Pennsylvania Department of Environmental Protection

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0032379**
Facility Type	**Industrial**	APS ID	**335896**
Major / Minor	**Minor**	Authorization ID	**1483970**

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

Applicant and Facility Information

Applicant Name	**Safe Harbor Water Power Corporation**	Facility Name	**Safe Harbor Hydroelectric Station**
Applicant Address	1 Powerhouse Road	Facility Address	1 Powerhouse Road
	Conestoga, PA 17516-9651		Conestoga, PA 17516-9651
Applicant Contact	Adam Slowik	Facility Contact	Michael Denlinger
Applicant Phone	(717) 284-6218	Facility Phone	(717) 872-0284
Client ID	82470	Site ID	513627
SIC Code	4911	Municipality	Manor Township
SIC Description	Trans. & Utilities - Electric Services	County	Lancaster
Date Application Received	May 6, 2024	EPA Waived?	Yes
Date Application Accepted	May 7, 2024	If No, Reason	

Purpose of Application: NPDES Renewal.

Summary of Review

Safe Harbor has applied to the Pennsylvania Department of Environmental Protection (DEP) for reissuance of its National Pollutant Discharge Elimination System (NPDES) permit. The existing permit was issued on October 28, 2019, and became effective on November 1, 2019, authorizing discharge of treated sewage from Safe Harbor Hydroelectric Station into the Conestoga River. The existing permit expiration date was October 31, 2024, and the permit has been administratively extended since that time.

Per the previous fact sheet, Safe Harbor is a facility that generates electricity using 12 hydro turbines at the Safe Harbor Dam on the Susquehanna River. It was initially constructed in 1930 and has a total rated capacity of 417.5 MW. The electricity is completely generated by hydropower; no fossil fuels are used. The facility operates 24/7, 365 days a year. All of the flow of the Susquehanna River passes through the turbines, making it available for any thermal assimilation from the cooling waters.

Changes in this renewal: E. Coli monitoring has been added. Quarterly monitoring for Perfluorooctanoic acid (PFOA), Perfluorooctanesulfonic acid (PFOS), Perfluorobutanesulfonic acid (PFBS), and Hexafluoropropylene oxide dimer acid (HFPO-DA) have been added. Bromide monitoring has been removed from the permit.

Supplemental information for this facility is provided at the end of this fact sheet.

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

Approve	Deny	Signatures	Date
X		Benjamin R. Lockwood Benjamin R. Lockwood / Environmental Engineering Specialist	March 17, 2025
X		Maria D. Bebenek for Daniel W. Martin, P.E. / Environmental Engineer Manager	March 20, 2025

Summary of Review

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)	.015
Latitude	39º 55' 38"	Longitude	76º 23' 5"
Quad Name		Quad Code	
Wastewater Description:	Sanitary wastewater treatment plant effluent		
Receiving Waters	Conestoga River (WWF)	Stream Code	7548
NHD Com ID	57467915	RMI	0.2
Drainage Area	475 mi^2	Yield (cfs/mi^2)	0.15
Q_{7-10} Flow (cfs)	71.4	Q_{7-10} Basis	USGS PA StreamStats
Elevation (ft)	175	Slope (ft/ft)	
Watershed No.	7-J	Chapter 93 Class.	WWF
Existing Use	N/A	Existing Use Qualifier	N/A
Exceptions to Use	N/A	Exceptions to Criteria	N/A
Assessment Status	Impaired		
Cause(s) of Impairment	Mercury		
Source(s) of Impairment	Source Unknown		
TMDL Status	N/A	Name	N/A
Nearest Downstream Public Water Supply Intake	Holtwood Power Plant		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	
PWS RMI	9.85	Distance from Outfall (mi)	7.05

Changes Since Last Permit Issuance: USGS PA StreamStats provided a drainage area of 475 mi^2 and a Q_{7-10} of 71.4 cfs at the point of discharge.

Other Comments: None

Discharge, Receiving Waters and Water Supply Information

Outfall No.	002	Design Flow (MGD)	1.181
Latitude	39º 55' 27"	Longitude	76º 23' 24"
Quad Name		Quad Code	
Wastewater Description:	Noncontact Cooling Water (NCCW), Stormwater		
Receiving Waters	Susquehanna River (WWF)	Stream Code	6685
NHD Com ID	57467915	RMI	16.9
Drainage Area	26,100 mi^2	Yield (cfs/mi^2)	0.126
Q_{7-10} Flow (cfs)	3,289	Q_{7-10} Basis	USGS Gage # 01576000
Elevation (ft)	186	Slope (ft/ft)	
Watershed No.	7-J	Chapter 93 Class.	WWF
Existing Use	N/A	Existing Use Qualifier	N/A
Exceptions to Use	N/A	Exceptions to Criteria	N/A
Assessment Status	Impaired		
Cause(s) of Impairment	PCB		
Source(s) of Impairment	Source Unknown		
TMDL Status	N/A	Name	N/A
Nearest Downstream Public Water Supply Intake	Holtwood Power Plant		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	
PWS RMI	9.85	Distance from Outfall (mi)	7.05

Changes Since Last Permit Issuance: Changes Since Last Permit Issuance: A drainage area of 26,100 mi^2 and a Q_{7-10} flow of 3,288 cubic feet per second (cfs) were determined by establishing a correlation to the yield of USGS Gage Station #01576000 on the Susquehanna River. The Q_{7-10} and drainage area at the gage are 3,270 cfs and 25,990 mi^2, respectively. These values are taken from the USGS document "Selected Streamflow Statistics for Streamgage Locations in and near Pennsylvania". The Q_{7-10} runoff rate at the gage station was calculated as follows:

Yield = (3,270 cfs)/ 25,990 mi^2 = 0.126 cfs/mi^2

The drainage area at the discharge point, taken from USGS PA StreamStats = 26,100 mi^2

The Q_{7-10} at the discharge point = 26,100mi^2 x 0.126 cfs/mi^2 = 3,289 cfs

Due to incomplete mixing in the Susquehanna River, ¼ of the Q_{7-10} was used in modeling, 822 cfs.

Other Comments: None

Outfalls 003-014

These outfalls collect non-contact turbine cooling waters. The flow rates of these discharges vary, and they are not metered. These outfalls discharge to the main station sump, which discharges to Outfall 002. Since these outfalls combine prior to Outfall 002, they were included in the reasonable potential analysis for Temperature as part of the maximum discharge flow for Outfall 002. The Temperature analysis is detailed below. These outfalls will be identified in the NPDES permit and appropriate Part C conditions will be included.

Outfall 015

This outfall collects frequency changer air cooling water. The flow rate of this discharge varies and is not metered. Estimated flow from this outfall was included in the Temperature analysis. This outfall will be identified in the NPDES permit and appropriate Part C conditions will be included.

Outfalls 016-024

These outfalls contain intermittent discharges of groundwater that are drained to keep the facility dry. From the previous permit fact sheet, these outfalls are not accessible for monitoring and discharge below the water surface. No impacts from these outfalls are expected. These outfalls will be identified in the NPDES permit and appropriate Part C conditions will be included.

Outfall 016 – Dewatering pumps
Outfall 017 – Oil circuit breaker emergency drain
Outfall 018 – Raw water valve sand pit drain
Outfall 019 – Screen heating transformer trench drain
Outfall 020 – Connecting bulkhead tunnel drain pump
Outfall 021 – Frequency changer starting equipment floor drains
Outfall 022 – Emergency flood pumps
Outfall 023 – Substation elevator sump pumps
Outfall 024 – Connection bulkhead and west inspection tunnel drain pump

Discharge, Receiving Waters and Water Supply Information

Outfall No.	025	Design Flow (MGD)	Variable (stormwater)
Latitude	39º 55' 32"	Longitude	76º 23' 21"
Quad Name	Safe Harbor	Quad Code	1934
Wastewater Description:	Stormwater from transformer pocket drains		
Receiving Waters	Susquehanna River	Stream Code	06685
NHD Com ID	57467915	RMI	16.9
Drainage Area	26100	Yield (cfs/mi^2)	0.126
Q_{7-10} Flow (cfs)	3,289	Q_{7-10} Basis	USGS Gage # 01576000
Elevation (ft)	186	Slope (ft/ft)	
Watershed No.	7-J	Chapter 93 Class.	WWF, MF
Existing Use	N/A	Existing Use Qualifier	N/A
Exceptions to Use	N/A	Exceptions to Criteria	N/A
Assessment Status	Impaired		
Cause(s) of Impairment	PCB		
Source(s) of Impairment	Source Unknown		
TMDL Status	N/A	Name	N/A
Nearest Downstream Public Water Supply Intake	Holtwood Power Plant		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	
PWS RMI	9.85	Distance from Outfall (mi)	7.05

