pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0046221**
Facility Type	**Municipal**	APS ID	**275554**
Major / Minor	**Minor**	Authorization ID	**1309989**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Newville Borough Water & Sewer Authority**	Facility Name	**Newville Borough WWTP**
Applicant Address	99 E Cove Alley	Facility Address	99 E Cove Alley
	Newville, PA 17241-1105		Newville, PA 17241-1105
Applicant Contact	Roger Hoover	Facility Contact	Tim Zeigler
Applicant Phone	(717) 776-5633	Facility Phone	(717) 776-5633
Client ID	36082	Site ID	451942
Ch 94 Load Status	Not Overloaded	Municipality	Newville Borough
Connection Status	No Limitations	County	Cumberland
Date Application Received	March 9, 2020	EPA Waived?	No
Date Application Accepted	May 20, 2020	If No, Reason	Significant CB Discharge
Purpose of Application	NPDES Renewal		

Summary of Review

Newville Borough Water & Sewer Authority (NWSA) has applied to the Pennsylvania Department of Environmental Protection (DEP) for reissuance of its NPDES permit. The permit was last reissued on July 21, 2015 and became effective on August 1, 2015. The permit expired on July 30, 2020.

Based on the review, it is recommended that the permit be drafted.

Sludge use and disposal description and location(s): Sludge is processed on site and then either sent to a landfill (Cumberland County Landfill) or another WWTP (Harrisburg WWTP) for ultimate disposal.

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		Jinsu Kim Jinsu Kim / Environmental Engineering Specialist	March 29, 2021
		Daniel W. Martin, P.E. / Environmental Engineer Manager	
X		/s/ Maria D. Bebenek, P.E. / Program Manager	March 30, 2021

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	0.6
Latitude	40° 10’ 34.10”	Longitude	77° 23’ 39.43”
Quad Name	Newville	Quad Code	1726
Wastewater Description:	Treated Sewage		
Receiving Waters	Big Spring Creek	Stream Code	10378
NHD Com ID	56407725	RMI	1.11
Drainage Area	11.9 mi^2	Yield (cfs/mi^2)	0.160
Q_{7-10} Flow (cfs)	21.12	Q_{7-10} Basis	USGS Data
Elevation (ft)	479	Slope (ft/ft)	0.002
Watershed No.	7-B	Chapter 93 Class.	CWF
Existing Use	See comments below	Existing Use Qualifier	Designated Class A Wild Trout
Exceptions to Use	none	Exceptions to Criteria	none
Assessment Status	Impaired		
Cause(s) of Impairment	Siltation, Organic Enrichment/Low D.O.		
Source(s) of Impairment	Other		
TMDL Status	Pending	Name	
Nearest Downstream Public Water Supply Intake	Carlisle Borough Municipal Authority		
PWS Waters	Conodoguinet Creek	Flow at Intake (cfs)	
PWS RMI	35.95	Distance from Outfall (mi)	19.9

Drainage Area
The discharge is to Big Spring Creek at RM 1.11. A drainage area upstream of the discharge point is estimated to be 11.9 sq.mi. according to USGS StreamStats available at https://streamstats.usgs.gov/ss/.

Streamflow
USGS StreamStats produced a Q7-10 flow of 10.5 cfs. However, the estimated stream density is lower than the minimum value required to be used in calculating low flows; as a result, low flows were calculated with unknown errors. DEP has therefore decided to use a low flow yield method to obtain streamflows using the USGS gage no. 01570000. Based on the latest USGS report, the low-flow yield of this gage station located on Conodoguinet Creek near Hogestown has changed from 0.1549 cfs/sq.mi to 0.160 cfs/sq.mi. (69.3 cfs +5.716 cfs (PA American Water Co. PWS withdrawal) ÷ 470 sq.mi.). As a result of this, a Q_{7-10} flow has changed as follows:

DAsite = 11.84 sq.mi (USGS PA Stream Stats)
Additional upstream flow = 20 cfs (based on the former Big Spring fish hatchery data)
PWS upstream Intake = 0.50 MGD = 0.77 cfs (Newville PWS intake)
Q_{7-10} = 11.9 sq.mi. x 0.160 cfs/sq.mi. = (1.904 cfs + 20 cfs) – 0.77 cfs = **21.13 cfs**
Q_{30-10}/Q_{7-10} = 78.3 cfs/69.3 cfs =1.13
Q_{01-10}/Q_{7-10} = 63.1 cfs/69.3 cfs =0.91

This is slightly different than the Q7-10 calculated during the last permit review (i.e., 21.12 cfs).

