pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0011371**
Facility Type	**Industrial**	APS ID	**831635**
Major / Minor	**Minor**	Authorization ID	**1446118**

NPDES PERMIT FACT SHEET INDIVIDUAL INDUSTRIAL WASTE (IW) AND IW STORMWATER

Applicant and Facility Information

Applicant Name	**Stanley Black & Decker**	Facility Name	**Stanley Black & Decker - Reading Facility, former Baldwin Hardware**
Applicant Address	1000 Stanley Drive New Britain, CT 06053-1675	Facility Address	841 E Wyomissing Boulevard Reading, PA 19611-1759
Applicant Contact	Amanda Gonzalez, Remediation Proj Mgr	Facility Contact	Amanda Gonzalez
Applicant Phone	(919) 480-7198 / Amanda.gonzalez@sbdinc.com	Facility Phone	(919) 480-7198 / Amanda.gonzalez@sbdinc.com
Client ID	309228	Site ID	443168 PF#467158
SIC Code	3429	Municipality	Reading City
SIC Description	Previously: Manufacturing- Hardware	County	Berks
Date Application Received	July 3, 2023	EPA Waived?	Yes
Date Application Accepted	July 18, 2023	If No, Reason	
Purpose of Application	Renewal of permit for discharge of treated groundwater		

Summary of Review

The previous permit was issued December 20, 2018 and expires on December 31, 2023. The application was received on July 3, 2023, by U.S. mail.

This is a remediation site where groundwater is pumped, run through an air stripper, and discharged to a municipal storm sewer. Whereas the existing NPDES permit authorizes a discharge of 0.482 MGD and the 2023 NPDES application form and water flow diagram represents the design flow as 0.482 MGD, the application's cover letter stated:

> Aquifer testing performed by Keck Consulting Services, Inc. (Keck) on behalf of Baldwin in 1986, and by Loureiro on behalf of Stanley Black & Decker, Inc. in 2013, demonstrated sufficient capture of the plume at significantly lower pumping rates. Reduction in the combined pumping rates would reduce system maintenance and reduce demands on water resources within the Delaware River Basin. The proposed pumping rates are 115 gpm and 85 gpm for PW-5 and PW-6 respectively for a total combined pumping rate of 200 gpm. A request for pumping rate reduction has been sent to the EPA and PADEP on February 18, 2022, and is awaiting their approval.

A minimum pumping rate of 200 gpm equates to 0.288 MGD. The draft NPDES renewal permit, with a 5-year term, has again included 0.482 MGD as the design flow. EPA communicated to DEP's Waste Management Program staff via email, subsequent to the submission of this NPDES permit application, that they were willing to approve a reduction in the pumping rate on a trial basis. After the trail period, a decision would be rendered based on sampling data. Because there are no mass load limits or permit limits based on Water-Quality Based Effluent Limitations (WQBELs), a change in the design flow would not affect the limits in this draft renewal permit. Therefore the design

Approve	Deny	Signatures	Date
x		*Bonnie Boylan* Bonnie Boylan / Environmental Engineering Specialist	October 3, 2023
x		*Maria D. Bebenek for* Daniel W. Martin, P.E. / Environmental Engineer Manager	October 12, 2023
x		*Maria D. Bebenek* Maria D. Bebenek, P.E. / Environmental Program Manager	October 12, 2023

Summary of Review

flow could be adjusted with the next NPDES permit renewal if appropriate, such as if EPA approves a reduction in the pump rate and the subsequent Discharge Monitoring Reports (DMRs) show a reduced flow.

The facility's DMRs from January 1, 2021 through July 31, 2023 indicate an average flow of 0.44 MGD, a maximum monthly average flow of 0.46 MGD, and a daily maximum flow of 0.563 MGD.

Delaware River Basin Commission (DRBC):

The discharge is within the Delaware River watershed and is thus subject to the Delaware River Basin Commission's (DRBC) requirements. A copy of the draft permit and Fact Sheet will therefore be sent to the DRBC for their review, in accordance with State regulations and an interagency agreement. Any comments from DRBC will be considered.

The most recent DRBC docket for this facility, D-1987-032-4, was approved on September 10, 2014 and expires on September 10, 2024. The docket covers both a groundwater treatment plant discharge as well as a groundwater withdrawal from this site. The docket requires quarterly monitoring for Total Dissolved Solids (TDS) at Outfall 101. However, there is no more outfall 101 or internal monitoring point (IMP) 101; it existed when industrial wastewater from manufacturing activities was generated and discharged at IMP 101. The only discharge from the site now is the treated groundwater through outfall 001. Therefore, the TDS monitoring requirement is not included in the draft NPDES renewal permit, nor was it included in the 2018 NPDES permit.

Unresolved Violations:

There are no outstanding violations against the facility according to DEP's eFacts database or DEP's WMS database. There are no outstanding violations against the client according to DEP's WMS database ("Violations by Client").

History:

The former owner of this site was Baldwin Hardware. They manufactured home hardware, lighting and accessories along with bathroom accessories. According to the Fact Sheet associated with their 2011 NPDES Permit: "Primarily, their products are manufactured from solid, forged, machined or stamped brass. The brass parts are then polished and protectively coated with or without a plated finish of nickel, nickel/chrome or brass. Wastewater is generated from plating and stripping lines along with cooling towers and boilers."

Baldwin Hardware entered into an Administrative Consent Order (ACO) with the U.S. EPA in 1987 to remediate chlorinated volatile organic compounds in the groundwater pursuant to the Resource Conservation Recovery Act (RCRA). A hydraulic containment system commenced in 1988 and must continue to operate until TCE in the groundwater is reduced to less than 5 ug/l (the federal drinking water Maximum Contaminant Level for TCE).

The NPDES permit previously issued to Baldwin Hardware included internal monitoring point 101 for industrial wastewater from manufacturing operations subject to an ELG and a second internal monitoring point 201 for the groundwater remediation water. Both IMPs discharged to outfall 001.

Baldwin ceased manufacturing operations at the facility and all related industrial equipment was decommissioned. Baldwin vacated the facility at the end of 2013. Stanley Black & Decker, as property owner, became responsible for the operation and maintenance (O&M) of the groundwater remediation system. The discharge from the groundwater remediation system was the only discharge after Baldwin vacated the facility. NPDES permit amendment A-1 was issued to Stanley Black and Decker on February 27, 2014.

Modifications to the pump and treat remediation system were made in 2016 with the installation of a low-profile air stripping unit, new piping, fully automated controls, and remote telemetry. Pumping wells PS-2 and PW-4 were deactivated and PW-6 was installed. Two production wells have been in in use since 2016, PW-5 and PW-6, pumping at a *minimum* combined rate of 300 gpm (432,000 gpd).

Summary of Review
Public Participation: DEP will publish notice of the receipt of the NPDES permit application and a tentative decision to issue the individual NPDES permit in the *Pennsylvania Bulletin* in accordance with 25 Pa. Code § 92a.82. Upon publication in the *Pennsylvania Bulletin*, DEP will accept written comments from interested persons for a 30-day period (which may be extended for one additional 15-day period at DEP's discretion), which will be considered in making a final decision on the application. Any person may request or petition for a public hearing with respect to the application. A public hearing may be held if DEP determines that there is significant public interest in holding a hearing. If a hearing is held, notice of the hearing will be published in the *Pennsylvania Bulletin* at least 30 days prior to the hearing and in at least one newspaper of general circulation within the geographical area of the discharge.

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	0.482
Latitude	40º 19' 35"	Longitude	-75º 56' 6"
Quad Name		Quad Code	
Wastewater Description:	Groundwater Cleanup Discharge		
Receiving Waters	Schuylkill River (WWF, MF)	Stream Code	0833
NHD Com ID	133228758	RMI	75.2 (per eMapPA)
Drainage Area	904 per PA StreamStats	Yield (cfs/mi^2)	0.277
Q_{7-10} Flow (cfs)	250	Q_{7-10} Basis	Gage correlation*
Elevation (ft)	182 (est'd from upstream gage)	Slope (ft/ft)	
Watershed No.	3-C	Chapter 93 Class.	WWF, MF
Existing Use	none	Existing Use Qualifier	-
Exceptions to Use	-	Exceptions to Criteria	-
Assessment Status	Impaired		
Cause(s) of Impairment	Polychlorinated Biphenyls (PCBs) – Assessment ID #16329		
Source(s) of Impairment	Source Unknown		
TMDL Status	Final, 4/7/2007	Name	Schuylkill River PCB TMDL
Background/Ambient Data		Data Source – WQN113 on Schuylkill River is at 96 RMI (> 20 miles upstream so not used for background data)	
pH (SU)			
Temperature (°F)			
Hardness (mg/L)			
Other:			
Nearest Downstream Public Water Supply Intake	Pottstown Borough Authority		
PWS Waters	Schuylkill River	Flow at Intake (cfs)	
PWS RMI	Approx. 57	Distance from Outfall (mi)	Approx. 18

Changes Since Last Permit Issuance:

2018 Fact Sheet & models used Q7-10 of 264 cfs, D.A. of 907, and LFY of 0.29 based on PA StreamStats

*Gage Correlation with upstream gage 01471510 Schuylkill River at Reading PA, approx. 0.7 miles upstream from 001.
Per NWIS (USGS: Natl Water Info System): Elev = 185.5 feet, D.A. = 880 sq. mi.
Per USGS Stuckey and Roland 2011 report, "Selected Streamflow Statistics for Streamgage Locations in and near Pennsylvania, gage 01471510: 244 cfs = Q7-10 (period of record 1980-2008), D.A. = 880 sq.mi.;
LFY_{gage} calculated as 244 cfs /880 sq.mi.=0.277 cfs/sq.mi.
Q7-10 at outfall 001 thus estimated as LFY_{gage} x $D.A._{site}$ = 0.277 cfs/sq.mi. x 904 sq.mi.= 250 cfs.

EXISTING PERMIT LIMITS:

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) [1]		Concentrations (mg/L)				Minimum [2] Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	9.0	XXX	1/month	Grab
Trichloroethylene	Report	Report	XXX	0.10	0.20	0.25	1/month	Grab

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

at Outfall 001

Facility Maintenance **STANLEY BLACK & DECKER 467158**

Summary

Primary Facility ID	Primary Facility Other ID	Primary Facility Name	
467158	PA0011371	STANLEY BLACK & DECKER	
Primary Facility Status	**Primary Facility Type**	**Primary Facility Kind**	**Primary Facility Fee Category**
ACTIV - Active	WPCF - Water Pollution Control Facility	GWCU - Groundwater Cleanup	Minor IW Facility without ELG

General | Addresses | Documents | Upload File | Monitoring Reports | **Non-Compliance** | Sampling Points | Permit History

Effluent Non-Compliance (Non-Compliant: 0 ; Compliant: 0) | Unauthorized Discharges (Non-Compliant: 0 ; Compliant: 0) | Other Permit Non-Compliance (Non-Compliant: 2 ; Compliant: 0)

Compliance History	
Summary of DMRs:	DMRs from 1/1/2021 through 7/31/2023 were summarized and reviewed. See the attached. They showed no exceedances of permit limits.
Last Inspection:	9/23/2020 – no violations; calibration of flow meter needs to be documented and Groundwater Monitoring Data Report form (a Supplemental DMR) submitted No effluent non-compliances since eDMR submissions began in October 2015 There are no staff most of the time; site visited infrequently except for lab staff collecting monthly samples Effluent samples collected at spigot at base of air stripper One low-profile air stripper used (replaced an air stripping tower in 2016) Magnetic flow meter, totalizer, and SCADA used No standby power Only offline for maintenance or repairs; last time offline was July 2020 for 12 hours for cleaning Have alarms for low water level in pumping well, high water level in air stripping sump, Loss of pressure before air stripper

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.482
Latitude 40º 19' 35" **Longitude** -75º 56' 6"
Wastewater Description: Groundwater Cleanup Discharge

Technology Based Effluent Limitations and Water Quality Based Effluent Limitations are calculated separately and then compared to each other and to the existing permit limits.

