Pennsylvania Department of Environmental Protection

Northwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0093050**
Facility Type	**Municipal**	APS ID	**1097399**
Major / Minor	**Minor**	Authorization ID	**1455905**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Burrell Township Sewer Authority**	Facility Name	**Black Lick STP**
Applicant Address	PO Box 454	Facility Address	8293 Rt 119
	Black Lick, PA 15716-0454		Black Lick, PA 15716
Applicant Contact	David Semsick	Facility Contact	
Applicant Phone	(724) 248-7272	Facility Phone	
Client ID	77735	Site ID	253466
Ch 94 Load Status	Not Overloaded	Municipality	Burrell Township
Connection Status	No Limitations	County	Indiana
Date Application Received	September 18, 2023	EPA Waived?	Yes
Date Application Accepted		If No, Reason	

Purpose of Application: Application to renew a minor municipal sewage facility's NPDES Permit.

Summary of Review

This is an application to renew the NPDES Permit for the Black Lick Sewage Treatment Plant which is owned and operated by the Burrell Township Sewer Authority. The facility serves a population of roughly 1585 residents along with receiving sewage from several businesses in the area which are accounted for in the annual average flow and hydraulic design capacity.

Within the last permit term major modifications were made to the facility. Modifications include:

-New Main Plant Submersible Pump Station
-New Headworks Facilities with two new Influent Fine Screening Units
-Two (2) New SBR Tanks
-Two (2) New Aerobic Digester Tanks
-Alum Chemical Feed System
-Sodium Hydroxide Chemical Feed System
-Ultraviolet Disinfection System
-Effluent Aeration Tank
-New Rotary Press with Polymer System
-Plant SCADA System
-Emergency Generator
-Control Buildings
-Installation of all blowers, pumps, controls, and piping that are needed so that the plant will function as designed

Sludge use and disposal description and location(s): 31.35 Dry Tons of sludge/biosolids were produced and received, 13.19 Dry Tons were sent to Evergreen Landfill in Blairsville, PA.

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		Dustin Hargenrater Dustin Hargenrater / Project Manager	March 24, 2025
X		Adam Olesnanik Adam Olesnanik, P.E. / Environmental Engineer Manager	April 3, 2025

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.18
Latitude	40º 28' 52.22"	Longitude	-79º 11' 33.35"
Quad Name	Bolivar	Quad Code	40079D2
Wastewater Description:	Sewage Effluent		

Receiving Waters	Blacklick Creek (TSF)	Stream Code	43979
NHD Com ID	123715278	RMI	10.72
Drainage Area	194	Yield (cfs/mi^2)	0.084
Q_{7-10} Flow (cfs)	16.3	Q_{7-10} Basis	USGS - StreamStats
Elevation (ft)	961	Slope (ft/ft)	---
Watershed No.	18-D	Chapter 93 Class.	TSF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	METALS		
Source(s) of Impairment	ACID MINE DRAINAGE		
TMDL Status	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL

Background/Ambient Data		Data Source
pH (SU)	6.26	Sample Point ID 42060 – 0.5 Miles upstream from DP.
Temperature (°F)	68	Default - TSF
Hardness (mg/L)	100	Default
Other:		

Nearest Downstream Public Water Supply Intake		Saltsburg Municipal Authority Waterworks	
PWS Waters	Conemaugh River	Flow at Intake (cfs)	
PWS RMI	0.00	Distance from Outfall (mi)	26.5

Changes Since Last Permit Issuance: Slight changes to the Q_{7-10} flow, based on most recent data from USGS-StreamStats.

Treatment Facility Summary				
Treatment Facility Name: Black Lick STP				
WQM Permit No.	**Issuance Date**			
3217401	1/8/2018			
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Secondary With Ammonia Reduction	Sequencing Batch Reactor	Ultraviolet	0.11
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.18	306	Not Overloaded	Aerobic Digestion	Landfill

Changes Since Last Permit Issuance:

1. Construction of a new 2,618-gallon main sewage wet well (submersible) pump station and installation of three new 160 GPM VFD controlled submersible raw sewage pumps and associated piping. Installation of new influent flow meters on each of the effluent lines from the raw sewage pumps. The meters will be in the chemical feed room on the first floor of the SBR equipment room. Peak design pumping capacity is estimated to be 0.450MGD with all pumps running.

2. Installation of a new headworks facility which will include the construction of a new 26' x 42' headworks room on the second floor of a new Sequencing Batch Reactor (SBR) equipment building that will be attached to the new SBR tanks. The headworks room will contain two new 5mm laced link fine screening units with a peak capacity of 0.50MGD. Additionally, a 7' x 7' influent composite sampler room and 10' x 12' screen control room will be constructed adjacent to, but isolated from the screening room. Both rooms will be accessed from a separate entrance located outside of the building.

