pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0091588**
Facility Type	**Non-Municipal**	APS ID	**832194**
Major / Minor	**Minor**	Authorization ID	**1275403**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Yough School District**	Facility Name	**Yough Intermediate/Middle School WWTP**
Applicant Address	915 Lowber Road	Facility Address	171 Route 31
	Herminie, PA 15637-1226		Ruffs Dale, PA 15679
Applicant Contact	Janet Sardon	Facility Contact	Michael C. Sherrieb
Applicant Phone	(724) 446-7272	Facility Phone	(412) 494-0510 ext. 116
Client ID	3563	Site ID	251179
Ch 94 Load Status	Not Overloaded	Municipality	South Huntingdon Township
Connection Status	No Limitations	County	Westmoreland
Date Application Received	May 30, 2019	EPA Waived?	Yes
Date Application Accepted	January 21, 2021	If No, Reason	
Purpose of Application	Renewal of an existing NPDES permit for the discharge of treated sewage.		

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		*Derek S. Garner* Derek S. Garner / Project Manager	1/27/2021
X		*Donald J. Leone* Donald J. Leone, P.E. / Environmental Engineer Manager	1/28/2021

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.0135
Latitude	40º 10' 48.82"	Longitude	-79º 40' 13.46"
Quad Name	Smithton	Quad Code	1708
Wastewater Description:	Sewage Effluent		

Receiving Waters	UNT to Sewickley Creek	Stream Code	37646
NHD Com ID	69913863	RMI	0.74
Drainage Area	0.25	Yield (cfs/mi^2)	0.033
Q_{7-10} Flow (cfs)	0.01	Q_{7-10} Basis	Streamgage No. 03083000
Elevation (ft)	1,116	Slope (ft/ft)	n/a
Watershed No	19-D	Chapter 93 Class.	WWF
Existing Use	n/a	Existing Use Qualifier	n/
Exceptions to Use	n/a	Exceptions to Criteria	n/a
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment	n/a		
Source(s) of Impairment	n/a		
TMDL Status	Final, 3/12/2009	Name	Sewickley Creek Watershed

Treatment Facility Summary

The Yough Intermediate/Middle School is serviced by a 0.0135 extended aeration wastewater treatment plant. The treatment plant consists of:

One (1) bar screen,
One (1) comminutor,
One (1) aeration tank,
Two (2) secondary clarifiers,
One (1) aerated sludge holding tank,
One (1) erosion chlorinator, and
One (1) erosion dechlorinator

The digested sludge is land applied at the Adam Skokut Farm under PAG096113.

The treated effluent is ultimately discharged via Outfall 001 to an unnamed tributary of Sewickley Creek.

Compliance History

The facility was most recently inspected by DEP on January 10, 2018. The inspection report indicates all treatment units were operational and no violations were noted.

There have been no effluent exceedances during the existing permit's term.

There are no open violations associated with the permittee.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.0135
Latitude 40º 10' 49.00" **Longitude** -79º 40' 15.00"
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)

Water Quality-Based Limitations

A “Reasonable Potential Analysis” (attached) was completed to determine the applicability of water quality-based effluent limitations. The existing CBOD5, ammonia-n, and dissolved oxygen requirements were assessed in WQM 7.0 v1.0b. The model output is as follows:

Parameter	Effluent Limit (mg/l)		
	Monthly Average	Maximum	Minimum
CBOD5	25	--	--
NH3-N	1.87	3.74	--
Dissolved Oxygen	--	--	5

As demonstrated by the table above, the model indicates existing limits for CBOD5 and dissolved oxygen are protective of the receiving water, but it does recommend slightly more stringent ammonia-n effluent limits, 1.87 mg/l average monthly and 3.74 mg/l weekly average, than the existing permit, 2 mg/l average monthly and 4 mg/l weekly average. A review of the facility’s eDMR submissions indicates the facility has not exceeded the proposed limits dating back to February 2018 (when eDMR submissions began). Accordingly, a compliance schedule is not necessary, and the proposed ammonia-n limits should go into effect immediately.

The existing total residual chlorine limits (TRC) were evaluated using the TRC_CALC spreadsheet. The spreadsheet recommends TRC limits of 0.08 mg/l average monthly and 0.26 mg/l instantaneous maximum, which are more stringent than the existing permit’s limits of 0.18 mg/l average monthly and 0.41 mg/l instantaneous maximum. A review of the facility’s eDMR submissions indicates the facility has not exceeded the proposed limits dating back to February 2018 (when eDMR submissions began). Accordingly, a compliance schedule is not necessary, and the proposed TRC limits should go into effect immediately.

