pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northeast Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0021580**
Facility Type	**Municipal**	APS ID	**608818**
Major / Minor	**Major**	Authorization ID	**1207740**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Catasauqua Borough**	Facility Name	**Catasauqua Borough WWTF**
Applicant Address	90 Bridge Street	Facility Address	18 West Race Street
	Catasauqua, PA 18032		Catasauqua, PA 18032
Applicant Contact	Eugene Goldfeder	Facility Contact	Eugene Goldfeder
Applicant Phone	(610) 264-0571	Facility Phone	(610) 264-0571
Client ID	67413	Site ID	269717
Ch 94 Load Status	Not Overloaded	Municipality	Catasauqua Borough
Connection Status	No Limitations	County	Lehigh
Date Application Received	November 14, 2017	EPA Waived?	No
Date Application Accepted	November 21, 2017	If No, Reason	Major Facility
Purpose of Application	Renewal of existing NPDES permit.		

Summary of Review

The applicant is requesting renewal of an NPDES permit to discharge 2.25 MGD of treated sewage to the Lehigh River, a TSF/MF designated receiving stream in state water plan basin 02-C (Lower Lehigh River). As per the Department's current existing use list, the receiving stream does not have an existing use classification that is more protective than its designated use.

Data from downstream stream gage 01453000 (Lehigh River at Bethlehem, PA) was used to model the discharge, resulting in a low flow yield (LFY) of 0.36 cfs/mi^2. The gage is approximately 8 ½ miles downstream from Outfall 001. For modeling inputs, RMI values were obtained using the "PA Historic Streams" feature of eMapPA as well as the "measure" tool. Drainage areas were delineated using USGS's StreamStats Interactive Map and elevations were obtained using the elevation profile feature of StreamStats as well as the spot elevation feature of USGS's The National Map (see Watershed Information attachment).

The pH, $CBOD_5$, TSS, TRC and Fecal Coliform limits are technology-based limits carried over from the previous permit (note that from October 1 through April 30, the 200 No./100mL geometric mean and 1,000 No./100mL IMAX Fecal Coliform limitations are considered water quality-based). The Ammonia-Nitrogen and Dissolved Oxygen limitations are water quality-based and carried over from the previous permit. TRC and WQM modeling (attached) did not recommend more stringent limitations.

WQM Permit 3911402 approved the installation of an ultraviolet (UV) radiation disinfection system to replace the existing chlorine disinfection system at the WWTP. Since the system is currently online, TRC monthly average limitations are removed from the permit. TRC is to be sampled for each day that chlorine is used for backup disinfection or for cleaning/other purposes (see Part C.I.D.). Standard template condition Part C.I.E. is added to the permit requiring the daily reporting of the functionality of the UV system on the Daily Effluent Monitoring Form (3800-FM-BCW0435).

Approve	Deny	Signatures	Date
X		*Brian Burden* Brian Burden, E.I.T. / Project Manager	November 25, 2020
X		Amy M/ Bellanca Amy M. Bellanca, P.E. / Environmental Engineer Manager	12-4-20

Summary of Review

Pollutant group sampling results submitted with the permit application were modeled with PENTOX. Monitoring requirements were recommended for Total Copper. The highest reported Total Copper concentration was 25.1 µg/L and the most stringent WQBEL is 83.3 µg/L. 1/quarter monitoring and reporting is added to the permit for Total Copper. Data gathered during this permit cycle will determine whether monitoring requirements for Total Copper will continue or cease in future permit renewals.

Quarterly monitoring/reporting is continued for Total Dissolved Solids (TDS). Monthly monitoring/reporting is continued for Total Phosphorus and Total Nitrogen. The previous permit required monthly monitoring/reporting for Nitrate as N, but this parameter is removed from the permit and replaced with Nitrate-Nitrite as N (one of two components of Total Nitrogen). Monthly monitoring/reporting is added to Part A for TKN (this parameter was never reported on DMRs but had to be sampled for as a component of Total Nitrogen).

