

 Application Type
 Renewal

 Facility Type
 Municipal

 Major / Minor
 Minor

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Application No.PA0058858APS ID1003491Authorization ID1291458

Applicant and Facility Information

Applicant Name	Upper Makefield Township Bucks County	Facility Name	Reeve Tract Subdivision
Applicant Address	1076 Eagle Road	Facility Address	Hayhurst Drive
	Newtown, PA 18940-2818	_	Newtown, PA 18940
Applicant Contact	David Nyman	Facility Contact	Michael Sullivan
Applicant Phone	(215) 968-3340	Facility Phone	(215) 766-2626
Client ID	63613	Site ID	621932
Ch 94 Load Status	Not Overloaded	Municipality	Upper Makefield Township
Connection Status	No Limitations	County	Bucks
Date Application Receiv	ved October 8, 2019	EPA Waived?	Yes
Date Application Accep	ted	If No, Reason	
Purpose of Application	Permit Renewal.		

Summary of Review

This permittee requests the renewal of NPDES permit PA0058858 to discharge 20,225 gallons per day (gpd) of treated sewage effluent to an unnamed tributary to Jericho Creek. The treated effluent is from a sewage treatment plant (STP) that serves the Reeve Tract subdivision.

The STP consists of a bar screen, a Muffin Monster Grinder unit, two equalization tanks, Aqua Aerobics extended aeration treatment (with aeration, anoxic and re-aeration tanks), settling tank and a holding tank. The flow is then sent to a building with two tertiary filters, a WEDECO ICH-2X1-S ultraviolet light (UV) disinfection system, post-aeration, and flow metering. The treated effluent is discharged into a manhole and sent via 4" forcemain to a man-made vegetative (i.e. wetland marsh) recharge area within the Reeve Tract subdivision prior to flowing into an unnamed tributary to Jericho Creek. In general, the discharge is in compliance with current permit limits and is expecting to be in compliance in the future.

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
х		Harmonie Hawley, PhD, PE / Environmental Engineering Specialist /s/	11/15/2019
х		Pravin C. Patel, P.E. / Environmental Engineer Manager /s/	11/15/2019

Summary of Review

Effluent limitations, sampling type and monitoring frequencies remain the same as the previous permit issued in 2015. The project is located in the Jericho Creek watershed in Upper Makefield Township, Bucks County within the drainage area of the non-tidal portion of the Delaware River known as Lower Delaware, which is classified as Special Protection Water (SPW). Effluent limits contained in the Delaware River Basin Commission's (DRBC) guidance for SPWs Discharge Requirement were applied to the facility in previous permits. Since, the original permit was issued before the SPW designation of the stream, the existing permit was grandfathered to SPW requirements for all parameters but Fecal Coliform as was done in previous permit renewals.

Influent BOD₅ reporting was added to this permit to be consistent with Chapter 94. The frequency was set to 1/month.

The SPW designation for the Lower Delaware River requires that any future expansion of the Reeve Tract STP will be required to comply with the no-Measurable-Change (NMC) to Exiting Water Quality (EWQ).

The DMRs show the effluent flowrate to be approximately 14,000 gallons per day. This is an increase since the 2015 permit renewal and recent Google® map images show new residences in the Reeve Tract subdivision which would increase the flow rate. The plant is rated for 20,225 gpd.

Act 14 notifications were sent to Bucks County and Upper Makefield Township on September 24, 2019 by Certified Mail and received September 27, 2019

