

Application Type Renewal
Facility Type Non-Municipal
Major / Minor Minor

**NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE**

Application No. PA0101826
APS ID 1051080
Authorization ID 1375198

Applicant and Facility Information

Applicant Name	<u>Jones Estates Woodland Meadows PA, LLC</u>	Facility Name	<u>Woodland Meadows MHP</u>
Applicant Address	<u>2310 South Miami Boulevard, Suite 238</u> <u>Durham, NC 27703</u>	Facility Address	<u>102 Double Road</u> <u>Renfrew, PA 16053</u>
Applicant Contact	<u>Kellen Buss</u>	Facility Contact	<u>John Foris, Operator</u>
Applicant Phone	<u>(419) 357-9091</u>	Facility Phone	<u>(412) 445-9145</u>
Client ID	<u>366606</u>	Site ID	<u>447247</u>
Ch 94 Load Status	<u>Not Overloaded</u>	Municipality	<u>Connoquenessing Township</u>
Connection Status	<u>No Limitations</u>	County	<u>Butler County</u>
Date Application Received	<u>June 3, 2021 / October 29, 2021</u>	EPA Waived?	<u>Yes</u>
Date Application Accepted	<u>June 10, 2021 / November 5, 2021</u>	If No, Reason	<u>-</u>

Purpose of Application Renewal of an NPDES Permit for an existing discharge of treated sanitary wastewater. This application also transfers ownership from Sherri L. & Thomas R. Barnett d/b/a Woodland Meadows MHP to the Jones Estates Woodland Meadows PA, LLC.

Summary of Review

Act 14 - Proof of Notification was submitted and received.

Water Quality Management permit no. 1073412 A-1, T-3 will be transferred with the final NPDES Permit issuance.

The Permittee 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. Public sewerage availability
- E. Effluent Chlorine Optimization and Minimization
- F. Little or no assimilative capacity or dilution

SPECIAL CONDITIONS:

- II. Solids Management

There are no open violations in effects associated with the subject Client ID (366606) as of 4/11/2022.

Approve	Deny	Signatures	Date
X		Stephen A. McCauley Stephen A. McCauley, E.I.T. / Environmental Engineering Specialist	4/11/2022
X		Justin C. Dickey Justin C. Dickey, P.E. / Environmental Engineer Manager	4/20/2022

Discharge, Receiving Waters and Water Supply Information

Outfall No.	<u>001</u>	Design Flow (MGD)	<u>0.02</u>
Latitude	<u>40° 50' 50.00"</u>	Longitude	<u>-79° 59' 50.00"</u>
Quad Name	<u>-</u>	Quad Code	<u>-</u>
Wastewater Description: <u>Sewage Effluent</u>			
Receiving Waters	<u>Unnamed Tributary to Little Connoquenessing Creek (CWF)</u>	Stream Code	<u>N/A (34992)</u>
NHD Com ID	<u>126217465</u>	RMI	<u>N/A (0.829)</u>
Drainage Area	<u>0.0 (dry), 1.64 (perennial)</u>	Yield (cfs/mi ²)	<u>0.047</u>
Q ₇₋₁₀ Flow (cfs)	<u>0.0 (dry), 0.07 (perennial)</u>	Q ₇₋₁₀ Basis	<u>calculated</u>
Elevation (ft)	<u>1285</u>	Slope (ft/ft)	<u>0.060999</u>
Watershed No.	<u>20-C</u>	Chapter 93 Class.	<u>CWF</u>
Existing Use	<u>-</u>	Existing Use Qualifier	<u>-</u>
Exceptions to Use	<u>-</u>	Exceptions to Criteria	<u>-</u>
Assessment Status	<u>Attaining Use(s)</u>		
Cause(s) of Impairment	<u>-</u>		
Source(s) of Impairment	<u>-</u>		
TMDL Status	<u>Final, 1/8/2009</u>	Name	<u>Little Connoquenessing Creek Watershed*</u>
Background/Ambient Data		Data Source	
pH (SU)	<u>-</u>		<u>-</u>
Temperature (°F)	<u>-</u>		<u>-</u>
Hardness (mg/L)	<u>-</u>		<u>-</u>
Other:	<u>-</u>		<u>-</u>
Nearest Downstream Public Water Supply Intake	<u>Harmony Borough Water Authority</u>		
PWS Waters	<u>Little Connoquenessing Creek</u>	Flow at Intake (cfs)	<u>2.0</u>
PWS RMI	<u>1.3</u>	Distance from Outfall (mi)	<u>10.8</u>

* - The Little Connoquenessing Creek Watershed TMDL (AMD) does not address Tributaries 34990 and 34992, so additional monitoring will not be added due to the TMDL for this discharge at this time.