3. Construction of new secondary/tertiary treatment units with nutrient reduction infrastructure which will include:

    a. Construction of two (2) sequencing batch reactor (SBR) tanks each equipped with decant arm and mixing header. Each Tank will have a capacity of 0.110 million gallons for a total of 0.220 million gallons.
    b. Construction of a building attached to the SBR tanks that will house a 26' x 42' SBR pump equipment room, a 9' x 16' chemical feed room and a 28' x 44' UV disinfection room and a 12'x16' electrical control room on the first floor.
    c. Installation of recirculation/mixing pumps, blowers and waste sludge pumps.
    d. Installation of a new alkalinity and metal salt feed system to improve treatment efficiency and nutrient reduction process performance.
    e. Installation of all associated piping and appurtenances.
    f. Construction of two (2) new aerobic digester tanks to receive, treat, and store the WAS. Each digester will have a capacity of 37,165 gallons. Digester controls will be installed in the digester blower room. The construction of the digesters will include the installation of all associated piping and equipment. Installation of a liquid sludge withdrawal pipe and manifold fill station for tanker truck transport of digester sludge to disposal site. The digester blowers will be installed on a concrete pad immediately adjacent to the digester tanks and will be contained within sound dampening enclosures. Two pumps will be installed in the first floor of the control building to transport the WAS flow from the SBR tanks to the digester tanks.
    g. Construction of an effluent aeration tank to increase the dissolved oxygen concentration in the effluent. Installation of an aeration system and auto controlled blowers that are synced to the operation of the UV disinfection system and a continuous read dissolved oxygen probe and pH analyzer.
    h. Construction of a detached, 22' x 44' generator pad with pavilion roof and installation of a new 600 KVA, diesel generator, diesel storage tank and associated equipment. The transfer switch and control panel will be in the main electrical room located in the main control building. The standby generator will provide a backup power supply for all treatment process equipment.
    i. A new ultraviolet (UV) disinfection room attached to the SBR tanks that will house two separate UV disinfection systems arranged in parallel and all associated piping. The two UV units will each have a design capacity of 1.152 MGD or 800 gpm with a minimum UV transmittance of 65%. The anticipated peak flow from the SBR tanks is 800 gpm; therefore, each unit will be able to handle peak flows.

j. Demolition of existing wet well, aeration tanks, sludge drying shelter, settling tanks, chlorine contact tanks, miscellaneous yard piping, and the relocation of electrical supply lines and yard piping.
k. Modifications to the dewatering process to include the installation of a 2-channel rotary press and polymer blending unit. A sludge press room (second floor) and a sludge receiving room (first floor) will be constructed to accommodate a rotary press and appurtenances. The press is capable of processing sludge at a rate of 70 dry pounds per hour per channel, enabling the press to achieve approximately 140 dry pounds per hour.
l. Chemical Feed Systems-An alum feed system will be provided to precipitate phosphorous from the influent stream in the SBR tanks. The alum solution feed rate is calculated at approximately 10 gal/day based upon a 50% solution. Alum will be fed from a 2,500-gallon bulk storage tank installed on an outside pad. A new Sodium Hydroxide (Alkaline Agent) feed system will be used for wastewater buffering. This chemical will offset acidic effects of nitrification (consumption of alkalinity) and metal salt reaction with phosphorus. Sodium hydroxide (50% solution) will be used at an estimated dosage rate of 31.50 gal/day. As with the alum feed system, a bulk storage tank installed on an outside pad will be utilized for chemical storage.
m. A plant-wide SCADA system will be installed to monitor and/or control all processes at the WWTP. The SCADA system will interface with all other major plant component control systems, including the screen system controls, SBR system controls, UV system controls, and rotary press system controls. The SCADA system will also interface with other individual plant system components, including wet well and digester equipment, chemical feed equipment, samplers, analytical devices, and flow, pressure, and level devices

The proposed hydraulic treatment capacity of the new plant has been retained at the current 0.180 MGD average daily hydraulic limit and peak hydraulic capacity of 0.45MGD.

