pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0100200**
Facility Type	**Non-Municipal**	APS ID	**1004584**
Major / Minor	**Major**	Authorization ID	**1293514**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Reynolds Disposal Company**	Facility Name	**Reynolds Disposal**
Applicant Address	301 Arlington Drive	Facility Address	139 Crestview Drive Extension
	Greenville, PA 16125-8214		Greenville, PA 16125-8214
Applicant Contact	Bradley Gosser	Facility Contact	
Applicant Phone	(724) 646-1144	Facility Phone	
Client ID	215224	Site ID	624592
Ch 94 Load Status	Not Overloaded	Municipality	Pymatuning Township
Connection Status	No Limitations	County	Mercer
Date Application Received	October 2, 2019	EPA Waived?	No
Date Application Accepted	September 2, 2019	If No, Reason	Major Facility

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

Summary of Review

No changes to discharge quantity or quality are being proposed as part of this permit renewal.

There are numerous changes to the permit being proposed as part of this permit renewal based on it being a major sewage facility. Those changes include monitoring requirements, WET testing, and the submission of Chapter 94 reports.

The plant discharges to a segment of the Shenango River, which is known to contain threatened and endangered mussel species. A summary of threatened and endangered mussel species concerns and considerations is included on Page 8 of this Fact Sheet. Additionally, the draft permit will be forwarded to the US Fish & Wildlife Service.

There are currently no open violations listed in EFACTS for this permittee (9/17/2020).

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		Adam Pesek Adam J. Pesek, E.I.T. / Environmental Engineering Specialist	9/29/2020
X		Justin C. Dickey Justin C. Dickey, P.E. / Environmental Engineer Manager	October 2, 2020

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	1.25
Latitude	41º 21' 28 "	Longitude	-80º 24' 2"
Quad Name	Sharpsville	Quad Code	3023
Wastewater Description:	Sewage Effluent		

Receiving Waters	Shenango River	Stream Code	35482
NHD Com ID	130034452	RMI	55.72
Drainage Area	337	Yield (cfs/mi^2)	0.139
Q_{7-10} Flow (cfs)	46.84	Q_{7-10} Basis	* -- See below
Elevation (ft)	952	Slope (ft/ft)	
Watershed No.	20-A	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	

Background/Ambient Data		Data Source
pH (SU)	7.41	WQN 913 (geo mean-'00-'15)(June-Sept.)
Temperature (°C)	25	Default (WWF)
Hardness (mg/L)	139.4	WQN 913 (90th %-'00-'15)(June-Sept.)
Other: NH_3-N	0.04	WQN 913 (Median-'00-'15)(June-Sept.)

Nearest Downstream Public Water Supply Intake		Aqua PA Shenango Valley WTP	
PWS Waters	Shenango River	Flow at Intake (cfs)	143.8
PWS RMI	28.88	Distance from Outfall (mi)	26.9

Changes Since Last Permit Issuance: A Department Inspection Report for a site visit that occurred on April 30, 2019 noted that the discharge from the facility is directly to the Shenango River, not to an unnamed tributary. This permit renewal will reflect the corrected outfall point.

* -- USGS #03102850 (1967-1996) Q7-10 flow rate was adjusted to subtract out this discharge and Greenville STP that would typically be discharged (used the same average flow for both facilities that was used in the last evaluation) to get the adjusted yield rate for this reach on the Shenango River.
52 cfs – [4.11cfs(2.65 MGD) + 1.07 cfs(0.69 MGD)] = 46.82 cfs/337 mi^2 = 0.139 cfsm

Treatment Facility Summary

Treatment Facility Name: Reynolds Disposal

WQM Permit No.	Issuance Date
4304414	4/25/2005
4304414 A-1	3/31/2008

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary with Phosphorus Reduction	Trickling Filter With Settling	Hypochlorite	1.25

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
1.25	837	Not Overloaded	Aerobic Digestion	Landfill

Changes Since Last Permit Issuance:

Other Comments: Existing treatment consists of a Mechanically Cleaned Bar Screen w/ bypass screen, (2) Aerated Grit Chambers, (2) Primary Clarifiers, (1) Biofilter, (2) Secondary Clarifiers, Pre/Post Chlorination, and a Chlorine Contact Tank. Aluminum Sulfate is also added for phosphorus removal. Sludge handling: (1) Aerobic Digester and (3) Sludge Drying Beds.