Discharge, Receiving Waters and Water Supply In	nformation					
Outfall No. 001	Design Flow (MGD)0.020	0225				
Latitude 40° 17' 29.98"	Longitude74º	57' 29.64"				
Quad Name Lambertville	Quad Code 1646					
Wastewater Description: Sewage Effluent						
Unnamed Tributary to Jerich						
Receiving Waters Creek (WWF, MF)	Stream Code 0298					
NHD Com ID 26043944	RMI0.09					
Drainage Area 0.31	Yield (cfs/mi ²)					
Q ₇₋₁₀ Flow (cfs) 0.00696	Q7-10 Basis PA S	Stream Stats				
Elevation (ft) 140	Slope (ft/ft) 0.03	8				
Watershed No. 2-E	Chapter 93 Class. WW	F, MF				
Existing Use Aquatic life	Existing Use Qualifier Not A	Applicable				
Exceptions to Use <u>Not Applicable</u>	Exceptions to Criteria Not A	Applicable				
Assessment Status Attaining Use(s)						
Cause(s) of Impairment Not Applicable						
Source(s) of Impairment Not Applicable						
TMDL Status Not Applicable	Name					
Background/Ambient Data	Data Source					
pH (SU) 7	TRG WQM (391-2000-007 default da	ata)				
Temperature (°F) 68 (20 °C)	TRG WQM (391-2000-007 default da	ata)				
Nearest Downstream Public Water Supply Intake	Not Applicable - no intakes					
PWS Waters Not Applicable	Flow at Intake (cfs) Not Applicable					
PWS RMI Not Applicable	Distance from Outfall (mi) Not Applicable					

Changes Since Last Permit Issuance: None

Other Comments: None

	Treatment Facility Summary							
reatment Facility Nar	ne: Reeve Tract WWTP							
WQM Permit No.	Issuance Date							
0905405	08/31/2005							
Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)				
Sewage	Tertiary		Ultraviolet	0.0202				
	· · ·		· ·					
Hydraulic Capacity (MGD)	Organic Capacity (Ibs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposa				
0.0202	40	Not Overloaded		•				

Changes Since Last Permit Issuance: None

Other Comments: STP has filtration and UV disinfection.

Compliance History

DMR Data for Outfall 001 (from September 1, 2018 to August 31, 2019)

Parameter	AUG-19	JUL-19	JUN-19	MAY-19	APR-19	MAR-19	FEB-19	JAN-19	DEC-18	NOV-18	OCT-18	SEP-18
Flow (MGD)					0.01544			0.01352		0.01406		
Average Monthly	0.01253	0.0154	0.01323	0.01473	5	0.01338	0.01371	4	0.01452	8	0.01485	0.01453
Flow (MGD)												
Daily Maximum	0.01703	0.1026	0.01883	0.0461	0.07147	0.01994	0.01925	0.01837	0.02268	0.01932	0.01923	0.02151
pH (S.U.)												
Instantaneous												
Minimum	7.53	7.21	7.26	6.91	6.96	7.32	7.48	7.51	7.56	7.01	7.44	7.45
pH (S.U.)												
Instantaneous												
Maximum	8.29	8.0	8.28	8.02	7.85	7.85	7.98	7.96	7.95	7.91	7.96	7.83
DO (mg/L)												
Instantaneous												
Minimum	7.4	7.63	6.87	7.64	7.98	7.96	8.31	8.48	8.21	7.69	8.0	7.63
CBOD5 (lbs/day)												
Average Monthly	< 0.2	< 0.2	< 0.2	< 0.3	< 0.2	< 0.3	< 0.3	< 0.2	< 0.2	< 0.2	< 0.3	< 0.2
CBOD5 (lbs/day)												
Raw Sewage Influent												
Average Monthly	15	14	12	12	14	22	25	20	15	16	23	17
CBOD5 (mg/L)												
Average Monthly	< 2	< 2	< 2	< 2	< 2	< 3	< 2	< 2	< 2	< 2	< 2	< 2
CBOD5 (mg/L)												
Raw Sewage Influent												
Average Monthly	159	160	100.8	91	163	200	186	162	138	142	175	142
TSS (lbs/day)												
Average Monthly	< 0.1	< 0.09	< 0.1	< 0.2	< 0.09	< 0.1	< 0.1	< 0.1	0.3	< 0.1	< 0.1	< 0.1
TSS (lbs/day)												
Raw Sewage Influent												
Average Monthly	17	14	16	8	32	43	68	37	18	19	203	31
TSS (mg/L)												
Average Monthly	< 1.0	< 1.0	< 1.0	< 1.5	< 1.0	< 1.0	< 1.0	< 1.0	2.5	< 1.0	< 1.0	< 1.0
TSS (mg/L)												
Raw Sewage Influent												
Average Monthly	190	165	135	63	383	399	501	308	157	149	27	253
Total Dissolved Solids												
(mg/L)												
Average Monthly	450	448	542	506	396	420	497	423	437	432	483	309

