pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0253561**
Facility Type	**Industrial**	APS ID	**1086027**
Major / Minor	**Minor**	Authorization ID	**1435353**

NPDES PERMIT FACT SHEET INDIVIDUAL INDUSTRIAL WASTE (IW) AND IW STORMWATER

Applicant and Facility Information

Applicant Name	**Somerset County General Authority**	Facility Name	**Quemahoning Water System**
Applicant Address	300 N Center Avenue Suite 500	Facility Address	458 Mastillo Road
	Somerset, PA 15501-1499		Hollsopple, PA 15935-6503
Applicant Contact	Randy Welker	Facility Contact	Terry Stuztman or Matt Estep
Applicant Phone	(814) 445-1400	Facility Phone	(814) 629 - 9460
Client ID	91085	Site ID	628115
SIC Code	4941	Municipality	Jenner Township
SIC Description	Trans. & Utilities - Water Supply	County	Somerset
Date Application Received	March 30, 2023	EPA Waived?	Yes
Date Application Accepted	September 7, 2023	If No, Reason	

Purpose of Application: Renewal of NPDES Permit PA0253561.

Summary of Review

The Department received a timely renewal NPDES permit application from Somerset County General Authority for the Quemahoning Water System facility located in Jenner Township of Somerset County on March 30, 2023. The facility is a potable public water treatment plant (WTP) with an SIC Code of 4941. The facility's existing permitted discharges consist of treated clarifier rinse and filter backwash waters, which is discharged to an UNT to Quemahoning Creek and then enters the Quemahoning Reservoir.

The Quemahoning Water System Facility (plant capacity rated at 3 mgd) purifies water withdrawn from the Quemahoning Reservoir via the Cambria Somerset Authority 66" pipeline, for public consumption. The raw water is treated with the following chemicals: Polyaluminum Chloride, Potassium Permanganate, Coagulant Aid. The water then goes through a static, in-line mixer prior to entering one (1) of four (4) filter beds. Finished water then flows to the clearwell where the water is further treated with the following chemicals are added as needed: Chlorine, Fluoride and Caustic Soda. From the clearwell, the water is pumped to a 2-million-gallon storage tank, then delivered to the distribution system. The clarifier rinse and filter backwash waters are conveyed to the two (2) in-line settling ponds (140,000-gallon capacity each). Settling pond number 1 decants to settling pond number 2, which then discharges via Outfall 001 to UNT to Quemahoning Creek then to the Quemahoning Reservoir.

Residual waste disposal must meet solid waste regulations.

Part C language in the draft permit provides controls on floating solids, chemical additives, residual solids, Total Residual Chlorine and Sedimentation Basin Cleaning.

It is recommended that a draft permit be published for public comment in response to this application.

Approve	Deny	Signatures	Date
X		Curtis Holes, P.E. / Environmental Engineer	November 2, 2023
X		Michael E. Fifth, P.E. / Environmental Engineer Manager	November 6, 2023

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

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.146
Latitude	40º 10' 46"	Longitude	-78º 58' 37"
Quad Name	Hooversville	Quad Code	1714
Wastewater Description:	Treated clarifier rinse and filter backwash waters.		
Receiving Waters	UNT to Quemahoning Creek	Stream Code	45387
NHD Com ID	123719413	RMI	0.834
Drainage Area	3.29 mi^2	Yield (cfs/mi^2)	0.042 cfs/mi^2
Q_{7-10} Flow (cfs)	0.137 cfs	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	1630 ft.	Slope (ft./ft.)	
Watershed No.	18-E	Chapter 93 Class.	CWF
Existing Use		Existing Use Qualifier	
Exceptions to Use	None	Exceptions to Criteria	None
Assessment Status	Attaining Use Aquatic Life		
Cause(s) of Impairment	Metals, Pathogens, pH		
Source(s) of Impairment	Abandoned Mine Drainage, Agriculture, Urban Runoff/Storm Sewers		
TMDL Status	Final, 01/29/2010	Name	Kiskiminetas-Conemaugh River Watersheds TMDL
Nearest Downstream Public Water Supply Intakes	Greater Johnstown Water Authority Riverside & Saltlick (5.4 MGD)		
PWS Waters	Quemahoning Creek	Flow at Intake (cfs)	5.99
PWS RMI	1.424201	Distance from Outfall (mi)	1.6 mi

Changes Since Last Permit Issuance: None

Figure 1: Basin Delineation for Outfall 001

Compliance History

DMR Data for Outfall 001 (from September 1, 2022 to July 31, 2023)

Parameter	Limit	JUL-23	JUN-23	MAY-23	APR-23	MAR-23	FEB-23	JAN-23	DEC-22	NOV-22	OCT-22	SEP-22
Flow (MGD) Average Monthly	**Report**	0.176	0.124	0.145	0.189	0.190	0.209	0.243	0.164	0.153	0.140	0.144
Flow (MGD) Daily Maximum	**Report**	0.807	0.233	0.383	0.319	0.269	0.395	0.335	0.267	0.259	0.217	0.211
pH (S.U.) Daily Minimum	**6.0**	7.3	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.3	7.3	7.2
pH (S.U.) Daily Maximum	**9.0**	7.3	7.5	7.4	7.4	7.4	7.5	7.5	7.4	7.5	7.4	7.5
TRC (mg/L) Average Monthly	**0.5**	0.11	0.05	0.09	0.14	0.14	0.10	0.13	0.12	0.09	0.10	0.08
TRC (mg/L) Daily Maximum	**1.0**	0.11	0.06	0.11	0.15	0.17	0.10	0.17	0.13	0.10	0.10	0.09
TSS (mg/L) Average Monthly	**30.0**	2.5	2.0	7.5	5.5	3.0	2.5	3.5	5.5	2.0	2.0	2.0
TSS (mg/L) Daily Maximum	**60.0**	3.0	2.0	12.0	6.0	4.0	3.0	5.0	6.0	2.0	2.0	2.0
Total Dissolved Solids (mg/L) Average Monthly	**Report**	146	132	121	124	120	129	139	151	150	127	173
Total Dissolved Solids (mg/L) Daily Maximum	**Report**	174	138	124	126	126	130	142	154	152	132	202
Total Aluminum (mg/L) Average Monthly	**0.75**	0.40	0.35	**1.10**	0.50	0.35	0.40	0.40	0.70	0.25	0.30	0.35
Total Aluminum (mg/L) Daily Maximum	**1.5**	0.40	0.40	**1.80**	0.60	0.40	0.50	0.50	0.80	0.30	0.30	0.40
Total Iron (mg/L) Average Monthly	**2.0**	0.05	0.05	0.10	0.09	0.06	0.07	0.06	0.08	0.05	0.05	0.05
Total Iron (mg/L) Daily Maximum	**4.0**	0.05	0.05	0.14	0.10	0.07	0.08	0.06	0.10	0.05	0.05	0.05
Total Manganese (mg/L) Average Monthly	**1.0**	0.34	0.37	0.36	0.19	0.11	0.10	0.08	0.22	0.08	0.12	0.24
Total Manganese (mg/L) Daily Maximum	**2.0**	0.35	0.37	0.53	0.19	0.13	0.12	0.09	0.24	0.09	0.13	0.30

Compliance History

Effluent Violations for Outfall 001, from: September 1, 2022 To: July 31, 2023

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
Total Aluminum	05/31/23	Avg Mo	1.10	mg/L	0.75	mg/L
Total Aluminum	05/31/23	Daily Max	1.80	mg/L	1.5	mg/L

Summary of Inspections: The last inspection conducted by the Department was on January 17, 2023 by Lisa Milsop and one violation noted. Failure to comply with Part A effluent limitations -
Review of November 2019 through November 2022
August 2020 – Total Manganese Daily Max & Monthly Average
October 2020 – Total Aluminum Monthly Average
March 2022 – Total Aluminum Monthly Average

Other Comments: None

Development of Effluent Limitations

Outfall No.	001	**Design Flow (MGD)**	0.146
Latitude	40º 10' 46"	**Longitude**	-78º 58' 37"

Wastewater Description: Treated clarifier rinse and filter backwash waters.

