

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

**NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE**

Application No. PA0265021
 APS ID 1067585
 Authorization ID 1403439

Applicant and Facility Information

Applicant Name	<u>Knox Township Clarion County Municipal Authority</u>	Facility Name	<u>Lucinda STP</u>
Applicant Address	<u>PO Box 3, 27345 Route 66 Lucinda, PA 16235-0003</u>	Facility Address	<u>738 Lawn Drive Lucinda, PA 16235</u>
Applicant Contact	<u>Timothy Huebert, Authority Chairman (athuebert@gmail.com)</u>	Facility Contact	<u>Timothy Huebert, Authority Chairman (athuebert@gmail.com)</u>
Applicant Phone	<u>(814) 229-0504</u>	Facility Phone	<u>(814) 229-0504</u>
Client ID	<u>334065</u>	Site ID	<u>821413</u>
Ch 94 Load Status	<u>Not Overloaded</u>	Municipality	<u>Knox Township</u>
Connection Status	<u>No Limitations</u>	County	<u>Clarion</u>
Date Application Received	<u>July 12, 2022</u>	EPA Waived?	<u>Yes</u>
Date Application Accepted	<u>July 19, 2022</u>	If No, Reason	<u>-</u>
Purpose of Application	<u>Renewal of an NPDES Permit for an existing discharge of treated sanitary wastewater from a municipal sewer system.</u>		

Summary of Review

Act 14 - Proof of Notification was submitted and received.

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

The 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. Effluent Chlorine Optimization and Minimization
- E. Little or No Assimilative Capacity or Dilution

SPECIAL CONDITIONS:

- II. Solids Management

There are no open violations in efacts for Client ID (334065) as of 1/22/2024.

Approve	Deny	Signatures	Date
X		Stephen A. McCauley Stephen A. McCauley, E.I.T. / Environmental Engineering Specialist	1/22/2024
X		<i>Vacant</i> / Environmental Engineer Manager	Okay to Draft JCD 1/24/2024

Discharge, Receiving Waters and Water Supply Information

Outfall No.	<u>001</u>	Design Flow (MGD)	<u>0.022</u>
Latitude	<u>41° 18' 11.57"</u>	Longitude	<u>-79° 22' 5.74"</u>
Quad Name	<u>-</u>	Quad Code	<u>-</u>
Wastewater Description: <u>Sewage Effluent</u>			

Receiving Waters	<u>Unnamed Tributary to the Step Creek (CWF)</u>	Stream Code	<u>49653</u>
NHD Com ID	<u>102669095</u>	RMI	<u>3.78</u>
Drainage Area	<u>0.29</u>	Yield (cfs/mi ²)	<u>0.07</u>
Q ₇₋₁₀ Flow (cfs)	<u>0.02</u>	Q ₇₋₁₀ Basis	<u>calculated</u>
Elevation (ft)	<u>1475</u>	Slope (ft/ft)	<u>0.01933</u>
Watershed No.	<u>17-B</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>Impaired*</u>		
Cause(s) of Impairment	<u>Metals and pH</u>		
Source(s) of Impairment	<u>Acid Mine Drainage</u>		
TMDL Status	<u>-</u>	Name	<u>-</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>Kittanning Suburban Joint Water Authority</u>		
PWS Waters	<u>Allegheny River</u>	Flow at Intake (cfs)	<u>987</u>
PWS RMI	<u>45.6</u>	Distance from Outfall (mi)	<u>82.0</u>

* Per the SOP, the previous monitoring for Aluminum, Iron, and Manganese will be retained since the stream is impaired by Acid Mine Drainage (AMD).

Sludge use and disposal description and location(s): All sludge is hauled to 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 0.022 MGD of treated sewage from an existing Publicly Owned Treatment Works (POTW) in Knox Township, Clarion County.

Treatment permitted under WQM Permit 1618409 consists of the following: Two 22,000 gallon and one 13,000 gallon baffled septic tanks in series, a three chamber recirculation vault, an 11,000 gallon dosing tank, dual 7,470 square foot (83' by 90') open sand filters, tablet chlorine disinfection with a 3,180 gallon contact tank, and tablet dechlorination.

1. Streamflow:

Unnamed Tributary to the Step Creek at Outfall 001:

Drainage Area:	<u>0.29</u>	sq. mi.	(USGS StreamStats)
Yieldrate:	<u>0.07</u>	cfs	(Default for small streams)
% of stream allocated:	<u>100%</u>	Basis:	<u>No nearby discharges</u>
Q ₇₋₁₀ :	<u>0.02</u>	cfs	(Calculated)

2. Wasteflow:

Maximum discharge: 0.022 MGD = 0.034 cfs

Runoff flow period: 24 hours Basis: Runoff flow for municipal STPs

The calculated stream flow is less than the proposed discharge flow. In accordance with the SOP, since this was a new discharge, and 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, will be implemented in this NPDES Permit.

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 Disinfection.

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

b. Total Suspended Solids

Limits are 10.0 mg/l as a monthly average and 20.0 as a daily maximum.

Basis: Application of document number 391-2000-014 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 greater than 0.002 MGD and less than 0.05 MGD.

e. Total Phosphorus

The previous limit of 0.5 mg/l monthly average will be retained based on document number 391-2000-014.

f. Total Nitrogen

The previous limit of 5 mg/l as a monthly average will be retained based on document number 391-2000-014.

g. Ammonia-Nitrogen (NH₃-N)

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

Basis: eDMR data from previous 12 months

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

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

Basis: default value used in the absence of data

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

Background NH₃-N concentration: 0.0 mg/l

Basis: Default value

Calculated NH₃-N Summer limits: 2.5 mg/l (monthly average)
5.0 mg/l (instantaneous maximum)

Calculated NH₃-N Winter limits: 7.5 mg/l (monthly average)
15.0 mg/l (instantaneous maximum)

Result: WQ modeling resulted in the summer NH₃-N limits above (see Attachment 1). The winter limits are calculated as three times the summer limits. The calculated limits are more restrictive than in the previous permit. Based on eDMR data, the more restrictive limits are attainable so they will be set with this renewal.

h. CBOD₅

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

Basis: eDMR data from previous 12 months

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

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

Basis: default value used in the absence of data

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

Background CBOD₅ concentration: 2.0 mg/l

Basis: Default value

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

Result: WQ modeling resulted in the above CBOD₅ limits (see Attachment 3). However, the more restrictive technology-based limit of 10.0 mg/l as a monthly average from document number 391-2000-014 will be retained with this NPDES Permit.

i. Influent Total Suspended Solids and BOD₅

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

j. Dissolved Oxygen (DO)

The technology-based minimum of 5.0 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 previous Dissolved Oxygen minimum of 6.0 mg/l as recommended in document number 391-2000-014 will be retained.

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

k. Disinfection

Ultraviolet (UV) light monitoring

Total Residual Chlorine (TRC) limits: 0.09 mg/l (monthly average)
0.31 mg/l (instantaneous maximum)

Basis: The water quality-based TRC limits above were calculated using the Department's TRC Calc Spreadsheet (see Attachment 2). The limits are the same as the previous NPDES Permit and will be retained.

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

4. Reasonable Potential Analysis for Receiving Stream:

A Reasonable Potential Analysis was not performed in accordance with State practices for Outfall 001 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).

Nearest Downstream potable water supply (PWS): Kittanning Suburban Joint Water Authority

Distance downstream from the point of discharge: 82.0 miles (approximate)

Result: No limits or monitoring are necessary as significant dilution is available.

6. Flow Information:

This facility receives 100% of flow from the Village of Lucinda. All the sewers are separate sewers.

7. Anti-Backsliding:

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

8. Attachment List:

Attachment 1 - WQ Modeling Printouts

Attachment 2 - TRC_Calc Spreadsheet

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

Compliance History

DMR Data for Outfall 001 (from December 1, 2022 to November 30, 2023)

Parameter	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23	APR-23	MAR-23	FEB-23	JAN-23	DEC-22
Flow (MGD) Average Monthly	0.0067	0.0063	0.0059	0.0059	0.0067	0.0057	0.0067	0.0075	0.0077	0.0069	0.0082	0.0069
Flow (MGD) Daily Maximum	0.0134	0.0128	0.0112	0.0137	0.0172	0.012	0.0102	0.018	0.0119	0.012	0.0137	0.0116
pH (S.U.) Instantaneous Minimum	7.42	7.46	7.27	7.5	7.3	7.25	7.44	7.4	7.34	7.51	7.55	7.63
pH (S.U.) Instantaneous Maximum	7.77	7.82	8.01	7.89	7.86	7.67	7.65	7.68	7.71	7.75	7.80	7.9
DO (mg/L) Instantaneous Minimum	6.46	6.09	6.06	6.01	6.0	6.01	6.13	6.15	6.33	6.01	6.24	5.3
TRC (mg/L) Average Monthly	0.07	0.07	0.05	0.08	0.06	< 0.031	< 0.03	< 0.04	0.033	0.02	< 0.04	< 0.02
TRC (mg/L) Instantaneous Maximum	0.21	0.20	0.10	0.27	0.23	0.07	0.08	0.10	0.22	0.05	0.26	0.06
CBOD5 (lbs/day) Average Monthly	0.4	0.7	1.0	1.0	1.6	0.3	0.3	0.7	< 0.4	0.3	0.4	0.4
CBOD5 (mg/L) Average Monthly	9.0	15.0	26.0	23.0	18.5	8.0	5.0	10.0	< 7.0	8.0	8.5	7.0
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	12	14	17	14	14.0	11	9	16	10	8	8	14
BOD5 (mg/L) Raw Sewage Influent Average Monthly	277	294	355	330	199.0	243	167	230	186	188	177	294
TSS (lbs/day) Average Monthly	< 0.2	< 0.1	0.1	0.2	0.6	< 0.2	< 0.2	1.0	0.2	< 0.2	0.1	0.2
TSS (lbs/day) Raw Sewage Influent Average Monthly	8	7	6	7	5.0	7	8	8	3	4	4	5
TSS (mg/L) Average Monthly	< 4.0	< 3.0	3.0	5.0	7.0	< 5.0	< 3.0	15.0	3.0	< 4.0	3.0	5.0
TSS (mg/L) Raw Sewage Influent Average Monthly	187	143	136	163	70.0	165	154	119	68	89	89	102
Fecal Coliform (No./100 ml) Geometric Mean	< 1	< 49	< 21	16.0	< 1	8	18	< 4	< 3	< 1	< 1	< 2
Fecal Coliform (No./100 ml) Instantaneous Maximum	< 1	> 2420	461	133	< 1	20	155	20	8	< 1	1	4

**NPDES Permit Fact Sheet
Lucinda STP**

NPDES Permit No. PA0265021

Total Nitrogen (lbs/day) Average Monthly	1.0	2.0	2.0	1.0	2.0	2	2	4	2	2	2	2
Total Nitrogen (mg/L) Average Monthly	34.8	38	41.6	33.1	33.3	52.1	36.6	51.7	36.8	39.1	33.4	39.2
Ammonia (lbs/day) Average Monthly	0.03	0.03	< 0.03	0.08	0.1	0.05	0.1	0.1	0.08	< 0.08	0.2	0.5
Ammonia (mg/L) Average Monthly	0.81	0.64	< 0.66	1.91	1.22	1.33	1.75	1.53	1.44	< 1.82	5.04	10.3
Total Phosphorus (lbs/day) Average Monthly	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.3	0.1	0.1	0.09	0.1
Total Phosphorus (mg/L) Average Monthly	4.35	4.65	4.43	4.61	3.68	3.67	3.14	4.36	2.7	2.4	1.95	2.4
Total Aluminum (lbs/day) Semi-Annual Average						0.004						0.004
Total Aluminum (mg/L) Semi-Annual Average						0.083						0.097
Total Iron (lbs/day) Semi-Annual Average						0.005						0.004
Total Iron (mg/L) Semi-Annual Average						0.0979						0.096
Total Manganese (lbs/day) Semi-Annual Average						0.003						0.003
Total Manganese (mg/L) Semi-Annual Average						0.061						0.058

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	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	1/day	Grab
DO	XXX	XXX	6.0 Inst Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.09	XXX	0.31	1/day	Grab
CBOD5	1.8	XXX	XXX	10.0	XXX	20	2/month	24-Hr Composite
BOD5 Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
TSS	1.8	XXX	XXX	10.0	XXX	20	2/month	24-Hr Composite
TSS Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
Total Nitrogen	Report	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
Ammonia Nov 1 - Apr 30	1.3	XXX	XXX	7.5	XXX	15	2/month	24-Hr Composite

Outfall 001 , Continued (from Permit Effective Date through Permit Expiration Date)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/L)				Minimum ⁽²⁾ Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Ammonia May 1 - Oct 31	0.4	XXX	XXX	2.5	XXX	5	2/month	24-Hr Composite
Total Phosphorus	Report	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
Total Aluminum	Report SEMI AVG	XXX	XXX	Report SEMI AVG	XXX	XXX	1/6 months	24-Hr Composite
Total Iron	Report SEMI AVG	XXX	XXX	Report SEMI AVG	XXX	XXX	1/6 months	24-Hr Composite
Total Manganese	Report SEMI AVG	XXX	XXX	Report SEMI AVG	XXX	XXX	1/6 months	24-Hr Composite

Compliance Sampling Location: at Outfall 001, after disinfection.

Flow is monitor only based on Chapter 92a.61. The limits for pH are technology-based on Chapter 93.7. The Total Residual Chlorine (TRC) limits are water quality-based on Chapter 92a.48. The limits for CBOD5, Total Suspended Solids, Dissolved Oxygen, Total Nitrogen, and Total Phosphorus are technology-based on document number 391-2000-014. Monitoring for influent BOD5 and influent Total Suspended Solids is based on Chapter 92a.61. The limits for Fecal Coliforms are technology-based on Chapter 92a.47. Monitoring for E. Coli is based on Chapter 92a.61. The limits for Ammonia-Nitrogen are water quality-based on Chapter 93.7. Monitoring for Total Aluminum, Total Iron, and Total Manganese is based on Chapter 92a.61.

Attachment 1

WQM 7.0 Effluent Limits

<u>SWP Basin</u>		<u>Stream Code</u>		<u>Stream Name</u>			
17B		49653		STEP 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)
3.780	Lucinda STP	PA0265021	0.022	CBOD5	25		
				NH3-N	2.56	5.12	
				Dissolved Oxygen			5

WQM 7.0 D.O.Simulation

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>		
17B	49653	STEP CREEK		
<u>RMI</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>		<u>Analysis pH</u>
3.780	0.022	23.132		7.275
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>		<u>Reach Velocity (fps)</u>
2.780	0.324	8.593		0.060
<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>
16.41	1.396	1.61		0.891
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>		<u>Reach DO Goal (mg/L)</u>
6.212	28.752	Owens		6
<u>Reach Travel Time (days)</u>	Subreach Results			
0.486	<u>TravTime (days)</u>	<u>CBOD5 (mg/L)</u>	<u>NH3-N (mg/L)</u>	<u>D.O. (mg/L)</u>
	0.049	15.17	1.54	6.89
	0.097	14.03	1.47	7.14
	0.146	12.97	1.41	7.28
	0.194	12.00	1.35	7.38
	0.243	11.09	1.29	7.47
	0.291	10.26	1.24	7.56
	0.340	9.49	1.19	7.63
	0.388	8.77	1.14	7.70
	0.437	8.11	1.09	7.77
	0.486	7.50	1.04	7.79

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
17B	49653	STEP CREEK	3.780	1475.00	0.29	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		Stream	
	(cfsm)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	Temp (°C)	pH	Temp (°C)	pH
Q7-10	0.070	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Lucinda STP	PA0265021	0.0220	0.0000	0.0000	0.000	25.00	7.60

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	4.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
17B	49653	STEP CREEK	3.300	1426.00	0.47	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		Stream	
	(cfsm)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	Temp (°C)	pH	Temp (°C)	pH
Q7-10	0.070	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 Hydrodynamic Outputs

<u>SWP Basin</u>		<u>Stream Code</u>				<u>Stream Name</u>						
17B		49653				STEP 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												
3.780	0.02	0.00	0.02	.034	0.01933	.324	2.78	8.59	0.06	0.486	23.13	7.27
Q1-10 Flow												
3.780	0.01	0.00	0.01	.034	0.01933	NA	NA	NA	0.06	0.527	23.62	7.34
Q30-10 Flow												
3.780	0.03	0.00	0.03	.034	0.01933	NA	NA	NA	0.06	0.452	22.76	7.23

WQM 7.0 Wasteload Allocations

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>
17B	49653	STEP 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
3.780	Lucinda STP	8.58	11.85	8.58	11.85	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
3.780	Lucinda STP	1.41	2.56	1.41	2.56	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)		
3.78	Lucinda STP	25	25	2.56	2.56	5	5	0	0

Attachment 2

TRC EVALUATION				
Input appropriate values in A3:A9 and D3:D9				
0.0203	= Q stream (cfs)	0.5	= CV Daily	
0.022	= Q discharge (MGD)	0.5	= CV Hourly	
30	= no. samples	1	= AFC_Partial Mix Factor	
0.3	= Chlorine Demand of Stream	1	= CFC_Partial Mix Factor	
0	= Chlorine Demand of Discharge	15	= AFC_Criteria Compliance Time (min)	
0.5	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)	
0	= % Factor of Safety (FOS)	0	= Decay Coefficient (K)	
Source	Reference	AFC Calculations		Reference
TRC	1.3.2.iii	WLA_afc = 0.209		1.3.2.iii
PENTOXSD TRG	5.1a	LTAMULT_afc = 0.373		5.1c
PENTOXSD TRG	5.1b	LTA_afc = 0.078		5.1d
				WLA_cfc = 0.196
				LTAMULT_cfc = 0.581
				LTA_cfc = 0.114
Source	Effluent Limit Calculations			
PENTOXSD TRG	5.1f	AML_MULT = 1.231		
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.096		AFC
		INST MAX LIMIT (mg/l) = 0.314		
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	$wla_afc \cdot LTAMULT_afc$			
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	$wla_cfc \cdot LTAMULT_cfc$			
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	$MIN(BAT_BPJ, MIN(LTA_afc, LTA_cfc) \cdot AML_MULT)$			
INST MAX LIMIT	$1.5 \cdot ((av_mon_limit / AML_MULT) / LTAMULT_afc)$			