

Application Type Renewal
Facility Type Industrial
Major / Minor Minor

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

Application No. PA0008435
APS ID 1034120
Authorization ID 1346284

Applicant and Facility Information

Applicant Name	<u>BIF III Holtwood LLC</u>	Facility Name	<u>Holtwood Hydroelectric Station</u>
Applicant Address	<u>482 Old Holtwood Road</u> <u>Holtwood, PA 17532</u>	Facility Address	<u>482 Old Holtwood Road</u> <u>Holtwood, PA 17532</u>
Applicant Contact	<u>Amy Burnett</u>	Facility Contact	<u>Amy Burnett</u>
Applicant Phone	<u>(857) 265-8298</u>	Facility Phone	<u>(857) 265-8298</u>
Client ID	<u>325822</u>	Site ID	<u>242348</u>
SIC Code	<u>4911</u>	Municipality	<u>Martic Township</u>
SIC Description	<u>Trans. & Utilities - Electric Services</u>	County	<u>Lancaster</u>
Date Application Received	<u>December 23, 2019</u>	EPA Waived?	<u>Yes</u>
Date Application Accepted	<u>January 3, 2020</u>	If No, Reason	<u></u>
Purpose of Application	<u>NPDES Renewal.</u>		

Summary of Review

BIF III Holtwood LLC 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 June 25, 2015, and became effective on July 1, 2015. The permit authorized discharge from the existing industrial wastewater facility located in Martic Township, Lancaster County into the Susquehanna River. A transfer application was issued on April 5, 2016 to transfer the permit from Holtwood, LLC, to BIF III Holtwood LLC. The existing permit expiration date was June 30, 2020, and the permit has been administratively extended since that time.

Per the previous fact sheet, Holtwood Hydroelectric Station is a hydroelectric power facility which discharges various wastewaters with low pollutant concentrations. Holtwood has turbine units stretching across the Susquehanna River. Prior to 1999, Holtwood was also operated as a coal-powered steam electric plant. There are 11 outfalls at this facility. Outfall 001 was originally permitted as temporary; however, due to an amendment application in 2012, it was made permanent. The outfall can discharge wastewater from the following sources at a rate of up to 310 gpm:

- Main shaft packing at the conical castings of Unit No.1-7, 11, and 13.
- Packing leaks at the wicket gates and main shaft packing on Unit No. 8-10.
- Packing leaks from the low pressure side of operating cylinder shafts on Units No.1-7, 11, and 13.
- Blowdown from the centrifugal separator.
- Leakage through structural cracks and construction joints.
- Miscellaneous flows from hose use.
- Drainage from MT-4 transformer containment pad.

Approve	Deny	Signatures	Date
X		<i>Benjamin Lockwood</i> Benjamin R. Lockwood / Environmental Engineering Specialist	March 26, 2021
X		/s/ Daniel W. Martin, P.E. / Environmental Engineer Manager	March 30, 2021
X		/s/ Maria D. Bebenek, P.E. / Program Manager	March 30, 2021

Summary of Review

The permit application lists a maximum daily discharge rate of 0.72 mgd. The maximum daily discharge rate from the last year of DMR data was 0.49 mgd.

Outfall 002 receives river leakage and flood water from the operating tunnel flood pump. The discharge only occurs during flooding when the river flow rises to about 350,000 cfs, causing the river leakage to exceed the capacity of two drainage pumps. Normally the two drainage pumps would convey the river leakage to the hydro sump where it would be conveyed to the OWS for treatment. When a discharge does occur, it should generally have the same characteristics as the river. The previous permit application listed a maximum daily discharge rate of 1.15 mgd. Outfall 003 receives river leakage and flood water from No.1 and No.2 plant drainage pumps. The previous permit application listed a maximum daily discharge rate of 1.15 mgd. Outfall 004 receives OWS and miscellaneous wastewater from Units 18 & 19. The application lists a maximum daily discharge rate of 2.88 mgd. The maximum daily discharge rate from the last year of DMR data was 0.626 mgd.

An email from Brookfield Renewable, dated October 23, 2020, indicated that an unpermitted outfall was discovered at the facility. Due to low water, a pipe was discovered that was intermittently discharging water back into the Susquehanna River. The Service Water Pump 2 strainer basket blowdown and the Unit 9 strainer basket blowdown was piped into this old pipe, which is believed to typically be underwater. The pipes from the Pump 2 and Unit 9 strainer basket blowdown were re-routed to go through the OWS system and discharge through Outfall 001.

In a letter dated November 30, 2017, Brookfield Renewable requested interim approval of gate sealing materials to be used at the Holtwood Hydroelectric Station. Brookfield proposed to use the same gate sealing materials as Safe Harbor, which was granted permission by DEP in 2008 to perform field trials of potential gate sealing materials. On March 28, 2018, DEP approved the request on a temporary basis until the NPDES renewal application was submitted to DEP. The approval letter requested the gate sealing materials and application procedures be included in the NPDES renewal application. At this time, Brookfield Renewable has not yet determined which gate sealing material will be permanently used at the facility.

Changes in this renewal permit: No changes were made in this renewal permit.

Supplemental information is located 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 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.	<u>001</u>	Design Flow (MGD)	<u>.72</u>
Latitude	<u>39° 49' 36.36"</u>	Longitude	<u>76° 19' 52.91"</u>
Quad Name	<u>Holtwood</u>	Quad Code	<u>2035</u>
Wastewater Description: <u>OWS & miscellaneous wastewater from units 1-13</u>			
Receiving Waters	<u>Susquehanna River (WWF, MF)</u>	Stream Code	<u>06685</u>
NHD Com ID	<u>57471103</u>	RMI	<u>9.65</u>
Drainage Area	<u>26,800 mi²</u>	Yield (cfs/mi ²)	<u>0.133</u>
Q ₇₋₁₀ Flow (cfs)	<u>3,570</u>	Q ₇₋₁₀ Basis	<u>USGS PA StreamStats</u>
Elevation (ft)	<u>109</u>	Slope (ft/ft)	<u></u>
Watershed No.	<u>7-K</u>	Chapter 93 Class.	<u>WWF, MF</u>
Existing Use	<u>N/A</u>	Existing Use Qualifier	<u>N/A</u>
Exceptions to Use	<u>N/A</u>	Exceptions to Criteria	<u>N/A</u>
Assessment Status	<u>Impaired</u>		
Cause(s) of Impairment	<u>Polychlorinated Biphenyls</u>		
Source(s) of Impairment	<u>Source Unknown</u>		
TMDL Status	<u>N/A</u>	Name	<u>N/A</u>
Nearest Downstream Public Water Supply Intake	<u>Chester Water Authority</u>		
PWS Waters	<u>Susquehanna River</u>	Flow at Intake (cfs)	<u></u>
PWS RMI	<u>1.78</u>	Distance from Outfall (mi)	<u>7.9</u>

