pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0223018**
Facility Type	**Municipal**	APS ID	**1000502**
Major / Minor	**Minor**	Authorization ID	**1285735**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Farmington Township**	Facility Name	**Farmington Township STP**
Applicant Address	596 Fairbanks Road	Facility Address	595 Fairbanks Road
	Russell, PA 16345		Russell, PA 16345
Applicant Contact	Edward Beardsley	Facility Contact	Edward Beardsley
Applicant Phone	(724) 867-6981	Facility Phone	(724) 867-6981
Client ID	112070	Site ID	536121
Ch 94 Load Status	Not Overloaded	Municipality	Farmington Township
Connection Status	No Limitations	County	Warren County
Date Application Received	August 12, 2019	EPA Waived?	Yes
Date Application Accepted	August 29, 2019	If No, Reason	-
Purpose of Application	Renewal of an existing NPDES Permit for an existing discharge of treated sanitary wastewater from a municipal sewer system.		

Summary of Review

Act 14 - Proof of Notification was submitted and received.

A Part II Water Quality Management permit is not required at this time.

The applicant should be able to meet the limits of this permit, which will protect the uses of the receiving stream.

I. OTHER REQUIREMENTS:

A. Stormwater into Sewers
B. Right of Way
C. Solids Handling
D. Effluent Chlorine Optimization and Minimization

SPECIAL CONDITIONS:

II. Solids Management

There are no open violations in efacts associated with the subject Client ID (112070) as of 11/3/2021.

Approve	Deny	Signatures	Date
X		Stephen A. McCauley Stephen A. McCauley, E.I.T. / Environmental Engineering Specialist	11/3/2021
X		Justin C. Dickey Justin C. Dickey, P.E. / Environmental Engineer Manager	11/4/2021

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	0.025
Latitude	41º 58’ 14.30”	Longitude	-79º 14’ 12.90”
Quad Name	-	Quad Code	-
Wastewater Description:	Sewage Effluent		
Receiving Waters	Rollin Run (CWF)	Stream Code	56404
NHD Com ID	129446832	RMI	1.2
Drainage Area	1.23	Yield (cfs/mi^2)	0.07
Q_{7-10} Flow (cfs)	0.086	Q_{7-10} Basis	calculated
Elevation (ft)	1518	Slope (ft/ft)	0.01149
Watershed No.	16-B	Chapter 93 Class.	CWF
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		PA - NY state border	
PWS Waters	Kiantone Creek	Flow at Intake (cfs)	-
PWS RMI	-	Distance from Outfall (mi)	4.5

Sludge use and disposal description and location(s): Sludge is not used, it is hauled to the Sugar Grove Area Sewer Authority where it is applied to the reed beds.

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.

Narrative: This Fact Sheet details the determination of draft NPDES permit limits for an existing discharge of 0.025 MGD of treated sewage from an existing Publicly Owned Treatment Works (POTW) in Farmington Township, Warren County.

Permitted treatment (WQM Permit no. 6200408) consists of: Comminution, an 8,543 gallon aerated equalization tank, 3 aeration tanks totaling 26,000 gallons, a 5,847 gallon settling tank, a 10,625 gallon aerobic digestion tank, chlorination with a 2,800 gallon contact tank, dechlorination with a 690 gallon tank, a polishing clarifier, and post aeration.

1. Streamflow:

Jackson Run near North Warren, PA - USGS gage 03015280 (1964-1978):

Q_{7-10}:	0.9	cfs	(USGS StreamStats)
Drainage Area:	12.8	sq. mi.	(USGS StreamStats)
Yieldrate:	0.07	cfsm	calculated

Unnamed Tributary to the Kiantone Creek at Outfall 001:

Yieldrate:	0.07	cfsm	calculated above
Drainage Area:	1.23	sq. mi.	(USGS StreamStats)
Q_{7-10}:	0.086	cfs	calculated

% of stream allocated: 100% Basis: No nearby discharges

2. Wasteflow:

Maximum discharge: 0.025 MGD = 0.038 cfs

Runoff flow period: 24 hours Basis: Runoff flow for an STP with equalization

In accordance with the SOP, since there is greater than 3 parts stream flow (Q7-10) to 1 part effluent (design flow), the treatment requirements in document number 391-2000-014, titled, "Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers", dated April 12, 2008, were not evaluated.

Flow will be required to be monitored as authorized under Chapter 92a.61, and as recommended in the SOP.

