

ATTACHMENT A

USGS Stream Stats Output Files

Discharge Point

StreamStats Report

Region ID: PA
Workspace ID: PA20241018124004409000
Clicked Point (Latitude, Longitude): 40.67786, -80.33330
Time: 2024-10-18 08:40:40 -0400



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	22800	square miles
ELEV	Mean Basin Elevation	1594	feet
PRECIP	Mean Annual Precipitation	44	inches

End of Reach

StreamStats Report

Region ID: PA
Workspace ID: PA20241018125826142000
Clicked Point (Latitude, Longitude): 40.65041, -80.38634
Time: 2024-10-18 08:59:00 -0400



Collapse All

> Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	23000	square miles
ELEV	Mean Basin Elevation	1590	feet
PRECIP	Mean Annual Precipitation	44	inches

ATTACHMENT B

WQM 7.0 Modeling Results

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
20B	33940	TWOMILE RUN	952.730	682.00	22800.00	0.00000	0.00	☒

Stream Data

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary		Stream	
	(cfsm)	(cfs)	(cfs)						Temp (°C)	pH	Temp (°C)	pH
Q7-10	0.000	0.00	4730.00	0.000	0.000	0.0	1372.80	10.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Vanport	PA0023698	0.0000	2.0000	0.0000	0.000	20.00	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

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
20B	33940	TWOMILE RUN	949.100	682.00	23000.00	0.00000	0.00	☒

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	pH	Stream Temp (°C)	pH
Q7-10	0.000	0.00	5880.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	0.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 Hydrodynamic Outputs

<u>SWP Basin</u>		<u>Stream Code</u>		<u>Stream Name</u>								
20B		33940		TWO MILE RUN								
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
	(cfs)	(cfs)	(cfs)	(cfs)	(ft/ft)	(ft)	(ft)		(fps)	(days)	(°C)	
Q7-10 Flow												
952.730	4730.00	0.00	4730.00	3.094	0.00052	10	1372.8	137.28	0.34	0.643	25.00	7.00
Q1-10 Flow												
952.730	3027.20	0.00	3027.20	3.094	0.00052	NA	NA	NA	0.22	1.005	24.99	7.00
Q30-10 Flow												
952.730	6432.80	0.00	6432.80	3.094	0.00052	NA	NA	NA	0.47	0.473	25.00	7.00

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☒
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☒
D.O. Saturation	90.00%	Use Balanced Technology	☒
D.O. Goal	5		

WQM 7.0 Wasteload Allocations

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>
20B	33940	TWO MILE RUN

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
952.730	Vanport	11.08	50	11.08	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
952.730	Vanport	1.37	25	1.37	25	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	<u>CBOD5</u>		<u>NH3-N</u>		<u>Dissolved Oxygen</u>		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
952.73	Vanport	25	25	25	25	4	4	0	0

WQM 7.0 D.O. Simulation

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>		
20B	33940	TWO MILE RUN		
<u>RMI</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>	<u>Analysis pH</u>	
952.730	2.000	24.997	7.000	
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>	<u>Reach Velocity (fps)</u>	
1372.800	10.000	137.280	0.345	
<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>	
2.02	0.007	0.02	1.028	
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>	<u>Reach DO Goal (mg/L)</u>	
8.240	0.270	O'Connor	5	
<u>Reach Travel Time (days)</u>	<u>Subreach Results</u>			
0.643	TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
	0.064	2.01	0.02	7.54
	0.129	2.01	0.01	7.54
	0.193	2.01	0.01	7.54
	0.257	2.01	0.01	7.54
	0.322	2.01	0.01	7.54
	0.386	2.01	0.01	7.54
	0.450	2.01	0.01	7.54
	0.515	2.01	0.01	7.54
	0.579	2.00	0.01	7.54
	0.643	2.00	0.01	7.54

WQM 7.0 Effluent Limits

<u>SWP Basin</u>		<u>Stream Code</u>	<u>Stream Name</u>				
20B		33940	TWO MILE RUN				
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)
952.730	Vanport	PA0023698	0.000	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			4

ATTACHMENT C

Mercury TOXCONC Output File

Facility:	Vanport STP
NPDES #:	PA0023698
Outfall No:	001
n (Samples/Month):	12
Reviewer/Permit Engineer:	Conrad

[illegible]

Reviewer/Permit Engineer: Conrad

[illegible]

ATTACHMENT D

TMS Modeling Results

Discharge Information

Instructions

Discharge

Stream

Facility: Vanport NPDES Permit No.: PA0023698 Outfall No.: 001

Evaluation Type: Major Sewage / Industrial Waste Wastewater Description: Treated 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	319	7	0.065	0.449				

