State Pollutant Discharge Elimination System (SPDES) DISCHARGE PERMIT

SIC Code:	**4952**	NAICS Code:	**221320**	SPDES Number:	**NY0026336**
Discharge Class (CL):	**05**			DEC Number:	**9-2911-00056/00004**
Toxic Class (TX):	**T**			Effective Date (EDP):	**EDP**
Major-Sub Drainage Basin:	**01 - 01**			Expiration Date (ExDP):	**ExDP**
Water Index Number:	**O-158**	Item No.:	**837-1**	Modification Dates (EDPM):	
Compact Area:	**IJC**				

This SPDES permit is issued in compliance with Title 8 of Article 17 of the Environmental Conservation Law of New York State and in compliance with the Clean Water Act, as amended, (33 U.S.C. '1251 et.seq.)

PERMITTEE NAME AND ADDRESS					
Name:	**Niagara Falls Water Board**	Attention:	**Director of Technology and Regulatory Services**		
Street:	**5815 Buffalo Avenue**				
City:	**Niagara Falls**	State:	**NY**	Zip Code:	**14304**
Email:	dwilliamson@nfwb.org	Phone:	**(716) 283-9770**		

is authorized to discharge from the facility described below:

FACILITY NAME, ADDRESS, AND PRIMARY OUTFALL														
Name:	**Niagara Falls WWTP**													
Address / Location:	**1200 Buffalo Avenue**										County:	**Niagara**		
City:	**Niagara Falls (C)**					State:	**NY**				Zip Code:	**14304**		
Facility Location:		Latitude:	**43**	°	**04**	’	**59**	” N	& Longitude:	**79**	°	**02**	’	**43** ” W
Primary Outfall No.:	**001**	Latitude:	**43**	°	**05**	’	**20**	” N	& Longitude:	**79**	°	**04**	’	**00** ” W
Outfall Description:	**Treated Sanitary, Industrial, and Stormwaters**	Receiving Water:	**Niagara River**							Class:		**A-Special**		

and the additional outfalls listed in this permit, in accordance with: effluent limitations; monitoring and reporting requirements; other provisions and conditions set forth in this permit; and 6 NYCRR Part 750-1 and 750-2. The co-permittees subject to one or more conditions of this permit are listed on page 2.

This permit and the authorization to discharge shall expire on midnight of the expiration date shown above and the permittee shall not discharge after the expiration date unless this permit has been renewed or extended pursuant to law. To be authorized to discharge beyond the expiration date, the permittee shall apply for permit renewal not less than 180 days prior to the expiration date shown above.

DISTRIBUTION:
CO BWP - Permit Coordinator
CO BWC - SCIS
RWE
RPA
EPA Region II
NYSEFC

Permit Administrator:			
Address:	625 Broadway Albany, NY 12233-1750		
Signature:		Date:	/ /

Contents

SUMMARY OF ADDITIONAL OUTFALLS 3
DEFINITIONS FOR PERMIT LIMITS, LEVELS AND MONITORING TERMS 4
PERMIT LIMITS, LEVELS AND MONITORING 5
BEST MANAGEMENT PRACTICES FOR COMBINED SEWER OVERFLOWS 8
SPECIAL CONDITIONS: CSO CONTROL POLICY 11
STORMWATER POLLUTION PREVENTION REQUIREMENTS 12
MERCURY MINIMIZATION PROGRAM (MMP) - Type I 13
PCB MINIMIZATION PROGRAM - POTWs 16
POLLUTANT MINIMIZATION PROGRAM 17
DISCHARGE NOTIFICATION REQUIREMENTS 18
INDUSTRIAL PRETREATMENT PROGRAM IMPLEMENTATION REQUIREMENTS ..... **Error! Bookmark not defined.**
MONITORING LOCATIONS 22
GENERAL REQUIREMENTS 23
RECORDING, REPORTING AND ADDITIONAL MONITORING REQUIREMENTS 25
F. Schedule of Additional Submittals: 25

SUMMARY OF ADDITIONAL OUTFALLS

Outfall	Wastewater Description	Outfall Latitude	Outfall Longitude
003	Falls Street Tunnel - Combined Sewer Overflow	**43** ° **05** ' **24** " N	**79** ° **04** ' **00** " W
Receiving Water:	**Niagara River**		Class: **A – Special**
Outfall	Wastewater Description	Outfall Latitude	Outfall Longitude
004	Diversion Sewer – Industrial non-contact cooling water and stormwater	**43** ° **05** ' **20** " N	**79** ° **04** ' **00** " W
Receiving Water:	**Niagara River**		Class: **A – Special**
Outfall	Wastewater Description	Outfall Latitude	Outfall Longitude
006	Gorge Pumping Station - Combined Sewer Overflow	**43** ° **05** ' **58** " N	**79** ° **03** ' **38** " W
Receiving Water:	**Niagara River**		Class: **A – Special**
Outfall	Wastewater Description	Outfall Latitude	Outfall Longitude
007	Cleveland Avenue - Combined Sewer Overflow	**43** ° **06** ' **26** " N	**79** ° **03** ' **25** " W
Receiving Water:	**Niagara River**		Class: **A – Special**
Outfall	Wastewater Description	Outfall Latitude	Outfall Longitude
009	Chasm Avenue - Combined Sewer Overflow	**43** ° **06** ' **49** " N	**79** ° **03** ' **33** " W
Receiving Water:	**Niagara River**		Class: **A – Special**
Outfall	Wastewater Description	Outfall Latitude	Outfall Longitude
010	Maple Avenue - Combined Sewer Overflow	**43** ° **07** ' **32** " N	**79** ° **03** ' **35** " W
Receiving Water:	**Niagara River**		Class: **A – Special**
Outfall	Wastewater Description	Outfall Latitude	Outfall Longitude
011	Garfield Avenue - Combined Sewer Overflow	**43** ° **07** ' **56** " N	**79** ° **03** ' **03** " W
Receiving Water:	**Niagara River**		Class: **A – Special**
Outfall	Wastewater Description	Outfall Latitude	Outfall Longitude
01A	**Head of Ice Shaft – Stormwater at WWTP**	Internal	
Outfall	Wastewater Description	Outfall Latitude	Outfall Longitude
02A	**Drop Shaft to International Paper Tunnel – Stormwater at WWTP**	Internal	

DEFINITIONS FOR PERMIT LIMITS, LEVELS AND MONITORING TERMS

TERM	DEFINITION
7-Day Geo Mean	The highest allowable geometric mean of daily discharges over a calendar week.
7-Day Average	The average of all daily discharges for each 7-days in the monitoring period. The sample measurement is the highest of the 7-day averages calculated for the monitoring period.
12-Month Rolling Average (12 MRA)	The current monthly value of a parameter, plus the sum of the monthly values over the previous 11 months for that parameter, divided by 12.
30-Day Geometric Mean	The highest allowable geometric mean of daily discharges over a calendar month, calculated as the antilog of: the sum of the log of each of the daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.
Action Level	Action level means a monitoring requirement characterized by a numerical value that, when exceeded, triggers additional permittee actions and department review to determine if numerical effluent limitations should be imposed.
Compliance Level / Minimum Level	A compliance level is an effluent limitation. A compliance level is given when the water quality evaluation specifies a Water Quality Based Effluent Limit (WQBEL) below the Minimum Level. The compliance level shall be set at the Minimum Level (ML) for the most sensitive analytical method as given in 40 CFR Part 136, or otherwise accepted by the Department.
Daily Discharge	The discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for the purposes of sampling. For pollutants expressed in units of mass, the 'daily discharge' is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the 'daily discharge' is calculated as the average measurement of the pollutant over the day.
Daily Maximum	The highest allowable Daily Discharge.
Daily Minimum	The lowest allowable Daily Discharge.
Effective Date of Permit (EDP or EDPM)	The date this permit is in effect.
Effluent Limitations	Effluent limitation means any restriction on quantities, quality, rates and concentrations of chemical, physical, biological, and other constituents of effluents that are discharged into waters of the state.
Expiration Date of Permit (ExDP)	The date this permit is no longer in effect.
Instantaneous Maximum	The maximum level that may not be exceeded at any instant in time.
Instantaneous Minimum	The minimum level that must be maintained at all instants in time.
Monthly Average	The highest allowable average of daily discharges over a calendar month, calculated as the sum of each of the daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.
Outfall	The terminus of a sewer system, or the point of emergence of any waterborne sewage, industrial waste or other wastes or the effluent therefrom, into the waters of the State.
Range	The minimum and maximum instantaneous measurements for the reporting period must remain between the two values shown.
Receiving Water	The classified waters of the state to which the listed outfall discharges.
Sample Frequency / Sample Type / Units	See NYSDEC's "DMR Manual for Completing the Discharge Monitoring Report for the SPDES" for information on sample frequency, type and units.

PERMIT LIMITS, LEVELS AND MONITORING

OUTFALL	LIMITATIONS APPLY	RECEIVING WATER	EFFECTIVE	EXPIRING
001	All Year	Niagara River	EDP	ExDP

PARAMETER	EFFLUENT LIMITATION					MONITORING REQUIREMENTS				FN
								Location		
	Type	Limit	Units	Limit	Units	Sample Frequency	Sample Type	Inf.	Eff.	
Flow	Monthly Average	48	MGD	-	-	Continuous	Recorder	-	X	-
pH	Range	6.0 – 9.0	SU	-	-	6/day	Grab	-	X	-
Total Organic Carbon, TOC	Monthly Average	-	mg/L	15,200	lbs/d	1/day	24-hr. Comp.	-	X	-
Total Organic Carbon, TOC	7-Day Average	-	mg/L	22,800	lbs/d	1/day	24-hr. Comp.	-	X	-
BOD_5	Monthly Average	30	mg/L	12,000	lbs/d	1/day	24-hr. Comp.	X	X	2
BOD_5	7-Day Average	45	mg/L	18,000	lbs/d	1/day	24-hr. Comp.	-	X	2
BOD_5, Percent Removal	Daily Minimum	85	Percent	-	-	1/day	Calculated	-	X	1,2
Total Suspended Solids (TSS)	Monthly Average	30	mg/L	12,000	lbs/d	1/day	24-hr. Comp.	X	X	-
Total Suspended Solids (TSS)	7-Day Average	45	mg/L	18,000	lbs/d	1/day	24-hr. Comp.	-	X	-
Total Suspended Solids (TSS), Percent Removal	Daily Minimum	85	Percent	-	-	1/day	Calculated	-	X	1
Settleable Solids	Daily Maximum	0.3	mL/L	-	-	6/day	Grab	-	X	-
Total Phosphorus (as P)	Monthly Average	1.0	mg/L	-	-	1/day	24-hr. Comp.	-	X	-
Total Sulfides	Daily Maximum	32	ug/L	13	lbs/d	1/month	24-hr. Comp.	-	X	2
Total Dissolved Solids	Daily Maximum	2,000	mg/L	-	-	1/month	24-hr. Comp.	-	X	-
Ammonia (as N) June 1st – Oct. 31st	Monthly Average	Monitor	mg/L	-	-	1/day	24-hr. Comp.	-	X	-
Ammonia (as N) Nov. 1st – May 31st	Monthly Average	Monitor	mg/L	-	-	1/day	24-hr. Comp.	-	X	-
Color (Apparent)	Daily Maximum	Monitor	PCU	-	-	1/month	Grab	-	X	-
Phenolics, Total	Daily Maximum	5.0	ug/L	4.0	lbs/d	2/month	24-hr. Comp.	-	X	3
Cyanide, Total	Daily Maximum	52	ug/L	-	-	1/month	24-hr. Comp.	-	X	-
α-BHC	Monthly Average	0.01	ug/L	Monitor	lbs/d	1/month	24-hr. Comp.	-	X	3
β-BHC	Monthly Average	0.02	ug/L	Monitor	lbs/d	1/month	24-hr. Comp.	-	X	3
γ-BHC	Monthly Average	0.02	ug/L	Monitor	lbs/d	1/month	24-hr. Comp.	-	X	3
δ-BHC	Monthly Average	0.04	ug/L	Monitor	lbs/d	1/month	24-hr. Comp.	-	X	3
Hexachlorobenzene	Monthly Average	0.20	ug/L	Monitor	lbs/d	1/month	24-hr. Comp.	-	X	3
Mercury	Daily Maximum	50	ng/L	-	-	Monthly	Grab	-	X	-
Mercury	12 MRA	16	ng/L	-	-	Monthly	Calculated	-	X	-
Mirex	Daily Maximum	0.4	ug/L	Monitor	lbs/d	1/month	24-hr. Comp.	-	X	3

PARAMETER	EFFLUENT LIMITATION					MONITORING REQUIREMENTS				FN
								Location		
	Type	Limit	Units	Limit	Units	Sample Frequency	Sample Type	Inf.	Eff.	
PCB-1248	Daily Maximum	0.095	ug/L	Monitor	lbs/d	1/month	24-hr. Comp.	-	X	3
4,4'-DDD	Monthly Average	0.04	ug/L	Monitor	lbs/d	1/month	24-hr. Comp.	-	X	3
4,4'-DDE	Monthly Average	0.02	ug/L	Monitor	lbs/d	1/month	24-hr. Comp.	-	X	3
4,4'-DDT	Monthly Average	0.05	ug/L	Monitor	lbs/d	1/month	24-hr. Comp.	-	X	3
Dieldrin	Monthly Average	0.002	ug/L	-	-	1/month	24-hr. Comp.	-	X	3
Biennial Pollutant Scan	Daily Maximum	Monitor	ug/L	-	-	1/Two Years	24-hr. Comp.	X	X	4

EFFLUENT DISINFECTION Required All Year		Limit	Units	Limit	Units	Sample Frequency	Sample Type	Inf.	Eff.	FN
Coliform, Fecal	30-Day Geometric Mean	200	No./ 100 mL	-	-	1/day	Grab	-	X	-
Coliform, Fecal	7-Day Geometric Mean	400	No./ 100 mL	-	-	1/day	Grab	-	X	-
Chlorine, Total Residual	Daily Maximum	0.05	mg/L	-	-	6/day	Grab	-	X	2,5

WHOLE EFFLUENT TOXICITY (WET) TESTING		Limit	Units	Action Level	Units	Sample Frequency	Sample Type	Inf.	Eff.	FN
WET - Acute Invertebrate	See footnote	2.4	TUa	-	-	Quarterly	See footnote	-	X	6
WET - Acute Vertebrate	See footnote	2.4	TUa	-	-	Quarterly	See footnote	-	X	6
WET - Chronic Invertebrate	See footnote	-	-	10	TUc	Quarterly	See footnote	-	X	6
WET - Chronic Vertebrate	See footnote	-	-	10	TUc	Quarterly	See footnote	-	X	6

FOOTNOTES:

1. Effluent shall not exceed 15% and 15% of influent concentration values for BOD_5 & TSS respectively. During periods of wet weather which causes plant flows over the permitted flow for a calendar day, the BOD_5 and TSS influent and effluent results for that day shall not be used to Calculate 30-day arithmetic mean percent removal limitations. However, all concentrations shall be used in the calculation of the arithmetic mean value concentration limitations. All other effluent limitations remain in full effect.

2. These are final effluent limitations. See Order on Consent R9-202330411-13 for interim effluent limitations. Limitations for these parameters shall become effective when wastewater treatment plant upgrades are complete as specified in Order on Consent R9-202330411-13. See Order on Consent R9-202330411-13 for monitoring frequency and interim effluent limitations.

3. These are final effluent compliance levels. The calculated WQBELs are outlined below. See Order on Consent R9-202330411-13 for interim effluent limitations. Final effluent compliance levels for these parameters shall become effective when wastewater treatment plant upgrades are complete as specified in Order on Consent R9-202330411-13. See Order on Consent R9-202330411-13 for monitoring frequency and interim effluent limitations.

Parameter	Type	WQBEL
α-BHC	Monthly Average	0.002 ug/L
β-BHC	Monthly Average	0.007 ug/L
γ-BHC	Monthly Average	0.008 ug/L
δ-BHC	Monthly Average	0.008 ug/L
Hexachlorobenzene	Monthly Average	3.0E-5 ug/L

Mirex	Daily Maximum	1.0E-3 ug/L
PCB-1248	Monthly Average	1.0E-6 ug/L
4,4'-DDD	Monthly Average	8.0E-5 ug/L
4,4'-DDE	Monthly Average	7.0E-6 ug/L
4,4'-DDT	Monthly Average	1.0E-5 ug/L
Dieldrin	Monthly Average	6.0E-7 ug/L
Total Phenolics	Daily Maximum	1.0 ug/L

4. Biennial Pollutant Scan: The permittee shall perform effluent sampling every two (2) years for all pollutants identified in the NY-2A Application, Tables A - D. Sampling data shall be collected according to the guidance in the NY-2A application and maintained by the permittee. Monitoring results shall not be submitted on the DMR. Data shall be submitted with the next submission of the NY-2A form.

5. Effluent limitation for Total Residual Chlorine is only applicable if chlorine is used for disinfection or other treatment processes.

6. **Whole Effluent Toxicity (WET) Testing:**

   Testing Requirements – Chronic WET testing is required, but report both the acute and chronic results. Testing shall be performed in accordance with 40 CFR Part 136 and TOGS 1.3.2 unless prior written approval has been obtained from the Department. The test species shall be Ceriodaphnia dubia (water flea - invertebrate) and Pimephales promelas (fathead minnow - vertebrate). Receiving water collected upstream from the discharge should be used for dilution. All tests conducted should be static-renewal (two 24-hr composite samples with one renewal for Acute tests and three 24-hr composite samples with two renewals for Chronic tests). The appropriate dilution series should be used to generate a definitive test endpoint, otherwise an immediate rerun of the test may be required. WET testing shall be coordinated with the monitoring of chemical and physical parameters limited by this permit so that the resulting analyses are also representative of the sample used for WET testing. The ratio of critical receiving water flow to discharge flow (i.e. dilution ratio) is 7.2:1 for acute, and 10.7:1 for chronic. Discharges which are disinfected using chlorine should be dechlorinated prior to WET testing or samples shall be taken immediately prior to the chlorination system.

   Monitoring Period - WET testing shall be performed quarterly (calendar quarters) during calendar years ending in 1 and 6 / beginning in January 2026 and lasting for the duration of the permit.

   Reporting - Toxicity Units shall be calculated and reported on the DMR as follows: TUa = (100)/(48-hr LC50) [note that Acute data is generated by both Acute and Chronic testing] and TUc = (100)/(7-day NOEC) or (100)/(7-day IC25) when Chronic testing has been performed or TUc = (TUa) x (10) when only Acute testing has been performed and is used to predict Chronic test results, where the 48-hr LC50, 7-day NOEC and/or IC25 are all expressed in % effluent. This must be done, including the Chronic prediction from the Acute data, for both species unless otherwise directed. For Chronic results, report the most sensitive endpoint (i.e. survival, growth and/or reproduction) corresponding to the lowest 7-day NOEC or IC25 and resulting highest TUc. For Acute results, report a TUa of 0.3 if there is no statistically significant mortality in 100% effluent as compared to the control. Report a TUa of 1.0 if there is statistically significant mortality in 100% effluent as compared to the control, but insufficient mortality to generate a 48-hr LC50. Also, in the absence of a 48-hr LC50, use 1.0 TUa for the Chronic prediction from the Acute data, and report a TUc of 10.0.

   The complete test report including all bench sheets, statistical analyses, reference toxicity data, daily average flow at the time of sampling and other appropriate supporting documentation, shall be submitted within 60 days following the end of each test period with your DMR. A summary page of the test results for the invertebrate and vertebrate species indicating TUa, 48-hr LC50 for Acute tests and/or TUc, NOEC, IC25, and most sensitive endpoints for Chronic tests, should also be included at the beginning of the test report.

   WET Testing Action Level Exceedances - If an action level is exceeded then the Department may require the permittee to conduct additional WET testing including Acute and/or Chronic tests. Additionally, the permittee may be required to perform a Toxicity Identification/Reduction Evaluation (TI/RE) in accordance with Department guidance. Enforceable WET limits may also apply. The permittee shall be notified in writing by their Regional DEC office of additional requirements. The written notification shall include the reason(s) why such testing, TI/RE and/or limits are required.

BEST MANAGEMENT PRACTICES FOR COMBINED SEWER OVERFLOWS

The permittee shall implement the following Best Management Practices (BMPs). These BMPs are designed to implement operation & maintenance procedures, utilize the existing treatment facility and collection system to the maximum extent practicable, and implement sewer design, replacement and drainage planning, to maximize pollutant capture and minimize water quality impacts from combined sewer overflows. The BMPs are equivalent to the "Nine Minimum Control Measures" required under the USEPA National Combined Sewer Overflow policy. The EPA's policy is available at https://www.epa.gov/npdes/combined-sewer-overflows-csos.

1. CSO Maintenance/Inspection - The permittee shall develop a written maintenance and inspection program for all CSOs listed on page(s) 3 of this permit. This program shall include all regulators tributary to these CSOs and shall be conducted during periods of both dry and wet weather. This is to ensure that no discharges occur during dry weather and that the maximum amount of wet weather flow is conveyed to the Niagara POTW for treatment. This program shall consist of inspections with required repair, cleaning and maintenance done as needed. This program shall consist of at least monthly inspections.

   Inspection reports shall be completed indicating visual inspection, any observed flow, incidence of rain or snowmelt, condition of equipment and work required. These reports shall be in a format approved by the Region 9 Office and submitted to the Region with the monthly operating report (Form 92-15-7).

2. Maximum Use of Collection System for Storage - The permittee shall optimize the collection system by operating and maintaining it to minimize the discharge of pollutants from CSOs. It is intended that the maximum amount of in-system storage capacity be used (without causing service backups) to minimize CSOs and convey the maximum amount of combined sewage to the treatment plant in accordance with Item 4 below. This shall be accomplished by an evaluation of the hydraulic capacity of the system but should also include a continuous program of flushing or cleaning to prevent deposition of solids and the adjustment of regulators and weirs to maximize storage.

3. Industrial Pretreatment - The approved Industrial Pretreatment Program shall consider CSOs in the calculation of local limits for indirect discharges. Discharge of persistent toxics upstream of CSOs will be in accordance with guidance under **(NYSDEC Division of Water Technical and Operational Guidance Series (TOGS) 1.3.8 New Discharges to POTWs**. (http://www.dec.ny.gov/docs/water_pdf/togs138.pdf). For industrial operations characterized by use of batch discharge, consideration shall be given to the feasibility of a schedule of discharge during conditions of no CSO. For industrial discharges characterized by continuous discharge, consideration must be given to the collection system capacity to maximize delivery of waste to the treatment plant. Non-contact cooling water should be excluded from the combined system to the maximum extent practicable. Direct discharges of cooling water must apply for a SPDES permit.

   To the maximum extent practicable, consideration shall be given to maximize the capture of nondomestic waste containing toxic pollutants and this wastewater should be given priority over residential/commercial service areas for capture and treatment by the POTW.

4. Maximize Flow to POTW - Factors cited in Item 2. above shall also be considered in maximizing flow to the POTW. Maximum delivery to the POTW is particularly critical in treatment of "first-flush" flows. The Niagara Falls treatment plant shall be capable of receiving the peak design hydraulic loading rates for all process units. During wet weather events, WWTP primary influent flow rates shall exceed 65 MGD before any regulators are closed, the Gorge pump station pumping rates are reduced or any bypass of the carbon beds is allowed. (Primary influent flows shall be defined as flows from the Southside interceptor plus flows from the Gorge pumping station plus WWTP recycle flows as measured by main pump and gorge force main totalizers/recorders.) The permittee shall maximize treatment of wet weather flows in excess of 65 MGD. This paragraph shall not apply if all available beds (and in no event less than 22 beds) are in operation and if achievement of these requirements is not physically possible.

   The permittee shall continue the optimization program for treatment of storm flows and industrial wastewater at the WWTP. Specifically, the upper flow limit before overflow of the 100-foot weir and regulator bypass shall be increased through process improvements where practicable. Annual reports on storm flow and pollutant treatment optimization shall be submitted to the Department by January 31st, each year. The permittee shall operate all Regulators in a manner consistent with maximization of the conveyance of industrial wastewater to the treatment plant via the Southside Interceptor during high flow conditions in the system. The permittee shall operate the regulators in the Southside Interceptor (see page 2 of this permit) during dry weather in a manner to ensure that industrial wastewater is conveyed

to the permittee's wastewater treatment plant and not to the Falls Street Tunnel.

5. Wet Weather Operating Plan (WWOP) - The permittee shall maximize treatment during wet weather events. This shall be accomplished by having a WWOP containing procedures so as to operate unit processes to treat maximum flows while not appreciably diminishing effluent quality or destabilizing treatment upon return to dry weather operation. The WWOP shall be developed in accordance with the DEC guidance, Wet Weather Operating Practices for POTWs With Combined Sewers, (http://www.dec.ny.gov/docs/water_pdf/wwtechtran.pdf).

   A revised wet weather operating plan must be submitted whenever the POTW and/or sewer collection system is significantly replaced or modified.

6. Prohibition of Dry Weather Overflow - Dry weather overflows from the combined sewer system are prohibited. The occurrence of any dry weather overflow shall be promptly abated and reported in accordance with 6 NYCRR Part 750-2.7.

7. Control of Floatable and Settleable Solids - The discharge of floating solids, oil and grease, or solids of sewage origin which cause deposition in the receiving waters, is a violation of the NYS Narrative Water Quality Standards contained in Part 703. As such, the permittee shall implement best management practices in order to eliminate or minimize the discharge of these substances. All of the measures cited in Items 1, 2, 4 & 5 above shall constitute approvable "BMPs" for mitigation of this problem. If aesthetic problems persist, the permittee should consider additional BMPs including but not limited to: street sweeping, litter control laws, installation of floatables traps in catch basins (such as hoods), booming and skimming of CSOs, and disposable netting on CSO outfalls. In cases of severe or excessive floatables generation, booming and skimming should be considered an interim measure prior to implementation of final control measures. Public education on harmful disposal practices of personal hygienic devices may also be necessary including but not limited to: public broadcast television, printed information inserts in sewer bills, or public health curricula in local schools.

8. Combined Sewer System Replacement - Replacement of combined sewers shall not be designed or constructed unless approved by NYSDEC. When replacement of a combined sewer is necessary it shall be replaced by separate sanitary and storm sewers to the greatest extent possible. These separate sanitary and storm sewers shall be designed and constructed simultaneously but without interconnections to maximum extent practicable. When combined sewers are replaced, the design should contain cross sections which provide sewage velocities which prevent deposition of organic solids during low flow conditions.

9. Combined Sewer/Extension - Combined sewer/extension, when allowed should be accomplished using separate sewers. These sanitary and storm sewer extensions shall be designed and constructed simultaneously but without interconnections. No new source of stormwater shall be connected to any separate sanitary sewer in the collection system.

   If separate sewers are to be extended from combined sewers, the permittee shall demonstrate the ability of the sewerage system to convey, and the treatment plant to adequately treat, the increased dry-weather flows. Upon a determination by the Regional Water Engineer an assessment shall be made by the permittee of the effects of the increased flow of sanitary sewage or industrial waste on the strength of CSOs and their frequency of occurrence including the impacts upon best usage of the receiving water. This assessment should use techniques such as collection system and water quality modeling contained in the 1999 Water Environment Federation Manual of Practice FD-17 entitled, Prevention and Control of Sewer System Overflows, 2nd edition.

10. Sewage Backups - If, there are documented, recurrent instances of sewage backing up into house(s) or discharges of raw sewage onto the ground surface from surcharging manholes, the permittee shall, upon letter notification from DEC, prohibit further connections that would exacerbate the surcharging/back-up problems.

11. Septage and Hauled Waste - The discharge or release of septage or hauled waste upstream of a CSO is prohibited.

12. Control of Runoff - It is recommended that the impacts of runoff from development and redevelopment in areas served by combined sewers be reduced by requiring compliance with the New York Standards for Erosion and Sediment Control and the quantity control requirements included in the New York State Stormwater Management Design Manual. (http://www.dec.ny.gov/chemical/8694.html).

13. Public Notification – The permittee shall continue to maintain identification signs at all CSO outfalls owned and operated

by the permittee. The permittee shall place the signs at or near the CSO outfalls and ensure that the signs are easily readable by the public. The signs shall have **minimum** dimensions of eighteen inches by twenty-four inches (18" x 24") and shall have white letters on a green background and contain the following information:

N.Y.S. PERMITTED DISCHARGE POINT
(wet weather discharge)
SPDES PERMIT No.: NY_____

OUTFALL No. :____

For information about this permitted discharge contact:

Permittee Name:

Permittee Contact:

Permittee Phone: ( ) - ### - ####

OR:

NYSDEC Division of Water Regional Office Address:

NYSDEC Division of Water Regional Phone: ( ) - ### -####

Waiver requests approved on 2/26/98 and 6/5/03 will remain in effect during term of this permit.

The permittee shall implement a written public notification program (PNP) to inform citizens of the location and occurrence of CSO events. This program shall include a mechanism (public media broadcast, standing beach advisories, newspaper notice etc.) to alert potential users of the receiving waters affected by CSOs. The program shall include a system to determine the nature and duration of conditions that are potentially harmful to users of these receiving waters due to CSOs. The written PNP shall be reviewed annually and updated as needed.

14. Characterization and Monitoring - The permittee shall characterize the combined sewer system, determine the frequency of overflows, and identify CSO impacts in accordance with Combined Sewer Overflows, Guidance for Nine Minimum Controls, EPA, 1995, Chapter 10. These are minimum requirements, more extensive characterization and monitoring efforts which may be required as part of the Long-Term Control Plan.

15. Annual Report - The permittee shall electronically submit the Combined Sewer Overflows (CSO) Annual Report using nForm (https://www.dec.ny.gov/chemical/48595.html), which summarizes the implementation of the above BMPs and the CSO Long-Term Control Plan. The CSO Annual Report shall be submitted by January 31st of each year. The complete documentation shall be stored at a central location and be made available to DEC upon request.

SPECIAL CONDITIONS: CSO CONTROL POLICY

A. Water Quality Requirements for Combined Sewer Overflows

Long-Term Control Plan

The permittee submitted a LTCP in 2007 in accordance with the Guidance for Long-Term Control Plan, EPA, September 1995. The plan was approved on April 21, 2008, and in a follow up letter to the permittee on May 7, 2008. In accordance with the approved LTCP, the permittee was required to:

> Modify CSOs to increase capture of wet weather flow in the sewer system and control floatables. Work was completed at five CSOs (005, 006, 008, 010, and 011), including diversion to a drop shaft, installation of baffles for floatables control, sewer separation, and weir adjustment and installation.

Implementation of the LTCP was completed in March 2010. The permittee shall continue to effectively operate and maintain the CSO controls identified in the long-term control plan.

Water Quality Criterion – Presumption Approach

The permittee shall not discharge any pollutant at a level that causes an in-stream excursion of the applicable water quality requirements. The EPA 1994 CSO Control Policy indicates that a CSO control plan that meets the criteria below would provide an adequate level on control to meet the water quality requirements of the CWA. Following implementation of the approved LTCP, the following criteria shall be an enforceable performance metric under this permit:

I. The permittee shall eliminate or capture for treatment, at least 85 percent by volume of the system-wide combined sewage collected in combined sewer system during precipitation events on a system-wide annual average basis.

Any additional discharges of combined sewage flow during wet weather shall receive the minimum treatment specified below:

- Primary clarification or equivalent, and
- Solids and floatables disposal, and
- Disinfection, if required to meet WQS, protect designated uses, and protect human health, including removal of harmful disinfection chemical residuals

B. Monitoring Requirements – Post Construction Compliance Monitoring Program

1. The PCCM Program shall be implemented that (a) is adequate to ascertain the effectiveness of the CSO controls and (b) can be used to verify attainment of water quality standards. The permittee shall maintain a post-construction monitoring plan (PCCMP) that includes the proposed sampling locations, sampling schedule, details on how effectiveness of the CSO controls will be assessed and details the laboratory that will be performing the analysis[1], monitoring protocols to be followed, where appropriate, including CSO and ambient monitoring. The sampling schedule shall be developed to target the periods for which CSO events are most likely to occur. Ambient sampling must be conducted, at a minimum, for all pollutants listed in Section B below and for all pollutants for which the 303(d) list identifies CSOs as a source of the pollutant to the receiving water(s). Guidance on CSO post construction compliance monitoring and reporting can be found at: https://www.epa.gov/sites/default/files/2015-10/documents/final_cso_pccm_guidance.pdf.

2. The PCCM Program sampling shall be implemented, in accordance with the PCCMP, submitted October 1, 2010 and approved March 11, 2013, during years ending in 3 and 8. Ambient sampling must be conducted, at a minimum, for the following parameters:

PARAMETER	Units	Sample Type
Coliform, Fecal	#/100ml	Grab

3. By March 31st of the year following PCCM sampling, the permittee shall submit an approvable PCCM Program Report. The PCCM Program Report shall include:
   a. Analytical results of the PCCM sampling,
   b. The number of CSO events and volume of CSO discharged during the PCCM period,

[1] All chemical analyses must be conducted by a laboratory certified by the NYS Health Department under the National Environmental Laboratory Approval Program (NELAP) for test or sample results which require certificates of approval. Tests for pH, temperature, dissolved oxygen and settleable solids do not require certificates of approval but a description of the equipment used, and the calibration schedule of appropriate equipment is required.

c. An assessment of whether CSO receiving water quality complies with applicable water quality standards,
d. Recommendations for potential improvements in CSO controls for when water quality standards are not attained, and
e. A discussion of whether the CSO controls are meeting the frequency goals of the Presumptive Approach, selected by the permittee in the LTCP, to verify the effectiveness of the CSO controls.

C. Special Conditions

1. Sensitive Area[2] Reassessment

   The permittee shall reassess overflows to sensitive areas stated in the LTCP, where elimination or relocation of the overflows is not physically possible or economically achievable. The permittee shall also assess whether new or additional sensitive areas may be affected by overflows that were not initially identified in the LTCP. The permittee shall consider new or improved techniques to eliminate or relocate overflows or changed circumstances that influence economic achievability. The permittee shall prepare and submit to the Regional Water Engineer a report, separately from the PCCM Program Report, that presents the results of this reassessment, feasible improvements to eliminate or minimize overflows to sensitive areas, and the permittee's recommendation regarding the elimination or relocation of these outfalls. The permittee shall submit such reports by December 31st in the same year the PCCM Program Report is submitted.

2. Reopener

   This permit may be modified or revoked and reissued, as provided pursuant to 6 NYCRR 750-1.18, 6 NYCRR 750-1.20, 40 CFR 122.62 and 124.5, for the following reasons:

   I. To include new or revised conditions developed to comply with any state of federal law or regulation that addresses CSOs that are adopted or promulgated subsequent to the effective date of this permit.
   II. To include new or revised conditions if new information, not available at the time of permit issuance, indicates that CSO controls imposed under the permit have failed to ensure the attainment of applicable water quality requirements.

STORMWATER POLLUTION PREVENTION REQUIREMENTS

NO EXPOSURE CERTIFICATION
The permittee submitted a Conditional Exclusion for No Exposure Form on 7/19/2019, certifying that all industrial activities and materials are completely sheltered from exposure to rain, snow, snowmelt, and/or stormwater runoff. The permittee must maintain a condition of no exposure for the exclusion to remain applicable. If conditions change resulting in the exposure of materials and activities to stormwater, the permittee must notify the Regional Water Engineer. The permittee must recertify a condition of no exposure every five years by completing the "No Exposure Certification Form" found on the NYSDEC website.

[2] Sensitive areas include designated Outstanding National Resource Waters, National Marine Sanctuaries, waters with threated or endangered species and their habitat, waters with primary contact recreation, public drinking water intakes or their designated protection areas, and shellfish beds, waters listed on the NYSDEC 303(d) list, or any other area determined by the Department.

MERCURY MINIMIZATION PROGRAM (MMP) - Type I

1. General - The permittee must develop, implement, and maintain a mercury minimization program (MMP), containing the elements set forth below, to reduce mercury effluent levels with the goal of achieving the WQBEL of 0.7 ng/L.

2. MMP Elements - The MMP must be a written document and must include any necessary drawings or maps of the facility and/or collection system. Other related documents already prepared for the facility may be used as part of the MMP and may be incorporated by reference. At a minimum, the MMP must include the following elements as described in detail below:

   a. Monitoring - Monitoring at outfall, influent and other locations tributary to compliance points may be performed using either USEPA Method 1631 or another sufficiently sensitive method, as approved under 40 CFR Part 136[3]. Monitoring of raw materials, equipment, treatment residuals, and other non-wastewater/non-stormwater substances may be performed using other methods as appropriate. Monitoring must be coordinated so that the results can be effectively compared between locations.

      Minimum required monitoring is as follows:

      i. Sewage Treatment Plant Influent and/or Effluent – The permittee must collect samples at the location(s) and frequency as specified in the SPDES permit limitations table.

      ii. *Key Locations* and *Potential Mercury Sources* –The permittee must sample *key locations*, chosen to identify *potential mercury sources*, at least semi-annually. Sampling of discharges from dental facilities in compliance with 6 NYCRR 374.4 is not required.

      iii. Hauled Wastes – The permittee must establish procedures for the acceptance of hauled waste to ensure the hauled waste is not a potential mercury source. Loads which may exceed 500 ng/L,[4] must receive approval from the Department prior to acceptance.

      iv. Decreased Monitoring Requirements - Facilities with EEQ at or below 12 ng/L are eligible for the following:

         1) Reduced requirements, through a permittee-initiated permit modification
            a) Conduct influent monitoring, sampling quarterly, in lieu of monitoring within the collection system, such as at *key locations*; and
            b) Conduct effluent compliance sampling quarterly.
         2) If a facility with reduced requirements reports discharges above 12 ng/L for two of four consecutive effluent samples, the Department may undertake a Department-initiated modification to remove the allowance of reduced requirements.
         3) Under the decreased permit requirements, the facility must continue to conduct a status report, as applicable in accordance with 2.c of this MMP, to determine if any waste streams have changed.

      v. Additional monitoring must be completed as required elsewhere in this permit (e.g., locations tributary to compliance points).

   b. Control Strategy - The control strategy must contain the following minimum elements:

      i. Pretreatment/Sewer Use Law - The permittee must review pretreatment program requirements and the Sewer Use Law (SUL) to ensure it is up-to-date and enforceable with applicable permit requirements and will support efforts to achieve a dissolved mercury concentration of 0.70 ng/L in the effluent.

[3] Outfall monitoring must be conducted using the methods specified in Table 8 of *DOW 1.3.10.*
[4] A level of 0.2 mg/L (200,000 ng/L) or more is considered hazardous per 40 CFR Part 261.11. 500 ng/L is used here to alert the permittee that there is an unusual concentration of mercury and that it will need to be managed appropriately.

