Pennsylvania Department of Environmental Protection

Northwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0021504**
Facility Type	**Municipal**	APS ID	**1093751**
Major / Minor	**Major**	Authorization ID	**1448958**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

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	
Applicant Phone	(724) 452-5500	Facility Phone	
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: Renewal of NPDES permit.

Summary of Review

1.0 General Discussion

This factsheet supports the second draft permit for Western Butler County Authority STP for discharge of treated domestic wastewater. A draft permit was issued on July 22, 2025, and published in the PA bulletin on August 09, 2025, but was not finalized due to comments from the permittee. The permit will be re-drafted to address the comments and re-published in the PA bulletin for comments. The comments received are presented in attachments C and D. All limitations and monitoring requirements in the draft permit issued on July 22, 2025, and the basis of the limits in the factsheet developed in support of the issued draft permit remains except for the changes discussed in this factsheet.

1.1 Public Participation,

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

Approve	Deny	Signatures	Date
X		*J. Pascal Kwedza* J. Pascal Kwedza, P.E. / Environmental Engineer	October 31, 2025
X		Adam Olesnanik Adam Olesnanik, P.E. / Environmental Engineer Manager	November 6, 2025

1.2 Permittee Comments Discussion

Comment 1 has been addressed; April has been added to the seasonal limit for CBOD5.

Comment 2: Lead monitoring has been deleted from the permit. DMR data for Total Lead were reported as non-detect using a less sensitive method, but the three samples submitted with the application using DEP target quantitation limit were non-detect and supports discontinuing the existing Total Lead monitoring requirement.

Comment 3: DEP conducted reasonable potential analysis using the 10 samples submitted for Total Thallium. In accordance with DEP SOP – Establishing Water Quality-Based Effluent Limitations (WQBELs) and Permit Conditions for Toxic Pollutants in NPDES Permits for Existing Dischargers SOP No. BCW-PMT-037, for sample sizes greater than or equal to 10, the average monthly effluent concentration (AMEC) as determined by the TOXCONC or median if outliers are suspected should be used for analysis. The median of the detected samples rather than the AMEC was used for TMS modelling to calculate WQBEL. The result of the TMS presented in attachment A recommended an AML of 1.0 ug/L, 1.55 ug/L MDL and 2.5 ug/L IMAX for Total Thallium. This recommendation is consistent with the limit proposed in the draft permit issued on July 22, 2025. The recommended limit is below DEPs target quantitation limit of 2 ug/L for Total Thallium. A condition is added in the permit to address limits below quantitation limit. Conditions and requirements for compliance with the proposed new limitation is presented in Part C.III of the permit.

Comment 4: DEP acknowledge the research you referenced that support Free Cyanide elevation due to preservation methods. However, without demonstration that the preservation method is causing the Free Cyanide to be elevated in the test, the monitoring and limits cannot be eliminated. Conditions and requirements for compliance with the proposed new limitation is presented in Part C.III of the permit. Use the monitoring and Toxics Reduction Evaluation (TRE) period to conduct tests to support your claim and request amendment to the permit prior to the limit becoming effective.

Comment 5: DEP conducted reasonable potential analysis using the 10 samples submitted for Total Thallium and Total Aluminum. See comment 3 for Total Thallium analysis and limit discussion. The AMEC was used for TMS modelling to calculate WQBEL for Total Aluminum. TOXCONC results are presented in attachment A. The result of the TMS presented in attachment B recommended monitoring for Total Aluminum. This recommendation is consistent with the limit in the draft permit issued on July 22, 2025.

Comment 6: Please submit your request for preliminary limits independent of the draft comments. The draft comments are to address limits and conditions in the draft permit.

Comments 7 and 8: A compliance schedule is provided in the permit to allow for the facility install additional treatment units to comply with all new limitations.

Comment 9: Expectations of feasibility study includes evaluation of treatment alternatives, design and permit application timeline for the selected alternative.

1.3 Compliance Schedule

A schedule for complying with the proposed new limitations for TRC and Ammonia-Nitrogen are presented in Part C II of the permit.

