11 March 2022

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

Re: 2021 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, 2021, through December 31, 2021."

Please contact me with any questions or comments.

Respectfully submitted,

HYDRO-TERRA GROUP

Emily M. Wade
Project Environmental Scientist

Attachment

cc: James Rea – PADEP (w/ enclosure)
Sharon Fisher - Harley-Davidson (w/ enclosure)
Ralph Golia – AMO Environmental Decisions (w/ electronic copy)
Hamid Rafiee – USACE (w/ enclosure)
Kristin Regan – USEPA (w/ electronic copy)
Greg Norris – NP York 58, LLC (w/ enclosure)
Dana Baker – NorthPoint Development(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, 2021 FORMER YORK NAVAL ORDNANCE PLANT

Prepared for:

former York Naval Ordnance Plant Remediation Team

March 2022

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, 2021
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 2022

Respectfully submitted,

Emily M. Wade
Project Scientist

Rodney G. Myers, CHMM
Senior Program Manager

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1,1-DCE	-	1,1-dichloroethene
Act 2	-	Land Recycling and Environmental Remediation Standards Act
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
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 2021 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 and has been in operation for over 30 years (since November 1990) and consists of numerous collection wells operating in two areas (the West Parking Lot (WPL) and Southern Property Boundary Area (SPBA)) of fYNOP.

Eight active collection wells (CW-9, CW-13, CW-15A, CW-17, CW-20, CW-21, CW-22, and CW-23) were operational in the WPL and SPBA during 2021. 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 WPL extraction system will remain off, but functional, for a year pending completion and approval of the shutdown monitoring studies.

Approximately 413 pounds of volatile organic compounds (VOCs) were removed by the GWTS during 2021. The total amount of groundwater extracted during 2021 was approximately 80 million gallons. Cumulatively, approximately 49,124 pounds of VOCs have been removed by the GWTS since 1990.

Monthly, quarterly, and annual sampling data were collected in 2021, and site-wide groundwater elevations were collected in September 2021. These data, along with laboratory analytical data, will be presented in the 2021 annual Groundwater and Surface Water Monitoring Report (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 2021. 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, 2021. 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).

During 2021, groundwater was extracted from eight (8) pumping wells (CW-9, CW-13, CW-15A, CW-17, CW-20, CW-21, CW-22, and CW-23) operating in two (2) separate areas designated as the WPL Area (which includes the former North Building 4 [NB4] Area) and the SPBA. The collection systems are shown on **Figure 1-2**. WPL collection wells (CW-9, CW-13, CW-15A, CW-17, and CW-20) were all operational for a portion of 2021. As part of the approved Pennsylvania Act 2 Site-Wide Cleanup Plan (Groundwater Sciences Corporation [GSC], 2019a), the WPL collection wells were shutdown at midnight on August 31, 2021 and are anticipated to be off for one year to evaluate the impact on Codorus Creek surface water quality. The WPL collection wells will remain off, but functional, pending the completion and approval of the shutdown monitoring studies. The SPBA collection wells (CW-21, CW-22, and CW-23) were functional throughout 2021. This extraction system was designed to capture and control shallow groundwater containing chlorinated VOCs, and is part of the Pennsylvania Act 2 Site-Wide Cleanup Plan.

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**).

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 2021. 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 2021. A five-year NPDES inspection was completed by the PADEP on October 5, 2021. No action items were noted during the inspection.

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 (which includes the NPBA groundwater collection area). The SPBA extraction area lies near a contact between the quartzitic sandstone and limestone geologic formations. Natural groundwater flow 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 2021 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 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 2021 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) active wells (CW-9, CW-13, CW-15A, CW-17, CW-20, CW-21, CW-22, and CW-23). An average of 153 gallons/minute (gpm) are extracted by the WPL wells and an average of 6.6 gpm are 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.

Extracted groundwater is pumped from the equalization tank to the PTA. 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® data base during 2021, are provided in **Appendix B**.

4.2 System Maintenance and Modifications

Twice a month, preventive maintenance inspections are performed 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 2021, except for the following interruptions:

- Brief shutdowns occurred on February 14, 15, and 17 to troubleshoot and replace an effluent pump plug.
- Brief shutdowns occurred on February 14 and October 19 to remove the primary and secondary effluent pump for routine annual maintenance.
- A brief shutdown occurred on June 10 to complete GWTS annual maintenance checks.
- Brief shutdowns occurred on August 18 and 23 to test programming modifications to convert the GWTS to a batch system.
- A shutdown occurred on November 7, due to a PTA blower fault. Repair parts were ordered, and preventative maintenance was completed before restarting the GWTS on November 11.
- A shutdown occurred on November 12 for a planned site-wide plant power outage.
- Shutdowns occurred during scheduled GAC change-outs on February 4, May 6, and September 2, 2021.
- The WPL wells were shutdown at midnight on August 31, 2021 for surface water attainment monitoring. Extracting groundwater from only the SPBA resulted in approximately 97% reduction of overall flow to the treatment plant. Because the minimum treatment plant flow capacity is significantly above the expected SPBA flow, the GWTS was modified with software programming to operate as a batch system instead of continuously treating groundwater. The SPBA wells continue to pump into the EQ tank until a high setpoint is reached. At that point, the PTA blower will turn on, and the influent pump will run until the low setpoint is reached in the EQ tank, and the influent pump and blower will shut off again. The off gas of the PTA continues to be treated via the existing vapor phase GAC unit.
- A new chemical pump was installed and programmed to operate in both batch and continuous modes to deliver Redux 525 chemical to prevent mineral fouling.

- The remote monitoring system was upgraded from 3G to 4G, and a cellular based rain gauge was installed on the roof of Building 41A.

Several noteworthy treatment system maintenance, repairs, or modifications were identified and addressed during 2021. A brief summary is presented below:

- Two GWTS effluent discharge pumps were removed for annual routine inspection, cleaning, and repair (as needed). A major pump reconstruction was required for one of the effluent pumps.
- Annual pH meter calibration was completed.
- The chemical sequestrant pump was replaced.
- Samples of the GWTS influent and effluent were collected and analyzed by the sequestrant (Redux 525) chemical representative. The results verified that the desired sequestrant dosing rate should remain at 20 ppm, even without the WPL wells.
- 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.
- Repair was completed on an effluent pump plug.
- Annual maintenance was completed on the PTA blower.
- Remote login modem was upgraded from 3G to 4G.

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 49,124 pounds of VOCs were removed since the GWTS began operation in November 1990.

The total amount of groundwater extracted during 2021 was approximately 80 million gallons (or 219,053 gallons per day [gpd] or 152 gpm average) using the PTA totalizer. The 2021 extraction volumes are lower than the previous year (2020) when the flows were approximately 122 million gallons (or 333,213 gpd, or 231 gpm). A graphical comparison of groundwater volumes treated from the two site extraction systems is presented on **Figure 4-1**. The vast majority (approximately 97%) of the treated groundwater was extracted from the WPL system during 2021. The primary reason for reduced treatment systems flows during 2021 are a result of the previously discussed WPL system shut down during the last four months (i.e., September through December 2021).

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 2021. These samples represent combined flow-weighted sampling of

the five active collection wells in the WPL and three active collection wells in the SPBA (CW-9, CW-13, CW-15A, CW-17, CW-20, CW-21, CW-22, and CW-23) in January, April, and July. Only the SPBA collection wells were operational during the October sampling event.

The untreated influent samples contained total VOCs ranging in concentrations from 80 micrograms per liter (µg/L) to 660 µg/L during 2021. Using these data, the total estimated mass of VOCs removed from January through December 2021 was 413 pounds. The calculated VOC mass removal rates (pounds per day [lbs/day]) extracted by the GWTS for the last four calendar years are shown below:

- Average 2021 – 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
- 2018 – 2.3 lbs/day

The predominant VOCs identified in the PTA influent samples has 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 changed from TCE to PCE during the spring of 2013, and the concentration of PCE further increased upon startup of CW-20 during 2014. Concurrent with the GWTS shutdown and restart, a spike in the influent concentration of cis-1,2-DCE was noted during 2015 and early 2016. The predominant GWTS influent VOCs observed during 2021 were similar to that observed in 2010, and included (in order of dominance) PCE, TCE/cis-1,2-DCE, and TCA (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 2021. Analytical testing results for the 2021 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 except for an estimated detection of cis-1,2-DCE at 0.23 µg/l in July.

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.

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 located 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).

Approximately 81 million gallons of groundwater were extracted from the WPL Area during 2021 (see **Table 5-1**). The WPL wells were shutdown at midnight on August 31, 2021 for testing, which is anticipated to continue for one year, as discussed previously. The WPL wells will remain off, but functional, pending the completion of the shutdown monitoring studies.

5.1 Maintenance

A brief summary of maintenance actions for the WPL Area in 2021 is presented below:

- Collection well CW-15A overload and flow faults occurred in February and March 2021. The pump assembly was pulled, and the piping manifold was flushed on March 2, 2021. The motor and fuses were replaced on March 24, and a new power cable was installed on March 31, 2021.
- Collection well CW-17 motor overload fault occurred on June 1, 2021. The pump assembly was pulled, and the motor was replaced on June 8, 2021.

5.2 Groundwater Chemistry

The groundwater quality analysis data from the 2021 collection well sampling is presented in **Table A-1 (Appendix A)**. The WPL wells were sampled two times (March and June) in 2021 before they were shutdown on August 31, 2021. The historical concentrations and trends of the dominant VOCs (TCE, PCE, TCA, and cis-1,2-DCE) are illustrated in **Figures 5-1 through 5-5** for CW-9, CW-13, CW-15A, CW-17, and CW-20, respectively. Generally, stable VOC trends were observed in all the active WPL collection wells during 2021.

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). 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. Water is piped from CW-21 (550 feet), CW-22 (400 feet), and CW-23 (300 feet) to the SPBA control building: 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 3,465,000 gallons of groundwater were extracted from the SPBA Area during 2021 (see **Table 5-1**).

6.1 Maintenance

A brief summary of maintenance actions for the SPBA Area in 2021 is presented below:

- The SPBA system experienced brief shutdowns in April, June, July, August, September, and October due to storms in the area.
- Collection well CW-21 was evaluated in May due to an observed break/off-set in the riser pipe approximately 18 feet below ground surface. Well repairs were attempted in June, but were not successful, and the well was restarted.
- A VFD fault occurred at collection well CW-21 in July.
- Collection well CW-22 VFD faults occurred in February.
- Annual maintenance was completed on the collection wells in May. The pump

assemblies were pulled and inspected for damage and mineral fouling, the transducer setting was verified, and the high-pressure switch was tested.

6.2 Groundwater Chemistry

The groundwater quality analytical data from the 2021 collection well sampling is presented in **Table A-1 (Appendix A)**. 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. Generally stable VOC trends were observed at SPBA collection wells CW-21 and CW-23 during 2021. CW-22 exhibited a slightly decreasing trend for PCE during 2021.

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.

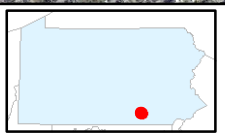
GSC, 2019c. Southern Property Boundary Area Groundwater Extraction System Operation Effectiveness Report, Former York Naval Ordnance Plant. October 28.

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

NPBA Control Bldg

NPBA Groundwater Conveyance Pipe to Treatment Plant

Treatment System Discharge Line

Groundwater Treatment Plant (Bldg 41A)

NPBA Groundwater Collection Pipe to Control Building

Outfall No. 003

WPL Collection Pipes to Treatment Plant

SPBA Conveyance Pipe

Former Lift Station

SPBA Control Building

Codorus Creek

30

N

Legend

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

0 250 500 1,000

Feet

Former York Navel Ordnance Plant

1425 Eden Road
York, Pennsylvania 17402

Hydro-Terra GROUP
www.hydro-terra.com

Groundwater System Operations

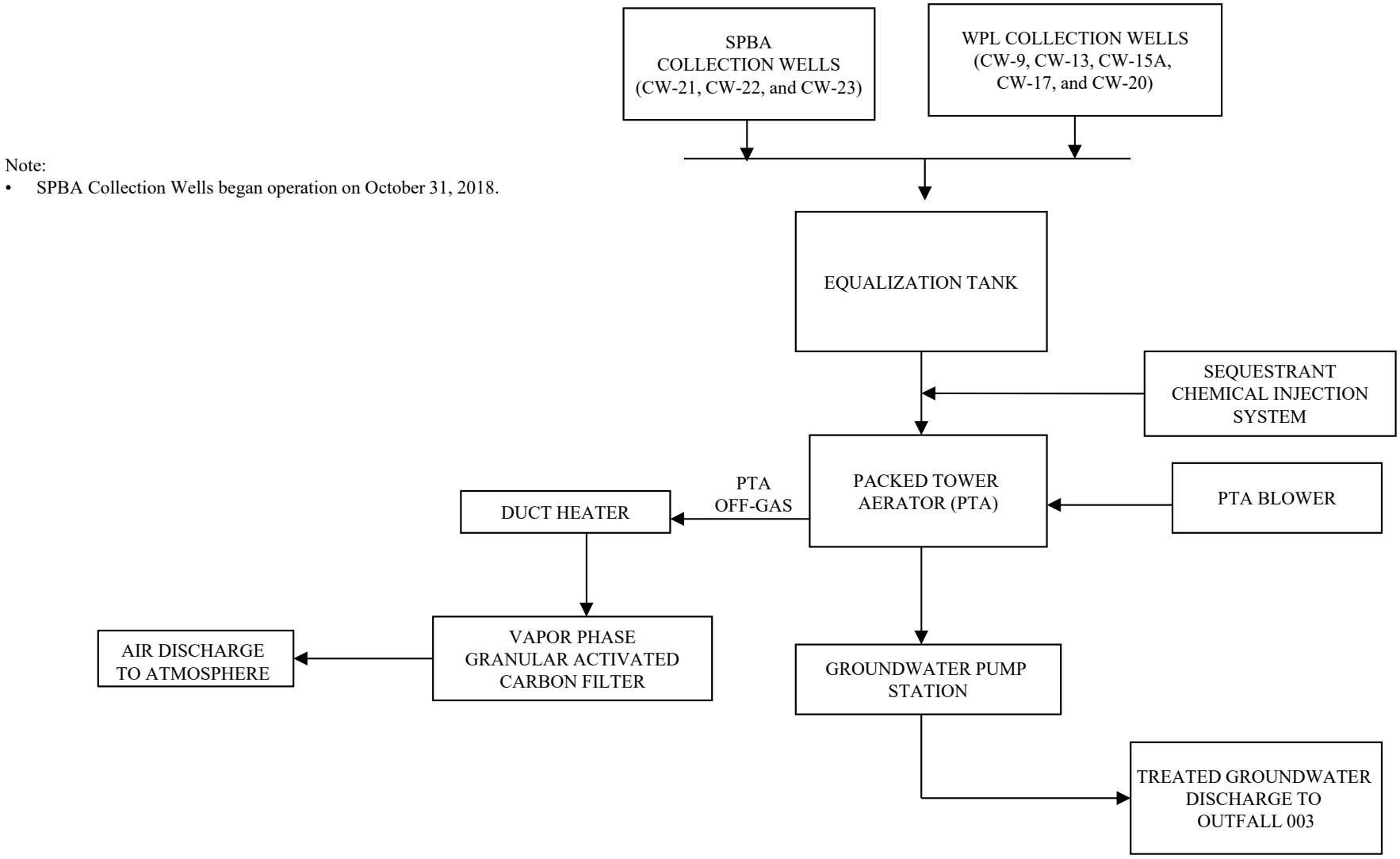
Groundwater Treatment System Location

drawn:	LPD	02/18/21	figure: 1-2
checked:	EMW	02/18/21	
approved:	RGM	02/18/21	

Document Path: J:\Harley-Davidson\Maps\Groundwater System Operations_2021-02-18.mxd