Total Dissolved Solids												
(mg/L)												
Daily Maximum	464	460	558	521	440	445	501	423	481	447	513	402
Fecal Coliform												
(CFU/100 ml)												
Geometric Mean	< 2	< 2	< 10	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Fecal Coliform												
(CFU/100 ml)												
Instantaneous												
Maximum	< 2	< 2	54	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
UV Intensity (mW/cm ²)												
Minimum	1.1	0.1	0.5	1.0	1.4	1.2	1.0	1.3	1.27	1.1	1.1	1.2
Total Nitrogen												
(lbs/day)												
Average Monthly	< 0.6	< 0.6	< 0.7	< 0.8	< 0.5	< 0.7	< 0.9	< 1.1	< 0.7	< 0.6	< 1.0	< 0.6
Total Nitrogen (mg/L)												
Average Monthly	< 6.4	< 7.0	< 5.8	< 6.4	< 5.9	< 6.0	< 6.8	< 8.7	< 6.2	< 5.1	< 7.5	< 4.9
Ammonia (lbs/day)												
Average Monthly	< 0.01	< 0.009	< 0.01	< 0.01	< 0.009	< 0.04	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01
Ammonia (mg/L)												
Average Monthly	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Nitrite (mg/L)												
Average Monthly	< 0.2	< 0.02	< 0.2	< 0.2								< 0.2
Total Phosphorus												
(lbs/day)												
Average Monthly	0.06	0.06	0.04	0.06	0.04	0.06	0.06	0.07	0.05	0.06	0.07	0.06
Total Phosphorus												
(mg/L)												
Average Monthly	0.6	0.7	0.4	0.4	0.5	0.5	0.4	0.6	0.4	0.6	0.5	0.5

Compliance History

No non-compliance events were found for the facility in the past two (2) years.

Development of Effluent Limitations

Outfall No.	001		Design Flow (MGD)	0.020225
Latitude	40º 17' 30.00	n	Longitude	-74º 57' 30.00"
Wastewater D	escription:	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)
CBOD5	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
Solids	45	Average Weekly	133.102(b)(2)	92a.47(a)(2)
рН	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)

Comments: the above limitations were evaluated but the more restrictive DRBC SPW limits, which were used in previously issued permits for this facility, were retained in this permit renewal. Chlorine was not used in this facility, however daily UV disinfection monitoring was retained in this permit renewal which is in accordance Standard Operating Procedures (SOPs) and Chapter 92a. In addition, the WQM model (Attachment A) was run and the same limits as in the 2015 permit were obtained from the model and are thus retained for this renewal.

Nitrite-N monitoring was added during the last permit renewal (2015), as recommended by DRBC, and is retained in this permit renewal.

A Total Dissolved Solids (TDS) limit of 1,000 mg/l was added two permit renewals ago (2010) as recommended by DRBC and will continue in this permit renewal.

Influent monitoring for CBOD₅ and Total Suspended Solids (TSS) was added to the 2015 permit renewal which is consistent with SOPs and is retained in this permit renewal.

Influent BOD₅ reporting was added to this permit to be consistent with Chapter 94. The frequency was set to 1/month.

Water Quality-Based Limitations

A "Reasonable Potential Analysis" was not conducted as this is a Minor Facility. Comments: None.

Best Professional Judgment (BPJ) Limitations

Comments: None

Anti-Backsliding

None



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.