Changes Since Last Permit Issuance: None

Other Comments: This discharge is to the headwaters of Conowingo Pond, a 14-mile portion of the Susquehanna River which is bounded upstream by Holtwood Dam and impounded downstream by Conowingo Dam. For the determination of effluent limits in this permit, a Q₇₋₁₀ value will still be used as a conservative approach for protecting the river. From the previous fact sheet, The United States Geologic Survey (USGS) maintains a stream gaging station on the Susquehanna River at Marietta (01576000), which is nearest to the discharge point. For the post-regulation period of 1972-1996, the gage statistics convey a Q₇₋₁₀ low flow yield of 0.146 cfs/mi², based on a drainage area of 25,990 mi². This calculates to a Q₇₋₁₀ of 3,795 cfs. USGS PA StreamStats provided a drainage area of 26,800 mi² and a Q₇₋₁₀ stream flow of 3,570 cfs at the discharge point. This is a close match to the Q₇₋₁₀ found using the USGS stream gaging data, and will be used in this permit application.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	<u>002</u>	Design Flow (MGD)	<u>0</u>
Latitude	<u>39° 49' 36.51"</u>	Longitude	<u>76° 19' 53.87"</u>
Quad Name	<u>Holtwood</u>	Quad Code	<u>2035</u>
Wastewater Description: <u>River leakage and flood water from operating tunnel flood pump</u>			
Receiving Waters	<u>Susquehanna River (WWF, MF)</u>	Stream Code	<u>06685</u>
NHD Com ID	<u>57471103</u>	RMI	<u>9.65</u>
Drainage Area	<u>26,800 mi²</u>	Yield (cfs/mi ²)	<u>0.133</u>
Q ₇₋₁₀ Flow (cfs)	<u>3,570</u>	Q ₇₋₁₀ Basis	<u>USGS PA StreamStats</u>
Elevation (ft)	<u>109</u>	Slope (ft/ft)	<u></u>
Watershed No.	<u>7-K</u>	Chapter 93 Class.	<u>WWF, MF</u>
Existing Use	<u>N/A</u>	Existing Use Qualifier	<u>N/A</u>
Exceptions to Use	<u>N/A</u>	Exceptions to Criteria	<u>N/A</u>
Assessment Status	<u>Impaired</u>		
Cause(s) of Impairment	<u>Polychlorinated Biphenyls</u>		
Source(s) of Impairment	<u>Source Unknown</u>		
TMDL Status	<u>N/A</u>	Name	<u>N/A</u>
Nearest Downstream Public Water Supply Intake	<u>Chester Water Authority</u>		
PWS Waters	<u>Susquehanna River</u>	Flow at Intake (cfs)	<u></u>
PWS RMI	<u>1.78</u>	Distance from Outfall (mi)	<u>7.9</u>

Discharge, Receiving Waters and Water Supply Information

Outfall No.	<u>003</u>	Design Flow (MGD)	<u>0</u>
Latitude	<u>39° 49' 37.35"</u>	Longitude	<u>76° 19' 56.40"</u>
Quad Name	<u>Holtwood</u>	Quad Code	<u>2035</u>
Wastewater Description: <u>River leakage and flood water from No.1 and No.2 plant drainage pumps</u>			
Receiving Waters	<u>Susquehanna River (WWF, MF)</u>	Stream Code	<u>06685</u>
NHD Com ID	<u>57471103</u>	RMI	<u>9.65</u>
Drainage Area	<u>26,800 mi²</u>	Yield (cfs/mi ²)	<u>0.133</u>
Q ₇₋₁₀ Flow (cfs)	<u>3,570</u>	Q ₇₋₁₀ Basis	<u>USGS PA StreamStats</u>
Elevation (ft)	<u>109</u>	Slope (ft/ft)	<u></u>
Watershed No.	<u>7-K</u>	Chapter 93 Class.	<u>WWF, MF</u>
Existing Use	<u>N/A</u>	Existing Use Qualifier	<u>N/A</u>
Exceptions to Use	<u>N/A</u>	Exceptions to Criteria	<u>N/A</u>
Assessment Status	<u>Impaired</u>		
Cause(s) of Impairment	<u>Polychlorinated Biphenyls</u>		
Source(s) of Impairment	<u>Source Unknown</u>		
TMDL Status	<u>N/A</u>	Name	<u>N/A</u>
Nearest Downstream Public Water Supply Intake	<u>Chester Water Authority</u>		
PWS Waters	<u>Susquehanna River</u>	Flow at Intake (cfs)	<u></u>
PWS RMI	<u>1.78</u>	Distance from Outfall (mi)	<u>7.9</u>

Discharge, Receiving Waters and Water Supply Information

Outfall No.	<u>004</u>	Design Flow (MGD)	<u>2.88</u>
Latitude	<u>39° 49' 36.41"</u>	Longitude	<u>76° 19' 48.51"</u>
Quad Name	<u>Holtwood</u>	Quad Code	<u>2035</u>
Wastewater Description: <u>OWS & miscellaneous wastewater from units 18 & 19</u>			
Receiving Waters	<u>Susquehanna River (WWF, MF)</u>	Stream Code	<u>06685</u>
NHD Com ID	<u>57471103</u>	RMI	<u>9.65</u>
Drainage Area	<u>26,800 mi²</u>	Yield (cfs/mi ²)	<u>0.133</u>
Q ₇₋₁₀ Flow (cfs)	<u>3,570</u>	Q ₇₋₁₀ Basis	<u>USGS PA StreamStats</u>
Elevation (ft)	<u>109</u>	Slope (ft/ft)	<u></u>
Watershed No.	<u>7-K</u>	Chapter 93 Class.	<u>WWF, MF</u>
Existing Use	<u>N/A</u>	Existing Use Qualifier	<u>N/A</u>
Exceptions to Use	<u>N/A</u>	Exceptions to Criteria	<u>N/A</u>
Assessment Status	<u>Impaired</u>		
Cause(s) of Impairment	<u>Polychlorinated Biphenyls</u>		
Source(s) of Impairment	<u>Source Unknown</u>		
TMDL Status	<u>N/A</u>	Name	<u>N/A</u>
Nearest Downstream Public Water Supply Intake	<u>Chester Water Authority</u>		
PWS Waters	<u>Susquehanna River</u>	Flow at Intake (cfs)	<u></u>
PWS RMI	<u>1.78</u>	Distance from Outfall (mi)	<u>7.9</u>

Discharge, Receiving Waters and Water Supply Information

Outfall No.	<u>005, 006, 007, 008, 009, 010, 011</u>	Design Flow (MGD)	<u>Variable (Stormwater)</u>
	<u>39° 49' 36.52" (005)</u>		<u>76° 19' 48.35" (005)</u>
	<u>39° 49' 30.13" (006)</u>		<u>76° 19' 43.04" (006)</u>
	<u>39° 49' 32.91" (007)</u>		<u>76° 19' 45.67" (007)</u>
	<u>39° 49' 33.70" (008)</u>		<u>76° 19' 46.25" (008)</u>
	<u>39° 49' 36.16" (009)</u>		<u>76° 19' 48.02" (009)</u>
	<u>39° 49' 36.39" (010)</u>		<u>76° 19' 52.95" (010)</u>
Latitude	<u>39° 49' 45.95" (011)</u>	Longitude	<u>76° 19' 58.06" (011)</u>
Quad Name	<u>Holtwood</u>	Quad Code	<u>2035</u>
Wastewater Description:	<u>Stormwater</u>		