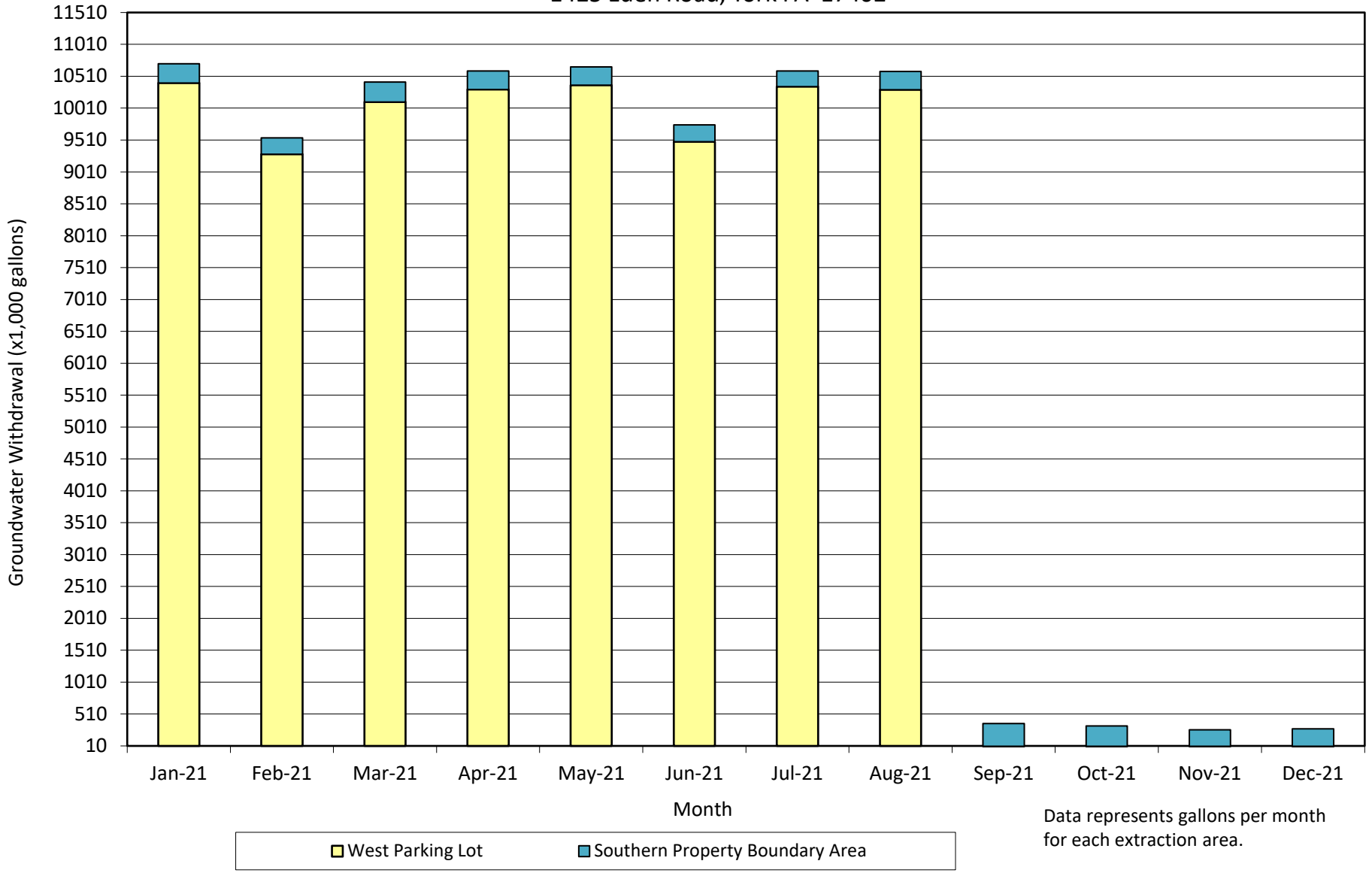
Coordinate System: NAD 1983 2011 StatePlane Pennsylvania South FIPS 3702 Ft US

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



Note:
- SPBA Collection Wells began operation on October 31, 2018.

Figure 4-1
2021 Groundwater Withdrawals
Former York Naval Ordnance Plant
1425 Eden Road, York PA 17402



Data represents gallons per month for each extraction area.

The WPL wells were shutdown at midnight on August 31, 2021.

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

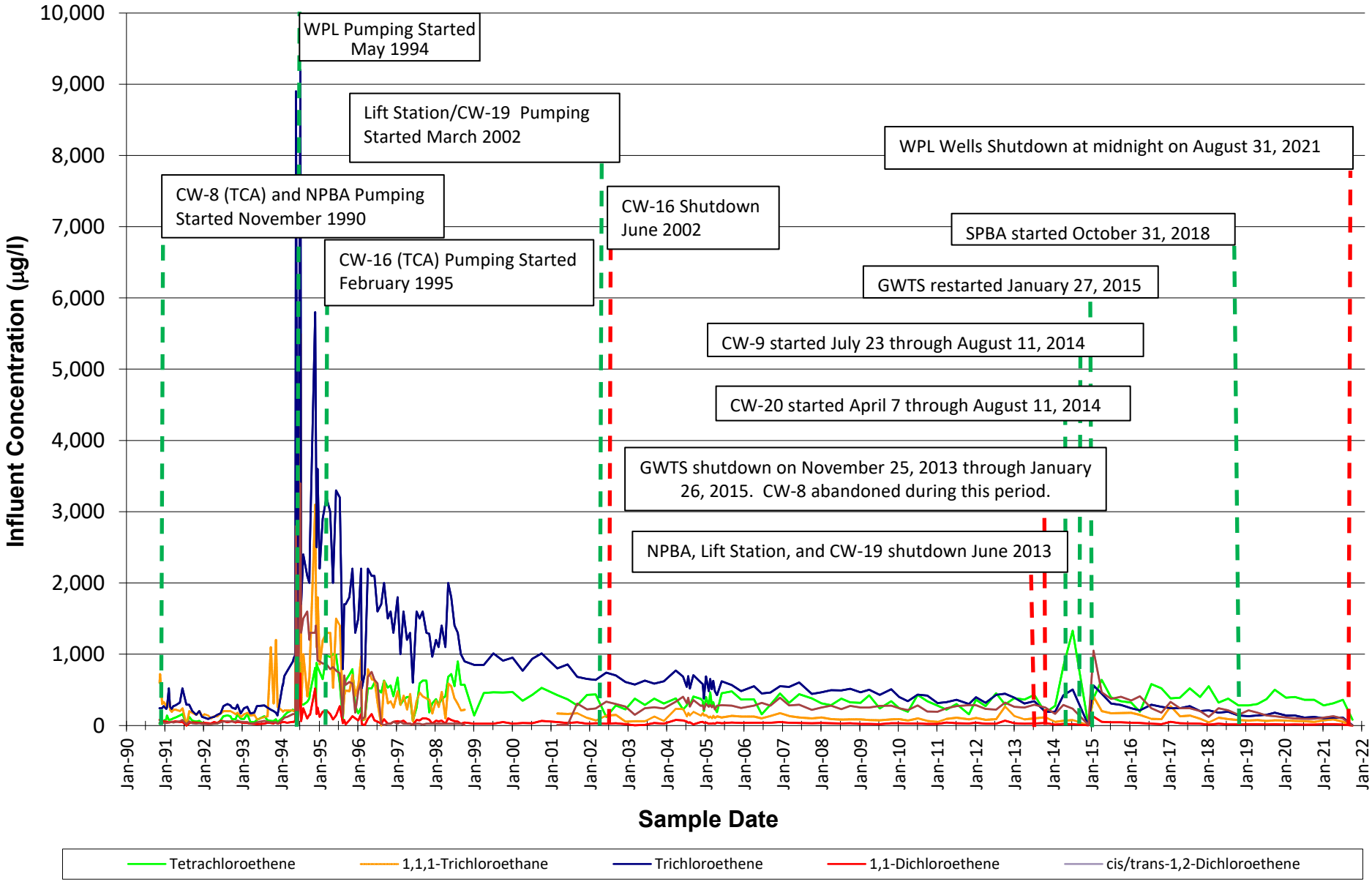


Figure 5-1
Predominant VOC Concentrations - Collection Well CW-9
Former York Naval Ordnance Plant
1425 Eden Road, York PA 17402

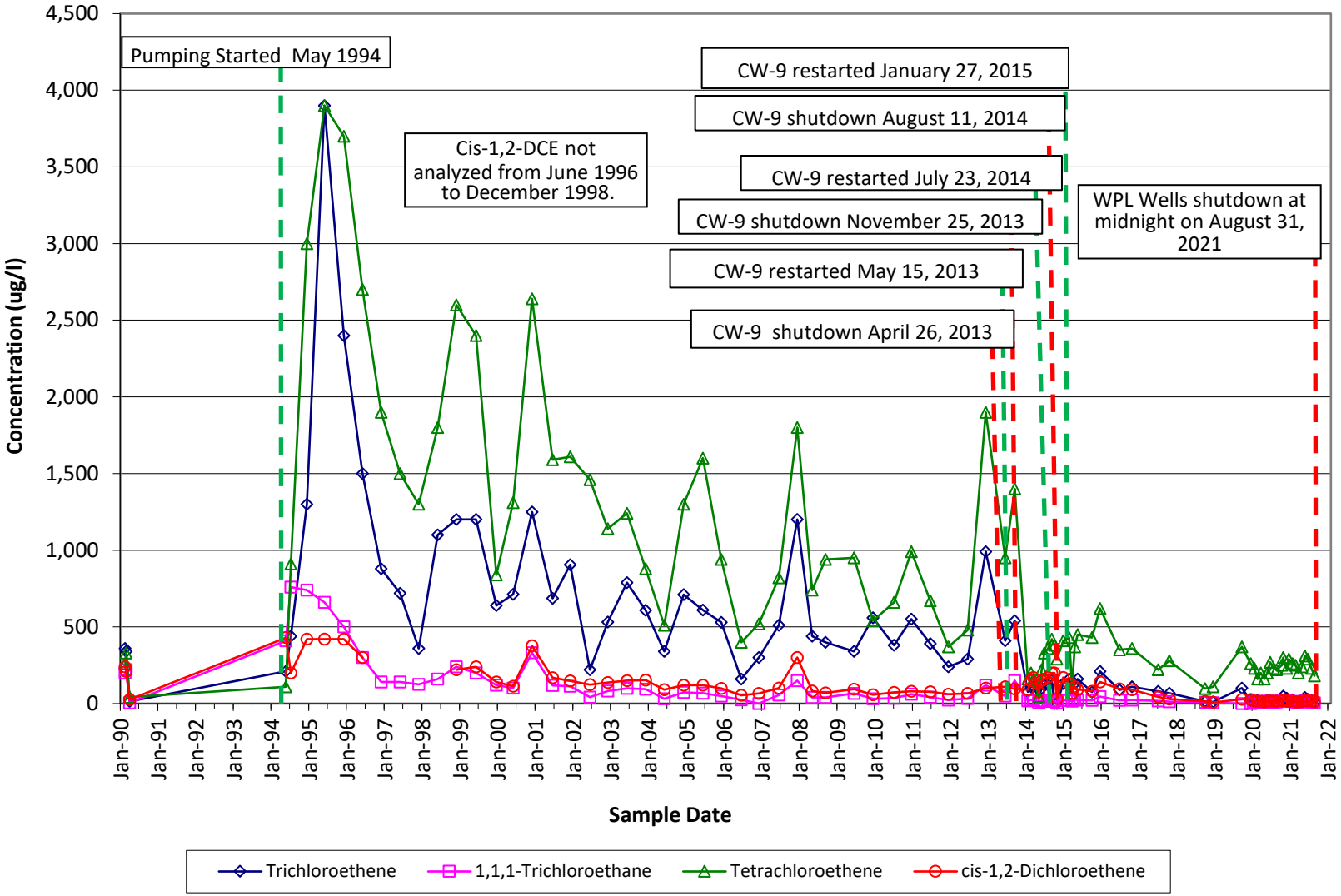


Figure 5-2
Predominant VOC Concentrations - Collection Well CW-13
Former York Naval Ordnance Plant
1425 Eden Road, York PA 17402

