant: CW-20 (1,600 feet), CW-9 (1,400 feet), CW-13 (890 feet), CW-15A (310 feet), and CW-17 (590 feet).

The WPL wells were shutdown on August 31, 2021, for attainment testing, as discussed previously. According to the Act 2 Final Report for this site (GSC, 2023b), surface water monitoring results collected to date demonstrate that operation of the WPL extraction system is not necessary to attain or maintain compliance with AWQC in Codorus Creek. Therefore, the WPL wells remained off in 2023, but will remain in-place while continued surface water sampling is conducted in accordance with the PRCP.

5.1 Maintenance

The WPL wells were briefly cycled on in April to ensure operation and to certify the accuracy of the flow meters by a third party.

5.2 Groundwater Chemistry

Groundwater samples were not collected from the WPL collection wells in 2023.

6.0 SPBA GROUNDWATER EXTRACTION SYSTEM

The SPBA groundwater extraction system captures shallow groundwater containing PCE and TCE from the fine-grained residual soil and bedrock along the eastern-most portion of the south fYNOP property boundary. Three SPBA collection wells (CW-21, CW-22, CW-23) were installed, and the SPBA collection wells pumping started on October 31, 2018. Following startup, an effectiveness report concluded “the SPBA groundwater extraction system is currently operating as designed and meets the objective of pumping to establish a groundwater gradient that slopes from off-Site wells located along Canterbury Lane toward on-site wells located in the SPBA” (GSC, 2019c). The effectiveness of the SPBA system is evaluated quarterly and status updates are provided to PADEP and EPA via e-mail communications (R. Golia, personal communication).

Each SPBA collection well is fitted with an electric submersible pump controlled by variable frequency drives (VFDs) and a submersible level transducer to maintain design drawdown conditions. Groundwater extracted from the SPBA wells is conducted via underground piping from the well heads to the SPBA control building (located in the SPBA). The SPBA control building houses the PLC, control panel, and separate pressure and flow transmitters, piping and valves for each of the extraction wells. The wells are individually piped to the SPBA control building so that flow control, flow measurements, and water samples may be obtained for each well at this central location. Untreated groundwater is combined into a manifold in the SPBA control building, and then discharged together via a single conveyance pipe that extends approximately 3,900 feet to the treatment plant in Building 41A.

The SPBA collection well pumping rates generally range from 0.5 to 6 gpm among the three wells. Approximately 3,060,000 gallons of groundwater were extracted from the SPBA Area during 2023 (see **Table 5-1**).

6.1 Maintenance

A summary of maintenance actions for the SPBA Area in 2023 is presented below:

- The SPBA system experienced brief electrical shutdowns in March, April, June, July, and August due to storms in the area.
- Radio communication faults occurred in April and July.
- Annual maintenance was completed on the collection wells in July. The CW-22 and CW-23 pump assemblies were pulled and inspected for damage and mineral fouling, the transducer setting was verified, and the high-pressure switch was tested.
- Collection well CW-23 experienced level transmitter faults in July and September. The level transmitter fuse was replaced, and the well was restarted.

6.2 Groundwater Chemistry

The groundwater quality analytical data from the 2023 collection well sampling is presented in **Table A-1 (Appendix A)**. Samples were collected in January, March, June, September, and December. The concentrations and trends of the dominant VOCs (TCE, PCE, TCA, and cis-1,2-DCE) are also illustrated in **Figures 6-1 through 6-3** for CW-21, CW-22, and CW-23, respectively. Collection well CW-21 exhibited a slightly decreasing trend for PCE and CW-23 displayed a slightly increasing trend in PCE during 2023.

7.0 REFERENCES

Groundwater Sciences Corporation (GSC), 2018. Supplemental Remedial Investigation Groundwater Report (Part 2), Former York Naval Ordnance Plant, March (Revised).

GSC, 2019a. Site-Wide Cleanup Plan, Former York Naval Ordnance Plant, 1425 Eden Road, Springettsbury Township, York Pennsylvania, November 25.

GSC, 2019b. 2018 Annual Monitoring Progress Report for the NPBA Extraction System Shutdown, Former York Naval Ordnance Plant, 1425 Eden Road, Springettsbury Township, York Pennsylvania, April 9.

GSC, 2019c. Southern Property Boundary Area Groundwater Extraction System Operation Effectiveness Report, Former York Naval Ordnance Plant, October 28.

GSC, 2023a. Post-Remediation Care Plan, Former York Naval Ordnance Plant, 1425 Eden Road, Springettsbury Township, York, Pennsylvania, November 3.

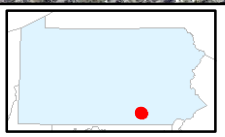
GSC, 2023b. Final Report, Former York Naval Ordnance Plant, 1425 Eden Road, Springettsbury Township, York, Pennsylvania, November 3.

FIGURES

Legend

Property Boundary (Former York Naval Ordnance Plant; Approximately 229 Acres)

West Campus Boundary



N

0 1,000 2,000 4,000

Feet

Former York Naval Ordnance Plant

1425 Eden Road
York, Pennsylvania

Hydro-Terra Group
www.hydro-terra.com

Groundwater Systems Operations

Site Location Map

drawn:	LPD	03/18/21	figure: 1-1
checked:	EMW	03/18/21	
approved:	RGM	03/18/21	

Document Path: J:\Harley-Davidson\Maps\HD-Site Location Map_20210218.mxd

Coordinate System: NAD 1983 2011 StatePlane Pennsylvania South FIPS 3702 Ft US

Completion of post-shut down monitoring for the NPBA was approved by PADEP and EPA in early 2019.

NPBA Control Bldg

NPBA Groundwater Conveyance Pipe to Treatment Plant

NPBA Groundwater Collection Pipe to Control Building

Treatment System Discharge Line

Groundwater Treatment Plant (Bldg 41A)

Outfall No. 003

WPL Collection Pipes to Treatment Plant

SPBA Conveyance Pipe

Former Lift Station

SPBA Control Building

N

- Monitoring Well & Designation
- Extraction Well & Designation
- Treatment System Feature
- Streams, Creeks, and Ponds
- Roads, Curbs, & Boundaries
- West Campus Boundary
- Property Boundary
- Existing Buildings
- Northeast Property Boundary Area
- Southern Property Boundary Area
- West Parking Lot (WPL) Area
- Stormwater Basin

420 210 0 420

Scale in Feet

Former York Naval Ordnance Plant

1425 Eden Road York, PA 17402

Hydro-Terra GROUP

www.hydro-terra.com

Groundwater System Operations

Groundwater Treatment System Location

drawn:	LDitzler	01/20/23	figure: 1-2
checked:	EWade	01/20/23	
approved:	RMyers	01/20/23	

J:\Harley-Davidson\Job - 2023 Groundwater System Operations Report\Maps\Report Figures.aprx

Coordinate System: NAD 1983 2011 StatePlane Pennsylvania South FIPS 3702 Ft US

FIGURE 1-3
GROUNDWATER TREATMENT SYSTEM FLOW DIAGRAM
former York Naval Ordnance Plant

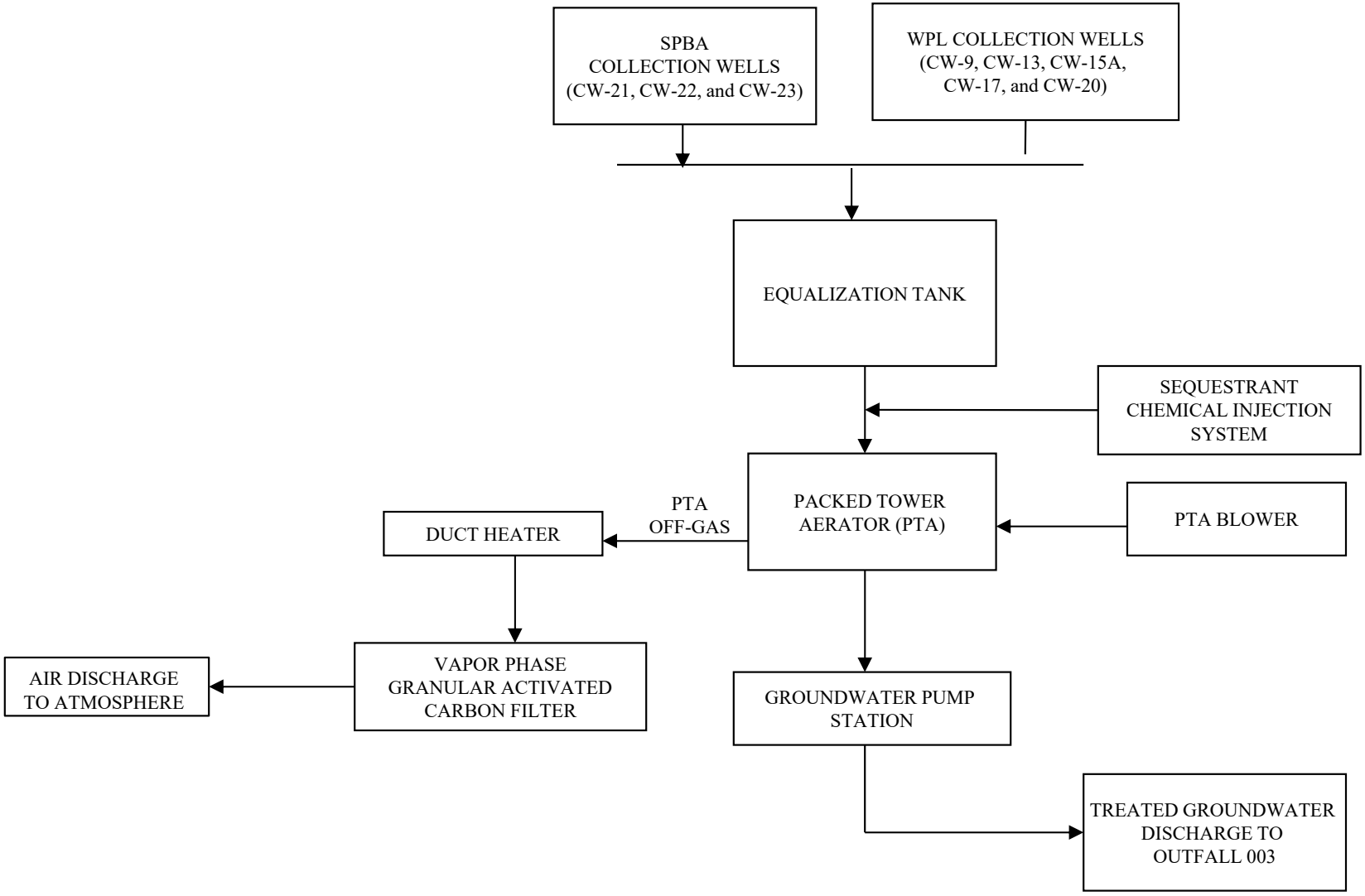
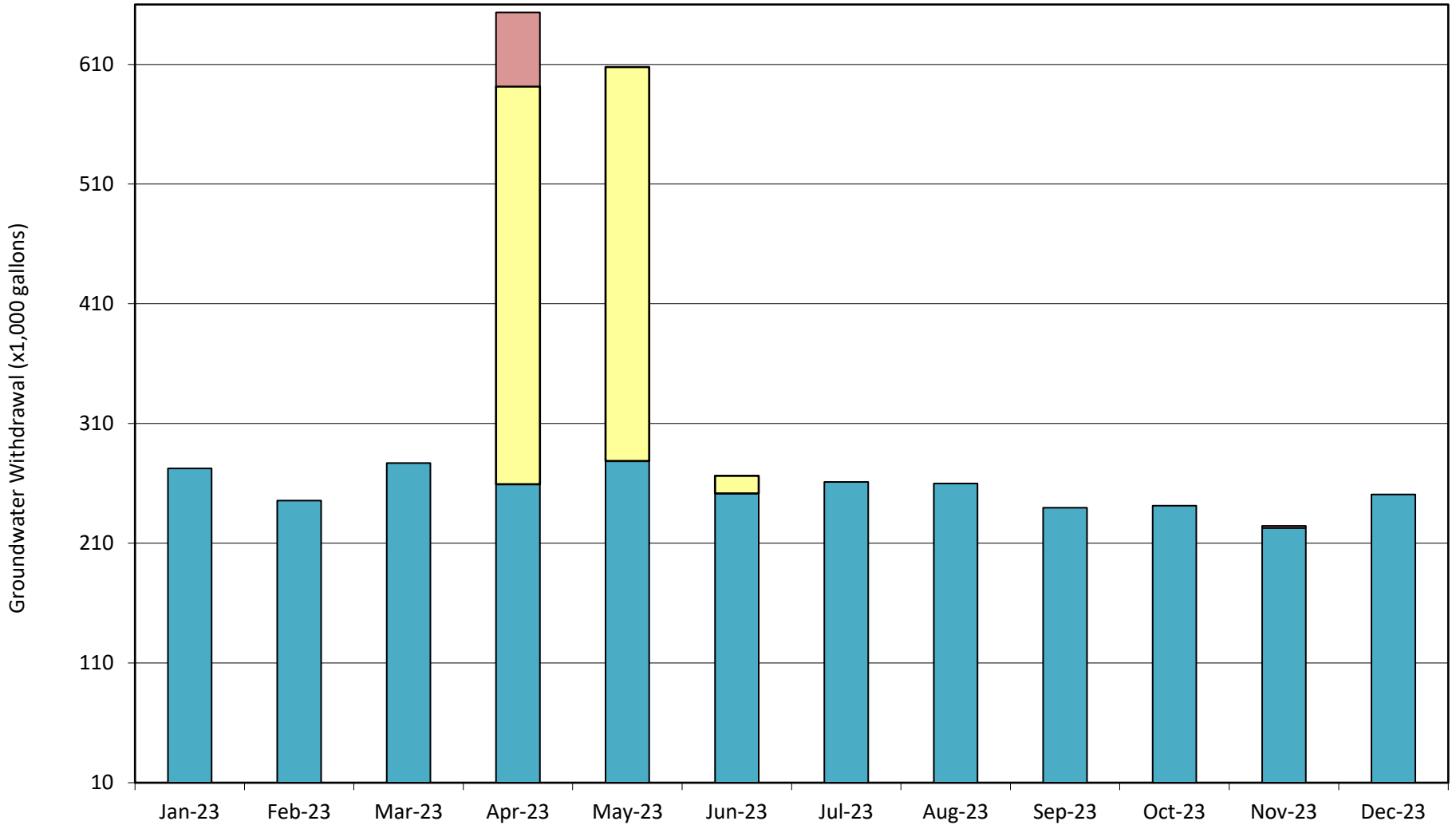


