Pennsylvania Department of Environmental Protection

Northwest Regional Office
CLEAN WATER PROGRAM

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

Application Type	**Renewal**	Application No.	**PA0034789**
Facility Type	**Industrial**	APS ID	**1142482**
Major / Minor	**Minor**	Authorization ID	**1535834**

Applicant and Facility Information

Applicant Name	**St Marys Area Water Authority**	Facility Name	**St Marys Area WTP**
Applicant Address	PO Box 33 967 State Street	Facility Address	967 State Street Route 120 West
	Saint Marys, PA 15857-0033		Saint Marys, PA 15857
Applicant Contact	Dwight Hoare	Facility Contact	
Applicant Phone	(814) 834-4362	Facility Phone	
Client ID	60221	Site ID	264186
SIC Code	4941	Municipality	Saint Marys City
SIC Description	Trans. & Utilities - Water Supply	County	Elk
Date Application Received	July 31, 2025	EPA Waived?	Yes
Date Application Accepted		If No, Reason	

Purpose of Application: Renewal application for a minor industrial waste discharge

Summary of Review

The Department received a renewal application for Individual NPDES Permit No PA0034789 on July 31, 2025 and it is scheduled to expire on January 31, 2026. The permittee, St. Mary Area WTP, owns and operates a water filtration plant located on St. Mary's State Street, serving St. Marys Area and the surrounding communities. The water supply is obtained from the Laurel Run Reservoir, treated and supplied to the Public Water Supply System. The facility has one outfall that discharges 0.145 MGD into Laurel Run. It is not subject to any Effluent Limitation Guidelines (ELGs).

The facility process is as follows: Industrial Wastewater is generated daily from the potable water sedimentation process and a mixed media filter bed backwash process. Solids are separated in the sedimentation process and a mixed media filter bed backwash are continuously discharged into two (2) treatment lagoons. Processed wastewater solids are separated in the Lagoons and settled solids are removed to drying beds for gravity dewatering and ultimate beneficial reuse via land application permitted via an agreement between St. Marys Area Water Authority and the farm. Clarified effluent is then discharged to outfall 001 and into Laurel Run.
Act 14 notifications were submitted and received.

A Water Quality Management Permit is not required at this time.

The site was last inspected on January 29, 2025.

There is only 1 open violation in WMS for the subject Client ID (60221) as of August 6, 2025. The violation is "NPDES - Violation of effluent limits in Part A of permit".

Approve	Deny	Signatures	Date
x		Adebayo Olude Adebayo Olude / Civil Engineer Trainee	October 28, 2025
X		Adam Olesnanik Adam Olesnanik, P.E. / Environmental Engineer Manager	November 13, 2025

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

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.145
Latitude	41º 25' 6.39"	Longitude	-78º 36' 12.87"
Quad Name	Saint Marys	Quad Code	41078D5
Wastewater Description:	IW Process Effluent without ELG		

Receiving Waters	Laurel Run (CWF)	Stream Code	50490
NHD Com ID	102665417	RMI	0.0500
Drainage Area	8.53	Yield (cfs/mi^2)	0.0634
Q_{7-10} Flow (cfs)	0.541	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	1549	Slope (ft/ft)	----
Watershed No.	17-A	Chapter 93 Class.	CWF
Existing Use		Existing Use Qualifier	
Exceptions to Use	---	Exceptions to Criteria	---
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status	Final	Name	Elk Creek TMDL (Elk County) 50459

Background/Ambient Data		Data Source
pH (SU)	7	Default
Temperature (°F)	20	Default
Hardness (mg/L)	100	Default
Other:		

Nearest Downstream Public Water Supply Intake	Pennsylvania American Water Company - Clarion		
PWS Waters	Clarion River	Flow at Intake (cfs)	90.7
PWS RMI	33.3	Distance from Outfall (mi)	>10

Changes Since Last Permit Issuance: Elevation was revised using Google Earth. Drainage Area and Q_{7-10} Flow were revised using USGS StreamStats and ultimately obtaining a new value of Yield.