Technology-Based Effluent Limitations (TBELs)

The following technology-based limitations apply, subject to water quality analysis and BPJ where applicable:

Parameter	Limit (mg/l)	SBC	Federal Regulations	State Regulations	DRBC Water Code
Total Suspended Solids (TSS)	100*	Average Monthly			18 CFR 410, Section 3.10.4.D.1, unless waived by DRBC
pH	6.0 – 9.0 S.U.*	Min – Max		95.2(1)	
Total Residual Chlorine (TRC)	0.5*	Average Monthly		92a.48(b)(2)	
Oil and Grease	15*	Average Monthly		95.2(1)	
Oil and Grease	30*	Daily Maximum		95.2(1)	
BOD_5	Secondary treatment: 85% reduction	Minimum			18 CFR 410, Section 3.10.4, for all discharges unless dilute industrial process wastewater
Total Dissolved Solids (TDS)	2000 mg/l, if new or expanding mass loading	Average monthly		95.10	
Total Dissolved Solids (TDS)	Not to exceed 133% of background				18 CFR 410, Section 3.10.3.B.1, for all discharges except to intermittent streams
Total Dissolved Solids (TDS)	1000, "or a concentration established by DRBC which is compatible with designated water uses and stream quality objectives and recognizes the need for reserve capacity to serve future dischargers"	Maximum			18 CFR 410, Section 3.10.4.D.2.

*These limits are applicable specifically for industrial wastewater in the regulations but could be imposed for other types of wastewater as Best Professional Judgement limitations.

Limits for TSS are not needed based on sampling data nor were TSS limits included in the existing permit. The maximum concentration of six TSS samples of untreated groundwater at PW-5 and PW-6 was 9 mg/l; the maximum concentration of four samples of treated groundwater was 4 mg/l.

Limits for pH were included in the existing permit and have been carried forward: 6.0 s.u. as an instantaneous minimum and 9.0 s.u. as an instantaneous maximum.

TBELs for TRC are not needed for groundwater. The permit includes a condition prohibiting the discharge of air stripper cleaning wastewater so no municipal chlorinated water used for air stripper cleaning is expected to be in the discharge.

Limits for Oil and Grease are not needed based on sampling data nor were Oil and Grease limits included in the existing permit. The maximum concentration of six Oil and Grease samples of untreated groundwater at PW-5 and PW-6 was 8.2 mg/l; the maximum concentration of three samples of treated groundwater was 7 mg/l.

BOD_5 would not be expected in groundwater. It was not identified as a pollutant of concern during the groundwater remediation investigations and was not included in the existing permit. Even though the discharge at this site is not industrial process wastewater, it is dilute wastewater; the DRBC Water Code recognizes that 85% reduction is not applicable to dilute wastewater.

The State TDS limit is not applicable since this is not a new discharge or an expanding mass loading. There are no TDS sampling data to evaluate reasonable potential to exceed 1000 mg/l or 133% over background, the DRBC effluent limits. The sampling data for PW-5 and PW-6 from January 1, 2019 through July 31, 2023, however, includes Chloride, Sulfate, Sodium, Total Iron, Total Manganese, and four Dissolved Metals; the maximum concentrations for these parameters combined are under 1000 mg/l. No limit or monitoring requirement for TDS was included in the existing permit and none were added in the draft renewal permit.

Trichloroethylene (TCE):

TCE was identified as the pollutant of concern driving the groundwater remediation. The existing permit limit of 0.10 mg/l is a TBEL established as an achievable concentration using available technology to comply with the Consent Order between EPA and Baldwin Hardware. EPA recognizes air stripping as a treatment technology appropriate for reducing volatile organics in water, with an anticipated removal rate of 98% on average for TCE in evaluated sites [EPA-450 / 3-87-017, August 1987]. Air stripping is still the treatment being used at this site. **The existing TCE permit limits are being carried forward into the draft renewal permit: 0.10 mg/l as a monthly average and 0.20 mg/l as a daily maximum.**

The existing permit also included an instantaneous maximum (IMAX) limit but correctly included the daily maximum limit of 0.20 mg/l on the DMRs. Because grab samples are being collected instead of composites, the daily maximum limit is sufficient; an IMAX limit is not typically imposed as well (consistent with the DEP WMS template for volatile organic TBELs imposed in NPDES permits due to federal Effluent Limitation Guidelines).

The extraction wells PW-5 and PW-6 show an average TCE concentration in the groundwater of 0.087 mg/l (86.6 ug/l) and a maximum TCE concentration of 0.185 mg/l (185 ug/l) for samples collected between June 1, 2020 and June 30, 2023. (See attached.)

The DMRs from January 1, 2021 and July 31, 2023 show an average TCE concentration in the discharge of 0.0099 mg/l (9.9 ug/l) and a maximum TCE concentration of 0.0222 mg/l (22.2 ug/l), after the air stripper treatment. (DMRs are attached.)

Water Quality-Based Effluent Limitations (WQBELs)

Total Maximum Daily Load (TMDL):

TMDLs can be developed for impaired waterways. A TMDL can allocate waste loads to dischargers for the pollutant(s) causing the impairment. There is a TMDL for the Schuylkill River to address Polychlorinated Biphenyls (PCBs). PCBs were not identified as a pollutant of concern for this groundwater remediation site.

Toxic Parameters:

DEP's Toxics Management Spreadsheet (TMS) calculates WQBELs from promulgated water quality criteria and performs a Reasonable Potential Analysis to determine when WQBELs should be imposed and when monitoring requirements alone should be required. The TMS is an Excel-based version of DEP's previous PENTOX model and is explained in DEP's Technical Guidance document 391-2000-011. The Reasonable Potential Analysis that the TMS performs is explained in DEP's Standard Operating Procedure (SOP) Establishing WQBELs and Permit Conditions for Toxic Pollutants in NPDES Permits for Existing Dischargers. If the discharge concentration exceeds 50% of the calculated WQBEL, the TMS will recommend that the WQBEL be imposed as a permit limit.

The following limitations and monitoring requirements were determined through water quality modeling (see the attached):

Parameter	Limit (mg/l)	SBC	Model
None	none	-	Toxics Management Spreadsheet (TMS)

For the first run of the model, the input values used were the largest concentrations between 1) the maximum concentrations in the application, 2) the Quantitation Level used in the event all results were non-detect, and 3) the maximum concentrations in the monitoring results forwarded from DEP's Waste Management Program (from January 1, 2019 through June 30, 2023). The model did not recommend imposing WQBELs as permit limits for any parameter but did recommend a monitoring requirement for one parameter: Trichloroethene (TCE).

When sufficient data exists, an average concentration can be used in the TMS model for the discharge concentration instead of a maximum concentration consistent with DEP's Water Quality Toxics Management Strategy [Document # 361-0100-003] and DEP's SOP Establishing WQBELs and Permit Conditions for Toxic Pollutants in NPDES Permits for Existing Dischargers.

For TCE, the average concentration of groundwater samples collected from June 1, 2020 through June 30, 2023 as reported to DEP's Waste Management program was calculated as **86.6** ug/l. This result was compared to the 2023 NPDES application: the average TCE concentration for PW-5 for untreated groundwater was **<1.3** ug/l based on 55 samples, while the average TCE concentration for PW-6 for untreated groundwater was **93.8** ug/l based on 54 samples. In order to ensure that the receiving water is protected even if the remediation equipment were to fail or become less effective, the average TCE concentration of 93.8 ug/l was used in the second simulation of the TMS model. The model pages for the second simulation are attached, showing the input values and the results. Because 93.8 ug/l is 14% of the WQBEL (687 ug/l), the second simulation of TMS did not recommend a monitoring requirement for TCE or the imposition of the TCE WQBEL as a permit limit.

Although the need for a WQBEL was not indicated for TCE, TBELs have been included in the draft permit as previously discussed.

(Because the other parameters did not trigger a WQBEL or a monitoring requirement in the first run of the model, there was no need to determine average concentrations with which to replace the maximum concentrations used in the first simulation.)

Chemical Additives

The facility uses a sodium bisulfate solution for annual clean-in-place calcium removal of the air stripper. Potable water is used in the solution. A DEP Chemical Additive Notification form was included in the application but the model simulation was incorrect. The Chemical Additive Notification form has not been accepted.

Sodium bisulfate is already on DEP's Approved Chemical Additive List. Using the TMS and the safe-effect levels from the approved list yields a calculated WQBEL of 44.8 mg/l as a monthly average and 180 lbs/day as a monthly allowable load. Page 7 of the application indicates that the proposed maximum usage rate is 8 gallons per year. PubChem online shows the specific gravity of Sodium bisulfate as 1.48. Calculating the maximum usage to compare to the TMS-recommended mass load yields:

8 gallons/year x 1.48 s.g. x 8.34 lbs/gallon = 99 lbs/year, less than 180 lbs/day.

Moreover, there is a standard condition in NPDES permits for groundwater cleanups that air stripping cleaning wastewater not be discharged to any receiving water. This condition was in the existing permit and is being included in the draft renewal permit.

Note: no Supplemental DMR for Chemical Additives Usage will be sent with the final permit.

Anti-Backsliding

No limits were made less stringent from the existing permit.

Sample Methods and Monitoring Frequency

Based on the permittee's compliance record and the fact that the site is unmanned, no changes were made to the sample methods and minimum monitoring frequencies.

Anti-Degradation

The effluent limits for this discharge have been developed to ensure that existing instream water uses and the level of water quality necessary to protect the existing uses are maintained and protected. No High Quality Waters are impacted by this discharge. No Exceptional Value Waters are impacted by this discharge.

303(d) of Clean Water Act - Impaired Waters

The receiving water is included on the 303(d) list of impaired waterways submitted to EPA pursuant to the Clean Water Act. The pollutant(s) causing the impairment, Polychlorinated Biphenyls (PCBs), is not known to be present in the discharge.

Class A Trout Waters

Not applicable. The receiving water is not considered a Class A Trout water.

Part C Permit Conditions

Besides the standard conditions added to every NPDES industrial waste permit, special conditions applicable to groundwater cleanups are included in the draft renewal permit. The only change between the existing permit's Part C Conditions and the draft permit are discussed below.

-Some language pertaining to system start-up has been removed because this is an existing operational system.

-Quarterly sampling and analysis of Benzene, Toluene, Ethylbenzene, Xylenes, and MTBE has been removed; that requirement is applicable to cleanups involving petroleum products but those are not pollutants of concern at this site. The application summarized 55 samples for BTEX and MTBE: all samples resulted in non-detect.

-The requirement to send the annual report to DEP's Environmental Cleanup and Brownfields (ECB) program was changed to DEP's Waste Management Program after consultation with staff and managers in ECB. The requirement to send the Supplemental DMR for Groundwater Monitoring to DEP's Clean Water Program was changed to DEP's Waste Management Program since the groundwater monitoring results ae being reviewed by DEP's Waste Management Program.

-The existing permit included two paragraphs pertaining to DRBC whereas only the paragraph referencing DRBC dockets is necessary and has been included in the draft permit.

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality as needed and BPJ. Instantaneous Maximum (IMAX) limits are generally determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (386-0400-001), SOPs and/or BPJ.

Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Instant Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/month	Grab
Trichloroethylene	Report	Report	XXX	0.10	0.20	XXX	1/month	Grab

Compliance Sampling Location: at outfall 001

Tools and References Used to Develop Permit	
☐	WQM for Windows Model (see Attachment)
☒	Toxics Management Spreadsheet (see Attachment)
☐	TRC Model Spreadsheet (see Attachment)
☐	Temperature Model Spreadsheet (see Attachment)
☒	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☒	Technical Guidance for the Development and Specification of Effluent Limitations, 386-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 386-2000-019, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 386-2000-018, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 386-2183-001, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 386-2183-002, 12/97.
☐	Pennsylvania CSO Policy, 386-2000-002, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 386-2000-008, 4/97.
☒	Determining Water Quality-Based Effluent Limits, 386-2000-004, 12/97.
☒	Implementation Guidance Design Conditions, 386-2000-007, 9/97.
☐	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 386-2000-016, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 386-2000-012, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 386-2000-009, 3/99.
☒	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 386-2000-015, 5/2004.
☐	Implementation Guidance for Section 93.7 Ammonia Criteria, 386-2000-022, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 386-2000-013, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 386-2000-011, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 386-2000-001, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 386-2000-021, 10/97.
☐	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 386-2000-020, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 386-2000-005, 3/99.
☒	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 386-2000-010, 3/1999.
☒	Design Stream Flows, 386-2000-003, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 386-2000-006, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 386-3200-001, 6/97.
☐	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☒	SOP: New and Reissuance Industrial Waste and Industrial Stormwater Individual NPDES Permit Applications, October 11, 2013, Vsn. 1.5
☒	SOP: Establishing Effluent Limitations for Individual Industrial Permits, October 1, 2020, Vsn.. 1.6.
☒	SOP: Establishing WQBELs and Permit Conditions for Toxic Pollutants in NPDES Permits for Existing Dischargers, May 20, 2021, Vsn. 1.5.

Note: Some DEP document ID numbers for Technical Guidance are changing/have changed. See next page for revised document numbers.

Current Doc ID No.	New Doc ID No.	Publish Date	Type	Name	Current Folder	New Folder
391-2000-017	386-2000-001	4/11/09	G	Implementation Guidance For Temperature Criteria	Water Standards and Facility Regulation	Clean Water
385-2000-011	386-2000-002	9/6/2008	G	Pennsylvania Combined Sewer Overflow (CSO) Policy	Point and Nonpoint Source Management	Clean Water
385-0810-001	386-0810-001	8/21/10	P	Chapter 95 – Total Dissolved Solids, Statement of Policy Defining the Term "Authorization"	Water Standards and Facility Regulation	Clean Water
391-2000-023	386-2000-003	9/14/98	G	Design Stream Flows	Water Supply and Wastewater Management	Clean Water
391-2000-003	386-2000-004	12/9/1997	G	Determining Water Quality Based Effluent Limits	Water Supply and Wastewater Management	Clean Water
391-2000-021	386-2000-005	3/22/99	G	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness	Water Supply and Wastewater Management	Clean Water
391-2000-024	386-2000-006	10/13/98	G	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Coefficients of Variation (CV) and Other Discharge Characteristics	Water Supply and Wastewater Management	Clean Water
391-2000-006	386-2000-007	9/15/97	G	Implementation Guidance Design Conditions	Water Supply and Wastewater Management	Clean Water
391-2000-002	386-2000-008	4/7/97	G	Implementation Guidance Evaluation & Process Thermal Discharge (316 (a)) Federal Water Pollution Act	Water Supply and Wastewater Management	Clean Water
391-2000-010	386-2000-009	3/30/99	G	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments	Water Supply and Wastewater Management	Clean Water

391-2000-022	386-2000-010	3/22/99	G	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances	Water Supply and Wastewater Management	Clean Water
391-2000-015	386-2000-011	11/15/94	G	Implementation Guidance Total Residual Chlorine (TRC) Regulation	Water Supply and Wastewater Management	Clean Water
362-0300-004	386-0300-002	10/1/97	G	Industrial Wastewater Management	Water Supply and Wastewater Management	Clean Water
391-2000-008	386-2000-012	10/24/97	G	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges	Water Supply and Wastewater Management	Clean Water
391-2000-014	386-2000-013	4/12/08	G	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers	Water Standards and Facility Regulation	Clean Water
391-2000-020	386-2000-014	9/7/95	G	Protocol for Estimating First Order Pollutant Fate Coefficients for Volatile Organic Substances	Water Supply and Wastewater Management	Clean Water
391-2000-011	386-2000-015	5/22/04	G	Technical Reference Guide (TRG) PENTOXSD for Windows PA Single Discharge Wasteload Allocation Program for Toxics Version 2.0	Water Supply and Wastewater Management	Clean Water
391-2000-007	386-2000-016	6/26/04	G	Technical Reference Guide (TRG) WQM 7.0 for Windows Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen Version 1.0	Water Supply and Wastewater Management	Clean Water
362-2000-001	386-2000-017	?	G	Permitting Policy and Procedure Manual	Water Quality	Clean Water

362-0400-001	386-0400-001	10/1/1997	G	Technical Guidance for the Development and Specification of Effluent Limitations	Water Quality	Clean Water
362-2183-003	386-2183-001	10/1/1997	G	Technology Based Control Requirements for Water Treatment Plant Wastes	Water Quality	Clean Water
362-2000-008	386-2000-018	11/1/1996	G	Policy for Conducting Technical Reviews of Minor NPDES Permit Applications	Water Quality	Clean Water
362-2000-003	386-2000-019	3/1/1998	G	Policy for Permitting Surface Water Diversions	Water Quality	Clean Water
362-2183-004	386-2183-002	12/1/1997	G	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry	Water Quality	Clean Water
391-2000-019	386-2000-020	10/28/1997	G	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids (TDS), Nitrite-Nitrate (NO2-NO3), Non-Priority Pollutant Phenolics and Fluorides	Watershed Conservation	Clean Water
391-2000-018	386-2000-021	10/27/1997	G	Implementation Guidance for Section 95.9 Phosphorus discharges to Free Flowing Streams	Watershed Conservation	Clean Water
391-2000-013	386-2000-022	11/4/1997	G	Implementation Guidance of Section 93.7 Ammonia Criteria	Watershed Management	Clean Water
385-2100-002	386-2100-002	11/12/2011	G	Policy and Procedure for NPDES Permitting of Discharges of Total Dissolved Solids	Water Standards and Facility Regulation	Clean Water
391-3200-013	386-3200-001	6/10/1997	G	Evaluations of Phosphorus Discharges to Lakes, Ponds, and Impoundments	Water Supply and Wastewater Management	Clean Water
392-0300-002	386-0300-003	9/28/2002	P	Comprehensive Stormwater Management Policy	Watershed Management	Clean Water

392-0300-001	386-0300-004	5/14/1985	G	Stormwater Management Guidelines and Model Ordinances	Watershed Management	Clean Water
363-4000-003	386-4000-001	38871	G	Standards and Guidelines for Identifying, Tracking, and Resolving Violations of the Storm Water Management Act	Watershed Management	Clean Water

Where G = Guidance, P = Policy

DMRs:

PERMIT	MON_START_I	MON_END_DA	OUTFALI	PARAMETER	LOAD_UNIT	LOAD_1_VA	LOAD_1_L	LOAD_1_SBC	LOAD_2_VA	LOAD_2_LI	LOAD_2_SBC
PA0011371	1/1/2021	1/31/2021	1	Flow	MGD	0.4531	Monitor	Average Mor	0.4555	Monitor	Daily Maximum
PA0011371	2/1/2021	2/28/2021	1	Flow	MGD	0.4607	Monitor	Average Mor	0.5003	Monitor	Daily Maximum
PA0011371	3/1/2021	3/31/2021	1	Flow	MGD	0.4637	Monitor	Average Mor	0.4716	Monitor	Daily Maximum
PA0011371	4/1/2021	4/30/2021	1	Flow	MGD	0.4471	Monitor	Average Mor	0.4527	Monitor	Daily Maximum
PA0011371	5/1/2021	5/31/2021	1	Flow	MGD	0.4497	Monitor	Average Mor	0.4534	Monitor	Daily Maximum
PA0011371	6/1/2021	6/30/2021	1	Flow	MGD	0.4449	Monitor	Average Mor	0.4511	Monitor	Daily Maximum
PA0011371	7/1/2021	7/31/2021	1	Flow	MGD	0.451	Monitor	Average Mor	0.4534	Monitor	Daily Maximum
PA0011371	8/1/2021	8/31/2021	1	Flow	MGD	0.4489	Monitor	Average Mor	0.4535	Monitor	Daily Maximum
PA0011371	9/1/2021	9/30/2021	1	Flow	MGD	0.4478	Monitor	Average Mor	0.4711	Monitor	Daily Maximum
PA0011371	10/1/2021	10/31/2021	1	Flow	MGD	0.4483	Monitor	Average Mor	0.4547	Monitor	Daily Maximum
PA0011371	11/1/2021	11/30/2021	1	Flow	MGD	0.4119	Monitor	Average Mor	0.4547	Monitor	Daily Maximum
PA0011371	12/1/2021	12/31/2021	1	Flow	MGD	0.449	Monitor	Average Mor	0.451	Monitor	Daily Maximum
PA0011371	1/1/2022	1/31/2022	1	Flow	MGD	0.4464	Monitor	Average Mor	0.4489	Monitor	Daily Maximum
PA0011371	2/1/2022	2/28/2022	1	Flow	MGD	0.4536	Monitor	Average Mor	0.4574	Monitor	Daily Maximum
PA0011371	3/1/2022	3/31/2022	1	Flow	MGD	0.4523	Monitor	Average Mor	0.4531	Monitor	Daily Maximum
PA0011371	4/1/2022	4/30/2022	1	Flow	MGD	0.4601	Monitor	Average Mor	0.4651	Monitor	Daily Maximum
PA0011371	5/1/2022	5/31/2022	1	Flow	MGD	0.4531	Monitor	Average Mor	0.4567	Monitor	Daily Maximum
PA0011371	6/1/2022	6/30/2022	1	Flow	MGD	0.4499	Monitor	Average Mor	0.4532	Monitor	Daily Maximum
PA0011371	7/1/2022	7/31/2022	1	Flow	MGD	0.4494	Monitor	Average Mor	0.4514	Monitor	Daily Maximum
PA0011371	8/1/2022	8/31/2022	1	Flow	MGD	0.4464	Monitor	Average Mor	0.4494	Monitor	Daily Maximum

PA0011371	9/1/2022	9/30/2022	1	Flow	MGD	0.44	Monitor	Average Mor	0.4456	Monitor	Daily Maximum
PA0011371	10/1/2022	10/31/2022	1	Flow	MGD	0.4502	Monitor	Average Mor	0.4537	Monitor	Daily Maximum
PA0011371	11/1/2022	11/30/2022	1	Flow	MGD	0.446	Monitor	Average Mor	0.4479	Monitor	Daily Maximum
PA0011371	12/1/2022	12/31/2022	1	Flow	MGD	0.4491	Monitor	Average Mor	0.4542	Monitor	Daily Maximum
PA0011371	1/1/2023	1/31/2023	1	Flow	MGD	0.4373	Monitor	Average Mor	0.4443	Monitor	Daily Maximum
PA0011371	2/1/2023	2/28/2023	1	Flow	MGD	0.4491	Monitor	Average Mor	0.4547	Monitor	Daily Maximum
PA0011371	3/1/2023	3/31/2023	1	Flow	MGD	0.4426	Monitor	Average Mor	0.4495	Monitor	Daily Maximum
PA0011371	4/1/2023	4/30/2023	1	Flow	MGD	0.3951	Monitor	Average Mor	0.4487	Monitor	Daily Maximum
PA0011371	5/1/2023	5/31/2023	1	Flow	MGD	0.4455	Monitor	Average Mor	0.4509	Monitor	Daily Maximum
PA0011371	6/1/2023	6/30/2023	1	Flow	MGD	0.391	Monitor	Average Mor	0.4534	Monitor	Daily Maximum
PA0011371	7/1/2023	7/31/2023	1	Flow	MGD	0.4558	Monitor	Average Mor	0.5626	Monitor	Daily Maximum
						0.4448	Avg.		0.5626	Max.	