Figure 4-1
2023 Groundwater Withdrawals
Former York Naval Ordnance Plant
1425 Eden Road, York PA 17402



The WPL wells were temporarily restarted in April to complete flow meter calibration certifications.

Data represents gallons per month for each extraction area.

Figure 4-2
Packed Tower Aerator Influent Chemistry
Former York Naval Ordnance Plant
1425 Eden Road, York PA 17402

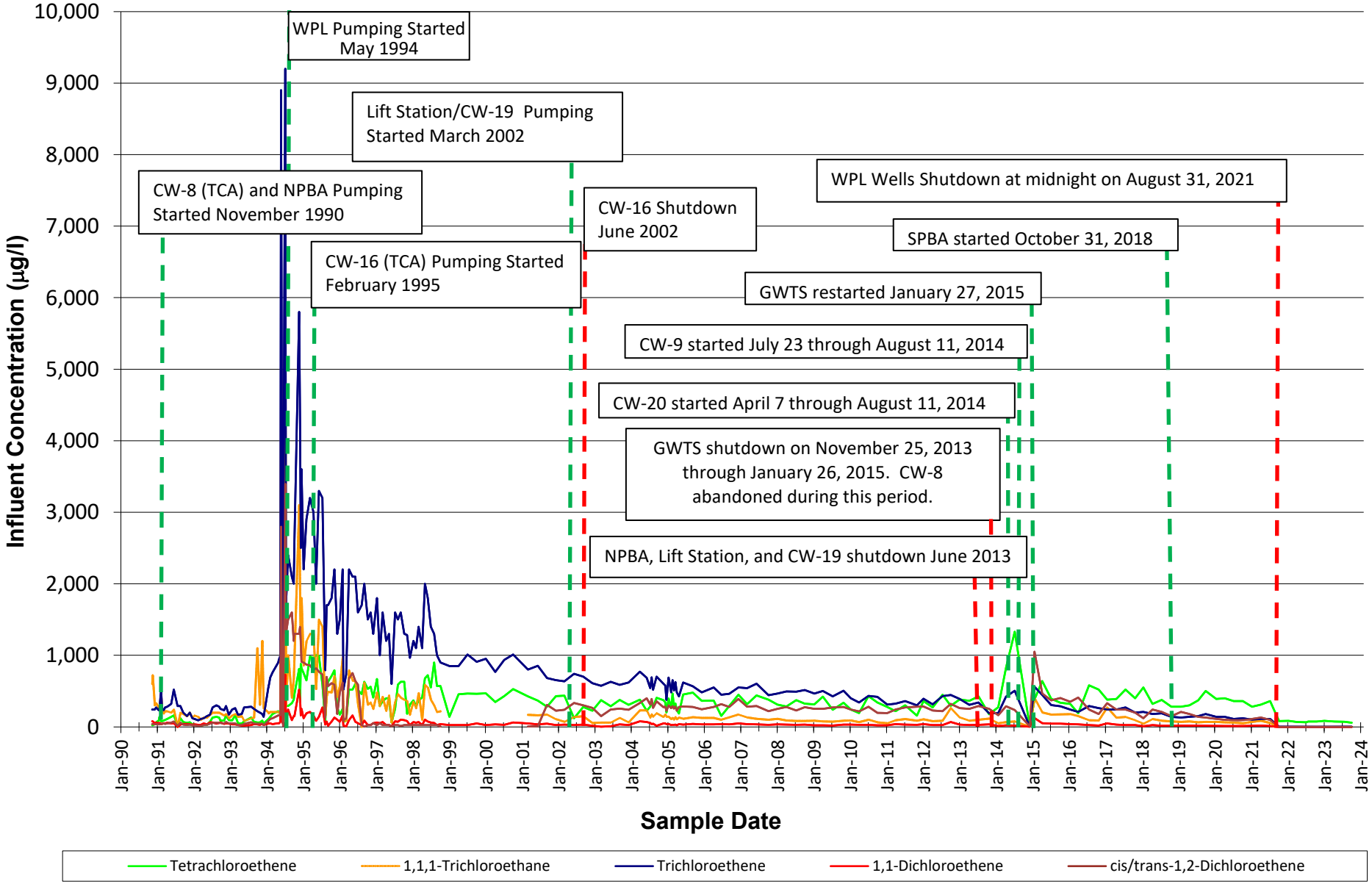


Figure 6-1
Predominate VOC Concentrations - Collection Well CW-21
Former York Naval Ordnance Plant
1425 Eden Road, York PA 17402

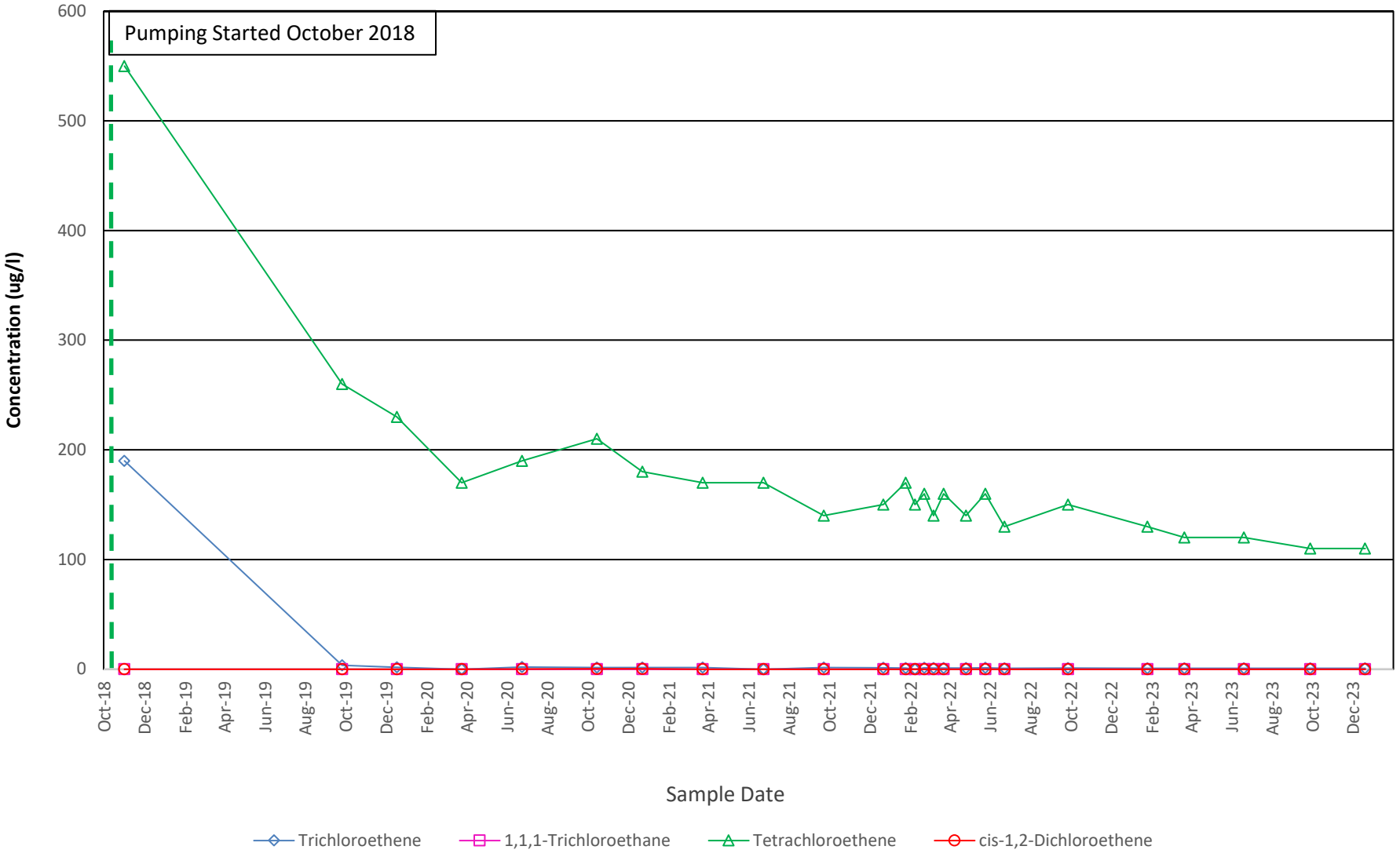


Figure 6-2
Predominate VOC Concentrations - Collection Well CW-22
Former York Naval Ordnance Plant
1425 Eden Road, York PA 17402