Big Spring Creek
25 Pa .Code § 93.9o lists Big Spring Creek as CWF, MF for the basin from SR3007 to mouth. The discharge is located within this stream segment. For Existing Uses, the following information was obtained from DEP website:

1. Basin, SR 3007 (T-333) at river mile 4.94 to river mile 4.54
   Designated Use: CWF; Existing Use: HQ-CWF, MF; Date Evaluation: 03/14/11
2. Basin, river mile 4.54 to Nealy Rd.
   Designated Use: CWF; Existing Use: HQ-CWF, MF; Date Evaluation: 09/29/11

Since the discharge is located downstream from these segments, Existing Uses is not applicable. Accordingly, no special protection waters (HQ and EV) are impacted by this discharge. DEP's latest integrated water quality report finalized in 2020 shows Big Spring Creek is impaired for organic enrichment/low DO from unknown sources and habitat modification as a result of the hydromodification. The stream is also impaired for siltation as a result of agricultural activities. Both organic enrichment/low DO and siltation impairments are listed under Category 5 which requires the development of TMDL and habitat modification impairment is listed under Category 4c which does not require a TMDL as it is not caused by a pollutant. As of the date of this fact sheet, the TMDL for organic enrichment/low DO and siltation impairments has not been developed.

Public Water Supply
The nearest downstream public water supply intake is owned by Carlisle Borough Municipal Authority and is located on Conodoguinet Creek, approximately 20 miles downstream from the discharge point. Considering dilution and distance from the intake, the discharge is not expected to affect the water supply.

Treatment Facility Summary

Treatment Facility Name: Newville STP

WQM Permit No.	Issuance Date	Description
2172410	01/15/1973	New WWTP
2107408	05/20/2008	Upgrade of WWTP

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary With Total Nitrogen Reduction	Sequencing Batch Reactor	Ultraviolet	0.6

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.9	1251	Not Overloaded	Aerobic Digestion	Land Application

NWSA owns and operates a sanitary wastewater treatment plant located at 99 Cove Alley Newville PA 17241, serving the areas of Newville Borough (80%), West Pennsborough Township (10%) and North Newton/Penn Townships (10%). All sewer systems are 100% separated. The facility utilizes a Sequencing Batch Reactor (SBR) activated sludge treatment process consisting of screening, SBRs (2), UV disinfection unit and outfall structure. The facility was upgraded from 0.35 MGD to 0.6 MGD WWTP in 2008. Alum is added for phosphorous removal. Sludge is applied to existing reed beds, applied to agricultural areas, or hauled to either Cumberland County Landfill or Harrisburg WWTP for further treatment and disposal. There is currently no industrial/commercial wastewater being connected to the sewer system. This is confirmed by a chief operator, Mr. Tim Zeigler via a phone call dated March 29, 2021.

Compliance History

Summary of DMRs: A summary of past 12-month DMR data is presented on the next page.

Summary of Inspections: 3/22/2021: Mike Benham, DEP Water Quality Specialist, conducted a routine inspection and noted that the facility failed to provide Chain of Custody forms for the lab and failed to monitor pollutants as required by the permit.

09/12/2019: Mike Benham conducted a routine inspection and noted that the facility had a clean and well-maintained appearance. No violation was noted at the time of inspection.

Other Comments: Since last permit reissuance, the following effluent violations have been reported:

MONITORING START DATE	PARAMETER	SAMPLE VALUE	PERMIT VALUE	UNIT OF MEASURE	STATISTICAL BASE CODE
04/01/2017	Total Phosphorus	1.02	1	mg/L	Average Monthly
04/01/2018	Total Suspended Solids	51	45	mg/L	Weekly Average
04/01/2018	Total Suspended Solids	253.93	225	lbs/day	Weekly Average
07/01/2020	Fecal Coliform	461	200	CFU/100 ml	Geometric Mean
07/01/2020	Fecal Coliform	2900	1000	CFU/100 ml	Instantaneous Maximum
08/01/2020	Fecal Coliform	3440	1000	CFU/100 ml	Instantaneous Maximum

On March 2, 2020, a Notice of Violation (NOV) letter was sent to the permittee for failure to submit the application within 180 days prior to the expiration date.

