

Application Type Renewal
Facility Type Municipal
Major / Minor Major

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Application No. PA0234028
APS ID 1110009
Authorization ID 1477840

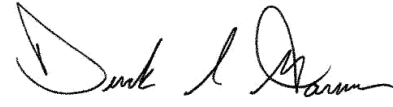
1.0 Applicant and Facility Information

Applicant Name	<u>University Area Joint Authority</u>	Facility Name	<u>Advanced Water Treatment Building</u>
Applicant Address	<u>1576 Spring Valley Road</u> <u>State College, PA 16801-8401</u>	Facility Address	<u>1576 Spring Valley Road</u> <u>State College, PA 16801-8401</u>
Applicant Contact	<u>Cory Miller</u>	Facility Contact	<u>Andy Breon</u>
Applicant Phone	<u>(814) 238-5361</u>	Facility Phone	<u>(814) 238-5361</u>
Client ID	<u>253141</u>	Site ID	<u>745180</u>
Ch 94 Load Status	<u>Not Overloaded</u>	Municipality	<u>College Township</u>
Connection Status	<u>No Limitations</u>	County	<u>Centre</u>
Date Application Received	<u>March 14, 2024</u>	EPA Waived?	<u>No</u>
Date Application Accepted	<u>March 27, 2024</u>	If No, Reason	<u>Major Facility</u>

Purpose of Application Renewal of an existing NPDES permit for the discharge of Class A reclaimed water.

University Area Joint Authority ("UAJA") has applied for a renewal of the existing NPDES permit (PA0234028) that authorizes the discharge of Class A reclaimed water from the facility to Slab Cabin Run and Spring Creek Watersheds. The present permit expired on May 31, 2024 and has been administratively extended.

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

Approve	Deny	Signatures	Date
X		 Derek S. Garner / Project Manager	2/3/2024
X		 Nicholas W. Hartranft, P.E. / Environmental Engineer Manager	2/4/2025

2.0 Treatment Facility Summary

UAJA owns and operates the Advanced Water Treatment (“AWT”) Building; an advanced water treatment facility that treats secondary clarifier effluent from UAJA’s Spring Creek Pollution Control Facility (“SCPCF”). The treated wastewater, now “reclaimed water,” is conveyed through a distribution system for reuse within the community area for industrial, commercial, agricultural and environmental purposes. Treatment at the AWT Building is as follows:

- Prescreening
 - Wedge wire strainers
- Ozone
- First stage filtration
 - Microfiltration
- Second stage filtration
 - Two stage reverse osmosis
- Chemical Treatment
 - pH and alkalinity stabilization
- Primary disinfection
 - Ultraviolet light
- Secondary disinfection
 - Sodium hypochlorite

The reclaimed water treated at the AWT Building is approved for Class A Reclaimed Water uses as defined in DEP’s *Reuse of Treated Wastewater Guidance Manual (385-2188-002, 5/12/12)*. Beneficial uses of the reclaimed water that result in a discharge to surface waters are covered under this NPDES permit. Other uses are covered under WQM Permit No. 1410403, issued September 17, 2012. The approved outfalls are as follows:

Table 2-1. Outfall Locations and Uses

Outfall No.	Location/Use
001	Slab Cabin Run Stream Augmentation
002	Slab Cabin Run Stream Augmentation
003	Kissinger Meadow Constructed Wetland Cells
004	Kissinger Farm Pond
005	Centre Hills Country Club Water Feature
006	Centre Hills Country Club Water Feature
007	Centre Hills Country Club Water Feature

To satisfy the required monitoring for pollutants identified in the existing NPDES permit, the following internal monitoring points (“IMPs”) were established:

Table 2-2. Internal Monitoring Point Locations

IMP No.	Location
101	AWT Building
201	Booster Pump Station
301	Wetland Vault Meter

See Attachment A for the Facility and Discharge Location Maps.

3.0 Discharge, Receiving Waters and Water Supply Information

3.1 Outfall 001

Outfall 001 discharges directly to Slab Cabin Run as part of a stream augmentation project to replenish the headwaters. The outfall structure includes a cascade aerator to increase dissolved oxygen and cool the water prior to entering Slab Cabin Run. The outfall is also equipped with a pressure reducing valve to prevent scouring along the stream bank and bed.

Table 3-1. Outfall 001 Information

Outfall No.	<u>001</u>	Design Flow (MGD)	<u>1.05</u>
Latitude	<u>40° 47' 21.87"</u>	Longitude	<u>-77° 50' 0.92"</u>
Quad Name	<u>State College</u>	Quad Code	<u>1223</u>
Wastewater Description:	<u>Class A Reclaimed Water</u>		
Receiving Waters	<u>Slab Cabin Run</u>	Stream Code	<u>23036</u>
NHD Com ID	<u>67180318</u>	RMI	<u>2.85</u>
Drainage Area (mi ²)	<u>15.4</u>	Yield (cfs/mi ²)	<u>0.239</u>
Q ₇₋₁₀ Flow (cfs)	<u>3.68</u>	Q ₇₋₁₀ Basis	<u>Streamgage No. 01546400</u>
Elevation (ft)	<u>1027</u>	Slope (ft/ft)	<u>n/a</u>
Watershed No.	<u>9-C</u>	Chapter 93 Class.	<u>CWF</u>
Existing Use	<u>HQ-CWF</u>	Existing Use Qualifier	<u>Class A Wild Trout</u>
Exceptions to Use	<u>n/a</u>	Exceptions to Criteria	<u>n/a</u>
Assessment Status	<u>Impaired</u>		
Cause(s) of Impairment	<u>Habitat Alteration, Dewatering, Eutrophication, Siltation</u>		
Source(s) of Impairment	<u>Golf Courses, Impacts from Hydrostructure Flow Regulation/Modification, Agriculture, Urban Runoff/Storm Sewers, Impervious Surface/Parking Lot Runoff</u>		
TMDL Status	<u>n/a</u>	Name	<u>n/a</u>

3.2 Outfall 002

Outfall 002 discharges directly to Slab Cabin Run as part of a stream augmentation project to replenish the headwaters. The outfall structure includes a cascade aerator to increase dissolved oxygen and cool the water prior to entering Slab Cabin Run. The outfall is also equipped with a pressure reducing valve to prevent scouring along the stream bank and bed.

Table 3-2. Outfall 002 Information

Outfall No.	<u>002</u>	Design Flow (MGD)	<u>1.05</u>
Latitude	<u>40° 47' 14.20"</u>	Longitude	<u>-77° 50' 7.44"</u>
Quad Name	<u>State College</u>	Quad Code	<u>1223</u>
Wastewater Description:	<u>Class A Reclaimed Water</u>		
Receiving Waters	<u>Slab Cabin Run</u>	Stream Code	<u>23036</u>
NHD Com ID	<u>67180318</u>	RMI	<u>3.05</u>
Drainage Area	<u>15.3</u>	Yield (cfs/mi ²)	<u>0.239</u>
Q ₇₋₁₀ Flow (cfs)	<u>3.66</u>	Q ₇₋₁₀ Basis	<u>Streamgage No. 01546400</u>
Elevation (ft)	<u>1033</u>	Slope (ft/ft)	<u>n/a</u>
Watershed No.	<u>9-C</u>	Chapter 93 Class.	<u>CWF</u>
Existing Use	<u>HQ-CWF</u>	Existing Use Qualifier	<u>Class A Wild Trout</u>
Exceptions to Use	<u>n/a</u>	Exceptions to Criteria	<u>n/a</u>
Assessment Status	<u>Impaired</u>		
Cause(s) of Impairment	<u>Habitat Alteration, Dewatering, Eutrophication, Siltation</u>		
Source(s) of Impairment	<u>Golf Courses, Impacts from Hydrostructure Flow Regulation/Modification, Agriculture, Urban Runoff/Storm Sewers, Impervious Surface/Parking Lot Runoff</u>		
TMDL Status	<u>n/a</u>	Name	<u>n/a</u>

3.3 Outfall 003

Outfall 003 is a network of small diameter distribution lines that provide an even delivery of reclaimed water to the Kissinger Wetland. After discharge into the wetland, the reclaimed water will ultimately enter Slab Cabin Run. The approximate center of the distribution network is located roughly midway between Outfalls 001 and 002.

Table 3-3. Outfall 003 Information

Outfall No.	<u>003</u>	Design Flow (MGD)	<u>0.9</u>
Latitude	<u>40° 47' 20.21"</u>	Longitude	<u>-77° 50' 2.26"</u>
Quad Name	<u>State College</u>	Quad Code	<u>1223</u>
Wastewater Description: <u>Class A Reclaimed Water</u>			
Receiving Waters	<u>Slab Cabin Run</u>	Stream Code	<u>23036</u>
NHD Com ID	<u>67180318</u>	RMI	<u>2.98</u>
Drainage Area	<u>15.35</u>	Yield (cfs/mi ²)	<u>0.239</u>
Q ₇₋₁₀ Flow (cfs)	<u>3.67</u>	Q ₇₋₁₀ Basis	<u>Streamgage No. 01546400</u>
Elevation (ft)	<u>1031</u>	Slope (ft/ft)	<u>n/a</u>
Watershed No.	<u>9-C</u>	Chapter 93 Class.	<u>CWF</u>
Existing Use	<u>HQ-CWF</u>	Existing Use Qualifier	<u>Class A Wild Trout</u>
Exceptions to Use	<u>n/a</u>	Exceptions to Criteria	<u>n/a</u>
Assessment Status	<u>Impaired</u>		
Cause(s) of Impairment	<u>Habitat Alteration, Dewatering, Eutrophication, Siltation</u>		
Source(s) of Impairment	<u>Golf Courses, Impacts from Hydrostructure Flow Regulation/Modification, Agriculture, Urban Runoff/Storm Sewers, Impervious Surface/Parking Lot Runoff</u>		
TMDL Status	<u>n/a</u>	Name	<u>n/a</u>

3.4 Outfall 004

Outfall 004 discharges to an ornamental pond on the Kissinger farm property. The nearest flowing surface water is Slab Cabin Run.

Table 3-4. Outfall 004 Information

Outfall No.	<u>004</u>	Design Flow (MGD)	<u>0.03</u>
Latitude	<u>40° 47' 29.61"</u>	Longitude	<u>-77° 49' 50.80"</u>
Quad Name	<u>State College</u>	Quad Code	<u>1223</u>
Wastewater Description: <u>Class A Reclaimed Water</u>			
Receiving Waters	<u>Slab Cabin Run</u>	Stream Code	<u>23036</u>
NHD Com ID	<u>67180250</u>	RMI	<u>2.68</u>
Drainage Area	<u>15.41</u>	Yield (cfs/mi ²)	<u>0.239</u>
Q ₇₋₁₀ Flow (cfs)	<u>3.68</u>	Q ₇₋₁₀ Basis	<u>Streamgage No. 01546400</u>
Elevation (ft)	<u>1020</u>	Slope (ft/ft)	<u>n/a</u>
Watershed No.	<u>9-C</u>	Chapter 93 Class.	<u>CWF</u>
Existing Use	<u>HQ-CWF</u>	Existing Use Qualifier	<u>Class A Wild Trout</u>
Exceptions to Use	<u>n/a</u>	Exceptions to Criteria	<u>n/a</u>
Assessment Status	<u>Impaired</u>		
Cause(s) of Impairment	<u>Habitat Alteration, Dewatering, Eutrophication, Siltation</u>		
Source(s) of Impairment	<u>Golf Courses, Impacts from Hydrostructure Flow Regulation/Modification, Agriculture, Urban Runoff/Storm Sewers, Impervious Surface/Parking Lot Runoff</u>		
TMDL Status	<u>n/a</u>	Name	<u>n/a</u>

3.5 Outfall 005

Outfall 005 discharges to a water feature in the Centre Hill Country Club Golf Course. The nearest flowing surface water is an unnamed tributary to Slab Cabin Run.

Table 3-5. Outfall 005 Information

Outfall No.	005	Design Flow (MGD)	0.03
Latitude	40° 47' 33.89"	Longitude	-77° 49' 21.96"
Quad Name	State College	Quad Code	1223
Wastewater Description:	Class A Reclaimed Water		
Receiving Waters	Unnamed Tributary to Slab Cabin Run	Stream Code	23040
NHD Com ID	67180212	RMI	0.55
Drainage Area	0.14	Yield (cfs/mi ²)	0.239
Q ₇₋₁₀ Flow (cfs)	0.03	Q ₇₋₁₀ Basis	Streamgage No. 01546400
Elevation (ft)	1081	Slope (ft/ft)	n/a
Watershed No.	9-C	Chapter 93 Class.	CWF, MF
Existing Use	HQ-CWF	Existing Use Qualifier	Class A Wild Trout
Exceptions to Use	n/a	Exceptions to Criteria	n/a
Assessment Status	Impaired		
Cause(s) of Impairment	Habitat Alteration, Dewatering, Eutrophication, Siltation		
Source(s) of Impairment	Golf Courses, Impacts from Hydrostructure Flow Regulation/Modification, Agriculture, Urban Runoff/Storm Sewers, Impervious Surface/Parking Lot Runoff		
TMDL Status	n/a	Name	n/a

3.6 Outfall 006

Outfall 006 discharges to a water feature in the Centre Hill Country Club Golf Course. The nearest flowing surface water is an unnamed tributary of Slab Cabin Run.

Table 3-6. Outfall 006 Information

Outfall No.	006	Design Flow (MGD)	0.03
Latitude	40° 47' 34.26"	Longitude	-77° 49' 20.54"
Quad Name	State College	Quad Code	1223
Wastewater Description:	Class A Reclaimed Water		
Receiving Waters	Unnamed Tributary to Slab Cabin Run	Stream Code	23040
NHD Com ID	67180212	RMI	0.83
Drainage Area	0.06	Yield (cfs/mi ²)	0.239
Q ₇₋₁₀ Flow (cfs)	0.01	Q ₇₋₁₀ Basis	Streamgage No. 01546400
Elevation (ft)	1126	Slope (ft/ft)	n/a
Watershed No.	9-C	Chapter 93 Class.	CWF, MF
Existing Use	HQ-CWF	Existing Use Qualifier	Class A Wild Trout
Exceptions to Use	n/a	Exceptions to Criteria	n/a
Assessment Status	Impaired		
Cause(s) of Impairment	Habitat Alteration, Dewatering, Eutrophication, Siltation		
Source(s) of Impairment	Golf Courses, Impacts from Hydrostructure Flow Regulation/Modification, Agriculture, Urban Runoff/Storm Sewers, Impervious Surface/Parking Lot Runoff		
TMDL Status	n/a	Name	n/a

3.7 Outfall 007

Outfall 007 discharges to a water feature adjacent to an unnamed tributary to Spring Creek in the Centre Hill Country Club Golf Course.

Table 3-7. Outfall 007 Information

Outfall No.	007	Design Flow (MGD)	0.03
Latitude	40° 47' 21.99"	Longitude	-77° 48' 36.23"
Quad Name	State College	Quad Code	1223
Wastewater Description:	Class A Reclaimed Water		
Receiving Waters	Unnamed Tributary to Spring Creek	Stream Code	23056
NHD Com ID	134367589	RMI	0.49
Drainage Area	0.13	Yield (cfs/mi ²)	0.239
Q ₇₋₁₀ Flow (cfs)	0.03	Q ₇₋₁₀ Basis	Streamgage No. 01546400
Elevation (ft)	1108	Slope (ft/ft)	n/a
Watershed No.	9-C	Chapter 93 Class.	CWF, MF
Existing Use	n/a	Existing Use Qualifier	n/a
Exceptions to Use	n/a	Exceptions to Criteria	n/a
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment	n/a		
Source(s) of Impairment	n/a		
TMDL Status	n/a	Name	n/a

3.8 Internal Monitoring Point 101

IMP 101 is located at the AWT Building. All sampling except for total residual chlorine ("TRC") and flow measurements occurs here. Since all the reclaimed water in the distribution system originates at the AWT Building, IMP 101 allows for a common sampling location instead of requiring sampling at each individual outfall.

3.9 Internal Monitoring Point 201

IMP 201 is located at the Booster Pump Station on the Centre Hill Country Club Golf Course property. TRC is the only parameter sampled at IMP 201.

3.10 Internal Monitoring Point 301

IMP 301 is located at the Wetland Vault Meter. IMP 301 allows UAJA to collect flow data prior to the reclaimed water entering the Kissinger Wetland distribution system.

3.11 Receiving Surface Waters

The reclaimed water is discharged in two watersheds, Slab Cabin Run and Spring Creek, and three different receiving waters.

