pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0044628**
Facility Type	**Industrial**	APS ID	**643772**
Major / Minor	**Minor**	Authorization ID	**1308741**

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

Applicant and Facility Information

Applicant Name	**York Haven Power Co. LLC**	Facility Name	**York Haven Hydroelectric Power Station**
Applicant Address	PO Box 67	Facility Address	1 Hydro Park Drive & Locust Street
	York Haven, PA 17370-0067		York Haven, PA 17370
Applicant Contact	Thomas O'Connor	Facility Contact	Thomas O'Connor
Applicant Phone	(717) 266-9470	Facility Phone	(717) 266-9470
Client ID	262759	Site ID	451696
SIC Code	4911	Municipality	York Haven Borough
SIC Description	Trans. & Utilities - Electric Services	County	York
Date Application Received	March 3, 2020	EPA Waived?	Yes
Date Application Accepted	March 17, 2020	If No, Reason	

Purpose of Application: This is an application for NPDES renewal.

Approve	Deny	Signatures	Date
X		Nicholas Hong, P.E. / Environmental Engineer Nick Hong (via electronic signature)	December 8, 2021
x		Daniel W. Martin, P.E. / Environmental Engineer Manager Maria D. Bebenek for Daniel W. Martin	December 14, 2021
x		Maria Bebenek, P.E. / Environmental Program Manager Maria D. Bebenek	December 14, 2021

Summary of Review

The application submitted by the applicant requests a NPDES renewal permit for the York Haven Power Company, LLC located at 1 Hydro Park Drive & Locust Street, York Haven, PA 17370 in York County, municipality of York Haven. The existing permit became effective on September 1, 2015 and expired on August 31, 2020. The application for renewal was received by DEP Southcentral Regional Office (SCRO) on March 3, 2020.

The purpose of this Fact Sheet is to present the basis of information used for establishing the proposed NPDES permit effluent limitations. The Fact Sheet includes a description of the facility, a description of the facility's receiving waters, a description of the facility's receiving waters attainment/non-attainment assessment status, and a description of any changes to the proposed monitoring/sampling frequency. Section 6 provides the justification for the proposed NPDES effluent limits derived from technology based effluent limits (TBEL), water quality based effluent limits (WQBEL), total maximum daily loading (TMDL), antidegradation, anti-backsliding, and/or whole effluent toxicity (WET). A brief summary of the outlined descriptions has been included in the Summary of Review section.

The subject facility is a 0.259 MGD treatment facility. The applicant did not indicate on the application if the facility anticipates any proposed upgrades to the treatment facility in the next five years. The NPDES application has been processed as an Industrial Wastewater Facility due to the type of wastewater and the design flow rate for the facility. The applicant disclosed the Act 14 requirement to York County and Borough Council of York Haven Borough and the notice was received by the parties on January 28, 2020. Since the facility is an industrial wastewater facility, planning approval is not applicable or necessary.

Utilizing the DEP's web-based Emap-PA information system, the receiving waters has been determined to be the Susquehanna River. The Susquehanna River eventually drains into the Chesapeake Bay. The subject site is not subject to the Chesapeake Bay implementation requirements. The receiving water has protected water usage for warm water fishes (WWF) and migratory fishes (MF). No Class A Wild Trout fisheries are impacted by this discharge. The absence of high quality and/or exceptional value surface waters removes the need for an additional evaluation of anti-degradation requirements.

The Susquehanna River is a Category 5 stream listed in the 2020 Integrated List of All Waters (formerly 303d Listed Streams). This stream is an impaired stream for aquatic life due to pH/acidity/caustic conditions from an unknown source. The receiving water is also impaired for fish consumption due to PCBs from an unknown source. The receiving waters is not subject to a total maximum daily load (TMDL) plan to improve water quality in the subject facility's watershed.

The existing permit and proposed permit differ as follows:

- **There are no changes to the monitoring frequency or permit limits.**
- **Permit conditions include requirements for cooling water intake structures**

Sludge use and disposal description and location(s): Since the facility discharges non-contact cooling water, biosolids disposal is not suspected.

The proposed permit will expire five (5) years from the effective date.

Based on the review in this report, it is recommended that the permit be drafted. 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.

Any additional information or public review of documents associated with the discharge or facility may be available at PA DEP Southcentral Regional Office (SCRO), 909 Elmerton Avenue, Harrisburg, PA 17110. To make an appointment for file review, contact the SCRO File Review Coordinator at 717.705.4700.

1.0 Applicant

1.1 General Information

This fact sheet summarizes PA Department of Environmental Protection's review for the NPDES renewal for the following subject facility.

Facility Name:	York Haven Hydroelectric Station
NPDES Permit #	PA0044628
Physical Address:	1 Hydro Park Drive & Locust Street York Haven, PA 17370
Mailing Address:	PO Box 67 York Haven, PA 17370
Contact:	Thomas O'Conner Regional Operations Manager toconner@cubehydro.com
Consultant:	There was not a consultant utilized for this NPDES renewal.

1.2 Permit History

Permit submittal included the following information.

- NPDES Application
- Flow Diagrams
- Effluent Sample Data

2.0 Treatment Facility Summary

2.1.1 Site location

The physical address for the facility is 1 Hydro Park Drive & Locust Street, York Haven, PA 17370. A topographical and an aerial photograph of the facility are depicted as Figure 1 and Figure 2.