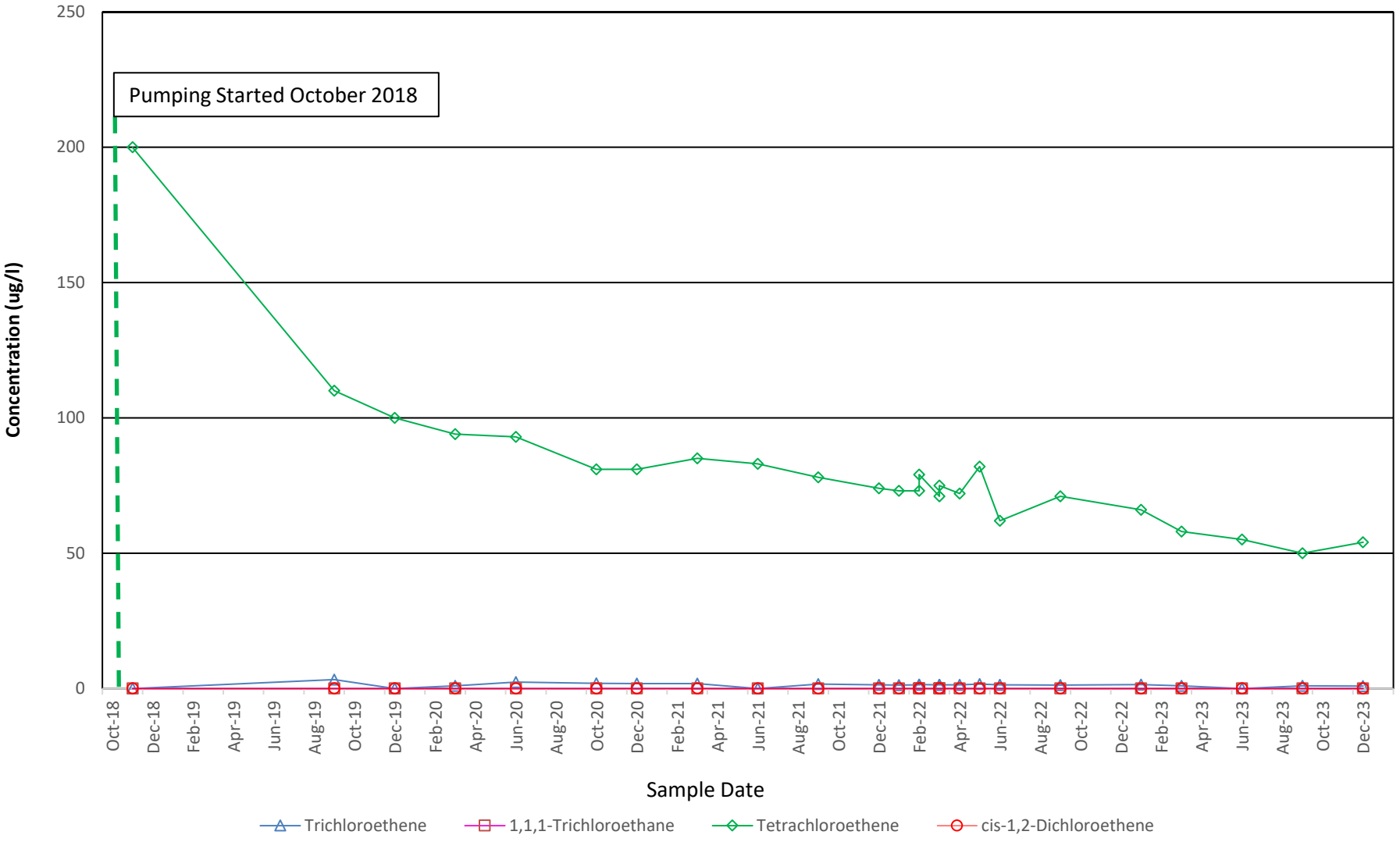
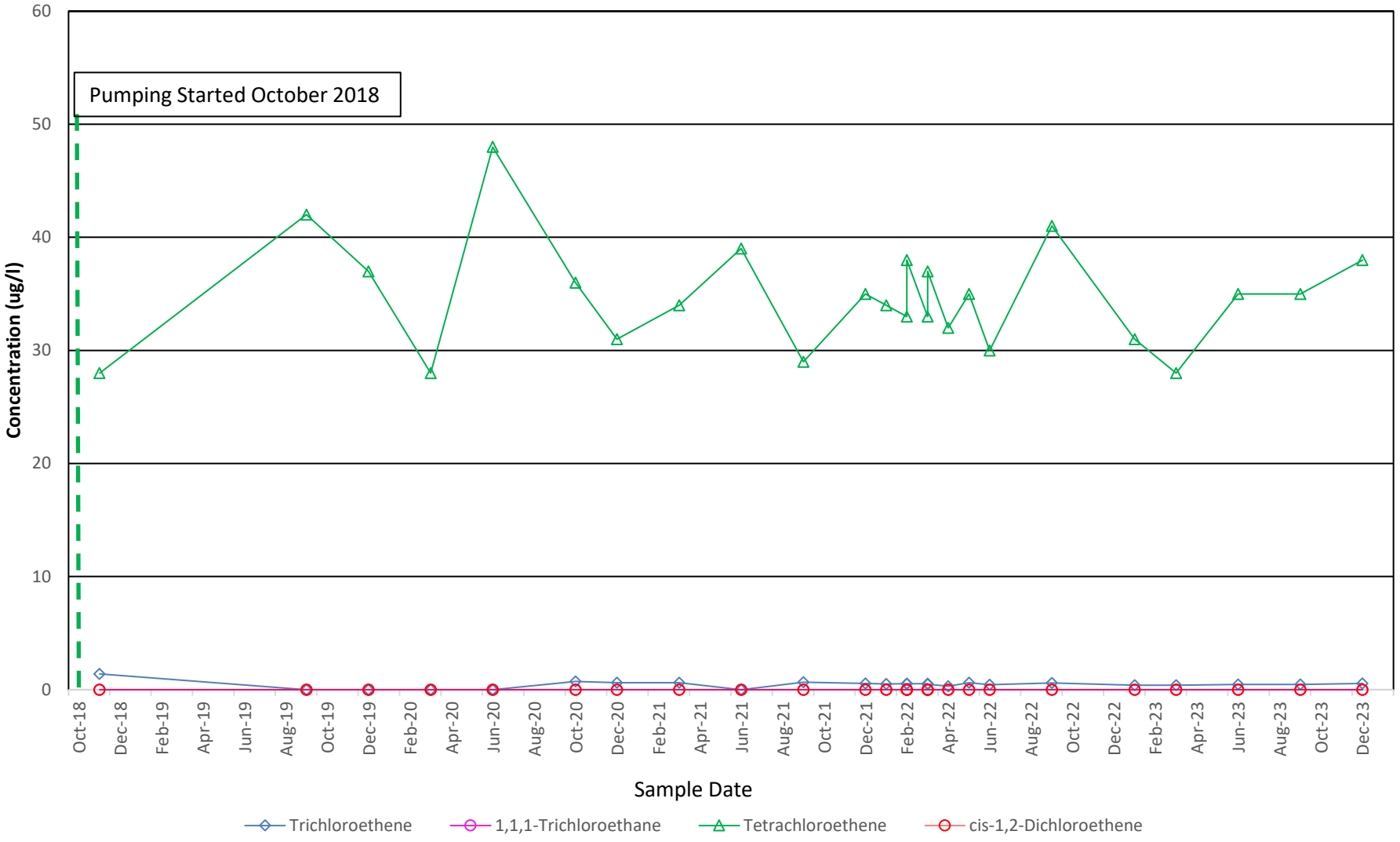


Figure 6-3
Predominate VOC Concentrations - Collection Well CW-23
Former York Naval Ordnance Plant
1425 Eden Road, York PA 17402



TABLES

TABLE 4-1
VOCs REMOVED FROM COLLECTED GROUNDWATER
Former York Naval Ordnance Plant
1425 Eden Road, York PA 17402

JANUARY 1, 2023 - DECEMBER 31, 2023				
DATE	MONTHLY GROUNDWATER WITHDRAWAL (AST Totalizer, gallons)	AVERAGE MONTHLY TOTAL VOCs (ppb)		ESTIMATED MONTHLY VOC REMOVAL (pounds)
Jan-23	268,460	83		0.19
Feb-23	250,149	83	*	0.17
Mar-23	281,403	83	*	0.20
Apr-23	567,283	74		0.35
May-23	530,602	74	*	0.33
Jun-23	265,238	74	*	0.16
Jul-23	259,934	70		0.15
Aug-23	258,789	70	*	0.15
Sep-23	240,829	70	*	0.14
Oct-23	248,051	56		0.12
Nov-23	221,628	56	*	0.10
Dec-23	246,334	56	*	0.12
TOTAL	**3,638,700**	**NA**		**2.18**

NOTES:

* - No sample collected this month; concentration is the most recent

As part of the approved Site-Wide Cleanup Plan, the collection wells in the WPL were shutdown on August 31, 2021 for attainment testing.

ANNUAL TOTALS		
YEAR	GROUNDWATER WITHDRAWAL (gallons)	ESTIMATED VOC REMOVAL (pounds)
1990 (NOV & DEC)	12,954,886	92
1991	62,458,393	357
1992	66,081,120	322
1993	72,198,940	421
1994	88,387,251	3,905
1995	141,357,856	5,572
1996	152,168,899	3,631
1997	150,246,400	2,675
1998	157,461,800	2,795
1999	133,687,100	1,464
2000	152,839,477	1,785
2001	134,557,249	1,659
2002	121,290,897	1269
2003	153,097,508	1,599
2004	140,725,167	1,786
2005	134,503,508	1,550
2006	125,192,364	1,295
2007	149,331,940	1,734
2008	155,341,655	1,560
2009	161,171,721	1,584
2010	159,042,802	1,388
2011	154,368,351	1,196
2012	153,624,656	1,519
2013	145,516,783	1,321
2014	17,300,548	262
2015	105,746,121	1,501
2016	113,974,022	1,058
2017	112,873,883	1,041
2018	121,853,402	856
2019	127,551,117	821
2020	121,622,926	694
2021	79,954,253	413
2022	3,371,466	2.06
2023	3,638,700	2.18
Total	**3,885,493,161**	**49,129**

TABLE 5-1
2023 RECORD OF GROUNDWATER WITHDRAWALS
Former York Naval Ordnance Plant
1425 Eden Road, York PA 17402

MONTH	West Parking Lot (WPL) Wells (gallons)[1]						Southern Property Boundary Area (SPBA) Wells (gallons)[2]				Miscellaneous Groundwater Treatment (gallons)	Monthly[3] TOTAL (gallons)
	CW-9	CW-13	CW-15A	CW-17	CW-20	SUBTOTAL	CW-21	CW-22	CW-23	SUBTOTAL		
Jan-23	0	0	0	0	0	0	172,453	79,112	20,956	272,521	0	272,521
Feb-23	0	0	0	0	0	0	148,347	72,797	24,517	245,661	0	245,661
Mar-23	0	0	0	0	0	0	164,253	84,742	27,960	276,955	0	276,955
Apr-23[4]	25,940	5,211	1,423	11,918	17,235	61,727	154,018	80,973	24,159	259,150	352,585	673,462
May-23	0	0	0	0	0	0	164,246	86,775	27,602	278,623	308,906	587,529
Jun-23	0	0	0	0	0	0	149,847	81,124	20,543	251,514	14,700	266,214
Jul-23	0	0	0	0	0	0	159,649	84,177	17,339	261,165	0	261,165
Aug-23	0	0	0	0	0	0	160,996	82,422	16,584	260,002	0	260,002
Sep-23	0	0	0	0	0	0	152,887	75,533	11,293	239,713	0	239,713
Oct-23	0	0	0	0	0	0	158,690	76,147	6,492	241,329	0	241,329
Nov-23[5]	0	0	0	1,728	0	1,728	148,822	70,668	3,263	222,753	0	224,481
Dec-23	0	0	0	0	0	0	162,811	77,753	10,263	250,827	0	250,827
TOTALS	25,940	5,211	1,423	13,646	17,235	63,455	1,897,019	952,223	210,971	3,060,213	676,191	3,799,859

Notes:

[1] As part of the approved Site-Wide Cleanup Plan, the collection wells in the WPL were shutdown on August 31, 2021 for attainment testing.

[2] SPBA collection wells pumping started October 31. 2018.

[3] Monthly groundwater withdrawal value from Table 4-1 differs slightly from the monthly total. The value in Table 4-1 is taken from the PTA totalizer. The monthly total is the sum of the individual well totalizers.

[4] The WPL wells were briefly restarted to certify the calibration of the flow meters to comply with Susquehanna River Basin Commission requirements.

[5] CW-17 was used to fill the Equalization Tank to test the accuracy of the new influent flow meter.