Technology-Based Limitations

The Quemahoning Water System facility is not subject to Federal Effluent Limitation Guidelines (ELGs) as the SIC code is not listed under 40 CFR parts 405 through 471.

Regulatory Effluent Standards and Monitoring Requirements

The pH effluent range for all Industrial waste process and non-process discharges pursuant of 25 Pa. Code § 92a.48(a)(2) and 25 Pa. Code § 95.2 is indicated in Table 1 below.

Flow monitoring is required pursuant to 25 Pa. Code § 92a.61(d)(1) as indicated in Table 1 below.

Pursuant to 25 Pa. Code § 95.2(4) effluent standards for industrial wastes may not contain more than 7 mg/L of dissolved iron as indicated in Table 1 below.

Pursuant to 25 Pa. Code § 92a.48(b) the imposition of technology-based Total Residual Chlorine (TRC) limits for facilities that use chlorination and that are not already subject to TRC limits based on applicable federal ELG's or a facility specific BPJ evaluation as indicated in Table 1 below.

Table 1. Regulatory Effluent Standards

Parameter	Monthly Avg.	Daily Max	IMAX
Flow (MGD)	Monitor	Monitor	----
Iron, Dissolved	----	----	7.0 mg/l
pH (S.U.)	6-9 at all times	----	----
TRC	0.5 mg/l	----	1.6 mg/l

Total Dissolved Solids (TDS)

Integral to the implementation of 25 Pa. Code § 95.10 is the principle that existing, authorized mass loadings of TDS are exempt from any treatment requirements under these provisions. Existing mass loadings of TDS up to and including the maximum daily discharge loading for any existing discharge, provided that the loading was authorized prior to August 21, 2010 are exempt. Discharge loadings of TDS authorized by the Department are typically exempt from the treatment requirements of Chapter 95.10 until the net TDS loading is increased, an existing discharge proposes a hydraulic expansion or a change in the waste stream. If there are existing mass or production-based TDS effluent limits, then these are used as the basis for the existing mass loading.

During the 2018 permit renewal, it was determined that the 1 MGD expansion of the facility was a *de minimus* increase threshold (increase amount of 64 lbs/day < trigger amount of 5,000 lbs/day). Since the previous permit, the facility has not expanded the capacity of the plant. Therefore, the facility is exempt from 25 Pa. Code § 95.10 treatment requirements. TDS shall be included in the parameter monitoring as monitor/report at a frequency of 2 samples per month, consistent with currently facility sampling procedures.

Best Practicable Control Technology Currently Achievable (BPT)

The Department's reference document *Technology-Based Control Requirements for Water Treatment Plant Wastes* (DEP-ID 362-2183-003) established BPT for discharges of WTPs wastewater, which are illustrated in Table 2 below.

Table 2. BPT Limits for WTP Filter Backwash Wastewater

Parameter	Monthly Avg. (mg/l)	Daily Max (mg/l)
Total Suspended solids (TSS)	30.0	60.0
Iron (total)	2.0	4.0
Aluminum (total)	4.0	8.0
Manganese (total)	1.0	2.0
Flow	Monitor	----
pH (S.U.)	6-9 at all times	
TRC	0.5	1.0

Water Quality-Based Limitations

Total Maximum Daily Load (TMDL)

Wastewater discharges from Quemahoning Water System facility are located within the Kiskiminetas-Conemaugh River Watersheds for which the Department has developed a TMDL. The TMDL was finalized on January 29, 2010 and establishes waste load allocations for the discharge of aluminum, iron and manganese within the Kiskiminetas-Conemaugh River Watersheds. The facility permit, PA0253561, is listed in the Appendix G of the Kiskiminetas-Conemaugh River Watershed TMDL, requiring load allocations and is displayed below in Table 3. Section 303(d) of the Clean Water Act and the U.S. Environmental Protection Agency's Water Quality Planning and Management Regulations (codified at Title 40 CFR Part 130) require states to develop a TMDL for impaired water bodies. A TMDL establishes the amount of a pollutant that a water body can assimilate without exceeding the water quality criteria for that pollutant. TMDLs provide the scientific basis for a state to establish water quality-based controls to reduce pollution from both point and non-point sources in order to restore and maintain the quality of the state's water resources (USEPA 1991a). Stream reaches within the Kiskiminetas-Conemaugh River Watersheds are included in the state's 2008 Section 303(d) list because of various impairments, including metals, pH and sediment. The TMDL includes consideration for each river and tributary within the target watershed and its impairment sources. Stream data is then used to calculate minimum pollutant reductions that are necessary to attain water quality criteria levels. Target concentrations published in the TMDL were based on established water quality criteria of 0.750 mg/L total recoverable aluminum, 2.0 mg/L total recoverable iron based on a 30-day average and 1.0 mg/L total recoverable manganese. The reduction needed to meet the minimum water quality standards is then divided between each known point and non-point pollutant source in the form of a watershed allocation. TMDLs prescribe allocations that minimally achieve water quality criteria (i.e., 100 percent use of a stream's assimilative capacity).

Table 3. Kiskiminetas-Conemaugh River Watershed TMDL PA0253561 Load Allocations

Region	SWS	PERMIT	PIPE	Metal	Baseline Load (lbs/yr)	Baseline Concentration (mg/L)	Allocated Load (lbs/yr)	Allocated Concentration (mg/L)	% Reduction
6	4174	PA0253561	1	Aluminum	1,158	4.00	217	0.75	81
6	4174	PA0253561	1	Iron	579	2.00	579	2.00	0
6	4174	PA0253561	1	Manganese	289	1.00	289	1.00	0

Applicable water quality criteria for the TMDL watershed are imposed as effluent limits and shown in Table 3, above for aluminum, iron and manganese. The Department reviewed the effluent concentrations of pollutants from and determined that effluent limitations are required in order to meet the requirements of the TMDL.

Aluminum: The specific water quality criterion for aluminum is expressed as an acute or maximum daily in 25 Pa. Code Chapter 93. Discharges of aluminum may only be authorized to the extent that they will not cause or contribute to any violation of the water quality standards. Therefore, the water quality criterion for aluminum (0.75 mg/L) is imposed as a maximum daily effluent limit (MDL). Whenever the most stringent criterion is selected for the MDL, the Department should also impose an average monthly limit (AML) and instantaneous maximum limit (IMAX) if applicable. The imposition of an AML that is more stringent than the MDL is typically not appropriate because the water quality concerns have already been fully addressed by setting the MDL equal to the most stringent applicable criterion. Therefore, where the MDL is set at the value of the most stringent applicable criterion, the AML should be set equal to the MDL. Accordingly, TMDL aluminum limits are proposed for the Outfalls. The proposed aluminum limits are shown in Table 3.

Iron: The specific water quality criterion for iron is expressed as a 30-day average of 2.0 mg/L in 25 Pa. Code § 93.7(a). The criterion is based on the protection of aquatic life and is associated with chronic exposure. There are no other criteria for total iron. Since the duration of the total iron criterion coincides with the 30-day duration of the AML, the 30-day average criterion for total iron is set equal to the AML. In addition, because the total iron criterion is associated with chronic exposure, the MDL (representing acute exposure) and the IMAX may be made less stringent according to established procedures described in Section III.C.3.h on Page 13 of the Water Quality Toxics Management Strategy (Doc. # 361-0100-003). These procedures state that a MDL and IMAX may be set at 2 times and 2.5 times the AML, respectively, or there is the option to use multipliers from EPA's Technical Support Document for Water Quality-based Toxics Control, if data are available to support the use of alternative multipliers. Accordingly, TMDL iron limits are proposed for the Outfalls. The proposed iron limits are shown in Table 3.