DEP's database revealed that there is no open violation associated with this facility or permittee.

Effluent Data

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	0.261	0.315	0.197	0.201	0.192	0.186	0.176	0.187	0.296	0.296	0.250	0.274
Flow (MGD) Daily Maximum	0.482	0.999	0.316	0.351	0.326	0.331	0.212	0.243	0.928	1.074	0.691	0.523
pH (S.U.) Minimum	7.12	7.15	7.16	7.26	7.31	7.13	7.20	7.21	7.190	7.220	7.181	7.130
pH (S.U.) Instantaneous Maximum	7.46	7.39	7.58	7.43	7.62	7.64	7.38	7.49	7.560	7.410	7.660	7.680
DO (mg/L) Minimum	9.24	8.15	8.11	7.58	7.13	6.89	7.20	7.69	8.030	8.480	8.470	9.100
CBOD5 (lbs/day) Average Monthly	6.22	6.76	5.14	6.03	5.41	4.24	4.57	5.27	6.777	7.634	5.129	6.293
CBOD5 (lbs/day) Weekly Average	8.73	11.1	6.3	8.8	8.2	4.8	5.4	5.7	11.059	9.608	6.730	8.757
CBOD5 (mg/L) Average Monthly	3.15	3.1	3.0	3.1	3.0	3.0	3.1	3.3	3.150	3.180	< 3.00	3.0
CBOD5 (mg/L) Weekly Average	3.60	3.3	3.0	3.3	3.0	3.1	3.3	4.1	3.600	3.7	< 3.00	3.0
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	377	398	367	358	289	276	325	338	470.213	496	333	404
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	466	481	526	478	538	317	517	397	951.060	568	434	490
BOD5 (mg/L) Raw Sewage Influent Average Monthly	195	193	216	189	152	199	218	214	205.000	215	204	199
TSS (lbs/day) Average Monthly	4.12	7.4	5.5	4.7	4.6	3.8	5.3	5.8	5.772	9.090	4.336	4.767
TSS (lbs/day) Raw Sewage Influent Average Monthly	398	457	417	344	304	319	463	433	685.923	593	425	552
TSS (lbs/day) Raw Sewage Influent Daily Maximum	570	576	496	560	620	329	809	509	1644.081	887	481	736
TSS (lbs/day) Weekly Average	6.4	9.67	8.13	5.85	7.07	6.66	6.31	7.57	12.533	11.774	5.833	5.838

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
TSS (mg/L) Average Monthly	2.05	3.6	3.1	2.5	2.5	2.7	3.6	3.7	2.425	4.040	2.525	2.35
TSS (mg/L) Raw Sewage Influent Average Monthly	201	218	244	182	156	229	309	274	279.000	241	258	268
TSS (mg/L) Weekly Average	2.2	4.6	3.9	3.6	3.2	4.2	4.4	4.7	3.400	6.8	3.100	3.4
Fecal Coliform (CFU/100 ml) Geometric Mean	9	49	6	43	4	37	461	95	3.637	15.195	3.579	2
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	50	96	68	108	10	3440	2900	380	7.000	65	41.0	4
UV Intensity (mW/cm²) Minimum	54.53	55.32	55.75	72.31	65.00	55.23	55.05	55.0	53.880	67.020	55.00	55.21
Nitrate-Nitrite (mg/L) Average Monthly	1.72	1.8	0.7	0.6	0.7	0.9	2.9	0.6	0.395	1.998	2.858	3.683
Nitrate-Nitrite (lbs) Total Monthly	133.45	183.5	34.8	31.6	37.5	44.8	132.3	27.3	36.942	148.446	174.080	244.161
Total Nitrogen (mg/L) Average Monthly	3.1	3.2	1.9	1.6	1.8	2.1	4.5	8.8	5.658	4.964	11.586	13.655
Total Nitrogen (lbs) Effluent Net Total Monthly	221.31	282.6	97.6	90.1	91.2	106.3	204.7	421.5	380.704	376.65	616.62	862.08
Total Nitrogen (lbs) Total Monthly	221.31	282.6	97.6	90.1	91.2	106.3	204.7	421.5	380.704	376.653	616.623	862.080
Total Nitrogen (lbs) Effluent Net Total Annual					< 5079							
Total Nitrogen (lbs) Total Annual					< 5079							
Ammonia (lbs/day) Average Monthly	0.8	0.3	0.3	0.3	0.2	0.2	0.4	10.9	7.768	4.513	11.726	18.811
Ammonia (mg/L) Average Monthly	0.37	0.1	0.1	0.1	0.1	0.1	0.3	6.8	3.574	1.729	7.359	8.903
Ammonia (lbs) Total Monthly	24.76	10.6	10.4	8.7	5.2	7.7	12.4	325.8	240.817	135.387	363.500	545.527
Ammonia (lbs) Total Annual					2664							
TKN (mg/L) Average Monthly	1.39	1.3	1.2	1.1	1.0	1.1	1.6	8.3	5.263	2.967	8.722	9.963
TKN (lbs) Total Monthly	87.86	92.3	62.8	58.6	53.7	56.3	72.4	394.5	343.761	228.207	442.290	617.456