Miscellaneous Groundwater Treatment is water generated from Military Munitions Response Program remediation work.

APPENDIX A

Data Tables

Table A-1.
2023 Groundwater Data Summary - Collection Wells
Former York Naval Ordnance Plant
1425 Eden Road, York PA 17402

					SPBA Collection Wells													
Location/ID	**MSC**	**MSC**	**Federal**	**EPA RSL**	CW-21		CW-22		CW-23		CW-21		CW-22		CW-23		CW-21	
Sample Date	**UA R**	**UA NR**	**MCL**	**Tap Water**	1/25/2023		1/25/2023		1/25/2023		3/22/2023		3/22/2023		3/22/2023		6/20/2023	
Parameter	**(ug/L)**	**(ug/L)**	**(ug/L)**	**(ug/L)**		Qual		Qual		Qual		Qual		Qual		Qual		Qual
1,1,1,2-Tetrachloroethane	70	70		0.57	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,1-Trichloroethane	200	200	200	8000	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane	0.84	4.3		0.076	1	U ^c cn	1	U ^c cn	1	U ^c cn	1	U	1	U	1	U	1	U
1,1,2-Trichloroethane	5	5	5	0.28	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethane	31	160		2.8	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethene	7	7	7	280	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dibromoethane	0.05	0.05	0.05	0.0075	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichloroethane	5	5	5	0.17	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichloropropane	5	5	5	0.44	1	U	1	U	1	U	1	U	1	U	1	U	1	U
2-Butanone	4000	4000		5600	10	U ^c cn	10	U ^c cn	10	U ^c cn	10	U	10	U	10	U	10	U
2-Hexanone	63	260		38	10	U	10	U	10	U	10	U	10	U	10	U	10	U
4-Methyl-2-Pentanone	3300	9300		6300	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Acetone	38000	110000		14000	20	U ^c cn	20	U ^c cn	20	U ^c cn	4.7	J B cn	4.7	J B cn	4.8	J B cn	20	U
Benzene	5	5	5	0.46	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromochloromethane	90	90		83	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Bromodichloromethane	80	80		0.13	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromoform	80	80		3.3	4	U	4	U	4	U	4	U	4	U	4	U	4	U
Bromomethane	10	10		7.5	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Carbon Disulfide	1500	6200		810	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Carbon Tetrachloride	5	5	5	0.46	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chlorobenzene	100	100	100	78	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chlorodibromomethane	80	80		0.87	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloroethane	250	1200		21000	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloroform	80	80		0.22	0.43	J	0.72	J	0.64	J	0.44	J	0.66	J	0.72	J	0.48	J
Chloromethane	30	30		190	2	U	2	U	2	U	2	U ^c cn	2	U ^c cn	2	U ^c cn	2	U
cis-1,2-Dichloroethene	70	70	70	36	1	U	1	U	1	U	1	U	1	U	1	U	1	U
cis-1,3-Dichloropropene	7.3	34		0.47	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Ethylbenzene	700	700	700	1.5	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Methyl tert-butyl ether	20	20		14	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Methylene chloride	5	5		11	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Styrene	100	100	100	1200	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Tetrachloroethene	5	5	5	11	130		66		31		120		58		28		120	
Toluene	1000	1000	1000	1100	1	U	1	U	1	U	1	U	1	U	1	U	1	U
trans-1,2-Dichloroethene	100	100	100	360	2	U	2	U	2	U	2	U	2	U	2	U	2	U
trans-1,3-Dichloropropene	7.3	34		0.47	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Trichloroethene	5	5	5	0.49	0.8	J	1.4		0.39	J	0.69	J	0.93	J	0.39	J	0.69	J
Vinyl Chloride	2	2	2	0.019	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Xylenes (Total)	10000	10000	10000	190	1	U	1	U	1	U	1	U	1	U	1	U	1	U

U - Indicates the analyte was analyzed for but not detected.

J - Result is less than the reporting limit but greater than or equal to the method detection limit and the concentration is an approximate value.

^c - Continuing calibration verification recovery is outside acceptance limits.

cn - Refer to case narrative for further detail.

B - Analyte was found in the blank.

Table A-1.
2023 Groundwater Data Summary - Collection Wells
Former York Naval Ordnance Plant
1425 Eden Road, York PA 17402

					SPBA Collection Wells															
Location/ID **Sample Date** **Parameter**	**MSC UA R (ug/L)**	**MSC UA NR (ug/L)**	**Federal MCL (ug/L)**	**EPA RSL Tap Water (ug/L)**	CW-22 6/20/2023	Qual	CW-23 6/20/2023	Qual	CW-21 9/28/2023	Qual	CW-22 9/28/2023	Qual	CW-23 9/28/2023	Qual	CW-21 12/20/2023	Qual	CW-22 12/20/2023	Qual	CW-23 12/20/2023	Qual
1,1,1,2-Tetrachloroethane	70	70		0.57	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,1-Trichloroethane	200	200	200	8000	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane	0.84	4.3		0.076	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2-Trichloroethane	5	5	5	0.28	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethane	31	160		2.8	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethene	7	7	7	280	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dibromoethane	0.05	0.05	0.05	0.0075	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichloroethane	5	5	5	0.17	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichloropropane	5	5	5	0.44	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
2-Butanone	4000	4000		5600	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
2-Hexanone	63	260		38	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
4-Methyl-2-Pentanone	3300	9300		6300	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Acetone	38000	110000		14000	20	U	20	U	20	U ^c cn	20	U ^c cn	20	U ^c cn	20	U	20	U	20	U
Benzene	5	5	5	0.46	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromochloromethane	90	90		83	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Bromodichloromethane	80	80		0.13	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromoform	80	80		3.3	4	U	4	U	4	U	4	U	4	U	4	U	4	U	4	U
Bromomethane	10	10		7.5	1	U	1	U	1	U ^c cn	1	U ^c cn	1	U ^c cn	1	U	1	U	1	U
Carbon Disulfide	1500	6200		810	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Carbon Tetrachloride	5	5	5	0.46	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chlorobenzene	100	100	100	78	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chlorodibromomethane	80	80		0.87	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloroethane	250	1200		21000	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloroform	80	80		0.22	0.62	J	0.68	J	0.47	J	0.68	J	0.53	J	0.49	J	0.62	J	0.51	J
Chloromethane	30	30		190	2	U	2	U	2	U	2	U	2	U	1	U	1	U	1	U
cis-1,2-Dichloroethene	70	70	70	36	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
cis-1,3-Dichloropropene	7.3	34		0.47	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Ethylbenzene	700	700	700	1.5	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Methyl tert-butyl ether	20	20		14	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Methylene chloride	5	5		11	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Styrene	100	100	100	1200	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Tetrachloroethene	5	5	5	11	55		31		110		50		35		110		54		38	
Toluene	1000	1000	1000	1100	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
trans-1,2-Dichloroethene	100	100	100	360	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U
trans-1,3-Dichloropropene	7.3	34		0.47	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Trichloroethene	5	5	5	0.49	1		0.47	J	0.67	J	0.99	J	0.47	J	0.66	J	0.91	J	0.54	J
Vinyl Chloride	2	2	2	0.019	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Xylenes (Total)	10000	10000	10000	190	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U

U - Indicates the analyte was analyzed for but not detected.
J - Result is less than the reporting limit but greater than or equal to the method detection lir
^c - Continuing calibration verification recovery is outside acceptance limits.
cn - Refer to case narrative for further detail.
B - Analyte was found in the blank.

TABLE A-2

WATER QUALITY ANALYSES

2023 PACKED TOWER AERATOR SAMPLES SUMMARY

Former York Naval Ordnance Plant

1425 Eden Road, York PA 17402

Sample ID Lab ID Sample Date Parameter	Units	Outfall #003 410-110978-2 1/4/2023	Outfall #003 410-122459-2 4/12/2023	Outfall #003 410-135948-2 7/25/2023	Outfall #003 410-145225-2 10/3/2023
1,1-DICHLOROETHENE	ug/l	N.D. @0.3	N.D. @0.2	N.D. @0.3	N.D. @0.3
CIS 1,2-DICHLOROETHENE	ug/l	N.D. @ 0.2	N.D. @ 0.2	N.D. @ 0.2	N.D. @ 0.2
TETRACHLOROETHENE	ug/l	N.D. @0.3	N.D. @0.3	N.D. @0.3	N.D. @0.3
TRICHLOROETHENE	ug/l	N.D. @0.2	N.D. @0.2	N.D. @0.2	N.D. @0.2
VINYL CHLORIDE	ug/l	N.D. @0.3	N.D. @0.3	N.D. @0.4	N.D. @0.4
TOTAL VOCs	ug/l	0	0	0	0

Sample ID Lab ID Sample Date Parameter	Units	Influent to #003 [1] 410-110978-1 1/4/2023	Influent to #003 [1] 410-122459-1 4/12/2023	Influent to #003 [1] 410-135948-1 7/25/2023	Influent to #003 [1] 410-145225-1 10/3/2023
1,1,2-TRICHOLORETHANE	ug/L	N.D. @ 0.3	N.D. @ 0.3	N.D. @ 0.3	N.D. @ 0.3
1,1,1-TRICHLOROETHANE	ug/l	N.D. @ 0.3	N.D. @ 0.3	N.D. @ 0.3	N.D. @ 0.3
1,1-DICHLOROETHANE	ug/l	N.D. @ 0.3	N.D. @ 0.3	N.D. @ 0.3	N.D. @ 0.3
1,1-DICHLOROETHENE	ug/l	N.D. @ 0.3	N.D. @ 0.3	N.D. @ 0.3	N.D. @ 0.3
1,2-DICHLOROETHANE	ug/l	N.D. @ 0.3	N.D. @ 0.3	N.D. @ 0.3	N.D. @ 0.3
CHLOROBENZENE	ug/l	N.D. @ 0.3	N.D. @ 0.3	N.D. @ 0.3	N.D. @ 0.3
CHLOROFORM	ug/l	0.45 J	0.52 J	0.46 J	0.42 J
METHYLENE CHLORIDE	ug/l	N.D. @ 0.3	N.D. @ 0.3	N.D. @ 0.3	N.D. @ 0.3
TETRACHLOROETHENE	ug/l	83	74	70	56
TRICHLOROETHENE	ug/l	0.75 J	0.74 J	0.62 J	0.63 J
VINYL CHLORIDE	ug/l	N.D. @ 0.2	N.D. @ 0.2	N.D. @ 0.3	N.D. @ 0.3
CIS 1,2-DICHLOROETHENE	ug/l	N.D. @ 0.3	N.D. @ 0.3	N.D. @ 0.3	N.D. @ 0.3
TRANS 1,2-DICHLOROETHENE	ug/l	N.D. @ 0.7	N.D. @ 0.7	N.D. @ 0.7	N.D. @ 0.7
TOTAL VOCs	ug/l	83	74	70	56

Notes:

All Analysis Performed by Eurofins Lancaster Laboratories Environmental (ELLE) - Lancaster, PA

ug/l - micrograms per liter

J - Estimated value ≥ the Method Detection Limit (MDL) N.D. < the Limit of Quantitation (LOQ or RL)

N.D. @0.3 - not detected at indicated concentration

PTA Infl. - Official sample name is "influent to #003 GWTS"

PTA Effl. - Official sample name is "outfall #003 GWTS"

1 The West Parking Lot (WPL) area wells were shutdown at midnight on August 31, 2021 for testing, which is anticipated to continue for one year. The shutdown plan was approved by Pennsylvania Department of Environmental Protection (PADEP) on February 28, 2020 as part of the Land Recycling and Environmental Remediation Standards Act (Act 2) and the One Cleanup Program for this site. The West Campus/WPL pumping wells will remain off, but functional, pending completion and approval of the shutdown monitoring studies.