Figure 1: Topographical map of the subject facility

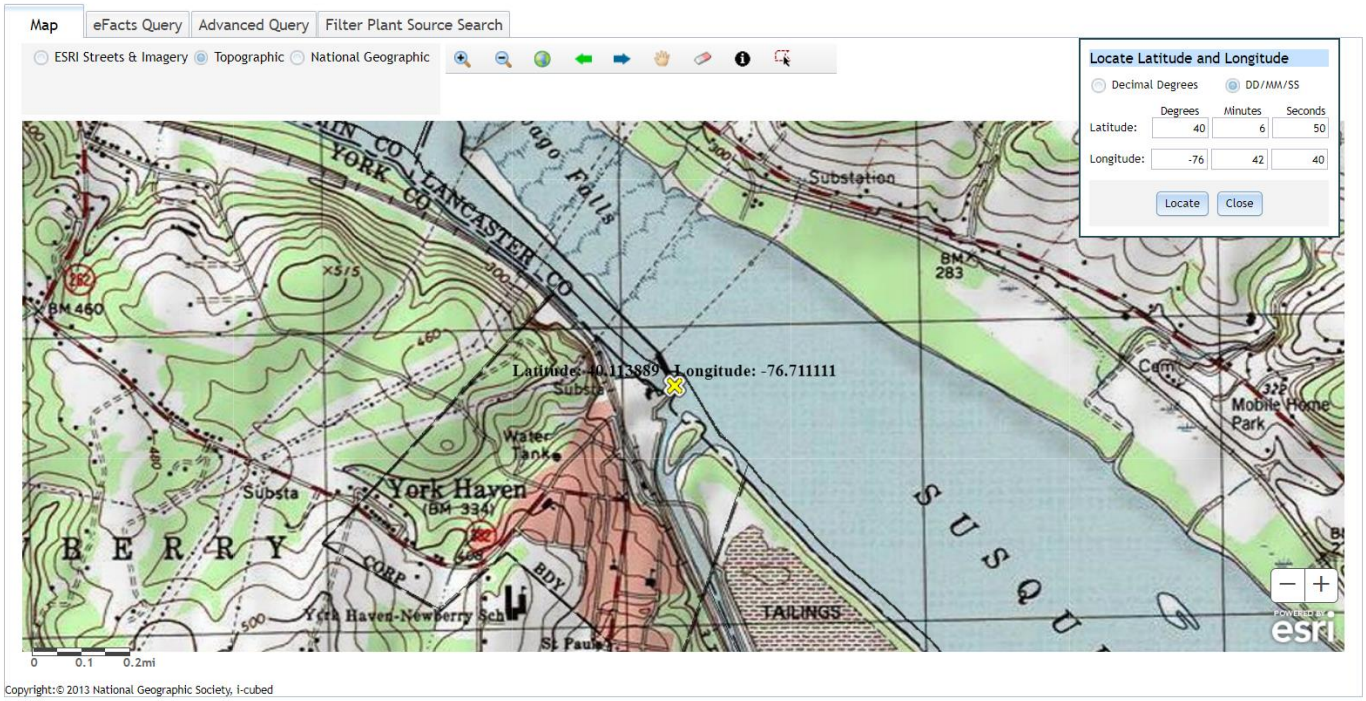
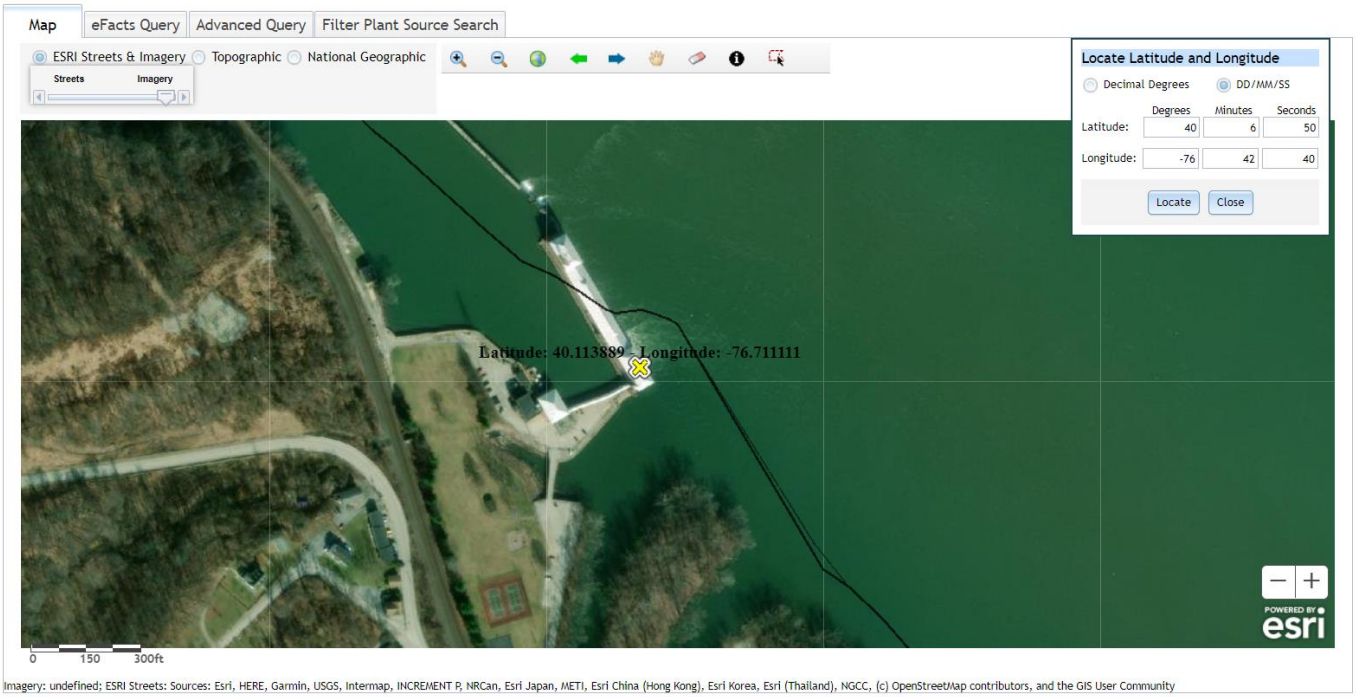


Figure 2: Aerial Photograph of the subject facility



2.2 Description of Wastewater Treatment Process

The subject facility is a 0.259 MGD design flow facility. The facility is a run-of-river hydroelectric station with a total plant capacity of 19.65 megawatts (MW) from its twenty (20) turbine generator units; seven (7) vertical and thirteen (13) horizontal generators. The facility mainly consists of a 4,970-foot long main dam, a 900-foot long secondary dam, and a 3,000 foot long headrace wall which provides a 10,000 acre-foot reservoir (abstracted from Fact Sheet Dated for May 19, 2015).

Non-contact cooling water is used to cool the thrust bearings within eleven (11) of the units. Units #1-6, 9, 11, and 16 do not have any thrust bearing coolers. Units #7, 8, 10, 12, 13, and 16-20 have two thrust bearing coolers each. Unit #14 has only one thrust bearing cooler. There is a total of 21 thrust bearing coolers.

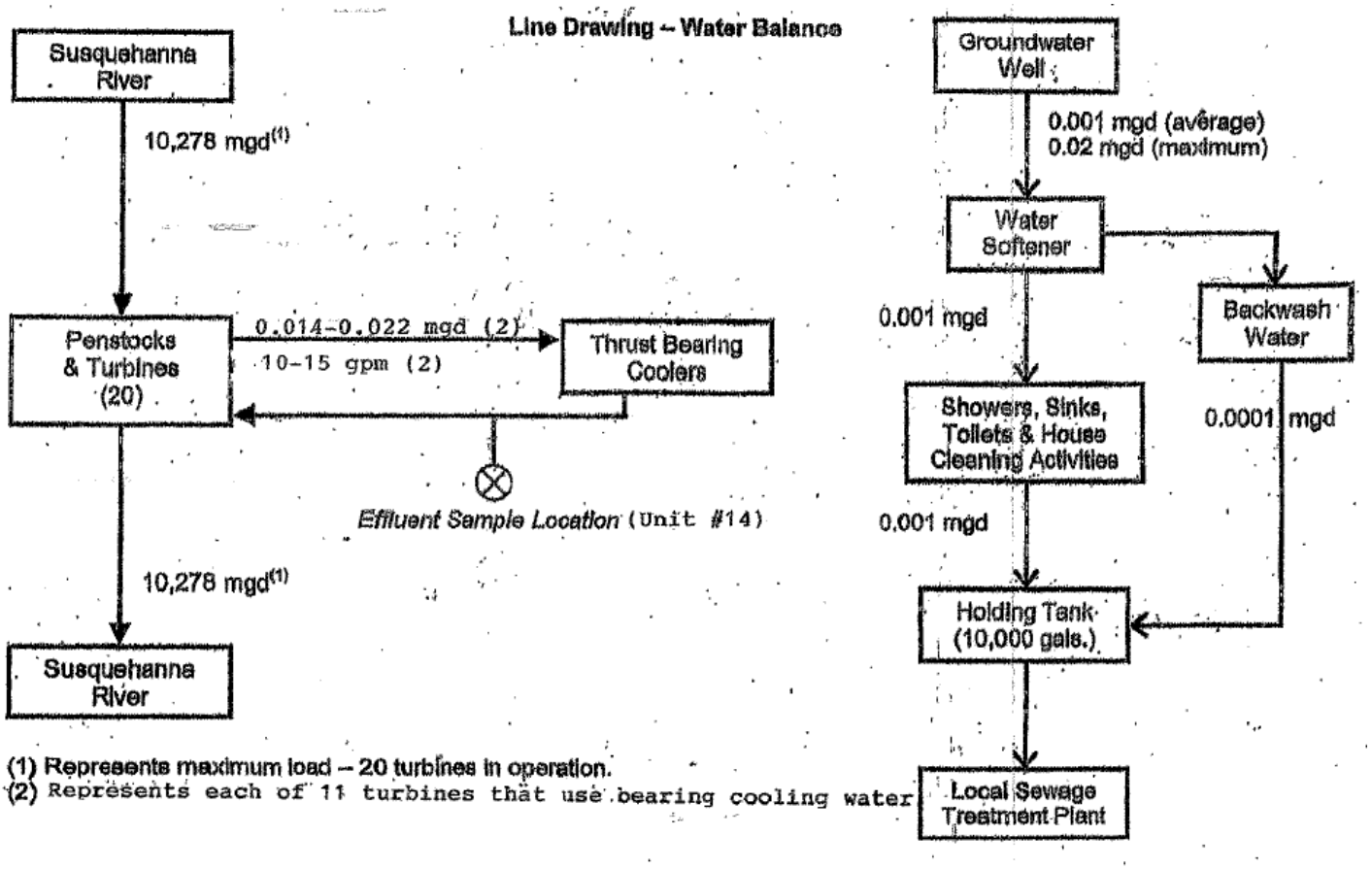
The non-contact cooling water is pumped from the Susquehanna River to the eleven (11) units having thrust bearing coolers and then discharged back into each unit's tailrace. No chemicals are added to the non-contact cooling water.

In 2008, there were 14 units that used cooling. Currently three (3) units don't require cooling water. This reduces the units needing cooling to 11 units.

