pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0219258**
Facility Type	**Non-Municipal**	APS ID	**1095567**
Major / Minor	**Minor**	Authorization ID	**1452120**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Mechling Shakley Veterans Center Inc.**	Facility Name	**Mechling Shakley Veterans Center**
Applicant Address	1431 State Route 268	Facility Address	Mechling Shakley Veterans Cent
	Cowansville, PA 16218		Cowansville, PA 16218
Applicant Contact	Sean Taladay, Executive Director	Facility Contact	
Applicant Phone	(724) 545-9016	Facility Phone	(724) 545-9016
Applicant E Mail	sean@268center.com	Facility E Mail	
Client ID	162952	Site ID	552248
Municipality	Sugarcreek Township	County	Armstrong
Ch 94 Load Status	Not Overloaded	Connection Status	No Limitations
SIC Code		SIC Code	4952
SIC Description		SIC Description	Trans. & Utilities - Sewerage Systems
Date Application Received	August 9, 2023	EPA Waived?	Yes
Date Application Accepted	September 6, 2023	If No, Reason	

Purpose of Application: NPDES permit renewal

Summary of Review

No violations open or otherwise on file.*10/10/2023 CWY* Existing TRC, DO, & pH monitoring is 3/week while daily monitoring is recommended by the and the NPDES Permits Writers Manual.

1 dry ton sludge sent to Allegheny Valley Joint Sewage Authority STP for further treatment and disposal.

Facility operation by CWM Environmental.

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		*William H. Mentzer* William H. Mentzer, P.E. Environmental Engineering Specialist	September 6, 2023
X		Chad W. Yurisic Chad W. Yurisic, P.E. Environmental Engineer Manager	10/10/2023

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.008
Latitude DP	40° 55’ 18.00”	Longitude DP	79° 36’ 59.00”
Latitude NHD	40° 55’ 6.36”	Longitude NHD	79° 36’ 54.71”
Quad Name	East Brady	Quad Code	1109
Wastewater Description:	Treated domestic sewage		

Receiving Waters	Unnamed Tributary of Patterson Creek	Stream Code	unknown
NHD Com ID	123971284	RMI	0.04
Drainage Area	0.158	Yield (cfs/mi^2)	0
Q_{7-10} Flow (cfs)	0	Q_{7-10} Basis	USGS topographic map
Elevation (ft)	1420.00	Slope (ft/ft)	0.095
Watershed No.	18-F	Chapter 93 Class.	HQ-TSF
Existing Use	statewide	Existing Use Qualifier	none
Exceptions to Use	none	Exceptions to Criteria	none
Comments	0.04-mile dry swale discharge to dry stream RMI 0.15 at elevation 1320 feet Node and basin Drainage 0.158-squate mile, Confluence with intermittent tributary at Node RMI 0.27 (Stream, RMI 2.69), elevation1392.86 feet and drainage 274.5-acres (0,43-square miles)		

Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status	NA	Name	

Background/Ambient Data		Data Source
pH (SU)		
Temperature (°C)	20	CWF default
Hardness (mg/L)	100	Default
CBOD5 (mg/L)_		
Ammonia Nitrogen (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake	Creekside Mushrooms LTD located on Buffalo Creek		
PWS Waters		Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	

Changes Since Last Permit Issuance

As the receiving waters are classified as high quality the water supply criteria is applied at the discharge.

The first downstream public (municipal) water supply is on the Allegheny River by the Harrison Township Water Authority at RMI 21.89. This is 29.0 miles downstream.

Treatment Facility Summary				
Treatment Facility Name: Mechling-Shakley Veterans Center STP				
WQM Permit No.	**Issuance Date**			
0303402	August 22, 2003			
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Tertiary	Extended Aeration with solids removal	Chlorination followed by dechlorination	0.0015
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.008	13.4		Aerobic Digestion	Off site

Changes Since Last Permit Issuance: None

Treatment: comminutor with bypass bar screen, a flow equalization basin, an aeration tank, a final clarifier, an aerobic digester, a dual cell fixed media tank for TSS removal, a chlorine contact tank utilizing a tablet chlorinator, a de-chlorinator and post aeration**.**

Compliance History

No violations listed

			Influent					Effluent			
	Month	Year	Flow Mean MGD	Mass Mean PPD	Mean mg/L	Max mg/L	#	Min mg/L	Mean mg/L	Max mg/L	#
Annual Average Design			0.008								
Hydraulic Design Capacity											
Organic Design Capacity											
Annual Average		2022	0.112*								
		2021	0.111*								
		2020	0.121*								
Highest Monthly Average	Dec		0.136*								
pH								6.7		7.29	624
TRC								0.01	0.01	0.01	312
Fecal coliform									1.88	249	48
CBOD5					290	813	48		4.24	6.8	48
TSS					320.5	816	48		4.56	14.0	48
NH3N									0.25	1.01	48
N								1.40	31.9	62.4	2
P								7.30	7.44	7.58	2

The design annual average flow is 0.0015-MGD and the hydraulic average is flow 0.008 MGD.
The August 1, 2022 to July 31, 2023 self-monitoring report flow are a lot less than above.