Best Professional Judgment (BPJ) Limitations

The permit currently requires annual monitoring for total nitrogen and total phosphorus. DEP proposes that these requirements remain in the permit to help further characterize the effluent.

TMDL Considerations

The Sewickley Creek Watershed TMDL, approved March 12, 2009, was developed to address the watershed's impairment from iron, aluminum, manganese, and pH caused by abandoned mine drainage. The TMDL does not assign a wasteload allocation to the discharge. Since this is a discharge of domestic sewage from a school, there is no reason to believe that the discharge is contributing to the impairment of the watershed by adding a net increase of iron, aluminum, or manganese. Accordingly, the TMDL should not impact the development of effluent limits.

Anti-Backsliding

No proposed limits or monitoring requirements are less stringent than what is established in the existing permit. Anti-backsliding is not applicable.

Existing Effluent Limitations and Monitoring Requirements

The existing effluent limitations and monitoring requirements are as follows:

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)					
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Minimum Measurement Frequency	Required Sample Type
Flow (MGD)	0.0135	XXX	XXX	XXX	XXX	XXX	2/month	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/weekday	Grab
Dissolved Oxygen	XXX	XXX	5.0	XXX	XXX	XXX	1/weekday	Grab
Total Residual Chlorine	XXX	XXX	XXX	0.18	XXX	0.41	1/weekday	Grab
CBOD5	XXX	XXX	XXX	25	XXX	50	2/month	Grab
Total Suspended Solids	XXX	XXX	XXX	30	XXX	60	2/month	Grab
Fecal Coliform (CFU/100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	2/month	Grab
Fecal Coliform (CFU/100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	2/month	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Ammonia-Nitrogen May 1 - Oct 31	XXX	XXX	XXX	2	XXX	4	2/month	Grab
Ammonia-Nitrogen Nov 1 - Apr 30	XXX	XXX	XXX	5	XXX	10	2/month	Grab
Total Phosphorus	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab

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.

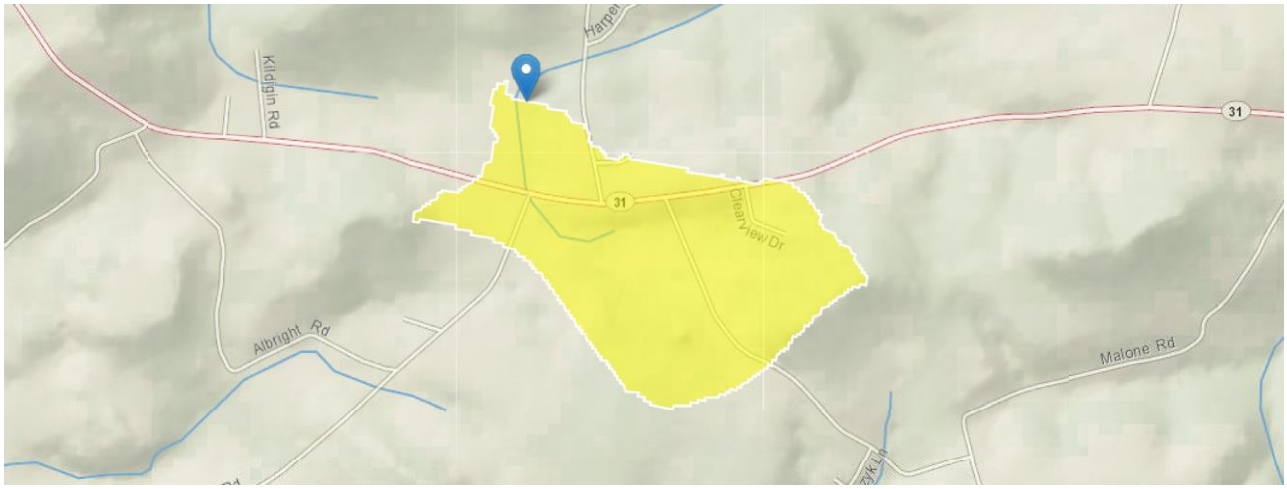
Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	XXX	XXX	XXX	XXX	XXX	2/month	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/weekday	Grab
DO	XXX	XXX	5.0 Inst Min	XXX	XXX	XXX	1/weekday	Grab
TRC	XXX	XXX	XXX	0.08	XXX	0.26	1/weekday	Grab
CBOD5	XXX	XXX	XXX	25	XXX	50	2/month	Grab
TSS	XXX	XXX	XXX	30	XXX	60	2/month	Grab
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
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	4.8	XXX	9.6	2/month	Grab
Ammonia May 1 - Oct 31	XXX	XXX	XXX	1.9	XXX	3.8	2/month	Grab
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab

Compliance Sampling Location: Outfall 001

Yough School District

Region ID: PA
Workspace ID: PA20210123150426094000
Clicked Point (Latitude, Longitude): 40.18020, -79.67036
Time: 2021-01-23 10:04:43 -0500



PA0091588

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLOPD	Mean basin slope measured in degrees	4.601	degrees
BSLOPDRAW	Unadjusted basin slope, in degrees	4.8035	degrees
BSLPDRPA20	Unadjusted basin slope, in degrees, from PA v1	5.4904	degrees
CARBON	Percentage of area of carbonate rock	0	percent
CENTROXA83	X coordinate of the centroid, in NAD_1983_Albers, meters	-141868.3392	meters
CENTROYA83	Basin centroid horizontal (y) location in NAD 1983 Albers	131913.0941	meters
DRN	Drainage quality index from STATSGO	3	dimensionless
DRNAREA	Area that drains to a point on a stream	0.25	square miles
ELEV	Mean Basin Elevation	1209	feet
ELEVMAX	Maximum basin elevation	1403	feet
FOREST	Percentage of area covered by forest	48.8129	percent
GLACIATED	Percentage of basin area that was historically covered by glaciers	0	percent
IMPNLCD01	Percentage of impervious area determined from NLCD 2001 impervious dataset	2.2885	percent
LC01DEV	Percentage of land-use from NLCD 2001 classes 21-24	14.6361	percent
LC11DEV	Percentage of developed (urban) land from NLCD 2011 classes 21-24	14.6361	percent
LC11IMP	Average percentage of impervious area determined from NLCD 2011 impervious dataset	2.4297	percent
LONG_OUT	Longitude of Basin Outlet	-79.67035	degrees
MAXTEMP	Mean annual maximum air temperature over basin area from PRISM 1971-2000 800-m grid	61.1	degrees F
OUTLETXA83	X coordinate of the outlet, in NAD_1983_Albers,meters	-142246.2846	meters
OUTLETYA83	Y coordinate of the outlet, in NAD_1983_Albers, meters	132376.279	meters
PRECIP	Mean Annual Precipitation	41	inches
ROCKDEP	Depth to rock	4	feet

USGS
science for a changing world

Prepared in cooperation with the Pennsylvania Department of Environmental Protection

Selected Streamflow Statistics for Streamgage Locations in and near Pennsylvania

Open-File Report 2011-1070

U.S. Department of the Interior
U.S. Geological Survey

Table 1. List of U.S. Geological Survey streamgage locations in and near Pennsylvania with updated streamflow statistics.—Continued

[Latitude and Longitude in decimal degrees; mi², square miles]

