pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

N Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0084484**
Facility Type	**Municipal**	APS ID	**97**
Major / Minor	**Minor**	Authorization ID	**1455893**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Salisbury Township**	Facility Name	**Salisbury Township Rosehill WWTP**
Applicant Address	5581 Old Philadelphia Pike	Facility Address	506 Red Hill Road
	Gap, PA 17527-9791		Narvon, PA 17555
Applicant Contact	Kirsten Peachey	Facility Contact	Brian Norris
Applicant Phone	(717) 768-8059	Facility Phone	(610) 633-8009
Client ID	35929	Site ID	452229
Ch 94 Load Status	Not Overloaded	Municipality	Salisbury Township
Connection Status	No Limitations	County	Lancaster
Date Application Received	September 15, 2023	EPA Waived?	Yes
Date Application Accepted	September 28, 2023	If No, Reason	

Purpose of Application: NPDES Renewal.

Summary of Review

Salisbury Township has applied to the Pennsylvania Department of Environmental Protection (DEP) for reissuance of its National Pollutant Discharge Elimination System (NPDES) permit. The existing permit was issued on March 22, 2019, and became effective on April 1, 2019, authorizing discharge of treated sewage from the facility into UNT to Pequea Creek. The existing permit expiration date was March 31, 2024, and the permit has been administratively extended since that time.

Changes in this renewal: E. Coli monitoring was added.

Sludge use and disposal description and location(s): Sludge holding tank with offsite disposal.

Supplemental information for this facility is provided at the end of this fact sheet.

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		Benjamin R. Lockwood Benjamin R. Lockwood / Environmental Engineering Specialist	March 22, 2024
X		Maria D. Bebenek for Daniel W. Martin, P.E. / Environmental Engineer Manager	April 15, 2024

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.021
Latitude	40º 4' 2"	Longitude	75º 58' 32"
Quad Name		Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	Unnamed Tributary to Pequea Creek (HQ-CWF)	Stream Code	UNT to 7450
NHD Com ID	57462753	RMI	0.45
Drainage Area	0.13 mi^2	Yield (cfs/mi^2)	0.12
Q_{7-10} Flow (cfs)	0.0156	Q_{7-10} Basis	Gage Station #01576500
Elevation (ft)	683	Slope (ft/ft)	
Watershed No.	7-K	Chapter 93 Class.	HQ-CWF
Existing Use	N/A	Existing Use Qualifier	N/A
Exceptions to Use	N/A	Exceptions to Criteria	N/A
Assessment Status	Impaired		
Cause(s) of Impairment	Pathogens, Siltation, Habitat Alterations		
Source(s) of Impairment	Source Unknown, Agriculture, Habitat Modification – Other Than Hydromodification		
TMDL Status	Final	Name	Pequea Creek
Nearest Downstream Public Water Supply Intake	PPL Holtwood Power Plant		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	52.52

Changes Since Last Permit Issuance: A drainage area of 0.13 mi^2 and a Q_{7-10} flow of 0. 0156 cubic feet per second (cfs) were determined by establishing a correlation to the yield of USGS Gage Station #01576500 on the Conestoga River. The Q_{7-10} and drainage area at the gage are 38.6 cfs and 324 mi^2, respectively. These values are taken from the USGS document "Selected Streamflow Statistics for Streamgage Locations in and near Pennsylvania". The Q_{7-10} runoff rate at the gage station was calculated as follows:

Yield = (38.6 cfs)/ 324 mi^2 = 0.12 cfs/mi^2

The drainage area at the discharge point, taken from USGS PA StreamStats = 0.13 mi^2

The Q_{7-10} at the discharge point = 0.13 mi^2 x 0.12 cfs/mi^2 = 0.0156 cfs

Other Comments: None

Treatment Facility Summary				
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Secondary With Total Nitrogen Reduction	Contact Stabilization	Chlorine With Dechlorination	0.021
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.021	42.03	Not Overloaded	Aerobic Digestion	Other WWTP

Changes Since Last Permit Issuance: None

Other Comments: As per the previous protection report: the receiving stream is an unnamed tributary to Pequea Creek and is classified as HQ-CWF by Ch.93. The stream is not recognized as such on the USGS topographical map. However, field inspections have verified its existence and also confirmed its perennial flow during the drought conditions of the 1991 summer. The drainage area at the point of discharge is extremely small but it is downstream of ever-flowing springs. The stream was evaluated on July 16, 1990, and July 22, 1991. The stream was approximately one foot wide and one to two inches deep. The stream crosses Red Hill Road and flows through a wooded area for about 600' before discharging into Pequea Creek.