2.0 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" (386-0400-001), 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	0.17	XXX	0.55	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5) Nov 1 - Apr 30	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 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		
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	330	XXX	XXX	18.0	XXX	36	2/week	24-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	110	XXX	XXX	6.0	XXX	12	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
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: 001

2.1 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" (386-0400-001), 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
DO	XXX	XXX	4.0 Inst Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.14	XXX	0.45	1/day	Grab
CBOD5 Nov 1 - April 30	404	606	XXX	22.0	33.0	44	2/week	24-Hr Composite
CBOD5 May 1 - Oct 31	248	367	XXX	13.5	20.0	27	2/week	24-Hr Composite
BOD5 Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
TSS	551	826	XXX	30.0	45.0	60	2/week	24-Hr Composite
TSS 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
Total Nitrogen	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	Calculation

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		
Ammonia Nov 1 - Apr 30	147	XXX	XXX	8.0	XXX	16	2/week	24-Hr Composite
Ammonia 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
Total Aluminum (ug/L)	Report	Report Daily Max	XXX	Report	Report Daily Max	XXX	2/month	24-Hr Composite
Total Copper (ug/L)	Report	Report Daily Max	XXX	Report	Report Daily Max	XXX	2/month	24-Hr Composite
Free Cyanide (ug/L)	0.31	0.48 Daily Max	XXX	16.5	26.0 Daily Max	42	2/month	24-Hr Composite
Total Thallium (ug/L)	0.018	0.029 Daily Max	XXX	1.0	1.55 Daily Max	2.5	2/month	24-Hr Composite
Total Zinc (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: 001

Attachments

A. TOXCONC Results

		Reviewer/Permit Engineer:	J.P Kwedza
Facility:	Western Butler County Authority STP		
NPDES #:	PA0021504		
Outfall No:	001		
n (Samples/Month):	4		

Parameter	Distribution Applied	Coefficient of Variation (daily)	Avg. Monthly
Total Aluminum (µg/L)	Lognormal	0.5381525	354.2863476
Total Thallium (µg/L)	Delta-Lognormal	6.1633922	16.8008263

Facility:	Western Butler County Authority STP	
NPDES #:	PA0021504	
Outfall No:	001	
n (Samples/Month):	4	
Reviewer/Permit Engineer:	J.P Kwedza	

Parameter Name	Total Aluminum	Total Thallium
Units	µg/L	µg/L
Detection Limit	10	2
Sample Date	*When entering values below the detection limit, enter "ND" or use the < notation (eg. <0.02)*	
3/15/2023	103	ND
3/22/2023	68.1	2
3/29/2023	120	3
8/6/2025	168	ND
8/13/2025	236	ND
8/20/2025	186	ND
8/27/2025	264	ND
9/3/2025	166	0.088
9/10/2025	270	ND
9/17/2025	360	ND

B. TMS Results

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

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**

Discharge Characteristics									
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
2.2	178	6.4						

					0 if left blank		0.5 if left blank		0 if left blank			1 if left blank	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
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	<										
Group 2	Total Aluminum	µg/L		354			0.585						
	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		2									
	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									

