pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**New**	Application No.	**PA0267562**
Wastewater Type	**Sewage**	APS ID	**1044999**
Facility Type	**SRSTP**	Authorization ID	**1366114**

NPDES PERMIT FACT SHEET
INDIVIDUAL SFTF/SRSTP

Applicant, Facility and Project Information

Applicant Name	**Amanda & Michael Karwic**	Facility Name	**Karwic Residence**
Applicant Address	1854 Hopewell Road	Facility Address	1854 Hopewell Road
	Elverson, PA 19520-8610		Elverson, PA 19520-8610
Applicant Contact	Michael Karwic	Facility Contact	Michael Karwic
Applicant Phone	(484) 883-0169 / michaelkarwic@aol.com	Facility Phone	(484) 883-0169
Client ID	364694	Site ID	851172
SIC Code	8811	Municipality	Robeson Township
SIC Description	Services - Private Households	County	Berks
Date Application Received	August 2, 2021 & August 24, 2021	WQM Required	Application submitted
Date Application Accepted	August 24, 2021	WQM App. No.	0621405

Project Description: **New NPDES permit to replace a failing on-lot system – discharge to EV water**

Summary of Review

The permit application was received on August 2, 2021 using DEP's OnBase system (Reference ID 28158 and 29687). The proposed facility is a single residence Sewage Treatment Plant (SRSTP).

Sewage Planning Approval was granted on March 3, 2020: A3-06954-257-3S. The proposed treatment at the time of the Planning Approval was a septic tank, Premier Aqua Treatment Plant with a filter for Total Phosphorus reduction and an EcoFlo Coco Filter. The WQM permit application that was submitted with the NPDES permit application and is under review proposes a different design: septic tank + Norweco Singulair aerobic treatment + Biofilm Reactor + Phosphorus filter + UV disinfection + post-aeration.

Because the site is a new discharge to a receiving water classified as an Exceptional Value (EV) waterway, alternatives to discharging to the stream had to be evaluated before Sewage Planning Approval was granted. An anti-degradation analysis was performed for that purpose. Preliminary Effluent Limits (PELs) were sent to the permittee's consultant on July 9, 2018 (see attached copy) as part of the analysis. PELs consider background stream concentrations and harmonic stream flow to estimate discharge concentrations that will not cause a significant change in the existing water quality (called anti-degradation), then compare those concentrations to Technology-based effluent limits (TBELs) and Water-Quality Based Effluent Limits (WQBELs) developed during stream low flow conditions to determine necessary effluent limits.

In preparing this draft NPDES permit, the stream flows were verified and had not changed since the time that the PELs were developed. The background stream pollutant concentrations were updated based on available information: the background concentrations were taken from median values reported at WQN178 monitoring station for samples collected between January 2015 and December 2020, the most recent available. The DEP Water Quality staff determined, upon request from the Clean Water staff, that the stream concentrations at WQN178 were the best data available to represent background conditions for this site.

Approve	Deny	Signatures	Date
X		*Bonnie J. Boylan* Bonnie J. Boylan / Environmental Engineering Specialist	October 22, 2021
X		*Maria D. Bebenek*, P.E., for Daniel W. Martin, P.E. / Environmental Engineer Manager	October 28, 2021

Summary of Review

Unresolved Violations

None.

Delaware River Basin Commission (DRBC)

Because the receiving water is within the Delaware River watershed, this fact sheet and draft permit will be sent to the DRBC in compliance with State regulations and an interagency agreement. Any comments from them will be considered.

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)	.0005
Latitude	40º 10' 43" per appl.	Longitude	-75º 49' 22" per appl.
Quad Name		Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	Intermittent UNT of Pine Creek (EV, MF), <0.1 miles to Pine Crk	Stream Code	1598 (Pine Crk, not UNT which has no stream code)
NHD Com ID	25972336	RMI	4.1 (@ UNT & confluence with Pine Creek per eMapPA)
Drainage Area	1.1	Yield (cfs/mi^2)	0.05
Q_{7-10} Flow (cfs)	0.05 (0.034 MGD)	Q_{7-10} Basis	USGS PA Strm Stats online
Elevation (ft)	Approx.. 620	Slope (ft/ft)	
Watershed No.	03-D	Chapter 93 Class.	EV, MF
Existing Use	-	Existing Use Qualifier	-
Exceptions to Use	-	Exceptions to Criteria	-
Assessment Status	Impaired for Aquatic Life, per eMapPA (assess. ID 17807)		
Cause(s) of Impairment	Siltation		
Source(s) of Impairment	Agricultural		
TMDL Status	None	Name	

Secondary Waters:

UNT flows into Pine Creek (EV) at 4.1 RMI; Pine Creek flows into French Creek (EV until 5.4 RMI, then TSF) at 20 RMI which flows into Schuylkill River (WWF) at 36 RMI.

Background/Ambient Data		Data Source - WQN 178	
pH (SU)	7.7		
Temperature (°F)			
Hardness (mg/L)			
Other:	0.02 mg/l NH3	0.019 mg/l Total Phosphorus	
Nearest Downstream Public Water Supply Intake		Aqua PA – Lower Merion/Norristown	
PWS Waters	Schuylkill River	Flow at Intake (cfs)	
PWS RMI	Approx.. 35	Distance from Outfall (mi)	More than 20 miles

Other Comments:

Receiving water and downstream waters are NOT Class A Trout or Trout Natural Reproduction

Qs: Qd at Pine Creek = 68.5 : 1

Because the background concentrations used for the PELs were based on data from 2012 through 2017 compiled by the DEP's Water Quality staff, more recent data were reviewed for developing the draft permit limits: WQN 178 from January 2015 through December 2020 (the most recent available in the water quality portal). The more recent data was consistent with the background concentrations used for the PELs except for a significant change in **Total Suspended Solids (TSS).** The more recent data for TSS yielded a larger median concentration, 10 mg/l, versus the older TSS data which yielded a median concentration of <5.0 mg/l. Because this section of Pine Creek has been assessed as impaired for Siltation (assessment ID 17807, created September 2, 2015), however, the former background data will continue to be used, and the PEL will remain unchanged for TSS.

The State water quality criteria for **Ammonia** changed since the PELs were issued. The changes in State water quality criteria were published in the PA Bulletin July 11, 2020 and became effective after approval by the U.S. EPA. DEP's WQM 7.0 model was re-run, with stream background concentrations as input values and using the new Ammonia water quality criteria. The Ammonia limit from the PEL did not change for warm months: 5 mg/l as a monthly average from May 1 through October 31. The model defaulted to the TBEL limits for Ammonia, meaning the WQBEL limits were not more stringent than the TBELs. The Dissolved Oxygen (DO) Simulation included in the model indicates that the concentration of Ammonia in the stream will return to the existing background concentration before the end of the reach.

For the colder months, however, the model results for Ammonia differed from the PELs. The PELs included an Average Monthly limit of 15 mg/l for cold weather. DEP often allows less stringent Ammonia limits for cold weather months in recognition that Ammonia is less toxic in cold weather. When the WQM 7.0 model was re-run with input variables reflecting winter conditions and the updated water quality criteria, however, the model's DO Simulation indicated that the Ammonia concentration in the stream would not return to background concentrations by the end of the reach if a permit limit of 15 mg/l was imposed, contrary to anti-degradation requirements for EV waters. Various iterations of the WQM 7.0 model using TBELs between 5.0 and 15.0 mg/l were run but the in-stream concentrations of Ammonia did not return to the background concentration before the end of the reach. Therefore, the Ammonia limit of 5.0 mg/l is included in the draft permit as a year-round limit. The WQM 7.0 model result pages are attached. To estimate winter conditions, a) a stream temperature of 2.2^{o}C was used, the median Temperature for January based on WQN178 station sampling data from January 2015 through December 2020, b) the stream flow was estimated as the $Q_{7\text{-}10}$ times a multiplier of 3.2 for January per Implementation Guidance for Temperature Criteria, Technical Guidance Document 391-2000-017, page 18. The Ammonia limit for the warm months is a TBEL; the Ammonia limit for the cold months is based on both the WQBEL and Non-degradation of existing water quality.

