WPDES PERMIT

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES

PERMIT TO DISCHARGE UNDER THE WISCONSIN POLLUTANT DISCHARGE ELIMINATION SYSTEM

MILWAUKEE METROPOLITAN SEWERAGE DISTRICT COMBINED

is permitted, under the authority of Chapter 283, Wisconsin Statutes, to discharge from two facilities, located at
700 EAST JONES ST, Milwaukee, WI (Jones Island Water Reclamation Facility)
and
8500 SOUTH FIFTH STREET, Oak Creek, WI (South Shore Water Reclamation Facility)
to
the Milwaukee Outer Harbor on Lake Michigan and Lake Michigan in Milwaukee County

in accordance with the effluent limitations, monitoring requirements and other conditions set forth in this permit.

The permittee shall not discharge after the date of expiration. If the permittee wishes to continue to discharge after this expiration date an application shall be filed for reissuance of this permit, according to Chapter NR 200, Wis. Adm. Code, at least 180 days prior to the expiration date given below.

State of Wisconsin Department of Natural Resources
For the Secretary

By _____
Tim Ryan
Field Operations Director

_____
Date Permit Signed/Issued

PERMIT TERM: EFFECTIVE DATE - October 01, 2026 **EXPIRATION DATE – September 30, 2031**

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1 Influent Requirements

1.1 Sampling Point(s)

Sampling Point Designation	
Sampling Point Number	**Sampling Point Location, Waste Type/Sample Contents and Treatment Description (as applicable)**
701	Jones Island INFLUENT: 24-hr flow proportional composite samples shall be collected prior to coarse screening from the high and low siphons and Inline Storage System (ISS).
702	South Shore INFLUENT: 24-hr flow proportional composite samples shall be collected after preliminary treatment (screening and grit removal) and prior to primary treatment.

1.2 Influent Monitoring Requirements

The permittee shall comply with the following monitoring requirements.

1.2.1 Sampling Points 701 – JONES ISLAND & 702 – SOUTH SHORE

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Daily	Continuous	
BOD_5, Total		mg/L	Daily	24-Hr Flow Prop Comp	
Suspended Solids, Total		mg/L	Daily	24-Hr Flow Prop Comp	
Cadmium, Total Recoverable		µg/L	Monthly	24-Hr Flow Prop Comp	
Chromium, Total Recoverable		µg/L	Monthly	24-Hr Flow Prop Comp	
Copper, Total Recoverable		µg/L	Monthly	24-Hr Flow Prop Comp	
Lead, Total Recoverable		µg/L	Monthly	24-Hr Flow Prop Comp	
Nickel, Total Recoverable		µg/L	Monthly	24-Hr Flow Prop Comp	
Zinc, Total Recoverable		µg/L	Monthly	24-Hr Flow Prop Comp	
Mercury, Total Recoverable		ng/L	Monthly	24-Hr Flow Prop Comp	See section 1.2.1.3 below.

1.2.1.1 Total Metals Analyses

Measurements of total metals and total recoverable metals shall be considered as equivalent.

1.2.1.2 Sample Analysis

Samples shall be analyzed using a method which provides adequate sensitivity so that results can be quantified at a level of quantitation below the calculated/potential effluent limit, unless not possible using the most sensitive approved method.

1.2.1.3 Mercury Monitoring

The permittee shall collect and analyze all mercury samples according to the data quality requirements of ss. NR 106.145(9) and (10), Wisconsin Administrative Code. The limit of quantitation (LOQ) used for the effluent and field blank shall be less than 1.3 ng/L, unless the samples are quantified at levels above 1.3 ng/L. The permittee shall collect at least one mercury field blank for each set of mercury samples (a set of samples may include combinations of intake, influent, effluent or other samples all collected on the same day). The permittee shall report results of samples and field blanks to the Department on Discharge Monitoring Reports.

2 Cooling Water Intake Structure (CWIS)

2.1 Sampling Point(s)

Sampling Point Designation	
Sampling Point Number	**Sampling Point Location, Waste Type/Sample Contents and Treatment Description (as applicable)**
703	Jones Island COOLING WATER INTAKE: Intake flow shall be monitored on days of operation of the Milwaukee Inner Harbor/Kinnickinnic River cooling water intake structure. The cooling water intake is only to be used during blending events when JI is unable to recycle plant effluent for cooling purposes.
704	Effluent Pump Station COOLING WATER INTAKE: Intake flow shall be monitored on days of operation of the Lake Michigan cooling water intake structure. The cooling water intake is only to be used during blending events when JI is unable to recycle plant effluent for cooling purposes.

2.2 Cooling Water Monitoring Requirements

2.2.1 Sampling Point 703 – Jones Island Cooling Water Intake

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate	Daily Max	3.7 MGD	Daily	Continuous	
Intake Water Used Exclusively For Cooling		Percent	Daily	Calculated	

2.2.1.1 CWIS – Authority to Operate and Description

The permittee shall at all times properly operate and maintain all water intake facilities. The permittee shall give advance notice to the Department of any planned changes in the location, design, operation, or capacity of the intake structure. The permittee is authorized to use the Jones Island cooling water intake system which consists of the following:

- **Location**: Milwaukee Inner Harbor, on the east bank of the Kinnickinnic River, 120 feet from the confluence with the Milwaukee River.
- **General Description**: Installed channel with a 4 ft. × 4 ft. opening in sheet pile wall.
- **Major Components**: Sixteen bars covering a total surface area of 4.67 square feet, leaving 11.33 square feet open at the channel. Two parallel 10 ft wide traveling screens.
- **Maximum Design Intake Flow (DIF)**: 8.6 MGD (2 pumps at 4.3 MGD each)
- **Maximum Design Intake Velocity**: 1.2 ft/sec at the point where the water is withdrawn from the harbor (bar rack at a submerged intake).
- **Average Actual Intake Velocity**: 0.17 ft/sec at the point where the water is withdrawn from the harbor (bar rack at a submerged intake).
- **Maximum Through-Screen Design Intake Velocity**: 0.19 ft/sec (with 2 pumps operating at 4.3 MGD each through traveling screens).

2.2.1.2 Annual Actual Intake Flow Report

The permittee shall submit an annual actual intake flow report with information on the following, no later than January 31st for the previous year:

- A calculation of the 'actual intake flow (AIF)' as defined by s. NR 111.03(1), Wis. Adm. Code which is the average volume of water withdrawn on an annual basis by the cooling water intake structures over the previous 5 years. The calculation of AIF includes days of zero flow. AIF does not include flows associated with emergency and fire suppression capacity,
- A list of the dates the intake structure was used during blending events, and
- A summary of the uses (including %) of the intake water throughout the year.

2.2.1.3 Annual Actual Intake Flow and Potential Permit Modification

If at any point during the permit term, the submitted Annual Actual Intake Flow Report identifies that more than 25% of the total water withdrawn is used exclusively for cooling purposes, the requirements from ch. NR 111, Wis. Adm. Code would apply, and modification would need to occur to this permit before the permittee could continue using the intake structure during blending events.

