pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0255017**
Facility Type	**Industrial**	APS ID	**1030705**
Major / Minor	**Minor**	Authorization ID	**1340109**

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

Applicant and Facility Information

Applicant Name	**Center Township Municipal Water Authority Beaver County**	Facility Name	**Center Township Water Authority**
Applicant Address	224 Center Grange Road	Facility Address	3000 Wagner Road Ext S
	Aliquippa, PA 15001-1421		Monaca, PA 15061
Applicant Contact	William Dicioccio	Facility Contact	William Dicioccio
Applicant Phone	(724) 774-7960	Facility Phone	(724) 774-7960
Client ID	82104	Site ID	263155
SIC Code	4941	Municipality	Center Township
SIC Description	Trans. & Utilities - Water Supply	County	Beaver
Date Application Received	January 12, 2021	EPA Waived?	Yes
Date Application Accepted	January 22, 2021	If No, Reason	N/A

Purpose of Application: Renewal of NPDES permit for discharge of Industrial Wastewater without ELG

Summary of Review

Background

The Pennsylvania Department of Environmental Protection (Department) received a renewal application for Center Township Water Authority's Center Township Water Treatment Plant in Aliquippa of Beaver County on January 12, 2021. The current permit was issued on May 23, 2016 and became effective June 1, 2006 through May 31, 2021. It has been administratively extended. In addition to the NPDES permit, the facility has two Water Quality Management (WQM) Part II permits for design and operation of the temporary surface water plant treatment system (Permit 0416200, issued 5/23/16) and the permanent plant (Permit 0416201). In addition, the facility is actively constructing a new filtration equipment building. NPDES coverage of the construction was issued by the Beaver County Conservation District.

Facility Description

The Center Township Water Authority Surface Water Treatment Facility provides potable water for supply and irrigation systems to approximately 4,900 metered residential, commercial and industrial users within Center Township and a portion of adjacent Potter Township. The CTWA system operates distribution, storage and treatment. More than 90 miles of distribution lines are maintained along with four treated water storage tanks with a combined capacity of 2.05 million gallons. The facility Standard Industrial Classification (SIC) Code is 4941 – Water Supply. An average of 1.715 MGD is withdrawn from the Ohio River daily. The raw water treatment plant was upgraded from an interim 3.0 MGD system to a permanent 5.0 MGD plant.

Approve	Deny	Signatures	Date
X		Nicole H. Benoit, P.E. / Environmental Engineering Specialist	March 11, 2022
X		Michael E. Fifth, P.E. / Environmental Engineer Manager	March 14, 2022

Summary of Review

Filter backwash and wastewater from the raw water treatment plant is sent for treatment in the Residuals Waste Treatment Building prior to discharge to the Ohio River. Per WQM Part II Permit 0416201 for design and operation of the wastewater treatment plant, the maximum design flow of the system is 500 gallons per minute (0.72 MGD).

In addition to the NPDES permit, the facility has a Sanitary Water Board Permit from the PA Department of Health and a Public Water Supply (PWS) permit from the Department's Drinking Water Program. Sewage is sent via sanitary lines to the POTW.

In September 2016 the facility began utilizing a surface water intake on the Ohio River. Prior to that, the facility obtained water from a well field along the Ohio River and treated the groundwater. With the purchase of a large property along the Ohio River by Shell Chemical Appalachia for a new ethane cracker facility, an agreement was made to abandon the well field and construct the new river intake and surface water treatment facility. An interim river intake structure operated from September 2016 until the permanent structure was placed online in November 2018. The permanent intake structure has four vertical turbine pumps, three regular duty and one stand-by, with a permitted capacity of 5.0 MGD.

The primary treatment process at the raw water plant consists of conventional filtration followed by activated carbon. The conventional filtration process consists of coagulation, flocculation, sedimentation and gravity filtration. This process is achieved across five package treatment units. Each unit has three flocculation basins (primary, secondary, tertiary), one sedimentation basin with tube settlers, and one gravity filter basin. The activated carbon process stage uses four granular activated carbon adsorption pressure vessels followed by three parallel 12-inch diameter ultraviolet light reactors. This is the last treatment step inside the building before the water is sent to the clearwell for chlorine disinfection and storage. Chlorine gas is used for preliminary and finished water disinfection prior to entering the distribution system.

Wastewater from the raw water treatment process is sent to the Residuals Waste Treatment Building. Wastewater treatment consists of an equalization tank, flocculator, plate clarifier, disc filter, and solids press. More details regarding this system are discussed in the Development of Effluent Limitations section.

Outfall Descriptions

The facility's one process wastewater outfall, Outfall 001, discharges to the Ohio River which is designated for two water uses, a Warm Water Fishery (WWF) and navigation, per Pa Code Chapter 93.9w. Listed as an exception to specific criteria is the ORSANCO Pollution Control Standards which may be more stringent than the sitewide criteria established in Chapter 93. The Ohio River is impaired for dioxin, pathogens, and polychlorinated biphenyls (PCBs) with no known source. A TMDL was established on March 6, 2001 for PCBs and Chlordane in the Ohio River from the Point in Pittsburgh to the State Border. Based on the facility operations and treatment, it is not expected that the permittee is contributing to the impairment and therefore monitoring for these parameters will not be required.

Stormwater flows through Outfall 002. Currently the drainage area to Outfall 002 includes the construction of the new filtration equipment building, but in the future will be maintained as a Post Construction Stormwater Management (PCSM) Best Management Practice (BMP) structure. A network of below grading piping and inlets in the northern two-thirds of the plant leads to a retention pond in the northwest corner. The discharge from the pond is to wooded area and enters an unnamed tributary of Rags Run. Approximately 0.4 miles downstream is the Ohio River.

316(b) Exemption

40 CFR 125 Subpart J – Requirements Applicable to Cooling Water Intake Structures for Existing Facilities Under Section 316(b) of the Clean Water Act address applicability and requirements for those facilities subject to the 316(b) regulations.

> §125.91(a) The owner or operator of an existing facility, as defined in §125.92(k), is subject to the requirements at §§125.94 through 125.99 if:
> (1) The facility is a point source;
> (2) The facility uses or proposes to use one or more cooling water intake structures with a cumulative design intake flow (DIF) of greater than 2 million gallons per day (mgd) to withdraw water from waters of the United States; and
> (3) Twenty-five percent or more of the water the facility withdraws on an actual intake flow basis is used exclusively for cooling purposes.

Summary of Review

The facility has a surface water intake, however none of the water is used for cooling. There are no thermal processes at the facility. Therefore, the 316(b) regulations do not apply.

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.

Conclusion

It is recommended that a draft permit be issued for public comment for renewal of NPDES permit PA0255017.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.72
Latitude	40º 40' 43"	Longitude	-80º 19' 32"
Quad Name	Beaver	Quad Code	1303
Wastewater Description:	Wastewater treatment plant effluent and plant emergency overflows		

Receiving Waters	Ohio River (WWF)	Stream Code	032317
NHD Com ID	134396158	RMI	953.16
Drainage Area	22,800 sq. mi.	Yield (cfs/mi^2)	0.207
Q_{7-10} Flow (cfs)	4,730	Q_{7-10} Basis	ORSANCO
Elevation (ft)	682	Slope (ft/ft)	0.0001
Watershed No.	20-G	Chapter 93 Class.	WWF
Existing Use	Non-attaining	Existing Use Qualifier	Assessed
Exceptions to Use	ORSANCO	Exceptions to Criteria	ORSANCO
Assessment Status	Impaired		
Cause(s) of Impairment	Dioxin, Pathogens, Polychlorinated Biphenyls (PCBs)		
Source(s) of Impairment	Source Unknown		
TMDL Status	Final	Name	Ohio River

Background/Ambient Data		Data Source
pH (SU)	7.0	Default
Temperature (°F)	Ambient	Default
Hardness (mg/L)	100	Default
Other:	N/A	Default

Nearest Downstream Public Water Supply Intake		Nova Chemicals Beaver Valley Plant	
PWS Waters	No	Flow at Intake (cfs)	4,730
PWS RMI	951.44	Distance from Outfall (mi)	1.72

Discharge, Receiving Waters and Water Supply Information

Outfall No.	002	Design Flow (MGD)	Intermittent and Variable
Latitude	40º 40' 25"	Longitude	-80º 19' 15"
Quad Name	Beaver	Quad Code	1303
Wastewater Description:	Stormwater		

Receiving Waters	Unnamed Tributary of Rags Run (WWF)	Stream Code	33949
NHD Com ID	99679418	RMI	0.17
Watershed No.	20-G	Chapter 93 Class.	WWF
Existing Use	Non-attaining	Existing Use Qualifier	Assessed
Exceptions to Use	None	Exceptions to Criteria	None

Other Comments: The Ohio River flow is regulated by the U. S. Army Corps of Engineers. The discharge is located between Dashields Lock and Dam (RMI 967.7) and the Montgomery Lock and Dam (RMI 949.3). The upper pool elevation of the Montgomery Lock and Dam is 682.0 ft. ORSANCO has defined reduced critical flows for modeling of water quality criteria. From Pittsburgh to the Montgomery Dam the Minimum 7-day, 10-year low-flow is 4,730 cfs.