**As reported on Application. Based on a review of eDMRs, it appears the flow listed on the application is off by two orders of magnitude. 10/10/2023 CWY*

Compliance History

DMR Data for Outfall 001 (from August 1, 2022 to July 31, 2023)

Parameter	JUL-23	JUN-23	MAY-23	APR-23	MAR-23	FEB-23	JAN-23	DEC-22	NOV-22	OCT-22	SEP-22	AUG-22
Flow (MGD) Average Monthly	0.004267	0.0040325	0.0037664	0.003548	0.003299	0.003001	0.002554	0.001985	0.001365	0.001059	0.000611	0.0009
pH (S.U.) Instant Minimum	6.92	7.28	7.8	6.9	7.03	7.15	6.98	6.9	6.92	6.89	6.9	6.93
pH (S.U.) Instant Maximum	7.72	8.4	7.11	7.62	7.59	7.50	7.51	7.11	7.01	7.03	7.06	7.04
DO (mg/L) Instant Minimum	8.13	7.48	8.8	9.08	9.9	9.86	10.0	8.28	8.01	8.05	7.96	7.92
TRC (mg/L) Average Monthly	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
TRC (mg/L) Instant Maximum	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.001	< 0.01	< 0.01	< 0.01
CBOD5 (mg/L) Average Monthly	< 3.0	< 4.2	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 4.9	< 3.0	< 3.0	< 3.7	< 3.0
CBOD5 (mg/L) Weekly Average	< 3.0	5.3	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	3.0	4.4	3.2
CBOD5 (mg/L) Instant Maximum	< 3.0	5.3	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	6.8	< 3.0	3.0	4.4	3.2
TSS (mg/L) Average Monthly	< 3.5	< 4.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	3.5	< 3.0	< 3.0	< 3.0
TSS (mg/L) Weekly Average	4.0	5.0	< 3.0	< 3.0	< 3.0	3.0	< 3.0	3.0	4.0	< 3.0	< 3.0	< 3.0
TSS (mg/L) Instant Maximum	4.0	5.0	< 3.0	< 3.0	< 3.0	3.0	< 3.0	3.0	4.0	< 3.0	< 3.0	< 3.0
Fecal Coliform (#/100 ml) Geo Mean	4.0	17.0	< 1.0	< 1.0	< 1.0	< 1.0	< 4.0	< 1.0	< 1.0	< 1.0	< 6.0	14.0
Fecal Coliform (#100 ml) Instant Maximum	7.0	56.0	< 1.0	< 1.0	< 1.0	< 1.0	14.0	< 1.0	2.0	< 1.0	35.0	26.0
Total Nitrogen (mg/L) Daily Maximum								1.45				
Ammonia (mg/L) Average Monthly	0.12	0.57	1.57	< 0.23	0.13	< 0.10	< 0.42	0.26	< 0.3	< 0.1	< 0.1	< 0.15
Ammonia (mg/L) Instant Maximum	0.12	0.96	2.01	0.35	0.14	< 0.10	0.74	0.29	0.5	< 0.1	0.1	0.19
Total Phosphorus (mg/L) Daily Maximum								7.29				

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .008
Latitude 40º 55' 18.00" **Longitude** -79º 36' 59.00"
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)
DO	4.0	Daily minimum		BPJ
E Coli	Report			BPJ

Comments: E coli monitoring proposed as the discharge is to a HQ-TSF stream and the discharge is over 0.002-MGD.