Manganese: The specific water quality criterion for manganese is expressed as an acute or maximum daily of 1.0 mg/L in 25 Pa. Code § 93.7(a). The criterion is based on the protection of human health and is associated with chronic exposure associated with a potable water supply (PWS). Since no duration is given in Chapter 93 for the manganese criterion, a duration of 30 days is used based on the water quality criteria duration for Threshold Human Health (THH) criteria given in Section III.C.3.a., Table 1 on Page 10 of DEP's Water Quality Toxics Management Strategy. The 30-day duration for THH criteria coincides with the 30-day duration of an AML, which is why the manganese criterion is set equal to the AML for a "permitting at criteria" scenario. Because the manganese criterion is interpreted as having chronic exposure, the manganese MDL and IMAX may be made less stringent according to procedures established in Section III.C.2.h. of the Water Quality Toxics Management Strategy (AML multipliers of 2.0 and 2.5 for the MDL and IMAX respectively). Accordingly, TMDL manganese limits are proposed for the Outfalls. The proposed manganese limits are shown in Table 3.

In this case, aluminum, iron and manganese limits were proposed in order to ensure compliance with the TMDL.

Toxics Management Analysis

The Department's Toxics Management Spreadsheet (TMS) was utilized to facilitate calculations necessary for completing a reasonable potential analysis and determine Water Quality-Based Effluent Limitations (WQBELs) for discharges containing toxic pollutant concentrations. TMS combines the functionality of two (2) of the Department's analysis tools, Toxics Screening Analysis Spreadsheet and PENTOXSD water quality model.

DEP's procedures for evaluating reasonable potential are as follows:

1. For IW discharges, the design flow to use in modeling is the average flow during production or operation and may be taken form the permit application.

2. Perform a Toxics Screening Analysis to identify toxic pollutants of concern. All toxic pollutants, as reported in the permit application or on DMRs, are modeled by the TMS to determine the parameters of concern. [This includes pollutants reported as "Not Detectable" or as "<MDL" where the method detection limit for the analytical method used by the applicant is greater than the most stringent water quality criterion].

    - Establish limits in the draft permit where the maximum reported concentration equals or exceeds 50% of the WQBEL. Use the average monthly and maximum daily limits for the permit as recommended by TMS. Establish an IMAX limit at 2.5 times the average monthly limit.

    - For non-conservative pollutants, establish monitoring requirements where the maximum reported concentration is between 25% - 50% of the WQBEL.

    - For conservative pollutants, establish monitoring requirements where the maximum reported concentration is between 10% - 50% of the WQBEL.

Discharges from Outfall 001 are evaluated based on concentrations reported on the application and contained in the DMRs; data from those sources are used as inputs into the TMS. A summary of TMS Inputs is contained in Table 4 below.

Table 4. TMS Inputs

Parameter	Value
Discharge Inputs	
Facility	Quemahoning WTP
Evaluation Type	Industrial
NPDES Permit No.	PA0253561
Wastewater Description	Filter Backwash & Clarifier Rinse
Outfall ID	001
Design Flow (MGD)	0.146
Hardness ($^{mg}/_{L}$)	78.6
pH (S.U.)	7.47
Partial Mix Factors	Unknown – Calculated by TMS
Complete Mix Times	
Q_{7-10} (min)	
Q_h (min)	
Stream Inputs	
Receiving Surface Water	UNT to Quemahoning Creek
Number of Reaches to Model	1
Stream Code	045387
RMI	0.834
Elevation (ft)	1630/1628*
Drainage Area (mi^2)	3.29
Slope (ft/ft)	
PWS Withdrawal (MGD)	5.4
Apply Fish Criteria	Yes
Low Flow Yield (cfs/mi^2)	
Flows	
Stream (cfs)	0.137
Tributary (cfs)	N/A
Width (ft)	
Stream Hardness ($^{mg}/_{L}$)	100
Stream pH (S.U.)	7.0

***** Denotes discharge location/downstream location values.

The TMS Model WQBEL recommendations at Outfall 001 are summarized below in Table 5. Analysis Report from the TMS run is included in Attachment B.

Table 5. TMS WQBEL Recommendations

Parameter	Average Monthly ($^{\mu g}/_{L}$)	Maximum Daily ($^{\mu g}/_{L}$)
Total Aluminum	772	1,205
Hexavalent Chromium*****	16.7	26.1
Total Cobalt*****	Report	Report
Total Copper	Report	Report
Dissolved Iron	Report	Report
Total Manganese	Report	Report

* Two (2) parameters (Hexavalent Chromium and Total Cobalt) were analyzed above Department Target QLs and yielded a “Non-Detect”. The Department will allow the facility the opportunity to resample this parameter during the 30-day Draft permit comment period. If the new analytical results verify that the parameters are not present in its wastewater discharge at the Department’s minimum quantitation limits, effluent limitations / monitoring requirements for these pollutants may be eliminated prior to Final permit issuance.

<u>WQM 7.0 Model</u>

In general, WQM 7.0 Model is run if the maximum BOD_5/$CBOD_5$ concentrations exceeds 30/25 mg/L respectively in the permit application or the DMRs. The permit application reports BOD_5/$CBOD_5$ concentrations of <1.5/<10 mg/L respectively, therefore, MQW 7.0 Model is not required to be run.

<u>Total Residual Chlorine</u>

To determine if WQBELs are required for discharges containing total residual chlorine (TRC), a discharge evaluation is performed using a DEP program called TRC_CALC created with Microsoft Excel for Windows. TRC_CALC calculates TRC Waste Load Allocations (WLAs) through the application of a mass balance model which considers TRC losses due to stream

and discharge chlorine demands and first-order chlorine decay. Input values for the program include flow rates and discharge chlorine demands for the receiving stream, the number of samples taken per month, coefficients of TRC variability, partial mix factors, and an optional factor of safety. The mass balance model calculates WLAs for acute and chronic criteria that are then converted to long term averages using calculated multipliers. The multipliers are functions of the number of samples taken per month and the TRC variability coefficients (normally kept at default values unless site specific information is available). The most stringent limitation between the acute and chronic long-term averages is converted to an average monthly limit for comparison to the BAT average monthly limit of 0.5 mg/L from 25 Pa. Code § 92a.48(b)(2). The more stringent of these average monthly TRC limitations is then proposed. The results of the modeling, included in Attachment B, indicate that WQBELs are required for TRC. Acute Fish Criterion (AFC) average monthly limit of 0.136 mg/L and an IMAX limit of 0.319 mg/L for TRC.

Anti-Backsliding

Section 402(o) of the Clean Water Act (CWA), enacted in the Water Quality Act of 1987, establishes anti-backsliding rules governing two situations. The first situation occurs when a permittee seeks to revise a Technology-Based effluent limitation based on BPJ to reflect a subsequently promulgated effluent guideline which is less stringent. The second situation addressed by Section 402(o) arises when a permittee seeks relaxation of an effluent limitation which is based upon a State treatment standard of water quality standard.

Previous limits can be used pursuant to EPA's anti-backsliding regulation 40 CFR 122.44 (l) Reissued permits. (1) Except as provided in paragraph (l)(2) of this section when a permit is renewed or reissued. Interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit (unless the circumstances on which the previous permit was based have materially and substantially changed since the time the permit was issued and would constitute cause for permit modification or revocation and reissuance under §122.62). (2) In the case of effluent limitations established on the basis of Section 402(a)(1)(B) of the CWA, a permit may not be renewed, reissued, or modified on the basis of effluent guidelines promulgated under section 304(b) subsequent to the original issuance of such permit, to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit.

The facility is not seeking to revise the previously permitted effluent limits.

Effluent Limitations and Monitoring Requirements for Outfall 001

Effluent limits applicable at Outfall 001 are the more stringent of TBELs, WQBELs, regulatory effluent standards, and monitoring requirements as summarized in Table 6. The applicable limits and monitoring requirements provided below are based on those in Tables 1, 2, 3 and 5 of this Fact Sheet.