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
Total Phosphorus (lbs/day) Average Monthly	0.44	0.5	0.6	0.6	1.0	0.7	1.1	0.8	0.698	1.380	0.988	0.742
Total Phosphorus (mg/L) Average Monthly	0.20	0.29	0.35	0.33	0.61	0.45	0.77	0.52	0.291	0.570	0.512	0.343
Total Phosphorus (lbs) Effluent Net Total Monthly	13.5	16.2	16.9	17.2	30.2	22.5	34.7	24.8	21.628	41.39	30.62	21.52
Total Phosphorus (lbs) Total Monthly	13.5	16.2	16.9	17.2	30.2	22.5	34.7	24.8	21.628	41.386	30.625	21.524
Total Phosphorus (lbs) Effluent Net Total Annual					323							
Total Phosphorus (lbs) Total Annual					323							

Existing Effluent Limitations and Monitoring Requirements

Tables below summarize effluent limits and monitoring requirements specified in the current NPDES permit:

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)					
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Weekly Average	Instant. Maximum	Minimum Measurement Frequency	Required Sample Type
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
UV Intensity (mW/cm²)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Measured
CBOD5	125	200 Wkly Avg	XXX	25	40	50	1/week	8-Hr Composite
BOD5 Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Total Suspended Solids	150	225 Wkly Avg	XXX	30	45	60	1/week	8-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Fecal Coliform (CFU/100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	1/week	Grab
Fecal Coliform (CFU/100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	1/week	Grab
Ammonia-Nitrogen May 1 - Oct 31	90	XXX	XXX	18	XXX	36	2/week	8-Hr Composite
Ammonia-Nitrogen Nov 1 - Apr 30	Report	XXX	XXX	Report	XXX	XXX	2/week	8-Hr Composite
Total Phosphorus	5.0	XXX	XXX	1.0	XXX	2.0	2/week	8-Hr Composite

Existing Effluent Limitations and Monitoring Requirements (continued)

Parameter	Effluent Limitations					Monitoring Requirements	
	Mass Units (lbs)		Concentrations (mg/L)			Minimum Measurement Frequency	Required Sample Type
	Monthly	Annual	Minimum	Monthly Average	Maximum		
Ammonia---N	Report	Report	XXX	Report	XXX	2/week	8-Hr Composite
Kjeldahl---N	Report	XXX	XXX	Report	XXX	2/week	8-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	2/week	8-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	1/month	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	2/week	8-Hr Composite
Net Total Nitrogen	Report	7,306	XXX	XXX	XXX	1/month	Calculation
Net Total Phosphorus	Report	974	XXX	XXX	XXX	1/month	Calculation

Development of Effluent Limitations and Monitoring Requirements

Outfall No. 001 **Design Flow (MGD)** .6
Latitude 40º 10' 34.11" **Longitude** -77º 23' 39.44"
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 facility currently utilizes UV disinfection; therefore, TRC effluent limitation is not applicable.

Water Quality-Based Limitations

CBOD5, NH3-N and Dissolved Oxygen
WQM 7.0 is a water quality model designed to assist DEP to determine appropriate permit requirements for CBOD5, NH3-N and DO. DEP's technical guidance no. 391-2000-007 describes the technical methods contained in the model for conducting wasteload allocation analyses and for determining recommended limits for point source discharges. DEP recently updated this model (ver. 1.1) to include new NH3-N criteria that has been approved by US EPA as part of the 2017 Triennial Review. The model output indicates that all existing effluent limits are still appropriate.