Streamgage number	Streamgage name	Latitude	Longitude	Drainage area (mi²)	Regulated[1]
	Cheat River at Rowlesburg, W.Va.			939	
	Stony Fork Tributary near Gibbon Glade, Pa.			.93	
03070500		39.616		200	
03072000	Dunkard Creek at Shannopin, Pa.	39.759		229	
03072655		39.825		4,440	
03072840	Tenmile Creek near Clarksville, Pa.	39.998	-80.042	133	N
03073000	South Fork Tenmile Creek at Jefferson, Pa.	39.923	-80.073	180	N
03074300	Lick Run at Hopwood, Pa.	39.868	-79.694	3.80	N
03074500	Redstone Creek at Waltersburg, Pa.	39.980	-79.764	73.7	N
03075070		40.262	-79.901	5,340	Y
03075500		39.422		134	
03076500		39.654		295	
03076600	Bear Creek at Friendsville, Md.	39.656		48.9	
03077500		39.805		436	Y
03078000				62.5	N
03078500	Big Piney Run near Salisbury, Pa.	39.726	-79.048	24.5	N
03079000	Casselman River at Markleton, Pa.	39.860	-79.228	382	N
03080000	Laurel Hill Creek at Ursina, Pa.	39.820	-79.321	121	N
03081000	Youghiogheny River below Confluence, Pa.	39.828	-79.373	1,029	Y
03082200	Poplar Run near Normalville, Pa.	40.016	-79.426	9.27	N
03082500		40.018		1,326	Y
03083000		40.105		3.07	N
03083500		40.240		1,715	Y
03084000	Abers Creek near Murrysville, Pa.	40.450		4.39	
03085000		40.391		7,337	Y
03085500	Chartiers Creek at Carnegie, Pa.	40.401	-80.096	257	N
03086000	Ohio River at Sewickley, Pa.	40.549	-80.206	19,500	Y
03086500	Mahoning River at Alliance, Ohio	40.933	-81.095	89.2	N
03090500	Mahoning River bl Berlin Dam nr Berlin Center, Ohio	41.048	-81.001	248	Y
03091500		41.131	-80.971	273	Y
03092000	Kale Creek near Pricetown, Ohio	41.140		21.9	
03092090		41.161		21.8	
03092500		41.172		96.3	Y
03093000		41.261		97.6	N
03094000	Mahoning River at Leavittsburg, Ohio	41.239	-80.881	575	Y
03095500	Mosquito Creek below Mosquito Creek Dam near Cortland, Ohio	41.300	-80.758	97.5	Y
03097550	Mahoning River at Ohio Edison P Plt at Niles, Ohio	41.173	-80.757	854	Y
03098000	Mahoning River at Youngstown, Ohio	41.111	-80.673	898	Y
03098500	Mill Creek at Youngstown, Ohio	41.072	-80.690	66.3	N
03098600		41.105		978	Y
03099500				1,073	Y
03100000		41.513		152	
03101500		41.498		167	Y
03102000		41.458		181	

Table 2. Selected low-flow statistics for streamgage locations in and near Pennsylvania.—Continued

[ft^3/s; cubic feet per second; —, statistic not computed; <, less than]

Streamgage number	Period of record used in analysis[1]	Number of years used in analysis	1-day, 10-year (ft^3/s)	7-day, 10-year (ft^3/s)	7-day, 2-year (ft^3/s)	30-day, 10-year (ft^3/s)	30-day, 2-year (ft^3/s)	90-day, 10-year (ft^3/s)
03044000	[3]1941–1951	11	266	277	350	293	402	391
03045000	1941–2008	68	2.2	3.2	12.9	6.3	22.2	14.8
03045500	1921–1940	17	11.6	17.0	35.5	23.0	49.6	32.4
03047000	1943–1991	49	1.7	9.8	43.5	29.0	55.2	47.6
03047500	1909–1937	29	141	155	335	190	412	276
03048500	[2]1943–2008	66	182	232	385	307	496	392
03049000	1942–2008		3.2	3.8	8.5		13.5	9.4
03049500	[2]	42	1,950	2,390	3,490	2,860	4,420	3,510
03049500	[3]	26	1,030	1,200	1,600	1,380	2,000	1,850
03049800		45	<.1	<.1	.2	.1	.5	.3
[5]03061500	1909–2008	83	.6	1.0	3.7	1.9	6.7	4.6
03062400	1966–2002	33	0	0	.1	<.1	.5	.1
03062500	1947–2008	28	.7	1.1	3.0	1.8	4.8	3.3
[5]03065000	1942–2008	64	10.4	12.4	34.8	20.7	64.0	54.9
[5]03066000	1923–2008	86	4.0	5.1	11.6	7.6	19.4	16.5
03068800	1975–2008	17	12.0	15.4	32.8	26.0	57.7	53.6
[5]	1912–1993	67	9.1	11.6	37.6	21.0	67.6	59.6
[5]	1914–2008	95	31.8	37.6	98.3	60.2	178	146
[5]			35.8	40.2	114		209	
03070420	1979–1995	17	0	<.1	<.1	<.1	.1	.1
[5]03070500	1911–2008	94	2.3	2.9	13.2	5.5	22.9	14.8
03072000	1942–2008	67	1.2	1.7	5.4	2.7	9.5	5.7
03072655	1940–2008	69	295	484	845	618	1,150	944
03072840	1970–1979	10	1.9	2.7	5.5	4.9	9.2	9.3
03073000	1933–1995	63	.3	.4	1.8	1.0	4.0	2.8
03074300	1969–1979	11	<.1	.1	.2	.2	.4	.4
	1944–2008	65	8.5	10.2	18.7	13.0	23.3	17.8
	1935–2008		354	512	908		1,220	1,060
[4]	1943–2008	66	5.4	6.3	16.2	10.0	25.2	18.2
[4]	[2]1941–2008	67	19.9	48.0	83.2	67.6	117	98.0
[4]03076600	1966–2008	43	2.6	3.0	6.2	4.1	8.4	6.5
03077500	1945–1991	47	15.6	24.6	162	132	288	292
[4]03078000	1949–2008	60	1.2	1.6	5.0	2.8	8.4	5.6
03079000	1922–2008	87	16.4	18.4	37.5	24.8	56.3	43.0
03080000	1920–2008	89	3.9	5.1	12.1	8.4	20.6	15.6
03081000	1942–2008	67	240	283	535	358	644	518
03082200	1963–1978	16	0	.1	.4	.2	.7	.5
03082500	[2]1926–2008	83	155	214	526	283	655	460
03082500	[3]1910–1924	13	23.0	30.8	129	53.6	208	144
03083000			.1	.1	.2	.1	.3	.2
03083500	[2]1926–2008	74	262	332	644	416	776	621
03084000	1951–1994	44	0	<.1	.2	.2	.5	.3
03085000	1940–2004	65	1,060	1,230	1,950	1,440	2,380	1,950
03085500	1921–2008	80	26.7	30.8	52.4	36.5	62.4	48.5
03086000	1935–2008	74	2,760	3,060	5,030	3,650	6,230	4,930