	Discharge Pollutant	Units	Max Discharge Conc	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	Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L	2540									
	Chloride (PWS)	mg/L	2142									
	Bromide	mg/L	< 0.09									
	Sulfate (PWS)	mg/L	1337									
	Fluoride (PWS)	mg/L										
Group 2	Total Aluminum	µg/L	110									
	Total Antimony	µg/L	< 2									
	Total Arsenic	µg/L	< 2									
	Total Barium	µg/L	81.1									
	Total Beryllium	µg/L	< 0.8									
	Total Boron	µg/L	238									
	Total Cadmium	µg/L	< 0.2									
	Total Chromium (III)	µg/L	< 4									
	Hexavalent Chromium	µg/L	< 0.25									
	Total Cobalt	µg/L	< 0.8									
	Total Copper	µg/L	20.3									
	Free Cyanide	µg/L	7									
	Total Cyanide	µg/L	< 7									
	Dissolved Iron	µg/L	15									
	Total Iron	µg/L	78.2									
	Total Lead	µg/L	< 0.8									
	Total Manganese	µg/L	11.6									
	Total Mercury	ng/L	2.004									
	Total Nickel	µg/L	3.1									
	Total Phenols (Phenolics) (PWS)	µg/L	< 6.2									
	Total Selenium	µg/L	< 2									
	Total Silver	µg/L	< 0.3									
	Total Thallium	µg/L	< 0.8									
	Total Zinc	µg/L	41.8									
	Total Molybdenum	µg/L	2.03									
	Acrolein	µg/L	< 2									
	Acrylamide	µg/L	<									
	Acrylonitrile	µg/L	< 2									
	Benzene	µg/L	< 0.5									

Bromoform	µg/L	<	0.5								
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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		3.3								
	Dichlorobromomethane	µg/L		1.7								
	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	<	5								
	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	<	5								
	2,4-Dichlorophenol	µg/L	<	5								
	2,4-Dimethylphenol	µg/L	<	5								
	4,6-Dinitro-o-Cresol	µg/L	<	10								
	2,4-Dinitrophenol	µg/L	<	10								
	2-Nitrophenol	µg/L	<	10								
	4-Nitrophenol	µg/L	<	5								
	p-Chloro-m-Cresol	µg/L	<	5								
	Pentachlorophenol	µg/L	<	10								
	Phenol	µg/L	<	2.5								
	2,4,6-Trichlorophenol	µg/L	<	5								
Group 5	Acenaphthene	µg/L	<	2.5								
	Acenaphthylene	µg/L	<	2.5								
	Anthracene	µg/L	<	2.5								
	Benzidine	µg/L	<	50								
	Benzo(a)Anthracene	µg/L	<	2.5								
	Benzo(a)Pyrene	µg/L	<	2.5								
	3,4-Benzofluoranthene	µg/L	<	2.5								
	Benzo(ghi)Perylene	µg/L	<	2.5								
	Benzo(k)Fluoranthene	µg/L	<	2.5								
	Bis(2-Chloroethoxy)Methane	µg/L	<	5								
	Bis(2-Chloroethyl)Ether	µg/L	<	5								
	Bis(2-Chloroisopropyl)Ether	µg/L	<	5								
	Bis(2-Ethylhexyl)Phthalate	µg/L	<	5								
	4-Bromophenyl Phenyl Ether	µg/L	<	5								
	Butyl Benzyl Phthalate	µg/L	<	5								
	2-Chloronaphthalene	µg/L	<	5								
	4-Chlorophenyl Phenyl Ether	µg/L	<	5								
	Chrysene	µg/L	<	2.5								
	Dibenzo(a,h)Anthracene	µg/L	<	2.5								
	1,2-Dichlorobenzene	µg/L	<	0.5								
	1,3-Dichlorobenzene	µg/L	<	0.5								
	1,4-Dichlorobenzene	µg/L	<	0.5								
	3,3-Dichlorobenzidine	µg/L	<	5								
	Diethyl Phthalate	µg/L	<	5								
	Dimethyl Phthalate	µg/L	<	2.5								
	Di-n-Butyl Phthalate	µg/L	<	5								
2,4-Dinitrotoluene	µg/L	<	5									

Group 4

Group 5

Group 6

Stream / Surface Water Information

Vanport, NPDES Permit No. PA0023698, Outfall 001

Instructions

Discharge

Stream

Receiving Surface Water Name: **Ohio River**

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	033940	952.73	692	22800			Yes
End of Reach 1	033940	951	682	23000			Yes

Q₇₋₁₀

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	952.73	0.207				1372.8	10	0.34				100	7		
End of Reach 1	951	0.207													

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	952.73														
End of Reach 1	951														

