pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southeast Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0036200**
Facility Type	**Non-Municipal**	APS ID	**1096714**
Major / Minor	**Minor**	Authorization ID	**1454619**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Radley Run Mews Sewer Assoc**	Facility Name	**Radley Run Mews STP**
Applicant Address	PO Box 84	Facility Address	Queens Way
	Pocopson, PA 19366-0084		West Chester, PA 19382
Applicant Contact	Greg Pikul	Facility Contact	Dave Scholl
Applicant Phone	(732) 742-6152	Facility Phone	(610) 413-6764
Client ID	66964	Site ID	452778
Ch 94 Load Status	Not Overloaded	Municipality	Birmingham Township
Connection Status		County	Chester
Date Application Received	September 13, 2023	EPA Waived?	No
Date Application Accepted	September 18, 2023	If No, Reason	Christina River TMDL
Purpose of Application	Permit Renewal		

Summary of Review

The permittee requests approval for the renewal of a National Pollutant Discharge Elimination System (NPDES) Individual Permit application to discharge 0.032 MGD of treated sewage from Radley Run Mews Sewage Treatment Plant (STP) to Plum Run, a tributary to Brandywine Creek in watershed 3-H.

The STP is an activated sludge process with equalization tank, stilling well, two aeration tanks, two clarifiers, chlorine contact tank, and outfall at stream. The sodium hypochlorite (15%) for disinfection is now being injected based on effluent flow.

The Christina River Basin Total Maximum Daily Load (TMDL) for Nutrients and Dissolved Oxygen for Low-Flow Conditions, issued by the Environmental Protections Agency (EPA) on January 19, 2001 and subsequently revised on October 2002 and April 2006. Furthermore, DEP prepared, and EPA acknowledged an Alternative Reduction Scenario for the Christina River Basin for Low Flow TMDL dated June 27, 2012 to reassign some of the allocations within the dischargers by keeping the total load to the basin the same. Radley Run Mews STP is part of an Alternative Reduction Scenario TMDL (Summary Table 15) for parameters: $CBOD_5$, NH_3N, Dissolved Oxygen, Total Nitrogen, and Total Phosphorus. The Christina River Basin also has an approved High-Flow TMDL for Bacteria and Sediment (dated September 2006) for Fecal Coliform, *enterococci*, and TSS, flows and loads for nutrients and $CBOD_5$. The limits for Total Suspended Solids (30 mg/L) and Fecal Coliform (200 No./100mL) will continue in this permit renewal and it is consistent with the High Flow TMDL for Bacteria and Sediment. The high flow TMDL allocations were not adjusted at the time when low flow TMDL under an “Alternative Reduction Scenario” was developed. Since, the Christina River Low-Flow TMDL is the driver for the Christina River High-Flow TDML especially for nutrients, therefore, it is assumed that compliance with the low flow TMDL, satisfies the compliance of the high flow TMDL. Therefore, existing TMDL allocations for all parameters are carried over in the renewal. No seasonal limits were applied to the nutrient WLAs; therefore, this permit is more stringent than the assumptions of the TMDL WLAs.

The average monthly concentration and mass loading effluent limits in the existing permit are continued for $CBOD_5$ (25 mg/L and 6.7 lbs/day), TSS (30 mg/L and 8 lbs/day), Total Phosphorus (2 mg/L and 0.53 lbs./day), Total Nitrogen (30 mg/L and

Approve	Deny	Signatures	Date
X		*Amy Boginsky* Amy P. Boginsky, E.I.T. / Environmental Engineering Specialist	November 28, 2023
X		*Pravin Patel* Pravin C. Patel, P.E. / Environmental Engineer Manager	November 28, 2023

Summary of Review

8.0 lbs./day), Fecal Coliform (200 No./100 mL and Instantaneous Maximum of 1,000/100 mL), Dissolved Oxygen (Instantaneous Minimum 3.0 mg/L), and pH (Instantaneous Minimum 6.0 and Instantaneous Maximum 9.0 S.U.).

Total Residual Chlorine will be reduced from 0.6 mg/L to 0.5 mg/L. This reduction was made in accordance with TBELs and the TRC model.

Ammonia as N concentration limit was continued from the existing permit as 15 mg/L and 4 lbs./day for Nov-Apr and 5 mg/L and 1.3 lbs./day for May-Oct.

Influent monitoring for Total Suspended Solids and BOD_5 will continue in this permit renewal at a frequency of twice per month and sample type of 24-Hour Composite. This is done per Standard Operating Procedure (SOP) for Clean Water Program, New and Reissuance Sewage Individual NPDES Permit Applications, IV.E.8.

Act 14 Notifications:

Birmingham Township - May 11, 2023
Chester County Commissioners - May 11, 2023

Draft permit will be sent to the permittee, EPA, and consultant.

Proposed Part C Conditions:

I. Other Requirements

A. No Stormwater to Sewer
B. Necessary Property Rights
C. Proper Sludge Disposal
D. Abandon STP when Public Sewer Become Available
E. Chlorine Minimization
F. Small Stream Discharge
G. Notification of the Designation of Responsible Operator
H. Twice per Month Sampling
I. Public Nuisance

Sludge use and disposal description and location(s): Sewage sludge hauled by McGovern Septic & Waste Hauling to DELCORA Wastewater Treatment Plant 3201 West Front Street, Chester, PA 19016

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.	001	Design Flow (MGD)	.032
Latitude	39º 54' 58.77"	Longitude	-75º 37' 36.72"
Quad Name	Unionville	Quad Code	1940
Wastewater Description:	Sewage Effluent		

Receiving Waters	Plum Run (WWF, MF)	Stream Code	00076
NHD Com ID	26106686	RMI	0.2400
Drainage Area	3.55 mi^2	Yield (cfs/mi^2)	0.253
Q_{7-10} Flow (cfs)	0.899	Q_{7-10} Basis	PA StreamStats
Elevation (ft)	176	Slope (ft/ft)	
Watershed No.	3-H	Chapter 93 Class.	WWF, MF
Existing Use	**Fish consumption**	Existing Use Qualifier	N/A
Exceptions to Use	None	Exceptions to Criteria	N/A
Assessment Status	Impaired		
Cause(s) of Impairment	FLOW REGIME MODIFICATION, FLOW REGIME MODIFICATION, SILTATION, SILTATION, SILTATION, SILTATION		
Source(s) of Impairment	AGRICULTURE, AGRICULTURE, URBAN RUNOFF/STORM SEWERS, URBAN RUNOFF/STORM SEWERS, URBAN RUNOFF/STORM SEWERS, URBAN RUNOFF/STORM SEWERS		
TMDL Status	Final	Name	Christina River Basin

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

Nearest Downstream Public Water Supply Intake	None		
PWS Waters		Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	

Treatment Facility Summary				
Treatment Facility Name: Radley Run Mews STP				
WQM Permit No.	**Issuance Date**			
1569420-T2	March 23, 1987			
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Secondary with Nitrogen Reduction	Activated Sludge	Hypochlorite	
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.032	67.8	Not Overloaded		Other WWTP

Changes Since Last Permit Issuance: The sodium hypochlorite (15%) for disinfection is now being injected based on effluent flow.

Compliance History	
Summary of Inspections:	Last inspection was conducted on March 22,2023. No Violations were identified during inspection. Inspection report included below. PA0036200_SEWAGE_ RTPT_20230322.PDF

Compliance History

DMR Data for Outfall 001 (from September 1, 2022 to August 31, 2023)

Parameter	AUG-23	JUL-23	JUN-23	MAY-23	APR-23	MAR-23	FEB-23	JAN-23	DEC-22	NOV-22	OCT-22	SEP-22
Flow (MGD) Average Monthly	0.010	0.009	0.009	0.009	0.009	0.008	0.009	0.010	0.011	0.010	0.009	0.008
pH (S.U.) Instantaneous Minimum	6.3	6.7	6.7	6.4	6.5	6.3	6.6	6.4	6.4	6.5	6.6	6.7
pH (S.U.) Instantaneous Maximum	7.3	7.3	7.0	7.0	7.0	7.1	6.9	6.9	6.9	7.0	7.1	7.1
DO (mg/L) Instantaneous Minimum	4.4	4.4	4.2	3.2	4.8	5.1	6.1	4.9	3.8	4.4	5.1	4.6
TRC (mg/L) Average Monthly	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.2	0.2	0.2
CBOD5 (lbs/day) Average Monthly	0.4	0.3	0.3	0.2	0.3	0.2	0.3	< 0.1	0.4	0.3	< 0.2	0.4
CBOD5 (mg/L) Average Monthly	3	3	3	3	4	3	4	< 2	2	3	< 2	4
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	25	14	20	16	24	30	37	15	40	11	7	12
BOD5 (mg/L) Raw Sewage Influent Average Monthly	180	155	211	214	305	425	449	428	206	128	114	126
TSS (lbs/day) Average Monthly	1.0	< 0.4	0.5	< 0.5	< 0.3	< 0.3	< 0.3	< 0.1	< 0.9	< 0.5	< 0.3	0.6
TSS (lbs/day) Raw Sewage Influent Average Monthly	63	19	38	24	36	41	47	21	67	28	13	29
TSS (mg/L) Average Monthly	8	4	5	< 6	< 4	< 4	< 4	< 4	< 5	< 4	< 4	6
TSS (mg/L) Raw Sewage Influent Average Monthly	419	212	425	320	442	578	568	571	348	261	180	290

