pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0034797**
Facility Type	**Non-Municipal**	APS ID	**818397**
Major / Minor	**Minor**	Authorization ID	**1328386**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**U.S. Department of Justice, Federal Bureau of Prisons, Loretto Federal Correctional Institution**	Facility Name	**Loretto Federal Correctional Institution**
Applicant Address	P.O. Box 1000 Cresson, PA 16630	Facility Address	772 St. Joseph Street Loretto, PA 15940-7006
Applicant Contact	Ardell Ball	Facility Contact	
Applicant Phone	(814) 471-1435	Facility Phone	
Client ID	142247	Site ID	262878
Ch 94 Load Status		Municipality	Allegheny Township
Connection Status		County	Cambria
Date Application Received	September 25, 2020	EPA Waived?	Yes
Date Application Accepted	September 30, 2020	If No, Reason	

Purpose of Application: Renewal of an NPDES permit for an existing discharge of treated domestic sewage

Summary of Review

The facility treats treated domestic waste from the correctional institution which houses up to 785 inmates. No sewage from outside of the facility or hauled in waste is accepted at the facility.

No changes to discharge quantity or quality were proposed as part of this permit renewal.

The permittee is currently using the eDMR system for reporting,

There are currently no open violations listed in EFACTS for the permittee (4/07/2021).

Sludge use and disposal description and location(s): Dewatered sludge is hauled offsite to a municipal waste 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.

Approve	Deny	Signatures	Date
X		Adam Pesek Adam J. Pesek, E.I.T. / Environmental Engineer	April 7, 2021
X		Justin C. Dickey Justin C. Dickey, P.E. / Environmental Engineer Manager	April 14, 2021

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.2
Latitude	40º 29' 52"	Longitude	-78º 37' 34"
Quad Name	Ebensburg	Quad Code	1516
Wastewater Description:	Domestic Sewage		
Receiving Waters	Unnamed Tributary to Clearfield Creek	Stream Code	26573
NHD Com ID	61839127	RMI	2.1
Drainage Area	2.15	Yield (cfs/mi^2)	0.0637
Q_{7-10} Flow (cfs)	0.137	Q_{7-10} Basis	USGS Streamstats Regression Analysis
Elevation (ft)	1799	Slope (ft/ft)	0.00316
Watershed No.	8-C	Chapter 93 Class.	CWF, MF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status	Final, 04/07/2007	Name	Clearfield Creek

Background/Ambient Data		Data Source
pH (SU)	7.19	8/20/2015 stream sample in headwaters of the UNT
Temperature (°C)	20	Default (CWF)
Hardness (mg/L)		
Other: NH_3-N	0.1	Default

Nearest Downstream Public Water Supply Intake		Shawville Power Station	
PWS Waters	West Branch Susquehanna River	Flow at Intake (cfs)	27
PWS RMI	164.25	Distance from Outfall (mi)	78.5 (approx.)

Changes Since Last Permit Issuance:

Other Comments:

Treatment Facility Summary

Treatment Facility Name: Loretto Federal Correctional Institution STP

WQM Permit No.	Issuance Date
1193405	April 19, 1994
1193405-A1	October 25, 1999

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary with Ammonia Reduction	Sequencing Batch Reactors	Ultraviolet Radiation	0.2

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.2	980	Not Overloaded	Aerobic Digesters and Belt Filter Press	Landfill

Changes Since Last Permit Issuance:

Other Comments:

Compliance History	
Summary of DMRs:	Fecal Coliform IMAX limit exceedance in September 2020.
Summary of Inspections:	Last site inspection was conducted on May 3, 2019. The corresponding inspection reported did not indicate any violations identified during the inspection. Permittee was instructed to register the on-site laboratory with the Department's Lab Accreditation Program.

Other Comments:

Compliance History

DMR Data for Outfall 001 (from February 1, 2020 to January 31, 2021)

Parameter	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20	JUN-20	MAY-20	APR-20	MAR-20	FEB-20
Flow (MGD) Average Monthly	0.1150	0.1088	0.1148	0.1193	0.1180	0.1234	0.1301	0.1330	0.1363	0.1372	0.1313	0.1304
Flow (MGD) Daily Maximum	0.1220	0.1220	0.1188	0.1252	0.1268	0.1311	0.1403	0.1850	0.1416	0.1468	0.1356	0.1341
pH (S.U.) Minimum	6.2	6.0	7.5	6.2	6.0	6.5	6.5	6.1	6.20	6.1	6.5	6.3
pH (S.U.) Maximum	8.9	7.4	8.9	7.0	6.9	6.8	6.9	6.8	6.80	6.7	7.2	6.6
DO (mg/L) Minimum	6.4	6.70	6.6	8.0	6.6	6.5	6.5	7.6	6.30	8.1	7.6	6.5
CBOD5 (lbs/day) Average Monthly	3.1	3.7	2.9	3.0	3.1	3.0	3.0	4.0	4.0	4.2	5.5	4.2
CBOD5 (lbs/day) Weekly Average	4.3	5.1	2.9	3.5	3.6	3.1	3.1	5.1	6.3	5.3	7.1	5.1
CBOD5 (mg/L) Average Monthly	3.4	4.1	3.0	3.2	3.1	3.0	3.0	3.4	3.7	4.0	5.5	4.2
CBOD5 (mg/L) Weekly Average	4.7	6.3	3.0	3.8	3.7	3.0	3.0	4.8	5.8	5.0	6.9	4.9
TSS (lbs/day) Average Monthly	7.1	4.0	4.0	3.1	2.9	1.6	3.5	2.6	2.8	2.5	7.8	3.6
TSS (lbs/day) Weekly Average	12.2	5.4	5.8	4.5	4.5	2.1	6.4	3.4	4.4	2.9	9.4	5.7
TSS (mg/L) Average Monthly	7.8	4.5	3.6	3.3	2.9	1.6	3.4	2.3	2.7	2.4	7.7	3.5
TSS (mg/L) Weekly Average	13.2	6.0	4.0	4.8	4.8	2.2	6.4	3.2	4.2	2.8	9.2	5.6
Fecal Coliform (CFU/100 ml) Geometric Mean	1	2	1	15	5	1	2	1	1	1	3	1
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	2	13	2	2420	2420	4	8	1	4	2	16	1
UV Transmittance (%) Minimum	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0
UV Transmittance (%) Average Monthly	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0

Total Nitrogen (mg/L) Daily Maximum	23.3	19.8	18.5	20.4	18.1	8.3	11.6	17.1	10.4	17.8	12.6	18.5
Ammonia (lbs/day) Average Monthly	0.48	0.49	0.24	0.43	0.10	0.24	0.1	0.36	0.82	0.45	1.06	0.54
Ammonia (lbs/day) Weekly Average	1.10	0.79	0.56	0.60	0.11	0.50	0.1	0.86	2.17	1.02	1.93	0.81
Ammonia (mg/L) Average Monthly	0.53	0.56	0.25	0.45	0.10	0.24	0.1	0.33	0.76	0.43	1.05	0.53
Ammonia (mg/L) Weekly Average	1.20	0.88	0.60	0.64	0.10	0.50	0.1	0.82	1.99	0.97	1.89	0.80
Total Phosphorus (mg/L) Daily Maximum	3.98	2.91	3.52	2.68	2.55	2.72	2.3	2.90	3.10	3.64	2.88	3.21

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.2
Latitude 40º 29' 52.00" **Longitude** -78º 37' 34.00"
Wastewater Description: Treated Domestic Sewage

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)

Comments: The total residual chlorine technology-based limit is not applicable because the permittee does not utilize chlorine for disinfection (uses UV disinfection).

Water Quality-Based Limitations

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

Parameter	Limit (mg/l)	SBC	Model
$CBOD_5$ (5/01 – 10/31)	20	Average Monthly	WQAM 6.3
$CBOD_5$ (11/01 – 4/30)	25	Average Monthly	WQAM 6.3
Ammonia Nitrogen (5/1 – 10/31)	3.0	Average Monthly	WQM 7.0 Version 1.1
Ammonia Nitrogen (11/1 – 4/30)	7.7	Average Monthly	WQAM 6.3
Dissolved Oxygen	6.0	Daily Minimum	WQM 7.0 Ver 1.1

Comments: Wintertime modeling was not conducted as it was based on old Department guidance, which is no longer being practiced. Specifically, seasonal limits are no longer applied for $CBOD_5$, and NH_3-N is given a default seasonal multiplier of "3" as current Department practices. However, the previous wintertime limits for $CBOD_5$ and NH_3-N will be retained due to anti-backsliding provisions.

A more stringent dissolved oxygen limit of a daily minimum of 6.0 mg/l was calculated during this renewal. A review of eDMR data for the last four (4) years indicates that the permittee should be able to meet this new dissolved oxygen limit consistently, and therefore no compliance schedule was added to the proposed renewed permit to meet this new limit.

Best Professional Judgment (BPJ) Limitations

Comments: N/A

Chesapeake Bay Watershed TMDL

On December 29, 2010, the U.S. Environmental Protection Agency (EPA) published a final TMDL for Nitrogen, Phosphorus and Sediment in the Chesapeake Bay. The TMDL requires Pennsylvania to reduce its overall pollutant loading of nitrogen, phosphorus and sediment.

This is a Phase 4 facility (average design flow on August 29, 2005 ≥ 0.2 MGD and < 0.4 MGD) with a discharge to an unnamed tributary to Clearfield Creek, which is located in the Chesapeake Bay Watershed. No cap loads are or will be assigned to the facility since it is not a new or expanding discharge at this time. This strategy follows the standard procedure for Phase 4 facilities which is outlined in the Department's "Phase III Watershed Implementation Plan (WIP) for the Chesapeake Bay Watershed," which instructs sewage discharges to continue following guidance found in the document entitled "Supplement to Phase II (Now "III") Watershed Implementation Plan," last revised on December 17, 2019. Monitoring for Nitrate-Nitrite as N, Kjeldahl---N, total nitrogen and total phosphorus was placed in the permit in accordance with the abovementioned documents.

Clearfield Creek Watershed TMDL

The discharge is to the Clearfield Creek Watershed that has a Final TMDL and is impaired by metals and pH. This sewage discharge is not expected to contribute to the stream impairment for which abandoned mine drainage is source of such impairment. A 1/year monitor and report requirement for Iron, Manganese, and Aluminum is established in the permit to verify that the sewage discharge is not contributing to the impairment. They are to be specified as Daily Max Reporting. The monitoring frequency is yearly for plants rated less than 0.499 MGD.

Mass loading limits were assigned to this facility at the permit writer's discretion due to the design flow of the facility being over 0.10 MGD. Average monthly mass loading limits (lbs/day) are based on the formula: design flow (MGD) x concentration limit (mg/L) x conversion factor (8.34). Mass limits will be rounded in accordance with the Technical Guidance for the Development and Specification of Effluent Limitations ("Permit Writer's Manual") (362-0400-001).

Other Considerations

Comments: Quarterly monitoring for E. Coli will be added and monitoring for UV transmittance will be retained in the renewed permit in accordance with the Department's SOP entitled "Establishing Effluent Limitations for Individual Sewage Permits (BCW-PTM-033 Ver. 1.9)."

Anti-Backsliding

None. The existing permit has weekly average limits for ammonia nitrogen, although they are not typically assigned in NPDES sewage permits based on existing permitting practice. These weekly average limits will be retained due to federal anti-backsliding provisions.

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	9.0 Daily Max	XXX	1/day	Grab
DO	XXX	XXX	6.0 Daily Min	XXX	XXX	XXX	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5) Nov 1 - Apr 30	41.7	63.4	XXX	25.0	38.0	50	1/week	8-Hr Composite
Carbonaceous Biochemical Oxygen Demand (CBOD5) May 1 - Oct 31	33.4	50.0	XXX	20.0	30.0	40	1/week	8-Hr Composite
TSS	50.0	75.1	XXX	30.0	45.0	60	1/week	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab
UV Transmittance (%)	XXX	XXX	Report	Report	XXX	XXX	1/day	Measured
Nitrate-Nitrite	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/month	8-Hr Composite
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/month	8-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	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Ammonia-Nitrogen Nov 1 - Apr 30	12.9	19.4	XXX	7.7	11.6	15.4	1/week	8-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	5.0	7.5	XXX	3.0	4.5	6	1/week	8-Hr Composite
Total Kjeldahl Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/month	8-Hr Composite
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/month	8-Hr Composite
Aluminum, Total	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	8-Hr Composite
Iron, Total	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	8-Hr Composite
Manganese, Total	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	8-Hr Composite

Compliance Sampling Location: Outfall 001 (after disinfection)

Other Comments: For pH, Dissolved Oxygen (DO) and UV Transmittance, a monitoring frequency 1/day has been imposed. In general, less frequent monitoring may be established only when the permittee demonstrates that there will be no discharge on days where monitoring is not required.

Monitoring frequency for the proposed effluent limits are based upon Table 6-3, Self-Monitoring Requirements for Sewage Dischargers, from the Departments Technical Guidance for the Development and Specification of Effluent Limitations.

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
08C	26573	Trib 26573 to Clearfield Creek	**2.540**	1813.00	1.63	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	0.063	0.10	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.20	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
St Francis Univ	PA0032069	0.3180	0.0000	0.0000	0.000	20.00	6.80

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

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
08C	26573	Trib 26573 to Clearfield Creek	**2.100**	1799.00	2.15	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	0.064	0.00	0.14	0.000	0.000	0.0	0.00	0.00	20.00	7.20	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
Loretto Fed Cor	PA0034797	0.2000	0.0000	0.0000	0.000	20.00	6.40

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

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
08C	26573	Trib 26573 to Clearfield Creek	**0.001**	1764.00	4.63	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	0.064	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.20	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	0.00	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
08C	26573	Trib 26573 to Clearfield 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												
2.540	0.10	0.00	0.10	.4919	0.00603	.464	8.94	19.26	0.14	0.188	20.00	6.85
2.100	0.14	0.00	0.14	.8013	0.00316	.504	11.3	22.43	0.16	0.778	20.00	6.65
Q1-10 Flow												
2.540	0.07	0.00	0.07	.4919	0.00603	NA	NA	NA	0.14	0.195	20.00	6.83
2.100	0.09	0.00	0.09	.8013	0.00316	NA	NA	NA	0.16	0.802	20.00	6.63
Q30-10 Flow												
2.540	0.14	0.00	0.14	.4919	0.00603	NA	NA	NA	0.15	0.182	20.00	6.86
2.100	0.19	0.00	0.19	.8013	0.00316	NA	NA	NA	0.17	0.756	20.00	6.67

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	6		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
08C	26573	Trib 26573 to Clearfield 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
2.540	St Francis Univ	19.1	21.62	19.1	21.62	0	0
2.100	Loretto Fed Cor	22.76	29.19	21.41	29.19	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
2.540	St Francis Univ	1.98	2.51	1.98	2.4	2	4
2.100	Loretto Fed Cor	2.11	3.32	2.07	3.18	2	4

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)		
2.54	St Francis Univ	25	25	2.4	2.4	6	6	0	0
2.10	Loretto Fed Cor	25	25	3.18	3.18	6	6	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
08C	26573	Trib 26573 to Clearfield Creek

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
2.540	0.318	20.000	6.847
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
8.940	0.464	19.263	0.143
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
21.05	1.472	2.01	0.700
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.385	24.409	Owens	6
Reach Travel Time (days)			
0.188			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.019	20.48	1.98	6.62
0.038	19.92	1.96	6.79
0.056	19.37	1.93	6.91
0.075	18.85	1.91	7.01
0.094	18.33	1.88	7.09
0.113	17.83	1.86	7.16
0.131	17.35	1.83	7.22
0.150	16.87	1.81	7.28
0.169	16.41	1.78	7.33
0.188	15.97	1.76	7.38

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
2.100	0.518	20.000	6.651
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
11.297	0.504	22.428	0.165
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
18.42	1.456	2.17	0.700
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.957	23.067	Owens	6
Reach Travel Time (days)			
0.778			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.078	16.45	2.05	7.20
0.156	14.69	1.94	7.40
0.233	13.12	1.84	7.57
0.311	11.71	1.74	7.73
0.389	10.46	1.65	7.87
0.467	9.34	1.56	7.99
0.544	8.34	1.48	8.10
0.622	7.45	1.40	8.21
0.700	6.65	1.33	8.24
0.778	5.94	1.26	8.24

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
08C	26573	Trib 26573 to Clearfield 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)
2.540	St Francis Univ	PA0032069	0.318	CBOD5	25		
				NH3-N	2.4	4.8	
				Dissolved Oxygen			6

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)
2.100	Loretto Fed Cor	PA0034797	0.200	CBOD5	25		
				NH3-N	3.18	6.36	
				Dissolved Oxygen			6

Discharge pH

Saint Francis University STP
Loretto Borough, Cambria County
NPDES# PA0032069

Date	pH min	pH max	10^ -pH min	10^ -pH max	Ave (10^pH min & pH max)	-Log (Ave pH)
Jul-18	6.7	7.1	2E-07	7.94E-08	1.39E-07	**6.9**
Aug-18	6.8	7.2	1.58E-07	6.31E-08	1.11E-07	**7.0**
Sep-18	6.5	7.3	3.16E-07	5.01E-08	1.83E-07	**6.7**
Jul-19	6.9	7.0	1.26E-07	1E-07	1.13E-07	**6.9**
Aug-19	6.6	6.8	2.51E-07	1.58E-07	2.05E-07	**6.7**
Sep-19	6.1	6.6	7.94E-07	2.51E-07	5.23E-07	**6.3**
Jul-20	6.8	7.2	1.58E-07	6.31E-08	1.11E-07	**7.0**
Aug-20	6.6	7.1	2.51E-07	7.94E-08	1.65E-07	**6.8**
Sep-20	6.2	6.8	6.31E-07	1.58E-07	3.95E-07	**6.4**
					Median:	**6.8**

Loretto Federal Correctional Institution STP
Allegheny Township, Cambria County
NPDES# PA0034797

Date	pH min	pH max	10^ -pH mi	10^ -pH ma	Ave (10^pH min & pH max)	-Log (Ave pH)
Jul-18	6.4	6.8	3.98E-07	1.58E-07	2.78E-07	**6.6**
Aug-18	6.2	6.9	6.31E-07	1.26E-07	3.78E-07	**6.4**
Sep-18	6.3	7.0	5.01E-07	1E-07	3.01E-07	**6.5**
Jul-19	6.20	6.80	6.31E-07	1.58E-07	3.95E-07	**6.4**
Aug-19	6.2	6.8	6.31E-07	1.58E-07	3.95E-07	**6.4**
Sep-19	6.2	6.5	6.31E-07	3.16E-07	4.74E-07	**6.3**
Jul-20	6.5	6.9	3.16E-07	1.26E-07	2.21E-07	**6.7**
Aug-20	6.5	6.8	3.16E-07	1.58E-07	2.37E-07	**6.6**
Sep-20	6.0	6.9	0.000001	1.26E-07	5.63E-07	**6.2**
					Median:	**6.4**