2.2.2 Sampling Point 704 – Effluent Pump Station Cooling Water Intake

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Daily	Continuous	
Intake Water Used Exclusively For Cooling		Percent	Daily	Calculated	

2.2.2.1 CWIS – Authority to Operate and Description

The permittee shall at all times properly operate and maintain all water intake facilities. The permittee shall give advance notice to the Department of any planned changes in the location, design, operation, or capacity of the intake structure. The permittee is authorized to use the Lake Michigan effluent pump station cooling water intake system which consists of the following:

- **Location**: Lake Michigan, along the eastern edge of the Jones Island Water Reclamation Facility, approximately 650 feet south of the discharge of the Kinnickinnic River into the Inner Harbor of Lake Michigan.
- **General Description**: 42-inch diameter opening, 42-inch diameter ductile iron pipe, approximately 125 feet long, bringing lake water into a screening channel with a vertical bar screen and then to a wet well to be pumped into the service water system.
- **Major Components**: 125 feet of 42-inch diameter ductile iron pipe with a chlorine injection and diffuser system for zebra mussel control, two traveling water screens with 3/16-inch openings, six service water pumps rated at 3,000 gpm each.
- **Maximum Design Intake Flow (DIF)**: 21.6 MGD (5 pumps at 3,000 gpm each)
- **Maximum Design Intake Velocity**: 3.5 ft/sec at the point where the water is withdrawn
- **Average Actual Intake Velocity**: 2.0 ft/sec at the point where the water is withdrawn
- **Maximum Through-Screen Design Intake Velocity**: 3.5 ft/sec (with 5 pumps operating at 3,000 gpm each through screens).

2.2.2.2 Annual Actual Intake Flow Report

The permittee shall submit an annual actual intake flow report with information on the following, no later than January 31st for the previous year:

- A calculation of the 'actual intake flow (AIF)' as defined by s. NR 111.03(1), Wis. Adm. Code which is the average volume of water withdrawn on an annual basis by the cooling water intake structures over the previous 5 years. The calculation of AIF includes days of zero flow. AIF does not include flows associated with emergency and fire suppression capacity,
- A list of the dates the intake structure was used during blending events, and
- A summary of the uses (including %) of the intake water throughout the year.

2.2.2.3 Annual Actual Intake Flow and Potential Permit Modification

If at any point during the permit term, the submitted Annual Actual Intake Flow Report identifies that more than 25% of the total water withdrawn is used exclusively for cooling purposes, the requirements from ch. NR 111, Wis. Adm. Code would apply, and modification would need to occur to this permit before the permittee could continue using the intake structure during blending events.

3 In-Plant Requirements

3.1 Sampling Point(s)

Sampling Point Designation	
Sampling Point Number	**Sampling Point Location, Waste Type/Sample Contents and Treatment Description (as applicable)**
101	South Shore FIELD BLANK: Collect mercury field blank using standard sample handling procedures.
102	Jones Island FIELD BLANK: Collect mercury field blank using standard sample handling procedures.
103	Jones Island CSO TREATMENT: 24-hr composite samples for BOD and total suspended solids shall be collected at the discharge point from the inline storage system.
141	South Shore BLENDING: Sample point for reporting diverted flow from the primary clarifiers during high flow events. Flow bypasses the aeration basins and final clarifiers but receives disinfection prior to discharge.
142	CITY WATER INTAKE: A grab sample of raw Lake Michigan water shall be collected from the Linnwood water supply facility, prior to receiving treatment.

3.2 Monitoring Requirements

The permittee shall comply with the following monitoring requirements and limitations.

3.2.1 Sampling Points 101 – Mercury Field Blank – South Shore & 102 – Mercury Field Blank – Jones Island

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Mercury, Total Recoverable		ng/L	Monthly	Blank	See section 3.2.1.1 below.

3.2.1.1 Mercury Monitoring

The permittee shall collect and analyze all mercury samples according to the data quality requirements of ss. NR 106.145(9) and (10), Wisconsin Administrative Code. The limit of quantitation (LOQ) used for the effluent and field blank shall be less than 1.3 ng/L, unless the samples are quantified at levels above 1.3 ng/L. The permittee shall collect at least one mercury field blank for each set of mercury samples (a set of samples may include combinations of intake, influent, effluent or other samples all collected on the same day). The permittee shall report results of samples and field blanks to the Department on Discharge Monitoring Reports.

3.2.2 Sampling Point 103 – Combined Sewage Treatment at JONES ISLAND

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Daily	Continuous	Start flow measurement at the commencement of operations. Measure flow in

					daily increments until operation ends and report daily flow on the eDMR. See section 3.2.2.1.
Time		hours	Daily	Calculated	Report the total duration in which the combined sewer treatment process is in operation within a given day (12:00am - 11:59pm). See section 3.2.2.1.
BOD_5, Total		mg/L	Daily	24-Hr Comp	Start sampling at the commencement of operation. Sample in daily increments until the operation ends and report daily results on the eDMR. See section 3.2.2.1.
Suspended Solids, Total		mg/L	Daily	24-Hr Comp	Start sampling at the commencement of operation. Sample in daily increments until the operation ends and report daily results on the eDMR. See section 3.2.2.1.

3.2.2.1 Combined Wet Weather Flow Treatment Requirements

The permittee shall utilize Jones Island Water Reclamation Facility (WRF) capacity to the maximum extent practicable during and after storms to provide primary and secondary treatment and disinfection for wastewater collected and stored in the Inline Storage System (ISS). When peak flows exceed Jones Island secondary treatment capacity, flows from the ISS shall receive treatment equivalent to primary treatment and disinfection prior to being discharged. Such discharges are subject to the following provisions;

1. Wet weather discharges that consist of wastewater that has received primary and secondary treatment combined with combined sewer flows from the ISS, must meet the effluent limits for bacteria (fecal coliforms), BOD_5, and total suspended solids applicable to discharges from Outfall 002.
2. The combined sewer treatment process shall be operated during wet weather only when peak flows are in excess of secondary treatment capacity at Jones Island and only after flow to the South Shore WRF is maximized to the extent practicable.
3. The permittee shall ensure that the District's collection system is designed, operated, and maintained to maximize system storage and conveyance capacity according to accepted best engineering practices.

3.2.3 Sampling Point 141 – South Shore BLENDING

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Daily	Continuous	Start flow measurement at the commencement of blending operations.

					Measure flow in daily increments until operation ends and report daily flow on the eDMR. See section 3.2.3.1.
Time		hours	Daily	Calculated	Report the total duration of blending within any given day (12:00am - 11:59pm) in which blending occurs. See section 3.2.3.1.

3.2.3.1 Blending Flow

The permittee shall report the volume of wastewater that is diverted around secondary treatment processes whenever in-plant diversion (blending) occurs. See "Blending" requirements in the Standard Requirements section for additional requirements.

3.2.4 Sampling Point 142 – City Water Intake

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Arsenic, Total Recoverable		µg/L	Quarterly	Grab	See section 3.2.4.1
Mercury, Total Recoverable		ng/L	Quarterly	Grab	See section 3.2.4.2

3.2.4.1 Sample Analysis - Arsenic

Samples for arsenic shall be analyzed using a method which provides adequate sensitivity so that results can be quantified at a level of quantitation below the calculated/potential effluent limit of 0.2 ug/L, unless not possible using the most sensitive approved method.

3.2.4.2 Mercury Monitoring

The permittee shall collect and analyze all mercury samples according to the data quality requirements of ss. NR 106.145(9) and (10), Wisconsin Administrative Code. The limit of quantitation (LOQ) used for the effluent and field blank shall be less than 1.3 ng/L, unless the samples are quantified at levels above 1.3 ng/L. The permittee shall collect at least one mercury field blank for each set of mercury samples (a set of samples may include combinations of intake, influent, effluent or other samples all collected on the same day). The permittee shall report results of samples and field blanks to the Department on Discharge Monitoring Reports.