Model Results

Vanport, NPDES Permit No. PA0023698, Outfall 001

Instructions

Results

RETURN TO INPUTS

SAVE AS PDF

PRINT

☒ All

☐ Inputs

☐ Results

☐ Limits

☐ Hydrodynamics

☒ Wasteload Allocations

☒ AFC

CCT (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	75,113	
Total Antimony	0	0		0	1,100	1,100	110,166	
Total Arsenic	0	0		0	340	340	34,051	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	2,103,176	
Total Boron	0	0		0	8,100	8,100	811,225	
Total Cadmium	0	0		0	2.057	2.18	218	Chem Translator of 0.943 applied
Total Chromium (III)	0	0		0	579.947	1,835	183,805	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	1,632	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	9,514	
Total Copper	0	0		0	13.716	14.3	1,431	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	22	22.0	2,203	
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	66.120	83.9	8,405	Chem Translator of 0.788 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	165	Chem Translator of 0.85 applied
Total Nickel	0	0		0	476.883	478	47,856	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	3.339	3.93	393	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	6,510	
Total Zinc	0	0		0	119.348	122	12,222	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	300	

Acrylonitrile	0	0		0	650	650	65,098	
Benzene	0	0		0	640	640	64,097	
Bromoform	0	0		0	1,800	1,800	180,272	
Carbon Tetrachloride	0	0		0	2,800	2,800	280,424	
Chlorobenzene	0	0		0	1,200	1,200	120,182	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	1,802,723	
Chloroform	0	0		0	1,900	1,900	190,287	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	1,502,269	
1,1-Dichloroethylene	0	0		0	7,500	7,500	751,134	
1,2-Dichloropropane	0	0		0	11,000	11,000	1,101,664	
1,3-Dichloropropylene	0	0		0	310	310	31,047	
Ethylbenzene	0	0		0	2,900	2,900	290,439	
Methyl Bromide	0	0		0	550	550	55,083	
Methyl Chloride	0	0		0	28,000	28,000	2,804,235	
Methylene Chloride	0	0		0	12,000	12,000	1,201,815	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	100,151	
Tetrachloroethylene	0	0		0	700	700	70,106	
Toluene	0	0		0	1,700	1,700	170,257	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	681,029	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	300,454	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	340,514	
Trichloroethylene	0	0		0	2,300	2,300	230,348	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	56,085	
2,4-Dichlorophenol	0	0		0	1,700	1,700	170,257	
2,4-Dimethylphenol	0	0		0	660	660	66,100	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	8,012	
2,4-Dinitrophenol	0	0		0	660	660	66,100	
2-Nitrophenol	0	0		0	8,000	8,000	801,210	
4-Nitrophenol	0	0		0	2,300	2,300	230,348	
p-Chloro-m-Cresol	0	0		0	160	160	16,024	
Pentachlorophenol	0	0		0	8.723	8.72	874	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	460	460	46,070	
Acenaphthene	0	0		0	83	83.0	8,313	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	30,045	
Benzo(a)Anthracene	0	0		0	0.5	0.5	50.1	
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	3,004,538	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	450,681	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	27,041	

Butyl Benzyl Phthalate	0	0		0	140	140	14,021	
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	82,124	
1,3-Dichlorobenzene	0	0		0	350	350	35,053	
1,4-Dichlorobenzene	0	0		0	730	730	73,110	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	400,605	
Dimethyl Phthalate	0	0		0	2,500	2,500	250,378	
Di-n-Butyl Phthalate	0	0		0	110	110	11,017	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	160,242	
2,6-Dinitrotoluene	0	0		0	990	990	99,150	
1,2-Diphenylhydrazine	0	0		0	15	15.0	1,502	
Fluoranthene	0	0		0	200	200	20,030	
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	1,002	
Hexachlorocyclopentadiene	0	0		0	5	5.0	501	
Hexachloroethane	0	0		0	60	60.0	6,009	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	1,001,513	
Naphthalene	0	0		0	140	140	14,021	
Nitrobenzene	0	0		0	4,000	4,000	400,605	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	1,702,571	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	30,045	
Phenanthrene	0	0		0	5	5.0	501	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	13,020	

☒ **CFC**

CCT (min): 720

PMF: 0.449

Analysis Hardness (mg/l): 100.32

Analysis pH: 7.00

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	150,899	
Total Arsenic	0	0		0	150	150	102,886	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	2,812,216	
Total Boron	0	0		0	1,600	1,600	1,097,450	
Total Cadmium	0	0		0	0.247	0.27	186	Chem Translator of 0.909 applied
Total Chromium (III)	0	0		0	74.308	86.4	59,266	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	7,130	Chem Translator of 0.962 applied