MERCURY MINIMIZATION PROGRAM (MMP) - Type I (Continued)

ii. Monitoring and Inventory/Inspections -
   1) Monitoring shall be performed as described in 2.a above. As mercury sources are found, the permittee must enforce its sewer use law to track down and minimize these sources.
   2) The permittee must inventory and/or inspect users of its system as necessary to support the MMP.
      a) Dental Facilities
         1. The permittee must maintain an inventory of each dental facility.
         2. The permittee must inspect each dental facility at least once every five years to verify compliance with the wastewater treatment operation, maintenance, and notification elements of 6 NYCRR 374.4. Alternatively, the permittee may develop and implement an outreach program,[5] which informs users of their responsibilities, and collect the "Amalgam Waste Compliance Report for Dental Dischargers"[6] form, as needed, to satisfy the inspection requirements. The permittee must conduct the outreach program at least once every five years and ensure the "Amalgam Waste Compliance Report for Dental Dischargers" are submitted by new users, as necessary. The outreach program could be supported by a subset of site inspections.
         3. A file shall be maintained containing documentation demonstrating compliance with 2.b.ii.2)a) above. This file shall be available for review by the Department representatives and copies shall be provided upon request.
      b) Other *potential mercury sources*
         1. The permittee must maintain an inventory of other *potential mercury sources.*
         2. The permittee must inspect other *potential mercury sources* once every five years. Alternatively, the permittee may develop and implement an outreach program which informs users of their responsibilities as *potential mercury sources.* The permittee must conduct the outreach program at least once every five years. The outreach program should be supported by a subset of site inspections.
         3. A file shall be maintained containing documentation demonstrating compliance with 2.b.ii.2)b) above. This file shall be available for review by the Department representatives and copies shall be provided upon request.

iii. Systems with CSO & Type II SSO Outfalls – Permittees must prioritize *potential mercury sources* upstream of CSOs and Type II SSOs for mercury reduction activities and/or controlled-release discharge.

iv. Equipment and Materials – Equipment and materials (e.g., thermometers, thermostats) used by the permittee, which may contain mercury, must be evaluated by the permittee. As equipment and materials containing mercury are updated/replaced, the permittee must use mercury-free alternatives, if possible.

v. Bulk Chemical Evaluation – For chemicals, used at a rate which exceeds 1,000 gallons/year or 10,000 pounds/year, the permittee must obtain a manufacturer's certificate of analysis, a chemical analysis performed by a certified laboratory, and/or a notarized affidavit which describes the substances' mercury concentration and the detection limit achieved. If possible, the permittee must only use bulk chemicals utilized in the wastewater treatment process which contain <10 ppb mercury.

[5] For example, the outreach program could include education about sources of mercury and what to do if a mercury source is found.
[6] The form, "Amalgam Waste Compliance Report for Dental Dischargers," can be found here: https://www.dec.ny.gov/docs/water_pdf/dentalform.pdf

MERCURY MINIMIZATION PROGRAM (MMP) - Type I (Continued)

c. **Status Report - An annual** status report must be completed and maintained on site summarizing:
   i. All MMP monitoring results for the previous reporting period;
   ii. A list of known and *potential mercury sources*
      1) If the permittee meets the criteria for MMP Type IV, the permittee must notify the Department for a permittee-initiated modification;
   iii. All actions undertaken, pursuant to the control strategy, during the previous reporting period;
   iv. Actions planned, pursuant to the control strategy, for the upcoming reporting period; and
   v. Progress towards achieving a dissolved mercury concentration of 0.70 ng/L in the effluent (e.g., summarizing reductions in effluent concentrations as a result of the control strategy implementation and/or installation/modification of a treatment system).

   The first status report is required to be completed in accordance with the Schedule of Additional Submittals. The permittee must maintain a file with all MMP documentation. The file must be available for review by Department representatives and copies must be provided upon request in accordance with 6 NYCRR 750-2.1(i) and 750-2.5(c)(4).

3. MMP Modification - The MMP must be modified whenever:
   a. Changes at the facility, or within the collection system, increase the potential for mercury discharges;
   b. Effluent discharges exceed the current permit limitation(s); or
   c. A letter from the Department identifies inadequacies in the MMP.

   The Department may use information in the status reports, as applicable in accordance with 2.c of this MMP, to determine if the permit limitations and MMP Type is appropriate for the facility.

DEFINITIONS:

Key location – a location within the collection/wastewater system (e.g. including but not limited to a specific manhole/access point, tributary sewer/wastewater connection, or user discharge point) identified by the permittee as a potential mercury source. The permittee may adjust key locations based upon sampling and/or best professional judgement.

Potential mercury source – a source identified by the permittee that may reasonably be expected to have total mercury contained in the discharge. Some potential mercury sources include switches, fluorescent lightbulbs, cleaners, degreasers, thermometers, batteries, hauled wastes, universities, hospitals, laboratories, landfills, Brownfield sites, or raw material storage.

PCB MINIMIZATION PROGRAM - POTWs

1. **General** - The permittee shall develop, implement, and maintain a Polychlorinated Biphenyl Minimization Program (PCBMP) for those outfalls which have effluent limits for PCBs (including Aroclors). The PCBMP is required because the 95 nanograms/liter (ng/L) permit limit per PCB Aroclor exceeds the water quality based effluent limit (WQBEL) of 0.001 ng/L for Total PCBs. The goal of the PCBMP is to reduce PCB effluent levels in pursuit of the WQBEL. The basis for the 95 ng/L per Aroclor limit is the EPA Method 608.3 analytical Minimum Level for Aroclors.

2. **PCBMP Elements** - The PCBMP shall be documented in narrative form and shall include any necessary drawings or maps. Other related documents already prepared for the facility may be used as part of the PCBMP and may be incorporated by reference. As a minimum, the PMP plan shall include an on-going program consisting of: periodic monitoring; an acceptable control strategy which will become enforceable under this permit; and, submission of annual status reports.

   A. Monitoring - The permittee shall conduct periodic monitoring designed to quantify and, over time, track the reduction of PCBs. Wastewater treatment plant influents and effluents, and other outfalls shall be monitored using a congener specific analysis method* at a minimum frequency of quarterly. Key locations in the wastewater and/or stormwater collection systems, and known or potential PCB sources, including raw materials as appropriate, shall be monitored using a congener specific analysis method* at a minimum frequency of semi-annually. Additional monitoring must be completed as may be required elsewhere in this permit or upon Department request.

   SPDES permit limit compliance monitoring shall be performed at the frequency specified on the permit limits page(s) using Method 608.3. Results from congener analysis required under this PCBMP shall not be used for determining compliance with the 95 ng/L Aroclor permit limits. Additional monitoring must be completed as may be required elsewhere in this permit or upon Department request. Monitoring shall be coordinated so that the results can be effectively: compared between locations; compared between analytical methods; used to identify PCB sources; and, used to gauge the effectiveness of PCB reduction and control efforts.

   * The permittee shall use a congener specific analysis method to measure and quantify Total PCBs. The congener specific analysis method shall be approved by the New York State Department of Health under its Environmental Laboratory Approval Program and shall be sufficiently sensitive. As of 2019, the only method meeting these requirements is EPA Method 1668C. It is recognized that in the future this method may be supplanted by more sensitive ELAP-approved methods in which case the newer sufficiently sensitive method(s) shall be utilized. "Total PCBs" shall be calculated as the sum of all detections at or above the Minimum Level. A separate sum of "Estimated PCBs" detected at or above the Method Detection Limit and below the Minimum Level shall also be determined.

   The permittee may request, and the Department may optionally approve, alternate methods for congener specific PCB analyses provided the alternate method is demonstrated to be equivalent or superior to one of the above methods.

   B. Control Strategy - An acceptable control strategy is required for reducing PCB discharges via cost-effective measures, including but not limited to source identification and more stringent control of industrial processes. The control strategy will become enforceable under this permit and shall contain the following minimum elements:

      i. Periodic Inspection - The permittee must inspect users as necessary to support the PCBMP.

      ii. Records - A file shall be maintained containing all PCBMP documentation which shall be available for review by DEC representatives.

   C. Annual Status Report - An annual status report shall be submitted to the Regional Water Engineer summarizing: (a) all PCBMP monitoring results for the previous year; (b) a list of known and potential PCB sources; (c) all action undertaken pursuant to the strategy during the previous year; (d) actions planned for the upcoming year; and, (e) progress toward the goal. The first annual status report is due in accordance with the Schedule of Submittals. A file shall be maintained containing all PCBMP documentation which shall be available for review by NYSDEC representatives. Copies shall be provided upon request.

   PCBMP Modification - The PCBMP shall be reviewed, and if necessary modified, whenever: (a) changes at the facility or within the collection system(s) increase the potential for PCB discharges; (b) new information is discovered concerning the source, nature, or extent of any PCB source(s) and/or discharges from the facility; (c) actual discharges contain detectable Aroclors as measured with EPA Method 608.3. The PCBMP shall be modified whenever a letter from the Department identifies inadequacies in the PCBMP or pursuant to a permit modification.

POLLUTANT MINIMIZATION PROGRAM

1. General – The Department reviewed and approved the Pollution Minimization Plan (PMP) submitted in April 2006. The plan met the requirements of Appendix F to 40 CFR Part 132, Procedure 8 for discharges to the Great Lakes. The permittee shall continue to implement the approved plan. An annual status report shall be prepared and submitted to the Regional Water Engineer on every March 1st. The report shall summarize the effectiveness of the PMP control strategy and includes all PMP monitoring results and all control measures implemented during the previous calendar year. The goal of this program will be to meet the calculated water quality-based effluent limit for the following substances:

Parameter	WQBEL
α-BHC	0.002 ug/L
β-BHC	0.007 ug/L
γ-BHC	0.008 ug/L
δ-BHC	0.008 ug/L
Hexachlorobenzene	3.0E-5 ug/L
Mirex	1.0E-3 ug/L
PCB-1248	1.0E-6 ug/L
4,4'-DDD	8.0E-5 ug/L
4,4'-DDE	7.0E-6 ug/L
4,4'-DDT	1.0E-5 ug/L
Dieldrin	6.0E-7 ug/L

2. PMP Elements – The PMP plan shall be documented in narrative form and shall include any necessary plot plans, drawings, or maps. Other documents already prepared for the facility, such as a Best Management Practices Plan, may be used as part of the plan and may be incorporated by reference. At a minimum, the PMP plan shall include:

A. An on-going potential source identification, evaluation, and prioritization program.

B. Periodic monitoring designed to quantify and, over time, track the reduction of discharges of the substance(s) noted above. Minimum required monitoring is as follows: quarterly monitoring of wastewater treatment system influent(s), sludge(s), effluent(s), and outfall(s) which are known or suspected of containing the pollutant; and, semi-annual monitoring of potential sources except during the first year which shall be quarterly. This monitoring shall be performed using EPA Method specified in 40 CFR 136 and shall be coordinated with routine compliance monitoring, if applicable, so that the results can be compared. Additional monitoring must be completed as may be required elsewhere in this permit.

C. An approvable control strategy (including a schedule for implementation) for reducing pollutant discharges via cost-effective control measures, which may include but is not limited to site treatment or remediation. The schedule for implementation and the control strategy will become enforceable under this permit.

D. Treatment System Operation – The periodic monitoring required in item (2B) and elsewhere in this permit shall also be used, and supplemented if appropriate, to determine the most effective way to operate the wastewater treatment system(s) to ensure the greatest removal of the pollutant. For example, monitoring data may indicate that greater pollutant removals are achieved when the system(s) are operated below certain hydraulic loading thresholds.

E. An approvable annual report shall be prepared and submitted to the Regional Water Engineer and to the Bureau of Water Permits, 625 Broadway, Albany, N.Y. 12233-3505, by February 1 of each year. This report shall summarize all pollutant monitoring data; for treatment systems include a mass balance comparison of influent, effluent, and sludge levels; a list of known or potential pollutant sources; all control measures implemented during the previous calendar year; monitoring, investigations, and control measures to be completed during the current calendar year; and document progress toward the goal of achieving the calculated WQBEL.

3. PMP Modification – The PMP plan shall be modified whenever: (a) changes at the facility increase the potential for discharge of the pollutant, (b) actual discharges indicate the plan is inadequate, or (c) a letter from the Department identifies inadequacies in the PMP plan.

DISCHARGE NOTIFICATION REQUIREMENTS

(a) The permittee shall install and maintain identification signs at all outfalls to surface waters listed in this permit, unless the Permittee has obtained a waiver in accordance with the Discharge Notification Act (DNA). Such signs shall be installed before initiation of any discharge.

(b) Subsequent modifications to or renewal of this permit does not reset or revise the deadline set forth in (a) above, unless a new deadline is set explicitly by such permit modification or renewal.

(c) The Discharge Notification Requirements described herein do not apply to outfalls from which the discharge is composed exclusively of storm water, or discharges to ground water.

(d) The sign(s) shall be conspicuous, legible and in as close proximity to the point of discharge as is reasonably possible while ensuring the maximum visibility from the surface water and shore. The signs shall be installed in such a manner to pose minimal hazard to navigation, bathing or other water related activities. If the public has access to the water from the land in the vicinity of the outfall, an identical sign shall be posted to be visible from the direction approaching the surface water.

The signs shall have **minimum** dimensions of eighteen inches by twenty-four inches (18" x 24") and shall have white letters on a green background and contain the following information:

N.Y.S. PERMITTED DISCHARGE POINT

SPDES PERMIT No.: NY_____

OUTFALL No. :____

For information about this permitted discharge contact:

Permittee Name: _____

Permittee Contact: _____

Permittee Phone: ( ) - ### - ####

OR:

NYSDEC Division of Water Regional Office Address:

NYSDEC Division of Water Regional Phone: ( ) - ### -####

(e) Upon request, the permittee shall make available electronic or hard copies of the sampling data to the public. In accordance with the RECORDING, REPORTING AND ADDITIONAL MONITORING REQUIREMENTS page of your permit, each DMR shall be maintained (either electronically or as a hard copy) on record for a period of five years.

(f) The permittee shall periodically inspect the outfall identification sign(s) in order to ensure they are maintained, are still visible, and contain information that is current and factually correct. Signs that are damaged or incorrect shall be replaced within 3 months of inspection.

(g) If the permittee believes that any outfall which discharges wastewater from the permitted facility meets any of the DNA waiver criteria, notification must be made to the Department's Bureau of Water Permits. Provided there is no objection by the Department, a sign for the involved outfall(s) are not required. This notification must include the facility's name, address, telephone number, contact, permit number, outfall number(s), and reason why such outfall(s) is waived from the requirements of discharge notification. The Department may evaluate the applicability of a waiver at any time and take appropriate measures to assure that the ECL and associated regulations are complied with.

INDUSTRIAL PRETREATMENT PROGRAM IMPLEMENTATION REQUIREMENTS

A. DEFINITIONS: Generally, terms used in this Section shall be defined as in the General Pretreatment Regulations (40 CFR Part 403). Specifically, the following definitions apply to terms used in this Section:

1. Categorical Industrial User (CIU): an industrial user of the POTW that is subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR Chapter I, Subchapter N;

2. Local Limits: General Prohibitions, specific prohibitions and specific limits as set forth in 40 CFR 403.5.

3. The Publicly Owned Treatment Works (POTW): as defined by 40 CFR 403.3(q) and that discharges in accordance with this permit.

4. Program Submission(s): requests for approval or modification of the POTW Pretreatment Program submitted in accordance with 40 CFR 403.11 or 403.18 and approved by USEPA on May 8, 1985, and any amendments thereto.

5. Significant Industrial User (SIU):
   a) CIUs;
   b) Except as provided in 40 CFR 403.3(v)(3), any other industrial user that discharges an average of 25,000 gallons per day or more of process wastewater (excluding sanitary, non-contact cooling and boiler blowdown wastewater) to the POTW;
   c) Except as provided in 40 CFR 403.3(v)(3), any other industrial user that contributes a process waste stream which makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant;
   d) Any other industrial user that the permittee designates as having a reasonable potential for adversely affecting the POTW's operation or for violating a pretreatment standard or requirement.

6. Substances of Concern: Substances identified by the New York State Department of Environmental Conservation Industrial Chemical Survey as substances of concern.

B. IMPLEMENTATION: The permittee shall implement a POTW Pretreatment Program in accordance 40 CFR Part 403, 40 CFR Part 122, and as set forth in the permittee's approved Program Submission(s). Modifications to this program shall be made in accordance with 40 CFR 403.18. Specific program requirements are as follows:

1. Industrial Survey: To maintain an updated inventory of industrial dischargers to the POTW the permittee shall:
   a) Identify, locate and list all industrial users who might be subject to the industrial pretreatment program from the pretreatment program submission and any other necessary, appropriate and available sources. This identification and location list will be updated, at a minimum, every five years. As part of this update the permittee shall collect a current and complete New York State Industrial Chemical Survey form (or equivalent) from each SIU.
   b) Identify the character and volume of pollutants contributed to the POTW by each industrial user identified in B.1.a above that is classified as a SIU.
   c) Identify, locate and list, from the pretreatment program submission and any other necessary, appropriate and available sources, all SIUs of the POTW.
   d) Provide a written technical evaluation of the need to revise local limits under 40 CFR 403.5(c)(1) following permit issuance or reissuance.

2. Control Mechanisms: To provide adequate notice to and control of industrial users of the POTW the permittee shall:
   a) Inform by certified letter, hand delivery courier, overnight mail, or other means which will provide written acknowledgment of delivery, all industrial users identified in B.1.a. above of applicable pretreatment standards and requirements including the requirement to comply with the local sewer use law, regulation or ordinance and any applicable requirements under section 204(b) and 405 of the Federal Clean Water Act and Subtitles C and D of the Resource Conservation and Recovery Act.

INDUSTRIAL PRETREATMENT PROGRAM IMPLEMENTATION REQUIREMENTS (continued)

b) Control through permit or similar means the contribution to the POTW by each SIU to ensure compliance with applicable pretreatment standards and requirements. Permits shall contain limitations, sampling frequency and type, reporting and self-monitoring requirements as described below, requirements that limitations and conditions be complied with by established deadlines, an expiration date not later than five years from the date of permit issuance, a statement of applicable civil and criminal penalties and the requirement to comply with Local Limits and any other requirements in accordance with 40 CFR 403.8(f)(1).

3. Monitoring and Inspection: To provide adequate, ongoing characterization of non-domestic users of the POTW, the permittee shall:
   a) Receive and analyze self-monitoring reports and other notices. The permittee shall require all SIUs to submit self-monitoring reports at least every six months unless the permittee collects all such information required for the report, including flow data.
   b) The permittee shall adequately inspect each SIU at a minimum frequency of once per year.
   c) The permittee shall collect and analyze samples from each SIU for all priority pollutants that can reasonably be expected to be detectable at levels greater than the levels found in domestic sewage at a minimum frequency of once per year.
   d) Require, through permits, each SIU to collect at least one 24 hour, flow proportioned composite (where feasible) effluent sample every six months and analyze each of those samples for all priority pollutants that can reasonably be expected to be detectable in that discharge at levels greater than the levels found in domestic sewage. The permittee may perform the aforementioned monitoring in lieu of the SIU except that the permittee must also perform the compliance monitoring described in 3.c.

4. Enforcement: To assure adequate, equitable enforcement of the industrial pretreatment program the permittee shall:
   a) Investigate instances of noncompliance with pretreatment standards and requirements, as indicated in self-monitoring reports and notices or indicated by analysis, inspection and surveillance activities. Sample taking and analysis and the collection of other information shall be performed with sufficient care to produce evidence admissible in enforcement proceedings or in judicial actions. Enforcement activities shall be conducted in accordance with the permittee's Enforcement Response Plan developed and approved in accordance with 40 CFR Part 403.
   b) Enforce compliance with all national pretreatment standards and requirements in 40 CFR Parts 406 - 471.
   c) Provide public notification of significant non-compliance as required by 40 CFR 403.8(f)(2)(viii).
   d) Pursuant to 40 CFR 403.5(e), when either the DEC or the USEPA determines any source contributes pollutants to the POTW in violation of Pretreatment Standards or Requirements the DEC or the USEPA shall notify the permittee. Failure by the permittee to commence an appropriate investigation and subsequent enforcement action within 30 days of this notification may result in appropriate enforcement action against the source and permittee.

5. Recordkeeping: The permittee shall maintain and update, as necessary, records identifying the nature, character, and volume of pollutants contributed by SIUs. Records shall be maintained in accordance with 6 NYCRR 750-2.5(c).

6. Staffing: The permittee shall maintain minimum staffing positions committed to implementation of the Industrial Pretreatment Program in accordance with the approved pretreatment program.

C. SLUDGE DISPOSAL PLAN. The permittee shall notify DEC, and USEPA as long as USEPA remains the approval authority, 60 days prior to any major proposed change in the sludge disposal plan. DEC may require additional pretreatment measures or controls to prevent or abate an interference incident relating to sludge use or disposal.

INDUSTRIAL PRETREATMENT PROGRAM IMPLEMENTATION REQUIREMENTS (continued)

D. REPORTING: The permittee shall provide to the offices listed on the Monitoring, Reporting and Recording page of this permit and to the Chief-Water Compliance Branch, USEPA Region II, 290 Broadway, New York, NY 10007, a periodic report that briefly describes the permittee's program activities over the previous year. This report shall be submitted in accordance with the Schedule of Submittals to the above noted offices within 60 days of the end of the reporting period. The periodic report shall include:

1. Industrial Survey: Updated industrial survey information in accordance with 40 CFR 403.12(i)(1) (including any NYS Industrial Chemical Survey forms updated during the reporting period).

2. Implementation Status: Status of Program Implementation, to include:
   a) Any interference, upset or permit violations experienced at the POTW directly attributable to industrial users.
   b) Listing of SIUs issued permits.
   c) Listing of SIUs inspected or monitored during the previous reporting period and summary of results.
   d) Listing of SIUs notified of promulgated pretreatment standards or applicable local standards who are on compliance schedules. The listing should include for each facility the final date of compliance.
   e) Summary of POTW monitoring results not already submitted on Discharge Monitoring Reports and toxic loadings from SIU's organized by parameter.
   f) A summary of additions or deletions to the list of SIUs, with a brief explanation for each deletion.

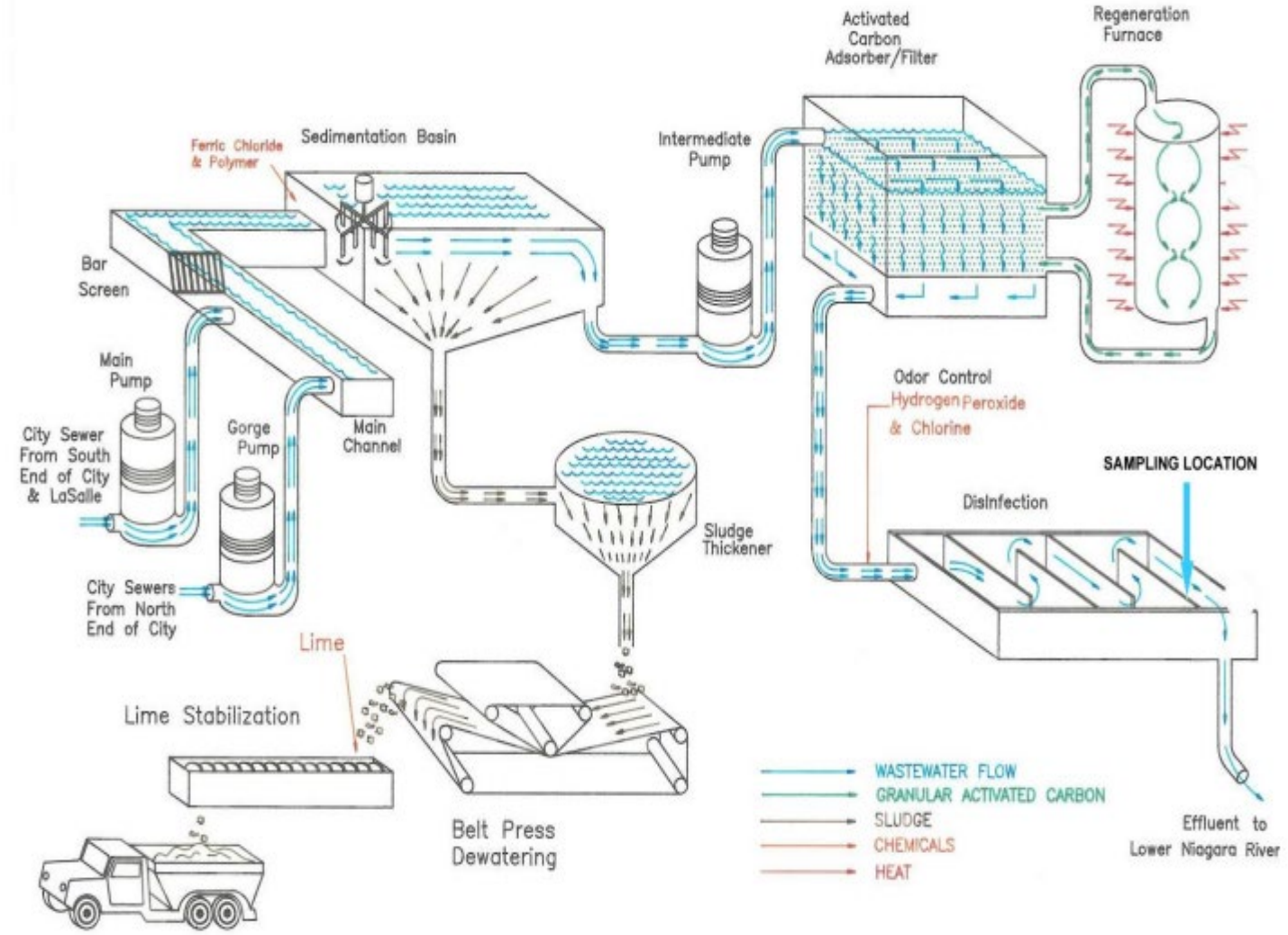
3. Enforcement Status: Status of enforcement activities to include:
   a) Listing of SIUs in significant non-compliance (as defined by 40 CFR 403.8(f)(2)(viii) with federal or local pretreatment standards at end of the reporting period.
   b) Summary of enforcement activities taken against non-complying SIUs. The permittee shall provide a copy of the public notice of significant violators as specified in 40 CFR 403.8(f)(2)(viii).

E. ADDITIONAL PRETREATMENT CONDITIONS:
1. Notification of Material Change:
   a) Facility shall provide adequate notice to the EPA prior to the introduction of any new pollutants from an indirect discharger that is subject to categorical standards and prior to any substantial change in the volume or character of pollutants by existing sources (40 CFR 122.42 (b) (1&2)). Adequate notice shall include information on (i) the quality and quantity of effluent introduced into the facility and (ii) any anticipated impact of the change on the quantity or quality of effluent to be discharged from the facility (40 CFR 122.42 (b)(3)),
   b) Facility shall provide adequate notice to the DEC prior to the addition or modification of any SIUs or CIUs which may materially change the nature of the discharge from the POTW or increase the discharge of one or more substances authorized in this permit or discharge a substance not currently authorized in this permit (6 NYCRR Part 750-2.9(a)(1)). Adequate notice shall include information on (i) the quality and quantity of effluent introduced into the facility and (ii) any anticipated impact of the change on the quantity or quality of effluent to be discharged from the facility (6 NYCRR 750-2.9 (a)(1)(ii)), The noticed act is prohibited until the DEC determines whether a permit modification is necessary pursuant to 750-2.9(a)(2).

MONITORING LOCATIONS

The permittee shall take samples and measurements, to comply with the monitoring requirements specified in this permit, at the locations(s) specified below:

Effluent samples shall be 24-hour flow proportioned composites taken after chlorination in the chlorine contact chambers but before the discharge combines with the industrial cooling water in the Diversion Sewer. The influent samples shall be the composite of separate 24-hour flow proportioned samples of the Gorge Force Main and the Main Wet Well. Recycled flows shall not be included in the influent sample.



GENERAL REQUIREMENTS

A. The regulations in 6 NYCRR Part 750 are hereby incorporated by reference and the conditions are enforceable requirements under this permit. The permittee shall comply with all requirements set forth in this permit and with all the applicable requirements of 6 NYCRR Part 750 incorporated into this permit by reference, including but not limited to the regulations in paragraphs B through I as follows:

B. General Conditions

1.	Duty to comply	6 NYCRR 750-2.1(e) & 2.4
2.	Duty to reapply	6 NYCRR 750-1.16(a)
3.	Need to halt or reduce activity not a defense	6 NYCRR 750-2.1(g)
4.	Duty to mitigate	6 NYCRR 750-2.7(f)
5.	Permit actions	6 NYCRR 750-1.1(c), 1.18, 1.20 & 2.1(h)
6.	Property rights	6 NYCRR 750-2.2(b)
7.	Duty to provide information	6 NYCRR 750-2.1(i)
8.	Inspection and entry	6 NYCRR 750-2.1(a) & 2.3

C. Operation and Maintenance

1.	Proper Operation & Maintenance	6 NYCRR 750-2.8
2.	Bypass	6 NYCRR 750-1.2(a)(17), 2.8(b) & 2.7
3.	Upset	6 NYCRR 750-1.2(a)(94) & 2.8(c)

D. Monitoring and Records

1.	Monitoring and records	6 NYCRR 750-2.5(a)(2), 2.5(a)(6), 2.5(c)(1), 2.5(c)(2), & 2.5(d)
2.	Signatory requirements	6 NYCRR 750-1.8 & 2.5(b)

E. Reporting Requirements

1.	Reporting requirements	6 NYCRR 750-2.5, 2.7 & 1.17
2.	Anticipated noncompliance	6 NYCRR 750-2.7(a)
3.	Transfers	6 NYCRR 750-1.17
4.	Monitoring reports	6 NYCRR 750-2.5(e)
5.	Compliance schedules	6 NYCRR 750-1.14(d)
6.	24-hour reporting	6 NYCRR 750-2.7(c) & (d)
7.	Other noncompliance	6 NYCRR 750-2.7(e)
8.	Other information	6 NYCRR 750-2.1(f)
9.	Additional conditions applicable to a POTW	6 NYCRR 750-2.9

F. Planned Changes

1. The permittee shall give notice to the Department as soon as possible of planned physical alterations or additions to the permitted facility when:

   a. The alteration or addition to the permitted facility may meet any of the criteria for determining whether facility is a new source in 40 CFR §122.29(b); or
   b. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject either to effluent limitations in the permit, or to notification requirements under 40 CFR §122.42(a)(1); or
   c. The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan.

In addition to the Department, the permittee shall submit a copy of this notice to the United States Environmental Protection Agency at the following address: U.S. EPA Region 2, Clean Water Regulatory Branch, 290 Broadway, 24th Floor, New York, NY 10007-1866.

GENERAL REQUIREMENTS (continued)

2. Notification Requirement for POTWs
   All POTWs shall provide adequate notice to the Department and the USEPA of the following:

   a. Any new introduction of pollutants into the POTW from an indirect discharger which would be subject to section 301 or 306 of CWA if it were directly discharging those pollutants; or
   b. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.
   c. For the purposes of this paragraph, adequate notice shall include information on:
      i. the quality and quantity of effluent introduced into the POTW, and
      ii. any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.

   POTWs shall submit a copy of this notice to the United States Environmental Protection Agency, at the following address:
   U.S. EPA Region 2, Clean Water Regulatory Branch, 290 Broadway, 24th Floor, New York, NY 10007-1866

G. Sludge Management
   The permittee shall comply with all applicable requirements of 6 NYCRR Part 360.

H. SPDES Permit Program Fee
   The permittee shall pay to the Department an annual SPDES permit program fee within 30 days of the date of the first invoice, unless otherwise directed by the Department, and shall comply with all applicable requirements of ECL 72-0602 and 6 NYCRR Parts 480, 481 and 485. Note that if there is inconsistency between the fees specified in ECL 72-0602 and 6 NYCRR Part 485, the ECL 72-0602 fees govern.

I. Water Treatment Chemicals (WTCs)
   New or increased use and discharge of a WTC requires prior Department review and authorization. At a minimum, the permittee must notify the Department in writing of its intent to change WTC use by submitting a completed *WTC Notification Form* for each proposed WTC. The Department will review that submittal and determine if a SPDES permit modification is necessary or whether WTC review and authorization may proceed outside of the formal permit administrative process. The majority of WTC authorizations do not require SPDES permit modification. In any event, use and discharge of a WTC shall not proceed without prior authorization from the Department. Examples of WTCs include biocides, coagulants, conditioners, corrosion inhibitors, defoamers, deposit control agents, flocculants, scale inhibitors, sequestrants, and settling aids.
   1. WTC use shall not exceed the rate explicitly authorized by this permit or otherwise authorized in writing by the Department.
   2. The permittee shall maintain a logbook of all WTC use, noting for each WTC the date, time, exact location, and amount of each dosage, and, the name of the individual applying or measuring the chemical. The logbook must also document that adequate process controls are in place to ensure that excessive levels of WTCs are not used.
   3. The permittee shall submit a completed WTC Annual Report Form each year that they use and discharge WTCs. This form shall be submitted in electronic format and attached to either the December DMR or the annual monitoring report required below. The *WTC Notification Form and WTC Annual Report Form* are available from the Department's website at: http://www.dec.ny.gov/permits/93245.html

RECORDING, REPORTING AND ADDITIONAL MONITORING REQUIREMENTS

A. The monitoring information required by this permit shall be retained for a period of at least five years from the date of the sampling for subsequent inspection by the Department or its designated agent.

B. Discharge Monitoring Reports (DMRs): Completed DMR forms shall be submitted for each 1 month reporting period in accordance with the DMR Manual available on Department's website.

DMRs must be submitted electronically using the electronic reporting tool (NetDMR) specified by NYSDEC. Instructions on the use of NetDMR can be found at https://www.dec.ny.gov/chemical/103774.html. **Hardcopy paper DMRs will only be received at the address listed below for the Bureau of Water Permits, if a waiver from the electronic submittal requirements has been granted by DEC to the facility.**

Attach the monthly "Wastewater Facility Operation Report" (form 92-15-7) and any required DMR attachments electronically to the DMR or with the hardcopy submittal.

The first monitoring period begins on the effective date of this permit, and, unless otherwise required, the reports are due no later than the 28th day of the month following the end of each monitoring period.

C. The monitoring information required by this permit shall be summarized and reported to the RWE and Bureau of Water Permits at the following addresses:

Department of Environmental Conservation
Division of Water, Bureau of Water Permits
625 Broadway, Albany, New York 12233-3505 Phone: (518) 402-8111

Department of Environmental Conservation
Regional Water Engineer, Region 9
700 Delaware Avenue, Buffalo, NY 14209 Phone: (716) 851-7070

D. Annual SPDES Monitoring Reports: An annual report shall be submitted to the Department by February 1st each year. The report shall summarize information for January to December of the previous year and shall be submitted electronically, or in hardcopy format, utilizing the SPDES Annual Report Form available on the Department's website.

Hard copy submission of the Annual Report shall be submitted to the Regional Water Engineer at the address below:

Department of Environmental Conservation
Regional Water Engineer, Region 9
700 Delaware Avenue, Buffalo, NY 14209 Phone: (716) 851-7070

E. Bypass and Sewage Pollutant Right to Know Reporting: In accordance with the Sewage Pollutant Right to Know Act (ECL § 17-0826-a), Publicly Owned Treatment Works (POTWs) are required to notify DEC and Department of Health within two hours of discovery of an untreated or partially treated sewage discharge and to notify the public and adjoining municipalities within four hours of discovery. Information regarding reporting and other requirements of this program may be found on the Department's website. In addition, POTWs are required to provide a five-day incident report and supplemental information to the DEC in accordance with Part 750-2.7(d) by utilizing the Division of Water Report of Noncompliance Event form unless waived by DEC on a case-by-case basis.

F. Schedule of Additional Submittals:

The permittee shall submit as a hardcopy the following information to the Regional Water Engineer and to the Bureau of Water Permits, unless otherwise instructed:

SCHEDULE OF ADDITIONAL SUBMITTALS		
Outfall(s)	**Required Action**	**Due Date**
001	WATER TREATMENT CHEMICAL (WTC) ANNUAL REPORT FORM The permittee shall submit a completed WTC Annual Report Form each year that Water Treatment Chemicals are used. The form shall be attached to the December DMR.	December 31st Each Year
	WHOLE EFFLUENT TOXICITY (WET) TESTING WET testing shall be performed on a Chronic testing, but report both the acute and chronic results basis, on years ending in 1 and 6 beginning January 2026. The toxicity test report including all information requested of this permit shall be attached to the monthly DMRs.	Within 60 days following the end of each monitoring period
	COMBINED SEWER OVERFLOW (CSO) ANNUAL REPORT The permittee shall submit a Combined Sewer Overflows (CSO) Annual Report, which summarizes the implementation of BMPs and the Long-Term Control Plan (if applicable). The CSO Annual Report is available from DEC on-line at https://www.dec.ny.gov/docs/water_pdf/csobmp.pdf.	January 31st Each Year
	POST-CONSTRUCTION COMPLIANCE MONITORING (PCCM) PROGRAM REPORT The permittee shall submit a PCCM Program Report as detailed in the SPECIAL CONDITIONS: CSO CONTROL POLICY section of this permit.	March 31st of years ending in 4 and 9 thereafter
	SENSITIVE AREA REASSESSMENT REPORT The permittee shall prepare and submit to the Regional Water Engineer a report, separately from the PCCM Program Report, as detailed in the SPECIAL CONDITIONS: CSO CONTROL POLICY section of this permit.	December 31st of years ending in 4 and 9 thereafter
	PUBLIC NOTIFICATION Permittee shall install identification signs at all outfalls (including CSO outfalls) owned and operated by the permittee. The signs shall be placed at or near the outfalls and be easily readable by the public and follow the guidelines contained in this permit.	EDP + 12 months
	STORMWATER NO EXPOSURE CERTIFICATION Permittee must recertify every five years a condition of no exposure to stormwater in order to continue to qualify for the no exposure exclusion. The No Exposure Certification Form can be found on the NYSDEC website.	EDP + 5 Years, and every 5 years thereafter
	MERCURY MINIMIZATION PLAN The permittee must complete and maintain onsite an annual mercury minimization status report in accordance with the requirements of this permit.	***Maintained Onsite*** EDP + 12 months, annually thereafter

SCHEDULE OF ADDITIONAL SUBMITTALS		
Outfall(s)	**Required Action**	**Due Date**
	PCB MINIMIZATION PROGRAM – STATUS REPORT The permittee shall submit an annual PCB minimization program status report. The report shall follow the guidelines of this permit, summarizing: (a) all PCBMP monitoring results for the previous year; (b) a list of known and potential PCB sources; (c) all action undertaken pursuant to the strategy during the previous year; (d) actions planned for the upcoming year; and, (e) progress toward the goal. A file shall be maintained containing all PCBMP documentation which shall be available for review by NYSDEC representatives. Copies shall be provided upon request.	EDP + 12 months, annually thereafter
	PRETREATMENT PROGRAM Submit a report that briefly describes the permittee's program activities over the previous year. The report shall follow the guidelines contained in this permit and be submitted to the Regional Water Engineer and the Bureau of Water permits as well as the USEPA Region II office.	Within 60 days following December 31st, Annually
	BIENNIAL POLLUTANT SCAN The permittee shall implement an ongoing monitoring program and perform effluent sampling every two years as specified in Footnote 4. Retain and submit with next NY-2A Application	EDP + 2 years, biennially thereafter
	EMERGING CONTAMINANT SHORT-TERM MONITORING PROGRAM The permittee shall collect grab samples of both the influent and effluent from the facility's treatment system(s) associated with the identified outfall for Per-and Polyfluoroalkyl Substances (PFAS) and 1,4-Dioxane (1,4-D), unless permittee receives written notification from the Department during this time that sampling can be discontinued. Samples must be analyzed utilizing EPA draft analytical method 1633 and EPA Method 8270D SIM or 8270E SIM, respectively. The samples must represent normal discharge conditions and treatment operations and shall be obtained on a quarterly basis for at least 4 consecutive quarters, unless written notification from the Department indicates otherwise. The results shall be reported through the "Emerging Contaminants Survey for POTWs" found at: https://www.dec.ny.gov/chemical/127939.html. The permittee shall initiate track down of potential sources by completing the "Emerging Contaminants Investigation Checklist for POTWs" available at the above link. The Department may periodically request updates and/or additional monitoring to check progress on track down investigations. Elements of the checklist may be used as permit conditions in future permit modifications.	EDP + 14 months Within 90 days of DEC written notification

Unless noted otherwise, the above actions are one-time requirements. The permittee shall submit the results of the above actions to the satisfaction of the Department. When this permit is administratively renewed by NYSDEC letter entitled "SPDES NOTICE/RENEWAL APPLICATION/PERMIT", the permittee is not required to repeat the above submittal(s), unless noted otherwise. The above due dates are independent from the effective date of the permit stated in the letter of "SPDES NOTICE/RENEWAL APPLICATION/PERMIT."