PERMIT	MON_START_I	MON_END_DA	OUTFALI	PARAMETER	CONC_UNIT	CONC_1_VA	CONC_1_LIN	CONC_1_SB	CONC_3_VA	CONC_3_LIN	CONC_3_SB	SAMPLE_FRI	SAMPLE_TYPE
PA0011371	1/1/2021	1/31/2021	1	pH	S.U.	7.56	6	Daily Minin	7.56	9	Daily Maxir	1/month	Grab
PA0011371	2/1/2021	2/28/2021	1	pH	S.U.	7.53	6	Daily Minin	7.53	9	Daily Maxir	1/month	Grab
PA0011371	3/1/2021	3/31/2021	1	pH	S.U.	7.78	6	Daily Minin	7.78	9	Daily Maxir	1/month	Grab
PA0011371	4/1/2021	4/30/2021	1	pH	S.U.	7.36	6	Daily Minin	7.36	9	Daily Maxir	1/month	Grab
PA0011371	5/1/2021	5/31/2021	1	pH	S.U.	7.61	6	Daily Minin	7.61	9	Daily Maxir	1/month	Grab
PA0011371	6/1/2021	6/30/2021	1	pH	S.U.	7.74	6	Daily Minin	7.74	9	Daily Maxir	1/month	Grab
PA0011371	7/1/2021	7/31/2021	1	pH	S.U.	7.24	6	Daily Minin	7.24	9	Daily Maxir	1/month	Grab
PA0011371	8/1/2021	8/31/2021	1	pH	S.U.	6.9	6	Daily Minin	6.9	9	Daily Maxir	1/month	Grab
PA0011371	9/1/2021	9/30/2021	1	pH	S.U.	7.5	6	Daily Minin	7.5	9	Daily Maxir	1/month	Grab
PA0011371	10/1/2021	10/31/2021	1	pH	S.U.	7.95	6	Daily Minin	7.95	9	Daily Maxir	1/month	Grab
PA0011371	11/1/2021	11/30/2021	1	pH	S.U.	6.93	6	Daily Minin	6.93	9	Daily Maxir	1/month	Grab
PA0011371	12/1/2021	12/31/2021	1	pH	S.U.	7.55	6	Daily Minin	7.55	9	Daily Maxir	1/month	Grab
PA0011371	1/1/2022	1/31/2022	1	pH	S.U.	7.34	6	Daily Minin	7.34	9	Daily Maxir	1/month	Grab
PA0011371	2/1/2022	2/28/2022	1	pH	S.U.	7.97	6	Daily Minin	7.97	9	Daily Maxir	1/month	Grab
PA0011371	3/1/2022	3/31/2022	1	pH	S.U.	7.16	6	Daily Minin	7.16	9	Daily Maxir	1/month	Grab
PA0011371	4/1/2022	4/30/2022	1	pH	S.U.	7.59	6	Daily Minin	7.59	9	Daily Maxir	1/month	Grab
PA0011371	5/1/2022	5/31/2022	1	pH	S.U.	7.73	6	Daily Minin	7.73	9	Daily Maxir	1/month	Grab
PA0011371	6/1/2022	6/30/2022	1	pH	S.U.	7.15	6	Daily Minin	7.15	9	Daily Maxir	1/month	Grab
PA0011371	7/1/2022	7/31/2022	1	pH	S.U.	7.6	6	Daily Minin	7.6	9	Daily Maxir	1/month	Grab
PA0011371	8/1/2022	8/31/2022	1	pH	S.U.	7.25	6	Daily Minin	7.25	9	Daily Maxir	1/month	Grab
PA0011371	9/1/2022	9/30/2022	1	pH	S.U.	7.23	6	Daily Minin	7.23	9	Daily Maxir	1/month	Grab

PA0011371	10/1/2022	10/31/2022	1	pH	S.U.	7.92	6	Daily Minin	7.92	9	Daily Maxir	1/month	Grab
PA0011371	11/1/2022	11/30/2022	1	pH	S.U.	7.62	6	Daily Minin	7.62	9	Daily Maxir	1/month	Grab
PA0011371	12/1/2022	12/31/2022	1	pH	S.U.	7.86	6	Daily Minin	7.86	9	Daily Maxir	1/month	Grab
PA0011371	1/1/2023	1/31/2023	1	pH	S.U.	7.9	6	Daily Minin	7.9	9	Daily Maxir	1/month	Grab
PA0011371	2/1/2023	2/28/2023	1	pH	S.U.	7.6	6	Daily Minin	7.6	9	Daily Maxir	1/month	Grab
PA0011371	3/1/2023	3/31/2023	1	pH	S.U.	7.78	6	Daily Minin	7.78	9	Daily Maxir	1/month	Grab
PA0011371	4/1/2023	4/30/2023	1	pH	S.U.	7.53	6	Daily Minin	7.53	9	Daily Maxir	1/month	Grab
PA0011371	5/1/2023	5/31/2023	1	pH	S.U.	7.8	6	Daily Minin	7.8	9	Daily Maxir	1/month	Grab
PA0011371	6/1/2023	6/30/2023	1	pH	S.U.	7.89	6	Daily Minin	7.89	9	Daily Maxir	1/month	Grab
PA0011371	7/1/2023	7/31/2023	1	pH	S.U.	7.54	6	Daily Minin	7.54	9	Daily Maxir	1/month	Grab
						6.9	Min		7.97	Max			

PERMIT	MON_START_I	MON_END_DA	OUTFA	PARAMET	LOAD_UNIT	LOAD_1_VALUI	1_LIMIT	LOAD_1_SBC	2_VALUE	2_LIMIT	2_SBC	CONC_UNIT	2_VALUE	2_LIMIT	CONC_2_SBC	CONC_3_VALUE	3_LIMIT	CONC_3_SB	SAMPLE_FRI	SAMPLE_TYP
PA0011371	1/1/2021	1/31/2021	1	TCE	lbs/day	0.03	Monitor	Average Mor	0.03	Monitor	Daily Max	mg/L	0.0091	0.1	Average Mo	0.0091	0.2	Daily Max	1/month	Grab
PA0011371	2/1/2021	2/28/2021	1	TCE	lbs/day	0.04	Monitor	Average Mor	0.04	Monitor	Daily Max	mg/L	0.01	0.1	Average Mo	0.01	0.2	Daily Max	1/month	Grab
PA0011371	3/1/2021	3/31/2021	1	TCE	lbs/day	0.04	Monitor	Average Mor	0.04	Monitor	Daily Max	mg/L	0.0114	0.1	Average Mo	0.0114	0.2	Daily Max	1/month	Grab
PA0011371	4/1/2021	4/30/2021	1	TCE	lbs/day	0.04	Monitor	Average Mor	0.04	Monitor	Daily Max	mg/L	0.0118	0.1	Average Mo	0.0118	0.2	Daily Max	1/month	Grab
PA0011371	5/1/2021	5/31/2021	1	TCE	lbs/day	0.07	Monitor	Average Mor	0.07	Monitor	Daily Max	mg/L	0.0198	0.1	Average Mo	0.0198	0.2	Daily Max	1/month	Grab
PA0011371	6/1/2021	6/30/2021	1	TCE	lbs/day	0.05	Monitor	Average Mor	0.05	Monitor	Daily Max	mg/L	0.0123	0.1	Average Mo	0.0123	0.2	Daily Max	1/month	Grab
PA0011371	7/1/2021	7/31/2021	1	TCE	lbs/day	0.05	Monitor	Average Mor	0.05	Monitor	Daily Max	mg/L	0.0129	0.1	Average Mo	0.0129	0.2	Daily Max	1/month	Grab
PA0011371	8/1/2021	8/31/2021	1	TCE	lbs/day	0.04	Monitor	Average Mor	0.04	Monitor	Daily Max	mg/L	0.0097	0.1	Average Mo	0.0097	0.2	Daily Max	1/month	Grab
PA0011371	9/1/2021	9/30/2021	1	TCE	lbs/day	0.04	Monitor	Average Mor	0.04	Monitor	Daily Max	mg/L	0.011	0.1	Average Mo	0.011	0.2	Daily Max	1/month	Grab
PA0011371	10/1/2021	10/31/2021	1	TCE	lbs/day	0.03	Monitor	Average Mor	0.03	Monitor	Daily Max	mg/L	0.0089	0.1	Average Mo	0.0089	0.2	Daily Max	1/month	Grab
PA0011371	11/1/2021	11/30/2021	1	TCE	lbs/day	0.03	Monitor	Average Mor	0.03	Monitor	Daily Max	mg/L	0.0069	0.1	Average Mo	0.0069	0.2	Daily Max	1/month	Grab
PA0011371	12/1/2021	12/31/2021	1	TCE	lbs/day	0.03	Monitor	Average Mor	0.03	Monitor	Daily Max	mg/L	0.009	0.1	Average Mo	0.0091	0.2	Daily Max	1/month	Grab
PA0011371	1/1/2022	1/31/2022	1	TCE	lbs/day	0.03	Monitor	Average Mor	0.03	Monitor	Daily Max	mg/L	0.0086	0.1	Average Mo	0.0086	0.2	Daily Max	1/month	Grab
PA0011371	2/1/2022	2/28/2022	1	TCE	lbs/day	0.02	Monitor	Average Mor	0.02	Monitor	Daily Max	mg/L	0.006	0.1	Average Mo	0.006	0.2	Daily Max	1/month	Grab
PA0011371	3/1/2022	3/31/2022	1	TCE	lbs/day	0.02	Monitor	Average Mor	0.02	Monitor	Daily Max	mg/L	0.0049	0.1	Average Mo	0.0049	0.2	Daily Max	1/month	Grab
PA0011371	4/1/2022	4/30/2022	1	TCE	lbs/day	0.04	Monitor	Average Mor	0.04	Monitor	Daily Max	mg/L	0.0104	0.1	Average Mo	0.0104	0.2	Daily Max	1/month	Grab
PA0011371	5/1/2022	5/31/2022	1	TCE	lbs/day	0.08	Monitor	Average Mor	0.08	Monitor	Daily Max	mg/L	0.0222	0.1	Average Mo	0.0222	0.2	Daily Max	1/month	Grab
PA0011371	6/1/2022	6/30/2022	1	TCE	lbs/day	0.05	Monitor	Average Mor	0.05	Monitor	Daily Max	mg/L	0.0129	0.1	Average Mo	0.0129	0.2	Daily Max	1/month	Grab
PA0011371	7/1/2022	7/31/2022	1	TCE	lbs/day	0.05	Monitor	Average Mor	0.05	Monitor	Daily Max	mg/L	0.0141	0.1	Average Mo	0.0141	0.2	Daily Max	1/month	Grab
PA0011371	8/1/2022	8/31/2022	1	TCE	lbs/day	0.06	Monitor	Average Mor	0.06	Monitor	Daily Max	mg/L	0.0157	0.1	Average Mo	0.0157	0.2	Daily Max	1/month	Grab
PA0011371	9/1/2022	9/30/2022	1	TCE	lbs/day	0.06	Monitor	Average Mor	0.06	Monitor	Daily Max	mg/L	0.0169	0.1	Average Mo	0.0169	0.2	Daily Max	1/month	Grab