Groundwater is currently used for drinking water supply to the facility. All sanitary wastewater and cleaning wastewater as well as backwash from the water softener are discharged to the public sewer (i.e York Haven Borough).

The facility is being evaluated for flow, pH, and temperature. The existing permits limits for the facility is summarized in Section 2.4.

A schematic of the treatment process is depicted.



2.3 Facility Outfall Information

The facility has the following outfall information for wastewater.

Outfall No.	101	**Design Flow (MGD)**	0.259
Latitude	40º 6' 50.40"	**Longitude**	-76º 42' 40.68"
Wastewater Description:			

Outfall No.	001	**Design Flow (MGD)**	.259
Latitude	40º 6' 47.00"	**Longitude**	-76º 42' 42.00"
Wastewater Description:	Noncontact Cooling Water (NCCW)		

The Internal Monitoring Point 101 at Unit 14 serves as the sampling point to represent the non-contact cooling water discharges for all units. All other units do not have accessible sampling points that are representative of the discharge. Monitoring at all final discharge points are either submerged or inaccessible.

The subject facility outfall is within the vicinity of another sewage/wastewater outfall. The upstream outfall is the York Haven Borough Sewage Authority (PA0081566) which is just upstream from the subject facility.

2.3.1 Operational Considerations- Chemical Additives

Chemical additives are chemical products introduced into a waste stream that is used for cleaning, disinfecting, or maintenance and which may be detected in effluent discharged to waters of the Commonwealth. Chemicals excluded are those used for neutralization of waste streams, the production of goods, and treatment of wastewater.

The subject facility utilizes the following chemicals as part of their treatment process.

- The facility does not utilize chemicals or chemical additives.

2.4 Existing NPDES Permits Limits

The existing NPDES permit limits are summarized in the table.

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. A. For Outfall 101 , **Latitude** 40º 6' 50.40" , **Longitude** 76º 42' 40.68" , **River Mile Index** 56.24 , **Stream Code** 06685

Receiving Waters: Susquehanna River

Type of Effluent: Noncontact cooling water

1. The permittee is authorized to discharge during the period from September 1, 2015 through August 31, 2020.
2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) [1]		Concentrations (mg/L)				Minimum [2] Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	1/month [4]	Estimate
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/month [4]	Grab
Temperature (°F)	XXX	XXX	XXX	XXX	Report	XXX	1/month [4]	I-S

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

at Turbine Generator Unit no. 14 [3]

3.0 Facility NPDES Compliance History

3.1 Summary of Inspections

A summary of the most recent inspections during the existing permit review cycle is as follows.

The DEP inspector noted the following during the inspection.

09/27/2018: There was nothing significant to report.

12/19/2019: There was nothing significant to report.

3.2 Summary of DMR Data

A review of approximately 1-year of DMR data shows that the monthly average flow data for the facility below the design capacity of the treatment system. The maximum average flow data for the DMR reviewed was 0.02 MGD. The design capacity of the treatment system is 0.259 MGD.

The off-site laboratory used for the analysis of the parameters was the Laboratory, Analytical, and Biological Services (LABS), Inc located at 125 Enterprise Drive, New Oxford, PA 17350.

DMR Data for Outfall 101 (from October 1, 2020 to September 30, 2021)

Parameter	SEP-21	AUG-21	JUL-21	JUN-21	MAY-21	APR-21	MAR-21	FEB-21	JAN-21	DEC-20	NOV-20	OCT-20
Flow (MGD) Average Monthly	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Flow (MGD) Daily Maximum	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
pH (S.U.) Minimum	7.72	8.04	7.62	7.85	7.34	7.95	7.57	8.12	7.08	7.64	7.65	7.84
pH (S.U.) Maximum	7.72	8.04	7.62	7.85	7.34	7.95	7.57	8.12	7.08	7.64	7.65	7.84
Temperature (ºF) Daily Maximum	75.7	78.9	84.1	73.9	71	51.7	46.1	42.1	43.5	45.5	56.9	62

3.3 Non-Compliance

3.3.1 Non-Compliance- NPDES Effluent

A summary of the non-compliance to the permit limits for the existing permit cycle is as follows.

From the DMR data beginning in September 1, 2015 to December 05, 2021, the following were observed effluent non-compliances.

Non Compliance Date	Non Compliance Type Description	Parameter
5/22/2017	Sample type not in accordance with permit	pH
5/22/2017	Sample type not in accordance with permit	Temperature (deg F)
9/22/2017	Sample type not in accordance with permit	pH
11/22/2017	Sample type not in accordance with permit	pH

3.3.2 Non-Compliance- Enforcement Actions

A summary of the non-compliance enforcement actions for the current permit cycle is as follows:

Beginning in September 1, 2015 to December 05, 2021, there were no observed enforcement actions.

3.4 Summary of Biosolids Disposal

Since this is a discharge involving non-contact cooling water, biosolids disposal is not suspected.

3.5 Open Violations

No open violations existed as of December 2021.

4.0 Receiving Waters and Water Supply Information Detail Summary

4.1 Receiving Waters

The receiving waters has been determined to be the Susquehanna River. The Susquehanna River eventually drains into the Chesapeake Bay.

4.2 Public Water Supply (PWS) Intake

The closest PWS to the subject facility is Bruner Island (PWS ID #7670802) located approximately 1.5 miles downstream of the subject facility on the Susquehanna River. Based upon the distance and the flow rate of the facility, the PWS should not be impacted.

4.3 Class A Wild Trout Streams

Class A Wild Trout Streams are waters that support a population of naturally produced trout of sufficient size and abundance to support long-term and rewarding sport fishery. DEP classifies these waters as high-quality coldwater fisheries.

The information obtained from EMAP suggests that no Class A Wild Trout Fishery will be impacted by this discharge.

4.4 2020 Integrated List of All Waters (303d Listed Streams)

Section 303(d) of the Clean Water Act requires States to list all impaired surface waters not supporting uses even after appropriate and required water pollution control technologies have been applied. The 303(d) list includes the reason for impairment which may be one or more point sources (i.e. industrial or sewage discharges) or non-point sources (i.e. abandoned mine lands or agricultural runoff and the pollutant causing the impairment such as metals, pH, mercury or siltation).

States or the U.S. Environmental Protection Agency (EPA) must determine the conditions that would return the water to a condition that meets water quality standards. As a follow-up to listing, the state or EPA must develop a Total Maximum Daily Load (TMDL) for each waterbody on the list. A TMDL identifies allowable pollutant loads to a waterbody from both point and non-point sources that will prevent a violation of water quality standards. A TMDL also includes a margin of safety to ensure protection of the water.

The water quality status of Pennsylvania's waters uses a five-part categorization (lists) of waters per their attainment use status. The categories represent varying levels of attainment, ranging from Category 1, where all designated water uses are met to Category 5 where impairment by pollutants requires a TMDL for water quality protection.

The receiving waters is listed in the 2020 Pennsylvania Integrated Water Quality Monitoring and Assessment Report as a Category 5 waterbody. This stream is an impaired stream for aquatic life due to pH/acidity/caustic conditions from an unknown source. The receiving waster is also impaired for fish consumption due to PCBs from an unknown source. The designated use has been classified as protected waters for warm water fishes (WWF) and migratory fishes (MF).

4.5 Low Flow Stream Conditions

Water quality modeling estimates are based upon conservative data inputs. The data are typically estimated using either a stream gauge or through USGS web based StreamStats program. The NPDES effluent limits are based upon the combined flows from both the stream and the facility discharge.

A conservative approach to estimate the impact of the facility discharge using values which minimize the total combined volume of the stream and the facility discharge. The volumetric flow rate for the stream is based upon the seven-day, 10-year low flow (Q710) which is the lowest estimated flow rate of the stream during a 7 consecutive day period that occurs once in 10 -year time period. The facility discharge is based upon a known design capacity of the subject facility.

The closest WQN station to the subject facility is the Susquehanna River station at Marietta, PA (WQN201). This WQN station is located approximately 13 miles downstream of the subject facility.

The closest gauge station to the subject facility is the Susquehanna River station at Marietta, PA (USGS station number 1576000). This gauge station is located approximately 11 miles downstream of the subject facility.

For WQM modeling, pH and stream water temperature data from the water quality network station was used. pH was estimated to be 8.1 and the stream water temperature was estimated to be 25.5 C.

The low flow yield and the Q710 for the subject facility was estimated as shown below.