The PELs that were included in the draft permit (without any change) were as follows:

Parameter	units	Minimum	Average	Maximum	Basis
BOD5	mg/l	-	10.0	20.0	Technology Based Effluent Limit
TSS	mg/l	-	8.6	17.2	Non-degradation of existing water quality**
Ammonia, 5/1-10/31	mg/l	-	5.0	10.0	Technology Based Effluent Limit
Fecal Coliform	No./100 mL	-	200*	1000	Technology Based Effluent Limit
Dissolved Oxygen	mg/l	5.0	-	-	Water-Quality Based Effluent Limit
pH	s.u.	6.0	-	9.0	Technology Based Effluent Limit
Total Phosphorus	mg/l	-	3.7	7.4	Non-degradation of existing water quality**

*except the Fecal Coliform limit is imposed in the draft permit as an 'annual average' instead of the PELs' statistical base code of 'Geometric Mean' as a result of DEP's computer database field validations and consistent with the Standard Operating Procedure (SOP) for New and Reissuance Small Flow Treatment Facility (SFTF) Individual NPDES Permit Applications). The Geometric Mean statistical base code is reserved for cases with a monitoring frequency of at least monthly whereas a less frequent monitoring frequency has been proposed for this SRSTP.

**The Non-Degradation of Water Quality calculations use compiled background stream concentrations (Cs), the 95% confidence limit on the background stream concentrations as the water quality objective (Ct), the harmonic stream flow (Qh), and the design discharge flow (Qd) in mass-balance equations to calculate a long-term average (LTA) concentration acceptable in the discharge for each applicable parameter (Cd). EPA's Technical Support Document for Water Quality Based Toxics Control DEP's Water Quality Toxics Management Strategy document (#361-0100-0003) discuss applying multipliers to convert LTA discharge concentrations into Average Monthly discharge limits appropriate for imposition in a NPDES permit. DEP's Water Quality Toxics Management Strategy document (#361-0100-0003) instead recommends using TOXCONC statistical spreadsheet which analyzes distribution of data and variation of data before calculating

Average Monthly discharge limits appropriate for imposition in a NPDES permit. Discrete values are needed. The mass balance equation used for arriving at Cd, before conversion to an Average Monthly permit limit is shown below:

(Cs*Qh) + (Cd*Qd) = Ct*(Qh+Qd), solve for Cd.

Qt = Qh+Qd.
Qd = 0.0005 MGD = 0.0008 cfs
Qh = 0.5419 cfs

A limit for Total Residual Chlorine is not needed because the treatment design per the WQM permit application submitted includes UV disinfection, as is required for discharges to an EV water:

> Under the authority of 25 Pa. Code § 93.4c, the use of chlorine for disinfection will not be authorized for discharges to EV waters.

The SOP for SFTFs/SRSTPs recommends annual monitoring for most SRSTP's and monthly monitoring for most SFTFs. Because a) this facility discharges to a waterway classified as Exceptional Value and b) because it is new and employs treatment units that include aeration and ammonia and phosphorus reduction, the draft permit has included twice per year monitoring.

Other

According to their application:

-there are no water supply wells within 200 feet of the point of discharge or within the run of the intermittent stream between the point of discharge and its confluence with Pine Creek, which is perennial.
(DEP Sewage Planning staff review citing requirements, including distances from wells, before granting approval.)

-"The property owner has entered into an Operation and Maintenance Agreement with Robeson Township to ensure that the treatment system is operated and maintained properly."

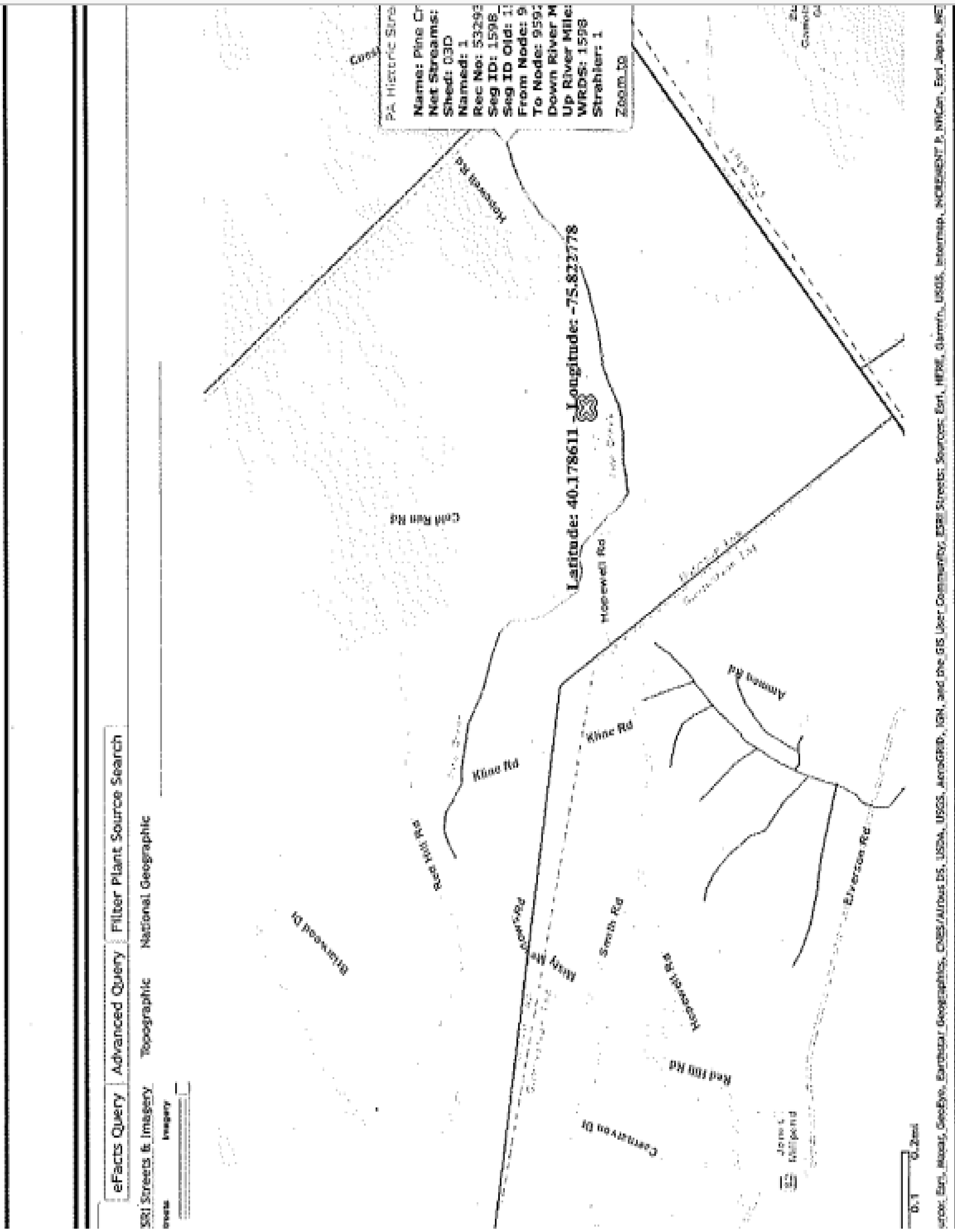
Proposed Effluent Limitations and Monitoring Requirements

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)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Instant. Minimum	Annual Average	Maximum	Instant. Maximum		
Flow (MGD)	XXX	Report	XXX	XXX	XXX	XXX	2/year	Estimate
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	2/year	Grab
BOD5	XXX	XXX	XXX	10.0	XXX	20.0	2/year	Grab
TSS	XXX	XXX	XXX	8.6	XXX	17.2	2/year	Grab
DO	XXX	XXX	5.0	XXX	XXX	XXX	2/year	Grab
Fecal Coliform (No./100 ml)	XXX	XXX	XXX	200	XXX	1000	2/year	Grab
Ammonia	XXX	XXX	XXX	5.0	XXX	10.0	2/year	Grab
Total Phosphorus	XXX	XXX	XXX	3.7	XXX	7.4	2/year	Grab

