

Application Type Renewal
 Facility Type Municipal
 Major / Minor Major

**NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE**

Application No. PA0021504
 APS ID 1093751
 Authorization ID 1448958

Applicant and Facility Information

Applicant Name	Western Butler County Authority	Facility Name	Western Butler County Authority STP
Applicant Address	607 Market Street	Facility Address	607 Market Street
	Zelienople, PA 16063-1830		Zelienople, PA 16063-1830
Applicant Contact	Autumn Crawford	Facility Contact	Autumn Crawford
Applicant Phone	(724) 452-5500	Facility Phone	(724) 452-5500
Client ID	78792	Site ID	264244
Ch 94 Load Status	Not Overloaded	Municipality	Zelienople Borough
Connection Status	No Limitations	County	Butler
Date Application Received	June 29, 2023	EPA Waived?	No
Date Application Accepted		If No, Reason	Major Facility
Purpose of Application	NPDES permit renewal for discharge of treated sewage.		

Summary of Review

1.0 General Discussion

This fact sheet supports the renewal of an existing NPDES permit for discharge of treated domestic wastewater from Western Butler County Authority STP. The Authority owns, operates, and maintains the wastewater treatment plant. The facility services Zelienople Borough (44% flow) Harmony Borough(12% flow), Jackson Township(38% flow) and Lancaster Township (5% flow). The treatment plant has a hydraulic/annual average design capacity of 2.2 MGD and organic design capacity of the facility is 3,706lbs/day- BOD₅. The facility discharges treated sewage to Connoquenessing Creek via Outfall 001, and storm water to UNT to Glade Run (Outfall 005) and Glade Run (Outfalls 006 & 007). The receiving streams are classified for warm water fishes, aquatic life, water supply and recreation. The existing NPDES permit was issued on December 04, 2018, with an effective date of January 1, 2019 and expiration date of December 31, 2023. The applicant submitted a timely NPDES permit renewal application to the Department and is currently operating under the terms and conditions in the existing permit.

A topographic map showing discharge locations is presented in attachment A and the treatment plant process flow diagram is presented in attachment H.

1.1 Sludge use and disposal description and location(s):

Digested sludge is dewatered with filter belt press and hauled out periodically to Seneca Landfill for disposal.

Approve	Deny	Signatures	Date
X		<i>J. Pascal Kwedza</i> J. Pascal Kwedza, P.E. / Environmental Engineer	July 16, 2025
X		Adam Olesnak Adam Olesnak, P.E. / Environmental Engineer Manager	July 22, 2025

Summary of Review

1.2 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.

1.3 Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	2.2
Latitude	40° 47' 18"	Longitude	-80° 09' 06"
Quad Name	Zelienople	Quad Code	05033
Wastewater Description: Treated domestic sewage			
Receiving Waters	Connoquenessing Creek (WWF)	Stream Code	34025
NHD Com ID	134395522	RMI	20.9 mi
Drainage Area	325.14 mi ²	Yield (cfs/mi ²)	0.0334
Q ₇₋₁₀ Flow (cfs)	10.9	Q ₇₋₁₀ Basis	USGS Gage Station #03106000
Elevation (ft)	890	Slope (ft/ft)	0.000
Watershed No.	20-C	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use	None	Exceptions to Criteria	None
Assessment Status	Impaired		
Cause(s) of Impairment	Organic Enrichment/Low D.O.		
Source(s) of Impairment	Agriculture		
TMDL Status		Name	
Background/Ambient Data		Data Source	
pH (SU)	7.9	Beaver River Priority Waterbody Survey - 1991	
Temperature (°c)	25 (summer) / 5 (winter)	Default values	
Hardness (mg/L)	192	Permit Application	
CBOD ₅ (mg/L)	2.0	Default value	
NH ₃ -N (mg/L)	0.0	Default value	
Nearest Downstream Public Water Supply Intake		Beaver Falls Municipal Authority-Eastvale intake	
PWS Waters	Beaver River	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall	27 mi

Changes Since Last Permit Issuance: None

1.3.1 Water Supply Intake

The nearest downstream potable water supply is the Beaver Falls Municipal Authority intake on the Beaver River, located at Eastvale, approximately 27 miles below the point of discharge. Due to the distance and dilution, no impact is expected from this discharge on the intake.

1.4 Stormwater Outfalls

Outfall No. 005
Latitude 40° 47' 18.00"

Wastewater Description: Stormwater

Design Flow (MGD) 0
Longitude -80° 9' 6.00"

Outfall No. 006
Latitude 40° 47' 18.00"

Wastewater Description: Stormwater

Design Flow (MGD) 0
Longitude -80° 8' 6.00"

Outfall No. 007
Latitude 40° 47' 18.00"

Wastewater Description: Stormwater

Design Flow (MGD) 0
Longitude -80° 8' 6.00"

1.4.1 Stormwater

The facility has 3 stormwater Outfalls 005,006 and 007. Part C condition in the existing permit for compliance with standard requirements applicable to stormwater outfalls will remain in the permit.

2.0 Treatment Facility Summary

Treatment Facility Name: Western Butler County Authority STP

WQM Permit No.	Issuance Date
1099406	8/23/99
1099406-A1	10/23/08

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary With Ammonia And Phosphorus	Activated Sludge	Chlorine With Dechlorination	2.2

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
2.2	3706	Not Overloaded	Aerobic Digestion	Landfill

Changes Since Last Permit Issuance: None

2.1 Treatment System

Communition, Bar Screen, Grit Chamber, Activated Sludge Treatment (3 aeration basins), (3) Final Clarifiers, (2) High Rate Sand Filtration, Flow Paced Chlorination/Dechlorination (3 tanks), (2) Aerobic sludge digesters, (1) sludge storage tank and a belt filter press. Excess flow pumping station, (2) aerated holding tank and chlorinated holding tank are for High Flow Management.

3.0 Compliance History

3.1 DMR Data for Outfall 001 (from June 1, 2024 to May 31, 2025)

Parameter	MAY-25	APR-25	MAR-25	FEB-25	JAN-25	DEC-24	NOV-24	OCT-24	SEP-24	AUG-24	JUL-24	JUN-24
Flow (MGD) Average Monthly	1.65	1.72	1.33	2.07	1.22	1.33	1.28	0.89	1.31	1.18	1.11	1.37
Flow (MGD) Weekly Average	2.49	2.56	1.7	2.6	1.78	1.52	2.21	1.05	1.07	1.52	1.67	1.55
pH (S.U.) Instantaneous Minimum	6.2	6.4	6.5	6.5	6.5	6.5	6.4	6.5	6.5	6.4	6.4	6.2
pH (S.U.) Instantaneous Maximum	8.5	7.1	6.9	6.9	7.0	7.0	7.0	6.9	6.9	7.0	6.9	6.8
DO (mg/L) Instantaneous Minimum	5.3	6.8	6.5	6.8	9.2	8.9	7.6	7.4	6.3	6.0	7.2	6.8
TRC (mg/L) Average Monthly	0.08	0.16	0.03	0.06	0.05	0.11	0.11	0.13	0.04	0.05	0.04	0.07
TRC (mg/L) Instantaneous Maximum	0.28	0.40	0.13	0.15	0.14	0.52	0.51	0.25	0.11	0.12	0.06	0.23
CBOD5 (lbs/day) Average Monthly	60	53	42	44	< 43	43	< 30	< 25	< 25	< 34	< 34	< 35
CBOD5 (lbs/day) Weekly Average	66	70	46	56	< 57	51	< 39	28	< 27	< 55	< 60	< 40
CBOD5 (mg/L) Average Monthly	5	5	4	3	< 5	< 4	< 3	< 3	< 3	< 3	< 3	< 3
CBOD5 (mg/L) Weekly Average	6	6	5	4	6	< 5	3	4	< 3	< 3	< 4	< 3
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	1182	1010	926	1099	965	978	953	926	883	1030	810	752
BOD5 (mg/L) Raw Sewage Influent Average Monthly	90	90	82	74	107	84	108	120	108	102	79	65
TSS (lbs/day) Average Monthly	< 82	< 55	< 50	< 62	< 48	< 41	< 30	< 23	< 28	< 35	< 32	< 50

NPDES Permit Fact Sheet
Western Butler County Authority STP

NPDES Permit No. PA0021504

TSS (lbs/day) Raw Sewage Influent Average Monthly	620	489	580	553	759	508	508	496	495	784	516	518
TSS (lbs/day) Weekly Average	106	66	< 62	102	72	< 38	< 39	< 27	< 34	< 55	< 60	< 96
TSS (mg/L) Average Monthly	< 6	< 5	< 5	< 4	< 5	< 3	< 4	< 3	< 3	< 3	< 3	< 4
TSS (mg/L) Raw Sewage Influent Average Monthly	47	44	52	37	82	42	57	63	61	78	49	45
TSS (mg/L) Weekly Average	9	6	6	6	7	< 4	4	< 3	< 5	< 4	< 3	< 8
Fecal Coliform (No./100 ml) Geometric Mean	69	62	336	< 55	< 59	< 31	116	6	51	51	295	121
Fecal Coliform (No./100 ml) Instantaneous Maximum	> 2420	< 24200	4611	2178	2420	1187	> 2420	185	96	366	2420	2420
Total Nitrogen (mg/L) Average Quarterly			19.4			25.6			16.3			12.6
Ammonia (lbs/day) Average Monthly	74	83	167	118	110	30	12	10	10	16	18	11
Ammonia (mg/L) Average Monthly	5.45	7.43	15	8.32	12.82	2.6	1.2	1.34	1.21	1.63	1.86	0.84
Total Phosphorus (lbs/day) Average Monthly	19	12	9	6	11	14	15	13	14	16	18	15
Total Phosphorus (mg/L) Average Monthly	1.47	1.08	0.82	0.43	1.25	1.02	1.72	1.7	1.68	1.53	1.7	1.29

3.2 Compliance History

3.2.1 Effluent Violations for Outfall 001, from: July 1, 2024 To: May 31, 2025

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
Fecal Coliform	07/31/24	Geo Mean	295	No./100 ml	200	No./100 ml
Fecal Coliform	11/30/24	IMAX	> 2420	No./100 ml	10000	No./100 ml
Fecal Coliform	04/30/25	IMAX	< 24200	No./100 ml	10000	No./100 ml
Fecal Coliform	07/31/24	IMAX	2420	No./100 ml	1000	No./100 ml
Fecal Coliform	05/31/25	IMAX	> 2420	No./100 ml	1000	No./100 ml

3.2.2 Summary of DMRs:

DMRs review for the facility for the last 12 months of operation, presented on the table above in section 3.1 indicates permit limits have been met most of the time. Fecal Coliform effluent violations noted 5 times during the period reviewed. Insufficient chemical dose was the explanation was given for the violations. The violations appear operations related which should be addressed with operational changes.

3.2.3 Summary of Inspections:

The facility has been inspected a couple of times during the previous permit cycle. No effluent violations were noted.