Changes Since Last Permit Issuance: None

Other Comments: None

Discharge, Receiving Waters and Water Supply Information

Outfall No.	026	Design Flow (MGD)	Variable (stormwater)
Latitude	39º 55' 27"	Longitude	76º 23' 24"
Quad Name	Safe Harbor	Quad Code	1934
Wastewater Description:	Stormwater from powerhouse roof drains		
Receiving Waters	Susquehanna River	Stream Code	06685
NHD Com ID	57467915	RMI	16.9
Drainage Area	26100	Yield (cfs/mi^2)	0.126
Q_{7-10} Flow (cfs)	3,289	Q_{7-10} Basis	USGS Gage # 01576000
Elevation (ft)	186	Slope (ft/ft)	
Watershed No.	7-J	Chapter 93 Class.	WWF, MF
Existing Use	N/A	Existing Use Qualifier	N/A
Exceptions to Use	N/A	Exceptions to Criteria	N/A
Assessment Status	Impaired		
Cause(s) of Impairment	PCB		
Source(s) of Impairment	Source Unknown		
TMDL Status	N/A	Name	N/A
Nearest Downstream Public Water Supply Intake	Holtwood Power Plant		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	
PWS RMI	9.85	Distance from Outfall (mi)	7.05

Changes Since Last Permit Issuance: None

Other Comments: None

Discharge, Receiving Waters and Water Supply Information

Outfall No.	027	Design Flow (MGD)	Variable (stormwater)
Latitude	39º 55' 32"	Longitude	76º 23' 20"
Quad Name	Safe Harbor	Quad Code	1934
Wastewater Description:	Stormwater from parking lot		
Receiving Waters	Susquehanna River	Stream Code	06685
NHD Com ID	57467915	RMI	16.9
Drainage Area	26100	Yield (cfs/mi^2)	0.126
Q_{7-10} Flow (cfs)	3,289	Q_{7-10} Basis	USGS Gage # 01576000
Elevation (ft)	186	Slope (ft/ft)	
Watershed No.	7-J	Chapter 93 Class.	WWF, MF
Existing Use	N/A	Existing Use Qualifier	N/A
Exceptions to Use	N/A	Exceptions to Criteria	N/A
Assessment Status	Impaired		
Cause(s) of Impairment	PCB		
Source(s) of Impairment	Source Unknown		
TMDL Status	N/A	Name	N/A
Nearest Downstream Public Water Supply Intake	Holtwood Power Plant		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	
PWS RMI	9.85	Distance from Outfall (mi)	7.05

Changes Since Last Permit Issuance: None

Other Comments: None

Compliance History	
Summary of DMRs:	A summary of the past 12-month DMR effluent data is presented on the next page of this fact sheet.
Summary of Inspections:	4/27/2021: A routine inspection was conducted. Several outfalls on the downstream side of the dam were observed. A number of the outfalls were underwater, and no concerns were noted. The sewage treatment plant clarifier effluent appeared slightly cloudy, and the effluent from the UV disinfection system was clear. The outfall to the Conestoga River was not accessible during the inspection. Field sampling results were within permitted limits. No other issues were noted.

Other Comments: There are no open violations for this Applicant.

Compliance History

DMR Data for Outfall 001 (from January 1, 2024 to December 31, 2024)

Parameter	DEC-24	NOV-24	OCT-24	SEP-24	AUG-24	JUL-24	JUN-24	MAY-24	APR-24	MAR-24	FEB-24	JAN-24
Flow (MGD) Average Monthly	0.000599	0.0006114	0.000515	0.0006536	0.000679	0.00006378	0.000686	0.000583	0.000511	0.000799	0.000585	0.000808
Flow (MGD) Daily Maximum	0.000973	0.001066	0.000862	0.001002	0.001266	0.001199	0.00294	0.001329	0.000942	0.003925	0.001287	0.00344
pH (S.U.) Instantaneous Minimum	6.7	6.84	6.33	7.09	7.24	7.18	6.97	6.63	7.09	7.07	6.93	7.26
pH (S.U.) Instantaneous Maximum	8.95	8.04	7.70	8.21	8.00	7.91	8.3	8.1	8.1	8.2	7.98	8.21
DO (mg/L) Instantaneous Minimum	11.07	9.92	9.12	8.12	7.79	7.3	6.74	8.57	8.27	8.67	9.96	9.94
CBOD5 (mg/L) Average Monthly	< 3.0	< 3.6	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	28.1	2.2
TSS (mg/L) Average Monthly	< 5.1	6.3	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 5.0	< 4.3	< 4.0	13.4
Fecal Coliform (No./100 ml) Geometric Mean	< 1.0	< 1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Fecal Coliform (No./100 ml) Instantaneous Maximum	< 1.0	< 1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Nitrate-Nitrite (mg/L) Average Monthly	41	51.9	50.5	43.4	32.6	50.1	48.1	55.3	32.3	44.1	38.9	38.7
Total Nitrogen (mg/L) Average Monthly	41	51.9	50.5	43.4	32.6	50.7	48.8	55.3	32.7	44.4	38.9	39.2
Ammonia (mg/L) Average Monthly	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TKN (mg/L) Average Monthly	< 0.7	< 0.7	< 2.1	< 0.7	< 0.7	< 0.93	< 1.1	< 0.7	< 0.75	< 0.72	< 0.7	< 0.88
Total Phosphorus (mg/L) Average Monthly	0.2	< 0.33	< 0.5	0.8	< 0.54	< 0.5	< 0.5	< 0.6	< 0.55	0.48	< 0.505	< 0.6

UV Dosage (mWsec/cm²) Instantaneous Minimum	1.9	0.8	0.6	0.4	0.4	0.2	0.4	0.6	0.8	2.8	4.0	3.1

DMR Data for Outfall 002 (from January 1, 2024 to December 31, 2024)

Parameter	DEC-24	NOV-24	OCT-24	SEP-24	AUG-24	JUL-24	JUN-24	MAY-24	APR-24	MAR-24	FEB-24	JAN-24
Flow (MGD) Average Monthly	0.338	0.232	0.291	0.323	0.371	0.284	0.282	0.341	0.442	0.452	0.39	0.468
Flow (MGD) Daily Maximum	0.446	0.36	0.396	0.763	0.692	0.317	0.367	0.418	0.727	0.612	0.547	0.706
pH (S.U.) Instantaneous Minimum	7.45	7.96	7.91	7.75	7.78	7.59	7.84	7.89	7.49	6.44	6.67	6.44
pH (S.U.) Instantaneous Maximum	8.24	8.27	8.69	8.3	8.25	8.18	8.31	8.28	8.17	7.82	7.4	7.31
Temperature (ºF) Average Monthly	48.9	63.4	68.5	77.9	80.8	86.6	81.4	71.5	58.8	53.0	50.4	48.1
Temperature (ºF) Daily Maximum	55.8	69.4	74.9	81.5	88.3	90.7	89.1	80.8	64.6	57.4	54.5	52.7
TSS (mg/L) Effluent Net Average Monthly	< 4.0	0.25	< 1.0	0.25	< 1.0	< 1.0	< 0.1	0.05	0.5	< 1.0	1.25	< 0.1
TSS (mg/L) Effluent Net Daily Maximum	< 4.0	0.5	< 1.0	0.5	< 1.0	< 1.0	0.1	0.1	1.0	< 1.0	2.5	< 0.1
TSS (mg/L) Intake Average Monthly	< 4.3	< 4	6.5	< 5.1	57.6	8.9	10.4	33.0	90.0	12.95	6.0	13.3
TSS (mg/L) Effluent Net Instantaneous Maximum	< 4.0	0.5	< 1.0	0.5	< 1.0	< 1.0	0.1	0.1	1.0	< 1.0	2.5	< 0.1
TSS (mg/L) Intake Daily Maximum	4.5	< 4	7.5	6.2	104.0	10.8	12.5	54.5	126.0	14.4	8.0	16.5
Oil and Grease (mg/L) Effluent Net Average Monthly	< 1.3	< 1.3	< 1.4	< 1.3	< 1.4	< 1.4	< 1.3	< 1.3	< 1.4	< 1.3	< 1.3	< 1.3
Oil and Grease (mg/L) Effluent Net Daily Maximum	< 1.3	< 1.3	< 1.4	< 1.3	< 1.4	< 1.4	< 1.3	< 1.3	< 1.4	< 1.3	< 1.3	< 1.3

Oil and Grease (mg/L) Intake Average Monthly	< 1.3	< 1.3	< 1.4	< 1.4	< 1.3	< 1.4	< 1.3	< 1.3	< 1.3	< 1.3	< 1.3	< 1.3
Oil and Grease (mg/L) Effluent Net Instantaneous Maximum	< 1.3	< 1.3	< 1.4	< 1.3	< 1.4	< 1.4	< 1.3	< 1.3	< 1.4	< 1.3	< 1.3	< 1.3
Oil and Grease (mg/L) Intake Daily Maximum	< 1.3	< 1.3	< 1.4	< 1.4	< 1.3	< 1.4	< 1.3	< 1.3	< 1.3	< 1.3	< 1.3	< 1.3
Total Aluminum (mg/L) Effluent Net Average Monthly	0.0	0.012	0.009	0.013	< 0.1	< 0.1	0.011	0.074	< 0.145	0.044	0.001	0.089
Total Aluminum (mg/L) Effluent Net Daily Maximum	0.0	0.024	0.017	0.025	< 0.1	< 0.1	0.017	0.105	0.29	0.088	0.002	0.15
Total Aluminum (mg/L) Intake Average Monthly	0.076	0.059	0.12	0.082	0.726	0.153	0.167	0.174	0.732	0.312	0.154	0.334
Total Aluminum (mg/L) Effluent Net Instantaneous Maximum	0.0	0.024	0.017	0.025	< 0.1	< 0.1	0.017	0.105	0.29	0.088	0.002	0.15
Total Aluminum (mg/L) Intake Daily Maximum	0.084	0.062	0.124	0.083	1.28	0.231	0.22	0.203	1.07	0.340	0.183	0.348
Total Iron (mg/L) Effluent Net Average Monthly	0.0	0.015	0.002	0.016	0.005	< 0.1	0.004	0.2225	< 0.125	< 0.1	< 0.1	0.097
Total Iron (mg/L) Effluent Net Daily Maximum	0.0	0.029	0.004	0.018	0.01	< 0.1	0.008	0.375	0.25	< 0.1	< 0.1	0.175
Total Iron (mg/L) Intake Average Monthly	0.076	0.118	0.242	0.136	1.024	0.303	0.237	0.368	1.53	0.636	0.386	0.564
Total Iron (mg/L) Effluent Net Instantaneous Maximum	0.0	0.029	0.004	0.018	0.01	< 0.1	0.008	0.375	0.25	< 0.1	< 0.1	0.175

