pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0084247**
Facility Type	**Non-Municipal**	APS ID	**732560**
Major / Minor	**Minor**	Authorization ID	**1342566**

Applicant and Facility Information

Applicant Name	**Berk-Tek LLC**	Facility Name	**Berk-Tek LLC**
Applicant Address	132 White Oak Road	Facility Address	132 White Oak Road
	New Holland, PA 17557		New Holland, PA 17557
Applicant Contact	Kurt Benjamin	Facility Contact	Kurt Benjamin
Applicant Phone	(717) 351-9338	Facility Phone	(717) 351-9338
Client ID	207186	Site ID	451673
Ch 94 Load Status	Not Overloaded	Municipality	Earl Township
Connection Status	No Limitations	County	Lancaster
Date Application Received	February 9, 2021	EPA Waived?	Yes
Date Application Accepted	March 2, 2021	If No, Reason	

Purpose of Application: NPDES Renewal.

Summary of Review

Berk-Tek LLC has applied to the Pennsylvania Department of Environmental Protection (DEP) for reissuance of its National Pollutant Discharge Elimination System (NPDES) permit. The existing permit was issued on August 17, 2016 and became effective on September 1, 2016, authorizing discharge of treated industrial wastewater from the facility. The existing permit expiration date was August 31, 2021, and the permit has been administratively extended since that time.

Per the previous fact sheet, Berk-Tek LLC manufactures wire products by coating the wire with plastic. Cooling water is used at the WWTP, but is completely recycled in a closed loop. No other industrial waste streams are present. Since no industrial wastewater is discharged, the CFR 40 regulations (463.13 – Plastics Molding and Forming) related to this operation are not applicable.

A topographic map indicating the discharge location is attached.

Changes in this renewal: E. Coli monitoring has been added to the permit. Stormwater monitoring parameters have been updated.

Sludge use and disposal description and location(s): Offsite WWTP

Supplemental information for this facility is provided at the end of this fact sheet.

Approve	Deny	Signatures	Date
X		Benjamin R. Lockwood Benjamin R. Lockwood / Environmental Engineering Specialist	February 18, 2022
X		Maria D. Bebenek for Daniel W. Martin, P.E. / Environmental Engineer Manager	March 1, 2022
X		Maria D. Bebenek Maria D. Bebenek, P.E. / Program Manager	March 1, 2022

Summary of Review
Public Participation DEP will publish notice of the receipt of the NPDES permit application and a tentative decision to issue the individual NPDES permit in the *Pennsylvania Bulletin* in accordance with 25 Pa. Code § 92a.82. Upon publication in the *Pennsylvania Bulletin*, DEP will accept written comments from interested persons for a 30-day period (which may be extended for one additional 15-day period at DEP's discretion), which will be considered in making a final decision on the application. Any person may request or petition for a public hearing with respect to the application. A public hearing may be held if DEP determines that there is significant public interest in holding a hearing. If a hearing is held, notice of the hearing will be published in the *Pennsylvania Bulletin* at least 30 days prior to the hearing and in at least one newspaper of general circulation within the geographical area of the discharge.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.0075
Latitude	40º 7' 47"	Longitude	76º 4' 45"
Quad Name		Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	UNT to Conestoga River (WWF, MF)	Stream Code	7792
NHD Com ID	57462229	RMI	1.59
Drainage Area	1.5 mi^2	Yield (cfs/mi^2)	0.039
Q_{7-10} Flow (cfs)	0.0589	Q_{7-10} Basis	USGS PA StreamStats
Elevation (ft)	368	Slope (ft/ft)	
Watershed No.	7-J	Chapter 93 Class.	CWF, MF
Existing Use	N/A	Existing Use Qualifier	N/A
Exceptions to Use	N/A	Exceptions to Criteria	N/A
Assessment Status	Impaired		
Cause(s) of Impairment	Pathogens, Pathogens, Nutrients		
Source(s) of Impairment	Agriculture, Urban Runoff/Storm Sewers, Agriculture		
TMDL Status	N/A	Name	N/A
Nearest Downstream Public Water Supply Intake	Lancaster City Water Bureau		
PWS Waters	Conestoga River	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	22

Changes Since Last Permit Issuance: USGS PA StreamStats provided a drainage area of 1.5 mi^2 and a Q_{7-10} of 0.0589 cfs at the point of discharge.