APPENDIX B

2023 Excel® Database Summary
Groundwater Treatment Plant Operations

Table B-1
2023
Groundwater Treatment Plant Operations Summary
Former York Naval Ordnance Plant
1425 Eden Road, York, PA 17402

Date	AST Blower Cycles	AST Blower Hours	AST Pump Cycles	AST Pump Hours	Discharge Flow (gallons)	Influent pH (S.U.)	GWTS KWH	Effluent Pump P1 Cycles	Effluent Pump P2 Cycles	Effluent Pump P1 Hours	Effluent Pump P2 Hours
1/1/2023	7	1.3	7	0.9	8660	7.26	451	3	3	0.4	0.5
1/2/2023	7	1.3	7	0.9	8660	7.26	451	3	3	0.4	0.5
1/3/2023	7	1.3	7	0.9	8660	7.26	451	3	3	0.4	0.5
1/4/2023	7	1.3	7	0.9	8660	7.26	451	3	3	0.4	0.5
1/5/2023	7	1.3	7	0.9	8660	7.26	451	3	3	0.4	0.5
1/6/2023	7	1.3	7	0.9	8660	7.26	451	3	3	0.4	0.5
1/7/2023	7	1.3	7	0.9	8660	7.26	451	3	3	0.4	0.5
1/8/2023	7	1.3	7	0.9	8660	7.26	451	3	3	0.4	0.5
1/9/2023	7	1.3	7	0.9	8660	7.26	451	3	3	0.4	0.5
1/10/2023	7	1.3	7	0.9	8660	7.26	451	3	3	0.4	0.5
1/11/2023	7	1.3	7	0.9	8660	7.26	451	3	3	0.4	0.5
1/12/2023	7	1.3	7	0.9	8660	7.26	451	3	3	0.4	0.5
1/13/2023	7	1.3	7	0.9	8660	7.26	451	3	3	0.4	0.5
1/14/2023	7	1.3	7	0.9	8660	7.26	451	3	3	0.4	0.5
1/15/2023	7	1.3	7	0.9	8660	7.26	451	3	3	0.4	0.5
1/16/2023	7	1.3	7	0.9	8660	7.26	451	3	3	0.4	0.5
1/17/2023	7	1.3	7	0.9	8660	7.26	451	3	3	0.4	0.5
1/18/2023	7	1.3	7	0.9	8660	7.26	451	3	3	0.4	0.5
1/19/2023	7	1.3	7	0.9	8660	7.26	451	3	3	0.4	0.5
1/20/2023	7	1.3	7	0.9	8660	7.26	451	3	3	0.4	0.5
1/21/2023	7	1.3	7	0.9	8660	7.26	451	3	3	0.4	0.5
1/22/2023	7	1.3	7	0.9	8660	7.26	451	3	3	0.4	0.5
1/23/2023	7	1.3	7	0.9	8660	7.26	451	3	3	0.4	0.5
1/24/2023	7	1.3	7	0.9	8660	7.26	451	3	3	0.4	0.5
1/25/2023	7	1.3	7	0.9	8660	7.26	451	3	3	0.4	0.5
1/26/2023	7	1.3	7	0.9	8660	7.26	451	3	3	0.4	0.5
1/27/2023	7	1.3	7	0.9	8660	7.26	451	3	3	0.4	0.5
1/28/2023	7	1.3	7	0.9	8660	7.26	451	3	3	0.4	0.5
1/29/2023	7	1.3	7	0.9	8660	7.26	451	3	3	0.4	0.5
1/30/2023	7	1.3	7	0.9	8660	7.26	451	3	3	0.4	0.5
1/31/2023	7	1.3	7	0.9	8660	7.26	451	3	3	0.4	0.5
2/1/2023	8	1.5	8	1.1	9838	7.26	526	4	4	0.6	0.5
2/2/2023	7	1.4	7	1.1	8812	7.26	526	4	3	0.4	0.4
2/3/2023	7	1.4	7	1	8809	7.26	646	3	4	0.4	0.6
2/4/2023	8	1.6	8	1.1	10062	7.26	602	4	4	0.5	0.6
2/5/2023	7	1.4	7	1	8811	7.26	359	4	3	0.5	0.5
2/6/2023	7	1.4	7	1	8799	7.26	451	3	4	0.4	0.6
2/7/2023	7	1.4	7	1	8801	7.26	369	4	3	0.6	0.4
2/8/2023	8	1.6	8	1.1	10055	7.26	374	4	4	0.5	0.6
2/9/2023	7	1.4	7	1	8801	7.26	244	3	4	0.4	0.6
2/10/2023	7	1.4	7	1	8796	7.26	260	4	3	0.6	0.5
2/11/2023	7	1.4	7	1	8797	7.26	396	3	4	0.4	0.5
2/12/2023	8	1.6	8	1.1	10062	7.26	426	4	4	0.5	0.6
2/13/2023	7	1.4	7	1	8803	7.26	280	4	3	0.5	0.5
2/14/2023	7	1.3	7	1	8796	7.26	241	3	4	0.4	0.6
2/15/2023	7	1.4	7	1	8794	7.26	193	4	3	0.6	0.4
2/16/2023	7	1.4	7	1	8795	7.26	212	3	4	0.4	0.6
2/17/2023	8	1.6	8	1.2	10046	7.26	427	4	4	0.5	0.6
2/18/2023	7	1.4	7	1	8790	7.26	465	4	3	0.5	0.5
2/19/2023	7	1.4	7	0.9	8795	7.26	251	3	4	0.4	0.6
2/20/2023	7	1.4	7	1	8803	7.26	223	4	3	0.6	0.4
2/21/2023	7	1.4	7	1	8800	7.26	294	3	4	0.4	0.6
2/22/2023	6	1	5	0.7	6282	7.26	326	3	2	0.4	0.3
2/23/2023	6	1.2	6	0.9	7745	7.26	195	3	3	0.4	0.5
2/24/2023	8	1.6	8	1.2	10067	7.26	358	4	4	0.5	0.5
2/25/2023	7	1.4	7	1	8804	7.26	538	3	4	0.7	0.6
2/26/2023	7	1.2	7	0.9	7991	7.26	247	3	3	0.1	0.5
2/27/2023	7	1.6	7	1	9605	7.26	424	4	4	0.6	0.6
2/28/2023	7	1.4	7	1	8790	7.26	395	4	3	0.5	0.4
3/1/2023	7	1.4	7	1	8959	7.26	364	3	3	0.5	0.5
3/2/2023	7	1.4	7	1	8959	7.22	364	4	4	0.5	0.4
3/3/2023	7	1.4	7	1.02	9128	6.94	333	3	3	0.5	0.5
3/4/2023	7	1.4	7	1.03	9128	6.94	333	3	3	0.5	0.5

Table B-1
2023
Groundwater Treatment Plant Operations Summary
Former York Naval Ordnance Plant
1425 Eden Road, York, PA 17402

Date	AST Blower Cycles	AST Blower Hours	AST Pump Cycles	AST Pump Hours	Discharge Flow (gallons)	Influent pH (S.U.)	GWTS KWH	Effluent Pump P1 Cycles	Effluent Pump P2 Cycles	Effluent Pump P1 Hours	Effluent Pump P2 Hours
3/5/2023	8	1.4	8	1.04	9128	6.94	334	4	4	0.5	0.5
3/6/2023	7	1.5	7	1.03	9128	6.94	333	3	3	0.5	0.5
3/7/2023	21	1.3	7	0.9	8417	7.28	314	3	4	0.3	0.5
3/8/2023	8	1.5	8	1.1	10075	6.96	379	4	4	0.5	0.5
3/9/2023	7	1.3	7	0.9	8816	7.17	342	4	3	0.5	0.4
3/10/2023	7	1.3	7	0.9	8832	7.27	495	3	4	0.4	0.5
3/11/2023	8	1.5	8	1.1	10087	7.03	509	4	4	0.5	0.5
3/12/2023	7	1.3	7	0.9	8825	7.03	412	4	3	0.5	0.4
3/13/2023	7	1.3	7	0.9	8827	7.18	349	3	4	0.4	0.5
3/14/2023	7	1.3	7	0.9	8829	7.29	476	4	3	0.5	0.4
3/15/2023	8	1.5	8	1.1	10076	6.96	371	4	4	0.5	0.5
3/16/2023	7	1.3	7	0.9	8808	7.14	296	3	4	0.3	0.5
3/17/2023	7	1.3	7	0.9	8824	7.22	200	4	3	0.5	0.4
3/18/2023	9	1.4	8	0.9	8529	7.25	112	1	6	0.1	0.8
3/19/2023	8	1.5	8	1.1	9769	7.08	112	8	1	0.9	0
3/20/2023	7	1.3	7	0.9	8810	7.15	112	7	0	0.9	0
3/21/2023	7	1.3	7	0.9	8809	7.14	112	4	3	0.5	0.4
3/22/2023	7	1.3	7	0.9	8801	7.22	112	4	3	0.5	0.4
3/23/2023	7	1.3	7	0.9	8801	7.26	112	3	4	0.4	0.5
3/24/2023	7	1.3	7	0.9	8769	7.08	112	4	3	0.5	0.4
3/25/2023	7	1.3	7	0.9	8830	7.31	112	3	4	0.4	0.5
3/26/2023	8	1.5	8	1.1	10079	7.15	112	4	4	0.5	0.5
3/27/2023	7	1.3	7	0.9	8817	7.26	112	4	3	0.5	0.4
3/28/2023	8	1.5	8	1.1	10104	7.15	112	4	4	0.5	0.5
3/29/2023	7	1.3	7	0.9	8812	7.24	112	3	4	0.3	0.5
3/30/2023	7	1.3	7	0.9	8809	7.30	112	4	3	0.5	0.4
3/31/2023	7	1.3	7	0.9	8818	7.32	112	3	4	0.3	0.5
4/1/2023	8	1.5	8	1.1	10072	7.16	116	4	4	0.5	0.5
4/2/2023	7	1.3	7	0.9	8816	7.27	116	4	3	0.5	0.4
4/3/2023	7	1.3	7	0.9	8797	7.30	111	3	4	0.3	0.5
4/4/2023	8	1.4	7	0.9	8762	7.27	113	4	3	0.5	0.4
4/5/2023	7	1.3	7	0.9	8799	7.34	105	3	4	0.3	0.5
4/6/2023	11	4.9	11	4.3	53478	7.26	302	4	4	6.1	0.6
4/7/2023	7	1.3	7	0.9	8792	7.38	116	4	3	0.5	0.4
4/8/2023	7	1.3	7	0.9	8796	7.38	118	3	4	0.4	0.5
4/9/2023	7	1.3	7	0.9	8798	7.41	114	4	3	0.5	0.4
4/10/2023	7	1.3	7	0.9	8784	7.38	111	3	4	0.4	0.5
4/11/2023	7	1.3	7	0.9	8786	7.38	110	4	3	0.5	0.4
4/12/2023	7	1.3	7	0.9	8697	7.36	107	3	4	0.3	0.5
4/13/2023	19	3.6	17	2.6	24021	5.90	200	9	8	1.2	1.3
4/14/2023	26	5.4	26	4	35807	6.23	217	13	12	1.9	1.9
4/15/2023	21	4.3	21	3.1	28342	6.48	234	10	11	1.4	1.7
4/16/2023	19	4	19	2.9	26108	6.47	221	10	9	1.4	1.4
4/17/2023	18	3.7	18	2.7	24545	6.63	211	9	9	1.2	1.4
4/18/2023	18	3.7	18	2.7	24416	6.56	209	9	9	1.2	1.3
4/19/2023	17	3.5	17	2.5	22959	6.52	202	8	9	1.1	1.3
4/20/2023	16	3.3	16	2.4	21529	6.54	197	8	8	1.1	1.2
4/21/2023	16	3.3	16	2.4	21493	6.53	195	8	8	1.1	1.2
4/22/2023	16	3.3	16	2.4	21457	6.63	196	8	8	1.1	1.2
4/23/2023	16	3.3	16	2.3	21390	6.65	195	8	8	1.1	1.2
4/24/2023	16	3.2	16	2.3	21159	6.57	188	8	8	1.1	1.1
4/25/2023	16	3.1	15	2.2	19972	6.62	185	8	8	1.1	1.1
4/26/2023	15	3	15	2.2	19998	6.66	196	7	8	0.9	1.2
4/27/2023	15	3	15	2.2	19940	6.64	192	8	7	1.1	1
4/28/2023	15	3	15	2.2	19921	6.65	203	7	8	0.9	1.2
4/29/2023	16	3.3	16	2.3	21344	6.58	201	8	8	1.1	1.2
4/30/2023	16	3.3	16	2.4	21505	6.61	204	8	8	1.1	1.2
5/1/2023	18	3.7	18	2.7	24468	6.56	217	9	9	1.2	1.3
5/2/2023	18	3.7	18	2.7	24548	6.60	224	9	9	1.2	1.3
5/3/2023	19	4	19	2.9	26135	6.48	222	10	9	1.4	1.3
5/4/2023	19	3.8	19	2.8	25266	6.46	214	9	9	1.2	1.3
5/5/2023	19	3.8	19	2.8	25170	6.55	15	9	10	1.2	1.5
5/6/2023	20	3.9	20	2.9	26039	6.51	4	10	9	1.4	1.3