Sludge use and disposal description and location(s): All sludge is hauled by Cousins Sanitary to a larger, approved STP where it is ultimately disposed of at an approved landfill.

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 0.02 MGD of treated sewage from a non-municipal STP in Connoquenessing Township, Butler County.

Permitted treatment consists of: Grinding, extended aeration, settling/clarification, sand filtration, alum addition, and sodium hypochlorite disinfection.
(WQM Permit No. 1073412)

1. Streamflow:

Buffalo Creek at Freeport, PA (1976-1996) - used for most Connoquenessing Creek discharges:

Drainage Area:	<u>137</u>	sq. mi.	(USGS StreamStats)
Q7-10:	<u>6.37</u>	cfs	(USGS StreamStats)
Yieldrate:	<u>0.047</u>	cfsm	calculated

Unnamed Tributary to the Little Connoquenessing Creek at Outfall 001:

Yieldrate:	<u>0.047</u>	cfsm	calculated above
Drainage Area:	<u>1.12</u>	sq. mi.	(USGS StreamStats)
Q7-10:	<u>0.05</u>	cfs	calculated

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

2. Wasteflow:

Maximum discharge: 0.02 MGD = 0.03 cfs

Runoff flow period: 16 hours Basis: Runoff flow for MHPs

24 hour flow: 0.02 MGD x 24/16 = 0.03 MGD = 0.046 cfs

In accordance with the SOP, since there is less 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 evaluated for this NPDES Permit renewal. Based on the eDMR data, this facility would not be able to meet all of the treatment requirements in document number 391-2000-014, and the receiving stream is not impaired by the discharge, so the additional requirements will not be added with this renewal.

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, NH₃-N, CBOD₅, 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 was previously set to 4/week, which will be retained.

b. Total Suspended Solids

Limits are 30.0 mg/l as a monthly average and 60.0 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 between 0.002 MGD and 0.05 MGD.

e. Total Phosphorus

- Limit necessary due to:
- Discharge to lake, pond, or impoundment
 - Discharge to stream

Basis: The previous 2.0 mg/l limit based on Chapter 96.5 due to the discharge flowing to the Connoquenessing Creek, which is impaired for nutrients, will be retained.

- Limit not necessary

Basis: N/A

f. Total Nitrogen

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

g. Ammonia-Nitrogen (NH₃-N)

Median discharge pH to be used: 6.9 Standard Units (S.U.)

Basis: eDMR data

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 NH₃-N concentration: 0.1 mg/l

Basis: Default value

Calculated NH₃-N Summer limits: 10.6 mg/l (monthly average)
21.2 mg/l (instantaneous maximum)

Calculated NH₃-N 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). The winter limits are calculated as three times the summer limits, but since the technology-based limits would govern, they will be used. However, since the previous NH₃-N limits of 5.0 mg/l monthly average and 10.0 mg/l instantaneous maximum are attainable, they will be retained with this renewal.

h. CBOD₅

Median discharge pH to be used: 6.9 Standard Units (S.U.)

Basis: eDMR data

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 CBOD₅ concentration: 2.0 mg/l

Basis: Default value

Calculated CBOD₅ Summer limits: 25.0 mg/l (monthly average)
50.0 mg/l (instantaneous maximum)

Calculated CBOD₅ 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). 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 calculated limits are the same as in the previous permit, they will be retained. Since the summer and winter limits are technology-based, 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. 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: The Dissolved Oxygen minimum of 4.0 mg/l will be retained with this renewal. The technology-based minimum of 4.0 mg/l is recommended by the WQ Model (see Attachment 1) and the SOP based on Chapter 93.7, under the authority of Chapter 92a.61.

The measurement frequency was previously set to 4/week, which will be retained.

j. Total Residual Chlorine (TRC)

No limit necessary

Basis: N/A

TRC limits: 0.5 mg/l (monthly average)
1.6 mg/l (instantaneous maximum)

Basis: The TRC limits above are technology-based using the TRC_Calc Spreadsheet at the first point of aquatic use (see Attachment 2).

The measurement frequency was previously set to 4/week, which will be retained.

4. Reasonable Potential Analysis for Receiving Stream:

A Reasonable Potential Analysis was not performed in accordance with State practices using the Department's Toxics Management Spreadsheet since no sampling other than sewage-related parameters was performed for this facility with the renewal application.

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

The Department's Toxics Management Spreadsheet does not calculate limits for parameters that are based on PWS criteria (TDS, Chloride, Bromide, and Sulfate). However, since no sample data was provided, mass-balance calculations were not performed.