4.0 Development of Effluent Limitations

Outfall No. 001
Latitude 40° 47' 18.00"
Wastewater Description: Sewage Effluent

Design Flow (MGD) 2.2
Longitude -80° 9' 6.00"

4.1 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)

4.2 Mass-Based Limits

The federal regulation at 40 CFR 122.45(f) requires that effluent limits be expressed in terms of mass, if possible. The regulation at 40 CFR 122.45(b) requires that effluent limitations for POTWs be calculated based on the design flow of the facility. The mass-based limits are expressed in pounds per day and are calculated as follows: Mass based limit (lb/day) = concentration limit (mg/L) × design flow (mgd) × 8.34

4.3 Water Quality-Based Limitations

4.3.1 WQM 7.0 Stream Model

WQM 7.0 is a water quality model DEP utilizes to establish appropriate effluent limits for CBOD₅, NH₃-N and DO in permits. The model simulates mixing and degradation of NH₃-N in the stream and compares calculated instream NH₃-N concentrations to NH₃-N water quality criteria and also simulates mixing and consumption of D.O. in the stream due to the degradation of CBOD₅ and NH₃N and compares calculated instream D.O. concentrations to D.O. water quality criteria and recommends effluent limits

4.3.2 Stream flows

The stream flows are based on USGS Gage Station #03106000 on Connoquenessing Creek near Zelienople, PA. The modelled yield is 0.0334-cfs per square mile. The drainage area at the discharge point taken from the previous factsheet = 325.14mi². The resulting streamflows at the point of discharge are as follows:

$$\begin{aligned}
 Q_{7-10} &= 325.14 \text{ mi}^2 \times 0.0334 \text{ cfs/mi}^2 = 10.90 \text{ cfs} \\
 Q_{30-10} / Q_{7-10} &= 1.36 \\
 Q_{1-10} / Q_{7-10} &= 0.64
 \end{aligned}$$

4.3.3 Input for WQM and TMS Models

The following data were used in the WQM and TMS models for water quality analysis of the stream:

- Discharge pH = 6.4 (DMR median)
- Discharge Temperature = 20 ° C (Default)
- Discharge Hardness = 178 mg/l

4.3.4 CBOD₅

The attached results of WQM 7.0 stream model (attachments B & C) indicate that a monthly average limit (AML) of 13.5mg/L(rounded) CBOD5 for summer months and an AML of 22mg/L for winter months are required to protect the water quality of the stream. The recommended limits are slightly more stringent than the existing limit, but past DMRs show the facility can meet the recommended limits. Therefore, an AML of 13.5 mg/L, a weekly average limit (AWL) of 20mg/L and instantaneous maximum (IMAX) of 27mg/L is required for summer months and for winter months AML of 22mg/L AWL of 33mg/L and IMAX of 44mg/L is required. Mass limits are calculated for AMLs and AWLs following the formula listed in section 4.2 above.

4.3.5 NH₃-N

The attached results of the WQM 7.0 stream model (attachment B & C) also indicate that a summer AML of mg/l 4.0 NH₃-N and IMAX of 8 mg/L and a winter AML of 8 mg/L NH₃-N and IMAX of 16 mg/L are necessary to protect the aquatic life from toxicity effects. These limits are slightly more stringent than the existing limits, but DMR reports indicate the facility can meet the new limits. Associated mass limits are calculated following the formula listed in section 4.2 above.

4.3.6 Total Suspended Solids (TSS):

There is no water quality criteria for TSS. The existing limit of 30 mg/l AML based on the minimum level of effluent quality attainable by secondary treatment as defined in 40 CFR 133.102b(1) and 25 PA § 92a.47(a)(1) and an AWL of 45mg/L per 40CFR 133.102(b)(2) and 25 PA § 92a.47(a)(2) with their associated mass limit remain in the permit.

4.3.7 Toxics

A reasonable potential (RP) analysis was done for pollutant Groups 1 to 5 submitted with the application. All pollutants presented in the application were analyzed with DEP's Toxics Management Spreadsheet (TMS) to calculate WQBELs. WQBELs recommended by the TMS are presented in attachment D. Monitoring was recommended for Total Aluminum, Total Copper, and Total Zinc. AML of 0.025mg/L recommended for Free Cyanide and AML of 0.001mg/L recommended for Total Thallium. Monthly monitoring of Total Aluminum, Total Copper, and Total Zinc is proposed in the permit. Interim monitoring is proposed for Total Thallium and Free Cyanide with compliance schedule to comply with the new limits. DMR data for Total Lead presented in attachment E indicates it is undetected, but at a less sensitive method of detection, therefore the existing quarterly monitoring will remain in the permit. The permittee should use DEP's target quantitation limits for analysis.

The recommended limits follow the logic presented in DEPs SOP, to establish limits in the permit where the maximum reported concentration exceeds 50% of the WQBEL, or for non-conservative pollutants to establish monitoring requirements where the maximum reported concentration is between 25% - 50% of the WQBEL, or to establish monitoring requirements for conservative pollutants where the maximum reported concentration is between 10% - 50% of the WQBEL.

4.3.8 Total Residual Chlorine

The attached TRC calculation result 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 results presented in attachment F indicates that a water quality limit of 0.14 mg/l monthly average and IMAX of 0.45 mg/l

would be needed to prevent toxicity concerns. The recommended limitation is more stringent than the existing permit limit, but facility had dichlorination system and should be able to meet the new limitation.

4.3.9 Phosphorus

The existing phosphorus limitation of 2mg/L to control phosphorus based on Stream Enrichment Risk Analysis (SERA) study on Connoquenessing Creek will remain the permit.

4.3.10 Fecal Coliform and E. Coli

The existing Fecal Coliform limit is consistent with the technology limits recommended in 92a.47(a)(4) and (a)(5) and will remain in the permit. In March of 2021, EPA approved DEP's Triennial Review of Water Quality Standards, which included a new swimming season criterion for E. coli. As a result, DEP is including monitoring requirements for E. Coli in new and renewed sewage permits above 2000gpd. Monitoring frequency is based on annual average flow as follows: 1/month for design flows ≥ 1 MGD, 1/quarter for design flows ≥ 0.05 and < 1 MGD and 1/year for design flows of 0.002 and < 0.05 MGD. Your discharge of 2.2 MGD requires 1/month monitoring as included in the permit.

4.3.11 PFAS Monitoring Strategy:

PFAS, also known as 'forever chemicals,' are prevalent in the environment. They are a category of chemicals used since the 1940s to repel oil and water and resist heat, which makes them useful in everyday products such as nonstick cookware, stain resistant clothing, and firefighting foam. Exposure to certain PFAS over a long period of time can cause cancer, adverse health impacts and other illnesses. EPA categorized the following activities it believes are the main sources of PFAS: organic chemicals, plastics & synthetic fibers; metal finishing; electroplating; electric and electronic components; landfills; pulp, paper & paperboard; leather tanning & finishing; plastics molding & forming; textile mills; paint formulating, and airports. DEP is implementing PFAS monitoring program to investigate and address PFAS discharges and pollution. Under the plan, all industrial and major sewage permit applicants are required to test for 4 of the PFAS parameters, PFOA, PFOS, HFPO-DA and PFBS during permit applications. If the results of the tests are non-detect using screening level at or below DEP's Target QLs, an annual monitoring will be required and if there are detections or non-detects above the TQLs a quarterly monitoring will be required in the permit. Applications received without the tests and applications already received will be drafted with quarterly monitoring if an industrial facility falls under EPA categories or if a major sewage facility receives flow from one of EPA categories. If an industrial facility does not fall under or a major sewage facility does not receive flow any EPA categories, annual monitoring will be required in the draft permit. This sewage facility does not receive any flow from any of EPA categories therefore, annual monitoring of PFOA, PFOS, HFPO-DA, and PFBS is required in the permit. The permittee may discontinue monitoring for PFOA, PFOS, HFPO-DA, and PFBS if the results in 4 consecutive monitoring periods indicate non-detect results at or below Quantitation Limits of 4.0 ng/L for PFOA, 3.7 ng/L for PFOS, 3.5 ng/L for PFBS and 6.4 ng/L for HFPO-DA. When monitoring is discontinued, permittees shall enter a No Discharge Indicator (NODI) Code of "GG" on DMRs.

4.3.12 Best Professional Judgment (BPJ) Limitations

The dissolved oxygen limit of a minimum of 4.0 mg/L and total nitrogen monitoring in the existing permit in accordance with the Department's SOP entitled "Establishing Effluent Limits for Individual Sewage Permits." will remain for the current permit cycle.

4.3.13 Influent BOD and TSS Monitoring

The permit will include influent BOD5 and TSS monitoring at the same frequency as is done for effluent in order to implement Chapter 94.12 and assess percent removal requirements.

4.3.14 Industrial Users

The wastewater treatment plant receives wastewater from the following industries: Billco Manufacturing, Berry Metal Company, Universal Scaffolding, and LabChem. None of the industries are listed as significant industrial users.

4.3.15 Pretreatment Requirements

The design annual average flow of the treatment plant is 2.2 MGD and the facility receives flow from no significant Industrial users. There is no approved pretreatment program for the facility, however, the permit contains standard conditions requiring the permittee to monitor and control industrial users if applicable.

5.0 Other Considerations and Requirements

5.1 The permit contains the following special conditions:

1. Stormwater Prohibition. 2. Approval Contingencies, 3. Proper Waste/solids Management, 4. Restriction on receipt of hauled in waste under certain conditions. 5, WET testing and reporting requirement and 5. Storm water monitoring requirement.

5.2 Anti-Degradation (93.4)

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.

5.3 Class A Wild Trout Fisheries

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

5.4 303d Listed Streams

The discharge is located on a stream segment that is designated on the 303(d) list as impaired, and the impairment is due to organic enrichment/low DO from agricultural activities in the watershed. TMDL is pending, no further action is warranted at this time.

6.0 Whole Effluent Toxicity (WET)

6.1 For Outfall 001, Acute Chronic WET Testing was completed:

- For the permit renewal application (4 tests).
- Quarterly throughout the permit term.
- Quarterly throughout the permit term and a TIE/TRE was conducted.
- Other: [REDACTED]

The dilution series used for the tests was: 100%, 59%, 18%, 9%, and 5%. The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 18%.

6.2 Summary of Four Most Recent Test Results

6.2.1 TST Data Analysis

WET Summary and Evaluation					
Facility Name	Western Butler County Authority				
Permit No.	PA0021504				
Design Flow (MGD)	2.2				
Q ₇₋₁₀ Flow (cfs)	10.9				
PMF _a	0.276				
PMF _c	1				
Species	Endpoint	Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Ceriodaphnia	Reproduction	PASS	PASS	PASS	
Species	Endpoint	Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Ceriodaphnia	Survival	PASS	PASS	PASS	
Species	Endpoint	Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Pimephales	Survival	PASS	PASS	PASS	
Species	Endpoint	Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Pimephales	Growth	PASS	PASS	PASS	
Reasonable Potential?		NO			
<u>Permit Recommendations</u>					
Test Type	Chronic				
TIWC	24	% E	ffluent		
Dilution Series	6, 12, 24, 62, 100	% E			
Permit Limit	None				
Permit Limit Species					

See attachment G for additional results of DEP WET Analysis Spreadsheet

6.3 Evaluation of Test Type, IWC and Dilution Series for Renewed Permit

Acute Partial Mix Factor (PMFa): **0.276** Chronic Partial Mix Factor (PMFc): **1**

6.3.1. Determine IWC – Acute (IWCA):

$$(Q_d \times 1.547) / ((Q_{7-10} \times PMFa) + (Q_d \times 1.547))$$

$$[(2.2 \text{ MGD} \times 1.547) / ((10.9 \text{ cfs} \times 0.276) + (2.2 \text{ MGD} \times 1.547))] \times 100 = 53\%$$

Is IWCA < 1%? YES NO (YES - Acute Tests Required OR NO - Chronic Tests Required)

If the discharge is to the tidal portion of the Delaware River, indicate how the type of test was determined:

Type of Test for Permit Renewal: Chronic

6.3.2a. Determine Target IWCA (If Acute Tests Required)

TIWCa = IWCa / 0.3 = %

6.3.2b. Determine Target IWCc (If Chronic Tests Required)

$(Q_d \times 1.547) / (Q_{7-10} \times PMFc) + (Q_d \times 1.547)$

$[(2.2 \text{ MGD} \times 1.547) / ((10.9 \text{ cfs} \times 1) + (2.2 \text{ MGD} \times 1.547))] \times 100 = 24\%$

6.3.3. Determine Dilution Series

(NOTE – check Attachment C of WET SOP for dilution series based on TIWCa or TIWCc, whichever applies).