3.11.1 Slab Cabin Run

Outfalls 001, 002, 003, and 004 all ultimately discharge to Slab Cabin Run. Slab Cabin Run is currently impaired for habitat alteration, dewatering, eutrophication, and siltation caused by golf courses, impacts from hydrostructure flow regulation/modification, agriculture, urban runoff/storm sewers, and impervious surface/parking lot runoff. None of the outfalls are listed as causes and are not expected to contribute to the associated impairments.

During the existing permit's term, the Slab Cabin Run Watershed's existing use was upgraded to HQ-CWF due to a Class A Wild Trout Stream designation. The impacts of the designation on the development of effluent limitations are covered under Section 5 of this fact sheet.

The Q7-10 of Slab Cabin Run at each point of discharge was calculated using a period of record from 1984 to 2024 from USGS Stream Gage No. 01546400, Spring Creek at Houserville, PA. The stream gage has a low-flow of 14 cfs. Based on the stream gage's drainage area of 58.5 mi², a low-flow yield of 0.239 cfs/mi² was developed. The low-flow yield as applied to the drainage area at each outfall to calculate the specific Q7-10.

See Attachment B for Q7-10 calculations and supporting documentation.

3.11.2 UNT to Slab Cabin Run

Outfalls 005 and 006 ultimately discharge to an unnamed tributary of Slab Cabin Run. currently impaired for habitat alteration, dewatering, eutrophication, and siltation caused by golf courses, impacts from hydrostructure flow regulation/modification, agriculture, urban runoff/storm sewers, and impervious surface/parking lot runoff. None of the outfalls are listed as causes and are not expected to contribute to the associated impairments.

During the existing permit's term, the Slab Cabin Run Watershed's existing use was upgraded to HQ-CWF due to a Class A Wild Trout Stream designation. The impacts of the designation on the development of effluent limitations are covered under Section 5 of this fact sheet.

The Q7-10 of Slab Cabin Run at each point of discharge was calculated using a period of record from 1984 to 2024 from USGS Stream Gage No. 01546400, Spring Creek at Houserville, PA. The stream gage has a low-flow of 14 cfs. Based on the stream gage's drainage area of 58.5 mi², a low-flow yield of 0.239 cfs/mi² was developed. The low-flow yield as applied to the drainage area at each outfall to calculate the specific Q7-10.

See Attachment B for Q7-10 calculations and supporting documentation.

3.11.3 UNT to Spring Creek

Outfall 007 ultimately discharge to an unnamed tributary of Spring Creek. The unnamed tributary is attaining its Chapter 93 designated use.

The Q7-10 of Slab Cabin Run at each point of discharge was calculated using a period of record from 1984 to 2024 from USGS Stream Gage No. 01546400, Spring Creek at Houserville, PA. The stream gage has a low-flow of 14 cfs. Based on the stream gage's drainage area of 58.5 mi², a low-flow yield of 0.239 cfs/mi² was developed. The low-flow yield as applied to the drainage area at each outfall to calculate the specific Q7-10.

See Attachment B for Q7-10 calculations and supporting documentation.

3.12 Downstream Public Water Supply Intake

The nearest downstream water supply intake is in Milton, PA, approximately 100 river miles downstream. The discharges are not expected to impact the water supply.

4.0 Compliance History

4.1 Inspection Reports

The facility was most recently inspected by DEP on December 9, 2024. The inspection report noted three effluent-related violations that occurred since the previous inspection. No impacts were observed at or downstream of the outfalls.

4.2 Violations

A compliance review yielded the following effluent violations during the existing permit's term (next page):

Table 4-1. Effluent Violations

Outfall	Noncompliance Date	Noncompliance Description	Parameter	Sample Value	Violation Condition	Permit Value	Units	SBC
	8/28/2019	Sample collection less frequent than required						
	1/26/2020	Sample collection less frequent than required						
101 (1)	2/25/2020	Violation of permit condition	pH	3.7	<	6	S.U.	Daily Minimum
	3/17/2020	Other						
101 (2)	3/17/2020	Violation of permit condition	pH	5.5	<	6	S.U.	Daily Minimum
201 (3)	6/26/2020	Violation of permit condition	TRC	3.51	>	0.88	mg/L	IMAX
201 (4)	8/27/2020	Violation of permit condition	TRC	2.42	>	0.88	mg/L	IMAX
	1/17/2021	Sample collection less frequent than required						
	1/17/2021	Sample collection less frequent than required						
201 (5)	10/28/2020	Violation of permit condition	TRC	2.36	>	0.88	mg/L	IMAX
	11/17/2021	Sample collection less frequent than required						
201 (6)	1/26/2021	Violation of permit condition	TRC	1.53	>	0.88	mg/L	IMAX
	2/16/2021	Sample collection less frequent than required						
101 (7)	5/26/2021	Violation of permit condition	pH	5.7	<	6	S.U.	Daily Minimum
101 (8)	6/24/2021	Violation of permit condition	pH	5.9	<	6	S.U.	Daily Minimum
201 (9)	6/24/2021	Violation of permit condition	TRC	1.12	>	0.88	mg/L	IMAX
201 (10)	7/27/2021	Violation of permit condition	TRC	1.68	>	0.88	mg/L	IMAX
	8/26/2021	Sample collection less frequent than required						
	11/18/2021	Sample collection less frequent than required						
101 (11)	11/19/2021	Violation of permit condition	pH	5.5	<	6	S.U.	Daily Minimum
201 (12)	12/21/2021	Violation of permit condition	TRC	1.54	>	0.88	mg/L	IMAX
101 (13)	1/26/2022	Violation of permit condition	pH	5.1	<	6	S.U.	Daily Minimum
201 (14)	1/26/2022	Violation of permit condition	TRC	1.64	>	0.88	mg/L	IMAX
	3/25/2022	Sample collection less frequent than required						
201 (15)	10/25/2022	Violation of permit condition	TRC	0.9	>	0.88	mg/L	IMAX
101 (16)	12/28/2022	Violation of permit condition	pH	9.7	>	9	S.U.	IMAX
201 (17)	3/28/2023	Violation of permit condition	TRC	4.98	>	0.88	mg/L	IMAX
101	8/25/2023	Sample collection less frequent than required	Fecal Coliform					
	9/28/2023	Sample collection less frequent than required						

Facility Comments:

- (1) Chemical feed temporarily dropped to zero over a weekend because of low tank level. After this was corrected it took several days for the tank to return to normal pH levels.
- (2) There was a disruption in the feed of NaOH into the product water being discharged into the AWT Tank (IMP 101) on February 9 that was corrected on February 10. However, the samples taken on February 10 and 11 showed that the pH of the tank as a whole had not recovered to the required pH of 6.0 until after that the sample was taken on the 11th.

- (3) We manually prepare a sodium hypochlorite solution that is injected in into the Beneficial Reuse water at the AWT Building. If this solution isn't mixed properly, or if the injection pump is allowed to run when the BR Water Pumps are off, it is possible to get a much higher concentration than intended in a small volume of water. We have reviewed our procedures and are training all operators to ensure this never happens again.
- (4) This violation occurred because insufficiently diluted hypochlorite was injected in the beneficial reuse line. UAJA's previous procedure for mixing that solution did not specify that it could not be done in the working (on-line) tank, so that is how it was done this time. We are revising the protocol to prevent this and to require mechanical mixing of the solution in the (offline) mix tank and verification of the chlorine strength prior to bringing the tank online.
- (5) We must dilute 12.5% hypochlorite to feed it at the proper rate using our current feed pump. When a new batch is mixed, some of added hypochlorite may sink to the bottom of the tank without mixing, so we have ordered a mechanical mixer that has not yet arrived. But this violation was also caused by mixing a batch in the online feed tank counter to protocol. We hope to eliminate the need for dilution and mixing by feeding full-strength with a smaller pump.
- (6) Total Residual Chlorine exceeded 0.88 from 19:00 to 19:31 (31 minutes) on 12-16-20. As with similar previous events, a UAJA Plant Operator failed to follow the proper procedure for mixing a batch of hypochlorite solution. Each batch is made in a tank that isn't attached to the pump and the tank is mixed and tested before use. None of that happened on 12-16-20. Corrective Actions have been taken. Subsequent batches were mixed correctly.
- (7) April 6, 2021 AWT Tank pH was 5.68. We increased the sodium hydroxide dosage to raise the tank pH above 6.0 and prevent future violations. The pH is now consistently > 6.5.
- (8) We routinely add NaOH to increase the pH of our Beneficial Reuse water. The purity of the water and lack of buffering makes the PH very sensitive to the feed rate. We discovered that the pH had dropped out of the target range (6.3-7.6) on the morning of May 10. We immediately increased the rate and by the following morning the tank pH was 7.52.
- (9) Starting May 19, 2021 the online instrument monitoring TRC at IMP 201 began to malfunction intermittently, showing a quick spike in TRC followed by a 1-2 hour trough before returning to a normal baseline. We were able to observe that these readings were inaccurate and not caused by any of the external component of the instrument. So, we contacted DEP and began daily handheld measurements until we could replace the instrument. The new instrument does not show this behavior.
- (10) The online total chlorine meter at IMP 201 produced a false spike in TRC on 6-4, which was the third time it produced a phantom spike, but the first where we could be sure the problem was being caused by the instrument itself and didn't match actual conditions. We started using handheld TRC readings and installed a new online unit on 6-21.
- (11) We inject NaOH to raise the pH in the RO permeate to a target > 6.5. We increased the injection rate after recording a below range pH.
- (12) On 11/28/21 an operator failed to close the valve that isolates the hypochlorite feed tank from the injection line when mixing a new batch of hypochlorite as they were trained to do. In addition to the ongoing training on this procedure and its importance we will place a large sign on the tank above the valve reminding all Operators to close the valve and confirm that it is closed before they add any concentrated hypochlorite to the tank.
- (13) UAJA AWT facility uses sodium hydroxide to increase the pH of its RO permeate to a range of 6.5-7.5. As soon as we became aware that it had dropped below this range (in fact below 6.0) we increased the rate. We are also considering using a higher pH range as the target.

- (14) A plant operator failed to shut down a chemical pump and to close the valve to isolate it from the tank in which he was preparing a dilute hypochlorite solution. Some of the hypochlorite sank to the bottom of the tank and was injected without sufficient dilution. The operators have been retrained and a sign is being put on the tank to prevent this from happening again.
- (15) A mixer was inadvertently shut off early when a batch of hypochlorite was made, which resulted in a brief (>5 min) IMAX exceedance due to insufficient mixing. We have a new procedure to extend mixing time if it shuts off again.
- (16) We believe this was caused by contaminated glassware in the laboratory. The UAJA analyst did not recognize that the result was unlikely, and failed to recheck the result with different glassware or resample which is protocol. The tank was pH 6.8 the following day with no changes in operation.
- (17) The IMAX violation occurred after we installed a new mixing system in our hypochlorite feed tanks. Unlike the system it replaced, this one did not reach the bottom of the tank, which allowed a pool of relatively concentrated hypochlorite to avoid the mixer. When the tank was brought online this pool produced a spike with a peak of 4.98 mg/l and a duration of about 45 minutes (1735 to 1820) on 2/22/23. The system has been modified to provide complete mixing of future batches.

There are no open violations associated with the permittee.

5.0 Development of Effluent Limitations

Effluent limits are the most stringent of technology-based effluent limitations (“TBELs”), water quality-based effluent limitations (“WQBELs”), or best professional judgment (“BPJ”).

5.1 Technology-based Effluent Limitations

The AWT Building’s effluent is subject to minimum secondary treatment standards established at 40 CFR § 133.102 and 25 Pa. Code § 92a.47. The treatment standards, dependent on the water quality analysis and BPJ where applicable, are as follows.

5.1.1 Internal Monitoring Point 101

As mentioned above in Section 3.8, IMP 101 was established to create a sampling point prior to the reclaimed water leaving the AWT Building and entering the distribution system. Apart from flow and total residual chlorine (“TRC”) (see Section 5.1.2), all sampling requirements will be established here.

Table 5-1. Secondary Treatment Standards

Pollutant	Limit (mg/l)	SBC	Federal Regulation	State Regulation
CBOD ₅	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45	Average Weekly	133.102(b)(2)	92a.47(a)(2)
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)
Fecal Coliform (5/1 – 9/30)	200 / 100 ml	Geo Mean	-	92a.47(a)(4)
Fecal Coliform (5/1 – 9/30)	1,000 / 100 ml	IMAX	-	92a.47(a)(4)
Fecal Coliform (10/1 – 4/30)	2,000 / 100 ml	Geo Mean	-	92a.47(a)(5)
Fecal Coliform (10/1 – 4/30)	10,000 / 100 ml	IMAX	-	92a.47(a)(5)

5.1.2 Internal Monitoring Point 201

Hypochlorite is dosed into the reclaimed water downstream of the high service pumps that convey the water out of the AWT Building and into the distribution system. Consequently, sampling for TRC upstream of the high service pumps at IMP 101 wouldn’t yield any meaningful data. Instead, TRC is sampled for at IMP 201, located at the booster pump station.

Table 5-2. TRC Secondary Treatment Standard

Pollutant	Limit (mg/l)	SBC	Federal Regulation	State Regulation
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)

5.1.3 Internal Monitoring Point 301

There are no applicable TBELs to apply at IMP 301.

5.1.4 Outfalls 001, 002, 003, 004, 005, 006, 007

There are no applicable TBELs to apply at Outfalls 001 through 007.

5.2 Best Professional Judgment

5.2.1 Internal Monitoring Point 101

Pursuant to the Clean Water Act (“CWA”) § 402(a)(1)(b) and 40 CFR §§ 122.44(a)(1) and 125.3, DEP is authorized to develop case-by-case TBELs. As mentioned in Section 2.0, UAJA treats the SCPCF effluent for uses up to Class A Reclaimed Water uses as defined in DEP’s *Reuse of Treated Wastewater Guidance Manual (385-2188-002, 5/12/12)* (“Reuse Manual”). The Reuse Manual establishes the framework within which DEP has exercised best professional judgment (“BPJ”) in establishing limits for Class A uses. Adverse health consequences associated with the reuse of improperly treated wastewater are well documented. Consequently, DEP has established limitations that are generally geared towards the protection of human health since the reclaimed water is used in unrestricted urban scenarios (i.e., car wash, swimming pool, golf course, etc.) and augmentation of surface waters that are accessible to the public. The following minimum treatment standards are recommended in the Reuse Manual for Class A uses:

Table 5-3. Class A Reclaimed Water Treatment Standards

Pollutant	Treatment Standard		
	Minimum	Average Monthly (mg/l)	Maximum (mg/l)
BOD		2.0	5.0
TOC		10.0	
Turbidity (NTU)		2.0	5.0
Fecal Coliform (No./100 ml)		2.2	23.0
TOX		0.2	
Total Nitrogen		10.0	
UV Dosage (mJ/cm ²)	50.0		

Additionally, to protect human health, effluent limits for the reclaimed water that is not discharged to a surface water are established in an associated WQM Permit; No. 1410403. In accordance with 25 PA Code § 92a.11, an NPDES permit’s effluent limits must be at least as stringent as the WQM permit. The associated WQM permit’s effluent limits match the Reuse Manual’s Class A Reclaimed Water treatment standards in Table 5-3 above.

DEP is recommending new monitoring requirements for per- and polyfluoroalkyl substances (PFAS)-related compounds. Sampling that was completed as part of the renewal application identifies non-detect values for PFOA, PFOS, HFPO-DA, and PFBS. Accordingly, DEP has chosen to establish annual monitoring requirements for these compounds in the permit. A footnote will be included in the permit that allows UAJA to discontinue monitoring for PFOA, PFOS, HFPO-DA, and PFBS if the results in four consecutive monitoring periods indicate non-detect results at or below Quantitation Limits of 4.0 ng/L for PFOA, 3.7 ng/L for PFOS, 3.5 ng/L for PFBS and 6.4 ng/L for HFPO-DA. When monitoring is discontinued, UAJA must enter a No Discharge Indicator (NODI) Code of “GG” on discharge monitoring reports.

5.2.2 Internal Monitoring Point 201

BPJ was not used in establishing limits at IMP 201.

5.2.3 Internal Monitoring Point 301

BPJ was not used in establishing limits at IMP 301.

5.2.4 Outfalls 001, 002, 003, 004, 005, 006, 007

BPJ was not used in establishing limits at Outfalls 001 through 007.

5.3 Water Quality-based Effluent Limitations

After developing the TBELs through applying regulatory requirements and BPJ, the next step is to determine if there are more stringent WQBELs that must be applied.

5.3.1 WQM 7.0

An analysis using DEP's WQM 7.0 v1.1 was performed for the discharges. WQM 7.0 is a multiple source discharge model that is used to determine NPDES effluent limits for ammonia-nitrogen, BOD5, and dissolved oxygen, if applicable.