Toxics
The application provided sample results for Total Copper, Total Zinc and Total Lead. Total Lead was not detected, and Total Copper and Total Zinc were detected at below the water quality criteria (i.e., 0.0035 mg/L v. 0.009 mg/L for Total Copper and 0.017 mg/L v. 0.12 mg/L for Total Zinc) . DEP has determined that it is not necessary to perform a water quality analysis for toxics as no toxic pollutants are expected to be present in the effluent. This is because 1) there is no industrial wastewater connected to the facility, 2) the previous engineer has already performed modeling which indicated that no limit or monitoring is required for toxic pollutants, and 3) historically, there has not been any toxic pollutant issue within the Big Spring Creek watershed, except for the hatchery which is currently inactive.

Best Professional Judgment (BPJ) Limitations

Dissolved Oxygen
A minimum of 5.0 mg/L dissolved oxygen effluent limitation will remain unchanged in the permit. Also, an average monthly total phosphorus limit of 1.0 mg/L will remain unchanged in the permit. Based on BPJ, these limits are adequate and protective of water quality. These requirements have also been assigned to other sewage facilities with similar technology.

Total Phosphorus
The current permit contains effluent limits of 1.0 mg/L (AML) and 2.0 mg/L (IMAX). These were determined previously based on the BPJ as the receiving stream is located within the Conodoguinet Creek watershed. No change is therefore recommended.

Additional Considerations

Flow Monitoring Requirement
The requirement to monitor the volume of effluent will remain unchanged in the permit per 40 CFR § 122.44(i)(1)(ii).

E. Coli Monitoring Requirement
DEP's SOP no. BCW-PMT-033 recommends a routine monitoring for E. Coli for new and reissued permits for all sewage discharges. A quarterly monitoring requirement for E. Coli will therefore be included in the draft permit and is consistent with the SOP recommendation.

Chesapeake Bay TMDL
On March 30, 2012, DEP finalized Pennsylvania's Chesapeake Watershed Implementation Plan Phase 2 (i.e., Phase 2 WIP) to address U.S EPA's expectations for the Chesapeake Bay TMDL. The Chesapeake Bay TMDL identifies the necessary pollution reductions from major sources of nitrogen, phosphorus and sediment across the Bay jurisdictions and sets pollution limits necessary to meet water quality standards. The Phase 2 WIP is an update to the Pennsylvania's Chesapeake Bay TMDL Strategy (2004) and the Chesapeake WIP Phase I (2011). In August 2019, DEP finalized Phase 3 Chesapeake Bay Watershed Implementation Plan to provide the plans in place by 2025 to further achieve the nutrient and sediment reduction targets. The more details on the TMDL are available at www.dep.pa.gov.

As part of the Phase 3 WIP process, a Supplement to the Phase 3 WIP was developed, providing an update on TMDL implementation for point sources and a discussion of adjustments to the permitting strategy as a result of implementation experience. According to this document, Newville Borough WWTP becomes a significant facility When the expansion from 0.3 MGD to 0.6 MGD occurred. The following statement is included in the document:

- *Newville Borough (PA0046221) is expanding to a design flow of 0.6 MGD. It has been issued a final permit with Cap Loads of 7,306 lbs/yr TN and 974 lbs/yr TP. This facility was previously considered non-significant, and so its load will be moved from the Non-Significant sector to the Significant Sewage sector.*

The document listed this facility under Phase 3 significant discharger located within the Chesapeake Bay watershed. The following Cap Loads specified in the current Supplement to the Phase 3 WIP will be included in the draft permit:

NPDES Permit No.	Phase	Facility	Latest Permit Issuance Date	Permit Expiration Date	Cap Load Compliance Start Date	TN Cap Load (lbs/yr)	TN Offsets Included in Cap Load (lbs/yr)	TP Cap Load (lbs/yr)	TN Delivery Ratio	TP Delivery Ratio
PA0046221	3	Newville Borough	7/21/2015	7/31/2020	10/1/2011	7,306	-	974	0.951	0.436

Sample Type / Minimum Measurement Frequency
Sample types and minimum measurement frequencies for all parameters will remain unchanged in the permit. These requirements are case-by-case basis using best professional judgment or derived from Table 6-3 of DEP's technical guidance no. 362-0400-001.

