pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0228842**
Facility Type	**Municipal**	APS ID	**987372**
Major / Minor	**Minor**	Authorization ID	**1263170**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Muddy Run Regional Authority**	Facility Name	**Madera Wastewater Treatment Plant**
Applicant Address	813 Spruce Street	Facility Address	813 Spruce Street
	Madera, PA 16661-9102		Madera, PA 16661-9102
Applicant Contact	David Camberg	Facility Contact	Joseph Lesko
Applicant Phone	(814) 378-7302	Facility Phone	(814) 378-7302
Client ID	203209	Site ID	637145
Ch 94 Load Status	Not Overloaded	Municipality	Bigler Township
Connection Status	No Limitations	County	Clearfield
Date Application Received	February 25, 2019	EPA Waived?	No
Date Application Accepted	March 11, 2019	If No, Reason	Significant CB Discharge

Purpose of Application: Renewal of an existing NPDES permit for a discharge of treated sewage.

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
		Derek S. Garner / Project Manager	
		Nicholas W. Hartranft, P.E. / Environmental Engineer Manager	

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.4
Latitude	40º 50' 7.23"	Longitude	-78º 26' 28.14"
Quad Name	Ramsey	Quad Code	476
Wastewater Description:	Sewage Effluent		

Receiving Waters	Clearfield Creek	Stream Code	26107
NHD Com ID	61833565	RMI	26.13
Drainage Area	254	Yield (cfs/mi^2)	0.118
Q_{7-10} Flow (cfs)	30	Q_{7-10} Basis	Streamgage No. 01541500
Elevation (ft)	1318	Slope (ft/ft)	n/a
Watershed No.	8-C	Chapter 93 Class.	WWF
Existing Use	n/a	Existing Use Qualifier	n/a
Exceptions to Use	n/a	Exceptions to Criteria	n/a
Assessment Status	Impaired		
Cause(s) of Impairment	Metals		
Source(s) of Impairment	Acid Mine Drainage		
TMDL Status	Final	Name	Clearfield Creek

Nearest Downstream Public Water Supply Intake	Shawville Power LLC		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	149
PWS RMI	163	Distance from Outfall (mi)	34

Treatment Facility Summary

The Madera Wastewater Treatment Plant is a dual-train extended aeration treatment plant owned and operated by the Muddy Run Regional Authority; covered under WQM Permit No. 1705402, issued June 6, 2005. The plant is permitted for a design annual average flow of 0.4 MGD, hydraulic design capacity of 0.6 MGD, and an organic design capacity of 801 lbs. BOD_5/day.

Treatment at the facility consists of the following:

- One (1) comminutor
- One (1) bar screen (parallel w/ comminutor, only used when comminutor is out of service)
- One (1) equalization tank
- Two (2) aeration tanks (operated in parallel)
- Two (2) clarifier tanks (operated in parallel)
- One (1) single open-channel horizontal ultraviolet disinfection system
- Two (2) aerobic digester tanks (operated in parallel)
- One (1) sludge-dewatering centrifuge
  - Dewatered sludge is hauled to a landfill

Disinfected effluent is ultimately discharged via Outfall 001 to Clearfield Creek.

Compliance History

The following effluent violations occurred during the existing permit's term:

Parameter	Monitoring Period	SBC	DMR Value	Units	Limit Value	Units
DO	July 2019	Min	4.8	mg/L	5.0	mg/L
Fecal Coliform	June 2019	Geo Mean	< 367	CFU/100 ml	200	CFU/100 ml
Fecal Coliform	August 2019	Geo Mean	< 235	CFU/100 ml	200	CFU/100 ml
Fecal Coliform	June 2019	IMAX	< 2419.6	CFU/100 ml	1000	CFU/100 ml
Fecal Coliform	August 2019	IMAX	< 2419.6	CFU/100 ml	1000	CFU/100 ml
Fecal Coliform	July 2019	IMAX	< 2419.6	CFU/100 ml	1000	CFU/100 ml

There are no open violations associated with the permittee.