3. Parameters:

The following parameters were evaluated: pH, Total Suspended Solids, Fecal Coliform, E. Coli, Total Phosphorus, Total Nitrogen, NH_3-N, $CBOD_5$, Dissolved Oxygen, and Total Residual Chlorine.

a. pH

Between 6.0 and 9.0 at all times

Basis: Application of Chapter 93.7 technology-based limits.

The measurement frequency will be set to 1/day as recommended in the SOP, based on Table 6-3 in the "Technical Guidance for the Development and Specification of Effluent Limitations" (362-0400-001).

b. Total Suspended Solids

Limits are 30 mg/l as a monthly average and 60 as an instantaneous maximum.

Basis: Application of Chapter 92a47 technology-based limits.

c. Fecal Coliform

05/01 - 09/30:	200/100ml	(monthly average geometric mean)
	1,000/100ml	(instantaneous maximum)

10/01 - 04/30: 2,000/100ml (monthly average geometric mean)
10,000/100ml (instantaneous maximum)

Basis: Application of Chapter 92a47 technology-based limits

d. E. Coli

Monitoring was added for E. Coli at a frequency of 1/year.

Basis: Application of Chapter 92a.61 as recommended by the SOP for flows less than 0.05 MGD.

e. Phosphorus

☒ Limit not necessary

Basis: Chapter 96.5 does not apply. However, the previous monitoring for Total Phosphorus will be retained in accordance with the SOP, based on Chapter 92a.61.

☐ Limit necessary due to:

☐ Discharge to lake, pond, or impoundment
☐ Discharge to stream
☐ Discharge to a dry stream

Basis: N/A

f. Total Nitrogen

☒ Limit not necessary

Basis: The previous monitoring for Total Nitrogen will be retained in accordance with the SOP, based on Chapter 92a.61.

☐ Limit necessary due to:

☐ Discharge to a lake, pond, or impoundment
☐ Discharge to a stream
☐ Discharge to a dry stream

Basis: N/A

g. Ammonia-Nitrogen (NH_3-N)

Median discharge pH to be used: 7.6 Standard Units (S.U.)

Basis: eDMR data from previous 12 months

Discharge temperature: 25°C (default value used in the absence of data)

Median stream pH to be used: 7.0 Standard Units (S.U.)

Basis: default value used in the absence of data

Stream Temperature: 20˚C (default value used for CWF modeling)

Background NH_3-N concentration: 0.1 mg/l

Basis: Default value

Calculated NH_3-N Summer limits: 6.7 mg/l (monthly average)
13.4 mg/l (instantaneous maximum)

Calculated NH_3-N Winter limits: 20.1 mg/l (monthly average)
40.2 mg/l (instantaneous maximum)

Result: WQ modeling resulted in the summer limits above (see Attachment 1). The winter limits are calculated as three times the summer limits. However, the previous limits are more restrictive and are attainable, so they will be retained.

h. $CBOD_5$

Median discharge pH to be used: 7.6 Standard Units (S.U.)

Basis: eDMR data from previous 12 months

Discharge temperature: 25°C (default value used in the absence of data)

Median stream pH to be used: 7.0 Standard Units (S.U.)

Basis: default value used in the absence of data

Stream Temperature: 20˚C (default value used for CWF modeling)

Background $CBOD_5$ concentration: 2.0 mg/l

Basis: Default value

$CBOD_5$ Summer limits: 25.0 mg/l (monthly average)
50.0 mg/l (instantaneous maximum)

$CBOD_5$ Winter limits: 25.0 mg/l (monthly average)
50.0 mg/l (instantaneous maximum)

Result: WQ modeling resulted in the summer limits above (see Attachment 1), which are the same as in the previous permit. The winter limits are calculated as three times the summer limits, but since the technology-based limits would govern, they will be used. Since the summer and winter limits are technology-based, per the SOP, the year-round limit of 25.0 mg/l monthly average and 50.0 mg/l instantaneous maximum will be retained with this renewal.

i. Influent Total Suspended Solids and BOD_5

Monitoring for these two parameters will be retained as recommended in the SOP for POTWs, as authorized under Chapter 92a.61.

j. Dissolved Oxygen (DO)

- ☒ 4.0 mg/l - minimum desired in effluent to protect all aquatic life
- ☐ 5.0 mg/l - desired in effluent for CWF, WWF, or TSF
- ☐ 6.0 mg/l - minimum required due to discharge falling under guidance document 391-2000-014
- ☐ 8.0 mg/l - required due to discharge going to a naturally reproducing salmonid stream

Discussion: A Dissolved Oxygen minimum of 4.0 mg/l was calculated by the WQ Model (see Attachment 1). The new limit will be added with this renewal per the SOP, based on Chapter 93.7, and under the authority of Chapter 92a.61.