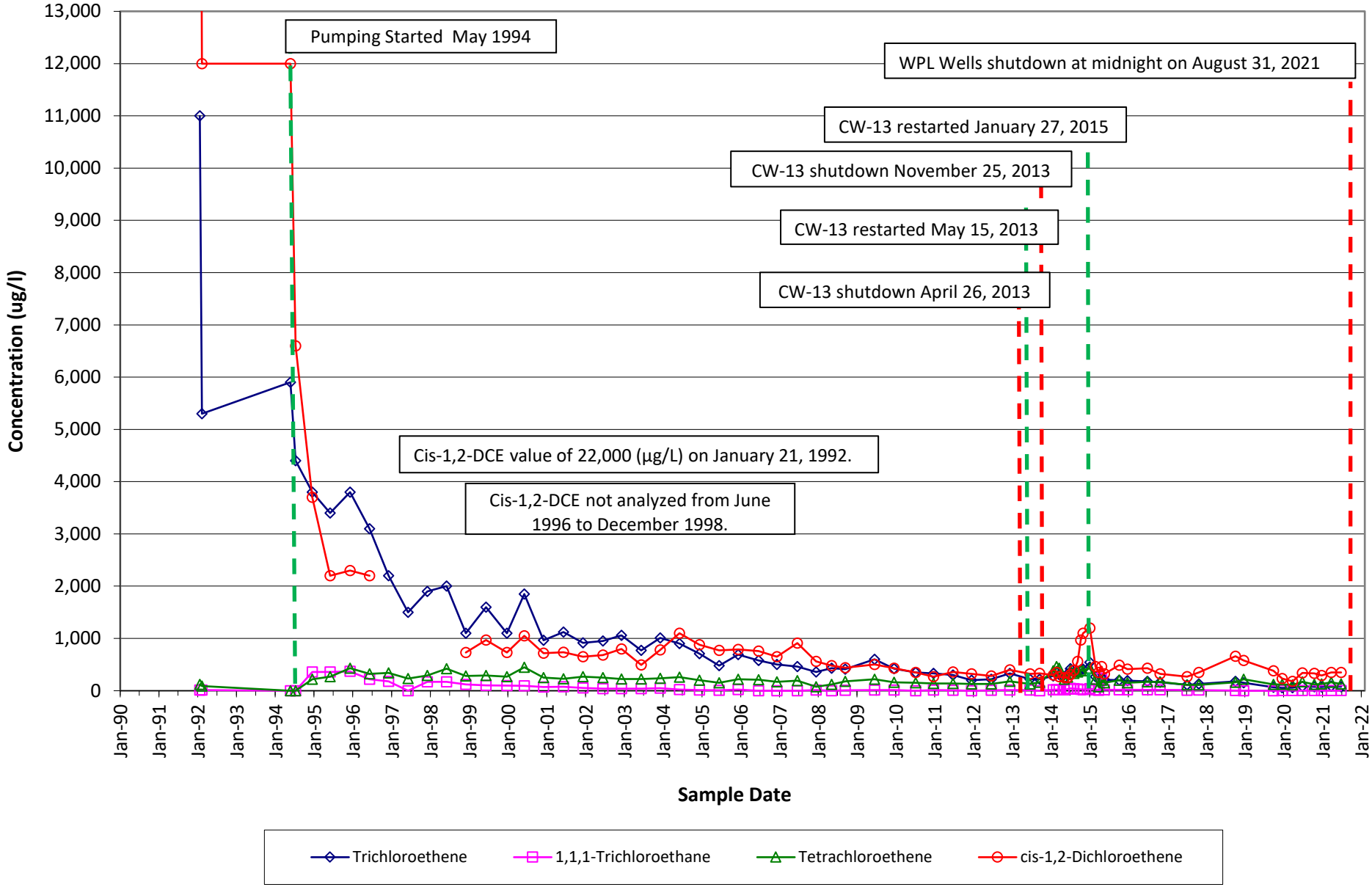


Figure 5-3
Predominant VOC Concentrations - Collection Well CW-15A
Former York Naval Ordnance Plant
1425 Eden Road, York PA 17402

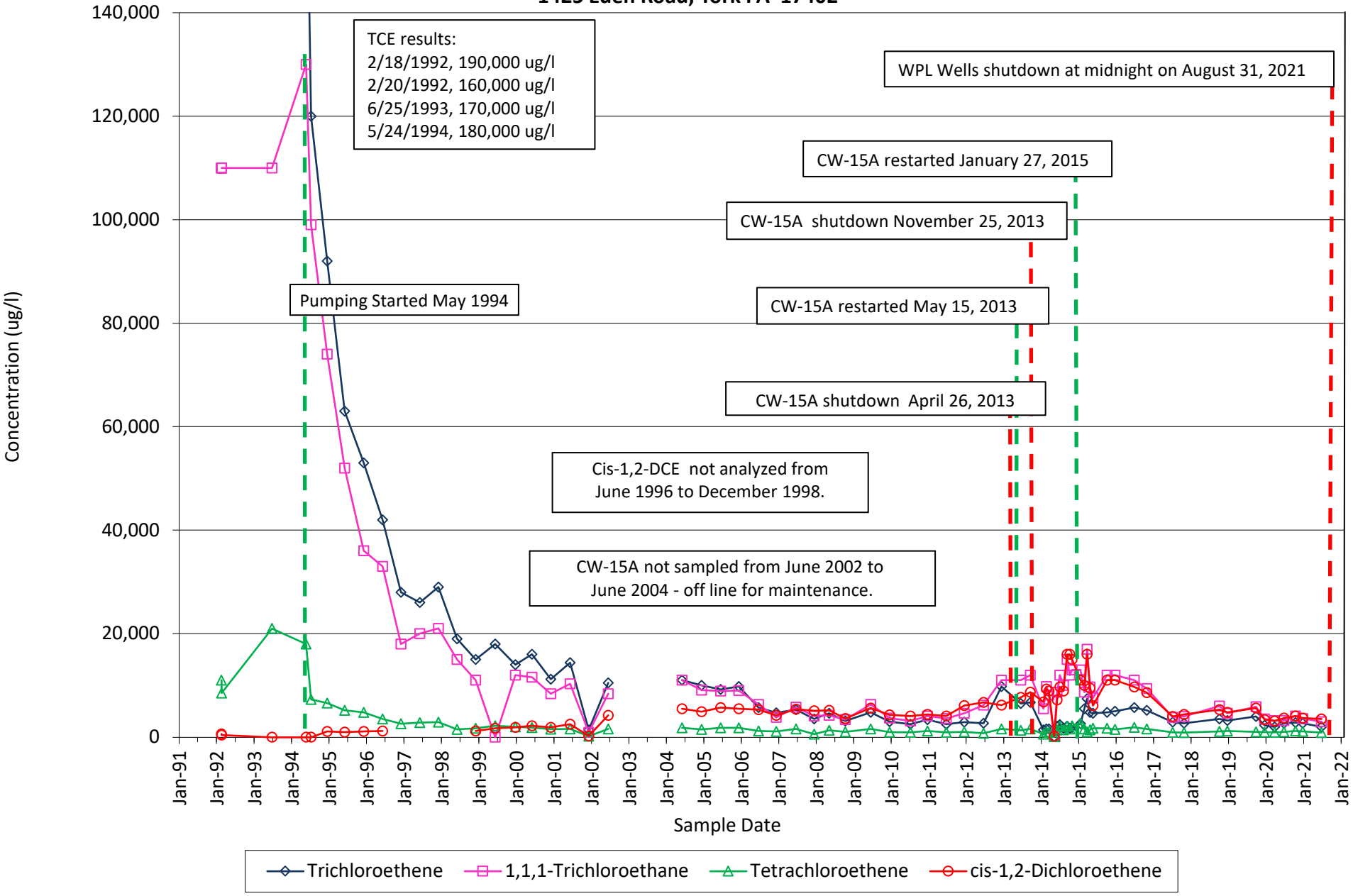


Figure 5-4
Predominant VOC Concentrations - Collection Well CW-17
Former York Naval Ordnance Plant
1425 Eden Road, York PA 17402

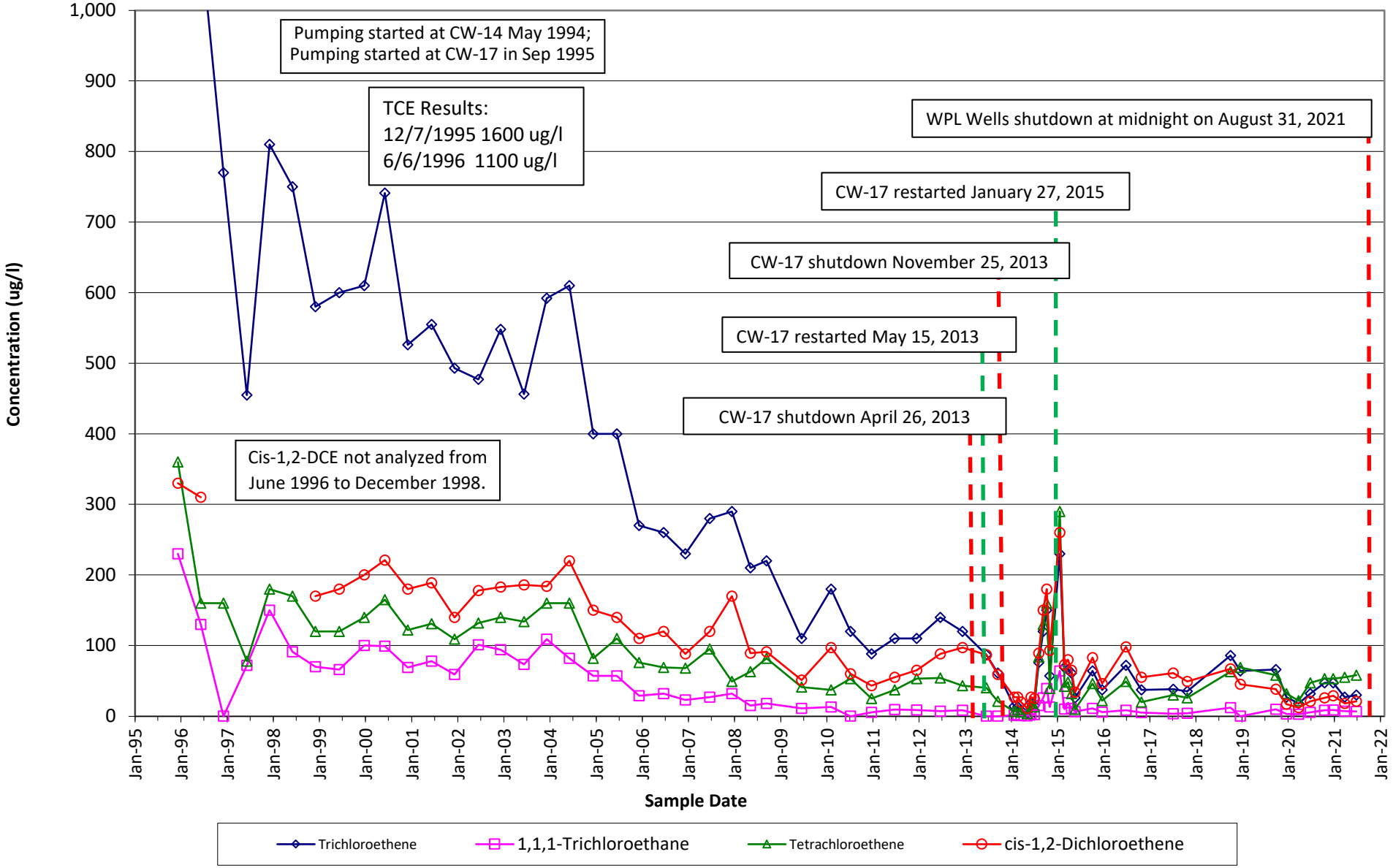


Figure 5-5
Predominate VOC Concentrations - Collection Well CW-20
Former York Naval Ordnance Plant
1425 Eden Road, York PA 17402

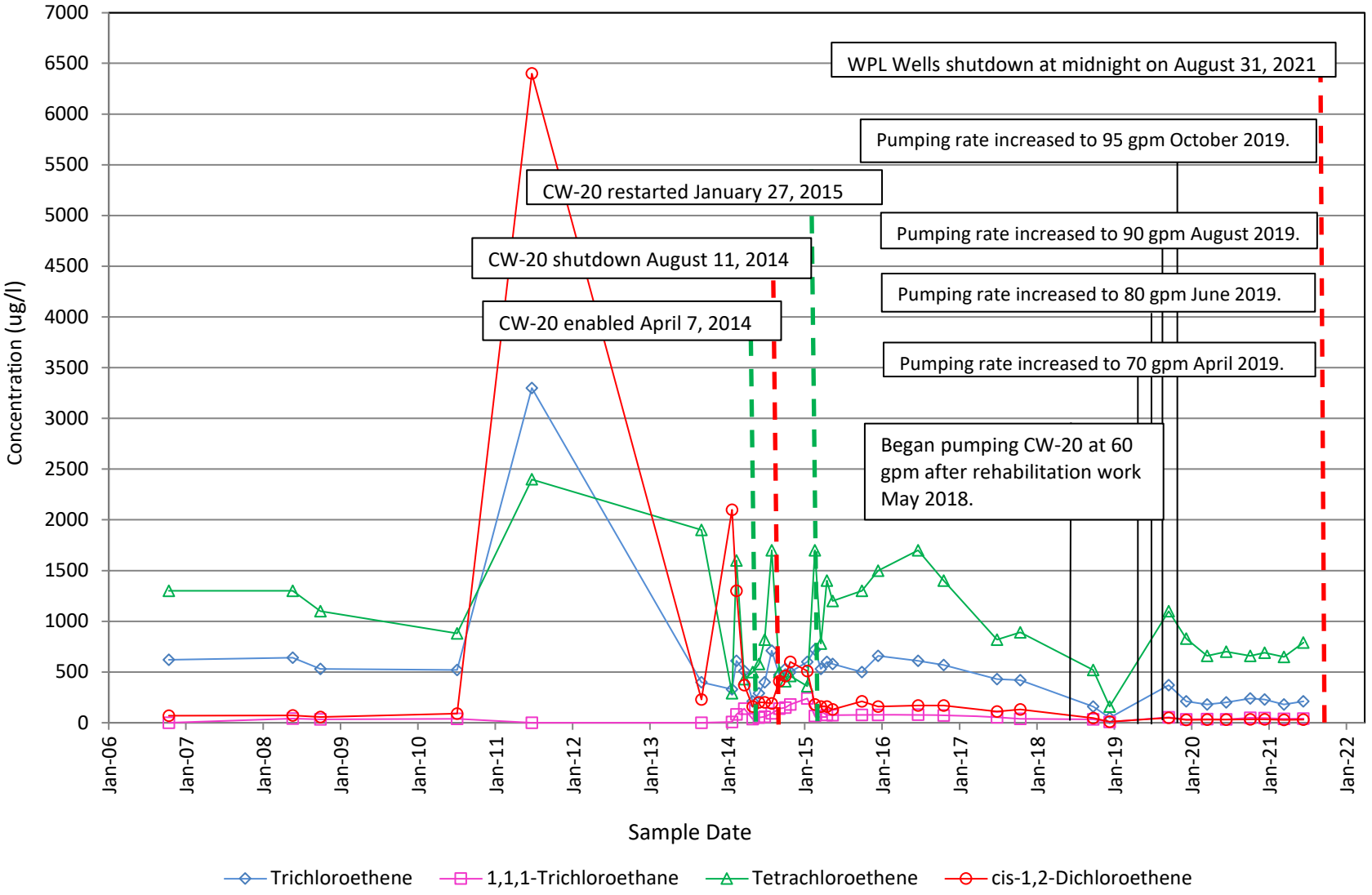


Figure 6-1
Predominate VOC Concentrations - Collection Well CW-21
Former York Naval Ordnance Plant
1425 Eden Road, York PA 17402