On August 4, 1992, a Part II Permit was issued for an extended aeration plant with tertiary filters (Dutchland design) to meet the high quality standards. The plant went into operation in 1993. The stream characteristics were examined again in 1997 for the first permit renewal. Aquatic life upstream and downstream of the STP was of the same type but lower in number. There was no obvious impact from the STP. The tributary at the confluence showed no difference from the previous assessment.

In 2005, the STP was retrofitted with an anoxic zone in front of the aeration component which receives recycled sludge from the end of the aeration tanks in order to provide total nitrogen removal. Data from 2006 showed an annual average of TN under 10 mg/l with concentrations as low as 4 mg/l. The Part II Permit was amended in 2007 to reflect these changes.

The treatment process is as follows: Bar Screen / Comminutor – 2 Equalization Tanks – 4 Aeration Tanks – 2 Settling Tanks – 2 Dual Media Filters (Sand and Charcoal) – 1 Chlorine Contact Tank – 1 Post Settling Tank – 1 Post Aeration Tank – Outfall 001 to UNT to Pequea Creek

Caustic soda is added in the first aeration tank for pH control, alum is added in the last aeration tank for phosphorus removal, liquid sodium hypochlorite is used for disinfection, and sodium bisulfite tablets are used for dichlorination. Two (2) sludge holding tanks are used for solids storage.

Compliance History	
Summary of DMRs:	A summary of the past 12-month DMR effluent data is present on the next page of this fact sheet.
Summary of Inspections:	8/14/2019: A routine inspection was conducted. Algae and a small amount of duckweed was present in the clarifier effluent trough. Vegetative growth was present in the operable charcoal filter trough. The chlorine contact tank and dechlor tank appeared clear. Field sampling results were within permitted limits. The access to the outfall was well maintained, and the outfall had some algae growth prior to the stream. 6/23/2020: An administrative inspection was conducted. All treatment units were online and operable, and there were no outstanding issues or needs at the time of inspection.

Other Comments: There are no open violations for this Applicant.

Compliance History

DMR Data for Outfall 001 (from February 1, 2023 to January 31, 2024)

Parameter	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23	APR-23	MAR-23	FEB-23
Flow (MGD) Average Monthly	0.0050	0.0053	0.00448	0.00511	0.00613	0.00579	0.00665	0.00662	0.00652	0.00748	0.00802	0.00815
Flow (MGD) Daily Maximum	0.0099	0.0091	0.0077	0.0063	0.0125	0.0080	0.0085	0.0085	0.0081	0.0097	0.009	0.0099
pH (S.U.) Instantaneous Minimum	7.18	7.04	7.24	7.27	7.15	7.18	7.12	7.17	6.86	6.79	7.19	7.22
pH (S.U.) Instantaneous Maximum	7.60	7.54	7.60	7.69	7.71	7.94	7.44	7.55	7.60	7.52	7.60	7.74
DO (mg/L) Instantaneous Minimum	7.4	7.5	7.4	7.4	7.0	7.4	7.4	7.5	7.3	7.5	7.5	7.5
TRC (mg/L) Average Monthly	0.032	0.031	0.033	0.037	0.034	0.035	0.043	0.035	0.034	0.035	0.033	0.036
TRC (mg/L) Instantaneous Maximum	0.060	0.050	0.050	0.060	0.050	0.060	0.060	0.060	0.060	0.070	0.070	0.050
CBOD5 (lbs/day) Average Monthly	< 0.105	< 0.173	< 0.088	< 0.074	< 0.119	< 0.092	< 0.103	< 0.093	< 0.148	< 0.109	< 0.128	0.187
CBOD5 (lbs/day) Weekly Average	0.14	0.273	0.103	< 0.078	0.16	< 0.1	< 0.117	< 0.095	0.175	< 0.118	< 0.128	0.208
CBOD5 (mg/L) Average Monthly	< 2.95	< 2.95	< 2.55	< 2	< 2.3	< 2	< 2	< 2	< 2.5	< 2	< 2	2.7
CBOD5 (mg/L) Weekly Average	3.9	3.9	3.1	< 2	2.6	< 2	< 2	< 2	3	< 2	< 2	2.9
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	4.3	9.4	6.0	9.6	10.7	12.2	5.7	8.8	9.2	25.1	13.5	28.1
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	4.3	9.4	6.0	9.6	10.7	12.2	5.7	8.8	9.2	25.1	13.5	28.1
BOD5 (mg/L) Raw Sewage Influent Average Monthly	122	255	181	246	173	244	98	191	157	424	210	421