Compliance History

DMR Data for Outfall 001 (from February 1, 2024 to January 31, 2025)

Parameter	JAN-25	DEC-24	NOV-24	OCT-24	SEP-24	AUG-24	JUL-24	JUN-24	MAY-24	APR-24	MAR-24	FEB-24
Flow (MGD) Average Monthly	0.083454	0.092645	0.096268	0.05837	0.062559	0.084653	0.066524	0.07256	0.130051	0.252507	0.121624	0.091593
Flow (MGD) Daily Maximum	0.235161	0.198876	0.238985	0.095132	0.096003	0.310022	0.102729	0.109856	0.297983	1.241995	0.305526	0.279078
pH (S.U.) Instantaneous Minimum	6.91	6.93	6.89	6.94	6.92	6.9	6.93	6.79	6.77	6.82	6.88	6.72
pH (S.U.) Instantaneous Maximum	7.22	7.36	7.29	7.86	8.01	7.52	7.41	7.29	7.40	7.94	7.49	7.82
DO (mg/L) Instantaneous Minimum	6.75	6.64	6.92	6.35	6.18	5.28	6.85	6.8	6.03	5.28	6.65	6.54
CBOD5 (lbs/day) Average Monthly	2	< 3	< 2	2	< 3	< 2	< 2	< 2	< 4	< 4	< 3	< 2
CBOD5 (lbs/day) Weekly Average	4	4	< 3	4	3	2	< 2	< 2	< 5	< 5	< 5	4
CBOD5 (mg/L) Average Monthly	3.8	6.22	4.2	4.3	7.3	3.9	3.1	< 3	< 3	5.5	< 3	5.6
CBOD5 (mg/L) Weekly Average	6	< 4	4	7	6	4	3	< 3	< 4	6	< 3	6
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	147	146	153	162	145	141	93	72	189	146	148	94
BOD5 (lbs/day) Raw Sewage Influent Weekly Average	171	212	176	219	167	218	126	81	223	197	162	151
BOD5 (mg/L) Raw Sewage Influent Average Monthly	249	205	226	346	290	258	174	137	170	181	155	174
BOD5 (mg/L) Raw Sewage Influent Weekly Average	305	281	344	486	332	349	194	191	263	301	227	280
TSS (lbs/day) Average Monthly	< 2	< 3	< 3	4	< 4	< 2	< 3	< 3	< 5	< 5	< 3	< 2

TSS (lbs/day) Raw Sewage Influent Average Monthly	154	137	181	141	147	152	150	80	168	148	121	83
TSS (lbs/day) Raw Sewage Influent Weekly Average	209	223	215	213	201	185	195	99	330	207	143	159
TSS (lbs/day) Weekly Average	4	3	4	6	6	5	3	5	9	11	< 3	4
TSS (mg/L) Average Monthly	< 4	5	< 4	8	10	< 4	< 4	7	< 4	< 5	< 3	< 4
TSS (mg/L) Raw Sewage Influent Average Monthly	260	170	266	304	299	287	282	147	131	184	130	151
TSS (mg/L) Raw Sewage Influent Weekly Average	330	246	344	213	436	356	408	160	164	316	201	295
TSS (mg/L) Weekly Average	5	5	7	10	10	8	5	< 4	5	11	< 5	6
Fecal Coliform (No./100 ml) Geometric Mean	< 1	< 1	< 1	< 2	< 1	< 1	< 1	< 1	< 1	< 5	< 1	< 1
Fecal Coliform (No./100 ml) Instantaneous Maximum	2	< 1	< 1	7	1	< 1	1	< 1	< 1	2420	1	< 1
UV Intensity (mW/cm²) Instantaneous Minimum	0.1	2.4	2	2.1	2.3	3.2	0.3	2.1	4.1	1.2	0.8	3.1
UV Intensity (mW/cm²) Average Monthly	1.1	4	3.2	2.6	3	3.9	1.6	3.1	7.1	5.5	6.8	4.6
Total Nitrogen (mg/L) Daily Maximum		6.72										
Ammonia (lbs/day) Average Monthly	< 0.2	< 0.6	< 0.2	1	< 2	< 0.05	< 0.06	< 0.06	< 0.1	< 1	< 0.1	3
Ammonia (lbs/day) Weekly Average	0.5	3	0.4	7	4	< 0.06	< 0.07	< 0.07	< 0.2	3	< 0.2	5
Ammonia (mg/L) Average Monthly	0.76	2.53	0.75	3.07	11.6	< 0.1	< 0.1	< 0.1	< 0.1	4.42	< 0.1	7.29
Ammonia (mg/L) Weekly Average	0.76	2.53	0.75	11.6	6.78	< 0.1	< 0.1	< 0.1	< 0.1	4.42	< 0.1	7.29
Total Phosphorus (mg/L) Daily Maximum		1.64										

Total Aluminum (mg/L) Daily Maximum		0.15										
Total Iron (mg/L) Daily Maximum		0.03										
Total Manganese (mg/L) Daily Maximum		< 0.02										

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .18
Latitude 40º 28' 51.00" **Longitude** -79º 11' 34.00"
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)

Comments: The only change for the effluent limitations will be the addition of E. Coli monitoring, based on the SOP for Establishing Effluent Limitations in Individual Sewage Permits, E. Coli monitoring is being proposed at a frequency of 1/quarter to conform to the SOP. Modeling shows the existing limitations are sufficient. A review of the effluent data suggests the facility is being maintained and operated properly as there were no pollutants of concern.