Compliance History

DMR Data for Outfall 001 (from July 1, 2019 to June 30, 2020)

Parameter	JUN-20	MAY-20	APR-20	MAR-20	FEB-20	JAN-20	DEC-19	NOV-19	OCT-19	SEP-19	AUG-19	JUL-19
Flow (MGD) Average Monthly	0.238	0.444	0.686	0.861	0.705	0.803	0.681	0.391	0.330	0.306	0.389	0.584
pH (S.U.) Minimum	7.27	7.14	7.44	7.17	7.41	7.44	7.46	7.55	7.34	7.27	7.31	7.27
pH (S.U.) Maximum	7.89	7.95	8.09	7.90	7.67	8.00	7.99	8.04	8.14	7.76	7.88	7.95
DO (mg/L) Minimum	8.24	10.85	9.80	8.74	9.32	10.46	10.36	10.13	8.00	8.18	8.00	9.51
TRC (mg/L) Average Monthly	0.46	0.44	0.43	0.44	0.47	0.47	0.46	0.46	0.49	0.46	0.47	0.48
TRC (mg/L) Instantaneous Maximum	0.59	0.62	0.76	0.56	0.64	0.68	0.87	0.58	0.73	0.65	0.97	0.50
CBOD5 (mg/L) Average Monthly	< 4.00	< 4.00	< 4.00	< 4.00	< 4.00	< 4.00	< 4.00	< 4.00	< 4.00	< 4.00	4.00	< 4.00
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	90.72	164.37	111.13	126.31	129.12	142.30	151.89	115.76	161.31	662.46	208.02	155.38
BOD5 (mg/L) Raw Sewage Influent Average Monthly	43.24	35.92	19.27	17.43	21.63	23.67	28.33	33.89	91.78	68.13	68.44	31.67
TSS (lbs/day) Raw Sewage Influent Average Monthly	138.85	233.86	183.32	222.58	199.25	114.69	223.97	109.94	161.58	637.68	167.37	122.27
TSS (mg/L) Average Monthly	5.22	5.67	5.28	5.00	5.50	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	5.06
TSS (mg/L) Raw Sewage Influent Average Monthly	67.40	44.92	34.87	29.20	32.06	18.69	42.61	32.14	93.84	56.34	53.02	23.61
Fecal Coliform (CFU/100 ml) Geometric Mean	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00

Fecal Coliform (CFU/100 ml) Instantaneous Maximum	150.0	3.00	340	51.0	77.0	70.00	980	< 2400	2.00	820.0	2.00	3.00
Total Nitrogen (mg/L) Average Monthly	15.39	9.25	5.94	6.15	6.09	6.05	7.61	11.07	20.26	17.14	< 1.25	9.47
Ammonia (mg/L) Average Monthly	0.319	0.306							< 0.352	< 0.30	0.93	< 0.30
Total Phosphorus (mg/L) Average Monthly	0.284	0.286	0.266	0.267	0.158	0.114	0.213	0.177	0.267	0.280	0.266	0.243

Compliance History

In the current permit cycle, a NOV was issued 5/19/2016 and a CACP was executed 6/13/2017 for effluent violations. Latest inspection report, dated 4/30/2019, indicated the plant appeared to be well maintained.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 1.25
Latitude 41º 21' 24" **Longitude** -80º 24' 2"
Wastewater Description: Treated 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)
Total Phosphorus	1.0	Average Monthly		96.5