Receiving Waters	<u>Susquehanna River (WWF, MF)</u>	Stream Code	<u>06685</u>
NHD Com ID	<u>57471103</u>	RMI	<u>9.65</u>
Drainage Area	<u>26,800 mi²</u>	Yield (cfs/mi ²)	<u>0.133</u>
Q ₇₋₁₀ Flow (cfs)	<u>3,570</u>	Q ₇₋₁₀ Basis	<u>USGS PA StreamStats</u>
Elevation (ft)	<u>109</u>	Slope (ft/ft)	<u></u>
Watershed No.	<u>7-K</u>	Chapter 93 Class.	<u>WWF, MF</u>
Existing Use	<u>N/A</u>	Existing Use Qualifier	<u>N/A</u>
Exceptions to Use	<u>N/A</u>	Exceptions to Criteria	<u>N/A</u>
Assessment Status	<u>Impaired</u>		
Cause(s) of Impairment	<u>Polychlorinated Biphenyls</u>		
Source(s) of Impairment	<u>Source Unknown</u>		
TMDL Status	<u>N/A</u>	Name	<u>N/A</u>

Nearest Downstream Public Water Supply Intake	<u>Chester Water Authority</u>		
PWS Waters	<u>Susquehanna River</u>	Flow at Intake (cfs)	<u></u>
PWS RMI	<u>1.78</u>	Distance from Outfall (mi)	<u>7.9</u>

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:	<p>4/19/2017: A notification was received from Brookfield Renewable that there was a sheen on the Susquehanna River. The source was determined to be the number 3 Lube Oil Pump at the Hydroelectric Facility. During the inspection, it was noted that the oil came from the old plant, the Legacy Station. A quart of oil had leaked from a pump, and it was not captured in the oil water separator. The oil water separator filters were clogged due to an increase of materials due to recent high flows. The sheen was observed at Outfall 001. Booms and pads were installed. ERC was contacted to clean the oil water separators.</p> <p>3/12/2019: A routine inspection was conducted. A walkthrough of the facility was completed. Four small oil water separators located below the powerhouse building were observed, and no concerns were noted. The separators discharge to Outfall 004, which receives wastewater from units 18 & 19. Outfall 001 receives effluent from two legacy oil water separators, only one of which is typically in use. No concerns were noted. The oil water separators also receive discharge from the oil skimmer. Outfall 002 and 003 discharge river leakage and flood water from the operating tunnel flood and drainage pumps; the outfall locations to the river are not marked. Alarms are tested annually, and the oil water separators are cleaned in May.</p> <p>11/10/2020: An administrative inspection report was conducted. It was noted that on 11/10/2020, notification was provided to DEP that a pipe was identified that was intermittently discharging blowdown water directly to the river, and was not a designated outfall within the NPDES Permit. The pipe was discovered during low river level. Personnel discovered that Service Water Pump 2 strainer basket blowdown and the Unit 9 strainer basket blowdown were discharging from the unpermitted outfall. Both discharges have been re-routed to go through the oil water separator system and are now discharging from Outfall 001. It was requested that Holtwood submit a summary addressing the estimated volume and duration, a description of the discharge and any possible chemicals and/or pollutants that may have been introduced into the wastewater, results for any sampling conducted, and a summary of the re-plumbing/re-routing flows (including associated dates and times).</p>

Other Comments: There are currently no open violations associated with the permittee or the facility.

Compliance History

DMR Data for Outfall 001 (from February 1, 2020 to January 31, 2021)

Parameter	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20	JUN-20	MAY-20	APR-20	MAR-20	FEB-20
Flow (MGD) Average Monthly	0.241	0.277	0.259	0.145	0.230	0.220	0.173	0.255	0.285	0.240	0.411	0.363
Flow (MGD) Daily Maximum	0.241	0.452	0.337	0.259	0.281	0.283	0.214	0.359	0.420	0.425	0.473	0.490
pH (S.U.) Minimum	7.51	7.61	7.74	7.35	7.32	7.16	7.24	7.22	7.11	7.11	7.13	7.4
pH (S.U.) Instantaneous Maximum	7.51	7.61	7.74	7.35	7.32	7.16	7.24	7.22	7.11	7.11	7.13	7.4
TSS (mg/L) Average Monthly	< 1.0	5.0	< 1.0	< 1.0	< 1.0	52.0	< 1.0	< 1.0	< 1.0	7.0	< 1.0	10.0
TSS (mg/L) Daily Maximum	< 1.0	5.0	< 1.0	< 1.0	< 1.0	52.0	< 1.0	< 1.0	< 1.0	7.0	< 1.0	10.0
Oil and Grease (mg/L) Average Monthly	1.6	< 15.0	< 15.0	1.7	< 15.0	3.6	< 15	2.3	< 15.0	1.9	< 15.0	< 15.0
Oil and Grease (mg/L) Daily Maximum	1.6	< 15.0	< 15.0	1.7	< 15.0	3.6	< 15	2.3	< 15.0	1.9	< 15.0	< 15.0

DMR Data for Outfall 003 (from February 1, 2020 to January 31, 2021)

Parameter	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20	JUN-20	MAY-20	APR-20	MAR-20	FEB-20
Flow (MGD) Average Monthly								0.01				0.11
Flow (MGD) Daily Maximum								0.01				0.11

DMR Data for Outfall 004 (from February 1, 2020 to January 31, 2021)

Parameter	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20	JUN-20	MAY-20	APR-20	MAR-20	FEB-20
Flow (MGD) Average Monthly	0.550	0.470	0.232	0.170	0.163	0.262	0.302	0.282	0.326	0.389	0.436	0.435
Flow (MGD) Daily Maximum	0.626	0.625	0.503	0.273	0.320	0.576	0.525	0.352	0.396	0.421	0.461	0.517
pH (S.U.) Minimum	7.70	7.82	7.95	7.57	7.29	7.33	7.47	7.09	7.41	7.29	7.46	7.6

**NPDES Permit Fact Sheet
Holtwood Hydroelectric Station**

NPDES Permit No. PA0008435

pH (S.U.) Instantaneous Maximum	7.70	7.82	7.95	7.57	7.29	7.33	7.47	7.09	7.41	7.29	7.46	7.6
TSS (mg/L) Average Monthly	5.0	5.0	< 1.0	< 1.0	< 1.0	5.0	< 1.0	< 1.0	8.0	10.0	< 1.0	8.0
TSS (mg/L) Daily Maximum	5.0	5.0	< 1.0	< 1.0	< 1.0	5.0	< 1.0	< 1.0	8.0	10.0	< 1.0	8.0
Oil and Grease (mg/L) Average Monthly	< 15.0	3.4	< 15.0	1.2	1.2	1.4	< 15	1.4	< 15.0	2.1	< 15.0	< 15.0
Oil and Grease (mg/L) Daily Maximum	< 15.0	3.4	< 15.0	1.2	1.2	1.4	< 15	1.4	< 15.0	2.1	< 15.0	15.0

Existing Effluent Limitations and Monitoring Requirements

The tables below summarize the effluent limits and monitoring requirements implemented in the existing NPDES permit.