4 Combined Sewer System Requirements

4.1 Dropshaft Sampling Point(s)

Sampling Point Designation	
Sampling Point Number	**Sampling Point Location**
104	NS4 - ISS Dropshaft located at North Cambridge Avenue & East Providence Avenue
105	NS5 - ISS Dropshaft located at East Burleigh Street at the Milwaukee River
106	NS6 - ISS Dropshaft located at East Park Place at the Milwaukee River
107	NS7 - ISS Dropshaft located at North Commerce Street & North Booth Street
108	NS8 - ISS Dropshaft located at North Commerce Street & East Pleasant Street
109	NS9 - ISS Dropshaft located at North Martin Luther King Jr Dr & West McKinley Avenue
110	NS10 - ISS Dropshaft located at North Water Street & East St. Paul Avenue
111	NS11 - ISS Dropshaft located at North Humboldt Avenue & East Capitol Drive
112	NS12 - ISS Dropshaft located at North 31st Street & West Capitol Drive
113	CT2 - ISS Dropshaft located at North Hawley Road & West State Street
114	CT3/4 - ISS Dropshaft located at North 44th Street & West Wells Street
115	CT5/6 - ISS Dropshaft located at North 25th Street at the Menomonee River
116	CT7 - ISS Dropshaft located at South 16th Street & West Canal Street
117	CT8 - ISS Dropshaft located at South 3rd Street & West Seeboth Street
118	KK1 - ISS Dropshaft located at South 6th Street & West Cleveland Avenue
119	KK2 - ISS Dropshaft located at South 1st Street & South Chase Avenue
120	KK3 - ISS Dropshaft located at South 4th Street & West Becher Street
121	KK4 - ISS Dropshaft located at South 1st Street & West Lincoln Avenue
122	LMN - ISS Dropshaft located at East Bay Street & East Ward Street
123	LMS - ISS Dropshaft located at South Lincoln Memorial Drive & East Russell Avenue

4.2 Dropshaft Monitoring Requirements

A grab sample shall be taken during each overflow event at ISS dropshaft(s) identified in table 4.1. The permittee shall provide for the collection of grab samples for the pollutants listed in Section 4.2.1 below. The samples shall be collected at the dropshaft junction chamber. Samples shall be taken when the gate closes at the junction chamber to which the outfall diversion chamber is tributary.

4.2.1 Sampling Points 104 – NS4 – Cambridge & Providence; 105 – NS5 – Burleigh & Milw. River; 106 – NS6 – Park Place & Milw. River; 107 – NS7 – Commerce & Booth; 108 – NS8 – Commerce & Pleasant; 109 – NS9 – N MLK Jr Dr & Mckinley; 110 – NS10 – Water & St. Paul; 111 – NS11 – Humboldt & Capitol; 112 – NS12 – 31st & Capitol; 113 – CT2 – Hawley & State; 114 – CT3/4 – 44th & Wells; 115 – CT5/6 – 25th & Menomonee River; 116 – CT7 – 16th & Canal; 117 – CT8 – 3rd & Seeboth; 118 – KK1 – 6th & Cleveland; 119 – KK2 – 1st & Chase; 120 – KK3 – 4th & Becher; 121 – KK4 – 1st & Lincoln; 122 – LMN – Bay & Ward, and 123 – LMS – Lincoln Mem. & Russell

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Volume		MG	Per Occurrence	Calculated	
Fecal Coliform		#/100 ml	Per Occurrence	Grab	
E. coli		#/100 ml	Per Occurrence	Grab	
BOD_5, Total		mg/L	Per Occurrence	Grab	
Suspended Solids, Total		mg/L	Per Occurrence	Grab	
Phosphorus, Total		mg/L	Per Occurrence	Grab	
Nitrogen, Ammonia (NH_3-N) Total		mg/L	Per Occurrence	Grab	

4.3 Combined Sewer Overflow Requirements

Discharges from the combined sewer overflows listed below shall be limited and monitored by the permittee in accordance with the following permit conditions, s. NR 210.205, Wis. Adm. Code, and the U.S. EPA CSO Control Policy.

4.3.1 Inventory of Combined Sewer Overflow (CSO) Outfalls

CSO Outfalls to the Milwaukee River, Table 4.3.1(a)

Serial Number	Location	Associated Dropshaft Sample Point Number	Latitude	Longitude
015-CSO	N. Marshall St. extended	(MIS)	43.05616921	-87.90114712
016-CSO	W. Vliet Street extended, east of N. Martin Luther King Jr Dr	(MIS)	43.04781774	-87.91305281
017-CSO	N. Van Buren Street at E. Brady Street	108 (NS8)	43.05307103	-87.9056693
018-CSO	S. Water Street at E. Bruce Street	(MIS)	43.02534141	-87.9037657
051-CSO	N. Weil Street	107 (NS7)	43.05718576	-87.89917475
089-CSO	E. Capitol Drive	111 (NS11)	43.08931504	-87.89910241
090-CSO	E. Keefe Avenue	104 (NS4)	43.08198484	-87.8925048
091-CSO	E. Edgewood Avenue	104 (NS4)	43.08191551	-87.89149919
092-CSO	E. Auer Avenue	105 (NS5)	43.0765233	-87.89318275
094-CSO	E. Burleigh Street	105 (NS5)	43.07466633	-87.89295328
096-CSO	E. Locust Street	105 (NS5)	43.07110111	-87.89394217
097A-CSO	E. Park Place	106 (NS6)	43.06735984	-87.89443503
098-CSO	E. Bradford Avenue	106 (NS6)	43.06374604	-87.89234066
099-CSO	E. Boylston Street	107 (NS7)	43.05739807	-87.89419929
101-CSO	N. Pulaski Street	107 (NS7)	43.05676834	-87.89750388
102-CSO	N. Humboldt Avenue	107 (NS7)	43.05736134	-87.89772699
103-CSO	N. Marshall Street	107 (NS7)	43.05614443	-87.90119659

