pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0254088**
Facility Type	**Municipal**	APS ID	**841848**
Major / Minor	**Minor**	Authorization ID	**1283019**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Derry Township Municipal Authority**	Facility Name	**New Alexandria STP**
Applicant Address	PO Box 250	Facility Address	Ray Ann Drive
	New Derry, PA 15671-0250		New Alexandria, PA 15670
Applicant Contact	Carol Henderson	Facility Contact	Same as Applicant
Applicant Phone	(724) 694-2513	Facility Phone	Same as Applicant
Client ID	43702	Site ID	720618
Ch 94 Load Status	Not Overloaded	Municipality	Derry Township
Connection Status	No Limitations	County	Westmoreland
Date Application Received	August 2, 2019	EPA Waived?	Yes
Date Application Accepted	August 7, 2019	If No, Reason	

Purpose of Application: Application for Renewal of NPDES Permit.

Summary of Review

The permittee has applied for a renewal of NPDES Permit No. PA0254088. NPDES Permit No. PA0254088 was previously issued by the PA Department of Environmental Protection (DEP) on February 1, 2015. That permit expired on January 31, 2020. The permit was submitted in a timely manner, and therefore was granted an administrative extension.

Sewage from this facility is treated with screens, sequencing batch reactors, and ultra-violet disinfections prior to discharge to Loyalhanna Creek through outfall 001.

The applicant is currently enrolled in and will continue to use eDMR.

Sewage Sludge is disposed of in the Dornick Point Wastewater Treatment Plant.

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		Stephanie Conrad / Environmental Engineering Specialist	May 3, 2021
X		Christopher Kriley, P.E. / Program Manager	May 19, 2021

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.1
Latitude	40º 24' 24"	Longitude	-79º 25' 44.7"
Quad Name		Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	Loyalhanna Creek (WWF)	Stream Code	43255
NHD Com ID	125292421	RMI	11.36
Drainage Area	208	Yield (cfs/mi^2)	0.032
Q_{7-10} Flow (cfs)	6.656	Q_{7-10} Basis	USGS Stream Stats and Low Flow Statistics for Pennsylvania
Elevation (ft)		Slope (ft/ft)	
Watershed No.	18-C	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Metals, Total Suspended Solids (TSS)		
Source(s) of Impairment	Acid Mine Drainage, Acid Mine Drainage		
TMDL Status	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL

Background/Ambient Data		Data Source
pH (SU)		
Temperature (°F)		
Hardness (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake	Saltsburg Municipal Waterworks		
PWS Waters	Conemaugh River	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	11.9

Changes Since Last Permit Issuance: N/A

Other Comments: The discharge is to the Kiskiminetas-Conemaugh River 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 the source of such impairment. No WLAs have been developed for this sewage discharge and a 1/year reporting requirement for Iron, Manganese, and Aluminum is established in the permit to verify that the sewage discharge is not contributing to stream impairment.

Treatment Facility Summary

Treatment Facility Name: New Alexandria STP

WQM Permit No.	Issuance Date
6510406	11/23/2021

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Tertiary	Activated Sludge With Solids Removal	Ultraviolet	0.1

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.1	170	Not Overloaded		

Changes Since Last Permit Issuance: None

Other Comments:

Compliance History

DMR Data for Outfall 001 (from April 1, 2020 to March 31, 2021)

Parameter	MAR-21	FEB-21	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20	JUN-20	MAY-20	APR-20
Flow (MGD) Average Monthly	0.047	0.054	0.053	0.05	0.048	0.048	0.048	0.051	0.05	0.053	0.053	0.054
Flow (MGD) Daily Maximum	0.083	0.095	0.1	0.061	0.062	0.061	0.081	0.09	0.079	0.076	0.078	0.069
pH (S.U.) Minimum	6.76	6.91	7.08	6.88	6.81	6.97	6.9	6.53	6.72	6.8	6.47	6.86
pH (S.U.) Maximum	7.14	7.12	7.22	7.12	7.21	7.16	7.12	7.4	7.02	7.23	7.02	7.05
DO (mg/L) Minimum	4.06	4.03	4.19	4.13	4.11	4.02	4.02	4.01	4.01	5.0	4.01	4.01
CBOD5 (lbs/day) Average Monthly	3.98	3.8	2.024	1.25	1.2	1.2	1.2	1.32	1.25	1.98	1.8	3.87
CBOD5 (lbs/day) Weekly Average	12.46	9.0	5.254	1.53	1.6	1.53	2.03	2.56	1.98	4.7	10.1	5.47
CBOD5 (mg/L) Average Monthly	10.16	8.33	4.58	3	< 3	< 3	3	3.1	< 3	4.48	4	7.52
CBOD5 (mg/L) Weekly Average	18	11.4	6.3	3	< 3	< 3	< 3	3.4	< 3	9.4	15.5	9.5
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	97	72	101	103	104	101	85	134	98	108	85	78
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	144	83	127	145	112	128	109	149	138	135	98	118
BOD5 (mg/L) Raw Sewage Influent Average Monthly	317	195	264	245	275	271	242	303	275	260	217	201
TSS (lbs/day) Average Monthly	7.13	6.2	6.63	1.25	1.2	3.0	3.8	4.36	2.5	4.75	10.2	7.03
TSS (lbs/day) Raw Sewage Influent Average Monthly	60	48	87	86	72	66	53	103	91	75	60	80
TSS (lbs/day) Raw Sewage Influent Daily Maximum	121	70	113	130	84	91	71	161	170	95	75	137