Other Comments: None

Compliance History

DMR Data for Outfall 001 (from July 1, 2024 to June 30, 2025)

Parameter	JUN-25	MAY-25	APR-25	MAR-25	FEB-25	JAN-25	DEC-24	NOV-24	OCT-24	SEP-24	AUG-24	JUL-24
Flow (MGD) Average Monthly	0.163	0.162	0.149	0.164	0.167	0.186	0.181	0.126	0.118	0.130	0.129	0.089
pH (S.U.) Daily Minimum	6.4	6.5	6.6	6.5	6.5	6.5	6.6	6.7	6.7	6.6	6.5	6.4
pH (S.U.) Daily Maximum	6.9	6.9	6.9	6.9	6.8	6.9	7.0	7.1	7.0	7.0	6.8	6.8
TRC (mg/L) Average Monthly	0.07	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.09	0.1	0.1	0.1
TSS (lbs/day) Average Monthly	< 4.5	< 3.7	< 4.1	4.8	< 4.3	< 5.6	5.0	< 3.3	2.7	< 5.7	3.3	< 2.4
TSS (lbs/day) Daily Maximum	< 4.5	3.7	< 4.1	5.5	< 4.5	6.4	5.2	4.1	2.8	< 8.5	3.3	< 2.5
TSS (mg/L) Average Monthly	< 3.0	< 3.0	< 3.0	4.0	< 3.0	< 4.0	5.0	< 4.0	3.0	< 3.0	4.0	< 3.0
TSS (mg/L) Daily Maximum	< 3.0	3.0	< 3.0	4.0	3.0	4.0	6.0	5.0	3.0	< 3.0	4.0	< 3.0
Total Aluminum (lbs/day) Average Monthly	0.2	0.3	0.2	0.5	0.3	0.4	0.5	0.5	0.3	0.5	0.3	0.1
Total Aluminum (lbs/day) Daily Maximum	0.3	0.5	0.2	0.6	0.5	0.8	0.6	0.5	0.3	0.8	0.3	0.2
Total Aluminum (mg/L) Average Monthly	0.11	0.23	0.15	0.36	0.21	0.26	0.48	0.57	0.31	0.25	0.32	0.16
Total Aluminum (mg/L) Daily Maximum	0.22	0.37	0.16	0.41	0.35	0.48	0.65	0.66	0.39	0.29	0.33	0.20
Total Iron (lbs/day) Average Monthly	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.3	0.1	0.2
Total Iron (lbs/day) Daily Maximum	0.2	0.1	0.3	0.1	0.1	0.2	0.3	0.1	0.2	0.4	0.1	0.2
Total Iron (mg/L) Average Monthly	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.2
Total Iron (mg/L) Daily Maximum	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.2

Total Manganese (lbs/day) Average Monthly	0.7	1.0	0.2	0.8	0.5	0.6	1.1	1.8	0.6	0.8	0.7	0.6
Total Manganese (lbs/day) Daily Maximum	1.2	1.8	0.2	1.3	0.7	0.9	1.3	3.2	0.6	1.2	1.0	0.6
Total Manganese (mg/L) Average Monthly	0.5	0.8	0.2	0.6	0.3	0.4	1.0	2.2	0.6	0.4	0.9	0.8
Total Manganese (mg/L) Daily Maximum	0.8	1.5	0.2	1.0	0.5	0.6	1.1	3.9	0.6	0.4	1.3	0.8

Compliance History

Effluent Violations for Outfall 001, from: August 1, 2024 To: June 30, 2025

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
Total Manganese	11/30/24	Avg Mo	2.2	mg/L	1.0	mg/L
Total Manganese	11/30/24	Daily Max	3.9	mg/L	2.0	mg/L

Summary of Inspections: 3 inspections has been conducted at 03/31/2021, 08/05/2021 and 01/29/2025.

Other Comments: None.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .145
Latitude 41º 25' 2.60" **Longitude** -78º 36' 19.60"
Wastewater Description: IW Process Effluent without ELG

Technology-Based Limitations

The proposed technology-based limitations for wastewater from treatment of WTP sludges and filter backwash are based on the limitations listed in the table below found in DEPs *Technology-Based Control Requirements for Water Treatment Plant Wastes* document which is imposed under Best Professional Judgement under 40 CFR § 125.3. The effluent limitations from the document include the following:

Parameter	Limit (mg/l)	SBC
pH	6.0-9.0 at all times	Min-Max
Flow (MGD)	Monitor	Average Monthly
Total Suspended Solids	30	Average Monthly
	60	Daily Maximum
Total Iron	2	Average Monthly
	4	Daily Maximum
Total Aluminum	4	Average Monthly
	8	Daily Maximum
Total Manganese	1	Average Monthly
	2	Daily Maximum
Total Residual Chlorine	0.5	Average Monthly
	1.0	Daily Maximum