103A-CSO	1944 N. Commerce Street	107 (NS7)	43.05677638	-87.90121094
104-CSO	N. Holton Street	107 (NS7)	43.05455721	-87.9046317
106-CSO	North of E. Pleasant Street	108 (NS8)	43.05222066	-87.90743926
107-CSO	E. Walnut Street	108 (NS8)	43.05167025	-87.90786652
108B-CSO	E. Pleasant Street at N. Water Street	108 (NS8)	43.05153962	-87.90724589
109-CSO	North of W. Cherry Street	108 (NS8)	43.05018321	-87.90949543
110-CSO	W. Cherry Street	108 (NS8)	43.04908316	-87.91215712
111-CSO	E. Lyon Street	108 (NS8)	43.04965569	-87.90883642
112-CSO	E. Ogden Avenue	109 (NS9)	43.04836617	-87.91127593
113-CSO	W. McKinley Avenue (North bank)	109 (NS9)	43.04696199	-87.91354058
113A-CSO	W. McKinley Avenue (South bank)	109 (NS9)	43.04641292	-87.91357219
114-CSO	W. Juneau Avenue	109 (NS9)	43.04550462	-87.91358274
115-CSO	W. Highland Avenue	109 (NS9)	43.04426589	-87.91360919
116-CSO	E. Highland Avenue	109 (NS9)	43.04423764	-87.91282683
117-CSO	W. State Street	109 (NS9)	43.0428927	-87.91363504
118-CSO	E. State Street	109 (NS9)	43.04290333	-87.9125908
119-CSO	W. Kilbourn Avenue	109 (NS9)	43.04162722	-87.91281475
120-CSO	E. Kilbourn Avenue	109 (NS9)	43.04177365	-87.91199217
121-CSO	North of W. Wells Street	109 (NS9)	43.04127342	-87.91258386
122-CSO	W. Wells Street	109 (NS9)	43.04037265	-87.91172621
123-CSO	E. Wells Street	109 (NS9)	43.04061023	-87.91122225
124-CSO	North of W. Wisconsin Avenue	109 (NS9)	43.03988702	-87.91133247
125-CSO	W. Wisconsin Avenue	109 (NS9)	43.03874776	-87.91035523
126-CSO	E. Wisconsin Avenue	110 (NS10)	43.03852466	-87.9096428
127-CSO	W. Michigan Street	110 (NS10)	43.03737326	-87.91012398
128-CSO	E. Michigan Street	110 (NS10)	43.03735485	-87.90948366
129-CSO	North of W. Clybourn Street	110 (NS10)	43.03670486	-87.91010542
130-CSO	W. Clybourn Street	110 (NS10)	43.03605986	-87.91016499
131-CSO	E. Clybourn Street	110 (NS10)	43.03615198	-87.90938052
133-CSO	W. St. Paul Avenue	110 (NS10)	43.03462194	-87.91046051
134-CSO	E. St. Paul Avenue	110 (NS10)	43.03501885	-87.90948054
135-CSO	E. Buffalo Street	110 (NS10)	43.03379587	-87.90968974
136-CSO	E. Chicago Street	110 (NS10)	43.03255661	-87.90995706
137-CSO	S. 1st Place	117 (CT8)	43.03088906	-87.91099883
139-CSO	E. Pittsburgh Avenue	117 (CT8)	43.02977667	-87.90765227
140-CSO	N. Young St	110 (NS10)	43.03038228	-87.90715897
142-CSO	E. Polk Street	110 (NS10)	43.02850013	-87.90441227
143-CSO	E. Bruce Street	117 (CT8)	43.02521578	-87.90376238
144-CSO	E. Lyon Street	108 (NS8)	43.04969451	-87.90878533
146-CSO	N. Arlington Place	107 (NS7)	43.05696186	-87.89541659
147-CSO	E. Juneau Avenue	109 (NS9)	43.04579582	-87.91288057
230-CSO	N. Richards at E. Congress	(MIS)	43.0965371	-87.90701564

CSO Outfalls to the Kinnickinnic River, Table 4.3.1(b)

Serial Number	Location	Associated Dropshaft Sample Point Number	Latitude	Longitude
019-CSO	S. 1st Street	(MIS)	43.00805495	-87.91090825
148-CSO	E. National Avenue	117 (CT8)	43.02294636	-87.90558918
149-CSO	South of E. Walker Street	117 (CT8)	43.02139692	-87.90596281
151-CSO	E. Greenfield Avenue	117 (CT8)	43.01704151	-87.90281715
153-CSO	S. Kinnickinnic Avenue (South bank)	120 (KK3)	43.0081248	-87.90805273
154-CSO	S. 1st Street (North bank)	120 (KK3)	43.00855918	-87.91108589
155-CSO	S. 1st Street (South bank)	120 (KK3)	43.00805752	-87.91126738
156-CSO	S. 2nd Street at Kinnickinnic River	120 (KK3)	43.00844343	-87.91249216
157-CSO	W. Rogers Street	120 (KK3)	43.00823586	-87.91418435
158-CSO	W. Becher Street (North outfall)	120 (KK3)	43.0067321	-87.91423161
159-CSO	W. Becher Street (South outfall)	120 (KK3)	43.00662362	-87.91409056
160-CSO	E. Lincoln Avenue (South outfall)	121 (KK4)	43.00259896	-87.91149873
161-CSO	W. Lincoln Avenue (West bank)	121 (KK4)	43.00284437	-87.91218591
162-CSO	W. Lincoln Avenue (East bank)	121 (KK4)	43.00285696	-87.91176181
163-CSO	S. Chase Avenue (North bank)	119 (KK2)	42.99729569	-87.9122121
164-CSO	S. Chase Avenue (South bank)	119 (KK2)	42.99703942	-87.91221481
165-CSO	S. 6th St. at W. Cleveland Avenue (Middle outfall)	118 (KK1)	42.99552843	-87.91841002
166-CSO	S. 6th St. at W. Cleveland Avenue (North outfall)	118 (KK1)	42.99555107	-87.9184095
166A-CSO	S. 6th Street at W. Cleveland Avenue (South outfall)	118 (KK1)	42.99549102	-87.91838558
167-CSO	S. 8th Street	118 (KK1)	42.99694677	-87.92118421
168-CSO	S. 14th Street	118 (KK1)	42.99714641	-87.92982199
169-CSO	S. 27th Street	118 (KK1)	42.9916821	-87.9479935
260-CSO	S. 6th Street at W. Oklahoma Avenue	(MIS)	42.995012	-87.917594

CSO Outfalls to the Menomonee River, Table 4.3.1(c)

Serial Number	Location	Associated Dropshaft Sample Point Number	Latitude	Longitude
010-CSO	W. Canal Street at 8th Street	(MIS)	43.03190123	-87.9217891
170-CSO	S. 2nd Street	117 (CT8)	43.03227299	-87.91234781
172-CSO	N. Emmber Lane (East outfall)	116 (CT7)	43.03254812	-87.92885813
173-CSO	N. 15th Street (East outfall)	116 (CT7)	43.03292888	-87.93152262
174-CSO	N. 15th Street (West outfall)	116 (CT7)	43.03293213	-87.93161675
175-CSO	N. 17th Street	116 (CT7)	43.03293589	-87.93413786
176-CSO	N. 25th Street	115 (CT5/6)	43.03271016	-87.94497878
177-CSO	N. 26th Street	115 (CT5/6)	43.03252369	-87.94572932
177A-CSO	123 N. 25th Street	115 (CT5/6)	43.03218696	-87.94557481
178-CSO	S. 27th Street (West outfall)	115 (CT5/6)	43.02791588	-87.94793115
180-CSO	S. 35th Street	115 (CT5/6)	43.02506325	-87.95762023
181-CSO	W. Wisconsin Avenue	114 (CT3/4)	43.03891949	-87.9652677
182-CSO	N. 43rd Street	114 (CT3/4)	43.04116163	-87.9675224

Serial Number	Location	Associated Dropshaft Sample Point Number	Latitude	Longitude
182A-CSO	4251 W. State Street	114 (CT3/4)	43.04131434	-87.9675798
183-CSO	N. 46th Street	114 (CT3/4)	43.04158668	-87.97303317
184-CSO	N. Hawley Road	113 (CT2)	43.04259981	-87.98285729
185-CSO	N. 9th Street extended	116 (CT7)	43.03228947	-87.92287012
262-CSO	N. 59th Street and W. State Street	(MIS)	43.04229372	-87.98660936

CSO Outfalls to the South Menomonee Canal – Branch of the Menomonee River, Table 4.3.1(d)