Total Cobalt	0	0		0	19	19.0	13,032	
Total Copper	0	0		0	8.980	9.35	6,416	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	5.2	5.2	3,567	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	2,289,606	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.525	3.19	2,191	Chem Translator of 0.791 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	621	Chem Translator of 0.85 applied
Total Nickel	0	0		0	52.147	52.3	35,876	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	3,422	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	8,917	
Total Zinc	0	0		0	118.459	120	82,405	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	2,058	
Acrylonitrile	0	0		0	130	130	89,168	
Benzene	0	0		0	130	130	89,168	
Bromoform	0	0		0	370	370	253,785	
Carbon Tetrachloride	0	0		0	560	560	384,108	
Chlorobenzene	0	0		0	240	240	164,618	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	2,400,672	
Chloroform	0	0		0	390	390	267,503	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	2,126,310	
1,1-Dichloroethylene	0	0		0	1,500	1,500	1,028,860	
1,2-Dichloropropane	0	0		0	2,200	2,200	1,508,994	
1,3-Dichloropropylene	0	0		0	61	61.0	41,840	
Ethylbenzene	0	0		0	580	580	397,826	
Methyl Bromide	0	0		0	110	110	75,450	
Methyl Chloride	0	0		0	5,500	5,500	3,772,485	
Methylene Chloride	0	0		0	2,400	2,400	1,646,175	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	144,040	
Tetrachloroethylene	0	0		0	140	140	96,027	
Toluene	0	0		0	330	330	226,349	
1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	960,269	
1,1,1-Trichloroethane	0	0		0	610	610	418,403	
1,1,2-Trichloroethane	0	0		0	680	680	466,416	
Trichloroethylene	0	0		0	450	450	308,658	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	75,450	
2,4-Dichlorophenol	0	0		0	340	340	233,208	
2,4-Dimethylphenol	0	0		0	130	130	89,168	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	10,975	
2,4-Dinitrophenol	0	0		0	130	130	89,168	

2-Nitrophenol	0	0		0	1,600	1,600	1,097,450
4-Nitrophenol	0	0		0	470	470	322,376
p-Chloro-m-Cresol	0	0		0	500	500	342,953
Pentachlorophenol	0	0		0	6.693	6.69	4,590
Phenol	0	0		0	N/A	N/A	N/A
2,4,6-Trichlorophenol	0	0		0	91	91.0	62,417
Acenaphthene	0	0		0	17	17.0	11,660
Anthracene	0	0		0	N/A	N/A	N/A
Benzidine	0	0		0	59	59.0	40,468
Benzo(a)Anthracene	0	0		0	0.1	0.1	68.6
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	4,115,438
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	624,175
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	37,039
Butyl Benzyl Phthalate	0	0		0	35	35.0	24,007
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	109,745
1,3-Dichlorobenzene	0	0		0	69	69.0	47,328
1,4-Dichlorobenzene	0	0		0	150	150	102,886
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A
Diethyl Phthalate	0	0		0	800	800	548,725
Dimethyl Phthalate	0	0		0	500	500	342,953
Di-n-Butyl Phthalate	0	0		0	21	21.0	14,404
2,4-Dinitrotoluene	0	0		0	320	320	219,490
2,6-Dinitrotoluene	0	0		0	200	200	137,181
1,2-Diphenylhydrazine	0	0		0	3	3.0	2,058
Fluoranthene	0	0		0	40	40.0	27,436
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	1,372
Hexachlorocyclopentadiene	0	0		0	1	1.0	686
Hexachloroethane	0	0		0	12	12.0	8,231
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A
Isophorone	0	0		0	2,100	2,100	1,440,403
Naphthalene	0	0		0	43	43.0	29,494
Nitrobenzene	0	0		0	810	810	555,584
n-Nitrosodimethylamine	0	0		0	3,400	3,400	2,332,082
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A
n-Nitrosodiphenylamine	0	0		0	59	59.0	40,468
Phenanthrene	0	0		0	1	1.0	686

Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	17,834	

☒ **THH**

CCT (min): **720**

PMF: **0.540**

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	4,622	
Total Arsenic	0	0		0	10	10.0	8,253	
Total Barium	0	0		0	1,000	1,000	825,318	
Total Boron	0	0		0	3,100	3,100	2,558,485	
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	1,300	1,300	1,072,913	
Free Cyanide	0	0		0	4	4.0	3,301	
Dissolved Iron	0	0		0	300	300	247,595	
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	825,318	
Total Mercury	0	0		0	0.012	0.012	9.9	
Total Nickel	0	0		0	610	610	503,444	
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	198	
Total Zinc	0	0		0	7,400	7,400	6,107,352	
Acrolein	0	0		0	3	3.0	2,476	
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	82,532	
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	4,704	
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	27,235	
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	56,122	
Methyl Bromide	0	0		0	47	47.0	38,790	
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	47,043	
1,2-trans-Dichloroethylene	0	0		0	100	100.0	82,532	
1,1,1-Trichloroethane	0	0		0	10,000	10,000	8,253,178	
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	24,760	
2,4-Dichlorophenol	0	0		0	10	10.0	8,253	
2,4-Dimethylphenol	0	0		0	100	100.0	82,532	
4,6-Dinitro-o-Cresol	0	0		0	2	2.0	1,651	
2,4-Dinitrophenol	0	0		0	10	10.0	8,253	
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	3,301,271	
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	70	70.0	57,772	
Anthracene	0	0		0	300	300	247,595	
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	165,064	
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	82.5	
2-Chloronaphthalene	0	0		0	800	800	660,254	
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	420	420	346,633	
1,3-Dichlorobenzene	0	0		0	7	7.0	5,777	
1,4-Dichlorobenzene	0	0		0	63	63.0	51,995	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	495,191	
Dimethyl Phthalate	0	0		0	2,000	2,000	1,650,636	