Gauge Station Data			
USGS Station Number	1576000		
Station Name	Susquehanna River at Mariettta, PA		
Q710	3,270	ft^3/sec	
Drainage Area (DA)	25,990	mi^2	
Calculations			
The low flow yield of the gauge station is:			
Low Flow Yield (LFY) = Q710 / DA			
LFY =	(3,270 ft^3/sec / 25,990 mi^2)		
LFY =	0.1258	$ft^3/sec/mi^2$	
The low flow at the subject site is based upon the DA of		25,000	mi^2
Q710 = (LFY@gauge station)(DA@Subject Site)			
Q710 = (0.1258 $ft^3/sec/mi^2$)(25,000 mi^2)			
Q710 =	3145.441	ft^3/sec	

4.6 Summary of Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.259
Latitude	40º 6' 47.71"	Longitude	-76º 42' 41.84"
Quad Name		Quad Code	
Wastewater Description:	Noncontact Cooling Water (NCCW)		

Receiving Waters	Unnamed Tributary of Susquehanna River (WWF)	Stream Code	6685
NHD Com ID	57463749	RMI	55.5
Drainage Area	25,000	Yield (cfs/mi^2)	0.1258
Q_{7-10} Flow (cfs)	3145	Q_{7-10} Basis	StreamStats/StreamGage
Elevation (ft)	272	Slope (ft/ft)	
Watershed No.	7-F	Chapter 93 Class.	WWF, MF
Existing Use	Same as Chapter 93 class	Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired for aquatic life and fish consumption		
Cause(s) of Impairment	pH/acidity/caustic conditions for aquatic life; PCBs for fish consumption		
Source(s) of Impairment	Unknown source for aquatic life and fish consumption		
TMDL Status	Not applicable	Name	

Background/Ambient Data		Data Source
pH (SU)	8.1	WQN201; median July to Sept
Temperature (°F)	25.5	WQN201; median July to Sept
Hardness (mg/L)	Not app.	
Other:		

Nearest Downstream Public Water Supply Intake	Bruner Island		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	
PWS RMI	54	Distance from Outfall (mi)	1.5

5.0: Overview of Presiding Water Quality Standards

5.1 General

There are at least six (6) different policies which determines the effluent performance limits for the NPDES permit. The policies are technology based effluent limits (TBEL), water quality based effluent limits (WQBEL), antidegradation, total maximum daily loading (TMDL), anti-backsliding, and whole effluent toxicity (WET) The effluent performance limitations enforced are the selected permit limits that is most protective to the designated use of the receiving waters. An overview of each of the policies that are applicable to the subject facility has been presented in Section 6.

5.2.1 Technology-Based Limitations

TBEL treatment requirements under section 301(b) of the Act represent the minimum level of control that must be imposed in a permit issued under section 402 of the Act (40 CFR 125.3). Available TBEL requirements for the state of Pennsylvania are itemized in PA Code 25, Chapter 92a.47.

The presiding sources for the basis for the effluent limitations are governed by either federal or state regulation. The reference sources for each of the parameters is itemized in the tables. The following technology-based limitations apply, subject to water quality analysis and best professional judgement (BPJ) where applicable:

Parameter	Limit (mg/l)	SBC	Federal Regulation	State Regulation
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)

5.3 Water Quality-Based Limitations

WQBEL are based on the need to attain or maintain the water quality criteria and to assure protection of designated and existing uses (PA Code 25, Chapter 92a.2). The subject facility that is typically enforced is the more stringent limit of either the TBEL or the WQBEL.

Determination of WQBEL is calculated by spreadsheet analysis or by a computer modeling program developed by DEP. DEP permit engineers utilize the following computing programs for WQBEL permit limitations: (1) MS Excel worksheet for Total Residual Chorine (TRC); (2) WQM 7.0 for Windows Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen Version 1.1 (WQM Model) and (3) Implementation Guidance for Temperature Criteria modeling worksheets.

5.3.1 Water Quality Modeling 7.0

Thermal modeling was conducted. The facility intakes water from the Susquehanna River and then discharges it back into the Susquehanna River making the thermal modeling a Case 1 scenario. Modeling suggests that the maximum discharge temperature shall not exceed 110 F.

A review of monthly maximum temperatures for the facility from March 2017 through May 2021 shows that the maximum discharge temperature was 88 F (See Table). To safeguard public health and safety, monthly temperature monitoring is recommended to be continued to the proposed permit.

Summary of Temperature Data for Outfall IMP 101

Monitoring Period Begin Date	Monitoring Period End Date	DMR Value	Permit Limit	Units	Statistical Base Code
03/01/2017	03/31/2017	54.8	Monitor and Report	ºF	Daily Maximum
04/01/2017	04/30/2017	62.5	Monitor and Report	ºF	Daily Maximum
05/01/2017	05/31/2017	68.5	Monitor and Report	ºF	Daily Maximum
06/01/2017	06/30/2017	81.5	Monitor and Report	ºF	Daily Maximum
07/01/2017	07/31/2017	85	Monitor and Report	ºF	Daily Maximum
08/01/2017	08/31/2017	79.9	Monitor and Report	ºF	Daily Maximum
09/01/2017	09/30/2017	84.5	Monitor and Report	ºF	Daily Maximum
10/01/2017	10/31/2017	65.9	Monitor and Report	ºF	Daily Maximum
11/01/2017	11/30/2017	48	Monitor and Report	ºF	Daily Maximum
12/01/2017	12/31/2017	41.8	Monitor and Report	ºF	Daily Maximum
01/01/2018	01/31/2018	46	Monitor and Report	ºF	Daily Maximum
02/01/2018	02/28/2018	52	Monitor and Report	ºF	Daily Maximum
03/01/2018	03/31/2018	47	Monitor and Report	ºF	Daily Maximum
04/01/2018	04/30/2018	59	Monitor and Report	ºF	Daily Maximum
05/01/2018	05/31/2018	65	Monitor and Report	ºF	Daily Maximum
06/01/2018	06/30/2018	78	Monitor and Report	ºF	Daily Maximum
07/01/2018	07/31/2018	88	Monitor and Report	ºF	Daily Maximum
08/01/2018	08/31/2018	79	Monitor and Report	ºF	Daily Maximum
09/01/2018	09/30/2018	79	Monitor and Report	ºF	Daily Maximum
10/01/2018	10/31/2018	73.3	Monitor and Report	ºF	Daily Maximum
11/01/2018	11/30/2018	58.1	Monitor and Report	ºF	Daily Maximum
12/01/2018	12/31/2018	45	Monitor and Report	ºF	Daily Maximum
01/01/2019	01/31/2019	37.8	Monitor and Report	ºF	Daily Maximum
02/01/2019	02/28/2019	41.9	Monitor and Report	ºF	Daily Maximum
03/01/2019	03/31/2019	43.9	Monitor and Report	ºF	Daily Maximum
04/01/2019	04/30/2019	61.3	Monitor and Report	ºF	Daily Maximum
05/01/2019	05/31/2019	64.1	Monitor and Report	ºF	Daily Maximum
06/01/2019	06/30/2019	72.6	Monitor and Report	ºF	Daily Maximum
07/01/2019	07/31/2019	81.7	Monitor and Report	ºF	Daily Maximum
08/01/2019	08/31/2019	84.2	Monitor and Report	ºF	Daily Maximum
09/01/2019	09/30/2019	79.2	Monitor and Report	ºF	Daily Maximum
10/01/2019	10/31/2019	64.1	Monitor and Report	ºF	Daily Maximum
11/01/2019	11/30/2019	44.6	Monitor and Report	ºF	Daily Maximum
12/01/2019	12/31/2019	45.3	Monitor and Report	ºF	Daily Maximum
01/01/2020	01/31/2020	48.6	Monitor and Report	ºF	Daily Maximum
02/01/2020	02/29/2020	48.1	Monitor and Report	ºF	Daily Maximum
03/01/2020	03/31/2020	48.6	Monitor and Report	ºF	Daily Maximum
04/01/2020	04/30/2020	63	Monitor and Report	ºF	Daily Maximum
05/01/2020	05/31/2020	55.9	Monitor and Report	ºF	Daily Maximum
06/01/2020	06/30/2020	79.2	Monitor and Report	ºF	Daily Maximum
07/01/2020	07/31/2020	85.2	Monitor and Report	ºF	Daily Maximum
08/01/2020	08/31/2020	83.1	Monitor and Report	ºF	Daily Maximum
09/01/2020	09/30/2020	78.1	Monitor and Report	ºF	Daily Maximum
10/01/2020	10/31/2020	62	Monitor and Report	ºF	Daily Maximum
11/01/2020	11/30/2020	56.9	Monitor and Report	ºF	Daily Maximum
12/01/2020	12/31/2020	45.5	Monitor and Report	ºF	Daily Maximum
01/01/2021	01/31/2021	43.5	Monitor and Report	ºF	Daily Maximum
02/01/2021	02/28/2021	42.1	Monitor and Report	ºF	Daily Maximum
03/01/2021	03/31/2021	46.1	Monitor and Report	ºF	Daily Maximum
04/01/2021	04/30/2021	51.7	Monitor and Report	ºF	Daily Maximum
05/01/2021	05/31/2021	71	Monitor and Report	ºF	Daily Maximum
Max		88.0			

5.3.2 Toxics Modeling

The facility is not subject to toxics modeling.

