Pennsylvania Department of Environmental Protection

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0218464**
Facility Type	**Industrial**	APS ID	**1128264**
Major / Minor	**Minor**	Authorization ID	**1511162**

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

Applicant and Facility Information

Applicant Name	**Gans Energy LLC**	Facility Name	**Gans Power Station**
Applicant Address	1 Tower Center Boulevard 21st Floor E. Brunswick, NJ 08816	Facility Address	Sr 3002 Gans Road Gans, PA 15439
Applicant Contact	Jamille Ford	Facility Contact	Joseph Dearman
Applicant Phone	(724) 274-3628	Facility Phone	(724) 725-6005
Client ID	336060	Site ID	531375
SIC Code	**4911**	Municipality	Springhill Township
SIC Description	**Electric Services (fossil fuel electric power generation)**	County	Fayette
Date Application Received	December 30, 2024	EPA Waived?	Yes
Date Application Accepted	May 08, 2025	If No, Reason	
Purpose of Application	Renewal of NPDES permit for the discharge of non-contact cooling water, industrial wastewater, and industrial stormwater from the electric generating facility.		

Summary of Review

The Department received an NPDES permit renewal application from Gans Energy, LLC on December 18, 2024 for coverage of the discharge from its Gans Generating Facility in Springhill Township of Fayette County. The facility is an 88-megawatt capacity natural gas simple-cycle combustion turbine electric generating facility with an SIC Code 4911 (Electric Services). Water Quality Management (WQM) Permit 2600201 was approved on September 27, 2000.

Gans Generating Facility (Gans) produces electricity during periods of peak demand. Operation of the facility is based upon energy demand and economic dispatch. While the station can be operated remotely and has the potential to be called online at any time, its air permit limits operation to a total of 4875 unit-operating hours during any rolling 12-month period. Operation of the combustion turbines is most typically for several hours per day during peak heating and cooling seasons (December through February and June through August). There have been no changes to the operations at this facility since the last permit review.

The facility contains two identical parallel trains, each equipped with a generator building, condensing structures, emissions control equipment, a 75-foot stack, and a cooling tower. Other site features include a water treatment building/ office, a gas regulator building, a maintenance/ storage building, step-up and step-down electrical transformers, a switchyard, and a gravel/ paved lot.

The facility has one outfall, Outfall 001, which discharges to an Unnamed Tributary (UNT) to Grassy Run, designated in 25 PA Code Chapter 93 as a Warm Water Fishery (WWF). Outfall 001 discharges wastewater from internal monitoring points (IMP) 101 and 201. IMP 101 discharges non-contact cooling tower blowdown at an Average Flow of 0.0033 MGD, Maximum Flow of 0.010 MGD, and Design Flow of 0.0057 MGD. IMP 201 discharges stormwater and low-volume wastewater after treatment

Approve	Deny	Signatures	Date
X		Curtis Holes, P.E. / Environmental Engineer	January 8, 2026
X		Michael E. Fifth, P.E. / Environmental Engineer Manager	January 8, 2026

Summary of Review

through an oil/ water separator at an Average Flow of 0.0007 MGD, maximum flow of 0.0023 MGD, and Design Flow of 0.1034 MGD.

A stream assessment to determine the point of first use (POFU) of the UNT to Grassy Run was conducted on January 14, 2020 by the Department. Results from the study suggest that the stream has an aquatic life use at the point where it exhibits define bed and bank ((Latitude:39.74678, Longitude: -79.84247), and this use should be protected. However, the Department also flagged the stream as not attaining its protective use under Section 303d of the Clean Water Act. The causes of the impairment are iron, sulfate, strontium, total dissolved solids, and specific conductivity and the source of the impairment is acid mine drainage. Because of the receiving stream's impairment, the water quality for Outfall 001 is modeled 1.5 miles downstream of the outfall, where the UNT to Grassy Run confluences with Grassy Run.

The last inspection conducted by the Department was on May 03, 2021 by Howard Dunn as a compliance evaluation. No violations were noted.

The client has no open violations

Part C language in the draft permit provides controls on Residual Solids, Chemical Additives, TRC Effluent Limitations below Quantitation Limits, and Stormwater Discharges.

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

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)	0.0127
Latitude	39º 44' 51"	Longitude	-79º 50' 33"
Quad Name	Lake Lynn	Quad Code	2107
Wastewater Description:	Non-contact cooling tower blowdown from IMP 101 and oil/ water separation for stormwater from IMP 102.		
Receiving Waters	Grassy Run (WWF)	Stream Code	41891
NHD Com ID	64191454	RMI	1.6527
Drainage Area	4.49 mi^2	Yield (cfs/mi^2)	0.001116
Q_{7-10} Flow (cfs)	0.0501	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	894	Slope (ft/ft)	0.0174
Watershed No.	19-G	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Metals, pH		
Source(s) of Impairment	Acid Mine Drainage		
TMDL Status		Name	
Nearest Downstream Public Water Supply Intake	Point Marion Borough (0.504 MGD)		
PWS Waters	Cheat River	Flow at Intake (cfs)	0.78
PWS RMI	1.07	Distance from Outfall (mi)	5.37

Other Comments: The USGS Stream Stats Data for the drainage area is displayed in Attachment A. The water quality for Outfall 001 is modeled 1.5 miles downstream of the outfall, where the Unnamed Tributary (UNT) to Grassy Run (Stream Code 41892) confluences with Grassy Run (Stream Code 41891). The Unnamed Tributary to Grassy Run has no aquatic use to support due to severe impairment caused by abandoned main drainage.

No changes have been made to Outfall 001 since last permit issuance.

Compliance History

Effluent Violations for Outfall 101, from: December 1, 2024 To: October 31, 2025

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
Total Zinc	01/31/25	Avg Mo	0.560	mg/L	0.283	mg/L
Total Zinc	12/31/24	Avg Mo	0.550	mg/L	0.283	mg/L
Total Zinc	01/31/25	Daily Max	1.070	mg/L	0.441	mg/L
Total Zinc	12/31/24	Daily Max	0.960	mg/L	0.441	mg/L

Other Comments: None

Compliance History

DMR Data for Outfall 101 (from December 1, 2024 To: October 31, 2025)

Parameter	Limit	OCT-25	SEP-25	AUG-25	JUL-25	JUN-25	MAY-25	APR-25	MAR-25	FEB-25	JAN-25	DEC-24
Flow (MGD) Average Monthly	**Report**	0.0002	0.001	0.001	0.001	0.001		0.001			0.001	0.001
Flow (MGD) Daily Maximum	**Report**	0.0025	0.006	0.006	0.004	0.002		0.001			0.001	0.001
pH (S.U.) Daily Minimum	**6.0**	8.1	7.8	7.5	8.3	7.8		7.2			8.3	7.8
pH (S.U.) IMAX	**9.0**	8.3	7.8	8.5	8.5	7.8		8.3			8.4	7.9
TRC (mg/L) Average Monthly	**0.159**	0.055	< 0.001	< 0.001	0.055	0.020		0.020			0.065	0.060
TRC (mg/L) IMAX	**0.373**	0.070	< 0.001	< 0.001	0.080	0.020		0.040			0.080	0.060
Free Available Chlorine (mg/L) Average Monthly	**0.2**	< 0.01	< 0.1	< 0.01	0.03	0.01		0.02			0.04	0.03
Free Available Chlorine (mg/L) IMAX	**0.5**	< 0.02	< 0.1	< 0.01	0.05	0.01		0.03			0.04	0.03
Temperature (Oct 1 thru 15) (ºF)	**110.0**	62.6										
Temperature (Oct 16 thru End of Month) (ºF) IMAX	**108.4**	65.8										
Temperature (Mar 1 – Sep 30) (ºF) IMAX	**110.0**		69.8	76.3	72.3	79.5		87.1			58.5	54.5
Total Arsenic (mg/L) Average Monthly	**0.017**	< 0.005	< 0.005	< 0.005	0.0035	< 0.005		< 0.005			< 0.005	< 0.0050
Total Arsenic (mg/L) Daily Maximum	**0.027**	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		< 0.005			< 0.005	< 0.0050
Total Chromium (mg/L) Average Monthly	**0.2**	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02		< 0.02			< 0.020	< 0.02
Total Chromium (mg/L) Daily Maximum	**.02**	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02		< 0.02			< 0.020	< 0.02
Total Zinc (mg/L) Average Monthly	**0.283**	0.085	0.070	0.105	0.080	0.110		0.080			**0.560**	**0.550**
Total Zinc (mg/L) Daily Maximum	**0.441**	0.090	0.070	0.110	0.087	0.120		0.110			**1.070**	**0.960**

DMR Data for Outfall 201 (from December 1, 2024 To: October 31, 2025)

Parameter	Limit	OCT-25	SEP-25	AUG-25	JUL-25	JUN-25	MAY-25	APR-25	MAR-25	FEB-25	JAN-25	DEC-24
Flow (MGD) Average Monthly	**Report**	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0008	0.00003		0.0002	0.0004
Flow (MGD) Daily Maximum	**Report**	0.0005	0.0005	0.0007	0.0005	0.0004	0.0004	0.0032	0.0004		0.0006	0.0006
pH (S.U.) Daily Minimum	**6.0**	7.3	7.1	7.1	7.1	6.5	7.8	7.5	7.4		7.7	7.2
pH (S.U.) Instantaneous Maximum	**9.0**	7.5	7.4	7.8	7.4	7.8	7.9	7.7	8.0		8.1	7.3
TSS (mg/L) Average Monthly	**30.0**	< 3	< 3	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3		< 3	< 3
TSS (mg/L) Daily Maximum	**100.0**	< 3	< 3	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3		< 3	< 3
Oil and Grease (mg/L) Average Monthly	**15.0**	< 5	< 5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0		< 5	< 5
Oil and Grease (mg/L) Daily Maximum	**20.0**	< 5	< 5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0		< 5	< 5

Development of Effluent Limitations

Outfall No.	001	**Design Flow (MGD)**	0.0127
Latitude	39º 44' 51"	**Longitude**	-79º 50' 33"

Wastewater Description: Non-contact cooling tower blowdown from IMP 101 and oil/ water separation for stormwater from IMP 102.

Outfall 001 discharges wastewater from internal monitoring points (IMP) 101 and 201. The water quality-based effluent limitations will be evaluated at IMPs 101 and 201 for effluent limitations.

Per- and Polyfluoroalkyl Substances (PFAS)

In February 2024, DEP implemented a new monitoring initiative for PFAS consistent with an EPA memorandum that provides guidance to states for addressing PFAS discharges. PFAS are a family of thousands of synthetic organic chemicals that contain a chain of strong carbon-fluorine bonds. Many PFAS are highly stable, water- and oil-resistant, and exhibit other properties that make them useful in a variety of consumer products and industrial processes. PFAS are resistant to biodegradation, photooxidation, direct photolysis, and hydrolysis and do not readily degrade naturally; thus, many PFAS accumulate over time. According to the United States Department of Health and Human Services, Agency for Toxic Substances and Disease Registry (ATSDR), the environmental persistence and mobility of some PFAS, combined with decades of widespread use, have resulted in their presence in surface water, groundwater, drinking water, rainwater, soil, sediment, ice caps, outdoor and indoor air, plants, animal tissue, and human blood serum across the globe. ATSDR also reported that exposure to certain PFAS can lead to adverse human health impacts Due to their durability, toxicity, persistence, and pervasiveness, PFAS have emerged as potentially significant pollutants of concern.