Monthly influent monitoring for $CBOD_5$ and TSS are added to the permit to determine if the removal percentages meet secondary treatment standards.

The permittee was required to conduct Whole Effluent Toxicity (WET) testing in the final 18 months of their previous permit cycle. As per J.R. Holtsmaster, an Aquatic Biologist Supervisor at PA DEP, the WET tests for the Catasauqua Borough WWTF initiated during September 2016, November 2016, February 2017 and May 2017 all passed for *Ceriodaphnia dubia* and *Pimephales promelas* for survival, growth and reproduction. The standard Part C condition, Whole Effluent Toxicity – No Permit Limits, has been added to the permit. WET testing shall be conducted annually during the upcoming permit cycle, at a minimum. The WET Analysis Spreadsheet (see attached) was used to determine that the permittee must generate chronic survival and reproduction data for *Ceriodaphnia dubia*, and chronic survival and growth data for *Pimephales promelas*. The permittee shall perform testing using the following dilution series: 1%, 2%, 30%, 60%, and 100% effluent, with a control, where 2% effluent is the facility-specific Target In-Stream Waste Concentration (TIWC).

The borough continues operation of the EPA-approved Municipal Industrial Pretreatment Program (MIPP). Two Significant Industrial Users (SIUs) are currently permitted under the MIPP:

- Fragrance Manufacturing, Inc., 100 Cascade Drive, Allentown, PA 18109. Manufacturer of personal care products. Flows are approximately 9,600 gpd (3,900 gpd process, 5,700 gpd sanitary).

- B. Braun Medical, Inc., 901 Marcon Boulevard, Allentown, PA 18109. Manufacturer of plastic medical devices. Flows are approximately 25,460 gpd (1,230 gpd process, 24,230 gpd sanitary).

Review of the latest submitted Pretreatment Report (received by DEP April 7, 2020), shows overall general compliance with the MIPP. There are no current or projected overloads at the treatment plant as per the most recently submitted Chapter 94 report (received April 7, 2020).

The monitoring frequencies for all parameters with limitations conform with the monitoring frequencies recommended in the Department's Technical Guidance for the Development and Specification of Effluent Limitations (doc. no. 362-0400-001). As per the same guidance document, all composite samples are 24-hour composite samples. None of the existing effluent limitations have been made less stringent, therefore, the antibacksliding requirement has been met.

The latest issued DRBC docket for the facility, Docket No. D-1986-032 CP-3, does not include any additional monitoring requirements or limitations.

DMR review over the past two years revealed the following effluent limitation exceedances:

- September 2020, Fecal Coliform: 208 CFU/100mL geometric mean (limitation was 200 CFU/100mL)
- September 2020, Fecal Coliform: 2,300 CFU/100mL IMAX (limitation was 1,000 CFU/100mL)
- August 2020, Fecal Coliform: 2,300 CFU/100mL IMAX (limitation was 1,000 CFU/100mL)
- June 2020, Fecal Coliform: > 200 CFU/100mL geometric mean (limitation was 200 CFU/100mL)
- February 2020, Fecal Coliform: 1,300 CFU/100mL IMAX (limitation was 1,000 CFU/100mL)
- August 2019, Fecal Coliform: 2,700 CFU/100mL IMAX (limitation was 1,000 CFU/100mL)
- July 2019, Fecal Coliform: 3,200 CFU/100mL IMAX (limitation was 1,000 CFU/100mL)
- May 2019, Fecal Coliform: 2,800 CFU/100mL IMAX (limitation was 1,000 CFU/100mL)

Summary of Review

The previously issued permit expired on December 31, 2017 and the application for permit renewal was not submitted on time. There is one open WPC NPDES violation for this client that would warrant withholding the issuance of this permit:

April 16, 2018 Inspection ID 2718387 violation description: "NPDES – Failure to provide information or records required by the permit or otherwise needed to determine compliance." On April 16, 2018, DEP sent a Notice of Violation (NOV) to Catasauqua Borough for several Municipal Separate Storm Sewer System (MS4) violations, including failure to submit the following items to DEP: an annual report covering the 10/1/2015 – 9/30/2016 reporting period, Public Involvement and Participation Program (PIPP), Illicit Discharge Detection & Elimination (IDD&E) program, written procedure for inspecting post-construction stormwater BMPs, list of facilities/activities owned and operated by the borough, written operations and maintenance manual for municipal facilities, written employee training program.