Fecal Coliform (No./100 ml) Geometric Mean	11	< 1	10	5	< 3	< 1	< 2	< 2	< 2	7	8	< 1
Fecal Coliform (No./100 ml) Instantaneous Maximum	44	1	31	9	7	< 1	3	3	4	56	12	1
Total Nitrogen (lbs/day) Average Monthly	4.7	3.1	3.1	2.5	2.8	2.5	2.6	1.1	6.1	3.8	2.3	3.9
Total Nitrogen (mg/L) Average Monthly	34.1	33.7	33.2	31.7	36.2	35.4	32.1	35.1	31.1	32.5	33.1	39.4
Ammonia (lbs/day) Average Monthly	< 0.01	< 0.01	< 0.04	< 0.06	< 0.01	< 0.01	< 0.01	< 0.003	< 0.2	< 0.01	< 0.01	< 0.01
Ammonia (mg/L) Average Monthly	< 0.1	< 0.1	< 0.4	< 0.9	< 0.1	< 0.1	< 0.1	< 0.1	< 1.1	< 0.1	< 0.1	< 0.1
Total Phosphorus (lbs/day) Average Monthly	0.16	0.15	0.18	0.13	0.09	0.10	0.09	0.03	0.15	0.13	0.09	0.32
Total Phosphorus (mg/L) Average Monthly	1.4	1.7	1.9	1.6	1.1	1.3	1.1	1.0	0.8	1.2	1.3	3.2

Compliance History

Effluent Violations for Outfall 001, from: October 1, 2022 to August 31, 2023

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
Total Nitrogen	10/31/22	Avg Mo	33.1	mg/L	30.0	mg/L
Total Nitrogen	11/30/22	Avg Mo	32.5	mg/L	30.0	mg/L
Total Nitrogen	12/31/22	Avg Mo	31.1	mg/L	30.0	mg/L
Total Nitrogen	01/31/23	Avg Mo	35.1	mg/L	30.0	mg/L
Total Nitrogen	02/28/23	Avg Mo	32.1	mg/L	30.0	mg/L
Total Nitrogen	03/31/23	Avg Mo	35.4	mg/L	30.0	mg/L
Total Nitrogen	04/30/23	Avg Mo	36.2	mg/L	30.0	mg/L

Total Nitrogen	05/31/23	Avg Mo	31.7	mg/L	30.0	mg/L
Total Nitrogen	06/30/23	Avg Mo	33.2	mg/L	30.0	mg/L
Total Nitrogen	07/31/23	Avg Mo	33.7	mg/L	30.0	mg/L
Total Nitrogen	08/31/23	Avg Mo	34.1	mg/L	30.0	mg/L

Other Comments:

- The cause is uncertain, but chemicals used for a renovation that included mold removal may have contributed to recent issues. Additionally, fall leaves have repeatedly caused blockages in the sludge return line in recent weeks.
- Miller Environmental recommends the collection of influent and/or manhole nutrient samples, observation & inspection of sewer vents for damage and parts of the collection system for infiltration as nitrates from lawn fertilizers may be the cause of the high nitrogen.
- Influent samples are being collected. The first set of results showed high TKN and Total Nitrogen levels. A plan to investigate I&I is being discussed.
- New diffusers are being built and will be installed in September/early October to provide better mixing and aeration.
- The aeration tank was taken out of service, grit and rags removed and diffusers were replaced. Work was completed on 10/26. We expect to see an improvement in nutrient removal in the November samples.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .032
Latitude 39º 54' 59.00" **Longitude** -75º 37' 36.00"
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

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

Parameter	Limit (mg/l)	SBC	Model
$CBOD_5$	25	Average Monthly	WQM 7.0
NH_3 – N	5	Average Monthly	WQM 7.0
NH_3 – N	10	Maximum	WQM 7.0
Dissolved Oxygen	3	Minimum	WQM 7.0

Parameter	Water Quality Based Effluent Limits			Basis
	Monthly Average		Daily Max	
	Concentration (mg/L)	Mass (lbs/day)	Concentration (mg/L)	
$CBOD_5$	25	6.68	50	Christina River Basin Low Flow and High Flow (for bacteria and Sediment) TMDLs
TSS	30	8.0	60	
NH_3N	20	5.34	40	
Total Phosphorus	2	0.53	4	
Total Nitrogen	30	8.0	60	
Fecal Coliform (No./100ml)	200	200	1,000	
DO (Min)	XXX	XXX	3	

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" (386-0400-001), SOPs and/or BPJ.

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	XXX	XXX	XXX	XXX	XXX	Continuous	Metered
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	3.0 Inst Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
CBOD5	6.7	XXX	XXX	25	XXX	50	2/month	24-Hr Composite
BOD5 Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
TSS	8.0	XXX	XXX	30	XXX	60	2/month	24-Hr Composite
TSS Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
Fecal Coliform (No./100 ml)	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
Total Nitrogen	8.0	XXX	XXX	30.0	XXX	60	2/month	24-Hr Composite
Ammonia Nov 1 - Apr 30	4.0	XXX	XXX	15.0	XXX	30	2/month	24-Hr Composite
Ammonia May 1 - Oct 31	1.3	XXX	XXX	5.0	XXX	10	2/month	24-Hr Composite
Total Phosphorus	0.53	XXX	XXX	2.0	XXX	4	2/month	24-Hr Composite