G. Monitoring and analysis shall be conducted using sufficiently sensitive test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this permit.

H. More frequent monitoring of the discharge(s), monitoring point(s), or waters of the State than required by the permit, where analysis is performed by a certified laboratory or where such analysis is not required to be performed by a certified laboratory, shall be included in the calculations and recording of the data on the corresponding DMRs.

I. Calculations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified in this permit.

J. Unless otherwise specified, all information recorded on the DMRs shall be based upon measurements and sampling carried out during the most recently completed reporting period.

K. Any laboratory test or sample analysis required by this permit for which the State Commissioner of Health issues certificates of approval pursuant to section 502 of the Public Health Law shall be conducted by a laboratory which has been issued a certificate of approval. Inquiries regarding laboratory certification should be directed to the New York State Department of Health, Environmental Laboratory Accreditation Program.

SPDES Permit Fact Sheet
Niagara Falls Water Board
Niagara Falls WWTP
NY0026336

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Contents

Summary of Permit Changes 4
Administrative History 4
Facility Information 6
Background 6
Applicability of Secondary Treatment Standards 8
Pretreatment Program 8
Site Overview 9
Site Overview (Continued) 10
Enforcement History 12
Receiving Water Information 13
Outfall Information 13
Impaired Waterbody Information 15
Mixing Zone Analysis 16
Permit Requirements 18
Whole Effluent Toxicity (WET) Testing 18
Anti-backsliding 19
Antidegradation 19
Discharge Notification Act Requirements 19
Requirements for Combined Sewer Overflows (CSOs) Appendix Link 20
Stormwater Pollution Prevention Requirements 20
Mercury 21
Polychlorinated biphenyls (PCBs) 21
Pollutant Minimization Program (PMP) 21
Industrial Pretreatment Program 22
Emerging Contaminant Short-Term Monitoring Program 22
Biennial Pollutant Scan 23
Schedule(s) of Submittals 23
Existing Effluent Quality 23
OUTFALL AND RECEIVING WATER SUMMARY TABLE 24
POLLUTANT SUMMARY TABLE 24
Outfall 001 24
Appendix: Regulatory and Technical Basis of Permit Authorizations 45
Regulatory References 45
Outfall and Receiving Water Information 45

Interstate Water Pollution Control Agencies....46
Existing Effluent Quality....46
Permit Requirements....46

Summary of Permit Changes

A State Pollutant Discharge Elimination System (SPDES) EBPS permit renewal has been drafted for the Niagara Falls WWTP. The following is a summary of the proposed changes. The details of these proposed changes are specified below and in the draft permit:

1. New effluent limitations for Biochemical Oxygen Demand (BOD5).
2. New effluent limitations for Settleable Solids.
3. New effluent limitation for Total Sulfides.
4. New monitoring requirements for Apparent Color.
5. Modified effluent limitations for Total Phenolics.
6. Modified effluent limitations for Mercury.
7. New effluent limitation for Dieldrin.
8. Removed monitoring requirements for Enterococci.
9. New effluent limitation for Total Cyanide.
10. New effluent limitation for Total Dissolved Solids.
11. New WET Testing action levels and limits.
12. Updated Compliance Level for Polychlorinated biphenyls (PCBs).
13. New monitoring for Emerging Contaminants.
14. Revised sampling frequencies for all parameters.

This factsheet summarizes the information used to determine the effluent limitations[1] and other conditions contained in the permit. General background information about the regulatory bases for the effluent limitations and other conditions contained in this draft permit are in the Appendix linked throughout this factsheet.

Administrative History

The following provides a brief administrative history of activities that have occurred since the effective SPDES permit was issued.

11/1/2013 The SPDES permit became effective with a five-year term. The effective SPDES permit has an expiration date of 10/31/2018. The effective SPDES permit, along with all subsequent modifications as listed below, have formed the starting point for this Permit Modification and Renewal pursuant to 6 NYCRR 621.11, 621.13(a)(6), 750-1.16, and 750-1.18(b)(1) and (7).

12/1/2013 The effective SPDES permit was modified to include a mercury effluent limitation of 50 ng/L in accordance with TOGS 1.3.10.

4/20/2015 The Department and the Niagara Falls Water Board (NFWB) executed an Order on Consent (R9-20141028-80) to resolve exceedances of the permitted effluent limitations for mercury from June 2012 to October 2014. R9-20141028-80 also provided interim mercury effluent limitations, which expired on 12/31/2017.

7/29/2017 The WWTP had a major malfunction, which resulted in an inky black discharge to the Niagara River. The discharge caused a visible contrast in the waterbody in contravention of the State's narrative water quality standards. The event resulted in negative international media coverage. Consequently, R9-20141028-80 was then modified to resolve the violations and include corrective actions.

[1] "limit" is used interchangeably with "limitation" in the tables of the factsheet

12/18/2017 The Department and the NFWB executed an Order on Consent (R9-20170906-129) to complete various operations and maintenance related improvements to the WWTP and combined sewer system.

3/23/2018 The NFWB submitted a permittee-initiated modification request to continue the interim effluent limitations, in the effective SPDES permit, for four benzene hexachloride (BHC) isomers beyond the permit term (i.e. 10/31/2018).

4/17/2018 The NFWB submitted at timely and sufficient application for renewal.

10/29/2018 The effective SPDES permit was modified to continue interim effluent limitations for three BHC isomers based on 1) existing effluent quality and 2) improvements in BHC concentrations. The Schedule of Compliance was modified to require compliance with final effluent limitations for those three BHC isomers by 10/29/2021. The effective SPDES permit was also modified to remove the interim effluent limitation for one isomer, β-BHC, because the final effluent limitation was already met.

11/01/2018 The effective SPDES permit was administratively extended pursuant to SAPA[2].

11/20/2018 The Department and the NFWB executed a modified Order on Consent (R9-20170906-129) to extend compliance dates for various operations and maintenance related improvements to the WWTP and combined sewer system.

1/10/2019 The Department sent a Request for Information (RFI) pursuant to the Environmental Benefit Permitting Strategy[3] (EBPS) to modify and renew the effective SPDES permit.

7/19/2019 On 4/17/2019, the Department received a NY-2A permit application from the NFWB. On 3/14/2019, the Department received a completed Mixing Zone Analysis form. On 6/27/19, the Department received sampling information and three priority pollutant scans. On 7/19/2019, the Department received a certification of No Exposure.

3/19/2021 The Department and the NFWB met to discuss the draft SPDES permit including proposed effluent limitations and the mixing zone analysis.

3/25/2021 The Department requested additional sampling for specific parameters including BOD5, Chloroform, Cis-1,2-Dichloroethene, Tetrachloroethene, Vinyl Chloride, Aldrin, Total Cyanide, Total Dissolved Solids, and Ammonia (as N) to confirm effluent characterization for permit development.

4/7/2021 The NFWB submitted a sampling plan for Department approval.

4/27/2021 The Department provided comments to the NFWB on the submitted sampling plan.

[2] State Administrative Procedures Act Section 401(2) and 6 NYCRR 621.11(*l*)
[3] 6 NYCRR 750-1.19 and TOGS 1.2.2.

4/28/2021 The NFWB sufficiently responded to Department comments. The Department notified the NFWB that the sampling plan was acceptable.

8/27/2021 The NFWB submitted additional sampling in response to the 3/25/2021 sampling request and provided feedback on the draft permit.

5/20/2024 The NFWB and the Department executed Consent Order File No. 23-05 R9-202330411-13.

Facility Information

Background

This is a municipal facility that receives flow contributions from domestic and industrial users, including process waste streams from industrial users. Effluent consists of treated sanitary wastewater, industrial wastewater, and stormwater.

The collection system includes about 300 miles of both separate and combined sewers owned by the City of Niagara Falls and the Town of Niagara Falls (NYS900023). Approximately two-thirds of the collection system includes combined sewers. For more information on the collection system, please see the Outfall Information section of this permit.

The Niagara Falls Wastewater Treatment Plant (WWTP) is a physical-chemical facility. The WWTP was constructed in 1977 to provide primary treatment for a design flow of 48 million gallons per day (MGD). Since then, the WWTP has maintained the same treatment processes but has performed some optimization to provide improved solids removal. This WWTP utilizes granular activated carbon beds to treat an average flow of 28 MGD of wastewater, of which approximately 3 MGD is from significant industrial users. There are five primary sedimentation basins at the WWTP; four are used for influent wastewater treatment and the fifth basin (Sedimentation No. 5) is used to treat carbon filter backwash.

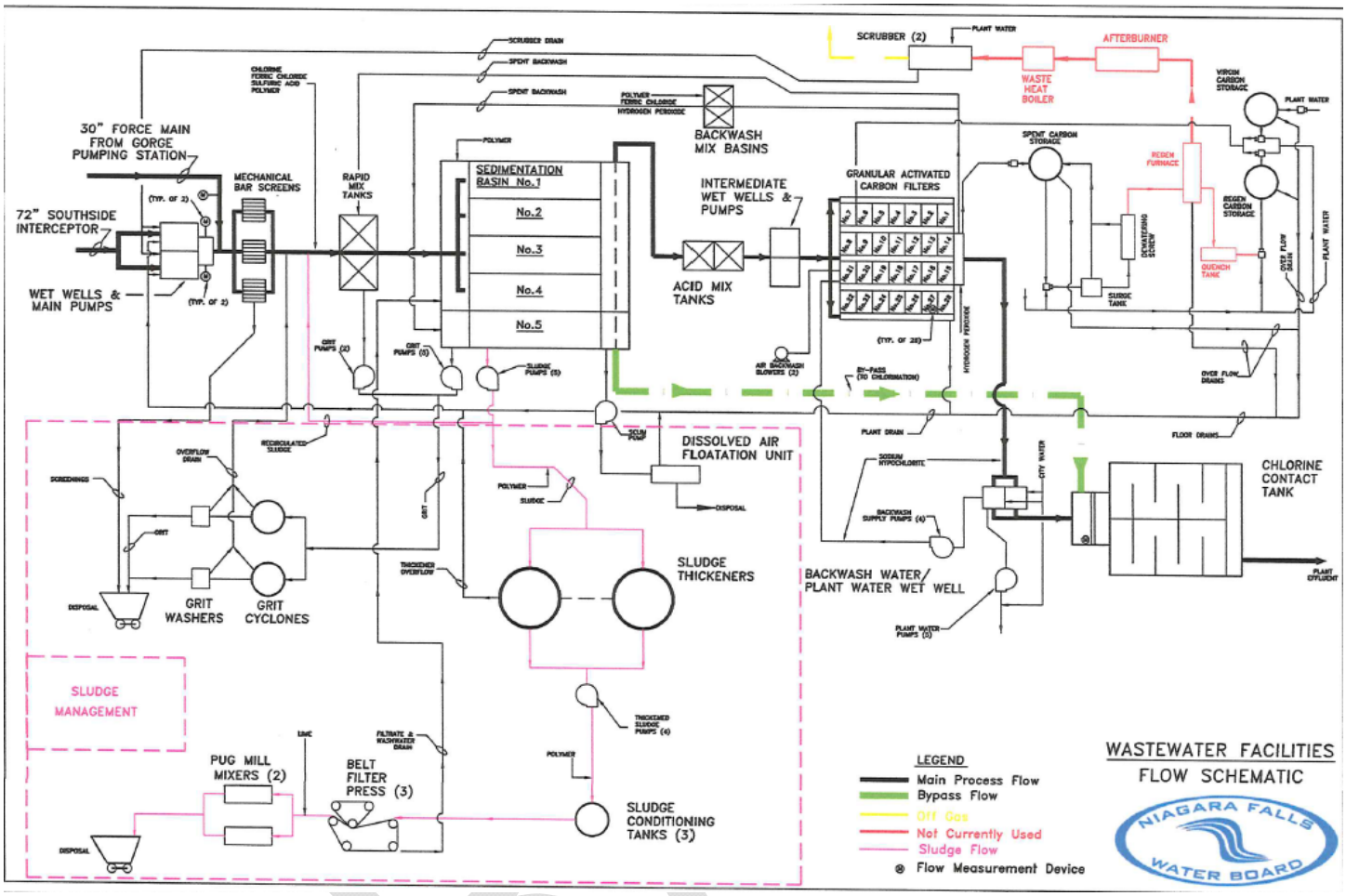


Figure 1: WWTP Flow Schematic

The WWTP originally regenerated its own carbon in an on-site multiple hearth furnace; however, in 2008, the WWTP switched to a Carbon Inventory Replacement System. Spent carbon is removed off-site for regeneration or landfill disposal and new carbon is brought in to replenish the filters. The new carbon is either regenerated/reactivated carbon or virgin carbon.

The sludge from the sedimentation basins is thickened, conditioned, and further dewatered by a belt filter press. Filtrate and wash water are diverted back to the sedimentation basins. Dewatered sludge is stabilized by lime and then hauled to the Modern Landfill in Model City, NY.

During dry weather the combined sewers convey wastewater to the WWTP where it is treated to remove pollutants before discharging to the Niagara River. During wet weather events, when stormwater enters the sewers, the combined sewer flow may exceed the capacity of the sewers or the WWTP, and a portion of the effluent may be discharged directly to the Niagara River without treatment. Please see the Outfall Information section of the factsheet for information on these outfalls and the Long-Term Control Plan section of the factsheet for information on the Combined Sewer Overflows (CSOs).

Applicability of Secondary Treatment Standards

The WWTP was designed and constructed in 1977 before the United States Environmental Protection Agency's (EPA's) National Pretreatment Program was established. The WWTP's treatment technology, specifically the granular activated carbon system, was selected to prioritize treatment of toxic pollutants because there was no mechanism to adequately manage discharges originating from industrial process waste streams. Due to the toxicity of the influent wastewater, biological activity was inhibited and the WWTP could not meet secondary treatment requirements. Therefore, pursuant to 40 CFR §133.104(b), the Department substituted Total Organic Carbon (TOC) for BOD_5 following a long-term BOD_5:TOC correlation analysis.

In 1981, EPA promulgated industrial pretreatment regulations that required the control of pollutants that can pass through or interfere with treatment processes. As a result, many indirect industrial users were required to treat their process waste streams prior to discharging to a municipal WWTP. Today, flows from industrial sources are significantly lower, domestic waste streams make up approximately 90% of the total waste stream, and the WWTP has an EPA approved pretreatment program to manage its industrial users.

Conditions within the sewer shed have significantly changed since the facility was first permitted and it is no longer necessary to provide alternative treatment limitations. Therefore, this permit includes secondary effluent limitations for BOD_5 as required by 40 CFR Part 133.

Pretreatment Program

The facility has an EPA approved pretreatment program to manage its industrial users. The pretreatment program was initially approved by EPA on May 8, 1985.

The facility accepts wastewater from the following industrial users:

#	Significant Industrial User (SIU)	Industrial Code	Categorical (if applicable to 40 CFR)
1	CECOS International Inc.	4953 – Reuse Systems	-
2	Goodyear Rubber & Tire Company	2869 – Organic Chemicals, Plastics, and Synthetic Fibers	**40 CFR Part 414** - Organic Chemicals, Plastics, and Synthetic Fibers
3	Niacet Corporation	2869 – Organic Chemicals, Plastics, and Synthetic Fibers	**40 CFR Part 414** - Organic Chemicals, Plastics, and Synthetic Fibers
4	Niagara Custom Plating	3471 – Metal Finishing / Electroplating	**40 CFR Part 413** – Electroplating **40 CFR Part 433** – Metal Finishing
5	Occidental Chemical Corporation	2812 – Inorganic Chemicals 2819 – Inorganic Chemicals	**40 CFR Part 415** – Inorganic Chemicals Manufacturing

6	Olin Corporation	2812 – Inorganic Chemicals 2819 – Inorganic Chemicals	**40 CFR Part 415** – Inorganic Chemicals Manufacturing
7	Covanta Niagara Inc.	4939 – Combination Utilities	-
8	Washington Mills Electro Minerals Corp.	3291 – Abrasive Products	-
9	Glenn Springs Holdings Inc. – Love Canal	4952 – Sewerage Systems	-
10	CRS Truck / Trailer Services Inc.	7699 – Transportation Equipment Cleaning	**40 CFR Part 442** – Transportation Equipment Cleaning
11	Saint Gobain Advanced Ceramics	3271 - Concrete Block and Brick	-
12	Glenn Springs Holdings, Inc.	9999 – Non-classifiable Establishment	-
13	Norampac Containerboard Packaging, Inc.	2631 – Pulp, Paper, and Paperboard	**40 CFR Part 430** –Pulp, Paper, and Paperboard
14	Sherwood Forest Properties Inc.	NA – Remedial Ground Water Treatment	-
15	Durez Corporation	2821 – Organic Chemicals, Plastics, and Synthetic Fibers	**40 CFR Part 414** - Organic Chemicals, Plastics, and Synthetic Fibers
16	North American Hogänäs	3399 – Primary Metal Products	-
17	Forrest Glen	4953 – Refuse Systems	-
18	Allied Waste Niagara Falls	4953 – Refuse Systems	-
19	Chemours Company FC LLC NECCO Park Groundwater Treatment Facility	2819 – Inorganic Chemicals	**40 CFR Part 415** – Inorganic Chemicals Manufacturing
20	TAM Ceramics Group of NY, LLC	2819 – Inorganic Chemicals	**40 CFR Part 415** – Inorganic Chemicals Manufacturing

Site Overview

Figures 2 and 3 depict aerial imagery of the NFWB's WWTP and Adam's Tailrace Tunnel, which is also known as Outfall 001. The WWTP is located on the southern end of the Niagara Falls and is approximately one mile from Outfall 001 and is located on the west side of Niagara Falls. Outfall 001 is downstream of the Niagara Falls waterfall, just upstream of the Rainbow Bridge, and approximately 600 feet downstream of the Maid of the Mist tour deck.

Site Overview (Continued)

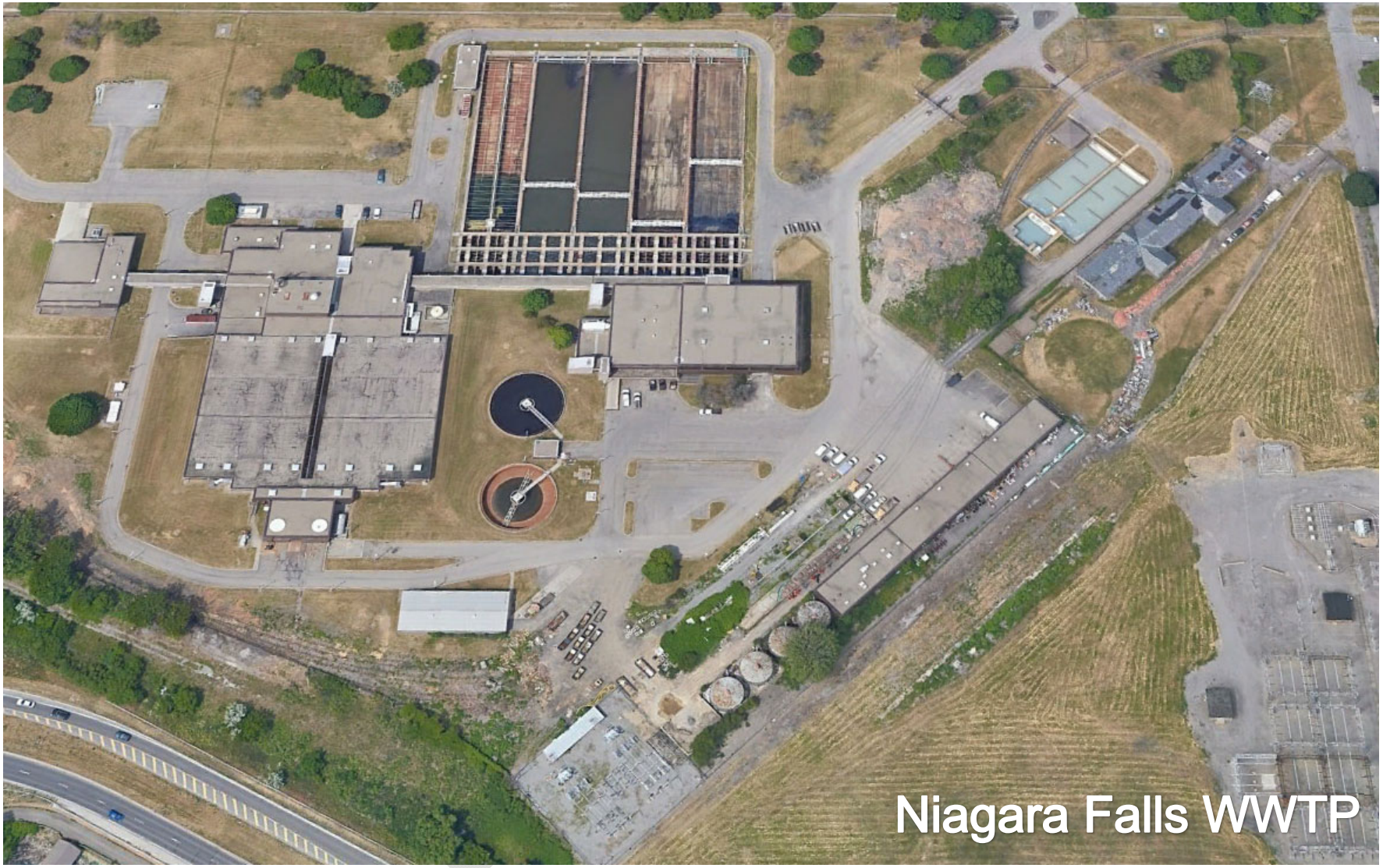


Figure 2: Aerial image of the Niagara Falls WWTP.

Figure 3: Aerial view of Outfall 001 to the Niagara River.

Enforcement History

An overview of the facility's enforcement history from 1/1/2015 to 7/22/2024 is outlined below. Additional details of the enforcement history can be found in the Administrative History section of this factsheet.

This table summarizes the violations and how they were addressed:

Date of Enforcement	Enforcement Type	Description of Violation	Corrective Action Taken
3/25/2015	Execution of Consent Order File No. 14-51 R9-20141028-80	Repeat exceedances of Mercury effluent limitations in the effective SPDES permit	Mercury monitoring program for track-down, reduction of accumulated solids, evaluate alternative to control Mercury discharge.
12/18/2017	Execution of Consent Order File No. 17-52 R9-20170906-129	The WWTP discharged dark effluent from Outfall 001 to the Niagara River, which caused a substantial visible contrast to natural conditions in the Niagara River and in contravention of the State's narrative water quality standard for turbidity, in violation of ECL 17-0501 and 6 NYCRR 703.2	Improve operation and maintenance, staffing, and training at the WWTP. Reduce excess solids accumulation throughout the WWTP. Improve reliability of sedimentation basins. Conduct evaluations for improved chemical use. Update the wet weather operating plan. Evaluate alternatives to improve the disinfection process. Evaluate the use of chemical oxidizers to control sulfide formation in the WWTP. Evaluate the conversion to a biological treatment process and the potential for additional CSO capture. Evaluate the potential relocation of outfalls. Provide additional reporting.
11/20/2018	Modification to Consent Order File No. 17-52 R9-20170906-129	-	Implement projects described in the 2018 Engineering Report – Wastewater Treatment Plant and Gorge Pump Station Rehabilitation.
5/20/2024	Execution of Consent Order File No. 23-05 R9-202330411-13	The WWTP discharges have continued to cause substantial visible contrast/ turbidity to natural conditions and are in violations of ECL §17-0501 and 6 NYCRR 703.2	Evaluate and construct a full or partial conversion to a biological treatment process, or otherwise make such capital or operational improvements as are required to abate discharges from the wastewater treatment plant that may cause a substantial visible contrast/turbidity in the receiving water.

Environmental regulatory compliance and enforcement information for this facility can be found on the Enforcement and Compliance History Online at https://echo.epa.gov.

Receiving Water Information

Outfall Information

The WWTP's treated effluent is discharged to the Ice Shaft, which is a vertical shaft tunnel. Effluent from other permitted discharges also enter the Ice Shaft though a Diversion Sewer which is owned by the NFWB. The Diversion Sewer conveys both industrial non-contact cooling water (NCCW) and stormwater to the Ice Shaft. The permitted users of the Diversion Sewer include Occidental Chemical Co. (NY0003336), Praxair, Inc. (NY0108251), Chemours, FC. LLC (NY0003328), Olin Corporation (NY0001635), and Washington Mills (NY0203335). In accordance with 6 NYCRR 750-2.5(a)(2), effluent samples are taken after chlorination in the chlorine contact chambers but before the discharge combines with the industrial cooling water in the Diversion Sewer.

Figure 4: Outfall 001 (right); Falls Street Tunnel CSO Outfall 003 (left).

The combined wastewater freefalls for approximately 150 feet before it enters the Adams Tail Race Tunnel (ATRT). The ATRT runs underneath the City of Niagara Falls and discharges at the lower Niagara River gorge via Outfall 001, which is adjacent to the Rainbow Bridge.

An outfall summary is provided below:

Outfall No.	Outfall Name	Outfall Type	Wastewater Type and Discharge Information	Receiving Water
001	Main WWTP Outfall	WWTP Outfall	Treated sanitary, storm, and industrial wastewaters	Niagara River
01A	Stormwater at WWTP – Head of Ice Shaft	Stormwater	Stormwater	Niagara River
02A	Stormwater at WWTP – Drop Shaft to International Paper	Stormwater	Stormwater	Niagara River
003	Falls Street Tunnel	CSO	Untreated overflow – discharges less than once per month for less than 12 hours at a time.	Niagara River
004	Diversion Sewer	Diversion Sewer	Industrial non-contact cooling water and storm water from industrial SIUs. These facilities have their own SPDES permits. See below for more information.	Niagara River
006	Gorge Pumping Station	CSO	Untreated overflow with floatables control – discharges 2-4 times per month for approximately 8 hours at a time.	Niagara River
007	Cleveland Avenue	CSO	Untreated overflow.	Niagara River
009	Chasm Avenue	CSO	Untreated overflow.	Niagara River
010	Maple Avenue	CSO	Untreated overflow.	Niagara River
011	Garfield Avenue	CSO	Untreated overflow with floatables control.	Niagara River

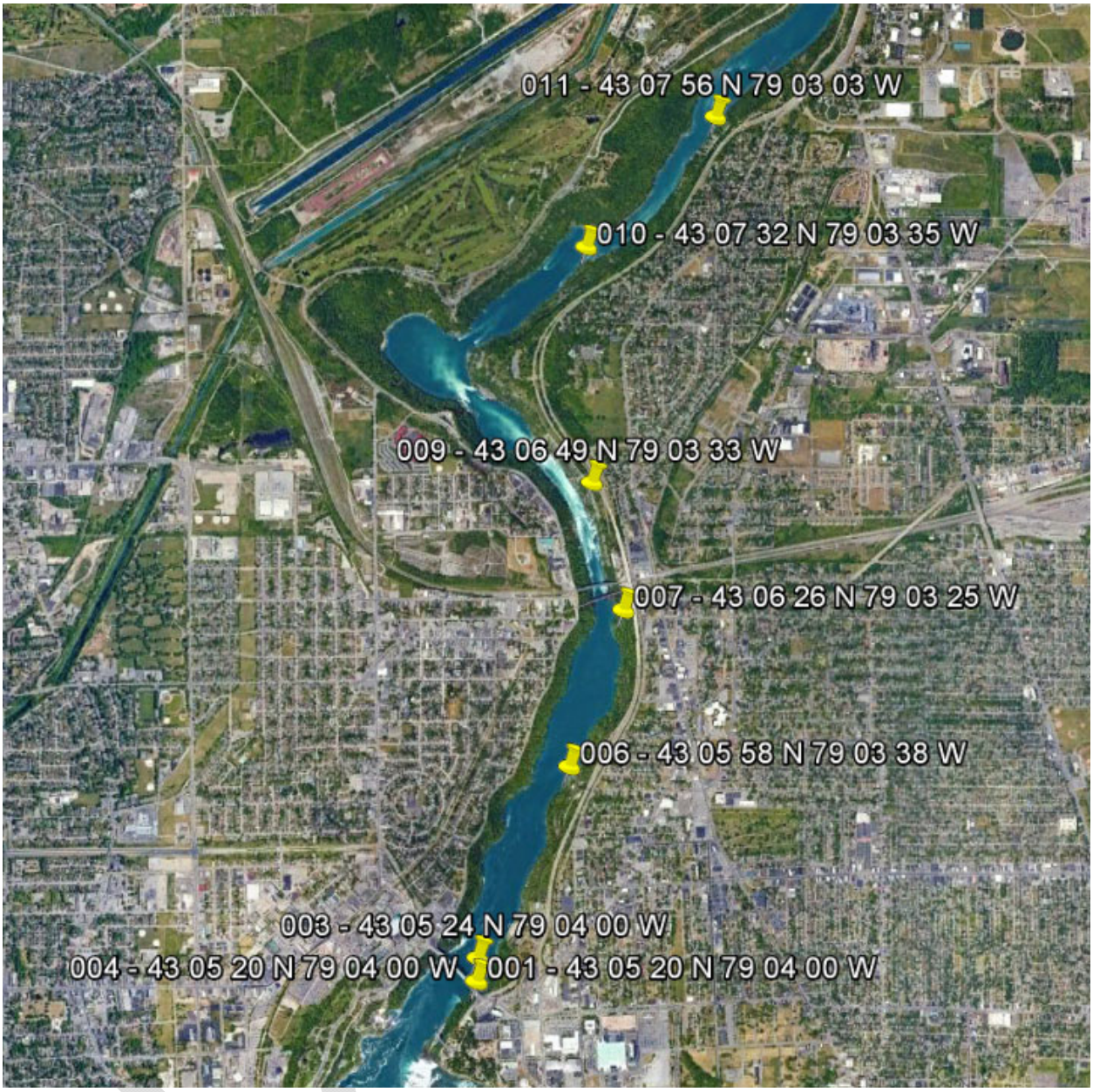


Figure 5: The location of the CSO outfalls in relation to the main outfall and treatment facility, including CSO numbers and GPS coordinates.

The location of the outfall(s), and the name, classification, and index numbers of the receiving waters are indicated in the Outfall and Receiving Water Summary Table at the end of this fact sheet. Appendix Link

Impaired Waterbody Information

The Niagara River segment PWL No. 0101-0006[4] and PWL No. 0101-0027[5] are listed on the 2020/2022 New York State Section 303(d) List of Impaired/TMDL Waters as impaired. The following table includes the identified pollutants contributing to impairment of these segments.

[4] Located upstream of Outfall 001 at latitude 43.07 and longitude -79.00.
[5] Located downstream of Outfall 001 at latitude 43.21 and longitude -79.05.

PWL Segment	Pollutant
0101-0006	Org.Chlor.Pest/HCB
0101-0006	PAHs
0101-0006	PCBs
0101-0027	Iron
0101-0027	Total Phenols
0101-0027	Org.Chlor.Pest/HCB
0101-0027	PAHs
0101-0027	Dioxin
0101-0027	Mirex
0101-0027	PCBs

No mixing zone is permissible for pollutants causing or contributing to water quality impairments[6]. A TMDL has not been developed to address the impairments and, therefore, there are no applicable wasteload allocations (WLAs) for this facility. Specific pollutant information can be found in the Pollutant Summary Table at the end of this fact sheet. Appendix Link

Mixing Zone Analysis

The Department has proposed a mixing zone for the facility as described in the following sections. For more information on the applicable regulatory background, please see the Appendix. Appendix Link

Waterbody and Outfall

The facility discharges to the Niagara River, which is a Class A-Special waterbody. As described earlier, the Adams Tailrace Tunnel – hereafter referred to as Outfall 001 – conveys treated wastewater from the WWTP to the river. The Niagara River flows from Lake Erie to Lake Ontario, south to north. At the discharge location, it is 120 meters from the International Boundary.

In response to the Department's 1/10/2019 RFI, the permittee submitted information related to Outfall 001's discharge location and outfall configuration. This information was used to develop a CORMIX model. Design drawings submitted by the permittee with the application confirm the configuration of the outfall.

[6] Consistent with 6 NYCRR 750-1.10 and TOGS 1.3.1.

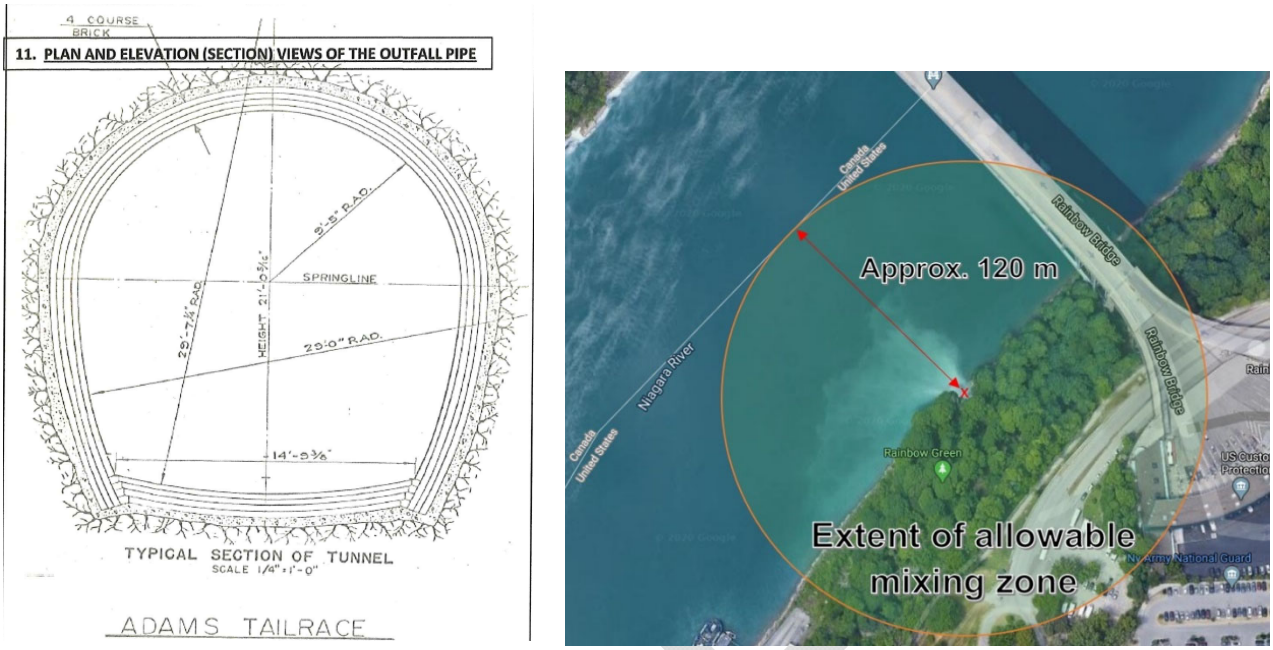


Figure 6: The image on the left shows a detail drawing of Outfall 001 from the permittee's NY-2A Application. The image on the right shows the outfall and maximum extent of the mixing zone.

Outfall 001 is a 21-foot by 14-foot tunnel that reaches the bank of the Niagara River, just southwest of the Rainbow Bridge. Outfall 001 does not extend into the Niagara River. The outfall experiences water levels between 0.5 feet to 6 feet based on data collected from 2000 to 2018. The structure is approximately 600 feet downstream of the Maid of the Mist tour deck, which is a popular tourist destination.

Mixing Zone Conclusions

A CORMIX model was developed for Outfall 001. Pursuant to ECL sections 17-0701(1)(a) and 17-0803, a SPDES permit is required for the addition of a pollutant from a point source to waters of the state. As defined in 6 NYCRR 750-1.2(a)(101), waters of the State are those within its jurisdiction. By extension, a mixing zone cannot extend beyond the jurisdiction of the State. For the NFWB, the International Boundary is the jurisdictional limit. Therefore, the maximum allowable extent of the mixing zone is 120 meters from shore. At this location, CORMIX predicts a maximum dilution of 10:1, which is applicable to chronic and HEW water quality standards.

In accordance with TOGS 1.3.1, the acute mixing zone is limited to 50% of the chronic spatial distance or 60 meters. At 60 meters, the corresponding dilution is 8:1. Where applicable, the proposed SPDES permit includes effluent limitations reflective of the criteria described in the table below.

Outfall No.	Acute Dilution Ratio A(A)	Chronic Dilution Ratio A(C)	Human, Aesthetic, Wildlife Dilution Ratio (HEW)	Basis
001	8:1	10:1	10:1	CORMIX

A copy of the CORMIX Prediction File is included as an attachment.

Parameters that fall into the category of human-made organic substances bio-accumulate through the food chain. In accordance with TOGS 1.3.1A, and 40 CFR Part 132 Table 6, no dilution is available for these parameters and effluent limitations are set at end-of-pipe.

Critical receiving water data are listed in the Pollutant Summary Table at the end of this fact sheet. Appendix Link

Permit Requirements

The technology based effluent limitations (TBELs), water quality-based effluent limitations (WQBELs), existing effluent quality and a discussion of the selected effluent limitation for each pollutant present in the discharge are provided in the Pollutant Summary Table.

