pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southeast Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0054704**
Facility Type	**Non-Municipal**	APS ID	**1063206**
Major / Minor	**Minor**	Authorization ID	**1395972**

Applicant and Facility Information

Applicant Name	**Qtown Properties, LLC**	Facility Name	**Success Rehabilitation Clinic WWTP**
Applicant Address	1620 Wrightstown Road	Facility Address	5666 Clymer Road
	Newtown, PA 18940-2814		Quakertown, PA 18951-3264
Applicant Contact	Joanne Tangney	Facility Contact	Daniel Wurst
Applicant Phone	(215) 538-3488	Facility Phone	(267) 718-3861
Client ID	242422	Site ID	452361
Ch 94 Load Status	Not Overloaded	Municipality	East Rockhill Township
Connection Status		County	Bucks
Date Application Received	April 24, 2022	EPA Waived?	Yes
Date Application Accepted		If No, Reason	

Purpose of Application: Permit Renewal.

Summary of Review

Applicant requests renewal of an NPDES permit to discharge 0.0077 mgd of treated sewage effluent from Success Rehabilitation Clinic WWTP into unnamed tributary to Tohickon Creek which is designated as Trout Stocking Fishery (TSF).

Effluent limits for all the parameters will remain unchanged from the current permit. The effluent limits reflect either technology requirements for treated sewage or Water Quality Modeling (WQM) results. The phosphorus limit of 0.5 mg/l was imposed because the discharge is located upstream of Lake Nockamixon, which is impaired for excessive nutrients. The existing limit was considered the baseline value for the “Total Maximum Daily Load of Nutrients for Lake Nockamixon in Bucks County, Pennsylvania” that was developed to address the impairment. No further reduction is required and the wasteload allocation for phosphorus is 0.5 mg/l (0.0321 lb/day). This discharge is located in Special Protection Waters (SPW) of Delaware River. Any increase or expansion in flow will result in more stringent limits to reflect SPW classification. Effluent monitoring for E. Coli is included in this permit renewal, which is consistent with Standard Operating Procedure (SOP) for establishing effluent limits for individual sewage permits.

The treatment plant extended aeration plant which consists of influent screen, comminutor, equalization tank, aeration tanks, a clarifier, sand filters and chlorine tank.

Act-14 Notification to East Rockhill Township on February 14, 2022.
Act-14 Notification to Bucks County on February 14, 2022.

Approve	Deny	Signatures	Date
X		*Ketan Thaker* Ketan Thaker / Project Manager	6/23/2022
X		**Pravin Patel** Pravin C. Patel, P.E. / Environmental Engineer Manager	06/23/2022

Summary of Review

Sludge use and disposal description and location(s): The sewage sludge is hauled off site by Lukens Septic Services for proper treatment and disposal.

Following are effluent limits:

PARAMETER	EFFLUENT LIMITS (Av. Mo. mg/l)	BASIS
CBOD5	25	WQM Model
Total Suspended Solids	30	92a.47
Ammonia-N (5/1 to 10/31)	2.0	WQM Model
Ammonia-N (11/1 to 4/30)	6.0	WQM Model
Dissolved Oxygen	6.0 (minimum)	WQM Model
Total Residual Chlorine	0.05	TRC Spreadsheet
Fecal Coliform (No./100 ml)	200/100 ml Geo. Mean	92a.47
pH (SU)	6.0 – 9.0 SU	92a.47, 95.2
Total Phosphorus	0.5	Lake Nickamixon TMDL
Total Nitrogen	Report	92a.61
E. Coli	Report	92a.47

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)	0.0077
Latitude	40Âº 26' 1.75"	Longitude	-75Âº 16' 34.94"
Quad Name		Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	Unnamed Tributary of Tohickon Creek (TSF, MF)	Stream Code	3173
NHD Com ID	26053436	RMI	0.700
Drainage Area	0.16 sq mi	Yield (cfs/mi^2)	0.1
Q_{7-10} Flow (cfs)	0.02	Q_{7-10} Basis	
Elevation (ft)	510	Slope (ft/ft)	
Watershed No.	2-D	Chapter 93 Class.	TSF, 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		Name	

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: Success Rehabilitation Clinic WWTP				
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage		Extended Aeration	Gas Chlorine	
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.0077		Not Overloaded		

WQM Model:

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
02D	3173	Trib 03173 to Tohickon Creek

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
0.700	Success Rehab W	PA0054704	0.000	CBOD5	25		
				NH3-N	2	4	
				Dissolved Oxygen			6