Other Comments: None

Discharge, Receiving Waters and Water Supply Information

Outfall No.	002	Design Flow (MGD)	Variable (Stormwater)
Latitude	40º 7' 47"	Longitude	76º 4' 27"
Quad Name		Quad Code	
Wastewater Description:	Stormwater		
Receiving Waters	UNT To Conestoga River (WWF,MF)	Stream Code	7792
NHD Com ID	57462265	RMI	1.59
Drainage Area	1.5 mi^2	Yield (cfs/mi^2)	0.039
Q_{7-10} Flow (cfs)	0.0589	Q_{7-10} Basis	USGS PA StreamStats
Elevation (ft)	368	Slope (ft/ft)	
Watershed No.	7-J	Chapter 93 Class.	CWF, MF
Existing Use	N/A	Existing Use Qualifier	N/A
Exceptions to Use	N/A	Exceptions to Criteria	N/A
Assessment Status	Impaired		
Cause(s) of Impairment	Pathogens, Pathogens, Nutrients		
Source(s) of Impairment	Agriculture, Urban Runoff/Storm Sewers, Agriculture		
TMDL Status	N/A	Name	N/A
Nearest Downstream Public Water Supply Intake	Lancaster City Water Bureau		
PWS Waters	Conestoga River	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	22

Changes Since Last Permit Issuance: None

Other Comments: None

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	003	Design Flow (MGD)	Variable (Stormwater)
Latitude	40º 7' 47"	Longitude	76º 4' 32"
Quad Name		Quad Code	
Wastewater Description:	Stormwater		
Receiving Waters	UNT To Conestoga River (WWF,MF)	Stream Code	7792
NHD Com ID	57462229	RMI	1.59
Drainage Area	1.5 mi^2	Yield (cfs/mi^2)	0.039
Q_{7-10} Flow (cfs)	0.0589	Q_{7-10} Basis	USGS PA StreamStats
Elevation (ft)	368	Slope (ft/ft)	
Watershed No.	7-J	Chapter 93 Class.	CWF, MF
Existing Use	N/A	Existing Use Qualifier	N/A
Exceptions to Use	N/A	Exceptions to Criteria	N/A
Assessment Status	Impaired		
Cause(s) of Impairment	Pathogens, Pathogens, Nutrients		
Source(s) of Impairment	Agriculture, Urban Runoff/Storm Sewers, Agriculture		
TMDL Status	N/A	Name	N/A
Nearest Downstream Public Water Supply Intake	Lancaster City Water Bureau		
PWS Waters	Conestoga River	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	22

Changes Since Last Permit Issuance: None

Other Comments: None

Discharge, Receiving Waters and Water Supply Information

Outfall No.	004	Design Flow (MGD)	Variable (Stormwater)
Latitude	40º 7' 47"	Longitude	76º 4' 26"
Quad Name		Quad Code	
Wastewater Description:	Stormwater		
Receiving Waters	UNT To Conestoga River (WWF,MF)	Stream Code	7792
NHD Com ID	57462229	RMI	1.59
Drainage Area	1.5 mi^2	Yield (cfs/mi^2)	0.039
Q_{7-10} Flow (cfs)	0.0589	Q_{7-10} Basis	USGS PA StreamStats
Elevation (ft)	368	Slope (ft/ft)	
Watershed No.	7-J	Chapter 93 Class.	CWF, MF
Existing Use	N/A	Existing Use Qualifier	N/A
Exceptions to Use	N/A	Exceptions to Criteria	N/A
Assessment Status	Impaired		
Cause(s) of Impairment	Pathogens, Pathogens, Nutrients		
Source(s) of Impairment	Agriculture, Urban Runoff/Storm Sewers, Agriculture		
TMDL Status	N/A	Name	N/A
Nearest Downstream Public Water Supply Intake	Lancaster City Water Bureau		
PWS Waters	Conestoga River	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	22

Changes Since Last Permit Issuance: None

Other Comments: None

Treatment Facility Summary				
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Secondary	Activated Sludge	Gas Chlorine	0.0075
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.0075		Not Overloaded	Sludge Holding	Other WWTP

Changes Since Last Permit Issuance: None

Other Comments: The existing WWTP process is as follows: 1 Equalization Tank – 2 Aeration Tanks – 2 Clarifier Tanks – 1 Chlorine Contact Tank – 1 Dechlorination Unit – 1 Sludge Holding Tank - Outfall 001 to UNT to Conestoga River

Compliance History	
Summary of DMRs:	A summary of the past 12-month DMR effluent data is presented on the next page of this fact sheet.
Summary of Inspections:	2/4/2016: An incident inspection was conducted due to a SSO at Berk-Tek. Approximately 4,000 gallons of raw sewage was spilled. The influent force main had two broken risers due to snow removal. There were some solids on the ground near the SSO; the inspector requested that additional lime be supplied. 1/3/2018: A routine inspection was conducted. All treatment units were online. Field sampling results were within the permitted limits. 10/31/2019: A routine inspection was conducted. All treatment units were online. The chlorine contact tank and final effluent trough appeared clear. The four outfalls were observed. All appeared in good condition with no active discharge. 7/2/2020: An administrative inspection was conducted. The facility was operating normally, and all units were online and operable. No other issues were noted.

Other Comments: There are currently no open violations associated with the permittee or facility.

