pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0010553**
Facility Type	**Industrial**	APS ID	**987392**
Major / Minor	**Minor**	Authorization ID	**1263208**

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

Applicant and Facility Information

Applicant Name	**Pennsylvania Fish and Boat Commission**	Facility Name	**Benner Springs State Fish Hatchery**
Applicant Address	1735 Shiloh Road	Facility Address	1735 Shiloh Road
	State College, PA 16801-8495		State College, PA 16801-8495
Applicant Contact	Mindy McClenahan	Facility Contact	Doug Hess (Fish Hatchery Manager)
Applicant Phone	(814) 353-2229	Facility Phone	814-353-2231
Client ID	135455	Site ID	442119
SIC Code	0921	Municipality	Benner Township
SIC Description	Agriculture - Fish Hatcheries And Preserves	County	Centre
Date Application Received	February 25, 2019	EPA Waived?	Yes
Date Application Accepted	March 6, 2019	If No, Reason	
Purpose of Application	Renewal of existing NPDES permit		

Summary of Review

The above applicant has submitted an NPDES renewal application for 2 existing discharges of treated industrial wastewater from the Benner Springs State Fish Hatchery (SFH). The SFH mainly raises brook, brown, rainbow, and golden trout. The trout are raised from eggs to adults. Influent water is collected from Benner Spring and Spring Creek. The trout are fed a dry pellet diet and are stocked in various state water bodies. The maximum fish biomass of occurs annually from January through March. The wastewater from the trout operations are discharged through outfall 001. Outfall 001 is treated via raceway quiescent zones, a clarifier, earthen lagoons/settling ponds (2), and three 20-micron micro screens (Hydrotech Discfilters).

The hatchery also raises warm water and cool water fish species (muskellunge, walleye, shad, and channel catfish). These fishes are raised in four 0.45-acre production ponds or in cool water raceways. All wastewater from these operations also go to the above-mentioned clarifier, earthen lagoons (2), and microscreens and is discharged via outfall 001. Outfall 002 is only used during cleaning of the earthen settling ponds, which occurs annually for approximately 1-3 days in duration. Sludge collected from the clarifiers and the settling ponds is stored in the existing sludge storage tank and spread on nearby farm fields.

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.

Approve	Deny	Signatures	Date
X		*Chad A. Fabian* Chad A. Fabian / Project Manager	January 12, 2023
X		*Nicholas W. Hartranft, P.E.* Nicholas W. Hartranft, P.E. / Environmental Engineer Manager	January 13, 2023

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001 (002)	Design Flow (MGD)	4.7225 (0.1944)
Latitude	40º 51' 28.38" (40º 51' 26.84""	Longitude	-77º 48' 43.28" (-77º 49' 9.24")
Quad Name		Quad Code	
Wastewater Description:	IW Process Effluent without ELG		
Receiving Waters	Spring Creek (HQ-CWF)	Stream Code	22966
NHD Com ID	67179628	RMI	10.35
Drainage Area	87.2	Yield (cfs/mi^2)	n/a
Q_{7-10} Flow (cfs)	10.3	Q_{7-10} Basis	USGS Reference Gage 01546500 (see below)
Elevation (ft)	890	Slope (ft/ft)	n/a
Watershed No.	9-C	Chapter 93 Class.	HQ-CWF
Existing Use	HQ-CWF	Existing Use Qualifier	n/a
Exceptions to Use	None	Exceptions to Criteria	None
Assessment Status	Attaining Use(s)		
Nearest Downstream Public Water Supply Intake	Approximately 89 river miles downstream on West Br. Susquehanna River, near Milton, PA		

Changes Since Last Permit Issuance: The above $Q_{7,10}$ has been adjusted to more accurately represent the actual $Q_{7,10}$ at the location of the outfalls. The $Q_{7,10}$ was calculated by taking the gage flow (28.7 cfs or 18.54 MGD) and subtracting the discharge flow of the Bellefonte SFH and Benner Spring SFH, which both effluents are included in the gage reading. 18.54 mgd – 7.2 MGD (Bellefonte SFH) – 4.7225 (Benner Springs SFH) = 6.671 MGD or 10.3 cfs.

