

Application Type Renewal  
Facility Type Municipal  
Major / Minor Minor

**NPDES PERMIT FACT SHEET  
INDIVIDUAL SEWAGE**

Application No. PA0063321  
APS ID 860917  
Authorization ID 1056197

**Applicant and Facility Information**

Applicant Name	<u>Ararat Township</u>	Facility Name	<u>Fiddle Lake WWTP</u>
Applicant Address	<u>1765 Ararat Road</u> <u>Thompson, PA 18465</u>	Facility Address	<u>Airport Road</u> <u>Thompson, PA 18465</u>
Applicant Contact	<u>Mavis Cottrell</u>	Facility Contact	<u>Joseph Holmes</u>
Applicant Phone	<u>(570) 727-3115</u>	Facility Phone	<u>(570) 727-3115</u>
Client ID	<u>44739</u>	Site ID	<u>520284</u>
Ch 94 Load Status	<u>Not Overloaded</u>	Municipality	<u>Herrick Township</u>
Connection Status	<u>No Limitations</u>	County	<u>Susquehanna</u>
Date Application Received	<u>December 24, 2014</u>	EPA Waived?	<u>Yes</u>
Date Application Accepted	<u>January 5, 2015</u>	If No, Reason	<u>-</u>
Purpose of Application	<u>Renewal of existing NPDES permit.</u>		

**Summary of Review**

The applicant is requesting renewal of their NPDES permit to discharge up to 0.035 MGD of treated sewage to Fiddle Lake Creek (stream code is 28612), a CWF/MF designated receiving water in state water plan basin 05-A (Lackawanna River). As per the Department's current existing use list, the receiving water does not have an existing use classification that is more protective than its designated use.

The default low flow yield (LFY) of 0.1 cfs/mi<sup>2</sup> was chosen to model the discharge since there are no nearby representative stream gages to obtain flow data from. The drainage area at Outfall 001 is outside of the USGS StreamStats suggested range for estimating low flow values (see StreamStats Low Flow attachment). 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 (see Watershed Information attachment).

Limitations for CBOD<sub>5</sub>, TSS, pH and Fecal Coliform are technology-based and carried over from the previous permit. Note that technology-based IMAX limitations for Fecal Coliform are added to the permit during this renewal.

TRC limitations in the previously issued permit were old technology-based limitations (1.2 mg/L monthly average, 2.8 mg/L IMAX). As per PA Code 92a.47(a)(8) (which refers to PA Code 92a.48(b)(2)), a monthly average TRC facility-specific BAT effluent limit of 0.5 mg/L and an IMAX limit of 1.6 mg/L is applied to this permit renewal. These limitations will come into effect 1 year after the Permit Effective Date.

When modeling the discharge using the latest TRC calculation spreadsheet, a monthly average limitation of 0.13 mg/L and an IMAX of 0.42 mg/L was recommended. These water quality-based limitations will come into effect 4 years after the Permit Effective Date. The permittee may conduct site-specific studies to alter the new TRC limitations (see Part C.IV). Several factors can change the recommended TRC limitations as calculated by the spreadsheet, such as: chlorine demand

Approve	Deny	Signatures	Date
X		/s/ Brian Burden, E.I.T. / Project Manager	October 10, 2019
X		/s/ Amy M. Bellanca, P.E. / Environmental Engineer Manager	October 10, 2019

### Summary of Review

of stream, chlorine demand of discharge, and stream flow. Default values for chlorine demand were used to develop the limitations (0.3 mg/L for stream demand, 0 mg/L for discharge demand). The stream flow value was determined by multiplying the drainage area at Outfall 001 (delineated using USGS's StreamStats) by the default LFY of 0.1 cfs/mi<sup>2</sup>. Partial mixing factors were obtained from PENTOX (attached).

WQM modeling recommends a summertime 3.4 mg/L monthly average limitation for Ammonia-Nitrogen to meet water quality standards. The new Ammonia-Nitrogen limitations will come into effect 4 years after the Permit Effective Date. The standard 2x multiplier was used to develop the IMAX limits and the standard 3x multiplier was used to develop the wintertime limitations for Ammonia-Nitrogen.

Quarterly monitoring and reporting requirements for Total Nitrogen, Nitrate+Nitrite-Nitrogen, Total Kjeldahl Nitrogen and Total Phosphorus are included in this renewal to monitor nutrient concentrations.

Monthly monitoring and reporting requirements for influent BOD<sub>5</sub> and influent TSS are added to the permit to determine if the facility meets secondary treatment standards of 85% removal.