Table B-1
2023
Groundwater Treatment Plant Operations Summary
Former York Naval Ordnance Plant
1425 Eden Road, York, PA 17402

Date	AST Blower Cycles	AST Blower Hours	AST Pump Cycles	AST Pump Hours	Discharge Flow (gallons)	Influent pH (S.U.)	GWTS KWH	Effluent Pump P1 Cycles	Effluent Pump P2 Cycles	Effluent Pump P1 Hours	Effluent Pump P2 Hours
5/7/2023	20	4	20	2.9	26412	6.43	224	10	10	1.2	1.5
5/8/2023	20	4	20	2.9	26306	6.40	218	10	10	1.3	1.5
5/9/2023	18	3.85	18	2.8	25368	6.54	218	9	9	1.3	1.5
5/10/2023	19	3.85	19	2.8	25369	6.54	218	10	10	1.3	1.5
5/11/2023	20	4.2	20	3	27546	6.37	223	10	10	1.4	1.5
5/12/2023	19	3.8	19	2.8	25369	6.27	210	9	9	1.2	1.3
5/13/2023	19	3.8	19	2.7	24879	6.40	210	9	10	1.2	1.5
5/14/2023	17	3.5	17	2.5	23124	6.58	203	9	8	1.2	1.2
5/15/2023	13	2.6	13	1.9	17258	7.08	158	6	7	0.8	1
5/16/2023	7	1.3	7	0.9	8719	7.23	110	8	1	0.8	0.1
5/17/2023	7	1.3	7	0.9	8804	7.34	100	4	3	0.5	0.4
5/18/2023	7	1.3	7	0.9	8831	7.34	98	4	3	0.5	0.4
5/19/2023	7	1.3	7	0.9	8811	7.37	98	3	4	0.4	0.6
5/20/2023	8	1.5	8	1.1	10063	7.19	105	4	4	0.5	0.6
5/21/2023	7	1.3	7	0.9	8796	7.25	101	4	3	0.5	0.4
5/22/2023	7	1.3	7	0.9	8798	7.27	102	3	4	0.4	0.6
5/23/2023	7	1.3	7	0.9	8794	7.32	100	4	3	0.5	0.4
5/24/2023	7	1.3	7	0.9	8800	7.31	101	3	4	0.4	0.6
5/25/2023	7	1.3	7	0.9	8798	7.41	99	4	3	0.5	0.4
5/26/2023	7	1.3	7	0.9	8784	7.37	99	3	4	0.4	0.5
5/27/2023	7	1.3	7	0.9	8781	7.33	102	4	3	0.5	0.4
5/28/2023	7	1.3	7	0.9	8794	7.34	102	3	4	0.4	0.5
5/29/2023	7	1.3	7	0.9	8775	7.29	103	4	3	0.5	0.4
5/30/2023	17	3.6	17	2.7	24199	7.38	178	8	9	1.2	1.4
5/31/2023	7	1.3	7	0.9	8798	7.40	104	4	3	0.5	0.4
6/1/2023	11	2	11	1.4	13136	7.14	85	5	5	0.7	0.7
6/2/2023	10	1.9	10	1.4	12502	7.33	86	4	5	0.5	0.8
6/3/2023	7	1.3	7	0.9	8796	7.03	69	4	3	0.5	0.4
6/4/2023	7	1.3	7	0.9	8777	7.07	67	3	4	0.4	0.5
6/5/2023	10	2	10	1.5	13488	7.31	84	5	5	0.7	0.7
6/6/2023	8	1.5	8	1.1	10243	7.20	71	4	4	0.5	0.6
6/7/2023	6	1.1	6	0.8	7524	7.43	62	3	3	0.4	0.4
6/8/2023	7	1.3	7	0.9	8775	7.36	66	4	3	0.5	0.4
6/9/2023	7	1.3	7	0.9	8772	7.35	66	3	4	0.4	0.5
6/10/2023	6	1.1	6	0.8	7523	7.37	64	3	3	0.4	0.4
6/11/2023	7	1.3	7	0.9	8768	7.28	69	4	3	0.5	0.4
6/12/2023	7	1.3	7	0.9	8769	7.31	66	3	4	0.4	0.5
6/13/2023	7	1.3	7	0.9	8758	7.15	66	4	3	0.5	0.4
6/14/2023	6	1.1	6	0.8	7514	7.43	61	3	3	0.4	0.4
6/15/2023	7	1.3	7	0.9	8760	7.32	67	3	4	0.4	0.5
6/16/2023	7	1.3	7	0.9	8759	7.19	65	4	3	0.4	0.4
6/17/2023	7	1.1	6	0.8	7516	7.36	63	4	3	0.4	0.4
6/18/2023	7	1.3	7	0.9	8757	7.21	68	3	4	0.4	0.5
6/19/2023	6	1.1	6	0.8	7513	7.34	64	3	3	0.4	0.4
6/20/2023	10	1.6	8	1	9176	7.09	66	4	4	0.5	0.4
6/21/2023	6	0.8	5	0.5	5012	7.30	46	2	3	0.2	0.3
6/22/2023	7	1.3	7	0.9	8798	7.45	82	4	3	0.5	0.4
6/23/2023	7	1.3	7	0.9	8774	7.38	83	3	4	0.4	0.5
6/24/2023	7	1.3	7	0.9	8768	7.21	86	4	3	0.5	0.4
6/25/2023	7	1.3	7	0.9	8766	6.93	88	3	4	0.4	0.5
6/26/2023	6	1.1	6	0.8	7512	7.32	86	3	3	0.4	0.4
6/27/2023	7	1.3	7	0.9	8767	7.22	91	4	3	0.5	0.4
6/28/2023	7	1.3	7	0.9	8758	7.22	85	3	4	0.4	0.5
6/29/2023	6	1.1	6	0.8	7505	7.37	84	3	3	0.4	0.4
6/30/2023	7	1.3	7	0.9	8752	7.32	86	4	3	0.5	0.4
7/1/2023	7	1.3	7	0.9	8761	7.20	87	3	4	0.4	0.5
7/2/2023	6	1.1	6	0.8	7508	7.33	86	3	3	0.4	0.4
7/3/2023	7	1.3	7	0.9	8780	7.21	94	4	3	0.5	0.4
7/4/2023	7	1.3	7	0.9	8764	7.10	92	3	4	0.4	0.5
7/5/2023	7	1.1	7	0.8	7607	6.93	92	3	3	0.4	0.4
7/6/2023	7	1.3	7	0.9	8313	7.28	91	4	3	0.5	0.4
7/7/2023	7	1.3	7	0.9	8762	6.92	91	3	4	0.4	0.5
7/8/2023	6	1.1	6	0.8	7503	7.28	90	3	3	0.4	0.4

Table B-1
2023
Groundwater Treatment Plant Operations Summary
Former York Naval Ordnance Plant
1425 Eden Road, York, PA 17402

Date	AST Blower Cycles	AST Blower Hours	AST Pump Cycles	AST Pump Hours	Discharge Flow (gallons)	Influent pH (S.U.)	GWTS KWH	Effluent Pump P1 Cycles	Effluent Pump P2 Cycles	Effluent Pump P1 Hours	Effluent Pump P2 Hours
7/9/2023	7	1.3	7	0.9	8750	7.30	89	4	3	0.5	0.4
7/10/2023	7	1.3	7	0.9	8755	7.04	88	3	4	0.4	0.5
7/11/2023	7	1.1	6	0.8	7509	7.35	88	3	4	0.4	0.4
7/12/2023	7	1.3	7	0.9	8761	7.24	93	4	3	0.5	0.4
7/13/2023	7	1.3	7	0.9	8753	7.07	94	3	4	0.4	0.5
7/14/2023	6	1.1	6	0.8	7508	7.41	90	3	3	0.4	0.4
7/15/2023	7	1.3	7	0.9	8764	7.28	93	4	3	0.5	0.4
7/16/2023	7	1.3	7	0.9	8764	7.22	90	3	4	0.4	0.5
7/17/2023	6	1.1	6	0.8	7516	7.39	88	3	3	0.4	0.4
7/18/2023	7	1.3	7	0.9	8763	7.33	91	4	3	0.5	0.4
7/19/2023	7	1.3	7	0.9	8761	7.23	91	3	4	0.4	0.5
7/20/2023	6	1.1	6	0.8	7513	7.40	87	3	3	0.4	0.4
7/21/2023	7	1.3	7	0.9	8551	7.42	89	4	3	0.5	0.4
7/22/2023	7	1.3	7	0.9	8772	7.35	90	3	4	0.3	0.5
7/23/2023	7	1.3	7	0.9	8765	7.22	91	4	3	0.5	0.4
7/24/2023	6	1.1	6	0.8	7513	7.44	87	3	3	0.4	0.4
7/25/2023	7	1.3	7	0.9	8766	7.37	92	3	4	0.4	0.5
7/26/2023	8	1.4	8	0.9	8852	7.24	96	4	3	0.4	0.4
7/27/2023	7	1.3	7	0.9	8767	7.08	94	3	4	0.4	0.5
7/28/2023	6	1.1	6	0.8	7511	7.32	91	3	3	0.4	0.4
7/29/2023	7	1.3	7	0.9	8773	7.29	92	4	3	0.5	0.4
7/30/2023	7	1.3	7	0.9	8774	7.32	91	3	4	0.4	0.5
7/31/2023	7	1.3	7	0.9	8775	7.27	91	4	3	0.5	0.4
8/1/2023	7	1.3	7	0.9	8757	7.25	91	3	4	0.4	0.5
8/2/2023	6	1.1	6	0.8	7544	7.39	86	3	3	0.4	0.4
8/3/2023	7	1.3	7	0.9	8768	7.40	89	4	3	0.5	0.4
8/4/2023	7	1.3	7	0.9	8764	7.36	89	3	4	0.4	0.5
8/5/2023	7	1.3	7	0.9	8797	7.20	90	4	3	0.5	0.4
8/6/2023	7	1.3	7	0.9	8769	7.10	91	3	4	0.4	0.5
8/7/2023	7	1.2	7	0.9	8246	7.14	88	3	3	0.4	0.4
8/8/2023	7	1.2	7	0.8	7717	7.43	87	4	3	0.5	0.4
8/9/2023	7	1.3	7	0.9	8767	7.37	90	3	4	0.4	0.5
8/10/2023	7	1.3	7	0.9	8774	7.37	87	4	3	0.5	0.4
8/11/2023	7	1.3	7	0.9	8772	7.31	90	3	4	0.4	0.5
8/12/2023	7	1.3	7	0.9	8769	7.08	92	4	3	0.5	0.4
8/13/2023	6	1.1	6	0.8	7511	7.36	89	3	3	0.4	0.4
8/14/2023	7	1.3	7	0.9	8764	7.35	90	3	4	0.4	0.5
8/15/2023	7	1.3	7	0.9	8773	7.21	93	4	3	0.5	0.4
8/16/2023	6	1.1	6	0.8	7507	7.43	88	3	3	0.4	0.4
8/17/2023	7	1.3	7	0.9	8753	7.33	94	3	4	0.4	0.5
8/18/2023	7	1.3	7	0.9	8757	7.31	89	4	3	0.5	0.4
8/19/2023	6	1.1	6	0.8	7506	7.41	84	3	3	0.3	0.4
8/20/2023	7	1.3	7	0.9	8753	7.31	90	3	4	0.3	0.5
8/21/2023	6	1.1	6	0.8	7501	7.42	87	3	3	0.4	0.4
8/22/2023	7	1.3	7	0.9	8755	7.38	89	4	3	0.5	0.4
8/23/2023	7	1.3	7	0.9	8752	7.18	88	3	4	0.3	0.5
8/24/2023	6	1.1	6	0.8	7504	7.40	84	3	3	0.3	0.4
8/25/2023	7	1.3	7	0.9	8749	7.15	89	4	3	0.5	0.4
8/26/2023	6	1.1	6	0.8	7506	7.37	87	3	3	0.4	0.4
8/27/2023	7	1.3	7	0.9	8754	7.11	91	3	4	0.4	0.5
8/28/2023	6	1.1	6	0.8	7503	7.41	84	3	3	0.4	0.4
8/29/2023	7	1.3	7	0.9	8747	7.21	87	4	3	0.5	0.4
8/30/2023	6	1.1	6	0.8	7497	7.43	87	3	3	0.3	0.4
8/31/2023	7	1.3	7	0.9	8753	7.27	86	3	4	0.3	0.5
9/1/2023	6	1.1	6	0.8	7492	7.45	84	3	3	0.3	0.4
9/2/2023	6	1.1	6	0.8	7499	7.45	87	3	3	0.3	0.4
9/3/2023	7	1.3	7	0.9	8752	7.25	93	4	3	0.5	0.4
9/4/2023	6	1.1	6	0.8	7509	7.35	90	3	3	0.3	0.4
9/5/2023	7	1.3	7	0.9	8753	7.14	93	3	4	0.4	0.5
9/6/2023	6	1.1	6	0.8	7499	7.35	90	3	3	0.4	0.4
9/7/2023	7	1.3	7	0.9	8746	7.09	91	4	3	0.5	0.4
9/8/2023	6	1.1	6	0.8	7499	7.39	86	3	3	0.4	0.4
9/9/2023	6	1.1	6	0.8	7492	7.47	88	3	3	0.3	0.4