Compliance History

DMR Data for Outfall 001 (from January 1, 2021 to December 31, 2021)

Parameter	DEC-21	NOV-21	OCT-21	SEP-21	AUG-21	JUL-21	JUN-21	MAY-21	APR-21	MAR-21	FEB-21	JAN-21
Flow (MGD) Average Monthly	0.0028	0.0052	0.0041	0.0034	0.0033	0.0029	0.003	0.0028	0.0023	0.0032	0.0037	0.0034
Flow (MGD) Daily Maximum	0.0078	0.0119	0.0086	0.0077	0.0072	0.0053	0.006	0.0047	0.0045	0.0113	0.0066	0.0067
pH (S.U.) Minimum	7.72	7.69	7.17	7.99	7.1	7.9	7.87	8.01	7.85	7.52	7.74	7.48
pH (S.U.) Instantaneous Maximum	8.5	8.51	8.48	8.46	8.6	8.5	8.36	8.6	8.32	8.25	8.33	8.33
DO (mg/L) Minimum	9.18	7.78	6.46	5.78	5.96	6.52	6.52	7.04	7.91	7.65	8.12	9.29
TRC (mg/L) Average Monthly	< 0.03	< 0.1	< 0.02	< 0.03	< 0.02	< 0.03	< 0.01	< 0.03	< 0.02	< 0.1	< 0.03	< 0.03
TRC (mg/L) Instantaneous Maximum	0.16	0.54	0.15	0.26	0.09	0.11	0.07	0.26	0.05	0.37	0.36	0.32
CBOD5 (mg/L) Average Monthly	< 2.0	< 2	< 2	< 2	< 3	< 4	< 2	< 3	< 2	3	3	< 2
TSS (mg/L) Average Monthly	< 4.0	< 4	< 5	< 4	< 5	< 4	< 6	< 4	5	8	6	< 4
Fecal Coliform (CFU/100 ml) Geometric Mean	< 1	5	< 3	2	< 4	< 1	3	< 2	4	11	< 2	< 1
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	1	7	8	3	15	1	4	6	10	37	5.0	1
Nitrate-Nitrite (mg/L) Average Monthly	56.4	37.1	38.8	36.1	36.9	36.6	43.1	32.1	41.4	35.3	50.4	32.1
Nitrate-Nitrite (lbs) Total Monthly	51	45	43	29	14	37	65	25	25	48	73	27
Total Nitrogen (mg/L) Average Monthly	< 56.9	37.73	< 39.3	36.1	36.9	37.13	43.1	33.4	42.48	< 35.8	50.9	35.08
Total Nitrogen (lbs) Total Monthly	< 51	45	< 44	29	14	37	65	26	26	< 49	74	30
Ammonia (mg/L) Average Monthly	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.2	< 1.2

TKN (mg/L) Average Monthly	< 0.5	0.63	< 0.5	< 0.5	< 0.5	0.53	< 0.5	1.3	1.08	< 0.5	0.52	2.98
TKN (lbs) Total Monthly	< 0.5	0.8	< 0.6	< 0.4	< 0.2	0.5	< 0.8	1	0.6	< 0.7	0.8	3
Total Phosphorus (mg/L) Average Monthly	5.46	3.77	4.04	4.16	4.18	5.48	5.48	4.52	5.76	4.01	4.7	3.88
Total Phosphorus (lbs) Total Monthly	5	5	4	3	2	6	8	4	3	5	7	3

DMR Data for Outfall 002 (from January 1, 2021 to December 31, 2021)

Parameter	DEC-21	NOV-21	OCT-21	SEP-21	AUG-21	JUL-21	JUN-21	MAY-21	APR-21	MAR-21	FEB-21	JAN-21
pH (S.U.) Other Stormwater Daily Maximum	6.97						6.73					
CBOD5 (mg/L) Other Stormwater Daily Maximum	2.4						5.7					
COD (mg/L) Other Stormwater Daily Maximum	18.0						18.8					
TSS (mg/L) Other Stormwater Daily Maximum	8.0						< 4.0					
Oil and Grease (mg/L) Other Stormwater Daily Maximum	< 4.9						< 4.8					
TKN (mg/L) Other Stormwater Daily Maximum	< 0.50						1.08					
Total Phosphorus (mg/L) Other Stormwater Daily Maximum	0.13						0.20					

DMR Data for Outfall 003 (from January 1, 2021 to December 31, 2021)

Parameter	DEC-21	NOV-21	OCT-21	SEP-21	AUG-21	JUL-21	JUN-21	MAY-21	APR-21	MAR-21	FEB-21	JAN-21
pH (S.U.) Other Stormwater Daily Maximum	7.53						7.15					
CBOD5 (mg/L) Other Stormwater Daily Maximum	2.4						15.5					
COD (mg/L) Other Stormwater Daily Maximum	14.3						59.2					
TSS (mg/L) Other Stormwater Daily Maximum	< 4.0						8.5					
Oil and Grease (mg/L) Other Stormwater Daily Maximum	< 4.9						< 4.9					
TKN (mg/L) Other Stormwater Daily Maximum	< 0.50						1.94					
Total Phosphorus (mg/L) Other Stormwater Daily Maximum	0.41						0.64					