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	1/day	Metered
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/month	Grab
TSS	XXX	XXX	XXX	Report	Report	XXX	1/month	Grab
Oil and Grease	XXX	XXX	XXX	15	30	30	1/month	Grab

Compliance Sampling Location: 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	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Daily when Discharging	Estimate

Compliance Sampling Location: Outfall 002

Outfall 003

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	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Daily when Discharging	Estimate

Compliance Sampling Location: Outfall 003

Outfall 004

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	Metered
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/month	Grab
TSS	XXX	XXX	XXX	Report	Report	XXX	1/month	Grab
Oil and Grease	XXX	XXX	XXX	15	30	30	1/month	Grab

Compliance Sampling Location: Outfall 004

Development of Effluent Limitations

Outfall No.	001	Design Flow (MGD)	.72
Latitude	39° 49' 36.36"	Longitude	76° 19' 52.91"
Wastewater Description: OWS & miscellaneous wastewater from units 1-13			

pH

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

Oil and Grease

DEP's SOP No. BPNPSM-PMT-032 states that if the maximum concentration of oil and grease in the discharge is 4 mg/l or greater, a monitoring requirement should be established. If the maximum concentration of oil and grease is 8 mg/l or greater, the oil and grease treatment requirements at 25 Pa. Code § 95.2(2)(ii) of 15 mg/l average monthly and 30 mg/l Instantaneous Maximum (IMAX) should be established. The application reported a maximum Oil and Grease value of 4.4 mg/l for Outfall 001, which would require monitoring only; however, there is an existing permit limit of 15 mg/l average monthly and 30 mg/l IMAX in the permit for oil and grease, which will remain in the renewal permit due to anti-backsliding requirements.

Total Dissolved Solids (TDS)

Total Dissolved Solids and its major constituents including Bromide, Chloride, and Sulfate have become statewide pollutants of concern and threats to DEP's mission to prevent violations of water quality standards. The requirement to monitor these pollutants must be considered under the criteria specified in 25 Pa. Code § 95.10 and the following January 23, 2014 DEP Central Office Directive:

For point source discharges and upon issuance or reissuance of an individual NPDES permit:

- Where the concentration of TDS in the discharge exceeds 1,000 mg/L, or the net TDS load from a discharge exceeds 20,000 lbs/day, and the discharge flow exceeds 0.1 MGD, Part A of the permit should include monitor and report for TDS, sulfate, chloride, and bromide. Discharges of 0.1 MGD or less should monitor and report for TDS, sulfate, chloride, and bromide if the concentration of TDS in the discharge exceeds 5,000 mg/L.
- Where the concentration of bromide in a discharge exceeds 1 mg/L and the discharge flow exceeds 0.1 MGD, Part A of the permit should include monitor and report for bromide. Discharges of 0.1 MGD or less should monitor and report for bromide if the concentration of bromide in the discharge exceeds 10 mg/L.
- Where the concentration of 1,4-dioxane (CAS 123-91-1) in a discharge exceeds 10 µg/l and the discharge flow exceeds 0.1 mgd, Part A of the permit should include monitor and report for 1,4-dioxane. Discharges of 0.1 mgd or less should monitor and report for 1,4-dioxane if the concentration of 1,4-dioxane in the discharge exceeds 100 µg/l.

Holtwood reported a maximum effluent concentration of 236 mg/l for TDS and 0 mg/l for Bromide for Outfall 001. Based upon the data provided in the application, monitoring of TDS, Bromide, Chloride, and Sulfate will not be required.

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. 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. 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. This facility is classified as a non-significant discharger, From the Phase 3 Supplement, for non-significant IW facilities, monitoring and reporting of TN and TP will be required throughout the permit term in renewed or amended permits anytime the facility has the potential to introduce a net TN or TP increase to the load contained within the intake water used in processing. Due to this facility being categorized as a non-significant discharger, TN and TP monitoring will not be required.

Total Suspended Solids (TSS)

DEP's SOP No. BPNPSM-PMT-032 states that where concentrations of TSS exceed 100 mg/l in the permit application or DMRs, and there is no applicable ELG, Best Professional Judgement (BPJ) TBELs should be developed based on 40 CFR § 125.3. The application reported a maximum TSS concentration of 62 mg/l for Outfall 001, therefore a BPJ TBEL will not be developed. The existing permit includes a monitoring requirement for TSS, which will remain in the permit renewal.

Toxics

Effluent sample results for toxic pollutants reported on the renewal application were entered into DEP's Toxics Management Spreadsheet Version 1.0 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 limits or monitoring requirements. Stream hardness and discharge hardness and pH values were taken from the permit application. The previous permit fact sheet indicated that at river flows of less than 31,500 cfs, all of the river flow is diverted to the turbines and subsequently, the tailrace. Therefore, during low-flow conditions, the entire river flow is available for dilution. The partial mix factors used in the Toxics Management Spreadsheet were estimated based on the unique flow characteristics of the Susquehanna River near and downstream of the discharge point, as detailed in the previous fact sheet. The geography and structural characteristics of the river channel create relatively large amounts of mixing. The angle at which the water discharges from the large powerhouse (which is nearly 90 degrees relative to the direction of the flow immediately downstream) should mix the discharges from the outfalls with a very large portion of the flow within the defined eastern channel of the river. A conservative acute partial mixing factor of 0.25 was applied in the Spreadsheet. Less than one mile down the river, the eastern channel mixes with much of the remaining portion of the river. Satellite view indicate the likelihood of high amounts of mixing at this point as well, with much of the flow from the western portion of the river being directed towards the east bank. In addition, large areas of rapids existing at this point due to the river's shallow depth. With the 12-hour point of chronic mixing existing well beyond this point, an estimate of 0.50 was used for the chronic partial mixing factor. This strategy was applied to the development of limits in this permit as well.

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. Spreadsheet 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 requirements were necessary.

Chemical Additives

According to the application, there are no chemical additives utilized at this facility.

Sampling Frequency & Sample Type

The monitoring requirements were established based on BPJ and/or Table 6-3 and Table 6-4 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 on the 303(d) list as impaired. There is a fish consumption impairment from an unknown source due to PCBs.

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.	<u>002</u>	Design Flow (MGD)	<u>0</u>
Latitude	<u>39° 49' 36.51"</u>	Longitude	<u>76° 19' 53.87"</u>
Wastewater Description:	<u>River leakage and flood water from operating tunnel flood pump</u>		

Technology-Based Limitations

None. As this discharge only consists of river leakage and flood water, flow monitoring will be the only required parameter for this outfall.

Development of Effluent Limitations

Outfall No.	<u>003</u>	Design Flow (MGD)	<u>0</u>
Latitude	<u>39° 49' 37.35"</u>	Longitude	<u>76° 19' 56.40"</u>
Wastewater Description:	<u>River leakage and flood water from No.1 and No.2 plant drainage pumps</u>		

Technology-Based Limitations

None. As this discharge only consists of river leakage and flood water, flow monitoring will be the only required parameter for this outfall.

Development of Effluent Limitations

Outfall No.	004	Design Flow (MGD)	2.88
Latitude	39° 49' 36.41"	Longitude	76° 19' 48.51"
Wastewater Description:	OWS & miscellaneous wastewater from units 18 & 19		

pH

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

Oil and Grease

DEP's SOP No. BPNPSM-PMT-032 states that if the maximum concentration of oil and grease in the discharge is 4 mg/l or greater, a monitoring requirement should be established. If the maximum concentration of oil and grease is 8 mg/l or greater, the oil and grease treatment requirements at 25 Pa. Code § 95.2(2)(ii) of 15 mg/l average monthly and 30 mg/l Instantaneous Maximum (IMAX) should be established. The application reported a maximum Oil and Grease value of 3.8 mg/l for Outfall 004, which would not require monitoring; however, there is an existing permit limit of 15 mg/l average monthly and 30 mg/l IMAX in the permit for oil and grease, which will remain in the renewal permit due to anti-backsliding requirements.