Existing permit limits for ammonia-nitrogen and BOD5 at IMP 101 were used as input values for each of the discharges. The input for dissolved oxygen was taken from the renewal application's analysis results table. Since sampling for these parameters occurs prior to the reclaimed water enter the distribution system, the model must be run for each discharge to a flowing water and the most stringent limitation should be applied at IMP 101. The results for each outfall are as follows:

Table 5-4. WQM Results for Outfalls 001, 002, 003

Parameter	Effluent Limit (mg/l)		
	Average Monthly	Daily Maximum	Minimum
BOD5	2.0		
NH3-N	2.86	5.72	
Dissolved Oxygen			7.84

WQM was not used for Outfalls 004, 005, 006, and 007. These outfalls discharge to an ornamental ponds / golf course water features that would only discharge to flowing waters during extreme rain events.

The model output indicates the existing limits remain appropriate and that the existing concentration of dissolved oxygen in the effluent is protective of the receiving surface waters.

See Attachment C for WQM model input/output data.

5.3.2 Toxics Management Spreadsheet

The Toxics Management Spreadsheet (“TMS”) is a single discharge model that is used to determine NPDES effluent limitations for toxics, if applicable. The TMS results are as follows:

Table 5-5. TMS Results for Outfalls 001

Pollutants	Mass Limits		Concentration Limits				Governing WQBEL	WQBEL Basis
	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units		
Total Cadmium	0.006	0.01	0.73	1.13	1.82	µg/L	0.73	CFC
Total Copper	Report	Report	Report	Report	Report	µg/L	22.8	AFC
Total Silver	Report	Report	Report	Report	Report	µg/L	5.02	AFC
Acrylamide	0.009	0.015	1.07	1.67	2.68	µg/L	1.07	CRL

Table 5-6. TMS Results for Outfalls 002

Pollutants	Mass Limits		Concentration Limits				Governing WQBEL	WQBEL Basis
	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units		
Total Cadmium	0.006	0.01	0.72	1.13	1.81	µg/L	0.72	CFC
Total Copper	Report	Report	Report	Report	Report	µg/L	22.7	AFC
Total Silver	Report	Report	Report	Report	Report	µg/L	4.99	AFC
Acrylamide	0.009	0.015	1.06	1.66	2.66	µg/L	1.06	CRL

Table 5-7. TMS Results for Outfalls 003

Pollutants	Mass Limits		Concentration Limits				Governing WQBEL	WQBEL Basis
	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units		
Total Cadmium	0.006	0.01	0.83	1.29	2.07	µg/L	0.83	CFC
Total Copper	Report	Report	Report	Report	Report	µg/L	26.1	AFC
Total Silver	Report	Report	Report	Report	Report	µg/L	5.89	AFC
Acrylamide	0.009	0.014	1.23	1.92	3.08	µg/L	1.23	CRL

The TMS was not used for Outfalls 004, 005, 006, and 007. These outfalls discharge to an ornamental ponds / golf course water features that would only discharge to flowing waters during extreme rain events.

The reclaimed water discharged via Outfalls 001, 002, and 003, located within approximately 1,000 feet of each other, all originate from the AWT Building and are all discharged from the same reclaimed water line; meaning that, practically, each outfall will need to meet the most stringent recommended WQBELs. Accordingly, DEP has proposed to establish the most stringent of the abovementioned WQBELs (Outfall 002) and not require sampling at Outfalls 001 or 003. It is not expected that Outfalls 001 or 003 discharge if Outfall 002 is not also discharging. This should save the permittee the burden of collecting samples at each outfall while still demonstrating compliance and protecting Slab Cabin Run.

See Attachment D for the Toxics Management Spreadsheet input/output.

5.3.4 Total Residual Chlorine Evaluation

The existing WQBEL for total residual chlorine was evaluated using the TRC Evaluation spreadsheet. Only the discharges to Slab Cabin Run were evaluated since the remaining discharges are to an ornamental pond or water features on a golf course and would only discharge to flowing waters if the ponds overflow during extreme rain events. The spreadsheet indicates that the existing TRC limits are protective of Slab Cabin Run aquatic life.

However, as mentioned in Section 3.11 above, the existing use of the Slab Cabin Watershed has been upgraded to HQ-CWF. Facilities using chlorination that discharge to high quality waters are required to either discontinue chlorination or dechlorinate the effluent per 25 PA Code § 92a.48(b)(3). Accordingly, DEP has proposed a new instantaneous maximum TRC limit of 0.02 mg/l. A TRC concentration less than 0.02 mg/l is generally considered a non-detect result and ensures that adequate dechlorination is occurring. Since UAJA is required to maintain a chlorine residual in the reclaimed water's distribution line per the associated WQM permit, DEP has chosen to establish the new 0.02 mg/l effluent limits at the actual outfalls that discharge directly to Slab Cabin Run; 001 and 002. This should allow UAJA flexibility in maintaining a chlorine residual for beneficial reuse while satisfying the requirement to dechlorinate.

Since UAJA will most likely not be able to immediately comply with the proposed TRC limits, DEP has chosen to establish the following compliance schedule in Part C of the permit:

The permittee shall achieve compliance with the final effluent limitations for TRC in Part A.I.B and D of this permit starting two years following the permit effective date, in accordance with the following schedule:

Action	Due Date
Submit a Dechlorination Plan	Permit Effective Date Plus One Year
Begin Implementation of Actions in Dechlorination Plan	Permit Effective Date Plus One Year
Complete Implementation of Actions in Dechlorination Plan/Meet Final Effluent Limitations	Permit Effective Date Plus Two Years

See Attachment E for the TRC evaluation.

5.3.5 Thermal Considerations

Since the permit was last renewed, thermal modifications have been removed from the impairment listings. Accordingly, DEP has proposed to remove temperature monitoring requirements at Outfall 001 and 002.

5.4 Chesapeake Bay

This permit is assigned a cap load of 0 lbs/yr for total nitrogen (TN) and total phosphorus (TP) in the Wastewater Supplement to the Phase 3 Watershed Implementation Plan (WIP); however, offsets for TN and TP can be used between this permit and the SCPCF permit (PA0026239).

5.5 Anti-backsliding

In accordance with 40 CFR 122.44(l)(1) and (2), this permit does not propose any effluent limitations, standards, or conditions that are less stringent than the previous permit.

6.0 Existing Effluent Limitations and Monitoring Requirements

The existing effluent limitations and monitoring requirements are as follows:

Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date.

Outfall 001, Continued (from Permit Effective Date through Permit Expiration Date)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	XXX	1.05 Daily Max	XXX	XXX	XXX	XXX	1/day	Measured
Temperature (deg F) (°F)	XXX	XXX	XXX	XXX	Report	XXX	1/day	I-S

Compliance Sampling Location: Outfall 001

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

Outfall 002, Continued (from Permit Effective Date through Permit Expiration Date)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	XXX	1.05	XXX	XXX	XXX	XXX	1/day	Measured
Temperature (deg F) (°F)	XXX	XXX	XXX	XXX	Report	XXX	1/day	I-S

Compliance Sampling Location: Outfall 002

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/week	Estimate

Compliance Sampling Location: Centre Hills Country Club Meter

Outfall 005, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/week	Estimate

Compliance Sampling Location: Centre Hills Country Club meter

Outfall 006, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/week	Estimate

Compliance Sampling Location: Centre Hills Country Club meter

Outfall 007, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/week	Estimate

Compliance Sampling Location: Centre Hills Country Club meter

IMP 101, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	XXX	9.0	1/week	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	Report	XXX	XXX	10.0	XXX	25.0	2/week	Grab
Turbidity (NTU)	XXX	XXX	XXX	2.0	XXX	5.0	Continuous	Metered
Fecal Coliform (No./100 ml)	XXX	XXX	XXX	2.2	XXX	23	1/week	Grab
Ammonia-Nitrogen	Report	XXX	XXX	3.0	XXX	7.5	2/week	Grab
Total Phosphorus	XXX	XXX	XXX	Report	XXX	XXX	2/week	Grab
Total Organic Halogens (TOX)	Report	XXX	XXX	0.2	XXX	0.5	1/month	Grab
Total Organic Carbon	Report	XXX	XXX	10	XXX	25	1/week	Grab

Compliance Sampling Location: Internal Monitoring Point 101 located at the Advanced Water Treatment Building

IMP 201, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.27	XXX	0.88	1/day	Grab

Compliance Sampling Location: Internal Monitoring Point 201 located at the Booster Pump Station

IMP 301, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Metered

Compliance Sampling Location: Internal Monitoring Point 301 located at the Wetland Vault Meter

The existing limitations and monitoring requirements to comply with Pennsylvania's Chesapeake Bay Tributary Strategy are as follows:

IMP 101, Effective Period: Permit Effective Date through Permit Expiration Date.

Outfall 101, Continued (from Permit Effective Date through Permit Expiration Date)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Ammonia--N	Report	Report	XXX	Report	XXX	XXX	2/week	Grab
Kjeldahl--N	Report	XXX	XXX	Report	XXX	XXX	2/week	Grab
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	2/week	Grab
Total Nitrogen	Report	Report	XXX	Report	XXX	XXX	2/week	Grab
Total Phosphorus	Report	Report	XXX	Report	XXX	XXX	2/week	Grab
Net Total Nitrogen	XXX	0.0	XXX	XXX	XXX	XXX	1/year	Calculation
Net Total Phosphorus	XXX	0.0	XXX	XXX	XXX	XXX	1/year	Calculation

Compliance Sampling Location: Internal Monitoring Point 101 located at the Advanced Water Treatment Building

7.0 Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

Outfall 001, Effective Period: Permit Effective Date through Start of Final Period.

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	XXX	1.05 Daily Max	XXX	XXX	XXX	XXX	1/day	Measured
Total Residual Chlorine (TRC)	XXX	XXX	XXX	XXX	XXX	Report	1/day	Grab

Compliance Sampling Location: Outfall 001

Outfall 001, Effective Period: Start of Final Period through Permit Expiration Date.

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	XXX	1.05 Daily Max	XXX	XXX	XXX	XXX	1/day	Measured
Total Residual Chlorine (TRC)	XXX	XXX	XXX	XXX	XXX	0.02	1/day	Grab

Compliance Sampling Location: Outfall 001

Outfall 002, Effective Period: Permit Effective Date through Start of Final Period.

Outfall 002, Continued (from Permit Effective Date through Start of Final Period)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	XXX	1.05	XXX	XXX	XXX	XXX	1/day	Measured
Total Residual Chlorine (TRC)	XXX	XXX	XXX	XXX	XXX	Report	1/day	Grab
Cadmium, Total (ug/L)	0.006	0.01	XXX	0.72	1.13	1.82	1/week	Grab
Copper, Total (ug/L)	Report	Report	XXX	Report	Report	XXX	1/week	Grab
Silver, Total (ug/L)	Report	Report	XXX	Report	Report	XXX	1/week	Grab
Acrylamide (ug/L)	0.009	0.015	XXX	1.06	1.66	2.66	1/week	Grab

Compliance Sampling Location: Outfall 002

Outfall 002, Effective Period: Start of Final Period through Permit Expiration Date.

Outfall 002, Continued (from Start of Final Period through Permit Expiration Date)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	XXX	1.05	XXX	XXX	XXX	XXX	1/day	Measured
Total Residual Chlorine (TRC)	XXX	XXX	XXX	XXX	XXX	0.02	1/day	Grab
Cadmium, Total (ug/L)	0.006	0.01	XXX	0.72	1.13	1.82	1/week	Grab
Copper, Total (ug/L)	Report	Report	XXX	Report	Report	XXX	1/week	Grab
Silver, Total (ug/L)	Report	Report	XXX	Report	Report	XXX	1/week	Grab
Acrylamide (ug/L)	0.009	0.015	XXX	1.06	1.66	2.66	1/week	Grab

Compliance Sampling Location: Outfall 00

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/week	Estimate

Compliance Sampling Location: Centre Hills Country Club Meter

Outfall 005, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/week	Estimate

Compliance Sampling Location: Centre Hills Country Club meter

Outfall 006, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/week	Estimate

Compliance Sampling Location: Centre Hills Country Club meter

Outfall 007, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/week	Estimate

Compliance Sampling Location: Centre Hills Country Club meter

IMP 101, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	XXX	9.0	1/week	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	Report	XXX	XXX	10.0	XXX	25.0	2/week	Grab
Turbidity (NTU)	XXX	XXX	XXX	2.0	XXX	5.0	Continuous	Metered
Fecal Coliform (No./100 ml)	XXX	XXX	XXX	2.2	XXX	23	1/week	Grab
Ammonia-Nitrogen	Report	XXX	XXX	3.0	XXX	7.5	2/week	Grab
Total Phosphorus	XXX	XXX	XXX	Report	XXX	XXX	2/week	Grab
Total Organic Halogens (TOX)	Report	XXX	XXX	0.2	XXX	0.5	1/month	Grab
PFOA (ng/L)	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
PFOS (ng/L)	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
PFBS (ng/L)	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
HFPO-DA (ng/L)	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Total Organic Carbon	Report	XXX	XXX	10	XXX	25	1/week	Grab

Compliance Sampling Location: Internal Monitoring Point 101 located at the Advanced Water Treatment Building

IMP 201, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.27	XXX	0.88	1/day	Grab

Compliance Sampling Location: Internal Monitoring Point 201 located at the Booster Pump Station

IMP 301, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Metered

Compliance Sampling Location: Internal Monitoring Point 301 located at the Wetland Vault Meter

The limitations and monitoring requirements specified below are proposed for the draft permit, to comply with Pennsylvania's Chesapeake Bay Tributary Strategy.

IMP 101, Effective Period: Permit Effective Date through Permit Expiration Date.

Outfall 101, Continued (from Permit Effective Date through Permit Expiration Date)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Ammonia--N	Report	Report	XXX	Report	XXX	XXX	2/week	Grab
Kjeldahl--N	Report	XXX	XXX	Report	XXX	XXX	2/week	Grab
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	2/week	Grab
Total Nitrogen	Report	Report	XXX	Report	XXX	XXX	2/week	Grab
Total Phosphorus	Report	Report	XXX	Report	XXX	XXX	2/week	Grab
Net Total Nitrogen	XXX	0.0	XXX	XXX	XXX	XXX	1/year	Calculation
Net Total Phosphorus	XXX	0.0	XXX	XXX	XXX	XXX	1/year	Calculation

Compliance Sampling Location: Internal Monitoring Point 101 located at the Advanced Water Treatment Building

ATTACHMENT A

Facility And Location Discharge Maps

ATTACHMENT B

Q7-10 Calculations and Supporting Documentation

StreamStats Gage Page

Gage Information	
Name	Value
USGS Station Number	01546400
Station Name	Spring Creek at Houserville, Pa.
Station Type	Gaging Station, continuous record
Latitude	40.83367
Longitude	-77.8275
NWIS Latitude	40.8336725
NWIS Longitude	-77.82750108
Is regulated?	FALSE
Agency	United States Geological Survey
NWIS Discharge Period of Record	1984-11-08 - 2024-12-09

Physical Characteristics

Geological Characteristics		
Characteristic Name	Value	Units
Depth to Rock	5.254166667	feet
Percent Carbonate	75.1	percent
Percent of Glaciation	0	percent
Percent Carbonate	75.08	percent

Basin Dimensional Characteristics		
Characteristic Name	Value	Units
Drainage Area	58.5	square miles

Topographical Characteristics		
Characteristic Name	Value	Units
Mean Basin Elevation	1340	feet
Mean Basin Slope degrees	6.06	degrees
Maximum Basin Elevation	2416	feet
Mean Basin Slope degrees	6.63	degrees

Land Cover Characteristics		
Characteristic Name	Value	Units
Percent Forest	36.99	percent
Percent Storage	0.13	percent
Percent Urban	11.1	percent
Percent Storage	0.11	percent

Precipitation Statistics		
Characteristic Name	Value	Units
Mean Annual Precipitation	39.36	inches

Stream Channel Properties		
Characteristic Name	Value	Units
Stream Density	1.27	miles per square mile