In accordance with Section II.I of DEP's "Standard Operating Procedure (SOP) for Clean Water Program – Establishing Effluent Limitations for Individual Industrial Permits" [SOP No. BCW-PMT-032] and under the authority of 25 Pa. Code § 92a.61(b), DEP has determined that monitoring for a subset of common/well-studied PFAS including Perfluorooctanoic acid (PFOA), Perfluorooctanesulfonic acid (PFOS), Perfluorobutanesulfonic acid (PFBS), and Hexafluoropropylene oxide dimer acid (HFPO-DA) is necessary to help understand the extent of environmental contamination by PFAS in the Commonwealth and the extent to which point source dischargers are contributors. SOP BCW-PMT-032 directs permit writers to consider special monitoring requirements for PFOA, PFOS, PFBS, and HFPO-DA in the following instances:

a. If sampling that is completed as part of the permit renewal application reveals a detection of PFOA, PFOS, HFPO-DA or PFBS (any of these compounds), the application manager will establish a quarterly monitoring requirement for PFOA, PFOS, HFPO-DA and PFBS (all of these compounds) in the permit.

b. If sampling that is completed as part of the permit renewal application demonstrates non-detect values at or below the Target QLs for PFOA, PFOS, HFPO-DA and PFBS (all of these compounds in a minimum of 3 samples), the application manager will establish an annual monitoring requirement for PFOA, PFOS, HFPO-DA and PFBS in the permit.

c. In all cases the application manager will include a condition in the permit that the permittee may cease monitoring for PFOA, PFOS, HFPO-DA and PFBS when the permittee reports non-detect values at or below the Target QL for four consecutive monitoring periods for each PFAS parameter that is analyzed. Use the following language: The permittee may discontinue monitoring for PFOA, PFOS, HFPO-DA, and PFBS if the results in 4 consecutive monitoring periods indicate non-detects at or below Quantitation Limits of 4.0 ng/L for PFOA, 3.7 ng/L for PFOS, 3.5 ng/L for PFBS and 6.4 ng/L for HFPO-DA. When monitoring is discontinued, permittees should enter a No Discharge Indicator (NODI) Code of "GG" on DMRs.

The industrial activities conducted at the facility are not identified as sources of PFAS, therefor, the annual monitoring for PFAS will be imposed and if after four (4) consecutive non-detect events, at the QLs, then the monitoring can be discontinued.

Final Effluent Limitations and Monitoring Requirements for Outfall 001

Final Effluent limits applicable at Outfall 101 are the more stringent of TBELs, regulatory effluent standards, previously permitted effluent limits and the monitoring requirements are summarized in Table 1.

Table 1: Proposed Effluent limits and Monitoring Requirements for Outfall 001

Parameter	Mass Loading ($^{lbs.}/_{day}$)		Concentration ($^{mg}/_{L}$)			Basis
	Average Monthly	Daily Maximum	Average Monthly	Daily Maximum	Instant Maximum	
PFOA (ng/L)	-		-	Report	-	25 Pa. Code § 92.a.61(b)
PFOS (ng/L)	-	-	-	Report	-	25 Pa. Code § 92.a.61(b)
PFBS (ng/L)	-	-	-	Report	-	25 Pa. Code § 92.a.61(b)
HFPO-DA (ng/L)	-	-	-	Report	-	25 Pa. Code § 92.a.61(b)

Monitoring requirements are based on the previous permits monitoring requirements for the facility are displayed in Table 2 below.

Table 2: Monitoring Requirements for Outfall 001

Parameter	Sample Type	Minimum Sample Frequency
PFOA (ng/L)	Grab	1/year
PFOS (ng/L)	Grab	1/year
PFBS (ng/L)	Grab	1/year
HFPO-DA (ng/L)	Grab	1/year

Development of Effluent Limitations

Outfall No.	101	**Design Flow (MGD)**	0.033
Latitude	39º 44' 50"	**Longitude**	-79º 50' 20.6"

Wastewater Description: Non-contact cooling tower blowdown

IMP 101 discharges non-contact cooling tower blowdown from cooling towers 1 & 2 when the plant is in operation.

Technology-Based Limitations

Gans Generating Facility is a simple-cycle combustion turbine generation plant and not a steam electric generating facility. While fees do not reflect Federal Effluent Guidelines (ELGs), anti-backsliding and BPJ support the continued use of technology-based effluent limitation established in 40 CFR § 423 – Steam Electric Power Generating Point Source Category (NSPS).

Regulatory Effluent Standards and Monitoring Requirements

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

Effluent standards for pH pursuant to 25 Pa. Code §§ 95.2(1), as indicated in Table 1, are also imposed on all industrial wastes.

Pennsylvania regulations at 25 Pa. Code § 92a.48(b) require the imposition of technology-based TRC limits for facilities that use chlorination and that are not already subject to TRC limits based on applicable federal ELGs or a facility-specific BPJ evaluation as indicated in Table 3.

Table 3: Regulatory Effluent Standards

Parameter	Monthly Average	Daily Maximum	IMAX
Flow (MGD)	Monitor	Monitor	----
pH (S.U.)	Not less than 6.0 nor greater than 9.0 at all times		----
TRC ($^{mg}/_{L}$)	0.5	1.0	1.6

Best Practicable Control Technology Currently Achievable (BPT)

BPT for discharges from non-contact cooling tower blowdown are subject to effluent limits in accordance with the regulations in 40 CFR § 423 – Steam Electric Power Generating Point Source Category (NSPS). The technology-based effluent limits from 40 CFR § 423.15 (a)(10) proposed at IMP 101 are listed in Table 4.

Table 4: Technology Effluent Limitations for Cooling Tower Blowdown

Parameters	Average Monthly ($^{mg}/_{L}$)	Maximum Daily ($^{mg}/_{L}$)
Chromium, total*	0.2	0.2
Zinc, total*	1.0	1.0
Free Available Chlorine*	0.2	0.5
pH (S.U.) *	Between 6.0 – 9.0	

*From 40 CFR § 423.15 (a)(10)

Water Quality-Based Effluent Limitations (WQBELs)

Toxics Management Analysis

WQBELs are designed to protect water quality by ensuring that water quality standards are met in the receiving water. 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.

The Discharge from Outfall 101 is evaluated based on concentrations reported on the application data are used as inputs into the TMS. A summary of TMS Inputs is contained in Table 5 below.

Table 5: TMS Inputs

Parameter	Value
Discharge Inputs	
Facility	Gans Power Station
Evaluation Type	Industrial
NPDES Permit No.	PA0218464
Wastewater Description	NCCW
Outfall ID	101
Design Flow (MGD)	0.033
Hardness ($^{mg}/_{L}$)	710
pH (S.U.)	8.5
Partial Mix Factors	Unknown – Calculated by TMS
Complete Mix Times	
Q_{7-10} (min)	
Q_h (min)	
Stream Inputs	
Receiving Surface Water	Grassy Run
Number of Reaches to Model	1
Stream Code	041891
RMI	1.65
Elevation (ft)	894/893*
Drainage Area (mi^2)	4.49
Slope (ft/ft)	
PWS Withdrawal (MGD)	0.504
Apply Fish Criteria	Yes
Low Flow Yield (cfs/mi^2)	
Flows	
Stream (cfs)	0.0501
Tributary (cfs)	N/A
Width (ft)	
Stream Hardness ($^{mg}/_{L}$)	
Stream pH (S.U.)	

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

Table 6 below, is a summary of the recommendations of the TMS at Outfall 101. Analysis Report from the TMS run is included in Attachment B.

Table 6: TMS Model WQBELs

Parameter	Mass Load (lbs/day)		Concentration Limit (ug/L)	
	Average Monthly	Maximum Daily	Average Monthly	Maximum Daily
Total Zinc	0.18	0.28	0.48	0.74
Dissolved Iron	Report	Report	Report	Report
Total Copper	0.004	0.006	148	231
Total Cadmium	0.0001	0.0002	4.08	6.36
Total Antimony	Report	Report	Report	Report

Total Dissolved Solids (TDS)

The Total Dissolved Solids (TDS) concentration at Outfall 101 is 110 $^{mg}/_{L}$. Per *Policy and Procedure for NPDES Permitting of Discharges of Total Dissolved Solids (TDS) – 25 Pa. Code §95.10 (DEP-ID: 385-2100-002)*, a monitoring requirement for TDS for any discharge that exceeds 1,000 $^{mg}/_{L}$ TDS should be applied at minimum. Since the TDS discharge concentration is below 1,000 $^{mg}/_{L}$, no monitoring/limit requirements will be applied for TDS or its constituent parameters.

Total Residual Chlorine (TRC)

To determine if WQBELs are required for discharges containing Total Residual Chlorine, 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 chlorine demands for the receiving stream and the discharge, 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 $^{mag}/_{L}$ from 25 Pa. Code § 92a.48(b)(2). The more stringent of these average monthly TRC limitations is imposed in the permit. The results of the modeling, included in Attachment C, indicate that WQBELs are not required for TRC. The recommended effluent limits for TRC are shown below in Table 7.

Table 7: TRC WQBELs

Parameter	Monthly Average ($^{mg}/_{L}$)	IMAX ($^{mg}/_{L}$)
Total Residual Chlorine	0.5	1.17

The previously imposed Total Residual Chlorine Effluent Limitations will be maintained (average monthly of 0.159 $^{mg}/_{L}$ and IMAX of 0.373 $^{mg}/_{L}$.

Temperature Evaluation

IMP 101 discharges heated non-contact cooling wastewaters. The cooling water intake is a treated public water supply. The current permit contains a temperature limitation of 110 °F at IMP 101 for the protection of human health in accordance with the Department's temperature guidance.

The Department used the Thermal Limits Spreadsheet to evaluate the thermal impact of this discharge to Grassy Run. The spreadsheet is designed to calculate the appropriate thermal discharge limits for a facility discharging effluent above ambient temperature, assuming complete mix between the discharge flow and the receiving stream flow. The design stream flow for temperature analysis is based on the $Q_{7\text{-}10}$ flow of the receiving stream, adjusted for each monthly or semimonthly time period. The total projected discharge volume from IMP 101 (as provided in the NPDES permit application) is 0.011 MGD.

Bimonthly temperature monitoring was imposed in the current permit. The DEP Technical Guidance for the Development and Specification of Effluent Limitations (October 1997) recommends 1/month monitoring of flow, pH and temperature for non-contact discharges with flows under 20,000 GPD. Since some of the proposed temperature limits vary within the same month, the outfall will be subject to the 2/month monitoring requirements shown below in Table 8. The results of the thermal analysis are included in Attachment D of this report.