TSS (lbs/day) Average Monthly	0.411	0.686	0.052	0.127	0.088	0.35	0.132	< 0.047	0.531	0.134	0.257	0.277
TSS (lbs/day) Raw Sewage Influent Average Monthly	3.4	8.7	4.3	10.7	9.1	10.2	4.3	4.9	7.9	14.6	8.1	14.7
TSS (lbs/day) Raw Sewage Influent Daily Maximum	3.4	8.7	4.3	10.7	9.1	10.2	4.3	4.9	7.9	14.6	8.1	14.7
TSS (lbs/day) Weekly Average	0.717	1.261	0.067	0.175	0.115	0.45	0.175	< 0.048	0.642	0.15	0.321	0.287
TSS (mg/L) Average Monthly	11.5	10.5	1.5	3.5	2	7.5	2.5	< 1	9	2.5	4	4
TSS (mg/L) Raw Sewage Influent Average Monthly	96	237	130	272	148	203	73	106	135	247	126	220
TSS (mg/L) Weekly Average	20	18	2	5	3	9	3	< 1	11	3	5	4
Fecal Coliform (No./100 ml) Geometric Mean	6.9	< 2	< 2	< 2	< 11.1	< 3.7	< 2	< 2	8.9	< 2	< 4	< 4
Fecal Coliform (No./100 ml) Instantaneous Maximum	16	< 2	< 2	< 2	62	7	< 2	< 2	16	< 2	8	8
Nitrate-Nitrite (lbs/day) Daily Maximum	1.555	0.969	1.321	0.682	1.247	0.609	0.934	1.133	1.997	1.842	2.183	2.654
Nitrate-Nitrite (mg/L) Daily Maximum	44.4	26.4	39.6	17.4	20.2	14.6	16.0	24.7	34.2	31.1	34.0	37.0
Total Nitrogen (lbs/day) Daily Maximum	< 1.57	1.0	< 1.34	< 0.7	< 1.28	< 0.63	0.98	< 1.16	2.23	1.88	2.24	2.78
Total Nitrogen (mg/L) Daily Maximum	< 44.9	27.12	< 40.1	< 17.9	< 20.7	< 15.1	16.82	< 25.2	38.22	31.75	34.87	38.69
Ammonia (lbs/day) Average Monthly	< 0.001	0.137	0.001	< 0.001	< 0.001	< 0.001	< 0.002	< 0.001	0.072	0.006	0.003	< 0.002
Ammonia (mg/L) Average Monthly	< 0.03	1.965	0.035	< 0.04	< 0.025	< 0.02	< 0.035	< 0.02	1.235	0.125	0.05	< 0.035
TKN (lbs/day) Daily Maximum	< 0.02	0.03	< 0.02	< 0.02	< 0.03	< 0.02	0.05	< 0.02	0.23	0.04	0.06	0.12
TKN (mg/L) Daily Maximum	< 0.5	0.72	< 0.5	< 0.5	< 0.5	< 0.5	0.82	< 0.5	4.02	0.65	0.87	1.69

Total Phosphorus (mg/L) Average Monthly	0.47	0.34	0.275	0.25	0.205	0.33	0.26	0.555	0.41	0.295	0.255	0.375
Total Phosphorus (lbs) Total Monthly	0.51	0.48	0.28	0.29	0.34	0.46	0.44	0.78	0.75	0.46	0.51	0.74
Total Phosphorus (lbs) Total Annual					7							