Group 3	Carbon Tetrachloride	µg/L	<	0.5									
	Chlorobenzene	µg/L		0.5									
	Chlorodibromomethane	µg/L	<	0.5									
	Chloroethane	µg/L	<	0.5									
	2-Chloroethyl Vinyl Ether	µg/L	<	5									
	Chloroform	µg/L	<	0.5									
	Dichlorobromomethane	µg/L	<	0.5									
	1,1-Dichloroethane	µg/L	<	0.5									
	1,2-Dichloroethane	µg/L	<	0.5									
	1,1-Dichloroethylene	µg/L	<	0.5									
	1,2-Dichloropropane	µg/L	<	0.5									
	1,3-Dichloropropylene	µg/L	<	0.5									
	1,4-Dioxane	µg/L	<	0.2									
	Ethylbenzene	µg/L	<	0.5									
	Methyl Bromide	µg/L	<	0.5									
	Methyl Chloride	µg/L	<	0.5									
	Methylene Chloride	µg/L	<	0.5									
	1,1,2,2-Tetrachloroethane	µg/L	<	0.5									
	Tetrachloroethylene	µg/L	<	0.5									
	Toluene	µg/L	<	0.5									
	1,2-trans-Dichloroethylene	µg/L	<	0.5									
	1,1,1-Trichloroethane	µg/L	<	0.5									
	1,1,2-Trichloroethane	µg/L	<	0.5									
	Trichloroethylene	µg/L	<	0.5									
	Vinyl Chloride	µg/L	<	0.5									
Group 4	2-Chlorophenol	µg/L	<	0.21									
	2,4-Dichlorophenol	µg/L	<	0.21									
	2,4-Dimethylphenol	µg/L	<	0.21									
	4,6-Dinitro-o-Cresol	µg/L	<	1.04									
	2,4-Dinitrophenol	µg/L	<	1.04									
	2-Nitrophenol	µg/L	<	0.52									
	4-Nitrophenol	µg/L	<	0.52									
	p-Chloro-m-Cresol	µg/L	<	0.1									
	Pentachlorophenol	µg/L	<	0.52									
	Phenol	µg/L	<	0.2									
	2,4,6-Trichlorophenol	µg/L	<	0.21									
Group 5	Acenaphthene	µg/L	<	0.1									
	Acenaphthylene	µg/L	<	0.1									
	Anthracene	µg/L	<	0.1									
	Benzidine	µg/L	<	0.52									
	Benzo(a)Anthracene	µg/L	<	0.1									
	Benzo(a)Pyrene	µg/L	<	1									
	3,4-Benzofluoranthene	µg/L	<	0.1									
	Benzo(ghi)Perylene	µg/L	<	0.1									
	Benzo(k)Fluoranthene	µg/L	<	0.1									
	Bis(2-Chloroethoxy)Methane	µg/L	<	0.1									
	Bis(2-Chloroethyl)Ether	µg/L	<	0.1									
	Bis(2-Chloroisopropyl)Ether	µg/L	<	0.1									
	Bis(2-Ethylhexyl)Phthalate	µg/L	<	1.1									
	4-Bromophenyl Phenyl Ether	µg/L	<	0.1									
	Butyl Benzyl Phthalate	µg/L	<	1.04									
	2-Chloronaphthalene	µg/L	<	0.1									
	4-Chlorophenyl Phenyl Ether	µg/L	<	0.1									
	Chrysene	µg/L	<	0.1									
	Dibenzo(a,h)Anthrancene	µg/L	<	0.1									
	1,2-Dichlorobenzene	µg/L	<	0.1									
	1,3-Dichlorobenzene	µg/L	<	0.1									
	1,4-Dichlorobenzene	µg/L	<	0.1									
	3,3-Dichlorobenzidine	µg/L	<	0.52									
	Diethyl Phthalate	µg/L	<	1.04									
	Dimethyl Phthalate	µg/L	<	1.04									
	Di-n-Butyl Phthalate	µg/L		1.04									
	2,4-Dinitrotoluene	µg/L	<	0.21									

	2,6-Dinitrotoluene	µg/L	<	0.21									
	Di-n-Octyl Phthalate	µg/L	<	1.04									
	1,2-Diphenylhydrazine	µg/L	<	0.1									
	Fluoranthene	µg/L	<	0.1									
	Fluorene	µg/L	<	0.1									
	Hexachlorobenzene	µg/L	<	0.1									
	Hexachlorobutadiene	µg/L	<	0.1									
	Hexachlorocyclopentadiene	µg/L	<	0.52									
	Hexachloroethane	µg/L	<	0.1									
	Indeno(1,2,3-cd)Pyrene	µg/L	<	0.1									
	Isophorone	µg/L		0.21									
	Naphthalene	µg/L	<	0.1									
	Nitrobenzene	µg/L	<	0.1									
	n-Nitrosodimethylamine	µg/L	<	0.1									
	n-Nitrosodi-n-Propylamine	µg/L	<	0.2									
	n-Nitrosodiphenylamine	µg/L	<	0.1									
	Phenanthrene	µg/L	<	0.1									
	Pyrene	µg/L	<	0.1									
	1,2,4-Trichlorobenzene	µg/L	<	0.1									
Group 6	Aldrin	µg/L	<										
	alpha-BHC	µg/L	<										
	beta-BHC	µg/L	<										
	gamma-BHC	µg/L	<										
	delta BHC	µg/L	<										
	Chlordane	µg/L	<										
	4,4-DDT	µg/L	<										
	4,4-DDE	µg/L	<										
	4,4-DDD	µg/L	<										
	Dieldrin	µg/L	<										
	alpha-Endosulfan	µg/L	<										
	beta-Endosulfan	µg/L	<										
	Endosulfan Sulfate	µg/L	<										
	Endrin	µg/L	<										
	Endrin Aldehyde	µg/L	<										
	Heptachlor	µg/L	<										
	Heptachlor Epoxide	µg/L	<										
	PCB-1016	µg/L	<										
	PCB-1221	µg/L	<										
	PCB-1232	µg/L	<										
	PCB-1242	µg/L	<										
	PCB-1248	µg/L	<										
	PCB-1254	µg/L	<										
	PCB-1260	µg/L	<										
	PCBs, Total	µg/L	<										
	Toxaphene	µg/L	<										
	2,3,7,8-TCDD	ng/L	<										
Group 7	Gross Alpha	pCi/L											
	Total Beta	pCi/L	<										
	Radium 226/228	pCi/L	<										
	Total Strontium	µg/L	<										
	Total Uranium	µg/L	<										
	Osmotic Pressure	mOs/kg											
	Acenaphthene												