The Nova Chemicals Beaver Valley Plant pumping capacity of the intake structure is 216 MGD and serves a drinking water population of 310 personnel.

Compliance History

Summary of DMRs:

There were no effluent limitations exceeded during the past twelve months.

In October 2019 the manganese effluent limitations were exceeded. The average monthly limit of 1.0 mg/L was exceeded at 1.1 mg/L and the instantaneous maximum limit of 2.0 mg/L was exceeded at 2.3 mg/L.

Summary of Inspections:

On November 1, 2018 the Department conducted an inspection of the CTWA Wastewater Treatment Plant. No violations were noted.

Operations Compliance Check Summary Report

Facility: Center Twp. Water Authority
NPDES Permit No.: PA0255017
Compliance Review Period: 12/2016 – 12/2021

Inspection Summary:

INSP ID	INSPECTED DATE	INSP TYPE	AGENCY	INSPECTION RESULT DESC
2826195	11/02/2018	Compliance Evaluation	PA Dept of Environmental Protection	No Violations Noted
2611673	04/11/2017	Administrative/File Review	PA Dept of Environmental Protection	Violation(s) Noted

Violation Summary:

VIOL ID	VIOLATION DATE	VIOLATION TYPE	VIOLATION TYPE DESC	RESOLVED DATE
790641	04/11/2017	92A.61(G)	NPDES - Failure to use a format or process required by DEP for self-monitoring results	04/19/2017

Open Violations by Client ID:
No violations for client ID 82104

Enforcement Summary:

ENF ID	ENF TYPE	ENF TYPE DESC	EXECUTED DATE	ENF FINALSTATUS
355793	NOV	Notice of Violation	04/11/2017	Comply/Closed

DMR Violation Summary:

BEGIN	END	PARAMETER	SAMPLE_VALUE	PERMIT_VALUE	UNIT_OF_	STAT_BASE_CODE
10/1/2019	10/31/2019	Manganese, Total	1.1	1	mg/L	Average Monthly
10/1/2019	10/31/2019	Manganese, Total	2.3	2	mg/L	Instantaneous Maximum

Compliance Status: In compliance **Completed by:** John Murphy **Completed date:** 12/16/2021

Compliance History

DMR Data for Outfall 001 (from February 1, 2021 to January 31, 2022)

Parameter	JAN-22	DEC-21	NOV-21	OCT-21	SEP-21	AUG-21	JUL-21	JUN-21	MAY-21	APR-21	MAR-21	FEB-21
Flow (MGD) Average Monthly	0.046	0.047	0.039	0.040	0.042	0.042	0.42	0.037	0.043	0.048	0.044	0.073
Flow (MGD) Daily Maximum	0.104	0.200	0.080	0.080	0.080	0.079	0.116	0.055	0.082	0.107	0.086	0.167
pH (S.U.) Minimum	7.2	6.9	7.1	7.4	7.5	7.1	7.4	7.5	7.3	7.4	6.8	6.8
pH (S.U.) Maximum	7.2	7.0	7.5	7.5	7.5	7.5	7.6	7.6	7.4	7.5	6.9	6.8
TRC (mg/L) Average Monthly	0.04	0.04	0.01	0.02	0.01	0.04	0.35	0.02	0.02	0.02	0.03	0.02
TRC (mg/L) Instantaneous Maximum	0.05	0.05	0.01	0.02	0.01	0.07	0.50	0.02	0.02	0.02	0.03	0.02
TSS (mg/L) Average Monthly	1	1	1	4	2	1	1	4	2	3	3	1
TSS (mg/L) Instantaneous Maximum	1	1	1	5	3	1	1	7	2	4	4	1
Total Aluminum (mg/L) Average Monthly	0.2	0.2	0.2	0.3	0.4	0.5	0.3	0.3	0.2	0.2	0.2	0.3
Total Aluminum (mg/L) Instantaneous Maximum	0.2	0.2	0.2	0.5	0.6	0.8	0.4	0.4	0.2	0.2	0.2	0.3
Total Iron (mg/L) Average Monthly	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Total Iron (mg/L) Instantaneous Maximum	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Total Manganese (mg/L) Average Monthly	0.04	0.04	0.05	0.08	0.05	0.33	0.06	0.55	0.16	0.18	0.08	0.09
Total Manganese (mg/L) Instantaneous Maximum	0.04	0.05	0.07	0.09	0.07	0.59	0.10	0.92	0.27	0.28	0.09	0.12

Development of Effluent Limitations

Outfall No.	**001**	**Design Flow (MGD)**	**0.72**
Latitude	**40º 40' 43"**	**Longitude**	**-80º 19' 32"**

Wastewater Description: **IW Process Effluent without ELG**

Technology-Based Limitations

Section 304(b) of the Federal Clean Water Act (CWA) requires technology limits to be considered. Section 301(b)(1) of the CWA requires compliance with best practicable control technology (BPT) by July 1, 1977. Section 301(b)(2)(E) of the CWA requires compliance with best conventional pollutant control technology (BCT) by March 31, 1989. Section 301(b)(2)(C) of the CWA requires compliance with best available technology (BAT) by March 31, 1989.

Wastewater Treatment Plant Equipment Description

The 250,000-gallon Waste Equalization Tank receives granular activated carbon (GAC) backwash, conventional filter backwash, and sedimentation tank solids from the raw water treatment plant, as well as volute press filtrate, day tank supernatant, and disc filter backwash from the Wastewater Treatment Plant. All of these wastewaters combined in the equalization tank are pumped through two flocculators (5025 gallons each) for floc formation (at a maximum flow of 500 gpm, there will be a 20-minute detention time). Polymer is injected into a static mixer at the influent of the flocculator tanks. From the flocculators, the wastewater is conveyed to a 21,362 gallon inclined plate settler type clarifier (t_d = 42 minutes at 500 gpm). Sludge from the clarifier will be pumped to a 42,000 gallon day tank. The wastewater then overflows through a cloth disc filter for solids removal and the filter effluent is discharged to Outfall 001. The Disc Filter backwash is pumped to the Waste Equalization Tank. Settled solids from the flocculation and sedimentation process are pumped to the Day Tank. The Day Tank supernatant is pumped to the Waste Equalization Tank and the concentrated solids are pumped to the Volute Press. The dewatered solids are placed in a 30 yd^3 dumpster and hauled to an offsite landfill for disposal. Supernatant is pumped back to the Waste Equalization Tank. If an overflow from the day tank should occur, it will discharge to the sanitary sewer. Per the WQM Part II Permit 0416201 the maximum design flow of the wastewater treatment system is 500 gpm (permit issued 10/19/2016).

Emergency Overflow Sources

The facility may also discharge from the potable water storage tanks (overflow and tank drains) which are dechlorinated by tablet feed, and overflow from the 250,000-gallon waste equalization tank. Both of these sources would discharge rarely in an emergency.

Development of Technology-Based Effluent Limitations (TBELs)

There is no effluent limitation guideline (ELG) developed by the EPA for discharge of water supply wastewater. The wastewater is not the result of manufacturing or traditional industrial wastewater, but the treatment units at the facility are commonly used for wastewater treatment across numerous industries. It is therefore appropriate to use Best Professional Development (BPJ) to establish effluent limitations based on the treatment efficacy of the equipment. In addition to BPJ, anti-backsliding will be considered.

Section 402(o) of the CWA states "…a permit may not be renewed, reissued, or modified … subsequent to the original issuance of such permit, to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit." Similarly, 40 CFR 122.44(l)(1) states "(l) *Reissued permits*. (1) Except as provided in paragraph (l)(2) of this section when a permit is renewed or reissued, interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit (unless the circumstances on which the previous permit was based have materially and substantially changed since the time the permit was issued and would constitute cause for permit modification or revocation and reissuance under §122.62.)"

Per the 2016 Fact Sheet, the effluent limitations were developed solely on Technology-Based Limitations as a water quality analysis was not performed due to the available dilution by the Ohio River. The following Table 1 lists the current effluent limits from Part A of the 2016 NPDES permit.

Table 1. Current NPDES Effluent Limits – Outfall 001

Parameter	Minimum	Average Monthly	Daily Maximum	IMAX
Flow (MGD)		Report	Report	
pH (S.U.)	6.0		9.0	
Total Residual Chlorine (TRC)		0.5		1.0
Total Suspended Solids (TSS)		30		60
Aluminum, Total		4.0		8.0
Iron, Total		2.0		4.0
Manganese, Total		1.0		2.0

Flow will be required to be monitored and reported per Pa. Code Chapter 92a.61(b). Per §95.2, industrial wastes must meet effluent standards, including a pH of not less than 6 and not greater than 9. The permit currently imposes the maximum 9.0 S.U. as a daily maximum. Since pH is a grab sample and the pH should not exceed 9 at any time, the limit will be imposed as an instantaneous maximum in the renewed permit.