Whole Effluent Toxicity (WET) Testing

An evaluation of the discharge indicates the potential for toxicity based on the following criteria: Appendix Link

- There is the presence of substances in the effluent for which ambient water quality criteria do not exist. (#1)
- There are uncertainties in the development of TMDLs, WLAs, and WQBELs, caused by inadequate ambient and/or discharge data, high natural background concentrations of pollutants, available treatment technology, and other such factors. (#2)
- There is the presence of substances for which WQBELs are below analytical detectability. (#3)
- Treatment plants which equal or exceed a discharge of 1MGD. (#7)

Consistent with TOGS 1.3.2, a reasonable potential analysis was performed using the existing WET data for this facility (see data below). It was determined that while the analysis indicated potential for toxicity in the effluent, WET testing is required based on the criteria listed above and WET action levels and limits are being added to the permit. Given the dilution available and location within the Great Lakes basin, the permit requires chronic WET testing. Samples will be collected Quarterly for the length of the permit on years ending in 1 and 6. WET testing limit of **2.4** TUa and action level of **10** TUc have been included in the permit for each species. The acute limits for each species represent the acute dilution ratio times a factor of 0.3. The chronic action levels represent the chronic dilution ratio.

Test Date	[1]MSS 48H LC50 (%Effluent)	[2]MSS TUa	[3]TUa Action Level	[4]MSS Survival 100% Effluent	[5]Acute Test Result	[6]MSS RPD TUa	[7]Acute WET Limit Required	[8]MSS 7D NOEC/IC25 (%Effluent)	[9]MSS NOEC/IC25 TUc	[10]TUc Action Level	[11]Chronic Test Result NOEC/IC25	[12]MSS RPD IC25 TUc	[13]Chronic WET Limit Required
03/21	>100% (FI)	<0.3 (FI)	2.4	100% (FI)	Pass	<0.8	No	>100% (FI)/ >100% (FI)	<1.0 (FI)/<1.0 (FI)	10.0	Pass/Pass	<2.6	No
05/21	>100% (FI)	<0.3 (FI)	2.4	97.5% (F)	Pass	<0.8	No	>100% (FI)/ >100% (FI)	<1.0 (FI)/<1.0 (FI)	10.0	Pass/Pass	<2.6	No
09/21	76.0% (I)	1.3 (I)	2.4	20% (I)	Pass	3.4	**Yes**	25.0% (I)/33.2% (I)	4.0 (I)/3.0 (I)	10.0	Pass/Pass	7.8	No
11/21	>100% (FI)	<0.3 (FI)	2.4	100% (FI)	Pass	<0.8	No	>100% (FI)/ >100% (FI)	<1.0 (FI)/<1.0 (FI)	10.0	Pass/Pass	<2.6	No

[1]Most Sensitive Species 48-hour Lethal Concentration: (F=Fish; I=Invertebrate) is the concentration or percentage of effluent that is lethal to 50% of the exposed organisms over a 48-hour period, and often indicates one species is more sensitive than the other during effluent testing.

[2]Most Sensitive Species Toxic Units Acute: is calculated as (100 / MSS 48H LC50). However, because ≤ 0.3 TUa is defined as the acceptable amount of acute toxicity at the edge of the acute mixing zone, and mathematically 100 / 100 = 1.0 (i.e. a "failing result"), non-toxic acute test results are indicated as < 0.3.

[3]Toxic Unit Acute Action Level/Limit: is calculated as [Acute Dilution Factor x 0.3 TUa] representing the maximum allowable effluent TUa at the edge of the acute mixing zone using the seven-day once-in-ten year low flow (7Q10) ensuring acute protection of the receiving water. When the Acute Dilution Factor is <3.3, the default Acute Action Level of 0.3 TUa is used representing the maximum allowable effluent TUa at the end of pipe.

[4]Most Sensitive Species Survival in 100% Effluent: is the lowest percentage of surviving organisms in 100% effluent, providing additional evidence of unacceptable acute toxicity when the necessary 50% or greater mortality required to generate an LC50 has not been attained. *Denotes statistically significant mortality in 100% effluent as compared to the control.

[5]Acute Test Result: MSS TUa ≤ TUa Action Level/Limit for passing effluent test result and MSS TUa > TUa Action Level//Limit for a failing effluent test result. If unacceptable mortality (i.e. statistically significant as compared to the control) is noted in 100% effluent, this may also be considered a failing test result.

[6]Most Sensitive Species Reasonable Potential Determination Toxic Units Acute: is calculated as (MSS TUa x 2.6), the Reasonable Potential Multiplier when four quarterly tests have been completed, taking into account the statistical potential for effluent variability to occur causing an exceedance of the toxicity-based action level.

[7]Acute Whole Effluent Toxicity Limit Required: MSS RPD TUa ≤ TUa Action Level, then no toxicity-based limit is required, and the action level remains in place. If MSS RPD TUa > TUa Action Level, then a toxicity-based limit is required, and the action level becomes the limit. **In low dilution situations, the application of the RPD to the acute results often mathematically suggests the need for acute WET limits even when there is no toxicity evident in 100% effluent (a non-detect). Therefore, this data cannot be used to implement a WET limit.

[8]Most Sensitive Species 7-day No Observed Effect Concentration or 25% Inhibition Concentration: is the highest concentration or percentage of effluent tested that causes no statistically significant effect to the exposed test organisms as compared to the control over a 7-day period, or the concentration or percentage of effluent that causes a 25% reduction in reproduction or growth for the test population.

[9]Most Sensitive Species Toxic Units Chronic: is calculated as (100 / MSS 7D NOEC) or (100 / MSS 7D IC25).

[10]Toxic Unit Chronic Action Level/Limit: is calculated as [Chronic Dilution Factor x 1.0 TUc] representing the maximum allowable effluent TUc at the edge of the chronic mixing zone using the seven-day once-in-ten year low flow (7Q10) ensuring chronic protection of the receiving water.

[11]Chronic Test Result: MSS NOEC/IC25 TUc ≤ TUc Action Level/Limit for passing effluent test result and MSS NOEC/IC25 TUc > TUc Action Level/Limit for a failing effluent test result.

[12]Most Sensitive Species Reasonable Potential Determination Toxic Units Chronic: is calculated as (MSS IC25 TUc x 2.6), the Reasonable Potential Multiplier when four quarterly tests have been completed, taking into account the statistical potential for effluent variability to occur causing an exceedance of the toxicity-based action level.

[13]Chronic Whole Effluent Toxicity Limit Required: MSS RPD IC25 TUc ≤ TUc Action Level, then no toxicity-based limit is required, and the action level remains in place. If MSS RPD IC25 TUc > TUc Action Level, then a toxicity-based limit is required, and the action level becomes the limit. ***In low dilution situations, the application of the RPD to the chronic results often mathematically suggests the need for chronic WET limits even when there is no toxicity evident in 100% effluent (a non-detect). Therefore, this data cannot be used to implement a WET limit.

Anti-backsliding

The limitations contained in the permit are at least as stringent as the previous permit limitations and there are no instances of backsliding. Appendix Link

Antidegradation

In accordance with 40 CFR Part 132 Appendix E, the permit contains effluent limitations which ensure that the designated best use of the receiving waters will be maintained. Please see the Environmental Notice Bulletin for information on the State Environmental Quality Review (SEQR)[7] determination. Appendix Link

Discharge Notification Act Requirements

In accordance with the Discharge Notification Act (ECL section 17-0815-a), the permittee is required to post a sign at each point of wastewater discharge to surface waters. The permit also contains a requirement that the permittee make the sampling data available, upon request, to the public. This requirement is continued.

[7] As prescribed by 6 NYCRR Part 617

Requirements for Combined Sewer Overflows (CSOs) Appendix Link

Best Management Practices (BMPs) for Combined Sewer Overflows (CSOs)

The BMPs for CSOs require the permittee to implement operation and maintenance procedures;[8] use the existing treatment plant and collection system to the maximum extent practicable; effect sewer design replacement and drainage planning; maximize pollutant capture; and minimize water quality impacts from combined sewer overflows. The submittal requirements are summarized in the Schedule of Additional Submittals. This requirement is being continued from the previous permit.

Long Term Control Plan

In February 2007, the permittee (NFWB) submitted a Long-Term Control Plan in accordance with *Guidance for Long-Term Control Plans*, EPA, September 1995. On 4/21/2008, the Department approved the LTCP and reaffirmed that approval in a follow up letter to the permittee dated 5/7/2008.

The permittee completed construction of all Phase I CSO controls in accordance with the approved LTCP schedule. These CSO controls included the modification of CSOs to increase capture of wet weather events in the sewer system and improve floatables control. For example, in order to maximize the use of the collection system for storage, the dam at the connection between the Garfield Tunnel and the North Gorge Interceptor was raised by 3 feet. Since March 2010, the WWTP has been operating under an approved wet weather operating plan, which requires the treatment of up to 1.77 times the design flow as well as floatables control. In accordance with the 3/11/2013 approved Post Construction Monitoring Program (PCCM), sampling is continued to ascertain the effectiveness of the CSO controls and will be used to verify attainment of water quality standards.

Post-Construction Compliance Monitoring (PCCM)

PCCM is required by all CSO permittees to verify compliance with the EPA National CSO Control policy and evaluate attainment of NYS water quality standards. A PCCM plan was approved on 3/11/2013. In accordance with the permit, monitoring is required in years ending in 3 and 8 and submitted in a PCCM report the following year. This requirement is continued.

Sensitive Area Reassessment

The permit requires the reassessment of the feasibility of eliminating or relocating CSO outfalls discharging to sensitive areas. The reassessment is required once per permit term, or every five years. This requirement is new.

Note: Monitoring for Enterococci has been removed from the effluent limitations of the permit and therefore, this sampling program. Please see the Enterococci in Outfall 001 of the Pollutant Summary Table for more information.

Stormwater Pollution Prevention Requirements

The facility is a publicly owned treatment works greater than or equal to 1 MGD that requires SPDES permit coverage under 40 CFR 122.26(b)(14)(ix). The permittee submitted a Conditional Exclusion for No Exposure Form on 7/19/2019, certifying that all industrial activities and materials are completely sheltered from exposure. This condition must be maintained for

[8] See 6 NYCRR 750-2.8(a)(2)

the exclusion to remain applicable. Recertification is required every 5 years in accordance with 40 CFR 122.26(g). This requirement is new.

Mercury[9]

The multiple discharge variance (MDV) for mercury provides the framework for NYSDEC to require mercury monitoring and mercury minimization programs (MMPs), through SPDES permitting. Appendix Link

The facility is within the Great Lakes Basin and is a USEPA Major (Class 05) municipal facility. The permit includes requirements for the implementation of MMP Type I

The facility has greater than or equal to 10 effluent mercury data points. The permit includes a daily max effluent limitation of 50 ng/L, sampled monthly. The existing effluent quality (EEQ) of 16 ng/L was calculated from the lognormal 95th percentile of 41 mercury effluent samples collected from 1/1/2020 to 5/31/2023. The EEQ is greater than 12 ng/L (i.e., the concentration attributed to natural atmospheric deposition). A mercury minimization program consisting of the following is required:

- Additional monitoring;
- Control strategy for implementation of the MMP; and
- Annual status report.

The facility is located within the Great Lakes Basin; therefore, the permit includes a 12-month rolling average effluent limitation equal to the EEQ. This requirement is new.

Polychlorinated biphenyls (PCBs)

The permittee is required to continue implementation of a PCB Minimization Program (PCBMP) because the total PCB WQBEL of 0.001 ng/L is lower than the compliance limitation of 95 ng/L per PCB Aroclor[10]. PCBMP details are specified in the permit.

- Daily maximum effluent limitation equal to 95 ng/L per Aroclor
- PCB minimization program
- Routine monitoring using EPA Method 1668C

Pollutant Minimization Program (PMP)

A PMP for the pollutants outlined below is included because the WQBELs are lower than the respective compliance limitations.[11] PMP details are specified in the permit. This requirement is being continued from the previous permit.

Pollutant	***WQBEL (µg/L)***	***Compliance Level (ug/L)*** ***See Appendix***
4,4'-DDD	$8.0x10^{-5}$	0.04
4,4'-DDE	$7.0x10^{-6}$	0.02
4,4'-DDT	$1.0x10^{-5}$	0.05

[9] In accordance with DOW 1.3.10 Mercury – SPDES Permitting & Multiple Discharge Variance (MDV), December 30, 2020.
[10] PCBMP requirements are based on 40 CFR Part 132 Appendix F Procedure 8, 6 NYCRR 750-1.13(a) and 750-1.14(f), and TOGS 1.2.1
[11] PMP requirements are based on 6 NYCRR 750-1.13(a) and 750-1.14(f), and TOGS 1.2.1

Hexachlorobenzene	$3.0x10^{-5}$	0.2
Mirex	$1.0x10^{-6}$	0.4
PCB-1248	$1.0x10^{-6}$	0.095
α-BHC	$2.0x10^{-3}$	0.01
β-BHC	$7.0x10^{-3}$	0.02
γ-BHC	$8.0x10^{-3}$	0.02
δ-BHC	$8.0x10^{-3}$	0.04

The following pollutants were reported as detections as a part of the submitted NY-2A Application. These pollutants are being added to the PMP:

Pollutant	***WQBEL (µg/L)***	***Compliance Level (ug/L)*** ***See Appendix***
Dieldrin	$6.0x10^{-7}$	$2.0 x10^{-3}$

Industrial Pretreatment Program

The permittee is required to continue implementation of a Pretreatment Program in accordance with 40 CFR Part 403. The program specifies continued implementation of an industrial user compliance program, submission of user information, modification of local sewer use law (if necessary), and periodic reporting. This requirement is being continued from the previous permit.

Emerging Contaminant Short-Term Monitoring Program

Emerging Contaminants, such as PFOA, PFOS, and 1,4-D, have been used in a wide variety of consumer and industrial product as well as in manufacturing processes for decades. These contaminants do not break down easily, therefore their presence in wastewater can remain a concern for years following their discontinued use. As the science surrounding these contaminants is still evolving, additional monitoring is needed to better understand potential sources and background levels. For more information on emerging contaminants, please see the NYSDEC Division of Water web page: Emerging Contaminants In NY's Waters - NYSDEC.

The permit includes a short-term monitoring program to evaluate the influent and effluent discharge levels of Per-and Polyfluoroalkyl Substances (PFAS) and 1,4-Dioxane. TOGS 1.3.13 identifies Standard Industrial Classification (SIC) codes where PFOA, PFOS, and 1,4-D are expected to be present at levels considered to be environmentally significant. The NY-2A application submitted by the permittee identifies waste streams from SIUs that may contain environmentally significant levels of these pollutants. See the Pretreatment Program section of the factsheet for SIU SIC codes. This monitoring program is consistent with 6 NYCRR 750-1.11 (a)(5), 6 NYCRR 750-1.11(a)(7), 6 NYCRR 750-2.1(i), and PFAS guidance released in EPA guidance memos dated April 28, 2022 and December 5, 2022.

Pursuant to 6 NYCRR Part 750-1.13(b), the permit includes a short-term monitoring program to evaluate the influent and effluent discharge levels of Per-and Polyfluoroalkyl Substances (PFAS) and 1,4-Dioxane. This monitoring program is consistent with PFAS guidance released in EPA guidance memos dated April 28, 2022 and December 5, 2022.

The Department will review the monitoring results and pursuant to 6 NYCRR 750-2.1(i) may notify the permittee of the need for further monitoring to identify potential sources as specified in the Emerging Contaminants Investigation Checklist for POTWs to determine whether cause exists to modify the permit to incorporate a pollutant minimization program per 6 NYCRR 750-1.14(f).

The Department will consider this information and progress made to track down and reduce or eliminate the source of the identified pollutants in determining if a permit modification is needed.

Biennial Pollutant Scan

Three effluent samples for applicable parameters must be submitted with an NY-2A Application[12]. The permit includes a requirement to perform biennial sampling (once every two years) of the WWTP effluent for the parameters in the NY-2A Application, Tables A – D. This requirement ensures the data is representative of effluent conditions over the permit term and will be available for the next application submittal and permit review. This requirement is new.

Schedule(s) of Submittals

A schedule of submittals has been included in the permit. The following submissions are being continued from the previous permit term:

- Submission of annual report summarizing implementation of BMPs for CSOs;
- Submission of PCCM Report;
- Submission of annual status report for Mercury Minimization Program (MMP);
- Submission of PCB Minimization Program annual status report on April 1st of each year;
- Submission of POTW Pollutant Minimization Program annual status report on March 1st of each year for 4,4'-DDD, 4,4,'-DDE, 4,4'-DDT, Hexachlorobenzene, Mirex, and Dieldrin;
- Submission of POTW Pollutant Minimization Program annual status report on May 1st of each year for α-BHC, β-BHC, γ-BHC, and δ-BHC; and
- Submission of Pretreatment Program Implementation annual report with reporting period ending on December 31st.

The following submissions are new this permit term:

- Submission of No Exposure. This is required every five years from POTWs >1 MGD
- Emerging Contaminant Short-Term Monitoring Program.

Existing Effluent Quality

The Pollutant Summary Table presents the existing effluent quality and permit limitations for discharges from the facility. Concentration and mass data are presented, based on Discharge Monitoring Reports and the application submitted by the permittee for the period 1/1/2015 to 6/30/2019. Appendix Link

[12] Pursuant to 40 CFR 122.21(j)(4)(vi).

OUTFALL AND RECEIVING WATER SUMMARY TABLE

Outfall	Latitude	Longitude	Receiving Water Name	Water Class	Water Index No. / Priority Waterbody Listing (PWL) No.	Major / Sub Basin	Ambient Hardness [13] (mg/l)	Critical Ambient Flow (MGD)	Critical Effluent Flow (MGD)	Dilution Ratio		
										A(A)	A(C)	HEW
001	43° 05' 20" N	79° 04' 00" W	Niagara River	A-Special	O-158 PWL: 0101-0006	01 / 01	117	110,000 MGD	48	8:1	10:1	10:1

POLLUTANT SUMMARY TABLE

Outfall 001

Outfall #	001	**Description of Wastewater:** Treated sanitary, process wastewaters from SIUs													
		Type of Treatment: Activated carbon beds													
Effluent Parameter	Units	Averaging Period	Existing Discharge Data			TBELs		Water Quality Data & WQBELs						ML	Basis for Permit Requirement
			Permit Limit	Existing Effluent Quality	# of Data Points Detects / Non-Detects	Limit	Basis for TBEL	Ambient Bkgd. Conc.	Projected Instream Conc.	WQ Std. or GV	WQ Type	Calc. WQBEL	Basis for WQBEL		
General Notes: Existing discharge data from 1/1/2020 to 5/31/2023 was obtained from Discharge Monitoring Reports provided by the permittee. If seasonal limits apply, Summer is defined as June 1st through October 31st and Winter is defined as November 1st through May 31st.															
Flow Rate	MGD	Monthly Avg	48	24 Actual Average	41 / 0	48	TOGS 1.3.3	No alterations that will impair the waters for their best usages.					6 NYCRR 703.2	-	TBEL
	Consistent with TOGS 1.3.3, a monthly average flow limitation equal to the average daily design capacity of the treatment plant is specified.														
Total Organic Carbon (TOC)	lbs/d	Monthly Avg	15,200	13,300	41 / 0	15,200	Antibacksliding 40 CFR 122.44(l)(1) 6 NYCRR 750-1.10 (c)	See Dissolved Oxygen and BOD5.						-	TBEL
		7 Day Avg	22,800	17,800	41 / 0	22,800	Antibacksliding 40 CFR 122.44(l)(1) 6 NYCRR 750-1.10 (c)							-	TBEL

[13] Ambient hardness value obtained as average of hardness sampling collected by NYSDEC Bureau of Water Assessment and Management from 2002 – 2016 at station 1010001 at Niagara River.

Outfall #	001	**Description of Wastewater:** Treated sanitary, process wastewaters from SIUs **Type of Treatment:** Activated carbon beds

Effluent Parameter	Units	Averaging Period	Existing Discharge Data: Permit Limit	Existing Discharge Data: Existing Effluent Quality	Existing Discharge Data: # of Data Points Detects / Non-Detects	TBELs: Limit	TBELs: Basis for TBEL	Water Quality Data & WQBELs: Ambient Bkgd. Conc.	Water Quality Data & WQBELs: Projected Instream Conc.	Water Quality Data & WQBELs: WQ Std. or GV	Water Quality Data & WQBELs: WQ Type	Water Quality Data & WQBELs: Calc. WQBEL	Water Quality Data & WQBELs: Basis for WQBEL	ML	Basis for Permit Requirement
	The existing permit contained an effluent limitation for Total Organic Carbon. Historically, BOD5 and percent removal has not been included due to the high contribution of process wastewaters from SIUs. TOC was historically more reflective of the treatment capabilities of the treatment plant given the influent conditions. BOD5 has been proposed in this permit due to the decrease of volume from SIUs. Please see BOD5 for these limits. The TOC effluent limitation remains in the permit in accordance with antibacksliding provisions. TOC is a measure of both oxidizable and non-oxidizable compounds. The wastewater is assumed to be primarily organic and biodegradable. BOD is a better indicator of potential oxygen demand in the receiving waterbody because microorganisms in the environment can readily consume organic and biodegradable compounds. Therefore, oxygen demanding substances will be controlled through BOD and DO limits, which are indicators of a subset of TOC (i.e., the biodegradable components).														
Total Suspended Solids (TSS)	mg/l	Monthly Avg	30	18	41 / 0	30	TOGS 1.3.3	-	None from sewage, industrial wastes or other wastes that will cause deposition or impair the waters for their best usages.				6 NYCRR 703.2	-	TBEL
		7 Day Avg	45	28	41 / 0	45	TOGS 1.3.3								
	lbs/d	Monthly Avg	12,000	3,400	41 / 0	12,000	TOGS 1.3.3								
		7 Day Avg	18,000	4,200	41 / 0	18,000	TOGS 1.3.3								
	% Rem	Minimum	-	76 (actual minimum)	41 / 0	85%	TOGS 1.3.3								
	Given that adequate dilution is available, an effluent limitation equal to the TBEL, and consistent with TOGS 1.3.3, is reasonably protective of water quality standards.														
pH	SU	Minimum	6.0	6.0 (actual minimum)	41 / 0	6.0	TOGS 1.3.3	-	-	6.5 – 8.5	Range	6.5 - 8.5	6 NYCRR 703.3	-	TBEL
		Maximum	9.0	8.6 (actual maximum)	41 / 0	9.0									
	Given the available dilution an effluent limitation equal to the TBEL and consistent with TOGS 1.3.3 is reasonably protective of the WQS. DMR data for May 31, 2015 indicated a minimum pH value of 1.0. This value was considered an outlier and was removed from analysis.														
Total Phosphorous	mg/l	Monthly Avg	1.0	0.86	41 / 0	1.0	TOGS 1.3.3 1987 GLWQA	-	0.12	1.0	H(WS)	1.0	GLI 1987 GLWQA	-	WQBEL
	In accordance with New York State's implementation of the 1987 Great Lakes Water Quality Agreement by the International Joint Commission the effluent concentration of total phosphorus will be limited to 1.0 mg/l on a 30-day average basis.														

Outfall #	001	**Description of Wastewater:** Treated sanitary, process wastewaters from SIUs **Type of Treatment:** Activated carbon beds

Effluent Parameter	Units	Averaging Period	Existing Discharge Data			TBELs		Water Quality Data & WQBELs						ML	Basis for Permit Requirement
			Permit Limit	Existing Effluent Quality	# of Data Points Detects / Non-Detects	Limit	Basis for TBEL	Ambient Bkgd. Conc.	Projected Instream Conc.	WQ Std. or GV	WQ Type	Calc. WQBEL	Basis for WQBEL		
Total Phenolics	ug/l	Monthly Avg	Monitor	160	41 / 0	170	Antibacksliding 40 CFR 122.44(l)(1) 6 NYCRR 750-1.10 (c)	-	-	-	-	-	-	-	Discontinued
		Daily Max	-	-	-	-	-	-	18	1.0	E	1.0	TOGS 1.1.1	5.0	ML
	lbs/d	Monthly Avg	61	39	41 / 0	61	Antibacksliding 40 CFR 122.44(l)(1) 6 NYCRR 750-1.10 (c)	-	-	-	-	-	-	-	Discontinued
		Daily Max	-	-	-	-	-	-	-	-	-	4.0	TOGS 1.1.1	-	WQBEL
	The previously established limitation was based on the existing effluent quality of the discharge at the time of full technical review. The projected instream concentration was calculated using a maximum effluent concentration of 803 ug/L and ambient concentration of 0 ug/L. As recommended from EPA's Technical Support Document, Chapter 3.3, a multiplier of 1.1 was applied to the effluent concentration to account for the number of samples. A comparison of the projected instream concentration to the WQS indicates a reasonable potential to cause or contribute to a WQS violation and therefore a WQBEL is specified. In accordance with 6NYCRR Part 702.14, TOGS 1.3.1, and TOGS 1.1.1 the HEW dilution was applied to the WQS to calculate the WQBEL. The monthly average monitoring for concentration and monthly average of 61 lbs/d are being discontinued. The proposed daily maximum concentration and mass loading effluent limitations are at least as stringent as the previously established limitations. See the Impaired Waterbody Information section of the factsheet.														
Alpha-Hexachlorocyclohexane (a-BHC)	ug/l	Daily Max	0.04	0.049	26 / 14	0.04	Antibacksliding 40 CFR 122.44(l)(1) 6 NYCRR 750-1.10 (c)	-	-	-	-	-	-	-	Discontinued
		Monthly Avg	-	-	-	-	-	-	0.049	0.002	H(FC)	0.002	TOGS 1.1.1	0.01	ML
	lbs/d	Daily Max	Monitor	0.011	26 / 14	Monitor	6 NYCRR Part 750-1.13	-	-	-	-	-	-	-	Discontinued

Outfall #	001	**Description of Wastewater:** Treated sanitary, process wastewaters from SIUs **Type of Treatment:** Activated carbon beds													
Effluent Parameter	Units	Averaging Period	Existing Discharge Data: Permit Limit	Existing Discharge Data: Existing Effluent Quality	Existing Discharge Data: # of Data Points Detects / Non-Detects	TBELs: Limit	TBELs: Basis for TBEL	Water Quality Data & WQBELs: Ambient Bkgd. Conc.	Water Quality Data & WQBELs: Projected Instream Conc.	Water Quality Data & WQBELs: WQ Std. or GV	Water Quality Data & WQBELs: WQ Type	Water Quality Data & WQBELs: Calc. WQBEL	Water Quality Data & WQBELs: Basis for WQBEL	ML	Basis for Permit Requirement
	This contaminant falls into the category of man-made organic substances and bio-accumulates through the food chain. In accordance with TOGS 1.3.1A, and 40CFR132 Table 6, no dilution is available for this contaminant. The previous permit modification incorrectly established the limitation as a daily maximum. This permit renewal correctly re-establishes the limitation as a monthly average in accordance with TOGS 1.3.1. An interim limit of 0.04 ug/l is in the existing permit. This interim limit was modified during the last permit modification. Existing effluent quality concentration data is representative of the effluent after implementation of that limit. One data point was deemed to be an outlier and was removed from the dataset. The enforceable limit, set at the ML of 0.01 ug/L shall apply as directed by the effective permit.														
Beta-Hexachlorocyclohexane (b-BHC)	ug/l	Daily Max	0.02	0.02	7 / 33	0.02	Antibacksliding 40 CFR 122.44(l)(1) 6 NYCRR 750-1.10 (c)	-	-	-	-	-	-	-	Discontinued
		Monthly Avg	-	-	-	-	-	-	0.02	0.007	H(FC)	0.007	TOGS 1.1.1	0.02	ML
	lbs/d	Daily Max	Monitor	0.006	7 / 33	Monitor	6 NYCRR Part 750-1.13	-	-	-	-	-	-	-	Discontinued
	This contaminant falls into the category of man-made organic substances and bio-accumulates through the food chain. In accordance with TOGS 1.3.1A, and 40CFR132 Table 6, no dilution is available for this contaminant. The previous permit modification incorrectly established the limitation as a daily maximum. This permit renewal correctly re-establishes the limitation as a monthly average in accordance with TOGS 1.3.1. The existing limit and the final effluent limit are based on the ML. Existing effluent quality concentration data is representative of the effluent after implementation of the ML during last permit modification. One data point was deemed to be an outlier and was removed from the dataset.														
Gamma-Hexachlorocyclohexane (Gamma – BHC)	ug/l	Daily Max	0.03	0.02	7 / 33	0.03	Antibacksliding 40 CFR 122.44(l)(1) 6 NYCRR 750-1.10 (c)	-	-	-	-	-	-	-	Discontinued
		Monthly Avg	-	-	-	-	-	-	0.02	0.008	H(FC)	0.008	TOGS 1.1.1	0.02	ML
	lbs/d	Daily Max	Monitor	0.003	7 / 33	Monitor	6 NYCRR Part 750-1.13	-	-	-	-	-	-	-	Discontinued
	This contaminant falls into the category of man-made organic substances and bio-accumulates through the food chain. In accordance with TOGS 1.3.1A, and 40CFR132 Table 6, no dilution is available for this contaminant. The previous permit modification incorrectly established the limitation as a daily maximum. This permit renewal correctly re-establishes the limitation as a monthly average in accordance with TOGS 1.3.1. An interim limit of 0.03 ug/l is in the existing permit. This interim limit was modified during the last permit modification. Existing effluent quality concentration data is representative of the effluent after implementation of that limit. The enforceable limit set at the ML of 0.02 ug/L shall apply as directed by the effective permit. One data point was deemed to be an outlier and was removed from the dataset.														

Outfall #	001	**Description of Wastewater:** Treated sanitary, process wastewaters from SIUs **Type of Treatment:** Activated carbon beds

Effluent Parameter	Units	Averaging Period	Existing Discharge Data			TBELs		Water Quality Data & WQBELs						ML	Basis for Permit Requirement
			Permit Limit	Existing Effluent Quality	# of Data Points Detects / Non-Detects	Limit	Basis for TBEL	Ambient Bkgd. Conc.	Projected Instream Conc.	WQ Std. or GV	WQ Type	Calc. WQBEL	Basis for WQBEL		
Delta-Hexachlorocyclohexane (Delta – BHC)	ug/l	Daily Max	0.05	0.04	9 / 31	0.05	Antibacksliding 40 CFR 122.44(l)(1) 6 NYCRR 750-1.10 (c)	-	-	-	-	-	-	-	Discontinued
		Monthly Avg	-	-	-	-	-	-	0.04	0.008	H(FC)	0.008	TOGS 1.1.1	0.04	ML
	lbs/d	Daily Max	Monitor	0.007	9 / 31	Monitor	6 NYCRR Part 750-1.13	-	-	-	-	-	-	-	Discontinued
	This contaminant falls into the category of man-made organic substances and bio-accumulates through the food chain. In accordance with TOGS 1.3.1A, and 40CFR132 Table 6, no dilution is available for this contaminant. Data on January 31, 2015 indicated an effluent value of 0.063 ug/L. This data point was considered an outlier and omitted from analysis. The previous permit modification incorrectly established the limitation as a daily maximum. This permit renewal correctly re-establishes the limitation as a monthly average in accordance with TOGS 1.3.1. One data point was deemed to be an outlier and was removed from the dataset. An interim limit of 0.05 ug/l is in the existing permit. The enforceable limit set at the ML of 0.04 ug/L shall apply as directed by the effective permit.														
Hexachlorobenzene	ug/l	Monthly Avg	0.2	< 0.2	0 / 41	0.2	Antibacksliding 40 CFR 122.44(l)(1) 6 NYCRR 750-1.10 (c)	-	<0.2	3E-5	H(FC)	3E-5	TOGS 1.1.1	0.2	ML
	lbs/d	Monthly Avg	Monitor	< 0.2	0 / 41	Monitor	6 NYCRR Part 750-1.13	-	-	-	-	-	-	-	Monitor
	This contaminant falls into the category of man-made organic substances and bio-accumulates through the food chain. In accordance with TOGS 1.3.1A, and 40CFR132 Table 6, no dilution is available for this contaminant. The previous permit established an effluent limitation that is equal to the ML. This effluent limitation is being continued. See the Pollutant Minimization Program for more information.														
Mercury	ng/l	Monthly Avg	50	16.6	41 / 0	50	TOGS 1.3.10	-	16.6	700 0.7	H(WS) H(FC)	700 0.7	TOGS 1.1.1	-	TBEL
		Daily Max	-	57.4	1 / 0			-	-	770 1440	A(C) A(A)	770 1440	TOGS 1.1.1	-	
		12MRA	-	-	-	16	TOGS 1.3.10	-	-	-	-	-	-	-	TBEL
	Lbs/d	Monthly Avg	Monitor	3,460	41 / 0	Monitor	Antibacksliding 40 CFR 122.44(l)(1) 6 NYCRR 750-1.10 (c)	-	-	-	-	-	-	-	Discontinued

Outfall #	001	**Description of Wastewater:** Treated sanitary, process wastewaters from SIUs **Type of Treatment:** Activated carbon beds														
Effluent Parameter	Units	Averaging Period	Existing Discharge Data			TBELs		Water Quality Data & WQBELs						ML	Basis for Permit Requirement
			Permit Limit	Existing Effluent Quality	# of Data Points Detects / Non-Detects	Limit	Basis for TBEL	Ambient Bkgd. Conc.	Projected Instream Conc.	WQ Std. or GV	WQ Type	Calc. WQBEL	Basis for WQBEL		
	This contaminant falls into the category of man-made organic substances and bio-accumulates through the food chain. In accordance with TOGS 1.3.1A, and 40CFR132 Table 6, no dilution is available for this contaminant. Notable improvements in mercury levels since January 2018. In accordance with TOGS 1.3.10 since 10 or more samples have been collected, a projected effluent quality (PEQ) can be calculated and a 12-month rolling average (12MRA) limit can be set equal to the PEQ. The PEQ of 16 ng/l was calculated as the 95th lognormal percentile of 41 data points. Since the facility is located within the Great Lakes watershed a 12MRA limit equal to the PEQ has been added to the permit along with a daily maximum limit of 50 ng/l. Implementation of a daily maximum limitation of 50 ng/L is at least as stringent as a monthly average limitation of 50 ng/L.														
Mirex	ug/l	Monthly Avg	0.4	<0.4	0 / 41	-	-	-	<0.4	1.0E-6	H(FC)	1.0E-6	TOGS 1.1.1	0.4	ML
		Daily Max	-	-	-	-	-	-	<0.4	1.0E-3	A(C)	1.0E-3	TOGS 1.1.1		
	lbs/d	Monthly Avg	Monitor	<0.4	0 / 41	-	-	-	-	-	-	-	-	-	Discontinued
	This contaminant falls into the category of man-made organic substances and bio-accumulates through the food chain. In accordance with TOGS 1.3.1A, and 40CFR132 Table 6, no dilution is available for this contaminant. The previous permit established a compliance level that is equal to the ML as a monthly average. This segment of the receiving waterbody is impaired for Mirex, therefore, the ML remains in the permit. See the Pollutant Minimization Program for more information.														
PCB-1248	ug/l	Monthly Avg	0.2	<0.1	0 / 41	0.2	Antibacksliding 40 CFR 122.44(l)(1) 6 NYCRR 750-1.10 (c)	-	<0.1	0.09 1.0E-6	H(WS) **H(FC)**	0.09 **1.0E-6**	TOGS 1.1.1	0.095	ML
		Daily Max	-	-	-	-	-	-	<0.1	1.2E-4	W	1.2E-4	TOGS 1.1.1		
	lbs/d	Monthly Avg	Monitor	<0.1	0 / 41	Monitor	6 NYCRR Part 750-1.13	-	-	-	-	-	-	-	Discontinued
	This contaminant falls into the category of man-made organic substances and bio-accumulates through the food chain. In accordance with TOGS 1.3.1A, and 40CFR132 Table 6, no dilution is available for this contaminant. The previous permit established a compliance level that is equal to the ML as a monthly average. See the PCB Minimization Program for more information.														
4,4'-DDD	ug/l	Monthly Avg	0.04	< 0.04	0 / 41	0.04	Antibacksliding 40 CFR 122.44(l)(1) 6 NYCRR 750-1.10 (c)	-	< 0.04	0.3 **8.0E-5**	H(WS) **H(FC)**	0.3 **8.0E-5**	TOGS 1.1.1	0.04	ML
		Daily Max	-	-	-	-	-	-	< 0.04	*1.1E-5	W	*1.1E-5	TOGS 1.1.1	0.04	No Limit

Outfall #	001	**Description of Wastewater:** Treated sanitary, process wastewaters from SIUs **Type of Treatment:** Activated carbon beds													
Effluent Parameter	Units	Averaging Period	Existing Discharge Data			TBELs		Water Quality Data & WQBELs						ML	Basis for Permit Requirement
			Permit Limit	Existing Effluent Quality	# of Data Points Detects / Non-Detects	Limit	Basis for TBEL	Ambient Bkgd. Conc.	Projected Instream Conc.	WQ Std. or GV	WQ Type	Calc. WQBEL	Basis for WQBEL		
	lbs/d	Monthly Avg	Monitor	< 0.04	0 / 41	Monitor	6 NYCRR Part 750-1.13	-	-	-	-	-	-	-	Monitor
	This contaminant falls into the category of man-made organic substances and bio-accumulates through the food chain. In accordance with TOGS 1.3.1A, and 40CFR132 Table 6, no dilution is available for this contaminant. *Applies to the sum of 4,4'-DDD, 4,4'-DDE, 4,4'-DDT. The previous permit established an effluent limitation that is equal to the ML. This effluent limitation is being continued. See the Pollutant Minimization Program for more information.														
4,4'-DDE	ug/l	Monthly Avg	0.02	< 0.02	0 / 41	0.02	Antibacksliding 40 CFR 122.44(l)(1) 6 NYCRR 750-1.10 (c)	-	< 0.02	0.2 **7.0E-6**	H(WS) **H(FC)**	0.2 **7.0E-6**	TOGS 1.1.1	0.02	ML
		Daily Max	-	-	-	-	-	-	< 0.02	*1.1E-5	W	*1.1E-5	TOGS 1.1.1	0.02	No Limit
	lbs/d	Monthly Avg	Monitor	< 0.02	0 / 41	Monitor	6 NYCRR Part 750-1.13	-	-	-	-	-	-	-	Discontinued
	This contaminant falls into the category of man-made organic substances and bio-accumulates through the food chain. In accordance with TOGS 1.3.1A, and 40CFR132 Table 6, no dilution is available for this contaminant. *Applies to the sum of 4,4'-DDD, 4,4'-DDE, 4,4'-DDT. The previous permit established an effluent limitation that is equal to the ML. This effluent limitation is being continued. See the Pollutant Minimization Program for more information.														
4,4'-DDT	ug/l	Monthly Avg	0.05	< 0.05	0 / 41	0.05	Antibacksliding 40 CFR 122.44(l)(1) 6 NYCRR 750-1.10 (c)	-	< 0.05	0.2 **1.0E-5**	H(WS) **H(FC)**	0.2 **1.0E-5**	TOGS 1.1.1	0.05	ML
		Daily Max	-	-	-	-	-	-	< 0.05	*1.1E-5	W	*1.1E-5	TOGS 1.1.1	0.05	No Limit
	lbs/d	Monthly Avg	Monitor	< 0.05	0 / 41	Monitor	6 NYCRR Part 750-1.13	-	-	-	-	-	-	-	Discontinued
	This contaminant falls into the category of man-made organic substances and bio-accumulates through the food chain. In accordance with TOGS 1.3.1A, and 40CFR132 Table 6, no dilution is available for this contaminant. *Applies to the sum of 4,4'-DDD, 4,4'-DDE, 4,4'-DDT. The previous permit established an effluent limitation that is equal to the ML. This effluent limitation is being continued. See the Pollutant Minimization Program for more information.														
Coliform, Fecal	#/100 ml	30d Geo Mean	200	27.7	41 / 0	200	TOGS 1.3.3	-	The monthly geometric mean, from a minimum of five examinations, shall not exceed 200.				6 NYCRR 703.4	-	TBEL
		7d Geo Mean	400	293.1	41 / 0	400	TOGS 1.3.3							-	