5.4 Total Maximum Daily Loading (TMDL)

5.4.1 TMDL

The goal of the Clean Water Act (CWA), which governs water pollution, is to ensure that all of the Nation's waters are clean and healthy enough to support aquatic life and recreation. To achieve this goal, the CWA created programs designed to regulate and reduce the amount of pollution entering United States waters. Section 303(d) of the CWA requires states to assess their waterbodies to identify those not meeting water quality standards. If a waterbody is not meeting standards, it is listed as impaired and reported to the U.S. Environmental Protection Agency. The state then develops a plan to clean up the impaired waterbody. This plan includes the development of a Total Maximum Daily Load (TMDL) for the pollutant(s) that were found to be the cause of the water quality violations. A Total Maximum Daily Load (TMDL) calculates the maximum amount of a specific pollutant that a waterbody can receive and still meet water quality standards.

Pennsylvania has committed to restoring all impaired waters by developing TMDLs and TMDL alternatives for all impaired waterbodies. The TMDL serves as the starting point or planning tool for restoring water quality.

5.4.1.1 Local TMDL

The subject facility does not discharge into a local TMDL.

5.4.1.2 Chesapeake Bay TMDL Requirement

The Chesapeake Bay Watershed is a large ecosystem that encompasses approximately 64,000 square miles in Maryland, Delaware, Virginia, West Virginia, Pennsylvania, New York and the District of Columbia. An ecosystem is composed of interrelated parts that interact with each other to form a whole. All of the plants and animals in an ecosystem depend on each other in some way. Every living thing needs a healthy ecosystem to survive. Human activities affect the Chesapeake Bay ecosystem by adding pollution, using resources and changing the character of the land.

Most of the Chesapeake Bay and many of its tidal tributaries have been listed as impaired under Section 303(d) of the federal Water Pollution Control Act ("Clean Water Act"), 33 U.S.C. § 1313(d). While the Chesapeake Bay is outside the boundaries of Pennsylvania, more than half of the State lies within the watershed. Two major rivers in Pennsylvania are part of the Chesapeake Bay Watershed. They are (a) the Susquehanna River and (b) the Potomac River. These two rivers total 40 percent of the entire Chesapeake Bay watershed.

The overall management approach needed for reducing nitrogen, phosphorus and sediment are provided in the Bay TMDL document and the Phase I, II, and III WIPs which is described in the Bay TMDL document and Executive Order 13508.

The Bay TMDL is a comprehensive pollution reduction effort in the Chesapeake Bay watershed identifying the necessary pollution reductions of nitrogen, phosphorus and sediment across the seven Bay watershed jurisdictions of Delaware, Maryland, New York, Pennsylvania, Virginia, West Virginia and the District of Columbia to meet applicable water quality standards in the Bay and its tidal waters.

The Watershed Implementation Plans (WIPs) provides objectives for how the jurisdictions in partnership with federal and local governments will achieve the Bay TMDL's nutrient and sediment allocations.

Phase 3 WIP provides an update on Chesapeake Bay TMDL implementation activities for point sources and DEP's current implementation strategy for wastewater. The latest revision of the supplement was December 17, 2019.

The Chesapeake Bay TMDL (Appendix Q) categorizes point sources into four sectors:

- Sector A- significant sewage dischargers;
- Sector B- significant industrial waste (IW) dischargers;
- Sector C- non-significant dischargers (both sewage and IW facilities); and
- Sector D- combined sewer overflows (CSOs).

All sectors contain a listing of individual facilities with NPDES permits that were believed to be discharging at the time the TMDL was published (2010). All sectors with the exception of the non-significant dischargers have individual wasteload allocations (WLAs) for TN and TP assigned to specific facilities. Non-significant dischargers have a bulk or aggregate allocation for TN and TP based on the facilities in that sector that were believed to be discharging at that time and their estimated nutrient loads.

Based upon the supplement the subject facility has been categorized as a Sector C discharger. The supplement defines Sector C as a non-significant discharger that includes sewage facilities (Phase 4 facilities: ≥ 0.2 MGD and < 0.4 MGD and Phase 5 facilities: > 0.002 MGD and < 0.2 MGD), small flow/single residence sewage treatment facilities (≤ 0.002 MGD), and non-significant IW facilities, all of which may be covered by statewide General Permits or may have individual NPDES permits.

At this time, there are approximately 850 Phase 4 and 5 sewage facilities, approximately 715 small flow sewage treatment facilities covered by a statewide General Permit, and approximately 300 non-significant IW facilities.

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.

In general, facilities that discharge groundwater and cooling water with no addition of chemicals containing N or P do not require monitoring. Monitoring for facilities with other discharges will generally conform to the following minimum sampling frequencies, with the permit writer having final discretion: Phase 3 WIP Wastewater Supplement Revised, December 17, 2019

Non-significant IW facilities that propose expansion or production increases and as a result will discharge at least 75 lbs/day TN or 25 lbs/day TP (on an annual average basis), will be classified as Significant IW dischargers and receive Cap Loads in their permits based on existing performance (existing TN/TP concentrations at current average annual flow).

In general, for new non-significant IW discharges (including existing facilities discharging without a permit), DEP will issue permits containing Cap Loads of “0” and these facilities will be expected to purchase credits and/or apply offsets to achieve compliance.

Since the facility discharges non-contact cooling water, this facility is not subject to Sector C monitoring requirements.

5.5 Anti-Degradation Requirement

Chapter 93.4a of the PA regulations requires that surface water of the Commonwealth of Pennsylvania may not be degraded below levels that protect the existing uses. The regulations specifically state that *Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected*. Antidegradation requirements are implemented through DEP’s guidance manual entitled Water Quality Antidegradation Implementation Guidance (Document #391-0300-02).

The policy requires DEP to protect the existing uses of all surface waters and the existing quality of High Quality (HQ) and Exceptional Value (EV) Waters. Existing uses are protected when DEP makes a final decision on any permit or approval for an activity that may affect a protected use. Existing uses are protected based upon DEP’s evaluation of the best available information (which satisfies DEP protocols and Quality Assurance/Quality Control (QA/QC) procedures) that indicates the protected use of the waterbody.

For a new, additional, or increased point source discharge to an HQ or EV water, the person proposing the discharge is required to utilize a nondischarge alternative that is cost-effective and environmentally sound when compared with the cost of the proposed discharge. If a nondischarge alternative is not cost-effective and environmentally sound, the person must use the best available combination of treatment, pollution prevention, and wastewater reuse technologies and assure that any discharge is nondegrading. In the case of HQ waters, DEP may find that after satisfaction of intergovernmental coordination and public participation requirements lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. In addition, DEP will assure that cost-effective and reasonable best management practices for nonpoint source control in HQ and EV waters are achieved.

The subject facility's discharge will be to a non-special protection waters and the permit conditions are imposed to protect existing instream water quality and uses. Neither HQ waters or EV waters is impacted by this discharge.

5.6 Anti-Backsliding

Anti-backsliding is a federal regulation which prohibits a permit from being renewed, reissued, or modified containing effluent limitations which are less stringent than the comparable effluent limitations in the previous permit (40 CFR 122.l.1 and 40 CFR 122.l.2). A review of the existing permit limitations with the proposed permit limitations confirm that the facility is consistent with anti-backsliding requirements. The facility has proposed effluent limitations that are as stringent as the existing permit.