Dilution Series = 100%, 62%, 24%, 12%, and 6%.

6.4 WET Limits

Has reasonable potential been determined? YES NO

Will WET limits be established in the permit? YES NO

If WET limits will be established, identify the species and the limit values for the permit (TU).

N/A

If WET limits will not be established, but reasonable potential was determined, indicate the rationale for not establishing WET limits:

N/A

7.0 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 Start of Final Period.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/L)				Minimum ⁽²⁾ Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	4.0 Inst Min	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.14	XXX	0.45	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5) Nov 1 - Mar 31	404	606	XXX	22.0	33.0	44	2/week	24-Hr Composite
Carbonaceous Biochemical Oxygen Demand (CBOD5) May 1 - Oct 31	248	367	XXX	13.5	20.0	27	2/week	24-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Suspended Solids	551	826	XXX	30.0	45.0	60	2/week	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/week	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/month	Grab

Outfall 001, Continued (from Permit Effective Date through Start of Final Period)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/L)				Minimum ⁽²⁾ Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Total Nitrogen	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	Calculation
Ammonia-Nitrogen Nov 1 - Apr 30	147	XXX	XXX	8.0	XXX	16	2/week	24-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	73	XXX	XXX	4.0	XXX	8	2/week	24-Hr Composite
Total Phosphorus	37	XXX	XXX	2.0	XXX	4	2/week	24-Hr Composite
Aluminum, Total (ug/L)	Report	Report Daily Max	XXX	Report	Report Daily Max	XXX	2/month	24-Hr Composite
Copper, Total (ug/L)	Report	Report Daily Max	XXX	Report	Report Daily Max	XXX	2/month	24-Hr Composite
Cyanide, Free (ug/L)	Report	Report Daily Max	XXX	Report	Report Daily Max	XXX	2/month	24-Hr Composite
Lead, Total	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	24-Hr Composite
Thallium, Total (ug/L)	Report	Report Daily Max	XXX	Report	Report Daily Max	XXX	2/month	24-Hr Composite
Zinc, Total (ug/L)	Report	Report Daily Max	XXX	Report	Report Daily Max	XXX	2/month	24-Hr Composite
PFOA (ng/L)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
PFOS (ng/L)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
PFBS (ng/L)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
HFPO-DA (ng/L)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab

Compliance Sampling Location: At outfall 001

7.1 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: Start of Final Period 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	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	4.0 Inst Min	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.14	XXX	0.45	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5) Nov 1 - Mar 31	404	606	XXX	22.0	33.0	44	2/week	24-Hr Composite
Carbonaceous Biochemical Oxygen Demand (CBOD5) May 1 - Oct 31	248	367	XXX	13.5	20.0	27	2/week	24-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Suspended Solids	551	826	XXX	30.0	45.0	60	2/week	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/week	Grab

Outfall 001, Continued (from Start of Final Period through Permit Expiration Date)

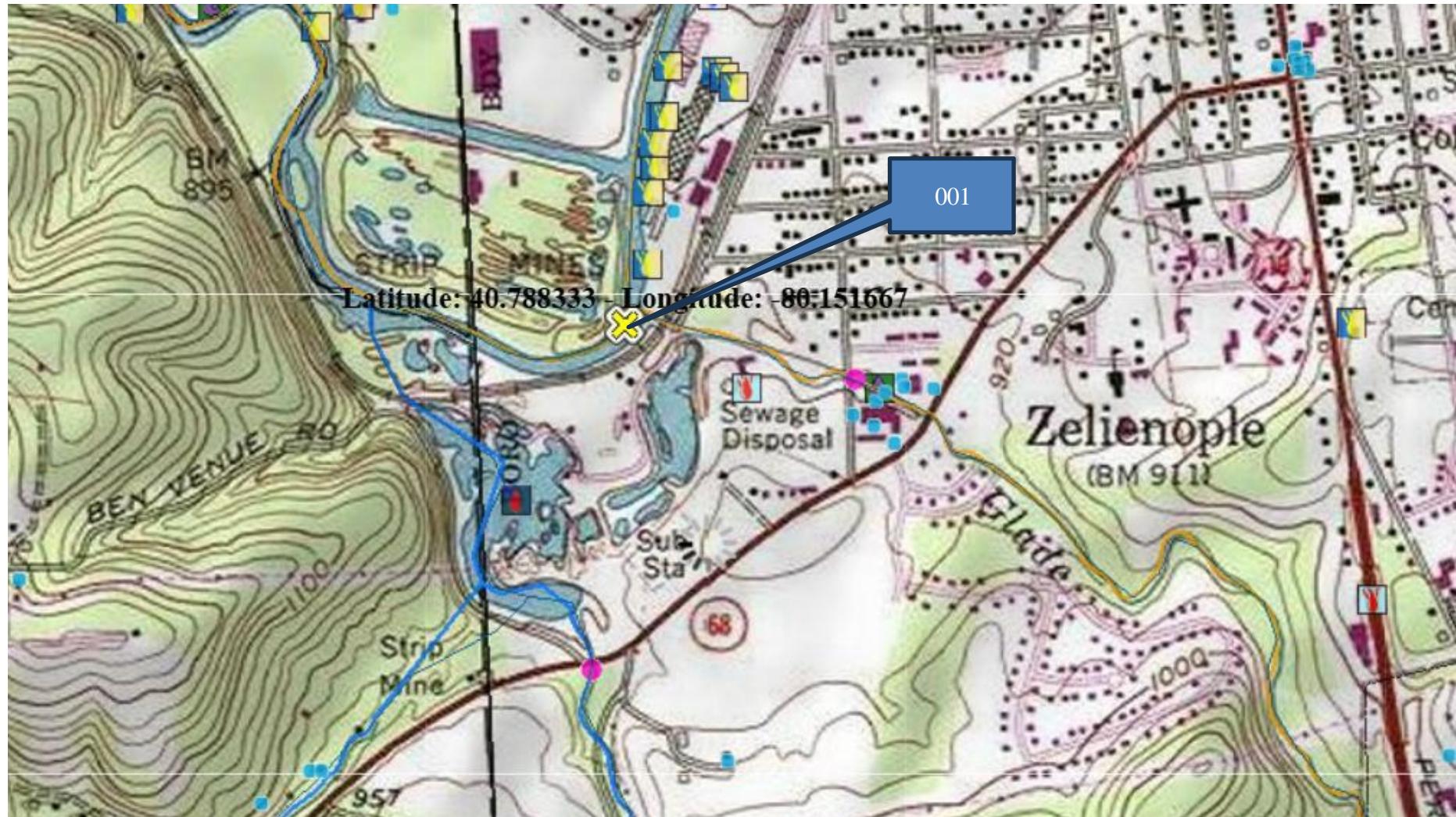
Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/L)				Minimum ⁽²⁾ Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/month	Grab
Total Nitrogen	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	Calculation
Ammonia-Nitrogen Nov 1 - Apr 30	147	XXX	XXX	8.0	XXX	16	2/week	24-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	73	XXX	XXX	4.0	XXX	8	2/week	24-Hr Composite
Total Phosphorus	37	XXX	XXX	2.0	XXX	4	2/week	24-Hr Composite
Aluminum, Total (ug/L)	Report	Report Daily Max	XXX	Report	Report Daily Max	XXX	2/month	24-Hr Composite
Copper, Total (ug/L)	Report	Report Daily Max	XXX	Report	Report Daily Max	XXX	2/month	24-Hr Composite
Cyanide, Free (ug/L)	0.31	0.48 Daily Max	XXX	16.5	26.0 Daily Max	42	2/month	24-Hr Composite
Lead, Total	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	24-Hr Composite
Thallium, Total (ug/L)	0.018	0.029 Daily Max	XXX	1.0	1.55 Daily Max	2.5	2/month	24-Hr Composite
Zinc, Total (ug/L)	Report	Report Daily Max	XXX	Report	Report Daily Max	XXX	2/month	24-Hr Composite
PFOA (ng/L)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
PFOS (ng/L)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
PFBS (ng/L)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
HFPO-DA (ng/L)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab

Compliance Sampling Location: At outfall 001

8.0 Tools and References Used to Develop Permit	
<input checked="" type="checkbox"/>	WQM for Windows Model (see Attachment B & C)
<input checked="" type="checkbox"/>	Toxics Management Spreadsheet (see Attachment D)
<input checked="" type="checkbox"/>	TRC Model Spreadsheet (see Attachment F)
<input type="checkbox"/>	Temperature Model Spreadsheet (see Attachment [REDACTED])
<input checked="" type="checkbox"/>	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
<input checked="" type="checkbox"/>	Technical Guidance for the Development and Specification of Effluent Limitations, 386-0400-001, 10/97.
<input type="checkbox"/>	Policy for Permitting Surface Water Diversions, 386-2000-019, 3/98.
<input type="checkbox"/>	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 386-2000-018, 11/96.
<input type="checkbox"/>	Technology-Based Control Requirements for Water Treatment Plant Wastes, 386-2183-001, 10/97.
<input type="checkbox"/>	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 386-2183-002, 12/97.
<input type="checkbox"/>	Pennsylvania CSO Policy, 386-2000-002, 9/08.
<input type="checkbox"/>	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
<input type="checkbox"/>	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 386-2000-008, 4/97.
<input checked="" type="checkbox"/>	Determining Water Quality-Based Effluent Limits, 386-2000-004, 12/97.
<input type="checkbox"/>	Implementation Guidance Design Conditions, 386-2000-007, 9/97.
<input checked="" type="checkbox"/>	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 386-2000-016, 6/2004.
<input type="checkbox"/>	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 386-2000-012, 10/1997.
<input type="checkbox"/>	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 386-2000-009, 3/99.
<input type="checkbox"/>	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 386-2000-015, 5/2004.
<input checked="" type="checkbox"/>	Implementation Guidance for Section 93.7 Ammonia Criteria, 386-2000-022, 11/97.
<input type="checkbox"/>	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 386-2000-013, 4/2008.
<input checked="" type="checkbox"/>	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 386-2000-011, 11/1994.
<input type="checkbox"/>	Implementation Guidance for Temperature Criteria, 386-2000-001, 4/09.
<input checked="" type="checkbox"/>	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 386-2000-021, 10/97.
<input type="checkbox"/>	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, 386-2000-020, 10/97.
<input type="checkbox"/>	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 386-2000-005, 3/99.
<input type="checkbox"/>	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, 386-2000-010, 3/1999.
<input type="checkbox"/>	Design Stream Flows, 386-2000-003, 9/98.
<input type="checkbox"/>	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 386-2000-006, 10/98.
<input type="checkbox"/>	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 386-3200-001, 6/97.
<input type="checkbox"/>	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
<input checked="" type="checkbox"/>	SOP: Establishing effluent limitation for individual sewage permits.
<input type="checkbox"/>	Other: [REDACTED]

