

Application Type Renewal
Facility Type Non-Municipal
Major / Minor Minor

**NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE**

Application No. PA0221325
APS ID 512451
Authorization ID 1303832

Applicant and Facility Information

Applicant Name	<u>Abbey Woods Homeowner Association</u>	Facility Name	<u>Abbey Woods Development</u>
Applicant Address	<u>310 West Solomon Ct.</u> <u>Zelienople, PA 16063</u>	Facility Address	<u>Saint Ives Way</u> <u>Zelienople, PA 16063</u>
Applicant Contact	<u>Jeff Listwak</u> <u>Debbie Shively</u> <u>President</u> <u>Dir. Residential Prop</u> <u>Abby Woods HOA</u> <u>ACRI Realty</u> <u></u> <u>290 Perry Highway</u> <u></u> <u>Pittsburgh, PA 15229</u>	Facility Contact	<u>Paul J. Kremer, Jr</u> <u>Treatment Plant Operator</u> <u>MCK Environmental, LLC</u> <u>207 Arthur St</u> <u>Zelienople PA 16063</u>
Applicant Phone	<u>(412) 459-0111</u>	Operator Phone	<u>724-321-5821</u>
Applicant E mail	<u>listwak@rmu.edu</u> <u>debbie.shively@acrirty.com</u>	Operator E mail	<u></u>
Client ID	<u>72012</u>	Site ID	<u>237606</u>

Municipality	<u>Jackson Township</u>	County	<u>Butler</u>
Ch 94 Load Status	<u>Not Overloaded</u>	Connection Status	<u>No Limitations</u>
SIC Code	<u>6552</u>	SIC Code	<u>4952</u>
SIC Description	<u>Fin, Ins & Real Est-Subd & Devel, NEC</u>	SIC Description	<u>Trans. & Utilities - Sewerage Systems</u>
Received	<u>October 3, 2019</u>	EPA Waived?	<u>Yes</u>
Accepted	<u>February 19, 2020</u>	If No, Reason	<u></u>

Application Purpose NPDES SEWAGE RENEWAL

Summary of Review

On January 10, 2020 the facility was cited for not renewing their NPDES permit. The e-mail address was provided on May 19, 2020 along with the current president's name.

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		William H Mentzer William H. Mentzer, P.E. Environmental Engineering Specialist	May 20, 2020
X		Justin C. Dickey Justin C. Dickey, P.E. Environmental Engineer Manager	August 3, 2020

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	0.028
Latitude DP	40° 44' 44.10"	Longitude DP	-80° 7' 39.80"
Latitude NHD	40° 44' 42.55"	Longitude NHD	-80° 7' 38.85"
Quad Name	Baden	Quad Code	1304
Wastewater:	Treated residential wastes		
Receiving Waters	Unnamed Tributary to Brush Creek	Stream Code	34826
NHD Com ID	126215992	RMI	2.19
Drainage Area	0.3	Yield (cfs/mi ²)	0.082
Q ₇₋₁₀ Flow (cfs)	0.02	Q ₇₋₁₀ Basis	Slippery Rock Creek
Elevation (ft)	1062.89	Slope (ft/ft)	0.001929
Watershed No.	20-C	Chapter 93 Class.	WWF
Existing Use	statewide	Existing Use Qualifier	none
Exceptions to Use	none	Exceptions to Criteria	none
Comments	Total stream flow to waste flow ratio is 1.6:1. The NHD outfall is 0.66-mile downstream at Stream and NHD RMI 1.52, elevation 1038.68-feet and drainage 0.89-square miles.		
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	
Background/Ambient Data		Data Source	
pH (SU)			
Temperature (°C)	25		WWF default
BOD5 (mg/L)	2.0		default
Ammonia-nitrogen (mg/L)	0.1		default
Hardness (mg/L)			
Phosphorus (mg/L)			
Other:			
Nearest Downstream Public Water Supply Intake	Pa American		
PWS Waters	Connoquenessing Creek	Flow at Intake (cfs)	NA
PWS RMI	0.01	Distance from Outfall (mi)	24.83

Changes Since Last Permit Issuance:

Pa American is consolidating its intakes at a new location near the Connoquenessing Creek confluence with the Beaver River

Other Comments: No downstream water supply impairment is expected.

Treatment Facility Summary				
Treatment Facility Name: Abbey Woods Development				
WQM Permit No.		Issuance Date		
1094409		1/24/1995		
Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Activated Sludge	Hypochlorite	0.028
Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.028		Not Overloaded	Aerobic Digestion	Other WWTP

Changes Since Last Permit Issuance: none

Other Comments:

Comminution with bypass bar screen, equalization, chemical addition, aeration, settling, aerobic digestion and chlorination

54 home plan

	Month	Year	Flow Mean MGD	Influent Organic				Effluent						
				Mean PPD	Max PPD	Min mg/L	Mean mg/L	Max mg/L	#	Min mg/L	Mean mg/L	Max mg/L	#	
Annual Average Design Flow			0.02800											
Hydraulic Design Flow			0.02800											
Organic Design														
Annual Average Flow		2016	0.007493											
		2017	0.008125											
		2018	0.008459											
High Monthly Maximum	Feb	2018	0.010800											
pH						7.35		7.37	4	6.1		7.4	1460	
BOD5				10.6	10.8	148	141	154	2					
CBOD5										3.0	5.27	17.4	48	
DO										6.0			730	
TRC										0.048	0.178	0.37		
TSS				15,55	20,18	156	222	288	2	3.0	7.6	23.0	48	
N				4.44	4,46	63.0	63.4	63.7	2	31.65	43.1	54.4	48	
P				0.45	0.45	6.34	6.4	6.43	2	0.14	0.34	1.18	48	
Ammonia				2.1	2.6	22.4	30.0	37.5	2	0.11	0.16	0.21	48	
TDS				49.5	49.7	704	707	7.10	2	1030	1629	2210	2	
TKN						62.5	62.9	63.3	2	< 1	< 1	< 1	2	
Nitrite-Nitrate						0.43	0.45	0.47	2	40.3	42.0	43.7	2	
Chloride										314	314	314	1	
Bromide										< 0.1	< 0.1	< 0.1	1	
Sulfate										221	221	221	1	

EDMR reports 4.0-mg/L minimum daily DO. TRC maximum is exceeded. TDS monthly average criteria is 500-mg/L to protect potable water supplies.

