Pennsylvania Department of Environmental Protection

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0216500**
Facility Type	**Industrial**	APS ID	**1122382**
Major / Minor	**Minor**	Authorization ID	**1500783**

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

Applicant and Facility Information

Applicant Name	**Paramount Global**	Facility Name	**Beaver Groundwater Remediation Site**
Applicant Address	420 Fort Duquesne Boulevard Suite 100	Facility Address	1 Tuscarawas Road
	Pittsburgh, PA 15222-1435		Beaver, PA 15009-1720
Applicant Contact	Chad Coy	Facility Contact	Matthew Kapral
Applicant Phone	(412) 642-4162	Facility Phone	412-241-7500
Client ID	123922	Site ID	245153
SIC Code	9999	Municipality	Vanport Township
SIC Description	Public Admin. – Non-classifiable Establishment	County	Beaver
Date Application Received	September 5, 2024	EPA Waived?	Yes
Date Application Accepted		If No, Reason	

Purpose of Application: Renewal of NPDES Permit Coverage

Summary of Review

The Department received a renewal NPDES permit application from Paramount Global on September 5, 2024, to continue coverage of the discharge from its Beaver Groundwater Remediation Site in Vanport Township, Beaver County. The facility is a groundwater remediation site with SIC code 9999 (Non-classified Establishment). The current NPDES permit was renewed February 1, 2020, and expires on January 31, 2025. The Department issued Water Quality Management (WQM) permit 0494201 for the system on May 26, 1994.

In addition, the Department received an NPDES/WQM Permittee Name Change application from Paramount Global on September 18, 2024, to change the permittee name from ViacomCBS Inc. to Paramount Global.

In 1988, Pennsylvania Department of Environmental Resources (PADER), now known as the Pennsylvania Department of Environmental Protection (PADEP), detected trichloroethylene (TCE) in a downgradient public water supply (the Vanport Municipal Water Authority system). On-site wells were sampled for organic compounds (for the first time) by the PADEP and Westinghouse, in response to this occurrence in 1988. TCE was detected in shallow and deep groundwater at the plant. Westinghouse arranged for a comprehensive hydrogeologic investigation of the plant property, which confirmed the presence of TCE at various on-property locations outside the building footprints.

The investigation disclosed an alluvial aquifer in a buried valley beneath the property. The most probable potential migration pathway for groundwater at the site was found to be vertical percolation into the alluvial aquifer, and then lateral migration through the saturated alluvial aquifer contained within the buried bedrock valley.

Approve	Deny	Signatures	Date
X		Jamie Ley / Environmental Engineering Specialist	December 2, 2024
X		Michael E. Fifth, P.E. / Environmental Engineer Manager	December 9, 2024

Summary of Review

The groundwater treatment system began operation in 1994. The renewal application stated that in concurrence with PADEP, a temporary shutdown of the treatment system occurred in November 2022. The temporary shutdown was based on significant improvement in chlorinated volatile organic compound concentrations in groundwater at the site and included a two-year groundwater monitoring program to evaluate conditions following shutdown. An operational end date for permanent shutdown has not yet been established but will be evaluated in the future.

When operational, groundwater is recovered from two groundwater extraction wells, PW-1 and PW-2. Recovered groundwater combines at a stand mounted inlet piping/valve manifold and flows through a UV purification assembly prior to entering the equalization tank. Level switches in the equalization tank control the operation of the treatment pump. When groundwater reaches a predetermined level in the equalization tank, the treatment pump will activate and pump groundwater through the skid-mounted bag filter units and then two activated carbon adsorbers operating in series. From the adsorbers, the treated groundwater flows to the treated water tank. Water then gravity discharges to Outfall 001.

The groundwater treatment system is located inside a secure building designed with containment. Also included with the system is a Programmable Logic Controller based control panel for automated operation of the system. An off-site telecommunications interface is also included for monitoring the groundwater treatment system from off-site locations. The system is designed to operate unattended with minimal operating and maintenance requirements.