5.7 316(b) NPDES Permit Conditions

EPA generally expects that hydroelectric facilities' existing controls are technologies that can be determined to satisfy the CWA requirements to minimize entrainment and impingement mortality. EPA is also aware that many hydroelectric facilities are required to implement measures that reduce impacts of the dam, including the impacts to passage of aquatic life through the dam, as conditions of a license issued by the Federal Energy Regulatory Commission or a Biological Opinion issued by US Fish and Wildlife Service or the National Marine Fisheries Service. While these are not technologies employed at the CWIS, these measures minimize the passage of aquatic life past the intake structures inside the penstocks of the dam and thus minimize entrainment and impingement mortality. EPA considers the following four factors to be "technologies" that could minimize adverse environmental impacts from the use of a CWIS at hydroelectric facilities. Under this framework, any of the four factors below, individually or in combination, may be used in a BPJ analysis to determine whether BTA requirements have been satisfied (Abstracted from Framework for Considering Existing Hydroelectric Facility Technologies in Establishing Case-by-Case, BPJ §316(b) NPDES Permit Conditions)

Factors to consider in developing BTA on a BPJ basis for all hydroelectric facilities: 1) Efficiency of cooling water used for power generation (2) Cooling water withdrawn relative to waterbody volume or flow 3) Location of the intake structure (4) Technologies at the facility.

DEP Water Pollution Biologist and DEP Central Office recommend cooling water intake structure requirements.

DEP believes that the facility is capable of maintaining a level of efficiency higher than the median ratio of existing steam electric plants with closed-cycle recirculating cooling systems (i.e. 460 MWh/BGD) which will constitute Best Technology Available (BTA) for reducing impingement and entrainment.

6.0 NPDES Parameter Details

The basis for the proposed sampling and their monitoring frequency that will appear in the permit for each individual parameter are itemized in this Section. The final limits are the more stringent of technology based effluent treatment (TBEL) requirements, water quality based (WQBEL) limits, TMDL, antidegradation, anti-degradation, or WET.

The reader will find in this section:

a) a justification of recommended permit monitoring requirements and limitations for each parameter in the proposed NPDES permit;
b) a summary of changes from the existing NPDES permit to the proposed permit; and
c) a summary of the proposed NPDES effluent limits.

6.1 Recommended Monitoring Requirements and Effluent Limitations

A summary of the recommended monitoring requirements and effluent limitations are itemized in the tables. The table is categorized by Conventional Pollutants.

6.1.1 Conventional Pollutants and Disinfection

Summary of Proposed NPDES Parameter Details for Conventional Pollutants and Disinfection Outfall IMP 101; York Haven Hydroelectric Station; PA0044628			
Parameter	**Permit Limitation Required by[1]:**	**Recommendation**	
pH (S.U.)	TBEL	Monitoring:	The monitoring frequency shall be 1x/month as a grab sample (Table 6-4).
		Effluent Limit:	Effluent limits may range from pH = 6.0 to 9.0
		Rationale:	The monitoring frequency has been assigned in accordance with Table 6-4 and the effluent limits assigned by Chapter 95.2(1).
Temperature (F)	SOP	Monitoring:	The monitoring frequency shall be 1x/month
		Effluent Limit:	No effluent requirement.
		Rationale:	A review of monthly maximum temperatures for the facility from March 2017 through May 2021 shows that the maximum discharge temperature was 88 F. To safeguard public health and safety, monthly temperature monitoring is recommended to be continued to the proposed permit.
Notes:			
1 The NPDES permit was limited by (a) anti-Backsliding, (b) Anti-Degradation, (c) SOP, (d) TBEL, (e) TMDL, (f) WQBEL, (g) WET, or (h) Other			
2 Monitoring frequency based on flow rate of 0.259 MGD.			
3 Table 6-4 (Self Monitoring Requirements for Industrial Discharges) in Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits) (Document # 362-0400-001) Revised 10/97			
4 Water Quality Antidegradation Implementaton Guidance (Document # 391-0300-002)			
5 Phase 2 Watershed Implementation Plan Wastewater Supplement, Revised September 6, 2017			

6.2 Summary of Changes From Existing Permit to Proposed Permit

A summary of how the proposed NPDES permit differs from the existing NPDES permit is summarized as follows.

- **There are no changes to the monitoring frequency or permit limits.**
- **Permit conditions include requirements for cooling water intake structures**

6.3.1 Summary of Proposed NPDES Effluent Limits

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.

The proposed NPDES effluent limitations are summarized in the table below.

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. A. For Outfall 101 , **Latitude** 40° 6' 50.40" , **Longitude** 76° 42' 40.68" , **River Mile Index** 55.5 , **Stream Code** 6685

Receiving Waters: Susquehanna River

Type of Effluent: Noncontact Cooling Water

1. The permittee is authorized to discharge during the period from **Permit Effective Date** through **Permit Expiration Date**.
2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

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	1/month	Estimate
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/month	Grab
Temperature (deg F) (°F)	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/month	I-S

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

at Outfall 101

6.3.2 Summary of Proposed Permit Part C Conditions

The subject facility has the following Part C conditions.

- The following Cooling Water Intake Structure requirements:
    - Nothing in this permit authorizes a take of endangered or threatened species under the Endangered Species Act.
    - Technology and operational measures employed at the cooling water intake structures must be operated in a way that minimizes impingement mortality and entrainment to the smallest amount, extent, or degree reasonably possible.
    - The location, design, construction or capacity of the intake structure(s) may not be altered without prior approval of DEP.
    - The permittee must notify DEP before changing its source of cooling water.

- The permittee shall retain data and other records for any information developed pursuant to Section 316(b) of the Clean Water Act for a minimum of ten (10) years.

- Throughout the permit term, the permittee shall continue to operate and maintain a level of efficiency higher than the median ratio of existing steam electric plants with closed-cycle recirculating cooling systems (460 MWh/BGD) which will constitute Best Technology Available (BTA) for reducing impingement and entrainment.

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, 362-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 362-2000-003, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97.
☐	Pennsylvania CSO Policy, 385-2000-011, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97.
☐	Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97.
☐	Implementation Guidance Design Conditions, 391-2000-006, 9/97.
☐	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 391-2000-007, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 391-2000-008, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 391-2000-010, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004.
☐	Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 391-2000-014, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994.
☒	Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 10/97.
☐	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 391-2000-019, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 3/99.
☐	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 391-2000-022, 3/1999.
☐	Design Stream Flows, 391-2000-023, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 391-2000-024, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97.
☐	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☒	SOP: New and Reissuance Industrial Waste and Industrial Stormwater, Rev. October 11, 2013
☐	Other:

Attachment A

Stream Stats/Gauge Data

Table 1. List of U.S. Geological Survey streamgage locations in and near Pennsylvania with updated streamflow statistics.—Continued

[Latitude and Longitude in decimal degrees; mi², square miles]