The facility was last inspected by DEP on March 6, 2019. No violations other than the above mentioned fecal coliform exceedances were documented.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.4
Latitude 40º 50' 7.06" **Longitude** -78º 26' 28.10"
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	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
		Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45	Average Weekly	133.102(b)(2)	92a.47(a)(2)
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)
Fecal Coliform (5/1 – 9/30)	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)
Fecal Coliform (10/1 – 4/30)	10,000 / 100 ml	IMAX	-	92a.47(a)(5)

Water Quality-Based Limitations

DEP models in-stream conditions to determine if WQBELs are appropriate. WQM is a multiple-discharge analysis for CBOD5, ammonia-n, and dissolved oxygen. The model assumes complete and instantaneous mixing with the receiving surface water. The reach chosen to model the in-stream characteristics is appropriate as a recovery in dissolved oxygen levels is demonstrated. The modeling output, attached, indicates no water quality-based effluent limits are necessary to protect Clearfield Creek.

PENTOXSD is a single-discharge model that calculates a partial mixing factor based on surface water and discharge characteristics. The existing permit established a total copper monitoring requirement. The reported sample results (attached) were used to calculate an average discharge calculation of 9 µg/l. Since the reported average sample result is below the Chapter 93 total copper criterion, it is not a candidate for modeling, and the monitoring requirements have been removed from the permit.

Best Professional Judgment (BPJ) Limitations

The facility currently reports UV intensity for disinfection. DEP has proposed to maintain this requirement.

The facility currently monitors influent for BOD5 and TSS. DEP has proposed to maintain this requirement.

Chesapeake Bay

With a design flow of 0.4 MGD, the Madera WWTP is considered a significant sewage treatment facility by Phase 2 of Pennsylvania's Watershed Implementation Plan ("WIP"). Since this is a significant facility, cap loads for total nitrogen ("TN") and total phosphorus ("TP") should have been assigned in previous permit renewals per the WIP's requirements. Based on a review of DEP's files, it is unclear why cap loads were never established. Accordingly, to comply with the WIP and Chesapeake Bay TMDL, DEP must establish cap loads for TN and TP.

Cap loads were calculated per methodology outlined in the WIP; the lesser of existing performance or cap loads of 7,306 lbs/yr TN and 974 lbs/yr TP (0.4 MGD x 6 mg/l TN or 0.8 mg/l TP x 8.34). Based on the sample results reported over the past five years on discharge monitoring reports (attached), existing performance at the facility averages to 7,010 lbs/yr TN and 1,240 lbs/yr TP. Accordingly, DEP will establish a TN cap load based on existing performance of 7,010 lbs/yr TN and a cap load for TP 974 lbs/yr based on 0.8 mg/l.

Additional nutrient monitoring will also be established in-line with WIP requirements.

Anti-Backsliding

Monitoring requirements for total copper have been removed from the permit per anti-backsliding regulations at 40 CFR § 122.44(l)(2)(i)(B)(1), which allows for parameters to be removed from the permit based on information (e.g., sample results) that were not available at the time of previous permit issuance.

Existing Effluent Limitations and Monitoring Requirements

The existing limits and monitoring requirements are as follows:

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Metered
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
CBOD5	Report	Report Wkly Avg	XXX	25	40	50	1/week	24-Hr Composite
BOD5 Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Total Suspended Solids	Report	Report Wkly Avg	XXX	30	45	60	1/week	24-Hr Composite
Fecal Coliform (CFU/100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	1/week	Grab
Fecal Coliform (CFU/100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	1/week	Grab
UV Intensity (mW/cm^2)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Metered
Total Nitrogen	Report	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Ammonia-Nitrogen	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Total Phosphorus	Report	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Total Copper	Report	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite

Compliance Sampling Location: Outfall 001

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)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Instantaneous Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Metered
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
CBOD5	80	130	XXX	25.0	40.0	50	1/week	24-Hr Composite
BOD5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
TSS	100	150	XXX	30.0	45.0	60	1/week	24-Hr Composite
TSS Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
UV Intensity (mW/cm²)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Metered
Nitrate-Nitrite	XXX	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Nitrate-Nitrite (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	1/month	Calculation
Total Nitrogen (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation

Outfall 001, Continued (from Permit Effective Date through Permit Expiration Date)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Instantaneous Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Ammonia	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Ammonia (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
TKN	XXX	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
TKN (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
Total Phosphorus	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Phosphorus (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation

Compliance Sampling Location: Outfall 001

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, to comply with Pennsylvania's Chesapeake Bay Tributary Strategy.

Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Total Nitrogen	XXX	Report Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation
Total Nitrogen Effluent Net	XXX	7010 Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation
Ammonia	XXX	Report Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation
Total Phosphorus	XXX	Report Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation
Total Phosphorus Effluent Net	XXX	974 Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation

Compliance Sampling Location: Outfall 001

ATTACHMENTS