Di-n-Butyl Phthalate	0	0		0	20	20.0	16,506	
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	16,506	
Fluorene	0	0		0	50	50.0	41,266	
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	3,301	
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	28,061	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	8,253	
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	16,506	
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	57.8	

☒ **CRL**

CCT (min): 720

PMF: 0.736

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	50	50.0	143,790	
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	0.051	0.051	147	
Benzene	0	0		0	0.58	0.58	1,668	
Bromoform	0	0		0	4.3	4.3	12,366	
Carbon Tetrachloride	0	0		0	0.4	0.4	1,150	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.4	0.4	1,150	
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	0.55	0.55	1,582	
1,2-Dichloroethane	0	0		0	0.38	0.38	1,093	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.5	0.5	1,438	
1,3-Dichloropropylene	0	0		0	0.27	0.27	776	
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	4.6	4.6	13,229	
1,1,2,2-Tetrachloroethane	0	0		0	0.17	0.17	489	
Tetrachloroethylene	0	0		0	0.69	0.69	1,984	
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	1,582	
Trichloroethylene	0	0		0	0.6	0.6	1,725	
Vinyl Chloride	0	0		0	0.02	0.02	57.5	
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	86.3	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.4	1.4	4,026	
Acenaphthene	0	0		0	N/A	N/A	N/A	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	0.000086	0.00009	0.25	

Benzo(a)Anthracene	0	0		0	0.001	0.001	2.88	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.29	
3,4-Benzofluoranthene	0	0		0	0.001	0.001	2.88	
Benzo(k)Fluoranthene	0	0		0	0.0038	0.004	10.9	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	86.3	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	920	
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	0.0038	0.004	10.9	
Dibenzo(a,h)Anthracene	0	0		0	0.0001	0.0001	0.29	
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	0.021	0.021	60.4	
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	144	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	144	
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	86.3	
Fluoranthene	0	0		0	N/A	N/A	N/A	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	0.00008	0.00008	0.23	
Hexachlorobutadiene	0	0		0	0.01	0.01	28.8	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	288	
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	2.88	
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	0.00069	0.0007	1.98	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	14.4	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	9,490	
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

Pollutants	Mass Limits		Concentration Limits				Governing	WQBEL	Comments
	AML	MDL	AML	MDL	IMAX	Units			

	(lbs/day)	(lbs/day)					WQBEL	Basis	
Total Mercury	Report	Report	Report	Report	Report	ng/L	12.0		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 Aluminum	48,145	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	N/A	N/A	Discharge Conc < TQL
Total Arsenic	N/A	N/A	Discharge Conc < TQL
Total Barium	825,318	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	519,963	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cadmium	140	µg/L	Discharge Conc < TQL
Total Chromium (III)	59,266	µg/L	Discharge Conc < TQL
Hexavalent Chromium	1,046	µg/L	Discharge Conc < TQL
Total Cobalt	6,098	µg/L	Discharge Conc < TQL
Total Copper	917	µg/L	Discharge Conc ≤ 10% WQBEL
Free Cyanide	1,412	µg/L	Discharge Conc ≤ 25% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	247,595	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	2,289,606	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	2,191	µg/L	Discharge Conc < TQL
Total Manganese	825,318	µg/L	Discharge Conc ≤ 10% WQBEL
Total Nickel	30,674	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Selenium	3,422	µg/L	Discharge Conc < TQL
Total Silver	252	µg/L	Discharge Conc < TQL
Total Thallium	198	µg/L	Discharge Conc < TQL
Total Zinc	7,834	µg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	193	µg/L	Discharge Conc < TQL
Acrylonitrile	147	µg/L	Discharge Conc < TQL
Benzene	1,668	µg/L	Discharge Conc < TQL
Bromoform	12,366	µg/L	Discharge Conc < TQL
Carbon Tetrachloride	1,150	µg/L	Discharge Conc < TQL
Chlorobenzene	77,031	µg/L	Discharge Conc < TQL