Comments: The pH requirements of 6.0 (minimum) and 9.0 S.U. (maximum) are required for all industrial waste processes according in 25 Pa. Code §§ 92a.48(a)(2) and 95.2). Flow monitoring is required pursuant to 25 Pa. Code § 92a.61(d)(1). Technology-based TRC limits are required by 25 Pa. Code § 92a.48(b) for facilities that use chlorination and are also calculated using the Department's TRC Calculation Spreadsheet. The limits for Aluminum, Iron, Manganese, and TSS are technology-based limits based on Chapter 93.7 and found in the DEPs *Technology-Based Control Requirements for Water Treatment Plant Wastes* document.

Water Quality-Based Limitations

The TMS spreadsheet is attached below. See Attachment 3.

Toxics Management Spreadsheet Results (Recommended Limits)		
Parameter	**Limit (mg/l)**	**SBC**
Total Aluminum	Report	Average Monthly
	Report	Daily Maximum
	Report	IMAX
Total Manganese	Report	Average Monthly
	Report	Daily Maximum
	Report	IMAX

Comments: As part of the reasonable potential analysis, the Toxics Management Spreadsheet was used to determine if there is a need to implement water quality-based effluent limitations for discharges of toxic pollutants. The model uses stream data and pollutant testing data from the permittee's outfall to determine if any water quality standards are in risk of non-compliance. Based on the evaluation from previous model analysis, TMS recommends a WQBEL for Total Aluminum, Total Antimony, Total Arsenic, Total Cadmium, Hexavalent Chromium, Total Coper, Total Lead, Total Manganese, Total Selenium, Total Silver and Total Thallium. The permittee received a pre-draft permit survey on August 18, 2025, and subsequently conducted resampling of the pollutants in response to the evaluation results provided by TMS. The test results were received from the permittee on October 27, 2025, and all results were reported as non-detect and below the

target quantitation limits (QLs). The Total Aluminum and Total Manganese are retained as it is a carry-over from previous permit.

The TMS was re-run using the results provided by the permittee, and none of the pollutants were identified for recommendation. Therefore, no new limits for these pollutants will be proposed.

TRC was also evaluated using the Department's TRC model spreadsheet. The calculated limits of 0.362mg/L is less stringent than previous limits of 0.2mg/L.

Best Professional Judgment (BPJ) Limitations

Comments: None

Anti-Backsliding

Table 1. Current Permit Effluent Limitations for Outfall 001

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	XXX	XXX	XXX	XXX	XXX	1/day	Measured
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	XXX	9.0	1/day	Grab
TRC	XXX	XXX	XXX	0.2	XXX	0.6	1/day	Grab
TSS	Report	Report	XXX	30.0	60.0	75	2/month	8-Hr Composite
Total Aluminum	1.1	2.2	XXX	0.95	1.80	2.4	2/month	8-Hr Composite
Total Iron	Report	Report	XXX	2.0	4.0	5	2/month	8-Hr Composite
Total Manganese	Report	Report	XXX	1.0	2.0	2.5	2/month	8-Hr Composite

Comments: The previous limits can be used pursuant to EPA's anti-backsliding regulation, 40 CFR 122.44(l).

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. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (386-0400-001), SOPs and/or BPJ.