The facility was inspected multiple times during the current permit cycle:

PERMIT	FACILITY NAME	MAJOR OR MINOR	PF KIND	FEE CATEGORY	COUNTY	MUNICIPALITY	INSP ID	INSPECTED DATE	INSP TYPE
PA0216500	BEAVER GW REMEDIATION	Minor	Industrial Waste	Minor IW Facility without ELG	Beaver	Vanport Twp	3249167	09/14/2021	Compliance Evaluation
PA0216500	BEAVER GW REMEDIATION	Minor	Industrial Waste	Minor IW Facility without ELG	Beaver	Vanport Twp	3538559	04/05/2023	Administrative/File Review
PA0216500	BEAVER GW REMEDIATION	Minor	Industrial Waste	Minor IW Facility without ELG	Beaver	Vanport Twp	3173083	04/07/2021	Administrative/File Review

The following violations were noted:

PERMIT	FACILITY	COUNTY	MUNICIPALITY	VIOLATION DATE	VIOLATION TYPE	VIOLATION TYPE DESC	RESOLVED DATE
PA0216500	BEAVER GW REMEDIATION	Beaver	Vanport Twp	04/07/2021	92A.62	NPDES - Failure to pay annual fee	04/26/2021
PA0216500	BEAVER GW REMEDIATION	Beaver	Vanport Twp	09/14/2021	92A.44	NPDES - Violation of effluent limits in Part A of permit	09/27/2021
PA0216500	BEAVER GW REMEDIATION	Beaver	Vanport Twp	04/05/2023	92A.62	NPDES - Failure to pay annual fee	04/10/2023

The permittee currently has no open violations.

Draft Permit issuance is recommended.

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)	0.0720
Latitude	40º 41' 29.30"	Longitude	-80º 19' 13.50"
Quad Name	Beaver	Quad Code	1303
Wastewater Description:	Treated Groundwater Discharge		
Receiving Waters	Ohio River (WWF)	Stream Code	32317
NHD Com ID	134396158	RMI	13.457
Drainage Area	22,800 mi^2	Yield (cfs/mi^2)	0.258
Q_{7-10} Flow (cfs)	5,880	Q_{7-10} Basis	U.S. Army Corp of Engineers
Elevation (ft)	687	Slope (ft/ft)	0.001
Watershed No.	20-G	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	ORSANCO Pollution Control Standards
Assessment Status	Impaired		
Cause(s) of Impairment	DIOXIN, PATHOGENS, POLYCHLORINATED BIPHENYLS (PCBS)		
Source(s) of Impairment	SOURCE(S) UNKNOWN		
TMDL Status	Final	Name	Ohio River
Nearest Downstream Public Water Supply Intake	Center Township Water Authority		
PWS Waters	Ohio River	Flow at Intake (cfs)	5,880
PWS RMI	13.15	Distance from Outfall (mi)	0.31

Changes Since Last Permit Issuance:

Other Comments:

The USGS Stream Stats Data for the drainage area is displayed in Attachment A.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.0720
Latitude 40º 41' 29.30" **Longitude** -80º 19' 13.50"
Wastewater Description: Treated Groundwater Discharge

Technology-Based Limitations

The EPA has not developed any effluent limitation guidelines for discharges from groundwater remediation activities, except for discharges from petroleum product contaminated groundwater remediation systems. Therefore, in the absence of such regulations, the Department is required to develop effluent limits based on Best Professional Judgment (BPJ) as authorized under Sections 402(a)(1), 304(b)(2)(B) and 304(b)(4)(B) of the Clean Water Act and Section 307(a) of the Clean Streams Law. The previous NPDES permit included effluent limitations which were selected and imposed based upon a combination of Best Available Technology and BPJ.

Regulatory Effluent Standards and Monitoring Requirements

Flow monitoring is required pursuant to 25 Pa. Code § 92a.61(d)(1) which is displayed in Table 1 below.

Effluent standards for pH are also imposed on industrial wastes by 25 Pa. Code §§ 95.2(1) which is displayed in Table 1 below.

Table 1. Regulatory Effluent Standards

Parameter	Monthly Avg	Daily Max	IMAX
Flow	Monitor	Monitor	----
pH	6.0 – 9.0 at all times		----