Comments: A limit of 1.0 mg/l for total phosphorus is based on the Trophic State Index study of the Shenango Reservoir

Water Quality-Based Limitations

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

Parameter	Limit (mg/l)	SBC	Model
Ammonia Nitrogen (5/01 – 10/31)	9.5	Average Monthly	WQM 7.0 Ver. 1.0b
Ammonia Nitrogen (11/01 – 4/31)	25.0	Average Monthly	WQM 7.0 Ver. 1.0b

Comments: The Toxic Management Spreadsheet determined the need for effluent limitations for acrylamide. Since the application sampling was all non-detect, but at a level above the listed quantitative limit, the applicant was given the opportunity to resample as part of the Pre-Draft Permit Survey. Upon further discussions with the Permittee and the Bureau of Labs, it was determined that there are currently no PA accredited labs able to test down to the listed QL. Additionally, the Department acknowledges that chemical additives containing polyacrylamide or acrylamide are typically not used for the treatment of domestic sewage. In lieu of additional sampling, the permittee submitted a statement on September 28, 2020, certifying that chemicals containing polyacrylamide or acrylamide are not added to the domestic sewage at either the treatment plant or from the locations where septage is hauled in, to the best of their knowledge. Based on this information, no acrylamide effluent limits or monitoring will be placed in the draft permit.

The Toxic Management Spreadsheet suggested monitoring for chlorides and sulfate due to the discharge concentration being more than ten percent of the calculated WQBEL. After cross checking the input concentration and the calculated WQBEL, it was determined that the input concentration was way less than ten

percent of the calculated WQBEL. Therefore, no monitoring for chloride or sulfate will be placed in the permit for the reason given above.

A seasonal multiplier for ammonia nitrogen of "3" is applied in accordance with the Department's SOP entitled "Establishing Effluent Limitations for Individual Sewage Permits (SOP No. BCW-PMT-033**)**." Since the wintertime value limit is more than 25 mg/l, 25 mg/l will be placed in the permit as a BPJ limit in accordance with the same SOP mentioned above.

Best Professional Judgment (BPJ) Limitations

Comments: A dissolved oxygen limit of a minimum of 4.0 mg/l, a TRC IMAX limit of 1.6 mg/l, and monitoring for total nitrogen and total phosphorus will be placed in the permit in accordance with the Department's SOP entitled "Establishing Effluent Limitations for Individual Sewage Permits (SOP No. BCW-PMT-033**)**."

Monitoring for influent BOD_5 and influent TSS will be placed in the permit in accordance with the Department's SOP entitled "New and Reissuance of Sewage Individual NPDES Permit Applications (SOP No. BCW-PMT-002)."

Anti-Backsliding

N/A

Threatened and Endangered Mussel Species Concerns and Considerations

The main segment of the Shenango River from Porter Road near Greenville, Pennsylvania, downstream to the point of inundation by Shenango River Lake near Big Bend, Mercer County, Pennsylvania was designated by the United States Fish and Wildlife Services (USFWS) as "Critical Habitat" for the rabbitsfoot mussel, a federally listed threatened species, and is known to also contain other threatened and endangered mussel species. Due to the discharge being directly to the Shenango River, potential impacts to endangered mussel species were evaluated.

The USFWS has indicated in comment letters on other NPDES permits that in order to protect threatened and endangered mussel species, wastewater discharges containing ammonia-nitrogen (NH_3-N), chloride (Cl^-) and nickel, where mussels or their habitat exist, can be no more than 1.9 mg/l, 78 mg/l and 7.3 ug/l, respectively. The calculated site-specific criteria based on WQN Station 913 stream background pH data and default temperature for a WWF (pH of 7.41 and temperature of 25) results in NH3-N criteria of 1.058 mg/l.