Raw Sewage Monitoring
As a result of negotiation with EPA, the existing influent monitoring reporting requirements for TSS and BOD_5 will be maintained in the permit for any municipal wastewater treatment facilities (i.e., POTW). The sample type has changed from 24-hr composite to 8-hr composite to be consistent with CBOD5 and TSS effluent sample types.

UV Monitoring
UV monitoring will continue to be included in the permit as recommended by DEP's SOP.

Total Dissolved Solids (TDS)
Monitoring data provided in the renewal application shows that TDS effluent level is 184 mg/L; therefore, TDS is not a parameter of concern for this facility. No monitoring or limit is necessary.

Mass Loading Limitations
All existing mass limits will remain unchanged in the permit and were previously calculated based on the formula: design flow (average annual) (MGD) x concentration limit (mg/L) at design flow x conversion factor (8.34).

Class A Wild Trout Stream
From river mile 4.94 to Nealy Rd, Big Spring Creek is designated as Class A Wild Trout Fishery. The discharge is located downstream of this basin; therefore, no Class A Wild Trout Streams are impacted by this discharge.

Anti-Backsliding Requirements
All proposed effluent limits and monitoring requirements specified in this fact sheet have been developed as stringent as the current effluent limits and monitoring requirements specified in the existing permit.

Anti-Degradation
All permit requirements have been developed to ensure that existing instream water uses and the level of water quality necessary to protect the existing uses are maintained and protected in accordance with 25 Pa. Code § 93.4a(b).

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	Instant. Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0 Daily Min	XXX	XXX	XXX	1/day	Grab
CBOD5	125	200	XXX	25.0	40	50	1/week	8-Hr Composite
BOD5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	8-Hr Composite
TSS	150	225	XXX	30.0	45	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 Intensity (mW/cm²)	XXX	XXX	Report Daily Min	XXX	XXX	XXX	1/day	Measured
Nitrate-Nitrite	XXX	XXX	XXX	Report	XXX	XXX	2/week	8-Hr Composite
Ammonia Nov 1 - Apr 30	Report	XXX	XXX	Report	XXX	XXX	2/week	8-Hr Composite
Ammonia May 1 - Oct 31	90	XXX	XXX	18	XXX	36	2/week	8-Hr Composite
Total Phosphorus	5.0	XXX	XXX	1.0	XXX	2	2/week	8-Hr Composite

Proposed Effluent Limitations and Monitoring Requirements (continued)

The limitations and monitoring requirements specified below are proposed for the draft permit, to comply with Pennsylvania's Chesapeake Bay Tributary Strategy.

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
	Monthly	Annual	Minimum	Monthly Average	Maximum		
Ammonia---N	Report	Report	XXX	Report	XXX	2/week	8-Hr Composite
Kjeldahl---N	Report	XXX	XXX	Report	XXX	2/week	8-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	2/week	8-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	1/month	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	2/week	8-Hr Composite
Net Total Nitrogen	XXX	7,306	XXX	XXX	XXX	1/year	Calculation
Net Total Phosphorus	XXX	974	XXX	XXX	XXX	1/year	Calculation