Compliance Sampling Location: after the treatment facility


eFacts Query
Advanced Query
Filter Plant Source Search
Topographic
National Geographic
Latitude: 40.178611 Longitude: -75.822778
Hopewell Rd
Kline Rd
Rock Hill Rd
Smith Rd
Red Hill Rd
Emerson Rd
Zoom to

Duplicate

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
03D	1598	PINE CREEK	**4.100**	620.00	1.10	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	0.050	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.70	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
Karwic SRSTP	PA0267562	0.0000	0.0005	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	10.00	1.17	0.00	1.50
Dissolved Oxygen	5.00	11.20	0.00	0.00
NH3-N	5.00	0.02	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
03D	1598	PINE CREEK	2.400	515.00	2.40	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
-10	0.090	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.70	0.00	0.00
-10		0.00	0.00	0.000	0.000							
0-10		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
downstrm		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	10.00	1.17	0.00	1.50
Dissolved Oxygen	11.00	11.20	0.00	0.00
NH3-N	5.00	0.02	0.00	0.70

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
03D	1598	PINE 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												
4.100	0.06	0.00	0.06	.0008	0.01170	.317	4.02	12.68	0.04	2.369	20.07	7.68
Q1-10 Flow												
4.100	0.04	0.00	0.04	.0008	0.01170	NA	NA	NA	0.03	3.029	20.11	7.66
Q30-10 Flow												
4.100	0.07	0.00	0.07	.0008	0.01170	NA	NA	NA	0.05	1.999	20.05	7.68

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	8		

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
03D	1598	PINE CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
4.100	0.001	20.069	7.676
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
4.017	0.317	12.685	0.044
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
1.29	0.042	0.09	0.704
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
11.114	22.448	Owens	8
Reach Travel Time (days)			
2.369			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.237	1.28	0.08	8.23
0.474	1.27	0.06	8.23
0.711	1.25	0.05	8.23
0.948	1.24	0.05	8.23
1.185	1.23	0.04	8.23
1.422	1.22	0.03	8.23
1.659	1.21	0.03	8.23
1.895	1.19	0.02	8.23
2.132	1.18	0.02	8.23
2.369	1.17	0.02	8.23

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
03D	1598	PINE 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)
4.100	Karwic SRSTP	PA0267562	0.000	CBOD5	10		
				NH3-N	5	10	
				Dissolved Oxygen			5

January Simulation……

(0.05 CFS X 3.2) / 1.1 = 0.15 LFY

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
03D	1598	PINE CREEK	4.100	620.00	1.10	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	0.150	0.00	0.00	0.000	0.000	0.0	0.00	0.00	2.20	7.70	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
Karwic	PA0267562	0.0000	0.0000	0.0005	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	10.00	1.17	0.00	1.50
Dissolved Oxygen	5.00	11.20	0.00	0.00
NH3-N	15.00	0.02	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
03D	1598	PINE CREEK	2.400	515.00	2.40	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	0.290	0.00	0.00	0.000	0.000	0.0	0.00	0.00	2.20	7.70	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
downstrm		0.0000	0.0000	0.0000	0.000	2.00	7.70

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	10.00	1.17	0.00	1.50
Dissolved Oxygen	5.00	11.20	0.00	0.00
NH3-N	15.00	0.02	0.00	0.70

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
03D	1598	PINE 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												
4.100	0.17	0.00	0.17	.0008	0.01170	.378	5.43	14.38	0.08	1.287	2.31	7.69
Q1-10 Flow												
4.100	0.11	0.00	0.11	.0008	0.01170	NA	NA	NA	0.06	1.650	2.37	7.69
Q30-10 Flow												
4.100	0.22	0.00	0.22	.0008	0.01170	NA	NA	NA	0.10	1.084	2.28	7.69

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	8		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
03D	1598	PINE 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
4.100	Karwic	9.85	30	9.85	30	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
4.100	Karwic	2.66	15	2.66	15	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)		
4.10	Karwic	10	10	15	15	5	5	0	0

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
03D	1598	PINE 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												
4.100	0.17	0.00	0.17	.0008	0.01170	.378	5.43	14.38	0.08	1.287	2.31	7.69
Q1-10 Flow												
4.100	0.11	0.00	0.11	.0008	0.01170	NA	NA	NA	0.06	1.650	2.37	7.69
Q30-10 Flow												
4.100	0.22	0.00	0.22	.0008	0.01170	NA	NA	NA	0.10	1.084	2.28	7.69

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
03D	1598	PINE CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
4.100	0.001	2.306	7.692
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
5.434	0.378	14.375	0.081
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
1.21	0.039	0.09	0.179
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
11.171	15.975	Owens	8
Reach Travel Time (days)			
1.287			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.129	1.21	0.09	11.20
0.257	1.21	0.09	11.20
0.386	1.20	0.08	11.20
0.515	1.20	0.08	11.20
0.644	1.20	0.08	11.20
0.772	1.20	0.08	11.20
0.901	1.19	0.08	11.20
1.030	1.19	0.07	11.20
1.159	1.19	0.07	11.20
1.287	1.18	0.07	11.20

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
03D	1598	PINE 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)
4.100	Karwic	PA0267562	0.000	CBOD5	10		
				NH3-N	15	30	
				Dissolved Oxygen			5

January re-run……

dilution

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
03D	1598	PINE CREEK	4.100	620.00	1.10	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	0.150	0.00	0.00	0.000	0.000	0.0	0.00	0.00	2.20	7.70	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
Karwic	PA0267562	0.0000	0.0000	0.0005	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	10.00	1.17	0.00	1.50
Dissolved Oxygen	5.00	11.20	0.00	0.00
NH3-N	5.00	0.02	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
03D	1598	PINE CREEK	2.400	515.00	2.40	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	0.290	0.00	0.00	0.000	0.000	0.0	0.00	0.00	2.20	7.70	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
downstrm		0.0000	0.0000	0.0000	0.000	2.00	7.70

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	10.00	1.17	0.00	1.50
Dissolved Oxygen	5.00	11.20	0.00	0.00
NH3-N	5.00	0.02	0.00	0.70

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
03D	1598	PINE 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)
4.100	Karwic	PA0267562	0.000	CBOD5	10		
				NH3-N	5	10	
				Dissolved Oxygen			5