Total Iron (mg/L) Intake Daily Maximum	0.084	0.12	0.254	0.156	1.62	0.453	0.29	0.389	2.11	0.646	0.392	0.588
Total Manganese (mg/L) Effluent Net Average Monthly	0.001	< 0.1	< 0.1	0.006	< 0.0065	< 0.1	< 0.1	0.065	0.0035	< 0.1	< 0.1	< 0.1
Total Manganese (mg/L) Effluent Net Daily Maximum	0.002	< 0.1	< 0.1	0.012	0.013	< 0.1	< 0.1	0.129	0.007	< 0.1	< 0.1	< 0.1
Total Manganese (mg/L) Intake Average Monthly	0.032	0.082	0.152	0.107	0.133	0.119	0.088	0.064	0.246	0.0725	0.085	0.074
Total Manganese (mg/L) Effluent Net Instantaneous Maximum	0.002	< 0.1	< 0.1	0.012	0.013	< 0.1	< 0.1	0.129	0.007	< 0.1	< 0.1	< 0.1
Total Manganese (mg/L) Intake Daily Maximum	0.035	0.089	0.168	0.111	0.135	0.142	0.091	0.084	0.352	0.082	0.094	0.088
Bromide (mg/L) Average Monthly	< 1.0	< 1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Existing Effluent Limitations and Monitoring Requirements

Outfall 001

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0 Inst Min	XXX	XXX	XXX	1/day	Grab
UV Light Dosage (mWsec/cm^2)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Measured
Carbonaceous Biochemical Oxygen Demand (CBOD5)	XXX	XXX	XXX	25	XXX	50	2/month	24-Hr Composite
Total Suspended Solids	XXX	XXX	XXX	30	XXX	60	2/month	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	2/month	Grab
Ammonia-N	XXX	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
Kjeldahl-N	XXX	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
Nitrate-Nitrite-N	XXX	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
Total Phosphorus	XXX	XXX	XXX	2.0	XXX	4.0	2/month	24-Hr Composite
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	1/month	Calculation

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

at Outfall 001

Outfall 002

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/day	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
Temperature (ºF)	XXX	XXX	XXX	Report	Report	XXX	2/month	I-S
Total Suspended Solids Intake	XXX	XXX	XXX	Report	Report	XXX	2/month	Grab
Total Suspended Solids Effluent Net*	XXX	XXX	XXX	30	60	75	2/month	Grab
Oil and Grease Intake	XXX	XXX	XXX	Report	Report	XXX	2/month	Grab
Oil and Grease Effluent Net*	XXX	XXX	XXX	4.0	8.0	10	2/month	Grab
Aluminum, Total Intake	XXX	XXX	XXX	Report	Report	XXX	2/month	Grab
Aluminum, Total Effluent Net*	XXX	XXX	XXX	4.0	8.0	10	2/month	Grab
Iron, Total Intake	XXX	XXX	XXX	Report	Report	XXX	2/month	Grab
Iron, Total Effluent Net*	XXX	XXX	XXX	2.0	4.0	5.0	2/month	Grab
Manganese, Total Intake	XXX	XXX	XXX	Report	Report	XXX	2/month	Grab
Manganese, Total Effluent Net*	XXX	XXX	XXX	1.0	2.0	2.5	2/month	Grab
Bromide	XXX	XXX	XXX	Report	XXX	XXX	2/month	Grab

- *Concentrations are net values over river background concentrations

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

at Outfall 002

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .015
Latitude 39º 55' 38" **Longitude** 76º 23' 5"
Wastewater Description: Sanitary wastewater treatment plant effluent

Technology-Based Limitations

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

Parameter	Limit (mg/l)	SBC	Federal Regulation	State Regulation
$CBOD_5$	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45	Average Weekly	133.102(b)(2)	92a.47(a)(2)
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)
Fecal Coliform (5/1 – 9/30)	200 / 100 ml	Geo Mean	-	92a.47(a)(4)
Fecal Coliform (5/1 – 9/30)	1,000 / 100 ml	IMAX	-	92a.47(a)(4)
Fecal Coliform (10/1 – 4/30)	2,000 / 100 ml	Geo Mean	-	92a.47(a)(5)
Fecal Coliform (10/1 – 4/30)	10,000 / 100 ml	IMAX	-	92a.47(a)(5)
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)

Water Quality-Based Limitations

$CBOD_5$, NH_3-N

Pursuant to 40 CFR § 122.44(d)(1)(i), more stringent requirements should be considered when pollutants are discharged at the levels which have the reasonable potential to cause or contribute to excursions above water quality standards.

WQM 7.0 ver. 1.1b is a water quality model designed to assist DEP in determining appropriate water quality based effluent limits (WQBELs) for carbonaceous biochemical oxygen demand ($CBOD_5$), ammonia (NH_3-N) and dissolved oxygen (D.O.). DEP's Technical Guidance No. 391-2000-007 provides the technical methods contained in WQM 7.0 for determining wasteload allocations and for determining recommended NPDES effluent limits for point source discharges. The model was utilized for this permit renewal. The model output indicated a $CBOD_5$ average monthly limit of 25 mg/l, an NH_3-N average monthly limit of 25 mg/l, and a D.O. minimum limit of 5.0 mg/l were protective of water quality. The flow data used to run the model was acquired from USGS PA StreamStats and is included as an attachment. The $CBOD_5$ limit of 25 mg/l is the same as the existing permit limit, which will remain in the renewal. SOP No. BPNPSM-PMT-033 recommends, for existing discharges, a year-round monitoring requirement for ammonia-nitrogen at a minimum when WQM modeling results for summer indicates that an average monthly limit of 25 mg/L is acceptable. This is consistent with the existing permit monitoring requirement.

There are no industrial/commercial users contributing industrial wastewater to the system and Safe Harbor does not currently have an EPA-approved pretreatment program. Accordingly, evaluating reasonable potential of toxic pollutants is not necessary as effluent levels of toxic pollutants are expected to be insignificant.

Additional Considerations

Chesapeake Bay Total Maximum Daily Load (TMDL)

DEP developed a strategy to comply with the EPA and Chesapeake Bay Foundation requirements by reducing point source loadings of Total Nitrogen (TN) and Total Phosphorus (TP). This strategy can be located in the *Pennsylvania Chesapeake Watershed Implementation Plan* (WIP), dated January 11, 2011. Subsequently, an update to the WIP was published as the Phase 2 WIP. As part of the Phase 2 WIP, a *Phase 2 Watershed Implementation Plan Wastewater Supplement* (Phase 2 Supplement) was developed, providing an update on TMDL implementation for point sources and DEP's current

implementation strategy for wastewater. A new update to the WIP was published as the Phase 3 WIP in August 2019. As part of the Phase 3 WIP, a *Phase 3 Watershed Implementation Plan Wastewater Supplement* (Phase 3 Supplement) was developed, and was most recently revised on December 17, 2019, and is the basis for the development of any Chesapeake Bay related permit parameters. Sewage discharges have been prioritized based on their design flow to the Bay. The highest priority (Phases 1, 2, and 3) dischargers will receive annual Cap Loads based on their design flow on August 29, 2005 and concentrations of 6 mg/l TN and 0.8 mg/l TP. These limits may be achieved through a combination of treatment technology, credits, or offsets. For Phase 4 and 5 facilities, Cap Loads are not currently being implemented for renewed or amended permits for facilities that do not increase design flow.

This facility is considered a Phase 5 non-significant facility with a design flow less than 0.2 MGD but greater than 0.002 MGD. According to the Phase 3 WIP, TN and TP monitoring is recommended for this facility, which is consistent with the existing permit. TN monitoring and a TP limit are already included in the existing permit and will remain in the permit.

Fecal Coliform

PA Code § 92a.47.(a)(4) requires a monthly average limit of 200/100 mL as a geometric mean and an instantaneous maximum limit not greater than 1,000/100 mL from May through September for fecal coliform. PA Code § 92a.47.(a)(5) requires a monthly average limit of 2,000/100 mL as a geometric mean and an instantaneous maximum limit not greater than 10,000/100 mL from October through April for fecal coliform. This is consistent with the existing permit limits.

E. Coli

PA Code § 92a.61 requires IMAX reporting of E. Coli. Per DEP's SOP No. BCW-PMT-033, sewage dischargers with a design flow of 0.002 – 0.05 mgd will include E. Coli monitoring with a frequency of 1/year. This parameter has been added to the renewal permit.