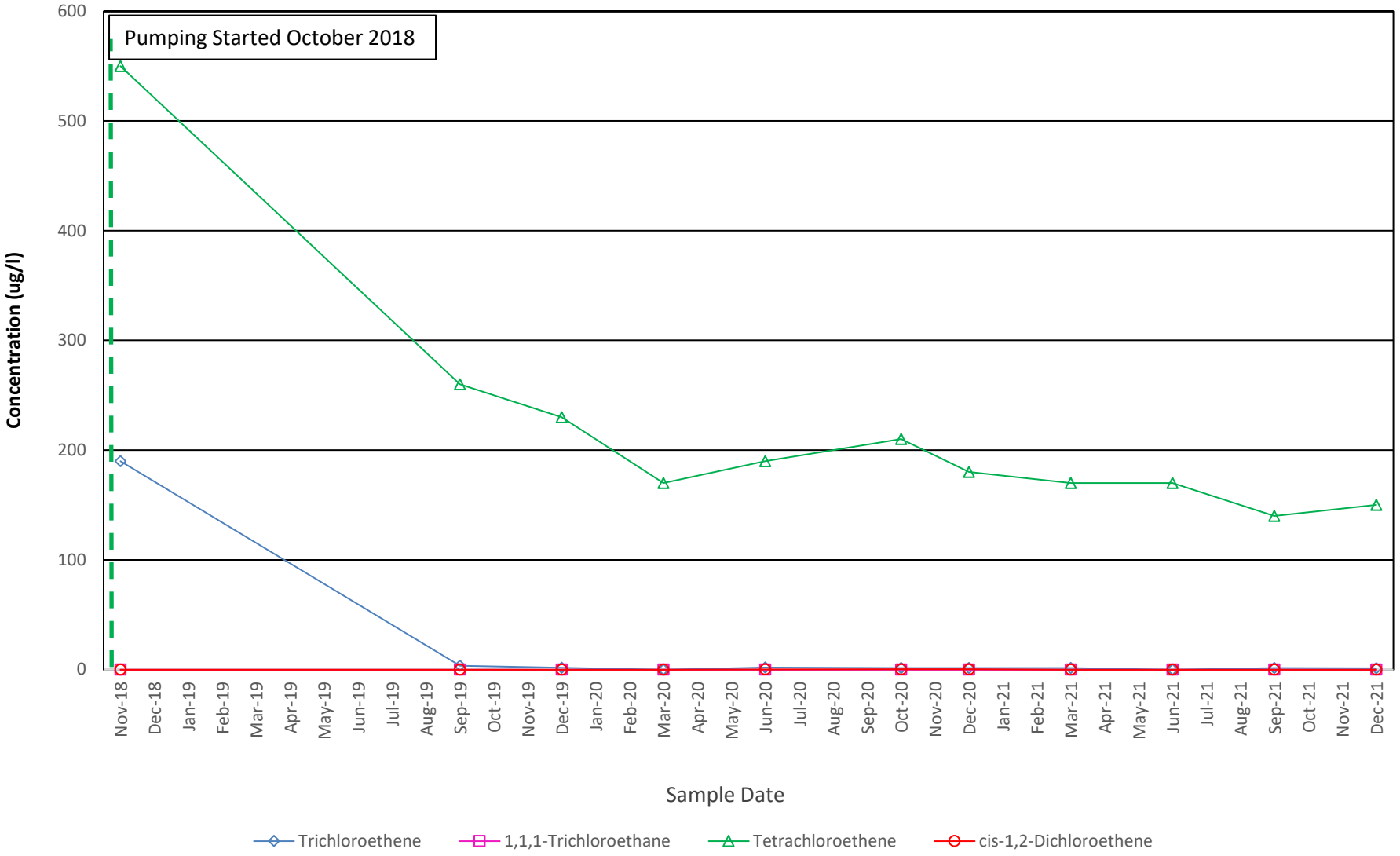


Figure 6-2
Predominate VOC Concentrations - Collection Well CW-22
Former York Naval Ordnance Plant
1425 Eden Road, York PA 17402

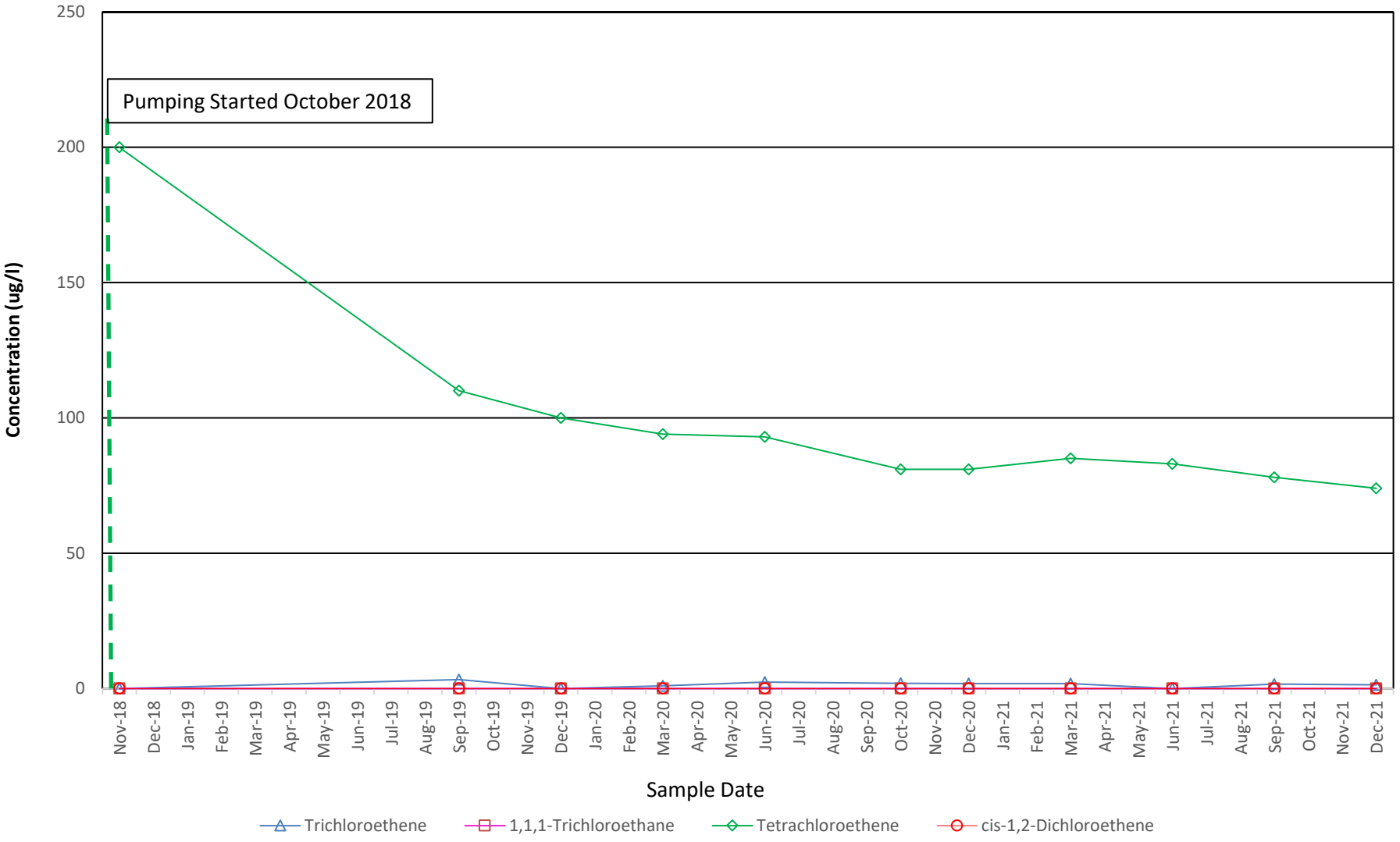
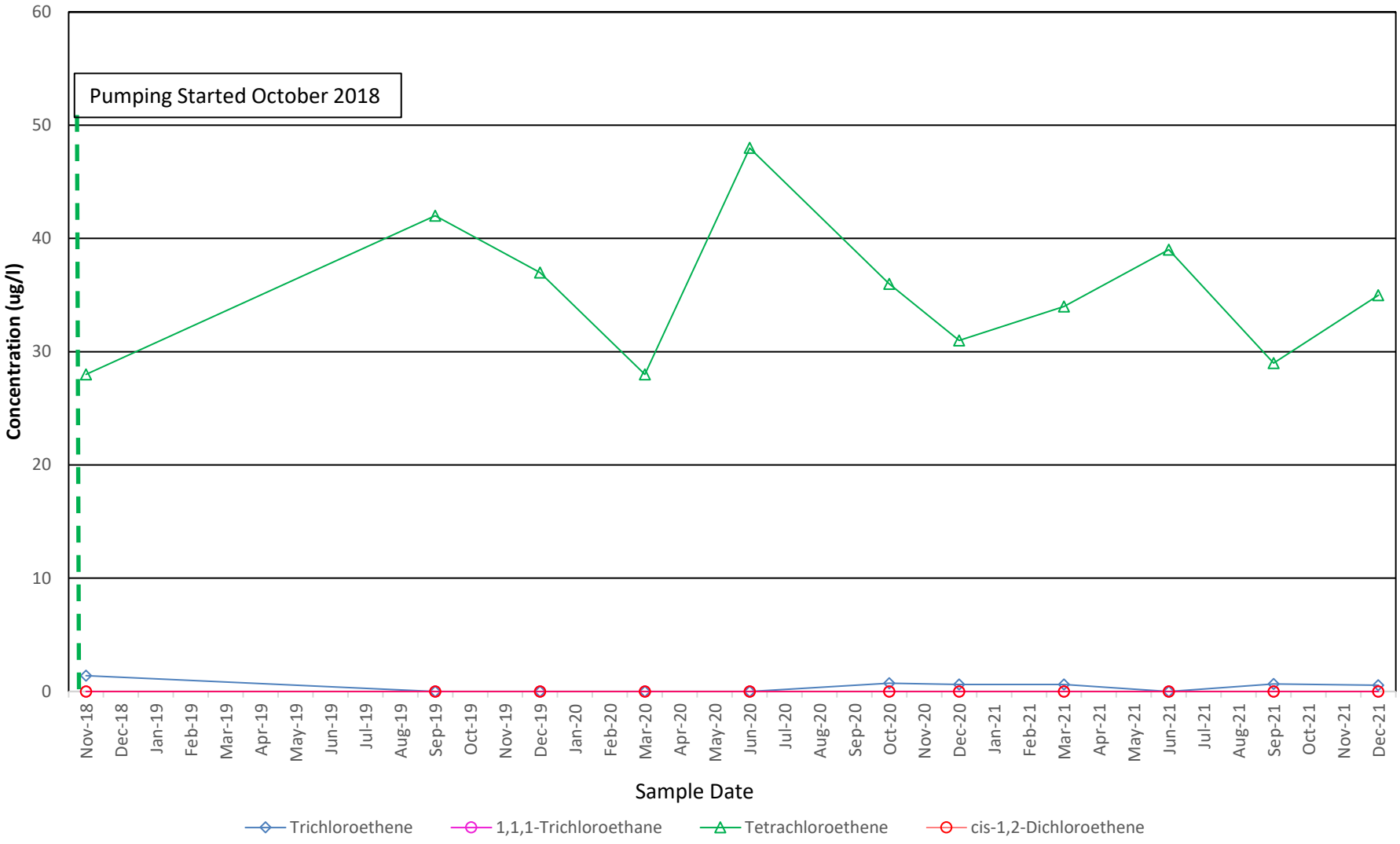


Figure 6-3
Predominate VOC Concentrations - Collection Well CW-23
Former York Naval Ordnance Plant
1425 Eden Road, York PA 17402



TABLES

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

JANUARY 1, 2021 - DECEMBER 31, 2021				
DATE	MONTHLY GROUNDWATER WITHDRAWAL (AST Totalizer, gallons)	AVERAGE MONTHLY TOTAL VOCs (ppb)		ESTIMATED MONTHLY VOC REMOVAL (pounds)
Jan-21	10,172,605	583		50
Feb-21	9,088,501	583	*	44
Mar-21	9,979,623	583	*	49
Apr-21	10,167,278	660		56
May-21	10,094,357	660	*	56
Jun-21	9,232,221	660	*	51
Jul-21	9,987,188	639		53
Aug-21	10,037,139	639	*	54
Sep-21	357,092	80	*	0.24
Oct-21	316,210	80		0.21
Nov-21	253,384	80	*	0.17
Dec-21	268,655	80	*	0.18
TOTAL	**79,954,253**	**NA**		**413**

NOTES:

1. * - No sample collected this month; concentration is the most recent
2. NA - Not Applicable
3. 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
Total	**3,878,482,995**	**49,124**

TABLE 5-1
2021 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]				Monthly[3]
	CW-9	CW-13	CW-15A	CW-17	CW-20	SUBTOTAL	CW-21	CW-22	CW-23	SUBTOTAL	TOTAL (gallons)
Jan-21	2,207,554	1,223,921	184,789	2,576,980	4,212,622	10,405,866	184,460	79,197	34,731	298,388	10,704,254
Feb-21	1,980,378	1,118,866	141,198	2,308,761	3,738,738	9,287,941	153,353	74,118	28,581	256,052	9,543,993
Mar-21	2,208,646	1,333,239	156,563	2,617,805	3,788,943	10,105,196	187,174	84,071	42,278	313,523	10,418,719
Apr-21	2,148,795	1,272,319	274,732	2,530,924	4,076,743	10,303,513	175,153	76,231	37,371	288,755	10,592,268
May-21	2,200,772	1,179,598	260,385	2,553,822	4,174,051	10,368,628	172,235	82,716	33,484	288,435	10,657,063
Jun-21	2,180,703	1,051,983	237,899	1,941,510	4,071,136	9,483,231	156,170	80,631	27,996	264,797	9,748,028
Jul-21	2,237,378	1,068,578	231,807	2,598,711	4,212,462	10,348,936	133,537	87,481	23,914	244,932	10,593,868
Aug-21	2,203,966	1,064,673	249,515	2,588,302	4,191,613	10,298,069	174,116	88,575	26,331	289,022	10,587,091
Sep-21	0	0	0	0	0	0	213,293	102,123	44,994	360,410	360,410
Oct-21	0	0	0	0	0	0	196,521	92,986	34,226	323,733	323,733
Nov-21	0	0	0	0	0	0	159,260	75,901	25,096	260,257	260,257
Dec-21	0	0	0	0	0	0	173,863	79,409	23,642	276,914	276,914
TOTALS	17,368,192	9,313,177	1,736,888	19,716,815	32,466,308	80,601,380	2,079,135	1,003,439	382,644	3,465,218	84,066,598

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.

