pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0228672**
Facility Type	**Municipal**	APS ID	**987378**
Major / Minor	**Minor**	Authorization ID	**1263179**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Muddy Run Regional Authority**	Facility Name	**Glen Hope Sanitary Sewer STP**
Applicant Address	813 Spruce Street	Facility Address	6312 Glen Hope Boulevard
	Madera, PA 16661-9102		Glen Hope, PA 16645
Applicant Contact	David Camberg	Facility Contact	Joe Lesko
Applicant Phone	(814) 378-7302	Facility Phone	(814) 378-7302
Client ID	203209	Site ID	606279
Ch 94 Load Status	Not Overloaded	Municipality	Glen Hope Borough
Connection Status	No Limitations	County	Clearfield
Date Application Received	February 25, 2019	EPA Waived?	Yes
Date Application Accepted	March 11, 2019	If No, Reason	

Purpose of Application: Application for the renewal of the existing individual NPDES permit.

Summary of Review

Muddy Run Regional Authority has submitted an application for the renewal of the existing NPDES Permit PA0228672 for the Department's review. 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		Jonathan P. Peterman / Project Manager	January 15, 2020
		Nicholas W. Hartranft, P.E. / Environmental Engineer Manager	

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.022
Latitude	40º 48' 14.00"	Longitude	-78º 28' 58.00"
Quad Name	Ramey	Quad Code	1218
Wastewater Description:	Sewage Effluent		

Receiving Waters	Clearfield Creek	Stream Code	26107
NHD Com ID	61834499	RMI	33.5
Drainage Area	371 mi^2	Yield (cfs/mi^2)	0.1129
Q_{7-10} Flow (cfs)	23.4	Q_{7-10} Basis	Stream gage no. 01451500
Elevation (ft)	1,385	Slope (ft/ft)	-
Watershed No.	8-C	Chapter 93 Class.	WWF
Existing Use	WWF	Existing Use Qualifier	N/A
Exceptions to Use	None.	Exceptions to Criteria	N/A
Assessment Status	Impaired		
Cause(s) of Impairment	METALS, METALS		
Source(s) of Impairment	ACID MINE DRAINAGE, ACID MINE DRAINAGE		
TMDL Status	Final, 04/07/2007	Name	Clearfield Creek

Nearest Downstream Public Water Supply Intake	PA American Water Company – White Deer		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	728
PWS RMI	10.5	Distance from Outfall (mi)	194

Changes Since Last Permit Issuance: The updated Q_{7-10} data was obtained from the updated stream gage information obtained from *Stuckey, M.H., and Roland, M.A., 2011, Selected Streamflow Statistics for Streamgage Locations In and Near Pennsylvania*. Given that the associated stream gage (01451500) is located downstream of the discharge location, a simple comparative stream analysis is needed. This analysis reveals that the Q_{7-10} is 23.4 cfs. Q_{7-10} calculations are attached in Appendix A.

Other Comments: None.

Treatment Facility Summary		
Treatment Facility Name: Glen Hope WWTF		
WQM Permit No.	**Issuance Date**	**Comments**
1703401	3/7/2003	Original construction.

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Activated Sludge	Ultraviolet	0.022
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.022	51	Not Overloaded	Aerobic Digestion	Landfill

Treatment System Components:
- One (1) Comminutor / Bar Screen.
- Four (4) Aeration Tanks / RAS.
  -Four (4) Blowers.
- One (1) Clarifiers / Skimmer.
- Two (2) UV Disinfection System Banks
  -Two (2) Bulbs in each bank.
- One (1) Post-Aeration Tank.
- One (1) Flow Meter.
- One (1) Outfall 001.
- Two (2) Aerobic Digesters.

Changes Since Last Permit Issuance: None.
Other Comments: None.

TMDL Impairment

Clearfield Creek TMDL

The Department's Geographic Information System (GIS) shows that Clearfield Creek is impaired and a TMDL does exist for the stream segment. High levels of metals caused these impairments (iron, manganese, aluminum). All impairments resulted from acid mine drainage. The TMDL addresses the three primary metals associated with acid mine drainage (iron, manganese, aluminum). There is currently no industrial waste being discharged into the treatment plant and this discharge is not expected to contribute to the level of metals in the stream. In order to ensure that this discharge does not have reasonable potential to cause, or contributes to an in-stream excursion, monitoring for aluminum, iron, and manganese was required at a rate of once per year over the previous permit term. The results are as follows:

Monitoring Results (2015 to 2018)

Parameter	2018	2017	2016	2015
	(Avg. Mo.)	(Avg. Mo.)	(Avg. Mo.)	(Avg. Mo.)
Total Aluminum (mg/L)	<0.05	<0.05	<0.05	<0.05
Total Iron (mg/L)	0.09	0.29	0.18	0.46
Total Manganese (mg/L)	0.03	0.06	0.79	0.46

Given these results and the regulations contained in 40 CFR §122.44(d)(1)(ii)&(iii), it can be determined that the type of effluent from this facility has no "Reasonable potential to cause, or contributes to an in-stream excursion above the allowable ambient concentration of a State numeric criteria within a State water quality standard for an individual pollutant." Therefore, effluent limits and/or further monitoring is not required and will be removed. See Appendix D for the Toxic Screening Analysis.

Chesapeake Bay Requirements

Since this facility's annual average design flow is 0.022 MGD, the permittee will be required to monitor and report TN and TP throughout the permit term at a frequency no less than annually in accordance with the Phase II WIP Chesapeake Bay Strategy for Phase V facilities (0.002 MGD to 0.2 MGD) unless 1) the facility has already conducted at least two years of nutrient monitoring and 2) a summary of the monitoring results are included in the next permit's fact sheet. The previous permit contained the Chesapeake Bay Monitoring requirements and the required sampling has been conducted. Since the permittee conducted this monitoring in the previous permit term and the data is summarized in the fact sheet below, the conditions have been met and Chesapeake Bay monitoring will no longer be required.

Chesapeake Bay – eDMR Monitoring Results (2015 to 2019)

Date	Total Nitrogen (Annl. Avg.)		Total Phosphorus (Annl. Avg.)	
	(mg/L)	(lbs/day)	(mg/L)	(lbs/day)
2015	11.5	0.71	1.1	0.07
2016	37.4	2.2	1.19	0.07
2017	3.64	0.17	3.79	0.17
2018	13.9	0.64	2.02	0.09

Anti-Backsliding

In accordance with 40 CFR 122.44(l)(1) and (2), this permit does not contain effluent limitations, standards, or conditions that are less stringent than the previous permit.

Existing Effluent Limitations and Monitoring Requirements

Existing Limits – Outfall 001

Discharge Parameter	Limitations							
	Mass (lb/day)		Concentration (mg/L)				Monitoring Requirements	
	Monthly Average	Daily Maximum	Minimum	Average Monthly	Average Weekly	Instantaneous Maximum	Minimum Frequency	Sample Type
Flow (MGD)	Report	Report					1/ Week	Metered
C-BOD_5				25		50	2/ Month	Grab
BOD_5 Raw Sewage Influent	Report	Report		Report			2/ Month	Grab
TSS				30		60	2/ Month	Grab.
TSS Raw Sewage Influent	Report	Report		Report			2/ Month	Grab
UV Transmittance (%)			Report				5/ Week	Metered
NH3-N				Report		Report	2/ Month	Grab
D.O.			Report				5/ Week	Grab
pH (Std. Units)			6.0			9.0	5/ Week	Grab
Fecal Coliforms (5/1-9/30)	200 colonies/100 ml as a geometric mean					1,000	2/ Month	Grab
Fecal Coliforms (10/1-4/30)	2,000 colonies/100 ml as a geometric mean					10,000		
Total Nitrogen	Report	Report		Report			1/ Year	Grab
Total Phosphorous	Report	Report		Report			1/ Year	Grab

Total Aluminum				Report			1/ Year	Grab
Total Iron				Report			1/ Year	Grab
Total Manganese				Report			1/ Year	Grab

*The existing effluent limits for Outfall 001 were based on a design flow of 0.022 MGD.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.022
Latitude 40º 47' 50.50" **Longitude** -78º 29' 8.40"
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)
	40	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)
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)

Water Quality-Based Limitations

To establish whether or not water-quality based effluent limitations (WQBELs) are required, the Department models in-stream conditions. In order to determine limitations for CBOD5, ammonia-N and dissolved oxygen, the Department utilizes the WQM 7.0 v1.0b model and in order to determine limitations for toxics, the Department utilizes the PENTOXSD v2.0d model.