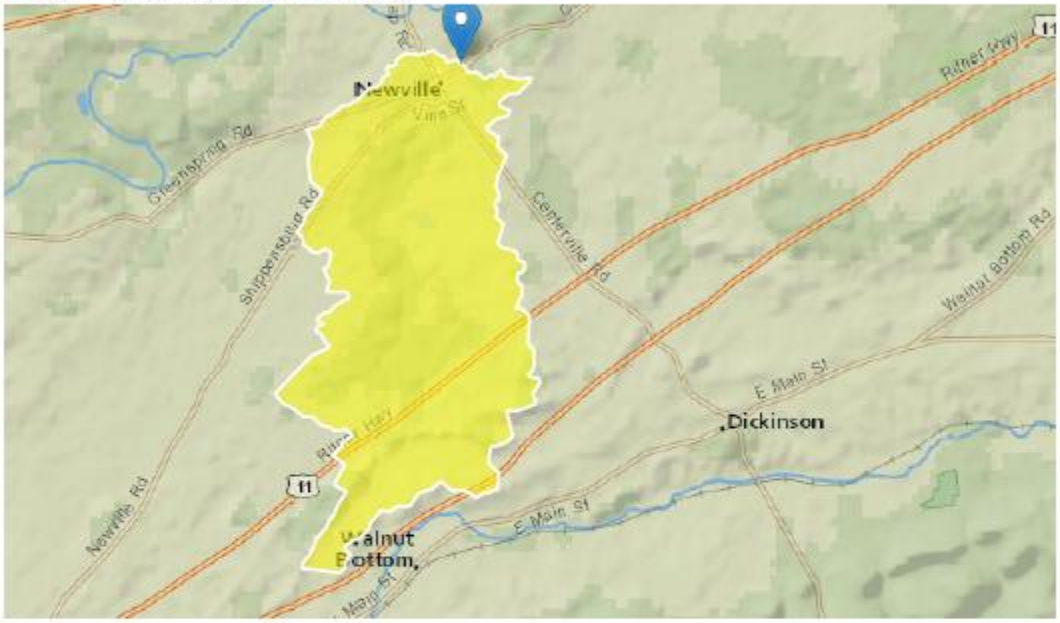
Tools and References Used to Develop Permit	
☐	WQM for Windows Model (see Attachment)
☐	Toxics Management Spreadsheet (see Attachment)
☐	TRC Model Spreadsheet (see Attachment)
☐	Temperature Model Spreadsheet (see Attachment)
☐	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☐	Technical Guidance for the Development and Specification of Effluent Limitations, 362-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 362-2000-003, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97.
☐	Pennsylvania CSO Policy, 385-2000-011, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97.
☐	Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97.
☐	Implementation Guidance Design Conditions, 391-2000-006, 9/97.
☐	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 391-2000-007, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 391-2000-008, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 391-2000-010, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004.
☐	Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 391-2000-014, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 10/97.
☐	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 391-2000-019, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 3/99.
☐	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 391-2000-022, 3/1999.
☐	Design Stream Flows, 391-2000-023, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 391-2000-024, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97.
☐	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☐	SOP:
☐	Other:

Attachments

1. StreamStats

StreamStats Report

Region ID: PA
Workspace ID: PA20210329133337031000
Clicked Point (Latitude, Longitude): 40.17618, -77.39392
Time: 2021-03-29 09:33:53 -0400



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	11.9	square miles
PRECIP	Mean Annual Precipitation	38	inches
STRDEN	Stream Density -- total length of streams divided by drainage area	0.48	miles per square mile
ROCKDEP	Depth to rock	5.6	feet
CARBON	Percentage of area of carbonate rock	98.04	percent

Low-Flow Statistics Parameters[Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	11.9	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	38	inches	35	50.4
STRDEN	Stream Density	0.48	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	5.6	feet	3.32	5.65
CARBON	Percent Carbonate	98.04	percent	0	99

Low-Flow Statistics Disclaimers[Low Flow Region 2]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Low-Flow Statistics Flow Report[Low Flow Region 2]

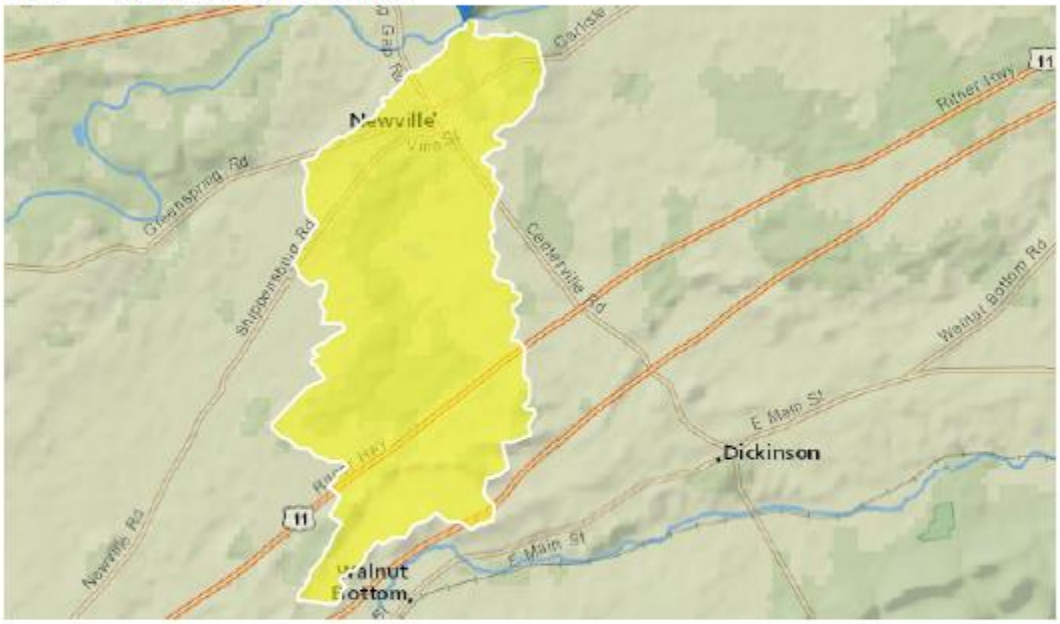
Statistic	Value	Unit
7 Day 2 Year Low Flow	12.3	ft^3/s
30 Day 2 Year Low Flow	12.3	ft^3/s
7 Day 10 Year Low Flow	10.5	ft^3/s
30 Day 10 Year Low Flow	10.3	ft^3/s
90 Day 10 Year Low Flow	10.7	ft^3/s