PA0011371	10/1/2022	10/31/2022	1	TCE	lbs/day	0.03	Monitor	Average Mor	0.03	Monitor	Daily Max	mg/L	0.0074	0.1	Average Mo	0.0074	0.2	Daily Max	1/month	Grab
PA0011371	11/1/2022	11/30/2022	1	TCE	lbs/day	0.04	Monitor	Average Mor	0.04	Monitor	Daily Max	mg/L	0.0103	0.1	Average Mo	0.0103	0.2	Daily Max	1/month	Grab
PA0011371	12/1/2022	12/31/2022	1	TCE	lbs/day	0.03	Monitor	Average Mor	0.03	Monitor	Daily Max	mg/L	0.0088	0.1	Average Mo	0.0088	0.2	Daily Max	1/month	Grab
PA0011371	1/1/2023	1/31/2023	1	TCE	lbs/day	0.01	Monitor	Average Mor	0.01	Monitor	Daily Max	mg/L	0.0039	0.1	Average Mo	0.0039	0.2	Daily Max	1/month	Grab
PA0011371	2/1/2023	2/28/2023	1	TCE	lbs/day	0.02	Monitor	Average Mor	0.02	Monitor	Daily Max	mg/L	0.0049	0.1	Average Mo	0.0049	0.2	Daily Max	1/month	Grab
PA0011371	3/1/2023	3/31/2023	1	TCE	lbs/day	0.01	Monitor	Average Mor	0.01	Monitor	Daily Max	mg/L	0.0036	0.1	Average Mo	0.0036	0.2	Daily Max	1/month	Grab
PA0011371	4/1/2023	4/30/2023	1	TCE	lbs/day	0.02	Monitor	Average Mor	0.02	Monitor	Daily Max	mg/L	0.0052	0.1	Average Mo	0.0052	0.2	Daily Max	1/month	Grab
PA0011371	5/1/2023	5/31/2023	1	TCE	lbs/day	0.02	Monitor	Average Mor	0.02	Monitor	Daily Max	mg/L	0.0047	0.1	Average Mo	0.0047	0.2	Daily Max	1/month	Grab
PA0011371	6/1/2023	6/30/2023	1	TCE	lbs/day	0.03	Monitor	Average Mor	0.03	Monitor	Daily Max	mg/L	0.0088	0.1	Average Mo	0.0088	0.2	Daily Max	1/month	Grab
PA0011371	7/1/2023	7/31/2023	1	TCE	lbs/day	0.02	Monitor	Average Mor	0.02	Monitor	Daily Max	mg/L	0.0057	0.1	Average Mo	0.0057	0.2	Daily Max	1/month	Grab
						0.036	Avg		0.08	Max			0.0099	Avg		0.0222	Max			

Location ID	SampleNo	1,1,1-TRICHLOROETHANE (ug/l)	1,1,2,2-TETRACHLOROETHANE (ug/l)	1,1-DICHLOROETHANE (ug/l)	1,1-DICHLOROETHENE (ug/l)	1,2-DICHLOROBENZENE (ug/l)	1,2-DICHLOROETHANE (ug/l)	2-CHLOROETHYLVINYL ETHER (ug/l)	BARIUM; DISSOLVED (ug/l)	BARIUM; TOTAL (ug/l)	BENZENE (ug/l)	BROMOFORM (ug/l)	BROMOMETHANE,METHYL BROMIDE (ug/l)	CARBON TETRACHLORIDE (ug/l)	CHLORIDE (mg/l)	CHLOROBENZENE (ug/l)	CHLOROETHANE (ug/l)	CHLOROFORM (ug/l)	CHROMIUM; DISSOLVED (ug/l)	CHROMIUM; TOTAL (ug/l)	CIS 1,2-DICHLOROETHENE (ug/l)	cis 1,3-DICHLOROPROPENE (ug/l)	C D E (u
PW-5	PW-5 (2Q20) Jun																							
PW-5	PW-5 (3Q20)								130	130					88.8				2.1					
PW-5	PW-5 (3Q20) Jul																							
PW-5	PW-5 (3Q20) Aug																							
PW-5	PW-5 (3Q20) Sep																							
PW-5	PW-5 (4Q20)								130	130					95.3				2.7					
PW-5	PW-5 (4Q20) Oct																							
PW-5	PW-5 (4Q20) Nov																							
PW-5	PW-5 (4Q20) Dec																							
PW-5	PW-5 (1Q21)								130	120					99.9									
PW-5	PW-5 (1Q21) Jan																							
PW-5	PW-5 (1Q21) Feb																	1.2						
PW-5	PW-5 (1Q21) Mar																	1.3			1.8			
PW-5	PW-5 (2Q21)								130	110					125			1.7			1.9			
PW-5	PW-5 (2Q21) Apr																	1.4			2.3			
PW-5	PW-5 (2Q21) May																							
PW-5	PW-5 (2Q21) Jun																							
PW-5	PW-5 (3Q21)								130	130					85.7									
PW-5	PW-5 (3Q21) Jul																							
PW-5	PW-5 (3Q21) Aug																							
PW-5	PW-5 (3Q21) Aug																							
PW-5	PW-5 (3Q21) Sep																				1.2			
PW-5	PW-5 (4Q21)								130	130					106				5.4					
PW-5	PW-5 (4Q21) Oct																							
PW-5	PW-5 (4Q21) Nov																							
PW-5	PW-5 (4Q21) Dec																							
PW-5	PW-5 (1Q22) Jan																							
PW-5	PW-5 (1Q22) Feb																							
PW-5	PW-5 (1Q22)								130	140					103									
PW-5	PW-5 (1Q22) Mar																							
PW-5	PW-5 (2Q22)								130	130					104				2.6	25				
PW-5	PW-5 (2Q22) Dup								130	140					103				2.9	15				
PW-5	PW-5 (2Q22) May																							
PW-5	PW-5 (2Q22) Jun																							
PW-5	PW-5 (3Q22)								140	76					108				2.8	2.6				
PW-5	PW-5 (3Q22) July																							
PW-5	PW-5 (3Q22) Aug																							
PW-5	PW-5 (3Q22) Sep																							
PW-5	PW-5 (4Q22)								130	130					102				6.7					
PW-5	PW-5 (4Q22) Nov																	1.1						
PW-5	PW-5 (4Q22) Dec																							

Location ID	SampleNo	1,1,1-TRICHLOROETHANE (ug/l)	1,1,2,2-TETRACHLOROETHANE (ug/l)	1,1-DICHLOROETHANE (ug/	1,1-DICHLOROETHENE (ug/	1,2-DICHLOROBENZENE (ug/l)	1,2-DICHLOROETHANE (ug/	2-CHLOROETHYLVINYL ETHER (ug/l)	BARIUM; DISSOLVED (ug/l)	BARIUM; TOTAL (ug/l)	BENZENE (ug/l)	BROMOFORM (ug/l)	BROMOMETHANE,METHYL BROMIDE (ug/	CARBON TETRACHLORIDE (ug/l)	CHLORIDE (mg/l)	CHLOROBENZENE (ug/	CHLOROETHANE (ug/l)	CHLOROFORM (ug/l)	CHROMIUM; DISSOLVED (ug/l)	CHROMIUM; TOTAL (ug/l)	CIS 1,2-DICHLOROETHENE (ug/l)	cis 1,3-DICHLOROPROPENE (ug/l)
PW-5	PW-5 (1Q23)								120	130					98								
PW-5	PW-5 (1Q23) Feb																	0.67				0.26 J	
PW-5	PW-5 (1Q23) Mar																						
PW-5	PW-5 (2Q23) Apr												0.81 J					0.73				0.29 J	
PW-5	PW-5 (2Q23)								130	130					116				2.4				
PW-5	PW-5 (2Q23) May	0.3 J																0.91				0.34 J	
PW-5	PW-5 (2Q23) Jun																						
PW-6	PW-6 (2Q20) Jun	8.4		1.8	1.5																	39.5	
PW-6	PW-6 (3Q20)	8.4		2	1.2				96	88					62.3				5.9	3.5	38.8		
PW-6	PW-6 (3Q20) Jul	7.8		1.8	1.2																37.1		
PW-6	PW-6 (3Q20) Aug	6.7		1.1																	26.1		
PW-6	PW-6 (3Q20) Sep	8		1.8																	29.9		
PW-6	PW-6 (4Q20)	8.6		1.9	1				100	98					80.4				4.8	3.1	36.1		
PW-6	PW-6 (4Q20) Oct	8.2		1.6																	31.5		
PW-6	PW-6 (4Q20) Nov	7.1		1.7																	26.3		
PW-6	PW-6 (4Q20) Dec	5.3		1.3																	18.5		
PW-6	PW-6 (1Q21)	6.4		1.4					98	96					69.6			1.1	5	4.9	28.5		
PW-6	PW-6 (1Q21) Jan	6.7		1.4	1.1													1.1			29.8		
PW-6	PW-6 (1Q21) Feb	6.7		1.4	1.2													2			32.1		
PW-6	PW-6 (1Q21) Mar	4.9		1.1														1.6			26.6		
PW-6	PW-6 (2Q21)	6.4		1.4	1.1				86	79					68			2.4	5.7	5.3	31.5		
PW-6	PW-6 (2Q21) Apr	5.3		1.2	1													2.2			27.4		
PW-6	PW-6 (2Q21) May	8		1.6	1.4													1.9			37.9		
PW-6	PW-6 (2Q21) Jun	7.6		1.7														1.5			34.6		
PW-6	PW-6 (3Q21)	4.7		1.3					100	100					175				4.7	3.4	22.2		

Location ID	SampleNo	1,1,1-TRICHLOROETHANE (ug/l)	1,1,2,2-TETRACHLOROETHANE (ug/l)	1,1-DICHLOROETHANE (ug/	1,1-DICHLOROETHENE (ug/	1,2-DICHLOROBENZENE (ug/l)	1,2-DICHLOROETHANE (ug/	2-CHLOROETHYLVINYL ETHER (ug/l)	BARIUM; DISSOLVED (ug/l)	BARIUM; TOTAL (ug/l)	BENZENE (ug/l)	BROMOFORM (ug/l)	BROMOMETHANE,METHYL BROMIDE (ug/	CARBON TETRACHLORIDE (ug/l)	CHLORIDE (mg/l)	CHLOROBENZENE (ug/	CHLOROETHANE (ug/l)	CHLOROFORM (ug/l)	CHROMIUM; DISSOLVED (ug/l)	CHROMIUM; TOTAL (ug/l)	CIS 1,2-DICHLOROETHENE (ug/l)	cis 1,3-DICHLOROPROPENE (ug/l)
PW-6	PW-6 (3Q21) Jul	6.6		1.8														1.2			28.3	
PW-6	PW-6 (3Q21) Aug	6.9		1.3														1			20.7	
PW-6	PW-6 (3Q21) Sep	5.6		1.2																	28.2	
PW-6	PW-6 (4Q21)	6.3		1.4					100	98					85.9				9.1	4.1	32.9	
PW-6	PW-6 (4Q21) Oct	6.1		1.4																	30.5	
PW-6	PW-6 (4Q21) Nov	7		1.4																	22.6	
PW-6	PW-6 (4Q21) Dec	6.4		1.5																	27.6	
PW-6	PW-6 (1Q22) Jan	6.8		1.6																	26.3	
PW-6	PW-6 (1Q22) Feb	4.5		1.1																	17.5	
PW-6	PW-6 (1Q22)	5.1		1.1					99	98					78.3				5	3.3	14.8	
PW-6	PW-6 (1Q22) Mar	5.1		1.1																	14.9	
PW-6	PW-6 (2Q22)	4.1		1					94	99					68				5.8	8.3	16.5	
PW-6	PW-6 (2Q22) May	5.8		1.4	1.1																31.5	
PW-6	PW-6 (2Q22) Jun	5.8		1.2																	24	
PW-6	PW-6 (3Q22)	6.5		1.6					110	120					84.3				5.7		25.1	
PW-6	PW-6 (3Q22) July	6.5		1.6																	25.1	
PW-6	PW-6 (3Q22) Aug	6.3		1.4																	25.2	
PW-6	PW-6 (3Q22) Sep	6.4		1.5																	25.6	
PW-6	PW-6 (4Q22)	5.6		1.3					110	100					86.7				8.7	2.6	21.7	
PW-6	PW-6 (4Q22) Nov	5.9		1.4																	29.5	
PW-6	PW-6 (4Q22) Dec	5.6		1.2																	22	
PW-6	PW-6 (1Q23)	3.7							100	110					82.6				3.6	2.9	11.5	
PW-6	PW-6 (1Q23) Feb	4.4		0.87	0.33 J													0.55			12.3	
PW-6	PW-6 (1Q23) Mar	4.1																			7.4	
PW-6	PW-6 (2Q23) Apr	5.2		1.1	0.34 J								0.57 J					0.6			15	
PW-6	PW-6 (2Q23)	5.3		1.2					110	110					92.9				4.5	3.4	15.8	
PW-6	PW-6 (2Q23) May	5		0.99	0.35 J													0.72			12.8	
PW-6	PW-6 (2Q23) Jun	5.8		1.2																	17.9	
	Max conc's PW5&6	8.6	0	2	1.5	0	0	0	140	140	0	0	0	0	175	0	0	2.4	9.1	25	39.5	0