Attachments

A. Topographical



B. WQM Model Summer

*Summer
Results*

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name					
		20C	34025	CONNOQUENESSING 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)
20.900	Western Butler	PA0021504	2.200	CBOD5	13.55		
				NH3-N	4.07	8.14	
				Dissolved Oxygen			4

NPDES Permit Fact Sheet

NPDES Permit No. PA0021504
 Western Butler County Authority STP

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name			RMI	Elevation	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC		
20C	34025 CONNOQUENESSING CREEK				20.900	890.00	325.14	0.00000	0.00	<input checked="" type="checkbox"/>		
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)	Stream Temp (°C)		
Q7-10	0.033	0.00	10.90	0.000	0.000	0.0	0.00	0.00	25.00	7.90		
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				
	Western Butler	PA0021504	2.2000	2.2000	2.2000	0.000	20.00	6.40				
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						

NPDES Permit Fact Sheet

NPDES Permit No. PA0021504 Western Butler County Authority STP

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
20C		34025 CONNOQUENESSING CREEK			11.820	862.00	412.20	0.00000	0.00	<input checked="" type="checkbox"/>
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)	Stream pH (°C)
Q7-10 0.033 0.00 0.00 0.000 0.000 0.0 0.00 0.00 25.00 7.90 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	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	4.00	8.24	0.00	0.00			
			NH3-N	25.00	0.00	0.00	0.70			

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NPDES Permit No. PA0021504
Western Butler County Authority STP

WQM 7.0 Hydrodynamic Outputs

SWP Basin			Stream Code			Stream Name							
20C			34025			CONNOQUENESSING CREEK							
RMI	Stream Flow	PWS With	Net Stream Flow	Disc Analysis Flow	Reach Slope	Depth	Width	W/D Ratio	Velocity	Reach Trav Time	Analysis Temp	Analysis pH	
Q7-10 Flow													
20.900	10.90	0.00	10.90	3.4034	0.00058	.908	72.14	79.49	0.22	2.540	23.81	6.98	
Q1-10 Flow													
20.900	6.98	0.00	6.98	3.4034	0.00058	NA	NA	NA	0.18	3.039	23.36	6.86	
Q30-10 Flow													
20.900	14.82	0.00	14.82	3.4034	0.00058	NA	NA	NA	0.25	2.217	24.07	7.07	

NPDES Permit Fact Sheet

NPDES Permit No. PA0021504
Western Butler County Authority STP

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	<input checked="" type="checkbox"/>
WLA Method	EMPR	Use Inputted W/D Ratio	<input type="checkbox"/>
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	<input type="checkbox"/>
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	<input checked="" type="checkbox"/>
D.O. Saturation	90.00%	Use Balanced Technology	<input checked="" type="checkbox"/>
D.O. Goal	5		

NPDES Permit Fact Sheet

NPDES Permit No. PA0021504
Western Butler County Authority STP

WQM 7.0 Wasteload Allocations

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>					
20C	34025	CONNOQUENESSING 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
20.900	Western Butler	14.2	43.31	14.2	43.31	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
20.900	Western Butler	1.41	7.55	1.41	7.55	0	0
Dissolved Oxygen Allocations							
RMI	Discharge Name	<u>CBOD5</u> Baseline (mg/L)	<u>NH3-N</u> Multiple (mg/L)	<u>Dissolved Oxygen</u> Baseline (mg/L)	<u>Dissolved Oxygen</u> Multiple (mg/L)	Critical Reach	Percent Reduction
20.90	Western Butler	13.55	13.55	4.07	4.07	4	0

NPDES Permit Fact Sheet

NPDES Permit No. PA0021504
 Western Butler County Authority STP

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name		
20C	34025	CONNOUENESSING CREEK		
RMI	Total Discharge Flow (mgd)		Analysis Temperature (°C)	Analysis pH
20.900	2.200		23.810	6.982
Reach Width (ft)	Reach Depth (ft)		Reach WDRatio	Reach Velocity (fps)
72.142	0.908		79.495	0.218
Reach CBOD5 (mg/L)	Reach Kc (1/days)		Reach NH3-N (mg/L)	Reach Kn (1/days)
4.75	0.286		0.97	0.939
Reach DO (mg/L)	Reach Kr (1/days)		Kr Equation	Reach DO Goal (mg/L)
7.233	0.953		Tsivoglou	5
Reach Travel Time (days)		Subreach Results		
2.540	TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
	0.254	4.35	0.76	6.16
	0.508	3.99	0.60	5.54
	0.762	3.66	0.47	5.24
	1.016	3.36	0.37	5.14
	1.270	3.08	0.29	5.18
	1.524	2.83	0.23	5.32
	1.778	2.59	0.18	5.50
	2.032	2.38	0.14	5.72
	2.286	2.18	0.11	5.94
	2.540	2.00	0.09	6.16

NPDES Permit Fact Sheet

NPDES Permit No. PA0021504
Western Butler County Authority STP

C. WQM Model Winter

*Winter
Results*

WQM 7.0 Effluent Limits

SWP Basin 20C	Stream Code 34025	Stream Name CONNOQUENESSING CREEK					
		Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
20.900	Western Butler	PA0021504	2.200	CBOD5	22.09		
				NH3-N	8.02	16.04	
				Dissolved Oxygen			4

NPDES Permit Fact Sheet

NPDES Permit No. PA0021504 Western Butler County Authority STP

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
20C		34025 CONNOQUENESSING CREEK			20.900	890.00	325.14	0.00000	0.00	<input checked="" type="checkbox"/>
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)	Stream pH (°C)
Q7-10 0.033 0.00 10.90 0.000 0.000 0.0 0.00 0.00 5.00 7.90 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	
		Western Butler	PA0021504	2.2000	2.2000	2.2000	0.000	20.00	6.40	
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		

NPDES Permit Fact Sheet

NPDES Permit No. PA0021504 Western Butler County Authority STP

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	
20C	34025	CONNOQUENESSING CREEK		11.820	862.00	412.20	0.00000	0.00	<input checked="" type="checkbox"/>	
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 pH (°C)	Stream pH (°C)
Q7-10	0.033	0.00	0.00	0.000	0.000	0.0	0.00	0.00	5.00	7.90
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		4.00	8.24	0.00	0.00				
	NH3-N		25.00	0.00	0.00	0.70				

NPDES Permit Fact Sheet**NPDES Permit No. PA0021504**
Western Butler County Authority STP**WQM 7.0 Hydrodynamic Outputs**

RMI	Stream Flow	PWS With	Stream Code		Stream Name								
			20C	34025	CONNOQUENESSING CREEK								
	(cfs)	(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													
20.900	10.90	0.00	10.90	3.4034	0.00058	.908	72.14	79.49	0.22	2.540	8.57	6.98	
Q1-10 Flow													
20.900	6.98	0.00	6.98	3.4034	0.00058	NA	NA	NA	0.18	3.039	9.92	6.86	
Q30-10 Flow													
20.900	14.82	0.00	14.82	3.4034	0.00058	NA	NA	NA	0.25	2.217	7.80	7.07	

NPDES Permit Fact Sheet

NPDES Permit No. PA0021504 Western Butler County Authority STP

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	<input checked="" type="checkbox"/>
VLA Method	EMPR	Use Inputted W/D Ratio	<input type="checkbox"/>
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	<input type="checkbox"/>
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	<input checked="" type="checkbox"/>
D.O. Saturation	90.00%	Use Balanced Technology	<input checked="" type="checkbox"/>
D.O. Goal	5		

NPDES Permit Fact Sheet

NPDES Permit No. PA0021504 Western Butler County Authority STP

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name					
20C	34025	CONNOQUENESSING 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
20.900	Western Butler	26.99	50	26.99	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
20.900	Western Butler	4.02	21.54	4.02	21.54	0	0
Dissolved Oxygen Allocations							
RMI	Discharge Name	CBOD5 Baseline (mg/L)	CBOD5 Multiple (mg/L)	NH3-N Baseline (mg/L)	NH3-N Multiple (mg/L)	Dissolved Oxygen Baseline (mg/L)	Dissolved Oxygen Multiple (mg/L)
20.90	Western Butler	22.09	22.09	8.02	8.02	4	4
						0	0

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WQM 7.0 D.O. Simulation

SWP Basin	Stream Code	Stream Name		
20C	34025	CONNOUENESSING CREEK		
<u>RMI</u>		<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>	<u>Analysis pH</u>
20.900		2.200	8.569	6.982
<u>Reach Width (ft)</u>		<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>	<u>Reach Velocity (fps)</u>
72.142		0.908	79.495	0.218
<u>Reach CBOD5 (mg/L)</u>		<u>Reach Kc (1/days)</u>	<u>Reach NH3-N (mg/L)</u>	<u>Reach Kn (1/days)</u>
6.78		0.737	1.91	0.290
<u>Reach DO (mg/L)</u>		<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>	<u>Reach DO Goal (mg/L)</u>
7.233		0.664	Tsivoglou	5
<u>Reach Travel Time (days)</u>		Subreach Results		
2.540		TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)
		0.254	6.07	1.77
		0.508	5.43	1.65
		0.762	4.86	1.53
		1.016	4.35	1.42
		1.270	3.90	1.32
		1.524	3.49	1.23
		1.778	3.12	1.14
		2.032	2.80	1.06
		2.286	2.50	0.98
		2.540	2.24	0.91
				D.O. (mg/L)
				6.37
				5.78
				5.42
				5.22
				5.22
				5.34
				5.53
				5.76
				6.02

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D. TMS Model Results



Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions		Discharge		Stream					
Facility:	Western Butler County Authority	NPDES Permit No.:	PA0021504	Outfall No.:	001				
Evaluation Type:	Major Sewage / Industrial Waste	Wastewater Description: Sewage							
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Discharge Characteristics						
			Partial Mix Factors (PMFs)			Complete Mix Times (min)			
2.2	178	6.4	AFC	CFC	THH	CRL	Q ₇₋₁₀	Q _h	
			0 if left blank	0.5 if left blank		0 if left blank		1 if left blank	
			Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS
Group 1	Total Dissolved Solids (PWS)	mg/L	558						
	Chloride (PWS)	mg/L	227						
	Bromide	mg/L	< 0.1						
	Sulfate (PWS)	mg/L	79.8						
	Fluoride (PWS)	mg/L	<						
	Total Aluminum	µg/L	120						
	Total Antimony	µg/L	< 2						
	Total Arsenic	µg/L	< 2						
	Total Barium	µg/L	35.7						
	Total Beryllium	µg/L	< 1						
	Total Boron	µg/L	< 190						
	Total Cadmium	µg/L	< 0.2						
	Total Chromium (III)	µg/L	< 2						
	Hexavalent Chromium	µg/L	< 0.02						
	Total Cobalt	µg/L	< 1						
Total Copper	µg/L	10							
Free Cyanide	µg/L	10							
Total Cyanide	µg/L	4.4							
Dissolved Iron	µg/L	< 40							
Total Iron	µg/L	66							
Total Lead	µg/L	1							
Total Manganese	µg/L	332							
Total Mercury	µg/L	< 0.2							
Total Nickel	µg/L	< 5.26							
Total Phenols (Phenolics) (PWS)	µg/L	< 5							
Total Selenium	µg/L	< 5							
Total Silver	µg/L	< 0.4							
Total Thallium	µg/L	3							
Total Zinc	µg/L	54							
Total Molybdenum	µg/L	< 2							
Acrolein	µg/L	< 1							
Acrylamide	µg/L								
Acrylonitrile	µg/L	< 0.5							
Benzene	µg/L	< 0.5							
Bromoform	µg/L	< 0.5							