Compliance History

Effluent Violations for Outfall 001, from: March 1, 2023 To: January 31, 2024

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
TSS	01/31/24	Avg Mo	11.5	mg/L	10	mg/L
TSS	12/31/23	Avg Mo	10.5	mg/L	10	mg/L
TSS	12/31/23	Wkly Avg	18	mg/L	15	mg/L
TSS	01/31/24	Wkly Avg	20	mg/L	15	mg/L

Existing Effluent Limitations and Monitoring Requirements

Outfall 001

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	5/week	Grab
Dissolved Oxygen	XXX	XXX	7.0	XXX	XXX	XXX	5/week	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.076	XXX	0.249	5/week	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5) Nov 1 - Apr 30	3.5	5.2	XXX	20	30	40	2/month	24-Hr Composite
Carbonaceous Biochemical Oxygen Demand (CBOD5) May 1 - Oct 31	1.8	2.6	XXX	10	15	20	2/month	24-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Total Suspended Solids	1.8	2.6	XXX	10	15	20	2/month	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	2/month	Grab
Ammonia-Nitrogen Nov 1 - Apr 30	1.3	XXX	XXX	7.5	XXX	15	2/month	24-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	0.44	XXX	XXX	2.5	XXX	5.0	2/month	24-Hr Composite
Nitrate-Nitrite	XXX	Report Daily Max	XXX	Report Daily Max	XXX	XXX	1/month	24-Hr Composite
TKN	XXX	Report Daily Max	XXX	Report Daily Max	XXX	XXX	1/month	24-Hr Composite

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Total Nitrogen	XXX	Report Daily Max	XXX	Report Daily Max	XXX	XXX	1/month	Calculation
Total Phosphorus	Report Total Mo	XXX	XXX	2.0	XXX	4.0	2/month	24-Hr Composite
Total Phosphorus	XXX	127 Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

at Outfall 001

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .021
Latitude 40º 4' 2" **Longitude** 75º 58' 32"
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)

Water Quality-Based Limitations

$CBOD_5$, NH_3-N

Pursuant to 40 CFR § 122.44(d)(1)(i), more stringent requirements should be considered when pollutants are discharged at the levels which have the reasonable potential to cause or contribute to excursions above water quality standards.

WQM 7.0 ver. 1.1b is a water quality model designed to assist DEP in determining appropriate water quality based effluent limits (WQBELs) for carbonaceous biochemical oxygen demand ($CBOD_5$), ammonia (NH_3-N) and dissolved oxygen (D.O.). DEP's Technical Guidance No. 391-2000-007 provides the technical methods contained in WQM 7.0 for determining wasteload allocations and for determining recommended NPDES effluent limits for point source discharges. The model was utilized for this permit renewal. The model output indicated a $CBOD_5$ average monthly limit of 25 mg/l, an NH_3-N average monthly limit of 2.57 mg/l, and a D.O. minimum limit of 5.0 mg/l were protective of water quality. The flow data used to run the model was acquired from USGS PA StreamStats and is included as an attachment. The existing $CBOD_5$ limit and NH_3-N limit are more stringent, and will remain in the permit.

The existing permit limit for $CBOD_5$ is more stringent and will remain in the permit. The existing limit is supported by DEP's Water Quality Antidegradation Implementation Guidance (391-0300-002), which lists this concentration as the Antidegradation Best Available Combination of Technologies (ABACT) for High Quality (HQ) streams with an approved Social or Economic Justification (SEJ). Based on a review of the past year DMRs, the facility is still capable of meeting this limit.

Salisbury Township does not currently have an EPA-approved pretreatment program. Accordingly, evaluating reasonable potential of toxic pollutants is not necessary as effluent levels of toxic pollutants are expected to be insignificant.