Location ID	SampleNo	COPPER; DISSOLVED (ug/l)	COPPER; TOTAL (ug/l)	CYANIDE, Total (ug/l)	IRON; TOTAL (ug/l)	LEAD; TOTAL (ug/l)	MANGANESE; TOTAL (ug/l)	METHYLENE CHLORIDE (ug/	NICKEL (ug/l)	PHENOLICS (ug/l)	PH-FIELD (SU)	SODIUM; TOTAL (mg/l)	SULFATE (mg/l)	TETRACHLOROETHENE (ug/l)	TOLUENE (ug/l)	TOTAL ORGANIC CARBON, TOC (mg/l)	trans 1,3-DICHLOROPROPENE (ug/l)	TRICHLOROETHENE (ug/l)	ZINC; DISSOLVED (ug/l)	ZINC; TOTAL (ug/l)	
PW-5	PW-5 (2Q20) Jun													2.3							TCE 6/2020-6/2023
PW-5	PW-5 (3Q20)											47.3	41.1	2.5		0.81					
PW-5	PW-5 (3Q20) Jul													2.3							
PW-5	PW-5 (3Q20) Aug													2.8							
PW-5	PW-5 (3Q20) Sep													2.4							
PW-5	PW-5 (4Q20)											43.3	40.3	2.5		1			5.9		
PW-5	PW-5 (4Q20) Oct													2.8							
PW-5	PW-5 (4Q20) Nov										7.37			2.4							
PW-5	PW-5 (4Q20) Dec													2.2							
PW-5	PW-5 (1Q21)											45	41.5	2.1		1					
PW-5	PW-5 (1Q21) Jan													2							
PW-5	PW-5 (1Q21) Feb													2.3							
PW-5	PW-5 (1Q21) Mar													2.1				5.5			5.5
PW-5	PW-5 (2Q21)											50.5	36.7	2.2		0.95		4.3			4.3
PW-5	PW-5 (2Q21) Apr													2				6.8			6.8
PW-5	PW-5 (2Q21) May													2.2							
PW-5	PW-5 (2Q21) Jun													2.5							
PW-5	PW-5 (3Q21)											49.5	46.6	1.5							
PW-5	PW-5 (3Q21) Jul													2.4							
PW-5	PW-5 (3Q21) Aug													2.7							
PW-5	PW-5 (3Q21) Sep													2.3				3.7			3.7
PW-5	PW-5 (4Q21)											43.4	41.1	2.3							
PW-5	PW-5 (4Q21) Oct													2.2							
PW-5	PW-5 (4Q21) Nov													2.4							
PW-5	PW-5 (4Q21) Dec													1.9							
PW-5	PW-5 (1Q22) Jan													2.1							
PW-5	PW-5 (1Q22) Feb													2							
PW-5	PW-5 (1Q22)											44.2	40.9	2.4							
PW-5	PW-5 (1Q22) Mar													2.4							
PW-5	PW-5 (2Q22)				84		4		3			40.5	39.8	1.7		1					
PW-5	PW-5 (2Q22) Dup				84							39.6	39.3	1.8		0.8				2.8	
PW-5	PW-5 (2Q22) May													2							
PW-5	PW-5 (2Q22) Jun													2.2							
PW-5	PW-5 (3Q22)						7.9					46.3	43	1.8		0.75				6.2	

Location ID	SampleNo	COPPER; DISSOLVED (ug/l)	COPPER; TOTAL (ug/l)	CYANIDE, Total (ug/l)	IRON; TOTAL (ug/l)	LEAD; TOTAL (ug/l)	MANGANESE; TOTAL (ug/l)	METHYLENE CHLORIDE (ug/	NICKEL (ug/l)	PHENOLICS (ug/l)	PH-FIELD (SU)	SODIUM; TOTAL (mg/l)	SULFATE (mg/l)	TETRACHLOROETHENE (ug/l)	TOLUENE (ug/l)	TOTAL ORGANIC CARBON, TOC (mg/l)	trans 1,3-DICHLOROPROPENE (ug/l)	TRICHLOROETHENE (ug/l)	ZINC; DISSOLVED (ug/l)	ZINC; TOTAL (ug/l)		
PW-5	PW-5 (3Q22) July													1.8								
PW-5	PW-5 (3Q22) Aug													1.9								
PW-5	PW-5 (3Q22) Sep													1.7								
PW-5	PW-5 (4Q22)											46.2	43.6	1.8		0.59						
PW-5	PW-5 (4Q22) Nov													2.1								
PW-5	PW-5 (4Q22) Dec													1.7								
PW-5	PW-5 (1Q23)											47.4	38.6	2.1		0.58						
PW-5	PW-5 (1Q23) Feb													2.1								
PW-5	PW-5 (1Q23) Mar													2.3				2.5			2.5	
PW-5	PW-5 (2Q23) Apr										7.55			2								
PW-5	PW-5 (2Q23)											46.2	46.7	2.1								
PW-5	PW-5 (2Q23) May													2.8								
PW-5	PW-5 (2Q23) Jun													2.1								
PW-6	PW-6 (2Q20) Jun																	170			170	
PW-6	PW-6 (3Q20)											39.3	42.1	1.1		1		139			139	
PW-6	PW-6 (3Q20) Jul													1				125			125	
PW-6	PW-6 (3Q20) Aug													1.1				111			111	
PW-6	PW-6 (3Q20) Sep													1.3				90.6			90.6	
PW-6	PW-6 (4Q20)											40.2	45.7	1.5		1.2		107			107	
PW-6	PW-6 (4Q20) Oct													1.6				107			107	
PW-6	PW-6 (4Q20) Nov										7.36			1.2				71.6			71.6	
PW-6	PW-6 (4Q20) Dec																	64.6			64.6	
PW-6	PW-6 (1Q21)											35.3	44.4			1.1		116			116	
PW-6	PW-6 (1Q21) Jan																	122			122	

Location ID	SampleNo	COPPER; DISSOLVED (ug/l)	COPPER; TOTAL (ug/l)	CYANIDE, Total (ug/l)	IRON; TOTAL (ug/l)	LEAD; TOTAL (ug/l)	MANGANESE; TOTAL (ug/l)	METHYLENE CHLORIDE (ug/	NICKEL (ug/l)	PHENOLICS (ug/l)	PH-FIELD (SU)	SODIUM; TOTAL (mg/l)	SULFATE (mg/l)	TETRACHLOROETHENE (ug/l)	TOLUENE (ug/l)	TOTAL ORGANIC CARBON, TOC (mg/l)	trans 1,3-DICHLOROPROPENE (ug/l)	TRICHLOROETHENE (ug/l)	ZINC; DISSOLVED (ug/l)	ZINC; TOTAL (ug/l)		
PW-6	PW-6 (1Q21) Feb																	139				139
PW-6	PW-6 (1Q21) Mar																	109				109
PW-6	PW-6 (2Q21)											32.6	41.4			1		137				137
PW-6	PW-6 (2Q21) Apr																	104				104
PW-6	PW-6 (2Q21) May																	185				185
PW-6	PW-6 (2Q21) Jun													1.2				98.4				98.4
PW-6	PW-6 (3Q21)											39.8	38.9					71.2				71.2
PW-6	PW-6 (3Q21) Jul													1.3				97.8				97.8
PW-6	PW-6 (3Q21) Aug													1.4				64.2				64.2
PW-6	PW-6 (3Q21) Sep																	122				122
PW-6	PW-6 (4Q21)											35.9	47.9	1.1				91.7		16		91.7
PW-6	PW-6 (4Q21) Oct													1.4				94.8				94.8
PW-6	PW-6 (4Q21) Nov													1.2				68.2				68.2
PW-6	PW-6 (4Q21) Dec													1.2				86.4				86.4
PW-6	PW-6 (1Q22) Jan													1.3				84.2				84.2
PW-6	PW-6 (1Q22) Feb																	52.3				52.3
PW-6	PW-6 (1Q22)											40.3	42.3	1.2		0.53		42.6				42.6
PW-6	PW-6 (1Q22) Mar													1.2				42				42
PW-6	PW-6 (2Q22)				67		6.2		3.8			31.2	42.7			0.82		65	11	12		65
PW-6	PW-6 (2Q22) May																	131				131
PW-6	PW-6 (2Q22) Jun													1				82.5				82.5
PW-6	PW-6 (3Q22)						9.8					39.6	52.4			0.67		78.7		2.9		78.7
PW-6	PW-6 (3Q22) July																	78.7				78.7
PW-6	PW-6 (3Q22) Aug													1.2				81.4				81.4
PW-6	PW-6 (3Q22) Sep													1.1				81.3				81.3
PW-6	PW-6 (4Q22)									21		40.1	47.1	1.1		0.65		72.3				72.3
PW-6	PW-6 (4Q22) Nov													1.1				91.2				91.2
PW-6	PW-6 (4Q22) Dec													1.1				71.5				71.5
PW-6	PW-6 (1Q23)											41.4	43.6	1		0.95		27.8				27.8
PW-6	PW-6 (1Q23) Feb													1.1				30.2				30.2
PW-6	PW-6 (1Q23) Mar													1.1				21.2				21.2
PW-6	PW-6 (2Q23) Apr										7.82			1.3				38.3				38.3
PW-6	PW-6 (2Q23)											40.8	49.1	1.3				41.3				41.3
PW-6	PW-6 (2Q23) May													1.2				27.7				27.7
PW-6	PW-6 (2Q23) Jun													1.2				50.5				50.5
	Max conc's PW5&6	0	0	0	84	0	9.8	0	3.8	21	7.82	50.5	52.4	2.8	0	1.2	0	185	11	16		

86.613 Avg.

per PA StreamStats

StreamStats Output Report- Schuylkill River at 001							
State/Region ID	PA						
Workspace ID	PA20230906154254130000						
Latitude	40.32638						
Longitude	-75.93441						
Time	9/6/2023	11:43:20 AM					
Basin Characteristics							
Parameter Code	Parameter Description	Value	Unit				
CARBON	Percentage of area of carbor	19.3	percent				
DRNAREA	Area that drains to a point or	904	square miles				
PRECIP	Mean Annual Precipitation	47	inches				
ROCKDEP	Depth to rock	4.3	feet				
STRDEN	Stream Density -- total lengt	1.3	miles per square mile				
Low-Flow Statistics Paran	99.9 Percent Low Flow Region 2						
Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit		
DRNAREA	Drainage Area	904	square mi	4.93	1280		
PRECIP	Mean Annual Precipitation	47	inches	35	50.4		
STRDEN	Stream Density	1.3	miles per	0.51	3.1		
ROCKDEP	Depth to Rock	4.3	feet	3.32	5.65		
CARBON	Percent Carbonate	19.3	percent	0	99		
Low-Flow Statistics Flow	99.9 Percent Low Flow Region 2						
Statistic	Value	Unit	SE	ASEp			
7 Day 2 Year Low Flow	386	ft^3/s	38	38			
30 Day 2 Year Low Flow	456	ft^3/s	33	33			
7 Day 10 Year Low Flow	242	ft^3/s	51	51			
30 Day 10 Year Low Flow	290	ft^3/s	46	46			
90 Day 10 Year Low Flow	358	ft^3/s	36	36			
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USGS Software Disclaimer: This software has been approved for release by the U.S. Geological Survey (USGS). Althou							
USGS Product Names Disclaimer: Any use of trade, firm, or product names is for descriptive purposes only and does n							
Application Version: 4.17.0							
StreamStats Services Version: 1.2.22							
NSS Services Version: 2.2.1							

Downstream from 001…..approx. RMI 74.74 west of 7th street and canal St. on East shore of River where PA Strm Stats shows a trib to Schuylkill River (but eMapPA shows next downstrm trib as UNT064927 at 74.63, entering Sch R from east side, further south, at Lat/long of 40.32235/-75.9230---not enough to make a difference in limits)

Assume elev of 180 ft, based on gage datum, no other data available such as site-specific slope