			Effluent L	imitations			Monitoring Re	quirements
Parameter	Mass Units	(lbs/day) ⁽¹⁾		Concentrat	Minimum ⁽²⁾	Required		
Parameter	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum	Measurement Frequency	Sample Type
Flow (MGD)	Report	Report Daily Max	xxx	xxx	xxx	xxx	Continuous	Metered
pH (S.U.)	ххх	xxx	6.0 Inst Min	xxx	xxx	9.0	1/day	Grab
DO	xxx	xxx	6.0 Inst Min	xxx	xxx	XXX	1/day	Grab
CBOD5 Raw Sewage Influent	Report	XXX	XXX	Report	XXX	ххх	2/month	24-Hr Composite
CBOD5	1.7	XXX	XXX	10	XXX	20	2/month	24-Hr Composite
BOD5 Raw Sewage Influent	Report	xxx	xxx	Report	xxx	xxx	1/month	24-Hr Composite
TSS Raw Sewage Influent	Report	xxx	xxx	Report	xxx	xxx	2/month	24-Hr Composite
TSS	1.7	XXX	XXX	10	xxx	20	2/month	24-Hr Composite
Total Dissolved Solids	XXX	XXX	XXX	1000	2000 Daily Max	2500	2/month	24-Hr Composite
Fecal Coliform (CFU/100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000*	2/month	Grab
Fecal Coliform (CFU/100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000*	2/month	Grab
UV Intensity (mW/cm ²)	XXX	XXX	Report	xxx	XXX	XXX	1/day	Measured
Total Nitrogen	1.7	xxx	xxx	10.0	xxx	20	2/month	24-Hr Composite

Outfall 001, Continued (from Permit Effective Date through Permit Expiration Date)

		Effluent Limitations							
Parameter	Mass Units	(lbs/day) (1)		Concentrat	tions (mg/L)		Minimum ⁽²⁾	Required	
Parameter	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum	Measurement Frequency	Sample Type	
Ammonia								24-Hr	
Nov 1 - Apr 30	0.50	XXX	XXX	3.0	XXX	6	2/month	Composite	
Ammonia								24-Hr	
May 1 - Oct 31	0.3	XXX	XXX	1.5	XXX	3	2/month	Composite	
Nitrite								24-Hr	
May 1 - Sep 30	XXX	XXX	XXX	Report	XXX	XXX	1/month	Composite	
• •				4				24-Hr	
Total Phosphorus	0.2	XXX	XXX	1.0	XXX	2	2/month	Composite	

*Not to exceed 1,000/100 ml as an instantaneous maximum from May 1st through September 30th. Not to exceed 1,000/100 ml in greater than 10 percent of the samples tested from October 1st through April 30th. This is based on Chapter 92a and DRBC requirements.

Compliance Sampling Location: Outfall 001

Other Comments: Same parameters, limits, monitoring frequencies, and sample type as previous permit.

	Tools and References Used to Develop Permit
	WQM for Windows Model (see Attachment A)
	PENTOXSD for Windows Model (see Attachment)
	TRC Model Spreadsheet (see Attachment)
	Temperature Model Spreadsheet (see Attachment)
	Toxics Screening Analysis Spreadsheet (see Attachment)
	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
\boxtimes	Technical Guidance for the Development and Specification of Effluent Limitations, 362-0400-001, 10/97.
	Policy for Permitting Surface Water Diversions, 362-2000-003, 3/98.
\square	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96.
	Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97.
	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97.
	Pennsylvania CSO Policy, 385-2000-011, 9/08.
	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97.
\boxtimes	Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97.
	Implementation Guidance Design Conditions, 391-2000-006, 9/97.
\boxtimes	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 391-2000-007, 6/2004.
	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 391-2000-008, 10/1997.
	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 391-2000-010, 3/99.
	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004.
	Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97.
	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 391-2000-014, 4/2008.
	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994.
	Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09.
	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 10/97.
	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 391-2000-019, 10/97.
	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 3/99.
	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 391-2000-022, 3/1999.
	Design Stream Flows, 391-2000-023, 9/98.
	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 391-2000-024, 10/98.
	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97.
	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
\boxtimes	SOP for "Establishing Effluent Limitations for Individual Sewage Permits" (Final November 9, 2012; Revised January 10, 2019; Version 1.6) SOP for New and Reissuance Sewage Individual NPDES Permit Applications (Final November 9, 2012; Revised October 11, 2013; Version 1.8)
\boxtimes	Other: DRBC Administrative Manual – Part III Water Quality Regulations with Amendments through December 4, 2013, 18 CFR Part 410