Table B-1
2023
Groundwater Treatment Plant Operations Summary
Former York Naval Ordnance Plant
1425 Eden Road, York, PA 17402

Date	AST Blower Cycles	AST Blower Hours	AST Pump Cycles	AST Pump Hours	Discharge Flow (gallons)	Influent pH (S.U.)	GWTS KWH	Effluent Pump P1 Cycles	Effluent Pump P2 Cycles	Effluent Pump P1 Hours	Effluent Pump P2 Hours
9/10/2023	7	1.3	7	0.9	8752	7.23	88	3	4	0.3	0.5
9/11/2023	6	1.1	6	0.8	7494	7.32	84	3	3	0.3	0.4
9/12/2023	7	1.3	7	0.9	8764	6.99	91	4	3	0.5	0.4
9/13/2023	6	1.1	6	0.8	7502	7.42	85	3	3	0.3	0.4
9/14/2023	6	1.1	6	0.8	7498	7.40	84	3	3	0.3	0.4
9/15/2023	7	1.3	7	0.9	8744	7.43	86	3	4	0.3	0.5
9/16/2023	6	1.1	6	0.8	7501	7.61	84	3	3	0.3	0.4
9/17/2023	6	1.1	6	0.8	7502	7.63	80	3	3	0.3	0.4
9/18/2023	7	1.3	7	0.9	8740	7.59	83	4	3	0.5	0.4
9/19/2023	6	1.1	6	0.8	7499	7.56	81	3	3	0.3	0.4
9/20/2023	7	1.3	7	0.9	8740	7.58	85	3	4	0.3	0.5
9/21/2023	6	1.1	6	0.8	7499	7.55	83	3	3	0.3	0.4
9/22/2023	6	1.1	6	0.8	7502	7.64	81	3	3	0.3	0.4
9/23/2023	7	1.3	7	0.9	8750	7.76	82	4	3	0.5	0.4
9/24/2023	6	1.1	6	0.8	7507	7.75	78	3	3	0.4	0.4
9/25/2023	7	1.3	7	0.9	8746	7.76	82	3	4	0.3	0.5
9/26/2023	6	1.1	6	0.8	7502	7.74	92	3	3	0.3	0.4
9/27/2023	7	1.3	7	0.9	8332	7.70	102	4	3	0.5	0.3
9/28/2023	7	1.3	7	0.9	8760	7.67	107	3	4	0.3	0.5
9/29/2023	7	1.3	7	0.9	8759	7.62	102	4	3	0.5	0.4
9/30/2023	6	1.1	6	0.8	7495	7.59	96	3	3	0.3	0.4
10/1/2023	7	1.3	7	0.9	8748	7.45	103	3	4	0.3	0.5
10/2/2023	6	1.1	6	0.8	7506	7.50	96	3	3	0.3	0.4
10/3/2023	7	1.3	7	0.9	8792	7.29	106	4	5	0.5	0.4
10/4/2023	7	1.3	7	0.9	8753	7.28	101	3	4	0.4	0.6
10/5/2023	6	1.1	6	0.8	7493	7.45	96	3	3	0.4	0.5
10/6/2023	6	1.1	6	0.8	7498	7.60	95	3	3	0.4	0.5
10/7/2023	7	1.3	7	0.9	8750	7.65	104	4	3	0.5	0.4
10/8/2023	6	1.1	6	0.8	7493	7.75	103	3	3	0.4	0.4
10/9/2023	7	1.3	7	0.9	8744	7.77	107	3	4	0.4	0.6
10/10/2023	6	1.1	6	0.8	7493	7.73	101	3	3	0.4	0.4
10/11/2023	6	1.1	6	0.8	7501	7.76	100	3	3	0.4	0.4
10/12/2023	7	1.3	7	0.9	8739	7.67	106	4	3	0.5	0.4
10/13/2023	6	1.1	6	0.8	7488	7.73	98	3	3	0.4	0.4
10/14/2023	6	1.1	6	0.8	7493	7.79	104	3	3	0.4	0.4
10/15/2023	7	1.3	7	0.9	8750	7.86	102	3	4	0.4	0.6
10/16/2023	6	1.1	6	0.8	7500	7.82	95	3	3	0.4	0.4
10/17/2023	7	1.3	7	0.9	8791	7.77	107	4	3	0.5	0.4
10/18/2023	7	1.3	7	0.9	8752	7.83	101	3	4	0.4	0.6
10/19/2023	6	1.1	6	0.8	7493	7.86	95	3	3	0.4	0.4
10/20/2023	7	1.3	7	0.9	8742	7.78	97	4	3	0.5	0.4
10/21/2023	6	1.1	6	0.8	7497	7.80	94	3	3	0.4	0.4
10/22/2023	6	1.1	6	0.8	7489	7.78	98	3	3	0.4	0.4
10/23/2023	7	1.3	7	0.9	8738	7.82	104	3	4	0.4	0.6
10/24/2023	6	1.1	6	0.8	7488	7.87	96	3	3	0.4	0.4
10/25/2023	6	1.1	6	0.8	7490	7.87	95	3	3	0.4	0.4
10/26/2023	7	1.3	7	0.9	8741	7.71	112	4	3	0.5	0.4
10/27/2023	7	1.1	7	0.7	7673	7.92	102	3	4	0.3	0.5
10/28/2023	8	1.4	8	0.9	7650	7.82	90	4	4	0.4	0.5
10/29/2023	6	1.1	6	0.8	7627	7.93	88	3	3	0.3	0.4
10/30/2023	7	1.3	7	0.9	7621	7.93	94	4	3	0.5	0.4
10/31/2023	7	1.3	7	0.8	7518	7.95	96	3	4	0.3	0.5
11/1/2023	7	0.6	7	0.3	7466	7.80	95	3	3	0.3	0.4
11/2/2023	7	1	6	0.7	7432	7.92	103	4	3	0.5	0.4
11/3/2023	6	1.1	6	0.7	7476	7.92	103	3	3	0.4	0.4
11/4/2023	6	1.1	6	0.7	7503	7.82	102	3	3	0.4	0.4
11/5/2023	7	1.3	7	0.9	7800	7.83	110	3	4	0.4	0.6
11/6/2023	6	1.1	6	0.7	7452	7.72	101	3	3	0.4	0.4
11/7/2023	6	1.1	6	0.7	7459	7.85	100	3	3	0.4	0.4
11/8/2023	7	1.1	8	0.7	7377	7.92	106	3	3	0.4	0.4
11/9/2023	7	1.3	7	0.9	7400	7.97	108	12	6	0.2	0.8
11/10/2023	6	1.1	6	0.7	7347	7.90	108	3	3	0.4	0.4
11/11/2023	6	1.1	6	0.7	7333	7.89	105	3	3	0.4	0.4

Table B-1
2023
Groundwater Treatment Plant Operations Summary
Former York Naval Ordnance Plant
1425 Eden Road, York, PA 17402

Date	AST Blower Cycles	AST Blower Hours	AST Pump Cycles	AST Pump Hours	Discharge Flow (gallons)	Influent pH (S.U.)	GWTS KWH	Effluent Pump P1 Cycles	Effluent Pump P2 Cycles	Effluent Pump P1 Hours	Effluent Pump P2 Hours
11/12/2023	6	1.1	6	0.7	7369	7.91	104	3	3	0.4	0.4
11/13/2023	8	1.4	8	1	6709	7.84	123	4	4	0.5	0.6
11/14/2023	6	1.1	6	0.8	7311	7.80	105	3	3	0.4	0.4
11/15/2023	6	1.1	6	0.8	7324	7.79	105	3	3	0.4	0.4
11/16/2023	6	1.1	6	0.8	7300	7.71	105	3	3	0.4	0.4
11/17/2023	6	1.1	6	0.8	7293	7.77	103	3	3	0.4	0.4
11/18/2023	6	1.1	6	0.8	7304	7.80	105	3	3	0.4	0.4
11/19/2023	6	1.1	6	0.8	7309	7.81	107	3	3	0.4	0.4
11/20/2023	6	1.1	6	0.8	7317	7.79	107	3	3	0.4	0.4
11/21/2023	6	1.1	6	0.8	7271	7.81	116	3	3	0.4	0.4
11/22/2023	6	1.1	6	0.8	7310	7.80	112	3	3	0.4	0.4
11/23/2023	6	1.1	6	0.8	7328	7.81	112	3	3	0.4	0.4
11/24/2023	6	1.1	6	0.8	7328	7.81	115	3	3	0.4	0.4
11/25/2023	7	1.3	7	0.9	8537	7.55	119	4	3	0.5	0.4
11/26/2023	6	1.1	6	0.8	7317	7.74	115	3	3	0.4	0.4
11/27/2023	6	1.1	6	0.8	7324	7.77	114	3	3	0.4	0.4
11/28/2023	6	1.1	6	0.8	7312	7.70	114	3	3	0.4	0.4
11/29/2023	6	1.1	6	0.8	7311	7.71	116	3	3	0.4	0.4
11/30/2023	6	1.1	6	0.8	7309	7.80	112	3	3	0.4	0.4
12/1/2023	7	1.3	7	0.9	8515	7.58	122	3	4	0.4	0.6
12/2/2023	6	1.1	6	0.8	7310	7.65	113	3	3	0.4	0.4
12/3/2023	6	1.1	6	0.8	7300	7.71	113	3	3	0.4	0.4
12/4/2023	6	1.1	6	0.8	7303	7.70	127	3	3	0.4	0.4
12/5/2023	6	1.1	6	0.8	7293	7.67	126	3	3	0.4	0.4
12/6/2023	6	1.1	6	0.8	7292	7.74	114	3	3	0.4	0.4
12/7/2023	6	1.1	6	0.8	7294	7.79	118	3	3	0.4	0.4
12/8/2023	7	1.3	7	0.9	8504	7.51	119	4	3	0.5	0.4
12/9/2023	6	1.1	6	0.8	7288	7.59	117	3	3	0.4	0.4
12/10/2023	6	1.1	6	0.8	7284	7.63	116	3	3	0.4	0.4
12/11/2023	6	1.1	6	0.8	7310	7.55	114	3	3	0.4	0.4
12/12/2023	6	1.1	6	0.8	7297	7.67	114	3	3	0.4	0.4
12/13/2023	7	1.3	7	0.9	8518	7.33	121	3	4	0.4	0.6
12/14/2023	6	1.1	6	0.8	7320	7.57	115	3	3	0.4	0.4
12/15/2023	6	1.1	6	0.8	7312	7.72	113	3	3	0.4	0.4
12/16/2023	7	1.3	7	0.9	8520	7.57	121	4	3	0.5	0.4
12/17/2023	6	1.1	6	0.8	7304	7.70	118	3	3	0.4	0.4
12/18/2023	7	1.3	7	0.9	8535	7.48	122	3	4	0.4	0.6
12/19/2023	7	1.3	7	0.9	8521	7.41	122	4	3	0.5	0.4
12/20/2023	7	1.3	7	0.9	8541	7.28	122	3	4	0.4	0.6
12/21/2023	7	1.2	7	0.9	8190	7.29	122	4	3	0.4	0.4
12/22/2023	8	1.2	8	0.8	7614	7.42	118	4	3	0.5	0.4
12/23/2023	7	1.3	7	0.9	7971	7.69	122	3	4	0.4	0.6
12/24/2023	7	1.3	7	0.9	8505	7.69	127	4	3	0.5	0.4
12/25/2023	7	1.3	7	0.9	8522	7.58	124	3	4	0.4	0.6
12/26/2023	7	1.3	7	0.9	8531	7.69	112	4	3	0.5	0.4
12/27/2023	7	1.3	7	0.9	8540	7.69	103	3	4	0.4	0.6
12/28/2023	8	1.4	8	1	9492	7.38	107	4	4	0.5	0.4
12/29/2023	8	1.4	7	0.9	8545	7.35	104	4	4	0.5	0.5
12/30/2023	7	1.3	7	0.9	8543	7.22	97	3	4	0.4	0.5
12/31/2023	6	1.1	6	0.8	7320	7.57	96	3	4	0.4	0.5