Table 3. Selected base-flow statistics for streamgage locations in and near Pennsylvania.—Continued

[ft^3/s; cubic feet per second; —, statistic not computed]

Streamgage number	Period of record used in analysis[1]	Number of years used in analysis	10-year base flow (ft^3/s)	25-year base flow (ft^3/s)	50-year base flow (ft^3/s)
03048500	[2]1943–2008	66	1,140	1,000	917
03049000	1942–2008	67	67.8	60.2	55.8
03049500	[2]1967–2008	42	6,910	5,360	4,460
03049500	[3]1940–1965	26	6,120	4,770	3,980
03049800	1964–2008	45	2.0	1.7	1.5
03061500	1909–2008	83	40.3	34.9	31.7
03062400	1966–2002	33	5.5	4.7	4.2
03062500	1947–2008	28	32.8	28.0	25.1
03065000	1942–2008	64	251	224	208
03066000	1923–2008	86	70.9	59.5	52.4
03068800	1975–2008	17	181	167	159
03069000	1912–1993	67	206	188	177
03069500	1914–2008	95	553	482	439
03070000	1925–1996	72	750	650	588
03070420	1979–1995	17	.7	.7	.7
03070500	1911–2008	94	136	113	99.5
03072000	1942–2008	67	71.4	61.4	55.7
03072655	1940–2008	69	2,190	1,860	1,670
03072840	1970–1979	10	48.7	42.5	38.9
03073000	1933–1995	63	50.1	41.9	37.1
03074300	1969–1979	11	2.8	2.5	2.4
03074500	1944–2008	65	44.3	39.9	37.3
03075070	1935–2008	74	2,610	2,260	2,050
03075500	1943–2008	66	116	103	95.1
03076500	[2]1941–2008	67	232	206	190
03076600	1966–2008	43	36.2	31.8	29.1
03077500	1945–1991	47	406	—	333
03078000	1949–2008	60	49.4	44.3	41.2
03079000	1922–2008	87	234	208	193
03080000	1920–2008	89	104	91.9	84.5
03081000	1942–2008	67	866	756	690
03082200	1963–1978	16	7.1	6.4	6.0
03082500	[2]1926–2008	83	1,000	836	734
03082500	[3]1910–1924	13	529	334	234
03083000	1943–1979	37	2.2	2.0	1.8
03083500	[2]		1,300	1,170	1,090
03084000	1951–1994	44	1.8	1.5	1.4
03085000	1940–2004	65	4,340	3,800	3,480
03085500	1921–2008	80	108	92.0	82.3
03086000	1935–2008	74	13,600	12,100	11,200
03086500	1943–1993	51	18.9	15.1	12.9
03090500	[2]1945–1992	48	89.3	74.6	66.3
03090500	[3]1933–1942	11	36.0	30.0	26.5
03091500	1931–2008	78	94.9	74.3	62.8
03092000	1943–1993	51	3.6	2.9	2.5