Discharge Information

7/9/2025

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Toxics Management Spreadsheet
Version 1.4, May 2023

Stream / Surface Water Information

Western Butler County Authority, NPDES Permit No. PA0021504, Outfall 001

Instructions **Discharge** Stream

Receiving Surface Water Name: West Br Tunungwant Creek

No. Reaches to Model: 1

Statewide Criteria

Great Lakes Criteria

ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi ²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	034025	20.9	890	325.14			Yes
End of Reach 1	034025	11.82	862	412.2			Yes

Q₇₋₁₀

Location	RMI	LFY (cfs/mi ²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	20.9	0.0334										192	7.9		
End of Reach 1	11.82	0.0334													

Q_h

Location	RMI	LFY (cfs/mi ²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	20.9														
End of Reach 1	11.82														

NPDES Permit No. PA0021504
Western Butler County Authority STPToxics Management Spreadsheet
Version 1.4, May 2023

Model Results

Western Butler County Authority, NPDES Permit No. PA0021504, Outfall 001

<input type="button" value="Instructions"/>	<input type="button" value="Results"/>	<input type="button" value="RETURN TO INPUTS"/>	<input type="button" value="SAVE AS PDF"/>	<input type="button" value="PRINT"/>	<input checked="" type="radio"/> All	<input type="radio"/> Inputs	<input type="radio"/> Results	<input type="radio"/> Limits
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 Hydrodynamics Wasteload Allocations AFCCCT (min): PMF: Analysis Hardness (mg/l): Analysis pH:

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	1,409	
Total Antimony	0	0		0	1,100	1,100	2,067	
Total Arsenic	0	0		0	340	340	639	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	39,462	
Total Boron	0	0		0	8,100	8,100	15,221	
Total Cadmium	0	0		0	3.652	3.98	7.47	Chem Translator of 0.918 applied
Total Chromium (III)	0	0		0	941.112	2,978	5,596	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	15.730	16.0	30.1	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	179	
Total Copper	0	0		0	23.939	24.9	46.9	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	22	22.0	41.3	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	124.984	178	335	Chem Translator of 0.702 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	3.1	Chem Translator of 0.85 applied
Total Nickel	0	0		0	786.315	788	1,481	Chem Translator of 0.998 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	Chem Translator of 0.922 applied
Total Silver	0	0		0	9.229	10.9	20.4	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	122	
Total Zinc	0	0		0	196.940	201	378	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	5.64	

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Acrylonitrile	0	0	0	650	650	1,221	
Benzene	0	0	0	640	640	1,203	
Bromoform	0	0	0	1,800	1,800	3,382	
Carbon Tetrachloride	0	0	0	2,800	2,800	5,262	
Chlorobenzene	0	0	0	1,200	1,200	2,255	
Chlorodibromomethane	0	0	0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0	0	18,000	18,000	33,824	
Chloroform	0	0	0	1,900	1,900	3,570	
Dichlorobromomethane	0	0	0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0	0	15,000	15,000	28,187	
1,1-Dichloroethylene	0	0	0	7,500	7,500	14,093	
1,2-Dichloropropane	0	0	0	11,000	11,000	20,670	
1,3-Dichloropropylene	0	0	0	310	310	583	
Ethylbenzene	0	0	0	2,900	2,900	5,449	
Methyl Bromide	0	0	0	550	550	1,034	
Methyl Chloride	0	0	0	28,000	28,000	52,615	
Methylene Chloride	0	0	0	12,000	12,000	22,549	
1,1,2,2-Tetrachloroethane	0	0	0	1,000	1,000	1,879	
Tetrachloroethylene	0	0	0	700	700	1,315	
Toluene	0	0	0	1,700	1,700	3,195	
1,2-trans-Dichloroethylene	0	0	0	6,800	6,800	12,778	
1,1,1-Trichloroethane	0	0	0	3,000	3,000	5,637	
1,1,2-Trichloroethane	0	0	0	3,400	3,400	6,389	
Trichloroethylene	0	0	0	2,300	2,300	4,322	
Vinyl Chloride	0	0	0	N/A	N/A	N/A	
2-Chlorophenol	0	0	0	560	560	1,052	
2,4-Dichlorophenol	0	0	0	1,700	1,700	3,195	
2,4-Dimethylphenol	0	0	0	660	660	1,240	
4,6-Dinitro-o-Cresol	0	0	0	80	80.0	150	
2,4-Dinitrophenol	0	0	0	660	660	1,240	
2-Nitrophenol	0	0	0	8,000	8,000	15,033	
4-Nitrophenol	0	0	0	2,300	2,300	4,322	
p-Chloro-m-Cresol	0	0	0	160	160	301	
Pentachlorophenol	0	0	0	6,211	6.21	11.7	
Phenol	0	0	0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0	0	460	460	864	
Acenaphthene	0	0	0	83	83.0	156	
Anthracene	0	0	0	N/A	N/A	N/A	
Benzidine	0	0	0	300	300	564	
Benzo(a)Anthracene	0	0	0	0.5	0.5	0.94	
Benzo(a)Pyrene	0	0	0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0	0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0	0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0	0	30,000	30,000	56,374	
Bis(2-Chloroisopropyl)Ether	0	0	0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0	0	4,500	4,500	8,456	
4-Bromophenyl Phenyl Ether	0	0	0	270	270	507	
Butyl Benzyl Phthalate	0	0	0	140	140	263	

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2-Chloronaphthalene	0	0		0	N/A	N/A	N/A
Chrysene	0	0		0	N/A	N/A	N/A
Dibenzo(a,h)Anthracene	0	0		0	N/A	N/A	N/A
1,2-Dichlorobenzene	0	0		0	820	820	1,541
1,3-Dichlorobenzene	0	0		0	350	350	658
1,4-Dichlorobenzene	0	0		0	730	730	1,372
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A
Diethyl Phthalate	0	0		0	4,000	4,000	7,516
Dimethyl Phthalate	0	0		0	2,500	2,500	4,698
Di-n-Butyl Phthalate	0	0		0	110	110	207
2,4-Dinitrotoluene	0	0		0	1,600	1,600	3,007
2,6-Dinitrotoluene	0	0		0	990	990	1,860
1,2-Diphenylhydrazine	0	0		0	15	15.0	28.2
Fluoranthene	0	0		0	200	200	376
Fluorene	0	0		0	N/A	N/A	N/A
Hexachlorobenzene	0	0		0	N/A	N/A	N/A
Hexachlorobutadiene	0	0		0	10	10.0	18.8
Hexachlorocyclopentadiene	0	0		0	5	5.0	9.4
Hexachloroethane	0	0		0	60	60.0	113
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A
Isophorone	0	0		0	10,000	10,000	18,791
Naphthalene	0	0		0	140	140	263
Nitrobenzene	0	0		0	4,000	4,000	7,516
n-Nitrosodimethylamine	0	0		0	17,000	17,000	31,945
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A
n-Nitrosodiphenylamine	0	0		0	300	300	564
Phenanthrene	0	0		0	5	5.0	9.4
Pyrene	0	0		0	N/A	N/A	N/A
1,2,4-Trichlorobenzene	0	0		0	130	130	244

CFC

CCT (min): #####

PMF: 1

Analysis Hardness (mg/l):

188.66

Analysis pH: 6.98

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	220	220	922	
Total Arsenic	0	0		0	148	148	620	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	17,182	
Total Boron	0	0		0	1,600	1,600	6,705	
Total Cadmium	0	0		0	0.382	0.43	1.82	Chem Translator of 0.882 applied
Total Chromium (III)	0	0		0	124.648	145	607	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	43.6	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	79.6	

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Total Copper	0	0	0	15.405	16.0	67.3	Chem Translator of 0.96 applied
Free Cyanide	0	0	0	5.2	5.2	21.8	
Dissolved Iron	0	0	0	N/A	N/A	N/A	
Total Iron	0	0	0	1,500	1,500	6,286	WQC = 30 day average; PMF = 1
Total Lead	0	0	0	4.986	7.14	29.9	Chem Translator of 0.699 applied
Total Manganese	0	0	0	N/A	N/A	N/A	
Total Mercury	0	0	0	0.770	0.91	3.8	Chem Translator of 0.85 applied
Total Nickel	0	0	0	88.978	89.2	374	Chem Translator of 0.997 applied
Total Phenols (Phenolics) (PWS)	0	0	0	N/A	N/A	N/A	
Total Selenium	0	0	0	4.600	4.99	20.9	Chem Translator of 0.922 applied
Total Silver	0	0	0	N/A	N/A	N/A	Chem Translator of 1 applied
Total Thallium	0	0	0	13	13.0	54.5	
Total Zinc	0	0	0	202.291	205	860	Chem Translator of 0.986 applied
Acrolein	0	0	0	3	3.0	12.6	
Acrylonitrile	0	0	0	130	130	545	
Benzene	0	0	0	130	130	545	
Bromoform	0	0	0	370	370	1,551	
Carbon Tetrachloride	0	0	0	560	560	2,347	
Chlorobenzene	0	0	0	240	240	1,006	
Chlorodibromomethane	0	0	0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0	0	3,500	3,500	14,668	
Chloroform	0	0	0	390	390	1,634	
Dichlorobromomethane	0	0	0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0	0	3,100	3,100	12,992	
1,1-Dichloroethylene	0	0	0	1,500	1,500	6,286	
1,2-Dichloropropane	0	0	0	2,200	2,200	9,220	
1,3-Dichloropropylene	0	0	0	61	61.0	256	
Ethylbenzene	0	0	0	580	580	2,431	
Methyl Bromide	0	0	0	110	110	461	
Methyl Chloride	0	0	0	5,500	5,500	23,050	
Methylene Chloride	0	0	0	2,400	2,400	10,058	
1,1,2,2-Tetrachloroethane	0	0	0	210	210	880	
Tetrachloroethylene	0	0	0	140	140	587	
Toluene	0	0	0	330	330	1,383	
1,2-trans-Dichloroethylene	0	0	0	1,400	1,400	5,867	
1,1,1-Trichloroethane	0	0	0	610	610	2,556	
1,1,2-Trichloroethane	0	0	0	680	680	2,850	
Trichloroethylene	0	0	0	450	450	1,886	
Vinyl Chloride	0	0	0	N/A	N/A	N/A	
2-Chlorophenol	0	0	0	110	110	461	
2,4-Dichlorophenol	0	0	0	340	340	1,425	
2,4-Dimethylphenol	0	0	0	130	130	545	
4,6-Dinitro-o-Cresol	0	0	0	16	16.0	67.1	
2,4-Dinitrophenol	0	0	0	130	130	545	
2-Nitrophenol	0	0	0	1,600	1,600	6,705	