No response was received from the borough. In addition to the deficiencies described above, the borough has not submitted the following MS4 Annual Status Reports: 10/1/2016 – 6/30/2018 reporting period (report due 9/30/2018), 7/1/2018 – 6/30/2019 reporting period (report due 9/30/2019), 7/1/2019 – 6/30/2020 reporting period (report due 9/30/2020).

As per the most recently submitted Sewage Sludge / Biosolids Production and Disposal supplemental DMR form (September 2020), biosolids are hauled to Grand Central Landfill by Waste Management.

Watershed Information.pdf
WQM Modeling 1.pdf
WQM Modeling 2.pdf
WQM Modeling 3.pdf
WQM Modeling 4.pdf
WQM Modeling 5.pdf
WQM Modeling 6.pdf
TRC Calculation.pdf
Toxics Screening Analysis.pdf
PENTOX 1.pdf
PENTOX 2.pdf
PENTOX 3.pdf
PENTOX 4.pdf
WET Analysis.pdf

Public Participation

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

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	2.25
Latitude	40º 38' 53"	Longitude	-75º 28' 22"
Quad Name	Catasauqua	Quad Code	1342
Wastewater Description:	Sewage effluent		

Receiving Waters	Lehigh River	Stream Code	3335
NHD Com ID	26293895	RMI	20.1
Drainage Area	1010 mi^2	Yield (cfs/mi^2)	0.36
Q_{7-10} Flow (cfs)	363	Q_{7-10} Basis	Gage 01453000
Elevation (ft)	255	Slope (ft/ft)	0.0012
Watershed No.	2-C	Chapter 93 Class.	TSF/MF
Existing Use	-	Existing Use Qualifier	-
Exceptions to Use	-	Exceptions to Criteria	-
Assessment Status	Not Assessed		
Cause(s) of Impairment	-		
Source(s) of Impairment	-		
TMDL Status	-	Name	-

Background/Ambient Data		Data Source
pH (SU)	-	-
Temperature (°F)	-	-
Hardness (mg/L)	-	-
Other:	-	-

Nearest Downstream Public Water Supply Intake	LCA Allentown		
PWS Waters	Lehigh River	Flow at Intake (cfs)	370
PWS RMI	17.1	Distance from Outfall (mi)	3

Treatment Facility Summary

Treatment Facility Name: Catasauqua Borough WWTF

WQM Permit No.	Issuance Date
3986407	9/23/1986

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Trickling Filter With Settling	Ultraviolet Radiation	0.93 (2019)

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
2.25	4,316	Not Overloaded	Anaerobic Digestion w/ Belt Filter Press	Landfill

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 2.25
Latitude 40º 38' 53" **Longitude** -75º 28' 22"
Wastewater Description: Sewage Effluent

Technology-Based Limitations

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

Pollutant	Limit (mg/l)	SBC	Federal Regulation	State Regulation
$CBOD_5$	25.0	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40.0	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
	50.0	IMAX	-	-
Total Suspended Solids	30.0	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45.0	Average Weekly	133.102(b)(2)	92a.47(a)(2)
	60.0	IMAX	-	-
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)
Fecal Coliform (5/1 – 9/30)	200 / 100 ml	Geo Mean	-	92a.47(a)(4)
	1,000 / 100 ml	IMAX	-	92a.47(a)(4)
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)
	1.2	IMAX	-	-