Serial Number	Location	Associated Dropshaft Sample Point Number	Latitude	Longitude
061-CSO	Emergency Wastewater Exit Facility	117 (CT8)	43.0312785	-87.91497691
187-CSO	S. 4th Street	117 (CT8)	43.02986214	-87.91499358
188-CSO	S. 6th Street at Menomonee River	117 (CT8)	43.02922308	-87.9183335

CSO Outfalls to Burnham Canal – Branch of Menomonee River, Table 4.3.1(e)

Serial Number	Location	Associated Dropshaft Sample Point Number	Latitude	Longitude
189-CSO	S. 9th Street (East outfall)	116 (CT7)	43.02620804	-87.92242925
190-CSO	S. 9th Street (West outfall)	116 (CT7)	43.02618821	-87.92248408
191-CSO	S. 11th Street	116 (CT7)	43.02619891	-87.9252297
193-CSO	S. 13th Street	116 (CT7)	43.02622808	-87.92787892
194-CSO	S. Muskego Avenue	116 (CT7)	43.02647509	-87.93094226

CSO Outfalls to Lake Michigan, Table 4.3.1(f)

Serial Number	Location	Associated Dropshaft Sample Point Number	Latitude	Longitude
195-CSO	E. Bay Street	122 (LMN)	43.011626	-87.893492
196-CSO	E. Russell Avenue	123 (LMS)	43.00052439	-87.88744581

CSO Outfalls to Lincoln Creek, Table 4.3.1(g)

Serial Number	Location	Associated Dropshaft Sample Point Number	Latitude	Longitude
145-CSO	N. 35th Street and W. Congress Street	112 (NS12)	43.09680508	-87.95633756
197-CSO	W. Hampton Avenue at N. 32nd Street	(MIS)	43.10508536	-87.95225414

4.3.2 Bacteria/CSO Variance – Implement Pollutant Minimization Plan

This permit contains a variance to the water quality standard for bacteria at all combined sewer overflow outfalls granted in accordance with s. 283.15, Wis. Stats. As conditions of this variance the permittee shall (a) monitor discharge quality as specified in the tables above, (b) meet CSO operational requirements and performance standards listed below, (c) implement the Wet Weather Management measures specified below, (d) follow the actions identified in the variance application dated January 2025, and (e) perform the actions listed in schedules 8.2 and 8.3.

4.3.3 Collection System Operational Requirements

The permittee shall follow each of the following operational requirements:

1. No discharge shall occur during dry weather periods.
2. No discharge shall occur during wet weather periods except when the gate at the dropshaft downstream must be closed to prevent the ISS separated sewer or combined sewer capacity from being exceeded in accordance with the current standard operating procedures for ISS operation, or the capacity of the associated near-surface collector is exceeded.
3. The permittee shall continue to implement techniques to identify overflows during dry weather, such as remote monitoring or periodic inspections.
4. In the event there is a CSO discharge, the reporting requirements in sections 4.3.6 and 9.3.1.1 shall be followed. Area water utilities shall also be notified of the commencement of a CSO. Upon request, the permittee shall provide the Department any other pertinent information developed regarding the CSO incidents.

4.3.4 Operational and Technology-Based Requirements

The permittee shall comply with the following operational and technology-based requirements:

1. The permittee shall continue to implement proper operation and maintenance programs for the sewer system and all CSO outfalls to reduce the magnitude, frequency, and duration of CSOs. The program shall include regular sewer inspections, sewer and intercepting structure cleaning, equipment and sewer collection system repair or replacement where necessary, and disconnection of illegal connections.
2. The permittee shall continue to implement procedures that will maximize use of the collection system for wastewater storage in order to reduce the magnitude, frequency, and duration of CSOs.
3. The permittee shall review and modify, as appropriate, its existing pretreatment program to minimize CSO impacts from the discharges of industrial users.
4. The permittee shall continue to operate the water reclamation facility (WRF) at maximum treatable flow during all wet weather flow conditions to reduce the magnitude, frequency, and duration of CSOs. The permittee shall deliver all flows to the WRF within the constraints of the treatment capacity of the WRF.
5. Dry weather overflow from CSO outfalls are prohibited. Each dry weather overflow must be reported to the permitting authority as soon as the permittee becomes aware of the overflow. When the permittee detects a dry weather overflow, the permittee shall begin corrective action immediately. The permittee shall inspect the dry weather overflow each subsequent day until the overflow has been eliminated.
6. The permittee shall continue to implement measures to control solid and floatable materials in CSOs including operating a skimmer boat as part of a program to control solids and floatables in the river systems located below the CSO outfalls listed in section 4.3.1.
7. The permittee shall continue to implement a pollution prevention program focused on reducing the impact of CSOs on receiving waters.

8. **Public Notification:** The permittee shall continue to implement a public notification process to inform citizens of when and where CSOs occur. The process must include (a) a mechanism to alert persons of the occurrence of CSOs and (b) a system to determine the nature and duration of conditions that are potentially harmful for users of receiving waters due to CSOs. The permittee shall follow the public notification requirements as specified in 40 CFR 122.38. By May 1 of each calendar year, the permittee shall make available to the public an annual notice describing the CSO discharges from the discharge point(s) that occurred in the previous calendar year.
9. The permittee shall continue to monitor CSO outfalls in accordance with section 4.2 to characterize CSO impacts and the efficacy of CSO controls.
10. The permittee has submitted the documentation that demonstrated implementation of each of the nine minimum controls in accordance with Section II.B of the U. S. EPA CSO Control Policy. The permittee submitted this documentation to the Department as an element of its 2050 Facilities Plan, approved by the Department on March 30, 2021 (project no. S-2020-0601).

4.3.5 CSO Performance Standards for Water Quality-Based Requirements

The ISS shall be operated and maintained in a manner to achieve, in any given year, BOTH of the following two performance standards:

1. There shall be no more than three (3) combined sewer overflow (CSO) events as a rolling 5-year average.

   [AND]

2. The total collection and conveyance of combined stormwater and wastewater to Jones Island WRF and South Shore WRF of no less than 85% by volume system wide of the combined sewage collected in the Combined Sewer System (CSS) as the result of precipitation events on an annual average basis. Compliance with this performance standard shall be reported on an annual basis, and calculated as:

$$\text{Annual\% Wet Weather Combined Sewage Capture for Treatment} = \frac{V_{ji+ss} - V_{dry}}{V_{ji+ss} + V_{cso} - V_{dry}} \; x\,100$$

Where, V_{CSO} = total annual combined sewer overflow volume from precipitation events

V_{JI+SS} = total annual volume of flow discharged at Jones Island and South Shore

V_{dry} = total annual dry weather flow, calculated by annualizing the average of the ten lowest days of total influent at the Jones Island WRF and the South Shore WRF, as determined by the permittee's user charge system.

A CSO event is defined as one or more overflows from a combined sewer system, resulting from a precipitation event that does not receive minimum treatment. Minimum treatment is defined as: (a) primary clarification (removal of floatables and settleable solids and may be achieved by any combination of treatment technologies or methods that are shown to be equivalent to primary clarification; (b) solids and floatables disposal; and (c) disinfection.

4.3.5.1 Primary Treatment and Disinfection

In order to minimize combined sewer overflows from the conveyance system and provide the equivalent of primary treatment and disinfection for the maximum feasible volume of wet weather combined sewer flows, the permittee shall operate a combined sewer wet weather flow disinfection facility at the Jones Island Water Reclamation Facility during wet weather. This process consists of a channel that will route excess flow from the ISS directly to disinfection and is subject to the provisions outlined in section 3.2.2 of this permit.