Streamflow Statistics

Peak-Flow Statistics				
Statistic Name	Value	Units	Preferred?	Years of Record
50-percent AEP flood	568	cubic feet per second		
20-percent AEP flood	939	cubic feet per second		
10-percent AEP flood	1260	cubic feet per second		
2-percent AEP flood	2270	cubic feet per second		
1-percent AEP flood	2840	cubic feet per second		
0.2-percent AEP flood	4630	cubic feet per second		
Regression est 50-percent AEP flood	661	cubic feet per second		
Regression est 20-percent AEP flood	1210	cubic feet per second		
Regression est 10-percent AEP flood	1660	cubic feet per second		
Regression est 2-percent AEP flood	2880	cubic feet per second		
Regression est 1-percent AEP flood	3500	cubic feet per second		
Regression est 0.2-percent AEP flood	5250	cubic feet per second		
Weighted 20-percent AEP flood	992	cubic feet per second		
Weighted 10-percent AEP flood	1370	cubic feet per second		
Weighted 2-percent AEP flood	2470	cubic feet per second		
Weighted 1-percent AEP flood	3070	cubic feet per second		
Weighted 0.2-percent AEP flood	4840	cubic feet per second		
Systematic peak years	21	years	✓	
Weighted 50-percent AEP flood	581	cubic feet per second		
50-percent AEP flood	565	cubic feet per second	✓	
20-percent AEP flood	885	cubic feet per second	✓	
10-percent AEP flood	1150	cubic feet per second	✓	
4-percent AEP flood	1560	cubic feet per second	✓	
2-percent AEP flood	1920	cubic feet per second	✓	
1-percent AEP flood	2340	cubic feet per second	✓	
0.5-percent AEP flood	2820	cubic feet per second	✓	
0.2-percent AEP flood	3570	cubic feet per second	✓	
Regression est 50-percent AEP flood	1450	cubic feet per second	✓	
Regression est 20-percent AEP flood	2520	cubic feet per second	✓	
Regression est 10-percent AEP flood	3430	cubic feet per second	✓	
Regression est 4-percent AEP flood	4820	cubic feet per second	✓	
Regression est 2-percent AEP flood	6010	cubic feet per second	✓	
Regression est 1-percent AEP flood	7350	cubic feet per second	✓	
Regression est 0.5-percent AEP flood	8840	cubic feet per second	✓	
Regression est 0.2-percent AEP flood	11100	cubic feet per second	✓	
Weighted 20-percent AEP flood	975	cubic feet per second	✓	
Weighted 10-percent AEP flood	1340	cubic feet per second	✓	
Weighted 4-percent AEP flood	1990	cubic feet per second	✓	
Weighted 2-percent AEP flood	2640	cubic feet per second	✓	
Weighted 1-percent AEP flood	3430	cubic feet per second	✓	
Weighted 0.5-percent AEP flood	4380	cubic feet per second	✓	
Weighted 0.2-percent AEP flood	5880	cubic feet per second	✓	
Weighted 50-percent AEP flood	593	cubic feet per second	✓	

Low-Flow Statistics				
Statistic Name	Value	Units	Preferred?	Years of Record
1 Day 10 Year Low Flow	13.5	cubic feet per second	✓	23
7 Day 2 Year Low Flow	19.6	cubic feet per second	✓	23
7 Day 10 Year Low Flow	14	cubic feet per second	✓	23
30 Day 2 Year Low Flow	22.3	cubic feet per second	✓	23
30 Day 10 Year Low Flow	15.4	cubic feet per second	✓	23
90 Day 10 Year Low Flow	18.7	cubic feet per second	✓	23
Low flow years	23	years	✓	23

Flow-Duration Statistics				
Statistic Name	Value	Units	Preferred?	Years of Record
1 Percent Duration	352	cubic feet per second	✓	30
2 Percent Duration	261	cubic feet per second	✓	30
3 Percent Duration	220	cubic feet per second	✓	30
5 Percent Duration	174	cubic feet per second	✓	30
10 Percent Duration	128	cubic feet per second	✓	30
15 Percent Duration	105	cubic feet per second	✓	30
20 Percent Duration	91	cubic feet per second	✓	30
25 Percent Duration	80	cubic feet per second	✓	30
30 Percent Duration	72	cubic feet per second	✓	30
35 Percent Duration	65	cubic feet per second	✓	30
40 Percent Duration	60	cubic feet per second	✓	30
45 Percent Duration	54	cubic feet per second	✓	30
50 Percent Duration	50	cubic feet per second	✓	30
55 Percent Duration	45	cubic feet per second	✓	30
60 Percent Duration	41	cubic feet per second	✓	30
65 Percent Duration	38	cubic feet per second	✓	30
70 Percent Duration	34	cubic feet per second	✓	30
75 Percent Duration	31	cubic feet per second	✓	30
80 Percent Duration	28	cubic feet per second	✓	30
85 Percent Duration	26	cubic feet per second	✓	30
90 Percent Duration	23	cubic feet per second	✓	30
95 Percent Duration	20	cubic feet per second	✓	30
97 Percent Duration	18	cubic feet per second	✓	30
98 Percent Duration	18	cubic feet per second	✓	30
99 Percent Duration	16	cubic feet per second	✓	30

Annual Flow Statistics				
Statistic Name	Value	Units	Preferred?	Years of Record
Mean Annual Flow	68	cubic feet per second	✓	30
Stand Dev of Mean Annual Flow	22	cubic feet per second	✓	30
Maximum Annual Mean Flow	127	cubic feet per second	✓	30
Minimum Annual Mean Flow	39	cubic feet per second	✓	30

General Flow Statistics				
Statistic Name	Value	Units	Preferred?	Years of Record
Minimum daily flow	13	cubic feet per second	✓	30
Maximum daily flow	1620	cubic feet per second	✓	30
Std Dev of daily flows	67	cubic feet per second	✓	30
Average daily streamflow	66.815	cubic feet per second	✓	18
Harmonic Mean Streamflow	43	cubic feet per second	✓	30
Mean of Logs of Daily Values	1.719304	Log base 10	✓	30
Std Dev of Logs of Daily Values	0.294693	Log base 10	✓	30
Skew of Logs of Daily Values	0.599022	Log base 10	✓	30
Non_Zero_Adjusted_Harmonic_Mean_Flow	43	cubic feet per second	✓	30

Base Flow Statistics				
Statistic Name	Value	Units	Preferred?	Years of Record
Number of years to compute BFI	18	years	✓	18
Average BFI value	0.722	dimensionless	✓	18
Std dev of annual BFI values	0.074	dimensionless	✓	18
Base Flow 10 Year Recurrence Interval	34.3	cubic feet per second	✓	23
Base Flow 25 Year Recurrence Interval	30.1	cubic feet per second	✓	23
Base Flow 50 Year Recurrence Interval	27.7	cubic feet per second	✓	23

Probability Statistics				
Statistic Name	Value	Units	Preferred?	Years of Record
Probability zero flow durations	0	dimensionless	✓	30

ATTACHMENT C

WQM Model Input/Output Data

Input Data WQM 7.0

		Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
		23036	SLAB CABIN RUN	3.050	1033.00	15.30	0.00000	0.00	☒

Stream Data												
Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time	Rch Velocity	WD Ratio	Rch Width	Rch Depth	Tributary		Stream	
	(cfs)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	Temp	pH	Temp	pH
	(cfs)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	(°C)		(°C)	
Q7-10	0.239	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	8.00	20.00	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
Outfall 002	PA0234028	1.0500	1.0500	1.0500	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	2.00	2.00	0.00	1.50
Dissolved Oxygen	7.84	8.24	0.00	0.00
NH3-N	3.00	0.00	0.00	0.70

Input Data WQM 7.0

		Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
		23036	SLAB CABIN RUN	2.980	1031.00	15.35	0.00000	0.00	☒

Stream Data												
Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time	Rch Velocity	WD Ratio	Rch Width	Rch Depth	Tributary Temp	Tributary pH	Stream Temp	Stream pH
	(cfsm)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	(°C)		(°C)	
Q7-10	0.239	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	8.00	20.00	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
Outfall 003	PA0234028	0.9000	0.9000	0.9000	0.000	25.00	7.00

Parameter Data				
Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	2.00	2.00	0.00	1.50
Dissolved Oxygen	7.84	8.24	0.00	0.00
NH3-N	3.00	0.00	0.00	0.70

Input Data WQM 7.0

		Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
		23036	SLAB CABIN RUN	2.850	1027.00	15.40	0.00000	0.00	☒

Stream Data												
Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time	Rch Velocity	WD Ratio	Rch Width	Rch Depth	Tributary Temp	Tributary pH	Stream Temp	Stream pH
	(cfs)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	(°C)		(°C)	
Q7-10	0.239	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	8.00	20.00	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
Outfall 001	PA0234028	1.0500	1.0500	1.0500	0.000	25.00	7.00

Parameter Data				
Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	2.00	2.00	0.00	1.50
Dissolved Oxygen	7.84	8.24	0.00	0.00
NH3-N	3.00	0.00	0.00	0.70

Input Data WQM 7.0

		Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
		23036	SLAB CABIN RUN	2.680	1020.00	15.41	0.00000	0.00	☒

Stream Data												
Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time	Rch Velocity	WD Ratio	Rch Width	Rch Depth	Tributary Temp	Tributary pH	Stream Temp	Stream pH
	(cfsm)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	(°C)		(°C)	
Q7-10	0.239	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	8.00	20.00	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
Outfall 004	PA0234028	0.0300	0.0300	0.0300	0.000	25.00	7.00

Parameter Data				
Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	2.00	2.00	0.00	1.50
Dissolved Oxygen	7.84	8.24	0.00	0.00
NH3-N	3.00	0.00	0.00	0.70

Input Data WQM 7.0

		Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
		23036	SLAB CABIN RUN	1.910	985.00	16.20	0.00000	0.00	☒

Stream Data												
Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time	Rch Velocity	WD Ratio	Rch Width	Rch Depth	Tributary		Stream	
									Temp	pH	Temp	pH
	(cfsm)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	(°C)			(°C)
Q7-10	0.239	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	8.00	20.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data							
Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	25.00	7.00

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

WQM 7.0 Hydrodynamic Outputs

SWP Basin

Stream Code

Stream Name

09C

23036

SLAB CABIN 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												
3.050	3.66	0.00	3.66	1.6243	0.00541	.649	27.59	42.49	0.29	0.015	20.00	7.42
2.980	3.67	0.00	3.67	3.0166	0.00583	.669	29.55	44.18	0.34	0.023	21.04	7.30
2.850	3.68	0.00	3.68	4.641	0.00780	.69	30.84	44.72	0.39	0.027	21.81	7.22
2.680	3.68	0.00	3.68	4.6874	0.00861	.692	30.58	44.22	0.40	0.119	21.83	7.22
Q1-10 Flow												
3.050	3.51	0.00	3.51	1.6243	0.00541	NA	NA	NA	0.29	0.015	20.00	7.41
2.980	3.52	0.00	3.52	3.0166	0.00583	NA	NA	NA	0.33	0.024	21.06	7.29
2.850	3.53	0.00	3.53	4.641	0.00780	NA	NA	NA	0.39	0.027	21.85	7.21
2.680	3.54	0.00	3.54	4.6874	0.00861	NA	NA	NA	0.39	0.120	21.86	7.21
Q30-10 Flow												
3.050	4.02	0.00	4.02	1.6243	0.00541	NA	NA	NA	0.31	0.014	20.00	7.45
2.980	4.04	0.00	4.04	3.0166	0.00583	NA	NA	NA	0.35	0.023	20.99	7.31
2.850	4.05	0.00	4.05	4.641	0.00780	NA	NA	NA	0.40	0.026	21.74	7.24
2.680	4.05	0.00	4.05	4.6874	0.00861	NA	NA	NA	0.41	0.116	21.75	7.23

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	0.96	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.1	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>
09C	23036	SLAB CABIN RUN

NH3-N Acute Allocations

RMI	Discharge Name	Baseline	Baseline	Multiple	Multiple	Critical	Percent
		Criterion (mg/L)	WLA (mg/L)	Criterion (mg/L)	WLA (mg/L)	Reach	Reduction
	3.050 Outfall 002	10.45	6	10.45	6	0	0
	2.980 Outfall 003	8.84	6	11.31	6	0	0
	2.850 Outfall 001	9.15	6	11.59	6	0	0
	2.680 Outfall 004	4.25	6	11.59	6	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline	Baseline	Multiple	Multiple	Critical	Percent
		Criterion (mg/L)	WLA (mg/L)	Criterion (mg/L)	WLA (mg/L)	Reach	Reduction
	3.050 Outfall 002	1.46	3	1.46	2.86	3	5
	2.980 Outfall 003	1.3	3	1.51	2.86	3	5
	2.850 Outfall 001	1.33	3	1.51	2.86	3	5
	2.680 Outfall 004	.82	3	1.51	3	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	<u>CBOD5</u>		<u>NH3-N</u>		<u>Dissolved Oxygen</u>		Critical	Percent
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Reach	Reduction
	3.05 Outfall 002	2	2	2.86	2.86	7.84	7.84	0	0
	2.98 Outfall 003	2	2	2.86	2.86	7.84	7.84	0	0
	2.85 Outfall 001	2	2	2.86	2.86	7.84	7.84	0	0
	2.68 Outfall 004	2	2	3	3	7.84	7.84	0	0

WQM 7.0 D.O.Simulation

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>			
09C	23036	SLAB CABIN RUN			
<u>RMI</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>		<u>Analysis pH</u>	
3.050	1.050	20.000		7.424	
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>		<u>Reach Velocity (fps)</u>	
27.593	0.649	42.486		0.295	
<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>	
2.00	0.000	0.88		0.700	
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>		<u>Reach DO Goal (mg/L)</u>	
8.119	15.152	Tsivoglou		5	
<u>Reach Travel Time (days)</u>	Subreach Results				
0.015	TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)	
	0.001	2.00	0.88	8.14	
	0.003	2.00	0.88	8.16	
	0.004	2.00	0.88	8.17	
	0.006	2.00	0.88	8.19	
	0.007	2.00	0.88	8.21	
	0.009	2.00	0.88	8.22	
	0.010	2.00	0.87	8.24	
	0.012	2.00	0.87	8.24	
	0.013	2.00	0.87	8.24	
	0.015	2.00	0.87	8.24	

<u>RMI</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>		<u>Analysis pH</u>	
2.980	1.950	21.041		7.296	
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>		<u>Reach Velocity (fps)</u>	
29.554	0.669	44.176		0.338	
<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>	
2.00	0.000	1.29		0.758	
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>		<u>Reach DO Goal (mg/L)</u>	
8.159	19.190	Tsivoglou		5	
<u>Reach Travel Time (days)</u>	Subreach Results				
0.023	TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)	
	0.002	2.00	1.28	8.09	
	0.005	2.00	1.28	8.09	
	0.007	2.00	1.28	8.09	
	0.009	2.00	1.28	8.09	
	0.012	2.00	1.27	8.09	

WQM 7.0 D.O. Simulation

<u>SWP Basin</u>	<u>Stream Code</u>	0.016	2.00	1.27	8.09
		0.019	2.00	1.27	8.09
09C	23036	0.021	2.00	1.26	8.09
		0.023	2.00	1.26	8.09
SLAB CABIN RUN					

WQM 7.0 D.O.Simulation

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>			
09C	23036	SLAB CABIN RUN			
<u>RMI</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>		<u>Analysis pH</u>	
2.850	3.000	21.813		7.220	
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>		<u>Reach Velocity (fps)</u>	
30.838	0.690	44.717		0.391	
<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>	
2.00	0.000	1.57		0.805	
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>		<u>Reach DO Goal (mg/L)</u>	
8.038	30.269	Tsivoglou		5	
<u>Reach Travel Time (days)</u>	Subreach Results				
0.027	TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)	
	0.003	2.00	1.57	7.97	
	0.005	2.00	1.57	7.97	
	0.008	2.00	1.56	7.97	
	0.011	2.00	1.56	7.97	
	0.013	2.00	1.56	7.97	
	0.016	2.00	1.55	7.97	
	0.019	2.00	1.55	7.97	
	0.021	2.00	1.55	7.97	
	0.024	2.00	1.54	7.97	
	0.027	2.00	1.54	7.97	

<u>RMI</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>		<u>Analysis pH</u>	
2.680	3.030	21.830		7.219	
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>		<u>Reach Velocity (fps)</u>	
30.582	0.692	44.219		0.396	
<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>	
2.00	0.000	1.55		0.806	
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>		<u>Reach DO Goal (mg/L)</u>	
7.972	33.808	Tsivoglou		5	
<u>Reach Travel Time (days)</u>	Subreach Results				
0.119	TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)	
	0.012	2.00	1.53	7.97	
	0.024	2.00	1.52	7.97	
	0.036	2.00	1.50	7.97	
	0.048	2.00	1.49	7.97	
	0.059	2.00	1.48	7.97	

WQM 7.9 D.O. Simulation

<u>SWP Basin</u>	<u>Stream Code</u>	0.083	2.00	1.45	7.97
		0.095	2.00	1.43	7.97
		0.107	2.00	1.42	7.97
		0.119	2.00	1.41	7.97
09C	23036			SLAB CABIN RUN	