TSS (lbs/day) Weekly Average	20.1	15.0	21.68	6.11	1.6	8.14	14.9	15.01	7.91	14.01	40.3	14.9
TSS (mg/L) Average Monthly	18.2	13.75	15	3	< 3	7.5	9.4	10.25	6	10.75	23	15.6
TSS (mg/L) Raw Sewage Influent Average Monthly	264	128	227	202	192	183	151	241	259	178	152	210
TSS (mg/L) Weekly Average	29	19	26	12	< 3	16	22	20	12	28	62	26
Fecal Coliform (CFU/100 ml) Geometric Mean	5	5	12	6	17	49	16	17	13	7.0	44	48
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	10	18	29	36	45	218	727	727	79	38.0	2420	1300
Total Nitrogen (mg/L) Daily Maximum				46.1								
Ammonia (lbs/day) Average Monthly	1.53	3.7	0.09	0.07	0.07	0.064	0.09	0.17	0.113	0.075	0.09	0.08
Ammonia (lbs/day) Weekly Average	6.56	10.9	0.24	0.08	0.16	0.086	0.12	0.77	0.415	0.095	0.16	0.15
Ammonia (mg/L) Average Monthly	3.9	8.15	0.2	0.16	0.18	0.16	0.22	0.4	0.27	0.17	0.21	0.19
Ammonia (mg/L) Weekly Average	9.47	13.7	0.29	0.16	0.30	0.17	0.29	1.03	0.63	0.19	0.24	0.26
Total Phosphorus (mg/L) Daily Maximum				4.45								
Total Aluminum (mg/L) Daily Maximum				< 0.10								
Total Iron (mg/L) Daily Maximum				0.04								
Total Manganese (mg/L) Daily Maximum				< 0.02								

Compliance History

Compliance History	
Summary of DMRs:	**Between April 2016 and April 2021, the facility has complied with submittal of Discharge Maintenance Reports. During the review period, no effluent limit violations were issued, however, eight exceedances did occur. The majority of the exceedances were for Fecal Coliform and Dissolved Oxygen between 2016 and 2019. Exceedances during 2020 are reported in the table below.**
Summary of Inspections:	**During the review period, once compliance evaluation was completed. This evaluation did not result in any violations.**

Other Comments:

Effluent Violations for Outfall 001, from: May 1, 2020 To: March 31, 2021

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
TSS	05/31/20	Wkly Avg	40.3	lbs/day	37.5	lbs/day
TSS	05/31/20	Wkly Avg	62	mg/L	45	mg/L
Fecal Coliform	05/31/20	IMAX	2420	CFU/100 ml	1000	CFU/100 ml

Summary of Inspections:

Other Comments:

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.1
Latitude 40º 24' 24.00" **Longitude** -79º 25' 44.70"
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)

Comments: The discharge was modeled using WQM 7.0 to evaluate the CBOD5, Ammonia Nitrogen and Dissolved Oxygen parameters. The modeling results confirm that technology based effluent limitations for CBOD5, Ammonia Nitrogen, and Dissolved Oxygen are appropriate.

For existing discharges, if an average monthly warm period limit of 25 mg/L is acceptable, a year-round monitoring requirement for ammonia-nitrogen at a minimum should be established. The previous permit required this parameter to be monitored and will be reapplied. The monitoring requirement for Ammonia Nitrogen are consistent with CBOD5, TSS and Fecal Coliform and Table 6-3 of the Permits Writers Manual.

Water Quality-Based Limitations

No limitations were determined through water quality modeling, using WQM 7.0, and no WQBELs will be imposed on this facility during this permit cycle.