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

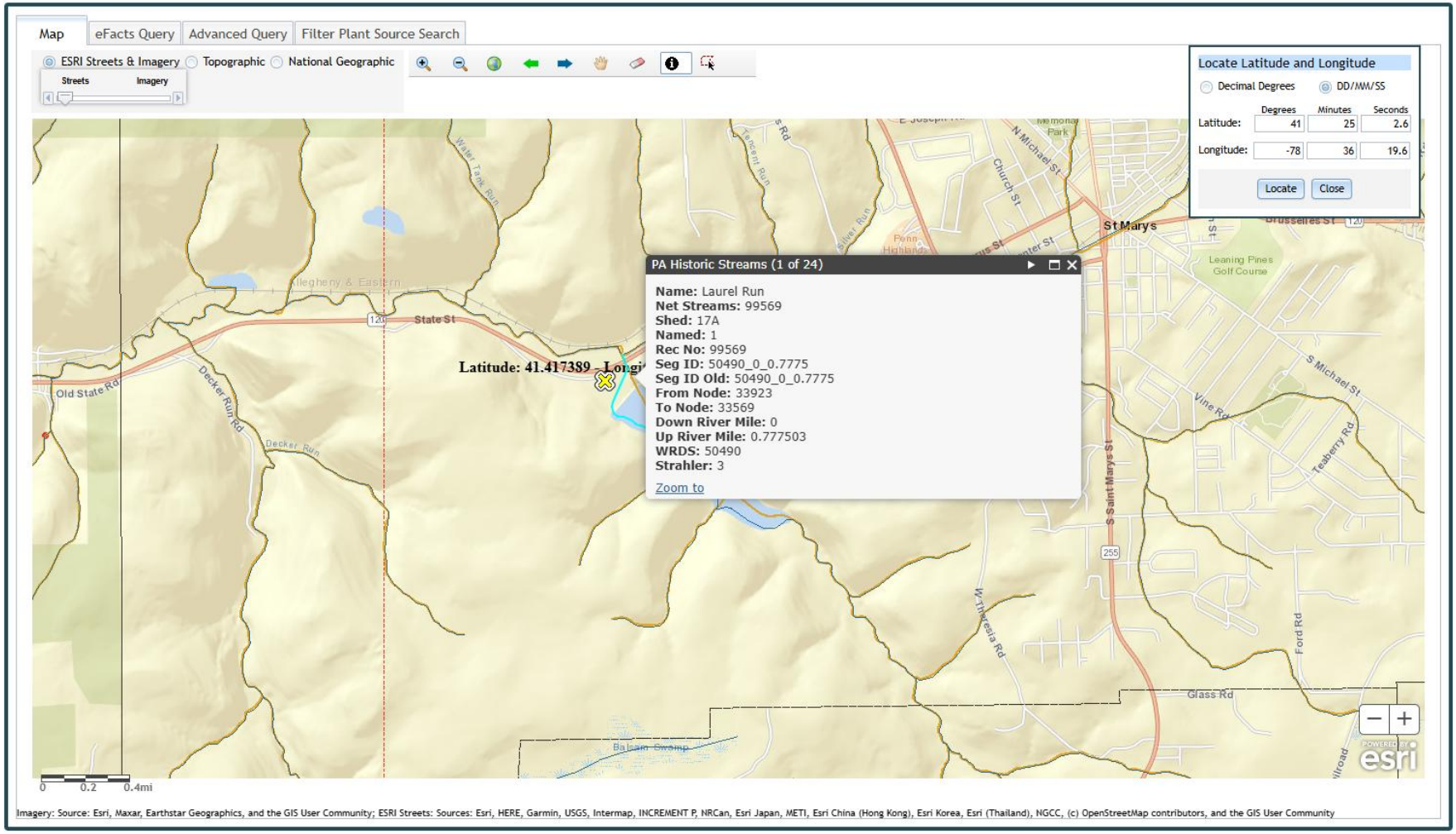
Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Instant. Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	XXX	XXX	XXX	XXX	XXX	1/day	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
TRC	XXX	XXX	XXX	0.2	1.0	0.6	1/day	Grab
TSS	Report	Report	XXX	30.0	60.0	75	2/month	8-Hr Composite
Total Aluminum	1.1	2.2	XXX	0.95	1.80	2.4	2/month	8-Hr Composite
Total Iron	Report	Report	XXX	2.0	4.0	5	2/month	8-Hr Composite
Total Manganese	Report	Report	XXX	1.0	2.0	2.5	2/month	8-Hr Composite

Compliance Sampling Location: Outfall 001

Other Comments: The limits for Flow, pH, TRC, TSS, Total Iron, and Total Manganese are based on Best Practicable Control Technology Available (BPT) from DEP guidance for Water Treatment Plant Wastes.

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

Attachment 1
eMAP– Receiving Streams Information



Attachment 2
Google Earth - Imagery

Attachment 3

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Toxics Management Spreadsheet
Version 1.4, May 2025

Discharge Information

Instructions | Discharge | Stream

Facility: St Mary's Area WTP NPDES Permit No.: PA0034789 Outfall No.: 001

Evaluation Type: Major Sewage / Industrial Waste Wastewater Description: Effluent