WQM 7.0 Effluent Limits

<u>SWP Basin</u>		<u>Stream Code</u>	<u>Stream Name</u>				
09C		23036	SLAB CABIN 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)
3.050	Outfall 002	PA0234028	1.050	CBOD5	2		
				NH3-N	2.86	5.72	
				Dissolved Oxygen			7.84
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)
2.980	Outfall 003	PA0234028	0.900	CBOD5	2		
				NH3-N	2.86	5.72	
				Dissolved Oxygen			7.84
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)
2.850	Outfall 001	PA0234028	1.050	CBOD5	2		
				NH3-N	2.86	5.72	
				Dissolved Oxygen			7.84
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)
2.680	Outfall 004	PA0234028	0.030	CBOD5	2		
				NH3-N	3	6	
				Dissolved Oxygen			7.84

ATTACHMENT D

TMS Input/Output Data

Discharge Information

Instructions

Discharge

Stream

Facility: UAJA AWT Building

NPDES Permit No.: PA0234028

Outfall No.: 001

Evaluation Type: Major Sewage / Industrial Waste

Wastewater Description: Class A Reclaimed Water

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
1.05	24	7						

				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		88									
	Chloride (PWS)	mg/L		10.2									
	Bromide	mg/L	<	0.8									
	Sulfate (PWS)	mg/L		11.5									
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L	<	80									
	Total Antimony	µg/L	<	2									
	Total Arsenic	µg/L	<	3									
	Total Barium	µg/L	<	1.6									
	Total Beryllium	µg/L	<	1									
	Total Boron	µg/L		44									
	Total Cadmium	µg/L	<	1									
	Total Chromium (III)	µg/L		2.8									
	Hexavalent Chromium	µg/L		0.24									
	Total Cobalt	µg/L		2.5									
	Total Copper	µg/L		8.3									
	Free Cyanide	µg/L		1.65									
	Total Cyanide	µg/L		7.1									
	Dissolved Iron	µg/L	<	20									
	Total Iron	µg/L		60									
	Total Lead	µg/L	<	1									
	Total Manganese	µg/L		1.9									
	Total Mercury	µg/L	<	0.2									
	Total Nickel	µg/L		4									
	Total Phenols (Phenolics) (PWS)	µg/L	<	8									
	Total Selenium	µg/L	<	5									
	Total Silver	µg/L	<	2									
	Total Thallium	µg/L	<	1									
	Total Zinc	µg/L		5.2									
	Total Molybdenum	µg/L	<	1									
	Acrolein	µg/L	<	1.3									
	Acrylamide	µg/L	<	5									
	Acrylonitrile	µg/L	<	0.5									
	Benzene	µg/L	<	0.5									

Bromoform	µg/L	<	1								
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	2,6-Dinitrotoluene	µg/L	<	3															
	Di-n-Octyl Phthalate	µg/L	<	3															
	1,2-Diphenylhydrazine	µg/L	<	3															
	Fluoranthene	µg/L	<	1.5															
	Fluorene	µg/L	<	1.5															
	Hexachlorobenzene	µg/L	<	3															
	Hexachlorobutadiene	µg/L	<	0.48															
	Hexachlorocyclopentadiene	µg/L	<	3															
	Hexachloroethane	µg/L	<	3															
	Indeno(1,2,3-cd)Pyrene	µg/L	<	1.5															
	Isophorone	µg/L	<	0.42															
	Naphthalene	µg/L	<	0.39															
	Nitrobenzene	µg/L	<	3															
	n-Nitrosodimethylamine	µg/L	<	3															
	n-Nitrosodi-n-Propylamine	µg/L	<	3															
	n-Nitrosodiphenylamine	µg/L	<	3															
	Phenanthrene	µg/L	<	1.5															
	Pyrene	µg/L	<	1.5															
	1,2,4-Trichlorobenzene	µg/L	<	0.5															
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																	

Stream / Surface Water Information

UAJA AWT Building, NPDES Permit No. PA0234028, Outfall 001

Instructions Discharge **Stream**

Receiving Surface Water Name: **Slab Cabin Run**

No. Reaches to Model: **1**

- ☒ Statewide Criteria
☐ Great Lakes Criteria
☐ ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi ²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	023036	2.85	1027	15.4			Yes
End of Reach 1	023036	2.68	1020	15.41			Yes

Q₇₋₁₀

Location	RMI	LFY (cfs/mi ²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	2.85	0.239										100	8		
End of Reach 1	2.68	0.239										100	8		

Q_h

Location	RMI	LFY (cfs/mi ²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	2.85														
End of Reach 1	2.68														

Model Results

UAJA AWT Building, NPDES Permit No. PA0234028, Outfall 001

Instructions

Results

RETURN TO INPUTS

SAVE AS PDF

PRINT

☒ All

☐ Inputs

☐ Results

☐ Limits

☒ **Hydrodynamics**

Q_{7-10}

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
2.85	3.68		3.68	1.624	0.008	0.651	26.785	41.124	0.304	0.034	10.197
2.68	3.68		3.68299								

Q_h

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
2.85	23.21		23.21	1.624	0.008	1.284	26.785	20.853	0.722	0.014	6.681
2.68	23.219		23.22								

☒ **Wasteload Allocations**

☒ **AFC**

CCT (min): 10.197

PMF: 1

Analysis Hardness (mg/l): 76.729

Analysis pH: 7.43

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	2,449	
Total Antimony	0	0		0	1,100	1,100	3,592	
Total Arsenic	0	0		0	340	340	1,110	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	68,584	
Total Boron	0	0		0	8,100	8,100	26,454	
Total Cadmium	0	0		0	1.556	1.63	5.32	Chem Translator of 0.955 applied
Total Chromium (III)	0	0		0	458.646	1,451	4,740	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	53.2	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	310	
Total Copper	0	0		0	10.471	10.9	35.6	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	22	22.0	71.8	

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	48.345	58.3	190	Chem Translator of 0.83 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	5.38	Chem Translator of 0.85 applied
Total Nickel	0	0		0	374.232	375	1,225	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	2.040	2.4	7.84	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	212	
Total Zinc	0	0		0	93.623	95.7	313	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	9.8	
Acrylamide	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	650	650	2,123	
Benzene	0	0		0	640	640	2,090	
Bromoform	0	0		0	1,800	1,800	5,879	
Carbon Tetrachloride	0	0		0	2,800	2,800	9,144	
Chlorobenzene	0	0		0	1,200	1,200	3,919	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	58,786	
Chloroform	0	0		0	1,900	1,900	6,205	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	48,988	
1,1-Dichloroethylene	0	0		0	7,500	7,500	24,494	
1,2-Dichloropropane	0	0		0	11,000	11,000	35,925	
1,3-Dichloropropylene	0	0		0	310	310	1,012	
Ethylbenzene	0	0		0	2,900	2,900	9,471	
Methyl Bromide	0	0		0	550	550	1,796	
Methyl Chloride	0	0		0	28,000	28,000	91,445	
Methylene Chloride	0	0		0	12,000	12,000	39,191	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	3,266	
Tetrachloroethylene	0	0		0	700	700	2,286	
Toluene	0	0		0	1,700	1,700	5,552	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	22,208	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	9,798	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	11,104	
Trichloroethylene	0	0		0	2,300	2,300	7,512	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	1,829	
2,4-Dichlorophenol	0	0		0	1,700	1,700	5,552	
2,4-Dimethylphenol	0	0		0	660	660	2,155	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	261	
2,4-Dinitrophenol	0	0		0	660	660	2,155	
2-Nitrophenol	0	0		0	8,000	8,000	26,127	
4-Nitrophenol	0	0		0	2,300	2,300	7,512	
p-Chloro-m-Cresol	0	0		0	160	160	523	
Pentachlorophenol	0	0		0	13.376	13.4	43.7	
Phenol	0	0		0	N/A	N/A	N/A	

2,4,6-Trichlorophenol	0	0		0	460	460	1,502	
Acenaphthene	0	0		0	83	83.0	271	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	980	
Benzo(a)Anthracene	0	0		0	0.5	0.5	1.63	
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	97,977	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	14,697	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	882	
Butyl Benzyl Phthalate	0	0		0	140	140	457	
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	2,678	
1,3-Dichlorobenzene	0	0		0	350	350	1,143	
1,4-Dichlorobenzene	0	0		0	730	730	2,384	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	13,064	
Dimethyl Phthalate	0	0		0	2,500	2,500	8,165	
Di-n-Butyl Phthalate	0	0		0	110	110	359	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	5,225	
2,6-Dinitrotoluene	0	0		0	990	990	3,233	
1,2-Diphenylhydrazine	0	0		0	15	15.0	49.0	
Fluoranthene	0	0		0	200	200	653	
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	32.7	
Hexachlorocyclopentadiene	0	0		0	5	5.0	16.3	
Hexachloroethane	0	0		0	60	60.0	196	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	32,659	
Naphthalene	0	0		0	140	140	457	
Nitrobenzene	0	0		0	4,000	4,000	13,064	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	55,520	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	980	
Phenanthrene	0	0		0	5	5.0	16.3	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	425	

☒ CFC

CCT (min): 10.197

PMF: 1

Analysis Hardness (mg/l): 76.729

Analysis pH: 7.43

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	718	
Total Arsenic	0	0		0	150	150	490	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	13,390	
Total Boron	0	0		0	1,600	1,600	5,225	
Total Cadmium	0	0		0	0.205	0.22	0.73	Chem Translator of 0.92 applied
Total Chromium (III)	0	0		0	59.660	69.4	227	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	33.9	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	62.1	
Total Copper	0	0		0	7.142	7.44	24.3	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	5.2	5.2	17.0	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	4,899	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	1.884	2.27	7.42	Chem Translator of 0.83 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	2.96	Chem Translator of 0.85 applied
Total Nickel	0	0		0	41.566	41.7	136	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	16.3	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	42.5	
Total Zinc	0	0		0	94.389	95.7	313	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	9.8	
Acrylamide	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	130	130	425	
Benzene	0	0		0	130	130	425	
Bromoform	0	0		0	370	370	1,208	
Carbon Tetrachloride	0	0		0	560	560	1,829	
Chlorobenzene	0	0		0	240	240	784	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	11,431	
Chloroform	0	0		0	390	390	1,274	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	10,124	
1,1-Dichloroethylene	0	0		0	1,500	1,500	4,899	
1,2-Dichloropropane	0	0		0	2,200	2,200	7,185	
1,3-Dichloropropylene	0	0		0	61	61.0	199	
Ethylbenzene	0	0		0	580	580	1,894	
Methyl Bromide	0	0		0	110	110	359	
Methyl Chloride	0	0		0	5,500	5,500	17,962	
Methylene Chloride	0	0		0	2,400	2,400	7,838	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	686	
Tetrachloroethylene	0	0		0	140	140	457	

Toluene	0	0		0	330	330	1,078	
1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	4,572	
1,1,1-Trichloroethane	0	0		0	610	610	1,992	
1,1,2-Trichloroethane	0	0		0	680	680	2,221	
Trichloroethylene	0	0		0	450	450	1,470	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	359	
2,4-Dichlorophenol	0	0		0	340	340	1,110	
2,4-Dimethylphenol	0	0		0	130	130	425	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	52.3	
2,4-Dinitrophenol	0	0		0	130	130	425	
2-Nitrophenol	0	0		0	1,600	1,600	5,225	
4-Nitrophenol	0	0		0	470	470	1,535	
p-Chloro-m-Cresol	0	0		0	500	500	1,633	
Pentachlorophenol	0	0		0	10.262	10.3	33.5	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	297	
Acenaphthene	0	0		0	17	17.0	55.5	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	59	59.0	193	
Benzo(a)Anthracene	0	0		0	0.1	0.1	0.33	
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	19,595	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	2,972	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	176	
Butyl Benzyl Phthalate	0	0		0	35	35.0	114	
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	523	
1,3-Dichlorobenzene	0	0		0	69	69.0	225	
1,4-Dichlorobenzene	0	0		0	150	150	490	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	2,613	
Dimethyl Phthalate	0	0		0	500	500	1,633	
Di-n-Butyl Phthalate	0	0		0	21	21.0	68.6	
2,4-Dinitrotoluene	0	0		0	320	320	1,045	
2,6-Dinitrotoluene	0	0		0	200	200	653	
1,2-Diphenylhydrazine	0	0		0	3	3.0	9.8	
Fluoranthene	0	0		0	40	40.0	131	
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	6.53	
Hexachlorocyclopentadiene	0	0		0	1	1.0	3.27	
Hexachloroethane	0	0		0	12	12.0	39.2	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	6,858	
Naphthalene	0	0		0	43	43.0	140	
Nitrobenzene	0	0		0	810	810	2,645	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	11,104	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	193	
Phenanthrene	0	0		0	1	1.0	3.27	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	84.9	

☒ **THH**
CCT (min): 10.197
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	18.3	
Total Arsenic	0	0		0	10	10.0	32.7	
Total Barium	0	0		0	2,400	2,400	7,838	
Total Boron	0	0		0	3,100	3,100	10,124	
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	13.1	
Dissolved Iron	0	0		0	300	300	980	
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	3,266	
Total Mercury	0	0		0	0.050	0.05	0.16	
Total Nickel	0	0		0	610	610	1,992	
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	0.78	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	9.8	
Acrylamide	0	0		0	N/A	N/A	N/A	

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	327	
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	18.6	
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	108	
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	222	
Methyl Bromide	0	0		0	100	100.0	327	
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	186	
1,2-trans-Dichloroethylene	0	0		0	100	100.0	327	
1,1,1-Trichloroethane	0	0		0	10,000	10,000	32,659	
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	98.0	
2,4-Dichlorophenol	0	0		0	10	10.0	32.7	
2,4-Dimethylphenol	0	0		0	100	100.0	327	
4,6-Dinitro-o-Cresol	0	0		0	2	2.0	6.53	
2,4-Dinitrophenol	0	0		0	10	10.0	32.7	
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	13,064	
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	70	70.0	229	
Anthracene	0	0		0	300	300	980	
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	653	

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	0.33	
2-Chloronaphthalene	0	0		0	800	800	2,613	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthracene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	1,000	1,000	3,266	
1,3-Dichlorobenzene	0	0		0	7	7.0	22.9	
1,4-Dichlorobenzene	0	0		0	300	300	980	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	1,960	
Dimethyl Phthalate	0	0		0	2,000	2,000	6,532	
Di-n-Butyl Phthalate	0	0		0	20	20.0	65.3	
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	65.3	
Fluorene	0	0		0	50	50.0	163	
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	13.1	
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	111	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	32.7	
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	65.3	
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	0.23	

☒ **CRL**

CCT (min): **6.681**

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	
Acrylamide	0	0		0	0.07	0.07	1.07	
Acrylonitrile	0	0		0	0.06	0.06	0.92	
Benzene	0	0		0	0.58	0.58	8.87	
Bromoform	0	0		0	7	7.0	107	
Carbon Tetrachloride	0	0		0	0.4	0.4	6.11	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.8	0.8	12.2	
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	14.5	
1,2-Dichloroethane	0	0		0	9.9	9.9	151	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.9	0.9	13.8	
1,3-Dichloropropylene	0	0		0	0.27	0.27	4.13	
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	20	20.0	306	
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	3.06	
Tetrachloroethylene	0	0		0	10	10.0	153	
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	8.41	
Trichloroethylene	0	0		0	0.6	0.6	9.17	
Vinyl Chloride	0	0		0	0.02	0.02	0.31	
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	0.46	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	22.9	
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	0.015	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.002	
3,4-Benzofluoranthene	0	0		0	0.001	0.001	0.015	
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	0.15	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	0.46	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	4.89	
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	1.83	
Dibenzo(a,h)Anthracene	0	0		0	0.0001	0.0001	0.002	
1,2-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
1,3-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
1,4-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
3,3-Dichlorobenzidine	0	0		0	0.05	0.05	0.76	
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	0.76	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	0.76	
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	0.46	
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	0.001	
Hexachlorobutadiene	0	0		0	0.01	0.01	0.15	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	1.53	
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	0.015	
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	0.011	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	0.076	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	50.4	
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	WQBEL Basis	Comments
	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units			
Total Cadmium	0.006	0.01	0.73	1.13	1.82	µg/L	0.73	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Copper	Report	Report	Report	Report	Report	µg/L	22.8	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Silver	Report	Report	Report	Report	Report	µg/L	5.02	AFC	Discharge Conc > 10% WQBEL (no RP)
Acrylamide	0.009	0.015	1.07	1.67	2.68	µg/L	1.07	CRL	Discharge Conc ≥ 50% WQBEL (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	1,570	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	N/A	N/A	Discharge Conc < TQL
Total Beryllium	N/A	N/A	No WQS
Total Boron	5,225	µg/L	Discharge Conc ≤ 10% WQBEL
Total Chromium (III)	227	µg/L	Discharge Conc ≤ 10% WQBEL
Hexavalent Chromium	33.9	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cobalt	62.1	µg/L	Discharge Conc ≤ 10% WQBEL
Free Cyanide	13.1	µg/L	Discharge Conc ≤ 25% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	980	µg/L	Discharge Conc < TQL
Total Iron	4,899	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	7.42	µg/L	Discharge Conc < TQL
Total Manganese	3,266	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	0.16	µg/L	Discharge Conc < TQL