Dissolved Oxygen

A minimum D.O. limit of 5.0 mg/L is a D.O. water quality criterion found in 25 Pa. Code § 93.7(a). This limit will be included in the permit to ensure that the facility achieves compliance with DEP water quality standards.

Ultraviolet Disinfection

DEP's SOP No. BPNPSM-PMT-033 recommends at a minimum, routine monitoring of UV transmittance, dosage, or intensity when the facility is utilizing a UV disinfection system. The monitoring should occur at the same frequency as would be used for TRC. This approach has been assigned to other facilities equipped with similar technology. Accordingly, a parameter for UV Light Dosage will be included in the permit.

Sampling Frequency & Sample Type

The monitoring requirements were established based on BPJ and/or Table 6-3 of DEP's Technical Guidance No. 362-0400-001.

Anti-Degradation

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

303(d) Listed Streams

The discharge is located on a stream segment that is designated as impaired. There is an impairment for mercury due to an unknown source.

Class A Wild Trout Fisheries

No Class A Wild Trout Fisheries are impacted by this discharge.

Anti-Backsliding

Pursuant to 40 CFR § 122.44(l)(1), all proposed permit requirements addressed in this fact sheet are at least as stringent as the requirements implemented in the existing NPDES permit unless any exceptions are addressed by DEP in this fact sheet.

Development of Effluent Limitations

Outfall No.	002	**Design Flow (MGD)**	1.181
Latitude	39º 55' 27"	**Longitude**	76º 23' 24"

Wastewater Description: Noncontact Cooling Water (NCCW), Stormwater

Water Plant Backwash

From the previous permit fact sheet, Outfall 002 receives filter backwash and the primary settling basin sludge from the facility's water treatment plant. Technology limits were set for TSS, Total Aluminum, Total Iron and Total Magnesium. There is no treatment provided, except for dilution provided by the cooling water. Since there is no treatment provided, limits were required for these parameters in past permits. They were incorporated as net effluent limits because of the mixing with river cooling water in the sump. These limits will remain in the permit.

pH

PA Code §§ 95.2(1) requires effluent pH limits of 6.0 to 9.0 standard units (S.U.) at all times in effluent. The permit will continue to require pH limit of 6.0 to 9.0 S.U.

Temperature Limitations

A reasonable potential (RP) analysis was performed for temperature which is the main pollutant of concern in the NCCW. Effluent limitations for temperature were calculated using the Case 2 Thermal Worksheet with an updated wastewater flow of 3.197 mgd. This flow is based off of the maximum flow for Outfall 002 as well as assumptions for the flow from Outfall 005. The maximum flow listed in the application for Outfall 002 is 1.181 mgd. From the previous permit fact sheet, a maximum flow of 1,400 gpm (2.016 mgd) was used for the assumed maximum cooling water discharge from Outfall 005. This assumption was used for the temperature calculations. A stream $Q_{7\text{-}10}$ flow of 822 cfs was used in the temperature worksheet. The worksheet recommended permit limits for a discharge to WWF of 110°F, which is the cap for limits generated by the worksheet. 2/month temperature monitoring will continue for the permit renewal to obtain data for future evaluation. A printout of the worksheet is attached.

PFAS-Related Compounds

DEP's NPDES renewal application for Major Sewage Facilities now requires effluent testing for PFAS related compounds as part of Pollutant Group 1: Perfluorooctanoic acid (PFOA), Perfluorooctanesulfonic acid (PFOS), Perfluorobutanesulfonic acid (PFBS), and Hexafluoropropylene oxide dimer acid (HFPO-DA). Per DEP's SOP BCW-PMT-033, If sampling that is completed as part of the permit renewal application reveals a detection for any of these compounds, a quarterly monitoring requirement for all compounds will be established in the permit. If sampling that is completed as part of the permit renewal application demonstrates non-detect values at or below the Target QLs for these compounds in a minimum of 3 samples, an annual monitoring requirement for all compounds will be established in the permit. There were detects for PFOA, PFOS, and PFBS in the application sampling; therefore, quarterly monitoring requirements will be established for all compounds in this renewal permit. Monitoring for PFOA, PFOS, HFPO-DA, and PFBS may be discontinued if the results in 4 consecutive monitoring periods indicate non-detect results at or below the Target QLs o 4.0 ng/l for PFOA, 3.7 ng/l for PFOS, 3.5 ng/l for PFBS, and 6.4 ng/l for HFPO-DA. The NPDES permit will include this monitoring language as a footnote in Part A of the permit.

Chesapeake Bay Total Maximum Daily Load (TMDL)

DEP developed a strategy to comply with the EPA and Chesapeake Bay Foundation requirements by reducing point source loadings of Total Nitrogen (TN) and Total Phosphorus (TP). This strategy can be located in the Pennsylvania Chesapeake Watershed Implementation Plan (WIP), dated January 11, 2011. Subsequently, an update to the WIP was published as the Phase 2 WIP. As part of the Phase 2 WIP, a Phase 2 Watershed Implementation Plan Wastewater Supplement (Phase 2 Supplement) was developed, providing an update on TMDL implementation for point sources and DEP's current implementation strategy for wastewater. The Phase 2 Supplement was most recently revised on September 6, 2017. Industrial discharges have been prioritized by Central Office based on their delivered TN and TP loadings to the Bay. Significant industrial wastewater dischargers are facilities that discharge more than 75 lbs/day of TN or 25 lbs/day of TP on an average annual basis and the rest are classified as non-significant dischargers. DEP developed a Chesapeake Bay industrial waste (IW) monitoring plan for all industrial facilities that discharge to the Chesapeake Bay. This facility is classified as a non-significant discharger with little or no potential to introduce nutrients to the receiving stream; therefore, no monitoring for TP and TN series will be required at this time for Outfall 002.

Toxics

Effluent sample results for toxic pollutants reported on the renewal application were entered into DEP's Toxics Management Spreadsheet Version 1.3 to develop appropriate permit requirements for toxic pollutants of concern. The Toxics Management Spreadsheet combines the functions of PENTOXSD and DEP's Toxics Screening Analysis. Based on effluent sample results reported on the application, the Toxics Management Spreadsheet did not recommend any additional parameters receive monitoring or limits.

This data was analyzed based on the guidelines found in DEP's Water Quality Toxics Management Strategy (Document No. 361-0100-003) and DEP's SOP No. BPNPSM-PMT-033. The results are attached to this fact sheet. The Toxics Management Spreadsheet uses the following logic:

a. Establish average monthly and IMAX limits in the draft permit where the maximum reported concentration exceeds 50% of the WQBEL.
b. For non-conservative pollutants, establish monitoring requirements where the maximum reported concentration is between 25% - 50% of the WQBEL.
c. For conservative pollutants, establish monitoring requirements where the maximum reported concentration is between 10%-50% of the WQBEL.

Since the reported maximum concentrations were less than 10% of their respective WQBEL, per DEP's SOP No. BPNPSM-PMT-033, no limits or monitoring are necessary.

Total Dissolved Solids (TDS)

DEP's SOP No. BCW-PMT-033 states that at a minimum, a monitoring requirement should be established for TDS for any discharge that exceeds 1,000 mg/l. Safe Harbor reported a maximum effluent value of 130 mg/l for TDS in the NPDES application. Therefore, a monitoring requirement for TDS is not required. The existing monitoring requirement for Bromide will be removed from the permit, as it was previously include due to it being a major constituent of TDS.

Oil and Grease

DEP's SOP No. BPNPSM-PMT-032 recommends a monitor requirement for Oil and Grease if the maximum concentration reported in the application is greater than 4 mg/l. The application lists a maximum concentration of <5.0 mg/l for Oil and Grease. There is an existing limit for Oil and Grease in the permit, which is more stringent than a monitor only requirement; therefore, the more stringent existing limit will remain in the permit.

Anti-Degradation

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

303(d) Listed Streams

The discharge is located on a stream segment that is designated on the 303(d) list as impaired. There is an impairment use for fish consumption due to PCB, from an unknown source.

Class A Wild Trout Fisheries

No Class A Wild Trout Fisheries are impacted by this discharge.

Anti-Backsliding

Pursuant to 40 CFR § 122.44(l)(1), all proposed permit requirements addressed in this fact sheet are at least as stringent as the requirements implemented in the existing NPDES permit unless any exceptions addressed by DEP in this fact sheet.

Development of Effluent Limitations

Outfall No.	025, 026, 027	**Design Flow (MGD)**	Variable
Latitude	39º 55' 32" (025) 39º 55' 27" (026) 39º 55' 32" (027)	**Longitude**	76º 23' 21" (025) 76º 23' 24" (026) 76º 23' 20" (027)
Wastewater Description:	Stormwater		

Limitations

Safe Harbor is classified under SIC Code 4910. The facility's stormwater discharge does not fall with the EPA definition of storm water associated with industrial activity per 40 CFR 122.26(b)(14); therefore, monitoring will not be required. Part C requirements for stormwater outfalls will be included in the permit.

