pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northwest Regional Office
CLEAN WATER PROGRAM

Application Type	Renewal	Application No.	**PA0092819**
Facility Type	Non-Municipal	APS ID	**998144**
Major / Minor	Minor	Authorization ID	**1281658**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Fair Winds Manor LP**	Facility Name	**Fair Winds Manor Nursing Home**
Applicant Address	126 Iron Bridge Road	Facility Address	126 Iron Bridge Road
	Sarver, PA 16055-8603		Sarver, PA 16055-8603
Applicant Contact	Barb Johnston, Maintenance Director	Facility Contact	
Applicant Phone	(724) 431-0770	Facility Phone	
Applicant E-mail	bjohnston@qualitylifeservices.com		
Client ID	257534	Site ID	248846
Ch 94 Load Status	Not Overloaded	Municipality	Winfield Township
Connection Status	No Limitations	County	Butler
Application Received	July 15, 2019	EPA Waived?	Yes
Application Accepted	July 31, 2019	If No, Reason	

Application Purpose: NPDES permit renewal for the discharge of treated sewage from a nursing home.

Summary of Review

Late renewal request with a CACP. High nitrate reported for May 2019, May 2018 and July 2018. Prior non-compliance was corrected in 2015.

Daily DO, pH and TRC monitoring is proposed.

Former TRC evaluation used a discharge chlorine demand. A lower TRC limit is proposed because the discharge chlorine demand is no longer used in the TRC evaluation. The current self-monitoring reports show compliance with the lower chlorine requirements

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 Mentzer William H. Mentzer, P.E. Environmental Engineering Specialist	June 10, 2020
X		Justin C. Dickey Justin C. Dickey, P.E. Environmental Engineer Manager	June 25, 2020

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.0175
Latitude NHD	40º 44' 37.82"	Longitude NHD	-79º 41' 28.21"
Latitude DP	40º 44' 37.82"	Longitude DP	-79º 41' 27.60"
Quad Name	Freeport	Quad Code	1308
Wastewater:	Treated nursing home wastes		

Receiving Waters	Unnamed Tributary of Buffalo Creek	Stream Code	42601
NHD Com ID	123971748	RMI	1.0900
Drainage Area	0.5	Yield (cfs/mi^2)	0.046
Q_{7-10} Flow (cfs)	9.02	Q_{7-10} Basis	Buffalo Creek near Freeport
Elevation (ft)	1165.86	Slope (ft/ft)	0.01403
Watershed No.	18-F	Chapter 93 Class.	HQ-TSF
Existing Use	**statewide**	Existing Use Qualifier	none
Exceptions to Use	none	Exceptions to Criteria	none
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	

Background/Ambient Data		Data Source
pH (SU)	7.9	July 19991 SERA Report
Temperature (°F)	68	TSF default
Hardness (mg/L)	60	July 19991 SERA Report
Other:	Alkalinity	July 19991 SERA Report

Nearest Downstream Public Water Supply Intake		New Kensington Municipal Authority	
PWS Waters	Allegheny River	Flow at Intake (cfs)	Regulated stream
PWS RMI	20.86	Distance from Outfall (mi)	21

Changes Since Last Permit Issuance: none

Other Comments:

The receiving waters are a high-quality trout stocked fishery resulting in water supply criteria evaluation at the discharge.

The previous review used a different discharge and stream chlorine demands. The discharge chlorine demand use has been discontinued resulting in lower chlorine requirements. Formerly the discharge chlorine demand at 0.3 or 0.4-mg/L controled the TRC requirements.

The refence low flow volume has doubled since the initial review. As the waste treatment facility is providing compliance and the receiving waters are listed as high quality no effluent adjustments based on revised low flow are proposed.

GIS has the New Kensington Municipal Authority and Harrison Township Water Authority data merged.

Treatment Facility Summary

Treatment Facility Name: Fair Winds Manor Nursing Home

WQM Permit No.	Issuance Date
365S018	July 27, 1965
1099407	June 22, 1999
1099407T1	May 7, 2009

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Tertiary	Activated Sludge With Solids Removal	Hypochlorite	0.0175

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.0175	35	Not Overloaded	Aerated holding	

Changes Since Last Permit Issuance: none

Other Comments:

Monitoring at Outfall 001 after disinfection.

Permitted is a package STP with rapid sand filtration, chlorination, and aerated sludge holding. Old septic tanks have been retained for scum holding. Design flow has been increased from 0.013 to 0.0175-MGD.

The permit 1099407 and transferred permit 1099407T1 are for flow equalization, extended aeration, clarification, rapid sand filtration, sludge handling and chlorination. The design mean flow and hydraulic capacity is 0.0175-MGD with a 35-PPD (240-mg/L BOD and 240-mg/L TSS) organic load. Issued with 2004 Sewerage conditions 1, 4, 6, 7, 8, 9, 10 (PA0092819), 20, 21, 22, 24, and 26.

Treatment

A 5 000-gallon subsurface tank with a 0.192 fps forward flow is listed as a grit chamber.

Bar screen prior to equalization

Flow equalization maximum capacity is 5 000-gallons with a 4 700-gallon normal operating capacity. Weir control is provided.

Blower specifications 110 cfm at 5-psi

Clarification with 0.0175-MGD design flow, 0.00875-MGD recirculation flow, 0.002625-MGD total flow, 42.166-gallon/day/ square-foot mean surface settling, 58.33 gallon/day/ square-foot maximum surface settling, 790-gallon/day/foot mean overflow, and 1093 gallon/day/foot maximum overflow.

Tertiary filter design is based on 1-gallon/day/square foot provided by two 6.25-square foot cells. Backwash is 15-gpm/square-foot cell. Provided is a 10-minute back wash at 93.75-gpm.