Nearest Downstream potable water supply (PWS): Harmony Borough Water Authority

Distance downstream from the point of discharge: 10.8 miles

No limits necessary

Limits needed

Basis: Significant dilution available

6. 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.

7. 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 March 1, 2021 to February 28, 2022)

Parameter	FEB-22	JAN-22	DEC-21	NOV-21	OCT-21	SEP-21	AUG-21	JUL-21	JUN-21	MAY-21	APR-21	MAR-21
Flow (MGD) Average Monthly						0.003	0.003	0.007	0.001	0.001	0.005	0.002
Flow (MGD) Daily Maximum						0.003	0.003	0.007	0.001	0.001	0.005	0.002
pH (S.U.) Minimum						6.70	6.49	6.92	6.89	6.80	7.05	6.91
pH (S.U.) Maximum						7.0	6.89	7.18	7.18	7.19	7.23	7.23
DO (mg/L) Minimum						6.70	6.69	6.72	6.12	8.30	4.0	6.52
TRC (mg/L) Average Monthly						0.37	0.25	0.25	0.20	0.15	0.31	0.50
TRC (mg/L) Instantaneous Maximum						0.50	0.50	0.3	0.30	0.40	0.80	1.3
CBOD5 (mg/L) Average Monthly						3.0	3.0	3.0	3.0	3.0	3.0	3.0
TSS (mg/L) Average Monthly						3.0	3.0	5.0	4.0	3.0	7.0	3.0
Fecal Coliform (CFU/100 ml) Geometric Mean						1.0	4.0	121	185.00	2193	1.0	1.0
Fecal Coliform (CFU/100 ml) Instantaneous Maximum						1.0	11	2420	2420	2420	1.0	1.0
Ammonia (mg/L) Average Monthly						0.20	0.32	0.33	0.50	0.24	0.20	0.11
Total Phosphorus (mg/L) Average Monthly						1.22	1.14	1.05	1.13	1.48	0.71	0.57

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	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/week	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	4/week	Grab
DO	XXX	XXX	4.0 Inst Min	XXX	XXX	XXX	4/week	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	4/week	Grab
CBOD5	XXX	XXX	XXX	25.0	XXX	50	2/month	8-Hr Composite
TSS	XXX	XXX	XXX	30.0	XXX	60	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 Geo Mean	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 Annl Avg	XXX	XXX	1/year	8-Hr Composite
Ammonia-Nitrogen Nov 1 - Apr 30	XXX	XXX	XXX	15.0	XXX	30	2/month	8-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	XXX	XXX	XXX	5.0	XXX	10	2/month	8-Hr Composite
Total Phosphorus	XXX	XXX	XXX	2.0	XXX	4	2/month	8-Hr Composite

Compliance Sampling Location: at 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 Total Residual Chlorine (TRC) limits are technology-based on Chapter 92a.48. The limits for CBOD₅, Total Suspended Solids, and Fecal Coliform are technology-based on Chapter 92a.47. Monitoring for E. Coli and Total Nitrogen is based on Chapter 92a.61.

Attachment 1

WQM 7.0 Effluent Limits (Perennial Reach)

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>					
20C	34990	Trib 34990 to Ltl Connoquenes'ng Cr					
RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
0.550	Woodland - Wet	PA0101826w	0.020	CBOD5	10.45		
				NH3-N	7.69	15.38	
				Dissolved Oxygen			2

The results for CBOD5 and DO are the same as the inputs from the Dry Reach Model, so the Dry Reach Model inputs are protective.

For NH3-N, the limit can be back calculated using the equation: $Ct = (Co)e^{-(kt)}$, where

$$Ct = 7.69 \text{ mg/l}$$

$$k = 0.7 \text{ days}^{-1} = \text{constant for NH3-N}$$

$$t = 0.462 \text{ days} = \text{Dry Reach Model travel time}$$

$$\text{Therefore, } 7.69 \text{ mg/l} = (Ct)e^{-(0.7 \text{ days}^{-1})(0.462 \text{ days})}$$