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4-Nitrophenol	0	0		0	470	470	1,970	
p-Chloro-m-Cresol	0	0		0	500	500	2,095	
Pentachlorophenol	0	0		0	4.765	4.77	20.0	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	381	
Acenaphthene	0	0		0	17	17.0	71.2	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	59	59.0	247	
Benzo(a)Anthracene	0	0		0	0.1	0.1	0.42	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	6,000	6,000	25,145	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	3,814	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	226	
Butyl Benzyl Phthalate	0	0		0	35	35.0	147	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthracene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	160	160	671	
1,3-Dichlorobenzene	0	0		0	69	69.0	289	
1,4-Dichlorobenzene	0	0		0	150	150	629	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	3,353	
Dimethyl Phthalate	0	0		0	500	500	2,095	
Di-n-Butyl Phthalate	0	0		0	21	21.0	88.0	
2,4-Dinitrotoluene	0	0		0	320	320	1,341	
2,6-Dinitrotoluene	0	0		0	200	200	838	
1,2-Diphenylhydrazine	0	0		0	3	3.0	12.6	
Fluoranthene	0	0		0	40	40.0	168	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	2	2.0	8.38	
Hexachlorocyclopentadiene	0	0		0	1	1.0	4.19	
Hexachloroethane	0	0		0	12	12.0	50.3	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	8,801	
Naphthalene	0	0		0	43	43.0	180	
Nitrobenzene	0	0		0	810	810	3,395	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	14,249	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	247	
Phenanthrene	0	0		0	1	1.0	4.19	
Pyrene	0	0		0	N/A	N/A	N/A	

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1,2,4-Trichlorobenzene	0	0	0	0	26	26.0	109	

THH

CCT (min): #####

PMF: 1

Analysis Hardness (mg/l):

N/A

Analysis pH:

N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0	0	0	500,000	500,000	N/A	
Chloride (PWS)	0	0	0	0	250,000	250,000	N/A	
Sulfate (PWS)	0	0	0	0	250,000	250,000	N/A	
Total Aluminum	0	0	0	0	N/A	N/A	N/A	
Total Antimony	0	0	0	0	5.6	5.6	23.5	
Total Arsenic	0	0	0	0	10	10.0	41.9	
Total Barium	0	0	0	0	2,400	2,400	10,058	
Total Boron	0	0	0	0	3,100	3,100	12,992	
Total Cadmium	0	0	0	0	N/A	N/A	N/A	
Total Chromium (III)	0	0	0	0	N/A	N/A	N/A	
Hexavalent Chromium	0	0	0	0	N/A	N/A	N/A	
Total Cobalt	0	0	0	0	N/A	N/A	N/A	
Total Copper	0	0	0	0	N/A	N/A	N/A	
Free Cyanide	0	0	0	0	4	4.0	16.8	
Dissolved Iron	0	0	0	0	300	300	1,257	
Total Iron	0	0	0	0	N/A	N/A	N/A	
Total Lead	0	0	0	0	N/A	N/A	N/A	
Total Manganese	0	0	0	0	1,000	1,000	4,191	
Total Mercury	0	0	0	0	0.003	0.003	0.013	
Total Nickel	0	0	0	0	610	610	2,556	
Total Phenols (Phenolics) (PWS)	0	0	0	0	5	5.0	N/A	
Total Selenium	0	0	0	0	N/A	N/A	N/A	
Total Silver	0	0	0	0	N/A	N/A	N/A	
Total Thallium	0	0	0	0	0.24	0.24	1.01	
Total Zinc	0	0	0	0	N/A	N/A	N/A	
Acrolein	0	0	0	0	3	3.0	12.6	
Acrylonitrile	0	0	0	0	N/A	N/A	N/A	
Benzene	0	0	0	0	N/A	N/A	N/A	
Bromoform	0	0	0	0	N/A	N/A	N/A	
Carbon Tetrachloride	0	0	0	0	N/A	N/A	N/A	
Chlorobenzene	0	0	0	0	100	100.0	419	
Chlorodibromomethane	0	0	0	0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0	0	0	N/A	N/A	N/A	
Chloroform	0	0	0	0	5.7	5.7	23.9	
Dichlorobromomethane	0	0	0	0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0	0	0	N/A	N/A	N/A	
1,1-Dichloroethylene	0	0	0	0	33	33.0	138	
1,2-Dichloropropane	0	0	0	0	N/A	N/A	N/A	

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1,3-Dichloropropylene	0	0		0	N/A	N/A	N/A
Ethylbenzene	0	0		0	68	68.0	285
Methyl Bromide	0	0		0	100	100.0	419
Methyl Chloride	0	0		0	N/A	N/A	N/A
Methylene Chloride	0	0		0	N/A	N/A	N/A
1,1,2,2-Tetrachloroethane	0	0		0	N/A	N/A	N/A
Tetrachloroethylene	0	0		0	N/A	N/A	N/A
Toluene	0	0		0	57	57.0	239
1,2-trans-Dichloroethylene	0	0		0	100	100.0	419
1,1,1-Trichloroethane	0	0		0	10,000	10,000	41,908
1,1,2-Trichloroethane	0	0		0	N/A	N/A	N/A
Trichloroethylene	0	0		0	N/A	N/A	N/A
Vinyl Chloride	0	0		0	N/A	N/A	N/A
2-Chlorophenol	0	0		0	30	30.0	126
2,4-Dichlorophenol	0	0		0	10	10.0	41.9
2,4-Dimethylphenol	0	0		0	100	100.0	419
4,6-Dinitro-o-Cresol	0	0		0	2	2.0	8.38
2,4-Dinitrophenol	0	0		0	10	10.0	41.9
2-Nitrophenol	0	0		0	N/A	N/A	N/A
4-Nitrophenol	0	0		0	N/A	N/A	N/A
p-Chloro-m-Cresol	0	0		0	N/A	N/A	N/A
Pentachlorophenol	0	0		0	N/A	N/A	N/A
Phenol	0	0		0	4,000	4,000	16,763
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A
Acenaphthene	0	0		0	70	70.0	293
Anthracene	0	0		0	300	300	1,257
Benzidine	0	0		0	N/A	N/A	N/A
Benzo(a)Anthracene	0	0		0	N/A	N/A	N/A
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A
Bis(2-Chloroethyl)Ether	0	0		0	N/A	N/A	N/A
Bis(2-Chloroisopropyl)Ether	0	0		0	200	200	838
Bis(2-Ethylhexyl)Phthalate	0	0		0	N/A	N/A	N/A
4-Bromophenyl Phenyl Ether	0	0		0	N/A	N/A	N/A
Butyl Benzyl Phthalate	0	0		0	0.1	0.1	0.42
2-Chloronaphthalene	0	0		0	800	800	3,353
Chrysene	0	0		0	N/A	N/A	N/A
Dibenzo(a,h)Anthracene	0	0		0	N/A	N/A	N/A
1,2-Dichlorobenzene	0	0		0	1,000	1,000	4,191
1,3-Dichlorobenzene	0	0		0	7	7.0	29.3
1,4-Dichlorobenzene	0	0		0	300	300	1,257
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A
Diethyl Phthalate	0	0		0	600	600	2,514
Dimethyl Phthalate	0	0		0	2,000	2,000	8,382

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Di-n-Butyl Phthalate	0	0		0	20	20.0	83.8	
2,4-Dinitrotoluene	0	0		0	N/A	N/A	N/A	
2,6-Dinitrotoluene	0	0		0	N/A	N/A	N/A	
1,2-Diphenylhydrazine	0	0		0	N/A	N/A	N/A	
Fluoranthene	0	0		0	20	20.0	83.8	
Fluorene	0	0		0	50	50.0	210	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	N/A	N/A	N/A	
Hexachlorocyclopentadiene	0	0		0	4	4.0	16.8	
Hexachloroethane	0	0		0	N/A	N/A	N/A	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	34	34.0	142	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	41.9	
n-Nitrosodimethylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	N/A	N/A	N/A	
Phenanthrene	0	0		0	N/A	N/A	N/A	
Pyrene	0	0		0	20	20.0	83.8	
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	0.29	

CRL

CCT (min): #####

PMF: 1

Analysis Hardness (mg/l):

N/A

Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	N/A	N/A	N/A	
Total Arsenic	0	0		0	N/A	N/A	N/A	
Total Barium	0	0		0	N/A	N/A	N/A	
Total Boron	0	0		0	N/A	N/A	N/A	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Free Cyanide	0	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	N/A	N/A	N/A	

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Total Nickel	0	0		0	N/A	N/A	N/A
Total Phenols (Phenoics) (PWS)	0	0		0	N/A	N/A	N/A
Total Selenium	0	0		0	N/A	N/A	N/A
Total Silver	0	0		0	N/A	N/A	N/A
Total Thallium	0	0		0	N/A	N/A	N/A
Total Zinc	0	0		0	N/A	N/A	N/A
Acrolein	0	0		0	N/A	N/A	N/A
Acrylonitrile	0	0		0	0.06	0.06	1.11
Benzene	0	0		0	0.58	0.58	10.8
Bromoform	0	0		0	7	7.0	130
Carbon Tetrachloride	0	0		0	0.4	0.4	7.42
Chlorobenzene	0	0		0	N/A	N/A	N/A
Chlorodibromomethane	0	0		0	0.8	0.8	14.8
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A
Chloroform	0	0		0	N/A	N/A	N/A
Dichlorobromomethane	0	0		0	0.95	0.95	17.6
1,2-Dichloroethane	0	0		0	9.9	9.9	184
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A
1,2-Dichloropropane	0	0		0	0.9	0.9	16.7
1,3-Dichloropropylene	0	0		0	0.27	0.27	5.01
Ethylbenzene	0	0		0	N/A	N/A	N/A
Methyl Bromide	0	0		0	N/A	N/A	N/A
Methyl Chloride	0	0		0	N/A	N/A	N/A
Methylene Chloride	0	0		0	4.7	4.7	87.2
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	3.71
Tetrachloroethylene	0	0		0	10	10.0	186
Toluene	0	0		0	N/A	N/A	N/A
1,2-trans-Dichloroethylene	0	0		0	N/A	N/A	N/A
1,1,1-Trichloroethane	0	0		0	N/A	N/A	N/A
1,1,2-Trichloroethane	0	0		0	0.55	0.55	10.2
Trichloroethylene	0	0		0	0.6	0.6	11.1
Vinyl Chloride	0	0		0	0.02	0.02	0.37
2-Chlorophenol	0	0		0	N/A	N/A	N/A
2,4-Dichlorophenol	0	0		0	N/A	N/A	N/A
2,4-Dimethylphenol	0	0		0	N/A	N/A	N/A
4,6-Dinitro-o-Cresol	0	0		0	N/A	N/A	N/A
2,4-Dinitrophenol	0	0		0	N/A	N/A	N/A
2-Nitrophenol	0	0		0	N/A	N/A	N/A
4-Nitrophenol	0	0		0	N/A	N/A	N/A
p-Chloro-m-Cresol	0	0		0	N/A	N/A	N/A
Pentachlorophenol	0	0		0	0.030	0.03	0.56
Phenol	0	0		0	N/A	N/A	N/A
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	27.8
Acenaphthene	0	0		0	N/A	N/A	N/A
Anthracene	0	0		0	N/A	N/A	N/A