Table 6. Effluent limits and monitoring requirements for Outfall 001

Parameter	Mass (pounds)		Concentration (mg/L)			Basis
	Average Monthly	Daily Maximum	Average Monthly	Daily Maximum	Instant Maximum	
Flow (MGD)	Report	Report	—	—	—	25 Pa. Code § 92a.61(d)(1)
Total Residual Chlorine	—	—	0.14	0.24	0.32	WQBEL
Total Suspended Solids	—	—	30.0	60.0	—	40 CFR § 125.3
Total Dissolved Solids	—	—	Report	Report	—	25 Pa. Code § 95.10
Iron (total)	—	—	2.0	4.0	—	TMDL
Aluminum (total)	—	—	0.75	0.75	—	TMDL
Manganese (total)	—	—	1.0	2.0	—	TMDL
pH (S.U.)	Within the range of 6.0 to 9.0					25 Pa. Code § 92a.48(a)(2) & 25 Pa. Code § 95.2
Hexavalent Chromium*	—	—	0.017	0.026	—	WQBEL
Total Cobalt*	—	—	Report	Report	—	WQBEL
Total Copper	—	—	Report	Report	—	WQBEL

***** Two (2) parameters (Hexavalent Chromium and Total Cobalt) were analyzed above Department Target QLs and yielded a "Non-Detect". The Department will allow the facility the opportunity to resample this parameter during the 30-day Draft permit comment period. If the new analytical results verify that the parameters are not present in its wastewater discharge

at the Department's minimum quantitation limits, effluent limitations / monitoring requirements for these pollutants may be eliminated prior to Final permit issuance.

Monitoring Frequency for Outfall 001

Monitoring requirements are based on the previous permits monitoring requirements for Somerset County General Authority WTF and displayed in Table 7 below.

Table 7. Monitoring Requirements for Outfall 001

Parameter	Sample Type	Minimum Sample Frequency
Flow (MGD)	Meter	2/Month
TRC	Grab	2/Month
TSS	Grab	2/Month
TDS	Grab	2/Month
Iron (total)	Grab	2/Month
Aluminum (total)	Grab	2/Month
Manganese (total)	Grab	2/Month
pH (S.U.)	Grab	2/Month
Hexavalent Chromium	Grab	2/Month
Total Cobalt	Grab	2/Month
Total Copper	Grab	2/Month

Tools and References Used to Develop Permit	
☐	WQM for Windows Model (see Attachment)
☒	Toxics Management Spreadsheet (see Attachment **B**)
☒	TRC Model Spreadsheet (see Attachment **C**)
☐	Temperature Model Spreadsheet (see Attachment)
☐	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☐	Technical Guidance for the Development and Specification of Effluent Limitations, 386-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 386-2000-019, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 386-2000-018, 11/96.
☒	Technology-Based Control Requirements for Water Treatment Plant Wastes, 386-2183-001, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 386-2183-002, 12/97.
☐	Pennsylvania CSO Policy, 386-2000-002, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 386-2000-008, 4/97.
☐	Determining Water Quality-Based Effluent Limits, 386-2000-004, 12/97.
☐	Implementation Guidance Design Conditions, 386-2000-007, 9/97.
☐	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 386-2000-016, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 386-2000-012, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 386-2000-009, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 386-2000-015, 5/2004.
☐	Implementation Guidance for Section 93.7 Ammonia Criteria, 386-2000-022, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 386-2000-013, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 386-2000-011, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 386-2000-001, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 386-2000-021, 10/97.
☐	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 386-2000-020, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 386-2000-005, 3/99.
☐	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 386-2000-010, 3/1999.
☐	Design Stream Flows, 386-2000-003, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 386-2000-006, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 386-3200-001, 6/97.
☐	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☐	SOP:
☐	Other:

ATTACHMENTS

ATTACHMENT A: STREAMSTATS DATA

ATTACHMENT B: TMS MODEL SUMMARY

ATTACHMENT C: TRC MODEL SPREADSHEET

ATTACHMENT D: FACILITY FIGURES

ATTACHMENT A: STREAMSTATS DATA

Outfall 001

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	3.29	square miles
ELEV	Mean Basin Elevation	1880.8	feet
PRECIP	Mean Annual Precipitation	41	inches

Low-Flow Statistics Parameters [Low Flow Region 3]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	3.29	square miles	2.33	1720
ELEV	Mean Basin Elevation	1880.8	feet	898	2700
PRECIP	Mean Annual Precipitation	41	inches	38.7	47.9

Low-Flow Statistics Flow Report [Low Flow Region 3]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	SEp
7 Day 2 Year Low Flow	0.35	ft^3/s	43	43
30 Day 2 Year Low Flow	0.495	ft^3/s	38	38
7 Day 10 Year Low Flow	0.137	ft^3/s	54	54
30 Day 10 Year Low Flow	0.193	ft^3/s	49	49
90 Day 10 Year Low Flow	0.29	ft^3/s	41	41

Low-Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)

ATTACHMENT B: TMS MODEL SUMMARY

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: **Quemahoning Water System** NPDES Permit No.: **PA0253561** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Treated Clarifier Rinse & Backwash Waters**

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
0.146	78.6	7.4						

					0 if left blank		0.5 if left blank		0 if left blank			1 if left blank	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		202									
	Chloride (PWS)	mg/L		19.3									
	Bromide	mg/L	<	0.2									
	Sulfate (PWS)	mg/L		47.2									
	Fluoride (PWS)	mg/L	<	0.1									
Group 2	Total Aluminum	µg/L		1200									
	Total Antimony	µg/L	<	1									
	Total Arsenic	µg/L	<	1									
	Total Barium	µg/L		32.7									
	Total Beryllium	µg/L	<	1									
	Total Boron	µg/L	<	50									
	Total Cadmium	µg/L	<	0.2									
	Total Chromium (III)	µg/L	<	1									
	Hexavalent Chromium	µg/L	<	20									
	Total Cobalt	µg/L	<	5									
	Total Copper	mg/L		0.0016									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L	<	20									
	Dissolved Iron	µg/L	<	50									
	Total Iron	µg/L		220									
	Total Lead	µg/L	<	1									
	Total Manganese	µg/L		410									
	Total Mercury	µg/L	<	0.2									
	Total Nickel	µg/L		2.8									
	Total Phenols (Phenolics) (PWS)	µg/L	<	20									
	Total Selenium	µg/L	<	1									
	Total Silver	µg/L	<	0.2									
	Total Thallium	µg/L	<	0.2									
	Total Zinc	mg/L	<	0.005									
	Total Molybdenum	µg/L	<	20									
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L											

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

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

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Stream / Surface Water Information

Quemahoning Water System, NPDES Permit No. PA0253561, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **UNT to Quemahoning Creek**

No. Reaches to Model: **1**

- (●) Statewide Criteria
- ( ) Great Lakes Criteria
- ( ) ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi^2)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	005387	0.834	1630	3.29			Yes
End of Reach 1	045387	0.1	1628	12			Yes

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

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	0.834	0.1	0.137									100	7		
End of Reach 1	0.1	0.1													

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	0.834														
End of Reach 1	0.1														