APPENDIX C

2023 Operation and Maintenance Data Summary

Table C-1
2023 OPERATION AND MAINTENANCE DATA SUMMARY
Former York Naval Ordnance Plant
1425 Eden Road, York PA 17402

TECHNICIAN		SRL	SRL	SRL	SRL	SRL	SRL	SRL	SRL	SRL	SRL	SRL	SRL	SRL	SRL	SRL	SRL	SRL	SRL	SRL	SRL	SRL	SRL	SRL
Date		1/4/2023	1/12/2023	2/10/2023	2/28/2023	3/8/2023	3/28/2023	4/12/2023	4/26/2023	5/2/2023	5/16/2023	6/1/2023	6/27/2023	7/3/202	7/25/2023	8/1/2023	8/17/2023	9/12/2023	9/27/2023	10/3/2023	10/17/2023	11/7/2023	11/721/23	12/5/2023	12/26/2023
PTA INFL. PUMP																									
Full Load = 17	AMPS	NM	7.3	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	7.30	NM	NM	NM	NM	NM	7.30	NM	7.30	NM	NM
	FLOW RATE gpm	161	161	161	161	161	161	161	161	161	161	161	161	161	161	161	161	161	161	161	161	167	161	161	156
PTA BLOWER																									
Full Load = 24	AMP READINGS	NM	23.81	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	23.46	NM	NM	NM	NM	NM	23.91	NM	23.56	NM	NM
	PRESSURE inches water	15.2	15.4	14.9	15.6	16	15.5	14.5	15.5	15.1	14.6	14.5	14.3	14.4	14.4	14.7	14.7	14.6	15.2	14.8	15.3	14.6	16	15.3	15.6
TOWER PANEL																									
	VISUAL INSPECT	NA	OK	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	OK	NA	NA	NA	NA	NA	OK	NA	NA	NA	NA
	WARWICK SECURE	NA	OK	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	OK	NA	NA	NA	NA	NA	OK	NA	NA	NA	NA
TOWER SAMPLING																									
	AST EFFLUENT pH	7.35	NM	7.28	NM	7.2	NM	7.35	NM	6.69	NM	7.6	NM	7.38	NM	7.6	NM	7.5	NM	7.0	NM	7.4	NM	7.2	NM
	AST INFLUENT pH	6.50	7.22	6.25	7.24	6.36	6.87	6.34	6.26	6.10	7.2	6.6	7.21	6.15	7.27	6.6	7.24	6.4	7.84	5.4	7.63	6.4	7.80	6.3	7.41
REDUX CHEMICAL INJECTION																									
	LMI PUMP SPEED (%)	29	29	29	29	29	29	28	28	29	29	29	29	29	29	OL	29	29	27	28	29	31	28	28	27
	LMI INJECTION RATE (milis/min)	8.5	8.5	8.3	8.4	8.4	8.3	8.2	8.4	8.5	8.4	8.4	8.5	8.4	8.5	OL	8.5	8.5	8.1	8.2	8.5	8.8	8.2	8.2	7.9
WPL WELLS																									
	TOTAL FLOW RATE gpm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CW-9; Full Load = 5.5	AMPS	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL
CW-9	FLOW RATE gpm	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL
CW-9	PRESSURE psi	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL
CW-9	CLEAN "Y" STRAINER	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL
CW-9	HIGH LEVEL ALARM?	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL
CW-13; Full Load = 11.5	AMPS	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL
CW-13	FLOW RATE gpm	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL
CW-13	PRESSURE psi	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL
CW-13	CLEAN "Y" STRAINER	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL
CW-13	HIGH LEVEL ALARM?	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL
CW-17; Full Load = 11.5	AMPS	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL
CW-17	FLOW RATE gpm	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL
CW-17	PRESSURE psi	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL
CW-17	CLEAN "Y" STRAINER	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL
CW-17	HIGH LEVEL ALARM?	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL
CW-15A; Full Load = 1.6	AMPS	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL
CW-15A	FLOW RATE gpm	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL
CW-15A	PRESSURE psi	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL
CW-15A	CLEAN "Y" STRAINER	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL
CW-15A	HIGH LEVEL ALARM?	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL
CW-20 Full Load = 17.3	AMPS	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL
CW-20	FLOW RATE gpm	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL
CW-20	PRESSURE psi	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL
CW-20	CLEAN "Y" STRAINER	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL
CW-20	HIGH LEVEL ALARM?	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL
AST influent pressure	inches of water	10.0	10.1	9.9	9.9	10.3	10.1	9.3	10.1	9.9	9.5	9.7	9.2	9.2	9.3	9.3	9.3	9.5	9.7	9.8	10.1	9.7	10.4	10.1	10.2
GAC influent pressure	inches of water	8.3	8.4	8.1	8.2	8.4	8.3	7.6	8.3	8.1	7.8	7.8	7.6	7.6	7.7	7.8	7.7	7.8	8.0	8.0	8.2	8.0	8.4	8.3	8.2
AST pitot pressure	inches of water	0.22	0.24	0.23	0.24	0.23	0.23	0.24	0.24	0.25	0.22	0.23	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.25	0.23	0.22	0.22	0.23	0.23

Table C-1
2023 OPERATION AND MAINTENANCE DATA SUMMARY
Former York Naval Ordnance Plant
1425 Eden Road, York PA 17402

TECHNICIAN		SRL	SRL	SRL	SRL	SRL	SRL	SRL	SRL	SRL	SRL	SRL	SRL	SRL	SRL	SRL	SRL	SRL	SRL	SRL	SRL	SRL	SRL	SRL
Date		1/4/2023	1/12/2023	2/10/2023	2/28/2023	3/8/2023	3/28/2023	4/12/2023	4/26/2023	5/2/2023	5/16/2023	6/1/2023	6/27/2023	7/3/202	7/25/2023	8/1/2023	8/17/2023	9/12/2023	9/27/2023	10/3/2023	10/17/2023	11/7/2023	11/721/23	12/5/2023	12/26/2023
SPBA WELLS																									
	TOTAL FLOW RATE gpm	6.1	6	6.2	6.2	6.3	6.3	6.1	5.9	6.6	6.4	6	6.2	5.9	6	5.9	5.7	5.7	5.9	5.7	5.7	5.4	5.2	5.3	6.1
CW-21; Full Load = 5	AMPS	NM	2.62	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	2.56	NM	NM	NM	NM	NM	2.56	NM	2.57	NM	NM
CW-21	FLOW-RATE gpm	3.9	3.8	3.8	3.7	3.9	3.7	3.7	3.6	3.7	3.8	3.5	3.6	3.5	3.6	3.8	3.7	3.7	3.7	3.6	3.6	3.6	3.4	3.6	3.8
CW-21	PRESSURE psi	9.1	9.1	8.8	9.4	9.1	9	9.7	9.5	9.7	9.4	10.3	10.6	10.3	10.7	10.6	10.6	10.6	10.4	10.3	10.1	9.8	9.4	9.2	9.1
CW-21	TARGET LEVEL	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95
CW-21	TRANSDUCER READING	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95
CW-21	PUMP SPEED %	75	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	73	73	74
CW-21	CLEAN TRANSDUCER	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
CW-21	WATER CLARITY	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR
CW-21	HIGH LEVEL ALARM?	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
CW-22; Full Load = 3.9	AMPS	NM	2.07	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	2.11	NM	NM	NM	NM	NM	2.13	NM	2.13	NM	NM
CW-22	FLOW-RATE gpm	1.7	1.7	1.9	2	1.9	2.0	2.1	1.8	1.9	1.9	2	2.1	1.9	1.8	1.8	1.8	1.8	1.7	1.8	1.8	1.6	1.4	1.4	1.8
CW-22	PRESSURE psi	9.4	9.4	9.2	9.5	9.4	9.3	10	9.8	9.8	9.7	10.4	10.7	10.6	10.9	10.9	10.7	10.7	10.6	10.5	10.4	10.1	9.7	9.5	9.2
CW-22	TARGET LEVEL	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97
CW-22	TRANSDUCER READING	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97
CW-22	PUMP SPEED %	71	71	71	72	72	73	73	72	73	72	73	73	73	72	73	73	73	73	73	73	72	72	72	73
CW-22	CLEAN TRANSDUCER	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
CW-22	WATER CLARITY	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR
CW-22	HIGH LEVEL ALARM?	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
CW-23; Full Load = 3.9	AMPS	NM	1.66	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	1.67	NM	NM	NM	NM	NM	1.65	NM	1.66	NM	NM
CW-23	FLOW-RATE gpm	0.6	0.5	0.7	0.8	0.7	0.7	0.6	0.3	0.5	0.6	0.4	0.4	0.5	0.3	0.3	0.3	0.3	0.5	0.3	0.3	0.4	0.4	0.2	0.4
CW-23	PRESSURE psi	9.2	9.2	9	9.5	9.2	9.2	9.9	9.7	9.7	9.5	10.3	10.8	10.5	10.8	10.8	10.7	11.7	10.4	10.4	10.2	10.0	9.5	9.4	9.2
CW-23	TARGET LEVEL	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
CW-23	TRANSDUCER READING	57	57	57	57	57	57	57	57	57	57	57	57	57.1	57	57.1	57	57	57	57	57	57.1	57.1	57	57
CW-22	PUMP SPEED %	68	68	68	68	68	68	68	68	69	69	69	69	69	68	69	69	69	69	69	68	68	68	68	68
CW-23	CLEAN TRANSDUCER	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
CW-23	WATER CLARITY	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR
CW-23	HIGH LEVEL ALARM?	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

Notes: Y - Yes N - No NA - Not Applicable NM - Not Measurl - Not Measu OL - Off Line