Water Quality-Based Limitations and Site-Specific Technology-Based Limitations

Parameter	Limit (mg/l)	SBC	Model / Basis
Dissolved Oxygen	5.0	Minimum	Previously established.
Ammonia-Nitrogen (5/1 – 9/30)	8.0	Average Monthly	Previously established.
	16.0	IMAX	
Ammonia-Nitrogen (11/1 – 4/30)	20.0	Average Monthly	
	40.0	IMAX	
Fecal Coliform (10/1 – 4/30)	200 / 100 ml	Geo Mean	Previously established.
	1,000 / 100 ml	IMAX	

Whole Effluent Toxicity (WET)

For Outfall 001, ☐ **Acute** ☒ **Chronic** WET Testing was completed:

☒ For the permit renewal application (4 tests).
☐ Quarterly throughout the permit term.
☐ Quarterly throughout the permit term and a TIE/TRE was conducted.
☐ Other:

The dilution series used for the tests was: 100%, 50%, 1.0%, 0.5%, and 0.25%. The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 1%.

Summary of Four Most Recent Test Results

(NOTE – Enter results into one table, depending on which data analysis method was used).

NOEC/LC50 Data Analysis

Test Date	*Ceriodaphnia* Results (% Effluent)			*Pimephales* Results (% Effluent)			Pass? *
	NOEC Survival	NOEC Reproduction	LC50	NOEC Survival	NOEC Growth	LC50	
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

***** *A "passing" result is that which is greater than or equal to the TIWC value.*

TST Data Analysis

(NOTE – In lieu of recording information below, the application manager may attach the DEP WET Analysis Spreadsheet).

Test Date	*Ceriodaphnia* Results (Pass/Fail)		*Pimephales* Results (Pass/Fail)	
	Survival	Reproduction	Survival	Growth
9/20/2016	Pass	Pass	Pass	Pass
11/29/2016	Pass	Pass	Pass	Pass
2/7/2017	Pass	Pass	Pass	Pass
5/2/2017	Pass	Pass	Pass	Pass

***** *A "passing" result is that in which the replicate data for the TIWC is not statistically significant from the control condition. This is exhibited when the calculated t value ("T-Test Result") is greater than the critical t value. A "failing" result is exhibited when the calculated t value ("T-Test Result") is less than the critical t value.*

Is there reasonable potential for an excursion above water quality standards based on the results of these tests? (*NOTE – In general, reasonable potential is determined anytime there is at least one test failure in the previous four tests).*

☐ **YES** ☒ **NO**

Evaluation of Test Type, IWC and Dilution Series for Renewed Permit

Acute Partial Mix Factor (PMFa): **0.071** Chronic Partial Mix Factor (PMFc): **0.498**

1. Determine IWC – Acute (IWCa):

$(Q_d \times 1.547) / ((Q_{7\text{-}10} \times PMFa) + (Q_d \times 1.547))$

[(2.25 MGD x 1.547) / ((363.6 cfs x 0.071) + (2.25 MGD x 1.547))] x 100 = **11%**

Is IWCa < 1%? ☐ **YES** ☒ **NO**

Type of Test for Permit Renewal: **Chronic**

2b. Determine Target IWCc (If Chronic Tests Required)

$(Q_d \times 1.547) / (Q_{7\text{-}10} \times PMFc) + (Q_d \times 1.547)$

[(2.25 MGD x 1.547) / ((363.6 cfs x 0.498) + (2.25 MGD x 1.547))] x 100 = **2%**

3. Determine Dilution Series

(NOTE – check Attachment C of WET SOP for dilution series based on TIWCa or TIWCc, whichever applies).

Dilution Series = 100%, 60%, 30%, 2%, and 1%.

WET Limits

Has reasonable potential been determined? ☐ YES ☒ NO

Will WET limits be established in the permit? ☐ YES ☒ NO

If WET limits will be established, identify the species and the limit values for the permit (TU).

N/A

If WET limits will not be established, but reasonable potential was determined, indicate the rationale for not establishing WET limits:

N/A