ActivityStartD	ActivitySta	Monitoring	ActivityComr	SampleCollec	CharacteristicName	ResultMeasureValu	Units	Method	ProviderName
11/18/2015	11:00:00	21PA_WQX-WQN0178		Water Grab S	Ammonia			00610A	STORET
3/25/2015	12:05:00	21PA_WQX-WQN0178		Water Grab S	Ammonia			00610A	STORET
4/7/2015	12:00:00	21PA_WQX-WQN0178		Water Grab S	Ammonia			00610A	STORET
10/29/2015	12:25:00	21PA_WQX-WQN0178		Water Grab S	Ammonia			00610A	STORET
12/28/2015	12:30:00	21PA_WQX-WQN0178		Water Grab S	Ammonia			00610A	STORET
1/15/2015	9:30:00	21PA_WQX-WQN0178		Water Grab S	Ammonia			00610A	STORET
6/10/2015	13:30:00	21PA_WQX-WQN0178		Water Grab S	Ammonia	0.04	mg/l	00610A	STORET
8/25/2015	12:00:00	21PA_WQX-WQN0178		Water Grab S	Ammonia	0.03	mg/l	00610A	STORET
7/28/2015	11:50:00	21PA_WQX-WQN0178		Water Grab S	Ammonia			00610A	STORET
5/4/2015	14:30:00	21PA_WQX-WQN0178		Water Grab S	Ammonia			00610A	STORET
9/29/2015	11:15:00	21PA_WQX-WQN0178		Water Grab S	Ammonia	0.02	mg/l	00610A	STORET
2/22/2016	13:00:00	21PA_WQX-WQN0178		Water Grab S	Ammonia			00610A	STORET
6/28/2016	11:20:00	21PA_WQX-WQN0178		Water Grab S	Ammonia	0.02	mg/l	00610A	STORET
10/17/2016	11:00:00	21PA_WQX-WQN0178		Water Grab S	Ammonia			00610A	STORET
12/12/2016	11:30:00	21PA_WQX-WQN0178		Water Grab S	Ammonia			00610A	STORET
5/23/2016	11:00:00	21PA_WQX-WQN0178		Water Grab S	Ammonia			00610A	STORET
7/19/2016	12:00:00	21PA_WQX-WQN0178		Water Grab S	Ammonia			00610A	STORET
11/30/2016	11:00:00	21PA_WQX-WQN0178		Water Grab S	Ammonia	0.02	mg/l	00610A	STORET
9/20/2016	13:00:00	21PA_WQX-WQN0178		Water Grab S	Ammonia			00610A	STORET
4/26/2016	11:30:00	21PA_WQX-WQN0178		Water Grab S	Ammonia			00610A	STORET
2/1/2016	12:00:00	21PA_WQX-WQN0178		Water Grab S	Ammonia			00610A	STORET
3/29/2016	14:00:00	21PA_WQX-WQN0178		Water Grab S	Ammonia			00610A	STORET
8/30/2016	11:45:00	21PA_WQX-WQN0178		Water Grab S	Ammonia			00610A	STORET
8/23/2017	10:30:00	21PA_WQX-WQN0178		Water Grab S	Ammonia	0.02	mg/l	00610A	STORET
6/26/2017	13:00:00	21PA_WQX-WQN0178		Water Grab S	Ammonia			00610A	STORET
3/21/2017	14:00:00	21PA_WQX-WQN0178		Water Grab S	Ammonia			00610A	STORET
10/23/2017	11:45:00	21PA_WQX-WQN0178		Water Grab S	Ammonia			00610A	STORET
11/20/2017	10:30:00	21PA_WQX-WQN0178		Water Grab S	Ammonia			00610A	STORET
4/20/2017	12:00:00	21PA_WQX-WQN0178		Water Grab S	Ammonia	0.02	mg/l	00610A	STORET
9/19/2017	8:00:00	21PA_WQX-WQN0178		Water Grab S	Ammonia			00610A	STORET
2/28/2017	10:00:00	21PA_WQX-WQN0178		Water Grab S	Ammonia	0.02	mg/l	00610A	STORET
1/26/2017	12:30:00	21PA_WQX-WQN0178		Water Grab S	Ammonia			00610A	STORET
7/31/2017	10:30:00	21PA_WQX-WQN0178		Water Grab S	Ammonia			00610A	STORET
5/25/2017	9:15:00	21PA_WQX-WQN0178		Water Grab S	Ammonia			00610A	STORET
12/18/2017	13:30:00	21PA_WQX-WQN0178		Water Grab S	Ammonia			00610A	STORET

11/20/2018	11:00:00	21PA_WQX-WQN0178	Water Grab S Ammonia		00610A	STORET
12/11/2018	12:00:00	21PA_WQX-WQN0178	Water Grab S Ammonia		00610A	STORET
1/30/2018	10:30:00	21PA_WQX-WQN0178	Water Grab S Ammonia		00610A	STORET
3/12/2018	12:00:00	21PA_WQX-WQN0178	Water Grab S Ammonia		00610A	STORET
8/27/2018	10:30:00	21PA_WQX-WQN0178	Water Grab S Ammonia		00610A	STORET
7/23/2018	10:00:00	21PA_WQX-WQN0178	Water Grab S Ammonia	0.03 mg/l	00610A	STORET
6/18/2018	9:30:00	21PA_WQX-WQN0178	Water Grab S Ammonia		00610A	STORET
5/22/2018	9:01:00	21PA_WQX-WQN0178	Water Grab S Ammonia	0.04 mg/l	00610A	STORET
2/26/2018	9:00:00	21PA_WQX-WQN0178	Water Grab S Ammonia		00610A	STORET
10/22/2018	14:00:00	21PA_WQX-WQN0178	Water Grab S Ammonia		00610A	STORET
5/22/2018	9:00:00	21PA_WQX-WQN0178	Water Grab S Ammonia	1.32 mg/l	00610A	STORET
9/12/2018	10:00:00	21PA_WQX-WQN0178	Water Grab S Ammonia	0.02 mg/l	00610A	STORET
4/10/2018	12:30:00	21PA_WQX-WQN0178	Water Grab S Ammonia		00610A	STORET
6/11/2019	12:00:00	21PA_WQX-WQN0178	Water Grab S Ammonia	0.02 mg/l	00610A	STORET
9/23/2019	14:00:00	21PA_WQX-WQN0178	Water Grab S Ammonia	0.1 mg/l	00610A	STORET
4/25/2019	9:00:00	21PA_WQX-WQN0178	Water Grab S Ammonia		00610A	STORET
8/19/2019	11:30:00	21PA_WQX-WQN0178	Water Grab S Ammonia	0.05 mg/l	00610A	STORET
10/29/2019	14:00:00	21PA_WQX-WQN0178	Water Grab S Ammonia		00610A	STORET
3/12/2019	10:00:00	21PA_WQX-WQN0178	Water Grab S Ammonia		00610A	STORET
2/26/2019	10:00:00	21PA_WQX-WQN0178	Water Grab S Ammonia		00610A	STORET
11/18/2019	10:00:00	21PA_WQX-WQN0178	Water Grab S Ammonia		00610A	STORET
1/28/2019	10:30:00	21PA_WQX-WQN0178	Water Grab S Ammonia		00610A	STORET
5/29/2019	14:00:00	21PA_WQX-WQN0178	Water Grab S Ammonia	0.02 mg/l	00610A	STORET
12/16/2019	13:30:00	21PA_WQX-WQN0178	Water Grab S Ammonia		00610A	STORET
7/8/2019	12:00:00	21PA_WQX-WQN0178	Water Grab S Ammonia	0.02 mg/l	00610A	STORET
11/18/2019	10:00:00	21PA_WQX-WQN0178	Water Grab S Ammonia		00610A	STORET
1/14/2020	12:30:00	21PA_WQX-WQN0178	Water Grab S Ammonia		00610A	STORET
2/10/2020	11:30:00	21PA_WQX-WQN0178	Water Grab S Ammonia		00610A	STORET
6/9/2020	13:00:00	21PA_WQX-WQN0178	Water Grab S Ammonia		00610A	STORET
5/12/2020	9:00:00	21PA_WQX-WQN0178	Water Grab S Ammonia		00610A	STORET
9/14/2020	15:00:00	21PA_WQX-WQN0178	Water Grab S Ammonia		00610A	STORET
8/12/2020	13:00:00	21PA_WQX-WQN0178	Water Grab S Ammonia		00610A	STORET
7/7/2020	14:00:00	21PA_WQX-WQN0178	Water Grab S Ammonia		00610A	STORET
12/15/2020	15:00:00	21PA_WQX-WQN0178	Water Grab S Ammonia		00608A	STORET
12/15/2020	15:00:00	21PA_WQX-WQN0178	Water Grab S Ammonia		00610A	STORET
10/27/2020	14:30:00	21PA_WQX-WQN0178	Water Grab S Ammonia		00608A	STORET
11/17/2020	14:30:00	21PA_WQX-WQN0178	Water Grab S Ammonia		00608A	STORET