The Department has established recommended TBELs for water treatment plant discharges in "Development of Technology-Based Control Requirements for Water Treatment Plant Wastes in Pennsylvania" (362-2183-003) dated 10/1/97. The following Table 2 is the recommended TBELs:

Table 2. Proposed Technology Based Effluent Limits – Outfall 001

Parameter	Monthly Average (mg/L)	Daily Maximum (mg/L)
Suspended Solids	30.0	60.0
Iron (total)	2.0	4.0
Aluminum (total)	4.0	8.0
Manganese (total)	1.0	2.0
Flow (MGD)	Report	Report
pH (S.U.)	6.0 – 9.0 at all times	
Total Residual Chlorine	0.5	1.0

The recommended TBELs, which are the same as the current limits, will continue to be imposed in the renewed permit.

Total Residual Chlorine (TRC)

§92a.48 states: (a) Industrial waste regulated by this chapter must meet the following requirements: (2) For facilities where the EPA has not promulgated a National ELG setting forth limits for TRC or free available chlorine for an industry or activity, and the Department has not developed a facility-specific BAT effluent limitation for TRC under the factors in paragraph (1), an effluent limitation for TRC of 0.5 milligrams per liter (30-day average) constitutes BAT. This is as stringent as the table above.

Total Dissolved Solids

The influent concentration of TDS to the wastewater treatment plant is 180 mg/L and the maximum concentration in the discharge is 185 mg/L. At this relatively low concentration, §95.10 does not apply and monitoring of TDS will not be imposed.

There are no additional pollutants of concern for which a BPJ limit should be developed.

Water Quality-Based Limitations

Section 302(a) of the CWA allows establishment of water quality effluent limits. Section 303(a)(1) of the CWA allows states to adopt water quality standards. Section 303(d) of the CWQ requires states to designate water uses (e.g., Chapter 93 of PA Code). Section 303(c) of the CWA requires states to develop water quality criteria (e.g., Chapters 16 and 93 of PA Code).

ORSANCO

The Ohio River Valley Water Sanitation Commission (ORSANCO) sets Pollution Control Standards for industrial and municipal wastewater discharges to the Ohio River. The standards designate specific uses for the Ohio River and establish guidelines to ensure that the river can support these uses. The most current revision of the Pollution Control Standards was issued in 2019. Where water quality standards are more stringent than the Chapter 93 water quality criteria, the Pollution Control Standards are imposed as criteria. The TMS spreadsheet referenced in the section below has ORSANCO criteria selected, and so the most stringent of the criteria will be automatically considered.

Toxics Management Spreadsheet Water Quality Modeling

PENTOXSD Version 2.0d for Windows is a single discharge, mass-balance water quality modeling program that includes consideration for mixing, first-order decay and other factors to determine recommended WQBELs for toxic substances and several non-toxic substances. The PENTOXSD program has been replaced by the Toxics Management Spreadsheet, Version 1.3, March 2021. The Toxics Management Spreadsheet (TMS) is a macro-enabled Microsoft Excel program that has incorporated the same equations as the PENTOXSD program and the Toxics Screening Analysis spreadsheet that determined which pollutants should be modeled in PENTOXSD based on reasonable potential to exceed criterion.

Required input data for the TMS includes stream code, river mile index, elevation, drainage area and Q_{7-10} discharge flow rate. Pennsylvania defines Q_{7-10} flow in the Pa Code § 96.1 as "The actual or estimated lowest 7 consecutive-day average flow that occurs once in 10 years for a stream with unregulated flow, or the estimated flow for a stream with regulated flow." These inputs establish site-specific discharge conditions. Other data such as low flow yield, reach dimensions, and partial mix factors may also be entered to further characterize the discharge and receiving water. The discharge concentration of pollutants is entered into the program as well. TMS then evaluates each pollutant by computing a Waste Load Allocation for each applicable criterion, determining a recommended maximum WQBEL, and comparing that recommended WQBEL with the input discharge concentration to determine which is more stringent. Based on this evaluation, TMS recommends average monthly, maximum daily and instantaneous maximum WQBELs (see Attachment A).

Page 16 of the application instructions notes that "Facilities that discharge only non-process wastewater not regulated by an ELG or new source performance standard can, in lieu of completing three analyses for all Group 1 pollutants, complete three analyses for the following pollutants: 5-Day Biochemical Oxygen Demand (BOD5), Total Suspended Solids (TSS), Total Dissolved Solids (TDS), Fecal Coliform (if believed present or if sanitary waste is or will be discharged), Total Residual Chlorine (TRC) (if chlorine is used), Oil and Grease, Chemical Oxygen Demand (COD) (if non-contact cooling water is or will be discharged), Total Organic Carbon (TOC) (if non-contact cooling water is or will be discharged), Ammonia-Nitrogen, pH, and Temperature (winter and summer)." Non-process is defined in the application instructions as "Wastewater from a facility that is not process water. This generally includes NCCW, boiler blowdown, test waters, laboratory wastes, housekeeping wastes, or other groundwater or surface waters not used during manufacturing or processing." The facility's wastewater falls under this category, and so complete sampling of Group 1 and Group 2 is not required. Those pollutants listed above and those suspected or believed to be present are to be sampled. Three samples were collected of the discharge from Outfall 001 specifically for updating the Analysis Results Tables as part of the renewal package. The Analysis Results Tables also include the DMR sampling for those pollutants required in the current NPDES permit. The outfall flow used for modeling is the maximum design flow of 0.72 MGD. This flow was approved in the WQM Part II Permit for the construction and operation of the plant. Upstream hardness is 63 mg/L as noted in the renewal application per ORSANCO information. Upstream pH was not supplied, and so a default of 7.0 S.U. was used. Because of the proximity of the downstream drinking water intake, the PWS withdrawal was included at the end of the reach 1.72 miles downstream.

Where the maximum reported concentration exceeds 50% of the WQBEL a reasonable potential has been demonstrated to exceed the water quality criterion and an effluent limitation will be established. For non-conservative pollutants, monitoring will be applied if the maximum reported concentration is greater than 25% of the WQBEL. For conservative pollutants, monitoring will be applied if the maximum reported concentration is greater than 10% of the WQBEL. Conservative and non-conservative pollutants are defined in Pa Code §96.1.

The Acute Fish Criterion (AFC), also referred to as Criteria Maximum Concentration (CMC) in Chapter 93, is evaluated at a point 15 minutes of travel time downstream of the outfall. The Chronic Fish Criterion (CFC), also referred to as the Criteria Continuous Concentration (CCC) in Chapter 93, and Carcinogen Risk Level or Cancer Risk Level (CRL) is evaluated at a point 12 hours downstream of the outfall. The Threshold Human Health Criteria (THH), also referred to as the Human Health Criteria (H) in Chapter 93, is evaluated 12 hours downstream of the outfall or at a Public Water Supply (PWS) intake, whichever is closer. To calculate these downstream distances as a function of time, the percentage of flow mixed with the stream (partial mix factor) is considered. Other site-specific inputs may be considered as well.

The permittee provided a stream hardness of 63 mg/L based on ORSANCO data. ORSANCO data was checked by the Department and the nearest downstream sampling location for public data was the New Cumberland station just across the state border in Ohio. From 2018 through the most current data in early 2021, the average hardness was approximately 97 mg/L. The default, typical stream hardness of 100 mg/L will be used. (A hardness of 63 mg/L resulted in the same effluent limitations.)

The Toxics Management Spreadsheet found there is a potential to exceed the water quality criterion for mercury. The mercury concentration is greater than 50% of the WQBEL and so a concentration effluent limit will be imposed. See the following table for a comparison of the recommended limits, most stringent criterion basis, and reported concentration. Concentration limits rather than mass limits will be imposed since the average withdrawal rate of 0.039 MGD is much less than the design flow rate of 0.72 MGD upon which the limits were calculated. Also, because the samples are grab samples collected 2/month and not composite samples, the IMAX concentration will be applied in lieu of the daily maximum.

Table 3. Proposed Mercury Effluent Limitations

Pollutant (µg/L)	Monthly Average	Daily Maximum	IMAX	WQBEL Basis	WQBEL	Maximum Application Concentration
Total Mercury	0.012	0.019	0.03	THH	0.012	0.2

Target Quantitation Level (QL)

The target quantitation level (QL) established by the Department is 0.2 ug/L for mercury. The recommended effluent limit is 0.012 ug/L as a monthly average. As the limit is less than the QL, laboratory technologies may not be able to detect accurately at the level of the effluent limit. A Part C condition will be included to allow for analysis methods that achieve the QL rather than the effluent limitation. For the purposes of compliance, a value of “less than (<)” the QL reported on the DMR (i.e., “non-detect”) will be considered to be in compliance. The permittee shall, where determined to be feasible by the permittee, achieve a QL less than the QL identified above to improve the level of confidence that state water quality standards are being met in the receiving waters. As laboratory techniques and equipment improve, the QL level for demonstrating compliance may be reduced in future permit renewals.

PreDraft Survey

A pre-draft survey was sent to the permittee on July 20, 2021. On September 23, 2021 the Department provided an electronic print-out of the TMS results and a website link to the TMS and PENTOX modeling information. Included in the email was the following table, which showed the recommended monitoring and effluent limitations based on the TMS results.