Other Comments: Outfall 002 coordinates and flows are in parentheses. If no parentheses exist, the above data is the same for outfall 001 and 002.

Compliance History	
Summary of eDMRs:	A review of the eDMRs show that no effluent violations have occurred in the past 12 months.
Summary of Inspections:	The most recent inspection was performed by the Department on 5/22/2022. No violations were noted during the inspection. No impact to the stream was observed at the outfalls.

Other Comments: None

Development of Effluent Limitations

The existing permit implements technology based effluent limitations for TSS, DO, CBOD5, dissolved phosphorus, and NH3-N. Limitations for CBOD5, dissolved phosphorus, and NH3-N are based on a previous statistical analysis of discharge monitoring report (DMR) data for the hatchery and represent treatment levels achievable by the enhanced operation and maintenance practices at the facility. This draft permit proposes to change the existing technology based TSS concentration limitation of 6.0 mg/l (monthly average) to 4.5 mg/l (monthly average). The technology standard of 4.5 mg/l (monthly average) was established for TSS at similar PFBC facilities utilizing the same 20 micron micro-screen filtration system. The

existing technology-based standard of 6.0 mg/l minimum for dissolved oxygen (DO) was established per the Department's general permit (PAG-11) for CAAP (Concentrated Aquatic Animal Production) facilities.

The WQM7.0 model allows the Department to evaluate point source discharges of dissolved oxygen (DO), carbonaceous BOD (CBOD5), and ammonia nitrogen (NH3-N) into free-flowing streams and rivers. To accomplish this, the model simulates two basic processes. In the NH3-N module, the model simulates the mixing and degradation of NH3-N in the stream and compares calculated instream NH3-N concentrations to NH3-N water quality criteria. In the DO module, the model simulates the mixing and consumption of DO in the stream due to the degradation of CBOD5 and NH3-N, and compares calculated instream DO concentrations to DO water quality criteria. The attached WQM modeling output shows that the above existing technology-based limitations are protective of water quality standards.

The existing water quality limitations for pH are established based on 25 PA Code §95.2.

The existing NPDES permit also has an annual TSS load limitation of 36,110 pounds per year. This effluent limitation is contained within a lengthy Part C condition referred to as "Affirmative Defense." In summary, the affirmative defense condition allows for net TSS to be used during months of high TSS influent from the spring if certain downstream biomonitoring criteria are met. It is proposed in this draft, to eliminate the affirmative defense condition and put the TSS annual load limitation in Part A of the permit as an effluent net limitation. Effluent net limits for cold water hatcheries are consistent with the Department's general permit (PAG-11) for CAAP (Concentrated Aquatic Animal Production) facilities. It should be noted that as confirmed by the biological monitoring performed downstream of the outfall by the PFBC and DEP, the receiving stream is attaining its 25 PA Code Chapter 93 classification of High Quality-Cold Water Fishes (HQ-CWF).

The above mentioned annual TSS loading limitation is proposed to be converted from the existing fish production year (May-April) to an annual basis of January through December.

This draft permit also proposes to convert the existing CBOD5 limitations to BOD5 limitations, per the applicants request and consistent with the Department's general permit (PAG-11) for CAAP (Concentrated Aquatic Animal Production) facilities. Also consistent with the respective general permit, the Department proposes to make the monthly and weekly limitations for TSS and BOD effluent net limitations. Effluent net limitations are not proposed for instantaneous maximum limits for TSS and BOD5.

The facility uses therapeutic chemicals to treat fish for various diseases. In this renewal process, the Department has evaluated the use of these therapeutic chemicals using the same process that the Department evaluates the use of chemical additives. Using Material Safety Data Sheets (MSDS) for each chemical, aquatic life effect levels for each chemical were input into the Department's Toxic Management Spreadsheet (TMS). The resulting Water Quality Based Effluent Limit (WQBEL) for each therapeutic chemical was used in conjunction with annual average permitted flow (4.8 MGD) to back calculate the allowable usage of each chemical through a mass balance equation (WQBEL in mg/l X 4.8 MGD X 8.34 lbs/gal). The aquatic life criteria for each chemical and the TMS model output are attached.