WQM 7.0 for Windows, Version 1.0b, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen
Given that there have been no changes to the facility, the discharge, or the receiving stream, the previous modeling results will be utilized. The model previously was run using the Q7-10 stream flow, background water quality, average annual design flow, and other discharge characteristics. The existing water technology-based limits for $CBOD_5$ (25 mg/l) and NH3-N (25 mg/l) were used as inputs for the modeling. The DO minimum daily average criterion from §93.7 (5.0 mg/L for WWF) was used for the in-stream objective for the model. The summary of the output is as follows:

Parameter	Effluent Limit		
	30 Day Average	Maximum	Minimum
CBOD5	25	N/A	N/A
Ammonia-N	25	50	N/A
Dissolved Oxygen	N/A	N/A	3

The previous model did not recommend more stringent water-quality based effluent limitations with regards to CBOD5, ammonia-nitrogen, and dissolved oxygen. Refer to the Appendix for the previous WQM 7.0 inputs and results. The existing effluent limits will remain.

Best Professional Judgment (BPJ) Limitations

See D.O. section below.

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 the abovementioned 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) and/or BPJ.

Proposed Limits - Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date

Discharge Parameter	Limitations							
	Mass (lb/day)		Concentration (mg/L)				Monitoring Requirements	
	Monthly Average	Daily Maximum	Minimum	Average Monthly	Average Weekly	Instantaneous Maximum	Minimum Frequency	Sample Type
Flow (MGD)	Report	Report					1/ Week	Metered
C-BOD_5	4.5	7.0		25	40	50	2/ Month	Grab
BOD_5 Raw Sewage Influent	Report	Report		Report			2/ Month	Grab
TSS	5.5	8.0		30	45	60	2/ Month	Grab.
TSS Raw Sewage Influent	Report	Report		Report			2/ Month	Grab
UV Transmittance (%)			Report				5/ Week	Metered
NH3-N				Report		Report	2/ Month	Grab
D.O.			Report				5/ Week	Grab
pH (Std. Units)			6.0			9.0	5/ Week	Grab
Fecal Coliforms (5/1-9/30)	200 colonies/100 ml as a geometric mean					1,000	2/ Month	Grab
Fecal Coliforms (10/1-4/30)	2,000 colonies/100 ml as a geometric mean					10,000		

*The proposed effluent limits for Outfall 001 were based on a design flow of 0.022 MGD.

Effluent Limit Determination for Outfall 001

General Information

All of the limits proposed above are consistent with other permits issued for Phase V wastewater treatment plants in the region. The associated mass-based limits (lbs/day) for all parameters were based on the formula: design flow (average annual) (MGD) x concentration limit (mg/L) at design flow x conversion factor (8.34). All effluent limits were then rounded down in accordance with the rounding rules established in the *Technical Guidance for the Development and Specification of Effluent Limitations (362-0400-001)*, Chapter 5 - Specifying Effluent Limitations in NPDES Permits. The existing monitoring frequencies and sample types for these parameters generally correspond with the *Technical Guidance for the Development and Specification of Effluent Limitations* (362-0400-001) Table 6-3 and will remain. During the previous review, it was determined by the Department that monitoring at a frequency of 5/ Week in lieu of 1/ Day would be acceptable for UV, DO, and pH. Given that there is no history of non-compliance with effluent limitations over the past two years according to DMR data for these parameters, and the existing monitoring frequencies are less stringent than Table 6-3, the existing frequencies will remain. DO monitoring will be 5/ Week in lieu of 1/ week to correspond with pH and UV monitoring.

Flow

Reporting of the daily maximum flow is consistent with monitoring requirements for other treatment plants of this size.

Carbonaceous Biochemical Oxygen Demand ($CBOD_5$)

The results of the WQM 7.0 model show that the previously applied secondary treatment standards (25 PA Code §92a.47 (a) (1&2)) for $CBOD_5$ are protective of water quality.

Total Suspended Solids (TSS)
The previously applied technology based secondary treatment standards (25 PA Code §92a.47 (a) (1&2)) for TSS will remain as well.

pH
CFR Title 40 §133.102(c) and 25 PA Code §95.2(1) provide the basis of effluent limitations for pH. The existing limits will remain.

Fecal Coliforms
The existing fecal coliform limits with I-max limits were updated from the previous Chapter 92 code to correspond with what is specified in the updated 25 PA Code § 92a.47 (a)(4)&(5) and will remain.

Ammonia-Nitrogen (NH3-N)
The previous WQM 7.0 modeling results for summer indicates that an average monthly limit of 25 mg/L is acceptable. A year-round monitoring requirement for ammonia-nitrogen was previously established and will remain.