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
0.145	100	7						

	Discharge Pollutant	Units		Max Discharge Conc	0 if left blank: Trib Conc	0 if left blank: Stream Conc	0.5 if left blank: Daily CV	0.5 if left blank: Hourly CV	0 if left blank: Stream CV	0 if left blank: Fate Coeff	0 if left blank: FOS	1 if left blank: Criteria Mod	0 if left blank: Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		79									
	Chloride (PWS)	mg/L		23.6									
	Bromide	mg/L		0.025									
	Sulfate (PWS)	mg/L		8.95									
	Fluoride (PWS)	mg/L		0.24									
Group 2	Total Aluminum	µg/L		334.8									
	Total Antimony	µg/L	<	0.37									
	Total Arsenic	µg/L		2									
	Total Barium	µg/L		42									
	Total Beryllium	µg/L	<	1									
	Total Boron	µg/L	<	47									
	Total Cadmium	µg/L	<	0.14									
	Total Chromium (III)	µg/L	<	3									
	Hexavalent Chromium	µg/L	<	0.5									
	Total Cobalt	µg/L		3									
	Total Copper	µg/L	<	2.3									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L	<	5									
	Dissolved Iron	µg/L		82									
	Total Iron	µg/L		127.43									
	Total Lead	µg/L	<	0.69									
	Total Manganese	µg/L		1250									
	Total Mercury	µg/L	<	0.1									
	Total Nickel	µg/L		2.1									
	Total Phenols (Phenolics) (PWS)	µg/L		205									
	Total Selenium	µg/L	<	1.5									
	Total Silver	µg/L	<	0.24									
	Total Thallium	µg/L	<	0.17									
	Total Zinc	µg/L		4.9									
	Total Molybdenum	µg/L	<	4									
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										

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Toxics Management Spreadsheet
Version 1.4, May 2025

Stream / Surface Water Information

St Mary's Area WTP, NPDES Permit No. PA0034789, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: Laurel Run

No. Reaches to Model: 1

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

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	050490	0.777	1549	8.53			Yes
End of Reach 1	050490	0.667	1541	27.6			Yes

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

Location	RMI	LFY (cfs/mi²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	0.777	0.0634										100	7		
End of Reach 1	0.667	0.067													

Q_h

Location	RMI	LFY (cfs/mi²)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	0.777														
End of Reach 1	0.667														

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Toxics Management Spreadsheet
Version 1.4, May 2025

Model Results

St Mary's Area WTP, NPDES Permit No. PA0034789, Outfall 001

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

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 2.642 PMF: 1 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	750	750	2,558	
Total Antimony	0	0		0	1,100	1,100	3,752	
Total Arsenic	0	0		0	340	340	1,160	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	71,629	
Total Boron	0	0		0	8,100	8,100	27,628	
Total Cadmium	0	0		0	2.014	2.13	7.28	Chem Translator of 0.944 applied
Total Chromium (III)	0	0		0	569.763	1,803	6,150	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	55.6	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	324	
Total Copper	0	0		0	13.439	14.0	47.7	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 Lead	0	0		0	64.581	81.6	278	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	5.62	Chem Translator of 0.85 applied
Total Nickel	0	0		0	468.236	469	1,600	Chem Translator of 0.998 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	Chem Translator of 0.922 applied
Total Silver	0	0		0	3.217	3.78	12.9	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	222	
Total Zinc	0	0		0	117.180	120	409	Chem Translator of 0.978 applied

☑ *CFC* CCT (min): 2.642 PMF: 1 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 Antimony	0	0		0	220	220	750	
Total Arsenic	0	0		0	150	150	512	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	13,985	
Total Boron	0	0		0	1,600	1,600	5,457	
Total Cadmium	0	0		0	0.246	0.27	0.92	Chem Translator of 0.909 applied
Total Chromium (III)	0	0		0	74.115	86.2	294	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	35.5	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	64.8	
Total Copper	0	0		0	8.956	9.33	31.8	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	5,116	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.517	3.18	10.9	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	3.09	Chem Translator of 0.85 applied
Total Nickel	0	0		0	52.007	52.2	178	Chem Translator of 0.997 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	4.600	4.99	17.0	Chem Translator of 0.922 applied
Total Silver	0	0		0	N/A	N/A	N/A	Chem Translator of 1 applied
Total Thallium	0	0		0	13	13.0	44.3	
Total Zinc	0	0		0	118.139	120	409	Chem Translator of 0.986 applied