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality 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	Average Weekly	Instantaneous Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
CBOD5	XXX	XXX	XXX	25.0	XXX	50	2/month	24-Hr Composite
TSS	XXX	XXX	XXX	30.0	XXX	60	2/month	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
Nitrate-Nitrite	XXX	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	1/month	Calculation
Ammonia	XXX	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
TKN	XXX	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
Total Phosphorus	XXX	XXX	XXX	2.0	XXX	4	2/month	24-Hr Composite
UV Dosage (mWsec/cm^2)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Measured

Compliance Sampling Location: Outfall 001

Other Comments: None

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 002, 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	Average Weekly	Average Monthly	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/day	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
Temperature (ºF)	XXX	XXX	XXX	Report	Report	XXX	2/month	I-S
TSS Intake	XXX	XXX	XXX	Report	Report	XXX	2/month	Grab
TSS Effluent Net	XXX	XXX	30.0	60.0 Daily Max	XXX	75.0	2/month	Grab
Oil and Grease Effluent Net	XXX	XXX	4.0	8.0 Daily Max	XXX	10.0	2/month	Grab
Oil and Grease Intake	XXX	XXX	XXX	Report	Report	XXX	2/month	Grab
Total Aluminum Intake	XXX	XXX	XXX	Report	Report	XXX	2/month	Grab
Total Aluminum Effluent Net	XXX	XXX	4.0	8.0 Daily Max	XXX	10.0	2/month	Grab
Total Iron Effluent Net	XXX	XXX	2.0	4.0 Daily Max	XXX	5.0	2/month	Grab
Total Iron Intake	XXX	XXX	XXX	Report	Report	XXX	2/month	Grab
Total Manganese Effluent Net	XXX	XXX	1.0	2.0 Daily Max	XXX	2.5	2/month	Grab
Total Manganese Intake	XXX	XXX	XXX	Report	Report	XXX	2/month	Grab
PFOA (ng/L)	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab

Outfall 002, Continued (from 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	Average Weekly	Average Monthly	Average Monthly	Daily Maximum	Instant. Maximum		
PFOS (ng/L)	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab
PFBS (ng/L)	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab
HFPO-DA (ng/L)	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab

Compliance Sampling Location: None

Other Comments: *The concentrations are net values over the river background concentrations

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: No. BCW-PMT-032, No. BPNPSM-PMT-001
☐	Other:

Safe Harbor Water Power Corporation PA0032379 Outfall 001

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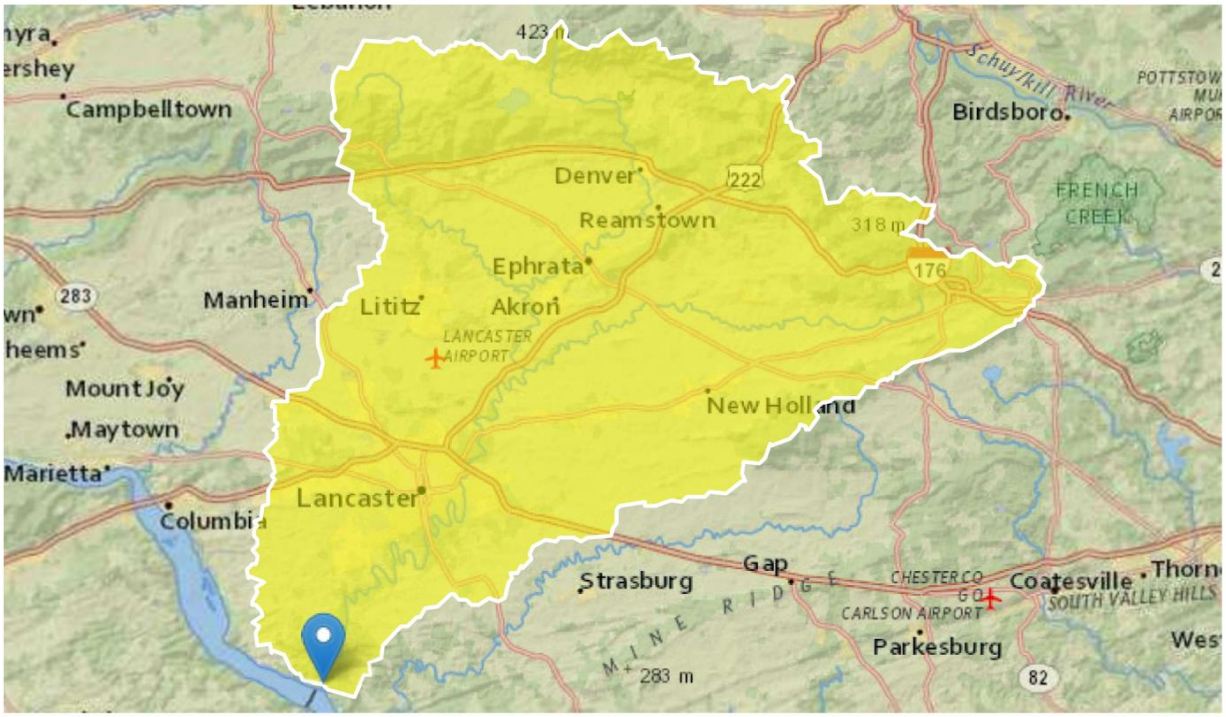

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Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLOPD	Mean basin slope measured in degrees	3.9823	degrees
DRNAREA	Area that drains to a point on a stream	475	square miles
ROCKDEP	Depth to rock	5	feet
URBAN	Percentage of basin with urban development	11.4719	percent

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 1]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
BSLOPD	Mean Basin Slope degrees	3.9823	degrees	1.7	6.4
DRNAREA	Drainage Area	475	square miles	4.78	1150
ROCKDEP	Depth to Rock	5	feet	4.13	5.21
URBAN	Percent Urban	11.4719	percent	0	89

Low-Flow Statistics Flow Report [Low Flow Region 1]

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error, PC: Percent Correct, RMSE: Root Mean Squared Error, PseudoR^2: Pseudo R Squared (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	123	ft^3/s	46	46
30 Day 2 Year Low Flow	155	ft^3/s	38	38
7 Day 10 Year Low Flow	71.4	ft^3/s	51	51
30 Day 10 Year Low Flow	88.1	ft^3/s	46	46
90 Day 10 Year Low Flow	131	ft^3/s	41	41

Low-Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)

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Application Version: 4.28.0
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

Safe Harbor Water Power Corporation PA0032379 Outfall 001

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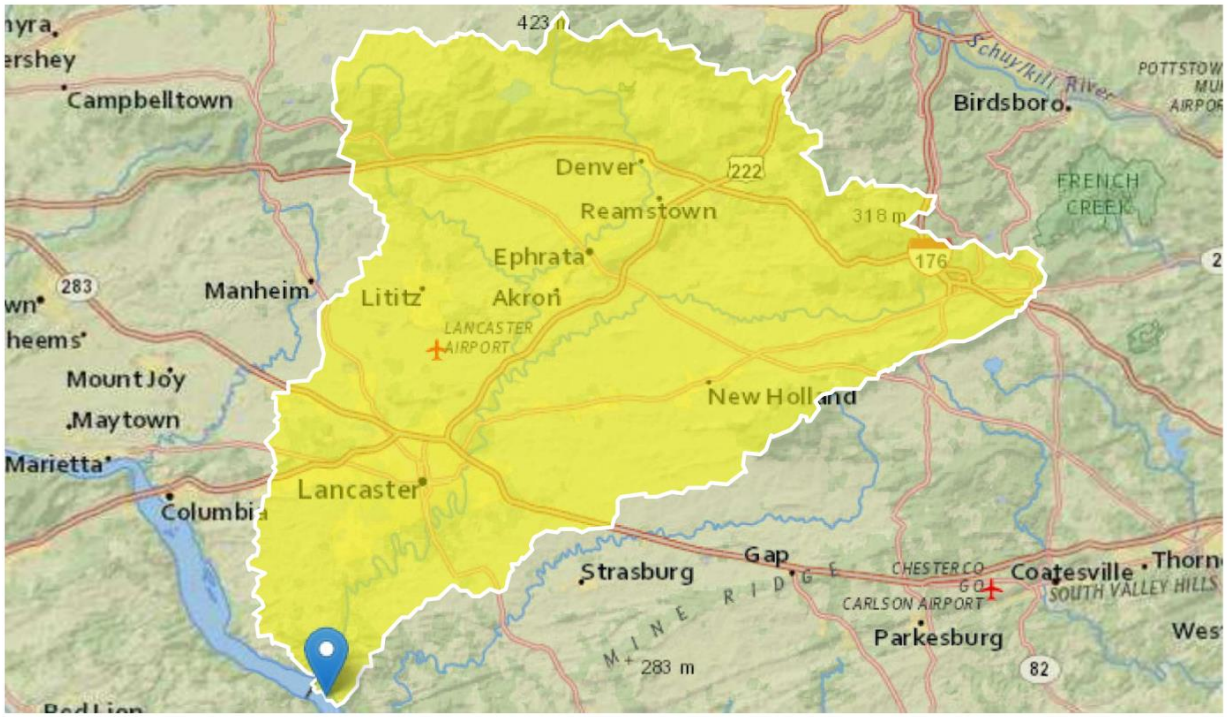

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Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLOPD	Mean basin slope measured in degrees	3.9912	degrees
DRNAREA	Area that drains to a point on a stream	476	square miles
ROCKDEP	Depth to rock	5	feet
URBAN	Percentage of basin with urban development	11.4489	percent

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 1]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
BSLOPD	Mean Basin Slope degrees	3.9912	degrees	1.7	6.4
DRNAREA	Drainage Area	476	square miles	4.78	1150
ROCKDEP	Depth to Rock	5	feet	4.13	5.21
URBAN	Percent Urban	11.4489	percent	0	89