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
02D	3173	Trib 03173 to Tohickon Creek	0.700	510.00	0.16	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.100	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Success Rehab W	PA0054704	0.0000	0.0077	0.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	6.00	8.24	0.00	0.00
NH3-N	2.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
02D	3173	Trib 03173 to Tohickon Creek	0.570	495.00	0.25	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.100	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	6		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
02D	3173	Trib 03173 to Tohickon Creek

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
0.700	Success Rehab	7.97	4	7.97	4	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
0.700	Success Rehab	1.69	2	1.69	2	0	0

Dissolved Oxygen Allocations

		CBOD5		NH3-N		Dissolved Oxygen		Critical	Percent
RMI	Discharge Name	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Reach	Reduction
0.70	Success Rehab W	25	25	2	2	6	6	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
02D	3173	Trib 03173 to Tohickon Creek

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.700	0.008	22.134	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
1.973	0.295	6.677	0.048
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
11.82	1.335	0.85	0.825
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.286	28.440	Owens	6
Reach Travel Time (days)			
0.166			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.017	11.53	0.84	7.48
0.033	11.25	0.83	7.60
0.050	10.98	0.82	7.69
0.066	10.72	0.81	7.75
0.083	10.46	0.80	7.80
0.100	10.21	0.79	7.84
0.116	9.96	0.78	7.87
0.133	9.72	0.77	7.90
0.149	9.48	0.75	7.92
0.166	9.26	0.74	7.93

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
02D	3173	Trib 03173 to Tohickon Creek

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
0.700	0.02	0.00	0.02	.0119	0.02185	.295	1.97	6.68	0.05	0.166	22.13	7.00
Q1-10 Flow												
0.700	0.01	0.00	0.01	.0119	0.02185	NA	NA	NA	0.04	0.189	22.69	7.00
Q30-10 Flow												
0.700	0.02	0.00	0.02	.0119	0.02185	NA	NA	NA	0.05	0.149	21.77	7.00

TRC Spreadsheet:

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9 — Success Rehab WWTP

0.002	= Q stream (cfs)	0.5	= CV Daily
0.0077	= Q discharge (MGD)	0.5	= CV Hourly
4	= no. samples	1	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Stream	1	= CFC_Partial Mix Factor
	= Chlorine Demand of Discharge	15	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)
	= % Factor of Safety (FOS)		=Decay Coefficient (K)

Source	Reference	AFC Calculations		Reference	CFC Calculations	
TRC	1.3.2.iii	WLA afc =	0.073	1.3.2.iii	WLA cfc =	0.063
PENTOXSD TRG	5.1a	LTAMULT afc =	0.373	5.1c	LTAMULT cfc =	0.581
PENTOXSD TRG	5.1b	LTA_afc=	0.027	5.1d	LTA_cfc =	0.037

Source		Effluent Limit Calculations		
PENTOXSD TRG	5.1f	AML MULT =	1.720	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) =	0.047	AFC
		INST MAX LIMIT (mg/l) =	0.109	

WLA afc	**(.019/e(-k*AFC_tc)) + [(AFC_Yc*Qs*.019/Qd*e(-k*AFC_tc))...** **...+ Xd + (AFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)**
LTAMULT afc	EXP((0.5*LN(cvh^2+1))-2.326*LN(cvh^2+1)^0.5)
LTA_afc	wla_afc*LTAMULT_afc
WLA_cfc	**(.011/e(-k*CFC_tc) + [(CFC_Yc*Qs*.011/Qd*e(-k*CFC_tc))...** **...+ Xd + (CFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)**
LTAMULT_cfc	EXP((0.5*LN(cvd^2/no_samples+1))-2.326*LN(cvd^2/no_samples+1)^0.5)
LTA_cfc	wla_cfc*LTAMULT_cfc
AML MULT	EXP(2.326*LN((cvd^2/no_samples+1)^0.5)-0.5*LN(cvd^2/no_samples+1))
AVG MON LIMIT	MIN(BAT_BPJ,MIN(LTA_afc,LTA_cfc)*AML_MULT)
INST MAX LIMIT	**1.5*((av_mon_limit/AML_MULT)/LTAMULT_afc)**

(0.011/EXP(-K*CFC_tc/1440))+(((CFC_Yc*Qs*0.011)/(1.547*Qd)....
....*EXP(-K*CFC_tc/1440)))+Xd+(CFC_Yc*Qs*Xs/1.547*Qd))*(1-FOS/100)