A Total Maximum Daily Load (TMDL) for the Lackawanna River Watershed was prepared for PA DEP on March 9, 2005. The TMDL addresses metals (Iron, Manganese, and Aluminum) and depressed pH associated with acid mine drainage (AMD). The TMDL load allocations apply to nonpoint sources of pollution; there are no Waste Load Allocations (WLA). Quarterly monitoring requirements for Total Iron, Total Manganese, and Total Aluminum are added to the permit to monitor these pollutants of concern.

Monitoring frequencies for all parameters with limitations are consistent with the recommended frequencies found in Table 6-3 of DEP's Technical Guidance for the Development and Specification of Effluent Limitations (doc. no. 362-0400-001).

A stream survey was conducted on July 28, 2016 on Fiddle Lake Creek by Timothy Daley, PA DEP Aquatic Biologist, to collect biological and chemical data for the Ararat Township WWTP and to determine if the discharge has caused any biological impacts to the receiving stream. Sampling was performed at two stations, one just upstream of the discharge, and the other approximately 300 feet downstream from the discharge. The results of the survey are below:

Station 01: "Sampling at this location occurred just upstream of the discharge location. The stream here was small and shallow and only several feet wide, but was flowing clear and full. A total of 18 taxa were found in the subsample, with 10 sensitive EPT taxa. Collectively, sensitive mayflies, stoneflies, and caddisflies were common, and the sensitive caddisfly *Diplectrona* was abundant. The IBI score here of 59.7, although modest, is well above the impairment threshold of 43.0.

In addition, the presence of numerous long-lived taxa clearly establishes this stream as perennial at the discharge location. A previous April 14, 1994 Point of First Use survey conducted by DER Water Pollution Biologist Edward Kupsy determined the stream to be ephemeral based on a sample collected 25 yards downstream of the Fiddle Lake outlet. The point of first use at that time was located approximately 1.5 miles downstream of the existing discharge location, and should be re-evaluated based on these current findings."

Station 02: "The discharge during the course of sampling was a milky gray color and odorous. Several extreme changes occurred here when compared to the upstream station. The entire stream section, from the discharge downstream approximately 300 feet (and likely further) was coated by gray solids. This sludge was several inches thick throughout much of the reach, and covered all substrates on the stream bottom (cobble, boulder, gravel, woody debris). In several areas, colonies of what appeared to be *Sphaerotilus natans* (aka "sewage fungus") were observed growing on top of heavy sludge deposits. This filamentous bacterium can thrive in highly organic and low dissolved oxygen conditions such as sewage sludge.

The macroinvertebrate community here was poor, with just 4 total taxa and 0 sensitive EPT taxa, and contrasts sharply with the upstream community. Nearly the entire subsample (97%) was dominated by pollution tolerant Chironomids (midges) and worms (Oligochaeta), predominantly the red hemoglobin/erythrocyte-containing varieties known as "bloodworms" and "sludge worms", respectively. These blood pigments allow species of both groups to flourish in organic sediments and sludge nearly devoid of oxygen. There was a total loss of all mayflies, stoneflies, and caddisflies which were numerous upstream, and both the Beck's Index and Percent Sensitive were zero, as no sensitive individuals were found. The results of these changes was a 46.8 point decrease in the IBI score, from 59.7 upstream of the discharge to 12.9 here, indicative of severely degraded conditions.

### Summary of Review

The water quality parameters of note downstream of the discharge include elevated ammonia and phosphorus, and decreased dissolved oxygen. The ammonia value of 4.17 mg/L would violate the Chapter 93 Water Quality Standards Chronic Criteria (1.917 mg/L) at a temperature of 20.0°C and pH of 7.00. The low dissolved oxygen (2.72 mg/L) would also violate the 5.0 mg/L minimum criteria for Cold Water Fishes.”

The facility’s 2018 Chapter 94 report shows no projected hydraulic/organic overloads at the WWTF. As per the September 2019 Sewage Sludge / Biosolids Production and Disposal form, 36,000 gallons of liquid sludge were hauled off site by Hallstead Sanitary.

DMR review of the past 3 years reveals the following concentration limitation exceedances:

July 2019: Fecal Coliform – 227 CFU/100mL geometric mean (limitation was 200 CFU/100mL)

August 2017: Total Suspended Solids – 64 mg/L monthly average & weekly average (limitations were 30 mg/L & 45 mg/L)

July 2017: CBOD<sub>5</sub> – 83.7 mg/L monthly average & weekly average (limitations were 25 mg/L & 40 mg/L)

May 2017: Fecal Coliform – 484 CFU/100mL geometric mean (limitation was 200 CFU/100mL)

April 2017: CBOD<sub>5</sub> – 67.5 mg/L monthly average & weekly average (limitations were 25 mg/L & 40 mg/L)

Note: WQM permit 5804402 was issued to Camp Chen-A-Wanda for the construction of two 10,000-gallon flow equalization tanks in May 2004. Current records show three 7,000-gallon flow equalization tanks at the WWTP.