APPENDIX A

Data Tables

Table A-1.
2021 Groundwater Data Summary - Collection Wells
Former York Naval Ordnance Plant
1425 Eden Road, York PA 17402

					WPL Collection Wells																		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-9 3/24/2021	Qual	CW-9 6/24/2021	Qual	CW-13 3/24/2021	Qual	CW-13 6/24/2021	Qual	CW-15A 6/24/2021	Qual	CW-17 3/24/2021	Qual	CW-17 6/24/2021	Qual	CW-20 3/24/2021	Qual	CW-20 6/24/2021	Qual	CW-21 3/24/2021	Qual	CW-21 6/24/2021	Qual	CW-21 9/23/2021	Qual
1,1,1,2-Tetrachloroethane	70	70		0.57	1	U	1	U	1	U	1	U	10	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,1-Trichloroethane	200	200	200	8000	8.4		15		2.4		1.8		3000		6.9		6.8		38		40		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	10	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	10	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethane	31	160		2.8	1.6		2.2		1.1		0.81	J	10	U	3.5		3.8		9.2		9.8		1	U	1	U	1	U
1,1-Dichloroethene	7	7	7	280	0.9	J	2.1		2.4		1.8		660		4.6		5		6.3		7.5		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	10	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	10	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	10	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	100	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	100	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	100	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	20	U	200	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
Benzene	5	5	5	0.46	1	U	1	U	1	U	1	U	10	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	50	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	10	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	40	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	1	U	10	U	1	U	1	U	1	U	1	U	1	U ^c	1	U ^c	1	U
Carbon Disulfide	1500	6200		810	5	U	5	U	5	U	5	U	50	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	10	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	10	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	10	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	10	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloroform	80	80		0.22	1	U	1	U	1	U	1	U	10	U	1	U	1	U	1	U	1	U	0.4	J	0.39	J	0.47	J
Chloromethane	30	30		190	1	U	1	U	1	U	1	U	10	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
cis-1,2-Dichloroethene	70	70	70	36	11		18		350		350		3500		18		21		27		31		1	U	1	U	1	U
cis-1,3-Dichloropropene	7.3	34		0.47	1	U	1	U	1	U	1	U	10	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	10	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	10	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	10	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	50	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Tetrachloroethene	5	5	5	11	200		290		160		130		870		55		58		650		790		170		170		140	
Toluene	1000	1000	1000	1100	1	U	1	U	1	U	1	U	4.8	J	1	U	1	U	1	U	1	U	1	U	1	U	1	U
trans-1,2-Dichloroethene	100	100	100	360	1	U	1	U	2		1.8		10	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
trans-1,3-Dichloropropene	7.3	34		0.47	1	U	1	U	1	U	1	U	10	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Trichloroethene	5	5	5	0.49	9.7		28		87		73		2000		27		30		180		210		1.5		1	U	1.3	
Vinyl Chloride	2	2	2	0.019	1	U	1	U	1.9		2.1		6.5	J	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Xylenes (Total)	10000	10000	10000	190	6	U	1	U	6	U	1	U	10	U	6	U	1	U	6	U	1	U	6	U	1	U	1	U

Total VOC

^c - CCV recovery is outside acceptance limits.

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.

Table A-1.
2021 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-21 12/22/2021	Qual	CW-22 3/24/2021	Qual	CW-22 6/24/2021	Qual	CW-22 9/23/2021	Qual	CW-22 12/22/2021	Qual	CW-23 3/24/2021	Qual	CW-23 6/24/2021	Qual	CW-23 9/23/2021	Qual	CW-23 12/22/2021	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	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	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	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	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	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	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	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	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	1	U
2-Butanone	4000	4000		5600	10	U	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	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	10	U
Acetone	38000	110000		14000	20	U	20	U	20	U	20	U	20	U	20	U	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	1	U
Bromochloromethane	90	90		83	5	U	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	1	U
Bromoform	80	80		3.3	4	U	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	1	U	1	U	1	U	1	U ^c	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	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	1	U
Chlorobenzene	100	100	100	78	1	U	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	1	U
Chloroethane	250	1200		21000	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloroform	80	80		0.22	0.41	J	0.55	J	0.49	J	0.58	J	0.5	J	1	U	1	U	1	U	1	U
Chloromethane	30	30		190	1	U	1	U	1	U	1	U	1	U	1	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	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	1	U
Ethylbenzene	700	700	700	1.5	1	U	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	1	U
Methylene chloride	5	5		11	1	U	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	5	U
Tetrachloroethene	5	5	5	11	150		85		83		78		74		34		39		29		35	
Toluene	1000	1000	1000	1100	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
trans-1,2-Dichloroethene	100	100	100	360	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	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	1	U
Trichloroethene	5	5	5	0.49	1.1		1.8		1	U	1.6		1.3		0.61	J	1	U	0.66	J	0.55	J
Vinyl Chloride	2	2	2	0.019	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Xylenes (Total)	10000	10000	10000	190	1	U	6	U	1	U	1	U	1	U	6	U	1	U	1	U	1	U

Total VOC

^c - CCV recovery is outside acceptance limits.

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

APPENDIX B

2021 Excel® Database Summary
Groundwater Treatment Plant Operations

Table B-1
2021 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
1/1/2021	1	23.9	1	23.9	330,123	6.804	1776	3	4	12.0	11.9
1/2/2021	1	23.9	1	23.9	330,438	6.770	1642	3	4	12.0	11.9
1/3/2021	1	23.9	1	23.9	330,626	6.756	1756	3	4	12.0	11.9
1/4/2021	1	23.9	1	23.9	330,555	6.756	1582	3	4	12.0	11.9
1/5/2021	1	23.9	1	23.9	331,072	6.754	1534	3	4	12.0	11.9
1/6/2021	1	23.9	1	23.9	330,673	6.757	1751	3	4	12.0	11.9
1/7/2021	1	23.9	1	23.9	330,217	6.771	1677	3	4	12.0	11.9
1/8/2021	1	23.9	1	23.9	330,001	6.787	1753	3	4	12.0	11.9
1/9/2021	1	23.9	1	23.9	329,629	6.772	1668	3	4	12.0	11.9
1/10/2021	1	23.9	1	23.9	329,488	6.769	1677	3	4	12.0	11.9
1/11/2021	1	23.9	1	23.9	329,434	6.772	1721	3	4	12.0	11.9
1/12/2021	1	23.9	1	23.9	329,046	6.803	1683	3	4	12.0	11.9
1/13/2021	1	23.9	1	23.9	329,284	6.857	1643	3	4	12.0	11.9
1/14/2021	1	23.9	1	23.9	328,440	6.881	1611	3	4	12.0	11.9
1/15/2021	1	23.9	1	23.9	328,483	6.885	1574	3	4	12.0	11.9
1/16/2021	1	23.9	1	23.9	328,417	6.875	1523	3	4	12.0	11.9
1/17/2021	1	23.9	1	23.9	328,098	6.886	1580	3	4	12.0	11.9
1/18/2021	1	23.9	1	23.9	328,086	6.885	1569	3	4	12.0	11.9
1/19/2021	1	23.9	1	23.9	327,548	6.897	1652	3	4	12.0	11.9
1/20/2021	1	23.9	1	23.9	327,397	6.821	1704	3	4	12.0	11.9
1/21/2021	1	23.9	1	23.9	327,599	6.821	1619	3	4	12.0	11.9
1/22/2021	1	23.9	1	23.9	327,313	6.836	1576	3	4	12.0	11.9
1/23/2021	1	23.9	1	23.9	326,318	6.836	1780	3	4	12.0	11.9
1/24/2021	1	23.9	1	23.9	325,630	6.851	1766	3	4	12.0	11.9
1/25/2021	1	23.9	1	23.9	326,343	6.855	1745	3	4	12.0	11.9
1/26/2021	1	23.9	1	23.9	326,016	6.852	1761	3	4	12.0	11.9
1/27/2021	1	23.9	1	23.9	326,380	6.857	1737	3	4	12.0	11.9
1/28/2021	1	23.9	1	23.9	325,605	6.868	1770	3	4	12.0	11.9
1/29/2021	1	23.9	1	23.9	324,939	6.900	1800	3	4	12.0	11.9
1/30/2021	1	23.9	1	23.9	324,729	6.869	1769	3	4	12.0	11.9
1/31/2021	1	23.9	1	23.9	324,678	6.875	1792	3	3	12.0	11.9
2/1/2021	1	23.9	1	23.9	324,584	6.870	1808	3	3	12.0	11.9
2/2/2021	1	23.9	1	23.9	324,219	6.869	1790	3	3	12.0	11.9
2/3/2021	1	23.9	1	23.9	324,050	6.870	1771	3	3	11.9	11.9
2/4/2021	2	17.6	2	17.6	238,699	6.868	1367	3	3	11.9	11.9
2/5/2021	1	23.9	1	23.9	326,126	6.854	1626	3	3	11.9	11.9
2/6/2021	1	23.9	1	23.9	325,919	6.866	1688	3	3	11.9	11.9
2/7/2021	1	23.9	1	23.9	326,015	6.852	1787	3	3	11.9	11.9
2/8/2021	1	23.9	1	23.9	325,844	6.870	1795	3	3	11.9	11.9
2/9/2021	1	23.9	1	23.9	325,798	6.869	1793	3	3	11.9	11.9
2/10/2021	1	23.9	1	23.9	325,339	6.869	1753	3	3	11.9	11.9
2/11/2021	1	23.9	1	23.9	326,208	6.869	1803	3	3	11.9	11.9
2/12/2021	1	23.9	1	23.9	326,019	6.901	1861	3	3	11.9	11.9
2/13/2021	1	23.9	1	23.9	325,850	6.853	1828	3	3	11.9	11.9
2/14/2021	1	23.9	1	23.9	330,388	6.868	1809	1	2	3.1	20.8
2/15/2021	5	21.7	5	21.5	295,774	6.853	1669	8	11	0.0	23.6
2/16/2021	1	23.9	1	23.9	330,587	6.867	1711	0	1	0.0	23.9
2/17/2021	3	22.1	3	22.0	303,650	6.868	1707	3	3	12.8	9.3
2/18/2021	1	23.9	1	23.9	333,791	6.870	1838	1	0	23.9	0.0
2/19/2021	1	23.9	1	23.9	330,593	6.871	1795	3	3	17.0	6.9
2/20/2021	1	23.9	1	23.9	336,528	6.870	1829	3	4	12.0	11.9
2/21/2021	1	23.9	1	23.9	338,394	6.870	1802	3	4	12.0	11.9
2/22/2021	1	23.9	1	23.9	337,428	6.868	1801	3	4	12.0	11.9
2/23/2021	1	23.9	1	23.9	336,364	6.870	1649	3	4	12.0	11.9
2/24/2021	1	23.9	1	23.9	334,527	6.857	1578	3	4	12.0	11.9
2/25/2021	1	23.9	1	23.9	334,277	6.857	1529	3	4	12.0	11.9
2/26/2021	1	23.9	1	23.9	334,235	6.862	1612	3	4	12.0	11.9
2/27/2021	1	23.9	1	23.9	334,273	6.855	1643	3	4	12.0	11.9
2/28/2021	1	23.9	1	23.9	333,022	6.866	1509	3	4	12.0	11.9
3/1/2021	1	23.9	1	23.9	334,250	6.838	1536	3	4	12.0	11.9
3/2/2021	1	23.9	1	23.9	335,031	6.836	1741	3	4	12.0	11.9
3/3/2021	1	23.9	1	23.9	335,384	6.836	1587	3	4	12.0	11.9
3/4/2021	1	23.9	1	23.9	335,131	6.836	1560	3	4	12.0	11.9
3/5/2021	1	23.9	1	23.9	335,802	6.838	1773	3	4	12.0	11.9
3/6/2021	1	23.9	1	23.9	335,404	6.830	1786	3	4	12.0	11.9
3/7/2021	1	23.9	1	23.9	335,657	6.836	1694	3	4	12.0	11.9