Total Dissolved Solids (TDS)

Total Dissolved Solids and its major constituents including Bromide, Chloride, and Sulfate have become statewide pollutants of concern and threats to DEP's mission to prevent violations of water quality standards. The requirement to monitor these pollutants must be considered under the criteria specified in 25 Pa. Code § 95.10 and the following January 23, 2014 DEP Central Office Directive:

For point source discharges and upon issuance or reissuance of an individual NPDES permit:

- Where the concentration of TDS in the discharge exceeds 1,000 mg/L, or the net TDS load from a discharge exceeds 20,000 lbs/day, and the discharge flow exceeds 0.1 MGD, Part A of the permit should include monitor and report for TDS, sulfate, chloride, and bromide. Discharges of 0.1 MGD or less should monitor and report for TDS, sulfate, chloride, and bromide if the concentration of TDS in the discharge exceeds 5,000 mg/L.
- Where the concentration of bromide in a discharge exceeds 1 mg/L and the discharge flow exceeds 0.1 MGD, Part A of the permit should include monitor and report for bromide. Discharges of 0.1 MGD or less should monitor and report for bromide if the concentration of bromide in the discharge exceeds 10 mg/L.
- Where the concentration of 1,4-dioxane (CAS 123-91-1) in a discharge exceeds 10 µg/l and the discharge flow exceeds 0.1 mgd, Part A of the permit should include monitor and report for 1,4-dioxane. Discharges of 0.1 mgd or less should monitor and report for 1,4-dioxane if the concentration of 1,4-dioxane in the discharge exceeds 100 µg/l.

Holtwood reported a maximum effluent concentration of 236 mg/l for TDS and 0 mg/l for Bromide for Outfall 004. Based upon the data provided in the application, monitoring of TDS, Bromide, Chloride, and Sulfate will not be required.

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. 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. 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. This facility is classified as a non-significant

discharger, From the Phase 3 Supplement, for non-significant IW facilities, monitoring and reporting of TN and TP will be required throughout the permit term in renewed or amended permits anytime the facility has the potential to introduce a net TN or TP increase to the load contained within the intake water used in processing. Due to this facility being categorized as a non-significant discharger, TN and TP monitoring will not be required.

Total Suspended Solids (TSS)

DEP's SOP No. BPNPSM-PMT-032 states that where concentrations of TSS exceed 100 mg/l in the permit application or DMRs, and there is no applicable ELG, Best Professional Judgement (BPJ) TBELs should be developed based on 40 CFR § 125.3. The application reported a maximum TSS concentration of 60 mg/l for Outfall 004, therefore a BPJ TBEL will not be developed. The existing permit includes a monitoring requirement for TSS, which will remain in the permit renewal.

Toxics

Effluent sample results for toxic pollutants reported on the renewal application were entered into DEP's Toxics Management Spreadsheet Version 1.0 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 limits or monitoring requirements. Stream hardness and discharge hardness and pH values were taken from the permit application. The previous permit fact sheet indicated that at river flows of less than 31,500 cfs, all of the river flow is diverted to the turbines and subsequently, the tailrace. Therefore, during low-flow conditions, the entire river flow is available for dilution. The partial mix factors used in the Toxics Management Spreadsheet were estimated based on the unique flow characteristics of the Susquehanna River near and downstream of the discharge point, as detailed in the previous fact sheet. The geography and structural characteristics of the river channel create relatively large amounts of mixing. The angle at which the water discharges from the large powerhouse (which is nearly 90 degrees relative to the direction of the flow immediately downstream) should mix the discharges from the outfalls with a very large portion of the flow within the defined eastern channel of the river. A conservative acute partial mixing factor of 0.25 was applied in the Spreadsheet. Less than one mile down the river, the eastern channel mixes with much of the remaining portion of the river. Satellite view indicate the likelihood of high amounts of mixing at this point as well, with much of the flow from the western portion of the river being directed towards the east bank. In addition, large areas of rapids existing at this point due to the river's shallow depth. With the 12-hour point of chronic mixing existing well beyond this point, an estimate of 0.50 was used for the chronic partial mixing factor. This strategy was applied to the development of limits in this permit as well.

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. Spreadsheet 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 requirements were necessary.

Chemical Additives

According to the application, there are no chemical additives utilized at this facility.

Sampling Frequency & Sample Type

The monitoring requirements were established based on BPJ and/or Table 6-3 and Table 6-4 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 on the 303(d) list as impaired. There is a fish consumption impairment from an unknown source due to PCBs.

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.	005, 006, 007, 008, 009, 010, 011	Design Flow (MGD)	Variable (Stormwater)
	39° 49' 36.52" (005)		76° 19' 48.35" (005)
	39° 49' 30.13" (006)		76° 19' 43.04" (006)
	39° 49' 32.91" (007)		76° 19' 45.67" (007)
	39° 49' 33.70" (008)		76° 19' 46.25" (008)
	39° 49' 36.16" (009)		76° 19' 48.02" (009)
	39° 49' 36.39" (010)		76° 19' 52.95" (010)
Latitude	39° 49' 45.95" (011)	Longitude	76° 19' 58.06" (011)
Wastewater Description:	Stormwater		

Stormwater

Based on the SIC Code of 4911 and the elimination of the steam electric facilities, the hydroelectric facility is exempt from any stormwater monitoring requirements. All outfalls are not associated with industrial areas of the facility. All stormwater associated with industrial activity is directed to the oil-water separators.

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" (362-0400-001), 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	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/day	Metered
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/month	Grab
TSS	XXX	XXX	XXX	Report	Report	XXX	1/month	Grab
Oil and Grease	XXX	XXX	XXX	15	30	30	1/month	Grab

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" (362-0400-001), 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	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Daily when Discharging	Estimate

Compliance Sampling Location: Outfall 002

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" (362-0400-001), SOPs and/or BPJ.

Outfall 003, 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	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Daily when Discharging	Estimate

Compliance Sampling Location: Outfall 003

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" (362-0400-001), SOPs and/or BPJ.

Outfall 004, 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	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/day	Metered
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/month	Grab
TSS	XXX	XXX	XXX	Report	Report	XXX	1/month	Grab
Oil and Grease	XXX	XXX	XXX	15	30	30	1/month	Grab

Compliance Sampling Location: Outfall 004

Other Comments: None

Tools and References Used to Develop Permit	
<input type="checkbox"/>	WQM for Windows Model (see Attachment [redacted])
<input checked="" type="checkbox"/>	Toxics Management Spreadsheet (see Attachment [redacted])
<input type="checkbox"/>	TRC Model Spreadsheet (see Attachment [redacted])
<input type="checkbox"/>	Temperature Model Spreadsheet (see Attachment [redacted])
<input checked="" type="checkbox"/>	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
<input checked="" type="checkbox"/>	Technical Guidance for the Development and Specification of Effluent Limitations, 362-0400-001, 10/97.
<input type="checkbox"/>	Policy for Permitting Surface Water Diversions, 362-2000-003, 3/98.
<input type="checkbox"/>	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96.
<input type="checkbox"/>	Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97.
<input type="checkbox"/>	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97.
<input type="checkbox"/>	Pennsylvania CSO Policy, 385-2000-011, 9/08.
<input type="checkbox"/>	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
<input type="checkbox"/>	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97.
<input checked="" type="checkbox"/>	Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97.
<input type="checkbox"/>	Implementation Guidance Design Conditions, 391-2000-006, 9/97.
<input type="checkbox"/>	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 391-2000-007, 6/2004.
<input type="checkbox"/>	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 391-2000-008, 10/1997.
<input type="checkbox"/>	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 391-2000-010, 3/99.
<input type="checkbox"/>	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004.
<input type="checkbox"/>	Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97.
<input type="checkbox"/>	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 391-2000-014, 4/2008.
<input type="checkbox"/>	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994.
<input type="checkbox"/>	Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09.
<input type="checkbox"/>	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 10/97.
<input type="checkbox"/>	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 391-2000-019, 10/97.
<input type="checkbox"/>	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 3/99.
<input type="checkbox"/>	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 391-2000-022, 3/1999.
<input type="checkbox"/>	Design Stream Flows, 391-2000-023, 9/98.
<input type="checkbox"/>	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 391-2000-024, 10/98.
<input type="checkbox"/>	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97.
<input type="checkbox"/>	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
<input checked="" type="checkbox"/>	SOP: BCW-PMT-032
<input type="checkbox"/>	Other: [redacted]