Chlorodibromomethane	1,150	µg/L	Discharge Conc < TQL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	1,155,472	µg/L	Discharge Conc < TQL
Chloroform	4,704	µg/L	Discharge Conc ≤ 25% WQBEL
Dichlorobromomethane	1,582	µg/L	Discharge Conc ≤ 25% WQBEL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	1,093	µg/L	Discharge Conc < TQL
1,1-Dichloroethylene	27,235	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	1,438	µg/L	Discharge Conc < TQL
1,3-Dichloropropylene	776	µg/L	Discharge Conc < TQL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	56,122	µg/L	Discharge Conc < TQL
Methyl Bromide	35,306	µg/L	Discharge Conc < TQL
Methyl Chloride	1,797,402	µg/L	Discharge Conc < TQL
Methylene Chloride	13,229	µg/L	Discharge Conc < TQL
1,1,2,2-Tetrachloroethane	489	µg/L	Discharge Conc < TQL
Tetrachloroethylene	1,984	µg/L	Discharge Conc < TQL
Toluene	47,043	µg/L	Discharge Conc < TQL
1,2-trans-Dichloroethylene	82,532	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	192,579	µg/L	Discharge Conc < TQL
1,1,2-Trichloroethane	1,582	µg/L	Discharge Conc < TQL
Trichloroethylene	1,725	µg/L	Discharge Conc < TQL
Vinyl Chloride	57.5	µg/L	Discharge Conc < TQL
2-Chlorophenol	24,760	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	8,253	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	42,367	µg/L	Discharge Conc < TQL
4,6-Dinitro-o-Cresol	1,651	µg/L	Discharge Conc < TQL
2,4-Dinitrophenol	8,253	µg/L	Discharge Conc < TQL
2-Nitrophenol	513,543	µg/L	Discharge Conc < TQL
4-Nitrophenol	147,644	µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol	10,271	µg/L	Discharge Conc < TQL
Pentachlorophenol	86.3	µg/L	Discharge Conc < TQL
Phenol	3,301,271	µg/L	Discharge Conc < TQL
2,4,6-Trichlorophenol	4,026	µg/L	Discharge Conc < TQL
Acenaphthene	5,328	µg/L	Discharge Conc < TQL
Acenaphthylene	N/A	N/A	No WQS
Anthracene	247,595	µg/L	Discharge Conc < TQL
Benzidine	0.25	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	2.88	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.29	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	2.88	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	10.9	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	86.3	µg/L	Discharge Conc < TQL

Bis(2-Chloroisopropyl)Ether	165,064	µg/L	Discharge Conc < TQL
Bis(2-Ethylhexyl)Phthalate	920	µg/L	Discharge Conc < TQL
4-Bromophenyl Phenyl Ether	17,332	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	82.5	µg/L	Discharge Conc < TQL
2-Chloronaphthalene	660,254	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	10.9	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthracene	0.29	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	52,638	µg/L	Discharge Conc < TQL
1,3-Dichlorobenzene	5,777	µg/L	Discharge Conc < TQL
1,4-Dichlorobenzene	46,861	µg/L	Discharge Conc < TQL
3,3-Dichlorobenzidine	60.4	µg/L	Discharge Conc < TQL
Diethyl Phthalate	256,772	µg/L	Discharge Conc < TQL
Dimethyl Phthalate	160,482	µg/L	Discharge Conc < TQL
Di-n-Butyl Phthalate	7,061	µg/L	Discharge Conc < TQL
2,4-Dinitrotoluene	144	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	144	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	86.3	µg/L	Discharge Conc < TQL
Fluoranthene	12,839	µg/L	Discharge Conc < TQL
Fluorene	41,266	µg/L	Discharge Conc < TQL
Hexachlorobenzene	0.00008	µg/L	Discharge Conc < TQL
Hexachlorobutadiene	0.01	µg/L	Discharge Conc < TQL
Hexachlorocyclopentadiene	321	µg/L	Discharge Conc < TQL
Hexachloroethane	288	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	2.88	µg/L	Discharge Conc < TQL
Isophorone	28,061	µg/L	Discharge Conc < TQL
Naphthalene	8,987	µg/L	Discharge Conc < TQL
Nitrobenzene	8,253	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	1.98	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	14.4	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	9,490	µg/L	Discharge Conc < TQL
Phenanthrene	321	µg/L	Discharge Conc < TQL
Pyrene	16,506	µg/L	Discharge Conc < TQL
1,2,4-Trichlorobenzene	57.8	µg/L	Discharge Conc < TQL

ATTACHMENT E

TRC Modeling Results

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

4730	= Q stream (cfs)	0.5	= CV Daily
2	= Q discharge (MGD)	0.5	= CV Hourly
30	= no. samples	1	= 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)		= Decay Coefficient (K)

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 487.695	1.3.2.iii	WLA cfc = 475.457
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc = 181.727	5.1d	LTA_cfc = 276.408

Source	Effluent Limit Calculations
PENTOXSD TRG 5.1f	AML MULT = 1.231
PENTOXSD TRG 5.1g	AVG MON LIMIT (mg/l) = 0.500 INST MAX LIMIT (mg/l) = 1.635