The following is a summary of the proposed therapeutic chemicals and their allowable usage rate:

Therapeutic Chemical	Proposed Usage Rate	Maximum Allowable Usage Rate (lbs/day)
Florfenicol	0.045 lbs/day, 31 days per year	206
Diquat Dibromide	1.5 gallons/day, 21 days per year	0.63
Chloramine T	30 lbs/day	49.2
Hydrogen Peroxide(1)	30 gallons/day	597
Terramycin TM200	3.6 lbs/day	92
Lysol Ammoinium 10%	3.5 gallons/day	0.091
Romet TC	2.6 lbs/day	53.4
Sodium Chloride	500 lbs/day, 50 days per year	776
Slimy Grimy(2)	4 lbs/day, 35 days/yr	29.3

*Values must be converted and reported in lbs/day on report form

(1) The TMS shows a maximum daily usage rate of 5.97 pounds. However, per the MSDS sheet, 99% biodegradation of hydrogen peroxide will occur withing 30 minutes of being used within the hatchery. Therefore, the maximum

daily usage rate has been adjusted to provide for 5.97 lbs per day to be discharged. See attached email from PFBC confirming the pass-through time after hydrogen peroxide exceeds 30 minutes.

Best Professional Judgement

None.

Anti-Backsliding

This permit does not propose to decrease any existing effluent limitation.

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	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/week	Metered
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	9.0 Daily Max	XXX	1/week	Grab
DO	XXX	XXX	6.0 Daily Min	XXX	XXX	XXX	1/week	Grab
BOD5 Effluent Net	197	295	XXX	5	7.5	10	1/week	Calculation
BOD5 Industrial Influent	XXX	XXX	XXX	Report	Report Avg Mo	XXX	1/week	24-Hr Composite
BOD5	Report	Report	XXX	Report	Report	10	1/week	24-Hr Composite
TSS Effluent Net	177	265	XXX	4.5	6.7	XXX	1/week	Calculation
TSS Industrial Influent	XXX	XXX	XXX	Report	Report	XXX	1/week	24-Hr Composite
TSS	Report	Report Daily Max	XXX	Report	Report Daily Max	9	1/week	24-Hr Composite
Total Suspended Solids (lbs) Effluent Net	XXX	36110 Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation
Total Suspended Solids (lbs)	XXX	Report Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation
Total Suspended Solids (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
Ammonia	39	78 Daily Max	XXX	1.0	2.0 Daily Max	2.5	2/month	24-Hr Composite
Dissolved Phosphorus	11	22 Daily Max	XXX	0.3	0.6 Daily Max	7.5	2/month	24-Hr Composite
Formaldehyde	37	74 Daily Max	XXX	0.95	1.8 Daily Max	2.3	2/month	3 Grabs/24 Hours

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	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	1/week	Metered
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	9.0	XXX	1/week	Grab
DO	XXX	XXX	6.0 Daily Min	XXX	XXX	XXX	1/week	Grab
CBOD5 Effluent Net	8	16	XXX	5.0	7.5	10	1/week	24-Hr Composite
CBOD5	8	16	XXX	5.0	7.5	10	1/week	24-Hr Composite
BOD5	Report	Report Wkly Avg	XXX	Report	Report Wkly Avg	10	1/week	24-Hr Composite
TSS Effluent Net	7.2	14.4	XXX	4.5	6.7	9	1/week	24-Hr Composite
TSS	9.5	19	XXX	6.0	9.0	12	1/week	24-Hr Composite
Ammonia	1.6	3.2	XXX	1.0	2.0	2.5	2/month	24-Hr Composite
Dissolved Phosphorus	0.48	0.96	XXX	0.3	0.6	7.5	2/month	24-Hr Composite
Formaldehyde	1.5	3	XXX	0.95	1.8	2.3	2/month	3 Grabs/24 Hours

All of the above monitoring frequencies are the same as the existing permit. The existing permit erroneously used a multiplier to 2.5 for instantaneous maximum limitations for TSS and CBOD5. The correct multiplier should be 2.0, as previously stated. A chemical additive Part C condition will contain the maximum daily usage rates for the proposed therapeutic chemicals.

It is recommended the permit be drafted as described herein.