Table 5. Selected mean-flow and flow-duration statistics for streamgage locations in and near Pennsylvania.—Continued

[ft^2/s; cubic feet per second; --, statistic not computed; <, less than]

Streamgage number	Period of record used in analysis[1]	Number of years used in analysis	Mean annual flow (ft^2/s)	Harmonic mean (ft^2/s)	99-percent exceedance (ft^2/s)	95-percent exceedance (ft^2/s)	90-percent exceedance (ft^2/s)	85-percent exceedance (ft^2/s)	80-percent exceedance (ft^2/s)
03044000	[3]1940–1951	11	2,390	997	276	354	418	487	563
03045000	1940–2008	68	297	43.3	4.9	13.0	21.4	31.5	43.2
03045500	1920–1940	18	438	110	17.2	33.7	47.7	59.6	72.6
03047000	1942–1991	50	492	--	19.0	40.6	55.0	70.3	93.0
03047500	1908–1937	29	3,020	895	143	278	383	482	584
03048500	[2]1942–2008	66	3,110	1,170	236	382	497	595	714
03049000	1941–2008		192	34.9		8.3	12.0		23.0
03049500	[2]	42	20,400	--	2,500	3,450	4,220	5,110	6,060
03049500	[3]	26	18,800	--	1,360	1,770	2,210	2,710	3,400
03049800		45	6.4	.8	<.1	.2	.4	.5	.7
[4] 03061500	1908–2008	85	169	12.1	.8	3.0	5.5	8.4	12.4
03062400	1965–2002	33	16.1	.7	.1	.3	.5	.8	1.1
03062500	1946–2008	29	105	13.4	1.4	3.2	5.0	7.0	9.9
03065000	1941–2008	66	790	154	15.1	38.0	66.0	99.3	136
[4] 03066000	1922–2008	86	205	48.2	5.8	12.8	20.0	28.7	38.1
		18		141	19.3			83.1	
[4]	1911–1993		554					94.8	121
[4]	1913–2008	95	1,740	405				253	330
[4]			2,330		51.2	123	218		423
			1.8	.2	<.1	.1	.2	.3	.4
[4] 03070500	1910–2008	95	420	41.3	4.8	12.0	21.3	33.4	47.9
03072000	1941–2008	67	281	22.1	2.0	4.8	8.5	13.5	19.2
03072655	1939–2008	69	8,450	2,630	474	756	1,070	1,360	1,690
03072840	1969–1979	10	155	27.1	3.5	7.2	9.8	14.0	19.0
03073000	1932–1995	63	199	7.9	.6	1.6	3.2	6.0	9.8
03074300	1967–1978	11	7.1	1.0	.1	.3	.4	.6	.9
	1943–2008	65	103	44.4	10.8	17.3	21.7	25.0	28.2
	1934–2008		9,260	2,930	539		1,180	1,510	1,840
	1942–2008		308			15.8	24.9		48.0
	[2]1941–2008			243			112	144	
03076600	1965–2008	43	92.0	22.6	3.4	5.9	8.4	11.8	15.4
03077500	1944–1991	48	889	--	108	170	244	326	395
03078000	1948–2008	60	121	20.1	1.9	4.8	8.2	12.0	16.0
03079000	1921–2008	87	665	147	20.0	37.0	57.0	77.0	101
03080000	1919–2008	89	268	53.9	6.3	12.0	20.0	30.0	40.0
03081000	1941–2008	67	2,030	1,110	281				
03082200			19.0	1.5	.1	.3	.8	1.2	1.9
03082500	[3]1909–1924	15	2,580	492	34.3	98.6	189	285	381
03082500	[2]1925–2008	83			198	434	616	729	840
03083000			.6	.8		.2	.4	.5	.7
03083500	[2]1925–2008	78	3,120 [4]	1,470	314	562	825	854	974
03084000	1949–1993	43	[5]	1.0	0	.2	.4	.6	.8
03085000	1939–2004	65	12,706	5,220	1,310	1,810	2,270	2,710	3,150
03085500	1920–2008	81	294	120	29.6	46.1	56.8	65.9	
03086000	1934–2008	74	33,600	14,600	3,210	4,710	6,120	7,520	9,000