Table 8: Outfall 101 WQBELs for Temperature

Date	WWF Daily WLA (°F)
Jan 1-31	87.1
Feb 1-29	97.5
Mar 1-31	110.0
Apr 1-15	110.0
Apr 16-30	110.0
May 1-15	110.0
May 16-30	110.0
Jun 1-15	110.0
Jun 16-30	110.0
Jul 1-31	110.0
Aug 1-15	110.0
Aug 16-31	110.0
Sep 1-15	110.0
Sep 16-30	110.0
Oct 1-15	110.0
Oct 16-31	108.4
Nov 1-15	105.1
Nov 16-30	87.7
Dec 1-31	77.3

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 of IMP101.

The current effluent limitations at Outfall 101 are summarized in Table 9.

Table 9: Current Permit Effluent Limits – IMP 101						
Parameter	**Mass Limits ($^{lbs.}/_{day}$)**		**Concentration Limits ($^{mg}/_{L}$)**			**Monitoring Frequency**
	Average Monthly	**Maximum Daily**	**Average Monthly**	**Maximum Daily**	**Instantaneous Maximum**	
Flow (MGD)	Monitor & Report		-	-	-	2/month
Free Available Chlorine	-	-	0.2	-	0.5	2/month
Temperature (°F)	-	-	-	-	-	2/month
Jan 1 - 31	-	-	-	-	87.1	
Feb 1 - 29	-	-	-	-	91.5	
Mar 1 – Sep 30	-	-	-	-	110.0	
Oct 1 - 15	-	-	-	-	110.0	
Oct 16- 31	-	-	-	-	108.4	
Nov 1 - 15	-	-	-	-	105.1	
Nov 16 – 30	-	-	-	-	87.7	
Dec 1 - 31	-	-	-	-	77.3	
Arsenic, total	-	-	0.017	0.027	-	2/month
Chromium, total	-	-	0.2	0.2	-	2/month
Zinc, total	-	-	0.283	0.441	-	2/month
Total Residual Chlorine	-	-	0.159	-	0.373	2/month
pH (S.U.)	-	-	Between 6.0 and 9.0		-	2/month

Interim Effluent Limitations and Monitoring Requirements for Outfall 101

Interim Effluent limits applicable at Outfall 101 are the more stringent of TBELs, regulatory effluent standards, previously permitted effluent limits and the monitoring requirements are summarized in Table 10.

Table 10: Proposed Effluent limits and Monitoring Requirements for IMP 101

Parameter	Mass Loading ($^{lbs.}/_{day}$)		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)
Free Available Chlorine	-	-	0.2	-	0.5	40 CFR § 423
Temperature (°F)	-	-	-	-	-	25 Pa. Code § 93.7
Jan 1 - 31	-	-	-	-	87.1	25 Pa. Code § 93.7
Feb 1 - 29	-	-	-	-	91.5	25 Pa. Code § 93.7
Mar 1 – Sep 30	-	-	-	-	110.0	25 Pa. Code § 93.7
Oct 1 - 15	-	-	-	-	110.0	25 Pa. Code § 93.7
Oct 16- 31	-	-	-	-	108.4	25 Pa. Code § 93.7
Nov 1 - 15	-	-	-	-	105.1	25 Pa. Code § 93.7
Nov 16 – 30	-	-	-	-	87.7	25 Pa. Code § 93.7
Dec 1 - 31	-	-	-	-	77.3	25 Pa. Code § 93.7
Arsenic, total	-	-	0.017	0.027	-	25 Pa. Code § 92a.44
Chromium, total	-	-	0.2	0.2	-	40 CFR § 423
Zinc, total	-	-	0.283	0.441	-	40 CFR § 423
Total Residual Chlorine	-	-	0.159	-	0.373	25 Pa. Code § 92a.48(b)
Total Antimony	-	-	Report	Report	-	25 Pa. Code § 93.7
Total Cadmium	-	-	Report	Report	-	25 Pa. Code § 93.7
Total Copper	-	-	Report	Report	-	25 Pa. Code § 93.7
Dissolved Iron	-	-	Report	Report	-	25 Pa. Code § 93.7
pH (S.U.)	-	-	6.0 (Instant Minimum)	-	9.0	25 Pa. Code § 95.2

Final Effluent Limitations and Monitoring Requirements for Outfall 101

Final Effluent limits applicable at Outfall 101 are the more stringent of TBELs, regulatory effluent standards, previously permitted effluent limits and the monitoring requirements are summarized in Table 11.

Table 11: Proposed Effluent limits and Monitoring Requirements for IMP 101

Parameter	Mass Loading ($^{lbs.}/_{day}$)		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)
Free Available Chlorine	-	-	0.2	-	0.5	40 CFR § 423
Temperature (°F)	-	-	-	-	-	25 Pa. Code § 93.7
Jan 1 - 31	-	-	-	-	87.1	25 Pa. Code § 93.7
Feb 1 - 29	-	-	-	-	91.5	25 Pa. Code § 93.7
Mar 1 – Sep 30	-	-	-	-	110.0	25 Pa. Code § 93.7
Oct 1 - 15	-	-	-	-	110.0	25 Pa. Code § 93.7
Oct 16- 31	-	-	-	-	108.4	25 Pa. Code § 93.7
Nov 1 - 15	-	-	-	-	105.1	25 Pa. Code § 93.7
Nov 16 – 30	-	-	-	-	87.7	25 Pa. Code § 93.7
Dec 1 - 31	-	-	-	-	77.3	25 Pa. Code § 93.7
Arsenic, total	-	-	0.017	0.027	-	25 Pa. Code § 92a.44
Chromium, total	-	-	0.2	0.2	-	40 CFR § 423
Zinc, total	-	-	0.283	0.441	-	40 CFR § 423
Total Residual Chlorine	-	-	0.159	-	0.373	25 Pa. Code § 92a.48(b)
Total Antimony($^{\mu g}/_{L}$)	-	-	Report	Report	-	25 Pa. Code § 93.7
Total Cadmium($^{\mu g}/_{L}$)	-	-	4.08	6.36	-	25 Pa. Code § 93.7
Total Copper($^{\mu g}/_{L}$)	-	-	148	231	-	25 Pa. Code § 93.7
Dissolved Iron	-	-	Report	Report	-	25 Pa. Code § 93.7
pH (S.U.)	-	-	6.0 (Instant Minimum)	-	9.0	25 Pa. Code § 95.2

Monitoring requirements are based on the previous permits monitoring requirements for the facility are displayed in Table 12 below.

Table 12: Monitoring Requirements for IMP 101

Parameter	Sample Type	Minimum Sample Frequency
Flow (MGD)	Measured	2/month
Free Available Chlorine	Grab	2/month
Temperature (°F)	I-S	2/month
Arsenic, total	Grab	2/month
Chromium, total	Grab	2/month
Zinc, total	Grab	2/month
Total Residual Chlorine	Grab	2/month
Total Antimony	Grab	2/month
Total Cadmium	Grab	2/month
Total Copper	Grab	2/month
Dissolved Iron	Grab	2/month
pH (S.U.)	Grab	2/month

Development of Effluent Limitations

Outfall No. 201 **Design Flow (MGD)** 0.0007
Latitude **Longitude**
Wastewater Description: Stormwater associated with industrial activity and low volume wastewater after treatment through an oil/ water separator.

IMP 201 discharges stormwater runoff from diked areas around the equipment skids and oil storage tank and low volume process wastewater after treatment through an oil/ water separator.

Technology-Based Limitations

Gans Generating Facility is a simple-cycle combustion turbine generation plant and not a steam electric generating facility. While industrial activities are not reflect Federal Effluent Guidelines (ELGs), anti-backsliding and BPJ support the continued use of technology-based effluent limitation established in 40 CFR § 423 – Steam Electric Power Generating Point Source Category (NSPS).

Regulatory Effluent Standards and Monitoring Requirements

Flow monitoring is required pursuant to 25 Pa. Code § 92a.61(d)(1) as indicated in Table 10.

Effluent standards for pH pursuant to 25 Pa. Code §§ 95.2(1), as indicated in Table 13, are also imposed on all industrial wastes.

Table 13: Regulatory Effluent Standards

Parameter	Monthly Average	Daily Maximum	IMAX
Flow (MGD)	Monitor	Monitor	----
pH (S.U.)	Not less than 6.0 nor greater than 9.0 at all times		----

Best Practicable Control Technology Currently Achievable (BPT)

BPT for discharges from low volume process wastewater are subject to effluent limits in accordance with the regulations in 40 CFR § 423 – Steam Electric Power Generating Point Source Category (NSPS). The technology-based effluent limits from 40 CFR § 423.15 (a)(3) proposed at IMP 201 are listed in Table 14.

Table 14: Technology Effluent Limitations for Low Volume Waste Sources

Parameters	Average Monthly ($^{mg}/_{L}$)	Maximum Daily ($^{mg}/_{L}$)
Total Suspended Solids*	30.0	100.0
Oil and Grease	15.0	20.0
pH (S.U.)*	Between 6.0 – 9.0	

*From 40 CFR § 423.15 (a)(3)

Total Dissolved Solids (TDS)

The total dissolved solids (TDS) concentration at Outfall 201 is 85 $^{mg}/_{L}$. Per *Policy and Procedure for NPDES Permitting of Discharges of Total Dissolved Solids (TDS) – 25 Pa. Code §95.10 (DEP-ID: 385-2100-002)*, a monitoring requirement for TDS for any discharge that exceeds 1,000 $^{mg}/_{L}$ TDS should be applied at minimum. Since the TDS discharge concentration is below 1,000 $^{mg}/_{L}$, no monitoring/limit requirements will be applied for TDS or its constituent parameters.

Water Quality-Based Effluent Limitations (WQBELs)

Toxics Management Analysis

WQBELs are designed to protect water quality by ensuring that water quality standards are met in the receiving water. 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:

3. 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.

4. 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.

The Discharge from Outfall 201 is evaluated based on concentrations reported on the application data are used as inputs into the TMS. A summary of TMS Inputs is contained in Table 15 below.

Table 15. TMS Inputs

Parameter	Value
Discharge Inputs	
Facility	Gans Power Station
Evaluation Type	Industrial
NPDES Permit No.	PA0218464
Wastewater Description	Low Volume Wastewater
Outfall ID	201
Design Flow (MGD)	0.0007
Hardness ($^{mg}/_{L}$)	610
pH (S.U.)	8.5
Partial Mix Factors	Unknown – Calculated by TMS
Complete Mix Times	
Q_{7-10} (min)	
Q_h (min)	
Stream Inputs	
Receiving Surface Water	Grassy Run
Number of Reaches to Model	1
Stream Code	041891
RMI	1.65
Elevation (ft)	894/893*
Drainage Area (mi^2)	4.49
Slope (ft/ft)	
PWS Withdrawal (MGD)	0.504
Apply Fish Criteria	Yes
Low Flow Yield (cfs/mi^2)	
Flows	
Stream (cfs)	0.0501
Tributary (cfs)	N/A
Width (ft)	
Stream Hardness ($^{mg}/_{L}$)	
Stream pH (S.U.)	