$$Ct = 10.62$$

$$\text{NH3-N} = 10.6 \text{ mg/l}$$

WQM 7.0 D.O.Simulation

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>		
20C	34990	Trib 34990 to Ltl Connoquenes'ng Cr		
<u>RMI</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>	<u>Analysis pH</u>	
0.550	0.020	21.432	7.000	
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>	<u>Reach Velocity (fps)</u>	
5.250	0.353	14.875	0.058	
<u>Reach CBOD5 (mg/L)</u>	<u>Reach Kc (1/days)</u>	<u>Reach NH3-N (mg/L)</u>	<u>Reach Kn (1/days)</u>	
4.42	0.852	2.20	0.782	
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>	<u>Reach DO Goal (mg/L)</u>	
6.455	22.958	Owens	6	
<u>Reach Travel Time (days)</u>	<u>Subreach Results</u>			
0.577	<u>TravTime (days)</u>	<u>CBOD5 (mg/L)</u>	<u>NH3-N (mg/L)</u>	<u>D.O. (mg/L)</u>
	0.058	4.20	2.11	7.83
	0.115	3.98	2.01	8.03
	0.173	3.78	1.93	8.03
	0.231	3.58	1.84	8.03
	0.288	3.40	1.76	8.03
	0.346	3.23	1.68	8.03
	0.404	3.06	1.61	8.03
	0.461	2.91	1.54	8.03
	0.519	2.76	1.47	8.03
	0.577	2.62	1.40	8.03

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	<input checked="" type="checkbox"/>
WLA Method	EMPR	Use Inputted W/D Ratio	<input type="checkbox"/>
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	<input type="checkbox"/>
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	<input checked="" type="checkbox"/>
D.O. Saturation	90.00%	Use Balanced Technology	<input checked="" type="checkbox"/>
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
20C	34990	Trib 34990 to Ltl Connoquenes'ng Cr	0.550	1015.00	1.64	0.00000	0.00	<input checked="" type="checkbox"/>

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		Stream	
									Temp (°C)	pH	Temp (°C)	pH
Q7-10	0.047	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
Buttercup - Wet	PA010182b	0.0200	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	10.45	2.00	0.00	1.50
Dissolved Oxygen	2.00	8.24	0.00	0.00
NH3-N	15.54	0.00	0.00	0.70

(From Dry Reach Model)

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
20C	34990	Trib 34990 to Ltl Connoquenes'ng Cr	0.000	980.00	1.79	0.00000	0.00	<input checked="" type="checkbox"/>

Stream Data

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time	Rch Velocity	WD Ratio	Rch Width	Rch Depth	Tributary Temp	pH	Stream Temp	pH
	(cfsm)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	(°C)		(°C)	
Q7-10	0.047	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
20C 34990 Trib 34990 to Ltl Connoquenes'ng Cr

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
0.550	Buttercup - Wet	14.29	31.08	14.29	31.08	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
0.550	Buttercup - Wet	1.75	7.69	1.75	7.69	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	<u>CBOD5</u>		<u>NH3-N</u>		<u>Dissolved Oxygen</u>		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
0.55	Buttercup - Wet	10.45	10.45	7.69	7.69	2	2	0	0

WQM 7.0 Hydrodynamic Outputs

<u>SWP Basin</u>		<u>Stream Code</u>			<u>Stream Name</u>							
20C		34990			Trib 34990 to Ltl Connoquenes'ng Cr							
RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
0.550	0.08	0.00	0.08	.0309	0.01205	.353	5.25	14.88	0.06	0.577	21.43	7.00
Q1-10 Flow												
0.550	0.05	0.00	0.05	.0309	0.01205	NA	NA	NA	0.05	0.681	21.93	7.00
Q30-10 Flow												
0.550	0.10	0.00	0.10	.0309	0.01205	NA	NA	NA	0.07	0.507	21.14	7.00

WQM 7.0 D.O.Simulation (Dry Reach)

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>		
20C	34992	Trib 34992 to Ltl Connoquenes'ng Cr		
<u>RMI</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>	<u>Analysis pH</u>	
0.829	0.030	25.000	6.900	
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>	<u>Reach Velocity (fps)</u>	
1.072	0.395	2.713	0.110	
<u>Reach CBOD5 (mg/L)</u>	<u>Reach Kc (1/days)</u>	<u>Reach NH3-N (mg/L)</u>	<u>Reach Kn (1/days)</u>	
25.00	1.500	25.00	1.029	
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>	<u>Reach DO Goal (mg/L)</u>	
4.000	30.938	Owens	NA	
<u>Reach Travel Time (days)</u>	<u>Subreach Results</u>			
0.462	<u>TravTime (days)</u>	<u>CBOD5 (mg/L)</u>	<u>NH3-N (mg/L)</u>	<u>D.O. (mg/L)</u>
	0.046	22.91	23.84	2.00
	0.092	21.00	22.73	2.00
	0.139	19.24	21.68	2.00
	0.185	17.63	20.67	2.00
	0.231	16.16	19.71	2.00
	0.277	14.81	18.79	2.00
	0.324	13.57	17.92	2.00
	0.370	12.44	17.09	2.00
	0.416	11.40	16.29	2.00
	0.462	10.45	15.54	2.00