Table 4. Pre-Draft Survey Data Provided to the Applicant

Pollutant (µg/L)	Monthly Average	Daily Maximum	IMAX	WQBEL Basis	WQBEL	Maximum Application Concentration
Total Aluminum	Report	Report	Report	AFC	2414	496
Hexavalent Chromium	Report	Report	Report	AFC	52.5	5.3
Total Copper	45.6	71.1	114	AFC	45.6	23
Total Mercury	0.012	0.019	0.03	THH	0.012	0.06

The permittee collected additional samples to evaluate whether the proposed effluent limits should be imposed. The table below was submitted to the Department for evaluation during the drafting period on November 24, 2021.

Center Township Water Authority
NPDES Permit No PA0255017 Renewal
CWM Environmental Sampling Results Summary
Water

Influent Grab Sample				
10/22/2021	Copper 6,570 ug/L	Mercury 0.2 ug/L*	Hex Chrome < 5 ug/L	Aluminum 350,000 ug/L

Effluent 24 hour composite sample				
10/22/2021	Copper 28.4 ug/L	Mercury 0.2 ug/L*	Hex Chrome < 5 ug/L	Aluminum 1,330 ug/L
10/28/2021	Copper 30 ug/L	Mercury 0.1 ug/L*	Hex Chrome < 5 ug/L	Aluminum 560 ug/L
11/1/2021	Copper 10 ug/L	Mercury 0.09 ug/L*	Hex Chrome < 5 ug/L	Aluminum 140 ug/L
11/4/2021	Copper 10.9 ug/L	Mercury 0.09 ug/L*	Hex Chrome < 5 ug/L	Aluminum 316 ug/L
11/5/2021	Copper <10 ug/L	Mercury 0.1 ug/L*	Hex Chrome < 5 ug/L	Aluminum 114 ug/L
11/8/2021	Copper <10 ug/L	Mercury 0.1 ug/L*	Hex Chrome < 5 ug/L	Aluminum 25.3 ug/L

*estimated values (above detection limit/below reporting limit)

Copper, mercury and aluminum results were greater in the additional sampling. The hexavalent chromium maximum was slightly greater in the initial sampling. The TMS inputs were further reviewed after entering the revised maximum values.

The following changes were made to the TMS spreadsheet as well: stream flow was directly entered (low flow yield did not change) and stream width and depth were entered as 1330' and 12', respectively. Depth is based on typical cross-sectional values in the Ohio River and the width of the river was measured using aerial imagery. The ratio of width and depth influences mixing dynamics and therefore the partial mix factor for determining the location for criteria compliance.

Table 5 provides the partial mix factors and Criteria Compliance Time (CCT) for effluent limitation calculations both with and without site specific width and depths entered. A higher PMF represents a higher percentage of discharge flow that has mixed with the stream flow. As a result of the updated PMF values, monitoring for aluminum and hexavalent chromium is no longer recommended, and neither are limits or monitoring for copper. The mercury effluent limits are still recommended.

Table 5. Partial Mix Factors and Compliance Times

	AFC	CFC	THH	CRL
PMF (Default Depth and Width)	0.001	0.007	0.007	0.009
PMF (12' Depth, 1330' Width	0.051	0.351	0.351	0.479

Toxics Reduction Evaluation (TRE)

On December 10, 2021, the Department requested the predraft survey form be completed for the proposed mercury effluent limitation. The form was received on January 12, 2022.

The permittee does not know the source of the elevated mercury, and so a Toxics Reduction Evaluation (TRE) shall be conducted to investigate and control the source of the mercury subject to the final WQBEL. A TRE work plan is to be developed and then the evaluation will begin. The TRE will be submitted to the Department for evaluation and to determine if the final effluent limitations for mercury should be amended in any way.

The current effluent concentration of mercury is greater than all of the new mercury limits, including the IMAX, and the permittee will be unable to comply upon issuance. The average mercury concentration is approximately 0.1 ug/L with a range up to 0.2 ug/L. This is nearly an order of magnitude higher than the proposed limits.

The mercury WQBEL effective date will be three years after the permit issuance date to provide sufficient time for development and implementation of the Work Plan, site-specific data collection, identified action, final report and completion of those actions. The details of the TRE are outlined in a Part C condition.

Total Maximum Daily Load (TMDL)

A TMDL was finalized on March 6, 2001 for the Ohio River from the confluence of the Allegheny and Monongahela River to the State Border of West Virginia. The TMDL is for protection of impairments of fish consumption due to chlordane and polychlorinated biphenyls (PCBs).

The overall goal of a TMDL is to achieve the "fishable/swimmable" goal of the federal Clean Water Act. Because consumption advisories are in place for a number of species for PCB and chlordane, these goals are not being met in this segment of the Ohio River. The specific goal of a TMDL is to outline a plan to achieve water quality standards in the water body. For this segment of the Ohio River, the TMDL goal is for levels of PCB and chlordane in the water column to be equal to or less than the Commonwealth's water quality criteria. The criteria, found in the "Water Quality Toxics Management Strategy – Statement of Policy" (Chapter 16 of the Department's rules and regulations) are 0.00004 µg/L (micrograms per liter, equivalent to parts per billion) for PCB and 0.0005 µg/L for chlordane. Both of these compounds are probable human carcinogens, and these are human health criteria developed to protect against excess cancer risk.

Chlordane is a man-made organochlorine compound widely used as a broad-spectrum agricultural pesticide before its use was restricted to termite control around building foundations, and later banned entirely in April 1988. Chlordane may be introduced to surface waters through contaminated groundwater or surface runoff as a nonpoint source contaminant. PCBs were produced and used in the past as insulating fluids in electrical transformers and other product, as cutting oils, and in carbonless paper until they were banned in July of 1979. Occasionally releases still occur and some permitted discharges and Superfund sites may contribute PCBs.

The average PCB levels in the Ohio River segment are carp – 2.14 mg/kg; walleye and sauger mg/kg –0.605; white bass – 0.735; freshwater drum –0.740 and channel catfish - 2.92 mg/kg. The estimated concentration of PCB in the water column is 0.04577 ug/L. The average chlordane concentration in carp is 0.24 mg/kg and channel catfish is 0.276 mg/kg. The corresponding estimated water column concentration for chlordane is 0.01830 ug/L. The entire TMDL for chlordane for the reach of the Ohio River is assigned to Load Allocation (LA) for the instream sediment. For the Ohio River segment from Basins 20-B, D and G, the chlordane Load Allocation (LA) is 0.04973 pounds per day. Overall reductions of 99.9% for PCB and 97.3% for chlordane are needed to achieve the TMDL goal.

The facility performs no manufacturing and all of the discharges are non-process waters in which neither of these pollutants are introduced or produced. Chlordane and PCBs were not sampled for as part of the renewal since there is no expectation of Group 6 pollutants being present at a river water treatment plant. There are five named sites identified as potential non-point sources of PCB to the Ohio River and there are no known point sources of chlordane. Natural attenuation is believed to be the best implementation method for improvement. No monitoring of chlordane or PCBs will be imposed.

Sampling Frequency and Types

The sampling frequency will continue to be imposed as 2/month for both existing and new mercury effluent limitations and monitoring.

The required sample types will remain as grab samples for all parameters except flow which will be measured at the time of grab sample collection.

Part C Other Requirements

Site Specific Part C conditions will continue to apply in the renewed permit. This includes the ORSANCO Pollution Control Standards permanent post and marker, as well as the Sedimentation Basin Cleaning requirements.

Summary

The more stringent of the Technology-Based Limitations and Water Quality-Based Limitations in accordance with anti-backsliding will be the effluent limitations established for Outfall 001. See Section "Proposed Effluent Limitations and Monitoring Requirements".

Development of Effluent Limitations

Outfall No.	002	**Design Flow (MGD)**	Precipitation Induced, Variable
Latitude	40º 40' 28"	**Longitude**	-80º 19' 19"
Wastewater Description:	Stormwater		

Stormwater Retention Pond Description

A below grade piping network of inlets collects stormwater in the northern two-thirds of the property and directs the stormwater to a retention pond in the northwest corner of the property. The total drainage area is approximately 254,000 sq. ft. and is approximately 30% impervious. The permittee described of the drainage area materials and activities as the Water Filtration Plant and associated process equipment, Future Maintenance Garage, bituminous pavement, and water storage tanks.

The retention pond is divided into two sections. The stormwater first enters the forebay on the eastern side. The water is retained in this half where incidental settling may take place as infiltration occurs. The western side of the retention basin is for detention and is intended for overflow from larger storm events. The two sides of the pond to not allow for equalization. In the event the volume is great enough in the retention basin zone, stormwater will flow through a riser pipe to a wooded area west of the pond. The wooded area slopes down to an unnamed tributary of Rags Run. The stormwater flows through approximately 0.4 river miles of the unnamed tributary and Rags Run before reaching the Ohio River.

Currently the facility is actively constructing the new Filtration Building. The earth moving work is covered by construction NPDES permit PAC040085 issued by the Beaver County Conservation District. The retention pond was constructed when the treatment plant was first constructed, prior to this latest Filtration Building project, and was maintained as a PCSM at that time for stormwater exposed to industrial activity. With that, it is appropriate to monitor stormwater from the industrial activity under this NPDES permit at Outfall 002 rather than a point prior to the retention pond. Construction site stormwater may contain a higher concentration of solids, but between the forebay and detention basin the solids will be minimized at the riser pipe overflow.