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

Table 16 below, is a summary of the recommendations of the TMS at Outfall 101. Analysis Report from the TMS run is included in Attachment B.

Table 16: TMS Model WQBELs

Parameter	Mass Load (lbs/day)		Concentration Limit (ug/L)	
	Average Monthly	Maximum Daily	Average Monthly	Maximum Daily
Total Zinc	Report	Report	Report	Report
Total Cadmium	Report	Report	Report	Report
Total Copper	-	-	467	729

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 of IMP201.

The current effluent limitations at Outfall 201 are summarized in Table 17.

Table 17: Current Permit Effluent Limits – IMP 201

Parameter	Mass Limits ($^{lbs.}/_{day}$)		Concentration Limits ($^{mg}/_{L}$)			Monitoring Frequency
	Average Monthly	Maximum Daily	Average Monthly	Maximum Daily	Instantaneous Maximum	
Flow (MGD)	Report	Report	-	-	-	2/month
Total Suspended Solids	-	-	30.0	100.0	-	2/month
Oil and Grease	-	-	15.0	20.0	-	2/month
pH (S.U.)	-	-	Between 6.0 and 9.0		-	2/month

Effluent Limitations and Monitoring Requirements for Outfall 101

Interim Effluent limits applicable at Outfall 201 are the more stringent of TBELs, regulatory effluent standards, previously permitted effluent limits and the monitoring requirements are summarized in Table 18.

Table 18: Proposed Interim Effluent limits and Monitoring Requirements for IMP 101

Parameter	Mass Loading ($^{lbs.}/_{day}$)		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 Cadmium	-	-	Report	Report	-	25 Pa. Code § 93.7
Total Copper	-	-	Report	Report	-	25 Pa. Code § 93.7
Total Zinc	-	-	Report	Report	-	25 Pa. Code § 93.7
TSS	-	-	30.0	100.0	-	40 CFR § 423
Oil and Grease	-	-	15.0	20.0	-	40 CFR § 423
pH (S.U.)	-	-	6.0 (Instant Minimum)	-	9.0	40 CFR § 423

Final Effluent limits applicable at Outfall 201 are the more stringent of TBELs, regulatory effluent standards, previously permitted effluent limits and the monitoring requirements are summarized in Table 19.

Table 19: Proposed Final Effluent limits and Monitoring Requirements for IMP 101

Parameter	Mass Loading ($^{lbs.}/_{day}$)		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 Cadmium	-	-	Report	Report	-	25 Pa. Code § 93.7
Total Copper($^{\mu g}/_{L}$)	-	-	467.0	729.0	-	25 Pa. Code § 93.7
Total Zinc	-	-	Report	Report	-	25 Pa. Code § 93.7
TSS	-	-	30.0	100.0	-	40 CFR § 423
Oil and Grease	-	-	15.0	20.0	-	40 CFR § 423
pH (S.U.)	-	-	6.0 (Instant Minimum)	-	9.0	40 CFR § 423

Monitoring requirements are based on the previous permits monitoring requirements for the facility are displayed in Table 20 below.

Table 20: Monitoring Requirements for IMP 101

Parameter	Sample Type	Minimum Sample Frequency
Flow (MGD)	Measured	2/month
Total Cadmium	Grab	2/month
Total Copper	Grab	2/month
Total Zinc	Grab	2/month
TSS	Grab	2/month
Oil and Grease	Grab	2/month
pH (S.U.)	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 **D**)
☐	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:

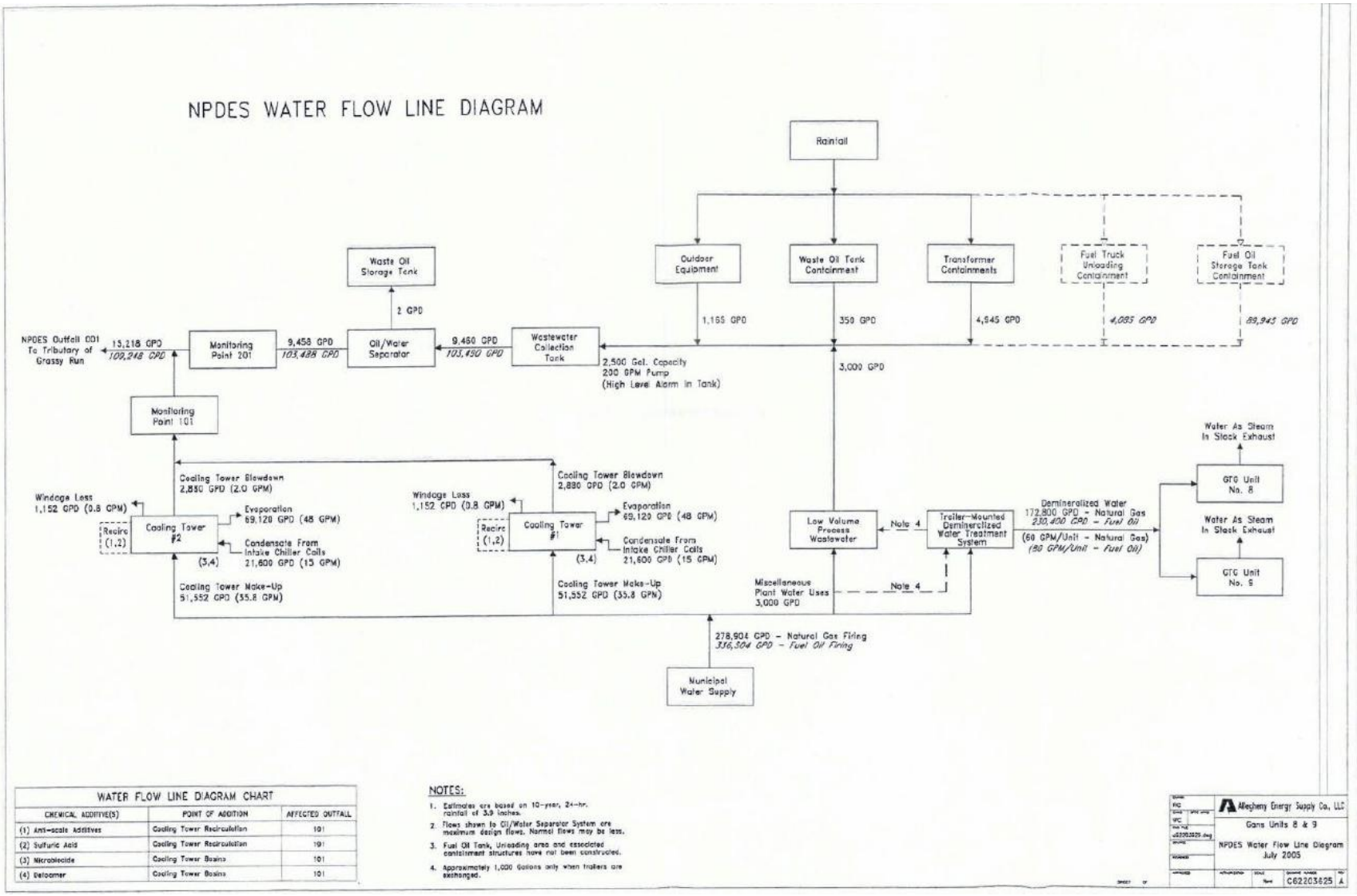
Attachment A –Water Flow Diagram and Site Plan

Attachment B -TMS Model Output

Attachment C - TRC Model

Attachment D – Thermal Model

Attachment A –Water Flow Diagram and Site Plan



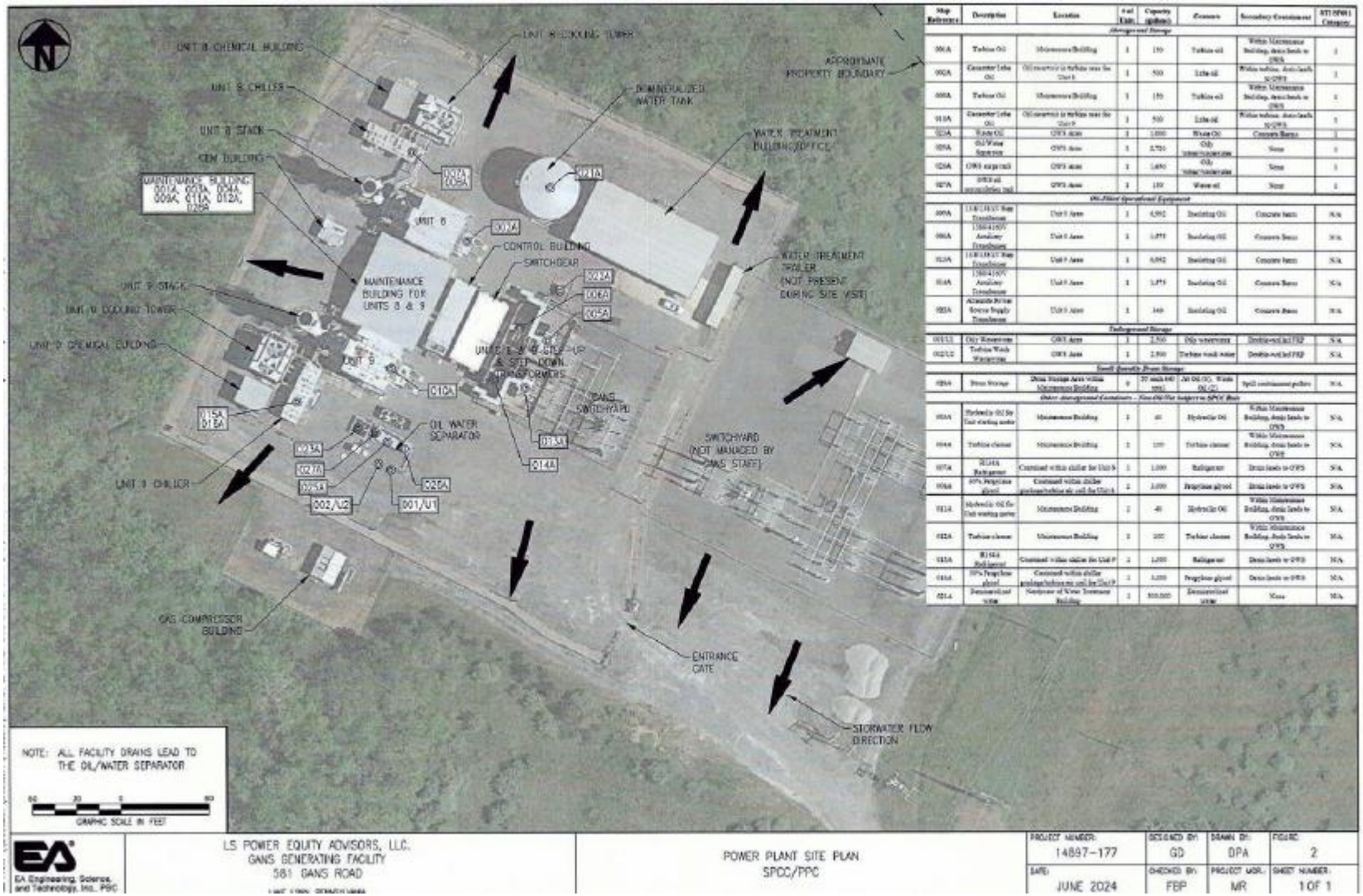
WATER FLOW LINE DIAGRAM CHART		
CHEMICAL ADDITIVE(S)	POINT OF ADDITION	AFFECTED OUTFALL
(1) Anti-scale Additives	Cooling Tower Recirculation	101
(2) Sulfuric Acid	Cooling Tower Recirculation	101
(3) Microbiocide	Cooling Tower Basins	101
(4) Defoamer	Cooling Tower Basins	101

NOTES:

1. Estimates are based on 10-year, 24-hr. rainfall of 3.9 inches.
2. Flows shown to Oil/Water Separator System are maximum design flows. Normal flows may be less.
3. Fuel Oil Tank, Unloading area and associated containment structures have not been constructed.
4. Approximately 1,000 Gallons only when trailers are exchanged.