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
19D	37646	Trib 37646 of Sewickley Creek	**0.740**	1116.00	0.25	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	0.033	0.00	0.00	0.000	0.000	0.0	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
Yough SD	PA0091588	0.0135	0.0135	0.0135	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	5.00	8.24	0.00	0.00
NH3-N	2.00	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
19D	37646	Trib 37646 of Sewickley Creek	**0.000**	1049.00	0.81	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	0.033	0.00	0.00	0.000	0.000	0.0	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
19D	37646	Trib 37646 of Sewickley 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												
0.740	0.01	0.00	0.01	.0209	0.01715	.291	2.29	7.87	0.04	1.038	25.00	7.00
Q1-10 Flow												
0.740	0.01	0.00	0.01	.0209	0.01715	NA	NA	NA	0.04	1.038	25.00	7.00
Q30-10 Flow												
0.740	0.01	0.00	0.01	.0209	0.01715	NA	NA	NA	0.04	1.038	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	1	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1	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
19D	37646	Trib 37646 of Sewickley 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
0.740	Yough SD	6.76	4	6.76	4	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
0.740	Yough SD	1.34	1.87	1.34	1.87	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)		
0.74	Yough SD	25	25	1.87	1.87	5	5	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
19D	37646	Trib 37646 of Sewickley Creek

RMI	Total Discharge Flow (mgd)	Analysis Temperature (ºC)	Analysis pH
0.740	0.014	25.000	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
2.294	0.291	7.872	0.044
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
18.49	1.369	1.34	1.029
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
5.918	29.312	Owens	5
Reach Travel Time (days)			
1.038			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.104	15.46	1.21	6.70
0.208	12.93	1.08	6.98
0.311	10.82	0.97	7.20
0.415	9.05	0.87	7.38
0.519	7.57	0.79	7.54
0.623	6.33	0.71	7.54
0.726	5.29	0.64	7.54
0.830	4.43	0.57	7.54
0.934	3.70	0.51	7.54
1.038	3.10	0.46	7.54

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
19D	37646	Trib 37646 of Sewickley 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)
0.740	Yough SD	PA0091588	0.014	CBOD5	25		
				NH3-N	1.87	3.74	
				Dissolved Oxygen			5

TRC EVALUATION

Input appropriate values in B4:B8 and E4:E7

0.01	= Q stream (cfs)	0.5	= CV Daily
0.0135	= Q discharge (MGD)	0.5	= CV Hourly
20	= 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	CFC Calculations	
TRC	1.3.2.iii	WLA afc =	0.172	1.3.2.iii	WLA cfc =	0.160
PENTOXSD TRG	5.1a	LTAMULT afc =	0.373	5.1c	LTAMULT cfc =	0.581
PENTOXSD TRG	5.1b	LTA_afc=	0.064	5.1d	LTA_cfc =	0.093

Source		Effluent Limit Calculations		
PENTOXSD TRG	5.1f	AML MULT =	1.288	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) =	0.082	AFC
		INST MAX LIMIT (mg/l) =	0.258	

WLA afc	(.019/e(-k*AFC_tc)) + [(AFC_Yc*Qs*.019/Qd*e(-k*AFC_tc))... ...+ Xd + (AFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)
LTAMULT afc	EXP((0.5*LN(cvh^2+1))-2.326*LN(cvh^2+1)^0.5)
LTA_afc	wla_afc*LTAMULT_afc
WLA_cfc	(.011/e(-k*CFC_tc) + [(CFC_Yc*Qs*.011/Qd*e(-k*CFC_tc))... ...+ Xd + (CFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)
LTAMULT_cfc	EXP((0.5*LN(cvd^2/no_samples+1))-2.326*LN(cvd^2/no_samples+1)^0.5)
LTA_cfc	wla_cfc*LTAMULT_cfc
AML MULT	EXP(2.326*LN((cvd^2/no_samples+1)^0.5)-0.5*LN(cvd^2/no_samples+1))
AVG MON LIMIT	MIN(BAT_BPJ,MIN(LTA_afc,LTA_cfc)*AML_MULT)
INST MAX LIMIT	1.5*((av_mon_limit/AML_MULT)/LTAMULT_afc)