☑ *THH* CCT (min): 2.642 PMF: 1 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	500,000	500,000	N/A	
Chloride (PWS)	0	0		0	250,000	250,000	N/A	
Sulfate (PWS)	0	0		0	250,000	250,000	N/A	
Fluoride (PWS)	0	0		0	2,000	2,000	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	19.1	
Total Arsenic	0	0		0	10	10.0	34.1	
Total Barium	0	0		0	2,400	2,400	8,186	
Total Boron	0	0		0	3,100	3,100	10,574	
Total Cadmium	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	300	300	1,023	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	1,000	1,000	3,411	
Total Mercury	0	0		0	0.050	0.05	0.17	
Total Nickel	0	0		0	610	610	2,081	
Total Phenols (Phenolics) (PWS)	0	0		0	5	5.0	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	0.24	0.24	0.82	
Total Zinc	0	0		0	N/A	N/A	N/A	

☑ *CRL* CCT (min): 1.471 PMF: 1 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 Antimony	0	0		0	N/A	N/A	N/A	
Total Arsenic	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 Cadmium	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 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	
Total Nickel	0	0		0	N/A	N/A	N/A	
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	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

Pollutants	*Mass Limits* AML (lbs/day)	*Mass Limits* MDL (lbs/day)	*Concentration Limits* AML	*Concentration Limits* MDL	*Concentration Limits* IMAX	*Concentration Limits* Units	Governing WQBEL	WQBEL Basis	Comments
Total Aluminum	Report	Report	Report	Report	Report	µg/L	1,640	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Manganese	Report	Report	Report	Report	Report	µg/L	3,411	THH	Discharge Conc > 10% WQBEL (no 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)	N/A	N/A	PWS Not Applicable
Chloride (PWS)	N/A	N/A	PWS Not Applicable
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	N/A	N/A	PWS Not Applicable
Fluoride (PWS)	N/A	N/A	PWS Not Applicable
Total Antimony	N/A	N/A	Discharge Conc < TQL
Total Arsenic	34.1	µg/L	Discharge Conc ≤ 10% WQBEL
Total Barium	8,186	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	5,457	µg/L	Discharge Conc < TQL
Total Cadmium	0.92	µg/L	Discharge Conc < TQL
Total Chromium (III)	294	µg/L	Discharge Conc < TQL
Hexavalent Chromium	35.5	µg/L	Discharge Conc < TQL
Total Cobalt	64.8	µg/L	Discharge Conc ≤ 10% WQBEL
Total Copper	30.6	µg/L	Discharge Conc < TQL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	1,023	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	5,116	µg/L	Discharge Conc ≤ 10% WQBEL

Total Lead	10.9	µg/L	Discharge Conc < TQL
Total Mercury	0.17	µg/L	Discharge Conc < TQL
Total Nickel	178	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Selenium	17.0	µg/L	Discharge Conc < TQL
Total Silver	8.27	µg/L	Discharge Conc < TQL
Total Thallium	0.82	µg/L	Discharge Conc < TQL
Total Zinc	262	µg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS

TRC_CALC

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

0.541	= Q stream (cfs)	0.5	= CV Daily
0.145	= Q discharge (MGD)	0.5	= CV Hourly
30	= no. samples	1	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Stream	1	= CFC_Partial Mix Factor
0	= Chlorine Demand of Discharge	15	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)
0	= % Factor of Safety (FOS)		=Decay Coefficient (K)

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 0.788	1.3.2.iii	WLA cfc = 0.761
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 0.294	5.1d	LTA_cfc = 0.442

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.362	AFC
		INST MAX LIMIT (mg/l) = 1.183	

WLA afc	**(.019/e(-k*AFC_tc)) + [(AFC_Yc*Qs*.019/Qd*e(-k*AFC_tc))...**
	...+ Xd + (AFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)
LTAMULT afc	EXP((0.5*LN(cvh^2+1))-2.326*LN(cvh^2+1)^0.5)
LTA_afc	wla_afc*LTAMULT_afc
WLA_cfc	**(.011/e(-k*CFC_tc) + [(CFC_Yc*Qs*.011/Qd*e(-k*CFC_tc))...**
	...+ Xd + (CFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)
LTAMULT_cfc	EXP((0.5*LN(cvd^2/no_samples+1))-2.326*LN(cvd^2/no_samples+1)^0.5)
LTA_cfc	wla_cfc*LTAMULT_cfc
AML MULT	EXP(2.326*LN((cvd^2/no_samples+1)^0.5)-0.5*LN(cvd^2/no_samples+1))
AVG MON LIMIT	MIN(BAT_BPJ,MIN(LTA_afc,LTA_cfc)*AML_MULT)
INST MAX LIMIT	**1.5*((av_mon_limit/AML_MULT)/LTAMULT_afc)**