Model Results

Quemahoning Water System, NPDES Permit No. PA0253561, Outfall 001

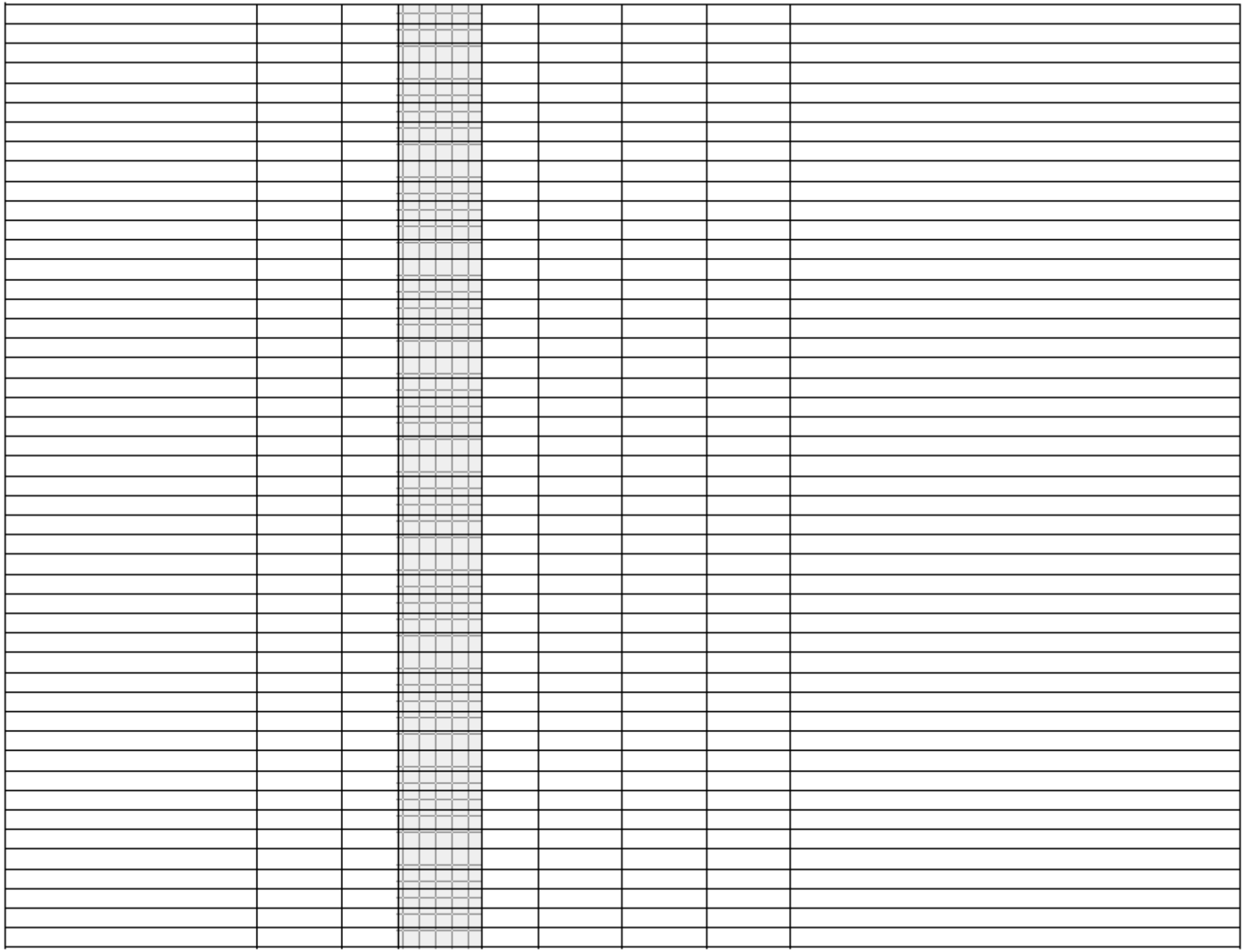
Instructions | *Results* | RETURN TO INPUTS | SAVE AS PDF | PRINT | (•) All ( ) Inputs ( ) Results ( ) Limits

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 2.837 PMF: 1 Analysis Hardness (mg/l): 86.68 Analysis pH: 7.20

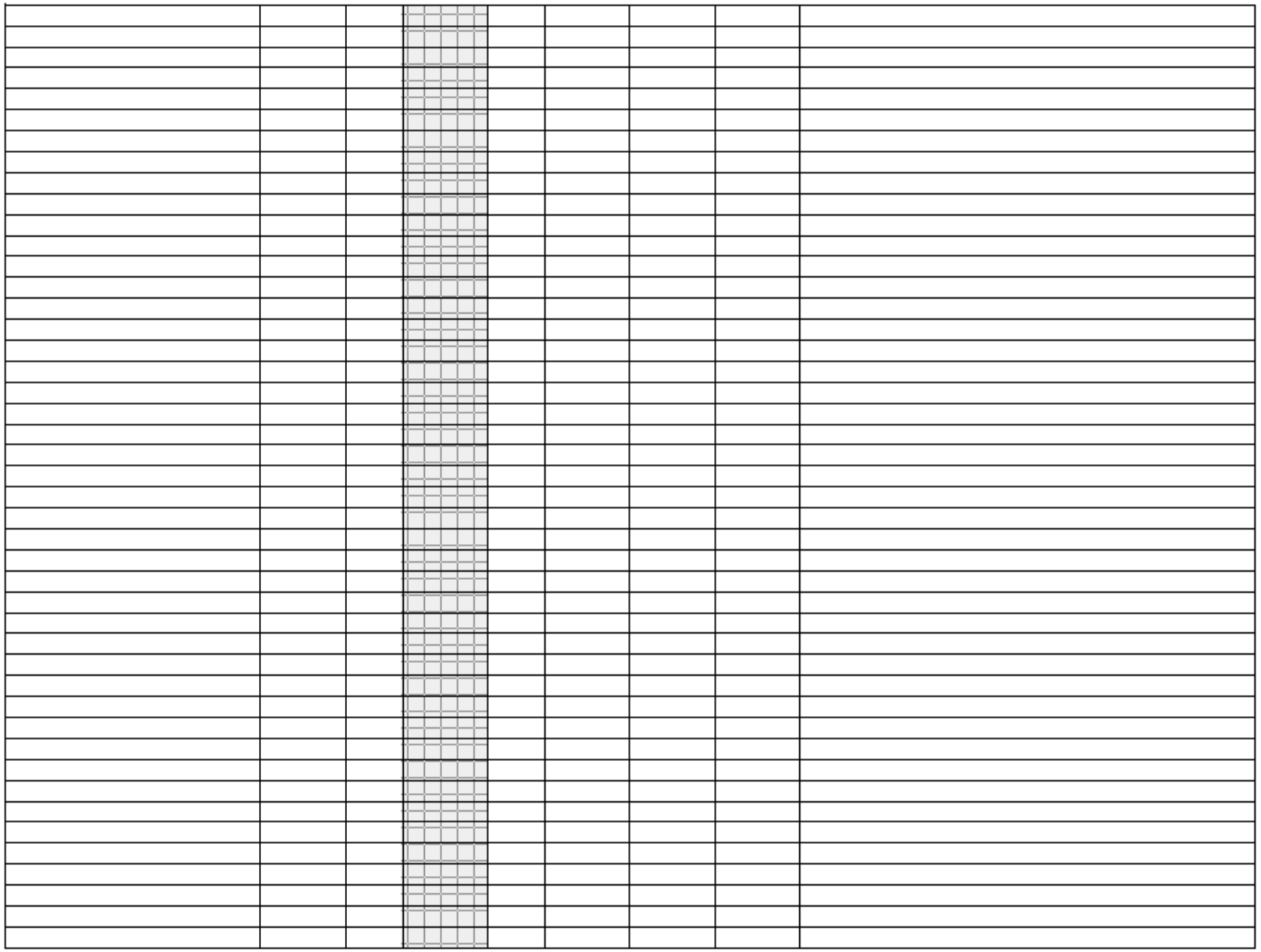
Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	1,205	
Total Antimony	0	0		0	1,100	1,100	1,767	
Total Arsenic	0	0		0	340	340	546	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	33,738	
Total Boron	0	0		0	8,100	8,100	13,013	
Total Cadmium	0	0		0	1.752	1.84	2.96	Chem Translator of 0.95 applied
Total Chromium (III)	0	0		0	506.814	1,604	2,577	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	26.2	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	153	
Total Copper	0	0		0	11.746	12.2	19.7	Chem Translator of 0.96 applied
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	55.254	68.1	109	Chem Translator of 0.812 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	2.65	Chem Translator of 0.85 applied
Total Nickel	0	0		0	414.899	416	668	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	2.516	2.96	4.75	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	104	
Total Zinc	0	0		0	103.813	106	171	Chem Translator of 0.978 applied



☑ *CFC* CCT (min): 2.837 PMF: 1 Analysis Hardness (mg/l): 86.68 Analysis pH: 7.20