Technology-Based Effluent Limitations (TBELs)

Section 304(b) of the Federal Clean Water Act (CWA) requires technology limits to be considered. Section 301(b)(1) of the CWA requires compliance with best practicable control technology (BPT) by July 1, 1977. Section 301(b)(2)(E) of the CWA requires compliance with best conventional pollutant control technology (BCT) by March 31, 1989. Section 301(b)(2)(C) of the CWA requires compliance with best available technology (BAT) by March 31, 1989.

Anti-backsliding

The current NPDES permit issued in 2006 did not include Outfall 002 or stormwater. Therefore, anti-backsliding does not apply.

Applicable PAG-03 General Permit – Best Professional Judgment (BPJ)

The stormwater discharges from the Pretreatment Plant are not subject to any federal ELGs. Section III.C of DEP's IW Effluent Limit SOP recommends that permit writers consider the minimum standards in the applicable appendix of the PAG-03 General Permit for limits and monitoring requirements. The application manager may include other limits and monitoring requirements as justified in the fact sheet.

The facility is categorized by SIC Code 4941 – Water Supply. This SIC Codes is not specifically listed under one of the appendices, but since industrial activity occurs on site that may be exposed to stormwater, NPDES coverage is required. Appendix J captures any facility not described by another appendix. The monitoring requirements for Appendix J are:

Table 6. PAG-03 Appendix J – Minimum Monitoring Requirements

Discharge Parameter	Units	Sample Type	Measurement Frequency	Benchmark Value
Total Suspended Solids	mg/L	Grab	1/6 months	100
Oil and Grease	mg/L	Grab	1/6 months	30

The language from the PAG-03 regarding the Benchmark Values and Corrective Action Plan will be added to Part C of the permit.

Renewal Application Sampling and DMRs

Outfall 002 will be new in the renewed permit and rarely flows. No data is available to date. TSS from vehicle activity and oil and grease also from vehicle activity and the future maintenance garage cover the pollutants of concern. pH will be added as well due to chemical handling onsite and will be limited to 6.0 to 9.0 S.U. in accordance with §95.2(1). Industrial wastes extend to stormwater exposed to industrial activity.

Water Quality-Based Limitations

Section 302(a) of the CWA allows establishment of water quality effluent limits. Section 303(a)(1) of the CWA allows states to adopt water quality standards. Section 303(d) of the CWQ requires states to designate water uses (e.g., Chapter 93 of PA Code). Section 303(c) of the CWA requires states to develop water quality criteria (e.g., Chapters 16 and 93 of PA Code).

Water Quality Analysis

The water quality analysis for storm water outfalls differs from the water quality analysis for other point source discharges because storm water discharges have a variable flow rate and—unless they are flow-controlled using valves or detention ponds—generally do not discharge at Q_{7-10} design conditions (stream flow is augmented above Q_{7-10} flow by the same rainfall that caused the storm water discharge). Section III.D of DEP's IW Effluent Limit SOP states: "In general, if actual stormwater concentrations exceed 100 times the most stringent Chapter 93 criterion (or a lesser amount for large industrial areas that drain to small streams), or exceed 100 mg/L for pollutants without criteria, the application manager should consider applying effluent limits for the applicable parameters and/or the implementation of BMPs with compliance schedules as necessary to achieve the limits or otherwise reduce stormwater concentrations."

Since renewal sampling data does not include stormwater, and there is no evidence to date that pollutants of concern are elevated beyond typical industrial stormwater levels, no additional monitoring and/or effluent limitations are needed for protection of the receiving water body.

ORSANCO

The ORSANCO Pollution Control Standards only apply to discharges directly to the Ohio River and not those to tributaries of the Ohio River. Therefore, the Pollution Control Standards and requirements are not applicable to Outfall 002.

Total Maximum Daily Loads (TMDL)

The Ohio River has a final approved Total Maximum Daily Load (TMDL) for PCBs and chlordane as discussed in detail in the Outfall 001 description above. There is no expectation that PCBs or chlordane may be present in the stormwater from this facility. Neither monitoring nor effluent limitations will be imposed.

Sampling Frequency and Types

The sampling frequency will be imposed as 1/6 months grab samples for all parameters as is imposed in the PAG-03 permit. Flow will be estimated.

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 and BPJ. Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001) and/or BPJ.

Outfall 001, Effective Period: Permit Effective Date through Thirty-Six (36) Months after Permit Issuance

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Instant. Minimum	Monthly Average	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	2/month	Measured
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.5	XXX	1.0	2/month	Grab
Total Suspended Solids	XXX	XXX	XXX	30	XXX	60	2/month	Grab
Aluminum, Total	XXX	XXX	XXX	4.0	XXX	8.0	2/month	Grab
Iron, Total	XXX	XXX	XXX	2.0	XXX	4.0	2/month	Grab
Manganese, Total	XXX	XXX	XXX	1.0	XXX	2.0	2/month	Grab
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	2/month	Grab
Mercury (µg/L)	XXX	XXX	XXX	Report	XXX	Report	2/month	Grab

Compliance Sampling Location: End of Outfall Pipe

Outfall 001, Effective Period: Thirty-Six (36) Months after Permit Issuance 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	Monthly Average	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	2/month	Measured
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.5	XXX	1.0	2/month	Grab
Total Suspended Solids	XXX	XXX	XXX	30.0	XXX	60.0	2/month	Grab

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Instant. Minimum	Monthly Average	Daily Maximum	Instant. Maximum		
Aluminum, Total	XXX	XXX	XXX	4.0	XXX	8.0	2/month	Grab
Iron, Total	XXX	XXX	XXX	2.0	XXX	4.0	2/month	Grab
Manganese, Total	XXX	XXX	XXX	1.0	XXX	2.0	2/month	Grab
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	2/month	Grab
Mercury (µg/L)	XXX	XXX	XXX	0.012	XXX	0.03	2/month	Grab

Compliance Sampling Location: End of Outfall Pipe

Outfall 002, 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	Monthly Average	Daily Maximum	Instant. Maximum		
Flow (MGD)	XXX	Report	XXX	XXX	XXX	XXX	1/6 months	Estimated
Total Suspended Solids	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/6 months	Grab

Compliance Sampling Location: End of Outfall Pipe

Tools and References Used to Develop Permit	
☐	WQM for Windows Model (see Attachment)
☒	Toxics Management Spreadsheet (see Attachment A)
☐	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, 362-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 362-2000-003, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97.
☐	Pennsylvania CSO Policy, 385-2000-011, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97.
☐	Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97.
☐	Implementation Guidance Design Conditions, 391-2000-006, 9/97.
☐	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 391-2000-007, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 391-2000-008, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 391-2000-010, 3/99.
☒	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004.
☐	Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 391-2000-014, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 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, 391-2000-019, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 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, 391-2000-022, 3/1999.
☐	Design Stream Flows, 391-2000-023, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 391-2000-024, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97.
☐	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☒	SOP: Establishing Effluent Limitations for Individual Industrial Permits, BCW-PMT-032, 10/1/2020.
☒	SOP: Establishing Water Quality-Based Effluent Limitations (WQBELs) and Permit Conditions for Toxic Pollutants in NPDES Permits for Existing Dischargers, BCW-PMT-037, 1/10/2019, Revised 5/20/2021.
☒	Other: U. S. Army Corps of Engineers Regulated Flows and ORSANCO Critical Flow Values

Attachment A

Toxics Management Spreadsheet

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Discharge Information

Instructions | Discharge | Stream

Facility: **Center Township Water Authority** NPDES Permit No.: **PA0255017** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **IW Non-Process Water without ELG**

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
0.72	106	7.3						

					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
Group 1	Total Dissolved Solids (PWS)	mg/L		185									
	Chloride (PWS)	mg/L		32.9									
	Bromide	mg/L		0.1									
	Sulfate (PWS)	mg/L		68.8									
	Fluoride (PWS)	mg/L		0.112									
Group 2	Total Aluminum	µg/L		1330									
	Total Antimony	µg/L											
	Total Arsenic	µg/L											
	Total Barium	µg/L		43									
	Total Beryllium	µg/L	<	0.3									
	Total Boron	µg/L	<	92									
	Total Cadmium	µg/L											
	Total Chromium (III)	µg/L		0.7									
	Hexavalent Chromium	µg/L		5.3									
	Total Cobalt	µg/L		0.7									
	Total Copper	µg/L		30									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L											
	Dissolved Iron	µg/L	<	2									
	Total Iron	µg/L		49.5									
	Total Lead	µg/L											
	Total Manganese	µg/L		160									
	Total Mercury	µg/L		0.2									
	Total Nickel	µg/L		3									
	Total Phenols (Phenolics) (PWS)	µg/L											
	Total Selenium	µg/L											
	Total Silver	µg/L											
	Total Thallium	µg/L											
	Total Zinc	µg/L		1									
	Total Molybdenum	µg/L	<	2									
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										