Best Professional Judgment (BPJ) Limitations

Comments: A Dissolved Oxygen minimum limitation of 4.0 mg/L will be implemented based on the standard in 25 PA Code Chapter 93 and best professional judgment.

Anti-Backsliding

Section 402(o) of the Clean Water Act (CWA), enacted in the Water Quality Act of 1987, establishes anti-backsliding rules governing two situations. The first situation occurs when a permittee seeks to revise a Technology-Based effluent limitation based on BPJ to reflect a subsequently promulgated effluent guideline which is less stringent. The second situation addressed by Section 402(o) arises when a permittee seeks relaxation of an effluent limitation which is based upon a State treatment standard of water quality standard.

Previous limits can be used pursuant to EPA's anti-backsliding regulation 40 CFR 122.44 **(l) Reissued permits. (1) Except as provided in paragraph (l)(2) of this section when a permit is renewed or reissued. Interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit (unless the circumstances on which the previous permit was based have materially and substantially changed since the time the permit was issued and would constitute cause for permit modification or**

revocation and reissuance under §122.62). (2) In the case of effluent limitations established on the basis of Section 402(a)(1)(B) of the CWA, a permit may not be renewed, reissued, or modified on the basis of effluent guidelines promulgated under section 304(b) subsequent to the original issuance of such permit, to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit.

The facility is not seeking to revise the previously permitted effluent limits.

Additional Considerations:

Ultraviolet (UV) disinfection is used therefore Total Residual Chlorine (TRC) limits are not applicable. Routine monitoring of UV Transmittance will be at the same monitoring frequency that is used for TRC.

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.

Nutrient monitoring is required to establish the nutrient load from the wastewater treatment facility and the impacts that load may have on the quality of the receiving stream(s). A 1/quarter monitor and report requirement for Total N & Total P has been added to the permit as per Chapter 92.a.61.

Sewage discharges will include monitoring, at a minimum, for *E. coli*, in new and reissued permits, with a monitoring frequency of 1/quarter for design flows >= 0.05 and < 1 MGD.

For POTWs with design flows greater than 2,000 GPD influent BOD_5 and TSS monitoring must be established in the permit, and the monitoring should be consistent with the same frequency and sample type as is used for other effluent parameters.

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. Please note that Monitoring Requirements were changed for Flow to 1/week Metered to be consistent with the guidance.

Mass Loading

Mass loading limits 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. 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).

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	Instantaneous Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/week	Metered
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	4.0	XXX	XXX	XXX	1/day	Grab
CBOD5	20	31	XXX	25.0	37.5	50	1/week	8-Hr Composite
BOD5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	8-Hr Composite
TSS	25	37	XXX	30.0	45.0	60	1/week	8-Hr Composite
TSS Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	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	XXX	XXX	XXX	1/day	Measured
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	8-Hr Composite
Ammonia-Nitrogen	Report	XXX	XXX	Report	XXX	XXX	1/week	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	Instantaneous Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	8-Hr Composite
Total Aluminum	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	8-Hr Composite
Total Iron	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	8-Hr Composite
Total Manganese	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	8-Hr Composite

Compliance Sampling Location: Outfall 001

Other Comments:

WARM PERIOD

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
18C	43255	LOYALHANNA CREEK	7.040	915.00	208.00	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	0.032	6.67	0.00	0.000	0.000	10.0	0.00	0.00	25.00	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
DTMA New Alex	PA0254088	0.0000	0.0000	0.1000	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	8.38	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
18C	43255	LOYALHANNA CREEK	0.001	870.00	292.00	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	0.032	9.37	0.00	0.000	0.000	10.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

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

Parameter Data

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

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
18C	43255	LOYALHANNA 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												
7.040	6.67	0.00	6.67	.1547	0.00121	.799	50.49	63.21	0.17	2.542	25.00	7.00
Q1-10 Flow												
7.040	4.27	0.00	4.27	.1547	0.00121	NA	NA	NA	0.13	3.241	25.00	7.00
Q30-10 Flow												
7.040	9.07	0.00	9.07	.1547	0.00121	NA	NA	NA	0.20	2.147	25.00	7.00