Water Quality-Based Limitations

Toxics Management Spread Sheet

The Department of Environmental Protection (DEP) has developed the DEP Toxics Management Spreadsheet (“TMS”) to facilitate calculations necessary for completing a reasonable potential (RP) analysis and determining water quality-based effluent limitations for discharges of toxic pollutants. The Toxics Management Spreadsheet is a macro-enabled Excel binary file that combines the functions of the PENTOXSD model and the Toxics Screening Analysis spreadsheet to evaluate the reasonable potential for discharges to cause excursions above water quality standards and to determine WQBELs. The Toxics Management Spread Sheet is a single discharge, mass-balance water quality calculation spread sheet that includes consideration for mixing, first-order decay and other factors to determine recommended WQBELs for toxic substances and several non-toxic substances. Required input data including stream code, river mile index, elevation, drainage area, discharge name, NPDES permit number, discharge flow rate and the discharge concentrations for parameters in the permit application or in DMRs, which are entered into the spread sheet to 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 conditions of the discharge and receiving water. Discharge concentrations for the parameters are chosen to represent the "worst case" quality of the discharge (i.e., maximum reported discharge concentrations). The spread sheet then evaluates each parameter 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, the Toxics Management Spread sheet recommends average monthly and maximum daily WQBELs.

Reasonable Potential Analysis and WQBEL Development for Outfall 001

Discharges from Outfall 001 are evaluated based on concentrations reported on the application and on DMRs; data from those sources are entered into the Toxics Management Spread Sheet. The maximum reported value of the parameters from the application form or from previous DMRs is used as the input concentration in the Toxics Management Spread Sheet. All toxic pollutants whose maximum concentrations, as reported in the permit application or on DMRs, are greater than the most stringent applicable water quality criterion are considered to be pollutants of concern. [This includes pollutants

reported as "Not Detectable" or as "<MDL" where the method detection limit for the analytical method used by the applicant is greater than the most stringent water quality criterion]. The Toxics Management Spread Sheet is run with the discharge and receiving stream characteristics shown in Table 3.

Table 2: TMS Inputs for Outfall 001

Parameter	**Value**
River Mile Index	13.457
Design Flow (MGD)	0.072
Basin/Stream Characteristics	
Parameter	**Value**
Area in Square Miles	22,800
Q_{7-10} (cfs)	5,880
Low-flow yield (cfs/mi^2)	0.258
Elevation (ft)	687
Slope	0.001

For IW discharges, the design flow used in modeling is the average flow during production or operation taken from the permit application or DMRs. Pollutants for which water quality standards have not been promulgated (e.g., TSS, oil and grease) are excluded from the analysis. All the parameters are evaluated using the model to determine the water quality-based effluent limits applicable to the discharge and the receiving stream. The spreadsheet then compares the reported discharge concentrations to the calculated water quality-based effluent limitations to determine if a reasonable potential exists to exceed the calculated WQBELs. Effluent limitations are established in the draft permit where a pollutant's maximum reported discharge concentration equals or exceeds 50% of the WQBEL. For non-conservative pollutants, monitoring requirements are established where the maximum reported concentration is between 25% - 50% of the WQBEL. For conservative pollutants, monitoring requirements are established where the maximum reported concentration is between 10% - 50% of the WQBEL. The information described above including the maximum reported discharge concentrations, the most stringent water quality criteria, the pollutant-of-concern (reasonable potential) determinations, the calculated WQBELs, and the WQBEL/monitoring recommendations are displayed in the Toxics Management Spread Sheet in Attachment B of this Fact Sheet.

The Toxics Management Spread Sheet recommended no monitoring requirements for Outfall 001.

ORSANCO Pollution Control Standards

The Ohio River Valley Water Sanitation Commission (ORSANCO) – an interstate commission established by interstate compact – sets water quality standards (Pollution Control Standards or "ORSANCO's Standards") that apply to the Ohio River, a surface water of the Commonwealth, and the receiving water for Outfall 001's discharges. DEP implements ORSANCO's Standards pursuant to 25 Pa. Code § 93.2(b), which states:

> When an interstate or international agency under an interstate compact or international agreement establishes water quality standards regulations applicable to surface waters of this Commonwealth, including wetlands, more stringent than those in this title, the more stringent standards apply.

ORSANCO criteria were applied during the Reasonable Potential Analysis and WQBEL Development for Outfall 001 discussed above.

Total Maximum Daily Load (TMDL)

Wastewater discharges via Outfall 001 are located in the Ohio River Watershed, for which the Department has developed a TMDL. A TMDL establishes the amount of a pollutant that a water body can assimilate without exceeding the water quality

criteria for that pollutant. TMDLs provide the scientific basis for a state to establish water quality-based controls to reduce pollution from both point and non-point sources in order to restore and maintain the quality of the state's water resources (USEPA 1991a). The TMDL was finalized on April 9, 2001 and addresses contamination of fish tissue in the Ohio River from the Point in Pittsburgh to the state border (RMI 981 to 941) by PCB and chlordane. Water quality criteria for the TMDL watershed do not apply to the wastewater discharges from Outfall 001.