Table B-1
2021 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
3/8/2021	1	23.9	1	23.9	335,239	6.836	1630	3	4	12.0	11.9
3/9/2021	1	23.9	1	23.9	335,556	6.841	1509	3	4	12.0	11.9
3/10/2021	1	23.9	1	23.9	335,148	6.836	1483	3	4	12.0	11.9
3/11/2021	1	23.9	1	23.9	334,921	6.821	1404	3	4	12.0	11.9
3/12/2021	1	23.9	1	23.9	334,706	6.818	1391	3	4	12.0	11.9
3/13/2021	1	23.9	1	23.9	266,497	6.771	1387	3	4	12.0	11.9
3/14/2021	1	22.9	1	22.9	206,249	6.768	1265	3	4	12.0	11.9
3/15/2021	1	23.9	1	23.9	215,193	6.770	1487	3	4	12.0	11.9
3/16/2021	1	23.9	1	23.9	269,950	6.820	1638	3	4	12.0	11.9
3/17/2021	1	23.9	1	23.9	336,539	6.804	1617	3	4	12.0	11.9
3/18/2021	1	23.9	1	23.9	336,049	6.819	1483	3	4	12.0	11.9
3/19/2021	1	23.9	1	23.9	335,551	6.814	1633	3	4	12.0	11.9
3/20/2021	1	23.9	1	23.9	335,437	6.819	1611	3	4	12.0	11.9
3/21/2021	1	23.9	1	23.9	334,311	6.803	1571	3	4	12.0	11.9
3/22/2021	1	23.9	1	23.9	334,858	6.802	1508	3	4	12.0	11.9
3/23/2021	1	23.9	1	23.9	333,644	6.803	1485	3	4	12.0	11.9
3/24/2021	1	23.9	1	23.9	330,462	6.802	1418	3	4	12.0	11.9
3/25/2021	1	23.9	1	23.9	330,543	6.803	1384	3	4	12.0	11.9
3/26/2021	1	23.9	1	23.9	330,301	6.803	1345	3	4	12.0	11.9
3/27/2021	1	23.9	1	23.9	330,847	6.811	1386	3	4	12.0	11.9
3/28/2021	1	23.9	1	23.9	330,851	6.817	1431	3	4	12.0	11.9
3/29/2021	1	23.9	1	23.9	331,615	6.801	1465	3	4	12.0	11.9
3/30/2021	1	23.9	1	23.9	332,421	6.802	1506	3	4	12.0	11.9
3/31/2021	1	23.9	1	23.9	336,076	6.793	1429	3	4	12.0	11.9
4/1/2021	1	23.9	1	23.9	339,140	6.801	1638	3	4	12.0	11.9
4/2/2021	1	23.9	1	23.9	337,016	6.801	1696	3	4	12.0	11.9
4/3/2021	1	23.9	1	23.9	336,596	6.786	1597	3	4	12.0	11.9
4/4/2021	1	23.9	1	23.9	337,394	6.786	1448	3	4	12.0	11.9
4/5/2021	1	23.9	1	23.9	333,932	6.786	1405	3	4	12.0	11.9
4/6/2021	1	23.9	1	23.9	341,456	6.786	1396	3	4	12.0	11.9
4/7/2021	1	23.9	1	23.9	341,459	6.768	1387	3	4	12.0	11.9
4/8/2021	1	23.9	1	23.9	341,718	6.769	1394	3	4	12.0	11.9
4/9/2021	1	23.9	1	23.9	339,916	6.785	1422	3	4	12.0	11.9
4/10/2021	1	23.9	1	23.9	339,210	6.786	1422	3	4	12.0	11.9
4/11/2021	1	23.9	1	23.9	340,531	6.770	1396	3	4	12.0	11.9
4/12/2021	1	23.9	1	23.9	340,061	6.786	1443	3	4	12.0	11.9
4/13/2021	1	23.9	1	23.9	339,922	6.786	1424	3	4	12.0	11.9
4/14/2021	1	23.9	1	23.9	341,543	6.777	1440	3	4	12.0	11.9
4/15/2021	1	23.9	1	23.9	341,471	6.770	1443	3	4	12.0	11.9
4/16/2021	1	23.9	1	23.9	341,835	6.768	1477	3	4	12.0	11.9
4/17/2021	1	23.9	1	23.9	341,708	6.769	1469	3	4	12.0	11.9
4/18/2021	1	23.9	1	23.9	341,013	6.768	1445	3	4	12.0	11.9
4/19/2021	1	23.9	1	23.9	340,820	6.769	1440	3	4	12.0	11.9
4/20/2021	1	23.9	1	23.9	340,724	6.761	1404	3	4	12.0	11.9
4/21/2021	1	23.9	1	23.9	341,289	6.768	1444	3	4	12.0	11.9
4/22/2021	1	23.9	1	23.9	341,013	6.768	1617	3	4	12.0	11.9
4/23/2021	1	23.9	1	23.9	340,706	6.759	1546	3	4	12.0	11.9
4/24/2021	1	23.9	1	23.9	340,815	6.752	1448	3	4	12.0	11.9
4/25/2021	1	23.9	1	23.9	340,369	6.770	1446	3	4	12.0	11.9
4/26/2021	1	23.9	1	23.9	338,327	6.761	1437	3	4	12.0	11.9
4/27/2021	1	23.9	1	23.9	333,410	6.737	1371	3	4	12.0	11.9
4/28/2021	1	23.9	1	23.9	331,532	6.705	1316	3	4	12.0	11.9
4/29/2021	1	23.9	1	23.9	331,159	6.737	1306	3	4	12.0	11.9
4/30/2021	1	23.9	1	23.9	331,193	6.768	1356	3	4	12.0	11.9
5/1/2021	1	23.9	1	23.9	331,063	6.782	1382	3	4	12.0	11.9
5/2/2021	1	23.9	1	23.9	330,964	6.719	1333	3	4	12.0	11.9
5/3/2021	1	23.9	1	23.9	331,180	6.751	1317	3	4	12.0	11.9
5/4/2021	1	23.9	1	23.9	330,361	6.718	1309	3	4	12.0	11.9
5/5/2021	1	23.9	1	23.9	330,190	6.767	1307	3	4	12.0	11.9
5/6/2021	2	17.4	2	17.4	239,590	6.752	1020	3	4	12.0	11.9
5/7/2021	1	23.9	1	23.9	331,439	6.766	1397	3	4	12.0	11.9
5/8/2021	1	23.9	1	23.9	331,676	6.766	1419	3	4	12.0	11.9
5/9/2021	1	23.9	1	23.9	332,298	6.766	1432	3	4	12.0	11.9
5/10/2021	1	23.9	1	23.9	331,238	6.766	1389	3	4	12.0	11.9
5/11/2021	1	23.9	1	23.9	330,566	6.768	1373	3	4	12.0	11.9
5/12/2021	1	23.9	1	23.9	330,792	6.756	1381	3	4	12.0	11.9

Table B-1
2021 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
5/13/2021	1	23.9	1	23.9	330,959	6.767	1367	3	4	12.0	11.9
5/14/2021	1	23.9	1	23.9	330,675	6.745	1353	3	4	12.0	11.9
5/15/2021	1	23.9	1	23.9	330,182	6.744	1354	3	4	12.0	11.9
5/16/2021	1	23.9	1	23.9	329,861	6.751	1352	3	4	12.0	11.9
5/17/2021	1	23.9	1	23.9	329,789	6.751	1344	3	4	12.0	11.9
5/18/2021	1	23.9	1	23.9	329,608	6.717	1330	3	4	12.0	11.9
5/19/2021	1	23.9	1	23.9	327,285	6.703	1306	3	4	12.0	11.9
5/20/2021	1	23.9	1	23.9	325,686	6.699	1298	3	4	12.0	11.9
5/21/2021	1	23.9	1	23.9	325,999	6.686	1324	3	4	12.0	11.9
5/22/2021	1	23.9	1	23.9	325,605	6.681	1326	3	4	12.0	11.9
5/23/2021	1	23.9	1	23.9	324,936	6.644	1309	3	4	12.0	11.9
5/24/2021	1	23.9	1	23.9	324,801	6.752	1318	3	4	12.0	11.9
5/25/2021	1	23.9	1	23.9	325,149	6.725	1328	3	4	12.0	11.9
5/26/2021	1	23.9	1	23.9	325,984	6.701	1315	3	4	12.0	11.9
5/27/2021	1	23.9	1	23.9	326,013	6.688	1315	3	4	12.0	11.9
5/28/2021	1	23.9	1	23.9	324,726	6.766	1318	3	4	12.0	11.9
5/29/2021	1	23.9	1	23.9	324,989	6.763	1404	3	4	12.0	11.9
5/30/2021	1	23.9	1	23.9	325,566	6.764	1416	3	4	12.0	11.9
5/31/2021	1	23.9	1	23.9	325,187	6.750	1361	3	4	12.0	11.9
6/1/2021	1	23.9	1	23.9	288,162	6.780	1276	3	4	12.0	11.9
6/2/2021	1	23.9	1	23.9	239,048	6.780	1164	3	4	12.0	11.9
6/3/2021	1	23.9	1	23.9	239,141	6.782	1156	3	4	12.0	11.9
6/4/2021	1	23.9	1	23.9	239,303	6.761	1152	3	4	12.0	11.9
6/5/2021	1	23.9	1	23.9	239,307	6.698	1149	3	4	12.0	11.9
6/6/2021	1	23.9	1	23.9	239,134	6.683	1149	3	4	12.0	11.9
6/7/2021	1	23.9	1	23.9	238,938	6.668	1131	3	4	12.0	11.9
6/8/2021	1	23.9	1	23.9	296,512	6.636	1265	3	4	12.0	11.9
6/9/2021	1	23.9	1	23.9	326,681	6.668	1324	3	4	12.0	11.9
6/10/2021	2	23.2	2	23.1	315,013	6.685	1286	3	5	12.0	11.1
6/11/2021	1	23.9	1	23.9	326,387	6.756	1331	3	4	12.0	11.9
6/12/2021	1	23.9	1	23.9	329,087	6.717	1338	3	4	12.0	11.9
6/13/2021	1	23.9	1	23.9	330,058	6.702	1331	3	4	12.0	11.9
6/14/2021	1	23.9	1	23.9	329,123	6.702	1316	3	4	12.0	11.9
6/15/2021	1	23.9	1	23.9	327,365	6.702	1319	3	4	12.0	11.9
6/16/2021	1	23.9	1	23.9	323,250	6.717	1314	3	4	12.0	11.9
6/17/2021	1	23.9	1	23.9	322,583	6.717	1315	3	4	12.0	11.9
6/18/2021	1	23.9	1	23.9	327,610	6.674	1324	3	4	12.0	11.9
6/19/2021	1	23.9	1	23.9	329,132	6.671	1321	3	4	12.0	11.9
6/20/2021	1	23.9	1	23.9	329,040	6.639	1320	3	4	12.0	11.9
6/21/2021	1	23.9	1	23.9	329,531	6.638	1310	3	4	12.0	11.9
6/22/2021	1	23.9	1	23.9	329,587	6.722	1320	3	4	12.0	11.9
6/23/2021	1	23.9	1	23.9	329,962	6.715	1333	3	4	12.0	11.9
6/24/2021	1	23.9	1	23.9	330,535	6.710	1353	3	4	12.0	11.9
6/25/2021	1	23.9	1	23.9	330,783	6.671	1336	3	4	12.0	11.9
6/26/2021	1	23.9	1	23.9	330,741	6.647	1326	3	4	12.0	11.9
6/27/2021	1	23.9	1	23.9	330,261	6.604	1332	3	4	12.0	11.9
6/28/2021	1	23.9	1	23.9	329,310	6.565	1319	3	4	12.0	11.9
6/29/2021	1	23.9	1	23.9	329,788	6.539	1313	3	4	12.0	11.9
6/30/2021	1	23.9	1	23.9	326,849	6.558	1324	3	4	12.0	11.9
7/1/2021	1	23.9	1	23.9	325,134	6.647	1328	3	4	12.0	11.9
7/2/2021	1	23.9	1	23.9	325,096	6.668	1315	3	4	12.0	11.9
7/3/2021	1	23.9	1	23.9	324,973	6.684	1339	3	4	12.0	11.9
7/4/2021	1	23.9	1	23.9	322,675	6.653	1332	3	4	12.0	11.9
7/5/2021	1	23.9	1	23.9	320,281	6.604	1319	3	4	12.0	11.9
7/6/2021	1	23.9	1	23.9	322,036	6.556	1312	3	4	12.0	11.9
7/7/2021	1	23.9	1	23.9	325,531	6.542	1314	3	4	12.0	11.9
7/8/2021	1	23.9	1	23.9	326,375	6.650	1319	3	4	12.0	11.9
7/9/2021	1	23.9	1	23.9	322,810	6.659	1310	3	4	12.0	11.9
7/10/2021	1	23.9	1	23.9	322,503	6.636	1316	3	4	12.0	11.9
7/11/2021	1	23.9	1	23.9	322,222	6.635	1315	3	4	12.0	11.9
7/12/2021	1	23.9	1	23.9	322,057	6.619	1316	3	4	12.0	11.9
7/13/2021	1	23.9	1	23.9	322,865	6.570	1303	3	4	12.0	11.9
7/14/2021	1	23.9	1	23.9	323,719	6.595	1311	3	4	12.0	11.9
7/15/2021	1	23.9	1	23.9	323,382	6.585	1312	3	4	12.0	11.9
7/16/2021	1	23.9	1	23.9	322,882	6.555	1307	3	4	12.0	11.9
7/17/2021	1	23.9	1	23.9	322,563	6.601	1321	3	4	12.0	11.9