Total Nickel	136	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Selenium	16.3	µg/L	Discharge Conc < TQL
Total Thallium	0.78	µg/L	Discharge Conc < TQL
Total Zinc	200	µg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	6.28	µg/L	Discharge Conc < TQL
Acrylonitrile	0.92	µg/L	Discharge Conc < TQL
Benzene	8.87	µg/L	Discharge Conc < TQL
Bromoform	107	µg/L	Discharge Conc ≤ 25% WQBEL
Carbon Tetrachloride	6.11	µg/L	Discharge Conc < TQL
Chlorobenzene	327	µg/L	Discharge Conc < TQL
Chlorodibromomethane	12.2	µg/L	Discharge Conc ≤ 25% WQBEL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	11,431	µg/L	Discharge Conc < TQL
Chloroform	18.6	µg/L	Discharge Conc < TQL
Dichlorobromomethane	14.5	µg/L	Discharge Conc < TQL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	151	µg/L	Discharge Conc < TQL
1,1-Dichloroethylene	108	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	13.8	µg/L	Discharge Conc < TQL
1,3-Dichloropropylene	4.13	µg/L	Discharge Conc ≤ 25% WQBEL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	222	µg/L	Discharge Conc < TQL
Methyl Bromide	327	µg/L	Discharge Conc < TQL
Methyl Chloride	17,962	µg/L	Discharge Conc < TQL
Methylene Chloride	306	µg/L	Discharge Conc < TQL
1,1,2,2-Tetrachloroethane	3.06	µg/L	Discharge Conc < TQL
Tetrachloroethylene	153	µg/L	Discharge Conc < TQL
Toluene	186	µg/L	Discharge Conc < TQL
1,2-trans-Dichloroethylene	327	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	1,992	µg/L	Discharge Conc < TQL
1,1,2-Trichloroethane	8.41	µg/L	Discharge Conc < TQL
Trichloroethylene	9.17	µg/L	Discharge Conc < TQL
Vinyl Chloride	0.31	µg/L	Discharge Conc < TQL
2-Chlorophenol	98.0	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	32.7	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	327	µg/L	Discharge Conc < TQL
4,6-Dinitro-o-Cresol	6.53	µg/L	Discharge Conc < TQL
2,4-Dinitrophenol	32.7	µg/L	Discharge Conc < TQL
2-Nitrophenol	5,225	µg/L	Discharge Conc < TQL
4-Nitrophenol	1,535	µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol	335	µg/L	Discharge Conc < TQL
Pentachlorophenol	0.46	µg/L	Discharge Conc < TQL
Phenol	13,064	µg/L	Discharge Conc < TQL

2,4,6-Trichlorophenol	22.9	µg/L	Discharge Conc < TQL
Acenaphthene	55.5	µg/L	Discharge Conc < TQL
Acenaphthylene	N/A	N/A	No WQS
Anthracene	980	µg/L	Discharge Conc < TQL
Benzidine	0.002	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	0.015	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.002	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	0.015	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	0.15	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	0.46	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	653	µg/L	Discharge Conc < TQL
Bis(2-Ethylhexyl)Phthalate	4.89	µg/L	Discharge Conc < TQL
4-Bromophenyl Phenyl Ether	176	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	0.33	µg/L	Discharge Conc < TQL
2-Chloronaphthalene	2,613	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	1.83	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthracene	0.002	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	523	µg/L	Discharge Conc < TQL
1,3-Dichlorobenzene	22.9	µg/L	Discharge Conc < TQL
1,4-Dichlorobenzene	490	µg/L	Discharge Conc < TQL
3,3-Dichlorobenzidine	0.76	µg/L	Discharge Conc < TQL
Diethyl Phthalate	1,960	µg/L	Discharge Conc < TQL
Dimethyl Phthalate	1,633	µg/L	Discharge Conc < TQL
Di-n-Butyl Phthalate	65.3	µg/L	Discharge Conc < TQL
2,4-Dinitrotoluene	0.76	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	0.76	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	0.46	µg/L	Discharge Conc < TQL
Fluoranthene	65.3	µg/L	Discharge Conc < TQL
Fluorene	163	µg/L	Discharge Conc < TQL
Hexachlorobenzene	0.001	µg/L	Discharge Conc < TQL
Hexachlorobutadiene	0.15	µg/L	Discharge Conc < TQL
Hexachlorocyclopentadiene	3.27	µg/L	Discharge Conc < TQL
Hexachloroethane	1.53	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	0.015	µg/L	Discharge Conc < TQL
Isophorone	111	µg/L	Discharge Conc < TQL
Naphthalene	140	µg/L	Discharge Conc < TQL
Nitrobenzene	32.7	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	0.011	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	0.076	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	50.4	µg/L	Discharge Conc < TQL
Phenanthrene	3.27	µg/L	Discharge Conc < TQL

Pyrene	65.3	µg/L	Discharge Conc < TQL
1,2,4-Trichlorobenzene	0.23	µg/L	Discharge Conc < TQL

Discharge Information

Instructions

Discharge

Stream

Facility: UAJA AWT Building

NPDES Permit No.: PA0234028

Outfall No.: 002

Evaluation Type: Major Sewage / Industrial Waste

Wastewater Description: Class A Reclaimed Water

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
1.05	24	7						

				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		88									
	Chloride (PWS)	mg/L		10.2									
	Bromide	mg/L	<	0.8									
	Sulfate (PWS)	mg/L		11.5									
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L	<	80									
	Total Antimony	µg/L	<	2									
	Total Arsenic	µg/L	<	3									
	Total Barium	µg/L	<	1.6									
	Total Beryllium	µg/L	<	1									
	Total Boron	µg/L		44									
	Total Cadmium	µg/L	<	1									
	Total Chromium (III)	µg/L		2.8									
	Hexavalent Chromium	µg/L		0.24									
	Total Cobalt	µg/L		2.5									
	Total Copper	µg/L		8.3									
	Free Cyanide	µg/L		1.65									
	Total Cyanide	µg/L		7.1									
	Dissolved Iron	µg/L	<	20									
	Total Iron	µg/L		60									
	Total Lead	µg/L	<	1									
	Total Manganese	µg/L		1.9									
	Total Mercury	µg/L	<	0.2									
	Total Nickel	µg/L		4									
	Total Phenols (Phenolics) (PWS)	µg/L	<	8									
	Total Selenium	µg/L	<	5									
	Total Silver	µg/L	<	2									
	Total Thallium	µg/L	<	1									
	Total Zinc	µg/L		5.2									
	Total Molybdenum	µg/L	<	1									
	Acrolein	µg/L	<	1.3									
	Acrylamide	µg/L	<	5									
	Acrylonitrile	µg/L	<	0.5									
	Benzene	µg/L	<	0.5									

Bromoform	µg/L	<	1								
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Group 5

	2,6-Dinitrotoluene	µg/L	<	3															
	Di-n-Octyl Phthalate	µg/L	<	3															
	1,2-Diphenylhydrazine	µg/L	<	3															
	Fluoranthene	µg/L	<	1.5															
	Fluorene	µg/L	<	1.5															
	Hexachlorobenzene	µg/L	<	3															
	Hexachlorobutadiene	µg/L	<	0.48															
	Hexachlorocyclopentadiene	µg/L	<	3															
	Hexachloroethane	µg/L	<	3															
	Indeno(1,2,3-cd)Pyrene	µg/L	<	1.5															
	Isophorone	µg/L	<	0.42															
	Naphthalene	µg/L	<	0.39															
	Nitrobenzene	µg/L	<	3															
	n-Nitrosodimethylamine	µg/L	<	3															
	n-Nitrosodi-n-Propylamine	µg/L	<	3															
	n-Nitrosodiphenylamine	µg/L	<	3															
	Phenanthrene	µg/L	<	1.5															
	Pyrene	µg/L	<	1.5															
	1,2,4-Trichlorobenzene	µg/L	<	0.5															
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																	

Stream / Surface Water Information

UAJA AWT Building, NPDES Permit No. PA0234028, Outfall 002

Instructions Discharge **Stream**

Receiving Surface Water Name: **Slab Cabin Run**

No. Reaches to Model: **1**

- ☒ Statewide Criteria
☐ Great Lakes Criteria
☐ ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi ²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	023036	3.05	1033	15.3			Yes
End of Reach 1	023036	2.98	1031	15.35			Yes

Q₇₋₁₀

Location	RMI	LFY (cfs/mi ²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	3.05	0.239										100	8		
End of Reach 1	2.98	0.239										100	8		

Q_h

Location	RMI	LFY (cfs/mi ²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	3.05														
End of Reach 1	2.98														

Model Results

UAJA AWT Building, NPDES Permit No. PA0234028, Outfall 002

Instructions

Results

RETURN TO INPUTS

SAVE AS PDF

PRINT

☒ All

☐ Inputs

☐ Results

☐ Limits

☒ **Hydrodynamics**

Q_{7-10}

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
3.05	3.66		3.66	1.624	0.005	0.649	27.593	42.486	0.295	0.015	12.995
2.98	3.67		3.66865								

Q_h

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
3.05	23.07		23.07	1.624	0.005	1.28	27.593	21.551	0.699	0.006	8.547
2.98	23.14		23.14								

☒ **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	2,438	
Total Antimony	0	0		0	1,100	1,100	3,576	
Total Arsenic	0	0		0	340	340	1,105	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	68,275	
Total Boron	0	0		0	8,100	8,100	26,335	
Total Cadmium	0	0		0	1.554	1.63	5.29	Chem Translator of 0.955 applied
Total Chromium (III)	0	0		0	458.130	1,450	4,713	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	53.0	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	309	
Total Copper	0	0		0	10.457	10.9	35.4	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	22	22.0	71.5	

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	48.272	58.2	189	Chem Translator of 0.83 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	5.35	Chem Translator of 0.85 applied
Total Nickel	0	0		0	373.798	375	1,218	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	2.035	2.39	7.78	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	211	
Total Zinc	0	0		0	93.514	95.6	311	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	9.75	
Acrylamide	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	650	650	2,113	
Benzene	0	0		0	640	640	2,081	
Bromoform	0	0		0	1,800	1,800	5,852	
Carbon Tetrachloride	0	0		0	2,800	2,800	9,103	
Chlorobenzene	0	0		0	1,200	1,200	3,901	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	58,521	
Chloroform	0	0		0	1,900	1,900	6,177	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	48,768	
1,1-Dichloroethylene	0	0		0	7,500	7,500	24,384	
1,2-Dichloropropane	0	0		0	11,000	11,000	35,763	
1,3-Dichloropropylene	0	0		0	310	310	1,008	
Ethylbenzene	0	0		0	2,900	2,900	9,428	
Methyl Bromide	0	0		0	550	550	1,788	
Methyl Chloride	0	0		0	28,000	28,000	91,033	
Methylene Chloride	0	0		0	12,000	12,000	39,014	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	3,251	
Tetrachloroethylene	0	0		0	700	700	2,276	
Toluene	0	0		0	1,700	1,700	5,527	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	22,108	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	9,754	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	11,054	
Trichloroethylene	0	0		0	2,300	2,300	7,478	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	1,821	
2,4-Dichlorophenol	0	0		0	1,700	1,700	5,527	
2,4-Dimethylphenol	0	0		0	660	660	2,146	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	260	
2,4-Dinitrophenol	0	0		0	660	660	2,146	
2-Nitrophenol	0	0		0	8,000	8,000	26,009	
4-Nitrophenol	0	0		0	2,300	2,300	7,478	
p-Chloro-m-Cresol	0	0		0	160	160	520	
Pentachlorophenol	0	0		0	13.356	13.4	43.4	
Phenol	0	0		0	N/A	N/A	N/A	

2,4,6-Trichlorophenol	0	0		0	460	460	1,496	
Acenaphthene	0	0		0	83	83.0	270	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	975	
Benzo(a)Anthracene	0	0		0	0.5	0.5	1.63	
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	97,535	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	14,630	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	878	
Butyl Benzyl Phthalate	0	0		0	140	140	455	
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	2,666	
1,3-Dichlorobenzene	0	0		0	350	350	1,138	
1,4-Dichlorobenzene	0	0		0	730	730	2,373	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	13,005	
Dimethyl Phthalate	0	0		0	2,500	2,500	8,128	
Di-n-Butyl Phthalate	0	0		0	110	110	358	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	5,202	
2,6-Dinitrotoluene	0	0		0	990	990	3,219	
1,2-Diphenylhydrazine	0	0		0	15	15.0	48.8	
Fluoranthene	0	0		0	200	200	650	
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	32.5	
Hexachlorocyclopentadiene	0	0		0	5	5.0	16.3	
Hexachloroethane	0	0		0	60	60.0	195	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	32,512	
Naphthalene	0	0		0	140	140	455	
Nitrobenzene	0	0		0	4,000	4,000	13,005	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	55,270	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	975	
Phenanthrene	0	0		0	5	5.0	16.3	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	423	

☒ CFC

CCT (min): 12.995

PMF: 1

Analysis Hardness (mg/l): 76.624

Analysis pH: 7.42

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	715	
Total Arsenic	0	0		0	150	150	488	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	13,330	
Total Boron	0	0		0	1,600	1,600	5,202	
Total Cadmium	0	0		0	0.204	0.22	0.72	Chem Translator of 0.92 applied
Total Chromium (III)	0	0		0	59.593	69.3	225	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	33.8	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	61.8	
Total Copper	0	0		0	7.133	7.43	24.2	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	5.2	5.2	16.9	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	4,877	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	1.881	2.27	7.37	Chem Translator of 0.83 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	2.95	Chem Translator of 0.85 applied
Total Nickel	0	0		0	41.517	41.6	135	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	16.2	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	42.3	
Total Zinc	0	0		0	94.279	95.6	311	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	9.75	
Acrylamide	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	130	130	423	
Benzene	0	0		0	130	130	423	
Bromoform	0	0		0	370	370	1,203	
Carbon Tetrachloride	0	0		0	560	560	1,821	
Chlorobenzene	0	0		0	240	240	780	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	11,379	
Chloroform	0	0		0	390	390	1,268	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	10,079	
1,1-Dichloroethylene	0	0		0	1,500	1,500	4,877	
1,2-Dichloropropane	0	0		0	2,200	2,200	7,153	
1,3-Dichloropropylene	0	0		0	61	61.0	198	
Ethylbenzene	0	0		0	580	580	1,886	
Methyl Bromide	0	0		0	110	110	358	
Methyl Chloride	0	0		0	5,500	5,500	17,881	
Methylene Chloride	0	0		0	2,400	2,400	7,803	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	683	
Tetrachloroethylene	0	0		0	140	140	455	

Toluene	0	0		0	330	330	1,073	
1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	4,552	
1,1,1-Trichloroethane	0	0		0	610	610	1,983	
1,1,2-Trichloroethane	0	0		0	680	680	2,211	
Trichloroethylene	0	0		0	450	450	1,463	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	358	
2,4-Dichlorophenol	0	0		0	340	340	1,105	
2,4-Dimethylphenol	0	0		0	130	130	423	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	52.0	
2,4-Dinitrophenol	0	0		0	130	130	423	
2-Nitrophenol	0	0		0	1,600	1,600	5,202	
4-Nitrophenol	0	0		0	470	470	1,528	
p-Chloro-m-Cresol	0	0		0	500	500	1,626	
Pentachlorophenol	0	0		0	10.247	10.2	33.3	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	296	
Acenaphthene	0	0		0	17	17.0	55.3	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	59	59.0	192	
Benzo(a)Anthracene	0	0		0	0.1	0.1	0.33	
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	19,507	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	2,959	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	176	
Butyl Benzyl Phthalate	0	0		0	35	35.0	114	
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	520	
1,3-Dichlorobenzene	0	0		0	69	69.0	224	
1,4-Dichlorobenzene	0	0		0	150	150	488	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	2,601	
Dimethyl Phthalate	0	0		0	500	500	1,626	
Di-n-Butyl Phthalate	0	0		0	21	21.0	68.3	
2,4-Dinitrotoluene	0	0		0	320	320	1,040	
2,6-Dinitrotoluene	0	0		0	200	200	650	
1,2-Diphenylhydrazine	0	0		0	3	3.0	9.75	
Fluoranthene	0	0		0	40	40.0	130	
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	6.5	
Hexachlorocyclopentadiene	0	0		0	1	1.0	3.25	
Hexachloroethane	0	0		0	12	12.0	39.0	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	6,827	
Naphthalene	0	0		0	43	43.0	140	
Nitrobenzene	0	0		0	810	810	2,633	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	11,054	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	192	
Phenanthrene	0	0		0	1	1.0	3.25	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	84.5	