Water Quality-Based Limitations

The discharge was modeled using WQM 7.0 to determine Water Quality Based Effluent Limits for CBOD5, Ammonia-Nitrogen, and Dissolved Oxygen. The modeling results showed that the limits for CBOD5 are appropriate. Ammonia-Nitrogen modeling results suggested a limit of 25 mg/l average monthly and 50 mg/l instantaneous maximum. Based on the SOP for Establishing Effluent Limitations in Individual Sewage Permits if WQM 7.0 modeling results suggested a limit of 25 mg/l average monthly limitation in the summertime than a year-round monitoring requirement should be established at a minimum for existing dischargers. The existing monitoring requirements will be retained for Ammonia-Nitrogen.

Best Professional Judgment (BPJ) Limitations

The Dissolved Oxygen minimum limitation of 4.0 mg/l will be retained based on the standard in 25 PA Code Chapter 93 and best professional judgement.

Anti-Backsliding

Anti-Backsliding is not being considered for this review.

Kiskiminetas River Basin

There is a TMDL for metals in the Kiskiminetas River watershed. The contribution for metals from a sewage plant of this nature is expected to be less than water quality criteria and therefore not contributing to stream impairment. Furthermore, an aggregate waste load allocation was included in the TMDL for these types of facilities. Annual monitoring is imposed for plants rated between 0.002 mgd up to 0.499 mgd to collect data to ensure there are no impacts on the quality of the receiving stream. Based on monitoring data submitted by the facility there were no instances of the effluent exceeding the criteria listed in 25 PA Code Chapter 93 therefore the monitoring requirements for these parameters will be retained.

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" (386-0400-001), 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	Continuous	Recorded
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	38	57	XXX	25	38	50	1/week	8-Hr Composite
BOD5 Raw Sewage Influent	Report	Report	XXX	Report	Report	XXX	1/week	8-Hr Composite
TSS	45	68	XXX	30	45	60	1/week	8-Hr Composite
TSS Raw Sewage Influent	Report	Report	XXX	Report	Report	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
UV Intensity (mW/cm²)	XXX	XXX	Report	Report	XXX	XXX	1/day	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	8-Hr Composite
Ammonia	Report	Report	XXX	Report	Report	XXX	1/week	8-Hr Composite
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
E.Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab

Compliance Sampling Location: Outfall 001, after disinfection.

WQM 7.0 Modeling Output Files

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
18D	43979	BLACKLICK CREEK	**10.720**	961.00	194.00	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	0.100	16.30	0.00	0.000	0.000	0.0	0.00	0.00	20.00	6.28	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
Black Lick STP	PA0093050	0.1800	0.1800	0.1800	0.000	25.00	7.07

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	4.00	8.24	0.00	0.00
NH3-N	25.00	0.00	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
18D	43979	BLACKLICK CREEK	**10.000**	952.00	390.00	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	0.100	32.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	6.28	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	20.00	6.20

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	4.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
18D	43979	BLACKLICK 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												
10.720	16.30	0.00	16.30	.2785	0.00237	.849	65.38	76.99	0.30	0.147	20.08	6.29
Q1-10 Flow												
10.720	10.43	0.00	10.43	.2785	0.00237	NA	NA	NA	0.23	0.188	20.13	6.29
Q30-10 Flow												
10.720	22.17	0.00	22.17	.2785	0.00237	NA	NA	NA	0.35	0.124	20.06	6.28

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
18D	43979	BLACKLICK 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
10.720	Black Lick STP	23.94	50	23.94	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
10.720	Black Lick STP	2.17	25	2.17	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)		
10.72	Black Lick STP	25	25	25	25	4	4	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
18D	43979	BLACKLICK CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
10.720	0.180	20.084	6.286
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
65.381	0.849	76.994	0.299
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.39	0.241	0.42	0.705
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.172	4.834	Tsivoglou	5
Reach Travel Time (days)			
0.147			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.015	2.38	0.42	8.21
0.029	2.37	0.41	8.23
0.044	2.36	0.41	8.23
0.059	2.35	0.40	8.23
0.074	2.34	0.40	8.23
0.088	2.34	0.39	8.23
0.103	2.33	0.39	8.23
0.118	2.32	0.39	8.23
0.133	2.31	0.38	8.23
0.147	2.30	0.38	8.23

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
18D	43979	BLACKLICK 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)
10.720	Black Lick STP	PA0093050	0.180	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			4