DMR Data for Outfall 004 (from January 1, 2021 to December 31, 2021)

Parameter	DEC-21	NOV-21	OCT-21	SEP-21	AUG-21	JUL-21	JUN-21	MAY-21	APR-21	MAR-21	FEB-21	JAN-21
pH (S.U.) Other Stormwater Daily Maximum	7.17						7.30					
CBOD5 (mg/L) Other Stormwater Daily Maximum	4.0						10.1					
COD (mg/L) Other Stormwater Daily Maximum	16.8						50.5					
TSS (mg/L) Other Stormwater Daily Maximum	11.2						5.5					

Oil and Grease (mg/L) Other Stormwater Daily Maximum	< 4.9						< 4.9					
TKN (mg/L) Other Stormwater Daily Maximum	< 0.50						1.98					
Total Phosphorus (mg/L) Other Stormwater Daily Maximum	0.35						0.65					

Existing Effluent Limitations and Monitoring Requirements

The table below summarizes the effluent limits and monitoring requirements implemented in the existing NPDES permit.

Outfall 001

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0 Inst Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
CBOD5	XXX	XXX	XXX	25	XXX	50	2/month	8-Hr Composite
TSS	XXX	XXX	XXX	30	XXX	60	2/month	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	2/month	Grab
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Ammonia May 1 - Oct 31	XXX	XXX	XXX	10.0	XXX	20	2/month	8-Hr Composite
TKN	Report	XXX	XXX	Report	XXX	XXX	1/month	8-Hr Composite
Nitrate-Nitrite	Report	XXX	XXX	Report	XXX	XXX	1/month	8-Hr Composite
Total Nitrogen	Report	XXX	XXX	Report	XXX	XXX	1/month	Calculation
Total Nitrogen (lbs)	XXX	Report Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation
Total Phosphorus	Report	XXX	XXX	Report	XXX	XXX	1/month	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	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Total Phosphorus (lbs)	XXX	Report Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation

Compliance Sampling Location: At discharge from facility

Other Comments: None

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .0075
Latitude 40º 7' 47" **Longitude** 76º 4' 45"
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

Pursuant to 40 CFR § 122.44(d)(1)(i), more stringent requirements should be considered when pollutants are discharged at the levels which have the reasonable potential to cause or contribute to excursions above water quality standards.

WQM 7.0 ver. 1.1b is a water quality model designed to assist DEP in determining appropriate water quality based effluent limits (WQBELs) for carbonaceous biochemical oxygen demand ($CBOD_5$), ammonia (NH_3-N) and dissolved oxygen (D.O.). DEP's Technical Guidance No. 391-2000-007 provides the technical methods contained in WQM 7.0 for determining wasteload allocations and for determining recommended NPDES effluent limits for point source discharges. The model was utilized for this permit renewal. The model output indicated a $CBOD_5$ average monthly limit of 25 mg/l, an NH_3-N average monthly limit of 14.32 mg/l, and a D.O. minimum limit of 5.0 mg/l were protective of water quality. The flow data used to run the model was acquired from USGS PA StreamStats, and is included as an attachment. The $CBOD_5$ limit is the same as the limit in the existing permit, which will remain. The existing NH_3-N permit limit of 10.0 mg/l is more stringent and will remain in the permit.

As stated above, no industrial waste streams are present or are discharged at this facility. Accordingly, evaluating reasonable potential of toxic pollutants is not necessary as effluent levels of toxic pollutants are expected to be insignificant.

Best Professional Judgement (BPJ) Limitations

Dissolved Oxygen
A minimum D.O. limit of 5.0 mg/L is a D.O. water quality criterion found in 25 Pa. Code § 93.7(a). This limit is included in the existing NPDES permit. This limit will remain in the permit to ensure that the facility will achieve compliance with DEP water quality standards.

Additional Considerations

Chesapeake Bay Total Maximum Daily Load (TMDL)

DEP developed a strategy to comply with the EPA and Chesapeake Bay Foundation requirements by reducing point source loadings of Total Nitrogen (TN) and Total Phosphorus (TP). This strategy can be located in the *Pennsylvania Chesapeake*

Watershed Implementation Plan (WIP), dated January 11, 2011. Subsequently, an update to the WIP was published as the Phase 2 WIP. As part of the Phase 2 WIP, a *Phase 2 Watershed Implementation Plan Wastewater Supplement* (Phase 2 Supplement) was developed, providing an update on TMDL implementation for point sources and DEP's current implementation strategy for wastewater. A new update to the WIP was published as the Phase 3 WIP in August 2019. As part of the Phase 3 WIP, a *Phase 3 Watershed Implementation Plan Wastewater Supplement* (Phase 3 Supplement) was developed, and was most recently revised on December 17, 2019, and is the basis for the development of any Chesapeake Bay related permit parameters. Sewage discharges have been prioritized based on their design flow to the Bay. The highest priority (Phases 1, 2, and 3) dischargers will receive annual Cap Loads based on their design flow on August 29, 2005 and concentrations of 6 mg/l TN and 0.8 mg/l TP. These limits may be achieved through a combination of treatment technology, credits, or offsets. For Phase 4 and 5 facilities, Cap Loads are not currently being implemented for renewed or amended permits for facilities that do not increase design flow. For new Phase 4 and 5 sewage dischargers, in general DEP will issue new permits containing Cap Loads of "0" and new facilities will be expected to purchase credits and/or apply offsets to achieve compliance.