Allegheny Energy Supply Co., LLC
Gans Units 8 & 9
NPDES Water Flow Line Diagram
July 2005
C62203625 A


APPROXIMATE PROPERTY BOUNDARY
Gans Road
OUTFALL (APPROX. LOCATION)
Gans Road


UNIT 8 CHEMICAL BUILDING
UNIT 8 COOLING TOWER
APPROXIMATE PROPERTY BOUNDARY
UNIT 8 CHILLER
DEMINERALIZED WATER TANK
UNIT 8 STACK
WATER TREATMENT BUILDING/OFFICE
GEN BUILDING
MAINTENANCE BUILDING 001A, 005A, 004A, 009A, 011A, 012A, 026A
UNIT 8
CONTROL BUILDING
SWITCHGEAR
WATER TREATMENT TRAILER (NOT PRESENT DURING SITE VISIT)
MAINTENANCE BUILDING FOR UNITS 8 & 9
UNIT 9 STACK
UNIT 9 COOLING TOWER
UNIT 9 CHEMICAL BUILDING
UNIT 8 & 9 STEP-UP & STEP-DOWN TRANSFORMERS
UNIT 9
GANS SWITCHYARD
SWITCHYARD (NOT MANAGED BY GANS STAFF)
OIL WATER SEPARATOR
UNIT 9 CHILLER
GAS COMPRESSOR BUILDING
ENTRANCE GATE
STORMWATER FLOW DIRECTION
NOTE: ALL FACILITY DRAINS LEAD TO THE OIL/WATER SEPARATOR
GRAPHIC SCALE IN FEET
EA Engineering, Science, and Technology, Inc., PBC
LS POWER EQUITY ADVISORS, LLC.
GANS GENERATING FACILITY
581 GANS ROAD
POWER PLANT SITE PLAN
SPCC/PPC
PROJECT NUMBER: 14897-177
DESIGNED BY: GD
DRAWN BY: DPA
FIGURE: 2
DATE: JUNE 2024
CHECKED BY: FBP
PROJECT MGR.: MR
SHEET NUMBER: 1 OF 1

Attachment B -TMS Model Output
IMP 101
IMP201

IMP 101

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: **Gans Power Station** NPDES Permit No.: **PA0218464** Outfall No.: **101**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **NCCW**

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
0.0033	710	8.5						

					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		110									
	Chloride (PWS)	mg/L		168									
	Bromide	mg/L	<	1									
	Sulfate (PWS)	mg/L		704									
	Fluoride (PWS)	mg/L		3.55									
Group 2	Total Aluminum	µg/L		79									
	Total Antimony	µg/L		9.9									
	Total Arsenic	µg/L	<	5									
	Total Barium	µg/L		400									
	Total Beryllium	µg/L	<	1									
	Total Boron	µg/L		590									
	Total Cadmium	µg/L	<	2.4									
	Total Chromium (III)	µg/L	<	5									
	Hexavalent Chromium	µg/L	<										
	Total Cobalt	µg/L	<	0.86									
	Total Copper	µg/L		800									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L	<										
	Dissolved Iron	µg/L		790									
	Total Iron	µg/L		1400									
	Total Lead	µg/L	<	1									
	Total Manganese	µg/L		93									
	Total Mercury	µg/L	<	0.2									
	Total Nickel	µg/L		5.9									
	Total Phenols (Phenolics) (PWS)	µg/L	<	9.3									
	Total Selenium	µg/L	<	5									
	Total Silver	µg/L	<	1									
	Total Thallium	µg/L	<	1									
	Total Zinc	mg/L		1600									
	Total Molybdenum	µg/L		340									
	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												

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Toxics Management Spreadsheet
Version 1.4, May 2023

Stream / Surface Water Information

Gans Power Station, NPDES Permit No. PA0218464, Outfall 101

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Gassy 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	041891	1.65	894	4.49			Yes
End of Reach 1	041891	1	893	4.5			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	1.65	0.1	0.0501		10							100	7		
End of Reach 1	1	0.1	0.0501		10										

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	1.65														
End of Reach 1	1														

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Toxics Management Spreadsheet
Version 1.4, May 2023

Model Results

Gans Power Station, NPDES Permit No. PA0218464, Outfall 101

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

☑ ***Hydrodynamics***

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

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)
1.65	0.05		0.05	0.005	0.00029	0.364	3.645	10.	0.024	1.687	3.993
1	0.05		0.05					10.000			

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)
1.65	0.54		0.54	0.005	0.00029	1.001	3.645	3.643	0.085	0.467	1.046
1	0.543		0.54								

☑ ***Wasteload Allocations***

☑ *AFC* CCT (min): 3.993 PMF: 1 Analysis Hardness (mg/l): 156.41 Analysis pH: 7.04

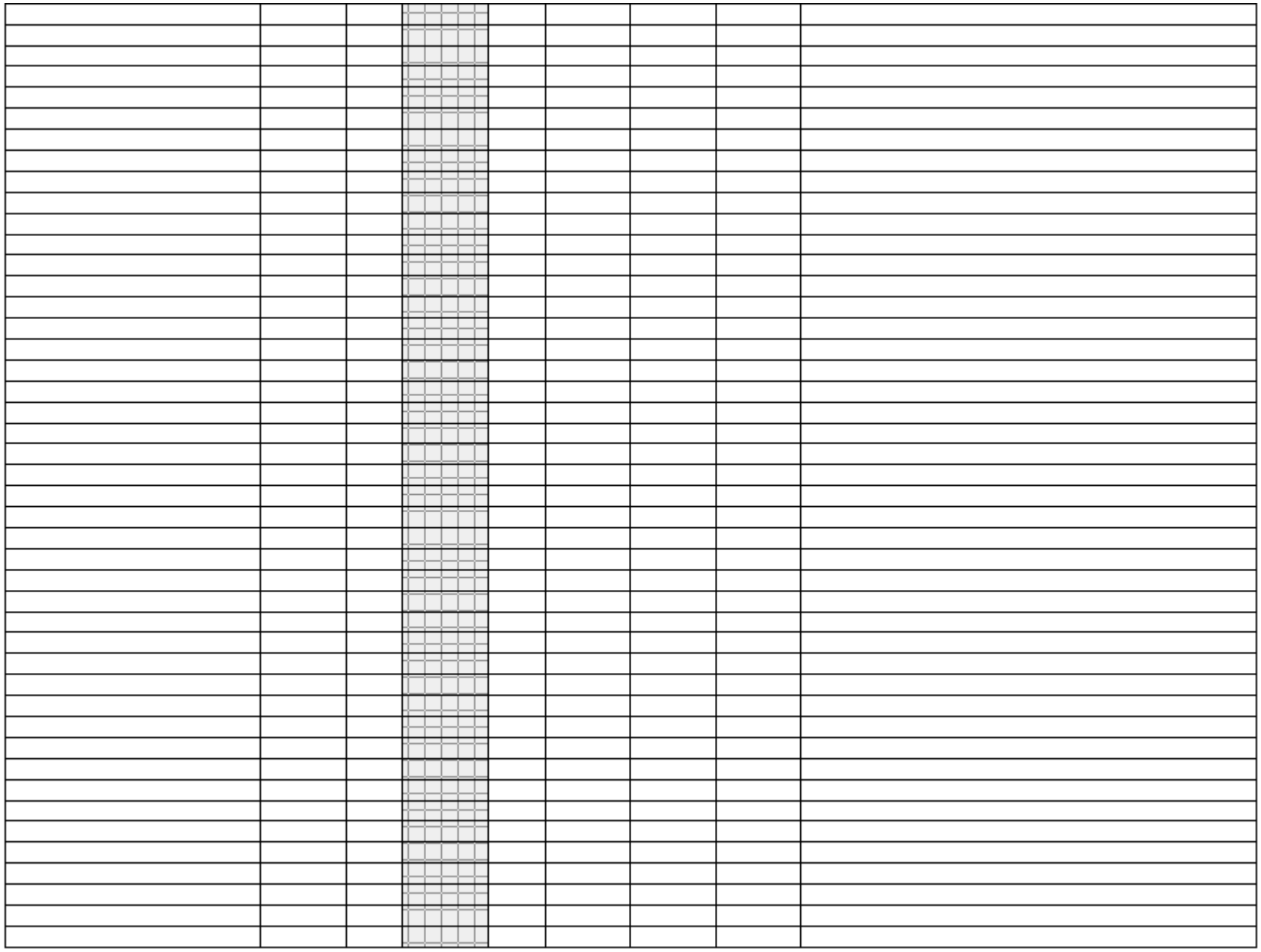
Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	8,110	
Total Antimony	0	0		0	1,100	1,100	11,895	
Total Arsenic	0	0		0	340	340	3,677	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	227,088	
Total Boron	0	0		0	8,100	8,100	87,591	
Total Cadmium	0	0		0	3.110	3.36	36.3	Chem Translator of 0.925 applied
Total Chromium (III)	0	0		0	821.858	2,601	28,124	Chem Translator of 0.316 applied
Total Cobalt	0	0		0	95	95.0	1,027	
Total Copper	0	0		0	20.484	21.3	231	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	104.727	144	1,560	Chem Translator of 0.726 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	17.8	Chem Translator of 0.85 applied
Total Nickel	0	0		0	683.616	685	7,407	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	6.943	8.17	88.3	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	703	
Total Zinc	0	0		0	171.181	175	1,893	Chem Translator of 0.978 applied

☑ *CFC* CCT (min): 3.993 PMF: 1 Analysis Hardness (mg/l): 156.41 Analysis pH: 7.04