Low-Flow Statistics Flow Report [Low Flow Region 1]

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error, PC: Percent Correct, RMSE: Root Mean Squared Error, PseudoR^2: Pseudo R Squared (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	124	ft^3/s	46	46
30 Day 2 Year Low Flow	156	ft^3/s	38	38
7 Day 10 Year Low Flow	71.8	ft^3/s	51	51
30 Day 10 Year Low Flow	88.5	ft^3/s	46	46
90 Day 10 Year Low Flow	131	ft^3/s	41	41

Low-Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)

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Application Version: 4.28.0
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

Safe Harbor Water Power Corporation PA0032379 Outfall 002

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Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLOPD	Mean basin slope measured in degrees	8.1301	degrees
CARBON	Percentage of area of carbonate rock	6.73	percent
DRNAREA	Area that drains to a point on a stream	26100	square miles
ELEV	Mean Basin Elevation	1326	feet
FOREST	Percentage of area covered by forest	67.6482	percent
GLACIATED	Percentage of basin area that was historically covered by glaciers	45.2392	percent

Parameter Code	Parameter Description	Value	Unit
PRECIP	Mean Annual Precipitation	40	inches
ROCKDEP	Depth to rock	4.5	feet
STRDEN	Stream Density -- total length of streams divided by drainage area	1.75	miles per square mile
URBAN	Percentage of basin with urban development	2.8975	percent

Low-Flow Statistics

Low-Flow Statistics Parameters [4.0 Percent (1100 square miles) Low Flow Region 1]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
BSLOPD	Mean Basin Slope degrees	8.1301	degrees	1.7	6.4
DRNAREA	Drainage Area	26100	square miles	4.78	1150
ROCKDEP	Depth to Rock	4.5	feet	4.13	5.21
URBAN	Percent Urban	2.8975	percent	0	89

Low-Flow Statistics Parameters [42.0 Percent (11100 square miles) Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
CARBON	Percent Carbonate	6.73	percent	0	99
DRNAREA	Drainage Area	26100	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	40	inches	35	50.4
ROCKDEP	Depth to Rock	4.5	feet	3.32	5.65
STRDEN	Stream Density	1.75	miles per square mile	0.51	3.1

Low-Flow Statistics Parameters [6.0 Percent (1600 square miles) Low Flow Region 3]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	26100	square miles	2.33	1720

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
ELEV	Mean Basin Elevation	1326	feet	898	2700
PRECIP	Mean Annual Precipitation	40	inches	38.7	47.9

Low-Flow Statistics Parameters [47.0 Percent (12300 square miles) Low Flow Region 5]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	26100	square miles	4.84	982
FOREST	Percent Forest	67.6482	percent	41	100
GLACIATED	Percent of Glaciation	45.2392	percent	0	100
PRECIP	Mean Annual Precipitation	40	inches	33.1	47.1

Low-Flow Statistics Disclaimers [4.0 Percent (1100 square miles) Low Flow Region 1]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors. Weighted flows were not calculated. Users should be careful to evaluate the applicability of the provided estimates. Percentage of area falls outside where region is undefined. Whole estimates have been provided using available regional equations.

Low-Flow Statistics Flow Report [4.0 Percent (1100 square miles) Low Flow Region 1]

Statistic	Value	Unit
7 Day 2 Year Low Flow	9320	ft^3/s
30 Day 2 Year Low Flow	10400	ft^3/s
7 Day 10 Year Low Flow	7280	ft^3/s
30 Day 10 Year Low Flow	7670	ft^3/s
90 Day 10 Year Low Flow	8190	ft^3/s

Low-Flow Statistics Disclaimers [42.0 Percent (11100 square miles) Low Flow Region 2]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors. Weighted flows were not calculated. Users should be careful to evaluate the applicability of the provided estimates. Percentage of area falls outside where region is undefined. Whole estimates have been provided using available regional equations.

Low-Flow Statistics Flow Report [42.0 Percent (11100 square miles) Low Flow Region 2]

Statistic	Value	Unit
7 Day 2 Year Low Flow	6030	ft^3/s
30 Day 2 Year Low Flow	7120	ft^3/s
7 Day 10 Year Low Flow	4510	ft^3/s
30 Day 10 Year Low Flow	5310	ft^3/s
90 Day 10 Year Low Flow	6590	ft^3/s

Low-Flow Statistics Disclaimers [6.0 Percent (1600 square miles) Low Flow Region 3]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors. Weighted flows were not calculated. Users should be careful to evaluate the applicability of the provided estimates. Percentage of area falls outside where region is undefined. Whole estimates have been provided using available regional equations.

Low-Flow Statistics Flow Report [6.0 Percent (1600 square miles) Low Flow Region 3]

Statistic	Value	Unit
7 Day 2 Year Low Flow	2410	ft^3/s
30 Day 2 Year Low Flow	2980	ft^3/s
7 Day 10 Year Low Flow	1460	ft^3/s
30 Day 10 Year Low Flow	1810	ft^3/s
90 Day 10 Year Low Flow	2480	ft^3/s

Low-Flow Statistics Disclaimers [47.0 Percent (12300 square miles) Low Flow Region 5]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors. Weighted flows were not calculated. Users should be careful to evaluate the applicability of the provided estimates. Percentage of area falls outside where region is undefined. Whole estimates have been provided using available regional equations.

Low-Flow Statistics Flow Report [47.0 Percent (12300 square miles) Low Flow Region 5]

Statistic	Value	Unit
7 Day 2 Year Low Flow	3530	ft^3/s

Statistic	Value	Unit
30 Day 2 Year Low Flow	4460	ft^3/s
7 Day 10 Year Low Flow	2270	ft^3/s
30 Day 10 Year Low Flow	2970	ft^3/s
90 Day 10 Year Low Flow	3840	ft^3/s

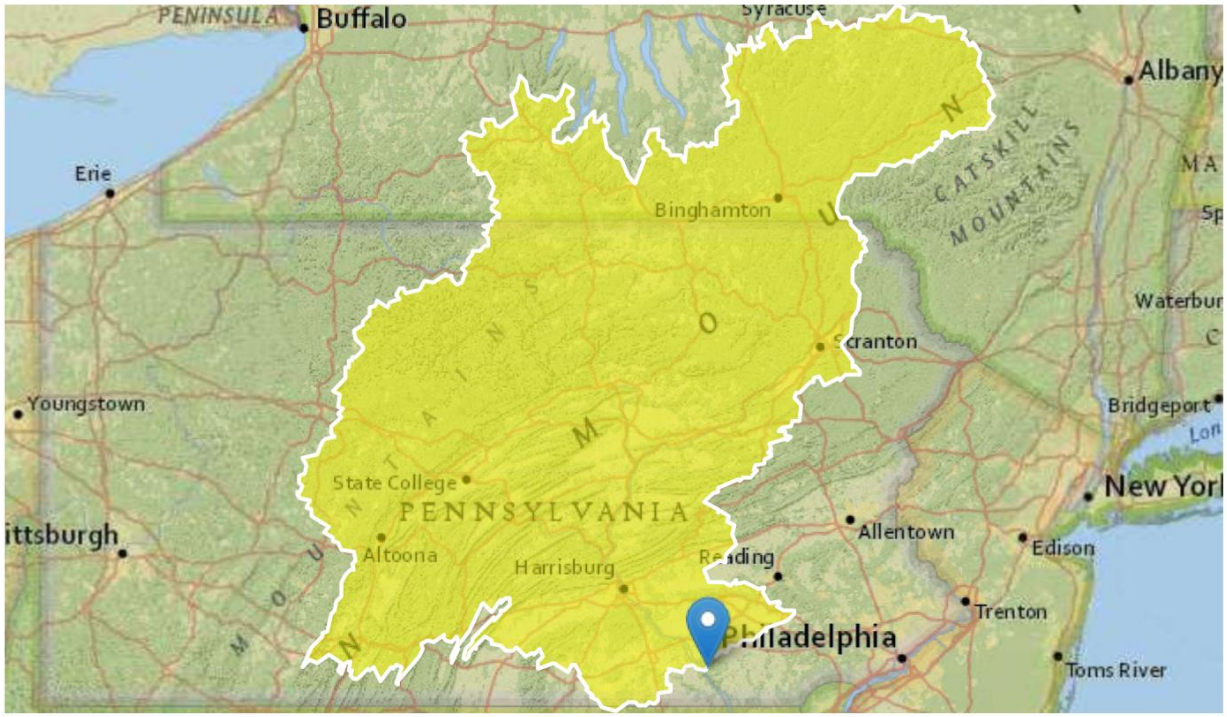
Low-Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)

Application Version: 4.28.0
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

StreamStats Report

Region ID: PA
Workspace ID: PA20250313171150377000
Clicked Point (Latitude, Longitude): 39.89933, -76.37060
Time: 2025-03-13 13:12:36 -0400



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLOPD	Mean basin slope measured in degrees	8.0558	degrees
CARBON	Percentage of area of carbonate rock	7.68	percent
DRNAREA	Area that drains to a point on a stream	26600	square miles
ELEV	Mean Basin Elevation	1311	feet
FOREST	Percentage of area covered by forest	66.8667	percent
GLACIATED	Percentage of basin area that was historically covered by glaciers	44.425	percent