Outfall #	001	**Description of Wastewater:** Treated sanitary, process wastewaters from SIUs **Type of Treatment:** Activated carbon beds														
Effluent Parameter	Units	Averaging Period	Existing Discharge Data			TBELs		Water Quality Data & WQBELs						ML	Basis for Permit Requirement
			Permit Limit	Existing Effluent Quality	# of Data Points Detects / Non-Detects	Limit	Basis for TBEL	Ambient Bkgd. Conc.	Projected Instream Conc.	WQ Std. or GV	WQ Type	Calc. WQBEL	Basis for WQBEL		
	Consistent with TOGS 1.3.3 effluent disinfection is required year-round due to the class A-S receiving waterbody. Fecal coliform effluent limitations equal to the TBEL are specified.														
Enterococci	#/100 ml	30d Geo Mean	Monitor	17	41 / 0	-	-	-	-	-	-	-	-	-	Discontinued
	There are no water quality standards for this parameter for class A-S waterbodies. The discharge area is outside of the coastal recreation waters of the Great Lakes boundary of the BEACH Act. Therefore, monitoring for this parameter is discontinued.														
Total Residual Chlorine	mg/l	Daily Max	3.0	2.9	41 / 0	2.0	TOGS 1.3.3	-	0.32	0.005	A(C)	0.05	TOGS 1.1.1	0.03	WQBEL
	Effluent disinfection is currently required year-round and will remain a permit requirement. The WQBEL was calculated by multiplying the WQS by the chronic dilution ratio. The calculated WQBEL is less than the TBEL and an effluent limitation equal to the WQBEL is appropriate.														
Additional Pollutants Detected: The following parameters were detected in last three Priority Pollutant scans and / or effluent sample submitted as part of the Application 2A submitted by the permittee.															
1,1,2,2- Tetra chloroethane	ug/L	Monthly Avg	-	2.4	4 / 0	-	-	-	-	-	-	-	-	-	No Limitation
	Existing effluent quality reflective of last three priority pollutant scans and an effluent sample from Application 2A submitted by permittee. A water quality standard for this parameter does not exist for Class A-Special waterbodies. No limitation will be added to the permit at this time.														
1,1,2- Trichloro ethane	ug/L	Monthly Avg	-	0.6	1 / 0	-	-	-	0.4	1.0	H(WS)	No RP	TOGS 1.1.1	-	No Limitation
	The projected instream concentration was calculated using a maximum effluent concentration of 0.6 ug/L and ambient concentration of 0 ug/L. As recommended from EPA's Technical Support Document, Chapter 3.3, a multiplier of 6.2 was applied to the effluent concentration to account for the number of samples. A comparison of the projected instream concentration to the WQS indicates no reasonable potential to cause or contribute to a WQS violation. Therefore, no limitation is specified.														
1,2- Dichlorobenze ne	ug/L	Monthly Avg	-	0.8	2 / 0	-	-	-	0.3	3.0	H(WS)	No RP	TOGS 1.1.1	-	No Limitation
		Daily Max	-	0.8	2 / 0	-	-	-	0.3	5.0*	A(C)	No RP	TOGS 1.1.1	-	No Limitation
	Existing effluent quality reflective of last three priority pollutant scans and an effluent sample from Application 2A submitted by permittee. Existing effluent quality value is the maximum concentration detected. *WQS applies to the sum of 1,2- Dichlorobenzene, 1,3- Dichlorobenzene, and 1,4- Dichlorobenzene. Projected instream quality reflects sum of 1,2- Dichlorobenzene and 1,4- Dichlorobenzene. The projected instream concentration was calculated using a maximum effluent concentration of 0.8 ug/L and ambient concentration of 0 ug/L. As recommended from EPA's Technical Support Document, Chapter 3.3, a multiplier of 3.8 was applied to the effluent concentration to account for the number of samples. A comparison of the projected instream concentration to the WQS indicates no reasonable potential to cause or contribute to a WQS violation. Therefore, no limitation is specified.														
	ug/L	Monthly Avg	-	1.1	4 / 0	-	-	-	0.3	3.0	H(WS)	No RP	TOGS 1.1.1	-	No Limitation

Outfall #	001	**Description of Wastewater:** Treated sanitary, process wastewaters from SIUs **Type of Treatment:** Activated carbon beds														
Effluent Parameter	Units	Averaging Period	Existing Discharge Data			TBELs		Water Quality Data & WQBELs						ML	Basis for Permit Requirement
			Permit Limit	Existing Effluent Quality	# of Data Points Detects / Non-Detects	Limit	Basis for TBEL	Ambient Bkgd. Conc.	Projected Instream Conc.	WQ Std. or GV	WQ Type	Calc. WQBEL	Basis for WQBEL		
1,4-Dichlorobenzene		Monthly Avg	-	1.1	4 / 0	-	-	-	0.3	5.0*	A(C)	No RP	TOGS 1.1.1	-	No Limitation
	Existing effluent quality reflective of last three priority pollutant scans and an effluent sample from Application 2A submitted by permittee. Existing effluent quality value is the maximum concentration detected. WQS applies to the sum of 1,2- Dichlorobenzene, 1,3- Dichlorobenzene, and 1,4- Dichlorobenzene. Projected instream quality reflects sum of 1,2- Dichlorobenzene and 1,4- Dichlorobenzene. The projected instream concentration was calculated using a maximum effluent concentration of 1.1 ug/L and ambient concentration of 0 ug/L. As recommended from EPA's Technical Support Document, Chapter 3.3, a multiplier of 2.6 was applied to the effluent concentration to account for the number of samples. A comparison of the projected instream concentration to the WQS indicates no reasonable potential to cause or contribute to a WQS violation. Therefore, no limitation is specified.														
2-Chlorotoluene	ug/L	Monthly Avg	-	1.2	1 / 0	-	-	-	0.7	5.0	H(WS)	No RP	TOGS 1.1.1	-	No Limitation
	The projected instream concentration was calculated using a maximum effluent concentration of 1.2 ug/L and ambient concentration of 0 ug/L. As recommended from EPA's Technical Support Document, Chapter 3.3, a multiplier of 6.2 was applied to the effluent concentration to account for the number of samples. A comparison of the projected instream concentration to the WQS indicates no reasonable potential to cause or contribute to a WQS violation. Therefore, no limitation is specified.														
4-Chlorotoluene	ug/L	Monthly Avg	-	0.3	1 / 0	-	-	-	0.2	5.0	H(WS)	No RP	TOGS 1.1.1	-	No Limitation
	The projected instream concentration was calculated using a maximum effluent concentration of 0.3 ug/L and ambient concentration of 0 ug/L. As recommended from EPA's Technical Support Document, Chapter 3.3, a multiplier of 6.2 was applied to the effluent concentration to account for the number of samples. A comparison of the projected instream concentration to the WQS indicates no reasonable potential to cause or contribute to a WQS violation. Therefore, no limitation is specified.														
Chlorobenzene	ug/L	Daily Max	-	2.3	4 / 0	-	-	-	0.8	5.0 400	H(WS) H(FC)	No RP	TOGS 1.1.1	-	No Limitation
		Monthly Avg	-	2.3	4 / 0	-	-	-	0.6	5.0 20	A(C) E	No RP	TOGS 1.1.1	-	No Limitation
	Existing effluent quality reflective of last three priority pollutant scans and an effluent sample from Application 2A submitted by permittee. Existing effluent quality value is the maximum concentration detected. The projected instream concentration was calculated using a maximum effluent concentration of 2.3 ug/L and ambient concentration of 0 ug/L. As recommended from EPA's Technical Support Document, Chapter 3.3, a multiplier of 2.6 was applied to the effluent concentration to account for the number of samples. A comparison of the projected instream concentration to the WQS indicates no reasonable potential to cause or contribute to a WQS violation. Therefore, no limitation is specified.														
Chloroform	ug/L	Monthly Avg	-	39	14 / 0	-	-	-	5.9	7.0	H(WS)	No Reasonable Potential	TOGS 1.1.1	-	No Limitation

Outfall #	001	**Description of Wastewater:** Treated sanitary, process wastewaters from SIUs **Type of Treatment:** Activated carbon beds														
Effluent Parameter	Units	Averaging Period	Existing Discharge Data			TBELs		Water Quality Data & WQBELs						ML	Basis for Permit Requirement
			Permit Limit	Existing Effluent Quality	# of Data Points Detects / Non-Detects	Limit	Basis for TBEL	Ambient Bkgd. Conc.	Projected Instream Conc.	WQ Std. or GV	WQ Type	Calc. WQBEL	Basis for WQBEL		
	Existing effluent quality reflective of last three priority pollutant scans and an effluent sample from Application 2A submitted by permittee. 10 additional samples were submitted on 10/13/2021 to support WQBEL development. Existing effluent quality value is the maximum concentration detected. The projected instream concentration was calculated using a maximum effluent concentration of 39 ug/L and ambient concentration of 0 ug/L. As recommended from EPA's Technical Support Document, Chapter 3.3, a multiplier of 1.5 was applied to the effluent concentration to account for the number of samples. A comparison of the projected instream concentration to the WQS indicates no potential to cause or contribute to a WQS violation therefore a WQBEL is not proposed.														
Chloromethane	ug/L	Daily Max	-	0.66	1 / 0	-	-	-	-	-	-	-	-	-	No Limitation
	A water quality standard for Chloromethane does not exist for Class A-Special waterbodies. No limitation will be added to the permit at this time.														
Cis-1,2-Dichloroethene	ug/L	Monthly Avg	-	19	11 / 0	-	-	-	3.2	5.0	H(WS)	No Reasonable Potential	TOGS 1.1.1	-	No Limitation
	The projected instream concentration was calculated using a maximum effluent concentration of 19 ug/L and ambient concentration of 0 ug/L. 10 additional samples were submitted on 10/13/2021 to support WQBEL development. As recommended from EPA's Technical Support Document, Chapter 3.3, a multiplier of 1.7 was applied to the effluent concentration to account for the number of samples. A comparison of the projected instream concentration to the WQS indicates no potential to cause or contribute to a WQS violation therefore a WBQEL is not proposed.														
Bromodichloromethane	ug/L	Monthly Avg	-	1.7	1 / 0	-	-	-	1.0	50	H(WS)	No Reasonable Potential	TOGS 1.1.1	-	No Limitation
	The projected instream concentration was calculated using a maximum effluent concentration of 1.7 ug/L and ambient concentration of 0 ug/L. As recommended from EPA's Technical Support Document, Chapter 3.3, a multiplier of 6.2 was applied to the effluent concentration to account for the number of samples. A comparison of the projected instream concentration to the WQS indicates no reasonable potential to cause or contribute to a WQS violation. Therefore, no limitation is specified.														
Methyl Chloride	ug/L	Monthly Avg	-	3.4	3 / 0	-	-	-	1.0	5.0	H(WS)	No Reasonable Potential	TOGS 1.1.1	-	No Limitation
	Existing effluent quality reflective of last three priority pollutant scans and an effluent sample from Application 2A submitted by permittee. Existing effluent quality value is the maximum concentration detected. The projected instream concentration was calculated using a maximum effluent concentration of 3.4 ug/L and ambient concentration of 0 ug/L. As recommended from EPA's Technical Support Document, Chapter 3.3, a multiplier of 3.0 was applied to the effluent concentration to account for the number of samples. A comparison of the projected instream concentration to the WQS indicates no reasonable potential to cause or contribute to a WQS violation. Therefore, no limitation is specified.														
Methylene Chloride	ug/L	Monthly Avg	-	2.3	4 / 0	-	-	-	0.6	5.0 200	H(WS) H(FC)	No Reasonable Potential	TOGS 1.1.1	-	No Limitation

Outfall #	001	**Description of Wastewater:** Treated sanitary, process wastewaters from SIUs **Type of Treatment:** Activated carbon beds														
Effluent Parameter	Units	Averaging Period	Existing Discharge Data: Permit Limit	Existing Discharge Data: Existing Effluent Quality	Existing Discharge Data: # of Data Points Detects / Non-Detects	TBELs: Limit	TBELs: Basis for TBEL	Water Quality Data & WQBELs: Ambient Bkgd. Conc.	Water Quality Data & WQBELs: Projected Instream Conc.	Water Quality Data & WQBELs: WQ Std. or GV	Water Quality Data & WQBELs: WQ Type	Water Quality Data & WQBELs: Calc. WQBEL	Water Quality Data & WQBELs: Basis for WQBEL	ML	Basis for Permit Requirement
	Existing effluent quality reflective of last three priority pollutant scans and an effluent sample from Application 2A submitted by permittee. Existing effluent quality value is the maximum concentration detected. The projected instream concentration was calculated using the maximum effluent concentration of 2.3 ug/L and ambient concentration of 0 ug/L. As recommended from EPA's Technical Support Document, Chapter 3.3, a multiplier of 2.6 was applied to the effluent concentration to account for the number of samples. A comparison of the projected instream concentration to the WQS indicates no reasonable potential to cause or contribute to a WQS violation. Therefore, no limitation is specified.														
Tetrachloro-ethene	ug/L	Monthly Avg	-	1.8	11 / 0	-	-	-	0.31	**0.7** 1.0	**H(WS)** H(FC)	No Reasonable Potential	TOGS 1.1.1	-	No Limitation
	The projected instream concentration was calculated using a maximum effluent concentration of 1.8 ug/L and ambient concentration of 0 ug/L. 10 additional samples were submitted on 10/13/2021 to support WQBEL development. As recommended from EPA's Technical Support Document, Chapter 3.3, a multiplier of 1.7 was applied to the effluent concentration to account for the number of samples. A comparison of the projected instream concentration to the WQS indicates no potential to cause or contribute to a WQS violation therefore a WQBEL is not proposed.														
Toluene	ug/L	Daily Max	-	0.8	4 / 0	-	-	-	0.2 0.3	100 480	A(C) A(A)	No Reasonable Potential	TOGS 1.1.1	-	No Limitation
		Monthly Avg	-	0.8	4 / 0	-	-	-	0.2	5.0 6000	H(WS) H(FC)	No Reasonable Potential	TOGS 1.1.1	-	No Limitation
	Existing effluent quality reflective of last three priority pollutant scans and an effluent sample from Application 2A submitted by permittee. Existing effluent quality value is the maximum concentration detected. The projected instream concentration was calculated using a maximum effluent concentration of 0.8 ug/L and ambient concentration of 0 ug/L. As recommended from EPA's Technical Support Document, Chapter 3.3, a multiplier of 2.6 was applied to the effluent concentration to account for the number of samples. A comparison of the projected instream concentration to the WQS indicates no reasonable potential to cause or contribute to a WQS violation. Therefore, no limitation is specified.														
Trichloro-ethene	ug/L	Monthly Avg	-	3.8	4 / 0	-	-	-	1.0	5.0 40	H(WS) H(FC)	No Reasonable Potential	TOGS 1.1.1	-	No Limitation
	Existing effluent quality reflective of last three priority pollutant scans and an effluent sample from Application 2A submitted by permittee. Existing effluent quality value is the maximum concentration detected. The projected instream concentration was calculated using a maximum effluent concentration of 3.8 ug/L and ambient concentration of 0 ug/L. As recommended from EPA's Technical Support Document, Chapter 3.3, a multiplier of 2.6 was applied to the effluent concentration to account for the number of samples. A comparison of the projected instream concentration to the WQS indicates no reasonable potential to cause or contribute to a WQS violation. Therefore, no limitation is specified.														

Outfall #	001	**Description of Wastewater:** Treated sanitary, process wastewaters from SIUs **Type of Treatment:** Activated carbon beds														
Effluent Parameter	Units	Averaging Period	Existing Discharge Data			TBELs		Water Quality Data & WQBELs						ML	Basis for Permit Requirement
			Permit Limit	Existing Effluent Quality	# of Data Points Detects / Non-Detects	Limit	Basis for TBEL	Ambient Bkgd. Conc.	Projected Instream Conc.	WQ Std. or GV	WQ Type	Calc. WQBEL	Basis for WQBEL		
Vinyl Chloride	ug/L	Monthly Avg	-	1.3	11 / 0	-	-	-	0.22	0.3	H(WS)	No Reasonable Potential	TOGS 1.1.1	-	No Limitation
	The projected instream concentration was calculated using a maximum effluent concentration of 1.3 ug/L and ambient concentration of 0 ug/L. As recommended from EPA's Technical Support Document, Chapter 3.3, a multiplier of 1.7 was applied to the effluent concentration to account for the number of samples. A comparison of the projected instream concentration to the WQS indicates no potential to cause or contribute to a WQS violation therefore, a WQBEL is not proposed.														
2,4,6-Trichlorophenol	ug/L	Monthly Avg	-	9.0	1 / 0	-	-	-	-	-	-	-	-	-	No Limitation
	A water quality standard for 2,4,6- Trichlorophenol does not exist for Class A-Special waterbodies. No limitation will be added to the permit at this time.														
N-nitrosodiphenylamine	ug/L	Monthly Avg	-	9.7	4 / 0	-	-	-	2.5	50	H(WS)	No Reasonable Potential	TOGS 1.1.1	-	No Limitation
	Existing effluent quality reflective of last three priority pollutant scans and an effluent sample from Application 2A submitted by permittee. Existing effluent quality value is the maximum concentration detected. The projected instream concentration was calculated using a maximum effluent concentration of 9.7 ug/L and ambient concentration of 0 ug/L. As recommended from EPA's Technical Support Document, Chapter 3.3, a multiplier of 2.6 was applied to the effluent concentration to account for the number of samples. A comparison of the projected instream concentration to the WQS indicates no reasonable potential to cause or contribute to a WQS violation. Therefore, no limitation is specified.														
Aldrin	ug/L	Monthly Avg	-	0.01	13 / 0	-	-	-	0.0016	0.002	H(WS)	No Reasonable Potential	TOGS 1.1.1	-	No Limitation
	Existing effluent quality reflective of last three priority pollutant scans and an effluent sample from Application 2A submitted by permittee. 10 additional samples were submitted on 10/13/2021 to support WQBEL development. Existing effluent quality value is the maximum concentration detected. The projected instream concentration was calculated using a maximum effluent concentration of 0.01 ug/L and ambient concentration of 0 ug/L. As recommended from EPA's Technical Support Document, Chapter 3.3, a multiplier of 1.6 was applied to the effluent concentration to account for the number of samples. A comparison of the projected instream concentration to the WQS indicates no reasonable potential to cause or contribute to a WQS violation therefore, a WQBEL is not proposed.														
Dieldrin	ug/L	Monthly Avg	-	0.002	3 / 0	-	-	-	0.006	0.004 **6E-7**	H(WS) **H(FC)**	0.004 **6E-7**	TOGS 1.1.1	0.002	ML
		Daily Max	-	0.002	3 / 0	-	-	-	0.01	0.056 0.24	A(C) A(A)	No Reasonable Potential	TOGS 1.1.1	0.002	No Limitation

Outfall #	001	**Description of Wastewater:** Treated sanitary, process wastewaters from SIUs **Type of Treatment:** Activated carbon beds

Effluent Parameter	Units	Averaging Period	Existing Discharge Data			TBELs		Water Quality Data & WQBELs						ML	Basis for Permit Requirement
			Permit Limit	Existing Effluent Quality	# of Data Points Detects / Non-Detects	Limit	Basis for TBEL	Ambient Bkgd. Conc.	Projected Instream Conc.	WQ Std. or GV	WQ Type	Calc. WQBEL	Basis for WQBEL		
	Existing effluent quality reflective of last three priority pollutant scans and an effluent sample from Application 2A submitted by permittee. Existing effluent quality value is the maximum concentration detected of 0.002 ug/L. This contaminant falls into the category of man-made organic substances and bio-accumulates through the food chain. In accordance with TOGS 1.3.1A, and 40CFR132 Table 6, no dilution is available for this contaminant. The projected instream concentration was calculated using the maximum effluent concentration of 0.002 ug/L and an ambient upstream concentration of 0 ug/L. As recommended from EPA's Technical Support Document, Chapter 3.3, a multiplier of 3.0 was applied to the effluent concentration to account for the number of samples. The projected instream concentration is greater than the WQS, indicating a reasonable potential to exceed the WQS. Therefore, a WQBEL is specified. This parameter has been added to the PMP because the chronic WQBEL is below the ML.														
Endrin	ug/L	Monthly Avg	-	0.005	3 / 0	-	-	-	0.002	0.2 0.002	H(WS) H(FC)	No Reasonable Potential	TOGS 1.1.1	-	No Limitation
		Daily Max	-	0.005	3 / 0	-	-	-	0.002	0.036 0.086	A(C) A(A)	No Reasonable Potential	TOGS 1.1.1	-	No Limitation
	Existing effluent quality reflective of last three priority pollutant scans and an effluent sample from Application 2A submitted by permittee. Existing effluent quality value is the maximum concentration detected of 0.005 ug/L. The projected instream concentration was calculated using the maximum effluent concentration of 0.005 ug/L and an ambient upstream concentration of 0 ug/L. As recommended from EPA's Technical Support Document, Chapter 3.3, a multiplier of 3.0 was applied to the effluent concentration to account for the number of samples. A comparison of the projected instream concentration to the WQS indicates no reasonable potential to cause or contribute to a WQS violation. Therefore, no limitation is specified.														
Endrin Aldehyde	ug/L	Monthly Avg		0.001	3 / 0	-	-	-	0.0003	5.0	H(WS)	No Reasonable Potential	TOGS 1.1.1	-	No Limitation
	Existing effluent quality reflective of last three priority pollutant scans and an effluent sample from Application 2A submitted by permittee. Existing effluent quality value is the maximum concentration detected of 0.001 ug/L. The projected instream concentration was calculated using the maximum effluent concentration of 0.001 ug/L and an ambient upstream concentration of 0 ug/L. As recommended from EPA's Technical Support Document, Chapter 3.3, a multiplier of 3.0 was applied to the effluent concentration to account for the number of samples. A comparison of the projected instream concentration to the WQS indicates no reasonable potential to cause or contribute to a WQS violation. Therefore, no limitation is specified.														
	ug/L	Monthly Avg	-	1.3E-6	1 / 0	-	-	-	-	7E-8 **3.6E-11**	H(WS) **H(FC)**	7E-8 **3.6E-11**	TOGS 1.1.1	5E-5	See Total PBCs

Outfall #	001	**Description of Wastewater:** Treated sanitary, process wastewaters from SIUs **Type of Treatment:** Activated carbon beds

Effluent Parameter	Units	Averaging Period	Existing Discharge Data: Permit Limit	Existing Discharge Data: Existing Effluent Quality	Existing Discharge Data: # of Data Points (Detects / Non-Detects)	TBELs: Limit	TBELs: Basis for TBEL	Water Quality Data & WQBELs: Ambient Bkgd. Conc.	Water Quality Data & WQBELs: Projected Instream Conc.	Water Quality Data & WQBELs: WQ Std. or GV	Water Quality Data & WQBELs: WQ Type	Water Quality Data & WQBELs: Calc. WQBEL	Water Quality Data & WQBELs: Basis for WQBEL	ML	Basis for Permit Requirement
1,2,3,7,8,9-Hexachlorodibenzofuran	The 2,3,7,8-TCDD equivalent for a congener for the H(WS) standards is obtained by multiplying the concentration of that congener (7E-7 ug/L) by its Toxicity Equivalency Factor (TEF) of 0.1. The 2,3,7,8-TCDD equivalent for a congener for the H(FC) standards is obtained by multiplying the concentration of that congener (6E-10 ug/L) by its TEF and its Bioaccumulation Equivalency Factor (BEF) of 0.6. This contaminant falls into the category of man-made organic substances and bio-accumulates through the food chain. In accordance with TOGS 1.3.1A, and 40CFR132 Table 6, no dilution is available for this contaminant. The projected instream concentration is equivalent to the existing effluent quality and is greater than the WQS, indicating reasonable potential to exceed the WQS. Therefore, a WQBEL is specified. See the PCB Minimization Program for more information.														
1,2,3,4,6,7,8-Heptachlorodibenzo-P-dioxin	ug/L	Monthly Avg	-	3E-6	1 / 0	-	-	-	-	7E-9 **3E-13**	H(WS) **H(FC)**	7E-9 **3E-13**	TOGS 1.1.1	5E-5	See Total PBCs
	The 2,3,7,8-TCDD equivalent for a congener for the H(WS) standards is obtained by multiplying the concentration of that congener (7E-7 ug/L) by its Toxicity Equivalency Factor (TEF) of 0.01. The 2,3,7,8-TCDD equivalent for a congener for the H(FC) standards is obtained by multiplying the concentration of that congener (6E-10 ug/L) by its TEF and its Bioaccumulation Equivalency Factor (BEF) of 0.05. This contaminant falls into the category of man-made organic substances and bio-accumulates through the food chain. In accordance with TOGS 1.3.1A, and 40CFR132 Table 6, no dilution is available for this contaminant. The projected instream concentration is equivalent to the existing effluent quality and is greater than the WQS, indicating reasonable potential to exceed the WQS. Therefore, a WQBEL is specified. See the PCB Minimization Program for more information.														
1,2,3,4,6,7,8-Heptachlorodibenzofuran	ug/L	Monthly Avg	-	2.7E-6	1 / 0	-	-	-		7E-9 **6E-14**	H(WS) **H(FC)**	7E-9 **6E-14**	TOGS 1.1.1	5E-5	See Total PBCs
	The 2,3,7,8-TCDD equivalent for a congener for the H(WS) standards is obtained by multiplying the concentration of that congener (7E-7 ug/L) by its Toxicity Equivalency Factor (TEF) of 0.01. The 2,3,7,8-TCDD equivalent for a congener for the H(FC) standards is obtained by multiplying the concentration of that congener (6E-10 ug/L) by its TEF and its Bioaccumulation Equivalency Factor (BEF) of 0.01. This contaminant falls into the category of man-made organic substances and bio-accumulates through the food chain. In accordance with TOGS 1.3.1A, and 40CFR132 Table 6, no dilution is available for this contaminant. The projected instream concentration is equivalent to the existing effluent quality and is greater than the WQS, indicating reasonable potential to exceed the WQS. Therefore, a WQBEL is specified. See the PCB Minimization Program for more information.														
Octachloro-dibenzodioxin	ug/L	Monthly Avg	-	2.4E-5	1 / 0	-	-	-		7E-10 **6E-15**	H(WS) **H(FC)**	7E-10 **6E-15**	TOGS 1.1.1	1E-4	See Total PBCs
	The 2,3,7,8-TCDD equivalent for a congener for the H(WS) standards is obtained by multiplying the concentration of that congener (7E-7 ug/L) by its Toxicity Equivalency Factor (TEF) of 0.001. The 2,3,7,8-TCDD equivalent for a congener for the H(FC) standards is obtained by multiplying the concentration of that congener (6E-10 ug/L) by its TEF and its Bioaccumulation Equivalency Factor (BEF) of 0.01. This contaminant falls into the category of man-made organic substances and bio-accumulates through the food chain. In accordance with TOGS 1.3.1A, and 40CFR132 Table 6, no dilution is available for this contaminant. The projected instream concentration is equivalent to the existing effluent quality and is greater than the WQS, indicating reasonable potential to exceed the WQS. Therefore, a WQBEL is specified. See the PCB Minimization Program for more information.														

Outfall #	001	**Description of Wastewater:** Treated sanitary, process wastewaters from SIUs **Type of Treatment:** Activated carbon beds														
Effluent Parameter	Units	Averaging Period	Existing Discharge Data			TBELs		Water Quality Data & WQBELs						ML	Basis for Permit Requirement
			Permit Limit	Existing Effluent Quality	# of Data Points Detects / Non-Detects	Limit	Basis for TBEL	Ambient Bkgd. Conc.	Projected Instream Conc.	WQ Std. or GV	WQ Type	Calc. WQBEL	Basis for WQBEL		
Octachlorodibenzofuran	ug/L	Monthly Avg	-	8E-6	1 / 0	-	-	-		7E-10 **1.2E-14**	H(WS) **H(FC)**	7E-10 **1.2E-14**	TOGS 1.1.1	1E-4	See Total PBCs
	The 2,3,7,8-TCDD equivalent for a congener for the H(WS) standards is obtained by multiplying the concentration of that congener (7E-7 ug/L) by its Toxicity Equivalency Factor (TEF) of 0.001. The 2,3,7,8-TCDD equivalent for a congener for the H(FC) standards is obtained by multiplying the concentration of that congener (6E-10 ug/L) by its TEF and its Bioaccumulation Equivalency Factor (BEF) of 0.02. This contaminant falls into the category of man-made organic substances and bio-accumulates through the food chain. In accordance with TOGS 1.3.1A, and 40CFR132 Table 6, no dilution is available for this contaminant. The projected instream concentration is equivalent to the existing effluent quality and is greater than the WQS, indicating reasonable potential to exceed the WQS. Therefore, a WQBEL is specified. See the PCB Minimization Program for more information.														
2,3,7,8-Tetrachlorodibenzo-p-dioxin	ug/L	Daily Max	-	9.6E-7	1 / 0	-	-	-		3.1E-9	W	3.1E-9	TOGS 1.1.1	1E-5	See Total PBCs
		Monthly Average	-	9.6E-7	1 / 0	-	-	-		7E-7 **6E-10**	H(WS) **H(FC)**	7E-7 **6E-10**	TOGS 1.1.1	1E-5	See Total PBCs
	The 2,3,7,8-TCDD equivalent for a congener for the H(WS) standards is obtained by multiplying the concentration of that congener (7E-7 ug/L) by its Toxicity Equivalency Factor (TEF) of 1. The 2,3,7,8-TCDD equivalent for a congener for the H(FC) standards is obtained by multiplying the concentration of that congener (6E-10 ug/L) by its TEF and its Bioaccumulation Equivalency Factor (BEF) of 1. This contaminant falls into the category of man-made organic substances and bio-accumulates through the food chain. In accordance with TOGS 1.3.1A, and 40CFR132 Table 6, no dilution is available for this contaminant. The projected instream concentration is equivalent to the existing effluent quality and is greater than the WQS, indicating reasonable potential to exceed the WQS. Therefore, a WQBEL is specified. See the PCB Minimization Program for more information.														
Hexachlorodibenzofurans	ug/L	Monthly Avg	-	1.3E-6	1 / 0	-	-	-		7E-8 **4.8E-12**	H(WS) **H(FC)**	7E-8 **4.8E-12**	TOGS 1.1.1	5E-5	See Total PBCs
	. The 2,3,7,8-TCDD equivalent for a congener for the H(WS) standards is obtained by multiplying the concentration of that congener (7E-7 ug/L) by its Toxicity Equivalency Factor (TEF) of 0.1. The 2,3,7,8-TCDD equivalent for a congener for the H(FC) standards is obtained by multiplying the concentration of that congener (6E-10 ug/L) by its TEF and its Bioaccumulation Equivalency Factor (BEF) of 0.08. This contaminant falls into the category of man-made organic substances and bio-accumulates through the food chain. In accordance with TOGS 1.3.1A, and 40CFR132 Table 6, no dilution is available for this contaminant. The projected instream concentration is equivalent to the existing effluent quality and is greater than the WQS, indicating reasonable potential to exceed the WQS. Therefore, a WQBEL is specified. T See the PCB Minimization Program for more information.														
Heptachlorodibenzo-p-dioxins	ug/L	Monthly Avg	-	6.4E-6	1 / 0	-	-	-	-	7E-9 **6E-14**	H(WS) **H(FC)**	7E-9 **6E-14**	TOGS 1.1.1	5E-5	See Total PBCs

Outfall #	001	**Description of Wastewater:** Treated sanitary, process wastewaters from SIUs **Type of Treatment:** Activated carbon beds														
Effluent Parameter	Units	Averaging Period	Existing Discharge Data			TBELs		Water Quality Data & WQBELs						ML	Basis for Permit Requirement
			Permit Limit	Existing Effluent Quality	# of Data Points Detects / Non-Detects	Limit	Basis for TBEL	Ambient Bkgd. Conc.	Projected Instream Conc.	WQ Std. or GV	WQ Type	Calc. WQBEL	Basis for WQBEL		
	The 2,3,7,8-TCDD equivalent for a congener for the H(WS) standards is obtained by multiplying the concentration of that congener (7E-7 ug/L) by its Toxicity Equivalency Factor (TEF) of 0.01. The 2,3,7,8-TCDD equivalent for a congener for the H(FC) standards is obtained by multiplying the concentration of that congener (6E-10 ug/L) by its TEF and its Bioaccumulation Equivalency Factor (BEF) of 0.01. This contaminant falls into the category of man-made organic substances and bio-accumulates through the food chain. In accordance with TOGS 1.3.1A, and 40CFR132 Table 6, no dilution is available for this contaminant. The projected instream concentration is equivalent to the existing effluent quality and is greater than the WQS, indicating reasonable potential to exceed the WQS. Therefore, a WQBEL is specified. See the PCB Minimization Program for more information.															
Total Polychlorinated biphenyls	ug/L	Daily Max	-	5E-3	1 / 0	Monitor	6 NYCRR 750-1.13	-	-	1.2E-4	W	1.2E-4	TOGS 1.1.1	-	See PCBMP
		Monthly Avg	-	5E-3	1 / 0			-	-	0.09 **1E-6**	H(WS) **H(FC)**	0.09 **1E-6**	TOGS 1.1.1	-	
	effluent quality is summation of all PCBs with detections in analytical laboratory data sheet. This contaminant falls into the category of man-made organic substances and bio-accumulates through the food chain. In accordance with TOGS 1.3.1A, and 40CFR132 Table 6, no dilution is available for this contaminant. The projected instream concentration is equivalent to the existing effluent quality and is greater than the WQS, indicating reasonable potential to exceed the WQS. Therefore, a WQBEL is specified. Monitoring for Total PCBs is proposed. Please see PCB-1248 for limitations related to Aroclors.														
Chromium, Total	ug/L	Daily Max	-	4.6	4 / 0	-	-	-	1.0 0.5	74 570	A(C) A(A)	No Reasonable Potential	TOGS 1.1.1	-	No Limitation
		Monthly Avg	-	4.6	4 / 0	-	-	-	1.2	50	H(WS)	No Reasonable Potential	TOGS 1.1.1	-	No Limitation
	Existing effluent quality reflective of last three priority pollutant scans and an effluent sample from Application 2A submitted by permittee. Existing effluent quality value is the maximum concentration. The projected instream concentration was calculated using the maximum effluent concentration of 4.6 ug/L and an ambient upstream concentration of 0 ug/L. As recommended from EPA's Technical Support Document, Chapter 3.3, a multiplier of 2.6 was applied to the effluent concentration to account for the limited number of samples. Taken from the EPA database June 1996, EPA 823-B-96-007, a metals translator of 3.165 (acute), 1.163 (chronic), and 1.0 (HEW) was applied to convert from the dissolved to total form. A comparison of the projected instream concentration to the WQS indicates no reasonable potential to cause or contribute to a WQS violation. Therefore, no limitation is specified.														
Copper, Total	ug/L	Daily Max	-	11	4 / 0	-	-	-	4.7 5.4	9.0 13	A(C) A(A)	No Reasonable Potential	TOGS 1.1.1	-	No Limitation
		Monthly Avg	-	11	4 / 0	-	-	-	4.8	200	H(WS)	No Reasonable Potential	TOGS 1.1.1	-	No Limitation

Outfall #	001	**Description of Wastewater:** Treated sanitary, process wastewaters from SIUs **Type of Treatment:** Activated carbon beds														
Effluent Parameter	Units	Averaging Period	Existing Discharge Data			TBELs		Water Quality Data & WQBELs						ML	Basis for Permit Requirement
			Permit Limit	Existing Effluent Quality	# of Data Points Detects / Non-Detects	Limit	Basis for TBEL	Ambient Bkgd. Conc.	Projected Instream Conc.	WQ Std. or GV	WQ Type	Calc. WQBEL	Basis for WQBEL		
	Existing effluent quality reflective of last three priority pollutant scans and an effluent sample from Application 2A submitted by permittee. Existing effluent quality value is the maximum concentration detected. The projected instream concentration was calculated using the maximum concentration of 11 ug/L and an ambient upstream concentration of 0 ug/L. As recommended from EPA's Technical Support Document, Chapter 3.3, a multiplier of 2.6 was applied to the effluent concentration to account for the limited number of samples. Taken from the EPA database June 1996, EPA 823-B-96-007, a metals translator of 1.042 (acute and chronic) and 1.0 (HEW) was applied to convert from the dissolved to total form. A comparison of the projected instream concentration to the WQS indicates no reasonable potential to cause or contribute to a WQS violation. Therefore, no limitation is specified.														
Nickel, Total	ug/L	Daily Max	-	7.3	4 / 0	-	-	-	1.9 2.4	52 470	A(C) A(A)	No Reasonable Potential	TOGS 1.1.1	-	No Limitation
		Monthly Avg	-	7.3	4 / 0	-	-	-	1.9	100	H(WS)	No Reasonable Potential	TOGS 1.1.1	-	No Limitation
	Existing effluent quality reflective of last three priority pollutant scans and an effluent sample from Application 2A submitted by permittee. Existing effluent quality value is the maximum concentration detected. The projected instream concentration was calculated using the maximum concentration of 7.3 ug/L and an ambient upstream concentration of 0 ug/L. As recommended from EPA's Technical Support Document, Chapter 3.3, a multiplier of 2.6 was applied to the effluent concentration to account for the number of samples. Taken from the EPA database June 1996, EPA 823-B-96-007, a metals translator of 1.002 (acute), 1.003 (chronic), and 1.0 (HEW) was applied to convert from the dissolved to total form. A comparison of the projected instream concentration to the WQS indicates no reasonable potential to cause or contribute to a WQS violation. Therefore, no limitation is specified.														
Zinc, Total	ug/L	Daily Max	-	55	4 / 0	-	-	-	17 20 17	83 120 5000	A(C) A(A) E	No Reasonable Potential	TOGS 1.1.1	-	No Limitation
		Monthly Avg	-	55	4 / 0	-	-	-	17	2000	H(WS)	No Reasonable Potential	TOGS 1.1.1	-	No Limitation
	Existing effluent quality reflective of last three priority pollutant scans and an effluent sample from Application 2A submitted by permittee. Existing effluent quality value is the maximum concentration detected. The projected instream concentration was calculated using the maximum concentration of 55 ug/L and an ambient upstream concentration of 0 ug/L. As recommended from EPA's Technical Support Document, Chapter 3.3, a multiplier of 2.6 was applied to the effluent concentration to account for the limited number of samples. Taken from the EPA database June 1996, EPA 823-B-96-007, a metals translator of 1.022 (acute), 1.014 (chronic), and 1.0 (HEW) was applied to convert from the dissolved to total form. A comparison of the projected instream concentration to the WQS indicates no reasonable potential to cause or contribute to a WQS violation. Therefore, no limitation is specified.														
Oil & Grease	mg/L	Daily Max	-	3.6	1 / 0	-	-	-						-	No Limitation