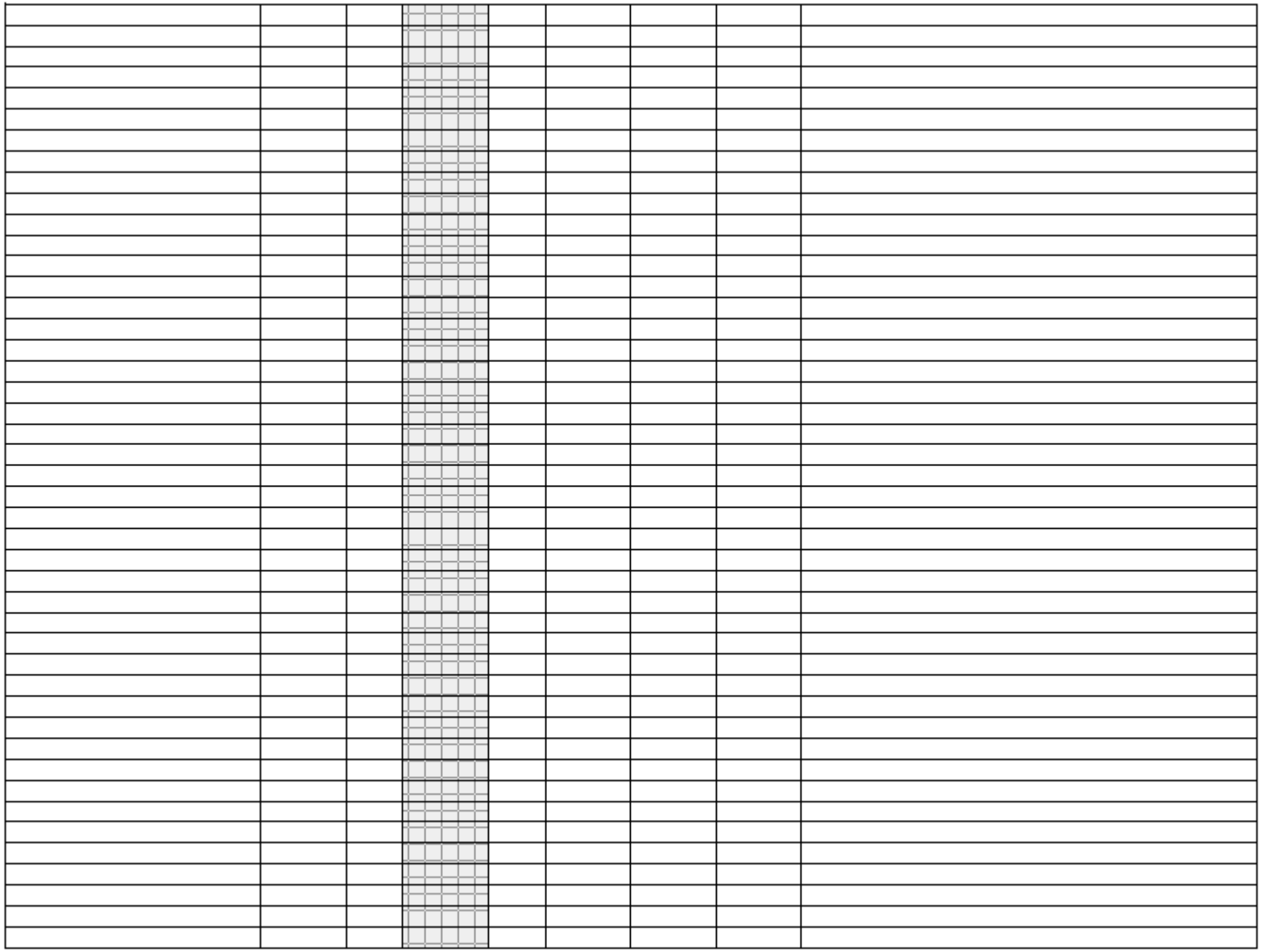
Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	

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	2,379	
Total Arsenic	0	0		0	150	150	1,622	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	44,336	
Total Boron	0	0		0	1,600	1,600	17,302	
Total Cadmium	0	0		0	0.336	0.38	4.08	Chem Translator of 0.89 applied
Total Chromium (III)	0	0		0	106.907	124	1,344	Chem Translator of 0.86 applied
Total Cobalt	0	0		0	19	19.0	205	
Total Copper	0	0		0	13.125	13.7	148	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	16,221	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	4.081	5.62	60.8	Chem Translator of 0.726 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	9.8	Chem Translator of 0.85 applied
Total Nickel	0	0		0	75.929	76.2	824	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	54.0	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	141	
Total Zinc	0	0		0	172.581	175	1,893	Chem Translator of 0.986 applied



☑ ***THH*** CCT (min): 3.993 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

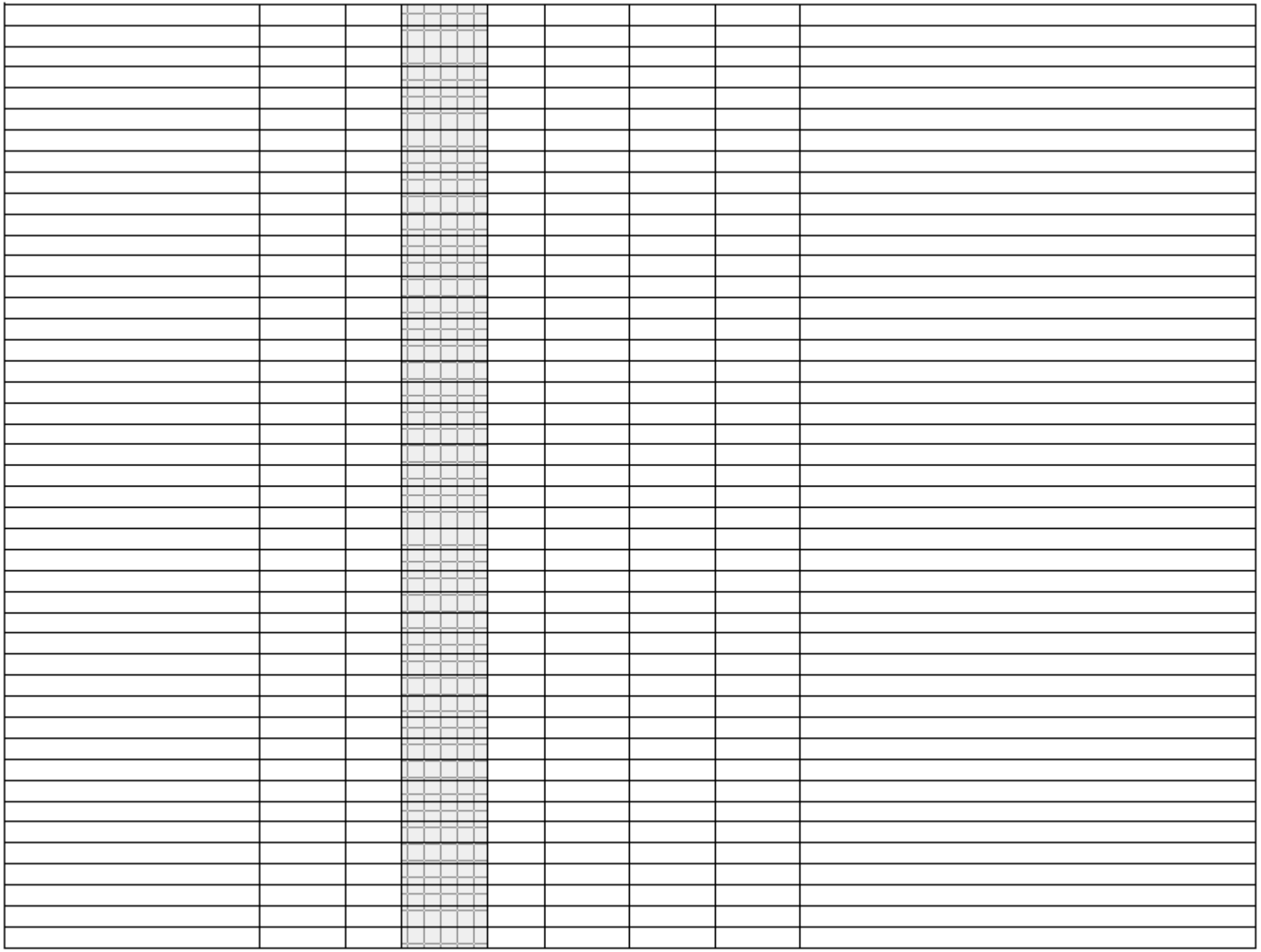
Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	500,000	500,000	N/A	
Chloride (PWS)	0	0		0	250,000	250,000	N/A	
Sulfate (PWS)	0	0		0	250,000	250,000	N/A	
Fluoride (PWS)	0	0		0	2,000	2,000	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	60.6	
Total Arsenic	0	0		0	10	10.0	108	
Total Barium	0	0		0	2,400	2,400	25,953	
Total Boron	0	0		0	3,100	3,100	33,523	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	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	3,244	
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	10,814	
Total Mercury	0	0		0	0.050	0.05	0.54	
Total Nickel	0	0		0	610	610	6,596	
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	2.6	
Total Zinc	0	0		0	N/A	N/A	N/A	



☑ *CRL* CCT (min): 1.046 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	
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 Antimony	Report	Report	Report	Report	Report	µg/L	60.6	THH	Discharge Conc > 10% WQBEL (no RP)
Total Cadmium	0.0001	0.0002	4.08	6.36	10.2	µg/L	4.08	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Copper	0.004	0.006	148	231	370	µg/L	148	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Dissolved Iron	Report	Report	Report	Report	Report	µg/L	3,244	THH	Discharge Conc > 10% WQBEL (no RP)
Total Zinc	0.033	0.052	1.21	1.89	3.03	mg/L	1.21	AFC	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
Fluoride (PWS)	N/A	N/A	PWS Not Applicable
Total Aluminum	5,198	µg/L	Discharge Conc ≤ 10% WQBEL
Total Arsenic	108	µg/L	Discharge Conc ≤ 10% WQBEL
Total Barium	25,953	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	17,302	µg/L	Discharge Conc ≤ 10% WQBEL

Total Chromium (III)	1,344	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cobalt	205	µg/L	Discharge Conc < TQL
Total Iron	16,221	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	60.8	µg/L	Discharge Conc < TQL
Total Manganese	10,814	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	0.54	µg/L	Discharge Conc < TQL
Total Nickel	824	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Selenium	54.0	µg/L	Discharge Conc < TQL
Total Silver	56.6	µg/L	Discharge Conc ≤ 10% WQBEL
Total Thallium	2.6	µg/L	Discharge Conc < TQL
Total Molybdenum	N/A	N/A	No WQS

IMP 201

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: **Gans Power Station** NPDES Permit No.: **PA0218464** Outfall No.: **201**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Low Volume Wastewater**