Streamgage number	Streamgage name	Latitude	Longitude	Drainage area (mi²)	Regulated[1]
01561000	Brush Creek at Gapsville, Pa.	39.956	-78.254	36.8	N
01562000	Raystown Branch Juniata River at Saxton, Pa.	40.216	-78.265	756	N
01562500	Great Trough Creek near Marklesburg, Pa.	40.350	-78.130	84.6	N
01563200	Raystown Branch Juniata River below Rays Dam nr Huntingdon, Pa.	40.429	-77.991	960	Y
01563500	Juniata River at Mapleton Depot, Pa.	40.392	-77.935	2,030	Y
01564500	Aughwick Creek near Three Springs, Pa.	40.213	-77.925	205	N
01565000	Kishacoquillas Creek at Reedsville, Pa.	40.655	-77.583	164	N
01565700	Little Lost Creek at Oakland Mills, Pa.	40.605	-77.311	6.52	N
01566000	Tuscarora Creek near Port Royal, Pa.	40.515	-77.419	214	N
01566500	Cocolamus Creek near Millerstown, Pa.	40.566	-77.118	57.2	N
01567000	Juniata River at Newport, Pa.	40.478	-77.129	3,354	Y
01567500	Bixler Run near Loysville, Pa.	40.371	-77.402	15.0	N
01568000	Sherman Creek at Shermans Dale, Pa.	40.323	-77.169	207	N
01568500	Clark Creek near Carsonville, Pa.	40.460	-76.751	22.5	LF
01569000	Stony Creek nr Dauphin, Pa.	40.380	-76.907	33.2	N
01569800	Letort Spring Run near Carlisle, Pa.	40.235	-77.139	21.6	N
01570000	Conodoguinet Creek near Hogestown, Pa.	40.252	-77.021	470	LF
01570500	Susquehanna River at Harrisburg, Pa.	40.255	-76.886	24,100	Y
01571000	Paxton Creek near Penbrook, Pa.	40.308	-76.850	11.2	N
01571500	Yellow Breeches Creek near Camp Hill, Pa.	40.225	-76.898	213	N
01572000	Lower Little Swatara Creek at Pine Grove, Pa.	40.538	-76.377	34.3	N
01572025	Swatara Creek near Pine Grove, Pa.	40.533	-76.402	116	N
01572190	Swatara Creek near Inwood, Pa.	40.479	-76.531	167	N
01573000	Swatara Creek at Harper Tavern, Pa.	40.403	-76.577	337	N
01573086	Beck Creek near Cleona, Pa.	40.323	-76.483	7.87	N
01573160	Quittapahilla Creek near Bellegrove, Pa.	40.343	-76.562	74.2	N
01573500	Manada Creek at Manada Gap, Pa.	40.397	-76.709	13.5	N
01573560	Swatara Creek near Hershey, Pa.	40.298	-76.668	483	N
01574000	West Conewago Creek near Manchester, Pa.	40.082	-76.720	510	N
01574500	Codorus Creek at Spring Grove, Pa.	39.879	-76.853	75.5	Y
01575000	South Branch Codorus Creek near York, Pa.	39.921	-76.749	117	Y
01575500	Codorus Creek near York, Pa.	39.946	-76.755	222	Y
01576000	Susquehanna River at Marietta, Pa.	40.055	-76.531	25,990	Y
01576085	Little Conestoga Creek near Churchtown, Pa.	40.145	-75.989	5.82	N
01576500	Conestoga River at Lancaster, Pa.	40.050	-76.277	324	N
01576754	Conestoga River at Conestoga, Pa.	39.946	-76.368	470	N
01578310	Susquehanna River at Conowingo, Md.	39.658	-76.174	27,100	Y
01578400	Bowery Run near Quarryville, Pa.	39.895	-76.114	5.98	N
01580000	Deer Creek at Rocks, Md.	39.630	-76.403	94.4	N
01581500	Bynum Run at Bel Air, Md.	39.541	-76.330	8.52	N
01581700	Winters Run near Benson, Md.	39.520	-76.373	34.8	N
01582000	Little Falls at Blue Mount, Md.	39.604	-76.620	52.9	N
01582500	Gunpowder Falls at Glencoe, Md.	39.550	-76.636	160	Y
01583000	Slade Run near Glyndon, Md.	39.495	-76.795	2.09	N
01583100	Piney Run at Dover, Md.	39.521	-76.767	12.3	N

Table 2. Selected low-flow statistics for streamgage locations in and near Pennsylvania.—Continued

[ft³/s; cubic feet per second; —, statistic not computed; <, less than]

Streamgage number	Period of record used in analysis[1]	Number of years used in analysis	1-day, 10-year (ft³/s)	7-day, 10-year (ft³/s)	7-day, 2-year (ft³/s)	30-day, 10-year (ft³/s)	30-day, 2-year (ft³/s)	90-day, 10-year (ft³/s)
01565000	1941–2008	37	17.6	18.6	28.6	20.3	32.4	24.4
01565700	1965–1981	17	.4	.4	.9	.5	1.1	.8
01566000	1913–2008	52	4.3	7.9	18.8	12.4	25.6	19.2
01566500	1932–1958	27	1.7	2.4	4.0	3.2	5.7	4.9
01567000	[2]1974–2008	35	504	534	725	589	857	727
01567000	[3]1901–1972	72	311	367	571	439	704	547
01567500	1955–2008	54	2.0	2.2	3.3	2.6	3.8	3.1
01568000	1931–2008	78	12.7	15.5	25.5	19.2	32.0	26.0
01568500	[2]1943–1997	55	1.8	2.3	4.3	2.7	5.0	3.1
01569000	1939–1974	14	2.6	4.0	7.4	5.1	9.4	7.8
01569800	1978–2008	31	15.9	17.0	24.4	18.4	26.1	20.3
01570000	[3]1913–1969	35	—	63.1	110	76.1	124	95.3
01570000	[2]1971–2008	38	63.1	69.3	109	78.3	125	97.8
01570500	[3]1901–1972	72	2,310	2,440	4,000	2,830	4,950	3,850
01570500	[2]1974–2008	35	3,020	3,200	5,180	3,690	6,490	4,960
01571000	1941–1995	16	.1	.2	.6	.3	1.2	.8
01571500	1911–2008	62	81.6	86.8	115	94.0	124	105
01572000	1921–1984	14	2.1	2.3	4.8	3.0	6.5	4.5
01572025	1990–2008	17	15.2	16.4	26.7	18.5	34.6	27.7
01572190	1990–2008	17	19.1	20.5	36.2	23.9	45.8	35.3
01573000	1920–2008	89	18.0	22.0	52.0	30.8	69.2	50.9
01573086	1965–1981	17	.5	.6	2.6	.8	3.3	1.1
01573160	1977–1994	18	26.9	29.6	46.4	33.6	51.9	39.5
01573500	1939–1958	20	1.3	1.4	2.5	1.8	3.2	2.6
01573560	1977–2008	30	50.3	62.0	104	76.9	131	108
01574000	1930–2008	79	8.0	11.1	32.0	17.7	47.0	33.9
01574500	[2]1968–2008	41	14.2	24.0	35.9	29.4	42.0	33.3
01574500	[3]1930–1966	34	2.3	7.1	11.5	9.3	14.8	12.7
01575000	[2]1973–1995	23	.7	1.4	6.7	3.2	12.0	9.3
01575000	[3]1929–1971	43	.1	.6	10.3	2.3	15.0	6.1
01575500	[2]1948–1996	49	12.1	18.7	41.3	23.9	50.0	33.8
01576000	[3]1933–1972	40	2,100	2,420	4,160	2,960	5,130	4,100
01576000	[2]1974–2008	35	2,990	3,270	5,680	3,980	7,180	5,540
01576085	1984–1995	12	.4	.5	.8	.7	1.2	1.2
01576500	1931–2008	78	27.2	38.6	79.4	49.1	97.3	66.1
01576754	1986–2008	23	74.2	84.9	151	106	189	147
[4]01578310	1969–2008	40	549	2,820	5,650	4,190	7,380	6,140
01578400	1964–1981	18	1.4	1.5	2.7	1.9	3.2	2.5
[4]01580000	1928–2008	81	19.7	22.8	48.1	28.1	51.8	35.4
[4]01581500	1946–2008	28	.2	.3	1.2	.8	1.7	1.5
[4]01581700	1969–2008	40	4.7	5.5	17.5	8.1	18.3	12.0
[4]01582000	1946–2008	63	11.3	12.5	25.0	15.5	28.0	20.3
[4]01582500	1979–2008	27	41.2	43.9	78.8	53.8	90.6	74.1
[4]01583000	1949–1981	33	.3	.3	.7	.3	1.0	.6
[4]01583100	1984–2008	15	2.1	2.4	5.5	3.2	6.0	4.2

StreamStats Report

Region ID: PA
Workspace ID: PA20210622125235263000
Clicked Point (Latitude, Longitude): 40.11645, -76.70974
Time: 2021-06-22 08:53:07 -0400

York Haven Hydroelectric Station PA0044628 Modeling Point #1 June 2021

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	25000	square miles
PRECIP	Mean Annual Precipitation	40	inches
STRDEN	Stream Density -- total length of streams divided by drainage area	1.75	miles per square mile
ROCKDEP	Depth to rock	4.5	feet
CARBON	Percentage of area of carbonate rock	6.27	percent

Parameter Code	Parameter Description	Value	Unit
ELEV	Mean Basin Elevation	1358	feet
GLACIATED	Percentage of basin area that was historically covered by glaciers	47.2148	percent
FOREST	Percentage of area covered by forest	69.4313	percent

Low-Flow Statistics Parameters [44.2 Percent (11100 square miles) Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	25000	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	6.27	percent	0	99

Low-Flow Statistics Parameters [6.5 Percent (1610 square miles) Low Flow Region 3]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	25000	square miles	2.33	1720
ELEV	Mean Basin Elevation	1358	feet	898	2700
PRECIP	Mean Annual Precipitation	40	inches	38.7	47.9