Group 3	Carbon Tetrachloride	µg/L	<										
	Chlorobenzene	µg/L											
	Chlorodibromomethane	µg/L	<										
	Chloroethane	µg/L	<										
	2-Chloroethyl Vinyl Ether	µg/L	<										
	Chloroform	µg/L	<										
	Dichlorobromomethane	µg/L	<										
	1,1-Dichloroethane	µg/L	<										
	1,2-Dichloroethane	µg/L	<										
	1,1-Dichloroethylene	µg/L	<										
	1,2-Dichloropropane	µg/L	<										
	1,3-Dichloropropylene	µg/L	<										
	1,4-Dioxane	µg/L	<										
	Ethylbenzene	µg/L	<										
	Methyl Bromide	µg/L	<										
	Methyl Chloride	µg/L	<										
	Methylene Chloride	µg/L	<										
	1,1,2,2-Tetrachloroethane	µg/L	<										
	Tetrachloroethylene	µg/L	<										
	Toluene	µg/L	<										
	1,2-trans-Dichloroethylene	µg/L	<										
	1,1,1-Trichloroethane	µg/L	<										
	1,1,2-Trichloroethane	µg/L	<										
	Trichloroethylene	µg/L	<										
	Vinyl Chloride	µg/L	<										
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	<										
	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	<										
	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	<										
	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	<										
Group 7	Gross Alpha	pCi/L											
	Total Beta	pCi/L	<										
	Radium 226/228	pCi/L	<										
	Total Strontium	µg/L	<										
	Total Uranium	µg/L	<										
	Osmotic Pressure	mOs/kg											

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Stream / Surface Water Information

Center Township Water Authority, NPDES Permit No. PA0255017, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Ohio River**

No. Reaches to Model: 1

- ○ Statewide Criteria
- ○ Great Lakes Criteria
- ◉ ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi^2)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	032317	953.16	682	22800	0.0001		Yes
End of Reach 1	032317	951.44	681	22801	0.0001	216	Yes

Q_{7-10}

Location	RMI	LFY (cfs/mi^2)*	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	953.16	0.2074561	4730			1330	12					100	7		
End of Reach 1	951.44	0.2074561	4730			1330	12					100	7		

Q_h

Location	RMI	LFY (cfs/mi^2)	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	953.16														
End of Reach 1	951.44														

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Model Results

Center Township Water Authority, NPDES Permit No. PA0255017, Outfall 001

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

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.051 Analysis Hardness (mg/l): 100.03 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
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	162,304	
Total Barium	0	0		0	21,000	21,000	4,544,515	
Total Boron	0	0		0	8,100	8,100	1,752,884	
Total Chromium (III)	0	0		0	569.893	1,803	390,278	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	3,526	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	20,559	
Total Copper	0	0		0	13.443	14.0	3,030	Chem Translator of 0.96 applied
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	356	Chem Translator of 0.85 applied
Total Nickel	0	0		0	468.346	469	101,556	Chem Translator of 0.998 applied
Total Zinc	0	0		0	117.208	120	25,935	Chem Translator of 0.978 applied

☑ ***CFC*** CCT (min): 720 PMF: 0.351 Analysis Hardness (mg/l): 100 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
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Barium	0	0		0	4,100	4,100	6,122,829	
Total Boron	0	0		0	1,600	1,600	2,389,397	
Total Chromium (III)	0	0		0	74.117	86.2	128,703	Chem Translator of 0.86 applied

Hexavalent Chromium	0	0		0	10	10.4	15,524	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	28,374	
Total Copper	0	0		0	8.956	9.33	13,932	Chem Translator of 0.96 applied
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	6,371,356	WQC = 30 day average; PMF = 1
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	1,353	Chem Translator of 0.85 applied
Total Nickel	0	0		0	52.008	52.2	77,901	Chem Translator of 0.997 applied
Total Zinc	0	0		0	118.143	120	178,937	Chem Translator of 0.986 applied

☑ ***THH*** CCT (min): ###### THH PMF: 0.351 Analysis Hardness (mg/l): N/A Analysis pH: N/A PWS PMF: 0.2959

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	500,000	500,000	##########	WQC applied at RMI 951.44 with a design stream flow of 4730 cfs
Chloride (PWS)	0	0		0	250,000	250,000	##########	WQC applied at RMI 951.44 with a design stream flow of 4730 cfs
Sulfate (PWS)	0	0		0	250,000	250,000	##########	WQC applied at RMI 951.44 with a design stream flow of 4730 cfs
Fluoride (PWS)	0	0		0	1,000	1,000	1,257,757	THH WQC applied at PWS at RMI 951.44
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Barium	0	0		0	1,000	1,000	1,257,757	THH WQC applied at PWS at RMI 951.44
Total Boron	0	0		0	3,100	3,100	3,899,047	THH WQC applied at PWS at RMI 951.44
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	1,300	1,300	1,635,084	THH WQC applied at PWS at RMI 951.44
Dissolved Iron	0	0		0	300	300	377,327	THH WQC applied at PWS at RMI 951.44
Total Iron	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	1,000	1,000	1,257,757	THH WQC applied at PWS at RMI 951.44
Total Mercury	0	0		0	0.012	0.012	15.1	THH WQC applied at PWS at RMI 951.44
Total Nickel	0	0		0	610	610	767,232	THH WQC applied at PWS at RMI 951.44
Total Zinc	0	0		0	7,400	7,400	9,307,403	THH WQC applied at PWS at RMI 951.44

☑ ***CRL*** CCT (min): 720 PMF: 0.479 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
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Barium	0	0		0	N/A	N/A	N/A	
Total Boron	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	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 Manganese	0	0		0	N/A	N/A	N/A	

Total Mercury	0	0		0	N/A	N/A	N/A	
Total Nickel	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	

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

No. Samples/Month: 4

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Mercury	0.00007	0.0001	0.012	0.019	0.03	µg/L	0.012	THH	Discharge Conc ≥ 50% WQBEL (RP)

☑ ***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
Total Dissolved Solids (PWS)	628,879	mg/L	Discharge Conc ≤ 10% WQBEL
Chloride (PWS)	314,439	mg/L	Discharge Conc ≤ 10% WQBEL
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	314,439	mg/L	Discharge Conc ≤ 10% WQBEL
Fluoride (PWS)	1,258	mg/L	Discharge Conc ≤ 10% WQBEL
Total Aluminum	104,030	µg/L	Discharge Conc ≤ 10% WQBEL
Total Barium	1,257,757	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	1,123,528	µg/L	Discharge Conc < TQL
Total Chromium (III)	128,703	µg/L	Discharge Conc ≤ 10% WQBEL
Hexavalent Chromium	2,260	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cobalt	13,177	µg/L	Discharge Conc ≤ 10% WQBEL
Total Copper	1,942	µg/L	Discharge Conc ≤ 10% WQBEL
Dissolved Iron	377,327	µg/L	Discharge Conc < TQL
Total Iron	6,371,356	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	1,257,757	µg/L	Discharge Conc ≤ 10% WQBEL
Total Nickel	65,093	µg/L	Discharge Conc ≤ 10% WQBEL
Total Zinc	16,623	µg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS

Attachment B

U. S. Army Corps of Engineers Regulated Flows and ORSANCO Critical Flow Values

$Q_{7\text{-}10}$ Flows of Major Rivers

Nicolas Lazzaro, P.E.
U.S. Army Corp of Engineers
Pittsburgh District Water Management
December 1, 2017

UPPER OHIO BASIN LOW FLOWS		
Location		Q7, 10 Flow (cfs)
Allegheny River		
Franklin downstream of French Creek (RMI 123.96)		1,450
L&D 9 at Templeton (RMI 62.2; Upper Pool El. 822.2)		2,070
L&D 8 at Templeton (RMI 52.6; Upper Pool El. 800.2)		2,070
L&D 7 at Kittanning (RMI 45.7; Upper Pool El. 782.4)	Crooked Creek enters at RMI 40.11	2,070
L&D 6 at Freeport (RMI 36.3; Upper Pool El. 769.4)		2,070
L&D 5 at Freeport (RMI 30.4; Upper Pool El. 757.0)	Kiskiminetas R. enters at RMI 30.2	2,070
L&D 4 at Natrona (RMI 24.2; Upper Pool El. 745.4)		2,390
C.W. Bill Young L&D at New Kensington (RMI 14.5; Upper Pool El. 734.5)		2,390
L&D 2 at Pittsburgh (RMI 6.7, Pool El. 721.0)		2,390
Monongahela River		
Point Marion L&D (RMI 90.8; Upper Pool El. 797.0)	Cheat River enters at RMI 89.68 Dunkard Creek enters at RMI 87.18	420
Grays Landing L&D (RMI 82.0; Upper Pool El. 778.0)	Tenmile Creek enters at RMI 65.62	530
Maxwell L&D (RMI 61.2; Upper Pool El. 763.0)	Redstone Creek enters at RMI 54.90	530
L&D 4 at Charleroi (RMI 41.5; Upper Pool El. 743.5)		550
L&D 3 at Elizabeth (RMI 23.8; Upper Pool El. 726.9)		550
McKeesport downstream of the Youghiogheny River (RMI 15.53)		1,060
Braddock L&D (RMI 11.2; Upper Pool El. 718.7)		1,230
Youghiogheny River		
Youghiogheny Dam at Confluence (RMI 74.8)		390
Dam at Connellsville (RMI 46.27)		460
Sutersville downstream of Sewickley Creek (~RMI 15.0)		510
Beaver River		
Beaver Falls		640
Ohio River		
Emsworth L&D (RMI 974.8; Pool El. 710.0)	Q7,10 is halved for each side of Neville Island	4,730
Dashields L&D (RMI 967.7; Upper Pool El. 692.0)		4,730
Montgomery L&D (RMI 949.3; Upper Pool El. 682.0)		5,880
New Cumberland L&D (RMI 926.7; Upper Pool El. 664.5)		5,880
Pike Island L&D (RMI 896.8; Upper Pool El. 664.0)		5,880
Hannibal L&D (RMI 854.6; Upper Pool El. 623.0)		5,880