Compliance History

DMR Data for Outfall 001 (from May 1, 2021 to April 30, 2022)

Parameter	APR-22	MAR-22	FEB-22	JAN-22	DEC-21	NOV-21	OCT-21	SEP-21	AUG-21	JUL-21	JUN-21	MAY-21
Flow (GPD) Average Monthly	0.002593	0.002142	0.002139	0.002071	0.002225	0.001933	0.002786	0.00291	0.002132	0.002131	0.002588	0.002566
Flow (GPD) Daily Maximum	0.004	0.00245	0.0023	0.0025	0.00275	0.0027	0.00515	0.003526	0.002767	0.003533	0.00375	0.0037
pH (S.U.) Instantaneous Minimum	6.5	6.0	6.2	6.8	7.2	6.2	6.2	6.8	6.0	6.0	6.4	6.0
pH (S.U.) Instantaneous Maximum	7.1	6.2	6.8	6.9	7.2	7.0	7.0	7.2	7.1	6.5	6.5	6.9
DO (mg/L) Instantaneous Minimum	8.2	9.2	9.3	6.3	10.6	7.7	7.7	7.9	6.9	6.8	7.0	7.4
TRC (mg/L) Average Monthly	0.04	0.02	0.06	0.04	0.04	0.03	0.02	0.04	0.03	0.03	0.02	0.04
TRC (mg/L) Instantaneous Maximum	0.04	0.06	0.12	0.06	0.05	0.05	0.03	0.05	0.05	0.05	0.04	0.05
CBOD5 (lbs/day) Average Monthly	0.05	0.08	0.10	0.05	0.09	0.05	0.07	0.07	0.05	0.03	< 0.04	0.02
CBOD5 (mg/L) Average Monthly	2.5	5.0	6.0	3.5	4.5	3.0	3.5	3.0	3.0	2.0	< 2.0	< 2.0
TSS (lbs/day) Average Monthly	0.10	0.10	0.70	0.20	0.40	0.20	0.20	0.19	0.04	0.1	0.02	0.02
TSS (mg/L) Average Monthly	7.0	10.0	40.5	16.0	18.0	10.5	15.0	8.0	5.0	4.5	1.0	1.0
Fecal Coliform (No./100 ml) Geometric Mean	< 1.0	< 1.0	< 1.0	< 1.0	35.0	< 1.0	4.0	< 1.0	1.0	< 1.0	< 1.0	< 1.0
Fecal Coliform (No./100 ml) Instantaneous Maximum	< 1.0	< 1.0	< 1.0	< 1.0	1200.0	< 1.0	17.0	< 1.0	1.0	< 1.0	< 1.0	< 1.0
Total Nitrogen (mg/L) Average Monthly	25.5	36.7	30.8	29.7	21.5	32.8	29.1	22.3	18.5	40.0	19.83	16.3
Ammonia (lbs/day) Average Monthly	0.01	0.10	0.10	0.002	0.02	< 0.001	< 0.0007	0.002	< 0.002	0.12	< 0.002	0.05

Ammonia (mg/L) Average Monthly	0.50	6.9	6.7	0.20	1.0	< 0.10	< 0.1	0.10	< 0.10	14.2	< 0.10	2.4
Total Phosphorus (lbs/day) Average Monthly	< 0.0321	0.0006	< 0.0321	< 0.0321	< 0.0321	< 0.0321	< 0.0321	< 0.0321	< 0.0321	< 0.0321	< 0.0321	< 0.0321
Total Phosphorus (mg/L) Average Monthly	0.12	0.04	0.13	0.45	0.28	0.13	0.14	0.22	0.17	0.10	0.06	0.09

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 (GPD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/week	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/week	Grab
DO	XXX	XXX	6.0 Inst Min	XXX	XXX	XXX	1/week	Grab
TRC	XXX	XXX	XXX	0.05	XXX	0.12	1/week	Grab
CBOD5	1.6	XXX	XXX	25.0	XXX	50	2/month	8-Hr Composite
TSS	2.0	XXX	XXX	30.0	XXX	60	2/month	8-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
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	1/month	8-Hr Composite
Ammonia Nov 1 - Apr 30	0.38	XXX	XXX	6.0	XXX	12	2/month	8-Hr Composite
Ammonia May 1 - Oct 31	0.12	XXX	XXX	2.0	XXX	4	2/month	8 Grabs/24 Hours
Total Phosphorus	0.0321	XXX	XXX	0.5	XXX	1	2/month	8-Hr Composite