Outfall #	001	**Description of Wastewater:** Treated sanitary, process wastewaters from SIUs **Type of Treatment:** Activated carbon beds

Effluent Parameter	Units	Averaging Period	Existing Discharge Data: Permit Limit	Existing Discharge Data: Existing Effluent Quality	Existing Discharge Data: # of Data Points Detects / Non-Detects	TBELs: Limit	TBELs: Basis for TBEL	Water Quality Data & WQBELs: Ambient Bkgd. Conc.	Projected Instream Conc.	WQ Std. or GV	WQ Type	Calc. WQBEL	Basis for WQBEL	ML	Basis for Permit Requirement
	Lbs/d	Daily Max	-	-	1 / 0	-	-	-	No residue attributable to sewage, industrial wastes or other wastes, nor visible oil film nor globules of grease.				6 NYCRR 703.2	-	No Limitation
	There are no significant sources of oil & grease present, therefore, a numeric limit is not proposed.														
Sulfate	mg/L	Monthly Avg	-	91.4	1 / 0	-	-	-	57	250	H(WS)	No Reasonable Potential	TOGS 1.1.1	-	No Limitation
	The projected instream concentration was calculated using a maximum effluent of 91.4 mg/L and an ambient upstream concentration of 0 ug/L. As recommended from EPA's Technical Support Document, Chapter 3.3, a multiplier of 6.2 was applied to the effluent concentration to account for the number of samples. A comparison of the projected instream concentration to the WQS indicates no reasonable potential to cause or contribute to a WQS violation. Therefore, no limitation is specified.														
Cyanide, Total	ug/L	Daily Max	-	57	14 / 0	-	-	-	8.6 11	**5.2*** 22*	A**(C)** A(A)	**52** 180	TOGS 1.1.1	-	WQBEL
		Monthly Avg	-	57	14 / 0	-	-	-	8.6	200 9000	H(WS) H(FC)	No Reasonable Potential	TOGS 1.1.1	-	No Limitation
	Existing effluent quality reflective of last three priority pollutant scans and an effluent sample from Application 2A submitted by permittee. 10 additional samples were submitted on 10/13/2021 to support WQBEL development. *As free cyanide: the sum of HCN and CN expressed as CN. The projected instream concentration was calculated using a maximum effluent of 57 ug/L and an ambient upstream concentration of 0 ug/L. As recommended from EPA's Technical Support Document, Chapter 3.3, a multiplier of 1.5 was applied to the effluent concentration to account for the number of samples. A comparison of the projected instream concentration to the WQS indicates a potential to cause or contribute to a WQS violation and therefore, a WQBEL is proposed.														
Chemical Oxygen Demand	mg/L	Daily Max	-	94.8	1 / 0	-	-	-	-	-	-	-	-	-	No Limitation
	A water quality standard for Chemical Oxygen Demand does not exist for Class A-Special waterbodies. No limitation will be added to the permit at this time.														
5-day Biochemical Oxygen Demand (BOD_5)	mg/L	Monthly Avg	-	23.1	1 / 0	30	TOGS 1.3.3	-	See Dissolved Oxygen				6 NYCRR 703.2	-	TBEL
		7 Day Avg	-	23.1	1 / 0	45	TOGS 1.3.3								
	lbs/d	Monthly Avg	-	23.1	1 / 0	12,000	TOGS 1.3.3								
		7 Day Avg	-	23.1	1 / 0	18,000	TOGS 1.3.3								
	% Rem	Minimum	-	-	0	85%	TOGS 1.3.3								

Outfall #	001	**Description of Wastewater:** Treated sanitary, process wastewaters from SIUs **Type of Treatment:** Activated carbon beds														
Effluent Parameter	Units	Averaging Period	Existing Discharge Data			TBELs		Water Quality Data & WQBELs						ML	Basis for Permit Requirement
			Permit Limit	Existing Effluent Quality	# of Data Points Detects / Non-Detects	Limit	Basis for TBEL	Ambient Bkgd. Conc.	Projected Instream Conc.	WQ Std. or GV	WQ Type	Calc. WQBEL	Basis for WQBEL		
	See justification for dissolved oxygen.														
Nitrate as N	mg/L	Monthly Avg	-	0.031	1 / 0	-	-	-	0.019	10	H(WS)	No Reasonable Potential	TOGS 1.1.1	-	No Limitation
	The projected instream concentration was calculated using a projected effluent of 0.031 mg/L. A comparison of the projected instream concentration to the WQS indicates no reasonable potential to cause or contribute to a WQS violation. Therefore, no limitation is specified.														
Total Dissolved Solids	mg/L	Monthly Avg	-	1060	11 / 0	-	-	-	225	200	Narrative	2,000	6 NYCRR 703.2	-	WQBEL
	10 additional samples were submitted on 10/13/2021 to support WQBEL development. The projected instream concentration was calculated using a maximum effluent of 1060 mg/L and an ambient upstream concentration of 0 ug/L. As recommended from EPA's Technical Support Document, Chapter 3.3, a multiplier of 1.7 was applied to the effluent concentration to account for the number of samples. A comparison of the projected instream concentration to the WQS indicates a potential to cause or contribute to a WQS violation therefore, a WQBEL is proposed.														
Total Sulfide	ug/L	Daily Max	-	800	1 / 0	-	-	-	See notes	**2.0** 50	**A(C)** E	**32**	TOGS 1.1.1	-	WQBEL
	lbs/d	Daily Max	-	-	-	-	-	-	-	**-**	**-**	**13**		-	
	The projected instream concentration was calculated using a maximum effluent of 800 ug/L and an ambient upstream concentration of 0 ug/L. In water, sulfide can exist in two main forms: (1) un-ionized dissolved hydrogen sulfide (H2S) gas; and, (2) ionized form, either as HS- or S2-. Due to the chemistry of the species, S2- can be ignored as it is negligible at all pH values. Total sulfide, therefore, consists of H2S and HS-. The WQS for total sulfide is written for H2S, therefore a translator was used to estimate Total Sulfide from H2S. Consistent with Standards Method 4500 S2- - H, a translator was calculated using a minimum temperature of 15 degrees C and an average specific conductance of 288 µmhos/cm at RIBS station 1010001. The resulting maximum concentration of total sulfide allowed at the edge of the chronic mixing zone is equal to 32 ug/L total sulfide.														
Nitrogen, Organic	mg/L	Daily Max	-	1.1	1 / 0	-	-		-	-	-	-	-	-	No Limitation
	A water quality standard for Organic Nitrogen does not exist for Class A-Special waterbodies. No limitation will be added to the permit at this time.														
Color	PCU	Daily Max	-	100	1 / 0	Monitor	6NYCRR Part 750-1.13	-	None in amounts that will adversely affect the taste, color or odor thereof, or impair the waters for their best usages				6 NYCRR 703.2	-	TBEL
	A visible tint in the effluent may be observed at 15 color units. The discharge location is in observable distance of the Maid of the Mist tour deck. Visible contrast is not permissible at any time pursuant to 6 NYCRR 703.2. Monitoring is required in accordance with 6 NYCRR Part 750-1.13(a).														
Dissolved Oxygen	mg/L	Daily Min	-	0	1 / 0	-	-	-	7.3	4.0	Narrative	No Reasonable Potential	6 NYCRR 703.3	-	No Limitation

Outfall #	001	**Description of Wastewater:** Treated sanitary, process wastewaters from SIUs **Type of Treatment:** Activated carbon beds													
Effluent Parameter	Units	Averaging Period	Existing Discharge Data: Permit Limit	Existing Discharge Data: Existing Effluent Quality	Existing Discharge Data: # of Data Points Detects / Non-Detects	TBELs: Limit	TBELs: Basis for TBEL	Water Quality Data & WQBELs: Ambient Bkgd. Conc.	Water Quality Data & WQBELs: Projected Instream Conc.	Water Quality Data & WQBELs: WQ Std. or GV	Water Quality Data & WQBELs: WQ Type	Water Quality Data & WQBELs: Calc. WQBEL	Water Quality Data & WQBELs: Basis for WQBEL	ML	Basis for Permit Requirement
	The downstream DO concentration was modeled using the Streeter-Phelps equations using the following assumptions: Effluent DO (assumed) = 0 mg/l, Effluent BOD5 = TBEL limits (45 mg/L as daily max), NOD = 73 mg/l. The RSAT model showed that DO standards are maintained and consequently WQBELs for DO, BOD/CBOD, and TKN are unnecessary and the TBELs are protective of water quality.														
Settleable Solids	mL/L	Daily Max	-	<0.1	1 / 0	0.3	TOGS 1.3.3	-	None from sewage, industrial wastes or other wastes that will cause deposition or impair the waters for their best usages -				6 NYCRR 703.2	-	TBEL
	Consistent with TOGS 1.3.3, the effluent limitation is equal to the TBEL of 0.3 mL/L for facilities providing secondary treatment without filtration. Given that adequate dilution is available the TBEL is reasonably protective of WQS.														
Nitrogen, Ammonia (as N) June 1st – Oct. 31st	mg/L	Monthly Avg	-	1.7	10 / 0	Monitor	6 NYCRR Part 750-1.13	-	0.3	1.2	A(C)	12	TOGS 1.1.1	-	TBEL
	lbs/d	Monthly Avg	-	-	-	-	-	-	-	-	-	-			
	The WQS for Ammonia was determined from TOGS 1.1.1 from a summer pH of 7.4 and a temperature of 25 degrees C. 10 additional samples were submitted on 10/13/2021 to support WQBEL development. The projected instream concentration was calculated using a projected effluent of 15 mg/L and an ambient upstream concentration of 0 mg/L. As recommended from EPA's Technical Support Document, Chapter 3.3, a multiplier of 1.7 was applied to the effluent concentration to account for the number of samples. A comparison of the projected instream concentration to the WQS indicates no potential to cause or contribute to a WQS violation and therefore a WQBEL is not proposed.														
Nitrogen, Ammonia (as N) Nov. 1st – May 31st	mg/L	Monthly Avg	-	1.7	10 / 0	Monitor	6 NYCRR Part 750-1.13		0.3	1.9	A(C)	19	TOGS 1.1.1	-	TBEL
	lbs/d	Monthly Avg	-	-	-	-	-	-	-	-	-	-			
	The WQS for Ammonia was determined from TOGS 1.1.1 from a winter pH of 7.5 and a temperature of 10 degrees C. 10 additional samples were submitted on 10/13/2021 to support WQBEL development. The projected instream concentration was calculated using a projected effluent of 1.7 mg/L and an ambient upstream concentration of 0 mg/L. As recommended from EPA's Technical Support Document, Chapter 3.3, a multiplier of 1.7 was applied to the effluent concentration to account for the number of samples. A comparison of the projected instream concentration to the WQS indicates no potential to cause or contribute to a WQS violation and therefore a WQBEL is not proposed.														

Existing Effluent Quality: Daily Max = 99% lognormal; Monthly Avg = 95% lognormal (for datasets with ≤ 3 nondetects)
Daily Max = 99% delta-lognormal; Monthly Avg = 95% delta-lognormal (for datasets with > 3 nondetects)

Non-Metals Projected Instream Concentration: $Maximum\ Effluent\ Concentration\ \times\ Muliplier + Ambient\ Concentration\ \times Dilution - 1.$

Metals Projected Instream Concentration: $\frac{Maximum\ Effluent\ Concentration \times Muliplier}{Metals\ Translator} + Ambient\ Concentration\ \times Dilution - 1.$

Dilution Application to Non-Bioaccumulative Water Quality Standards[14]	
Water Quality Type	Dilution Applicable
A(A) – Aquatic Acute	Acute
A(C) – Aquatic Chronic	Chronic
H(WS), H(FC), E, W	Human, Aesthetics, Wildlife

[14] In accordance with 40CFR 132 Table 6, 6NYCRR Part 702.14, TOGS 1.1.1, TOGS 1.3.1, TOGS 1.3.1A, and TOGS 1.3.1E

Appendix: Regulatory and Technical Basis of Permit Authorizations

The Appendix is meant to supplement the factsheet for multiple types of SPDES permits. Portions of this Appendix may not be applicable to this specific permit.

Regulatory References

The provisions of the permit are based largely upon 40 CFR 122 subpart C and 6 NYCRR Part 750 and include monitoring, recording, reporting, and compliance requirements, as well as general conditions applicable to all SPDES permits. Below are the most common citations for the requirements included in SPDES permits:

- Clean Water Act (CWA) 33 section USC 1251 to 1387
- Environmental Conservation Law (ECL) Articles 17 and 70
- Federal Regulations
  - 40 CFR, Chapter I, subchapters D, N, and O
- State environmental regulations
  - 6 NYCRR Part 621
  - 6 NYCRR Part 750
  - 6 NYCRR Parts 700 - 704 – Best use and other requirements applicable to water classes
  - 6 NYCRR Parts 800 – 941 - Classification of individual surface waters
- NYSDEC water program policy, referred to as Technical and Operational Guidance Series (TOGS)
- USEPA Office of Water Technical Support Document for Water Quality-based Toxics Control, March 1991, Appendix E

The following is a quick guide to the references used within the factsheet:

SPDES Permit Requirements	Regulatory Reference
Anti-backsliding	6 NYCRR 750-1.10(c)
Best Management Practices (BMPS) for CSOs	6 NYCRR 750-2.8(a)(2)
Environmental Benefits Permit Strategy (EBPS)	6 NYCRR 750-1.18, NYS ECL 17-0817(4), TOGS 1.2.2 (revised January 25,2012)
Exceptions for Type I SSO Outfalls (bypass)	6 NYCRR 750-2.8(b)(2), 40 CFR 122.41
Mercury Multiple Discharge Variance	Division of Water Program Policy 1.3.10 (DOW 1.3.10)
Mixing Zone and Critical Water Information	TOGS 1.3.1 & Amendments
PCB Minimization Program	40 CFR Part 132 Appendix F Procedure 8, 6 NYCRR 750-1.13(a) and 750-1.14(f), and TOGS 1.2.1
Pollutant Minimization Program (PMP)	6 NYCRR 750-1.13(a), 750-1.14(f), TOGS 1.2.1
Schedules of Compliance	6 NYCRR 750-1.14
Sewage Pollution Right to Know (SPRTK)	NYS ECL 17-0826-a, 6 NYCRR 750-2.7
State Administrative Procedure Act (SAPA)	State Administrative Procedure Act Section 401(2), 6 NYCRR 621.11(l)
State Environmental Quality Review (SEQR)	6 NYCRR Part 617
USEPA Effluent Limitation Guidelines (ELGs)	40 CFR Parts 405-471
USEPA National CSO Policy	33 USC Section 1342(q)
Whole Effluent Toxicity (WET) Testing	TOGS 1.3.2
General Provisions of a SPDES Permit Department Request for Additional Information	NYCRR 750-2.1(i)

Outfall and Receiving Water Information

Impaired Waters

The NYS 303(d) List of Impaired/TMDL Waters identifies waters where specific best usages are not fully supported. The state must consider the development of a Total Maximum Daily Load (TMDL) or other strategy to reduce the input of the specific pollutant(s) that restrict waterbody uses, in order to restore and protect such uses. SPDES permits must include effluent limitations necessary to implement a WLA of an EPA-approved TMDL (6 NYCRR 750-1.11(a)(5)(ii)), if applicable. In accordance with 6 NYCRR 750-1.13(a), permittees discharging to waters which are on the list but do not yet have a TMDL developed may be required to perform additional monitoring for the parameters causing the impairment. Accurate monitoring data is needed to

determine the existing capabilities of the wastewater treatment plants and to assure that wasteload allocations (WLAs) are allocated equitably.

Interstate Water Pollution Control Agencies

Some POTWs may be subject to regulations of interstate basin/compact agencies including: Interstate Sanitation Commission (ISC), International Joint Commission (IJC), Delaware River Basin Commission (DRBC), Ohio River Valley Water Sanitation Commission (ORSANCO), and the Susquehanna River Basin Commission (SRBC). Generally, basin commission requirements focus principally on water quality and not treatment technology. However, interstate/compact agency regulations for the ISC, IJC, DRBC and NYC Watershed contain explicit effluent limits which must be addressed during permit drafting. 6 NYCRR 750-2.1(d) requires SPDES permits for discharges that originate within the jurisdiction of an interstate water pollution control agency, to include any applicable effluent standards or water quality standards (WQS) promulgated by that interstate agency.

Existing Effluent Quality

The existing effluent quality is determined from a statistical evaluation of effluent data in accordance with TOGS 1.2.1 and the USEPA Office of Water, Technical Support Document for Water Quality-based Toxics Control, March 1991, Appendix E (TSD). The existing effluent quality is equal to the 95th (monthly average) and 99th (daily maximum) percentiles of the lognormal distribution of existing effluent data. When there are greater than three non-detects, a delta-lognormal distribution is assumed, and delta-lognormal calculations are used to determine the monthly average and daily maximum pollutant concentrations. Statistical calculations are not performed for parameters where there are less than ten data points. If additional data is needed, a monitoring requirement may be specified either through routine monitoring or a short-term high intensity monitoring program. The Pollutant Summary Table identifies the number of sample data points available.

Permit Requirements

Basis for Effluent Limitations

Sections 101, 301, 304, 308, 401, 402, and 405 of the CWA and Titles 5, 7, and 8 of Article 17 ECL, as well as their implementing federal and state regulations, and related guidance, provide the basis for the effluent limitations and other conditions in the permit.

When conducting a full technical review of an existing permit, the previous effluent limitations form the basis for the next permit. Existing effluent quality is evaluated against the existing effluent limitations to determine if these should be continued, revised, or deleted. Generally, existing limitations are continued unless there are changed conditions at the facility, the facility demonstrates an ability to meet more stringent limitations, and/or in response to updated regulatory requirements. Pollutant monitoring data is also reviewed to determine the presence of additional contaminants that should be included in the permit based on a reasonable potential analysis to cause or contribute to a water quality standards violation.

Anti-backsliding

Anti-backsliding requirements are specified in the CWA sections 402(o) and 303(d)(4), ECL 17-0809, and regulations at 40 CFR 122.44(*l*) and 6 NYCRR 750-1.10(c) and (d). Generally, the relaxation of effluent limitations in permits is prohibited unless one of the specified exceptions applies, which will be cited on a case-by-case basis in this factsheet. Consistent with current case law[15] and USEPA interpretation[16] anti-backsliding requirements do not apply should a revision to the final effluent limitation take effect before the scheduled date of compliance for that final effluent limitation.

Antidegradation Policy

New York State implements the antidegradation portion of the CWA based upon two documents: (1) Organization and Delegation Memorandum #85-40, “Water Quality Antidegradation Policy” (September 9, 1985);

[15] American Iron and Steel Institute v. Environmental Protection Agency, 115 F.3d 979, 993 n.6 (D.C. Cir. 1997)
[16] U.S. EPA, Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California; 65 Fed. Reg. 31682, 31704 (May 18, 2000); Proposed Water Quality Guidance for the Great Lakes System, 58 Fed. Reg. 20802, 20837 & 20981 (April 16, 1993)

and, (2) TOGS 1.3.9, "Implementation of the NYSDEC Antidegradation Policy – Great Lakes Basin (Supplement to Antidegradation Policy dated September 9, 1985) (undated)." The permit for the facility contains effluent limitations which ensure that the existing best usage of the receiving waters will be maintained. To further support the antidegradation policy, SPDES applications have been reviewed in accordance with the State Environmental Quality Review Act (SEQR) as prescribed by 6 NYCRR Part 617.

Effluent Limitations

In developing a permit, the Department determines the technology-based effluent limitations (TBELs) and then evaluates the water quality expected to result from technology controls to determine if any exceedances of water quality criteria in the receiving water might result. If there is a reasonable potential for exceedances of water quality criteria to occur, water quality-based effluent limitations (WQBELs) are developed. A WQBEL is designed to ensure that the water quality standards of receiving waters are met. In general, the CWA requires that the effluent limitations for a particular pollutant are the more stringent of either the TBEL or WQBEL.

Technology-based Effluent Limitations (TBELs)

CWA sections 301(b)(1)(B) and 304(d)(1), 40 CFR 133.102, ECL section 17-0509, and 6 NYCRR 750-1.11 require technology-based controls, known as secondary treatment. These and other requirements are summarized in TOGS 1.3.3. Where the TBEL is more stringent than the WQBEL, the TBEL is applied as a limit in accordance with TOGS 1.3.3. Equivalent secondary treatment, as defined in 40 CFR 133.105, allow for effluent limitations of the more stringent of the consistently achievable concentrations or monthly/weekly averages of 45/65 mg/l, and the minimum monthly average of at least 65% removal. Consistently achievable concentrations are defined in 40 CFR 133.101(f) as the 95th percentile value for the 30-day (monthly) average effluent quality achieved by the facility in a period of two years. The achievable 7-day (weekly) average value is equal to 1.5 times the 30-day average value calculated above. Equivalent secondary treatment applies to those facilities where the principal treatment process is either a trickling filter or a waste stabilization pond; the treatment works provides significant biological treatment of municipal wastewater; and, the effluent concentrations consistently achievable through proper operation and maintenance of the facility cannot meet traditional secondary treatment requirements. There are no federal technology-based standards for toxic pollutants from POTWs. A statistical analysis of existing effluent data, as described in TOGS 1.2.1, may be used to establish other performance-based TBELs.

Water Quality-Based Effluent Limitations (WQBELs)

In addition to the TBELs, permits must include additional or more stringent effluent limitations and conditions, including those necessary to protect water quality. CWA sections 101 and 301(b)(1)(C), 40 CFR 122.44(d)(1), and 6 NYCRR Parts 750-1.11 require that permits include limitations for all pollutants or parameters which are or may be discharged at a level which may cause or contribute to an exceedance of any State water quality standard adopted pursuant to NYS ECL 17-0301. Water quality standards can be found under 6 NYCRR Parts 700-704. The limitations must be stringent enough to ensure that water quality standards are met and must be consistent with any applicable WLA which may be in effect through a TMDL for the receiving water. These and other requirements are summarized in TOGS 1.1.1, 1.3.1, 1.3.2, 1.3.5 and 1.3.6. The Department considers a mixing zone analysis, critical flows, and reasonable potential analysis when developing a WQBEL.

Mixing Zone Analyses

The Department allows for mixing zones, consistent with 40 CFR §131.13 and TOGS 1.3.1. Water quality standards and guidance values included in 6 NYCRR 703.5 and TOGS 1.1.1. are adopted to reflect specific exposure concerns. As outlined in TOGS 1.3.1., the Department applies three distinct types of mixing zones, which relate to the underlying water quality standard. These mixing zones include Acute, Chronic, and Human Health/Aesthetic/Wildlife (HEW). At the boundary of the mixing zone, water quality standards must be met. Mixing zones are incorporated into permit effluent limitations through the application of dilution factors. Pursuant to 6 NYCRR 750-

1.2(a)(89)[17], NYS ECL 17-0801, and NYS ECL 17-0803, a mixing zone incorporated into a SPDES permit can only be granted within waters of the State.

In accordance with TOGS 1.3.1., the Department may perform additional analysis of the mixing condition between the effluent and the receiving waterbody. Mixing zone analyses using plume dispersion modeling are conducted in accordance with the following:
"EPA Technical Support Document for Water Quality-Based Toxics Control" (March 1991); EPA Region VIII's "Mixing Zones and Dilution Policy" (December 1994); NYSDEC TOGS 1.3.1, "Total Maximum Daily Loads and Water Quality-Based Effluent Limitations" (July 1996); "CORMIX v11.0" (2019).

Critical Flows

In accordance with TOGS 1.2.1 and 1.3.1, WQBELs are developed using dilution ratios that relate the critical low flow condition of the receiving waterbody to the critical effluent flow. The critical low flow condition used in the dilution ratio will be different depending on whether the limitations are for aquatic or human health protection. For chronic aquatic protection, the critical low flow condition of the waterbody is typically represented by the 7Q10 flow and is calculated as the lowest average flow over a 7-day consecutive period within 10 years. For acute aquatic protection, the critical low flow condition is typically represented by the 1Q10 and is calculated as the lowest 1-day flow within 10 years. However, NYSDEC considers using 50% of the 7Q10 to be equivalent to the 1Q10 flow. For the protection of human health, the critical low flow condition is typically represented by the 30Q10 flow and is calculated as the lowest average flow over a 30-day consecutive period within 10 years. However, NYSDEC considers using 1.2 x 7Q10 to be equivalent to the 30Q10. The 7Q10 or 30Q10 flow is used with the critical effluent flow to calculate the dilution ratio. The critical effluent flow can be the maximum daily flow reported on the permit application, the maximum of the monthly average flows from discharge monitoring reports for the past three years, or the facility design flow. When more than one applicable standard exists for aquatic or human health protection for a specific pollutant, a reasonable potential analysis is conducted for each applicable standard and corresponding critical flow to ensure effluent limitations are sufficiently stringent to ensure all applicable water quality standards are met as required by 40 CFR 122.44(d)(1)(i). For brevity, the pollutant summary table reports the results of the most conservative scenario.

Reasonable Potential Analysis (RPA)

The Reasonable Potential Analysis (RPA) is a statistical estimation process, outlined in the 1991 USEPA Technical Support Document for Water Quality-based Toxics Control (TSD), Appendix E. This process uses existing effluent quality data and statistical variation methodology to project the maximum amounts of pollutants that are believed to be present in the discharge[18]. This projected instream concentration (PIC) is calculated using the appropriate ratio and compared to the water quality standard (WQS). When the RPA process determines the WQS may be exceeded, a WQBEL is required. The procedure for developing WQBELs includes the following steps:

1) identify the pollutants present in the discharge(s) based upon existing data, sampling data collected by the permittee as part of the permit application or a short-term high intensity monitoring program, or data gathered by the Department;

2) identify water quality criteria applicable to these pollutants;

3) determine if WQBELs are necessary (i.e. reasonable potential analysis (RPA)). The RPA will utilize the procedure outlined in Chapter 3.3.2 of EPA's Technical Support Document (TSD). As

[17] 6 NYCRR 750-1.2(a)(89) - State pollutant discharge elimination system or SPDES means the system established pursuant to article 17 of the ECL and this Part for issuance of permits authorizing discharges to the *waters of the State*.
[18] Consistent with 6 NYCRR 750-2.1(a)(29).

outlined in the TSD, for parameters with limited effluent data the RPA may include multipliers to account for effluent variability; and,

4) calculate WQBELs (if necessary). Factors considered in calculating WQBELs include available dilution of effluent in the receiving water, receiving water chemistry, and other pollutant sources.

The Department uses modeling tools to estimate the expected concentrations of the pollutant in the receiving water and develop WQBELs. These tools were developed in part using the methodology referenced above. If the estimated concentration of the pollutant in the receiving water is expected to exceed the ambient water quality standard or guidance value (i.e. numeric interpretation of a narrative water quality standard), then there is a reasonable potential that the discharge may cause or contribute to an exceedance of any State water quality standard adopted pursuant to NYS ECL 17-0301. If a TMDL is in place, the facility's WLA for that pollutant is applied as the WQBEL.

For carbonaceous and nitrogenous oxygen demanding pollutants, the Department uses a model which incorporates the Streeter-Phelps equation. The equation relates the decomposition of inorganic and organic materials along with oxygen reaeration rates to compute the downstream dissolved oxygen concentration for comparison to water quality standards.

A Watershed Maximum Daily Load (WMDL) may be developed by the Department to account for the cumulative effect of multiple discharges of conservative toxic pollutants to ensure water quality standards are met in downstream segments. The WMDL uses a simple dilution model, assuming full mix in the receiving stream, to calculate the maximum allowable pollutant load that can be discharged and still meet water quality standards during critical low flow in downstream segments such as those with sensitive receptors (e.g. public water supply) or higher water classification. WQBELs are established to ensure that the cumulative mass load from point source discharges does not exceed the maximum allowable load to ensure permit limits are protective of water quality.

Whole Effluent Toxicity (WET) Testing:

WET tests use small vertebrate and invertebrate species to measure the aggregate toxicity of an effluent. There are two different durations of toxicity tests: acute and chronic. Acute toxicity tests measure survival over a 96-hour test exposure period. Chronic toxicity tests measure reductions in survival, growth, and reproduction over a 7-day exposure. TOGS 1.3.1 includes guidance for determining when aquatic toxicity testing should be included in SPDES permits. The authority to require toxicity testing is in 6NYCRR 702.9. TOGS 1.3.2 describes the procedures which should be followed when determining whether to include toxicity testing in a SPDES permit and how to implement a toxicity testing program. Per TOGS 1.3.2, WET testing may be required when any one of the following seven criteria are applicable:

1. There is the presence of substances in the effluent for which ambient water quality criteria do not exist.
2. There are uncertainties in the development of TMDLs, WLAs, and WQBELs, caused by inadequate ambient and/or discharge data, high natural background concentrations of pollutants, available treatment technology, and other such factors.
3. There is the presence of substances for which WQBELs are below analytical detectability.
4. There is the possibility of complex synergistic or additive effects of chemicals, typically when the number of metals or organic compounds discharged by the permittee equals or exceeds five.
5. There are observed detrimental effects on the receiving water biota.
6. Previous WET testing indicated a problem.
7. POTWs which exceed a discharge of 1 MGD. Facilities of less than 1 MGD may be required to test, e.g., POTWs <1 MGD which are managing industrial pretreatment programs.

Minimum Level of Detection

Pursuant to 40 CFR 122.44(i)(1)(iv) and 6 NYCRR 750-2.5(d), SPDES permits must contain monitoring requirements using sufficiently sensitive test procedures approved under 40 CFR Part 136. A method is

"sufficiently sensitive" when the method's minimum level (ML) is at or below the level of the effluent limitation established in the permit for the measured pollutant parameter; or the lowest ML of the analytical methods approved under 40 CFR Part 136. The ML represents the lowest level that can be measured within specified limitations of precision and accuracy during routine laboratory operations on most effluent matrices. When establishing effluent limitations for a specific parameter (based on technology or water quality requirements), it is possible that the calculated limitation will fall below the ML established by the approved analytical method(s). In these instances, the calculated limitation is included in the permit with a compliance level set equal to the ML of the most sensitive method.

Monitoring Requirements

CWA section 308, 40 CFR 122.44(i), 6 NYCRR 750-1.13, and 750-2.5 require that monitoring be included in permits to determine compliance with effluent limitations. Additional effluent monitoring may also be required to gather data to determine if effluent limitations may be required. The permittee is responsible for conducting the monitoring and reporting results on Discharge Monitoring Reports (DMRs). The permit contains the monitoring requirements for the facility. Monitoring frequency is based on the minimum sampling necessary to adequately monitor the facility's performance and characterize the nature of the discharge of the monitored flow or pollutant. Variable effluent flows and pollutant levels may be required to be monitored at more frequent intervals than relatively constant effluent flow and pollutant levels (6 NYCRR 750-1.13). For industrial facilities, sampling frequency is based on guidance provided in TOGS 1.2.1. For municipal facilities, sampling frequency is based on guidance provided in TOGS 1.3.3.

Requirements for Combined Sewer Overflows (CSOs)

Pollution from combined sewer overflows is controlled with implementation of SPDES permit conditions in accordance with the Division of Water CSO Control strategy (TOGS 1.6.3) and the USEPA CSO Control Policy issued April 11, 1994.

CWA Section 402(q) requires that each permit for a discharge from a municipal combined storm and sanitary sewer shall conform to EPA's Combined Sewer Overflow Control Policy.[1] The CSO Control Policy identifies specific requirements for Phase I and Phase II permits. Phase I permits must include requirements for the implementation of the Nine Minimum Controls (NMCs) and development of the Long-Term CSO Control Plan (LTCP).

The 15 CSO Best Management Practices (BMPs) required by NYS under TOGS 1.6.2 are equivalent to the "Nine Minimum Control Measures" required under the USEPA National Combined Sewer Overflow policy (33 USC section 1342(q)). BMPs are technology-based requirements developed in accordance with best professional judgement. These are largely non-structural measures which are designed to maximize pollutant capture and removal from the combined sewer system and the POTW as a whole.

Phase II permits must include requirements to implement the technology-based controls including the NMCs determined on a BPJ basis, as well as requirements which ensure that the selected CSO controls are implemented, operated, and maintained as described in the long-term CSO control plan (LTCP). These requirements are critical to meeting the objectives of the Policy, including to bring all CSO discharge points into compliance with the technology-based and water quality-based requirements of the CWA, and to minimize the water quality, aquatic biota, and human health impacts from CSOs.

Additionally, the 1994 CSO Control Policy requires permits include a requirement for CSO communities who have developed an approved LTCP to reassess overflows to sensitive areas in those cases where elimination or relocation of the overflows is not physically possible and economically achievable. The reassessment should be based on consideration of new or improved techniques to eliminate or relocate overflows or changed circumstance that influence economic achievability.

[1] Available at https://www.epa.gov/sites/production/files/2015-10/documents/owm0111.pdf

Other Conditions

Mercury

The multiple discharge variance (MDV) for mercury was developed in accordance with 6 NYCRR 702.17(h) "to address widespread standard or guidance value attainment issues including the presence of a ubiquitous pollutant or naturally high levels of a pollutant in a watershed." The first MDV was issued in October 2010, and subsequently revised and reissued in 2015; each subsequent iteration of the MDV is designed to build off the previous version, to make reasonable progress towards the water quality standard (WQS) of 0.7 ng/L dissolved mercury. The MDV is necessary because human-caused conditions or sources of mercury prevent attainment of the WQS and cannot be remedied (i.e., mercury is ubiquitous in New York waters at levels above the WQS and compliance with a water quality based effluent limitation (WQBEL) for mercury cannot be achieved with demonstrated effluent treatment technologies). The Department has determined that the MDV is consistent with the protection of public health, safety, and welfare. During the effective period of this MDV, any increased risks to human health are mitigated by fish consumption advisories issued periodically by the NYSDOH.

All surface water SPDES permittees are eligible for authorization by the MDV provided they meet the requirements specified in DOW 1.3.10.

Schedules of Compliance

Schedules of compliance are included in accordance with 40 CFR Part 132 Attachment F, Procedure 9, 40 CFR 122.47 and 6 NYCRR 750-1.14. Schedules of compliance are intended to, in the shortest reasonable time, achieve compliance with applicable effluent standards and limitations, water quality standards, and other applicable requirements. Where the time for compliance is more than nine months, the schedule of compliance must include interim requirements and dates for their achievement. If the time necessary to complete the interim milestones is more than nine months, and not readily divisible into stages for completion, progress reports must be required.

Schedule(s) of Additional Submittals

Schedules of Additional Submittals are used to summarize the deliverables required by the permit not identified in a separate Schedule of Compliance.

Pollutant Minimization Programs

Pollutant Minimization Programs are included when a pollutant is being discharged from the facility at detectable levels and the ML for the most sensitive method is greater than the calculated WQBEL. These programs typically include an on-going potential source identification, evaluation, and prioritization program to demonstrate progress towards meeting the goal of the WQBEL. Pollutant Minimization Plan requirements are based on 40 CFR Part 132 Appendix F Procedure 8, 6 NYCRR 750-1.13(a) and 750-1.14(f), and TOGS 1.2.1.

```
CORMIX3 PREDICTION FILE:
3333333333333333333333333333333333333333333333333333333333333333333333333333
3333333
                        CORMIX MIXING ZONE EXPERT SYSTEM
                  Subsystem CORMIX3: Buoyant Surface Discharges
                              CORMIX Version 11.0GTD
                         HYDRO3 Version 11.0.0.0 April 2018
------------------------------------------------------------------------------
--------
------------------------------------------------------------------------------
--------
CASE DESCRIPTION
 Site name/label:   Niagara River
 Design case:       Niagara Falls Water Board
 FILE NAME:         L:\...INAL CORMIX MODEL\CORMIX.NY0026336.2019-09-
06.prd
 Time stamp:        06/05/2020--12:31:45

ENVIRONMENT PARAMETERS (metric units)
 Bounded section
 BS    =    237.00  AS    =   8207.64  QA    =   4898.81  ICHREG= 2
 HA    =     34.63  HD    =     34.63
 UA    =      0.597 F     =      0.022 USTAR =0.3108E-01
 UW    =      2.000 UWSTAR=0.2198E-02
 Uniform density environment
 STRCND=  U         RHOAM =  998.9443

DISCHARGE PARAMETERS (metric units)
 BANK  =  LEFT      DISTB =      0.00  Configuration: flush_discharge
 SIGMA =     90.00  HDO   =     11.28  SLOPE =   19.00 deg.
 Rectangular channel geometry:
 B0    =      4.404 H0    =      0.914 A0    =0.4027E+01  AR    =
0.208
 U0    =      0.522 Q0    =      2.103       =0.2103E+01
 RHO0  =  998.8784  DRHO0 =0.6592E-01  GP0   =0.6471E-03
 C0    =0.1000E+03  CUNITS=  %
 IPOLL =  1         KS    =0.0000E+00  KD    =0.0000E+00

FLUX VARIABLES (metric units)
 Q0    =0.2103E+01  M0    =0.1098E+01  J0    =0.1361E-02
 Associated length scales (meters)
 LQ    =      2.01  LM    =     29.08  Lm    =      1.76  Lb    =
0.01

NON-DIMENSIONAL PARAMETERS
 FR0   =     14.49  FRCH  =     21.47  R     =      0.87

FLOW CLASSIFICATION
 333333333333333333333333333333333333333333
 3  Flow class (CORMIX3)      =    SA1    3
 3  Applicable layer depth HS =    34.63  3
 3  Limiting Dilution S =QA/Q0=  2330.43  3
 333333333333333333333333333333333333333333
```

```
MIXING ZONE / TOXIC DILUTION / REGION OF INTEREST PARAMETERS
 C0    =0.1000E+03  CUNITS=  %
 NTOX  =  0
 NSTD  =  0
 REGMZ =  0
 XINT  =   2370.00  XMAX  =   2370.00

X-Y-Z COORDINATE SYSTEM:
    ORIGIN is located at the WATER SURFACE and at center of discharge
      channel/outlet:      0.00 m  from the LEFT  bank/shore.
    X-axis points downstream
    Y-axis points to left as seen by an observer looking downstream
    Z-axis points vertically upward (in CORMIX3, all values Z = 0.00)
NSTEP = 250 display intervals per module
--------------------------------------------------------------------------
--------
--------------------------------------------------------------------------
--------
BEGIN MOD301: DISCHARGE MODULE

 Efflux conditions:
       X        Y       Z        S       C       BV       BH       UC
TT
      0.00     0.00    0.00     1.0 0.100E+03   0.91     2.20    0.522
.00000E+00

END OF MOD301: DISCHARGE MODULE
--------------------------------------------------------------------------
--------
--------------------------------------------------------------------------
--------
BEGIN MOD302: ZONE OF FLOW ESTABLISHMENT

  Control volume inflow:
       X        Y       Z        S       C       BV       BH       UC
TT
      0.00     0.00    0.00     1.0 0.100E+03   0.91     2.20    0.522
.00000E+00

 Profile definitions:
   BV = Gaussian 1/e (37%) vertical thickness
   BH = Gaussian 1/e (37%) horizontal half-width, normal to trajectory
   S  = hydrodynamic centerline dilution
   C  = centerline concentration (includes reaction efects, if any)
   Uc = Local centerline excess velocity (above ambient)
   TT = Cumulative travel time

  Control volume outflow:                                SIGMAE=
279.13
       X        Y       Z        S       C       BV       BH       UC
TT
      0.17    -1.04    0.00     1.0 0.100E+03   1.42     2.53    0.522
.20210E+01
 Cumulative travel time =          2.0210 sec  (    0.00 hrs)
```

END OF MOD302: ZONE OF FLOW ESTABLISHMENT

BEGIN CORSURF (MOD310): BUOYANT SURFACE JET - NEAR-FIELD REGION

Surface jet in deep crossflow with shoreline-attachment.