Additional Considerations

Chesapeake Bay Total Maximum Daily Load (TMDL)

DEP developed a strategy to comply with the EPA and Chesapeake Bay Foundation requirements by reducing point source loadings of Total Nitrogen (TN) and Total Phosphorus (TP). This strategy can be located in the *Pennsylvania Chesapeake*

Watershed Implementation Plan (WIP), dated January 11, 2011. Subsequently, an update to the WIP was published as the Phase 2 WIP. As part of the Phase 2 WIP, a *Phase 2 Watershed Implementation Plan Wastewater Supplement* (Phase 2 Supplement) was developed, providing an update on TMDL implementation for point sources and DEP's current implementation strategy for wastewater. A new update to the WIP was published as the Phase 3 WIP in August 2019. As part of the Phase 3 WIP, a *Phase 3 Watershed Implementation Plan Wastewater Supplement* (Phase 3 Supplement) was developed, and was most recently revised on December 17, 2019, and is the basis for the development of any Chesapeake Bay related permit parameters. Sewage discharges have been prioritized based on their design flow to the Bay. The highest priority (Phases 1, 2, and 3) dischargers will receive annual Cap Loads based on their design flow on August 29, 2005 and concentrations of 6 mg/l TN and 0.8 mg/l TP. These limits may be achieved through a combination of treatment technology, credits, or offsets. For Phase 4 and 5 facilities, Cap Loads are not currently being implemented for renewed or amended permits for facilities that do not increase design flow.

This facility is considered a Phase 5 non-significant facility with a design flow less than 0.2 MGD but greater than 0.002 MGD. According to the Phase 3 WIP, TN and TP monitoring is recommended for this facility, which is consistent with the existing permit.

Dissolved Oxygen

A minimum D.O. limit of 5.0 mg/L is a D.O. water quality criterion found in 25 Pa. Code § 93.7(a). The existing limit of 7.0 mg/l will remain in the permit due to anti-backsliding requirements.

Fecal Coliform

PA Code § 92a.47.(a)(4) requires a monthly average limit of 200/100 mL as a geometric mean and an instantaneous maximum limit not greater than 1,000/100 mL from May through September for fecal coliform. PA Code § 92a.47.(a)(5) requires a monthly average limit of 2,000/100 mL as a geometric mean and an instantaneous maximum limit not greater than 10,000/100 mL from October through April for fecal coliform. These instantaneous maximum limits will be added to the permit.

E. Coli

PA Code § 92a.61 requires IMAX reporting of E. Coli. Per DEP's SOP No. BCW-PMT-033, sewage dischargers with a design flow of 0.002 – 0.05 mgd will include E. Coli monitoring with a frequency of 1/year. This parameter has been added to the renewal permit.

Total Residual Chlorine

The attached computer printout utilizes the equations and calculations as presented in the Department's May 1, 2003 Implementation Guidance for Total Residual Chlorine (TRC) (ID No. 391-2000-015) for developing chlorine limitations. The Guidance references Chapter 92, Section 92.2d (3) which establishes a standard BAT limit of 0.5 mg/l unless a facility-specific BAT has been developed. The attached printout indicates that a water quality limit of 0.079 mg/l would be needed to prevent toxicity concerns. The existing limit of 0.076 mg/l is more stringent, and will remain in the permit.

Pequea Creek TMDL

A TMDL currently exists for Pequea Creek for phosphorus and sediment. The TMDL allocates a total of 127 lbs/year to this facility. This limit, which translates to a monthly average of 2.0 mg/l, will remain in the permit.

Total Suspended Solids (TSS)

A monthly average limit of 10 mg/l will remain in the permit. This limit is supported by Guidance 391-0300-200, which lists this concentration as the ABACT for HQ streams with an approved SEJ. Based on a review of the past year DMRs, the facility is still capable of meeting this limit.

Sampling Frequency & Sample Type

The monitoring requirements were established based on BPJ and/or Table 6-3 of DEP's Technical Guidance No. 362-0400-001.

Flow Monitoring

Flow monitoring is recommended by DEP's technical guidance and is also required by 25 PA Code §§ 92a.27 and 92a.61.

Influent BOD_5 and TSS Monitoring

As a result of negotiation with US EPA, influent monitoring of TSS and BOD_5 are required for any publicly owned treatment works (POTWs); therefore, influent sampling of BOD_5 and TSS will remain in the permit. A 24-hr composite sample type will be required to be consistent with the existing sampling frequency for effluent TSS and $CBOD_5$.

Anti-Degradation

The effluent limits for this discharge have been developed to ensure that existing instream water uses and the level of water quality necessary to protect the existing uses are maintained and protected. No Exceptional Value Waters are impacted by this discharge. The facility does discharge to a stream classified as a High Quality Watershed.