The measurement frequency will be set to 1/day as recommended in the SOP, based on Table 6-3 in the "Technical Guidance for the Development and Specification of Effluent Limitations" (362-0400-001).

k. Total Residual Chlorine (TRC)

☐ No limit necessary

Basis: N/A

☒ TRC limits: 0.3 mg/l (monthly average)
1.0 mg/l (instantaneous maximum)

Basis: The water quality-based limits for TRC above were calculated by the TRC_Calc Spreadsheet (see Attachment 2). The calculated limits are more restrictive than the previous permit. Since the new more restrictive limits are attainable, a compliance schedule will not be added with this renewal.

The measurement frequency will be set to 1/day as recommended in the SOP, based on Table 6-3 in the "Technical Guidance for the Development and Specification of Effluent Limitations" (362-0400-001).

4. Reasonable Potential Analysis for Receiving Stream:

A Reasonable Potential Analysis was not performed in accordance with State practices for Outfall 001 by the Department's Toxics Management Spreadsheet since no parameters other than sewage are required to be sampled for flows less than 0.1 MGD.

Result: No reasonable potential was calculated, so no WQBELs are necessary for this renewal.

5. Reasonable Potential for Downstream Public Water Supply (PWS):

The Reasonable Potential Analysis does not calculate limits for parameters that are based on PWS criteria (TDS, Chloride, Bromide, and Sulfate). However, since sample data was provided, mass-balance calculations were performed (see below).

Nearest Downstream potable water supply (PWS): PA - NY state border
Distance downstream from the point of discharge: 4.5 miles (approximate)

PWS Evaluation:

Stream flow (sf) at the potable water supply intake (PA-NY state border) = 1.16 cfs
Waste flow (wf) from the STP = 0.025 MGD = 0.038 cfs
Total flow = 1.198 cfs
Background Concentrations: No data available (assumed zero)

Mass balance for TDS at the potable water supply intake:
(sf @ PWS)(bkrd. conc.) + (wf)(x) = (tot. flow)(criteria)
(1.16 cfs)(0 mg/l) + (0.038 cfs)(x) = (1.198 cfs)(500 mg/l)

x = 15,763 mg/l (renewal application maximum was 476 mg/l - ok)

Mass balance for Chloride at the potable water supply intake:
(sf @ PWS)(bkrd. conc.) + (wf)(x) = (tot. flow)(criteria)
(1.16 cfs)(0 mg/l) + (0.038 cfs)(x) = (1.198 cfs)(250 mg/l)

x = 7,881 mg/l (renewal application maximum was 131 mg/l - ok)

Mass balance for Bromide at the potable water supply intake:

(sf @ PWS)(bkrd. conc.) + (wf)(x) = (tot. flow)(criteria)

(1.16 cfs)(0 mg/l) + (0.038 cfs)(x) = (1.198 cfs)(1 mg/l)

x = 31.5 mg/l (renewal application maximum was <0.4 mg/l - ok)

Bromide has been linked to the formation of disinfection byproducts at increased levels in public water systems. Where the concentration of Bromide in a discharge exceeds 1 mg/L, and the discharge flow exceeds 0.1 MGD, Part A of the permit should include monitor and report for bromide. Since the permitted discharge is less than 0.1 MGD, and the maximum reported sample data for Bromide was <2.0 mg/l, monitoring is not necessary with this renewal permit.

Mass balance for Sulfate at the potable water supply intake:

(sf @ PWS)(bkrd. conc.) + (wf)(x) = (tot. flow)(criteria)

(1.16 cfs)(0 mg/l) + (0.038 cfs)(x) = (1.198 cfs)(250 mg/l)

x = 7,881 mg/l (renewal application maximum was 26.5 mg/l - ok)

☒ No limits necessary
☐ Limits needed

Basis: Significant dilution available.

6. Additional Information:

The Farmington Township STP receives 100% of its flow from the Farmington Township, which is a 100% separate sewer system.