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

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 (mi²)*	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

$Q_{7\text{-}10}$

Location	RMI	LFY (cfs/mi²)*	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/mi²)	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														

Model Results

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

Instructions | Results | RETURN TO INPUTS | SAVE AS PDF | PRINT | ◉ All ○ Inputs ○ Results ○ Limits

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.276 Analysis Hardness (mg/l): 184.55 Analysis pH: 6.66

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	

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	

2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	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	

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	

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)Anthrancene	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	

1,2,4-Trichlorobenzene	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	500,000	500,000	N/A	
Chloride (PWS)	0	0		0	250,000	250,000	N/A	
Sulfate (PWS)	0	0		0	250,000	250,000	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	23.5	
Total Arsenic	0	0		0	10	10.0	41.9	
Total Barium	0	0		0	2,400	2,400	10,058	
Total Boron	0	0		0	3,100	3,100	12,992	
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	4	4.0	16.8	
Dissolved Iron	0	0		0	300	300	1,257	
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	1,000	1,000	4,191	
Total Mercury	0	0		0	0.003	0.003	0.013	
Total Nickel	0	0		0	610	610	2,556	
Total Phenols (Phenolics) (PWS)	0	0		0	5	5.0	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	0.24	0.24	1.01	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	12.6	
Acrylonitrile	0	0		0	N/A	N/A	N/A	
Benzene	0	0		0	N/A	N/A	N/A	
Bromoform	0	0		0	N/A	N/A	N/A	
Carbon Tetrachloride	0	0		0	N/A	N/A	N/A	
Chlorobenzene	0	0		0	100	100.0	419	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	5.7	5.7	23.9	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	N/A	N/A	N/A	
1,1-Dichloroethylene	0	0		0	33	33.0	138	
1,2-Dichloropropane	0	0		0	N/A	N/A	N/A	

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)Anthrancene	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	

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	

Total Nickel	0	0		0	N/A	N/A	N/A	
Total Phenols (Phenolics) (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	

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)Anthrancene	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

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Aluminum	Report	Report	Report	Report	Report	µg/L	982	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 < TQL
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

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-Benzofluoranthene	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

Bis(2-Chloroethyl)Ether	0.56	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	838	µg/L	Discharge Conc < TQL
Bis(2-Ethylhexyl)Phthalate	5.94	µg/L	Discharge Conc < TQL
4-Bromophenyl Phenyl Ether	226	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	0.42	µg/L	Discharge Conc < TQL
2-Chloronaphthalene	3,353	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	2.23	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthrancene	0.002	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	671	µg/L	Discharge Conc < TQL
1,3-Dichlorobenzene	29.3	µg/L	Discharge Conc < TQL
1,4-Dichlorobenzene	629	µg/L	Discharge Conc < TQL
3,3-Dichlorobenzidine	0.93	µg/L	Discharge Conc < TQL
Diethyl Phthalate	2,514	µg/L	Discharge Conc < TQL
Dimethyl Phthalate	2,095	µg/L	Discharge Conc < TQL
Di-n-Butyl Phthalate	83.8	µg/L	Discharge Conc ≤ 25% WQBEL
2,4-Dinitrotoluene	0.93	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	0.93	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	0.56	µg/L	Discharge Conc < TQL
Fluoranthene	83.8	µg/L	Discharge Conc < TQL
Fluorene	210	µg/L	Discharge Conc < TQL
Hexachlorobenzene	0.00005	µg/L	Discharge Conc < TQL
Hexachlorobutadiene	0.01	µg/L	Discharge Conc < TQL
Hexachlorocyclopentadiene	4.19	µg/L	Discharge Conc < TQL
Hexachloroethane	1.86	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	0.019	µg/L	Discharge Conc < TQL
Isophorone	142	µg/L	Discharge Conc ≤ 25% WQBEL
Naphthalene	169	µg/L	Discharge Conc < TQL
Nitrobenzene	41.9	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	0.013	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	0.093	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	61.2	µg/L	Discharge Conc < TQL
Phenanthrene	4.19	µg/L	Discharge Conc < TQL
Pyrene	83.8	µg/L	Discharge Conc < TQL
1,2,4-Trichlorobenzene	0.29	µg/L	Discharge Conc < TQL