303(d) Listed Streams

The discharge is located on a stream segment that is designated on the 303(d) list as impaired. There is a recreational impairment due to pathogens from an unknown source. There is an aquatic life impairment due to siltation from agriculture, siltation from habitat modifications, and other habitat alterations from habitat modifications. A TMDL for Pequea Creek was completed and approved by EPA on March 2, 2001 and was last revised on August 18, 2006. The TMDL included the discharge of this facility and allocated a phosphorus mass loading of 127 lbs/year.

Class A Wild Trout Fisheries

No Class A Wild Trout Fisheries are impacted by this discharge.

Anti-Backsliding

Pursuant to 40 CFR § 122.44(l)(1), all proposed permit requirements addressed in this fact sheet are at least as stringent as the requirements implemented in the existing NPDES permit unless any exceptions are addressed by DEP in this fact sheet.

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" (386-0400-001), 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	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	5/week	Grab
DO	XXX	XXX	7.0 Inst Min	XXX	XXX	XXX	5/week	Grab
TRC	XXX	XXX	XXX	0.076	XXX	0.249	5/week	Grab
CBOD5 Nov 1 - Apr 30	3.5	5.2	XXX	20	30	40	2/month	24-Hr Composite
CBOD5 May 1 - Oct 31	1.8	2.6	XXX	10	15	20	2/month	24-Hr Composite
BOD5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/month	24-Hr Composite
TSS	1.8	2.6	XXX	10	15	20	2/month	24-Hr Composite
TSS Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/month	24-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
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
Nitrate-Nitrite	XXX	Report Daily Max	XXX	Report Daily Max	XXX	XXX	1/month	24-Hr Composite
Total Nitrogen	XXX	Report Daily Max	XXX	Report Daily Max	XXX	XXX	1/month	Calculation

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	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Ammonia Nov 1 - Apr 30	1.3	XXX	XXX	7.5	XXX	15	2/month	24-Hr Composite
Ammonia May 1 - Oct 31	0.44	XXX	XXX	2.5	XXX	5.0	2/month	24-Hr Composite
TKN	XXX	Report Daily Max	XXX	Report Daily Max	XXX	XXX	1/month	24-Hr Composite
Total Phosphorus	XXX	XXX	XXX	2.0	XXX	4.0	2/month	24-Hr Composite
Total Phosphorus (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation

Compliance Sampling Location: Outfall 001

Other Comments: 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" (386-0400-001), 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
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Total Phosphorus (lbs)	XXX	127 Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation

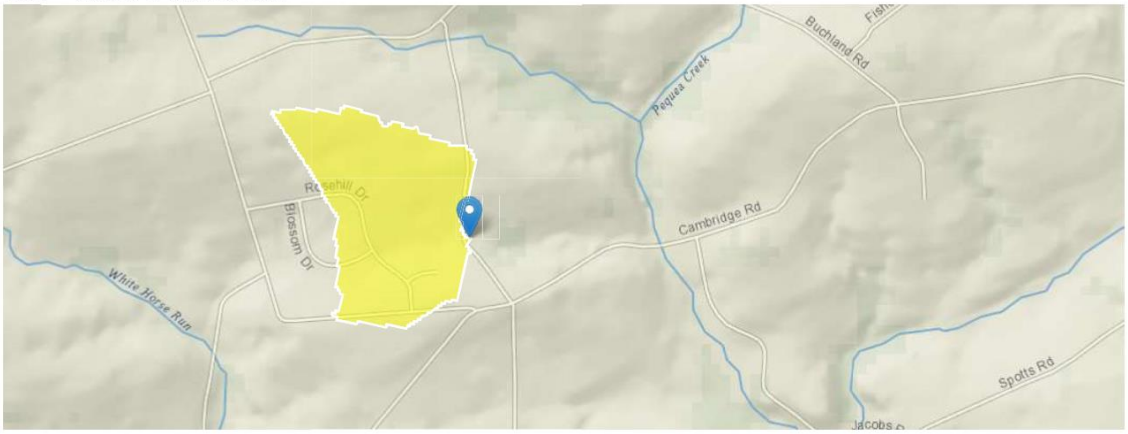
Compliance Sampling Location: Outfall 001