7. Anti-Backsliding

Since all the permit limits in this renewal are the same or more restrictive than the previous NPDES Permit, anti-backsliding is not applicable.

8. Attachment List:

Attachment 1 - WQ Modeling Printouts

Attachment 2 - TRC_Calc Spreadsheet

(The Attachments above can be found at the end of this document)

Compliance History

DMR Data for Outfall 001 (from October 1, 2020 to September 30, 2021)

Parameter	SEP-21	AUG-21	JUL-21	JUN-21	MAY-21	APR-21	MAR-21	FEB-21	JAN-21	DEC-20	NOV-20	OCT-20
Flow (MGD) Average Monthly	0.005	0.006	0.006	0.006	0.005	0.006	0.006	0.005	0.006	0.007	0.005	0.005
pH (S.U.) Minimum	7.6	7.1	7.2	7.4	7.5	6.5	7.3	7.3	7.6	7.6	7.9	7.8
pH (S.U.) Maximum	8.1	7.4	7.8	7.7	8.1	7.8	7.8	7.8	7.8	7.9	8.1	8.1
TRC (mg/L) Average Monthly	0.16	0.11	0.12	0.17	0.12	0.14	0.09	0.08	0.16	0.16	0.1	0.19
TRC (mg/L) Instantaneous Maximum	0.22	0.14	0.13	0.26	0.14	0.22	0.18	0.09	0.24	0.31	0.14	0.38
CBOD5 (lbs/day) Average Monthly	< 0.08	0.2	0.5	0.3	< 0.2	0.3	< 0.3	0.2	< 0.2	< 0.3	< 0.3	0.2
CBOD5 (lbs/day) Weekly Average	< 0.1	0.3	0.9	0.4	0.3	0.3	0.5	0.2	< 0.2	0.3	0.4	0.3
CBOD5 (mg/L) Average Monthly	< 2.2	3.85	5.39	6.31	< 5.49	6.71	< 4.26	3.73	< 3	4.41	< 4.73	4.81
CBOD5 (mg/L) Weekly Average	< 2.4	5.15	6.96	7.03	7.97	6.98	5.52	4.25	< 3	5.81	4.76	5.41
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	8	18	5.0	8	12	10	14	11	12	19	12	8
BOD5 (mg/L) Raw Sewage Influent Average Monthly	245	263	115.6	156	334	240	213.5	213	198.9	272	9	171
TSS (lbs/day) Average Monthly	< 0.1	0.3	0.7	0.3	0.4	0.4	0.2	0.2	0.2	1	0.7	0.3
TSS (lbs/day) Raw Sewage Influent Average Monthly	10	15	8.0	9	10	12	8	9	5	7	9	8
TSS (lbs/day) Weekly Average	0.1	0.4	1.0	1.0	0.4	0.6	0.3	0.3	0.3	2	1.0	0.3
TSS (mg/L) Average Monthly	< 3.5	4.7	9.6	6.4	11.6	9.1	3.2	5	3.2	15.6	9.2	6.5
TSS (mg/L) Raw Sewage Influent Average Monthly	326	227	168	184	259	292	126	187	87	106	128	173
TSS (mg/L) Weekly Average	< 4.5	6.4	10.0	22.8	13.2	14.5	4	6	4.8	28	15.2	6.8

Fecal Coliform (CFU/100 ml) Average Monthly	67	289	508	149	8							
Fecal Coliform (CFU/100 ml) Geometric Mean						101	6	75	15	311	647	52
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	866.4	2419.6	1379.2	149.2	8	353.6	8	2842	17.3	1498	960.6	126.2
Total Nitrogen (mg/L) Average Monthly	37.22	39.03	22.66	31.12	44.16	48.02	52.65	52.23	53.33	36.39	36.69	63.42
Ammonia (lbs/day) Average Monthly	< 0.003	0.007	< 0.008	< 0.005	0.004	< 0.01	0.007	< 0.005	< 0.006	< 0.007	< 0.007	< 0.005
Ammonia (mg/L) Average Monthly	< 0.1	< 0.1	< 0.1	< 0.1	0.1	< 0.319	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Total Phosphorus (mg/L) Average Monthly	8.99	7.64	4.89	5.48	5.4	7.27	7.27	6.86	5.8	4.68	0.3	6.98