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Benzidine	0	0		0	0.0001	0.0001	0.002	
Benzo(a)Anthracene	0	0		0	0.001	0.001	0.019	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.002	
3,4-Benzofluoranthene	0	0		0	0.001	0.001	0.019	
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	0.19	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	0.56	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	5.94	
4-Bromophenyl Phenyl Ether	0	0		0	N/A	N/A	N/A	
Butyl Benzyl Phthalate	0	0		0	N/A	N/A	N/A	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	0.12	0.12	2.23	
Dibenzo(a,h)Anthracene	0	0		0	0.0001	0.0001	0.002	
1,2-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
1,3-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
1,4-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
3,3-Dichlorobenzidine	0	0		0	0.05	0.05	0.93	
Diethyl Phthalate	0	0		0	N/A	N/A	N/A	
Dimethyl Phthalate	0	0		0	N/A	N/A	N/A	
Di-n-Butyl Phthalate	0	0		0	N/A	N/A	N/A	
2,4-Dinitrotoluene	0	0		0	0.05	0.05	0.93	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	0.93	
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	0.56	
Fluoranthene	0	0		0	N/A	N/A	N/A	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	0.000045	0.00005	0.0008	
Hexachlorobutadiene	0	0		0	0.01	0.01	0.19	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	1.86	
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	0.019	
Isophorone	0	0		0	N/A	N/A	N/A	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	N/A	N/A	N/A	
n-Nitrosodimethylamine	0	0		0	0.0007	0.0007	0.013	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	0.093	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	61.2	
Phenanthrene	0	0		0	N/A	N/A	N/A	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	N/A	N/A	N/A	

Recommended WQBELs & Monitoring Requirements

No. Samples/Month: 4

Model Results

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Pollutants	Mass Limits		Concentration Limits				Governing WQBEL	WQBEL Basis	Comments
	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units			
Total Aluminum	Report	Report	Report	Report	Report	µg/L	903	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Copper	Report	Report	Report	Report	Report	µg/L	30.0	AFC	Discharge Conc > 10% WQBEL (no RP)
Free Cyanide	0.31	0.48	16.8	26.2	41.9	µg/L	16.8	THH	Discharge Conc ≥ 50% WQBEL (RP)
Total Thallium	0.018	0.029	1.01	1.57	2.51	µg/L	1.01	THH	Discharge Conc ≥ 50% WQBEL (RP)
Total Zinc	Report	Report	Report	Report	Report	µg/L	243	AFC	Discharge Conc > 10% WQBEL (no RP)

Other Pollutants without Limits or Monitoring

The following pollutants do not require effluent limits or monitoring based on water quality because reasonable potential to exceed water quality criteria was not determined and the discharge concentration was less than thresholds for monitoring, or the pollutant was not detected and a sufficiently sensitive analytical method was used (e.g., <= Target QL).

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Chloride (PWS)	N/A	N/A	PWS Not Applicable
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	N/A	N/A	PWS Not Applicable
Total Antimony	N/A	N/A	Discharge Conc < TQL
Total Arsenic	N/A	N/A	Discharge Conc < TQL
Total Barium	10,058	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	6,705	µg/L	Discharge Conc < TQL
Total Cadmium	1.82	µg/L	Discharge Conc < TQL
Total Chromium (III)	607	µg/L	Discharge Conc < TQL
Hexavalent Chromium	19.3	µg/L	Discharge Conc < TQL
Total Cobalt	79.6	µg/L	Discharge Conc < TQL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	1,257	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	6,286	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	29.9	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	4,191	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	0.003	µg/L	Discharge Conc < TQL
Total Nickel	374	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	Discharge Conc < TQL
Total Selenium	20.9	µg/L	Discharge Conc < TQL
Total Silver	13.1	µg/L	Discharge Conc < TQL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	3.61	µg/L	Discharge Conc < TQL
Acrylonitrile	1.11	µg/L	Discharge Conc < TQL
Benzene	10.8	µg/L	Discharge Conc < TQL
Bromoform	130	µg/L	Discharge Conc < TQL
Carbon Tetrachloride	7.42	µg/L	Discharge Conc < TQL

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Chlorobenzene	419	µg/L	Discharge Conc ≤ 25% WQBEL
Chlorodibromomethane	14.8	µg/L	Discharge Conc < TQL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	14,668	µg/L	Discharge Conc < TQL
Chloroform	23.9	µg/L	Discharge Conc < TQL
Dichlorobromomethane	17.6	µg/L	Discharge Conc < TQL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	184	µg/L	Discharge Conc < TQL
1,1-Dichloroethylene	138	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	16.7	µg/L	Discharge Conc < TQL
1,3-Dichloropropylene	5.01	µg/L	Discharge Conc < TQL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	285	µg/L	Discharge Conc < TQL
Methyl Bromide	419	µg/L	Discharge Conc < TQL
Methyl Chloride	23,050	µg/L	Discharge Conc < TQL
Methylene Chloride	87.2	µg/L	Discharge Conc < TQL
1,1,2,2-Tetrachloroethane	3.71	µg/L	Discharge Conc < TQL
Tetrachloroethylene	186	µg/L	Discharge Conc < TQL
Toluene	239	µg/L	Discharge Conc < TQL
1,2-trans-Dichloroethylene	419	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	2,556	µg/L	Discharge Conc < TQL
1,1,2-Trichloroethane	10.2	µg/L	Discharge Conc < TQL
Trichloroethylene	11.1	µg/L	Discharge Conc < TQL
Vinyl Chloride	0.37	µg/L	Discharge Conc < TQL
2-Chlorophenol	126	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	41.9	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	419	µg/L	Discharge Conc < TQL
4,6-Dinitro-o-Cresol	8.38	µg/L	Discharge Conc < TQL
2,4-Dinitrophenol	41.9	µg/L	Discharge Conc < TQL
2-Nitrophenol	6,705	µg/L	Discharge Conc < TQL
4-Nitrophenol	1,970	µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol	193	µg/L	Discharge Conc < TQL
Pentachlorophenol	0.56	µg/L	Discharge Conc < TQL
Phenol	16,763	µg/L	Discharge Conc < TQL
2,4,6-Trichlorophenol	27.8	µg/L	Discharge Conc < TQL
Acenaphthene	71.2	µg/L	Discharge Conc < TQL
Acenaphthylene	N/A	N/A	No WQS
Anthracene	1,257	µg/L	Discharge Conc < TQL
Benzidine	0.002	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	0.019	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.002	µg/L	Discharge Conc < TQL
3,4-Benzo fluoranthene	0.019	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	0.19	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS

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E. DMR Data for Total Lead

MONITORING START DATE	MONITORING END DATE	PARAMETER(mg/L)	CONC 2 VALUE	E FREQUE NCY
01/01/2020	03/31/2020	Lead, Total	< 0.01	1/quarter
04/01/2020	06/30/2020	Lead, Total	< 0.01	1/quarter
07/01/2020	09/30/2020	Lead, Total	< 0.01	1/quarter
10/01/2020	12/31/2020	Lead, Total	< 0.01	1/quarter
01/01/2021	03/31/2021	Lead, Total	< 0.01	1/quarter
04/01/2021	06/30/2021	Lead, Total	< 0.01	1/quarter
07/01/2021	09/30/2021	Lead, Total	< 0.01	1/quarter
10/01/2021	12/31/2021	Lead, Total	< 0.01	1/quarter
01/01/2022	03/31/2022	Lead, Total	< 0.01	1/quarter
04/01/2022	06/30/2022	Lead, Total	< 0.01	1/quarter
07/01/2022	09/30/2022	Lead, Total	< 0.01	1/quarter
10/01/2022	12/31/2022	Lead, Total	< 0.01	1/quarter
01/01/2023	03/31/2023	Lead, Total	< 0.01	1/quarter
04/01/2023	06/30/2023	Lead, Total	< 0.01	1/quarter
07/01/2023	09/30/2023	Lead, Total	< 0.01	1/quarter
10/01/2023	12/31/2023	Lead, Total	< 0.01	1/quarter
01/01/2024	03/31/2024	Lead, Total	< 0.02	1/quarter
04/01/2024	06/30/2024	Lead, Total	< 0.02	1/quarter
07/01/2024	09/30/2024	Lead, Total	< 0.02	1/quarter
10/01/2024	12/31/2024	Lead, Total	< 0.02	1/quarter

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F. TRC Calculation

TRC EVALUATION							
Input appropriate values in A3:A9 and D3:D9							
10.9	= Q _{stream} (cfs)		0.5	= CV Daily			
2.2	= Q _{discharge} (MGD)		0.5	= CV Hourly			
30	= no. samples		0.276	= AFC_Partial Mix Factor			
0.3	= Chlorine Demand of Stream		1	= CFC_Partial Mix Factor			
0	= Chlorine Demand of Discharge		15	= AFC_Criteria Compliance Time (min)			
0.5	= BAT/BPJ Value		720	= CFC_Criteria Compliance Time (min)			
0	= % Factor of Safety (FOS)		0	= Decay Coefficient (K)			
Source	Reference	AFC Calculations	Reference	CFC Calculations			
TRC	1.3.2 ii	WLA_afc = 0.301	1.3.2.ii	WLA_cfc = 1.007			
PENTOXSD TRG	5.1a	LTAMULT_afc = 0.373	5.1c	LTAMULT_cfc = 0.581			
PENTOXSD TRG	5.1b	LTA_afc= 0.112	5.1d	LTA_cfc = 0.585			
Effluent Limit Calculations							
PENTOXSD TRG	5.1f		AML MULT = 1.231				
PENTOXSD TRG	5.1g		AVG MON LIMIT (mg/l) = 0.138		AFC		
			INST MAX LIMIT (mg/l) = 0.451				
WLA_afc		(.019/e(-k*AFC_tc)) + [(AFC_Yc*Qs*.019/Qd*e(-k*AFC_tc))... ...+Xd + (AFC_Yc*Qs*Xa/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*Xa/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)					

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G. WET Testing Results

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet					
Type of Test	Chronic	Facility Name			
Species Tested	Ceriodaphnia	Western Butler County Authority			
Endpoint	Reproduction				
TIWC (decimal)	0.24				
No. Per Replicate	1	Permit No.			
TST b value	0.75	PA0021504			
TST alpha value	0.2				
Test Completion Date					
Replicate	7/2/2019	Replicate	6/30/2020	Replicate	Test Completion Date
No.	Control	No.	Control	No.	TIWC
1	28	1	27	1	21
2	41	2	28	2	22
3	34	3	31	3	3
4	33	4	29	4	24
5	40	5	28	5	26
6	36	6	28	6	18
7	34	7	32	7	30
8	37	8	3	8	27
9	39	9	30	9	34
10	37	10	32	10	28
11		11		11	
12		12		12	
13		13		13	
14		14		14	
15		15		15	
Mean	35.900	Mean	26.800	Mean	23.300
Std Dev.	3.843	Std Dev.	8.548	Std Dev.	8.499
# Replicates	10	# Replicates	10	# Replicates	10
T-Test Result	9.0690	T-Test Result	0.9505	T-Test Result	2.0721
Deg. of Freedom	17	Deg. of Freedom	16	Deg. of Freedom	12
Critical T Value	0.8633	Critical T Value	0.8647	Critical T Value	0.8726
Pass or Fail	PASS	Pass or Fail	PASS	Pass or Fail	PASS
Test Completion Date					
Replicate	6/28/2021	Replicate	7/4/2022	Replicate	Test Completion Date
No.	Control	No.	Control	No.	TIWC
1	28	1	21	1	19
2	3	2	26	2	30
3	25	3	26	3	26
4	28	4	25	4	22
5	24	5	23	5	25
6	29	6	19	6	27
7	26	7	22	7	27
8	27	8	23	8	24
9	26	9	19	9	18
10	22	10	17	10	2
11		11		11	
12		12		12	
13		13		13	
14		14		14	
15		15		15	
Mean	23.800	Mean	22.100	Mean	22.000
Std Dev.	7.598	Std Dev.	3.107	Std Dev.	7.944
# Replicates	10	# Replicates	10	# Replicates	10
T-Test Result	3.2900	T-Test Result	2.0721	T-Test Result	2.0721
Deg. of Freedom	17	Deg. of Freedom	12	Deg. of Freedom	12
Critical T Value	0.8633	Critical T Value	0.8647	Critical T Value	0.8726
Pass or Fail	PASS	Pass or Fail	PASS	Pass or Fail	PASS