The previously issued permit expired on June 30, 2015 and the application for permit renewal was submitted on time. There is one open violation for the client that would warrant withholding the issuance of the final permit: Inspection ID 2525296 (dated 8/24/2016) – “Violation of effluent limits in Part A of permit”.

Antibacksliding requirements have been met since no effluent limitations were made less stringent or removed from the permit. EPA waiver is in effect.



WQM  
Modeling.pdf



TRC Calculation.pdf



PENTOX.pdf



Watershed  
Information.pdf



StreamStats Low  
Flow.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.	<u>001</u>	Design Flow (MGD)	<u>0.035</u>
Latitude	<u>41° 46' 48"</u>	Longitude	<u>-75° 31' 48"</u>
Quad Name	<u>Thompson</u>	Quad Code	<u>0441</u>
Wastewater Description: <u>Sewage Effluent</u>			

Receiving Waters	<u>Fiddle Lake Creek (CWF)</u>	Stream Code	<u>28612</u>
NHD Com ID	<u>65628989</u>	RMI	<u>5.92</u>
Drainage Area	<u>0.45 mi<sup>2</sup></u>	Yield (cfs/mi <sup>2</sup> )	<u>0.1</u>
Q <sub>7-10</sub> Flow (cfs)	<u>0.045</u>	Q <sub>7-10</sub> Basis	<u>Default LFY</u>
Elevation (ft)	<u>1976</u>	Slope (ft/ft)	<u>0.016</u>
Watershed No.	<u>5-A</u>	Chapter 93 Class.	<u>CWF/MF</u>
Existing Use	<u>-</u>	Existing Use Qualifier	<u>-</u>
Exceptions to Use	<u>-</u>	Exceptions to Criteria	<u>-</u>

Assessment Status	<u>Impaired</u>		
Cause(s) of Impairment	<u>Cause Unknown &amp; Thermal Modification</u>		
Source(s) of Impairment	<u>Natural Sources (both)</u>		
TMDL Status	<u>Final</u>	Name	<u>Lackawanna River Watershed</u>

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

Nearest Downstream Public Water Supply Intake	<u>PAWC Forest City</u>		
	<u>Stillwater Reservoir</u>		
PWS Waters	<u>(Lackawanna River)</u>	Flow at Intake (cfs)	<u>3.8 (using default LFY)</u>
PWS RMI	<u>38.63</u>	Distance from Outfall (mi)	<u>~8.75</u>

Treatment Facility Summary				
<b>Treatment Facility Name:</b> Fiddle Lake WWTP				
<b>WQM Permit No.</b>		<b>Issuance Date</b>		
5899402		12/13/1999		
Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Trickling Filter With Settling	Chlorination	0.0108 (2013*)
Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.035	73	Not Overloaded	Settled	Hauled

Other Comments: \*2013 average annual flow value was the most recent value on the permit application, received on 12/24/2014.

**Development of Effluent Limitations**

**Outfall No.** 001  
**Latitude** 41° 46' 48"  
**Wastewater Description:** Sewage Effluent

**Design Flow (MGD)** 0.035  
**Longitude** -75° 31' 48"

**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 <sub>5</sub>	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)
Fecal Coliform (10/1 – 4/30)	2,000 / 100 ml	Geo Mean	-	92a.47(a)(5)
	10,000 / 100 ml	IMAX	-	92a.47(a)(5)

**Water Quality-Based Limitations**

The following limitations were determined through water quality modeling (output files attached):

Parameter	Limit (mg/l)	SBC	Model
Ammonia-Nitrogen (5/1 – 10/31)	3.4	Average Monthly	2019 WQM 7.0 Modeling
	6.8	IMAX	
Ammonia-Nitrogen (11/1 – 4/30)	10.2	Average Monthly	
	20.4	IMAX	
Total Residual Chlorine	0.13	Average Monthly	2019 TRC Calculation Spreadsheet
	0.42	IMAX	

Comments: The Total Residual Chlorine limitations above will come into effect 4 years after the permit effective date. For the first year of permit coverage, the old technology-based 1.2 mg/L monthly average and 2.8 mg/L IMAX limitations are in effect. For the second, third and fourth years of permit coverage, the updated technology-based TRC limitations will be in effect (0.5 mg/L monthly average, 1.6 mg/L IMAX). The Ammonia-Nitrogen limitations will come into effect 4 years after the permit effective date.