Low-Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)

StreamStats Report

Region ID: PA
Workspace ID: PA20210329134019808000
Clicked Point (Latitude, Longitude): 40.18855, -77.39182
Time: 2021-03-29 09:40:35 -0400



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	12.9	square miles
PRECIP	Mean Annual Precipitation	38	inches
STRDEN	Stream Density -- total length of streams divided by drainage area	0.58	miles per square mile
ROCKDEP	Depth to rock	5.4	feet
CARBON	Percentage of area of carbonate rock	92.68	percent

Low-Flow Statistics Parameters[Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	12.9	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	38	inches	35	50.4
STRDEN	Stream Density	0.58	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	5.4	feet	3.32	5.65
CARBON	Percent Carbonate	92.68	percent	0	99

Low-Flow Statistics Flow Report[Low Flow Region 2]

PII: Prediction Interval-Lower, Plu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	SEp
7 Day 2 Year Low Flow	10.2	ft^3/s	38	38
30 Day 2 Year Low Flow	10.5	ft^3/s	33	33
7 Day 10 Year Low Flow	8.06	ft^3/s	51	51
30 Day 10 Year Low Flow	8.26	ft^3/s	46	46
90 Day 10 Year Low Flow	8.83	ft^3/s	36	36

Low-Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)

2. WQM 7.0 ver. 1.1

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
07B	10378	BIG SPRING CREEK	1.110	478.00	11.90	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	21.13	0.000	0.000	0.0	0.00	0.00	20.00	7.00	20.00	7.00
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
Newville STP	PA0046221	0.6000	0.6000	0.6000	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	18.00	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
07B	10378	BIG SPRING CREEK	0.000	471.00	12.90	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	21.29	0.000	0.000	0.0	0.00	0.00	20.00	7.00	20.00	7.00
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 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	0.91	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.13	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5		

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
07B	10378	BIG SPRING 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												
1.110	21.13	0.00	21.13	.9282	0.00119	.793	45.49	57.4	0.61	0.111	20.21	7.00
Q1-10 Flow												
1.110	19.23	0.00	19.23	.9282	0.00119	NA	NA	NA	0.58	0.117	20.23	7.00
Q30-10 Flow												
1.110	23.88	0.00	23.88	.9282	0.00119	NA	NA	NA	0.65	0.104	20.19	7.00

Monday, March 29, 2021 Version 1.1 Page 1 of 1

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
07B	10378	BIG SPRING CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
1.110	0.600	20.210	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
45.493	0.793	57.398	0.612
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.97	0.503	0.76	0.711
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.107	5.011	Tsivoglou	5
Reach Travel Time (days)			
0.111			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.011	2.95	0.75	8.11
0.022	2.93	0.75	8.11
0.033	2.92	0.74	8.12
0.044	2.90	0.73	8.12
0.055	2.89	0.73	8.13
0.067	2.87	0.72	8.13
0.078	2.85	0.72	8.14
0.089	2.84	0.71	8.14
0.100	2.82	0.71	8.15
0.111	2.81	0.70	8.15

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
07B	10378	BIG SPRING 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
1.110	Newville STP	16.44	36	16.44	36	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
1.110	Newville STP	1.86	18	1.86	18	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)		
1.11	Newville STP	25	25	18	18	5	5	0	0

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
07B	10378	BIG SPRING 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)
1.110	Newville STP	PA0046221	0.600	CBOD5	25		
				NH3-N	18	36	
				Dissolved Oxygen			5

Monday, March 29, 2021 Version 1.1 Page 1 of 1