pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southeast Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0052761**
Facility Type	**Non-Municipal**	APS ID	**982181**
Major / Minor	**Minor**	Authorization ID	**1254029**

Applicant and Facility Information

Applicant Name	**Buckingham Valley Rehab & Nursing Center, Inc.**	Facility Name	**Buckingham Valley Nursing Center STP**
Applicant Address	820 Durham Road	Facility Address	820 Durham Road
	Newtown, PA 18940		Newtown, PA 18940
Applicant Contact	Ben Kauffman	Facility Contact	Ben Kauffman
Applicant Phone	(215) 598-7181	Facility Phone	(215) 598-7181
Client ID	271125	Site ID	242632
Ch 94 Load Status	Not Overloaded	Municipality	Buckingham Township
Connection Status		County	Bucks
Date Application Received	November 1, 2018	EPA Waived?	Yes
Date Application Accepted		If No, Reason	

Purpose of Application: Permit Renewal.

Summary of Review

Applicant requests renewal of NPDES permit to discharge 0.014 mgd of treated sewage effluent to an unnamed tributary to Mill Creek, which is tributary to Neshaminy Creek. Facility is located at 820 Durham Road, Newtown, PA 18940. The treatment plant consists of an equalization tank, primary and secondary anoxic/aerobic tanks, two clarifiers, a chlorine. contact tank, a post aeration tank, a de-chlorination tank, and a sludge holding tank. Alum is used for phosphorus removal. For phosphorus, during a previous permit renewal, phosphorus was reduced from 2.0 mg/l to 0.8 mg/l from April 1st through October 31st. This was consistent with the Total Maximum Daily Load (TMDL) approved by EPA in 2003, which was subsequently withdrawn. The winter limit of 1.6 mg/l was also applied, consistent with Department policy. For CBOD5, NH3-N, and DO, the previous modeling results are attached. For TRC, the previous spreadsheet is attached. Dischargers in the Neshaminy basin are required to maintain total nitrogen <= 11 mg/l for protection of nearest downstream water supply, where TN=NH3-N + (NO2+NO3)-N. Since NH3-N = 3.0 mg/l, (NO2+NO3)-N = 8.0 mg/l from July through October.

From previous water quality protection report, the following input variables were used for WQM7.0:

Qw = 0.014 mgd
DA = 0.1 mi.2
Q7-10 = 0.0 cfs at point of discharge (topo map and files indicate dry/intermittent conditions at the point of discharge that extend for approximately 1000 feet).
Q7-0 yield assumed 0.1 cfsm at the point where the stream becomes perennial. The default yield is used because there are no nearby stream gages within the range of drainage area for this discharge (e.g., gage for 01465000, Neshaminy at Rushland, which was used for earlier modeling, has a 164 mi.2 drainage area and may not be reflective of flows in a small headwater stream).
Temp (discharge) = 20ºF summer and 15ºF winter (default values, NH3-N guidance)
Temp (stream) = 25ºF summer and 5ºF winter (default, NH3-N guidance)

Approve	Deny	Signatures	Date
X		Ketan Thaker / Project Manager /s/	7/24/2019
X		Pravin C. Patel, P.E. / Environmental Engineer Manager /s/	7/24/2019

Summary of Review

pH (discharge) = 7.7 (operation reports from 2003-2004 indicate July-September pH ranges from 7.3-8.2, and the median is estimated to be 7.7). Earlier reports were used because permittee has not submitted them in the past few years.
pH (stream) = 7 (default for freestone stream, NH3-N guidance)
Q7-10 (winter) = 2x Q7-10 summer, or 0.2 cfsm (guidance)

Existing discharge limits were input for CBOD5, NH3-N, and DO. Aquatic life protection was applied in Reach II only, where the stream is considered perennial (as was done in previous modeling). Modeling was also performed for the winter period. Results of WQM 7.0 (attached) indicate that existing limits for summer and winter periods are protective of DO and NH3-N toxicity.

Effluent from the STP is generally in compliance with effluent limits of the permit. Effluent limits for all the parameters will remain the same in this permit renewal. The required sampling type for CBOD5, Ammonia-Nitrogen, TSS, Nitrite-Nitrate, and Total Phosphorus have revised from 8-Hour Composite to 24-Hour Composite in the permit renewal as requested by Operations Section.

