pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0020583**
Facility Type	**Municipal**	APS ID	**1003907**
Major / Minor	**Minor**	Authorization ID	**1292265**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Middleburg Municipal Authority**	Facility Name	**Middleburg Municipal Authority Wastewater Treatment Plant**
Applicant Address	13 N Main Street	Facility Address	13 N Main Street
	Middleburg, PA 17842-1082		Middleburg, PA 17842-1082
Applicant Contact	Dwayne Hackenberg	Facility Contact	Dustin Zechman
Applicant Phone	(570) 837-2533	Facility Phone	(570) 837-2533
Client ID	51628	Site ID	390
Ch 94 Load Status	Not Overloaded	Municipality	Middleburg Borough
Connection Status	No Limitations	County	Snyder
Date Application Received	October 11, 2019	EPA Waived?	No
Date Application Accepted	October 22, 2019	If No, Reason	Significant CB Discharge
Purpose of Application	Renewal of an existing 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
X		Derek S. Garner Derek S. Garner / Project Manager	4/22/2020
X		Nicholas W. Hartranft Nicholas W. Hartranft, P.E. / Environmental Engineer Manager	4/22/2020

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.45
Latitude	40º 47' 29.17"	Longitude	-77º 2' 19.74"
Quad Name	Middleburg	Quad Code	1229
Wastewater Description:	Sewage Effluent		

Receiving Waters	Middle Creek	Stream Code	17701
NHD Com ID	54966627	RMI	12.5
Drainage Area	131	Yield (cfs/mi^2)	0.16
Q_{7-10} Flow (cfs)	20.8	Q_{7-10} Basis	Streamgage No. 01565000
Elevation (ft)	480	Slope (ft/ft)	n/a
Watershed No.	6-A	Chapter 93 Class.	TSF
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	Siltation		
Source(s) of Impairment	Agriculture		
TMDL Status	Pending	Name	**n/a**

Nearest Downstream Public Water Supply Intake	SUEZ Water		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	2356
PWS RMI	76.73	Distance from Outfall (mi)	53.6

Treatment Facility Summary

Middleburg Municipal Authority owns and operates an extended aeration treatment plant with an annual average design flow of 0.45 MGD, hydraulic capacity of 0.72 MGD, and an organic capacity of 938 lbs BOD/day.

Influent flow enters one wet well and is pumped to a screening unit followed by a grit removal chamber. The wastewater is then conveyed to a splitter box and is separated into two extended aeration treatment basins with integral clarifiers. The clarified wastewater is then conveyed to the UV disinfection tank before being discharged to Middle Creek via Outfall 001. Sludge is stored in one sludge storage basin and ultimately hauled off site.

Compliance History

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

Monitoring Period		Parameter	Sample Value	Violation Condition	Permit Value	Units	SBC
10/1/2015	9/30/2016	Total Phosphorus (Total Load, lbs)	1114	>	1096	lbs	Total Annual
10/1/2015	9/30/2016	Total Nitrogen (Total Load, lbs)	8514	>	8219	lbs	Total Annual
2/1/2016	2/29/2016	Total Suspended Solids	168	>	165	lbs/day	Weekly Average
6/1/2017	6/30/2017	Fecal Coliform	2420	>	1000	CFU/100 ml	Instantaneous Maximum
6/1/2017	6/30/2017	Fecal Coliform	507	>	200	CFU/100 ml	Geometric Mean
7/1/2017	7/31/2017	Fecal Coliform	2420	>	1000	CFU/100 ml	Instantaneous Maximum
8/1/2017	8/31/2017	Fecal Coliform	2420	>	1000	CFU/100 ml	Instantaneous Maximum
9/1/2017	9/30/2017	Fecal Coliform	2420	>	1000	CFU/100 ml	Instantaneous Maximum
12/1/2017	12/31/2017	Fecal Coliform	2420	>	2000	CFU/100 ml	Geometric Mean
7/1/2019	7/31/2019	Fecal Coliform	2419.6	>	1000	CFU/100 ml	Instantaneous Maximum

The above table indicates the facility experienced significant difficulties achieving fecal coliform limits in the latter half of 2017. With only one violation occurring since 2017, it appears that the permittee has corrected the problem.