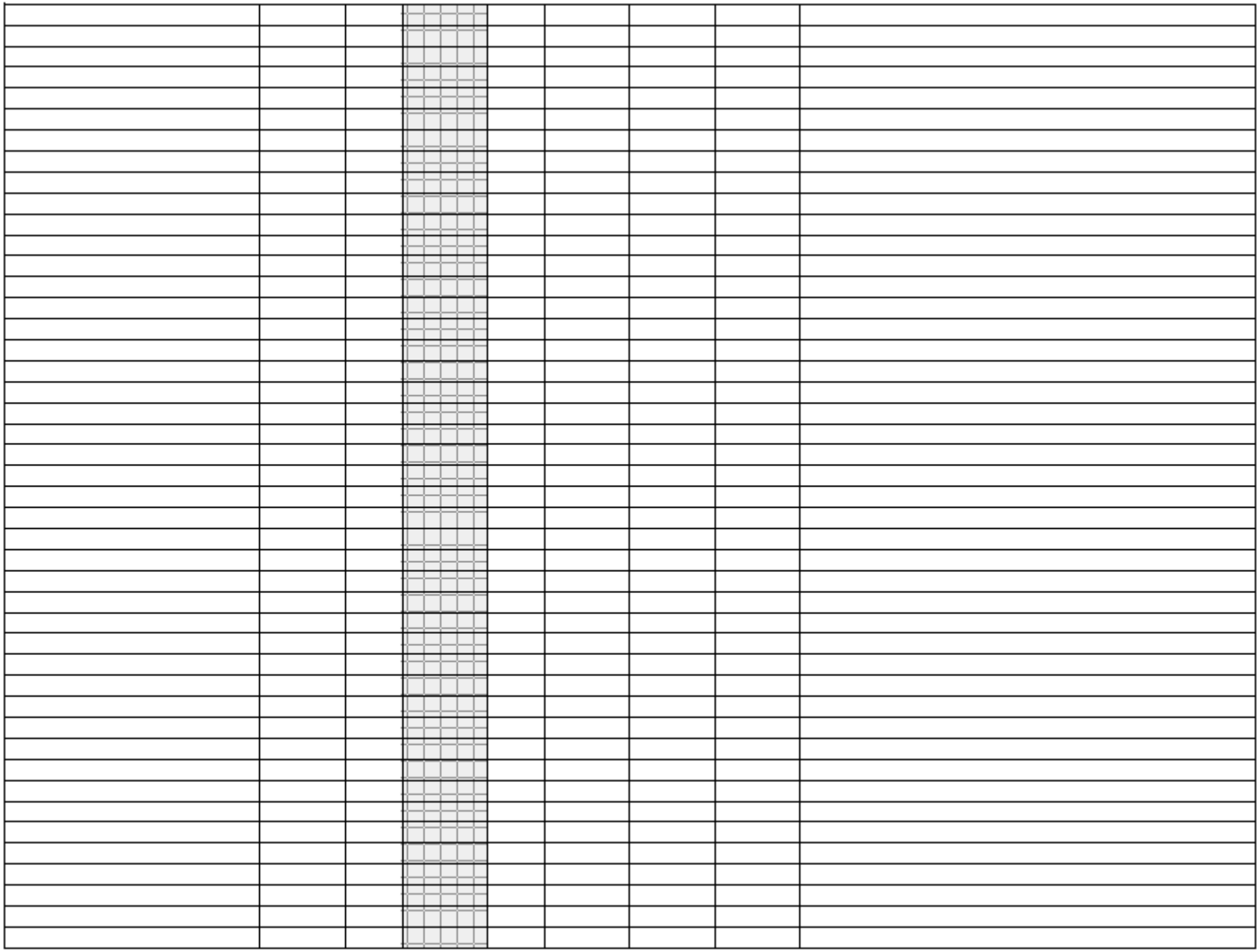
Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	220	220	353	
Total Arsenic	0	0		0	150	150	241	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	6,587	
Total Boron	0	0		0	1,600	1,600	2,571	
Total Cadmium	0	0		0	0.223	0.24	0.39	Chem Translator of 0.915 applied
Total Chromium (III)	0	0		0	65.926	76.7	123	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	16.7	Chem Translator of 0.962 applied

Total Cobalt	0	0		0	19	19.0	30.5	
Total Copper	0	0		0	7.926	8.26	13.3	Chem Translator of 0.96 applied
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	2,410	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.153	2.65	4.26	Chem Translator of 0.812 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	1.46	Chem Translator of 0.85 applied
Total Nickel	0	0		0	46.082	46.2	74.3	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	8.02	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	20.9	
Total Zinc	0	0		0	104.662	106	171	Chem Translator of 0.986 applied



☑ ***THH*** CCT (min): 2.837 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	
Fluoride (PWS)	0	0		0	2,000	2,000	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	9.0	
Total Arsenic	0	0		0	10	10.0	16.1	
Total Barium	0	0		0	2,400	2,400	3,856	
Total Boron	0	0		0	3,100	3,100	4,980	
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	
Dissolved Iron	0	0		0	300	300	482	
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	1,607	
Total Mercury	0	0		0	0.050	0.05	0.08	
Total Nickel	0	0		0	610	610	980	
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	0.39	
Total Zinc	0	0		0	N/A	N/A	N/A	



☑ *CRL* CCT (min): 5.589 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	
Fluoride (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	
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	

☑ ***Recommended WQBELs & Monitoring Requirements***

No. Samples/Month: 4

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Aluminum	0.94	1.47	772	1,205	1,931	µg/L	772	AFC	Discharge Conc ≥ 50% WQBEL (RP)
Hexavalent Chromium	0.02	0.032	16.7	26.1	41.8	µg/L	16.7	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Cobalt	Report	Report	Report	Report	Report	µg/L	30.5	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Copper	Report	Report	Report	Report	Report	mg/L	0.013	AFC	Discharge Conc > 10% WQBEL (no RP)
Dissolved Iron	Report	Report	Report	Report	Report	µg/L	482	THH	Discharge Conc > 10% WQBEL (no RP)
Total Manganese	Report	Report	Report	Report	Report	µg/L	1,607	THH	Discharge Conc > 10% WQBEL (no RP)

☑ ***Other Pollutants without Limits or Monitoring***

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

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Chloride (PWS)	N/A	N/A	PWS Not Applicable
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	N/A	N/A	PWS Not Applicable
Fluoride (PWS)	N/A	N/A	Discharge Conc < TQL
Total Antimony	N/A	N/A	Discharge Conc < TQL
Total Arsenic	N/A	N/A	Discharge Conc < TQL
Total Barium	3,856	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	2,571	µg/L	Discharge Conc < TQL
Total Cadmium	0.39	µg/L	Discharge Conc < TQL
Total Chromium (III)	123	µg/L	Discharge Conc < TQL
Total Cyanide	N/A	N/A	No WQS

Total Iron	2,410	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	4.26	µg/L	Discharge Conc < TQL
Total Mercury	0.08	µg/L	Discharge Conc < TQL
Total Nickel	74.3	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Selenium	8.02	µg/L	Discharge Conc < TQL
Total Silver	3.05	µg/L	Discharge Conc < TQL
Total Thallium	0.39	µg/L	Discharge Conc < TQL
Total Zinc	0.11	mg/L	Discharge Conc < TQL
Total Molybdenum	N/A	N/A	No WQS