Friday, June 12, 2009 Version 1.0a Page 1 of 1

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
18C	43255	LOYALHANNA 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
7.040	DTMA New Alex	6.76	50	6.76	50	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
7.040	DTMA New Alex	1.34	25	1.34	25	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)		
7.04	DTMA New Alex	25	25	25	25	3	3	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
18C	43255	LOYALHANNA CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
7.040	0.100	25.000	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
50.493	0.799	63.211	0.169
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.52	0.072	0.57	1.029
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.258	2.192	Tsivoglou	5
Reach Travel Time (days)			
2.542			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.254	2.46	0.44	7.54
0.508	2.41	0.34	7.54
0.763	2.35	0.26	7.54
1.017	2.30	0.20	7.54
1.271	2.25	0.15	7.54
1.525	2.19	0.12	7.54
1.780	2.14	0.09	7.54
2.034	2.09	0.07	7.54
2.288	2.05	0.05	7.54
2.542	2.00	0.04	7.54

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
18C	43255	LOYALHANNA 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)
7.040	DTMA New Alex	PA0254088	0.100	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			3

COLD PERIOD

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
18C	43255	LOYALHANNA CREEK	**7.040**	915.00	208.00	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	0.032	13.34	0.00	0.000	0.000	10.0	0.00	0.00	5.00	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
DTMA New Alex	PA0254088	0.0000	0.0000	0.1000	0.000	15.00	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	12.80	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
18C	43255	LOYALHANNA CREEK	0.001	870.00	292.00	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	0.032	18.74	0.00	0.000	0.000	10.0	0.00	0.00	5.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

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

Parameter Data

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

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
18C	43255	LOYALHANNA 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												
7.040	13.34	0.00	13.34	.1547	0.00121	.852	63.92	75.05	0.25	1.735	5.11	7.00
Q1-10 Flow												
7.040	8.54	0.00	8.54	.1547	0.00121	NA	NA	NA	0.19	2.220	5.18	7.00
Q30-10 Flow												
7.040	18.14	0.00	18.14	.1547	0.00121	NA	NA	NA	0.29	1.463	5.08	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
18C	43255	LOYALHANNA 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
7.040	DTMA New Alex	20.59	50	20.59	50	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
7.040	DTMA New Alex	4.08	25	4.08	25	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)		
7.04	DTMA New Alex	25	25	25	25	3	3	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
18C	43255	LOYALHANNA CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
7.040	0.100	5.115	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
63.923	0.852	75.053	0.248
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.26	0.111	0.29	0.223
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
12.668	1.439	Tsivoglou	5
Reach Travel Time (days)			
1.735			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.174	2.24	0.28	11.42
0.347	2.22	0.27	11.42
0.521	2.20	0.26	11.42
0.694	2.18	0.25	11.42
0.868	2.16	0.24	11.42
1.041	2.14	0.23	11.42
1.215	2.11	0.22	11.42
1.388	2.09	0.21	11.42
1.562	2.07	0.20	11.42
1.735	2.05	0.19	11.42

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
18C	43255	LOYALHANNA 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)
7.040	DTMA New Alex	PA0254088	0.100	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			3

Friday, June 12, 2009 Version 1.0a Page 1 of 1

Low-Flow Statistics for Pennsylvania Streams

Developed by the U.S. Geological Survey for the Pennsylvania Department of Environmental Protection

Pennsylvania Low-Flow Statistics - Query Results

LOW-FLOW STATISTICS

[All flow statistics in cubic feet per second (ft^3/s)]

Mouse over or click on table headings to view definition of statistic

STREAM NAME: Loyalhanna Creek **GAGE OR BRIDGE SITE:** gage **REFERENCE GAGE:**[1] 03047000	**COUNTY:** Westmoreland **USGS QUAD:** Saltsburg **STATION NAME:** Loyalhanna Creek at Loyalhanna Dam, PA	**LATITUDE:** 402753 **LONGITUDE:** 792705 **DRAINAGE AREA (sq. mi.):** 292

Entire Period of Record [2]	$Q_{1,10}$	$Q_{7,10}$	$Q_{30,10}$	MEAN	MEDIAN	HARMONIC MEAN
1944-91	2.29	9.37	28.6	496	257	**

FLOW DURATION TABLE (Probability of Exceedance)										
P5	P10	P20	P30	P40	P50	P60	P70	P80	P90	P95
1790	1240	764	508	385	257	204	132	91.8	53.3	40.6

[1] Reference Gage indicates which USGS gage was used in the computation of lowflow statistics for the specified locations
[2] Period of Record for climatic year, April 1 through March 31
[3] Period of record refers to pre-regulation conditions
[4] Period of record refers to post-regulation conditions
** Statistic not computed due to insufficient data

RETURN TO PREVIOUS PAGE RETURN TO START PAGE

http://pa.water.usgs.gov/pc38/flowstats/lowflow.ASP?WCI=stats&WCU;ID=228 6/12/2009