Following are effluent limits:

Parameter	Effluent Limits (Av. Mo. In Mg/l)	Basis
CBOD5 (5/1 to 10/31)	10	WQM Model
CBOD5 (11/1 to 4/30)	20	WQM Model
Dissolved Solids	5.0	WQM Model
Total Suspended Solids	30	92a.47
Total Residual Chlorine	0.1	TRC Spreadsheet
pH (S. U.)	6.0 – 9.0 (S.U.)	92a.47, 95.2
Ammonia-Nitrogen (5/1 to 10/31)	3.0	WQM Model
Ammonia-Nitrogen (11/1 to 4/30)	9.0	WQM Model
Fecal Coliform (No./100 ml)	200 Geo Mean (No./100 ml)	92a.47
Total Phosphorus (4/1 to 10/31)	0.8	BPJ
Total Phosphorus (11/1 to 3/31)	1.6	BPJ
Nitrate-Nitrite as N (7/1 to 10/31)	8.0	BPJ

Act-14 Notification to Buckingham Township & Bucks County Commissioners on October 17, 2018 by certified mail.

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)	.014
Latitude	40Âº 17' 39.33"	Longitude	-75Âº 0' 37.34"
Quad Name	Buckingham	Quad Code	1645
Wastewater Description:	Sewage Effluent		
Receiving Waters	Unnamed Tributary of Mill Creek (WWF, MF)	Stream Code	02613
NHD Com ID	25475784	RMI	
Drainage Area	0.1 mi2	Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	2-F	Chapter 93 Class.	WWF, MF
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	Final	Name	Neshaminy Creek

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

Nearest Downstream Public Water Supply Intake			
PWS Waters		Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	

Treatment Facility Summary				
Treatment Facility Name: Buckingham Valley Nursing Center STP				
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage			Gas Chlorine	
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.014		Not Overloaded		

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	0.0061	0.0048	0.0077	0.0095	0.0073	0.0081	0.0101	0.0066	0.0067	0.0042	0.0045	0.0044
Flow (MGD) Daily Maximum	0.0149	0.0087	0.0261	0.0202	0.0146	0.0178	0.0207	0.0138	0.0109	0.0076	0.0084	0.0083
pH (S.U.) Instantaneous Minimum	6.8	6.5	7.0	6.1	6.3	6.2	7.0	6.8	7.6	7.0	7.4	7.3
pH (S.U.) Instantaneous Maximum	7.9	8.0	7.7	8.3	7.8	7.8	7.8	8.7	8.2	8.9	8.8	8.8
DO (mg/L) Instantaneous Minimum	6.2	6.2	7.0	8.1	8.0	7.8	7.4	6.5	6.2	6.5	6.6	6.7
TRC (mg/L) Average Monthly	0.1	0.04	0.04	0.03	0.04	0.04	0.1	0.1	0.05	0.03	0.04	0.1
TRC (mg/L) Instantaneous Maximum	1.36	0.10	0.12	0.06	0.09	0.13	0.12	0.17	0.11	0.08	0.10	0.09
CBOD5 (mg/L) Average Monthly	3	< 3	6	< 3	4	4	3	< 3	< 3	< 2	< 3	< 2
TSS (mg/L) Average Monthly	< 4	< 4	6	< 6	< 7	< 7	< 4	< 4	< 4	< 4	< 4	5
Fecal Coliform (No./100 ml) Geometric Mean	< 1	< 2	3	< 13	12	3	< 2	< 1	7	4	< 2	< 1
Fecal Coliform (No./100 ml) Instantaneous Maximum	1	4	7	160	22	10	5	< 1	55	15	4	1
Nitrate-Nitrite (mg/L) Average Monthly								< 10.3	< 3.2	< 4.0	< 4.2	
Ammonia (mg/L) Average Monthly	< 0.1	< 0.1	< 0.3	< 0.1	0.5	< 0.9	< 7.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.6
Total Phosphorus (lbs/day) Average Monthly	0.008	0.006	0.01	0.02	0.05	0.02	0.05	0.3	0.03	0.02	0.02	0.01

Total Phosphorus (mg/L) Average Monthly	0.2	0.2	0.3	0.2	0.5	0.3	0.5	3.9	0.6	0.5	0.4	0.3

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" (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	Report Daily Max	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	5.0 Inst Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.1	XXX	0.25	1/day	Grab
CBOD5 Nov 1 - Apr 30	XXX	XXX	XXX	20.0	XXX	40	2/month	24-Hr Composite
CBOD5 May 1 - Oct 31	XXX	XXX	XXX	10.0	XXX	20	2/month	24-Hr Composite
TSS	XXX	XXX	XXX	30.0	XXX	60	2/month	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
Nitrate-Nitrite Jul 1 - Oct 31	XXX	XXX	XXX	8.0	XXX	16	2/month	24-Hr Composite
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	9.0	XXX	18	2/month	24-Hr Composite
Ammonia May 1 - Oct 31	XXX	XXX	XXX	3.0	XXX	6	2/month	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	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Total Phosphorus Nov 1 - Mar 31	0.2	XXX	XXX	1.6	XXX	3.2	2/month	24-Hr Composite
Total Phosphorus Apr 1 - Oct 31	0.1	XXX	XXX	0.8	XXX	1.6	2/month	24-Hr Composite