This facility is considered a Phase 5 non-significant discharger with a design flow less than 0.2 MGD but greater than 0.002 MGD. According to DEP's latest-revised Phase 3 Supplement, issuance of permits with monitoring and reporting for TN and TP is recommended for any Phase 5 non-significant sewage facilities. Furthermore, DEP's SOP No. BCW-PMT-033 states that in general, at a minimum, monitoring for TN and TP should be included in new and reissued permits for sewage discharges with design flows > 2,000 gpd. Therefore, TN and TP monitoring will be included in the renewed permit, which is consistent with the existing permit.

Total Residual Chlorine

The attached computer printout utilizes the equations and calculations as presented in the Department's May 1, 2003 Implementation Guidance for Total Residual Chlorine (TRC) (ID No. 391-2000-015) for developing chlorine limitations. The Guidance references Chapter 92, Section 92.2d (3) which establishes a standard BAT limit of 0.5 mg/l unless a facility-specific BAT has been developed. The attached printout indicates that a water quality limit of 0.5 mg/l would be needed to prevent toxicity concerns. It is recommended that a TRC limit of 0.5 mg/l monthly average and 1.6 mg/l instantaneous maximum be applied this permit cycle, which is the same as the existing limit.

Fecal Coliform

PA Code § 92a.47.(a)(4) requires a monthly average limit of 200/100 mL as a geometric mean and an instantaneous maximum limit not greater than 1,000/100 mL from May through September for fecal coliform. PA Code § 92a.47.(a)(5) requires a monthly average limit of 2,000/100 mL as a geometric mean and an instantaneous maximum limit not greater than 10,000/100 mL from October through April for fecal coliform. These limits are included in the existing permit, and will remain in the permit.

E. Coli

PA Code § 92a.61 requires IMAX reporting of E. Coli. Per DEP's SOP No. BCW-PMT-033, sewage dischargers with a design flow of 0.002 – 0.05 mgd will include E. Coli monitoring with a frequency of 1/year. This parameter has been added to the renewal permit.

Sampling Frequency & Sample Type

The monitoring requirements were established based on the BPJ and/or Table 6-3 of DEP's technical guidance No. 362-0400-001.

Flow Monitoring

Flow monitoring is recommended by DEP's technical guidance and is also required by 25 PA Code §§ 92a.27 and 92a.61.

Anti-Degradation

The effluent limits for this discharge 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. No High Quality Waters are impacted by this discharge. No Exceptional Value Waters are impacted by this discharge.

303(d) Listed Streams

The discharge is located on a stream segment that is designated on the 303(d) list as impaired. There is a recreational impairment for pathogens due to agriculture and urban/runoff storm sewers. There is an aquatic life impairment for nutrients due to agriculture.

Class A Wild Trout Fisheries

No Class A Wild Trout Fisheries are impacted by this discharge.

Anti-Backsliding

Pursuant to 40 CFR § 122.44(l)(1), all proposed permit requirements addressed in this fact sheet are at least as stringent as the requirements implemented in the existing NPDES permit unless any exceptions addressed by DEP in this fact sheet.

Development of Effluent Limitations

Outfall No.	002, 003, 004	**Design Flow (MGD)**	Variable (Stormwater)
	40º 7' 47"		76º 4' 27"
	40º 7' 47"		76º 4' 32"
Latitude	40º 7' 47"	**Longitude**	76º 4' 26"

Wastewater Description: Stormwater

Stormwater Limitations

The application lists two (3) stormwater outfalls for this facility. Outfall 002 receives stormwater from the southwest portion of the property, and drains approximately 4.5 acres. Outfall 003 receives stormwater from the northwest portion of the property, and drains approximately 1.7 acres. Outfall 004 receives stormwater from the northern portion of the property, and drains approximately 12 acres.

The existing permit requires semi-annual monitoring of pH, $CBOD_5$, COD, TSS, Oil and Grease, TKN, and Total Phosphorus. These monitoring requirements were derived from a previous NPDES PAG-03 General Permit. This facility falls under SIC Code 3357. According to DEP's current NPDES PAG-03 General Permit, SIC Code 3357 is subject to Appendix B monitoring requirements. This appendix requires semi-annual monitoring for the parameters listed in the table below. Theses parameters will replace the existing parameters in the permit renewal.