Other Comments: None

Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment)
☐	Toxics Management Spreadsheet (see Attachment)
☒	TRC Model Spreadsheet (see Attachment)
☐	Temperature Model Spreadsheet (see Attachment)
☐	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☒	Technical Guidance for the Development and Specification of Effluent Limitations, 386-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 386-2000-019, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 386-2000-018, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 386-2183-001, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 386-2183-002, 12/97.
☐	Pennsylvania CSO Policy, 386-2000-002, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 386-2000-008, 4/97.
☒	Determining Water Quality-Based Effluent Limits, 386-2000-004, 12/97.
☐	Implementation Guidance Design Conditions, 386-2000-007, 9/97.
☒	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 386-2000-016, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 386-2000-012, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 386-2000-009, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 386-2000-015, 5/2004.
☐	Implementation Guidance for Section 93.7 Ammonia Criteria, 386-2000-022, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 386-2000-013, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 386-2000-011, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 386-2000-001, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 386-2000-021, 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, 386-2000-020, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 386-2000-005, 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, 386-2000-010, 3/1999.
☐	Design Stream Flows, 386-2000-003, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 386-2000-006, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 386-3200-001, 6/97.
☐	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☒	SOP: BCW-PMT-033
☐	Other:

Salisbury Township Rosehill WWTP PA0084484 Outfall 001

Region ID: PA
Workspace ID: PA20240321125334326000
Clicked Point (Latitude, Longitude): 40.06766, -75.97503
Time: 2024-03-21 08:53:55 -0400



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLOPD	Mean basin slope measured in degrees	2.8284	degrees
DRNAREA	Area that drains to a point on a stream	0.13	square miles
ROCKDEP	Depth to rock	5	feet
URBAN	Percentage of basin with urban development	0.1496	percent

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 1]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.13	square miles	4.78	1150
BSLOPD	Mean Basin Slope degrees	2.8284	degrees	1.7	6.4
ROCKDEP	Depth to Rock	5	feet	4.13	5.21
URBAN	Percent Urban	0.1496	percent	0	89

Low-Flow Statistics Disclaimers [Low Flow Region 1]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.

Low-Flow Statistics Flow Report [Low Flow Region 1]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.0166	ft^3/s
30 Day 2 Year Low Flow	0.0241	ft^3/s
7 Day 10 Year Low Flow	0.00555	ft^3/s
30 Day 10 Year Low Flow	0.00865	ft^3/s
90 Day 10 Year Low Flow	0.0178	ft^3/s

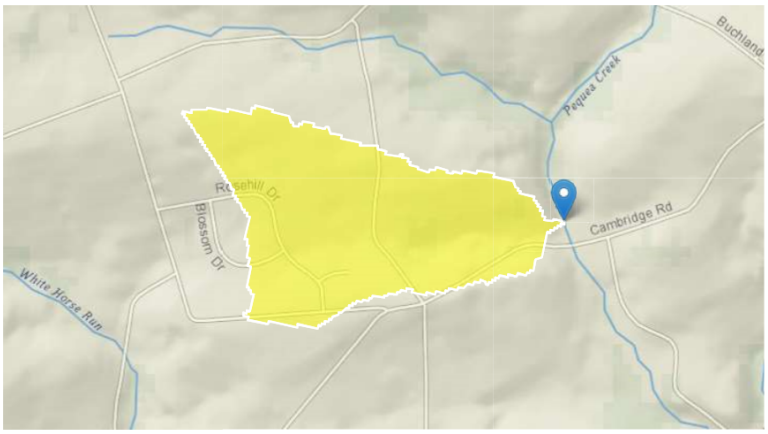
Low-Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)

Application Version: 4.19.4
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

Salisbury Township Rosehill WWTP PA0084484 Downstream Pt.

Region ID: PA
Workspace ID: PA20240321134933988000
Clicked Point (Latitude, Longitude): 40.06825, -75.96765
Time: 2024-03-21 09:49:57 -0400



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLOPD	Mean basin slope measured in degrees	3.7221	degrees
DRNAREA	Area that drains to a point on a stream	0.21	square miles
ROCKDEP	Depth to rock	5	feet
URBAN	Percentage of basin with urban development	0.2518	percent

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 1]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.21	square miles	4.78	1150
BSLOPD	Mean Basin Slope degrees	3.7221	degrees	1.7	6.4
ROCKDEP	Depth to Rock	5	feet	4.13	5.21
URBAN	Percent Urban	0.2518	percent	0	89

Low-Flow Statistics Disclaimers [Low Flow Region 1]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.