Profile definitions:
BV = Gaussian 1/e (37%) vertical thickness
BH = Gaussian 1/e (37%) horizontal half-width, normal to trajectory
S = hydrodynamic centerline dilution
C = centerline concentration (includes reaction efects, if any)
Uc = Local centerline excess velocity (above ambient)
TT = Cumulative travel time

X	Y	Z	S	C	BV	BH	UC	TT
0.17	-1.04	0.00	1.0	0.100E+03	1.42	2.53	0.433	.20210E+01
0.35	-1.51	0.00	1.5	0.668E+02	1.74	3.12	-0.036	.38331E+01
0.44	-1.66	0.00	1.5	0.649E+02	1.78	3.18	-0.141	.47775E+01
0.54	-1.80	0.00	1.6	0.624E+02	1.82	3.26	-0.231	.59897E+01
0.66	-1.94	0.00	1.7	0.595E+02	1.87	3.35	-0.298	.74587E+01
0.79	-2.06	0.00	1.8	0.569E+02	1.91	3.42	-0.346	.91006E+01
0.93	-2.16	0.00	1.8	0.547E+02	1.93	3.46	-0.379	.10841E+02
1.07	-2.26	0.00	1.9	0.529E+02	1.94	3.48	-0.404	.12641E+02
1.22	-2.36	0.00	1.9	0.515E+02	1.95	3.49	-0.423	.14482E+02
1.38	-2.44	0.00	2.0	0.502E+02	1.94	3.50	-0.437	.16352E+02
1.53	-2.52	0.00	2.0	0.492E+02	1.93	3.50	-0.447	.18229E+02
1.69	-2.59	0.00	2.1	0.481E+02	1.92	3.51	-0.454	.20085E+02
2.02	-2.72	0.00	2.2	0.462E+02	1.90	3.53	-0.459	.23637E+02
2.18	-2.78	0.00	2.2	0.454E+02	1.90	3.53	-0.460	.25321E+02
2.35	-2.83	0.00	2.2	0.446E+02	1.89	3.54	-0.459	.26944E+02
2.52	-2.89	0.00	2.3	0.439E+02	1.88	3.55	-0.458	.28509E+02
2.69	-2.94	0.00	2.3	0.432E+02	1.87	3.56	-0.456	.30015E+02

2.86	-2.99	0.00	2.4	0.425E+02	1.87	3.56	-0.454
.31465E+02							
3.02	-3.03	0.00	2.4	0.419E+02	1.86	3.57	-0.451
.32862E+02							
3.19	-3.08	0.00	2.4	0.413E+02	1.86	3.58	-0.448
.34207E+02							
3.37	-3.12	0.00	2.5	0.408E+02	1.85	3.58	-0.444
.35504E+02							
3.54	-3.16	0.00	2.5	0.402E+02	1.85	3.59	-0.441
.36755E+02							
3.71	-3.20	0.00	2.5	0.397E+02	1.85	3.60	-0.437
.37963E+02							
4.05	-3.27	0.00	2.6	0.387E+02	1.85	3.61	-0.429
.40264E+02							
4.22	-3.31	0.00	2.6	0.382E+02	1.85	3.62	-0.425
.41363E+02							
4.39	-3.34	0.00	2.6	0.378E+02	1.85	3.62	-0.421
.42430E+02							
4.57	-3.38	0.00	2.7	0.373E+02	1.86	3.63	-0.417
.43467E+02							
4.74	-3.41	0.00	2.7	0.369E+02	1.86	3.64	-0.413
.44478E+02							
4.91	-3.44	0.00	2.7	0.365E+02	1.86	3.64	-0.409
.45463E+02							
5.08	-3.47	0.00	2.8	0.361E+02	1.86	3.65	-0.405
.46425E+02							
5.26	-3.50	0.00	2.8	0.357E+02	1.87	3.66	-0.402
.47366E+02							
5.43	-3.53	0.00	2.8	0.353E+02	1.87	3.66	-0.398
.48286E+02							
5.60	-3.56	0.00	2.9	0.349E+02	1.88	3.67	-0.394
.49187E+02							
5.78	-3.59	0.00	2.9	0.345E+02	1.88	3.68	-0.391
.50070E+02							
5.95	-3.62	0.00	2.9	0.342E+02	1.88	3.69	-0.387
.50936E+02							
6.30	-3.67	0.00	3.0	0.335E+02	1.89	3.70	-0.380
.52623E+02							
6.47	-3.69	0.00	3.0	0.332E+02	1.90	3.71	-0.377
.53445E+02							
6.65	-3.72	0.00	3.0	0.329E+02	1.90	3.72	-0.374
.54254E+02							
6.82	-3.74	0.00	3.1	0.326E+02	1.90	3.73	-0.371
.55051E+02							
6.99	-3.77	0.00	3.1	0.323E+02	1.91	3.74	-0.368
.55835E+02							
7.17	-3.79	0.00	3.1	0.320E+02	1.91	3.74	-0.365
.56609E+02							
7.34	-3.81	0.00	3.2	0.317E+02	1.92	3.75	-0.362
.57372E+02							
7.52	-3.84	0.00	3.2	0.314E+02	1.92	3.76	-0.359
.58125E+02							
7.69	-3.86	0.00	3.2	0.312E+02	1.93	3.77	-0.356
.58869E+02							

7.86	-3.88	0.00	3.2	0.309E+02	1.93	3.78	-0.353
.59603E+02							
8.04	-3.90	0.00	3.3	0.306E+02	1.93	3.79	-0.351
.60329E+02							
8.39	-3.94	0.00	3.3	0.301E+02	1.94	3.80	-0.345
.61756E+02							
8.56	-3.96	0.00	3.3	0.299E+02	1.95	3.81	-0.343
.62457E+02							
8.74	-3.98	0.00	3.4	0.297E+02	1.95	3.82	-0.340
.63152E+02							
8.91	-4.00	0.00	3.4	0.294E+02	1.95	3.83	-0.338
.63839E+02							
9.08	-4.02	0.00	3.4	0.292E+02	1.96	3.84	-0.336
.64520E+02							
9.26	-4.04	0.00	3.4	0.290E+02	1.96	3.84	-0.333
.65195E+02							
9.43	-4.06	0.00	3.5	0.288E+02	1.97	3.85	-0.331
.65863E+02							
9.61	-4.07	0.00	3.5	0.286E+02	1.97	3.86	-0.329
.66525E+02							
9.78	-4.09	0.00	3.5	0.284E+02	1.98	3.87	-0.326
.67182E+02							
9.96	-4.11	0.00	3.6	0.282E+02	1.98	3.88	-0.324
.67833E+02							
10.13	-4.13	0.00	3.6	0.280E+02	1.98	3.89	-0.322
.68478E+02							
10.48	-4.16	0.00	3.6	0.276E+02	1.99	3.90	-0.318
.69754E+02							
10.66	-4.17	0.00	3.7	0.274E+02	2.00	3.91	-0.316
.70385E+02							
10.83	-4.19	0.00	3.7	0.272E+02	2.00	3.92	-0.314
.71011E+02							
11.01	-4.21	0.00	3.7	0.270E+02	2.00	3.93	-0.312
.71633E+02							
11.18	-4.22	0.00	3.7	0.269E+02	2.01	3.93	-0.310
.72250E+02							
11.36	-4.24	0.00	3.7	0.267E+02	2.01	3.94	-0.308
.72863E+02							
11.53	-4.25	0.00	3.8	0.265E+02	2.02	3.95	-0.306
.73472E+02							
11.71	-4.27	0.00	3.8	0.264E+02	2.02	3.96	-0.305
.74077E+02							
11.88	-4.28	0.00	3.8	0.262E+02	2.03	3.96	-0.303
.74678E+02							
12.06	-4.30	0.00	3.8	0.260E+02	2.03	3.97	-0.301
.75276E+02							
12.23	-4.31	0.00	3.9	0.259E+02	2.03	3.98	-0.299
.75869E+02							
12.41	-4.32	0.00	3.9	0.257E+02	2.04	3.99	-0.298
.76460E+02							
12.76	-4.35	0.00	3.9	0.254E+02	2.04	4.00	-0.294
.77630E+02							
12.93	-4.36	0.00	4.0	0.253E+02	2.05	4.01	-0.293
.78211E+02							

13.11	-4.38	0.00	4.0	0.251E+02	2.05	4.02	-0.291
.78788E+02							
13.28	-4.39	0.00	4.0	0.250E+02	2.06	4.03	-0.289
.79362E+02							
13.46	-4.40	0.00	4.0	0.248E+02	2.06	4.03	-0.288
.79933E+02							
13.63	-4.42	0.00	4.0	0.247E+02	2.06	4.04	-0.286
.80501E+02							
13.81	-4.43	0.00	4.1	0.246E+02	2.07	4.05	-0.285
.81067E+02							
13.98	-4.44	0.00	4.1	0.244E+02	2.07	4.06	-0.283
.81630E+02							
14.16	-4.45	0.00	4.1	0.243E+02	2.08	4.06	-0.282
.82190E+02							
14.33	-4.46	0.00	4.1	0.242E+02	2.08	4.07	-0.281
.82747E+02							
14.51	-4.48	0.00	4.2	0.241E+02	2.08	4.08	-0.279
.83302E+02							
14.86	-4.50	0.00	4.2	0.238E+02	2.09	4.09	-0.276
.84404E+02							
15.03	-4.51	0.00	4.2	0.237E+02	2.09	4.10	-0.275
.84952E+02							
15.21	-4.52	0.00	4.2	0.236E+02	2.10	4.11	-0.274
.85497E+02							
15.38	-4.53	0.00	4.3	0.234E+02	2.10	4.11	-0.272
.86040E+02							
15.56	-4.54	0.00	4.3	0.233E+02	2.10	4.12	-0.271
.86580E+02							
15.73	-4.55	0.00	4.3	0.232E+02	2.11	4.13	-0.270
.87119E+02							
15.91	-4.56	0.00	4.3	0.231E+02	2.11	4.14	-0.268
.87655E+02							
16.09	-4.57	0.00	4.3	0.230E+02	2.12	4.14	-0.267
.88190E+02							
16.26	-4.58	0.00	4.4	0.229E+02	2.12	4.15	-0.266
.88722E+02							
16.44	-4.59	0.00	4.4	0.228E+02	2.12	4.16	-0.265
.89252E+02							
16.61	-4.60	0.00	4.4	0.227E+02	2.13	4.16	-0.264
.89780E+02							
16.96	-4.62	0.00	4.5	0.225E+02	2.13	4.18	-0.261
.90831E+02							
17.14	-4.63	0.00	4.5	0.224E+02	2.14	4.18	-0.260
.91354E+02							
17.31	-4.64	0.00	4.5	0.223E+02	2.14	4.19	-0.259
.91875E+02							
17.49	-4.65	0.00	4.5	0.222E+02	2.14	4.20	-0.258
.92394E+02							
17.66	-4.66	0.00	4.5	0.221E+02	2.15	4.20	-0.257
.92911E+02							
17.84	-4.67	0.00	4.6	0.220E+02	2.15	4.21	-0.256
.93427E+02							
18.01	-4.68	0.00	4.6	0.219E+02	2.15	4.22	-0.255
.93941E+02							

18.19	-4.69	0.00	4.6	0.218E+02	2.16	4.22	-0.253
.94453E+02							
18.36	-4.70	0.00	4.6	0.217E+02	2.16	4.23	-0.252
.94964E+02							
18.54	-4.70	0.00	4.6	0.216E+02	2.16	4.24	-0.251
.95473E+02							
18.71	-4.71	0.00	4.7	0.215E+02	2.17	4.24	-0.250
.95981E+02							
18.89	-4.72	0.00	4.7	0.214E+02	2.17	4.25	-0.249
.96487E+02							
19.24	-4.74	0.00	4.7	0.212E+02	2.18	4.26	-0.247
.97495E+02							
19.42	-4.75	0.00	4.7	0.211E+02	2.18	4.27	-0.246
.97997E+02							
19.59	-4.75	0.00	4.7	0.211E+02	2.18	4.28	-0.245
.98497E+02							
19.77	-4.76	0.00	4.8	0.210E+02	2.19	4.28	-0.244
.98996E+02							
19.94	-4.77	0.00	4.8	0.209E+02	2.19	4.29	-0.243
.99493E+02							
20.12	-4.78	0.00	4.8	0.208E+02	2.19	4.29	-0.243
.99990E+02							
20.29	-4.78	0.00	4.8	0.207E+02	2.20	4.30	-0.242
.10048E+03							
20.47	-4.79	0.00	4.8	0.206E+02	2.20	4.31	-0.241
.10098E+03							
20.64	-4.80	0.00	4.9	0.206E+02	2.20	4.31	-0.240
.10147E+03							
20.82	-4.80	0.00	4.9	0.205E+02	2.21	4.32	-0.239
.10196E+03							
21.00	-4.81	0.00	4.9	0.204E+02	2.21	4.33	-0.238
.10245E+03							
21.35	-4.82	0.00	4.9	0.203E+02	2.22	4.34	-0.236
.10343E+03							
21.52	-4.83	0.00	5.0	0.202E+02	2.22	4.34	-0.235
.10391E+03							
21.70	-4.84	0.00	5.0	0.201E+02	2.22	4.35	-0.235
.10440E+03							
21.87	-4.84	0.00	5.0	0.200E+02	2.22	4.36	-0.234
.10488E+03							
22.05	-4.85	0.00	5.0	0.200E+02	2.23	4.36	-0.233
.10537E+03							
22.22	-4.86	0.00	5.0	0.199E+02	2.23	4.37	-0.232
.10585E+03							
22.40	-4.86	0.00	5.0	0.198E+02	2.23	4.37	-0.231
.10633E+03							
22.57	-4.87	0.00	5.1	0.197E+02	2.24	4.38	-0.230
.10681E+03							
22.75	-4.87	0.00	5.1	0.197E+02	2.24	4.39	-0.230
.10729E+03							
22.93	-4.88	0.00	5.1	0.196E+02	2.24	4.39	-0.229
.10776E+03							
23.10	-4.89	0.00	5.1	0.195E+02	2.25	4.40	-0.228
.10824E+03							

23.45	-4.90	0.00	5.2	0.194E+02	2.25	4.41	-0.226
.10919E+03							
23.63	-4.90	0.00	5.2	0.193E+02	2.25	4.41	-0.226
.10966E+03							
23.80	-4.91	0.00	5.2	0.193E+02	2.26	4.42	-0.225
.11014E+03							
23.98	-4.91	0.00	5.2	0.192E+02	2.26	4.43	-0.224
.11061E+03							
24.15	-4.92	0.00	5.2	0.191E+02	2.26	4.43	-0.223
.11108E+03							
24.33	-4.92	0.00	5.2	0.191E+02	2.27	4.44	-0.223
.11155E+03							
24.50	-4.93	0.00	5.3	0.190E+02	2.27	4.44	-0.222
.11202E+03							
24.68	-4.93	0.00	5.3	0.190E+02	2.27	4.45	-0.221
.11248E+03							
24.86	-4.94	0.00	5.3	0.189E+02	2.27	4.45	-0.221
.11295E+03							
25.03	-4.94	0.00	5.3	0.188E+02	2.28	4.46	-0.220
.11342E+03							
25.21	-4.95	0.00	5.3	0.188E+02	2.28	4.46	-0.219
.11388E+03							
25.38	-4.95	0.00	5.3	0.187E+02	2.28	4.47	-0.219
.11435E+03							
25.73	-4.96	0.00	5.4	0.186E+02	2.29	4.48	-0.217
.11527E+03							
25.91	-4.97	0.00	5.4	0.185E+02	2.29	4.49	-0.217
.11573E+03							
26.08	-4.97	0.00	5.4	0.185E+02	2.29	4.49	-0.216
.11620E+03							
26.26	-4.97	0.00	5.4	0.184E+02	2.30	4.50	-0.215
.11666E+03							
26.44	-4.98	0.00	5.4	0.184E+02	2.30	4.50	-0.215
.11712E+03							
26.61	-4.98	0.00	5.5	0.183E+02	2.30	4.51	-0.214
.11757E+03							
26.79	-4.99	0.00	5.5	0.182E+02	2.31	4.51	-0.213
.11803E+03							
26.96	-4.99	0.00	5.5	0.182E+02	2.31	4.52	-0.213
.11849E+03							
27.14	-4.99	0.00	5.5	0.181E+02	2.31	4.52	-0.212
.11895E+03							
27.31	-5.00	0.00	5.5	0.181E+02	2.31	4.53	-0.211
.11940E+03							
27.49	-5.00	0.00	5.5	0.180E+02	2.32	4.54	-0.211
.11986E+03							
27.84	-5.01	0.00	5.6	0.179E+02	2.32	4.55	-0.210
.12076E+03							
28.02	-5.01	0.00	5.6	0.179E+02	2.32	4.55	-0.209
.12122E+03							
28.19	-5.01	0.00	5.6	0.178E+02	2.33	4.56	-0.208
.12167E+03							
28.37	-5.02	0.00	5.6	0.178E+02	2.33	4.56	-0.208
.12212E+03							

28.54	-5.02	0.00	5.6	0.177E+02	2.33	4.57	-0.207
.12257E+03							
28.72	-5.02	0.00	5.7	0.177E+02	2.33	4.57	-0.207
.12302E+03							
28.89	-5.03	0.00	5.7	0.176E+02	2.34	4.58	-0.206
.12347E+03							
29.07	-5.03	0.00	5.7	0.176E+02	2.34	4.58	-0.205
.12392E+03							
29.24	-5.03	0.00	5.7	0.175E+02	2.34	4.59	-0.205
.12437E+03							
29.42	-5.04	0.00	5.7	0.175E+02	2.34	4.59	-0.204
.12481E+03							
29.60	-5.04	0.00	5.7	0.174E+02	2.35	4.60	-0.204
.12526E+03							
29.77	-5.04	0.00	5.8	0.174E+02	2.35	4.60	-0.203
.12571E+03							
30.12	-5.05	0.00	5.8	0.173E+02	2.35	4.61	-0.202
.12660E+03							
30.30	-5.05	0.00	5.8	0.172E+02	2.36	4.62	-0.202
.12704E+03							
30.47	-5.05	0.00	5.8	0.172E+02	2.36	4.62	-0.201
.12749E+03							
30.65	-5.05	0.00	5.8	0.171E+02	2.36	4.63	-0.201
.12793E+03							
30.82	-5.06	0.00	5.8	0.171E+02	2.36	4.63	-0.200
.12837E+03							
31.00	-5.06	0.00	5.9	0.171E+02	2.37	4.64	-0.200
.12881E+03							
31.18	-5.06	0.00	5.9	0.170E+02	2.37	4.64	-0.199
.12925E+03							
31.35	-5.06	0.00	5.9	0.170E+02	2.37	4.65	-0.198
.12969E+03							
31.53	-5.06	0.00	5.9	0.169E+02	2.37	4.65	-0.198
.13013E+03							
31.70	-5.07	0.00	5.9	0.169E+02	2.38	4.65	-0.197
.13057E+03							
31.88	-5.07	0.00	5.9	0.168E+02	2.38	4.66	-0.197
.13101E+03							
32.23	-5.07	0.00	6.0	0.168E+02	2.38	4.67	-0.196
.13189E+03							
32.40	-5.07	0.00	6.0	0.167E+02	2.39	4.67	-0.195
.13233E+03							
32.58	-5.07	0.00	6.0	0.167E+02	2.39	4.68	-0.195
.13276E+03							
32.76	-5.08	0.00	6.0	0.166E+02	2.39	4.68	-0.195
.13320E+03							
32.93	-5.08	0.00	6.0	0.166E+02	2.39	4.69	-0.194
.13364E+03							
33.11	-5.08	0.00	6.0	0.165E+02	2.40	4.69	-0.194
.13407E+03							
33.28	-5.08	0.00	6.1	0.165E+02	2.40	4.70	-0.193
.13451E+03							
33.46	-5.08	0.00	6.1	0.165E+02	2.40	4.70	-0.193
.13494E+03							

```
     33.63    -5.08    0.00     6.1 0.164E+02   2.40     4.71   -0.192
.13538E+03
     33.81    -5.08    0.00     6.1 0.164E+02   2.41     4.71   -0.192
.13581E+03
     33.98    -5.08    0.00     6.1 0.163E+02   2.41     4.71   -0.191
.13624E+03
     34.34    -5.09    0.00     6.1 0.163E+02   2.41     4.72   -0.190
.13711E+03
     34.51    -5.09    0.00     6.2 0.162E+02   2.42     4.73   -0.190
.13754E+03
     34.69    -5.09    0.00     6.2 0.162E+02   2.42     4.73   -0.189
.13797E+03
     34.86    -5.09    0.00     6.2 0.162E+02   2.42     4.74   -0.189
.13840E+03
     35.04    -5.09    0.00     6.2 0.161E+02   2.42     4.74   -0.189
.13883E+03
     35.21    -5.09    0.00     6.2 0.161E+02   2.43     4.74   -0.188
.13926E+03
     35.39    -5.09    0.00     6.2 0.160E+02   2.43     4.75   -0.188
.13969E+03
     35.56    -5.09    0.00     6.2 0.160E+02   2.43     4.75   -0.187
.14012E+03
     35.74    -5.09    0.00     6.3 0.160E+02   2.43     4.76   -0.187
.14054E+03
     35.92    -5.09    0.00     6.3 0.159E+02   2.43     4.76   -0.186
.14097E+03
     36.09    -5.09    0.00     6.3 0.159E+02   2.44     4.76   -0.186
.14140E+03
     36.27    -5.09    0.00     6.3 0.159E+02   2.44     4.77   -0.186
.14183E+03
     36.62    -5.09    0.00     6.3 0.158E+02   2.44     4.78   -0.185
.14268E+03
     36.79    -5.09    0.00     6.3 0.158E+02   2.45     4.78   -0.184
.14311E+03
  Maximum lateral extent of recirculation bubble.
     36.97    -5.09    0.00     6.4 0.157E+02   2.45     4.79   -0.184
.14353E+03
     37.14    -5.09    0.00     6.4 0.157E+02   2.45     4.79   -0.184
.14396E+03
     37.32    -5.09    0.00     6.4 0.157E+02   2.45     4.79   -0.183
.14438E+03
     37.50    -5.09    0.00     6.4 0.156E+02   2.45     4.80   -0.183
.14480E+03
     37.67    -5.09    0.00     6.4 0.156E+02   2.46     4.80   -0.182
.14523E+03
     37.85    -5.09    0.00     6.4 0.156E+02   2.46     4.81   -0.182
.14565E+03
     38.02    -5.09    0.00     6.4 0.155E+02   2.46     4.81   -0.182
.14607E+03
     38.20    -5.09    0.00     6.5 0.155E+02   2.46     4.82   -0.181
.14650E+03
     38.37    -5.09    0.00     6.5 0.155E+02   2.47     4.82   -0.181
.14692E+03
```

38.72	-5.09	0.00	6.5	0.154E+02	2.47	4.83	-0.180
.14776E+03							
38.90	-5.09	0.00	6.5	0.154E+02	2.47	4.83	-0.180
.14818E+03							
39.08	-5.09	0.00	6.5	0.153E+02	2.47	4.84	-0.179
.14860E+03							
39.25	-5.09	0.00	6.5	0.153E+02	2.48	4.84	-0.179
.14902E+03							
39.43	-5.09	0.00	6.6	0.153E+02	2.48	4.84	-0.179
.14944E+03							
39.60	-5.09	0.00	6.6	0.152E+02	2.48	4.85	-0.178
.14986E+03							
39.78	-5.08	0.00	6.6	0.152E+02	2.48	4.85	-0.178
.15028E+03							
39.95	-5.08	0.00	6.6	0.152E+02	2.49	4.86	-0.177
.15070E+03							
40.13	-5.08	0.00	6.6	0.151E+02	2.49	4.86	-0.177
.15112E+03							
40.30	-5.08	0.00	6.6	0.151E+02	2.49	4.86	-0.177
.15154E+03							
40.48	-5.08	0.00	6.6	0.151E+02	2.49	4.87	-0.176
.15195E+03							
40.83	-5.08	0.00	6.7	0.150E+02	2.50	4.88	-0.176
.15279E+03							
41.01	-5.08	0.00	6.7	0.150E+02	2.50	4.88	-0.175
.15320E+03							
41.18	-5.08	0.00	6.7	0.149E+02	2.50	4.88	-0.175
.15362E+03							
41.36	-5.07	0.00	6.7	0.149E+02	2.50	4.89	-0.174
.15404E+03							
41.53	-5.07	0.00	6.7	0.149E+02	2.51	4.89	-0.174
.15445E+03							
41.71	-5.07	0.00	6.7	0.149E+02	2.51	4.90	-0.174
.15487E+03							
41.88	-5.07	0.00	6.7	0.148E+02	2.51	4.90	-0.173
.15528E+03							
42.06	-5.07	0.00	6.8	0.148E+02	2.51	4.90	-0.173
.15569E+03							
42.24	-5.07	0.00	6.8	0.148E+02	2.51	4.91	-0.173
.15611E+03							
42.41	-5.06	0.00	6.8	0.147E+02	2.52	4.91	-0.172
.15652E+03							
42.59	-5.06	0.00	6.8	0.147E+02	2.52	4.92	-0.172
.15693E+03							
42.76	-5.06	0.00	6.8	0.147E+02	2.52	4.92	-0.172
.15735E+03							
43.11	-5.06	0.00	6.8	0.146E+02	2.53	4.93	-0.171
.15817E+03							
43.29	-5.05	0.00	6.9	0.146E+02	2.53	4.93	-0.170
.15858E+03							
43.47	-5.05	0.00	6.9	0.145E+02	2.53	4.94	-0.170
.15900E+03							
43.64	-5.05	0.00	6.9	0.145E+02	2.53	4.94	-0.170
.15941E+03							

```
     43.82    -5.05    0.00     6.9 0.145E+02   2.54     4.95   -0.169
.15982E+03
     43.99    -5.05    0.00     6.9 0.145E+02   2.54     4.95   -0.169
.16023E+03
     44.17    -5.04    0.00     6.9 0.144E+02   2.54     4.95   -0.169
.16064E+03
     44.34    -5.04    0.00     6.9 0.144E+02   2.54     4.96   -0.168
.16105E+03
     44.52    -5.04    0.00     7.0 0.144E+02   2.54     4.96   -0.168
.16146E+03
     44.69    -5.04    0.00     7.0 0.143E+02   2.55     4.96   -0.168
.16187E+03
     44.87    -5.03    0.00     7.0 0.143E+02   2.55     4.97   -0.167
.16228E+03
     45.22    -5.03    0.00     7.0 0.143E+02   2.55     4.98   -0.167
.16309E+03
     45.40    -5.03    0.00     7.0 0.142E+02   2.56     4.98   -0.166
.16350E+03
     45.57    -5.02    0.00     7.0 0.142E+02   2.56     4.98   -0.166
.16391E+03
     45.75    -5.02    0.00     7.1 0.142E+02   2.56     4.99   -0.166
.16431E+03
     45.92    -5.02    0.00     7.1 0.141E+02   2.56     4.99   -0.165
.16472E+03
     46.10    -5.01    0.00     7.1 0.141E+02   2.56     5.00   -0.165
.16513E+03
     46.27    -5.01    0.00     7.1 0.141E+02   2.57     5.00   -0.165
.16553E+03
     46.45    -5.01    0.00     7.1 0.141E+02   2.57     5.00   -0.164
.16594E+03
     46.62    -5.00    0.00     7.1 0.140E+02   2.57     5.01   -0.164
.16635E+03
     46.80    -5.00    0.00     7.1 0.140E+02   2.57     5.01   -0.164
.16675E+03
     46.98    -5.00    0.00     7.2 0.140E+02   2.58     5.02   -0.163
.16716E+03
     47.15    -5.00    0.00     7.2 0.139E+02   2.58     5.02   -0.163
.16756E+03
 End of RECIRCULATION BUBBLE for shoreline-attached jet motion.
   Dilution in recirculation bubble =    9.9
   Corresponding concentration      =    0.101E+02
 Cumulative travel time =         167.5615 sec  (    0.05 hrs)

END OF CORSURF (MOD310): BUOYANT SURFACE JET - NEAR-FIELD REGION
------------------------------------------------------------------------
--------
------------------------------------------------------------------------
--------
** End of NEAR-FIELD REGION (NFR) **
------------------------------------------------------------------------
--------

 WAKE FLOW CONDITIONS: The discharge velocity (U0) is less than or equal
to the
```

ambient velocity (Ua) and results in wake flow conditions. There is no discharge
momentum induced mixing. The mixing characteristics are UNDESIRABLE.

Some lateral bank/shore interaction occurs at end othe near-field.

In the next prediction module, the jet/plume centerline will be set
to follow the bank/shore.

BEGIN MOD341: BUOYANT AMBIENT SPREADING

Plume is ATTACHED to LEFT bank/shore.
Plume width is now determined from LEFT bank/shore.

Profile definitions:
BV = top-hat thickness,measured vertically
BH = top-hat half-width, measured horizontally from bank/shoreline
S = hydrodynamic average (bulk) dilution
C = average (bulk) concentration (includes reaction effects, if any)
TT = Cumulative travel time

Plume Stage 2 (bank attached):

X	Y	Z	S	C	BV	BH	TT
47.15	0.00	0.00	7.2	0.139E+02	2.55	9.92	.16756E+03
47.87	0.00	0.00	7.2	0.139E+02	2.55	9.95	.16876E+03
48.58	0.00	0.00	7.2	0.139E+02	2.54	9.99	.16996E+03
49.30	0.00	0.00	7.2	0.138E+02	2.54	10.02	.17116E+03
50.01	0.00	0.00	7.3	0.138E+02	2.54	10.05	.17236E+03
50.73	0.00	0.00	7.3	0.137E+02	2.54	10.09	.17356E+03
51.45	0.00	0.00	7.3	0.137E+02	2.54	10.12	.17475E+03
52.16	0.00	0.00	7.3	0.137E+02	2.54	10.16	.17595E+03
52.88	0.00	0.00	7.3	0.136E+02	2.54	10.19	.17715E+03
53.59	0.00	0.00	7.4	0.136E+02	2.53	10.22	.17835E+03
54.31	0.00	0.00	7.4	0.136E+02	2.53	10.26	.17955E+03
55.03	0.00	0.00	7.4	0.135E+02	2.53	10.29	.18075E+03
55.74	0.00	0.00	7.4	0.135E+02	2.53	10.32	.18195E+03
56.46	0.00	0.00	7.4	0.134E+02	2.53	10.36	.18315E+03
57.17	0.00	0.00	7.5	0.134E+02	2.53	10.39	.18434E+03
57.89	0.00	0.00	7.5	0.134E+02	2.53	10.43	.18554E+03
58.60	0.00	0.00	7.5	0.133E+02	2.53	10.46	.18674E+03
59.32	0.00	0.00	7.5	0.133E+02	2.53	10.49	.18794E+03
60.04	0.00	0.00	7.6	0.132E+02	2.53	10.53	.18914E+03
60.75	0.00	0.00	7.6	0.132E+02	2.53	10.56	.19034E+03
61.47	0.00	0.00	7.6	0.132E+02	2.53	10.59	.19154E+03
62.18	0.00	0.00	7.6	0.131E+02	2.52	10.63	.19274E+03
62.90	0.00	0.00	7.6	0.131E+02	2.52	10.66	.19393E+03
63.61	0.00	0.00	7.7	0.131E+02	2.52	10.69	.19513E+03
64.33	0.00	0.00	7.7	0.130E+02	2.52	10.73	.19633E+03
65.05	0.00	0.00	7.7	0.130E+02	2.52	10.76	.19753E+03
65.76	0.00	0.00	7.7	0.129E+02	2.52	10.79	.19873E+03
66.48	0.00	0.00	7.8	0.129E+02	2.52	10.82	.19993E+03
67.19	0.00	0.00	7.8	0.129E+02	2.52	10.86	.20113E+03
67.91	0.00	0.00	7.8	0.128E+02	2.52	10.89	.20233E+03

68.63	0.00	0.00	7.8	0.128E+02	2.52	10.92	.20352E+03
69.34	0.00	0.00	7.8	0.127E+02	2.52	10.96	.20472E+03
70.06	0.00	0.00	7.9	0.127E+02	2.52	10.99	.20592E+03
70.77	0.00	0.00	7.9	0.127E+02	2.52	11.02	.20712E+03
71.49	0.00	0.00	7.9	0.126E+02	2.52	11.05	.20832E+03
72.20	0.00	0.00	7.9	0.126E+02	2.52	11.09	.20952E+03
72.92	0.00	0.00	8.0	0.126E+02	2.52	11.12	.21072E+03
73.64	0.00	0.00	8.0	0.125E+02	2.52	11.15	.21192E+03
74.35	0.00	0.00	8.0	0.125E+02	2.52	11.18	.21311E+03
75.07	0.00	0.00	8.0	0.124E+02	2.52	11.22	.21431E+03
75.78	0.00	0.00	8.1	0.124E+02	2.52	11.25	.21551E+03
76.50	0.00	0.00	8.1	0.124E+02	2.52	11.28	.21671E+03
77.21	0.00	0.00	8.1	0.123E+02	2.52	11.31	.21791E+03
77.93	0.00	0.00	8.1	0.123E+02	2.52	11.34	.21911E+03
78.65	0.00	0.00	8.2	0.123E+02	2.52	11.38	.22031E+03
79.36	0.00	0.00	8.2	0.122E+02	2.52	11.41	.22151E+03
80.08	0.00	0.00	8.2	0.122E+02	2.53	11.44	.22270E+03
80.79	0.00	0.00	8.2	0.122E+02	2.53	11.47	.22390E+03
81.51	0.00	0.00	8.3	0.121E+02	2.53	11.50	.22510E+03
82.23	0.00	0.00	8.3	0.121E+02	2.53	11.54	.22630E+03
82.94	0.00	0.00	8.3	0.120E+02	2.53	11.57	.22750E+03
83.66	0.00	0.00	8.3	0.120E+02	2.53	11.60	.22870E+03
84.37	0.00	0.00	8.4	0.120E+02	2.53	11.63	.22990E+03
85.09	0.00	0.00	8.4	0.119E+02	2.53	11.66	.23110E+03
85.80	0.00	0.00	8.4	0.119E+02	2.53	11.69	.23229E+03
86.52	0.00	0.00	8.4	0.119E+02	2.53	11.73	.23349E+03
87.24	0.00	0.00	8.5	0.118E+02	2.53	11.76	.23469E+03
87.95	0.00	0.00	8.5	0.118E+02	2.53	11.79	.23589E+03
88.67	0.00	0.00	8.5	0.118E+02	2.53	11.82	.23709E+03
89.38	0.00	0.00	8.5	0.117E+02	2.53	11.85	.23829E+03
90.10	0.00	0.00	8.6	0.117E+02	2.54	11.88	.23949E+03
90.82	0.00	0.00	8.6	0.117E+02	2.54	11.92	.24069E+03
91.53	0.00	0.00	8.6	0.116E+02	2.54	11.95	.24188E+03
92.25	0.00	0.00	8.6	0.116E+02	2.54	11.98	.24308E+03
92.96	0.00	0.00	8.7	0.115E+02	2.54	12.01	.24428E+03
93.68	0.00	0.00	8.7	0.115E+02	2.54	12.04	.24548E+03
94.39	0.00	0.00	8.7	0.115E+02	2.54	12.07	.24668E+03
95.11	0.00	0.00	8.7	0.114E+02	2.54	12.10	.24788E+03
95.83	0.00	0.00	8.8	0.114E+02	2.54	12.13	.24908E+03
96.54	0.00	0.00	8.8	0.114E+02	2.55	12.16	.25028E+03
97.26	0.00	0.00	8.8	0.113E+02	2.55	12.20	.25147E+03
97.97	0.00	0.00	8.8	0.113E+02	2.55	12.23	.25267E+03
98.69	0.00	0.00	8.9	0.113E+02	2.55	12.26	.25387E+03
99.40	0.00	0.00	8.9	0.112E+02	2.55	12.29	.25507E+03
100.12	0.00	0.00	8.9	0.112E+02	2.55	12.32	.25627E+03
100.84	0.00	0.00	9.0	0.112E+02	2.55	12.35	.25747E+03
101.55	0.00	0.00	9.0	0.111E+02	2.56	12.38	.25867E+03
102.27	0.00	0.00	9.0	0.111E+02	2.56	12.41	.25987E+03
102.98	0.00	0.00	9.0	0.111E+02	2.56	12.44	.26106E+03
103.70	0.00	0.00	9.1	0.110E+02	2.56	12.47	.26226E+03
104.42	0.00	0.00	9.1	0.110E+02	2.56	12.50	.26346E+03
105.13	0.00	0.00	9.1	0.110E+02	2.56	12.53	.26466E+03
105.85	0.00	0.00	9.2	0.109E+02	2.57	12.56	.26586E+03
106.56	0.00	0.00	9.2	0.109E+02	2.57	12.60	.26706E+03