WLA afc	$(.019/e(-k*AFC_tc)) + [(AFC_Yc*Qs*.019/Qd*e(-k*AFC_tc))... + Xd + (AFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)$
LTAMULT afc	$EXP((0.5*LN(cvh^2+1))-2.326*LN(cvh^2+1)^{0.5})$
LTA_afc	$wla_afc*LTAMULT_afc$
WLA_cfc	$(.011/e(-k*CFC_tc)) + [(CFC_Yc*Qs*.011/Qd*e(-k*CFC_tc))... + Xd + (CFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)$
LTAMULT_cfc	$EXP((0.5*LN(cvd^2/no_samples+1))-2.326*LN(cvd^2/no_samples+1)^{0.5})$
LTA_cfc	$wla_cfc*LTAMULT_cfc$
AML MULT	$EXP(2.326*LN((cvd^2/no_samples+1)^{0.5})-0.5*LN(cvd^2/no_samples+1))$
AVG MON LIMIT	$MIN(BAT_BPJ, MIN(LTA_afc, LTA_cfc)*AML_MULT)$
INST MAX LIMIT	$1.5*((av_mon_limit/AML_MULT)/LTAMULT_afc)$

ATTACHMENT F

WET Testing Results

Whole Effluent Toxicity (WET)

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: **Annual throughout the permit term**

The dilution series used for the tests was: 100%, 60%, 30%, 3%, and 1%. The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 3.

Is there reasonable potential for an excursion above water quality standards based on the results of these tests? (*NOTE – In general, reasonable potential is determined anytime there is at least one test failure in the previous four tests*).

☐ **YES** ☒ **NO**

Comments:

WET Limits

Has reasonable potential been determined? ☐ YES ☒ NO

Will WET limits be established in the permit? ☐ YES ☒ NO

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test
Species Tested
Endpoint
TIWC (decimal)
No. Per Replicate
TST b value
TST alpha value

Chronic
Ceriodaphnia
Survival
0.03
1
0.75
0.2

Facility Name

Vanport Township Municipal
Authority

Permit No.

PA0023698

Test Completion Date

10/26/2021

Replicate

No.

Control

TIWC

1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11		
12		
13		
14		
15		

Mean 1.000 1.000
Std Dev. 0.000 0.000
Replicates 10 10

T-Test Result

Deg. of Freedom

Critical T Value

Pass or Fail

PASS

Test Completion Date

10/25/2022

Replicate

No.

Control

TIWC

1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11		
12		
13		
14		
15		

Mean 1.000 1.000
Std Dev. 0.000 0.000
Replicates 10 10

T-Test Result

Deg. of Freedom

Critical T Value

Pass or Fail

PASS

Test Completion Date

8/8/2023

Replicate

No.

Control

TIWC

1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11		
12		
13		
14		
15		

Mean 1.000 1.000
Std Dev. 0.000 0.000
Replicates 10 10

T-Test Result

Deg. of Freedom

Critical T Value

Pass or Fail

PASS

Test Completion Date

8/5/2024

Replicate

No.

Control

TIWC

1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	0
7	1	1
8	1	1
9	0	1
10	1	1
11		
12		
13		
14		
15		

Mean 0.900 0.900
Std Dev. 0.316 0.316
Replicates 10 10

T-Test Result

Deg. of Freedom

Critical T Value

Pass or Fail

PASS

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test
Species Tested
Endpoint
TIWC (decimal)
No. Per Replicate
TST b value
TST alpha value

Chronic
Ceriodaphnia
Reproduction
0.03
1
0.75
0.2

Facility Name

Vanport Township Municipal
Authority

Permit No.

PA0023698

Test Completion Date

Replicate	10/25/2021	
No.	Control	TIWC
1	19	24
2	22	20
3	24	23
4	22	20
5	17	27
6	22	21
7	23	23
8	21	29
9	21	25
10	21	25
11		
12		
13		
14		
15		

Mean 21.200 23.700
Std Dev. 1.989 2.946
Replicates 10 10

T-Test Result 7.4701
Deg. of Freedom 14
Critical T Value 0.8681
Pass or Fail **PASS**

Test Completion Date

Replicate	10/25/2022	
No.	Control	TIWC
1	29	26
2	33	28
3	25	29
4	31	30
5	23	25
6	24	25
7	31	28
8	30	31
9	35	31
10	30	30
11		
12		
13		
14		
15		

Mean 29.100 28.300
Std Dev. 3.929 2.312
Replicates 10 10

T-Test Result 5.4674
Deg. of Freedom 17
Critical T Value 0.8633
Pass or Fail **PASS**

Test Completion Date

Replicate	8/8/2023	
No.	Control	TIWC
1	24	31
2	23	27
3	28	21
4	33	27
5	26	29
6	26	26
7	27	30
8	30	24
9	26	28
10	23	26
11		
12		
13		
14		
15		

Mean 26.600 26.900
Std Dev. 3.134 2.923
Replicates 10 10

T-Test Result 5.8593
Deg. of Freedom 16
Critical T Value 0.8647
Pass or Fail **PASS**

Test Completion Date

Replicate	8/5/2024	
No.	Control	TIWC
1	17	15
2	14	20
3	14	16
4	24	22
5	21	22
6	22	8
7	24	17
8	20	23
9	19	24
10	21	20
11		
12		
13		
14		
15		

Mean 19.600 18.700
Std Dev. 3.627 4.832
Replicates 10 10

T-Test Result 2.2813
Deg. of Freedom 15
Critical T Value 0.8662
Pass or Fail **PASS**

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test
Species Tested
Endpoint
TIWC (decimal)
No. Per Replicate
TST b value
TST alpha value

Chronic
Pimephales
Survival
0.03
10
0.75
0.25

Facility Name

Vanport Township Municipal
Authority

Permit No.