Water Quality-Based Limitations

The following limitations were determined through water quality modeling (output files attached):

Parameter	Limit (mg/l)	SBC	Model
Ammonia-Nitrogen May 1 – Oct 31	1.9	Average Monthly	WQAM63
Ammonia-Nitrogen Nov 1 – Apr 30	3.8	Average Monthly	WQAM63
Total Residual Chlorine	0.01	Average Monthly	TRC_CALA

Additional Limitations

Parameter	Limit (mg/l)	SBC	Basis
CBOD5	10	Average Monthly	ABACT – Water Quality Anti-Degradation Implementation Guidance
TSS	10	Average Monthly	ABACT – Water Quality Anti-Degradation Implementation Guidance
Dissolved Oxygen	6	Minimum	ABACT – Water Quality Anti-Degradation Implementation Guidance
Total Nitrogen	Report	Annually	SOP- Establishing Effluent Limitations for Individual Sewage Permits, Version 1.0
Total Phosphorus	Report	Annually	SOP- Establishing Effluent Limitations for Individual Sewage Permits, Version 1.0

Other Considerations

CBOD5 and ammonia modelling shifted from WQM6.3 to WQM 7.1 slightly changing the modelling layout and water quality-based requirements.

Best Professional Judgment (BPJ) Limitations

Comments: Not applicable

Anti-Backsliding

Not applicable

1A	B	C	D	E	F	G	H	I	J	K	L	M

	Discharger		Mechling Shakley Veterans Center Inc.						Tuesday, August 1, 2023			
	Site		Mechling Shakley Veterans Center Inc. STF					Revised	Thursday, September 7, 2023			
	Municipality		Sugarcreek Township									
	County		Armstrong									
	NPDES Permit		PA0219258									
	0.5											
2					**TRC EVALUATION**							
3	Input appropriate values in B4:B8 and E4:E7											
4	0.001		**= Q stream (cfs)**			**0.5**	**= CV Daily**					
5	0.0295		**= 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 = 0.025			**1.3.2.iii**		WLA cfc = 0.016			
12	PENTOXSD TRG		**5.1a**	LTAMULT afc = 0.373			**5.1c**		LTAMULT cfc = 0.581			
13	PENTOXSD TRG		**5.1b**	LTA_afc= 0.009			**5.1d**		LTA_cfc = 0.010			
14												
15	Source					Effluent Limit Calculations						
16	PENTOXSD TRG		5.1f			AML MULT = 1.231						
17	PENTOXSD TRG		5.1g			AML LIMIT (mg/l) = 0.011			AFC			
18						AVG MON LIMIT (mg/l) = 0.037						

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

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

	Chlorine Required			=	perennial	Chlorine Demand	+ Chlorine Residual
Stream	Reach/Node			1	1		
Stream	Flow	Conditions			dry		
Stream	Code				unknown		
	Function				OUTFALL		
Samples					30		
reach	outfall		RMI		0.04		
	Reach End		RMI		0		
reach			feet		211.2		
drainage			sq miles		0.03		
TRC	limitation	average	mg/L		0.011		
		maximum	mg/L		0.037		
elevation		modelled	feet		1440		
elevation		modelled	feet		1420.00		
slope		modelled	foot/foot		0.095		
low flow			cfs/sq mi		0.027		
discharge			mgd		0.0295		
Runoff	Period		hours		24.000		
HQ-TSF watershed							
stream	flow		cfs		0.00080		
stream	flow		MGD		0.000517		
stream	flow	total	MGD		0.030017		
stream	chlorine	demand	mg/L		0.3		
discharge	discharge	demand	mg/L				
stream	Total Stream/Waste		ratio		1.0		
BAT	TRC	mean	BAT		0.5		
BAT	TRC	maximum	BAT		1.6		

	B	C	D	E	F	G	H	I	J	K	L	M

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
18F	42708	Trib 42708 to Patterson Creek	**2.690**	1392.86	0.28	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	0.027	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

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
18F	42708	Trib 42708 to Patterson Creek	**2.420**	1330.77	0.43	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	0.027	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 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
18F	42708	Trib 42708 to Patterson 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												
2.880	0.00	0.00	0.00	.0124	0.09470	.304	.84	2.78	0.05	0.048	20.00	7.00
2.840	0.00	0.00	0.00	.0124	0.03427	.271	1.64	6.06	0.04	0.246	20.00	7.00
2.690	0.01	0.00	0.01	.0124	0.04355	.278	1.93	6.93	0.04	0.446	20.00	7.00
Q1-10 Flow												
2.880	0.00	0.00	0.00	.0124	0.09470	NA	NA	NA	0.05	0.048	20.00	7.00
2.840	0.00	0.00	0.00	.0124	0.03427	NA	NA	NA	0.04	0.260	20.00	7.00
2.690	0.00	0.00	0.00	.0124	0.04355	NA	NA	NA	0.03	0.483	20.00	7.00
Q30-10 Flow												
2.880	0.00	0.00	0.00	.0124	0.09470	NA	NA	NA	0.05	0.047	20.00	7.00
2.840	0.01	0.00	0.01	.0124	0.03427	NA	NA	NA	0.04	0.234	20.00	7.00
2.690	0.01	0.00	0.01	.0124	0.04355	NA	NA	NA	0.04	0.415	20.00	7.00