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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
7/18/2021	1	23.9	1	23.9	322,323	6.649	1319	3	4	12.0	11.9
7/19/2021	1	23.9	1	23.9	321,671	6.625	1316	3	4	12.0	11.9
7/20/2021	1	23.9	1	23.9	321,611	6.606	1315	3	4	12.0	11.9
7/21/2021	1	23.9	1	23.9	321,507	6.619	1312	3	4	12.0	11.9
7/22/2021	1	23.9	1	23.9	321,296	6.633	1325	3	4	12.0	11.9
7/23/2021	1	23.9	1	23.9	320,696	6.617	1326	3	4	12.0	11.9
7/24/2021	1	23.9	1	23.9	320,853	6.585	1330	3	4	12.0	11.9
7/25/2021	1	23.9	1	23.9	320,756	6.577	1319	3	4	12.0	11.9
7/26/2021	1	23.9	1	23.9	318,917	6.569	1307	3	4	12.0	11.9
7/27/2021	1	23.9	1	23.9	318,456	6.543	1313	3	4	12.0	11.9
7/28/2021	1	23.9	1	23.9	319,453	6.569	1316	3	4	12.0	11.9
7/29/2021	1	23.9	1	23.9	321,103	6.598	1319	3	4	12.0	11.9
7/30/2021	1	23.9	1	23.9	320,904	6.586	1310	3	4	12.0	11.9
7/31/2021	1	23.9	1	23.9	320,538	6.604	1324	3	4	12.0	11.9
8/1/2021	1	23.9	1	23.9	320,624	6.646	1323	3	4	12.0	11.9
8/2/2021	1	23.9	1	23.9	321,017	6.632	1320	3	4	12.0	11.9
8/3/2021	1	23.9	1	23.9	320,891	6.619	1321	3	4	12.0	11.9
8/4/2021	1	23.9	1	23.9	320,860	6.622	1320	3	4	12.0	11.9
8/5/2021	1	23.9	1	23.9	320,488	6.569	1322	3	4	12.0	11.9
8/6/2021	1	23.9	1	23.9	321,415	6.539	1313	3	4	12.0	11.9
8/7/2021	1	23.9	1	23.9	320,787	6.556	1328	3	4	12.0	11.9
8/8/2021	1	23.9	1	23.9	320,438	6.534	1324	3	4	12.0	11.9
8/9/2021	1	23.9	1	23.9	320,631	6.523	1322	3	4	12.0	11.9
8/10/2021	1	23.9	1	23.9	320,920	6.523	1319	3	4	12.0	11.9
8/11/2021	1	23.9	1	23.9	320,563	6.553	1322	3	4	12.0	11.9
8/12/2021	1	23.9	1	23.9	320,037	6.478	1309	3	4	12.0	11.9
8/13/2021	1	23.9	1	23.9	319,835	6.554	1322	3	4	12.0	11.9
8/14/2021	1	23.9	1	23.9	325,865	6.538	1330	3	4	12.0	11.9
8/15/2021	1	23.9	1	23.9	322,242	6.561	1326	3	4	12.0	11.9
8/16/2021	1	23.9	1	23.9	322,975	6.575	1311	3	4	12.0	11.9
8/17/2021	1	23.9	1	23.9	319,831	6.569	1304	3	4	12.0	11.9
8/18/2021	9	21.9	12	21.4	287,476	6.552	1200	3	9	10.5	11.1
8/19/2021	1	23.9	1	23.9	331,661	6.505	1331	4	3	11.9	12.0
8/20/2021	1	23.9	1	23.9	334,387	6.504	1345	4	3	11.9	12.0
8/21/2021	1	23.9	1	23.9	329,295	6.493	1345	4	3	11.9	12.0
8/22/2021	1	23.9	1	23.9	326,124	6.551	1351	4	3	11.9	12.0
8/23/2021	3	23.9	3	23.8	324,375	6.486	1330	4	5	11.7	12.0
8/24/2021	1	23.9	1	23.9	328,764	6.470	1335	4	3	11.9	12.0
8/25/2021	1	23.9	1	23.9	327,710	6.463	1326	4	3	11.9	12.0
8/26/2021	1	23.9	1	23.9	328,210	6.440	1334	4	3	11.9	12.0
8/27/2021	1	23.9	1	23.9	331,358	6.501	1332	4	3	11.9	12.0
8/28/2021	1	23.9	1	23.9	332,261	6.536	1341	4	3	11.9	12.0
8/29/2021	1	23.9	1	23.9	331,532	6.535	1337	4	3	11.9	12.0
8/30/2021	1	23.9	1	23.9	331,671	6.519	1330	4	3	11.9	12.0
8/31/2021	1	23.9	1	23.9	332,896	6.521	1334	4	3	11.9	12.0
9/1/2021	9	1.5	8	1.1	10,111	7.052	110	8	0	1.0	0.0
9/2/2021	9	1.7	9	1.2	11,266	6.972	127	5	5	0.5	0.7
9/3/2021	15	2.2	15	1.5	13,600	7.021	148	0	11	0.0	1.5
9/4/2021	20	2.4	19	1.5	13,086	7.053	154	0	12	0.0	1.5
9/5/2021	11	2.0	11	1.5	13,217	7.080	126	9	2	1.1	0.1
9/6/2021	10	1.9	10	1.4	12,783	7.057	128	10	0	1.3	0.0
9/7/2021	10	1.9	10	1.4	12,443	7.083	133	10	0	1.3	0.0
9/8/2021	10	1.9	10	1.4	12,752	7.052	134	2	9	0.1	1.2
9/9/2021	9	1.7	9	1.3	11,486	7.120	136	0	9	0.0	1.3
9/10/2021	22	2.2	11	1.3	11,634	7.111	134	0	9	0.0	1.3
9/11/2021	10	1.9	10	1.4	12,842	7.116	127	10	1	1.2	0.1
9/12/2021	9	1.7	9	1.3	11,624	7.109	120	9	0	1.1	0.0
9/13/2021	10	1.9	10	1.4	12,876	7.042	138	10	0	1.3	0.0
9/14/2021	9	1.7	9	1.3	11,578	7.078	133	2	8	0.2	1.0
9/15/2021	9	1.7	9	1.3	11,572	7.123	126	0	9	0.0	1.3
9/16/2021	10	1.9	9	1.3	11,679	7.094	132	0	9	0.0	1.3
9/17/2021	9	1.8	9	1.3	11,504	7.125	124	7	3	0.8	0.3
9/18/2021	9	1.8	9	1.3	11,506	7.119	126	9	0	1.1	0.0
9/19/2021	9	1.8	9	1.3	11,535	7.131	124	9	0	1.1	0.0
9/20/2021	9	1.8	9	1.3	11,510	7.131	122	6	4	0.7	0.4
9/21/2021	9	1.8	9	1.3	11,496	7.117	119	0	9	0.0	1.3

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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
9/22/2021	9	1.8	9	1.3	11,503	7.131	119	0	9	0.0	1.3
9/23/2021	9	1.8	9	1.3	11,495	7.140	123	3	7	3.0	0.9
9/24/2021	9	1.8	9	1.3	11,513	7.145	124	9	0	1.1	0.0
9/25/2021	9	1.8	9	1.3	11,510	7.112	123	9	0	1.1	0.0
9/26/2021	10	2.0	10	1.4	12,789	7.115	128	10	1	1.2	0.0
9/27/2021	9	1.8	9	1.3	11,504	7.091	122	0	9	0.0	1.2
9/28/2021	9	1.8	9	1.3	11,532	7.123	120	0	9	0.0	1.2
9/29/2021	9	1.8	9	1.3	11,649	7.071	125	0	9	0.0	1.3
9/30/2021	9	1.8	9	1.3	11,497	7.137	127	9	1	1.1	0.0
10/1/2021	9	1.8	9	1.3	11,485	7.126	147	9	0	1.1	0.0
10/2/2021	9	1.8	9	1.3	11,496	7.131	134	9	0	1.1	0.0
10/3/2021	8	1.6	8	1.1	10,219	7.105	123	4	5	0.4	0.6
10/4/2021	9	1.8	9	1.3	11,488	7.110	137	0	9	0.0	1.2
10/5/2021	9	1.8	9	1.3	11,468	7.113	120	0	9	0.0	1.2
10/6/2021	8	1.6	8	1.1	10,186	7.130	111	3	6	0.3	0.7
10/7/2021	8	1.6	8	1.1	10,236	7.137	125	8	0	1.0	0.0
10/8/2021	9	1.7	9	1.2	11,213	7.116	144	9	0	1.1	0.0
10/9/2021	8	1.6	8	1.1	10,178	7.145	140	8	0	1.0	0.0
10/10/2021	8	1.6	8	1.1	10,171	7.167	121	3	6	0.3	0.7
10/11/2021	9	1.6	9	1.2	10,741	7.157	116	0	8	0.0	1.1
10/12/2021	9	1.7	9	1.2	10,554	7.137	120	0	9	0.0	1.2
10/13/2021	8	1.6	8	1.1	10,149	7.175	112	3	6	0.3	0.7
10/14/2021	8	1.6	8	1.1	10,157	7.147	125	8	0	1.0	0.0
10/15/2021	8	1.6	8	1.1	10,142	7.142	141	8	0	1.0	0.0
10/16/2021	8	1.6	8	1.1	10,152	7.155	138	8	0	1.0	0.0
10/17/2021	8	1.6	8	1.1	10,141	7.169	143	4	5	0.4	0.6
10/18/2021	8	1.6	8	1.1	10,134	7.135	159	0	8	0.0	1.1
10/19/2021	10	1.7	10	1.1	9,948	7.137	152	1	10	0.0	1.1
10/20/2021	8	1.4	8	1.0	8,884	7.155	138	1	7	0.1	1.0
10/21/2021	8	1.5	8	1.1	9,757	7.157	123	8	0	1.1	0.0
10/22/2021	8	1.6	8	1.1	10,120	7.137	115	8	0	1.1	0.0
10/23/2021	8	1.6	8	1.1	10,110	7.098	145	8	0	1.1	0.0
10/24/2021	7	1.4	7	1.0	8,841	7.137	157	3	5	0.3	0.7
10/25/2021	8	1.6	8	1.1	10,109	7.133	128	0	8	0.0	1.2
10/26/2021	8	1.6	8	1.1	10,115	7.113	137	0	8	0.0	1.2
10/27/2021	7	1.4	7	1.0	8,844	7.145	151	3	5	0.4	0.6
10/28/2021	8	1.6	8	1.1	10,103	7.137	151	8	0	1.1	0.0
10/29/2021	8	1.6	8	1.1	10,106	7.116	180	8	0	1.1	0.0
10/30/2021	7	1.4	7	1.0	8,851	7.149	162	7	0	1.0	0.0
10/31/2021	8	1.6	8	1.1	10,112	7.162	168	2	7	0.2	0.9
11/1/2021	8	1.6	8	1.1	10,104	7.145	168	0	8	0.0	1.2
11/2/2021	8	1.5	8	1.1	9,987	7.150	195	0	8	0.0	1.1
11/3/2021	8	1.4	7	1.0	8,845	7.162	291	4	5	0.5	0.5
11/4/2021	8	1.6	8	1.1	10,114	7.150	345	8	0	1.1	0.0
11/5/2021	8	1.6	8	1.1	10,112	7.139	340	8	0	1.1	0.0
11/6/2021	7	1.4	7	1.0	8,860	7.150	327	7	0	1.0	0.0
11/7/2021	3	0.6	3	0.4	3,835	7.160	172	0	3	0.0	0.4
11/8/2021	0	0.0	0	0.0	0	7.160	222	0	0	0.0	0.0
11/9/2021	0	0.0	0	0.0	0	7.155	123	0	0	0.0	0.0
11/10/2021	0	0.0	0	0.0	0	7.139	115	0	0	0.0	0.0
11/11/2021	12	1.6	9	1.0	9,531	7.176	180	0	8	0.0	1.1
11/12/2021	1	0.2	1	0.1	2,523	7.170	115	0	1	0.0	0.1
11/13/2021	12	2.3	12	1.6	14,449	7.170	252	5	7	0.6	1.0
11/14/2021	9	1.8	9	1.2	11,496	7.158	326	5	4	0.7	0.6
11/15/2021	8	1.6	8	1.1	10,161	7.157	264	4	4	0.5	0.6
11/16/2021	8	1.6	8	1.1	10,149	7.164	357	4	4	0.5	0.6
11/17/2021	8	1.6	8	1.1	10,144	7.160	327	4	4	0.5	0.6
11/18/2021	8	1.5	8	1.1	10,130	7.143	195	4	4	0.5	0.6
11/19/2021	8	1.6	8	1.1	10,112	7.132	261	4	4	0.5	0.6
11/20/2021	7	1.4	7	1.0	8,858	7.143	347	3	4	0.4	0.6
11/21/2021	8	1.5	8	1.1	10,128	7.145	253	4	4	0.5	0.6
11/22/2021	8	1.5	8	1.1	10,122	7.129	253	4	4	0.5	0.6
11/23/2021	7	1.3	7	1.0	8,846	7.151	395	4	3	0.5	0.4
11/24/2021	8	1.5	8	1.0	9,332	7.179	397	4	4	0.5	0.5
11/25/2021	8	1.5	8	1.1	10,113	7.197	310	4	4	0.5	0.6
11/26/2021	7	1.3	7	1.0	8,840	7.201	324	3	4	0.4	0.6