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
0.0007	610	8.5						

					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		940									
	Chloride (PWS)	mg/L		138									
	Bromide	mg/L	<	0.1									
	Sulfate (PWS)	mg/L		379									
	Fluoride (PWS)	mg/L		3.17									
Group 2	Total Aluminum	µg/L		55									
	Total Antimony	µg/L		9.3									
	Total Arsenic	µg/L	<	1.9									
	Total Barium	µg/L		310									
	Total Beryllium	µg/L	<	1									
	Total Boron	µg/L		200									
	Total Cadmium	µg/L	<	1.7									
	Total Chromium (III)	µg/L											
	Hexavalent Chromium	µg/L	<										
	Total Cobalt	µg/L	<	0.22									
	Total Copper	µg/L		570									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L	<	0.01									
	Dissolved Iron	µg/L		790									
	Total Iron	µg/L		1100									
	Total Lead	µg/L	<	1									
	Total Manganese	µg/L		73									
	Total Mercury	µg/L	<	0.2									
	Total Nickel	µg/L		3.8									
	Total Phenols (Phenolics) (PWS)	µg/L	<	0.01									
	Total Selenium	µg/L	<	3.2									
	Total Silver	µg/L	<	1									
	Total Thallium	µg/L	<	1									
	Total Zinc	µg/L		1400									
	Total Molybdenum	µg/L		340									
	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												

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Toxics Management Spreadsheet
Version 1.4, May 2023

Stream / Surface Water Information

Gans Power Station, NPDES Permit No. PA0218464, Outfall 201

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Gassy Run**

No. Reaches to Model: **1**

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

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	041891	1.65	894	4.49			Yes
End of Reach 1	041891	1	893	4.5			Yes

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

Location	RMI	LFY (cfs/mi²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	1.65	0.1	0.0501		10							100	7		
End of Reach 1	1	0.1	0.0501		10										

Q_h

Location	RMI	LFY (cfs/mi²)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	1.65														
End of Reach 1	1														

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Toxics Management Spreadsheet
Version 1.4, May 2023

Model Results

Gans Power Station, NPDES Permit No. PA0218464, Outfall 201

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

☑ ***Hydrodynamics***

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

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)
1.65	0.05		0.05	0.001	0.00029	0.36	3.604	10.	0.023	1.76	4.619
1	0.05		0.05					10.000			

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)
1.65	0.54		0.54	0.001	0.00029	1.02	3.604	3.535	0.085	0.468	1.009
1	0.543		0.54								

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 4.619 PMF: 1 Analysis Hardness (mg/l): 110.79 Analysis pH: 7.01

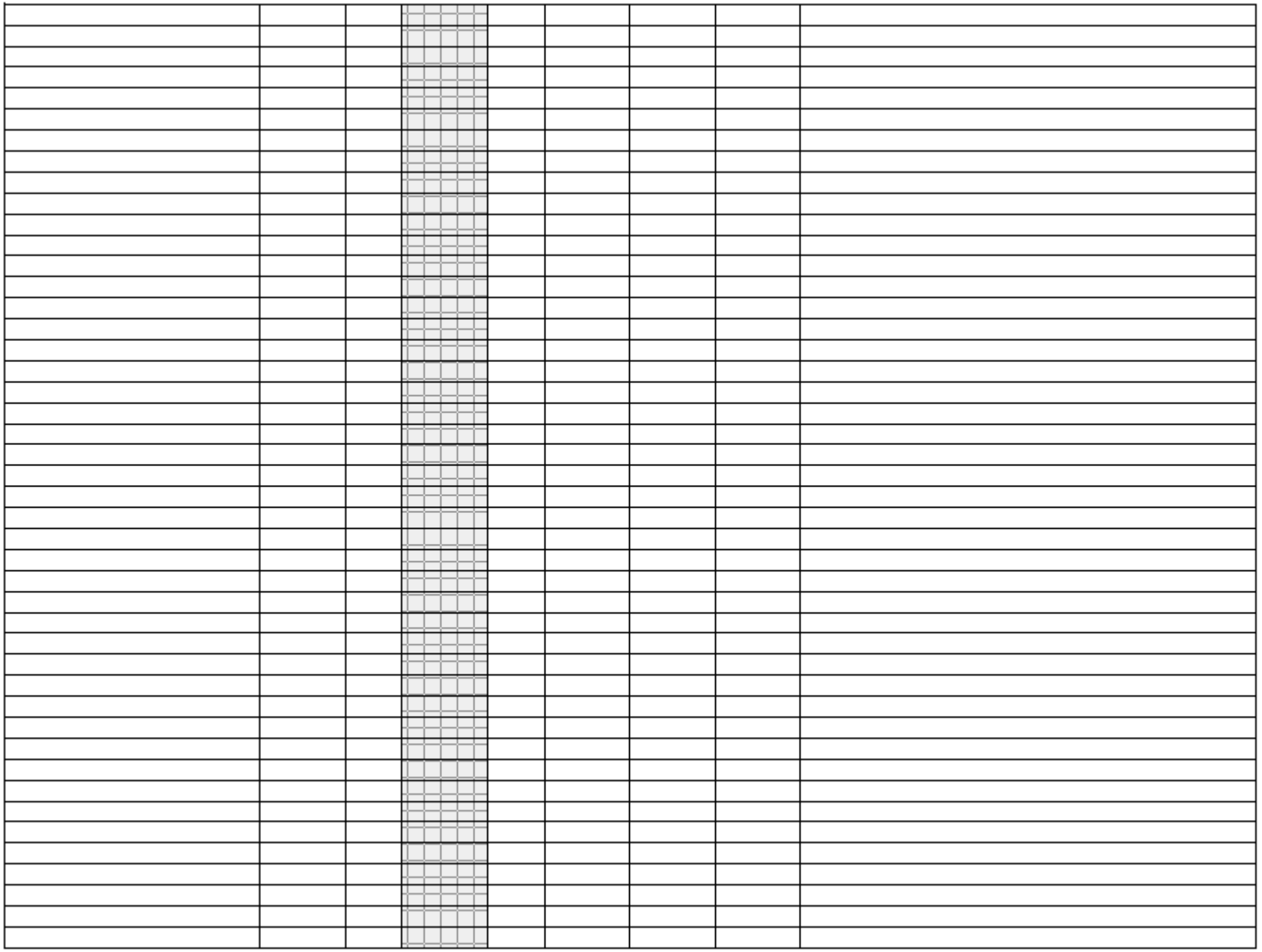
Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	35,448	
Total Antimony	0	0		0	1,100	1,100	51,991	
Total Arsenic	0	0		0	340	340	16,070	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	992,558	
Total Boron	0	0		0	8,100	8,100	382,844	
Total Cadmium	0	0		0	2.225	2.37	112	Chem Translator of 0.94 applied
Total Cobalt	0	0		0	95	95.0	4,490	
Total Copper	0	0		0	14.801	15.4	729	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	72.191	93.0	4,397	Chem Translator of 0.776 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	77.8	Chem Translator of 0.85 applied
Total Nickel	0	0		0	510.638	512	24,183	Chem Translator of 0.998 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	Chem Translator of 0.922 applied
Total Silver	0	0		0	3.837	4.51	213	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	3,072	
Total Zinc	0	0		0	127.809	131	6,177	Chem Translator of 0.978 applied

☑ *CFC* CCT (min): 4.619 PMF: 1 Analysis Hardness (mg/l): 110.79 Analysis pH: 7.01

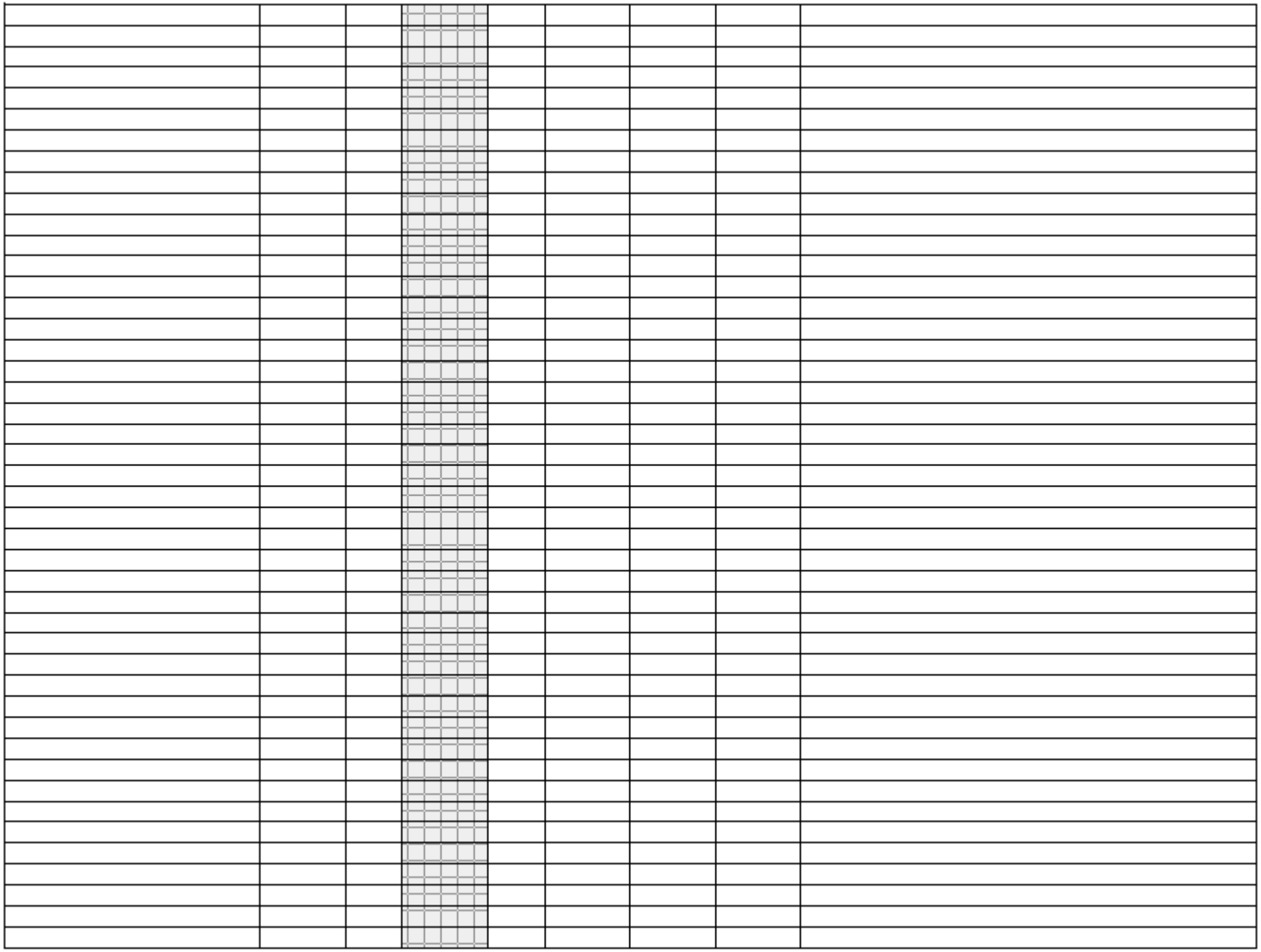
Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	