Parameter Code	Parameter Description	Value	Unit
PRECIP	Mean Annual Precipitation	40	inches
ROCKDEP	Depth to rock	4.5	feet
STRDEN	Stream Density -- total length of streams divided by drainage area	1.75	miles per square mile
URBAN	Percentage of basin with urban development	3.0504	percent

Low-Flow Statistics

Low-Flow Statistics Parameters [6.0 Percent (1570 square miles) Low Flow Region 1]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
BSLOPD	Mean Basin Slope degrees	8.0558	degrees	1.7	6.4
DRNAREA	Drainage Area	26600	square miles	4.78	1150
ROCKDEP	Depth to Rock	4.5	feet	4.13	5.21
URBAN	Percent Urban	3.0504	percent	0	89

Low-Flow Statistics Parameters [42.0 Percent (11100 square miles) Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
CARBON	Percent Carbonate	7.68	percent	0	99
DRNAREA	Drainage Area	26600	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	40	inches	35	50.4
ROCKDEP	Depth to Rock	4.5	feet	3.32	5.65
STRDEN	Stream Density	1.75	miles per square mile	0.51	3.1

Low-Flow Statistics Parameters [6.0 Percent (1600 square miles) Low Flow Region 3]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	26600	square miles	2.33	1720

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
ELEV	Mean Basin Elevation	1311	feet	898	2700
PRECIP	Mean Annual Precipitation	40	inches	38.7	47.9

Low-Flow Statistics Parameters [46.0 Percent (12300 square miles) Low Flow Region 5]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	26600	square miles	4.84	982
FOREST	Percent Forest	66.8667	percent	41	100
GLACIATED	Percent of Glaciation	44.425	percent	0	100
PRECIP	Mean Annual Precipitation	40	inches	33.1	47.1

Low-Flow Statistics Disclaimers [6.0 Percent (1570 square miles) Low Flow Region 1]

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

Low-Flow Statistics Flow Report [6.0 Percent (1570 square miles) Low Flow Region 1]

Statistic	Value	Unit
7 Day 2 Year Low Flow	9420	ft^3/s
30 Day 2 Year Low Flow	10500	ft^3/s
7 Day 10 Year Low Flow	7350	ft^3/s
30 Day 10 Year Low Flow	7750	ft^3/s
90 Day 10 Year Low Flow	8310	ft^3/s

Low-Flow Statistics Disclaimers [42.0 Percent (11100 square miles) Low Flow Region 2]

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

Low-Flow Statistics Flow Report [42.0 Percent (11100 square miles) Low Flow Region 2]

Statistic	Value	Unit
7 Day 2 Year Low Flow	6240	ft^3/s

Statistic	Value	Unit
30 Day 2 Year Low Flow	7340	ft^3/s
7 Day 10 Year Low Flow	4680	ft^3/s
30 Day 10 Year Low Flow	5500	ft^3/s
90 Day 10 Year Low Flow	6800	ft^3/s

Low-Flow Statistics Disclaimers [6.0 Percent (1600 square miles) Low Flow Region 3]

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

Low-Flow Statistics Flow Report [6.0 Percent (1600 square miles) Low Flow Region 3]

Statistic	Value	Unit
7 Day 2 Year Low Flow	2440	ft^3/s
30 Day 2 Year Low Flow	3020	ft^3/s
7 Day 10 Year Low Flow	1470	ft^3/s
30 Day 10 Year Low Flow	1830	ft^3/s
90 Day 10 Year Low Flow	2520	ft^3/s

Low-Flow Statistics Disclaimers [46.0 Percent (12300 square miles) Low Flow Region 5]

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

Low-Flow Statistics Flow Report [46.0 Percent (12300 square miles) Low Flow Region 5]

Statistic	Value	Unit
7 Day 2 Year Low Flow	3530	ft^3/s
30 Day 2 Year Low Flow	4470	ft^3/s
7 Day 10 Year Low Flow	2260	ft^3/s
30 Day 10 Year Low Flow	2980	ft^3/s
90 Day 10 Year Low Flow	3840	ft^3/s

Low-Flow Statistics Flow Report [Area-Averaged]

Statistic	Value	Unit
7 Day 2 Year Low Flow	4960	ft^3/s
30 Day 2 Year Low Flow	5950	ft^3/s
7 Day 10 Year Low Flow	3530	ft^3/s
30 Day 10 Year Low Flow	4260	ft^3/s
90 Day 10 Year Low Flow	5270	ft^3/s

Low-Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)

Application Version: 4.28.0
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

Flow Data for Thermal Discharge Analysis

Facility: Safe Harbor Water Power Corporation
Permit Number: PA0032379
Stream Name: Susquehanna River
Analyst/Engineer: Benjamin Lockwood
Stream Q7-10 (cfs): 822

	Facility Flows				Stream Flows			
	Intake (Stream) (MGD)	Intake (External) (MGD)	Consumptive Loss (MGD)	Discharge Flow (MGD)	PMF	Upstream Stream Flow (cfs)	Adjusted Stream Flow (cfs)	Downstream Stream Flow (cfs)
Jan 1-31	3.197	0	0	3.197	1.00	2630.40	2625.45	2630.40
Feb 1-29	3.197	0	0	3.197	1.00	2877.00	2872.05	2877.00
Mar 1-31	3.197	0	0	3.197	1.00	5754.00	5749.05	5754.00
Apr 1-15	3.197	0	0	3.197	1.00	7644.60	7639.65	7644.60
Apr 16-30	3.197	0	0	3.197	1.00	7644.60	7639.65	7644.60
May 1-15	3.197	0	0	3.197	1.00	4192.20	4187.25	4192.20
May 16-31	3.197	0	0	3.197	1.00	4192.20	4187.25	4192.20
Jun 1-15	3.197	0	0	3.197	1.00	2466.00	2461.05	2466.00
Jun 16-30	3.197	0	0	3.197	1.00	2466.00	2461.05	2466.00
Jul 1-31	3.197	0	0	3.197	1.00	1397.40	1392.45	1397.40
Aug 1-15	3.197	0	0	3.197	1.00	1150.80	1145.85	1150.80
Aug 16-31	3.197	0	0	3.197	1.00	1150.80	1145.85	1150.80
Sep 1-15	3.197	0	0	3.197	1.00	904.20	899.25	904.20
Sep 16-30	3.197	0	0	3.197	1.00	904.20	899.25	904.20
Oct 1-15	3.197	0	0	3.197	1.00	986.40	981.45	986.40
Oct 16-31	3.197	0	0	3.197	1.00	986.40	981.45	986.40
Nov 1-15	3.197	0	0	3.197	1.00	1315.20	1310.25	1315.20
Nov 16-30	3.197	0	0	3.197	1.00	1315.20	1310.25	1315.20
Dec 1-31	3.197	0	0	3.197	1.00	1972.80	1967.85	1972.80

Please forward all comments to Tom Starosta at 717-787-4317, tstarosta@state.pa.us.
Version 2.0 -- 07/01/2005 Reference: Implementation Guidance for Temperature Criteria, DEP-ID: 391-2000-017
NOTE: The user can only edit fields that are blue.
NOTE: MGD x 1.547 = cfs.

PA Temperature Criteria and Stream Flow Multipliers

Facility: **Safe Harbor Water Power Corporation**
Permit Number: PA0032379
Stream: Susquehanna River

	WWF Criteria (ºF)	CWF Criteria (ºF)	TSF Criteria (ºF)	316 Criteria (ºF)	Q7-10 Multipliers (Used in Analysis)	Q7-10 Multipliers (Default - Info Only)
Jan 1-31	40	38	40	0	3.2	3.2
Feb 1-29	40	38	40	0	3.5	3.5
Mar 1-31	46	42	46	0	7	7
Apr 1-15	52	48	52	0	9.3	9.3
Apr 16-30	58	52	58	0	9.3	9.3
May 1-15	64	54	64	0	5.1	5.1
May 16-31	72	58	68	0	5.1	5.1
Jun 1-15	80	60	70	0	3	3
Jun 16-30	84	64	72	0	3	3
Jul 1-31	87	66	74	0	1.7	1.7
Aug 1-15	87	66	80	0	1.4	1.4
Aug 16-31	87	66	87	0	1.4	1.4
Sep 1-15	84	64	84	0	1.1	1.1
Sep 16-30	78	60	78	0	1.1	1.1
Oct 1-15	72	54	72	0	1.2	1.2
Oct 16-31	66	50	66	0	1.2	1.2
Nov 1-15	58	46	58	0	1.6	1.6
Nov 16-30	50	42	50	0	1.6	1.6
Dec 1-31	42	40	42	0	2.4	2.4

NOTES:
WWF= Warm water fishes
CWF= Cold water fishes
TSF= Trout stocking

Facility: **Safe Harbor Water Power Corporation**
Permit Number: PA0032379
Stream: Susquehanna River