There are no open violations associated with the permittee.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.45
Latitude 40º 47' 32.60" **Longitude** -77º 2' 19.90"
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)

Water Quality-Based Limitations

A “Reasonable Potential Analysis” (attached) was conducted in WQM 7.0 v1.0b and PENTOXSD v2.0d. The model output from WQM indicates that the existing technology-based effluent limitations are protective of Middle Creek. The model output for PENTOXSD indicates that no water quality-based effluent limits or monitoring requirements for toxic parameters are necessary.

Best Professional Judgment (BPJ) Limitations

The existing permit established monitoring requirements for dissolved oxygen and ammonia-n to help characterize the wastewater and provide treatment plant operating data. DEP recommends that these requirements remain in the permit.

The existing permit also established influent monitoring requirements for BOD5 and TSS to help with Chapter 94 reporting requirements. DEP recommends that these requirements remain in the permit.

The existing permit requires the permittee to report minimum percent transmittance of the ultraviolet disinfection system to demonstrate disinfection is occurring. DEP recommends that this requirement remains in the permit.

Chesapeake Bay

Pennsylvania’s Watershed Implementation Plan (WIP), Phase II, classifies this facility as a Phase II discharger. Consequently, the existing cap loads for total nitrogen and total phosphorus, established in previous permits and identified in the WIP, will remain in the permit.

Anti-Backsliding

No effluent limits or monitoring requirements are proposed to be made less stringent.

Existing Effluent Limitations and Monitoring Requirements

The existing effluent limitations 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	90	150 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	110	165 Wkly Avg	XXX	30	45	60	1/week	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	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 Transmittance (%)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Metered
Ammonia-Nitrogen	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite

Compliance Sampling Location: Outfall 001

The existing Chesapeake Bay cap loads and monitoring requirements are as follows:

Parameter	Effluent Limitations					Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)			Minimum Measurement Frequency	Required Sample Type
	Monthly	Annual	Minimum	Monthly Average	Maximum		
Ammonia---N	Report	Report		Report		1/week	24-Hr Composite
Kjeldahl---N	Report			Report		1/week	24-Hr Composite
Nitrate-Nitrite as N	Report			Report		1/week	24-Hr Composite
Total Nitrogen	Report	Report		Report		1/month	Calculation
Total Phosphorus	Report	Report		Report		1/week	24-Hr Composite
Net Total Nitrogen	Report	8,219				1/month	Calculation
Net Total Phosphorus	Report	1,096				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, 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	Report	XXX	XXX	XXX	1/day	Grab
CBOD5	90	150	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	110	165	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 Transmittance (%)	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

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		
Total Nitrogen (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
Total Nitrogen (lbs) Effluent Net	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
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	XXX	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Phosphorus (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
Total Phosphorus (lbs) Effluent Net	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/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Total Nitrogen (lbs) Effluent Net	XXX	8219 Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation
Total Nitrogen (lbs)	XXX	Report Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation
Ammonia (lbs)	XXX	Report Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation
Total Phosphorus (lbs) Effluent Net	XXX	1096 Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation
Total Phosphorus (lbs)	XXX	Report Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation

Compliance Sampling Location: Outfall 001

Attachments


DFLOW


Streamgage Info


Streamstats


Q710 Calcs


WQM Input Data


WQM Modeling Specifications


WQM Hydrodynamic Outp


WQM Wasteload Allocations


WQM DO Simulation


WQM Effluent Limits


PENTOXSD Modeling Input


PENTOXSD Hydrodynamics


PENTOXSD Wasteload Allocatio


PENTOXSD Analysis Results


Toxics Screening Analysis