Sludge removed: 2.418 dry tons

Chemicals used: liquid alum for phosphorus control.

Compliance History

DMR Data for Outfall 001 (from January 1, 2019 to December 31, 2019)

Parameter	DEC-19	NOV-19	OCT-19	SEP-19	AUG-19	JUL-19	JUN-19	MAY-19	APR-19	MAR-19	FEB-19	JAN-19
Flow (MGD) Average Monthly	0.0103	0.0085	0.0073	0.0070	0.00765	0.0095	0.0090	0.0086	0.0080	0.0069	0.0086	0.0088
pH (S.U.) Minimum	6.0	6.0	6.1	6.0	6.0	6.0	6.0	6.0	6.0	6.1	6.0	6.0
pH (S.U.) Maximum	7.2	7.3	7.6	7.3	7.5	7.4	7.4	7.3	7.3	7.4	7.4	7.5
DO (mg/L) Minimum	6.0	4.0	4.0	6.0	7.0	7.0	5.0	7.0	5.0	5.0	7.0	8.0
TRC (mg/L) Average Monthly	0.15	0.22	0.235	0.16	0.23	0.146	0.098	0.35	0.30	0.23	0.20	0.22
CBOD5 (mg/L) Average Monthly	7.05	3.3	3.0	3.0	3.0	3.0	3.1	3.2	3.75	8.45	7.75	6.05
TSS (mg/L) Average Monthly	9.5	22.5	9.0	8.5	8.5	8.0	5.5	4.0	8.5	9.5	12.0	14.0
Fecal Coliform (#/100 ml) Geometric Mean	6.3	2	1	2	1.73	5.5	5.1	2.2	2	19	1.41	2.8
Total Nitrogen (mg/L) Average Monthly	42.5	43.6	44.8	42.0	44.3	39.25	45.7	45.1	42.2	40.3	43.6	52.8
Ammonia (mg/L) Average Monthly	0.34	0.37	0.125	0.115	0.18	0.175	0.145	0.365	0.82	0.57	0.30	0.27
Total Phosphorus (mg/L) Average Monthly	0.41	0.89	0.31	0.18	0.165	0.185	0.295	0.21	0.33	0.47	0.365	0.42

pH: Summer mean 7.1-SU median 7.0-SU annual average 7.1-SU median 6.9-SU

Effluent Violations for Outfall 001, from: February 1, 2019 to: December 31, 2019

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
DO	10/31/19	Min	4.0	mg/L	5.0	mg/L
DO	11/30/19	Min	4.0	mg/L	5.0	mg/L
TRC	05/31/19	Avg Mo	0.35	mg/L	0.3	mg/L

Summary of Inspections: na

Other Comments: Violations appear insignificant

Development of Effluent Limitations

Outfall No. 001 Design Flow (MGD) .028
 Latitude 40° 44' 44.10" Longitude -80° 7' 39.80"
 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)
DO	4.0-mg/l			BPJ

Comments: The BPJ 4.0-mg/L daily minimum DO is super ceded by a 5.0-mg/l water-quality based daily minimum.

Water Quality-Based Limitations

A "Reasonable Potential Analysis" based on the waste source determined the following parameters were candidates for limitations: phosphorus, CBOD₅, TSS, ammonia, TRC, and pH.

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

Parameter	Period	Limit (mg/l)			SBC	Model		
		Min	Mean	Max	Mean	Min	Mean	Max
Dissolved Oxygen		5.0			NA	4.0		
Ammonia-nitrogen	summer		1.5	3.0	NA		2.0	4.0
	winter		4.5	9.0	NA		6.0	12.0
Phosphorus			2.0	4.0	NA			

Comments:

The model was set up using two segments. The first segment is a dry stream node where aquatic life is not expected, and aquatic life protection is not necessary. The second segment is perennial and aquatic life protection is necessary. WQM7 modelling did not verify the 5-mg/L DO limitation and DO relaxation from 5.0-mg/L is proposed.

Best Professional Judgment (BPJ) Limitations

Comments: N/A

Anti-Backsliding

Recommended for DO based on WQM7 modelling, BPJ requirements and compliance. As the facility shows ammonia compliance no ammonia changes are proposed.

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) ⁽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	1/week	Measured
pH (S.U.)	XXX	XXX	6.0 Inst 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	0.3	XXX	0.7	1/day	Grab
CBOD5	XXX	XXX	XXX	25.0	XXX	50.0	2/month	8-Hr Composite
TSS	XXX	XXX	XXX	30.0	XXX	60.0	2/month	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	4.5	XXX	9.0	2/month	8-Hr Composite
Ammonia May 1 - Oct 31	XXX	XXX	XXX	1.5	XXX	3.0	2/month	8-Hr Composite
Total Phosphorus	XXX	XXX	XXX	2.0	XXX	4.0	2/month	8-Hr Composite

Compliance Sampling Location: Outfall 001 after disinfection