Enter report title:

BIF III Holtwood LL PA0008435 Outfall 001 RMI = 9.65

Enter comments:

Some comments here

BIF III Holtwood LL PA0008435 Outfall 001 RMI = 9.65

Region ID:

PA

Workspace ID:

PA20210317222427939000

Clicked Point (Latitude, Longitude):

39.82643, -76.33183

Time:

2021-03-17 18:24:57 -0400



Basin Characteristics			
Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	26800	square miles
BSLOPD	Mean basin slope measured in degrees	8.0342	degrees
ROCKDEP	Depth to rock	4.5	feet
URBAN	Percentage of basin with urban development	3.0456	percent
PRECIP	Mean Annual Precipitation	40	inches
STRDEN	Stream Density -- total length of streams divided by drainage area	1.75	miles per square mile
CARBON	Percentage of area of carbonate rock	7.97	percent
ELEV	Mean Basin Elevation	1305	feet
GLACIATED	Percentage of basin area that was historically covered by glaciers	44.0939	percent
FOREST	Percentage of area covered by forest	66.6007	percent

Low-Flow Statistics Parameters (7 Percent (1770 square miles) Low-Flow Region 1)					
Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	26800	square miles	4.78	1150
BSLOPD	Mean Basin Slope degrees	8.0342	degrees	1.7	6.4
ROCKDEP	Depth to Rock	4.5	feet	4.13	5.21
URBAN	Percent Urban	3.0456	percent	0	89

Low-Flow Statistics Parameters (61 Percent (1100 square miles) Low-Flow Region 2)					
Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	26800	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	40	inches	35	50.4
STRDEN	Stream Density	1.75	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	4.5	feet	3.32	5.65
CARBON	Percent Carbonate	7.97	percent	0	99

Low-Flow Statistics Parameters (85 Percent (1610 square miles) Low-Flow Region 3)					
Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	26800	square miles	2.33	1720
ELEV	Mean Basin Elevation	1305	feet	898	2700
PRECIP	Mean Annual Precipitation	40	inches	38.7	47.9

Low-Flow Statistics Parameters (66 Percent (1200 square miles) Low-Flow Region 4)					
Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	26800	square miles	4.84	982
PRECIP	Mean Annual Precipitation	40	inches	33.1	47.1
GLACIATED	Percent of Glaciation	44.0939	percent	0	100

FOREST	Percent Forest	66.6009	percent	41	100
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Low-Flow Statistics Disclaimers: (7) Percent (1770 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: (7) Percent (1770 square miles) Low Flow Region 1

Statistic	Value	Unit
7 Day 2 Year Low Flow	9460	ft ³ /s
30 Day 2 Year Low Flow	10500	ft ³ /s
7 Day 10 Year Low Flow	7370	ft ³ /s
30 Day 10 Year Low Flow	7780	ft ³ /s
90 Day 10 Year Low Flow	8350	ft ³ /s

Low-Flow Statistics Disclaimers: (41) 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: (41) Percent (11100 square miles) Low Flow Region 2

Statistic	Value	Unit
7 Day 2 Year Low Flow	6320	ft ³ /s
30 Day 2 Year Low Flow	7430	ft ³ /s
7 Day 10 Year Low Flow	4740	ft ³ /s
30 Day 10 Year Low Flow	5570	ft ³ /s
90 Day 10 Year Low Flow	6880	ft ³ /s

Low-Flow Statistics Disclaimers: (5) Percent (1010 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: (5) Percent (1010 square miles) Low Flow Region 3

Statistic	Value	Unit
7 Day 2 Year Low Flow	2450	ft ³ /s
30 Day 2 Year Low Flow	3030	ft ³ /s
7 Day 10 Year Low Flow	1480	ft ³ /s
30 Day 10 Year Low Flow	1840	ft ³ /s
90 Day 10 Year Low Flow	2530	ft ³ /s

Low-Flow Statistics Disclaimers: (46) Percent (12200 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: (46) Percent (12200 square miles) Low Flow Region 3

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

Low-Flow Statistics Disclaimers(5 Percent (1610 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(5 Percent (1610 square miles) Low-Flow Region 2)

Statistic	Value	Unit
7 Day 2 Year Low Flow	2450	ft ³ /s
30 Day 2 Year Low Flow	3030	ft ³ /s
7 Day 10 Year Low Flow	1480	ft ³ /s
30 Day 10 Year Low Flow	1840	ft ³ /s
90 Day 10 Year Low Flow	2530	ft ³ /s

Low-Flow Statistics Disclaimers(10 Percent (12200 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(10 Percent (12200 square miles) Low-Flow Region 2)

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	2250	ft ³ /s
30 Day 10 Year Low Flow	2980	ft ³ /s
90 Day 10 Year Low Flow	3850	ft ³ /s

Low-Flow Statistics Flow Report(1000-Average)

Statistic	Value	Unit
7 Day 2 Year Low Flow	5000	ft ³ /s
30 Day 2 Year Low Flow	6000	ft ³ /s
7 Day 10 Year Low Flow	3570	ft ³ /s
30 Day 10 Year Low Flow	4290	ft ³ /s
90 Day 10 Year Low Flow	5310	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.](#)

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Approved for Release: 2/2/20

Some comments here

BIF III Holtwood LLC PA0008435 Downstream Point RMI = 5.4

Region ID: PA
 Workspace ID: PA20210318114002071000
 Clicked Point (Latitude, Longitude): 39.78497, -76.27596
 Time: 2021-03-18 07:40:29 -0400



Basin Characteristics			
Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	26900	square miles
BSLOPD	Mean basin slope measured in degrees	8.0252	degrees
ROCKDEP	Depth to rock	4.5	feet
URBAN	Percentage of basin with urban development	3.0317	percent
PRECIP	Mean Annual Precipitation	40	inches
STRDEN	Stream Density -- total length of streams divided by drainage area	1.75	miles per square mile
CARBON	Percentage of area of carbonate rock	7.93	percent
ELEV	Mean Basin Elevation	1301	feet
GLACIATED	Percentage of basin area that was historically covered by glaciers	43.8347	percent
FOREST	Percentage of area covered by forest	66.41	percent

Low-Flow Statistics Parameters: Percent (1930 square miles) Low-Flow Region 1

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	26900	square miles	4.78	1150
BSLOPD	Mean Basin Slope degrees	8.0252	degrees	1.7	6.4
ROCKDEP	Depth to Rock	4.5	feet	4.13	5.21
URBAN	Percent Urban	3.0317	percent	0	89