10/27/2020	14:30:00	21PA_WQX-WQN0178	Water Grab S Ammonia			00610A STORET
11/17/2020	14:30:00	21PA_WQX-WQN0178	Water Grab S Ammonia			00610A STORET
				0.02	median	✓
6/10/2015	13:30:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	0.9	mg/l	314 STORET
10/29/2015	12:25:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	2.7	mg/l	314 STORET
7/28/2015	11:50:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	1.5	mg/l	314 STORET
11/18/2015	11:00:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	1.5	mg/l	314 STORET
3/25/2015	12:05:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	1.2	mg/l	314 STORET
12/28/2015	12:30:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	1.1	mg/l	314 STORET
9/29/2015	11:15:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	0.9	mg/l	314 STORET
4/7/2015	12:00:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	1.5	mg/l	314 STORET
5/4/2015	14:30:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	1.7	mg/l	314 STORET
8/25/2015	12:00:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	1	mg/l	314 STORET
1/15/2015	9:30:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	1.8	mg/l	314 STORET
12/12/2016	11:30:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	2.3	mg/l	314 STORET
6/28/2016	11:20:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	0.8	mg/l	314 STORET
2/22/2016	13:00:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	1	mg/l	314 STORET
8/30/2016	11:45:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	0.9	mg/l	314 STORET
3/29/2016	14:00:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	1.4	mg/l	314 STORET
4/26/2016	11:30:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	1.7	mg/l	314 STORET
11/30/2016	11:00:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	1.6	mg/l	314 STORET
9/20/2016	13:00:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	0.7	mg/l	314 STORET
5/23/2016	11:00:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	2.5	mg/l	314 STORET
10/17/2016	11:00:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	0.8	mg/l	314 STORET
2/1/2016	12:00:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	0.6	mg/l	314 STORET
7/19/2016	12:00:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	0.9	mg/l	314 STORET
5/25/2017	9:15:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	1.2	mg/l	314 STORET
12/18/2017	13:30:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	2.1	mg/l	314 STORET
6/26/2017	13:00:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	2	mg/l	314 STORET
10/23/2017	11:45:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	1.3	mg/l	314 STORET
2/28/2017	10:00:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen demand, standard conditions			314 STORET
3/21/2017	14:00:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen demand, standard conditions			314 STORET
1/26/2017	12:30:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	0.6	mg/l	314 STORET
8/23/2017	10:30:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	2	mg/l	314 STORET
7/31/2017	10:30:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	1.4	mg/l	314 STORET
11/20/2017	10:30:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen demand, standard conditions			314 STORET

4/20/2017	12:00:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	1.3 mg/l	314 STORET
9/19/2017	8:00:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	0.8 mg/l	314 STORET
4/10/2018	12:30:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	0.9 mg/l	314 STORET
8/27/2018	10:30:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	0.4 mg/l	314 STORET
3/12/2018	12:00:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	0.6 mg/l	314 STORET
10/22/2018	14:00:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	1.97 mg/l	314 STORET
2/26/2018	9:00:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	0.9 mg/l	314 STORET
6/18/2018	9:30:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	1.4 mg/l	314 STORET
1/30/2018	10:30:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	1.5 mg/l	314 STORET
7/23/2018	10:00:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	1.7 mg/l	314 STORET
12/11/2018	12:00:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen demand, standard conditions		314 STORET
5/22/2018	9:01:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	1.4 mg/l	314 STORET
9/12/2018	10:00:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	1.5 mg/l	314 STORET
11/20/2018	11:00:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	2.6 mg/l	314 STORET
5/22/2018	9:00:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	1.6 mg/l	314 STORET
7/8/2019	12:00:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	0.7 mg/l	314 STORET
1/28/2019	10:30:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	1.14 mg/l	314 STORET
3/12/2019	10:00:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	2.88 mg/l	314 STORET
2/26/2019	10:00:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	1.48 mg/l	314 STORET
8/19/2019	11:30:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	0.4 mg/l	314 STORET
6/11/2019	12:00:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	0.93 mg/l	314 STORET
11/18/2019	10:00:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen demand, standard conditions		314 STORET
4/25/2019	9:00:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	1.11 mg/l	314 STORET
9/23/2019	14:00:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	0.8 mg/l	314 STORET
5/29/2019	14:00:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	0.27 mg/l	314 STORET
10/29/2019	14:00:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	1 mg/l	314 STORET
11/18/2019	10:00:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	0.4 mg/l	314 STORET
12/16/2019	13:30:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen demand, standard conditions		314 STORET
1/14/2020	12:30:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	0.2 mg/l	314 STORET
2/10/2020	11:30:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	0.5 mg/l	314 STORET
6/9/2020	13:00:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	1.1 mg/l	314 STORET
5/12/2020	9:00:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	2.3 mg/l	314 STORET
9/14/2020	15:00:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen demand, standard conditions		314 STORET
7/7/2020	14:00:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	1.3 mg/l	314 STORET
8/12/2020	13:00:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	0.8 mg/l	314 STORET
12/15/2020	15:00:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	1.4 mg/l	314 STORET
11/17/2020	14:30:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	0.3 mg/l	314 STORET

10/27/2020	14:30:00	21PA_WQX-WQN0178	Water Grab S Biochemical oxygen de	0.5 mg/l	314	STORET
				1.17 median		
1/15/2015	9:30:00	21PA_WQX-WQN0178	Water Grab S Phosphorus		00665A	STORET
8/25/2015	12:00:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.021 mg/l	00665A	STORET
6/10/2015	13:30:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.021 mg/l	00665A	STORET
10/29/2015	12:25:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.025 mg/l	00665A	STORET
7/28/2015	11:50:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.023 mg/l	00665A	STORET
4/7/2015	12:00:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.012 mg/l	00665A	STORET
11/18/2015	11:00:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.014 mg/l	00665A	STORET
3/25/2015	12:05:00	21PA_WQX-WQN0178	Water Grab S Phosphorus		00665A	STORET
9/29/2015	11:15:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.028 mg/l	00665A	STORET
12/28/2015	12:30:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.016 mg/l	00665A	STORET
5/4/2015	14:30:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.011 mg/l	00665A	STORET
6/28/2016	11:20:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.026 mg/l	00665A	STORET
9/20/2016	13:00:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.023 mg/l	00665A	STORET
11/30/2016	11:00:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.025 mg/l	00665A	STORET
3/29/2016	14:00:00	21PA_WQX-WQN0178	Water Grab S Phosphorus		00665A	STORET
2/22/2016	13:00:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.013 mg/l	00665A	STORET
8/30/2016	11:45:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.058 mg/l	00665A	STORET
10/17/2016	11:00:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.015 mg/l	00665A	STORET
5/23/2016	11:00:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.019 mg/l	00665A	STORET
7/19/2016	12:00:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.023 mg/l	00665A	STORET
4/26/2016	11:30:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.012 mg/l	00665A	STORET
12/12/2016	11:30:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.034 mg/l	00665A	STORET
2/1/2016	12:00:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.016 mg/l	00665A	STORET
8/23/2017	10:30:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.043 mg/l	00665A	STORET
12/18/2017	13:30:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.013 mg/l	00665A	STORET
6/26/2017	13:00:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.021 mg/l	00665A	STORET
7/31/2017	10:30:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.021 mg/l	00665A	STORET
5/25/2017	9:15:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.023 mg/l	00665A	STORET
10/23/2017	11:45:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.018 mg/l	00665A	STORET
9/19/2017	8:00:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.019 mg/l	00665A	STORET
2/28/2017	10:00:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.016 mg/l	00665A	STORET
1/26/2017	12:30:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.034 mg/l	00665A	STORET
3/21/2017	14:00:00	21PA_WQX-WQN0178	Water Grab S Phosphorus		00665A	STORET
11/20/2017	10:30:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.012 mg/l	00665A	STORET