Stormwater will be monitored and managed using best management practices. The permittee shall monitor and report analytical results for the parameters listed below on Discharge Monitoring Reports (DMRs) for Outfall 002, Outfall 003, and 004. The benchmark values listed on the table below are not effluent limitations, and exceedances do not constitute permit violations. However, if the permittee's sampling demonstrates exceedances of benchmark values for two consecutive monitoring periods, the permittee shall submit a corrective action plan within 90 days of the end of the monitoring period triggering the plan.

Parameter	Minimum Measurement Frequency	Sample Type (mg/l)	Benchmark Values
TSS	1 / 6months	Grab	100
Total Aluminum	1 / 6months	Grab	XXX
Total Zinc	1 / 6months	Grab	XXX
Total Copper	1 / 6months	Grab	XXX
Total Iron	1 / 6months	Grab	XXX
Total Lead	1 / 6months	Grab	XXX

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	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0 Inst Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
CBOD5	XXX	XXX	XXX	25	XXX	50	2/month	8-Hr Composite
TSS	XXX	XXX	XXX	30	XXX	60	2/month	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	2/month	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Ammonia May 1 - Oct 31	XXX	XXX	XXX	10.0	XXX	20	2/month	8-Hr Composite
TKN	Report	XXX	XXX	Report	XXX	XXX	1/month	8-Hr Composite
Nitrate-Nitrite	Report	XXX	XXX	Report	XXX	XXX	1/month	8-Hr Composite
Total Nitrogen	Report	XXX	XXX	Report	XXX	XXX	1/month	Calculation

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	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Total Nitrogen (lbs)	XXX	Report Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation
Total Phosphorus	Report	XXX	XXX	Report	XXX	XXX	1/month	8-Hr Composite
Total Phosphorus (lbs)	XXX	Report Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation

Compliance Sampling Location: At discharge from facility

Other Comments: None

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.

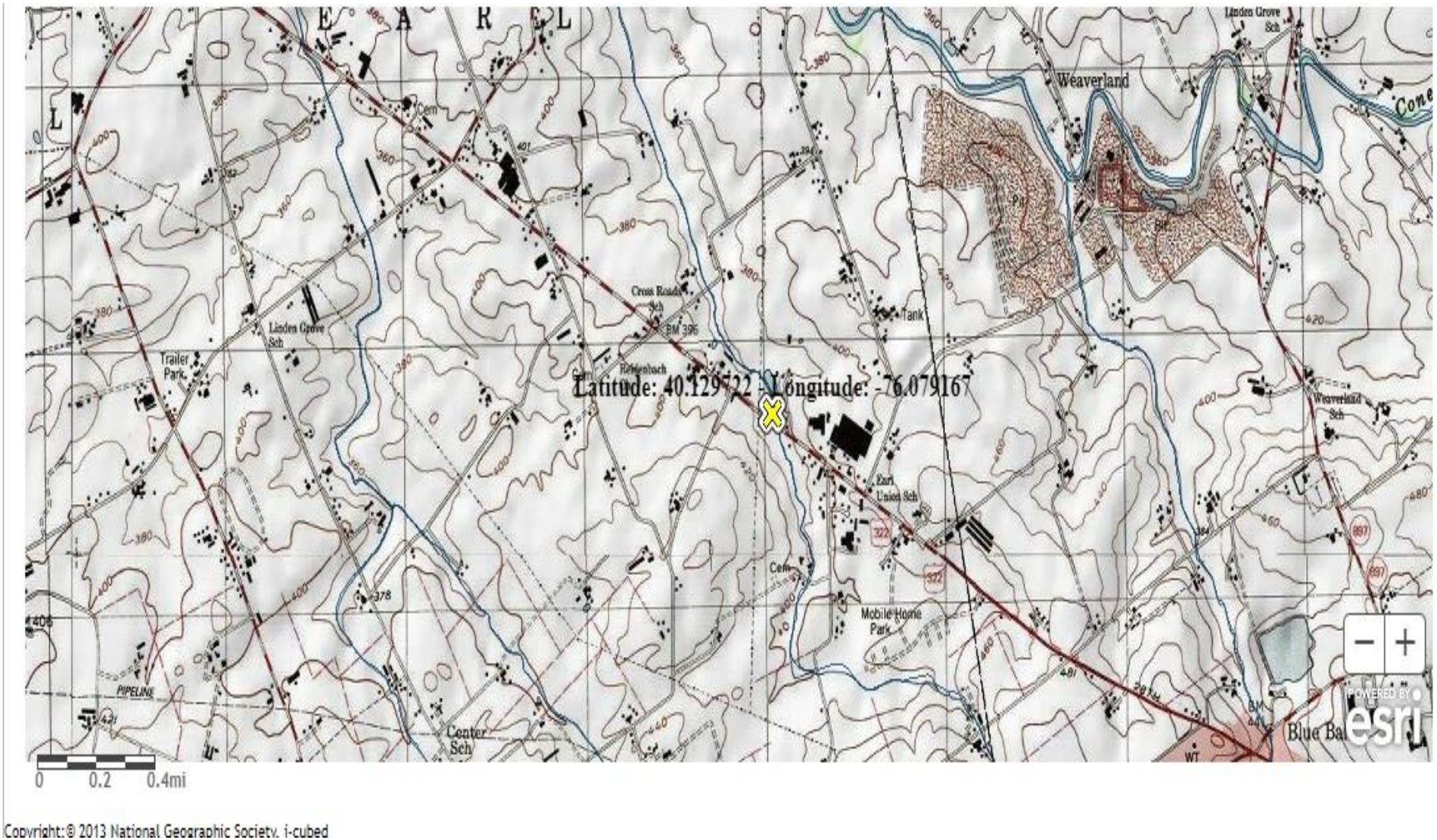
Outfall 002,003,004 Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
TSS	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Aluminum	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Zinc	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Copper	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Iron	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Lead	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab

Compliance Sampling Location: Outfall 002, 003, 004

Other Comments: None

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: No. BCW-PMT-002, No. BCW-PMT-033
☐	Other: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Center Sch
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Berk-Tek LLC PA0084247 Outfall 001 Discharge Pt.

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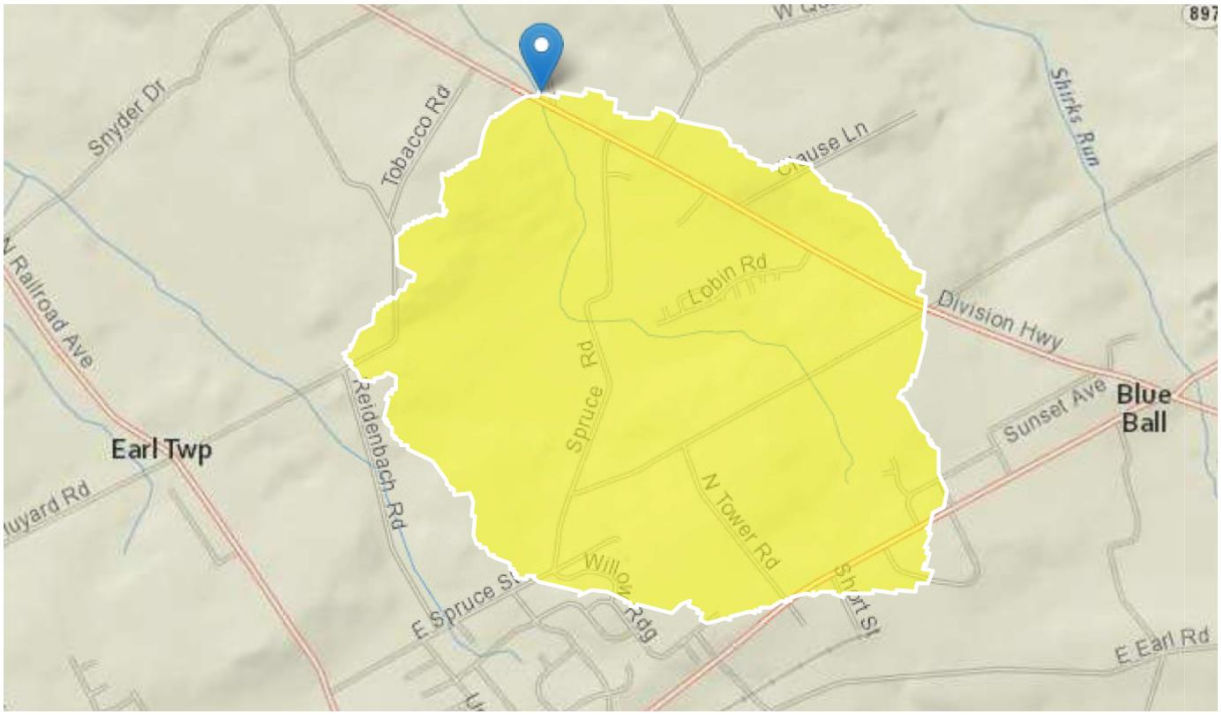
Time: 2022-02-17 16:52:12 -0500



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	1.5	square miles
BSLOPD	Mean basin slope measured in degrees	2.029	degrees
ROCKDEP	Depth to rock	5	feet
URBAN	Percentage of basin with urban development	14.0448	percent

Low-Flow Statistics Parameters [Low Flow Region 1]

Permit No. PA0084247

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.5	square miles	4.78	1150
BSLOPD	Mean Basin Slope degrees	2.029	degrees	1.7	6.4
ROCKDEP	Depth to Rock	5	feet	4.13	5.21
URBAN	Percent Urban	14.0448	percent	0	89

Low-Flow Statistics Disclaimers [Low Flow Region 1]

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 1]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.166	ft^3/s
30 Day 2 Year Low Flow	0.254	ft^3/s
7 Day 10 Year Low Flow	0.0589	ft^3/s
30 Day 10 Year Low Flow	0.0944	ft^3/s
90 Day 10 Year Low Flow	0.215	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/)

Permit No. PA0084247

USGS Product Names Disclaimer: Any use of trade, firm, or product names is for descriptive purposes only and does not imply endorsement by the U.S. Government.