4.3.5.2 Surface Water Quality Monitoring

Among the key pollutants for concern for the Milwaukee area watersheds are nutrients and bacteria. The permittee's ongoing surface water quality monitoring program described in the most recent Surface Water Quality Monitoring Plan will be used to track water quality through the permit term. The permittee shall provide annual reports of monitoring results by June 30th of the following year as described in the monitoring plan and in accordance with section 8.2 of the permit.

4.3.5.3 Water Quality-Based Requirements – Wet Weather Management

To meet the CSO performance standards in section 4.3.5 to reduce the duration, frequency, and magnitude of the overflows, and to reduce the adverse effects of overflows, the permittee shall implement wet weather management programs, such as the programs identified in the following table. The permittee shall provide reports documenting the implementation of the programs required of this section according to due dates in section 8.3. These reports shall identify the actions taken in the previous two years as outlined in section 8.3 of this permit.

Wet Weather Management Programs	
Program Description	**Goal**
Reduce the volume and peak flow rate of runoff entering the sewerage system.	• Fund green infrastructure implementation on public and private land. • Support green infrastructure maintenance. • Implement and enforce runoff management requirements, according to MMSD Rules, Chapter 13. • Participate in public education and outreach to help the public reduce usage during heavy strain on the sewerage system. Install and operate public notification systems including two WaterMarkers and ongoing Water Drop Alerts as appropriate.
Reduce inflow related to flooding by reducing the number of structures in the regional floodplain.	• Undertake watercourse projects that include channel reconstruction and removal of structures from the floodplain. • To the extent possible with partner cooperation, complete preliminary engineering of Underwood Creek Reach 2, Honey Creek Reach 4, KK River I-94 to Becher, and Wilson Park Creek. • To the extent possible with partner cooperation, complete design of Honey Creek Reach 1 Concrete Removal, KK River 6th-16th St., 43rd St. Ditch, and Lyons Park Creek Channel Stabilization Phase 2. • To the extent possible with partner cooperation, complete construction of Western Milwaukee Phase 2B, County Grounds Basins Wildlife Enhancements, 30th St. Corridor Wet Weather Relief West Basin, and Jackson Park. • Consider climate change when preparing and implementing Watercourse Management Plans. • Protect or restore riparian land with hydric soils and wetlands.

Reduce inflow and infiltration in tributary sewerage systems.	• Fund private property infiltration and inflow reduction programs with the goal of removing at least 7 million gallons from the system annually by the end of the permit term. • Implement and enforce the roof drain disconnection requirements of MMSD Rules, sec. 3.118. • Implement and enforce wet weather peak flow management requirements for tributary metersheds, according to MMSD Rules, secs. 3.201 and 3.202.
Reduce non-point pollutant loadings into area waterways.	• Acquire riparian buffers and provide treatment using green infrastructure. • Support the implementation of agricultural practices that reduce pollutants in runoff. • Protect an additional 10,000 acres through GreenSeams and Working Soils. • Continue to design and implement the Burnham Canal Wetlands Project which will ultimately use wetlands to treat CSO discharges to Burnham Canal, if they occur. • Collaborate with tributary municipalities to implement projects necessary to achieve total maximum daily loads. • Reduce pollutant loads to watercourses by implementing, where appropriate, reforestation or wetland restoration projects upstream of District watercourse projects. • Plant 2 million trees, and restore 1,300 acres of wetlands.
Improve aquatic habitat to increase the number and diversity of species.	• Undertake watercourse projects that include channel reconstruction and removal of structures from the floodplain. • Implement the recommendations of the Urban Biodiversity Plan, as approved by the Department as part of the 2050 Facilities Plan, when implementing green infrastructure and watercourse projects and when restoring riparian buffers. • Support federal and state priority projects for reducing beneficial use impairments in the Milwaukee Estuary Area of Concern.

4.3.5.3.1 Green Infrastructure Detention Capacity

The permittee shall facilitate the implementation of green infrastructure detention capacity in watersheds within or tributaries to the permittee's service area. The total green infrastructure detention capacity goal to be achieved during the term of this permit is at least 30 million gallons. The permittee shall implement green infrastructure in the combined sewer area to the maximum extent practical.

The permittee shall determine detention capacity using the following procedures:

1. Project-specific modeling;
2. A detention capacity calculating tool available from the permittee; or
3. The following table;

Green Infrastructure Practices	Unit Detention Capacity
Bioswales	7.5 gallons/square foot
Cisterns/Rain Barrels	1 gallon/gallon
Constructed Wetlands	8.3 gallons/square foot
Floodplain Structure Removal	5,000 gallons/structure
Green Alley or Street	6.2 gallons/square foot

Green Roofs	1 gallons/square foot
Native Landscaping	0.4 gallons/square foot
Porous Pavement	3 gallons/square foot
Rain Gardens	4.4 gallons/square foot
Soil Amendments	0.2 gallons/square foot
Stormwater Trees	25 gallons/tree
Preservation of hydric soils or non-hydric soils with native landscaping	1.5 gallons/square foot
Other Practices	As determined by the District and accepted by the Department

The permittee shall count green infrastructure towards the detention capacity goals when construction is complete. Any green infrastructure practices/control measures that are put in place to fulfill the detention capacity goals must be maintained during the term of this permit.

4.3.6 CSO Discharge Reporting Requirements

The permittee shall report all combined sewer overflow discharges as outlined below:

1. The permittee shall notify the Department by telephone, fax, or email as soon as practicable, but no later than 24 hours from the time the permittee becomes aware of the overflow.
2. The permittee shall, no later than five (5) days from the time the permittee becomes aware of the overflow, provide to the department the information identified in the Standard Requirements section 9.3.1.3 of the permit, using department form number 3400-184. If an overflow lasts for more than five days, an initial report shall be submitted within five days as required and an updated report submitted following cessation of the overflow. If, due to the duration and nature, of the overflow, the permittee is unable to provide the actual timing, volume, and location information on form 3400-184 within five days of becoming aware of the overflow, the missing information shall be provided in an additional report.
3. Notification of Drinking Water Intake Owners: Whenever there is a combined sewer overflow, the permittee shall notify the following owner(s) of drinking water intakes located in surface waters as quickly as practicable, but no greater than 8 hours after becoming aware of the overflow. Owner(s) of Drinking Water Intakes: City of Oak Creek, City of South Milwaukee, City of Cudahy, City of Milwaukee, and the North Shore Water Commission.
4. A permittee that is required to submit wastewater discharge monitoring reports under s. NR 205.07(1)(r), Wis. Adm. Code, shall also report all sanitary sewer overflows and sewage treatment facility overflows on that report.

5 Surface Water Requirements

5.1 Sampling Point(s)

Sampling Point Designation	
Sampling Point Number	**Sampling Point Location, Waste Type/Sample Contents and Treatment Description (as applicable)**
001	South Shore EFFLUENT: 24-hr flow proportional composite samples and grab samples shall be collected from the effluent channel adjacent to the effluent pump station after chlorination and dechlorination.
002	Jones Island EFFLUENT: 24-hr flow proportional composite samples and grab samples shall be collected from the effluent channel via the sampler located in the effluent pump station after disinfection and prior to discharge.

5.2 Monitoring Requirements and Effluent Limitations

The permittee shall comply with the following monitoring requirements and limitations.