A summary of the sampling data for ammonia-nitrogen (NH3-N), chloride (Cl-) and nickel for the 2019 renewal application is as follows:

PARAMETER	UNITS	9/18/2019	9/25/2019	10/01/2019
NH_3-N	mg/l	< 0.03	< 0.02	< 0.02
Chloride	mg/l	54	71	**81**
Nickel	µg/l	1.9	2.6	3.5

Additionally, eDMR data for ammonia nitrogen was reviewed from 2015-2020 (from May to October). The permittee is currently not required to report ammonia nitrogen during the wintertime period. The maximum average monthly concentration during this time period was 0.93 mg/l and the average-average monthly concentration was 0.3 mg/l.

As can be seen from this data, the reported discharge concentrations of these parameters are less than the protective criterion set forth by the USFWS, with the exception of one slight exceedance of chloride from one of the application sampling events. Due to this slight exceedance, and an estimated wintertime ammonia nitrogen concentration of 2 mg/l (due to less effective nitrification that is typical in colder seasons in the northeastern United States during winter months), the Endangered Mussel Species Impact Area Calculations Spreadsheet (attached) was used to evaluate the area of impact. Since no site-specific mussel surveys were conducted for this facility, only Method 2 and 3 were used in the spreadsheet. The results indicate a maximum impact area for chlorides of 1.23 cubic meters and a maximum impact area for ammonia nitrogen of 3.15 cubic meters.

Based on this sampling data and relatively small calculated areas of impact for this existing major sewage discharge, the existing discharge from the Reynolds Disposal sewage treatment facility is not believed to be having any measurable adverse effects on threatened or endangered mussel species in the Shenango River. However, the Department will establish monthly sampling for chloride and quarterly effluent monitoring for nickel to develop a dataset as a means of further evaluating potential impacts in the upcoming permit term.

Whole Effluent Toxicity (WET)

For Outfall 001, No WET Testing was required in the previous permit cycles.

Comments: A requirement to do annual WET testing will be required in the renewed permit under the authority of 25 Pa. Code § 92a.27.A(1)(i) and in accordance with the Department's SOP entitled "Whole Effluent Toxicity (SOP No. BPNPSM-PMT-031)."

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

Acute Partial Mix Factor (PMFa): **.181** Chronic Partial Mix Factor (PMFc): **1**

1. Determine IWC – Acute (IWCa):

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

[(1.25 MGD x 1.547) / ((46.84 cfs x 0.181) + (1.25 MGD x 1.547))] x 100 = **18.57%**

Is IWCa < 1%? ☐ **YES** ☒ **NO**

If the discharge is to the tidal portion of the Delaware River, indicate how the type of test was determined:

N/A

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

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

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

[(1.25 MGD x 1.547) / ((46.84 cfs x 1) + (1.25 MGD x 1.547))] x 100 = **3.96%**

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%, 4%, and 2%.

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

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.

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	4.0 Daily Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
CBOD5	260	417	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 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
TSS	312	469	XXX	30.0	45.0	60	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
Total Nitrogen	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Ammonia Nov 1 - Apr 30	260	XXX	XXX	25.0	XXX	50	1/week	24-Hr Composite
Ammonia May 1 - Oct 31	99	XXX	XXX	9.5	XXX	19	1/week	24-Hr Composite

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Total Phosphorus	10.0	XXX	XXX	1.0	XXX	2	1/week	24-Hr Composite
Chloride	Report	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Total Nickel	Report	XXX	XXX	Report	XXX	XXX	1/quarter	24-Hr Composite

Compliance Sampling Location: Outfall 001 (after disinfection)

Other Comments: Monitoring frequencies for numerous parameters were made more frequent in this proposed renewed permit to be more consistent with those in other sewage facilities of similar hydraulic capacity, yet less frequent than those recommended in Table 6-3 of DEP's *Technical Guidance for the Development and Specification of Effluent Limitations* (362-0400-001). Sample frequencies for many of these same parameters were changed from 8-hr composite to 24-hour composite to also be more consistent with similarly sized facilities and Table 6-3 of the above-mentioned technical guidance.

NPDES D-4b
Reynolds Disposal -