StreamStats Output Report downstrm of outfall 001						
State/Region ID	PA					
Workspace ID	PA20230906155410095000					
Latitude	40.32356					
Longitude	-75.92574					
Time	9/6/2023	11:54:35 AM				
Basin Characteristics						
Parameter Code	Parameter Description	Value	Unit			
CARBON	Percentage of area of carbo	19.67	percent			
DRNAREA	Area that drains to a point	908	square miles			
PRECIP	Mean Annual Precipitation	47	inches			
ROCKDEP	Depth to rock	4.3	feet			
STRDEN	Stream Density -- total leng	1.29	miles per square mile			
Low-Flow Statistics Par	99.7 Percent Low Flow Region 2					
Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit	
DRNAREA	Drainage Area	908	square mi	4.93	1280	
PRECIP	Mean Annual Precipitation	47	inches	35	50.4	
STRDEN	Stream Density	1.29	miles per	0.51	3.1	
ROCKDEP	Depth to Rock	4.3	feet	3.32	5.65	
CARBON	Percent Carbonate	19.67	percent	0	99	
Low-Flow Statistics Flo	99.7 Percent Low Flow Region 2					
Statistic	Value	Unit	SE	ASEp		
7 Day 2 Year Low Flow	392	ft^3/s	38	38		
30 Day 2 Year Low Flow	463	ft^3/s	33	33		
7 Day 10 Year Low Flow	247	ft^3/s	51	51		
30 Day 10 Year Low Flo	295	ft^3/s	46	46		
90 Day 10 Year Low Flo	364	ft^3/s	36	36		
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USGS Software Disclaimer: This software has been approved for release by the U.S. Geological Survey (						
USGS Product Names Disclaimer: Any use of trade, firm, or product names is for descriptive purposes o						
Application Version: 4.17.0						
StreamStats Services Version: 1.2.22						
NSS Services Version: 2.2.1						

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: **Stanley Black & Decker gwcu** NPDES Permit No.: **PA0011371** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **gw remediation**

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
0.482	100	7						

					0 if left blank		0.5 if left blank		0 if left blank			1 if left blank	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Strea m CV	Fate Coeff	FOS	Criteri a Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L											
	Chloride (PWS)	mg/L		175									
	Bromide	mg/L											
	Sulfate (PWS)	mg/L		56.2									
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L											
	Total Antimony	µg/L											
	Total Arsenic	µg/L											
	Total Barium	µg/L		140									
	Total Beryllium	µg/L											
	Total Boron	µg/L											
	Total Cadmium	µg/L											
	Total Chromium (III)	µg/L		25									
	Hexavalent Chromium	µg/L											
	Total Cobalt	µg/L											
	Total Copper	mg/L											
	Free Cyanide	µg/L											
	Total Cyanide	µg/L		3.4									
	Dissolved Iron	µg/L		36.1									

	Total Iron	µg/L		160									
	Total Lead	µg/L		1									
	Total Manganese	µg/L		9.8									
	Total Mercury	µg/L											
	Total Nickel	µg/L		3.8									
	Total Phenols (Phenolics) (PWS)	µg/L		21									
	Total Selenium	µg/L											
	Total Silver	µg/L											
	Total Thallium	µg/L											
	Total Zinc	mg/L		0.016									
	Total Molybdenum	µg/L											
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L		0.5									
	Bromoform	µg/L		0.5									

Group 3	Carbon Tetrachloride	µg/L		1.8									
	Chlorobenzene	µg/L		0.5									
	Chlorodibromomethane	µg/L	<										
	Chloroethane	µg/L	<										
	2-Chloroethyl Vinyl Ether	µg/L		1									
	Chloroform	µg/L		2.9									
	Dichlorobromomethane	µg/L	<										
	1,1-Dichloroethane	µg/L		2.6									
	1,2-Dichloroethane	µg/L		0.5									
	1,1-Dichloroethylene	µg/L		2.3									
	1,2-Dichloropropane	µg/L	<										
	1,3-Dichloropropylene	µg/L		0.5									
	1,4-Dioxane	µg/L		4.5									
	Ethylbenzene	µg/L	<	1									
	Methyl Bromide	µg/L		1									
	Methyl Chloride	µg/L	<										
	Methylene Chloride	µg/L		1.4									
	1,1,2,2-Tetrachloroethane	µg/L		0.5									
	Tetrachloroethylene	µg/L		2.8									
	Toluene	µg/L		1.5									
	1,2-trans-Dichloroethylene	µg/L	<										
	1,1,1-Trichloroethane	µg/L	<	14.5									
	1,1,2-Trichloroethane	µg/L	<										
	Trichloroethylene	µg/L		93.8									

	Trichloroethylene	µg/L		93.6									
	Vinyl Chloride	µg/L	<	1									
Group 4	2-Chlorophenol	µg/L	<										
	2,4-Dichlorophenol	µg/L	<										
	2,4-Dimethylphenol	µg/L	<										
	4,6-Dinitro-o-Cresol	µg/L	<										
	2,4-Dinitrophenol	µg/L	<										
	2-Nitrophenol	µg/L	<										
	4-Nitrophenol	µg/L	<										
	p-Chloro-m-Cresol	µg/L	<										
	Pentachlorophenol	µg/L	<										
	Phenol	µg/L	<										
	2,4,6-Trichlorophenol	µg/L	<										
Group 5	Acenaphthene	µg/L	<										
	Acenaphthylene	µg/L	<										
	Anthracene	µg/L	<										
	Benzidine	µg/L	<										
	Benzo(a)Anthracene	µg/L	<										
	Benzo(a)Pyrene	µg/L	<										
	3,4-Benzofluoranthene	µg/L	<										
	Benzo(ghi)Perylene	µg/L	<										
	Benzo(k)Fluoranthene	µg/L	<										
	Bis(2-Chloroethoxy)Methane	µg/L	<										
	Bis(2-Chloroethyl)Ether	µg/L	<										
	Bis(2-Chloroisopropyl)Ether	µg/L	<										
	Bis(2-Ethylhexyl)Phthalate	µg/L	<										
	4-Bromophenyl Phenyl Ether	µg/L	<										
	Butyl Benzyl Phthalate	µg/L	<										
	2-Chloronaphthalene	µg/L	<										
	4-Chlorophenyl Phenyl Ether	µg/L	<										
	Chrysene	µg/L	<										
	Dibenzo(a,h)Anthrancene	µg/L	<										
	1,2-Dichlorobenzene	µg/L		2.3									
	1,3-Dichlorobenzene	µg/L	<										
	1,4-Dichlorobenzene	µg/L	<										
	3,3-Dichlorobenzidine	µg/L	<										
	Diethyl Phthalate	µg/L	<										
	Dimethyl Phthalate	µg/L	<										
	Di-n-Butyl Phthalate	µg/L	<										
	2,4-Dinitrotoluene	µg/L	<										

	2,6-Dinitrotoluene	µg/L	<										
	Di-n-Octyl Phthalate	µg/L	<										

	Di-n-Octyl Phthalate	µg/L	<											
	1,2-Diphenylhydrazine	µg/L	<											
	Fluoranthene	µg/L	<											
	Fluorene	µg/L	<											
	Hexachlorobenzene	µg/L	<											
	Hexachlorobutadiene	µg/L	<											
	Hexachlorocyclopentadiene	µg/L	<											
	Hexachloroethane	µg/L	<											
	Indeno(1,2,3-cd)Pyrene	µg/L	<											
	Isophorone	µg/L	<											
	Naphthalene	µg/L	<	0.39										
	Nitrobenzene	µg/L	<											
	n-Nitrosodimethylamine	µg/L	<											
	n-Nitrosodi-n-Propylamine	µg/L	<											
	n-Nitrosodiphenylamine	µg/L	<											
	Phenanthrene	µg/L	<											
	Pyrene	µg/L	<											
	1,2,4-Trichlorobenzene	µg/L	<											
Group 6	Aldrin	µg/L	<											
	alpha-BHC	µg/L	<											
	beta-BHC	µg/L	<											
	gamma-BHC	µg/L	<											
	delta BHC	µg/L	<											
	Chlordane	µg/L	<											
	4,4-DDT	µg/L	<											
	4,4-DDE	µg/L	<											
	4,4-DDD	µg/L	<											
	Dieldrin	µg/L	<											
	alpha-Endosulfan	µg/L	<											
	beta-Endosulfan	µg/L	<											
	Endosulfan Sulfate	µg/L	<											
	Endrin	µg/L	<											
	Endrin Aldehyde	µg/L	<											
	Heptachlor	µg/L	<											
	Heptachlor Epoxide	µg/L	<											
	PCB-1016	µg/L	<											
	PCB-1221	µg/L	<											
	PCB-1232	µg/L	<											
	PCB-1242	µg/L	<											
	PCB-1248	µg/L	<											
	PCB-1254	µg/L	<											
	PCB-1260	µg/L	<											
	PCBs, Total	µg/L	<											
	Toxaphene	µg/L	<											
	2,3,7,8-TCDD	ng/L	<											
p 7	Gross Alpha	pCi/L												
	Total Beta	pCi/L	<											
	Radium 226/228	pCi/L	<											

Group	Radium 226/228	pCi/L	<											
	Total Strontium	µg/L	<											
	Total Uranium	µg/L	<											
	Osmotic Pressure	mOs/kg												
	Total Xylenes	µg/L	<	3										
	MTBE	µg/L	<	1										
	1,2-cis-Dichloroethylene	µg/L		58.1										

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Toxics Management Spreadsheet
Version 1.4, May 2023

Stream / Surface Water Information

Stanley Black & Decker gwcu, NPDES Permit No. PA0011371, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Schuylkill river** No. Reaches to Model: **1**

- (●) Statewide Criteria
- ( ) Great Lakes Criteria
- ( ) ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	000833	75	182	904			Yes
End of Reach 1	000833	74.7	180	908			Yes

$Q_{7\text{-}10}$

Location	RMI	LFY (cfs/mi²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	75	0.277										69	7		
End of Reach 1	74.7	0.277													

Q_h

Location	RMI	LFY (cfs/mi²)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	75														
End of Reach 1	74.7														

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Toxics Management Spreadsheet
Version 1.4, May 2023

Model Results

Stanley Black & Decker gwcu, NPDES Permit No. PA0011371, Outfall 001

Instructions | Results | RETURN TO INPUTS | SAVE AS PDF | PRINT | ◉ All ○ Inputs ○ Results ○ Limits

☑ ***Hydrodynamics***

Q_{7-10}

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
75	250.41		250.41	0.746	0.001	1.131	251.041	222.009	0.885	0.021	2009.725
74.7	251.52		251.516								

Q_h

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
75	927.70		927.70	0.746	0.001	2.01	251.041	124.891	1.84	0.01	851.652
74.7	931.286		931.29								

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.086 Analysis Hardness (mg/l): 70.033 Analysis pH: 7.00

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Barium	0	0		0	21,000	21,000	630,267	
Total Chromium (III)	0	0		0	425.595	1,347	40,422	Chem Translator of 0.316 applied
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	43.730	51.9	1,557	Chem Translator of 0.843 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Nickel	0	0		0	346.410	347	10,418	Chem Translator of 0.998 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	86.652	88.6	2,659	Chem Translator of 0.978 applied
Benzene	0	0		0	640	640	19,208	
Bromoform	0	0		0	1,800	1,800	54,023	

Carbon Tetrachloride	0	0		0	2,800	2,800	84,036	

Chlorobenzene	0	0		0	1,200	1,200	36,015	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	540,229	
Chloroform	0	0		0	1,900	1,900	57,024	
1,2-Dichloroethane	0	0		0	15,000	15,000	450,190	
1,1-Dichloroethylene	0	0		0	7,500	7,500	225,095	
1,3-Dichloropropylene	0	0		0	310	310	9,304	
Ethylbenzene	0	0		0	2,900	2,900	87,037	
Methyl Bromide	0	0		0	550	550	16,507	
Methylene Chloride	0	0		0	12,000	12,000	360,152	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	30,013	
Tetrachloroethylene	0	0		0	700	700	21,009	
Toluene	0	0		0	1,700	1,700	51,022	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	90,038	
Trichloroethylene	0	0		0	2,300	2,300	69,029	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	820	820	24,610	
Naphthalene	0	0		0	140	140	4,202	
Total Xylenes	0	0		0	1,100	1,100	33,014	
1,2-cis-Dichloroethylene	0	0		0	N/A	N/A	N/A	