Ohio River Valley Water Sanitation Commission

POLLUTION CONTROL STANDARDS

for Discharges to the Ohio River

2019 Revision

Appendix C

Critical Flow Values

FROM	TO	Minimum 7-day 10-year Low-Flow, cfs[1]	Minimum 1-day 10-year Low-Flow, cfs[2]	Harmonic Mean Flow, cfs[2]
Pittsburgh (MP 0.0)	Montgomery Dam (MP 31.7)	4,730	4,200	16,200
Montgomery Dam (MP 31.7)	Willow Island Dam (MP 161.7)	5,880	5,000	20,500
Willow Island Dam (MP 161.7)	Racine Dam (MP 237.5)	6,560	5,170	24,500
Racine Dam (MP 237.5)	R.C. Byrd Dam (MP 279.2)	6,700	5,170	26,000
R.C. Byrd Dam (MP 279.2)	Guyandotte River (MP 305.2)	9,120	5,870	34,500
Guyandotte River (MP 305.2)	Big Sandy River (MP 317.1)	9,300	6,000	35,900
Big Sandy River (MP 317.1)	Greenup Dam (MP 341.0)	10,000	7,000	38,400
Greenup Dam (MP 341.0)	Meldahl Dam (MP 436.2)	10,600	7,960	42,100
Meldahl Dam (MP 436.2)	McAlpine Dam (MP 606.8)	10,600	8,670	45,300
McAlpine Dam (MP 606.8)	Newburgh Dam (MP 776.1)	11,000	8,670	49,000
Newburgh Dam (MP 776.1)	J.T. Myers Dam (MP 846.0)	12,900	10,000	60,900
J.T. Myers Dam (MP 846.0)	Smithland Dam (MP 918.5)	16,900	12,700	78,600
Smithland Dam (MP 918.5)	Cairo Point (MP 981.0)	51,000	40,900	175,000

[1]Minimum 7-day, 10-year flow (in cubic feet per second) provided by the U.S. Army Corps of Engineers.
[2]Based on Commission analysis of stream flow data provided by the U.S. Army Corps of Engineers.

Attachment C

U. S. G. S. Stream Stats

StreamStats Report

Region ID: PA
Workspace ID: PA20210708205109081000
Clicked Point (Latitude, Longitude): 40.68065, -80.32688
Time: 2021-07-08 16:51:43 -0400

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	22800	square miles
ELEV	Mean Basin Elevation	1594	feet
PRECIP	Mean Annual Precipitation	44	inches

Low-Flow Statistics Parameters [49.2 Percent (11200 square miles) Low Flow Region 3]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	22800	square miles	2.33	1720
ELEV	Mean Basin Elevation	1594	feet	898	2700
PRECIP	Mean Annual Precipitation	44	inches	38.7	47.9

Low-Flow Statistics Parameters [50.5 Percent (11500 square miles) Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	22800	square miles	2.26	1400
ELEV	Mean Basin Elevation	1594	feet	1050	2580

Low-Flow Statistics Disclaimers [49.2 Percent (11200 square miles) Low Flow Region 3]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Attachment D

Chapter 93 Water Use Designations

Stream	Zone	County	Water Uses Protected	Exceptions To Specific Criteria
3—Streets Run	Basin	Allegheny	WWF: *Delete* PWS	None

Authority

The provisions of this § 93.9v amended under sections 5(b)(1) and 402 of The Clean Streams Law (35 P.S. §§ 691.5(b)(1) and 691.402); and section 1920-A of The Administrative Code of 1929 (71 P.S. § 510-20).

Source

The provisions of this § 93.9v adopted March 6, 1992, effective March 7, 1992, 22 Pa.B. 1037; amended May 14, 1993, effective May 15, 1993, 23 Pa.B. 2325; amended November 19, 1993, effective November 20, 1993, 23 Pa.B. 5529; amended November 17, 2000, effective November 18, 2000, 30 Pa.B. 6059; amended September 27, 2002, effective September 28, 2002, 32 Pa.B. 4695; corrected December 27, 2002, effective December 7, 2002, 32 Pa.B. 6381; amended November 12, 2004, effective November 13, 2004, 34 Pa.B. 6133; amended January 5, 2007, effective January 6, 2007, 37 Pa.B. 11; amended May 15, 2009, effective May 16, 2009, 39 Pa.B. 2523; amended July 10, 2020, effective July 11, 2020, 50 Pa.B. 3426. Immediately preceding text appears at serial pages (344153) to (344164).

Cross References

This section cited in 25 Pa. Code § 16.51 (relating to table); 25 Pa. Code § 93.1 (relating to definitions); 25 Pa. Code § 93.4 (relating to Statewide water uses); and 25 Pa. Code § 93.7 (relating to specific water quality criteria).

§ 93.9w. Drainage List W.

Ohio River Basin in Pennsylvania

Ohio River

Stream	Zone	County	Water Uses Protected	Exceptions To Specific Criteria
1—Ohio River	Main Stem, Confluence of Allegheny and Monongahela Rivers to PA-OH State Border	Beaver	WWF; *Add* N	See Orsanco Pollution Control Standards
2—Unnamed Tributaries to Ohio River	Basins, Confluence of Allegheny and Monongahela Rivers to PA-OH State Border	Allegheny-Beaver	WWF	None
2—Sawmill Run	Basin	Allegheny	WWF	None
2—Chartiers Creek	Main Stem	Allegheny	WWF	None
3—Unnamed Tributaries to Chartiers Creek	Basins	Washington-Allegheny	WWF	None
3—Reservoir No. 4	Basin	Washington	HQ-WWF	None
3—Reservoir No. 3	Basin	Washington	HQ-WWF	None

Attachment E

Ohio River Total Maximum Daily Load (TMDL)

3/6/01

Total Maximum Daily Load

PCB and Chlordane

Ohio River

From the Point in Pittsburgh to the State Border

Beaver, Lawrence, Washington and Allegheny Counties

Table of Contents

reopened and the allocations re-distributed, but still meeting the total allowable load from all sources, to take into consideration the final remediation plan. However, it is important at this time to provide a goal that is based on the need to meet water quality standards to serve as a focal point for site plan development.

Recommendations

The use of both PCB and chlordane has been banned in the United States, so there should be no new point sources to which controls can be applied. There are no known additional sources of PCB and chlordane to the Ohio River segment other than the ones identified above. PCB and chlordane present in the main stem of Ohio River are believed to reside primarily in the sediment due to historical use and improper disposal practices.

Generally, the levels of PCB and chlordane are expected to decline over time due to the bans on use through natural attenuation. Examples of processes in natural attenuation are covering of contaminated sediments with newer, less contaminated materials, and flushing of sediments during periods of high stream flow.

Natural attenuation may be the best implementation method because it involves less habitat disturbance/destruction then active removal of contaminated sediments. Mechanical or vacuum dredging removes the habitat needed by certain benthic macroinvertebrates. In addition some of these organisms will be killed during the dredging process. Suspension of sediments during dredging may also cause abrasive damage to the gills and/or sensory organs of benthic macroinvertebrates or the gills of fish. Suspended sediments can also affect the prey gathering ability of sight-feeding fish. In addition, active removal may cause resuspension of contaminated materials thus making PCB and chlordane available for additional uptake. This alternative is also the least costly option.

For the Ohio River segment outlined above, long-term natural attenuation is the best alternative. This approach provides reasonable assurance that the TMDL will be implemented.

More than ten Federal statutes provide authority to many EPA program offices to address the problem of contaminated sediment. These statutes include: the National Environmental Policy Act; the Clean Air Act; the Coastal Zone Management Act; the Federal Insecticide, Fungicide, and Rodenticide Act; the Marine Protection, Research, and Sanctuaries Act; the Resource Conservation and Recovery Act; the Toxic Substances Control Act; the Clean Water Act; the Great Lakes Water Quality Agreement of 1978, and the Comprehensive Emergency Response, Compensation, and Liability Act. These statutes do not include any type of sediment criteria or a cleanup standard for PCBs or chlordane. Therefore, a determination on whether to conduct remediation of contaminated sediments is not as simple as comparing the sediment concentration to a criteria or standard. Generally, areas with sediment concentrations of PCB of 50 ppm or greater are considered areas of high concentration or "hot spots" and are actively remediated.

EPA's Contaminated Sediment Management Strategy (CSMS), indicates, "Widespread, low levels of contaminants may favor natural attenuation, while geographically limited areas containing high levels of contaminants favor active remediation." Natural attenuation may include natural processes that can reduce or degrade the concentration of contaminants in the environment including biodegradation, dispersion, dilution, sorption, volatilization, and chemical or biologic stabilization, transformation or destruction of contaminants, and the deposition of clean sediments to diminish risks associated with the site.