Low-Flow Statistics Parameters: Percent (11100 square miles) Low-Flow Region 2

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	26900	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	40	inches	35	50.4
STRDEN	Stream Density	1.75	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	4.5	feet	3.32	5.65
CARBON	Percent Carbonate	7.93	percent	0	99

Low-Flow Statistics Parameters: Percent (1610 square miles) Low-Flow Region 3

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	26900	square miles	2.33	1720
ELEV	Mean Basin Elevation	1301	feet	898	2700
PRECIP	Mean Annual Precipitation	40	inches	38.7	47.9

Low-Flow Statistics Parameters: Percent (12000 square miles) Low-Flow Region 4

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	26900	square miles	4.84	982
PRECIP	Mean Annual Precipitation	40	inches	33.1	47.1
GLACIATED	Percent of Glaciation	43.8347	percent	0	100
FOREST	Percent Forest	66.41	percent	41	100

Low-Flow Statistics Disclaimers: Percent (1920 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: Percent (1890 square miles) Low-Flow Region 1

Statistic	Value	Unit
7 Day 2 Year Low Flow	9480	ft ³ /s
30 Day 2 Year Low Flow	10600	ft ³ /s
7 Day 10 Year Low Flow	7390	ft ³ /s
30 Day 10 Year Low Flow	7800	ft ³ /s
90 Day 10 Year Low Flow	8370	ft ³ /s

Low-Flow Statistics Disclaimers: Percent (11100 square miles) Low-Flow Region 2

Low-Flow Statistics Disclaimers(41 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(41 Percent (11100 square miles) Low Flow Region 2)

Statistic	Value	Unit
7 Day 2 Year Low Flow	6340	ft ³ /s
30 Day 2 Year Low Flow	7450	ft ³ /s
7 Day 10 Year Low Flow	4760	ft ³ /s
30 Day 10 Year Low Flow	5590	ft ³ /s
90 Day 10 Year Low Flow	6900	ft ³ /s

Low-Flow Statistics Disclaimers(6 Percent (1610 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 Percent (1610 square miles) Low Flow Region 3)

Statistic	Value	Unit
7 Day 2 Year Low Flow	2450	ft ³ /s
30 Day 2 Year Low Flow	3040	ft ³ /s
7 Day 10 Year Low Flow	1480	ft ³ /s
30 Day 10 Year Low Flow	1850	ft ³ /s
90 Day 10 Year Low Flow	2530	ft ³ /s

Low-Flow Statistics Disclaimers(46 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 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	2240	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 Flow Report(Arise-Averaged)

Statistic	Value	Unit
7 Day 2 Year Low Flow	5040	ft ³ /s
30 Day 2 Year Low Flow	6040	ft ³ /s
7 Day 10 Year Low Flow	3590	ft ³ /s
30 Day 10 Year Low Flow	4320	ft ³ /s
90 Day 10 Year Low Flow	5340	ft ³ /s



Discharge Information

Instructions Discharge Stream

Facility: BIF III Holtwood LLC NPDES Permit No.: PA0008435 Outfall No.: 001

Evaluation Type: Major Sewage / Industrial Waste Wastewater Description: OWS & miscellaneous wastewater

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q ₇₋₁₀	Q _h
0.72	147	7.79	0.25	0.5	0.5	0.5		

Discharge Pollutant	Units	Max Discharge Conc	0 if left blank		0.5 if left blank		0 if left blank		1 if left blank		
			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	236								
	Chloride (PWS)	mg/L	38.5								
	Bromide	mg/L									
	Sulfate (PWS)	mg/L	50.7								
	Fluoride (PWS)	mg/L	0.1								
Group 2	Total Aluminum	mg/L	1.44								
	Total Antimony	mg/L	0.0018								
	Total Arsenic	mg/L	0.0014								
	Total Barium	mg/L	0.044								
	Total Beryllium	µg/L									
	Total Boron	mg/L	0.027								
	Total Cadmium	µg/L									
	Total Chromium (III)	µg/L									
	Hexavalent Chromium	µg/L									
	Total Cobalt	µg/L									
	Total Copper	mg/L	0.0068								
	Free Cyanide	µg/L									
	Total Cyanide	mg/L	0.069								
	Dissolved Iron	mg/L	0.022								
	Total Iron	mg/L	2.4								
	Total Lead	mg/L	0.0041								
	Total Manganese	mg/L	0.093								
	Total Mercury	µg/L	0.33								
	Total Nickel	mg/L	0.0043								
	Total Phenols (Phenolics) (PWS)	µg/L									
Total Selenium	µg/L										
Total Silver	µg/L										
Total Thallium	mg/L	0.0014									
Total Zinc	mg/L	0.021									
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	<																	
	1,1,1,2-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)Anthracene	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																		



Stream / Surface Water Information

BIF III Holtwood LLC, NPDES Permit No. PA0008435, Outfall 001

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	008685	9.65	109	28800			Yes
End of Reach 1	008685	5.4	108	28900			Yes

Q₇₋₁₀

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	9.65	0.1	3570									175	7		
End of Reach 1	5.4	0.1	3590												

Q_n

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	9.65														
End of Reach 1	5.4														



Model Results

BIF III Holtwood LLC, NPDES Permit No. PA0008435, Outfall 001

Instructions

Results

RETURN TO INPUTS

SAVE AS PDF

PRINT

All

Inputs

Results

Limits

Hydrodynamics

Q₇₋₁₀

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
9.65	3,570		3,570	1.114	0.00013	0.624	2753.908	4416.624	2.08	0.125	1824810.432
5.4	3,590		3,590								

Q_h

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
9.65	9462.83		9462.83	1.114	0.00013	0.957	2753.908	2876.42	3.589	0.072	950465.649
5.4	9509.143		9509.14								

Wasteload Allocations

AFC

CCT (min):

PMF:

Analysis Hardness (mg/l):

Analysis pH:

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	601,712	
Total Antimony	0	0		0	1,100	1,100	882,510	
Total Arsenic	0	0		0	340	340	272,778	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	16,847,923	
Total Boron	0	0		0	8,100	8,100	6,498,485	
Total Copper	0	0		0	22.766	23.7	19,025	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	118.073	166	133,516	Chem Translator of 0.709 applied
Total Manganese	0	0		0	N/A	N/A	N/A	

Total Mercury	0	0		0	1,400	1.65	1,321	Chem Translator of 0.85 applied
Total Nickel	0	0		0	751,628	753	604,224	Chem Translator of 0.998 applied
Total Thallium	0	0		0	65	65.0	52,148	
Total Zinc	0	0		0	188,238	192	154,417	Chem Translator of 0.978 applied

CFC CCT (min): PMF: Analysis Hardness (mg/l): Analysis pH:

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	352,784	
Total Arsenic	0	0		0	150	150	240,535	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	6,574,613	
Total Boron	0	0		0	1,600	1,600	2,565,703	
Total Copper	0	0		0	14,448	15.0	24,130	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	4,809,192	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	4,602	6.49	10,401	Chem Translator of 0.709 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	1,453	Chem Translator of 0.85 applied
Total Nickel	0	0		0	83,489	83.7	134,283	Chem Translator of 0.997 applied
Total Thallium	0	0		0	13	13.0	20,846	
Total Zinc	0	0		0	189,794	192	308,668	Chem Translator of 0.986 applied

THH CCT (min): PMF: Analysis Hardness (mg/l): Analysis pH:

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	8,980	
Total Arsenic	0	0		0	10	10.0	16,036	
Total Barium	0	0		0	2,400	2,400	3,848,554	
Total Boron	0	0		0	3,100	3,100	4,971,049	
Total Copper	0	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	300	300	481,069	
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	1,603,564	

Total Mercury	0	0		0	0.050	0.05	80.2	
Total Nickel	0	0		0	610	610	978,174	
Total Thallium	0	0		0	0.24	0.24	385	
Total Zinc	0	0		0	N/A	N/A	N/A	

CRL CCT (min): PMF: Analysis Hardness (mg/l): Analysis pH:

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 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 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:

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
Sulfate (PWS)	N/A	N/A	PWS Not Applicable
Fluoride (PWS)	N/A	N/A	PWS Not Applicable
Total Aluminum	386	mg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	8.98	mg/L	Discharge Conc ≤ 10% WQBEL
Total Arsenic	16.0	mg/L	Discharge Conc ≤ 10% WQBEL
Total Barium	3,849	mg/L	Discharge Conc ≤ 10% WQBEL
Total Boron	2,566	mg/L	Discharge Conc ≤ 10% WQBEL
Total Copper	12.2	mg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	481	mg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	4,809	mg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	10.4	mg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	1,604	mg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	80.2	µg/L	Discharge Conc ≤ 10% WQBEL
Total Nickel	134	mg/L	Discharge Conc ≤ 10% WQBEL
Total Thallium	0.38	mg/L	Discharge Conc ≤ 10% WQBEL
Total Zinc	99.0	mg/L	Discharge Conc ≤ 10% WQBEL



Discharge Information

Instructions Discharge Stream

Facility: BIF III Holtwood LLC NPDES Permit No.: PA0008435 Outfall No.: 004

Evaluation Type: Major Sewage / Industrial Waste Wastewater Description: OWS & miscellaneous wastewater

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 _n
2.88	153	8.08	0.25	0.5	0.5	0.5		

Discharge Pollutant	Units	Max Discharge Conc	0 if left blank		0.5 if left blank		0 if left blank			1 if left blank	
			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	354									
Chloride (PWS)	mg/L	38.3									
Bromide	mg/L										
Sulfate (PWS)	mg/L	50.9									
Fluoride (PWS)	mg/L	0.12									
Group 2											
Total Aluminum	mg/L	0.115									
Total Antimony	mg/L										
Total Arsenic	mg/L	0.0031									
Total Barium	mg/L	0.044									
Total Beryllium	µg/L										
Total Boron	mg/L	0.03									
Total Cadmium	µg/L										
Total Chromium (III)	mg/L	0.0011									
Hexavalent Chromium	µg/L										
Total Cobalt	µg/L										
Total Copper	mg/L	0.0029									
Free Cyanide	µg/L										
Total Cyanide	mg/L	0.049									
Dissolved Iron	mg/L										
Total Iron	mg/L	0.2									
Total Lead	mg/L										
Total Manganese	mg/L	0.087									
Total Mercury	µg/L	0.24									
Total Nickel	mg/L	0.0023									
Total Phenols (Phenolics) (PWS)	µg/L										
Total Selenium	µg/L										
Total Silver	µg/L										
Total Thallium	mg/L										
Total Zinc	mg/L	0.0068									
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	<																			
	1,1,1,2-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)Anthracene	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																		



Stream / Surface Water Information

BIF III Holtwood LLC, NPDES Permit No. PA0008435, Outfall 004

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	008885	9.65	109	26800			Yes
End of Reach 1	008885	5.4	108	26900			Yes

Q₇₋₁₀

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	9.65	0.1	3570									175	7		
End of Reach 1	5.4	0.1	3590												

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	9.65														
End of Reach 1	5.4														



Model Results

BIF III Holtwood LLC, NPDES Permit No. PA0008435, Outfall 004

Instructions

Results

RETURN TO INPUTS

SAVE AS PDF

PRINT

All

Inputs

Results

Limits

Hydrodynamics

Q₇₋₁₀

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
9.65	3,570		3,570	4.455	0.00013	0.623	2758.265	4428.785	2.081	0.125	1830374.766
5.4	3,590		3,590								

Q_h

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
9.65	9462.83		9462.83	4.455	0.00013	0.956	2758.265	2885.08	3.59	0.072	963883.017
5.4	9509.143		9509.14								

Wasteload Allocations

AFC

CCT (min):

PMF:

Analysis Hardness (mg/l):

Analysis pH:

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	150,990	
Total Arsenic	0	0		0	340	340	68,449	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	4,227,731	
Total Boron	0	0		0	8,100	8,100	1,630,696	
Total Chromium (III)	0	0		0	900,576	2,850	573,748	Chem Translator of 0.316 applied
Total Copper	0	0		0	22,756	23.7	4,772	Chem Translator of 0.96 applied
Total Iron	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	332	Chem Translator of 0.85 applied
Total Nickel	0	0		0	751.355	753	151,566	Chem Translator of 0.998 applied

Total Zinc	0	0		0	188.170	192	38,735	Chem Translator of 0.978 applied

CFC CCT (min): PMF: Analysis Hardness (mg/l): Analysis pH:

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 Arsenic	0	0		0	150	150	60,248	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	1,646,728	
Total Boron	0	0		0	1,600	1,600	642,626	
Total Chromium (III)	0	0		0	117.176	136	54,724	Chem Translator of 0.86 applied
Total Copper	0	0		0	14.443	15.0	6,043	Chem Translator of 0.96 applied
Total Iron	0	0		0	1,500	1,500	1,203,423	WQC = 30 day average; PMF = 1
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	384	Chem Translator of 0.85 applied
Total Nickel	0	0		0	83.474	83.7	33,628	Chem Translator of 0.997 applied
Total Zinc	0	0		0	189.760	192	77,297	Chem Translator of 0.986 applied

THH CCT (min): PMF: Analysis Hardness (mg/l): Analysis pH:

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 Arsenic	0	0		0	10	10.0	4,016	
Total Barium	0	0		0	2,400	2,400	963,938	
Total Boron	0	0		0	3,100	3,100	1,245,087	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	1,000	1,000	401,641	
Total Mercury	0	0		0	0.050	0.05	20.1	
Total Nickel	0	0		0	610	610	245,001	

Total Zinc	0	0				0	N/A	N/A	N/A

CRL CCT (min): PMF: Analysis Hardness (mg/l): Analysis pH:

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 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 Chromium (III)	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	N/A	N/A	N/A	
Total Nickel	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	

Recommended WQBELs & Monitoring Requirements

No. Samples/Month:

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
Sulfate (PWS)	N/A	N/A	PWS Not Applicable
Fluoride (PWS)	N/A	N/A	PWS Not Applicable
Total Aluminum	96.8	mg/L	Discharge Conc ≤ 10% WQBEL
Total Arsenic	4.02	mg/L	Discharge Conc ≤ 10% WQBEL
Total Barium	964	mg/L	Discharge Conc ≤ 10% WQBEL
Total Boron	643	mg/L	Discharge Conc ≤ 10% WQBEL
Total Chromium (III)	54.7	mg/L	Discharge Conc ≤ 10% WQBEL
Total Copper	3.08	mg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS
Total Iron	1,203	mg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	402	mg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	20.1	µg/L	Discharge Conc ≤ 10% WQBEL
Total Nickel	33.8	mg/L	Discharge Conc ≤ 10% WQBEL
Total Zinc	24.8	mg/L	Discharge Conc ≤ 10% WQBEL