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	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	XXX	XXX	XXX	XXX	XXX	1/week	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	4.0 Inst Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.33	XXX	1.0	1/day	Grab
CBOD5	5.0	8.0	XXX	25.0	40.0	50	2/month	8-Hr Composite
BOD5 Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
TSS	6.0	9.0	XXX	30.0	45.0	60	2/month	8-Hr Composite
TSS Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/month	8-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	XXX	1000	2/month	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	1/month	8-Hr Composite
Ammonia-Nitrogen Nov 1 - Apr 30	2.5	XXX	XXX	13.5	XXX	27	2/month	8-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	0.9	XXX	XXX	4.5	XXX	9	2/month	8-Hr Composite
Total Phosphorus	XXX	XXX	XXX	Report	XXX	XXX	1/month	8-Hr Composite

Compliance Sampling Location: Outfall 001, after disinfection.

Flow is monitor only based on Chapter 92a.61. The limits for pH and Dissolved Oxygen are technology-based on Chapter 93.7. The limits for CBOD5, Total Suspended Solids, and Fecal Coliforms are technology based on Chapter 92a.47. Monitoring for influent BOD5 and Total Suspended Solids is based on Chapter 92a.61. The limits for Ammonia-Nitrogen are water quality-based on Chapter 93.7. Monitoring for E. Coli, Total Nitrogen, and Total Phosphorus is based on Chapter 92a.61.

Attachment 1

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
16B	56404	Trib 56404 to Kiantone 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)
1.200	Farmington STP	PA0223018a	0.025	CBOD5	25		
				NH3-N	6.76	13.52	
				Dissolved Oxygen			4

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
16B	56404	Trib 56404 to Kiantone Creek

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
1.200	0.025	21.550	7.115
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
5.089	0.361	14.098	0.068
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
9.13	1.038	2.10	0.789
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.928	24.467	Owens	6
Reach Travel Time (days)			
1.080			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.108	8.09	1.92	7.96
0.216	7.18	1.77	8.01
0.324	6.36	1.62	8.01
0.432	5.64	1.49	8.01
0.540	5.00	1.37	8.01
0.648	4.44	1.26	8.01
0.756	3.93	1.15	8.01
0.864	3.49	1.06	8.01
0.972	3.09	0.97	8.01
1.080	2.74	0.89	8.01

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		

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
	16B	56404	Trib 56404 to Kiantone Creek	**1.200**	1518.00	1.23	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	0.070	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
Farmington STP	PA0223018a	0.0250	0.0000	0.0000	0.000	25.00	7.60

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	4.00	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
16B	56404	Trib 56404 to Kiantone Creek	**0.000**	1433.00	1.81	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	0.070	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 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
16B	56404	Trib 56404 to Kiantone 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
1.200	Farmington STP	12.08	29.29	12.08	29.29	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
1.200	Farmington STP	1.68	6.76	1.68	6.76	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)		
1.20	Farmington STP	25	25	6.76	6.76	4	4	0	0

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
16B	56404	Trib 56404 to Kiantone 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												
1.200	0.09	0.00	0.09	.0387	0.01342	.361	5.09	14.1	0.07	1.080	21.55	7.11
Q1-10 Flow												
1.200	0.06	0.00	0.06	.0387	0.01342	NA	NA	NA	0.06	1.267	22.06	7.16
Q30-10 Flow												
1.200	0.12	0.00	0.12	.0387	0.01342	NA	NA	NA	0.08	0.953	21.24	7.09

Attachment 2

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

0.086	= Q stream (cfs)	0.5	= CV Daily
0.025	= Q discharge (MGD)	0.5	= CV Hourly
30	= no. samples	1	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Stream	1	= CFC_Partial Mix Factor
0	= Chlorine Demand of Discharge	15	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)
0	= % Factor of Safety (FOS)	0	=Decay Coefficient (K)

Source	Reference	AFC Calculations		Reference	CFC Calculations	
TRC	1.3.2.iii	WLA afc =	0.728	1.3.2.iii	WLA cfc =	0.703
PENTOXSD TRG	5.1a	LTAMULT afc =	0.373	5.1c	LTAMULT cfc =	0.581
PENTOXSD TRG	5.1b	LTA_afc=	0.271	5.1d	LTA_cfc =	0.408

Source		Effluent Limit Calculations		
PENTOXSD TRG	5.1f	AML MULT =	1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) =	0.334	AFC
		INST MAX LIMIT (mg/l) =	1.093	

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)**