☑ ***CFC*** CCT (min): 720 PMF: 0.599 Analysis Hardness (mg/l): 69.153 Analysis pH: 7.00

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Barium	0	0		0	4,100	4,100	828,224	
Total Chromium (III)	0	0		0	54.791	63.7	12,870	Chem Translator of 0.86 applied
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	505,235	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	1.681	1.99	402	Chem Translator of 0.845 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Nickel	0	0		0	38.066	38.2	7,713	Chem Translator of 0.997 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	86.431	87.7	17,707	Chem Translator of 0.986 applied
Benzene	0	0		0	130	130	26,261	
Bromoform	0	0		0	370	370	74,742	
Carbon Tetrachloride	0	0		0	560	560	113,123	
Chlorobenzene	0	0		0	240	240	48,481	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	707,021	
Chloroform	0	0		0	390	390	78,782	

1,2-Dichloroethane	0	0		0	3,100	3,100	626,218	
1,1-Dichloroethylene	0	0		0	1,500	1,500	303,009	
1,3-Dichloropropylene	0	0		0	61	61.0	12,322	
Ethylbenzene	0	0		0	580	580	117,163	
Methyl Bromide	0	0		0	110	110	22,221	

Methylene Chloride	0	0		0	2,400	2,400	484,814	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	42,421	
Tetrachloroethylene	0	0		0	140	140	28,281	
Toluene	0	0		0	330	330	66,662	
1,1,1-Trichloroethane	0	0		0	610	610	123,224	
Trichloroethylene	0	0		0	450	450	90,903	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	160	160	32,321	
Naphthalene	0	0		0	43	43.0	8,686	
Total Xylenes	0	0		0	210	210	42,421	
1,2-cis-Dichloroethylene	0	0		0	N/A	N/A	N/A	

☑ ***THH*** CCT (min): 720 PMF: 0.599 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Chloride (PWS)	0	0		0	250,000	250,000	N/A	
Sulfate (PWS)	0	0		0	250,000	250,000	N/A	
Total Barium	0	0		0	2,400	2,400	484,814	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	300	300	60,602	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	1,000	1,000	202,006	
Total Nickel	0	0		0	610	610	123,224	
Total Phenols (Phenolics) (PWS)	0	0		0	5	5.0	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	
Benzene	0	0		0	N/A	N/A	N/A	
Bromoform	0	0		0	N/A	N/A	N/A	
Carbon Tetrachloride	0	0		0	N/A	N/A	N/A	
Chlorobenzene	0	0		0	100	100.0	20,201	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	5.7	5.7	1,151	
1,2-Dichloroethane	0	0		0	N/A	N/A	N/A	

1,2-Dichloroethane	0	0		0	N/A	N/A	N/A	
1,1-Dichloroethylene	0	0		0	33	33.0	6,666	
1,3-Dichloropropylene	0	0		0	N/A	N/A	N/A	
Ethylbenzene	0	0		0	68	68.0	13,736	
Methyl Bromide	0	0		0	100	100.0	20,201	
Methylene Chloride	0	0		0	N/A	N/A	N/A	
1,1,2,2-Tetrachloroethane	0	0		0	N/A	N/A	N/A	
Tetrachloroethylene	0	0		0	N/A	N/A	N/A	
Toluene	0	0		0	57	57.0	11,514	
1,1,1-Trichloroethane	0	0		0	10,000	10,000	2,020,059	
Trichloroethylene	0	0		0	N/A	N/A	N/A	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	

1,2-Dichlorobenzene	0	0		0	1,000	1,000	202,006	
Naphthalene	0	0		0	N/A	N/A	N/A	
Total Xylenes	0	0		0	70,000	70,000	14,140,411	
1,2-cis-Dichloroethylene	0	0		0	12	12.0	2,424	

☑ ***CRL*** CCT (min): 720 PMF: 0.919 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Barium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Nickel	0	0		0	N/A	N/A	N/A	
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	
Benzene	0	0		0	0.58	0.58	664	
Bromoform	0	0		0	7	7.0	8,015	
Carbon Tetrachloride	0	0		0	0.4	0.4	458	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	N/A	N/A	N/A	

1,2-Dichloroethane	0	0		0	9.9	9.9	11,335	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,3-Dichloropropylene	0	0		0	0.27	0.27	309	
Ethylbenzene	0	0		0	N/A	N/A	N/A	
Methyl Bromide	0	0		0	N/A	N/A	N/A	
Methylene Chloride	0	0		0	20	20.0	22,899	
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	229	
Tetrachloroethylene	0	0		0	10	10.0	11,449	
Toluene	0	0		0	N/A	N/A	N/A	
1,1,1-Trichloroethane	0	0		0	N/A	N/A	N/A	
Trichloroethylene	0	0		0	0.6	0.6	687	
Vinyl Chloride	0	0		0	0.02	0.02	22.9	
1,2-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
Naphthalene	0	0		0	N/A	N/A	N/A	
Total Xylenes	0	0		0	N/A	N/A	N/A	
1,2-cis-Dichloroethylene	0	0		0	N/A	N/A	N/A	

☑ ***Recommended WQBELs & Monitoring Requirements***

No. Samples/Month: 4

Pollutants	*Mass Limits* AML (lbs/day)	*Mass Limits* MDL (lbs/day)	*Concentration Limits* AML	*Concentration Limits* MDL	*Concentration Limits* IMAX	*Concentration Limits* Units	Governing WQBEL	WQBEL Basis	Comments

☑ ***Other Pollutants without Limits or Monitoring***

The following pollutants do not require effluent limits or monitoring based on water quality because reasonable potential to exceed water quality criteria was not determined and the discharge concentration was less than thresholds for monitoring, or the pollutant was not detected and a sufficiently sensitive analytical method was used (e.g., <= Target QL).

Pollutants	Governing WQBEL	Units	Comments
Chloride (PWS)	N/A	N/A	PWS Not Applicable
Sulfate (PWS)	N/A	N/A	PWS Not Applicable
Total Barium	403,975	µg/L	Discharge Conc ≤ 10% WQBEL
Total Chromium (III)	12,870	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	60,602	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	505,235	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	402	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	202,006	µg/L	Discharge Conc ≤ 10% WQBEL
Total Nickel	6,677	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Zinc	1.7	mg/L	Discharge Conc ≤ 10% WQBEL
Benzene	664	µg/L	Discharge Conc ≤ 25% WQBEL
Bromoform	8,015	µg/L	Discharge Conc ≤ 25% WQBEL
Carbon Tetrachloride	458	µg/L	Discharge Conc ≤ 25% WQBEL
Chlorobenzene	20,201	µg/L	Discharge Conc ≤ 25% WQBEL
2-Chloroethyl Vinyl Ether	346,265	µg/L	Discharge Conc ≤ 25% WQBEL
Chloroform	1,151	µg/L	Discharge Conc ≤ 25% WQBEL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	11,335	µg/L	Discharge Conc ≤ 25% WQBEL
1,1-Dichloroethylene	6,666	µg/L	Discharge Conc ≤ 25% WQBEL
1,3-Dichloropropylene	309	µg/L	Discharge Conc ≤ 25% WQBEL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	13,736	µg/L	Discharge Conc ≤ 25% WQBEL
Methyl Bromide	10,580	µg/L	Discharge Conc ≤ 25% WQBEL
Methylene Chloride	22,899	µg/L	Discharge Conc ≤ 25% WQBEL
1,1,2,2-Tetrachloroethane	229	µg/L	Discharge Conc ≤ 25% WQBEL
Tetrachloroethylene	11,449	µg/L	Discharge Conc ≤ 25% WQBEL
Toluene	11,514	µg/L	Discharge Conc ≤ 25% WQBEL
1,1,1-Trichloroethane	57,711	µg/L	Discharge Conc ≤ 25% WQBEL
Trichloroethylene	687	µg/L	Discharge Conc ≤ 25% WQBEL
Vinyl Chloride	22.9	µg/L	Discharge Conc ≤ 25% WQBEL
1,2-Dichlorobenzene	15,774	µg/L	Discharge Conc ≤ 25% WQBEL
Naphthalene	2,693	µg/L	Discharge Conc < TQL
Total Xylenes	21,161	µg/L	Discharge Conc ≤ 25% WQBEL
MTBE	N/A	N/A	No WQS
1,2-cis-Dichloroethylene	2,424	µg/L	Discharge Conc ≤ 25% WQBEL

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Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: **Stanley Blk Decker** NPDES Permit No.: **PA0011371** Outfall No.: **001**

Evaluation Type: **Custom / Additives** Wastewater Description: **gw remediation**

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
0.482	100	7						

				0 if left blank		*0.5 if left blank*		*0 if left blank*			*1 if left blank*	
Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Sodium Bisulfate	µg/L		99999999									

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Toxics Management Spreadsheet
Version 1.4, May 2023

Stream / Surface Water Information

Stanley Blk Decker, NPDES Permit No. PA0011371, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Schuylkill River**

No. Reaches to Model: **1**

- (●) Statewide Criteria
- ( ) Great Lakes Criteria
- ( ) ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	000833	75	182	904			Yes
End of Reach 1	000833	74.7	180	908			Yes

$Q_{7\text{-}10}$

Location	RMI	LFY (cfs/mi²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	75	0.277										69	7		
End of Reach 1	74.7	0.277													

Q_h

Location	RMI	LFY (cfs/mi²)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	75														
End of Reach 1	74.7														

Model Results

Stanley Blk Decker, NPDES Permit No. PA0011371, Outfall 001

Instructions | Results | RETURN TO INPUTS | SAVE AS PDF | PRINT | (•) All ( ) Inputs ( ) Results ( ) Limits

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.086 Analysis Hardness (mg/l): 70.033 Analysis pH: 7.00

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Sodium Bisulfate	0	0		0	2328.8	2,329	69,894	

☑ ***CFC*** CCT (min): 720 PMF: 0.599 Analysis Hardness (mg/l): 69.153 Analysis pH: 7.00

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Sodium Bisulfate	0	0		0	258.8	259	52,279	

☑ ***THH*** CCT (min): 720 PMF: 0.599 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Sodium Bisulfate	0	0		0	N/A	N/A	N/A	

☑ ***CRL*** CCT (min): 720 PMF: 0.919 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Sodium Bisulfate	0	0		0	N/A	N/A	N/A	

☑ ***Recommended WQBELs & Monitoring Requirements***

No. Samples/Month: 4

Mass Limits	*Concentration Limits*

lodel Results 9/18/2023 Page 3

Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Sodium Bisulfate	180	281	44,799	69,894	111,997	µg/L	44,799	AFC	Discharge Conc ≥ 50% WQBEL (RP)

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

250	= Q stream (cfs)	0.5	= CV Daily
0.482	= Q discharge (MGD)	0.5	= CV Hourly
30	= no. samples	0.1	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Stream	0.6	= CFC_Partial Mix Factor
0	= Chlorine Demand of Discharge	15	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)
0	= % Factor of Safety (FOS)		=Decay Coefficient (K)

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 10.714	1.3.2.iii	WLA cfc = 62.574
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 3.992	5.1d	LTA_cfc = 36.377

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.500	BAT/BPJ
		INST MAX LIMIT (mg/l) = 1.635	

WLA afc	(.019/e(-k*AFC_tc)) + [(AFC_Yc*Qs*.019/Qd*e(-k*AFC_tc))... ...+ Xd + (AFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)
LTAMULT afc	EXP((0.5*LN(cvh^2+1))-2.326*LN(cvh^2+1)^0.5)
LTA_afc	wla_afc*LTAMULT_afc