Anti-Backsliding

Previous limits can be used pursuant to EPA's anti-backsliding regulation 40 CFR 122.44 and are displayed below in Table 3.

Table 3: Current Permit Effluent Limits

Parameters	Mass (lb/day)		Concentration (mg/L)			
	Average Monthly	Daily Maximum	Instant. Minimum	Average Monthly	Daily Maximum	Instant. Maximum
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX
Total Suspended Solids	XXX	XXX	XXX	20	40	XXX
Trichloroethylene	XXX	XXX	XXX	0.02	0.04	XXX
Total Manganese	XXX	XXX	XXX	2.0	4.0	XXX
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0

Proposed Effluent Limitations for Outfall 001

The proposed effluent limitations and monitoring requirements for Outfall 001 are shown below in Table 4. The limits are the most stringent values from the above limitation analysis.

Table 4: Proposed Effluent Limitations for Outfall 001

Parameters	Mass (lb/day)		Concentration (mg/L)				Monitoring Requirements	
	Average Monthly	Daily Maximum	Instant. Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Frequency	Sample Type
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	2/Month	Measure
Total Suspended Solids	XXX	XXX	XXX	20	40	XXX	2/Month	Grab
Trichloroethylene	XXX	XXX	XXX	0.02	0.04	XXX	2/Month	Grab
Total Manganese	XXX	XXX	XXX	2.0	4.0	XXX	2/Month	Grab
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	2/Month	Grab

Tools and References Used to Develop Permit	
☐	WQM for Windows Model (see Attachment)
☒	Toxics Management Spreadsheet (see Attachment **B**)
☐	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: BCW-PMT-001, BCW-PMT-032, BCW-PMT-037
☐	Other:

Attachment A – Outfall 001 StreamStats Report

StreamStats Report_Outfall 001

Region ID: PA
Workspace ID: PA20241009173424024000
Clicked Point (Latitude, Longitude): 40.68467, -80.31476
Time: 2024-10-09 13:35:04 -0400

Collapse All

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

Low-Flow Statistics Parameters [49.0 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

Attachment B – TMS Input & Results

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: **Beaver Groundwater Remediation Site** NPDES Permit No.: **PA0216500** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Treated Groundwater Discharge**

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
0.072	100	7.6						

					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											
	Chloride (PWS)	mg/L											
	Bromide	mg/L											
	Sulfate (PWS)	mg/L											
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L											
	Total Antimony	µg/L											
	Total Arsenic	µg/L											
	Total Barium	µg/L											
	Total Beryllium	µg/L											
	Total Boron	µg/L											
	Total Cadmium	µg/L											
	Total Chromium (III)	µg/L											
	Hexavalent Chromium	µg/L											
	Total Cobalt	µg/L											
	Total Copper	mg/L											
	Free Cyanide	µg/L											
	Total Cyanide	µg/L											
	Dissolved Iron	mg/L	<	0.2									
	Total Iron	µg/L											
	Total Lead	mg/L	<	0.015									
	Total Manganese	mg/L		0.891									
	Total Mercury	mg/L	<	0.0002									
	Total Nickel	µg/L											
	Total Phenols (Phenolics) (PWS)	µg/L											
	Total Selenium	µg/L											
	Total Silver	µg/L											
	Total Thallium	µg/L											
	Total Zinc	mg/L											
	Total Molybdenum	µg/L											
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	mg/L	<	0.001									
	Bromoform	µg/L	<										
	Carbon Tetrachloride	µg/L	<										

Group 3	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	mg/L	<	0.001									
	Methyl Bromide	µg/L	<										
	Methyl Chloride	µg/L	<										
	Methylene Chloride	µg/L	<										
	1,1,2,2-Tetrachloroethane	µg/L	<										
	Tetrachloroethylene	mg/L	<	0.001									
	Toluene	mg/L	<	0.001									
	1,2-trans-Dichloroethylene	µg/L	<										
	1,1,1-Trichloroethane	µg/L	<										
	1,1,2-Trichloroethane	µg/L	<										
	Trichloroethylene	mg/L	<	0.005									
	Vinyl Chloride	mg/L	<	0.001									
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	mg/L	<	0.001									
	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											