C. Permittee Comments 1

Herbert, Rowland & Grubic, Inc.
220 West Kensinger Drive, Suite 100
Cranberry Township, PA 16066
724.779.4777
www.hrg-inc.com

Via Email

August 6, 2025

Mr. J. Pascal Kwedza, PE
Department of Environmental Protection, Clean Water Program
909 Elmerton Avenue
Harrisburg, Pennsylvania 17110

Re: Western Butler County Authority
Draft NPDES Permit – Sewage
PA0021504

Dear Mr. Kwedza:

On behalf of Western Butler County Authority (WBCA), Herbert, Rowland & Grubic, Inc. (HRG) has reviewed the Draft NPDES permit received on July 22, 2025, to Ms. Autumn Crawford.

1. Part A Section I.A. the CBOD5 seasonal limitations exclude the month of April. It is assumed the November 1 to March 31 CBOD5 should be corrected to November 1 to April 30. Please confirm.

2. In the NPDES Permit Fact Sheet, section 4.3.7 Toxics states that total lead was reported as non-detect but at a less sensitive method of detection. However, the permit application instructions Attachment B lists the target QL of 1 ug/L which is what the laboratory's lab lists for their RL. It is our opinion that the non-detects included in the eDMRs, although above the target QL, in combination with the three non-detects at the target QL, justifies removal of quarterly testing.

3. In the NPDES Permit Fact Sheet, the TMS model results show that total thallium has a governing WQBEL of 1.01 ug/L however the permit application instructions Attachment B lists the target QL of 2 ug/L. Can DEP include language in the permit that ensures the Authority not be out of compliance even with non-detect results at the target QL (i.e. Part C condition)?

4. Research suggests that sample preservation methods can contribute to higher cyanide levels (see enclosed literature). Elevated cyanide levels are the result of test interferences due to the combination of chloramination; dechlorination with sodium arsenite; pH adjustment with NaOH; and the presence of precursors that generate cyanide under strong basic conditions. Cyanide formation from NaOH addition is discussed in Standard Methods (23rd Edition), but EPA OIA methods do not state anything about cyanide formation. With that said, the Authority respectfully requests that free cyanide monitoring and limit be removed from the permit.

5. Three (3) effluent samples were completed in 2023 as per permit application instructions. According Section B of the PADEP's "Standard Operating Procedure for Clean Water Program Establishing Water Quality-Based Effluent Limitations (WQBELs) and permit conditions for Toxic Pollutants in NDPES Permits for Existing Dischargers," the maximum reported effluent concentration is used in the PADEP's Toxicity Spreadsheet for sample sizes less than ten (10), and average reported effluent concentration is used for sample sizes greater than or equal to ten (10). The Authority requests additional time to conduct at least seven (7) additional effluent samples for total aluminum and total thallium with the intention that PADEP re-evaluate effluent limitations and reporting proposed in the draft permit. It is anticipated that the sampling results and analysis will be submitted to DEP in November 2025.

6. The Authority is in preliminary design of their water resource facility (WRRF) upgrade. The Preliminary Effluent Limits for the WRRF were last provided in 2019. Could DEP please provide updated Preliminary Effluent Limits for Phase I and Phase II of the WRRF to ensure appropriate design to meet projected limits.

Description	Abbreviation	Phase I	Phase II
Average Annual Flow (MGD)	AAF	2.2	2.8
Max Monthly Average Flow (MGD)	MMAF	3.4	4.5
Peak Daily Flow (MGD)	PDF	10	11
Peak Instantaneous Flow (MGD)	PIF	17	19
BOD_5 Concentration (mg/L)	-	207	209
BOD_5 Loading (lbs/day)	-	5,783	7,840

7. Ammonia-nitrogen limits were significantly reduced compared to the existing NPDES permit. Historical eDMRs indicate WBCA has exceeded the average monthly loading and concentrations proposed in the draft NPDES permit and it is expected that the Authority will struggle to meet the drafted limits. Given the Authority is in preliminary design phases for a treatment plant upgrade the Authority would like to request postponing the more stringent ammonia-nitrogen until the WRRF can be constructed and would be able to accommodate the more stringent limits.