5.2.1 Sampling Point (Outfall) 001 – SOUTH SHORE EFFLUENT

Monitoring Requirements and Effluent Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Daily	Continuous	
BOD_5, Total	Weekly Avg	45 mg/L	Daily	24-Hr Flow Prop Comp	
BOD_5, Total	Monthly Avg	30 mg/L	Daily	24-Hr Flow Prop Comp	
Suspended Solids, Total	Weekly Avg	45 mg/L	Daily	24-Hr Flow Prop Comp	
Suspended Solids, Total	Monthly Avg	30 mg/L	Daily	24-Hr Flow Prop Comp	
pH Field	Daily Max	9.0 su	Daily	Grab	
pH Field	Daily Min	6.0 su	Daily	Grab	
Nitrogen, Ammonia (NH_3-N) Total	Daily Max	27 mg/L	Daily	24-Hr Flow Prop Comp	Year-round monitoring. Limit effective November – April.
Nitrogen, Ammonia (NH_3-N) Total	Weekly Avg	27 mg/L	Daily	24-Hr Flow Prop Comp	Year-round monitoring. Limit effective November – April.
Nitrogen, Ammonia (NH_3-N) Total	Monthly Avg	27 mg/L	Daily	24-Hr Flow Prop Comp	Year-round monitoring. Limit effective November – April.
Chlorine, Total Residual	Daily Max	38 µg/L	Daily	Grab	

Monitoring Requirements and Effluent Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Chlorine, Total Residual	Weekly Avg	36 µg/L	Daily	Grab	
Chlorine, Total Residual	Monthly Avg	36 µg/L	Daily	Grab	
Fecal Coliform	Geometric Mean - Wkly	972 #/100 ml	Daily	Grab	Limit effective October through April annually. Effective as interim limit May through September annually until the E. coli limit goes into effect per the Effluent Limitations for E. coli Schedule.
Fecal Coliform	Geometric Mean - Monthly	400 #/100 ml	Daily	Grab	Limit effective October through April annually. Effective as interim limit May through September annually until the E. coli limit goes into effect per the Effluent Limitations for E. coli Schedule.
E. coli		#/100 ml	Daily	Grab	Monitoring only May through September annually until the final limit goes into effect per the Effluent Limitations for E. coli Schedule.
E. coli	Geometric Mean - Monthly	126 #/100 ml	Daily	Grab	Limit effective May through September annually per the Effluent Limitations for E. coli Schedule.
E. coli	% Exceedance	10 Percent	Monthly	Calculated	Limit effective May through September annually per the Effluent Limitations for E. coli Schedule. See the E. coli Percent Limit section below. Enter the result in the DMR on the last day of the month.
Phosphorus, Total	Monthly Avg	1.0 mg/L	Daily	24-Hr Flow Prop Comp	
Phosphorus, Total	6-Month Avg	0.6 mg/L	Daily	24-Hr Flow Prop Comp	See section 5.2.1.7 below.
Arsenic, Total Recoverable	Daily Max	1.5 µg/L	Monthly	24-Hr Flow Prop Comp	See sections 5.2.1.3 through 5.2.1.5 below.

Monitoring Requirements and Effluent Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Mercury, Total Recoverable	Daily Max	3.7 ng/L	Monthly	Grab	See sections 5.2.1.3 and 5.2.1.6 below.
Cadmium, Total Recoverable		µg/L	Monthly	24-Hr Flow Prop Comp	See section 5.2.1.3 below.
Chromium, Total Recoverable		µg/L	Monthly	24-Hr Flow Prop Comp	See section 5.2.1.3 below.
Copper, Total Recoverable		µg/L	Monthly	24-Hr Flow Prop Comp	See section 5.2.1.3 below.
Lead, Total Recoverable		µg/L	Monthly	24-Hr Flow Prop Comp	See section 5.2.1.3 below.
Nickel, Total Recoverable		µg/L	Monthly	24-Hr Flow Prop Comp	See section 5.2.1.3 below.
Zinc, Total Recoverable		µg/L	Monthly	24-Hr Flow Prop Comp	See section 5.2.1.3 below.
Temperature Maximum		deg F	Daily	Continuous	Monitoring in calendar year 2029 (January – December). See section 5.2.1.8 below.
PFOS		ng/L	Monthly	Grab	Monitoring only. See PFOS/PFOA Minimization Plan Determination of Need schedule.
PFOA		ng/L	Monthly	Grab	Monitoring only. See PFOS/PFOA Minimization Plan Determination of Need schedule.
Nitrogen, Total Kjeldahl		mg/L	Quarterly	24-Hr Flow Prop Comp	
Nitrogen, Nitrite + Nitrate Total		mg/L	Quarterly	24-Hr Flow Prop Comp	
Nitrogen, Total		mg/L	Quarterly	Calculated	Total Nitrogen shall be calculated as the sum of reported values for Total Kjeldahl Nitrogen and Total Nitrite + Nitrate Nitrogen.
Acute WET		TU_a	See Listed Qtr(s)	24-Hr Flow Prop Comp	Sample annually in rotating quarters. See WET section 5.2.1.11 below.
Chronic WET		TUc	See Listed Qtr(s)	24-Hr Flow Prop Comp	Sample annually in rotating quarters. See WET section 5.2.1.11 below.

5.2.1.1 Annual Average Design Flow

The annual average design flow of the South Shore Water Reclamation Facility is 113 MGD.

5.2.1.2 E. coli Percent Limit

No more than 10 percent of E. coli bacteria samples collected in any calendar month may exceed 410 #/100 ml. Bacteria samples may be collected more frequently than required. All samples shall be reported on the monthly discharge monitoring reports (DMRs). The following calculation should be used to calculate percent exceedances.

$$\frac{\#\ of\ Samples\ greater\ than\ 410\ \#/100\ mL}{Total\ \#\ of\ samples} \times 100 = \%\ Exceedance$$

5.2.1.3 Total Metals Analyses

Measurements of total metals and total recoverable metals shall be considered as equivalent.

5.2.1.4 Sample Analysis – Arsenic

Samples shall be analyzed using a method which provides adequate sensitivity so that results can be quantified at a level of quantitation below the calculated/potential effluent limit. For arsenic, the level of quantitation should be less than 0.2 ug/L, unless not possible using the most sensitive approved method.

5.2.1.5 Arsenic – Implement Pollutant Minimization Plan

This permit contains a variance to the water quality standard for arsenic at South Shore Outfall 001, granted in accordance with s. 283.15, Wis. Stats. As conditions of this variance the permittee shall continue to (a) maintain effluent quality at or below the current effluent concentrations, (b) continue to implement an arsenic pollutant minimization plan, and (c) perform the actions listed in the Arsenic Pollutant Minimization Summary Schedule.

5.2.1.6 Mercury Monitoring

The permittee shall collect and analyze all mercury samples according to the data quality requirements of ss. NR 106.145(9) and (10), Wisconsin Administrative Code. The limit of quantitation (LOQ) used for the effluent and field blank shall be less than 1.3 ng/L, unless the samples are quantified at levels above 1.3 ng/L. The permittee shall collect at least one mercury field blank for each set of mercury samples (a set of samples may include combinations of intake, influent, effluent or other samples all collected on the same day). The permittee shall report results of samples and field blanks to the Department on Discharge Monitoring Reports.