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	10,398	
Total Arsenic	0	0		0	150	150	7,090	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	193,785	
Total Boron	0	0		0	1,600	1,600	75,623	
Total Cadmium	0	0		0	0.264	0.29	13.8	Chem Translator of 0.905 applied
Total Cobalt	0	0		0	19	19.0	898	
Total Copper	0	0		0	9.775	10.2	481	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	70,897	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.813	3.62	171	Chem Translator of 0.776 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	42.8	Chem Translator of 0.85 applied
Total Nickel	0	0		0	56.716	56.9	2,689	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	236	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	614	
Total Zinc	0	0		0	128.854	131	6,177	Chem Translator of 0.986 applied



☑ ***THH*** CCT (min): 4.619 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

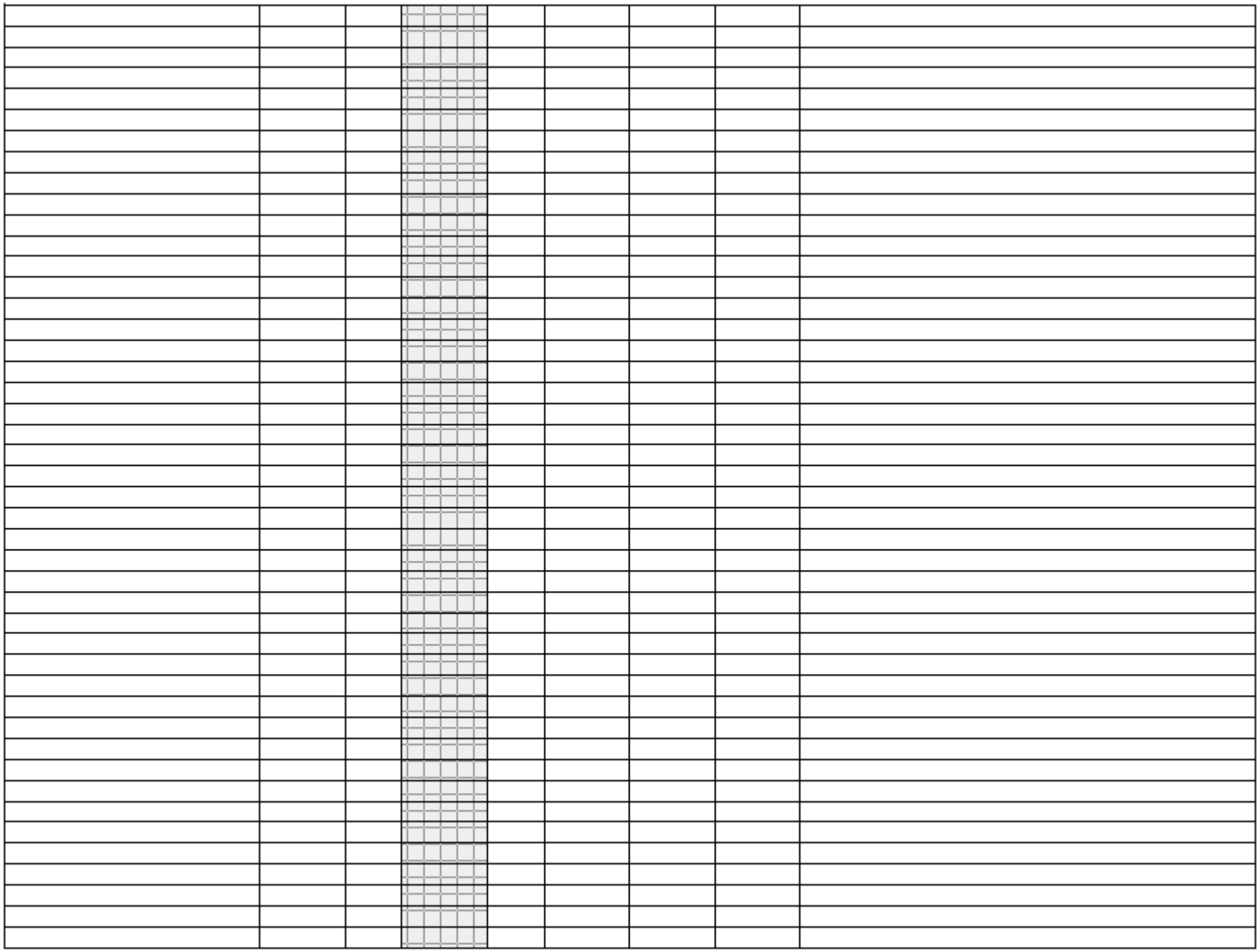
Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	500,000	500,000	N/A	
Chloride (PWS)	0	0		0	250,000	250,000	N/A	
Sulfate (PWS)	0	0		0	250,000	250,000	N/A	
Fluoride (PWS)	0	0		0	2,000	2,000	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	265	
Total Arsenic	0	0		0	10	10.0	473	
Total Barium	0	0		0	2,400	2,400	113,435	
Total Boron	0	0		0	3,100	3,100	146,520	
Total Cadmium	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	14,179	
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	47,265	
Total Mercury	0	0		0	0.050	0.05	2.36	
Total Nickel	0	0		0	610	610	28,831	
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	11.3	
Total Zinc	0	0		0	N/A	N/A	N/A	



☑ *CRL* CCT (min): 1.009 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 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 Cadmium	Report	Report	Report	Report	Report	µg/L	13.8	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Copper	0.003	0.004	467	729	1,168	µg/L	467	AFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Zinc	Report	Report	Report	Report	Report	µg/L	3,959	AFC	Discharge Conc > 10% WQBEL (no RP)

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

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

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Chloride (PWS)	N/A	N/A	PWS Not Applicable
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	N/A	N/A	PWS Not Applicable
Fluoride (PWS)	N/A	N/A	PWS Not Applicable
Total Aluminum	22,721	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	265	µg/L	Discharge Conc ≤ 10% WQBEL
Total Arsenic	N/A	N/A	Discharge Conc < TQL
Total Barium	113,435	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS

Total Boron	75,623	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cobalt	898	µg/L	Discharge Conc < TQL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	14,179	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	70,897	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	171	µg/L	Discharge Conc < TQL
Total Manganese	47,265	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	2.36	µg/L	Discharge Conc < TQL
Total Nickel	2,689	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	Discharge Conc < TQL
Total Selenium	236	µg/L	Discharge Conc < TQL
Total Silver	137	µg/L	Discharge Conc ≤ 10% WQBEL
Total Thallium	11.3	µg/L	Discharge Conc < TQL
Total Molybdenum	N/A	N/A	No WQS

Attachment C - TRC Model

TRC EVALUATION - IMP101

0.0501	= Q stream (cfs)	0.5	= CV Daily
0.0033	= 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	0	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value	0	= 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 = 3.150	**1.3.2.iii**	WLA cfc = 3.063
PENTOXSD TRG	**5.1a**	LTAMULT afc = 0.373	**5.1c**	LTAMULT cfc = 0.581
PENTOXSD TRG	**5.1b**	LTA_afc= 1.174	**5.1d**	LTA_cfc = 1.781

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.720	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.500	BAT/BPJ
		INST MAX LIMIT (mg/l) = 1.170	

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 – Thermal Model

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Instructions | *Inputs*

Facility: **Gans Power Station**

Permit No.: **PA0218464**

Stream Name: **Grassy Run**

Analyst/Engineer: **Curt Holes**

Stream Q7-10 (cfs)*: **0.1**

Outfall No.: **001**

Analysis Type*: **WWF**

Facility Flows

Semi-Monthly Increment	Intake (Stream) (MGD)*	Intake (External) (MGD)*	Consumptive Loss (MGD)*	Discharge Flow (MGD)
Jan 1-31		0.011		0.011
Feb 1-29		0.011		0.011
Mar 1-31		0.011		0.011
Apr 1-15		0.011		0.011
Apr 16-30		0.011		0.011
May 1-15		0.011		0.011
May 16-31		0.011		0.011
Jun 1-15		0.011		0.011
Jun 16-30		0.011		0.011
Jul 1-31		0.011		0.011
Aug 1-15		0.011		0.011
Aug 16-31		0.011		0.011
Sep 1-15		0.011		0.011
Sep 16-30		0.011		0.011
Oct 1-15		0.011		0.011
Oct 16-31		0.011		0.011
Nov 1-15		0.011		0.011
Nov 16-30		0.011		0.011
Dec 1-31		0.011		0.011

Stream Flows

Q7-10 Multipliers (Default Shown)	PMF	Seasonal Stream Flow (cfs)	Downstream Stream Flow (cfs)
3.2	1.00	0.16	0.18
3.5	1.00	0.18	0.19
7	1.00	0.35	0.37
9.3	1.00	0.47	0.48
9.3	1.00	0.47	0.48
5.1	1.00	0.26	0.27
5.1	1.00	0.26	0.27
3	1.00	0.15	0.17
3	1.00	0.15	0.17
1.7	1.00	0.09	0.10
1.4	1.00	0.07	0.09
1.4	1.00	0.07	0.09
1.1	1.00	0.06	0.07
1.1	1.00	0.06	0.07
1.2	1.00	0.06	0.08
1.2	1.00	0.06	0.08
1.6	1.00	0.08	0.10
1.6	1.00	0.08	0.10
2.4	1.00	0.12	0.14

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Thermal Limits Spreadsheet
Version 1.0, April 2024

Instructions | *WWF Results*

Recommended Limits for Case 1 or Case 2

Semi-Monthly Increment	**WWF** Target Maximum Stream Temp. (°F)	**Case 1** Daily WLA (Million BTUs/day)	**Case 2** Daily WLA (°F)
Jan 1-31	40	N/A -- Case 2	87.1
Feb 1-29	40	N/A -- Case 2	91.5
Mar 1-31	46	N/A -- Case 2	110.0
Apr 1-15	52	N/A -- Case 2	110.0
Apr 16-30	58	N/A -- Case 2	110.0
May 1-15	64	N/A -- Case 2	110.0
May 16-31	72	N/A -- Case 2	110.0
Jun 1-15	80	N/A -- Case 2	110.0
Jun 16-30	84	N/A -- Case 2	110.0
Jul 1-31	87	N/A -- Case 2	110.0
Aug 1-15	87	N/A -- Case 2	110.0
Aug 16-31	87	N/A -- Case 2	110.0
Sep 1-15	84	N/A -- Case 2	110.0
Sep 16-30	78	N/A -- Case 2	110.0
Oct 1-15	72	N/A -- Case 2	110.0
Oct 16-31	66	N/A -- Case 2	108.4
Nov 1-15	58	N/A -- Case 2	105.1
Nov 16-30	50	N/A -- Case 2	87.7
Dec 1-31	42	N/A -- Case 2	77.3