Input into Perennial Reach Model

WQM 7.0 Modeling Specifications

Parameters	D.O.	Use Inputted Q1-10 and Q30-10 Flows	<input checked="" type="checkbox"/>
WLA Method	Simulation	Use Inputted W/D Ratio	<input type="checkbox"/>
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	<input type="checkbox"/>
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	<input checked="" type="checkbox"/>
D.O. Saturation	90.00%	Use Balanced Technology	<input checked="" type="checkbox"/>
D.O. Goal	2		

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
20C	34992	Trib 34992 to Ltl Connoquenes'ng Cr	0.829	1285.00	0.02	0.00000	0.00	<input type="checkbox"/>

Stream Data

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time	Rch Velocity	WD Ratio	Rch Width	Rch Depth	Tributary Temp	Tributary pH	Stream Temp	Stream pH
	(cfsm)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	(°C)		(°C)	
Q7-10	0.000	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
Woodland - Dry	PA0101826d	0.0300	0.0000	0.0000	0.000	25.00	6.90

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	0.00	0.00	1.50
Dissolved Oxygen	4.00	2.00	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
20C	34992	Trib 34992 to Ltl Connoquenes'ng Cr	0.000	1018.00	0.09	0.00000	0.00	<input checked="" type="checkbox"/>

Stream Data

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time	Rch Velocity	WD Ratio	Rch Width	Rch Depth	Tributary Temp	Tributary pH	Stream Temp	Stream pH
	(cfsm)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	(°C)		(°C)	
Q7-10	0.000	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

<u>SWP Basin</u>		<u>Stream Code</u>			<u>Stream Name</u>							
20C		34992			Trib 34992 to Ltl Connoquenes'ng Cr							
RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
0.829	0.00	0.00	0.00	NA	0.06100	.395	1.07	2.71	0.11	0.462	25.00	6.90
Q1-10 Flow												
0.829	0.00	0.00	0.00	NA	0.06100	NA	NA	NA	0.00	0.000	0.00	0.00
Q30-10 Flow												
0.829	0.00	0.00	0.00	NA	0.06100	NA	NA	NA	0.00	0.000	0.00	0.00

Attachment 2

TRC EVALUATION				
Input appropriate values in A3:A9 and D3:D9				
0.8977	= Q stream (cfs) - First point of use	0.5	= CV Daily	
0.03	= 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	= BAT/BPJ Value	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
TRC	1.3.2.iii	WLA_afc = 6.189		1.3.2.iii
PENTOXSD TRG	5.1a	LTAMULT_afc = 0.373		5.1c
PENTOXSD TRG	5.1b	LTA_afc = 2.306		5.1d
				WLA_cfc = 6.027
				LTAMULT_cfc = 0.581
				LTA_cfc = 3.504
Source	Effluent Limit Calculations			
PENTOXSD TRG	5.1f	AML_MULT = 1.231		
PENTOXSD TRG	5.1g	AVG_MON_LIMIT (mg/l) = 0.500		BAT/BPJ
		INST_MAX_LIMIT (mg/l) = 1.635		
WLA_afc	$(.019/e^{-k \cdot AFC_tc}) + [(AFC_Yc \cdot Qs \cdot .019 / Qd \cdot e^{-k \cdot AFC_tc}) \dots$ $\dots + Xd + (AFC_Yc \cdot Qs \cdot Xs / Qd)] \cdot (1 - FOS / 100)$			
LTAMULT_afc	$EXP((0.5 \cdot LN(cvh^2 + 1)) - 2.326 \cdot LN(cvh^2 + 1)^{0.5})$			
LTA_afc	wla_afc * LTAMULT_afc			
WLA_cfc	$(.011/e^{-k \cdot CFC_tc}) + [(CFC_Yc \cdot Qs \cdot .011 / Qd \cdot e^{-k \cdot CFC_tc}) \dots$ $\dots + Xd + (CFC_Yc \cdot Qs \cdot Xs / Qd)] \cdot (1 - FOS / 100)$			
LTAMULT_cfc	$EXP((0.5 \cdot LN(cvd^2 / no_samples + 1)) - 2.326 \cdot LN(cvd^2 / no_samples + 1)^{0.5})$			
LTA_cfc	wla_cfc * LTAMULT_cfc			
AML_MULT	$EXP(2.326 \cdot LN((cvd^2 / no_samples + 1)^{0.5}) - 0.5 \cdot LN(cvd^2 / no_samples + 1))$			
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			