	WWF Ambient Stream Temperature (ºF) (Default)	Ambient Stream Temperature (ºF) (Site-specific data)	Target Maximum Stream Temp.[1] (ºF)	WWF Daily WLA[2] (Million BTUs/day)	WWF Daily WLA[3] (ºF)	at Discharge Flow (MGD)	PMF
Jan 1-31	35	0	40	70,889	110.0	3.197	1.00
Feb 1-29	35	0	40	77,535	110.0	3.197	1.00
Mar 1-31	40	0	46	186,084	110.0	3.197	1.00
Apr 1-15	47	0	52	206,022	110.0	3.197	1.00
Apr 16-30	53	0	58	206,022	110.0	3.197	1.00
May 1-15	58	0	64	135,576	110.0	3.197	1.00
May 16-31	62	0	72	225,960	110.0	3.197	1.00
Jun 1-15	67	0	80	172,793	110.0	3.197	1.00
Jun 16-30	71	0	84	172,793	110.0	3.197	1.00
Jul 1-31	75	0	87	90,384	110.0	3.197	1.00
Aug 1-15	74	0	87	80,637	110.0	3.197	1.00
Aug 16-31	74	0	87	80,637	110.0	3.197	1.00
Sep 1-15	71	0	84	63,357	110.0	3.197	1.00
Sep 16-30	65	0	78	63,357	110.0	3.197	1.00
Oct 1-15	60	0	72	63,800	110.0	3.197	1.00
Oct 16-31	54	0	66	63,800	110.0	3.197	1.00
Nov 1-15	48	0	58	70,889	110.0	3.197	1.00
Nov 16-30	42	0	50	56,711	110.0	3.197	1.00
Dec 1-31	37	0	42	53,167	110.0	3.197	1.00

[1] This is the maximum of the WWF WQ criterion or the ambient temperature. The ambient temperature may be either the design (median) temperature for WWF, or the ambient stream temperature based on site-specific data entered by the user. A minimum of 1ºF above ambient stream temperature is allocated.
[2] The WLA expressed in Million BTUs/day is valid for Case 1 scenarios, and disabled for Case 2 scenarios.
[3] The WLA expressed in ºF is valid only if the limit is tied to a daily discharge flow limit (may be used for Case 1 or Case 2). WLAs greater than 110ºF are displayed as 110ºF.

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: **Safe Harbor Water Power Corporation** NPDES Permit No.: **PA0032379** Outfall No.: **002**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **NCCW, Stormwater**

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
1.181	100	6.44						

					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		130									
	Chloride (PWS)	mg/L		15.2									
	Bromide	mg/L	<	2.5									
	Sulfate (PWS)	mg/L		23.5									
	Fluoride (PWS)	mg/L	<	0.1									
Group 2	Total Aluminum	µg/L		0.00032									
	Total Antimony	µg/L	<	1									
	Total Arsenic	µg/L	<	1									
	Total Barium	µg/L		0.000033									
	Total Beryllium	µg/L	<	1									
	Total Boron	µg/L	<	1									
	Total Cadmium	µg/L	<	1									
	Total Chromium (III)	µg/L		0.000001									
	Hexavalent Chromium	µg/L		0.00028									
	Total Cobalt	µg/L		0.000002									
	Total Copper	mg/L		0.000035									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L	<	1									
	Dissolved Iron	µg/L		0.000026									
	Total Iron	µg/L		0.00072									
	Total Lead	µg/L		0.0000015									
	Total Manganese	µg/L		0.00011									
	Total Mercury	µg/L	<	0.001									
	Total Nickel	µg/L		0.0000031									
	Total Phenols (Phenolics) (PWS)	µg/L		0.000015									
	Total Selenium	µg/L	<	1									
	Total Silver	µg/L	<	1									
	Total Thallium	µg/L	<	1									
	Total Zinc	mg/L		0.00022									
	Total Molybdenum	µg/L											
	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											

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Toxics Management Spreadsheet
Version 1.4, May 2023

Stream / Surface Water Information

Safe Harbor Water Power Corporation, NPDES Permit No. PA0032379, Outfall 002

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Susquehanna 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	006685	16.9	186	26100			Yes
End of Reach 1		15.5	171	26600			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	16.9	0.1	822									100	7		
End of Reach 1	15.5	0.1	883									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	16.9														
End of Reach 1	15.5														

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Toxics Management Spreadsheet
Version 1.4, May 2023

Model Results

Safe Harbor Water Power Corporation, NPDES Permit No. PA0032379, Outfall 002

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

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.043 Analysis Hardness (mg/l): 100 Analysis pH: 6.95

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	15,097	
Total Antimony	0	0		0	1,100	1,100	22,143	
Total Arsenic	0	0		0	340	340	6,844	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	422,730	
Total Boron	0	0		0	8,100	8,100	163,053	
Total Cadmium	0	0		0	2.014	2.13	42.9	Chem Translator of 0.944 applied
Total Chromium (III)	0	0		0	569.763	1,803	36,295	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	328	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	1,912	
Total Copper	0	0		0	13.439	14.0	282	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	1,644	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	33.2	Chem Translator of 0.85 applied
Total Nickel	0	0		0	468.236	469	9,444	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	76.2	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	1,308	
Total Zinc	0	0		0	117.180	120	2,412	Chem Translator of 0.978 applied

☑ ***CFC*** CCT (min): 720 PMF: 0.295 Analysis Hardness (mg/l): 100 Analysis pH: 6.99

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	29,378	
Total Arsenic	0	0		0	150	150	20,030	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	547,499	
Total Boron	0	0		0	1,600	1,600	213,658	
Total Cadmium	0	0		0	0.246	0.27	36.1	Chem Translator of 0.909 applied
Total Chromium (III)	0	0		0	74.115	86.2	11,508	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	1,388	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	2,537	
Total Copper	0	0		0	8.956	9.33	1,246	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	676,374	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.517	3.18	425	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	121	Chem Translator of 0.85 applied
Total Nickel	0	0		0	52.007	52.2	6,966	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	666	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	1,736	
Total Zinc	0	0		0	118.139	120	16,000	Chem Translator of 0.986 applied

☑ ***THH*** CCT (min): 720 PMF: 0.295 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	748	
Total Arsenic	0	0		0	10	10.0	1,335	
Total Barium	0	0		0	2,400	2,400	320,487	
Total Boron	0	0		0	3,100	3,100	413,963	
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	40,061	
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	133,536	
Total Mercury	0	0		0	0.050	0.05	6.68	
Total Nickel	0	0		0	610	610	81,457	
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	32.0	
Total Zinc	0	0		0	N/A	N/A	N/A	

☑ ***CRL*** CCT (min): 720 PMF: 0.431 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*		*Concentration Limits*				Governing WQBEL	WQBEL Basis	Comments
	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units			

☑ ***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	Discharge Conc < TQL
Total Aluminum	9,677	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	N/A	N/A	Discharge Conc < TQL
Total Arsenic	N/A	N/A	Discharge Conc < TQL
Total Barium	270,953	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	104,510	µg/L	Discharge Conc < TQL
Total Cadmium	27.5	µg/L	Discharge Conc ≤ 10% WQBEL
Total Chromium (III)	11,508	µg/L	Discharge Conc ≤ 10% WQBEL
Hexavalent Chromium	210	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cobalt	1,226	µg/L	Discharge Conc ≤ 10% WQBEL
Total Copper	0.18	mg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	40,061	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	676,374	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	425	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	133,536	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	6.68	µg/L	Discharge Conc < TQL
Total Nickel	6,054	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Selenium	666	µg/L	Discharge Conc < TQL
Total Silver	48.8	µg/L	Discharge Conc ≤ 10% WQBEL
Total Thallium	32.0	µg/L	Discharge Conc < TQL
Total Zinc	1.55	mg/L	Discharge Conc ≤ 10% WQBEL

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
07J	7548	CONESTOGA RIVER (formerly CREE	**0.200**	175.00	475.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.100	0.00	71.40	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Safe Harbor	PA0032379	0.0150	0.0150	0.0150	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	5.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
07J	7548	CONESTOGA RIVER (formerly CREE	**0.200**	175.00	475.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.100	0.00	71.40	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Safe Harbor	PA0032379	0.0150	0.0150	0.0150	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	5.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
07J	7548	CONESTOGA RIVER (formerly CREEK)

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
0.200	71.40	0.00	71.40	.0232	0.00379	1.011	122.32	121.02	0.58	0.021	20.00	7.00
Q1-10 Flow												
0.200	45.70	0.00	45.70	.0232	0.00379	NA	NA	NA	0.45	0.027	20.00	7.00
Q30-10 Flow												
0.200	97.10	0.00	97.10	.0232	0.00379	NA	NA	NA	0.69	0.018	20.00	7.00

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
07J	7548	CONESTOGA RIVER (formerly CREEK)

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
0.200	Safe Harbor	16.76	50	16.76	50	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
0.200	Safe Harbor	1.89	25	1.89	25	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
0.20	Safe Harbor	25	25	25	25	5	5	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
07J	7548	CONESTOGA RIVER (formerly CREEK)

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.200	0.015	20.002	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
122.321	1.011	121.017	0.578
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.01	0.006	0.01	0.700
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.242	10.207	Tsivoglou	5
Reach Travel Time (days)			
0.021			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.002	2.01	0.01	8.24
0.004	2.01	0.01	8.24
0.006	2.01	0.01	8.24
0.008	2.01	0.01	8.24
0.011	2.01	0.01	8.24
0.013	2.01	0.01	8.24
0.015	2.01	0.01	8.24
0.017	2.01	0.01	8.24
0.019	2.01	0.01	8.24
0.021	2.01	0.01	8.24

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
07J	7548	CONESTOGA RIVER (formerly CREEK)

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
0.200	Safe Harbor	PA0032379	0.015	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			5