Application Version: 4.6.2
StreamStats Services Version: 1.2.22
NSS Services Version: 2.1.2

Permit No. PA0084247

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	2.74	square miles	4.78	1150
BSLOPD	Mean Basin Slope degrees	1.8089	degrees	1.7	6.4
ROCKDEP	Depth to Rock	5	feet	4.13	5.21
URBAN	Percent Urban	8.0524	percent	0	89

Low-Flow Statistics Disclaimers [Low Flow Region 1]

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 1]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.237	ft^3/s
30 Day 2 Year Low Flow	0.37	ft^3/s
7 Day 10 Year Low Flow	0.0805	ft^3/s
30 Day 10 Year Low Flow	0.132	ft^3/s
90 Day 10 Year Low Flow	0.315	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/)

Permit No. PA0084247

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Application Version: 4.6.2
StreamStats Services Version: 1.2.22
NSS Services Version: 2.1.2

Permit No. PA0084247

TRC_CALC

	B	C	D	E	F	G
2	**TRC EVALUATION**					
3	Input appropriate values in B4:B8 and E4:E7					
4	0.0589	= Q stream (cfs)		0.5	= CV Daily	
5	0.0075	= Q discharge (MGD)		0.5	= CV Hourly	
6	30	= no. samples		1	= AFC_Partial Mix Factor	
7	0.3	= Chlorine Demand of Stream		1	= CFC_Partial Mix Factor	
8	0	= Chlorine Demand of Discharge		15	= AFC_Criteria Compliance Time (min)	
9	0.5	= BAT/BPJ Value		720	= CFC_Criteria Compliance Time (min)	
	0	= % Factor of Safety (FOS)			=Decay Coefficient (K)	
10	Source	Reference	AFC Calculations		Reference	CFC Calculations
11	TRC	1.3.2.iii	WLA afc = 1.638		1.3.2.iii	WLA cfc = 1.590
12	PENTOXSD TRG	5.1a	LTAMULT afc = 0.373		5.1c	LTAMULT cfc = 0.581
13	PENTOXSD TRG	5.1b	LTA_afc= 0.611		5.1d	LTA_cfc = 0.924
14						
15	Source		Effluent Limit Calculations			
16	PENTOXSD TRG	5.1f	AML MULT = 1.231			
17	PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.500		BAT/BPJ	
18			INST MAX LIMIT (mg/l) = 1.635			

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)**

Permit No. PA0084247

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
07J	7792	Trib 07792 to Conestoga River	**1.590**	368.00	1.50	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.100	0.00	0.06	0.000	0.000	0.0	0.00	0.00	20.00	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
Berk-Tek LLC	PA0084247	0.0075	0.0075	0.0075	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	25.00	0.00	0.00	0.70

Permit No. PA0084247

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
07J	7792	Trib 07792 to Conestoga River	**0.000**	338.00	2.74	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.100	0.00	0.08	0.000	0.000	0.0	0.00	0.00	20.00	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

Permit No. PA0084247

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
07J	7792	Trib 07792 to Conestoga River

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												
1.590	0.06	0.00	0.06	.0116	0.00357	.337	4.95	14.71	0.04	2.296	20.82	7.00
Q1-10 Flow												
1.590	0.04	0.00	0.04	.0116	0.00357	NA	NA	NA	0.03	2.805	21.18	7.00
Q30-10 Flow												
1.590	0.08	0.00	0.08	.0116	0.00357	NA	NA	NA	0.05	1.982	20.63	7.00

Permit No. PA0084247

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		

Permit No. PA0084247

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
07J	7792	Trib 07792 to Conestoga River

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
1.590	Berk-Tek LLC	15.2	50	15.2	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
1.590	Berk-Tek LLC	1.81	14.32	1.81	14.32	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)		
1.59	Berk-Tek LLC	25	25	14.32	14.32	5	5	0	0

Permit No. PA0084247

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
07J	7792	Trib 07792 to Conestoga River

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
1.590	0.007	20.823	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
4.950	0.337	14.708	0.042
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
5.79	0.445	2.36	0.746
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.709	19.939	Owens	5
Reach Travel Time (days)			
2.296			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.230	5.20	1.99	8.12
0.459	4.68	1.67	8.12
0.689	4.21	1.41	8.12
0.918	3.78	1.19	8.12
1.148	3.40	1.00	8.12
1.378	3.06	0.84	8.12
1.607	2.75	0.71	8.12
1.837	2.47	0.60	8.12
2.066	2.22	0.50	8.12
2.296	2.00	0.43	8.12

Permit No. PA0084247

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
07J	7792	Trib 07792 to Conestoga River

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)
1.590	Berk-Tek LLC	PA0084247	0.007	CBOD5	25		
				NH3-N	14.32	28.64	
				Dissolved Oxygen			5