☒ **THH**

CCT (min): **12.995**

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	18.2	
Total Arsenic	0	0		0	10	10.0	32.5	
Total Barium	0	0		0	2,400	2,400	7,803	
Total Boron	0	0		0	3,100	3,100	10,079	
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	13.0	
Dissolved Iron	0	0		0	300	300	975	
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	3,251	
Total Mercury	0	0		0	0.050	0.05	0.16	
Total Nickel	0	0		0	610	610	1,983	
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	0.78	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	9.75	
Acrylamide	0	0		0	N/A	N/A	N/A	

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	325	
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	18.5	
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	107	
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	221	
Methyl Bromide	0	0		0	100	100.0	325	
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	185	
1,2-trans-Dichloroethylene	0	0		0	100	100.0	325	
1,1,1-Trichloroethane	0	0		0	10,000	10,000	32,512	
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	97.5	
2,4-Dichlorophenol	0	0		0	10	10.0	32.5	
2,4-Dimethylphenol	0	0		0	100	100.0	325	
4,6-Dinitro-o-Cresol	0	0		0	2	2.0	6.5	
2,4-Dinitrophenol	0	0		0	10	10.0	32.5	
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	13,005	
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	70	70.0	228	
Anthracene	0	0		0	300	300	975	
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	650	

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	0.33	
2-Chloronaphthalene	0	0		0	800	800	2,601	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthracene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	1,000	1,000	3,251	
1,3-Dichlorobenzene	0	0		0	7	7.0	22.8	
1,4-Dichlorobenzene	0	0		0	300	300	975	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	1,951	
Dimethyl Phthalate	0	0		0	2,000	2,000	6,502	
Di-n-Butyl Phthalate	0	0		0	20	20.0	65.0	
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	65.0	
Fluorene	0	0		0	50	50.0	163	
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	13.0	
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	111	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	32.5	
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	65.0	
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	0.23	

☒ **CRL**

CCT (min): **8.547**

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	
Acrylamide	0	0		0	0.07	0.07	1.06	
Acrylonitrile	0	0		0	0.06	0.06	0.91	
Benzene	0	0		0	0.58	0.58	8.82	
Bromoform	0	0		0	7	7.0	106	
Carbon Tetrachloride	0	0		0	0.4	0.4	6.08	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.8	0.8	12.2	
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	14.4	
1,2-Dichloroethane	0	0		0	9.9	9.9	151	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.9	0.9	13.7	
1,3-Dichloropropylene	0	0		0	0.27	0.27	4.11	
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	20	20.0	304	
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	3.04	
Tetrachloroethylene	0	0		0	10	10.0	152	
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	8.36	
Trichloroethylene	0	0		0	0.6	0.6	9.12	
Vinyl Chloride	0	0		0	0.02	0.02	0.3	
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	0.46	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	22.8	
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	0.015	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.002	
3,4-Benzofluoranthene	0	0		0	0.001	0.001	0.015	
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	0.15	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	0.46	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	4.87	
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	1.82	
Dibenzo(a,h)Anthracene	0	0		0	0.0001	0.0001	0.002	
1,2-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
1,3-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
1,4-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
3,3-Dichlorobenzidine	0	0		0	0.05	0.05	0.76	
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	0.76	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	0.76	
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	0.46	
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	0.001	
Hexachlorobutadiene	0	0		0	0.01	0.01	0.15	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	1.52	
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	0.015	
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	0.011	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	0.076	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	50.2	
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

Pollutants	Mass Limits		Concentration Limits				Governing WQBEL	WQBEL Basis	Comments
	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units			
Total Cadmium	0.006	0.01	0.72	1.13	1.81	µg/L	0.72	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Copper	Report	Report	Report	Report	Report	µg/L	22.7	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Silver	Report	Report	Report	Report	Report	µg/L	4.99	AFC	Discharge Conc > 10% WQBEL (no RP)
Acrylamide	0.009	0.015	1.06	1.66	2.66	µg/L	1.06	CRL	Discharge Conc ≥ 50% WQBEL (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	1,563	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	N/A	N/A	Discharge Conc < TQL
Total Beryllium	N/A	N/A	No WQS
Total Boron	5,202	µg/L	Discharge Conc ≤ 10% WQBEL
Total Chromium (III)	225	µg/L	Discharge Conc ≤ 10% WQBEL
Hexavalent Chromium	33.8	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cobalt	61.8	µg/L	Discharge Conc ≤ 10% WQBEL
Free Cyanide	13.0	µg/L	Discharge Conc ≤ 25% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	975	µg/L	Discharge Conc < TQL
Total Iron	4,877	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	7.37	µg/L	Discharge Conc < TQL
Total Manganese	3,251	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	0.16	µg/L	Discharge Conc < TQL

Total Nickel	135	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Selenium	16.2	µg/L	Discharge Conc < TQL
Total Thallium	0.78	µg/L	Discharge Conc < TQL
Total Zinc	199	µg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	6.25	µg/L	Discharge Conc < TQL
Acrylonitrile	0.91	µg/L	Discharge Conc < TQL
Benzene	8.82	µg/L	Discharge Conc < TQL
Bromoform	106	µg/L	Discharge Conc ≤ 25% WQBEL
Carbon Tetrachloride	6.08	µg/L	Discharge Conc < TQL
Chlorobenzene	325	µg/L	Discharge Conc < TQL
Chlorodibromomethane	12.2	µg/L	Discharge Conc ≤ 25% WQBEL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	11,379	µg/L	Discharge Conc < TQL
Chloroform	18.5	µg/L	Discharge Conc < TQL
Dichlorobromomethane	14.4	µg/L	Discharge Conc < TQL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	151	µg/L	Discharge Conc < TQL
1,1-Dichloroethylene	107	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	13.7	µg/L	Discharge Conc < TQL
1,3-Dichloropropylene	4.11	µg/L	Discharge Conc ≤ 25% WQBEL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	221	µg/L	Discharge Conc < TQL
Methyl Bromide	325	µg/L	Discharge Conc < TQL
Methyl Chloride	17,881	µg/L	Discharge Conc < TQL
Methylene Chloride	304	µg/L	Discharge Conc < TQL
1,1,2,2-Tetrachloroethane	3.04	µg/L	Discharge Conc < TQL
Tetrachloroethylene	152	µg/L	Discharge Conc < TQL
Toluene	185	µg/L	Discharge Conc < TQL
1,2-trans-Dichloroethylene	325	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	1,983	µg/L	Discharge Conc < TQL
1,1,2-Trichloroethane	8.36	µg/L	Discharge Conc < TQL
Trichloroethylene	9.12	µg/L	Discharge Conc < TQL
Vinyl Chloride	0.3	µg/L	Discharge Conc < TQL
2-Chlorophenol	97.5	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	32.5	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	325	µg/L	Discharge Conc < TQL
4,6-Dinitro-o-Cresol	6.5	µg/L	Discharge Conc < TQL
2,4-Dinitrophenol	32.5	µg/L	Discharge Conc < TQL
2-Nitrophenol	5,202	µg/L	Discharge Conc < TQL
4-Nitrophenol	1,528	µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol	333	µg/L	Discharge Conc < TQL
Pentachlorophenol	0.46	µg/L	Discharge Conc < TQL
Phenol	13,005	µg/L	Discharge Conc < TQL

2,4,6-Trichlorophenol	22.8	µg/L	Discharge Conc < TQL
Acenaphthene	55.3	µg/L	Discharge Conc < TQL
Acenaphthylene	N/A	N/A	No WQS
Anthracene	975	µg/L	Discharge Conc < TQL
Benzidine	0.002	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	0.015	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.002	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	0.015	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	0.15	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	0.46	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	650	µg/L	Discharge Conc < TQL
Bis(2-Ethylhexyl)Phthalate	4.87	µg/L	Discharge Conc < TQL
4-Bromophenyl Phenyl Ether	176	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	0.33	µg/L	Discharge Conc < TQL
2-Chloronaphthalene	2,601	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	1.82	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthracene	0.002	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	520	µg/L	Discharge Conc < TQL
1,3-Dichlorobenzene	22.8	µg/L	Discharge Conc < TQL
1,4-Dichlorobenzene	488	µg/L	Discharge Conc < TQL
3,3-Dichlorobenzidine	0.76	µg/L	Discharge Conc < TQL
Diethyl Phthalate	1,951	µg/L	Discharge Conc < TQL
Dimethyl Phthalate	1,626	µg/L	Discharge Conc < TQL
Di-n-Butyl Phthalate	65.0	µg/L	Discharge Conc < TQL
2,4-Dinitrotoluene	0.76	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	0.76	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	0.46	µg/L	Discharge Conc < TQL
Fluoranthene	65.0	µg/L	Discharge Conc < TQL
Fluorene	163	µg/L	Discharge Conc < TQL
Hexachlorobenzene	0.001	µg/L	Discharge Conc < TQL
Hexachlorobutadiene	0.15	µg/L	Discharge Conc < TQL
Hexachlorocyclopentadiene	3.25	µg/L	Discharge Conc < TQL
Hexachloroethane	1.52	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	0.015	µg/L	Discharge Conc < TQL
Isophorone	111	µg/L	Discharge Conc < TQL
Naphthalene	140	µg/L	Discharge Conc < TQL
Nitrobenzene	32.5	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	0.011	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	0.076	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	50.2	µg/L	Discharge Conc < TQL
Phenanthrene	3.25	µg/L	Discharge Conc < TQL

Pyrene	65.0	µg/L	Discharge Conc < TQL
1,2,4-Trichlorobenzene	0.23	µg/L	Discharge Conc < TQL

Discharge Information

Instructions

Discharge

Stream

Facility: UAJA AWT Building

NPDES Permit No.: PA0234028

Outfall No.: 003

Evaluation Type: Major Sewage / Industrial Waste

Wastewater Description: Class A Reclaimed Water

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
0.9	24	7						

				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		88									
	Chloride (PWS)	mg/L		10.2									
	Bromide	mg/L	<	0.8									
	Sulfate (PWS)	mg/L		11.5									
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L	<	80									
	Total Antimony	µg/L	<	2									
	Total Arsenic	µg/L	<	3									
	Total Barium	µg/L	<	1.6									
	Total Beryllium	µg/L	<	1									
	Total Boron	µg/L		44									
	Total Cadmium	µg/L	<	1									
	Total Chromium (III)	µg/L		2.8									
	Hexavalent Chromium	µg/L		0.24									
	Total Cobalt	µg/L		2.5									
	Total Copper	µg/L		8.3									
	Free Cyanide	µg/L		1.65									
	Total Cyanide	µg/L		7.1									
	Dissolved Iron	µg/L	<	20									
	Total Iron	µg/L		60									
	Total Lead	µg/L	<	1									
	Total Manganese	µg/L		1.9									
	Total Mercury	µg/L	<	0.2									
	Total Nickel	µg/L		4									
	Total Phenols (Phenolics) (PWS)	µg/L	<	8									
	Total Selenium	µg/L	<	5									
	Total Silver	µg/L	<	2									
	Total Thallium	µg/L	<	1									
	Total Zinc	µg/L		5.2									
	Total Molybdenum	µg/L	<	1									
	Acrolein	µg/L	<	1.3									
	Acrylamide	µg/L	<	5									
	Acrylonitrile	µg/L	<	0.5									
	Benzene	µg/L	<	0.5									

Bromoform	µg/L	<	1								
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Group 5

	2,6-Dinitrotoluene	µg/L	<	3															
	Di-n-Octyl Phthalate	µg/L	<	3															
	1,2-Diphenylhydrazine	µg/L	<	3															
	Fluoranthene	µg/L	<	1.5															
	Fluorene	µg/L	<	1.5															
	Hexachlorobenzene	µg/L	<	3															
	Hexachlorobutadiene	µg/L	<	0.48															
	Hexachlorocyclopentadiene	µg/L	<	3															
	Hexachloroethane	µg/L	<	3															
	Indeno(1,2,3-cd)Pyrene	µg/L	<	1.5															
	Isophorone	µg/L	<	0.42															
	Naphthalene	µg/L	<	0.39															
	Nitrobenzene	µg/L	<	3															
	n-Nitrosodimethylamine	µg/L	<	3															
	n-Nitrosodi-n-Propylamine	µg/L	<	3															
	n-Nitrosodiphenylamine	µg/L	<	3															
	Phenanthrene	µg/L	<	1.5															
	Pyrene	µg/L	<	1.5															
	1,2,4-Trichlorobenzene	µg/L	<	0.5															
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																	

Stream / Surface Water Information

UAJA AWT Building, NPDES Permit No. PA0234028, Outfall 003

Instructions Discharge **Stream**

Receiving Surface Water Name: **Slab Cabin Run**

No. Reaches to Model: **1**

- ☒ Statewide Criteria
☐ Great Lakes Criteria
☐ ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi ²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	023036	2.98	1031	15.35			Yes
End of Reach 1	023036	2.85	1027	15.4			Yes

Q₇₋₁₀

Location	RMI	LFY (cfs/mi ²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	2.98	0.239										100	8		
End of Reach 1	2.85	0.239										100	8		

Q_h

Location	RMI	LFY (cfs/mi ²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	2.98														
End of Reach 1	2.85														

Model Results

UAJA AWT Building, NPDES Permit No. PA0234028, Outfall 003

Instructions

Results

RETURN TO INPUTS

SAVE AS PDF

PRINT

☒ All

☐ Inputs

☐ Results

☐ Limits

☒ **Hydrodynamics**

Q_{7-10}

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
2.98	3.67		3.67	1.392	0.006	0.646	27.079	41.919	0.289	0.027	13.325
2.85	3.68		3.6806								

Q_h

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
2.98	23.14		23.14	1.392	0.006	1.294	27.079	20.931	0.7	0.011	7.96
2.85	23.206		23.21								

☒ **Wasteload Allocations**

☒ **AFC**

CCT (min): 13.325

PMF: 1

Analysis Hardness (mg/l): 79.092

Analysis pH: 7.46

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	2,726	
Total Antimony	0	0		0	1,100	1,100	3,998	
Total Arsenic	0	0		0	340	340	1,236	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	76,334	
Total Boron	0	0		0	8,100	8,100	29,443	
Total Cadmium	0	0		0	1.603	1.68	6.11	Chem Translator of 0.954 applied
Total Chromium (III)	0	0		0	470.181	1,488	5,409	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	59.2	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	345	
Total Copper	0	0		0	10.774	11.2	40.8	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	22	22.0	80.0	

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	49.981	60.6	220	Chem Translator of 0.825 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	5.99	Chem Translator of 0.85 applied
Total Nickel	0	0		0	383.959	385	1,398	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	2.149	2.53	9.19	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	236	
Total Zinc	0	0		0	96.060	98.2	357	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	10.9	
Acrylamide	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	650	650	2,363	
Benzene	0	0		0	640	640	2,326	
Bromoform	0	0		0	1,800	1,800	6,543	
Carbon Tetrachloride	0	0		0	2,800	2,800	10,178	
Chlorobenzene	0	0		0	1,200	1,200	4,362	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	65,429	
Chloroform	0	0		0	1,900	1,900	6,906	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	54,524	
1,1-Dichloroethylene	0	0		0	7,500	7,500	27,262	
1,2-Dichloropropane	0	0		0	11,000	11,000	39,985	
1,3-Dichloropropylene	0	0		0	310	310	1,127	
Ethylbenzene	0	0		0	2,900	2,900	10,541	
Methyl Bromide	0	0		0	550	550	1,999	
Methyl Chloride	0	0		0	28,000	28,000	101,779	
Methylene Chloride	0	0		0	12,000	12,000	43,619	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	3,635	
Tetrachloroethylene	0	0		0	700	700	2,544	
Toluene	0	0		0	1,700	1,700	6,179	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	24,718	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	10,905	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	12,359	
Trichloroethylene	0	0		0	2,300	2,300	8,360	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	2,036	
2,4-Dichlorophenol	0	0		0	1,700	1,700	6,179	
2,4-Dimethylphenol	0	0		0	660	660	2,399	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	291	
2,4-Dinitrophenol	0	0		0	660	660	2,399	
2-Nitrophenol	0	0		0	8,000	8,000	29,080	
4-Nitrophenol	0	0		0	2,300	2,300	8,360	
p-Chloro-m-Cresol	0	0		0	160	160	582	
Pentachlorophenol	0	0		0	13.835	13.8	50.3	
Phenol	0	0		0	N/A	N/A	N/A	