ATTACHMENT C: TRC MODEL SPREADSHEET

Somerset TRC_CALC

TRC EVALUATION

Somerset County General Authority

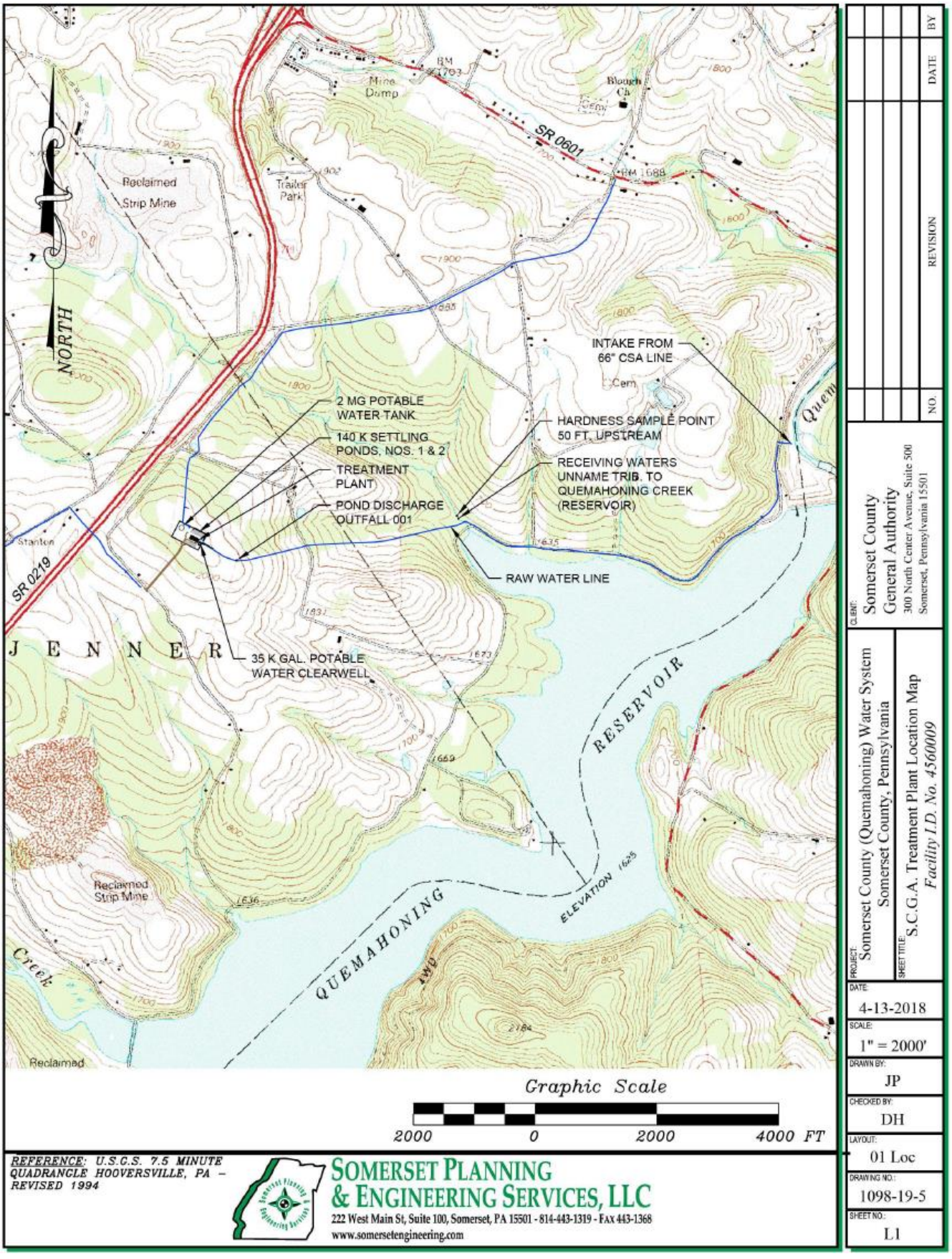
0.137	= Q stream (cfs)	0.5	= CV Daily
0.146	= Q discharge (MGD)	0.5	= CV Hourly
4	= no. samples	1	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Stream	1	= CFC_Partial Mix Factor
0	= Chlorine Demand of Discharge	15	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)
	= % Factor of Safety (FOS)		=Decay Coefficient (K)

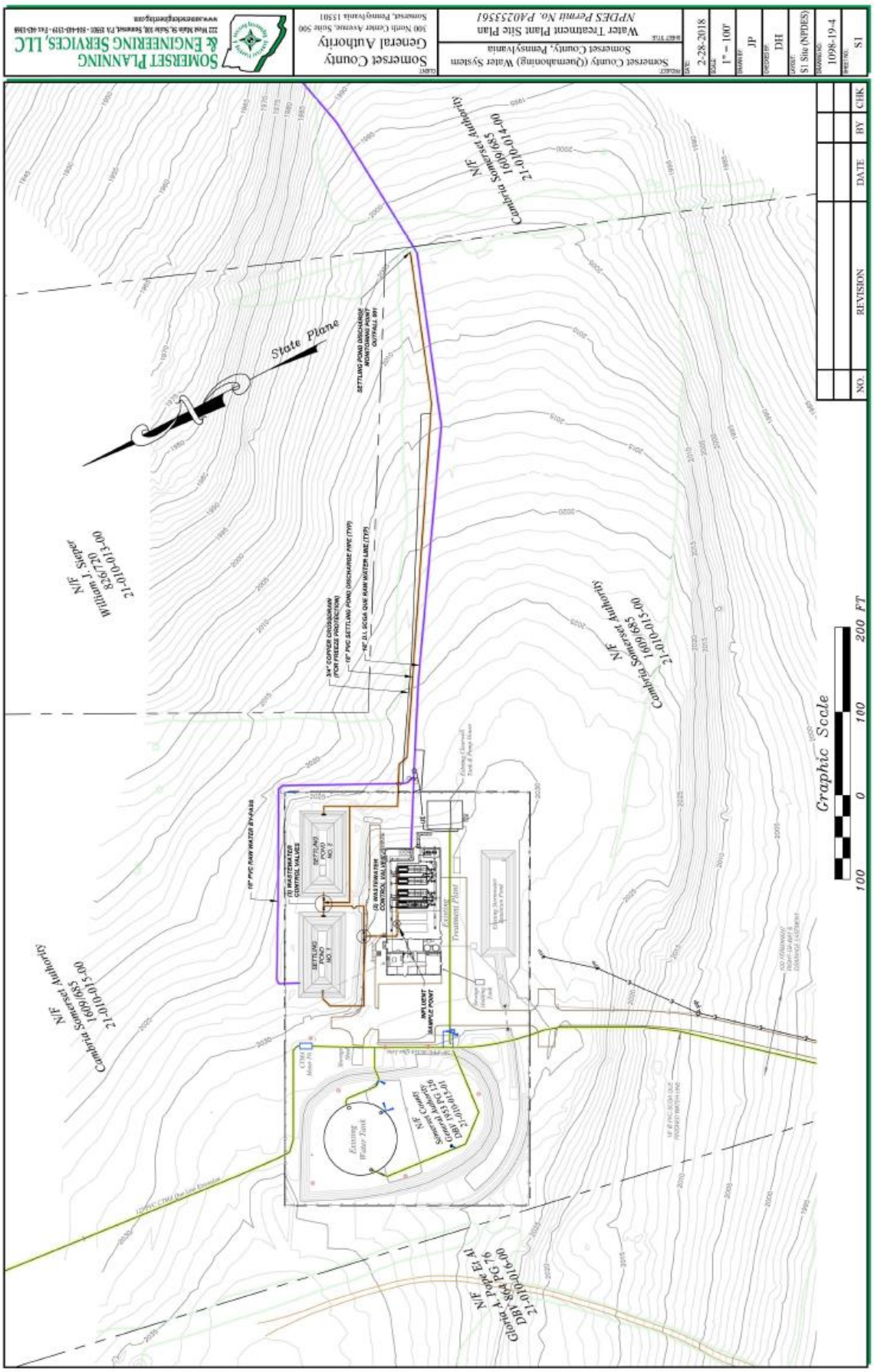
Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 0.212	1.3.2.iii	WLA cfc = 0.200
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 0.079	5.1d	LTA_cfc = 0.116