107.28	0.00	0.00	9.2	0.109E+02	2.57	12.63	.26826E+03
107.99	0.00	0.00	9.2	0.108E+02	2.57	12.66	.26946E+03
108.71	0.00	0.00	9.3	0.108E+02	2.57	12.69	.27065E+03
109.43	0.00	0.00	9.3	0.108E+02	2.57	12.72	.27185E+03
110.14	0.00	0.00	9.3	0.107E+02	2.58	12.75	.27305E+03
110.86	0.00	0.00	9.4	0.107E+02	2.58	12.78	.27425E+03
111.57	0.00	0.00	9.4	0.107E+02	2.58	12.81	.27545E+03
112.29	0.00	0.00	9.4	0.106E+02	2.58	12.84	.27665E+03
113.00	0.00	0.00	9.4	0.106E+02	2.58	12.87	.27785E+03
113.72	0.00	0.00	9.5	0.106E+02	2.59	12.90	.27905E+03
114.44	0.00	0.00	9.5	0.105E+02	2.59	12.93	.28024E+03
115.15	0.00	0.00	9.5	0.105E+02	2.59	12.96	.28144E+03
115.87	0.00	0.00	9.6	0.105E+02	2.59	12.99	.28264E+03
116.58	0.00	0.00	9.6	0.104E+02	2.59	13.02	.28384E+03
117.30	0.00	0.00	9.6	0.104E+02	2.60	13.05	.28504E+03
118.02	0.00	0.00	9.6	0.104E+02	2.60	13.08	.28624E+03
118.73	0.00	0.00	9.7	0.103E+02	2.60	13.11	.28744E+03
119.45	0.00	0.00	9.7	0.103E+02	2.60	13.14	.28864E+03
120.16	0.00	0.00	9.7	0.103E+02	2.61	13.17	.28983E+03
120.88	0.00	0.00	9.8	0.102E+02	2.61	13.20	.29103E+03
121.59	0.00	0.00	9.8	0.102E+02	2.61	13.23	.29223E+03
122.31	0.00	0.00	9.8	0.102E+02	2.61	13.26	.29343E+03
123.03	0.00	0.00	9.9	0.101E+02	2.61	13.29	.29463E+03
123.74	0.00	0.00	9.9	0.101E+02	2.62	13.32	.29583E+03
124.46	0.00	0.00	9.9	0.101E+02	2.62	13.35	.29703E+03
125.17	0.00	0.00	10.0	0.100E+02	2.62	13.38	.29823E+03
125.89	0.00	0.00	10.0	0.100E+02	2.62	13.41	.29942E+03
126.60	0.00	0.00	10.0	0.998E+01	2.63	13.43	.30062E+03
127.32	0.00	0.00	10.1	0.995E+01	2.63	13.46	.30182E+03
128.04	0.00	0.00	10.1	0.992E+01	2.63	13.49	.30302E+03
128.75	0.00	0.00	10.1	0.989E+01	2.63	13.52	.30422E+03
129.47	0.00	0.00	10.1	0.986E+01	2.64	13.55	.30542E+03
130.18	0.00	0.00	10.2	0.982E+01	2.64	13.58	.30662E+03
130.90	0.00	0.00	10.2	0.979E+01	2.64	13.61	.30782E+03
131.62	0.00	0.00	10.2	0.976E+01	2.64	13.64	.30901E+03
132.33	0.00	0.00	10.3	0.973E+01	2.65	13.67	.31021E+03
133.05	0.00	0.00	10.3	0.970E+01	2.65	13.70	.31141E+03
133.76	0.00	0.00	10.3	0.967E+01	2.65	13.73	.31261E+03
134.48	0.00	0.00	10.4	0.964E+01	2.66	13.76	.31381E+03
135.19	0.00	0.00	10.4	0.961E+01	2.66	13.79	.31501E+03
135.91	0.00	0.00	10.4	0.958E+01	2.66	13.82	.31621E+03
136.63	0.00	0.00	10.5	0.955E+01	2.66	13.84	.31741E+03
137.34	0.00	0.00	10.5	0.952E+01	2.67	13.87	.31860E+03
138.06	0.00	0.00	10.5	0.949E+01	2.67	13.90	.31980E+03
138.77	0.00	0.00	10.6	0.946E+01	2.67	13.93	.32100E+03
139.49	0.00	0.00	10.6	0.943E+01	2.68	13.96	.32220E+03
140.20	0.00	0.00	10.6	0.940E+01	2.68	13.99	.32340E+03
140.92	0.00	0.00	10.7	0.937E+01	2.68	14.02	.32460E+03
141.64	0.00	0.00	10.7	0.934E+01	2.68	14.05	.32580E+03
142.35	0.00	0.00	10.7	0.931E+01	2.69	14.08	.32700E+03
143.07	0.00	0.00	10.8	0.928E+01	2.69	14.11	.32819E+03
143.78	0.00	0.00	10.8	0.925E+01	2.69	14.13	.32939E+03
144.50	0.00	0.00	10.8	0.922E+01	2.70	14.16	.33059E+03
145.22	0.00	0.00	10.9	0.919E+01	2.70	14.19	.33179E+03

145.93	0.00	0.00	10.9	0.916E+01	2.70	14.22	.33299E+03
146.65	0.00	0.00	10.9	0.914E+01	2.71	14.25	.33419E+03
147.36	0.00	0.00	11.0	0.911E+01	2.71	14.28	.33539E+03
148.08	0.00	0.00	11.0	0.908E+01	2.71	14.31	.33658E+03
148.79	0.00	0.00	11.1	0.905E+01	2.72	14.33	.33778E+03
149.51	0.00	0.00	11.1	0.902E+01	2.72	14.36	.33898E+03
150.23	0.00	0.00	11.1	0.899E+01	2.72	14.39	.34018E+03
150.94	0.00	0.00	11.2	0.896E+01	2.72	14.42	.34138E+03
151.66	0.00	0.00	11.2	0.893E+01	2.73	14.45	.34258E+03
152.37	0.00	0.00	11.2	0.891E+01	2.73	14.48	.34378E+03
153.09	0.00	0.00	11.3	0.888E+01	2.73	14.51	.34498E+03
153.80	0.00	0.00	11.3	0.885E+01	2.74	14.53	.34617E+03
154.52	0.00	0.00	11.3	0.882E+01	2.74	14.56	.34737E+03
155.24	0.00	0.00	11.4	0.879E+01	2.74	14.59	.34857E+03
155.95	0.00	0.00	11.4	0.877E+01	2.75	14.62	.34977E+03
156.67	0.00	0.00	11.4	0.874E+01	2.75	14.65	.35097E+03
157.38	0.00	0.00	11.5	0.871E+01	2.76	14.68	.35217E+03
158.10	0.00	0.00	11.5	0.868E+01	2.76	14.70	.35337E+03
158.82	0.00	0.00	11.6	0.865E+01	2.76	14.73	.35457E+03
159.53	0.00	0.00	11.6	0.863E+01	2.77	14.76	.35576E+03
160.25	0.00	0.00	11.6	0.860E+01	2.77	14.79	.35696E+03
160.96	0.00	0.00	11.7	0.857E+01	2.77	14.82	.35816E+03
161.68	0.00	0.00	11.7	0.855E+01	2.78	14.84	.35936E+03
162.39	0.00	0.00	11.7	0.852E+01	2.78	14.87	.36056E+03
163.11	0.00	0.00	11.8	0.849E+01	2.78	14.90	.36176E+03
163.83	0.00	0.00	11.8	0.846E+01	2.79	14.93	.36296E+03
164.54	0.00	0.00	11.9	0.844E+01	2.79	14.96	.36416E+03
165.26	0.00	0.00	11.9	0.841E+01	2.79	14.98	.36535E+03
165.97	0.00	0.00	11.9	0.838E+01	2.80	15.01	.36655E+03
166.69	0.00	0.00	12.0	0.836E+01	2.80	15.04	.36775E+03
167.40	0.00	0.00	12.0	0.833E+01	2.81	15.07	.36895E+03
168.12	0.00	0.00	12.0	0.830E+01	2.81	15.10	.37015E+03
168.84	0.00	0.00	12.1	0.828E+01	2.81	15.12	.37135E+03
169.55	0.00	0.00	12.1	0.825E+01	2.82	15.15	.37255E+03
170.27	0.00	0.00	12.2	0.822E+01	2.82	15.18	.37375E+03
170.98	0.00	0.00	12.2	0.820E+01	2.82	15.21	.37494E+03
171.70	0.00	0.00	12.2	0.817E+01	2.83	15.24	.37614E+03
172.42	0.00	0.00	12.3	0.815E+01	2.83	15.26	.37734E+03
173.13	0.00	0.00	12.3	0.812E+01	2.84	15.29	.37854E+03
173.85	0.00	0.00	12.4	0.809E+01	2.84	15.32	.37974E+03
174.56	0.00	0.00	12.4	0.807E+01	2.84	15.35	.38094E+03
175.28	0.00	0.00	12.4	0.804E+01	2.85	15.37	.38214E+03
175.99	0.00	0.00	12.5	0.802E+01	2.85	15.40	.38334E+03
176.71	0.00	0.00	12.5	0.799E+01	2.86	15.43	.38453E+03
177.43	0.00	0.00	12.6	0.797E+01	2.86	15.46	.38573E+03
178.14	0.00	0.00	12.6	0.794E+01	2.86	15.48	.38693E+03
178.86	0.00	0.00	12.6	0.792E+01	2.87	15.51	.38813E+03
179.57	0.00	0.00	12.7	0.789E+01	2.87	15.54	.38933E+03
180.29	0.00	0.00	12.7	0.787E+01	2.88	15.57	.39053E+03
181.00	0.00	0.00	12.8	0.784E+01	2.88	15.59	.39173E+03
181.72	0.00	0.00	12.8	0.782E+01	2.88	15.62	.39293E+03
182.44	0.00	0.00	12.8	0.779E+01	2.89	15.65	.39412E+03
183.15	0.00	0.00	12.9	0.777E+01	2.89	15.68	.39532E+03
183.87	0.00	0.00	12.9	0.774E+01	2.90	15.70	.39652E+03

184.58	0.00	0.00	13.0	0.772E+01	2.90	15.73	.39772E+03
185.30	0.00	0.00	13.0	0.769E+01	2.91	15.76	.39892E+03
186.02	0.00	0.00	13.0	0.767E+01	2.91	15.78	.40012E+03
186.73	0.00	0.00	13.1	0.764E+01	2.91	15.81	.40132E+03
187.45	0.00	0.00	13.1	0.762E+01	2.92	15.84	.40252E+03
188.16	0.00	0.00	13.2	0.760E+01	2.92	15.87	.40371E+03
188.88	0.00	0.00	13.2	0.757E+01	2.93	15.89	.40491E+03
189.59	0.00	0.00	13.2	0.755E+01	2.93	15.92	.40611E+03
190.31	0.00	0.00	13.3	0.752E+01	2.94	15.95	.40731E+03
191.03	0.00	0.00	13.3	0.750E+01	2.94	15.97	.40851E+03
191.74	0.00	0.00	13.4	0.748E+01	2.94	16.00	.40971E+03
192.46	0.00	0.00	13.4	0.745E+01	2.95	16.03	.41091E+03
193.17	0.00	0.00	13.5	0.743E+01	2.95	16.06	.41211E+03
193.89	0.00	0.00	13.5	0.740E+01	2.96	16.08	.41330E+03
194.60	0.00	0.00	13.5	0.738E+01	2.96	16.11	.41450E+03
195.32	0.00	0.00	13.6	0.736E+01	2.97	16.14	.41570E+03
196.04	0.00	0.00	13.6	0.733E+01	2.97	16.16	.41690E+03
196.75	0.00	0.00	13.7	0.731E+01	2.98	16.19	.41810E+03
197.47	0.00	0.00	13.7	0.729E+01	2.98	16.22	.41930E+03
198.18	0.00	0.00	13.8	0.726E+01	2.98	16.24	.42050E+03
198.90	0.00	0.00	13.8	0.724E+01	2.99	16.27	.42170E+03
199.62	0.00	0.00	13.9	0.722E+01	2.99	16.30	.42289E+03
200.33	0.00	0.00	13.9	0.720E+01	3.00	16.32	.42409E+03
201.05	0.00	0.00	13.9	0.717E+01	3.00	16.35	.42529E+03
201.76	0.00	0.00	14.0	0.715E+01	3.01	16.38	.42649E+03
202.48	0.00	0.00	14.0	0.713E+01	3.01	16.40	.42769E+03
203.19	0.00	0.00	14.1	0.711E+01	3.02	16.43	.42889E+03
203.91	0.00	0.00	14.1	0.708E+01	3.02	16.46	.43009E+03
204.63	0.00	0.00	14.2	0.706E+01	3.03	16.48	.43129E+03
205.34	0.00	0.00	14.2	0.704E+01	3.03	16.51	.43248E+03
206.06	0.00	0.00	14.3	0.702E+01	3.04	16.54	.43368E+03
206.77	0.00	0.00	14.3	0.699E+01	3.04	16.56	.43488E+03
207.49	0.00	0.00	14.3	0.697E+01	3.04	16.59	.43608E+03
208.20	0.00	0.00	14.4	0.695E+01	3.05	16.62	.43728E+03
208.92	0.00	0.00	14.4	0.693E+01	3.05	16.64	.43848E+03
209.64	0.00	0.00	14.5	0.691E+01	3.06	16.67	.43968E+03
210.35	0.00	0.00	14.5	0.688E+01	3.06	16.70	.44088E+03
211.07	0.00	0.00	14.6	0.686E+01	3.07	16.72	.44207E+03
211.78	0.00	0.00	14.6	0.684E+01	3.07	16.75	.44327E+03
212.50	0.00	0.00	14.7	0.682E+01	3.08	16.78	.44447E+03
213.22	0.00	0.00	14.7	0.680E+01	3.08	16.80	.44567E+03
213.93	0.00	0.00	14.8	0.678E+01	3.09	16.83	.44687E+03
214.65	0.00	0.00	14.8	0.675E+01	3.09	16.86	.44807E+03
215.36	0.00	0.00	14.9	0.673E+01	3.10	16.88	.44927E+03
216.08	0.00	0.00	14.9	0.671E+01	3.10	16.91	.45047E+03
216.79	0.00	0.00	14.9	0.669E+01	3.11	16.93	.45166E+03
217.51	0.00	0.00	15.0	0.667E+01	3.11	16.96	.45286E+03
218.23	0.00	0.00	15.0	0.665E+01	3.12	16.99	.45406E+03
218.94	0.00	0.00	15.1	0.663E+01	3.12	17.01	.45526E+03
219.66	0.00	0.00	15.1	0.661E+01	3.13	17.04	.45646E+03
220.37	0.00	0.00	15.2	0.659E+01	3.13	17.07	.45766E+03
221.09	0.00	0.00	15.2	0.657E+01	3.14	17.09	.45886E+03
221.80	0.00	0.00	15.3	0.655E+01	3.14	17.12	.46006E+03
222.52	0.00	0.00	15.3	0.653E+01	3.15	17.14	.46125E+03

223.24	0.00	0.00	15.4	0.650E+01	3.15	17.17	.46245E+03
223.95	0.00	0.00	15.4	0.648E+01	3.16	17.20	.46365E+03
224.67	0.00	0.00	15.5	0.646E+01	3.16	17.22	.46485E+03
225.38	0.00	0.00	15.5	0.644E+01	3.17	17.25	.46605E+03
226.10	0.00	0.00	15.6	0.642E+01	3.17	17.27	.46725E+03

Cumulative travel time = 467.2494 sec (0.13 hrs)

END OF MOD341: BUOYANT AMBIENT SPREADING

BEGIN MOD361: PASSIVE AMBIENT MIXING IN UNIFORM AMBIENT

Vertical diffusivity (initial value) = 0.215E+00 m^2/s
Horizontal diffusivity (initial value) = 0.538E+00 m^2/s

Profile definitions:
BV = Gaussian s.d.*sqrt(pi/2) (46%) thickness, measured vertically
= or equal to water depth, if fully mixed
BH = Gaussian s.d.*sqrt(pi/2) (46%) half-width,
measured horizontally in Y-direction
S = hydrodynamic centerline dilution
C = centerline concentration (includes reaction efects, if any)
TT = Cumulative travel time

Plume Stage 2 (bank attached):

X	Y	Z	S	C	BV	BH	TT
226.10	0.00	0.00	15.6	0.642E+01	3.17	17.27	.46725E+03
234.68	0.00	0.00	16.2	0.617E+01	3.18	17.96	.48161E+03
243.25	0.00	0.00	16.8	0.594E+01	3.18	18.63	.49597E+03
251.83	0.00	0.00	17.4	0.574E+01	3.18	19.27	.51033E+03
260.40	0.00	0.00	18.0	0.556E+01	3.19	19.89	.52469E+03
268.98	0.00	0.00	18.6	0.539E+01	3.19	20.49	.53906E+03
277.55	0.00	0.00	19.1	0.523E+01	3.20	21.07	.55342E+03
286.13	0.00	0.00	19.7	0.509E+01	3.20	21.64	.56778E+03
294.70	0.00	0.00	20.2	0.495E+01	3.20	22.20	.58214E+03
303.28	0.00	0.00	20.7	0.483E+01	3.21	22.74	.59650E+03
311.86	0.00	0.00	21.2	0.471E+01	3.21	23.27	.61086E+03
320.43	0.00	0.00	21.7	0.460E+01	3.22	23.78	.62523E+03
329.01	0.00	0.00	22.2	0.450E+01	3.22	24.29	.63959E+03
337.58	0.00	0.00	22.7	0.440E+01	3.23	24.78	.65395E+03
346.16	0.00	0.00	23.2	0.431E+01	3.23	25.27	.66831E+03
354.73	0.00	0.00	23.7	0.422E+01	3.24	25.74	.68267E+03
363.31	0.00	0.00	24.2	0.414E+01	3.25	26.21	.69703E+03
371.88	0.00	0.00	24.6	0.406E+01	3.25	26.67	.71140E+03
380.46	0.00	0.00	25.1	0.399E+01	3.26	27.12	.72576E+03
389.04	0.00	0.00	25.6	0.391E+01	3.26	27.57	.74012E+03
397.61	0.00	0.00	26.0	0.385E+01	3.27	28.00	.75448E+03
406.19	0.00	0.00	26.5	0.378E+01	3.28	28.43	.76884E+03
414.76	0.00	0.00	26.9	0.372E+01	3.28	28.86	.78320E+03
423.34	0.00	0.00	27.4	0.366E+01	3.29	29.28	.79757E+03
431.91	0.00	0.00	27.8	0.360E+01	3.30	29.69	.81193E+03
440.49	0.00	0.00	28.2	0.354E+01	3.31	30.09	.82629E+03

449.06	0.00	0.00	28.7	0.349E+01	3.31	30.50	.84065E+03
457.64	0.00	0.00	29.1	0.343E+01	3.32	30.89	.85501E+03
466.22	0.00	0.00	29.6	0.338E+01	3.33	31.28	.86937E+03
474.79	0.00	0.00	30.0	0.333E+01	3.34	31.67	.88374E+03
483.37	0.00	0.00	30.4	0.328E+01	3.35	32.05	.89810E+03
491.94	0.00	0.00	30.9	0.324E+01	3.35	32.43	.91246E+03
500.52	0.00	0.00	31.3	0.319E+01	3.36	32.80	.92682E+03
509.09	0.00	0.00	31.7	0.315E+01	3.37	33.17	.94118E+03
517.67	0.00	0.00	32.2	0.311E+01	3.38	33.53	.95554E+03
526.25	0.00	0.00	32.6	0.307E+01	3.39	33.89	.96991E+03
534.82	0.00	0.00	33.1	0.303E+01	3.40	34.25	.98427E+03
543.40	0.00	0.00	33.5	0.299E+01	3.41	34.60	.99863E+03
551.97	0.00	0.00	33.9	0.295E+01	3.42	34.95	.10130E+04
560.55	0.00	0.00	34.4	0.291E+01	3.43	35.29	.10274E+04
569.12	0.00	0.00	34.8	0.287E+01	3.44	35.64	.10417E+04
577.70	0.00	0.00	35.2	0.284E+01	3.45	35.98	.10561E+04
586.27	0.00	0.00	35.7	0.280E+01	3.46	36.31	.10704E+04
594.85	0.00	0.00	36.1	0.277E+01	3.47	36.65	.10848E+04
603.43	0.00	0.00	36.5	0.274E+01	3.48	36.98	.10992E+04
612.00	0.00	0.00	37.0	0.270E+01	3.49	37.30	.11135E+04
620.58	0.00	0.00	37.4	0.267E+01	3.50	37.63	.11279E+04
629.15	0.00	0.00	37.9	0.264E+01	3.52	37.95	.11422E+04
637.73	0.00	0.00	38.3	0.261E+01	3.53	38.27	.11566E+04
646.30	0.00	0.00	38.8	0.258E+01	3.54	38.58	.11710E+04
654.88	0.00	0.00	39.2	0.255E+01	3.55	38.90	.11853E+04
663.46	0.00	0.00	39.7	0.252E+01	3.56	39.21	.11997E+04
672.03	0.00	0.00	40.1	0.249E+01	3.58	39.52	.12141E+04
680.61	0.00	0.00	40.6	0.246E+01	3.59	39.82	.12284E+04
689.18	0.00	0.00	41.0	0.244E+01	3.60	40.13	.12428E+04
697.76	0.00	0.00	41.5	0.241E+01	3.62	40.43	.12571E+04
706.33	0.00	0.00	42.0	0.238E+01	3.63	40.73	.12715E+04
714.91	0.00	0.00	42.4	0.236E+01	3.64	41.02	.12859E+04
723.48	0.00	0.00	42.9	0.233E+01	3.66	41.32	.13002E+04
732.06	0.00	0.00	43.4	0.230E+01	3.67	41.61	.13146E+04
740.64	0.00	0.00	43.9	0.228E+01	3.69	41.90	.13289E+04
749.21	0.00	0.00	44.3	0.225E+01	3.70	42.19	.13433E+04
757.79	0.00	0.00	44.8	0.223E+01	3.72	42.48	.13577E+04
766.36	0.00	0.00	45.3	0.221E+01	3.73	42.76	.13720E+04
774.94	0.00	0.00	45.8	0.218E+01	3.75	43.05	.13864E+04
783.51	0.00	0.00	46.3	0.216E+01	3.76	43.33	.14008E+04
792.09	0.00	0.00	46.8	0.214E+01	3.78	43.61	.14151E+04
800.67	0.00	0.00	47.3	0.211E+01	3.80	43.88	.14295E+04
809.24	0.00	0.00	47.8	0.209E+01	3.81	44.16	.14438E+04
817.82	0.00	0.00	48.3	0.207E+01	3.83	44.43	.14582E+04
826.39	0.00	0.00	48.8	0.205E+01	3.85	44.71	.14726E+04
834.97	0.00	0.00	49.4	0.203E+01	3.87	44.98	.14869E+04
843.54	0.00	0.00	49.9	0.200E+01	3.88	45.25	.15013E+04
852.12	0.00	0.00	50.4	0.198E+01	3.90	45.51	.15157E+04
860.69	0.00	0.00	51.0	0.196E+01	3.92	45.78	.15300E+04
869.27	0.00	0.00	51.5	0.194E+01	3.94	46.05	.15444E+04
877.85	0.00	0.00	52.1	0.192E+01	3.96	46.31	.15587E+04
886.42	0.00	0.00	52.6	0.190E+01	3.98	46.57	.15731E+04
895.00	0.00	0.00	53.2	0.188E+01	4.00	46.83	.15875E+04
903.57	0.00	0.00	53.7	0.186E+01	4.02	47.09	.16018E+04

912.15	0.00	0.00	54.3	0.184E+01	4.04	47.35	.16162E+04
920.72	0.00	0.00	54.9	0.182E+01	4.06	47.60	.16305E+04
929.30	0.00	0.00	55.5	0.180E+01	4.08	47.86	.16449E+04
937.88	0.00	0.00	56.0	0.178E+01	4.10	48.11	.16593E+04
946.45	0.00	0.00	56.6	0.177E+01	4.12	48.36	.16736E+04
955.03	0.00	0.00	57.2	0.175E+01	4.15	48.61	.16880E+04
963.60	0.00	0.00	57.9	0.173E+01	4.17	48.86	.17024E+04
972.18	0.00	0.00	58.5	0.171E+01	4.19	49.11	.17167E+04
980.75	0.00	0.00	59.1	0.169E+01	4.22	49.36	.17311E+04
989.33	0.00	0.00	59.7	0.167E+01	4.24	49.60	.17454E+04
997.90	0.00	0.00	60.4	0.166E+01	4.26	49.84	.17598E+04
1006.48	0.00	0.00	61.0	0.164E+01	4.29	50.09	.17742E+04
1015.06	0.00	0.00	61.7	0.162E+01	4.31	50.33	.17885E+04
1023.63	0.00	0.00	62.3	0.160E+01	4.34	50.57	.18029E+04
1032.21	0.00	0.00	63.0	0.159E+01	4.37	50.81	.18172E+04
1040.78	0.00	0.00	63.7	0.157E+01	4.39	51.05	.18316E+04
1049.36	0.00	0.00	64.4	0.155E+01	4.42	51.29	.18460E+04
1057.93	0.00	0.00	65.1	0.154E+01	4.45	51.52	.18603E+04
1066.51	0.00	0.00	65.8	0.152E+01	4.48	51.76	.18747E+04
1075.08	0.00	0.00	66.5	0.150E+01	4.50	51.99	.18891E+04
1083.66	0.00	0.00	67.2	0.149E+01	4.53	52.22	.19034E+04
1092.24	0.00	0.00	67.9	0.147E+01	4.56	52.46	.19178E+04
1100.81	0.00	0.00	68.7	0.146E+01	4.59	52.69	.19321E+04
1109.39	0.00	0.00	69.4	0.144E+01	4.62	52.92	.19465E+04
1117.96	0.00	0.00	70.2	0.142E+01	4.65	53.15	.19609E+04
1126.54	0.00	0.00	71.0	0.141E+01	4.68	53.37	.19752E+04
1135.11	0.00	0.00	71.8	0.139E+01	4.72	53.60	.19896E+04
1143.69	0.00	0.00	72.6	0.138E+01	4.75	53.83	.20039E+04
1152.26	0.00	0.00	73.4	0.136E+01	4.78	54.05	.20183E+04
1160.84	0.00	0.00	74.2	0.135E+01	4.82	54.28	.20327E+04
1169.42	0.00	0.00	75.1	0.133E+01	4.85	54.50	.20470E+04
1177.99	0.00	0.00	75.9	0.132E+01	4.88	54.72	.20614E+04
1186.57	0.00	0.00	76.8	0.130E+01	4.92	54.94	.20758E+04
1195.14	0.00	0.00	77.6	0.129E+01	4.96	55.17	.20901E+04
1203.72	0.00	0.00	78.5	0.127E+01	4.99	55.38	.21045E+04
1212.29	0.00	0.00	79.4	0.126E+01	5.03	55.60	.21188E+04
1220.87	0.00	0.00	80.3	0.124E+01	5.07	55.82	.21332E+04
1229.44	0.00	0.00	81.3	0.123E+01	5.11	56.04	.21476E+04
1238.02	0.00	0.00	82.2	0.122E+01	5.15	56.26	.21619E+04
1246.60	0.00	0.00	83.2	0.120E+01	5.19	56.47	.21763E+04
1255.17	0.00	0.00	84.1	0.119E+01	5.23	56.69	.21906E+04
1263.75	0.00	0.00	85.1	0.117E+01	5.27	56.90	.22050E+04
1272.32	0.00	0.00	86.1	0.116E+01	5.31	57.11	.22194E+04
1280.90	0.00	0.00	87.2	0.115E+01	5.36	57.32	.22337E+04
1289.47	0.00	0.00	88.2	0.113E+01	5.40	57.54	.22481E+04
1298.05	0.00	0.00	89.3	0.112E+01	5.44	57.75	.22625E+04
1306.62	0.00	0.00	90.3	0.111E+01	5.49	57.96	.22768E+04
1315.20	0.00	0.00	91.4	0.109E+01	5.54	58.17	.22912E+04
1323.78	0.00	0.00	92.5	0.108E+01	5.58	58.37	.23055E+04
1332.35	0.00	0.00	93.7	0.107E+01	5.63	58.58	.23199E+04
1340.93	0.00	0.00	94.8	0.105E+01	5.68	58.79	.23343E+04
1349.50	0.00	0.00	96.0	0.104E+01	5.73	58.99	.23486E+04
1358.08	0.00	0.00	97.2	0.103E+01	5.78	59.20	.23630E+04
1366.65	0.00	0.00	98.4	0.102E+01	5.83	59.41	.23774E+04

1375.23	0.00	0.00	99.6	0.100E+01	5.88	59.61	.23917E+04
1383.81	0.00	0.00	100.9	0.992E+00	5.94	59.81	.24061E+04
1392.38	0.00	0.00	102.1	0.979E+00	5.99	60.02	.24204E+04
1400.96	0.00	0.00	103.4	0.967E+00	6.05	60.22	.24348E+04
1409.53	0.00	0.00	104.7	0.955E+00	6.10	60.42	.24492E+04
1418.11	0.00	0.00	106.1	0.943E+00	6.16	60.62	.24635E+04
1426.68	0.00	0.00	107.4	0.931E+00	6.22	60.82	.24779E+04
1435.26	0.00	0.00	108.8	0.919E+00	6.28	61.02	.24922E+04
1443.83	0.00	0.00	110.2	0.907E+00	6.34	61.22	.25066E+04
1452.41	0.00	0.00	111.7	0.896E+00	6.40	61.42	.25210E+04
1460.99	0.00	0.00	113.1	0.884E+00	6.47	61.61	.25353E+04
1469.56	0.00	0.00	114.6	0.873E+00	6.53	61.81	.25497E+04
1478.14	0.00	0.00	116.1	0.861E+00	6.60	62.01	.25641E+04
1486.71	0.00	0.00	117.7	0.850E+00	6.66	62.20	.25784E+04
1495.29	0.00	0.00	119.2	0.839E+00	6.73	62.40	.25928E+04
1503.86	0.00	0.00	120.8	0.828E+00	6.80	62.59	.26071E+04
1512.44	0.00	0.00	122.4	0.817E+00	6.87	62.78	.26215E+04
1521.01	0.00	0.00	124.1	0.806E+00	6.94	62.98	.26359E+04
1529.59	0.00	0.00	125.8	0.795E+00	7.01	63.17	.26502E+04
1538.17	0.00	0.00	127.5	0.784E+00	7.09	63.36	.26646E+04
1546.74	0.00	0.00	129.2	0.774E+00	7.16	63.55	.26789E+04
1555.32	0.00	0.00	131.0	0.763E+00	7.24	63.74	.26933E+04
1563.89	0.00	0.00	132.8	0.753E+00	7.31	63.93	.27077E+04
1572.47	0.00	0.00	134.6	0.743E+00	7.39	64.12	.27220E+04
1581.04	0.00	0.00	136.5	0.733E+00	7.47	64.31	.27364E+04
1589.62	0.00	0.00	138.4	0.723E+00	7.56	64.50	.27508E+04
1598.19	0.00	0.00	140.3	0.713E+00	7.64	64.69	.27651E+04
1606.77	0.00	0.00	142.3	0.703E+00	7.72	64.88	.27795E+04
1615.35	0.00	0.00	144.3	0.693E+00	7.81	65.06	.27938E+04
1623.92	0.00	0.00	146.3	0.684E+00	7.90	65.25	.28082E+04
1632.50	0.00	0.00	148.4	0.674E+00	7.98	65.44	.28226E+04
1641.07	0.00	0.00	150.5	0.665E+00	8.08	65.62	.28369E+04
1649.65	0.00	0.00	152.6	0.655E+00	8.17	65.81	.28513E+04
1658.22	0.00	0.00	154.8	0.646E+00	8.26	65.99	.28656E+04
1666.80	0.00	0.00	157.0	0.637E+00	8.35	66.18	.28800E+04
1675.37	0.00	0.00	159.2	0.628E+00	8.45	66.36	.28944E+04
1683.95	0.00	0.00	161.5	0.619E+00	8.55	66.54	.29087E+04
1692.53	0.00	0.00	163.8	0.610E+00	8.65	66.72	.29231E+04
1701.10	0.00	0.00	166.2	0.602E+00	8.75	66.91	.29375E+04
1709.68	0.00	0.00	168.6	0.593E+00	8.85	67.09	.29518E+04
1718.25	0.00	0.00	171.0	0.585E+00	8.95	67.27	.29662E+04
1726.83	0.00	0.00	173.5	0.576E+00	9.06	67.45	.29805E+04
1735.40	0.00	0.00	176.0	0.568E+00	9.16	67.63	.29949E+04
1743.98	0.00	0.00	178.5	0.560E+00	9.27	67.81	.30093E+04
1752.55	0.00	0.00	181.1	0.552E+00	9.38	67.99	.30236E+04
1761.13	0.00	0.00	183.7	0.544E+00	9.49	68.16	.30380E+04
1769.71	0.00	0.00	186.4	0.537E+00	9.61	68.34	.30523E+04
1778.28	0.00	0.00	189.1	0.529E+00	9.72	68.52	.30667E+04
1786.86	0.00	0.00	191.8	0.521E+00	9.83	68.70	.30811E+04
1795.43	0.00	0.00	194.6	0.514E+00	9.95	68.87	.30954E+04
1804.01	0.00	0.00	197.4	0.507E+00	10.07	69.05	.31098E+04
1812.58	0.00	0.00	200.3	0.499E+00	10.19	69.22	.31242E+04
1821.16	0.00	0.00	203.2	0.492E+00	10.31	69.40	.31385E+04
1829.73	0.00	0.00	206.1	0.485E+00	10.43	69.57	.31529E+04

1838.31	0.00	0.00	209.1	0.478E+00	10.56	69.75	.31672E+04
1846.89	0.00	0.00	212.1	0.472E+00	10.68	69.92	.31816E+04
1855.46	0.00	0.00	215.1	0.465E+00	10.81	70.10	.31960E+04
1864.04	0.00	0.00	218.2	0.458E+00	10.94	70.27	.32103E+04
1872.61	0.00	0.00	221.3	0.452E+00	11.07	70.44	.32247E+04
1881.19	0.00	0.00	224.5	0.445E+00	11.20	70.61	.32390E+04
1889.76	0.00	0.00	227.7	0.439E+00	11.33	70.79	.32534E+04
1898.34	0.00	0.00	230.9	0.433E+00	11.46	70.96	.32678E+04
1906.91	0.00	0.00	234.2	0.427E+00	11.59	71.13	.32821E+04
1915.49	0.00	0.00	237.5	0.421E+00	11.73	71.30	.32965E+04
1924.07	0.00	0.00	240.8	0.415E+00	11.87	71.47	.33109E+04
1932.64	0.00	0.00	244.2	0.410E+00	12.00	71.64	.33252E+04
1941.22	0.00	0.00	247.6	0.404E+00	12.14	71.81	.33396E+04
1949.79	0.00	0.00	251.0	0.398E+00	12.28	71.98	.33539E+04
1958.37	0.00	0.00	254.5	0.393E+00	12.42	72.15	.33683E+04
1966.94	0.00	0.00	258.0	0.388E+00	12.57	72.31	.33827E+04
1975.52	0.00	0.00	261.5	0.382E+00	12.71	72.48	.33970E+04
1984.09	0.00	0.00	265.1	0.377E+00	12.85	72.65	.34114E+04
1992.67	0.00	0.00	268.7	0.372E+00	13.00	72.82	.34257E+04
2001.25	0.00	0.00	272.4	0.367E+00	13.14	72.98	.34401E+04
2009.82	0.00	0.00	276.0	0.362E+00	13.29	73.15	.34545E+04
2018.40	0.00	0.00	279.7	0.358E+00	13.44	73.31	.34688E+04
2026.97	0.00	0.00	283.4	0.353E+00	13.58	73.48	.34832E+04
2035.55	0.00	0.00	287.2	0.348E+00	13.73	73.65	.34976E+04
2044.12	0.00	0.00	291.0	0.344E+00	13.88	73.81	.35119E+04
2052.70	0.00	0.00	294.8	0.339E+00	14.03	73.97	.35263E+04
2061.27	0.00	0.00	298.6	0.335E+00	14.18	74.14	.35406E+04
2069.85	0.00	0.00	302.4	0.331E+00	14.34	74.30	.35550E+04
2078.43	0.00	0.00	306.3	0.326E+00	14.49	74.47	.35694E+04
2087.00	0.00	0.00	310.2	0.322E+00	14.64	74.63	.35837E+04
2095.58	0.00	0.00	314.2	0.318E+00	14.79	74.79	.35981E+04
2104.15	0.00	0.00	318.1	0.314E+00	14.95	74.95	.36125E+04
2112.73	0.00	0.00	322.1	0.310E+00	15.10	75.11	.36268E+04
2121.30	0.00	0.00	326.1	0.307E+00	15.26	75.28	.36412E+04
2129.88	0.00	0.00	330.1	0.303E+00	15.41	75.44	.36555E+04
2138.46	0.00	0.00	334.2	0.299E+00	15.57	75.60	.36699E+04
2147.03	0.00	0.00	338.2	0.296E+00	15.72	75.76	.36843E+04
2155.61	0.00	0.00	342.3	0.292E+00	15.88	75.92	.36986E+04
2164.18	0.00	0.00	346.4	0.289E+00	16.04	76.08	.37130E+04
2172.76	0.00	0.00	350.5	0.285E+00	16.19	76.24	.37273E+04
2181.33	0.00	0.00	354.7	0.282E+00	16.35	76.40	.37417E+04
2189.91	0.00	0.00	358.8	0.279E+00	16.51	76.56	.37561E+04
2198.49	0.00	0.00	363.0	0.275E+00	16.66	76.71	.37704E+04
2207.06	0.00	0.00	367.2	0.272E+00	16.82	76.87	.37848E+04
2215.64	0.00	0.00	371.4	0.269E+00	16.98	77.03	.37992E+04
2224.21	0.00	0.00	375.6	0.266E+00	17.14	77.19	.38135E+04
2232.79	0.00	0.00	379.8	0.263E+00	17.30	77.35	.38279E+04
2241.36	0.00	0.00	384.1	0.260E+00	17.45	77.50	.38422E+04
2249.94	0.00	0.00	388.4	0.257E+00	17.61	77.66	.38566E+04
2258.52	0.00	0.00	392.6	0.255E+00	17.77	77.81	.38710E+04
2267.09	0.00	0.00	396.9	0.252E+00	17.93	77.97	.38853E+04
2275.67	0.00	0.00	401.2	0.249E+00	18.09	78.13	.38997E+04
2284.24	0.00	0.00	405.5	0.247E+00	18.25	78.28	.39140E+04
2292.82	0.00	0.00	409.9	0.244E+00	18.40	78.44	.39284E+04

2301.39	0.00	0.00	414.2	0.241E+00	18.56	78.59	.39428E+04
2309.97	0.00	0.00	418.6	0.239E+00	18.72	78.75	.39571E+04
2318.55	0.00	0.00	422.9	0.236E+00	18.88	78.90	.39715E+04
2327.12	0.00	0.00	427.3	0.234E+00	19.04	79.05	.39859E+04
2335.70	0.00	0.00	431.7	0.232E+00	19.19	79.21	.40002E+04
2344.27	0.00	0.00	436.1	0.229E+00	19.35	79.36	.40146E+04
2352.85	0.00	0.00	440.5	0.227E+00	19.51	79.51	.40289E+04
2361.42	0.00	0.00	444.9	0.225E+00	19.67	79.67	.40433E+04
2370.00	0.00	0.00	449.3	0.223E+00	19.82	79.82	.40577E+04

Cumulative travel time = 4057.6685 sec (1.13 hrs)

Simulation limit based on maximum specified distance = 2370.00 m.
This is the REGION OF INTEREST limitation.

END OF MOD361: PASSIVE AMBIENT MIXING IN UNIFORM AMBIENT

CORMIX3: Buoyant Surface Discharges End of Prediction File

3333333333333333333333333333333333333333333333333333333333333333333333333333333333333333