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11/27/2021	8	1.5	8	1.1	10,105	7.134	473	4	4	0.5	0.6
11/28/2021	7	1.3	7	0.9	8,838	7.160	421	4	3	0.5	0.4
11/29/2021	7	1.3	7	0.9	8,829	7.152	347	3	4	0.4	0.6
11/30/2021	7	1.3	7	0.9	8,821	7.150	423	4	3	0.5	0.4
12/1/2021	8	1.5	8	1.1	10,086	7.099	325	4	4	0.5	0.6
12/2/2021	7	1.3	7	0.9	8,822	7.145	199	3	4	0.4	0.6
12/3/2021	7	1.3	7	0.9	8,818	7.140	209	4	3	0.5	0.4
12/4/2021	7	1.3	7	0.9	8,814	7.145	223	3	4	0.4	0.6
12/5/2021	7	1.3	7	0.9	8,817	7.173	304	4	3	0.5	0.4
12/6/2021	7	1.3	7	0.9	8,809	7.178	212	3	4	0.4	0.6
12/7/2021	7	1.3	7	0.9	8,813	7.195	508	4	3	0.5	0.4
12/8/2021	7	1.3	7	0.9	8,819	7.197	500	3	4	0.4	0.5
12/9/2021	7	1.3	7	0.9	8,816	7.204	405	4	3	0.5	0.4
12/10/2021	7	1.3	7	0.9	8,821	7.174	313	3	4	0.4	0.5
12/11/2021	7	1.3	7	0.9	8,807	7.155	212	4	3	0.5	0.4
12/12/2021	7	1.3	7	0.9	8,814	7.163	287	3	4	0.4	0.5
12/13/2021	7	1.3	7	0.9	8,805	7.120	344	4	3	0.5	0.4
12/14/2021	7	1.3	7	0.9	8,809	7.104	357	3	4	0.4	0.5
12/15/2021	6	1.1	6	0.8	7,552	7.162	332	3	3	0.4	0.4
12/16/2021	7	1.3	7	0.9	8,827	7.146	191	4	3	0.5	0.4
12/17/2021	7	1.3	7	0.9	8,841	7.121	187	3	4	0.4	0.5
12/18/2021	7	1.3	7	0.9	8,856	7.182	222	4	3	0.5	0.4
12/19/2021	7	1.3	7	0.9	8,867	7.176	327	3	4	0.4	0.5
12/20/2021	7	1.3	7	0.9	8,878	7.116	467	4	3	0.5	0.4
12/21/2021	6	1.1	6	0.8	7,621	7.194	548	3	3	0.4	0.4
12/22/2021	7	1.3	7	0.9	8,869	7.229	479	3	4	0.4	0.5
12/23/2021	7	1.3	7	0.9	8,825	7.200	550	4	3	0.5	0.4
12/24/2021	7	1.3	7	0.9	8,810	7.174	353	3	4	0.4	0.5
12/25/2021	6	1.1	6	0.8	7,556	7.160	221	3	3	0.4	0.4
12/26/2021	7	1.3	7	0.9	8,828	7.212	226	4	3	0.5	0.4
12/27/2021	7	1.3	7	0.9	8,816	7.186	536	3	4	0.4	0.5
12/28/2021	6	1.1	6	0.8	7,558	7.224	409	3	3	0.4	0.4
12/29/2021	7	1.3	7	0.9	8,810	7.210	244	4	3	0.5	0.4
12/30/2021	7	1.3	7	0.9	8,853	7.159	234	3	4	0.4	0.5
12/31/2021	6	1.1	6	0.8	7,618	7.198	214	3	3	0.4	0.4

APPENDIX C

2021 Operation and Maintenance Data Summary

Table C-1
2021 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		1/7/2021	1/19/2021	2/11/2021	2/25/2021	3/11/2021	3/25/2021	4/8/2021	4/22/2021	5/13/2021	5/27/2021	6/9/2021	6/24/2021	7/8/2021	7/22/2021	8/13/2021	8/26/2021	9/6/2021	9/28/2021	10/7/2021	10/28/2021	11/17/2021	11/23/2021	12/6/2021	12/21/2021
PTA INFL. PUMP																									
Full Load = 17	AMPS	NM	9.7	NM	NM	NM	NM	NM	10.20	NM	NM	NM	NM	NM	9.50	NM	NM	NM	NM	NM	7.40	NM	NM	NM	NM
	FLOW RATE gpm	239	229	228	252	238	229	238	245	251	224	238	226	232	216	235	231	148	160	161	161	161	161	161	161
PTA BLOWER																									
Full Load = 24	AMP READINGS	NM	22.75	NM	NM	NM	NM	NM	22.08	NM	NM	NM	NM	NM	21.73	NM	NM	NM	NM	NM	24.07	NM	NM	NM	NM
	PRESSURE inches water	16.3	15.8	16.7	16.1	16.4	15.6	15.6	16.6	16.1	16.25	14.8	15.6	14.8	15.2	14.8	15.1	14.8	14.5	14.9	15.3	15.6	15.9	15	15.5
TOWER PANEL																									
	VISUAL INSPECT	NA	OK	NA	NA	NA	NA	NA	OK	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	OK	NA	NA	NA	NA	NA	OK	NA	NA	NA	NA	NA	OK	NA	NA	NA	NA
TOWER SAMPLING																									
	AST EFFLUENT pH	7.58	NM	7.60	NM	7.7	NM	7.73	NM	7.64	NM	7.7	NM	7.72	NM	7.7	NM	7.5	NM	7.5	NM	7.3	NM	7.5	NM
	AST INFLUENT pH	6.30	6.88	6.37	6.87	6.42	6.89	6.42	6.76	6.49	6.7	6.4	6.73	6.49	6.66	6.4	6.50	6.7	7.12	6.3	7.16	6.3	7.15	6.6	7.18
REDUX CHEMICAL INJECTION																									
	LMI PUMP SPEED (%)	NA	40	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	44	42	26	29	29	29	29	29	29	29
	LMI INJECTION RATE (milis/min)	NA	10.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	12.5	12.4	7.7	8.3	8.4	8.3	8.4	8.4	8.4	8.4
WPL WELLS																									
	TOTAL FLOW RATE gpm	235	229	233	238	238	234	243	239	235	233	234	232	233	230	230	234	OL	OL	OL	OL	OL	OL	OL	OL
CW-9; Full Load = 5.5	AMPS	NM	3.54	NM	NM	NM	NM	NM	3.56	NM	NM	NM	NM	NM	3.58	NM	NM	OL	OL	OL	OL	OL	OL	OL	OL
CW-9	FLOW RATE gpm	49.9	50.1	51.4	50.3	50.1	51.5	51.1	50.1	49.6	50.6	49.7	50.6	50.7	50.3	48.6	50.3	OL	OL	OL	OL	OL	OL	OL	OL
CW-9	PRESSURE psi	6	6	6	6	6	6	6	10	6	10	16	6	6	8	8	32	OL	OL	OL	OL	OL	OL	OL	OL
CW-9	CLEAN "Y" STRAINER	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	OL	OL	OL	OL	OL	OL	OL	OL
CW-9	HIGH LEVEL ALARM?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	OL	OL	OL	OL	OL	OL	OL	OL
CW-13; Full Load = 11.5	AMPS	NM	8.85	NM	NM	NM	NM	NM	9.03	NM	NM	NM	NM	NM	8.97	NM	NM	OL	OL	OL	OL	OL	OL	OL	OL
CW-13	FLOW RATE gpm	28.3	27.5	26.0	30.1	30.1	29.7	31.1	29.5	27.8	24.5	24.7	24.4	24.3	24.1	23.5	23.6	OL	OL	OL	OL	OL	OL	OL	OL
CW-13	PRESSURE psi	72	74	73	72	72	71	70	71	62	74	74	74	73	74	73	74	OL	OL	OL	OL	OL	OL	OL	OL
CW-13	CLEAN "Y" STRAINER	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	OL	OL	OL	OL	OL	OL	OL	OL
CW-13	HIGH LEVEL ALARM?	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	OL	OL	OL	OL	OL	OL	OL	OL
CW-17; Full Load = 11.5	AMPS	NM	9.34	NM	NM	NM	NM	NM	9.32	NM	NM	NM	NM	NM	9.97	NM	NM	OL	OL	OL	OL	OL	OL	OL	OL
CW-17	FLOW RATE gpm	57.6	57.7	57.7	58.5	59	58.5	59.8	58.6	57.8	59	59	58.5	58.7	56.1	59.1	59.4	OL	OL	OL	OL	OL	OL	OL	OL
CW-17	PRESSURE psi	55	56	56	56	55	57	54	53	56	55	55	55	50	58	56	56	OL	OL	OL	OL	OL	OL	OL	OL
CW-17	CLEAN "Y" STRAINER	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	OL	OL	OL	OL	OL	OL	OL	OL
CW-17	HIGH LEVEL ALARM?	Y	N	N	Y	Y	Y	N	N	N	N	Y	N	N	N	N	Y	OL	OL	OL	OL	OL	OL	OL	OL
CW-15A; Full Load = 1.6	AMPS	NM	0.99	NM	NM	NM	NM	NM	1.63	NM	NM	NM	NM	NM	1.76	NM	NM	OL	OL	OL	OL	OL	OL	OL	OL
CW-15A	FLOW RATE gpm	4.9	3.9	3.5	4.4	5	OL	6.6	6.8	6.2	5.6	5.6	5.4	5.2	5.2	5.2	6.4	OL	OL	OL	OL	OL	OL	OL	OL
CW-15A	PRESSURE psi	30	32	26	18	41	OL	40	30	27.8	36	36	32	33	34	30	20	OL	OL	OL	OL	OL	OL	OL	OL
CW-15A	CLEAN "Y" STRAINER	N	N	N	N	N	OL	N	N	N	N	N	N	N	N	N	N	OL	OL	OL	OL	OL	OL	OL	OL
CW-15A	HIGH LEVEL ALARM?	N	N	N	Y	Y	Y	Y	N	N	N	N	N	N	N	N	Y	OL	OL	OL	OL	OL	OL	OL	OL
CW-20 Full Load = 17.3	AMPS	NM	13.04	NM	NM	NM	NM	NM	12.88	NM	NM	NM	NM	NM	12.86	NM	NM	OL	OL	OL	OL	OL	OL	OL	OL
CW-20	FLOW RATE gpm	95.3	95.1	94.9	95	94.9	94.7	95	94.6	94.8	94.8	94.8	94.9	95	95	95	95.3	OL	OL	OL	OL	OL	OL	OL	OL
CW-20	PRESSURE psi	26	25	25	26	26	28	26	27	26	25	26	25	25	25	25	27	OL	OL	OL	OL	OL	OL	OL	OL
CW-20	CLEAN "Y" STRAINER	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	OL	OL	OL	OL	OL	OL	OL	OL
CW-20	HIGH LEVEL ALARM?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	OL	OL	OL	OL	OL	OL	OL	OL
AST influent pressure	inches of water	10.5	10.5	11.0	10.1	10.4	10.1	10.3	10.5	10.3	9.7	9.1	10.1	9.4	9.7	9.4	9.5	9.8	9.3	9.7	10.1	10.1	10.2	9.7	9.7
GAC influent pressure	inches of water	8.6	8.4	8.9	8.7	8.6	8.3	8.4	8.6	8.3	8.0	7.8	8.2	7.7	8	7.7	7.8	7.8	7.7	8.9	8.2	8.4	8.3	8.0	8.4
AST pitot pressure	inches of water	0.31	0.3	0.31	0.29	0.29	0.28	0.27	0.3	0.28	0.27	0.27	0.27	0.26	0.28	0.25	0.25	0.25	0.22	0.27	0.23	0.24	0.25	0.25	0.25

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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		1/7/2021	1/19/2021	2/11/2021	2/25/2021	3/11/2021	3/25/2021	4/8/2021	4/22/2021	5/13/2021	5/27/2021	6/9/2021	6/24/2021	7/8/2021	7/22/2021	8/13/2021	8/26/2021	9/6/2021	9/28/2021	10/7/2021	10/28/2021	11/17/2021	11/23/2021	12/6/2021	12/21/2021
SPBA WELLS																								
	TOTAL FLOW RATE gpm	7	6.4	6.3	6.6	7.2	7	6.9	6.4	6.6	6.4	6.1	6.1	2.7	6	8.9	7.4	8.9	8.2	7.6	7.1	7.2	7	6.6	5.8
CW-21; Full Load = 5	AMPS	NM	2.69	NM	NM	NM	NM	NM	2.64	NM	NM	NM	NM	OL	2.63	NM	NM	NM	NM	NM	2.72	NM	NM	NM	NM
CW-21	FLOW-RATE gpm	4.2	4.1	3.9	3.9	4.2	4.2	4	4.0	4.0	3.9	3.8	3.7	OL	3.9	5.5	4.3	5.3	4.8	4.6	4.2	4.2	4.3	4.1	3.8
CW-21	PRESSURE psi	9.1	8.8	9	8.2	9	9.1	9.5	9.5	10.1	10.1	10.1	10.1	OL	10.9	11.5	10.7	10.9	10.6	10.3	10.3	10.1	9.8	9.5	9.4
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	98.1	95	95	95	95	95	95	95	95	95	95	95
CW-21	PUMP SPEED %	76	75	74	74	76	76	76	76	75	75	75	74	OL	74	79	76	79	77	76	75	76	75	75	74
CW-21	CLEAN TRANSDUCER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	OL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NS
CW-21	WATER CLARITY	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	OL	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	OL	N	N	N	N	N	N	N	N	N	N	N
CW-22; Full Load = 3.9	AMPS	NM	1.95	NM	NM	NM	NM	NM	2.01	NM	NM	NM	NM	NM	2.07	NM	NM	NM	NM	NM	2.02	NM	NM	NM	NM
CW-22	FLOW-RATE gpm	1.8	1.5	1.9	2.1	1.9	1.8	1.9	1.8	2	1.8	1.8	1.7	25.0	1.9	2.9	2.4	2.3	2.3	2.2	2.2	2.2	2.1	1.8	1.8
CW-22	PRESSURE psi	9.2	9.1	9.1	8.4	9.2	9.5	9.7	9.8	10.3	10.2	10.4	10	10	11	12	11	11	10.7	11	10.4	10	10	9.8	95.0
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	97.1	97.1	97	97	97	97	97	97	97	82.5	97	94.9	97	97	97	97	97	97	97.0
CW-22	PUMP SPEED %	71	70	71	72	72	71	72	71	73	73	73	73	75	73	75	74	75	75	74	73	74	73	72	72.0
CW-22	CLEAN TRANSDUCER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
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	Y	N	Y	N	N	N	N	NA	NA	NA
CW-23; Full Load = 3.9	AMPS	NM	1	NM	NM	NM	NM	NM	1.64	NM	NM	NM	NM	NM	1.57	NM	NM	NM	NM	NM	1.64	NM	NM	NM	NM
CW-23	FLOW-RATE gpm	0.8	1.61	0.6	0.7	1	0.7	0.9	0.9	0.7	0.6	0.7	0.5	0.6	0.4	0.5	1.0	1.0	1.1	0.7	0.7	0.5	0.6	0.7	0.4
CW-23	PRESSURE psi	9.1	9	9	8.2	9	9.5	9.7	9.7	10.1	10.1	10.3	10	10	11	12	11	11	10.7	10	10.4	10	9.9	9.7	9.6
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	57.1
CW-23	TRANSDUCER READING	57	57	57	57	57.1	57	57.1	57.1	57	57.1	57	57	57.1	57	56.9	57	56.9	57	57	57	57	57	57	57
CW-22	PUMP SPEED %	64	68	68	58	70	69	69	69	69	69	69	69	69	69	70	70	72	70	70	70	69	69	68	68
CW-23	CLEAN TRANSDUCER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
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 Measured OL - Off Line