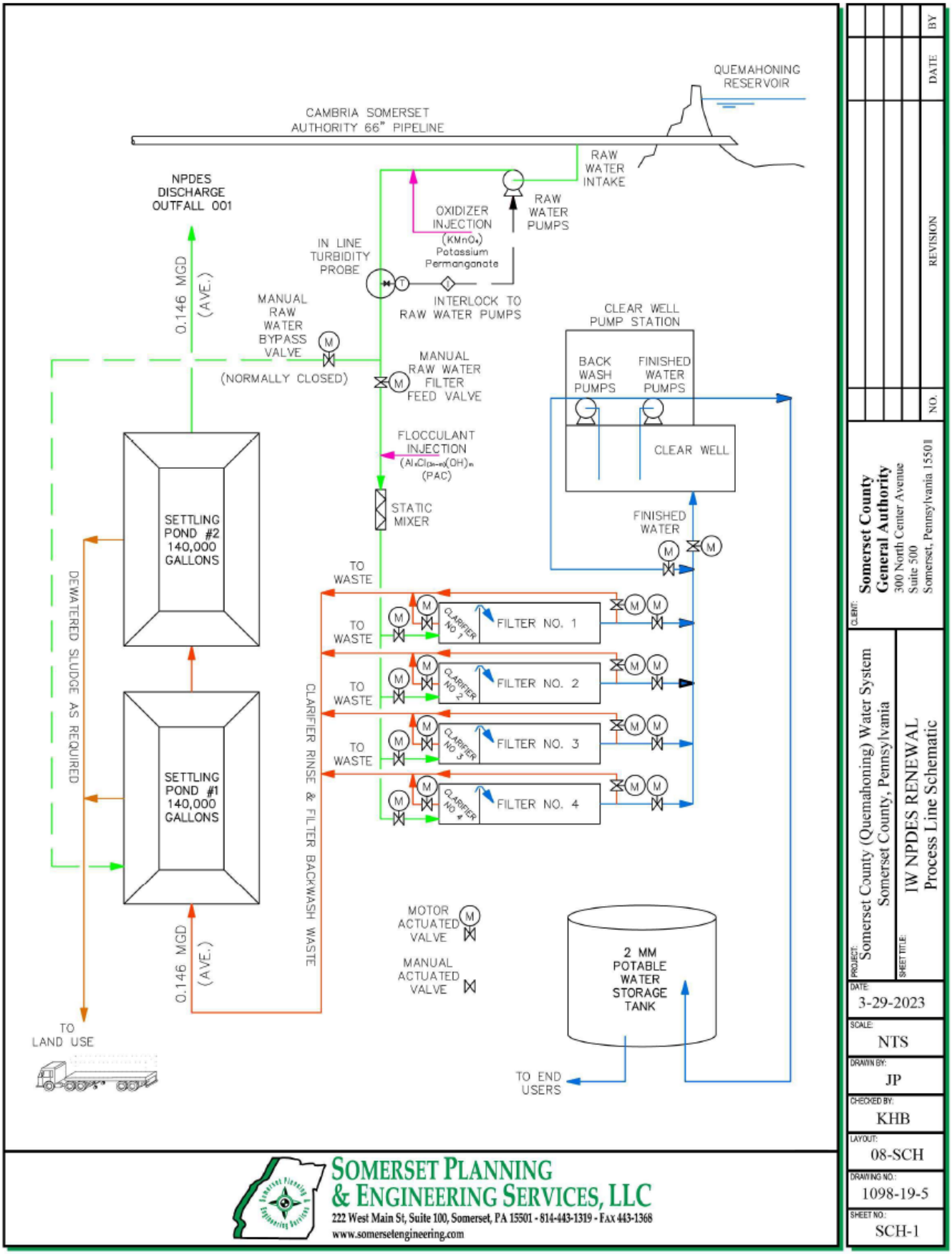
Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.720	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.136	AFC
		INST MAX LIMIT (mg/l) = 0.319	

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

ATTACHMENT D: FACILITY FIGURES


NORTH
Reclaimed Strip Mine
Trailer Park
Mine Dump
Bloucher Ch
Cem
SR 0601
RM 1793
RM 1688
INTAKE FROM 66" CSA LINE
2 MG POTABLE WATER TANK
140 K SETTLING PONDS, NOS. 1 & 2
TREATMENT PLANT
POND DISCHARGE OUTFALL 001
HARDNESS SAMPLE POINT 50 FT. UPSTREAM
RECEIVING WATERS UNNAME TRIB. TO QUEMAHONING CREEK (RESERVOIR)
RAW WATER LINE
35 K GAL. POTABLE WATER CLEARWELL
Stanton
SR 0219
J E N N E R
RESERVOIR
QUEMAHONING
ELEVATION 1635
Reclaimed Strip Mine
Creek
Reclaimed
Graphic Scale
2000 0 2000 4000 FT
REFERENCE: U.S.G.S. 7.5 MINUTE QUADRANGLE HOOVERSVILLE, PA – REVISED 1994
SOMERSET PLANNING & ENGINEERING SERVICES, LLC
222 West Main St, Suite 100, Somerset, PA 15501 - 814-443-1319 - Fax 443-1368
www.somersetengineering.com
NO. REVISION DATE BY
CLIENT: Somerset County General Authority
300 North Center Avenue, Suite 500
Somerset, Pennsylvania 15501
PROJECT: Somerset County (Quemahoning) Water System
Somerset County, Pennsylvania
SHEET TITLE: S.C.G.A. Treatment Plant Location Map
Facility I.D. No. 4560009
DATE: 4-13-2018
SCALE: 1" = 2000'
DRAWN BY: JP
CHECKED BY: DH
LAYOUT: 01 Loc
DRAWING NO.: 1098-19-5
SHEET NO.: L1


Somerset County (Quemahoning) Water System
Somerset County, Pennsylvania
Water Treatment Plant Site Plan
NPDES Permit No. PA0253561
Somerset County General Authority
300 North Center Avenue, Suite 500
Somerset, Pennsylvania 15501
SOMERSET PLANNING & ENGINEERING SERVICES, LLC
2-28-2018
1" = 100'
JP
DH
S1 Site (NPDES)
1098-19-4
S1
NO. REVISION DATE BY CHK
State Plane
Graphic Scale
100 0 100 200 FT
Cambria Somerset Authority
21-010-015.00
Cambria Somerset Authority
21-010-014.00
William J. Sleper
21-010-013.00
Cambria Somerset Authority
21-010-015.00
Cambria Somerset Authority
21-010-015.00
Gloria A. Pope Et Al
DBV 884 PG 76
21-010-016.00
SETTLING POND DISCHARGE
34" COPPER CROSSBRAM
(FOR FREEZE PROTECTION)
16" PVC SETTLING POND DISCHARGE PIPE (TYP)
16" D.I. DCDA QUE RAM WATER LINE (TYP)
16" PVC RAW WATER BYPASS
(3) WASTEWATER CONTROL VALVES
SETTLING POND NO. 2
SETTLING POND NO. 1
INFLUENT MANHOLE POINT
Existing Water Tank
Somerset Conservation District
DBV 1853 PG 116
21-010-01.01


QUEMAHONING RESERVOIR
CAMBRIA SOMERSET AUTHORITY 66" PIPELINE
RAW WATER INTAKE
RAW WATER PUMPS
NPDES DISCHARGE OUTFALL 001
OXIDIZER INJECTION (KMnO4) Potassium Permanganate
IN LINE TURBIDITY PROBE
INTERLOCK TO RAW WATER PUMPS
0.146 MGD (AVE.)
MANUAL RAW WATER BYPASS VALVE
(NORMALLY CLOSED)
MANUAL RAW WATER FILTER FEED VALVE
CLEAR WELL PUMP STATION
BACK WASH PUMPS
FINISHED WATER PUMPS
CLEAR WELL
FLOCCULANT INJECTION (PAC)
STATIC MIXER
FINISHED WATER
TO WASTE
FILTER NO. 1
FILTER NO. 2
FILTER NO. 3
FILTER NO. 4
SETTLING POND #2 140,000 GALLONS
SETTLING POND #1 140,000 GALLONS
DEWATERED SLUDGE AS REQUIRED
CLARIFIER RINSE & FILTER BACKWASH WASTE
MOTOR ACTUATED VALVE
MANUAL ACTUATED VALVE
2 MM POTABLE WATER STORAGE TANK
TO LAND USE
TO END USERS
SOMERSET PLANNING & ENGINEERING SERVICES, LLC
222 West Main St, Suite 100, Somerset, PA 15501 - 814-443-1319 - Fax 443-1368
www.somersetengineering.com
REVISION
DATE
BY
NO.
CLIENT: Somerset County General Authority 300 North Center Avenue Suite 500 Somerset, Pennsylvania 15501
PROJECT: Somerset County (Quemahoning) Water System Somerset County, Pennsylvania
SHEET TITLE: IW NPDES RENEWAL Process Line Schematic
DATE: 3-29-2023
SCALE: NTS
DRAWN BY: JP
CHECKED BY: KHB
LAYOUT: 08-SCH
DRAWING NO.: 1098-19-5
SHEET NO.: SCH-1