There are no known sediment data for the advisory portion of the receiving stream. With the ban on the production of chlordane and PCBs, the mitigation of there release into the environment as the result of the remedial actions being conducted, and the continued natural attenuation that is occurring in the receiving stream, it is believed the criteria for these pollutants in the water column will eventually be achieved and the goal of the TMDL for the receiving stream to be "fishable" will be met.

Monitoring

Pennsylvania will continue to monitor PCB and chlordane in fish from this reach of the Ohio River. Samples will be collected once every five years. The data will be used to evaluate the possible threat to public health and to determine progress toward meeting the TMDL. The consumption advisories will remain in place until the water quality criteria are achieved and advisories are no longer needed.

Public Participation

Notice of the draft TMDL for the Ohio River was published in the *Pittsburgh Post-Gazette*, a daily newspaper of approximately 1.2 million readers, on Friday October 6, 2000 (Section-Classifications 444 to 479) and in the PA Bulletin on September 29, 2000. A public meeting was held on November 14, 2000 at DEP's Southwest Regional Office, located at 400 Waterfront Drive, Pittsburgh, PA 15222 (Waterfront Rooms A & B) to discuss and accept comments on the proposed TMDL. The public comment period closed on November 29, 2000.

At the public meeting four people showed up. They were form the Army Corps of Engineers, a local watershed group and a USX attorney. Primarily, the following concerns were noted in our discussions:

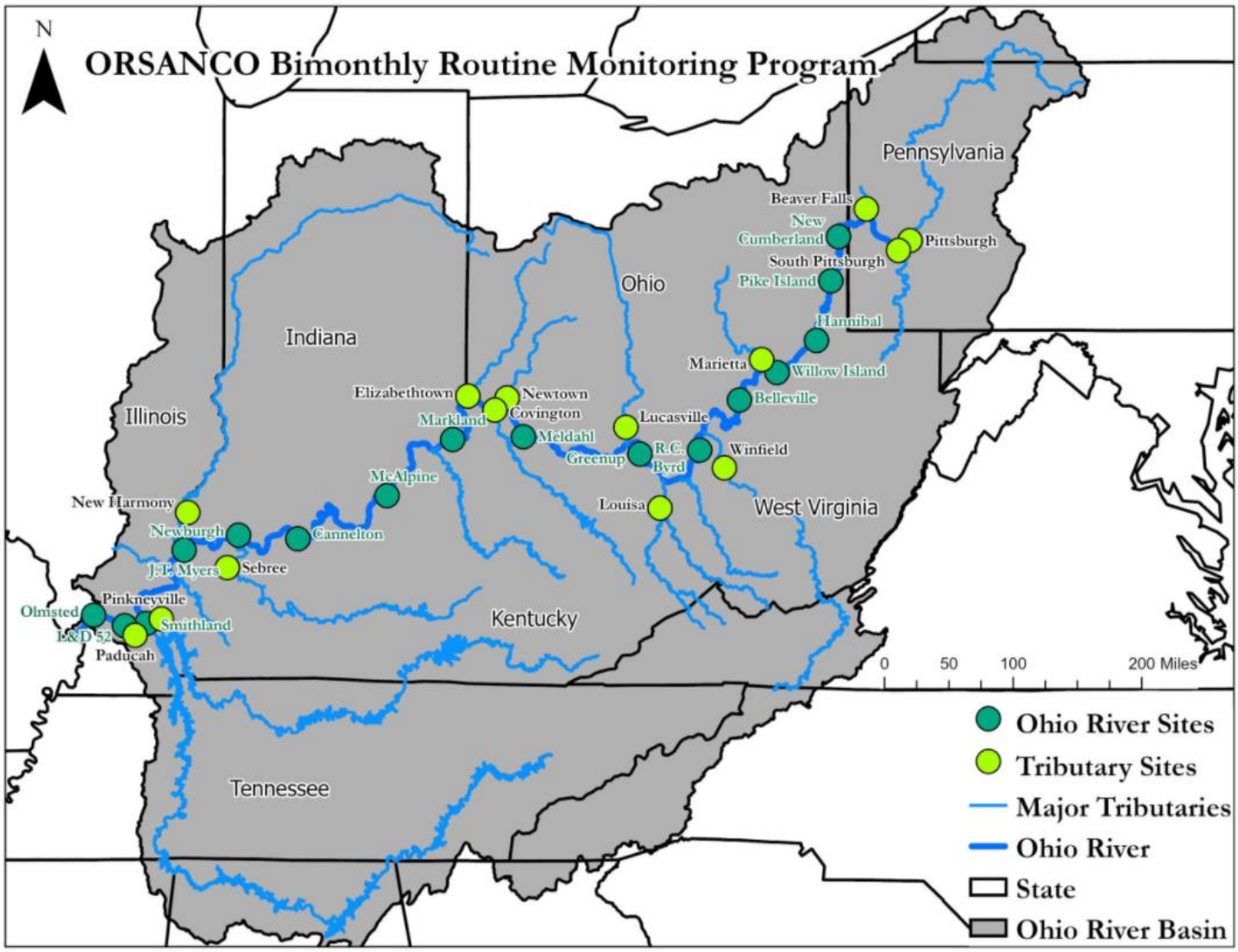
a) Will the State be responsible for cleaning up the PCBs in the river sediment if "natural attenuation" approach is not acceptable?
b) How long will "natural attenuation" take in order to reduce PCBs to acceptable levels?
c) Will industries be required by EPA to sample for soils and groundwater to find any unknown existing sources of PCBs?

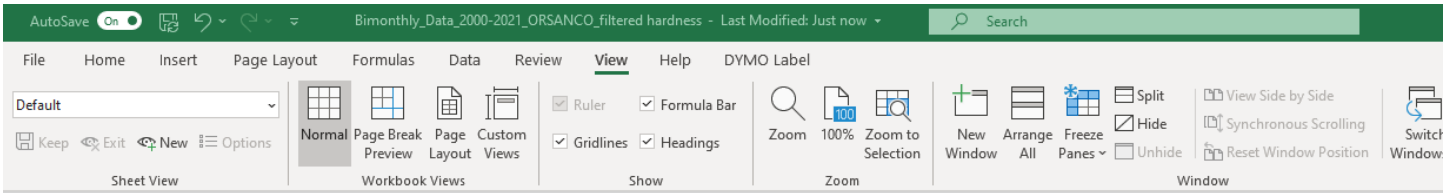
Additionally, "Friends of the Riverfront" furnished written comments on 11/28/00. their comments applied to Shenango River, Beaver River, Chartiers/Little Chartiers Creek,

Attachment F

ORSANCO Data

https://www.orsanco.org/data/





	C	D	E	F	G	H	I
1	Bimonthly SiteNam	Latitud	Longitud	Date	Parameter (Units)	Public Dat	Parameter Long Name
46904	New Cumberland	40.52722	-80.62778	1/24/2018	Hardness (mg/L)	84	Total Hardness
47371	New Cumberland	40.52722	-80.62778	3/26/2018	Hardness (mg/L)	142	Total Hardness
47863	New Cumberland	40.52722	-80.62778	5/23/2018	Hardness (mg/L)	79.1	Total Hardness
48249	New Cumberland	40.52722	-80.62778	7/25/2018	Hardness (mg/L)	120	Total Hardness
48694	New Cumberland	40.52722	-80.62778	9/17/2018	Hardness (mg/L)	76.3	Total Hardness
49037	New Cumberland	40.52722	-80.62778	11/27/2018	Hardness (mg/L)	92.2	Total Hardness
49326	New Cumberland	40.52722	-80.62778	1/2/2019	Hardness (mg/L)	90.2	Total Hardness
50027	New Cumberland	40.52722	-80.62778	3/20/2019	Hardness (mg/L)	96.8	Total Hardness
50594	New Cumberland	40.52722	-80.62778	5/28/2019	Hardness (mg/L)	103	Total Hardness
50924	New Cumberland	40.52722	-80.62778	7/23/2019	Hardness (mg/L)	106	Total Hardness
51395	New Cumberland	40.52722	-80.62778	9/18/2019	Hardness (mg/L)	124	Total Hardness
51747	New Cumberland	40.52722	-80.62778	11/13/2019	Hardness (mg/L)	89.1	Total Hardness
52284	New Cumberland	40.52722	-80.62778	1/14/2020	Hardness (mg/L)	85.8	Total Hardness
52835	New Cumberland	40.52722	-80.62778	3/11/2020	Hardness (mg/L)	77.3	Total Hardness
53686	New Cumberland	40.52722	-80.62778	9/16/2020	Hardness (mg/L)	122	Total Hardness
54286	New Cumberland	40.52722	-80.62778	11/18/2020	Hardness (mg/L)	104	Total Hardness
54748	New Cumberland	40.52722	-80.62778	3/3/2021	Hardness (mg/L)	69.7	Total Hardness
55346	New Cumberland	40.52722	-80.62778	5/18/2021	Hardness (mg/L)	76.9	Total Hardness
55664							
55665					Average 2018-2021	96.58	