Disinfection is with a chlorine erosion unit with two 500-gallon contact tanks. At the design flow detention is 82-minutes.

Sludge holding

Capacity 1 678-gallons

The NPDES and WQM permits were amended on June 22, 1999. The amendment was for a 0.013-MGD discharge to stream 42599 at RMI 2.37, 40° 44’ 39” N, and 79° 42’ 29” W. Existing treatment was septic tanks, sand filters, chlorination and de-chlorination. Amendment is based on October 24, 1997 preliminary limits. These requirements have been continued. The modeled discharge is at 40° 45’ 20.9” N, and 79° 41’ 56.4” W

Other Comments: The June 22, 1999 permit lists 365S018 as an existing permit. This permit is largely superseded for treatment with the permitted septic tanks retained for scum holding.

An aeration based de-chlorination system was included. The rapid sand filter is an operation option.

3.53 dry tons sludge removed in the previous reporting year

Compliance History

DMR Data for Outfall 001 (from June 1, 2018 to May 31, 2019)

Parameter	MAY-19	APR-19	MAR-19	FEB-19	JAN-19	DEC-18	NOV-18	OCT-18	SEP-18	AUG-18	JUL-18	JUN-18
Flow (MGD) Average Monthly	0.008194	0.00719	0.0084	0.00725	0.0076	0.01235	0.008	0.009	0.008	0.007	0.0116	0.674
pH (S.U.) Minimum	7.5	7.6	7.16	7.5	7.5	7.5	7.4	7.4	7.4	7.3	7.4	7.30
pH (S.U.) Maximum	7.6	7.7	7.8	8.0	7.8	7.8	7.8	7.5	7.6	7.6	7.5	7.60
DO (mg/L) Minimum	6.05	6.1	6.6	6.15	6.14	6.15	6.1	6.05	6.08	6.02	6.05	6.09
TRC (mg/L) Average Monthly	0.1	0.1	0.04	0.05	0.08	0.10	0.1	0.1	0.1	0.1	0.10	0.1
CBOD5 (mg/L) Average Monthly	4.3	5.7	7.7	3.1	5.0	4.3	4	4	3	4.2	3	3.9
TSS (mg/L) Average Monthly	3.0	3.0	6.0	6.0	5.0	3.0	3	3	3	3	5	3
Fecal Coliform (#/100 ml) Geometric Mean	4	17	1	19	3	2	1		18	3	170	32
Nitrate-Nitrite (mg/L) Average Monthly	**20.6**	9.32	5.3	6.6	3.56	1.82	4.09	6.76	5.2	10.83	21.64	31.5
Total Nitrogen (mg/L) Average Monthly	22.5	12.65	6.84	8.59	5.41	3.51	4.65	7.9	6.37	12.28	23.10	33.8
Ammonia (mg/L) Average Monthly	0.44	0.4	3.15	0.18	0.29	0.23	0.14	0.17	0.16	0.14	0.15	0.24
Total Phosphorus (mg/L) Ave. Monthly	0.5	0.4	0.4	0.2	0.10	0.10	0.1	0.2	0.4	0.3	0.50	0.6

Summer and annual pH is 7.5-SU

Compliance History

Effluent Violations for Outfall 001, from: July 1, 2018 To: May 31, 2019

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
Nitrate-Nitrite	07/31/18	Avg Mo	21.64	mg/L	12.5	mg/L
Nitrate-Nitrite	05/31/19	Avg Mo	20.6	mg/L	12.5	mg/L

Summary of Inspections: none

			Year	Month	Flow Mean MGD	Load Mean	Min mg/L	Mean mg/L	Max mg/L	#
Design	Annual	Average			0.0175					
Design	hydraulic	Capacity								
	Annual	Average	2018		0.0195					
			2017		0.0090					
			2016		0.0090					
	Month	Highest	Previously	Feb	0.0750					
pH							7.04		7.84	6
TRC							0.10	0.44		3
Fecal Coliform							12	37		3
CBOD5								5.5	5.66	3
TSS								3.33	3.66	3
Ammonia								0.44	0.52	3
N								3.49		3
P								0.3	0.4	3

Chemicals used:

Name	Use
Soda ash	pH adjustment
Chlorine	disinfection
De-Chlor	chlorine removal
Aluminum sulfate	phosphorus control

Last year 3.53-dry tons sludge removed.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .0175
Latitude 40º 44' 38.10" **Longitude** -79º 41' 27.60"
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	Minimum		BPJ

Comments: none

Water Quality-Based Limitations

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

Parameter		Limit (mg/l)			SBC	Model		
Nitrogen			12.5	25.0				
Ammonia	summer		1.5	3.0	NA		1.64	3.28
	Winter		4.5	9.0				
BOD			25	50			25	50
DO		6				6		
TRC		0.2	0.7				0.210	0.69
Phosphorus			1.0	2,0				

The requirement are antidegradation based.

Anti-Backsliding

Except for nitrate the facility is achieving the Department's effluent requirements so backsliding is not a concern.

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	Estimate
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	6.0 Daily Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.2	XXX	0.7	1/day	Grab
CBOD5	XXX	XXX	XXX	10.0	XXX	20.0	2/month	8-Hr Composite
TSS	XXX	XXX	XXX	10.0	XXX	20.0	2/month	8-Hr Composite
Fecal Coliform (No./100 ml) Nov 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	XXX	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	XXX	2/month	Grab
Nitrate-Nitrite	XXX	XXX	XXX	12.5	XXX	25.0	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	1.0	XXX	2.0	2/month	8-Hr Composite

Compliance Sampling Location: Outfall 001 after disinfection