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Toxics Management Spreadsheet
Version 1.4, May 2023

Stream / Surface Water Information

Beaver Groundwater Remediation Site, NPDES Permit No. PA0216500, 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	13.457	687	22800	0.001		Yes
End of Reach 1	032317	12.96	686.5	22800.5	0.001	3	Yes

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

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	13.457	0.258	5880									100	7		
End of Reach 1	12.96	0.258	5880.5												

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	13.457														
End of Reach 1	12.96														

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Toxics Management Spreadsheet
Version 1.4, May 2023

Model Results

Beaver Groundwater Remediation Site, NPDES Permit No. PA0216500, Outfall 001

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

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 13.898 PMF: 0.001 Analysis Hardness (mg/l): 100 Analysis pH: 7.01

Pollutants	Stream Conc	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	64.581	81.6	2,776	Chem Translator of 0.791 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	56.0	Chem Translator of 0.85 applied
Benzene	0	0		0	640	640	21,757	
Ethylbenzene	0	0		0	2,900	2,900	98,586	
Tetrachloroethylene	0	0		0	700	700	23,797	
Toluene	0	0		0	1,700	1,700	57,792	
Trichloroethylene	0	0		0	2,300	2,300	78,189	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
Naphthalene	0	0		0	140	140	4,759	

☑ ***CFC*** CCT (min): 720 PMF: 0.004 Analysis Hardness (mg/l): 100 Analysis pH: 7.00

Pollutants	Stream Conc	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	2.517	3.18	730	Chem Translator of 0.791 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	208	Chem Translator of 0.85 applied
Benzene	0	0		0	130	130	29,848	
Ethylbenzene	0	0		0	580	580	133,167	
Tetrachloroethylene	0	0		0	140	140	32,144	
Toluene	0	0		0	330	330	75,767	
Trichloroethylene	0	0		0	450	450	103,319	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	

Naphthalene	0	0		0	43	43.0	9,873	

☑ ***THH*** CCT (min): 13.898 THH PMF: 0.004 Analysis Hardness (mg/l): N/A Analysis pH: N/A PWS PMF: 0.0006

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Dissolved Iron	0	0		0	300	300	9,828	THH WQC applied at PWS at RMI 12.96
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	1,000	1,000	32,761	THH WQC applied at PWS at RMI 12.96
Total Mercury	0	0		0	0.012	0.012	0.39	THH WQC applied at PWS at RMI 12.96
Benzene	0	0		0	N/A	N/A	N/A	
Ethylbenzene	0	0		0	68	68.0	2,228	THH WQC applied at PWS at RMI 12.96
Tetrachloroethylene	0	0		0	N/A	N/A	N/A	
Toluene	0	0		0	57	57.0	1,867	THH WQC applied at PWS at RMI 12.96
Trichloroethylene	0	0		0	N/A	N/A	N/A	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
Naphthalene	0	0		0	N/A	N/A	N/A	

☑ ***CRL*** CCT (min): 720 PMF: 0.006 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
Dissolved 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 Mercury	0	0		0	N/A	N/A	N/A	
Benzene	0	0		0	0.58	0.58	446	
Ethylbenzene	0	0		0	N/A	N/A	N/A	
Tetrachloroethylene	0	0		0	0.69	0.69	531	
Toluene	0	0		0	N/A	N/A	N/A	
Trichloroethylene	0	0		0	0.6	0.6	462	
Vinyl Chloride	0	0		0	0.02	0.02	15.4	
Naphthalene	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

☑ ***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
Dissolved Iron	9.83	mg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	0.73	mg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	32.8	mg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	N/A	N/A	Discharge Conc < TQL
Benzene	0.45	mg/L	Discharge Conc ≤ 25% WQBEL
Ethylbenzene	2.23	mg/L	Discharge Conc ≤ 25% WQBEL
Tetrachloroethylene	0.53	mg/L	Discharge Conc ≤ 25% WQBEL
Toluene	1.87	mg/L	Discharge Conc ≤ 25% WQBEL
Trichloroethylene	0.46	mg/L	Discharge Conc ≤ 25% WQBEL
Vinyl Chloride	0.015	mg/L	Discharge Conc ≤ 25% WQBEL
Naphthalene	3.05	mg/L	Discharge Conc ≤ 25% WQBEL