2,4,6-Trichlorophenol	0	0		0	460	460	1,672	
Acenaphthene	0	0		0	83	83.0	302	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	1,090	
Benzo(a)Anthracene	0	0		0	0.5	0.5	1.82	
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	109,049	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	16,357	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	981	
Butyl Benzyl Phthalate	0	0		0	140	140	509	
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	2,981	
1,3-Dichlorobenzene	0	0		0	350	350	1,272	
1,4-Dichlorobenzene	0	0		0	730	730	2,654	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	14,540	
Dimethyl Phthalate	0	0		0	2,500	2,500	9,087	
Di-n-Butyl Phthalate	0	0		0	110	110	400	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	5,816	
2,6-Dinitrotoluene	0	0		0	990	990	3,599	
1,2-Diphenylhydrazine	0	0		0	15	15.0	54.5	
Fluoranthene	0	0		0	200	200	727	
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	36.3	
Hexachlorocyclopentadiene	0	0		0	5	5.0	18.2	
Hexachloroethane	0	0		0	60	60.0	218	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	36,350	
Naphthalene	0	0		0	140	140	509	
Nitrobenzene	0	0		0	4,000	4,000	14,540	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	61,794	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	1,090	
Phenanthrene	0	0		0	5	5.0	18.2	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	473	

☒ CFC

CCT (min): 13.325

PMF: 1

Analysis Hardness (mg/l): 79.092

Analysis pH: 7.46

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	800	
Total Arsenic	0	0		0	150	150	545	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	14,903	
Total Boron	0	0		0	1,600	1,600	5,816	
Total Cadmium	0	0		0	0.209	0.23	0.83	Chem Translator of 0.919 applied
Total Chromium (III)	0	0		0	61.161	71.1	259	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	37.8	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	69.1	
Total Copper	0	0		0	7.329	7.63	27.8	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	5.2	5.2	18.9	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	5,452	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	1.948	2.36	8.58	Chem Translator of 0.825 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	3.29	Chem Translator of 0.85 applied
Total Nickel	0	0		0	42.646	42.8	155	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	18.1	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	47.3	
Total Zinc	0	0		0	96.846	98.2	357	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	10.9	
Acrylamide	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	130	130	473	
Benzene	0	0		0	130	130	473	
Bromoform	0	0		0	370	370	1,345	
Carbon Tetrachloride	0	0		0	560	560	2,036	
Chlorobenzene	0	0		0	240	240	872	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	12,722	
Chloroform	0	0		0	390	390	1,418	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	11,268	
1,1-Dichloroethylene	0	0		0	1,500	1,500	5,452	
1,2-Dichloropropane	0	0		0	2,200	2,200	7,997	
1,3-Dichloropropylene	0	0		0	61	61.0	222	
Ethylbenzene	0	0		0	580	580	2,108	
Methyl Bromide	0	0		0	110	110	400	
Methyl Chloride	0	0		0	5,500	5,500	19,992	
Methylene Chloride	0	0		0	2,400	2,400	8,724	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	763	
Tetrachloroethylene	0	0		0	140	140	509	

Toluene	0	0		0	330	330	1,200	
1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	5,089	
1,1,1-Trichloroethane	0	0		0	610	610	2,217	
1,1,2-Trichloroethane	0	0		0	680	680	2,472	
Trichloroethylene	0	0		0	450	450	1,636	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	400	
2,4-Dichlorophenol	0	0		0	340	340	1,236	
2,4-Dimethylphenol	0	0		0	130	130	473	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	58.2	
2,4-Dinitrophenol	0	0		0	130	130	473	
2-Nitrophenol	0	0		0	1,600	1,600	5,816	
4-Nitrophenol	0	0		0	470	470	1,708	
p-Chloro-m-Cresol	0	0		0	500	500	1,817	
Pentachlorophenol	0	0		0	10.614	10.6	38.6	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	331	
Acenaphthene	0	0		0	17	17.0	61.8	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	59	59.0	214	
Benzo(a)Anthracene	0	0		0	0.1	0.1	0.36	
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	21,810	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	3,308	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	196	
Butyl Benzyl Phthalate	0	0		0	35	35.0	127	
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	582	
1,3-Dichlorobenzene	0	0		0	69	69.0	251	
1,4-Dichlorobenzene	0	0		0	150	150	545	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	2,908	
Dimethyl Phthalate	0	0		0	500	500	1,817	
Di-n-Butyl Phthalate	0	0		0	21	21.0	76.3	
2,4-Dinitrotoluene	0	0		0	320	320	1,163	
2,6-Dinitrotoluene	0	0		0	200	200	727	
1,2-Diphenylhydrazine	0	0		0	3	3.0	10.9	
Fluoranthene	0	0		0	40	40.0	145	
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	7.27	
Hexachlorocyclopentadiene	0	0		0	1	1.0	3.63	
Hexachloroethane	0	0		0	12	12.0	43.6	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	7,633	
Naphthalene	0	0		0	43	43.0	156	
Nitrobenzene	0	0		0	810	810	2,944	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	12,359	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	214	
Phenanthrene	0	0		0	1	1.0	3.63	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	94.5	

☒ **THH**
CCT (min): 13.325
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	20.4	
Total Arsenic	0	0		0	10	10.0	36.3	
Total Barium	0	0		0	2,400	2,400	8,724	
Total Boron	0	0		0	3,100	3,100	11,268	
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	14.5	
Dissolved Iron	0	0		0	300	300	1,090	
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	3,635	
Total Mercury	0	0		0	0.050	0.05	0.18	
Total Nickel	0	0		0	610	610	2,217	
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	0.87	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	10.9	
Acrylamide	0	0		0	N/A	N/A	N/A	

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	363	
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	20.7	
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	120	
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	247	
Methyl Bromide	0	0		0	100	100.0	363	
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	207	
1,2-trans-Dichloroethylene	0	0		0	100	100.0	363	
1,1,1-Trichloroethane	0	0		0	10,000	10,000	36,350	
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	109	
2,4-Dichlorophenol	0	0		0	10	10.0	36.3	
2,4-Dimethylphenol	0	0		0	100	100.0	363	
4,6-Dinitro-o-Cresol	0	0		0	2	2.0	7.27	
2,4-Dinitrophenol	0	0		0	10	10.0	36.3	
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	14,540	
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	70	70.0	254	
Anthracene	0	0		0	300	300	1,090	
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	727	

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	0.36	
2-Chloronaphthalene	0	0		0	800	800	2,908	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthracene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	1,000	1,000	3,635	
1,3-Dichlorobenzene	0	0		0	7	7.0	25.4	
1,4-Dichlorobenzene	0	0		0	300	300	1,090	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	2,181	
Dimethyl Phthalate	0	0		0	2,000	2,000	7,270	
Di-n-Butyl Phthalate	0	0		0	20	20.0	72.7	
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	72.7	
Fluorene	0	0		0	50	50.0	182	
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	14.5	
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	124	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	36.3	
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	72.7	
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	0.25	

☒ **CRL**

CCT (min): **7.960**

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	
Acrylamide	0	0		0	0.07	0.07	1.23	
Acrylonitrile	0	0		0	0.06	0.06	1.06	
Benzene	0	0		0	0.58	0.58	10.2	
Bromoform	0	0		0	7	7.0	123	
Carbon Tetrachloride	0	0		0	0.4	0.4	7.05	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.8	0.8	14.1	
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	16.7	
1,2-Dichloroethane	0	0		0	9.9	9.9	174	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.9	0.9	15.9	
1,3-Dichloropropylene	0	0		0	0.27	0.27	4.76	
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	20	20.0	352	
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	3.52	
Tetrachloroethylene	0	0		0	10	10.0	176	
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	9.69	
Trichloroethylene	0	0		0	0.6	0.6	10.6	
Vinyl Chloride	0	0		0	0.02	0.02	0.35	
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	0.53	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	26.4	
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	0.018	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.002	
3,4-Benzofluoranthene	0	0		0	0.001	0.001	0.018	
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	0.18	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	0.53	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	5.64	
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	2.11	
Dibenzo(a,h)Anthracene	0	0		0	0.0001	0.0001	0.002	
1,2-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
1,3-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
1,4-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
3,3-Dichlorobenzidine	0	0		0	0.05	0.05	0.88	
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	0.88	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	0.88	
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	0.53	
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	0.001	
Hexachlorobutadiene	0	0		0	0.01	0.01	0.18	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	1.76	
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	0.018	
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	0.012	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	0.088	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	58.1	
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	WQBEL Basis	Comments
	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units			
Total Cadmium	0.006	0.01	0.83	1.29	2.07	µg/L	0.83	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Copper	Report	Report	Report	Report	Report	µg/L	26.1	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Silver	Report	Report	Report	Report	Report	µg/L	5.89	AFC	Discharge Conc > 10% WQBEL (no RP)
Acrylamide	0.009	0.014	1.23	1.92	3.08	µg/L	1.23	CRL	Discharge Conc ≥ 50% WQBEL (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	1,747	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	N/A	N/A	Discharge Conc < TQL
Total Beryllium	N/A	N/A	No WQS
Total Boron	5,816	µg/L	Discharge Conc ≤ 10% WQBEL
Total Chromium (III)	259	µg/L	Discharge Conc ≤ 10% WQBEL
Hexavalent Chromium	37.8	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cobalt	69.1	µg/L	Discharge Conc ≤ 10% WQBEL
Free Cyanide	14.5	µg/L	Discharge Conc ≤ 25% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	1,090	µg/L	Discharge Conc < TQL
Total Iron	5,452	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	8.58	µg/L	Discharge Conc < TQL
Total Manganese	3,635	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	0.18	µg/L	Discharge Conc < TQL

Total Nickel	155	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Selenium	18.1	µg/L	Discharge Conc < TQL
Total Thallium	0.87	µg/L	Discharge Conc < TQL
Total Zinc	229	µg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	6.99	µg/L	Discharge Conc < TQL
Acrylonitrile	1.06	µg/L	Discharge Conc < TQL
Benzene	10.2	µg/L	Discharge Conc < TQL
Bromoform	123	µg/L	Discharge Conc ≤ 25% WQBEL
Carbon Tetrachloride	7.05	µg/L	Discharge Conc < TQL
Chlorobenzene	363	µg/L	Discharge Conc < TQL
Chlorodibromomethane	14.1	µg/L	Discharge Conc ≤ 25% WQBEL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	12,722	µg/L	Discharge Conc < TQL
Chloroform	20.7	µg/L	Discharge Conc < TQL
Dichlorobromomethane	16.7	µg/L	Discharge Conc < TQL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	174	µg/L	Discharge Conc < TQL
1,1-Dichloroethylene	120	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	15.9	µg/L	Discharge Conc < TQL
1,3-Dichloropropylene	4.76	µg/L	Discharge Conc ≤ 25% WQBEL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	247	µg/L	Discharge Conc < TQL
Methyl Bromide	363	µg/L	Discharge Conc < TQL
Methyl Chloride	19,992	µg/L	Discharge Conc < TQL
Methylene Chloride	352	µg/L	Discharge Conc < TQL
1,1,2,2-Tetrachloroethane	3.52	µg/L	Discharge Conc < TQL
Tetrachloroethylene	176	µg/L	Discharge Conc < TQL
Toluene	207	µg/L	Discharge Conc < TQL
1,2-trans-Dichloroethylene	363	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	2,217	µg/L	Discharge Conc < TQL
1,1,2-Trichloroethane	9.69	µg/L	Discharge Conc < TQL
Trichloroethylene	10.6	µg/L	Discharge Conc < TQL
Vinyl Chloride	0.35	µg/L	Discharge Conc < TQL
2-Chlorophenol	109	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	36.3	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	363	µg/L	Discharge Conc < TQL
4,6-Dinitro-o-Cresol	7.27	µg/L	Discharge Conc < TQL
2,4-Dinitrophenol	36.3	µg/L	Discharge Conc < TQL
2-Nitrophenol	5,816	µg/L	Discharge Conc < TQL
4-Nitrophenol	1,708	µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol	373	µg/L	Discharge Conc < TQL
Pentachlorophenol	0.53	µg/L	Discharge Conc < TQL
Phenol	14,540	µg/L	Discharge Conc < TQL

2,4,6-Trichlorophenol	26.4	µg/L	Discharge Conc < TQL
Acenaphthene	61.8	µg/L	Discharge Conc < TQL
Acenaphthylene	N/A	N/A	No WQS
Anthracene	1,090	µg/L	Discharge Conc < TQL
Benzidine	0.002	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	0.018	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.002	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	0.018	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	0.18	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	0.53	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	727	µg/L	Discharge Conc < TQL
Bis(2-Ethylhexyl)Phthalate	5.64	µg/L	Discharge Conc < TQL
4-Bromophenyl Phenyl Ether	196	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	0.36	µg/L	Discharge Conc < TQL
2-Chloronaphthalene	2,908	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	2.11	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthracene	0.002	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	582	µg/L	Discharge Conc < TQL
1,3-Dichlorobenzene	25.4	µg/L	Discharge Conc < TQL
1,4-Dichlorobenzene	545	µg/L	Discharge Conc < TQL
3,3-Dichlorobenzidine	0.88	µg/L	Discharge Conc < TQL
Diethyl Phthalate	2,181	µg/L	Discharge Conc < TQL
Dimethyl Phthalate	1,817	µg/L	Discharge Conc < TQL
Di-n-Butyl Phthalate	72.7	µg/L	Discharge Conc < TQL
2,4-Dinitrotoluene	0.88	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	0.88	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	0.53	µg/L	Discharge Conc < TQL
Fluoranthene	72.7	µg/L	Discharge Conc < TQL
Fluorene	182	µg/L	Discharge Conc < TQL
Hexachlorobenzene	0.001	µg/L	Discharge Conc < TQL
Hexachlorobutadiene	0.18	µg/L	Discharge Conc < TQL
Hexachlorocyclopentadiene	3.63	µg/L	Discharge Conc < TQL
Hexachloroethane	1.76	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	0.018	µg/L	Discharge Conc < TQL
Isophorone	124	µg/L	Discharge Conc < TQL
Naphthalene	156	µg/L	Discharge Conc < TQL
Nitrobenzene	36.3	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	0.012	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	0.088	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	58.1	µg/L	Discharge Conc < TQL
Phenanthrene	3.63	µg/L	Discharge Conc < TQL

Pyrene	72.7	µg/L	Discharge Conc < TQL
1,2,4-Trichlorobenzene	0.25	µg/L	Discharge Conc < TQL

ATTACHMENT E

TRC Evaluation

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

3.68	= Q stream (cfs)	0.5	= CV Daily
1.05	= 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)
0.27	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)
0	= % Factor of Safety (FOS)	0	= Decay Coefficient (K)

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 0.742	1.3.2.iii	WLA cfc = 0.716
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc = 0.276	5.1d	LTA_cfc = 0.416

Source	Effluent Limit Calculations
PENTOXSD TRG	5.1f AML MULT = 1.231
PENTOXSD TRG	5.1g AVG MON LIMIT (mg/l) = 0.270 BAT/BPJ
	INST MAX LIMIT (mg/l) = 0.883

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

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

3.66	= Q stream (cfs)	0.5	= CV Daily
1.05	= 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)
0.27	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)
0	= % Factor of Safety (FOS)	0	= Decay Coefficient (K)

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 0.738	1.3.2.iii	WLA cfc = 0.712
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc = 0.275	5.1d	LTA_cfc = 0.414

Source	Effluent Limit Calculations
PENTOXSD TRG	5.1f AML MULT = 1.231
PENTOXSD TRG	5.1g AVG MON LIMIT (mg/l) = 0.270 BAT/BPJ
	INST MAX LIMIT (mg/l) = 0.883

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

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

3.67	= Q stream (cfs)	0.5	= CV Daily
0.9	= 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)
0.27	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)
0	= % Factor of Safety (FOS)	0	=Decay Coefficient (K)

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 0.860	1.3.2.iii	WLA cfc = 0.831
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 0.320	5.1d	LTA_cfc = 0.483

Source	Effluent Limit Calculations
PENTOXSD TRG	5.1f AML MULT = 1.231
PENTOXSD TRG	5.1g AVG MON LIMIT (mg/l) = 0.270 BAT/BPJ
	INST MAX LIMIT (mg/l) = 0.883

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	$1.5*((av_mon_limit/AML_MULT)/LTAMULT_afc)$