PA0023698

Test Completion Date

Replicate	10/26/2021	
No.	Control	TIWC
1	1	1
2	1	1
3	1	1
4	0.9	0.9
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Mean 0.975 0.975
Std Dev. 0.050 0.050
Replicates 4 4

T-Test Result 14.8898
Deg. of Freedom 5
Critical T Value 0.7267
Pass or Fail **PASS**

Test Completion Date

Replicate	10/25/2022	
No.	Control	TIWC
1	1	1
2	1	1
3	1	0.9
4	1	1
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Mean 1.000 0.975
Std Dev. 0.000 0.050
Replicates 4 4

T-Test Result 17.8623
Deg. of Freedom 3
Critical T Value 0.7649
Pass or Fail **PASS**

Test Completion Date

Replicate	8/8/2023	
No.	Control	TIWC
1	1	1
2	1	1
3	0.9	0.9
4	0.9	1
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Mean 0.950 0.975
Std Dev. 0.058 0.050
Replicates 4 4

T-Test Result 14.6365
Deg. of Freedom 5
Critical T Value 0.7267
Pass or Fail **PASS**

Test Completion Date

Replicate	8/6/2024	
No.	Control	TIWC
1	1	1
2	1	1
3	1	0.8
4	0.9	0.8
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Mean 0.975 0.900
Std Dev. 0.050 0.115
Replicates 4 4

T-Test Result 6.2418
Deg. of Freedom 4
Critical T Value 0.7407
Pass or Fail **PASS**

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test
Species Tested
Endpoint
TIWC (decimal)
No. Per Replicate
TST b value
TST alpha value

Chronic
Pimephales
Growth
0.03
10
0.75
0.25

Facility Name

Vanport Township Municipal
Authority

Permit No.

PA0023698

Test Completion Date

Replicate	10/26/2021	
No.	Control	TIWC
1	0.301	0.309
2	0.305	0.321
3	0.313	0.324
4	0.312	0.297
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Mean 0.308 0.313
Std Dev. 0.006 0.012
Replicates 4 4

T-Test Result 12.5404
Deg. of Freedom 4
Critical T Value 0.7407
Pass or Fail **PASS**

Test Completion Date

Replicate	10/25/2022	
No.	Control	TIWC
1	0.369	0.355
2	0.368	0.43
3	0.333	0.41
4	0.387	0.378
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Mean 0.364 0.393
Std Dev. 0.023 0.033
Replicates 4 4

T-Test Result 6.4270
Deg. of Freedom 4
Critical T Value 0.7407
Pass or Fail **PASS**

Test Completion Date

Replicate	8/8/2023	
No.	Control	TIWC
1	0.329	0.313
2	0.335	0.321
3	0.316	0.329
4	0.32	0.344
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Mean 0.325 0.327
Std Dev. 0.009 0.013
Replicates 4 4

T-Test Result 11.2807
Deg. of Freedom 4
Critical T Value 0.7407
Pass or Fail **PASS**

Test Completion Date

Replicate	8/8/2024	
No.	Control	TIWC
1	0.306	0.321
2	0.324	0.303
3	0.339	0.278
4	0.304	0.242
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Mean 0.318 0.286
Std Dev. 0.017 0.034
Replicates 4 4

T-Test Result 2.6001
Deg. of Freedom 4
Critical T Value 0.7407
Pass or Fail **PASS**

WET Summary and Evaluation

Facility Name	Vanport Township Municipal Authority
Permit No.	PA0023698
Design Flow (MGD)	2
Q₇₋₁₀ Flow (cfs)	4730
PMF_a	0.065
PMF_c	0.449

Species	Endpoint	Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
		10/26/21	10/25/22	8/8/23	8/5/24
Ceriodaphnia	Survival	PASS	PASS	PASS	PASS

Species	Endpoint	Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
		10/25/21	10/25/22	8/8/23	8/5/24
Ceriodaphnia	Reproduction	PASS	PASS	PASS	PASS

Species	Endpoint	Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
		10/26/21	10/25/22	8/8/23	8/6/24
Pimephales	Survival	PASS	PASS	PASS	PASS

Species	Endpoint	Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
		10/26/21	10/25/22	8/8/23	8/8/24
Pimephales	Growth	PASS	PASS	PASS	PASS

Reasonable Potential? NO

Permit Recommendations

Test Type **Acute**
 TIWC **3** % Effluent
 Dilution Series **1, 3, 30, 60, 100** % Effluent
 Permit Limit **None**
 Permit Limit Species