Low-Flow Statistics Parameters [49.1 Percent (12300 square miles) Low Flow Region 5]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	25000	square miles	4.84	982
PRECIP	Mean Annual Precipitation	40	inches	33.1	47.1
GLACIATED	Percent of Glaciation	47.2148	percent	0	100
FOREST	Percent Forest	69.4313	percent	41	100

Low-Flow Statistics Disclaimers [44.2 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 [44.2 Percent (11100 square miles) Low Flow Region 2]

Statistic	Value	Unit
7 Day 2 Year Low Flow	5720	ft^3/s
30 Day 2 Year Low Flow	6760	ft^3/s
7 Day 10 Year Low Flow	4260	ft^3/s
30 Day 10 Year Low Flow	5020	ft^3/s
90 Day 10 Year Low Flow	6260	ft^3/s

Low-Flow Statistics Disclaimers [6.5 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 [6.5 Percent (1610 square miles) Low Flow Region 3]

Statistic	Value	Unit
7 Day 2 Year Low Flow	2350	ft^3/s
30 Day 2 Year Low Flow	2900	ft^3/s
7 Day 10 Year Low Flow	1420	ft^3/s
30 Day 10 Year Low Flow	1760	ft^3/s
90 Day 10 Year Low Flow	2410	ft^3/s

Low-Flow Statistics Disclaimers [49.1 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 [49.1 Percent (12300 square miles) Low Flow Region 5]

Statistic	Value	Unit
7 Day 2 Year Low Flow	3540	ft^3/s
30 Day 2 Year Low Flow	4440	ft^3/s
7 Day 10 Year Low Flow	2300	ft^3/s
30 Day 10 Year Low Flow	2970	ft^3/s

Statistic	Value	Unit
90 Day 10 Year Low Flow	3830	ft^3/s

Low-Flow Statistics Flow Report [Area-Averaged]

Statistic	Value	Unit
7 Day 2 Year Low Flow	4420	ft^3/s
30 Day 2 Year Low Flow	5360	ft^3/s
7 Day 10 Year Low Flow	3100	ft^3/s
30 Day 10 Year Low Flow	3790	ft^3/s
90 Day 10 Year Low Flow	4800	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/)

USGS Data Disclaimer: Unless otherwise stated, all data, metadata and related materials are considered to satisfy the quality standards relative to the purpose for which the data were collected. Although these data and associated metadata have been reviewed for accuracy and completeness and approved for release by the U.S. Geological Survey (USGS), no warranty expressed or implied is made regarding the display or utility of the data for other purposes, nor on all computer systems, nor shall the act of distribution constitute any such warranty.

USGS Software Disclaimer: This software has been approved for release by the U.S. Geological Survey (USGS). Although the software has been subjected to rigorous review, the USGS reserves the right to update the software as needed pursuant to further analysis and review. No warranty, expressed or implied, is made by the USGS or the U.S. Government as to the functionality of the software and related material nor shall the fact of release constitute any such warranty. Furthermore, the software is released on condition that neither the USGS nor the U.S. Government shall be held liable for any damages resulting from its authorized or unauthorized use.

USGS Product Names Disclaimer: Any use of trade, firm, or product names is for descriptive purposes only and does not imply endorsement by the U.S. Government.

Application Version: 4.5.3
StreamStats Services Version: 1.2.22
NSS Services Version: 2.1.2

Attachment B
Thermal Worksheets

Flow Data for Thermal Discharge Analysis

Facility: York Haven Hydroelectric Station
Permit Number: PA0044628
Stream Name: Susquehanna River
Analyst/Engineer: DEP
Stream Q7-10 (cfs): 3145

	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	0.259	0	0	0.259	1.00	9718.05	9717.65	9718.05
Feb 1-29	0.259	0	0	0.259	1.00	11007.50	11007.10	11007.50
Mar 1-31	0.259	0	0	0.259	1.00	20442.50	20442.10	20442.50
Apr 1-15	0.259	0	0	0.259	1.00	28179.20	28178.80	28179.20
Apr 16-30	0.259	0	0	0.259	1.00	28179.20	28178.80	28179.20
May 1-15	0.259	0	0	0.259	1.00	15976.60	15976.20	15976.60
May 16-31	0.259	0	0	0.259	1.00	15976.60	15976.20	15976.60
Jun 1-15	0.259	0	0	0.259	1.00	9309.20	9308.80	9309.20
Jun 16-30	0.259	0	0	0.259	1.00	9309.20	9308.80	9309.20
Jul 1-31	0.259	0	0	0.259	1.00	4277.20	4276.80	4277.20
Aug 1-15	0.259	0	0	0.259	1.00	4371.55	4371.15	4371.55
Aug 16-31	0.259	0	0	0.259	1.00	4371.55	4371.15	4371.55
Sep 1-15	0.259	0	0	0.259	1.00	3396.60	3396.20	3396.60
Sep 16-30	0.259	0	0	0.259	1.00	3396.60	3396.20	3396.60
Oct 1-15	0.259	0	0	0.259	1.00	4025.60	4025.20	4025.60
Oct 16-31	0.259	0	0	0.259	1.00	4025.60	4025.20	4025.60
Nov 1-15	0.259	0	0	0.259	1.00	5692.45	5692.05	5692.45
Nov 16-30	0.259	0	0	0.259	1.00	5692.45	5692.05	5692.45
Dec 1-31	0.259	0	0	0.259	1.00	9435.00	9434.60	9435.00

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.

Thermal Discharge Recommended Permit Limits

Warm Water Fishes (WWF) Stream

Facility: **York Haven Hydroelectric Station**
Permit Number: PA0044628
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	261,901	110.0	0.259	1.00
Feb 1-29	35	0	40	296,652	110.0	0.259	1.00
Mar 1-31	40	0	46	661,110	110.0	0.259	1.00
Apr 1-15	47	0	52	759,429	110.0	0.259	1.00
Apr 16-30	53	0	58	759,429	110.0	0.259	1.00
May 1-15	58	0	64	516,683	110.0	0.259	1.00
May 16-31	62	0	72	861,139	110.0	0.259	1.00
Jun 1-15	67	0	80	652,296	110.0	0.259	1.00
Jun 16-30	71	0	84	652,296	110.0	0.259	1.00
Jul 1-31	75	0	87	276,649	110.0	0.259	1.00
Aug 1-15	74	0	87	306,315	110.0	0.259	1.00
Aug 16-31	74	0	87	306,315	110.0	0.259	1.00
Sep 1-15	71	0	84	238,000	110.0	0.259	1.00
Sep 16-30	65	0	78	238,000	110.0	0.259	1.00
Oct 1-15	60	0	72	260,376	110.0	0.259	1.00
Oct 16-31	54	0	66	260,376	110.0	0.259	1.00
Nov 1-15	48	0	58	306,823	110.0	0.259	1.00
Nov 16-30	42	0	50	245,458	110.0	0.259	1.00
Dec 1-31	37	0	42	254,273	110.0	0.259	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.

Attachment C

Correspondence

Hong, Nicholas

From: Tom O'Connor <Tom.OConnor@eaglecreekre.com>
Sent: Tuesday, August 24, 2021 10:31 AM
To: Hong, Nicholas
Cc: Bardell, Kristen
Subject: RE: [External] RE: NPDES renewal application questions

Nick,

Please see the information below. I am available to answer any questions or provide more clarity if needed.

- Design intake flow is 400 GPM (2 pumps at 200 GPM each).
- Maximum actual intake flow (assuming operation of all units) .02 MGD = 20,000 GPD/unit = 833 GPH/unit = 13.89 GPM/unit x 11 units = 153 GPM Max (all units operating)
- Actual intake flow is approximately .02 MGD x .7 (Station Capacity Factor) = 14,000 GPD
- The cooling water system itself has not been modified. But, by upgrading 3 units which no longer require cooling water, the facility has reduced its cooling water usage from 14 units in 2008 that used cooling water to the 11 units currently in use today that use cooling water.
- York Haven can produce approximately 20MW/Hr of generation using only 9180 GPH of cooling water. Current river flow by the NWS Station in Harrisburg is 53,000 cfs x 7.481gal / cf = 396,493 gal / sec x 60 sec / min = 23,789,580 GPM.
- The water passes through trash racks prior to entering cooling water pump / pumps.

Thanks