8. Total Residual Chlorine (TRC) limits were reduced compared to the existing NPDES permit. Historical eDMRs indicate WBCA has exceeded both the drafted average monthly and the drafted instantaneous maximum. The Authority requests that this reduction in TRC limit be postponed until the WRRF is constructed.

9. Part C Section V includes a schedule of compliance for WQBELs which involves a feasibility study. Can DEP include language within the permit to describe expectations and requirements of the feasibility study?

If you have any questions, please feel free to contact me at sschmucker@hrg-inc.com.

Sincerely,

Herbert, Rowland & Grubic, Inc.

Samantha C. Schmucker, PE
Project Manager | Water & Wastewater

SCS/AEL/amr
R007867.0478
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c: Ms. Autumn Crawford, WBCA
Mr. Jeremy Houk, WBCA
Mr. Adam Olesnanik, PE, PADEP NWRO
Mr. Justin Dickey, PE, PADEP NWRO

D. Additional Sampling Results with comments

Herbert, Rowland & Grubic, Inc.
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Cranberry Township, PA 16066
724.779.4777
www.hrg-inc.com

Via Email

October 08, 2025

Mr. J. Pascal Kwedza, PE
Department of Environmental Protection, Clean Water Program
909 Elmerton Avenue
Harrisburg, Pennsylvania 17110

Re: Western Butler County Authority
Draft NPDES Permit – Sewage
PA0021504

Dear Mr. Kwedza,

On behalf of Western Butler County Authority (WBCA), Herbert, Rowland & Grubic, Inc. (HRG) is submitting additional testing data in response to the Draft NPDES comment letter dated August 6, 2025. Following our request for time to conduct further sampling, WBCA collected seven (7) additional samples for aluminum and thallium to better characterize effluent concentrations and the appropriateness of proposed limits.

Pollutants		Aluminum, Total	Thallium, Total
Governing WQBEL		903	1.01
Lab RL (ug/L)		10	2
DEP QL (ug/L)		10	2
Sampling Dates	3/15/2023	103.0	ND
	3/22/2023	68.1	2.0
	3/29/2023	120.0	3.0
	8/6/2025	168	ND
	8/13/2025	236	ND
	8/20/2025	186	ND
	8/27/2025	264	ND
	9/3/2025	166	0.088J
	9/10/2025	270	ND
	9/17/2025	360	ND

Based on the summarized results and the enclosed laboratory reports, we support the inclusion of monitoring and reporting requirements for aluminum. However, we respectfully request that DEP reconsider the effluent limitations for thallium. Thallium results demonstrate non-detect (ND) levels at both the laboratory reporting limit (RL) and DEP target quantitation limit (QL) for eight sampling events. One sample (3/22/2025) was at the QL, and one sample (3/29/2023) reported a value of 3.0 ug/L. The values detected are marginally above the QL and may reflect analytical variability rather than consistent effluent presence.

WBCA is committed to protecting water quality and complying with all applicable regulations and is reflected in the preliminary design of their new water resource recovery facility (WRRF) mentioned in the previous comment letter. WBCA also has a responsibility to their community to ensure that regulatory requirements are based on sound data and do not impose unnecessary costs to the community.

Mr. J. Pascal Kwedza, PE
Department of Environmental Protection
October 08, 2025
Page 2

Given the data does not demonstrate a consistent or measurable presence of thallium in the effluent, we believe the inclusion of thallium limits, with a feasibility study reporting requirement, will result in inefficient use of rate payer funds. Removing thallium from the permit, in addition to the other parameter modifications outlined in the August 6, 2025 comment letter, would support a balanced approach of protecting water quality and responsible fiscal management.

If you have any questions, please feel free to contact me at sschmucker@hrg-inc.com.

Sincerely,

Herbert, Rowland & Grubic, Inc.

Samantha C. Schmucker, PE
Project Manager | Water & Wastewater

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c: Mrs. Autumn Kobe, WBCA
Mr. Jeremy Houk, WBCA
Mr. Adam Olesnanik, PE, PADEP NWRO
Mr. Justin Dickey, PE, PADEP NWRO