4/20/2017	12:00:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.015	mg/l	00665A STORET
8/27/2018	10:30:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.021	mg/l	00665A STORET
5/22/2018	9:00:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.038	mg/l	00665A STORET
9/12/2018	10:00:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.023	mg/l	00665A STORET
3/12/2018	12:00:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.01	mg/l	00665A STORET
4/10/2018	12:30:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.015	mg/l	00665A STORET
2/26/2018	9:00:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.017	mg/l	00665A STORET
12/11/2018	12:00:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.013	mg/l	00665A STORET
1/30/2018	10:30:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.016	mg/l	00665A STORET
6/18/2018	9:30:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.025	mg/l	00665A STORET
11/20/2018	11:00:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.012	mg/l	00665A STORET
5/22/2018	9:01:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.037	mg/l	00665A STORET
10/22/2018	14:00:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.035	mg/l	00665A STORET
7/23/2018	10:00:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.05	mg/l	00665A STORET
10/29/2019	14:00:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.012	mg/l	00665A STORET
11/18/2019	10:00:00	21PA_WQX-WQN0178	Water Grab S Phosphorus			00665A STORET
9/23/2019	14:00:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.02	mg/l	00665A STORET
5/29/2019	14:00:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.029	mg/l	00665A STORET
11/18/2019	10:00:00	21PA_WQX-WQN0178	Water Grab S Phosphorus			00665A STORET
1/28/2019	10:30:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.016	mg/l	00665A STORET
3/12/2019	10:00:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.01	mg/l	00665A STORET
4/25/2019	9:00:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.017	mg/l	00665A STORET
2/26/2019	10:00:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.01	mg/l	00665A STORET
6/11/2019	12:00:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.034	mg/l	00665A STORET
8/19/2019	11:30:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.025	mg/l	00665A STORET
12/16/2019	13:30:00	21PA_WQX-WQN0178	Water Grab S Phosphorus			00665A STORET
7/8/2019	12:00:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.06	mg/l	00665A STORET
1/14/2020	12:30:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.01	mg/l	00665A STORET
2/10/2020	11:30:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.01	mg/l	00665A STORET
6/9/2020	13:00:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.019	mg/l	00665A STORET
5/12/2020	9:00:00	21PA_WQX-WQN0178	Water Grab S Phosphorus			00665A STORET
9/14/2020	15:00:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.019	mg/l	00665A STORET
7/7/2020	14:00:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.03	mg/l	00665A STORET
8/12/2020	13:00:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.021	mg/l	00665A STORET
11/17/2020	14:30:00	21PA_WQX-WQN0178	Water Grab S Phosphorus			00666A STORET
11/17/2020	14:30:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.01	mg/l	00665A STORET
12/15/2020	15:00:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.01	mg/l	00666A STORET

10/27/2020	14:30:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.012	mg/l	00666A STORET
10/27/2020	14:30:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.013	mg/l	00665A STORET
12/15/2020	15:00:00	21PA_WQX-WQN0178	Water Grab S Phosphorus	0.011	mg/l	00665A STORET
				0.019	median	

12/28/2015	12:30:00	21PA_WQX-WQN0178	Water Grab S Total dissolved solids	108	mg/l	70300U STORET
9/29/2015	11:15:00	21PA_WQX-WQN0178	Water Grab S Total dissolved solids	118	mg/l	70300U STORET
3/25/2015	12:05:00	21PA_WQX-WQN0178	Water Grab S Total dissolved solids	94	mg/l	70300U STORET
4/7/2015	12:00:00	21PA_WQX-WQN0178	Water Grab S Total dissolved solids	102	mg/l	70300U STORET
1/15/2015	9:30:00	21PA_WQX-WQN0178	Water Grab S Total dissolved solids	112	mg/l	70300U STORET
7/28/2015	11:50:00	21PA_WQX-WQN0178	Water Grab S Total dissolved solids	128	mg/l	70300U STORET
11/18/2015	11:00:00	21PA_WQX-WQN0178	Water Grab S Total dissolved solids	102	mg/l	70300U STORET
6/10/2015	13:30:00	21PA_WQX-WQN0178	Water Grab S Total dissolved solids	110	mg/l	70300U STORET
5/4/2015	14:30:00	21PA_WQX-WQN0178	Water Grab S Total dissolved solids	102	mg/l	70300U STORET
8/25/2015	12:00:00	21PA_WQX-WQN0178	Water Grab S Total dissolved solids	114	mg/l	70300U STORET
10/29/2015	12:25:00	21PA_WQX-WQN0178	Water Grab S Total dissolved solids	128	mg/l	70300U STORET
9/20/2016	13:00:00	21PA_WQX-WQN0178	Water Grab S Total dissolved solids	116	mg/l	70300U STORET
10/17/2016	11:00:00	21PA_WQX-WQN0178	Water Grab S Total dissolved solids	106	mg/l	70300U STORET
7/19/2016	12:00:00	21PA_WQX-WQN0178	Water Grab S Total dissolved solids	118	mg/l	70300U STORET
3/29/2016	14:00:00	21PA_WQX-WQN0178	Water Grab S Total dissolved solids	102	mg/l	70300U STORET
8/30/2016	11:45:00	21PA_WQX-WQN0178	Water Grab S Total dissolved solids	120	mg/l	70300U STORET
12/12/2016	11:30:00	21PA_WQX-WQN0178	Water Grab S Total dissolved solids	96	mg/l	70300U STORET
4/26/2016	11:30:00	21PA_WQX-WQN0178	Water Grab S Total dissolved solids	112	mg/l	70300U STORET
2/22/2016	13:00:00	21PA_WQX-WQN0178	Water Grab S Total dissolved solids	98	mg/l	70300U STORET
2/1/2016	12:00:00	21PA_WQX-WQN0178	Water Grab S Total dissolved solids	94	mg/l	70300U STORET
11/30/2016	11:00:00	21PA_WQX-WQN0178	Water Grab S Total dissolved solids	110	mg/l	70300U STORET
6/28/2016	11:20:00	21PA_WQX-WQN0178	Water Grab S Total dissolved solids	76	mg/l	70300U STORET
5/23/2016	11:00:00	21PA_WQX-WQN0178	Water Grab S Total dissolved solids	434	mg/l	70300U STORET
10/23/2017	11:45:00	21PA_WQX-WQN0178	Water Grab S Total dissolved solids	112	mg/l	70300U STORET
3/21/2017	14:00:00	21PA_WQX-WQN0178	Water Grab S Total dissolved solids	110	mg/l	70300U STORET
7/31/2017	10:30:00	21PA_WQX-WQN0178	Water Grab S Total dissolved solids	110	mg/l	70300U STORET
1/26/2017	12:30:00	21PA_WQX-WQN0178	Water Grab S Total dissolved solids	90	mg/l	70300U STORET
11/20/2017	10:30:00	21PA_WQX-WQN0178	Water Grab S Total dissolved solids	108	mg/l	70300U STORET
6/26/2017	13:00:00	21PA_WQX-WQN0178	Water Grab S Total dissolved solids	100	mg/l	70300U STORET
4/20/2017	12:00:00	21PA_WQX-WQN0178	Water Grab S Total dissolved solids	98	mg/l	70300U STORET
5/25/2017	9:15:00	21PA_WQX-WQN0178	Water Grab S Total dissolved solids	94	mg/l	70300U STORET

7/7/2020	14:00:00	21PA_WQX-WQN0178	Water Grab S Total dissolved solids	98	mg/l	70300U STORET
9/14/2020	15:00:00	21PA_WQX-WQN0178	Water Grab S Total dissolved solids	120	mg/l	70300U STORET
12/15/2020	15:00:00	21PA_WQX-WQN0178	Water Grab S Total dissolved solids	108	mg/l	70300U STORET
10/27/2020	14:30:00	21PA_WQX-WQN0178	Water Grab S Total dissolved solids	104	mg/l	70300U STORET
11/17/2020	14:30:00	21PA_WQX-WQN0178	Water Grab S Total dissolved solids	94	mg/l	70300U STORET
				102	median	

3/25/2015	12:05:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids			530 STORET
1/15/2015	9:30:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids			530 STORET
4/7/2015	12:00:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids			530 STORET
9/29/2015	11:15:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids			530 STORET
7/28/2015	11:50:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids	10	mg/l	530 STORET
8/25/2015	12:00:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids			530 STORET
10/29/2015	12:25:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids	8	mg/l	530 STORET
5/4/2015	14:30:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids			530 STORET
12/28/2015	12:30:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids	8	mg/l	530 STORET
11/18/2015	11:00:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids			530 STORET
6/10/2015	13:30:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids			530 STORET
4/26/2016	11:30:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids	12	mg/l	530 STORET
5/23/2016	11:00:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids			530 STORET
9/20/2016	13:00:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids			530 STORET
2/22/2016	13:00:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids			530 STORET
6/28/2016	11:20:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids	10	mg/l	530 STORET
2/1/2016	12:00:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids			530 STORET
7/19/2016	12:00:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids			530 STORET
3/29/2016	14:00:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids			530 STORET
8/30/2016	11:45:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids			530 STORET
10/17/2016	11:00:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids			530 STORET
11/30/2016	11:00:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids	10	mg/l	530 STORET
12/12/2016	11:30:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids			530 STORET
3/21/2017	14:00:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids			530 STORET
6/26/2017	13:00:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids			530 STORET
10/23/2017	11:45:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids	6	mg/l	530 STORET
7/31/2017	10:30:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids			530 STORET
11/20/2017	10:30:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids			530 STORET
5/25/2017	9:15:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids	6	mg/l	530 STORET
12/18/2017	13:30:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids			530 STORET

9/19/2017	8:00:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids		530 STORET
8/23/2017	10:30:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids		530 STORET
1/26/2017	12:30:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids		530 STORET
4/20/2017	12:00:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids		530 STORET
2/28/2017	10:00:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids		530 STORET
4/10/2018	12:30:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids		530 STORET
3/12/2018	12:00:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids		530 STORET
10/22/2018	14:00:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids		530 STORET
2/26/2018	9:00:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids		530 STORET
9/12/2018	10:00:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids		530 STORET
5/22/2018	9:00:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids		530 STORET
11/20/2018	11:00:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids		530 STORET
7/23/2018	10:00:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids		530 STORET
6/18/2018	9:30:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids		530 STORET
8/27/2018	10:30:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids		530 STORET
12/11/2018	12:00:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids		530 STORET
1/30/2018	10:30:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids		530 STORET
5/22/2018	9:01:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids		530 STORET
12/16/2019	13:30:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids		530 STORET
4/25/2019	9:00:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids		530 STORET
8/19/2019	11:30:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids	6 mg/l	530 STORET
9/23/2019	14:00:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids		530 STORET
11/18/2019	10:00:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids		530 STORET
11/18/2019	10:00:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids		530 STORET
2/26/2019	10:00:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids		530 STORET
1/28/2019	10:30:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids		530 STORET
7/8/2019	12:00:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids	32 mg/l	530 STORET
6/11/2019	12:00:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids	10 mg/l	530 STORET
10/29/2019	14:00:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids		530 STORET
5/29/2019	14:00:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids		530 STORET
3/12/2019	10:00:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids		530 STORET
3/9/2020	10:30:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids		530 STORET
3/9/2020	10:31:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids		530 STORET
1/14/2020	12:30:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids		530 STORET
2/10/2020	11:30:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids		530 STORET
6/9/2020	13:00:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids		530 STORET
5/12/2020	9:00:00	21PA_WQX-WQN0178	Water Grab S Total suspended solids		530 STORET

7/7/2020	14:00:00	21PA_WQX-WQN0178	Water Grab S	Total suspended solids	10 mg/l	530 STORET
8/12/2020	13:00:00	21PA_WQX-WQN0178	Water Grab S	Total suspended solids		530 STORET
9/14/2020	15:00:00	21PA_WQX-WQN0178	Water Grab S	Total suspended solids	18 mg/l	530 STORET
11/17/2020	14:30:00	21PA_WQX-WQN0178	Water Grab S	Total suspended solids	8 mg/l	530 STORET
12/15/2020	15:00:00	21PA_WQX-WQN0178	Water Grab S	Total suspended solids		530 STORET
10/27/2020	14:30:00	21PA_WQX-WQN0178	Water Grab S	Total suspended solids		530 STORET
					10 median	vs. < 5.0 previously

WQN	Test Code	Test Description	Units	First Date	Last Date	Record (years)	of Observations	Median	Confidence Limit on Median	Confidence Limit on Median
WQN0178	00410	ALKALINITY	MG/L	03/05/2012	02/28/2017	5.0	59	32.6	NA	31.6
WQN0178	01106	ALUMINUM DISSOLVED	UG/L	03/05/2012	02/28/2017	5.0	59	< 10.00	11.2	NA
WQN0178	01105	ALUMINUM TOTAL	UG/L	03/05/2012	02/28/2017	5.0	59	36.9	44.1	NA
WQN0178	00610	AMMONIA-N TOTAL	MG/L	03/05/2012	02/28/2017	5.0	59	< 0.02	< 0.02	NA
WQN0178	01000	ARSENIC DISSOLVED	UG/L	03/05/2012	02/28/2017	5.0	59	< 3.00	< 3.00	NA
WQN0178	01007	BARIUM TOTAL	UG/L	03/05/2012	02/28/2017	5.0	59	23.2	23.5	NA
WQN0178	01022	Boron Total	UG/L	03/05/2012	02/28/2017	5.0	59	< 200.00	< 200.00	NA
WQN0178	99020	BROMIDE	UG/L	03/05/2012	02/28/2017	5.0	59	< 50.00	< 50.00	NA
WQN0178	01025	CADMIUM DISSOLVED	UG/L	03/05/2012	02/28/2017	5.0	59	< 0.20	< 0.20	NA
WQN0178	00916	CALCIUM TOTAL	MG/L	03/05/2012	02/28/2017	5.0	59	11	11.8	NA
WQN0178	00314	CBODS	MG/L	03/05/2012	02/28/2017	5.0	59	1.4	1.5	NA
WQN0178	00940	CHLORIDE -IC	MG/L	03/05/2012	02/28/2017	5.0	59	13.78	14.74	NA
WQN0178	01040	COPPER DISSOLVED	UG/L	03/05/2012	02/28/2017	5.0	59	< 4.00	< 4.00	NA
WQN0178	01042	COPPER TOTAL	UG/L	03/05/2012	02/28/2017	5.0	59	< 4.00	< 4.00	NA
WQN0178	F0030	DO % - Field	%	03/05/2012	02/28/2017	5.0	59	11.28	NA	10.7
WQN0178	00900	Hardness TOTAL	MG/L	03/05/2012	02/28/2017	5.0	59	45	47	NA
WQN0178	01046	IRON DISSOLVED	UG/L	03/05/2012	02/28/2017	5.0	59	30	33	NA
WQN0178	01045	IRON TOTAL	UG/L	03/05/2012	02/28/2017	5.0	59	87	109	NA
WQN0178	01049	LEAD DISSOLVED	UG/L	03/05/2012	02/28/2017	5.0	59	< 1.00	< 1.00	NA
WQN0178	01051	LEAD TOTAL	UG/L	03/05/2012	02/28/2017	5.0	59	< 1.00	< 1.00	NA
WQN0178	00927	MAGNESIUM TOTAL	MG/L	03/05/2012	02/28/2017	5.0	59	4.118	4.361	NA
WQN0178	01056	MANGANESE DISSOLVED	UG/L	03/05/2012	02/28/2017	5.0	59	3.65	4.4	NA
WQN0178	01055	MANGANESE TOTAL	UG/L	03/05/2012	02/28/2017	5.0	59	5.54	7.05	NA
WQN0178	01065	NICKEL DISSOLVED	UG/L	03/05/2012	02/28/2017	5.0	59	< 4.00	< 4.00	NA
WQN0178	01067	NICKEL TOTAL	UG/L	03/05/2012	02/28/2017	5.0	59	< 4.00	< 4.00	NA
WQN0178	00620	Nitrate-N	MG/L	03/05/2012	02/28/2017	5.0	59	0.57	0.64	NA
WQN0178	00615	Nitrite-N	MG/L	03/05/2012	02/28/2017	5.0	59	< 0.04	< 0.04	NA
WQN0178	00600	NITROGEN TOTAL	MG/L	03/05/2012	02/28/2017	5.0	59	0.68	0.76	NA
WQN0178	82550	Osmotic Pressure	MOSM	03/05/2012	02/28/2017	5.0	54	2	2	NA
WQN0178	F0030	Oxygen - Field	MG/L	03/05/2012	02/28/2017	5.0	59	11.28	NA	10.7
WQN0178	00403	pH	pH units	03/05/2012	02/28/2017	5.0	59	7.7	7.8	7.7
WQN0178	F0040	pH-Field	pH units	03/05/2012	02/28/2017	5.0	59	7.67	7.75	7.6
WQN0178	70507	PHOS T ORTHO	MG/L	03/05/2012	02/28/2017	5.0	59	0.014	0.016	
WQN0178	00665	PHOSPHORUS TOTAL	MG/L	03/05/2012	02/28/2017	5.0	59	0.019	0.022	NA
WQN0178	01147	SELENIUM TOTAL	UG/L	03/05/2012	02/28/2017	5.0	59	< 7.00	< 7.00	NA
WQN0178	00929	SODIUM TOTAL	MG/L	03/05/2012	02/28/2017	5.0	59	8.255	8.554	NA
WQN0178	00095	Specific Conductance @ 25.0 C	umhos/cm	03/05/2012	02/28/2017	5.0	59	142.5	145.55	NA
WQN0178	F0009	Specific Conductance - Field	umhos/cm	03/05/2012	02/28/2017	5.0	59	141	145	NA
WQN0178	01082	STRONTIUM TOTAL	UG/L	03/05/2012	02/28/2017	5.0	59	67	73	NA
WQN0178	00945	SULFATE - IC	MG/L	03/05/2012	02/28/2017	5.0	59	11.12	11.24	NA
WQN0178	00530	TOTAL SUSP SOLID	MG/L	03/05/2012	02/28/2017	5.0	59	< 5.00	< 5.00	NA
WQN0178	70300	TDS180 -USGS	MG/L	03/05/2012	02/28/2017	5.0	59	104	108	NA
WQN0178	F0001	Water Temp - Field	C	03/05/2012	02/28/2017	5.0	59	11.78	13.9	NA
WQN0178	01090	ZINC DISSOLVED	UG/L	03/05/2012	02/28/2017	5.0	59	5.9	6.8	NA
WQN0178	01092	ZINC TOTAL	UG/L	03/05/2012	02/28/2017	5.0	59	7.36	8.6	NA