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
18F	42708	Trib 42708 to Patterson Creek	**2.880**	1440.00	0.03	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	0.027	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
MS Vet Ctr	PA0219258a	0.0080	0.0080	0.0080	0.000	20.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	6.00	8.24	0.00	0.00
NH3-N	25.00	0.10	0.00	0.70

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
18F	42708	Trib 42708 to Patterson 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
2.880	MS Vet Ctr	16.76	17.45	16.76	17.45	0	0
2.840		NA	NA	16.76	NA	NA	NA
2.690		NA	NA	16.76	NA	NA	NA

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
2.880	MS Vet Ctr	1.89	2.04	1.89	2.04	0	0
2.840		NA	NA	1.89	NA	NA	NA
2.690		NA	NA	1.89	NA	NA	NA

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)		
2.88	MS Vet Ctr	25	25	2.04	2.04	6	6	0	0
2.84		NA	NA	NA	NA	NA	NA	NA	NA
2.69		NA	NA	NA	NA	NA	NA	NA	NA

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
18F	42708	Trib 42708 to Patterson Creek

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
2.880	0.008	20.000	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
0.844	0.304	2.779	0.051
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
23.61	1.492	1.93	0.700
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.136	26.886	Owens	6
Reach Travel Time (days)			
0.048			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.005	23.44	1.92	6.24
0.010	23.27	1.91	6.33
0.014	23.11	1.91	6.41
0.019	22.95	1.90	6.48
0.024	22.78	1.89	6.55
0.029	22.62	1.89	6.61
0.033	22.46	1.88	6.66
0.038	22.30	1.88	6.71
0.043	22.14	1.87	6.76
0.048	21.99	1.86	6.80

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
2.840	0.008	20.000	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
1.642	0.271	6.060	0.037
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
17.88	1.449	1.50	0.700
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.094	26.788	Owens	6
Reach Travel Time (days)			
0.246			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.025	17.26	1.48	7.32
0.049	16.65	1.45	7.46
0.074	16.07	1.43	7.56
0.098	15.51	1.40	7.63
0.123	14.96	1.38	7.69
0.148	14.44	1.35	7.75
0.172	13.93	1.33	7.79
0.197	13.44	1.31	7.79
0.222	12.97	1.29	7.79
0.246	12.52	1.26	7.79

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
18F	42708	Trib 42708 to Patterson Creek

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
2.690	0.008	20.000	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
1.926	0.278	6.931	0.037
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
10.80	1.356	1.04	0.700
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.860	25.472	Owens	6
Reach Travel Time (days)			
0.446			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.045	10.16	1.00	7.79
0.089	9.57	0.97	7.79
0.134	9.01	0.94	7.79
0.178	8.48	0.91	7.79
0.223	7.98	0.89	7.79
0.267	7.51	0.86	7.79
0.312	7.07	0.83	7.79
0.357	6.66	0.81	7.79
0.401	6.27	0.78	7.79
0.446	5.90	0.76	7.79

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	85.00%	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
18F	42708	Trib 42708 to Patterson Creek	**2.840**	1420.00	0.16	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.027	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
	A	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	4.00	8.24	0.00	0.00
NH3-N	25.00	0.10	0.00	0.70

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
18F	42708	Trib 42708 to Patterson 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)
2.880	MS Vet Ctr	PA0219258a	0.008	CBOD5	25		
				NH3-N	2.04	4.08	
				Dissolved Oxygen			6

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	Average Weekly	Average Monthly	Weekly Average	Maximum	Instant. Maximum		
Flow (MGD)	0.008	XXX	XXX	XXX	XXX	XXX	2/month	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	6.0 Inst Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	0.01	XXX	XXX	0.03	1/day	Grab
CBOD5	XXX	XXX	10.0	15.0	XXX	20.0	2/month	Grab
TSS	XXX	XXX	10.0	15.0	XXX	20.0	2/month	Grab
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	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	2.5 Avg Mo	XXX	5.0	2/month	Grab
Ammonia May 1 - Oct 31	XXX	XXX	XXX	1.9 Avg Mo	XXX	3.8	2/month	Grab
Total Phosphorus	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab

Compliance Sampling Location: Outfall 001 after disinfection