Low-Flow Statistics Flow Report [Low Flow Region 1]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.0382	ft^3/s
30 Day 2 Year Low Flow	0.0519	ft^3/s
7 Day 10 Year Low Flow	0.0144	ft^3/s
30 Day 10 Year Low Flow	0.0208	ft^3/s
90 Day 10 Year Low Flow	0.0372	ft^3/s

Low-Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)

Application Version: 4.19.4
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

TRC_CALC

1A	B	C	D	E	F	G
2	**TRC EVALUATION**					
3	Input appropriate values in B4:B8 and E4:E7					
4	0.0156	= Q stream (cfs)		0.5	= CV Daily	
5	0.021	= Q discharge (MGD)		0.5	= CV Hourly	
6	30	= no. samples		1	= AFC_Partial Mix Factor	
7	0.3	= Chlorine Demand of Stream		1	= CFC_Partial Mix Factor	
8	0	= Chlorine Demand of Discharge		15	= AFC_Criteria Compliance Time (min)	
9	0.5	= BAT/BPJ Value		720	= CFC_Criteria Compliance Time (min)	
	0	= % Factor of Safety (FOS)			=Decay Coefficient (K)	
10	Source	Reference	AFC Calculations		Reference	CFC Calculations
11	TRC	1.3.2.iii	WLA afc = 0.172		1.3.2.iii	WLA cfc = 0.160
12	PENTOXSD TRG	5.1a	LTAMULT afc = 0.373		5.1c	LTAMULT cfc = 0.581
13	PENTOXSD TRG	5.1b	LTA_afc= 0.064		5.1d	LTA_cfc = 0.093
14						
15	Source		Effluent Limit Calculations			
16	PENTOXSD TRG	5.1f	AML MULT = 1.231			
17	PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.079		AFC	
18			INST MAX LIMIT (mg/l) = 0.258			

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)**

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
07K	7450	PEQUEA CREEK	**0.450**	683.00	0.13	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	0.02	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
Rosehill WWTP	PA0084484	0.0210	0.0210	0.0210	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	5.00	8.24	0.00	0.00
NH3-N	25.00	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
07K	7450	PEQUEA CREEK	**0.000**	602.00	0.21	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	0.03	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 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
07K	7450	PEQUEA 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												
0.450	0.02	0.00	0.02	.0325	0.03409	.333	2.05	6.15	0.07	0.390	23.38	7.00
Q1-10 Flow												
0.450	0.01	0.00	0.01	.0325	0.03409	NA	NA	NA	0.07	0.418	23.82	7.00
Q30-10 Flow												
0.450	0.02	0.00	0.02	.0325	0.03409	NA	NA	NA	0.08	0.366	23.02	7.00

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	5		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
07K	7450	PEQUEA 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
0.450	Rosehill WWTP	12.21	15.96	12.21	15.96	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
0.450	Rosehill WWTP	1.55	2.57	1.55	2.57	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
0.45	Rosehill WWTP	25	25	2.57	2.57	5	5	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
07K	7450	PEQUEA CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.450	0.021	23.378	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
2.048	0.333	6.152	0.071
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
17.54	1.422	1.73	0.908
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.052	30.449	Owens	5
Reach Travel Time (days)			
0.390			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.039	16.44	1.67	6.71
0.078	15.41	1.62	6.98
0.117	14.44	1.56	7.12
0.156	13.54	1.51	7.23
0.195	12.69	1.45	7.31
0.234	11.89	1.40	7.39
0.273	11.15	1.35	7.46
0.312	10.45	1.31	7.53
0.351	9.79	1.26	7.59
0.390	9.18	1.22	7.65

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
07K	7450	PEQUEA 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)
0.450	Rosehill WWTP	PA0084484	0.021	CBOD5	25		
				NH3-N	2.57	5.14	
				Dissolved Oxygen			5