Info about candidate stream & WQN comparison:

WQN	Stream	Distance of WQN from Pine Creek (mi)	Drainage Area (mi2)	% Urban	% Forest	Adjusted Basin Slope (degrees)	Mean Basin Elevation (ft)	Lat	Long
NA	Pine Creek	NA	1.24	0	51.0	3	709	40:17745	-75.82378
WQN0178	Pine Creek	17 miles	9.76	0.051	84.6	8	860	40.409	-75.7349

§ 93.7. Specific water quality criteria.

(a) Table 3 displays specific water quality criteria and associated critical uses. The criteria associated with the Statewide water uses listed in § 93.4, Table 2 apply to all surface waters, unless a specific exception is indicated in § § 93.9a—93.9z. These exceptions will be indicated on a stream-by-stream or segment-by-segment basis by the words ''Add'' or ''Delete'' followed by the appropriate symbols described elsewhere in this chapter. Other specific water quality criteria apply to surface waters as specified in § § 93.9a—93.9z. All applicable criteria shall be applied in accordance with this chapter, Chapter 96 (relating to water quality standards implementation) and other applicable State and Federal laws and regulations.

TABLE 3

Parameter	*Symbol*	*Criteria*	*Critical Use**
			WC PWS PWS
Dissolved Oxygen		The following specific dissolved oxygen criteria recognize the natural process of stratification in lakes, ponds and impoundments. These criteria apply to flowing freshwater and to the epilimnion of a naturally stratified lake, pond or impoundment. The hypolimnion in a naturally stratified lake, pond or impoundment is protected by the narrative water quality criteria in § 93.6 (relating to general water quality criteria). For nonstratified lakes, ponds or impoundments, the dissolved oxygen criteria apply throughout the lake, pond or impoundment to protect the critical uses.	
	DO_1	For flowing waters, 7-day average 6.0 mg/l; minimum 5.0 mg/l. For naturally reproducing salmonid early life stages, applied in accordance with subsection (b), 7-day average 9.0 mg/l; minimum 8.0 mg/l. For lakes, ponds and impoundments, minimum 5.0 mg/l.	CWF
	DO_2	7-day average 5.5 mg/l; minimum 5.0 mg/l.	WWF
	DO_3	For the period February 15 to July 31 of any year, 7-day average 6.0 mg/l; minimum 5.0 mg/l. For the remainder of the year, 7-day average 5.5 mg/l; minimum 5.0 mg/l.	TSF

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

FILE

JUL 09 2018

Daniel Hudson
Evans Mill Environmental, LLC
P.O. Box 735
Uwchland, PA 19480

Re: Preliminary Effluent Limitations
Karwic Property – Failing On-lot Septic System
Robeson Township, Berks County

Dear Mr. Hudson:

In response to your phoned request from June 4, 2018, the Department of Environmental Protection (DEP) has developed preliminary effluent limits (PELs) for a proposed discharge of **0.0005 MGD** of treated wastewater to Pine Creek from a 4-bedroom single residence sewage treatment plant. Any changes in the size or location of the discharge will require a reevaluation.

For the proposed discharges directly into Pine Creek (40°10'39"/75°49'26" or 40°10'40"/75°49'19" per your submittal), the PELs are as follows:

Parameter	Concentration (mg/l)	
	Average	Maximum
BOD5	10.0	20.0
Total Suspended Solids	8.6	17.2
Ammonia-Nitrogen (5/1 to 10/31)	5.0	10.0
Ammonia-Nitrogen (11/1 to 4/30)	15.0	30.0
Fecal Coliform	200 Geo Mean	1,000
Dissolved Oxygen	Minimum of 5.0 at all times	
Total Residual Chlorine *	0.0 *	0.0 *
pH	Within the range of 6 to 9 standard units at all times	
Total Phosphorus	3.7	7.4

*It will be necessary to use ultraviolet disinfection, not chlorine disinfection.

For the proposed discharges to an unnamed tributary north of Pine Creek (40°10'42"/75°49'25" or 40°10'43"/75°49'22" per your submittal), the PELs are the same as those in the above table.

Issuance of these limits does not represent approval for a discharge to the waters of the Commonwealth. **This information is provided as an aide in evaluating alternative wastewater disposal methods which is required for discharges to streams that have been**

Southcentral Regional Office
909 Elmerton Avenue | Harrisburg, PA 17110-8200 | 717.705.4800 | Fax 717.705.4760
www.depweb.state.pa.us

designated as "Exceptional Value (EV)". Discharges to EV waters will only be allowed if all non-discharge alternatives have been ruled out [25 Pa code 93.4c(b)(1)] and if they will not degrade the stream: the discharge must not lower the existing surface water quality. The DEP notes that treatment capable of achieving the above Ammonia and Phosphorus limits is likely to be costly. These site-specific limits were calculated to prevent degradation of the EV waterway.

To meet the requirements of the Sewage Facilities Act, the proposed facility must be included in the municipality's Official Sewage Plan that is approved by DEP. For private projects, this may be done through the submission of sewage planning module components that are adopted by the municipality as a revision to the Official Plan.

When the municipality has a DEP-approved Official Plan that addresses this project, permit applications may be submitted. An NPDES permit application must be filed with DEP at least 180 days before you propose to commence the discharge of treated wastewater, if a discharge to a stream is the strategy that you pursue. A Water Quality Management (WQM) permit must be obtained from DEP prior to starting construction of the proposed facilities. Permit applications can be obtained by contacting this office or by visiting DEP's website at www.elibrary.dep.state.pa.us.

If you have any questions, please contact me at 717.705.4813.

Sincerely,

Bonnie J. Boylan
Environmental Engineering Specialist
Clean Water Program

cc: Michael Morris, PADEP SCRO, Clean Water Sewage Planning
File
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