Dissolved Oxygen (DO)
Given results of the WQM 7.0 model, a discharge of effluent from this facility with a DO concentration of 3 mg/l would not result in an exceedance of water quality requirements for this stream. However, the Department previously established a monitor only requirement. The monitoring requirement was established to ensure that the facility's discharge does not cause or contribute to an in-stream excursion below water quality standards for DO in the receiving stream and will remain.

UV Transmittance (%)
The facility currently utilizes a meter for this monitoring the sample type (Meter) is appropriate. Additionally, the correct units have been verified for this parameter.

Influent BOD_5 and TSS
The Department requires the reporting of raw sewage influent monitoring for BOD_5 and TSS in all POTW permits. This provides the Department with the ability to monitor the percent removal of each parameter as stipulated in section 2 of the Part A conditions and maintain records of the BOD_5 loading as required by 25 Pa. Code Chapter 94. The monitoring frequencies and sample types are identical to the effluent sampling.

Other Comments: All effluent limits are appropriate and typical for this facility type.

Compliance History

Summary of Inspections -The last inspection of the facilities was conducted on 9/5/19 by the Department. The inspection report indicates that the facility was operating normally.

WMS Query Summary - A WMS Query was run at *Reports - Violations & Enforcements – Open Violations for Client Report* to determine whether there are any unresolved violations associated with the client that will affect issuance of the permit (per CSL Section 609). This query revealed no open violations.

DMRs Summary - Upon review of the DMR's, the facility has been in compliance with the existing effluent limits.

Attachments

Muddy Run
Appendices

Compliance History

DMR Data for Outfall 001 (from December 1, 2018 to November 30, 2019)

Parameter	NOV-19	OCT-19	SEP-19	AUG-19	JUL-19	JUN-19	MAY-19	APR-19	MAR-19	FEB-19	JAN-19	DEC-18
Flow (MGD) Average Monthly	0.0086	0.0047	0.004	0.0044	0.0044	0.0064						
Flow (MGD) Daily Maximum	0.0144	0.0106	0.007	0.0075	0.0075	0.0121						
pH (S.U.) Minimum	6.43	6.53	6.18	6.62	6.62	6.8						
pH (S.U.) Maximum	7.22	7.1	7.1	7.2	7.2	7.2						
DO (mg/L) Minimum	4.4	6.5	6.0	4.8	4.8	5.3						
CBOD5 (mg/L) Average Monthly	< 2.4	3.0	2.4	2.0	2.0	< 1.7						
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	192	9	8.0	7.0	8	5.5						
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	196	11	9.0	8.0	9	6.2						
BOD5 (mg/L) Raw Sewage Influent Average Monthly	17.0	240	213	235.0	264	183.0						
TSS (lbs/day) Raw Sewage Influent Average Monthly	22.0	13	12	9.0	11	7.0						
TSS (lbs/day) Raw Sewage Influent Daily Maximum	25.0	15	14	11.0	11	7.1						
TSS (mg/L) Average Monthly	11	17	3.0	10.0	10.0	3.5						
TSS (mg/L) Raw Sewage Influent Average Monthly	245.0	334	330	295.0	341	231.0						

Fecal Coliform (CFU/100 ml) Geometric Mean	< 3.0	< 12	< 6.0	1.0	1	10.8						
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	12.2	133.4	37.3	1.0	1	22.6						
UV Transmittance (%) Minimum	75.5	75.5	75.4	75.4	75.4	75.4						
Ammonia (mg/L) Average Monthly	0.19	0.22	0.25	0.3	0.3	0.84						

Tools and References Used to Develop Permit	
☒	Q7-10 Analysis and Stream Data (see Appendix **A**)
☒	WQM 7.0 Model Input/Output (see Appendix **B**)
☒	Toxics Screening Analysis v2.4 (see Appendix **D**)
☐	PENTOXSD v2.0d Model Input/Output (see Appendix)
☒	Facility Map and Schematic (see Appendix **C**)
☐	TRC Evaluation Spreadsheet (see Appendix)
☐	Lake Model Output (see Appendix)
☐	WETT Spreadsheet (see Appendix)
☒	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 Sewage Individual NPDES Permit Applications - Version 1.8 – 10/11/13
☒	SOP: Establishing Effluent Limitations for Individual Sewage Permits– Version 1.5 - 8/23/13
☐	Other: