pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0252522**
Facility Type	**Municipal**	APS ID	**1113199**
Major / Minor	**Minor**	Authorization ID	**1484189**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Somerset Township Municipal Authority**	Facility Name	**Lavansville STP**
Applicant Address	PO Box 247	Facility Address	Bunyan Drive
	Somerset, PA 15501-0247		Somerset, PA 15501
Applicant Contact	Carolyn Zambanini	Facility Contact	Carolyn Zambanini
Applicant Phone	(814) 445-5842	Facility Phone	(814) 445-5842
Client ID	25312	Site ID	619929
Ch 94 Load Status		Municipality	Somerset Township
Connection Status		County	Somerset
Date Application Received	May 2, 2024	EPA Waived?	Yes
Date Application Accepted		If No, Reason	

Purpose of Application: Permit Renewal

Summary of Review

Applicant requests renewal of an NPDES permit to discharge treated sewage from Lavansville STP and was previously issued on October 3, 2019. The discharge is to the West Branch Coxes Creek, which is classified as a warm water fishery.

Municipalities served by the STP are Somerset Township and Somerset Borough.

The treatment process consists of screening, an SBR treatment system and ultra-violet disinfection.
No upgrades are proposed at this renewal.

DMR review shows the discharge is in compliance with the existing permit limits. No comments received from Operations Section.

There are no changes to the receiving stream, the discharge, influent characteristics etc.
Recommended effluent limits are similar to the existing permit limits.

Sludge use and disposal description and location(s): Sludge is disposed at other Sewage Treatment Plants.

Approve	Deny	Signatures	Date
X		*Sara Abraham* Sara Reji Abraham, E.I.T. / Project Manager	June 17, 2024
X		*Pravin Patel* Pravin C. Patel, P.E. / Environmental Engineer Manager	06/18/2024

Summary of Review

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.

Act 14 Notifications:

Somerset Township - March 15, 2024
Somerset County - March 15, 2024

Permits Conditions:

A. No Stormwater
B. Acquire Necessary Property Rights
C. Proper Sludge Disposal
D. Chlorine Optimization
E. Operator Notification
F. Hauled-In Waste Restrictions
G. Solids Management

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.15
Latitude	40 0' 29.94"	Longitude	-79º 7' 11.26"
Quad Name	Somerset	Quad Code	1813
Wastewater Description:	Treated Sewage Effluent		

Receiving Waters	West Branch Coxes Creek (WWF)	Stream Code	38979
NHD Com ID	69916487	RMI	3.4
Drainage Area	7.84	Yield (cfs/mi^2)	0.064
Q_{7-10} Flow (cfs)	0.5	Q_{7-10} Basis	Previous fact sheet
Watershed No.	19-F	Chapter 93 Class.	WWF
Assessment Status	Impaired		
Cause(s) of Impairment	Siltation		
Source(s) of Impairment	Agriculture		
TMDL Status	Final	Name	Coxes Creek Watershed

Treatment Facility Summary				
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Secondary with NH3-N removal	SBR	Ultraviolet	0.15
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.15	330	Not Overloaded	Aerobic	Other STP

Compliance History

DMR Data for Outfall 001 (from May 1, 2023 to April 30, 2024)

Parameter	APR-24	MAR-24	FEB-24	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23
Flow (MGD) Average Monthly	0.1088	0.0889	0.083		0.070	0.062	0.056	0.0526	0.0572	0.060	0.055	0.064
Flow (MGD) Daily Maximum	0.336	0.175	0.211		0.118	0.157	0.097	0.068	0.088	0.097	0.098	0.156
pH (S.U.) Instantaneous Minimum	6.81	6.52	6.8	6.83	6.82	6.9	6.9	6.83	6.7	7.1	7.01	6.9
pH (S.U.) Instantaneous Maximum	7.16	7.25	7.48	7.96	7.59	7.5	7.53	7.46	7.52	7.6	7.39	7.5
DO (mg/L) Instantaneous Minimum	5.49	5.54	4.1	6.3	7.0	7.65	4.17	4.61	4.14	4.6	4.25	5.1
CBOD5 (lbs/day) Average Monthly	1.9	3.0	2.0	5.0	1.0	1.0	2.0	1.0	1.0	2.0	3.0	1.0
CBOD5 (lbs/day) Weekly Average	2.5	5.0	6.0	14.0	2.0	2.0	4.0	1.0	1.0	5.0	11.0	2.0
CBOD5 (mg/L) Average Monthly	2.8	3.0	3.0	6.0	2	2	4.0	2.0	2.0	4.0	7.0	2.0
CBOD5 (mg/L) Weekly Average	5.0	4.0	6.0	14.0	3	3	10.0	2.0	3.0	10.0	22.0	3.0
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	46.0	526	164	187	129	195	112	98.0	67	129.0	352.0	343
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	68.0	1505	336	462	148	329	145	123.0	80	233.0	743.0	583
BOD5 (mg/L) Raw Sewage Influent Average Monthly	75.3	640	259	190	231	399	223	217	151	223	160.0	685
TSS (lbs/day) Average Monthly	2.5	2.0	2.0	8.0	3.0	1.0	2.0	1.0	1.0	2.0	1.0	1.0

TSS (lbs/day) Raw Sewage Influent Average Monthly	69.0	211	36	90	264	252	115	189.0	81	125.0	72.0	284.0
TSS (lbs/day) Raw Sewage Influent Daily Maximum	103.0	335	54	138	657	569	151	247.0	101	252.0	83.0	456.0
TSS (lbs/day) Weekly Average	3.6	2.0	2.0	21.0	7.0	1.0	4.0	2.0	1.0	3.0	1.0	1.0
TSS (mg/L) Average Monthly	3.4	2.0	3.0	8.0	6.0	2.0	4.0	3.0	3.0	4.0	2.0	2.0
TSS (mg/L) Raw Sewage Influent Average Monthly	104.2	271	75	128	444	539	231	85.0	187	209	174	582.0
TSS (mg/L) Weekly Average	4.0	3.0	4.0	24.0	15.0	2.0	6.0	4.0	3.0	6.0	2.0	3.0
Fecal Coliform (No./100 ml) Geometric Mean	2.0	3.0	7	6.0	3	3.0	10	3.0	2.0	2.0	1.0	1.0
Fecal Coliform (No./100 ml) Instantaneous Maximum	9.0	5.0	30	39.0	4	5.0	17	10.0	3.0	4.0	1.0	2.0
UV Transmittance (%) Daily Minimum	0.1	0.1	0.0	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1
Total Nitrogen (mg/L) Daily Maximum					5.23							
Ammonia (lbs/day) Average Monthly	0.6	1.0	1.0	1.0	0.001	0.05	0.001	0.001	0.001	0.01	0.001	0.001
Ammonia (lbs/day) Weekly Average	2.1	3.0	3.0	3.0	0.001	0.06	0.001	0.001	0.001	0.01	0.001	0.001
Ammonia (mg/L) Average Monthly	1.1	1.4	2.7	1.9	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Ammonia (mg/L) Weekly Average	4.3	4.4	6.5	3.6	0.2	0.1	0.1	0.1	0.1	0.1	0.3	0.2
Total Phosphorus (mg/L) Daily Maximum					1.83							

Compliance History

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .3
Latitude 40º 0' 30.00" **Longitude** -79º 7' 11.00"
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)

*TRC limit is not needed. Disinfection via UV system.

Water Quality-Based Limitations

The following limitations were determined:

Parameter	Limit (mg/l)	SBC	Basis
CBOD5	25	Average Monthly	WQM 7.0**
NH3-N	5	Average Monthly	
Dissolved Oxygen	4	Inst. Min.	
E. Coli*	Report	Inst. Max.	SOP
Total Nitrogen	Report	Daily Max.	BPJ & SOP
Total Phosphorus	Report	Daily Max.	BPJ & SOP

*E. Coli monitoring is included in the draft permit according to the DEP SOP guidance (Chapter 92.a.61). This is a new requirement and is consistent with the requirements of other similar discharges in the area.

**WQM 7.0 model run is conducted at this time and the limits are similar to the limits established in the existing permit. See the attached WQM 7.0 model report. Copy of the previous pollution report is also attached for reference.

Anti-Backsliding

N/A

Mass Loading Limits: MLLs are applicable for publicly owned treatment works. Current policy requires average monthly mass loading limits be established for CBOD5, TSS, and NH_3-N and average weekly mass loading limits be established

for CBOD5 and TSS when applicable. Reporting of both Monthly Mass Limits and weekly Mass Limits for TSS, CBOD5 and NH3-N are continued in the draft permit.

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).

Raw Sewage Influent Monitoring: For POTWs with design flows greater than 2,000 GPD, influent BOD_5 and TSS monitoring must be established in the permit. The monitoring for influent parameters will be consistent with the same frequency and sample type as is used for the effluent parameters. These monitoring requirements are existing and continued in the draft permit.

Total Nitrogen and Total Phosphorus: Nutrient monitoring is required for all sewage wastewater treatment facilities with design flows greater than 2,000gpd. Discharges greater than 2,000 GPD but less than 1.0MGD require monitoring, at a minimum, for Total Nitrogen and Total Phosphorus in new and reissued permits at a frequency of 1/year. These monitoring requirements are existing and continued in the draft permit.

A Dissolved Oxygen minimum limitation of 4.0 mg/L was previously imposed in the permit. The D.O. limit was based on the previous standard in 25 PA Code Chapter 93 and best professional judgment. This limit is imposed for activated sludge treatment systems were D.O. is critical to their operation. This limit is the same based on the WQM 7.0 model report and continued in the draft permit.

*TDS***:** Discharge loadings of TDS authorized by DEP, under NPDES permits or other authority that were issued or reissued prior to the effective date of §95.10 (August 21, 2010), are exempt from the treatment requirements of §95.10 until the net loading is to be increased. This facility was permitted prior to August 21, 2010 and no increase in flow or TDS net loading is proposed. TDS effluent loadings are not applicable. Reference: DEPARTMENT OF ENVIRONMENTAL PROTECTION Bureau of Water Standards and Facility Regulation DOCUMENT NUMBER: 385-2100-002 TITLE: Policy and Procedure for NPDES Permitting of Discharges of Total Dissolved Solids (TDS) -- 25 Pa. Code §95.10

Total Copper, Total Lead and Total Zinc sampling results are provided. Review shows no concern for these parameters.

In accordance with the provisions of 40 CFR § 133.102(a)(4)(iii), the draft permit requires that the 30-day average percent removal of BOD5 (or CBOD5) and TSS be no less than 85 %.

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
19F	38979	WEST BRANCH COXES CREEK	**3.400**	1986.00	7.84	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	0.100	0.00	0.50	0.000	0.000	0.0	0.00	0.00	20.00	7.00	25.00	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
Lavansville STP	PA0252522	0.0000	0.0000	0.1500	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	5.00	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
19F	38979	WEST BRANCH COXES CREEK	**2.700**	1980.00	7.98	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	0.100	0.00	0.51	0.000	0.000	0.0	0.00	0.00	20.00	7.00	25.00	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
19F	38979	WEST BRANCH COXES 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												
3.400	0.50	0.00	0.50	.2321	0.00162	.503	14.24	28.28	0.10	0.419	25.00	7.00
Q1-10 Flow												
3.400	0.32	0.00	0.32	.2321	0.00162	NA	NA	NA	0.09	0.490	25.00	7.00
Q30-10 Flow												
3.400	0.68	0.00	0.68	.2321	0.00162	NA	NA	NA	0.12	0.370	25.00	7.00

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	5		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
19F	38979	WEST BRANCH COXES 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
3.400	Lavansville STP	11.07	10	11.07	10	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
3.400	Lavansville STP	1.37	5	1.37	5	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
3.40	Lavansville STP	25	25	5	5	4	4	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
19F	38979	WEST BRANCH COXES CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
3.400	0.150	25.000	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
14.237	0.503	28.284	0.102
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
9.29	1.191	1.58	1.029
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.898	18.867	Owens	5
Reach Travel Time (days)			
0.419			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.042	8.73	1.52	6.91
0.084	8.20	1.45	6.96
0.126	7.70	1.39	7.03
0.168	7.23	1.33	7.10
0.209	6.79	1.28	7.16
0.251	6.38	1.22	7.23
0.293	5.99	1.17	7.29
0.335	5.62	1.12	7.35
0.377	5.28	1.08	7.41
0.419	4.96	1.03	7.46

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
19F	38979	WEST BRANCH COXES 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)
3.400	Lavansville STP	PA0252522	0.000	CBOD5	25		
				NH3-N	5	10	
				Dissolved Oxygen			4

POLLUTION REPORT

(I) Project Description — New Discharge / Existing Discharge (circled) — Change / Preliminary

A. NPDES Application/Permit No. Somerset Twp. (PA 0252522)
Part II Permit Nos. _____

B. Applicant, Case Name or Permittee: LAVANSVILLE West End STP
Municipality: Somerset Twp
County: Somerset

C. Type Waste
- [x] Sewage
- [ ] Industrial
- [ ] Mine

D. Source and characteristics: Domestic Wastewater

E. USGS Quad: Somerset Quad

F. Latitude (or in. N) 40° 00' 30" OUTFALL 001
Longitude (or in. W) 79° 07' 11"

(II) Water Uses and Criteria

A. Receiving waters West Branch Coxes Creek (above Gulf Course) Stream code 38979
Chapter 93 classification WWF R.M.I. _____
D.A. 7.84 sq.mi. Yield 0.064 cfs/sq.mi.
Flow 0.5 cfs. Based on data from Water Resources Bull. #12 revised
Station 03078800, Coxes Creek near Rockwood PA.
Elevation _____ ft.

Exceptions to standard water use lists: None
Add _____
Delete _____

Water Quality Criteria-Exceptions to Specific Criteria: None
Add _____
Delete _____

Impoundment _____
Special Downstream Uses: _____

B. Secondary Waters _____ R.M.I. _____
Distance from discharge _____ mi. Ch. 93 classification _____
D.A. _____ sq.mi. Yield _____ cfs/sq.mi.
Flow _____ cfs. Based on data from _____
Elevation _____ ft. Stream Code _____

Exceptions to standard water use lists: None
Add _____
Delete _____

Water Quality Criteria-Exceptions to Specific Criteria:
Add _____
Delete _____

Impoundment _____
Special Downstream Uses: _____
Downstream PWS: location _____
distance from discharge _____ mi. intake _____ mgd.
stream flow at intake _____ cfs.

ANALYSIS

DISCHARGE

RATE 0.30 MGD

FILE: c:\raywqam\untitled.wqm
Preliminary Limits Lavansville STP 300 000gpd

REACH # 1
Headwaters and Tributary data

No. of Reaches : 1

Rh	Q7-10 (cfs)	T (c)	pH (su)	DO (mg/l)	CBOD5 (mg/l)	NH3-N (mg/l)
HW	0.5000	25	7	7.12	2	.1
1	0.0000					

FILE: c:\raywqam\untitled.wqm
Preliminary Limits Lavansville STP 300 000gpd

Stream Characteristics

Rh	Q7-10 (cfs)	T (c)	pH (su)	DO (mg/l)	CBOD5 (mg/l)	NH3-N (mg/l)
1	.5	25	7	7.12	2	.1

Q 1-10/Q 7-10 = .64
Q 30-10/Q 7-10 = 1.36

(WQAM63.EXE) Release 1.2 01-09-2007 07:27:54

2

FILE: c:\raywqam\untitled.wqm
Preliminary Limits Lavansville STP 300 000gpd

DISCHARGE # 1
Discharger Data
Q7-10 Design Conditions

Rh	FLOW (MGD)	T (c)	pH (su)	DO (mg/l)	CBOD5 (mg/l)	NH3-N (mg/l)	KC (1/days)
1	0.3000	20	7	2	25	25	1.5

FILE: c:\raywqam\untitled.wqm
Preliminary Limits Lavansville STP 300 000gpd

REACH # 1
Reach Characteristics

Rh	D.O. GOAL	KN (/D)	RCH. SL. (FT/FT)	RCH. LEN. (FT.)	DRAIN AREA (MI^2)	W/D
1	5	.6	0.00150	2000	7.84	10

(WQAM63.EXE) Release 1.2 01-09-2007 07:28:53

3

FILE: c:\raywqam\untitled.wqm
Preliminary Limits Lavansville STP 300 000gpd

REACH # 1
Reach Characteristics

Rh	KR (/D)	TT (Days)
1	0	0

FILE: c:\raywqam\Lavansv.wqm
Preliminary Limits Lavansville STP 300 000gpd

NH3-N Discharge Allocations at Q30-10 (EMPR)

DIS	Q (mgd)	BASE. CONC. (mg/l)	MULT. CONC. (mg/l)	CRIT. RCH.	PCT. RED. (%)	NH3-N CRIT. (mg/l)
1	0.3000	3.67	3.67	0	0	1.55

(WQAM63.EXE) Release 1.2 01-09-2007 07:29:31

4

FILE: c:\raywqam\Lavansv.wqm
Preliminary Limits Lavansville STP 300 000gpd

NH3-N Discharge Allocations at Q1-10 (EMPR)

DIS	Q (mgd)	BASE. CONC. (mg/l)	MULT. CONC. (mg/l)	CRIT. RCH.	PCT. RED. (%)	NH3-N CRIT. (mg/l)
1	0.3000	14.03	14.03	0	0	8.35

FILE: c:\raywqam\Lavansv.wqm
Preliminary Limits Lavansville STP 300 000gpd

(Total)Discharge = .3 MGD

Temp	= 22.6	pH	= 7	Width	=	9.02
CBOD-5	= 13.07	NH3-N	= 1.82	Depth	=	0.90
D.O.	= 4.66	D.O. Goal	= 5	Velocity	=	0.118
KC'	= 1.361	KN	= .6	W/D RATIO	=	10
KR	= 6.283	(OWENS)				

Dis. 1 Rch. 1 Trvl Time: .195

Tr.Tm. (Days)	CBOD-5 (mg/l)	NH3-N (mg/l)	D.O. (mg/l)
0.020	12.69	1.79	4.47
0.039	12.31	1.77	4.33
0.059	11.95	1.74	4.21
0.078	11.59	1.72	4.13
0.098	11.25	1.69	4.08
0.117	10.92	1.67	4.04
0.137	10.60	1.64	4.03
0.156	10.28	1.62	4.03
0.176	9.98	1.60	4.05
0.195	9.69	1.58	4.07

< 5

INCREASE DISCHARGE D.O.

(WQAM63.EXE) Release 1.2 01-09-2007 07:29:50

5

FILE: c:\raywqam\Lavansv.wqm
Preliminary Limits Lavansville STP 300 000gpd

D.O. Allocations (EMPR)

DIS #	Q	NH3-N IND. Conc.	NH3-N CUM. Conc.	CBOD5 IND. Conc.	CBOD5 CUM. Conc.	CRIT. RCH.	PCT. REM.
	(MGD)	(mg/l)	(mg/l)	(mg/l)	(mg/l)		(%)
1	0.3000	3.7	3.7	19.8	19.8	0	0

FILE: c:\raywqam\Lavansv.wqm
Preliminary Limits Lavansville STP 300 000gpd

Effluent Limitations Display

DIS #	Q	NH3-N TOX. 1 DAY	30 DAY	DISS. OXYGEN C-BOD5 30-DAY	NH3-N 30-DAY	EFF. D.O.
	MGD					
1	.3	7.3	3.7	19.8	3.7	3

TRY TO INCREASE D.O. TO 5

(WQAM63.EXE) Release 1.2 01-09-2007 07:30:05

6

SECOND RUN

FILE: c:\raywqam\Lavansv.wqm
Preliminary Limits Lavansville STP 300 000gpd

DISCHARGE # 1
Discharger Data
Q7-10 Design Conditions

Rh	FLOW (MGD)	T (c)	pH (su)	DO (mg/l)	CBOD5 (mg/l)	NH3-N (mg/l)	KC (1/days)
1	0.3000	20	7	5	25	25	1.5

FILE: c:\raywqam\Lavansv.wqm
Preliminary Limits Lavansville STP 300 000gpd

NH3-N Discharge Allocations at Q30-10 (EMPR)

DIS	Q (mgd)	BASE. CONC. (mg/l)	MULT. CONC. (mg/l)	CRIT. RCH.	PCT. RED. (%)	NH3-N CRIT. (mg/l)
1	0.3000	3.67	3.67	0	0	1.55

(WQAM63.EXE) Release 1.2 01-09-2007 07:32:33

7

FILE: c:\raywqam\Lavansv.wqm
Preliminary Limits Lavansville STP 300 000gpd

NH3-N Discharge Allocations at Q1-10 (EMPR)

DIS	Q (mgd)	BASE. CONC. (mg/l)	MULT. CONC. (mg/l)	CRIT. RCH.	PCT. RED. (%)	NH3-N CRIT. (mg/l)
1	0.3000	14.03	14.03	0	0	8.35

FILE: c:\raywqam\Lavansv.wqm
Preliminary Limits Lavansville STP 300 000gpd

(Total)Discharge = .3 MGD

Temp	= 22.6	pH	= 7	Width	=	9.02
CBOD-5	= 13.07	NH3-N	= 1.82	Depth	=	0.90
D.O.	= 6.1	D.O. Goal	= 5	Velocity	=	0.118
KC'	= 1.361	KN	= .6	W/D RATIO	=	10
KR	= 6.283	(OWENS)				

Dis. 1 Rch. 1 Trvl Time: .195

Tr.Tm. (Days)	CBOD-5 (mg/l)	NH3-N (mg/l)	D.O. (mg/l)
0.020	12.69	1.79	5.75
0.039	12.31	1.77	5.46
0.059	11.95	1.74	5.21
0.078	11.59	1.72	5.02
0.098	11.25	1.69	4.86
0.117	10.92	1.67	4.73
0.137	10.60	1.64	4.64
0.156	10.28	1.62	4.57
0.176	9.98	1.60	4.52
0.195	9.69	1.58	4.50

< 5.0

No Recovery

(WQAM63.EXE) Release 1.2 01-09-2007 07:32:53

8

FILE: c:\raywqam\Lavansv.wqm
Preliminary Limits Lavansville STP 300 000gpd

D.O. Allocations (EMPR)

DIS #	Q	---NH3-N--- IND. Conc. (mg/l)	CUM. Conc. (mg/l)	---CBOD5---- IND. Conc. (mg/l)	CUM. Conc. (mg/l)	CRIT. RCH.	PCT. REM. (%)
1	0.3000	3.7	3.7	21.5	21.5	0	0

9

FILE: c:\raywqam\Lavansv.wqm
Preliminary Limits Lavansville STP 300 000gpd

THIRD RUN

DISCHARGE # 1
Discharger Data
Q7-10 Design Conditions

Rh	FLOW (MGD)	T (c)	pH (su)	DO (mg/l)	CBOD5 (mg/l)	NH3-N (mg/l)	KC (1/days)
1	0.3000	20	7	5	20	3.5	1.2

↑ ↑ ↑

INPUT >

(WQAM63.EXE) Release 1.2 01-09-2007 07:35:29

10

FILE: c:\raywqam\Lavansv.wqm
Preliminary Limits Lavansville STP 300 000gpd

REACH # 1
Reach Characteristics

Rh	D.O. GOAL	KN (/D)	RCH. SL. (FT/FT)	RCH. LEN. (FT.)	DRAIN AREA (MI^2)	W/D
1	5	.6	0.00150	3000	7.84	10

FILE: c:\raywqam\Lavansv.wqm
Preliminary Limits Lavansville STP 300 000gpd

REACH # 1
Reach Characteristics

Rh	KR (/D)	TT (Days)
1	0	0

(WQAM63.EXE) Release 1.2 01-09-2007 07:35:49

FILE: c:\raywqam\Lavansv.wqm
Preliminary Limits Lavansville STP 300 000gpd

(Total)Discharge	=	.3	MGD				
Temp	=	22.6	pH	= 7	Width	=	9.02
CBOD-5	=	10.66	NH3-N	= 1.74	Depth	=	0.90
D.O.	=	6.1	D.O. Goal	= 5	Velocity	=	0.118
KC'	=	1.06	KN	= .6	W/D RATIO	=	10
KR	=	6.283	(OWENS)				

Dis. 1 Rch. 1 Trvl Time: .293

Tr.Tm. (Days)	CBOD-5 (mg/l)	NH3-N (mg/l)	D.O. (mg/l)
0.029	10.30	1.70	5.89
0.059	9.94	1.66	5.73
0.088	9.60	1.63	5.62
0.117	9.27	1.59	5.55
0.147	8.95	1.56	5.51
0.176	8.64	1.53	5.49
0.205	8.35	1.49	5.49
0.235	8.06	1.46	5.51
0.264	7.78	1.43	5.55
0.293	7.51	1.40	5.59

RECOVERS > 5.0

FILE: c:\raywqam\Lavansv.wqm
Preliminary Limits Lavansville STP 300 000gpd

Effluent Limitations Display

DIS #	Q MGD	NH3-N TOX. 1 DAY	30 DAY	DISS. OXYGEN C-BOD5 30-DAY	NH3-N 30-DAY	EFF. D.O.
1	.3	7	3.5	20	3.5	5

SUMMER LIMITS

(WQAM63.EXE) Release 1.2 01-09-2007 07:36:21

12

FILE: c:\raywqam\Lavansv.wqm
Preliminary Limits Lavansville STP 300 000gpd

REACH # 1
Headwaters and Tributary data

WINTER

No. of Reaches : 1

Rh	Q7-10 (cfs)	T (c)	pH (su)	DO (mg/l)	CBOD5 (mg/l)	NH3-N (mg/l)
HW	1.0000	5	7	10.5	2	.1
1	0.0000					

FILE: c:\raywqam\Lavansv.wqm
Preliminary Limits Lavansville STP 300 000gpd

DISCHARGE # 1
Discharger Data
Q7-10 Design Conditions

Rh	FLOW (MGD)	T (c)	pH (su)	DO (mg/l)	CBOD5 (mg/l)	NH3-N (mg/l)	KC (1/days)
1	0.3000	15	7	5	25	25	1.5

(WQAM63.EXE) Release 1.2 01-09-2007 07:38:54

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FILE: c:\raywqam\Lavansv.wqm
Preliminary Limits Lavansville STP 300 000gpd

REACH # 1
Reach Characteristics

Rh	D.O. GOAL	KN (/D)	RCH. SL. (FT/FT)	RCH. LEN. (FT.)	DRAIN AREA (MI^2)	W/D
1	5	.6	0.00150	3000	7.84	10

FILE: c:\raywqam\Lavansv.wqm
Preliminary Limits Lavansville STP 300 000gpd

REACH # 1
Reach Characteristics

Rh	KR (/D)	TT (Days)
1	0	0

(WQAM63.EXE) Release 1.2 01-09-2007 07:39:05

14

FILE: c:\raywqam\Lavansv.wqm
Preliminary Limits Lavansville STP 300 000gpd

NH3-N Discharge Allocations at Q30-10 (EMPR)

DIS	Q (mgd)	BASE. CONC. (mg/l)	MULT. CONC. (mg/l)	CRIT. RCH.	PCT. RED. (%)	NH3-N CRIT. (mg/l)
1	0.3000	15.75	15.75	0	0	4.08

FILE: c:\raywqam\Lavansv.wqm
Preliminary Limits Lavansville STP 300 000gpd

NH3-N Discharge Allocations at Q1-10 (EMPR)

DIS	Q (mgd)	BASE. CONC. (mg/l)	MULT. CONC. (mg/l)	CRIT. RCH.	PCT. RED. (%)	NH3-N CRIT. (mg/l)
1	0.3000	48.84	48.84	0	0	20.59

(WQAM63.EXE) Release 1.2 01-09-2007 07:39:16

15

FILE: c:\raywqam\Lavansv.wqm
Preliminary Limits Lavansville STP 300 000gpd

(Total)Discharge = .3 MGD

Temp	=	8.2	pH	=	7	Width	= 9.89
CBOD-5	=	9.29	NH3-N	=	5.06	Depth	= 0.99
D.O.	=	8.76	D.O. Goal	=	5	Velocity	= 0.150
KC'	=	1.26	KN	=	.6	W/D RATIO	= 10
KR	=	2.133	(TSIVOGLOU)				

Dis. 1 Rch. 1 Trvl Time: .232

Tr.Tm. (Days)	CBOD-5 (mg/l)	NH3-N (mg/l)	D.O. (mg/l)
0.023	9.13	5.03	8.55
0.046	8.98	5.00	8.35
0.070	8.83	4.98	8.17
0.093	8.68	4.95	8.00
0.116	8.53	4.92	7.85
0.139	8.39	4.89	7.70
0.162	8.25	4.87	7.57
0.186	8.11	4.84	7.45
0.209	7.97	4.81	7.34
0.232	7.84	4.78	7.23

No Recovery

FILE: c:\raywqam\Lavansv.wqm
Preliminary Limits Lavansville STP 300 000gpd

DISCHARGE # 1
Discharger Data
Q7-10 Design Conditions

Rh	FLOW (MGD)	T (c)	pH (su)	DO (mg/l)	CBOD5 (mg/l)	NH3-N (mg/l)	KC (1/days)
1	0.3000	15	7	5	25	10.5	1.5

(WQAM63.EXE) Release 1.2 01-09-2007 07:40:20

16

FILE: c:\raywqam\Lavansv.wqm
Preliminary Limits Lavansville STP 300 000gpd

(Total)Discharge = .3 MGD

Temp	=	8.2	pH	=	7	Width	= 9.89
CBOD-5	=	9.29	NH3-N	=	3.4	Depth	= 0.99
D.O.	=	8.76	D.O. Goal	=	5	Velocity	= 0.150
KC'	=	1.26	KN	=	.6	W/D RATIO	= 10
KR	=	2.133	(TSIVOGLOU)				

Dis. 1 Rch. 1 Trvl Time: .232

Tr.Tm. (Days)	CBOD-5 (mg/l)	NH3-N (mg/l)	D.O. (mg/l)
0.023	9.13	3.38	8.59
0.046	8.98	3.36	8.43
0.070	8.83	3.34	8.29
0.093	8.68	3.32	8.15
0.116	8.53	3.30	8.03
0.139	8.39	3.28	7.92
0.162	8.25	3.27	7.82
0.186	8.11	3.25	7.72
0.209	7.97	3.23	7.64
0.232	7.84	3.21	7.56

TRY NOMOGRAPH VELOCITY

1.46 CFS TOTAL
SLOPE = .0015

VELOCITY = .71 X .3 = .213 FPS

TRAVEL TIME = .163 DAYS

17

FILE: c:\raywqam\Lavansv.wqm
Preliminary Limits Lavansville STP 300 000gpd

REACH # 1
Reach Characteristics

Rh	D.O. GOAL	KN (/D)	RCH. SL. (FT/FT)	RCH. LEN. (FT.)	DRAIN AREA (MI^2)	W/D
1	5	.6	0.00150	5000	7.84	10

FILE: c:\raywqam\Lavansv.wqm
Preliminary Limits Lavansville STP 300 000gpd

REACH # 1
Reach Characteristics

Rh	KR (/D)	TT (Days)
1	0	.163

(WQAM63.EXE) Release 1.2 01-09-2007 07:58:18

10

FILE: c:\raywqam\Lavansv.wqm
Preliminary Limits Lavansville STP 300 000gpd

(Total)Discharge	=	.3	MGD				
Temp	=	8.2	pH	=	7	Width	= 6.42
CBOD-5	=	9.29	NH3-N	=	3.4	Depth	= 0.64
D.O.	=	8.76	D.O. Goal	=	5	Velocity	= 0.355
KC'	=	1.266	KN	=	.6	W/D RATIO	= 10
KR	=	5.061	(TSIVOGLOU)				

Dis. 1 Rch. 1 Trvl Time: .163

Tr.Tm. (Days)	CBOD-5 (mg/l)	NH3-N (mg/l)	D.O. (mg/l)
0.016	9.18	3.38	8.78
0.033	9.07	3.37	8.80
0.049	8.96	3.36	8.82
0.065	8.86	3.34	8.84
0.082	8.75	3.33	8.86
0.098	8.65	3.32	8.88
0.114	8.54	3.30	8.91
0.130	8.44	3.29	8.93
0.147	8.34	3.28	8.95
0.163	8.24	3.27	8.97

> 5.0 ✓

STREAM RECOVERS

FILE: c:\raywqam\Lavansv.wqm
Preliminary Limits Lavansville STP 300 000gpd

D.O. Allocations (EMPR)

DIS #	Q (MGD)	---NH3-N--- IND. Conc. (mg/l)	CUM. Conc. (mg/l)	---CBOD5---- IND. Conc. (mg/l)	CUM. Conc. (mg/l)	CRIT. RCH.	PCT. REM. (%)
1	0.3000	10.5	10.5	25	25	0	0

(WQAM63.EXE) Release 1.2 01-09-2007 07:58:50

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FILE: c:\raywqam\Lavansv.wqm
Preliminary Limits Lavansville STP 300 000gpd

WINTER

Effluent Limitations Display

DIS #	Q MGD	NH3-N TOX. 1 DAY	30 DAY	DISS. OXYGEN C-BOD5 30-DAY	NH3-N 30-DAY	EFF. D.O.
1	.3	21	10.5	25	10.5	5

III. Effluent Limitations:

A. Outfall 001 B. Discharge Volume 0.30 MGD

Parameter	lbs/day			mg/l		
(Sewage) / (Industrial Waste)	Monthly Avg. / Daily Avg.	Weekly Avg.	Daily Max. / Daily Max.	Monthly Avg. / Daily Avg.	Weekly Avg. / Daily Max.	Instan. Max. / Instan. Max.
1. CBOD5						
2. MAY 1 TO OCT 31	50.1	75.1		20	30	40
3. NOV 1 TO APR 30	62.6	93.9		25	38	50
4. TSS	75.1	112.7		30	45	60
5. NH_3-N						
6. 5/1 TO 10/31	8.8	13.1		3.5	5.3	7.0
7. 11/1 TO 4/30	25.0	37.6		10.0	15.0	20.0
8. D.O.				MINIMUM of		5.0
9. pH				6.0	TO	9.0
10. FECAL COLIFORM						
11. 5/1 TO 9/30				200/100 mL		1000/100mL
12. 10/1 TO 4/30				2000/100mL		10,000/100mL
13.						
14. TRC				NO LIMIT		
15.				ULTRAVIOLET USED		
16.				FOR DISINFECTION		

Effluent Limitation Rational

1. EPA Guidelines
2. Regulation:
3. Water Quality Criteria CHAPT 93

Approvals

Reviewer Planning/WQ Ray E Satterlee Date 4/11/07

Geologist or Aquatic Biologist Date

Chief Planning/WQ Date 5/3/07

02 Renewal NJ 7/22/08

PL-28
(Rev. 7/22/92)

Proposed Effluent Limitations and Monitoring Requirements

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	Daily 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 Inst Min	XXX	XXX	9.0	1/weekday	Grab
Dissolved Oxygen	XXX	XXX	4.0 Inst Min	XXX	XXX	XXX	1/weekday	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	31.3	47.6	XXX	25	38	50	1/week	24-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Total Suspended Solids	37.6	56.3	XXX	30	45	60	1/week	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-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
Ultraviolet light transmittance (%)	XXX	XXX	Report	XXX	XXX	XXX	1/weekday	Measured
Total Nitrogen	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/year	Grab
Ammonia-Nitrogen Nov 1 - Apr 30	18.8	28.2	XXX	15.0	22.5	30	1/week	24-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	6.3	9.4	XXX	5.0	7.5	10	1/week	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	Weekly Average	Daily Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Total Phosphorus	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/year	Grab


pennsylvania
DEPARTMENT OF ENVIRONMENTAL
PROTECTION