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DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet					
Type of Test	Chronic			Facility Name	
Species Tested	Ceriodaphnia			Western Butler County Authority	
Endpoint	Survival			Permit No.	
TIWC (decimal)	0.24			PA0021504	
No. Per Replicate	1				
TST b value	0.75				
TST alpha value	0.2				
Test Completion Date					
Replicate No.	7/2/2019		Replicate No.	6/20/2020	
	Control	TIWC		Control	TIWC
1	1	1	1	1	1
2	1	1	2	1	1
3	1	1	3	1	1
4	1	1	4	1	1
5	1	1	5	1	1
6	1	1	6	1	1
7	1	1	7	1	1
8	1	1	8	1	1
9	1	1	9	1	1
10	1	1	10	1	1
11			11		
12			12		
13			13		
14			14		
15			15		
Mean	1.000	1.000	Mean	1.000	1.000
Std Dev.	0.000	0.000	Std Dev.	0.000	0.000
# Replicates	10	10	# Replicates	10	10
T-Test Result					
Deg. of Freedom				T-Test Result	
Critical T Value				Deg. of Freedom	
Pass or Fail	PASS			Critical T Value	
				Pass or Fail	PASS
Test Completion Date					
Replicate No.	6/28/2021		Replicate No.	7/4/2022	
	Control	TIWC		Control	TIWC
1	1	1	1	1	1
2	1	1	2	1	1
3	1	1	3	1	1
4	1	1	4	1	1
5	1	1	5	1	1
6	1	1	6	1	1
7	1	1	7	1	1
8	1	1	8	1	1
9	1	1	9	1	1
10	1	1	10	1	1
11			11		
12			12		
13			13		
14			14		
15			15		
Mean	1.000	1.000	Mean	1.000	1.000
Std Dev.	0.000	0.000	Std Dev.	0.000	0.000
# Replicates	10	10	# Replicates	10	10
T-Test Result					
Deg. of Freedom				T-Test Result	
Critical T Value				Deg. of Freedom	
Pass or Fail	PASS			Critical T Value	
				Pass or Fail	PASS

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DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet							
Type of Test	Chronic			Facility Name			
Species Tested	Pimephales			Western Butler County Authority			
Endpoint	Survival			Permit No.			
TIWC (decimal)	0.24			PA0021504			
No. Per Replicate	10						
TST b value	0.75						
TST alpha value	0.25						
Test Completion Date							
Replicate	7/2/2019			Replicate	Test Completion Date		
No.	Control	TIWC		No.	Control	TIWC	
1	1	0.9		1	1	1	
2	1	1		2	0.9	1	
3	0.9	1		3	1	1	
4	1	0.9		4	1	1	
5				5			
6				6			
7				7			
8				8			
9				9			
10				10			
11				11			
12				12			
13				13			
14				14			
15				15			
Mean	0.975	0.950		Mean	0.975	1.000	
Std Dev.	0.050	0.058		Std Dev.	0.050	0.000	
# Replicates	4	4		# Replicates	4	4	
T-Test Result	12.7913			T-Test Result	26.1497		
Deg. of Freedom	5			Deg. of Freedom	3		
Critical T Value	0.7267			Critical T Value	0.7649		
Pass or Fail	PASS			Pass or Fail	PASS		
Test Completion Date							
Replicate	6/29/2021			Replicate	Test Completion Date		
No.	Control	TIWC		No.	Control	TIWC	
1	0.9	0.9		1	1	0.8	
2	0.9	1		2	1	1	
3	0.9	0.9		3	1	0.8	
4	0.9	0.9		4	1	1	
5				5			
6				6			
7				7			
8				8			
9				9			
10				10			
11				11			
12				12			
13				13			
14				14			
15				15			
Mean	0.900	0.925		Mean	1.000	0.900	
Std Dev.	0.000	0.050		Std Dev.	0.000	0.115	
# Replicates	4	4		# Replicates	4	4	
T-Test Result	18.8623			T-Test Result	6.2306		
Deg. of Freedom	3			Deg. of Freedom	3		
Critical T Value	0.7649			Critical T Value	0.7649		
Pass or Fail	PASS			Pass or Fail	PASS		

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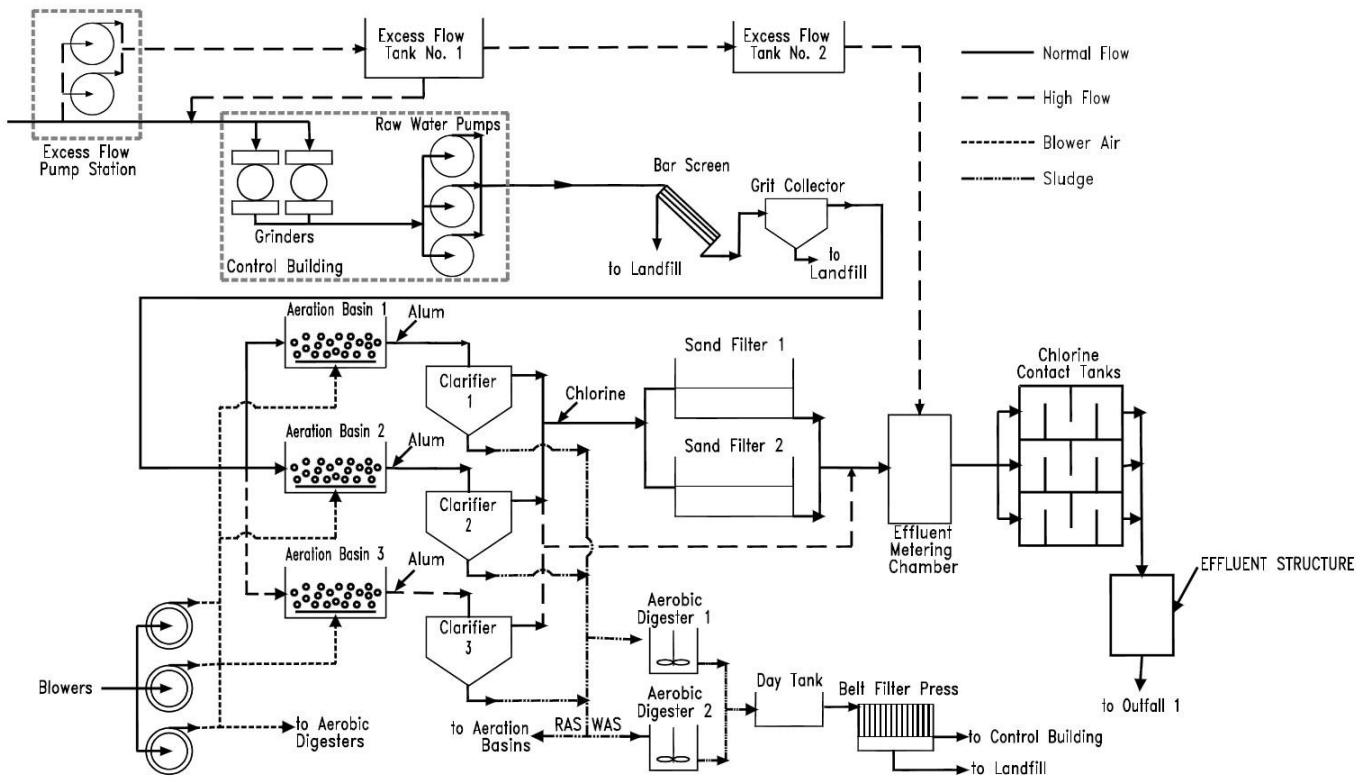
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DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet										
Type of Test	Chronic			Facility Name						
Species Tested	Pimephales			Western Butler County Authority						
Endpoint	Growth			Permit No.						
TIWC (decimal)	0.24			PA0021504						
No. Per Replicate	10									
TST b value	0.75									
TST alpha value	0.25									
Test Completion Data										
7/2/2019										
Replicate	No.	Control	TIWC	Replicate	Test Completion Date					
	1	0.524	0.574		6/30/2020					
	2	0.447	0.557		1	0.335	0.353			
	3	0.414	0.377		2	0.336	0.329			
	4	0.44	0.431		3	0.344	0.346			
	5				4	0.282	0.432			
	6				5					
	7				6					
	8				7					
	9				8					
	10				9					
	11				10					
	12				11					
	13				12					
	14				13					
	15				14					
					15					
Mean	0.458	0.485	Mean	0.324	0.365					
Std Dev.	0.047	0.098	Std Dev.	0.028	0.048					
# Replicates	4	4	# Replicates	4	4					
T-Test Result	2.7840			T-Test Result	4.8225					
Deg. of Freedom	4			Deg. of Freedom	4					
Critical T Value	0.7407			Critical T Value	0.7407					
Pass or Fail	PASS			Pass or Fail	PASS					
Test Completion Data										
6/29/2021										
Replicate	No.	Control	TIWC	Replicate	Test Completion Date					
	1	0.278	0.336		7/2/2022					
	2	0.244	0.352		1	0.281	0.317			
	3	0.256	0.348		2	0.346	0.383			
	4	0.263	0.331		3	0.346	0.178			
	5				4	0.387	0.36			
	6				5					
	7				6					
	8				7					
	9				8					
	10				9					
	11				10					
	12				11					
	13				12					
	14				13					
	15				14					
					15					
Mean	0.280	0.342	Mean	0.340	0.305					
Std Dev.	0.014	0.010	Std Dev.	0.044	0.087					
# Replicates	4	4	# Replicates	4	4					
T-Test Result	20.1808			T-Test Result	1.0654					
Deg. of Freedom	5			Deg. of Freedom	4					
Critical T Value	0.7267			Critical T Value	0.7407					
Pass or Fail	PASS			Pass or Fail	PASS					

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H. Process Flow



WWTP PROCESS FLOW DIAGRAM EXHIBIT 6 ACT 537 PLAN	
10/02/2019 PM: CEH GIS: JGP QA: EBL R007867.0454	 <p>200 West Konsinger Drive Suite 400 Cranberry Township, PA 16066 724.779.2700 [phone] 724.779.4711 [fax] www.hrginc.com</p>