5.2.1.7 Phosphorus Water Quality Based Effluent Limitation(s)

The 0.6 mg/L as a six-month average limit for phosphorus is an interim limit pending the development of a near shore or whole lake model in accordance with s. NR 217.13(4), Wis. Adm. Code. The permittee shall continue to reduce phosphorus as much as practical from their discharge and continue to minimize phosphorus in their influent. The interim limit for phosphorus is in effect unless:

(A) A near shore or whole lake model is developed to calculate water quality based effluent phosphorus limits for discharges to Lake Michigan. Upon Department approval of the model, the Department may modify, revoke and reissue, or reissue the permit to incorporate revised limitations.

If the Department incorporates revised phosphorus limitations into the permit, the permittee may submit an Adaptive Management Plan and a completed Request Form 3200-139, an application for Water Quality Trading or an application for a variance.

If a variance is approved for the next reissuance, interim limits and conditions will be imposed in the reissued permit in accordance with s. 283.15, Stats., and applicable regulations. A permittee may apply for a variance to the phosphorus WQBEL at the next reissuance even if the permittee did not apply for a phosphorus variance as part of this permit reissuance.

Additional Requirements: If a water quality based effluent limit has taken effect in a permit, any increase in the limit is subject to s. NR 102.05(1) and ch. NR 207, Wis. Adm. Code. When a six-month average effluent limit is specified for Total Phosphorus the applicable averaging periods are May through October and November through April.

*Note: The Department will prioritize reissuances and revocations, modifications, and reissuances of permits to allow permittees the opportunity to implement adaptive management or nutrient trading in a timely and effective manner.

5.2.1.8 Effluent Temperature Monitoring

For monitoring temperature continuously, collect measurements in accordance with s. NR 218.04(13), Wis. Adm. Code. This means that discrete measurements shall be recorded at intervals of not more than 15 minutes during the 24-hour period. Report the maximum temperature measured during the day on the DMR.

5.2.1.9 PFOS/PFOA Sampling and Reporting Requirements

For grab samples, as defined per s. NR 218.04(10), Wis. Adm. Code, a single sample at a location as defined by the sample point description shall be taken during the time of the day most representative to capture all potential discharges. If extra equipment besides the sample bottle is used to collect the sample, it is recommended that a one-time equipment blank is collected with the first sample. An equipment blank would be collected by passing laboratory-verified PFAS-free water over or through field sampling equipment before the collection of a grab sample to evaluate potential contamination from the equipment used during sample.

If any equipment blanks are performed, these results shall be reported in the comments section of the eDMR and shall also documented in the reports submitted as part of the PFOS/PFOA Minimization Plan Determination of Need schedule of the permit.

5.2.1.10 PFOS/PFOA Minimization Plan Determination of Need

The permittee shall monitor PFOS and PFOA as specified in the table above and report on the effluent concentrations including trends in monthly and annual average PFOS and PFOA concentrations as specified in the PFOS/PFOA Minimization Plan Determination of Need Schedule.

If, after reviewing the data, the Department determines that a minimization plan for PFOS and PFOA is necessary based on the procedures in s. NR 106.98(4), Wis. Adm. Code, the Department will notify the permittee in writing that a PFOS and PFOA minimization plan that satisfies the requirements in s. NR 106.99, Wis. Adm. Code, is required. The permittee shall submit an initial plan for Department approval no later than 90 days after written notification was sent from the Department in accordance with s. NR 106.985(2)(a), Wis. Adm. Code. Pursuant to s. NR 106.985(2)(b), Wis. Adm. Code, as soon as possible after Department approval of the PFOS and PFOA minimization plan, the Department will modify or revoke and reissue the permit in accordance with public notice procedures under ch. 283, Wis. Stats., and ch. NR 203, Wis. Adm. Code, to include the PFOS and PFOA minimization plan and other related terms and condition.

If, however, the Department determines that a PFOS and PFOA minimization plan is unnecessary based on the procedures in s. NR 106.98(4), Wis. Adm. Code, the Department shall notify the permittee that no further action is required. Per s. NR 106.98(3)(a), Wis. Adm. Code, the Department may reduce monitoring frequency to once every 3 months (quarterly) on a case-by-case basis, but only after at least 12 representative results have been generated. If the permittee requests a reduction in monitoring and the Department agrees a reduction would be appropriate, the permit may be modified in accordance with public notice procedures under ch. 283, Wis. Stats., and ch. NR 203, Wis. Adm. Code, to incorporate this change.

5.2.1.11 Whole Effluent Toxicity (WET) Testing

Primary Control Water: Lake Michigan, offshore and outside of the mixing zone of the discharge and any other discharges

Instream Waste Concentration (IWC): 9%

Dilution series: At least five effluent concentrations and dual controls must be included in each test.

- **Acute:** 100, 50, 25, 12.5, 6.25% and any additional selected by the permittee.
- **Chronic:** 100, 30, 10, 3, 1% and any additional selected by the permittee.

WET Testing Frequency:

Acute tests shall be conducted once each year in rotating quarters in order to collect seasonal information about the discharge. Tests are required during the following quarters.

- **Acute:** *October – December 2026; July – September 2027; April – June 2028; January – March 2029; and October – December 2030*

  Acute WET testing shall continue after the permit expiration date (until the permit is reissued) in accordance with the WET requirements specified for the last full calendar year of this permit. For example, the next test would be required in *October – December 2031*.

Chronic tests shall be conducted once each year in rotating quarters in order to collect seasonal information about the discharge. Tests are required during the following quarters.

- **Chronic:** *October – December 2026; July – September 2027; April – June 2028; January – March 2029; and October – December 2030*

  Chronic WET testing shall continue after the permit expiration date (until the permit is reissued) in accordance with the WET requirements specified for the last full calendar year of this permit. For example, the next test would be required in *October – December 2031*.

Testing: WET testing shall be performed during normal operating conditions. Permittees are not allowed to turn off or otherwise modify treatment systems, production processes, or change other operating or treatment conditions during WET tests.

Reporting: The permittee shall report test results on the Discharge Monitoring Report form, and also complete the "Whole Effluent Toxicity Test Report Form" (Section 6, "*State of Wisconsin Aquatic Life Toxicity Testing Methods Manual, 2nd Edition*"), for each test. The original, complete, signed version of the Whole Effluent Toxicity Test Report Form shall be sent to the Biomonitoring Coordinator, Bureau of Water Quality, 101 S. Webster St., P.O. Box 7921, Madison, WI 53707-7921, within 45 days of test completion. The Discharge Monitoring Report (DMR) form shall be submitted electronically by the required deadline.

Determination of Positive Results: An acute toxicity test shall be considered positive if the Toxic Unit - Acute (TU_a) is greater than 1.0 for either species. The TU_a shall be calculated as follows: $TU_a = 100 \div LC_{50}$. A chronic toxicity test shall be considered positive if the Toxic Unit - Chronic (TU_c) is greater than 11.1 for either species. The TU_c shall be calculated as follows: $TU_c = 100 \div IC_{25}$.

Additional Testing Requirements: Within 90 days of a test which showed positive results, the permittee shall submit the results of at least 2 retests to the Biomonitoring Coordinator on "Whole Effluent Toxicity Test Report Forms". The 90-day reporting period shall begin the day after the test which showed a positive result. The retests shall be completed using the same species and test methods specified for the original test (see the Standard Requirements section herein).

5.2.1.12 Notification of Drinking Water System Owners

Whenever there is a bypass, a sanitary sewer overflow, a sewage treatment facility overflow or a scheduled bypass, the permittee shall notify the following owner(s) of drinking water intakes located in surface waters as quickly as practicable, but no greater than eight (8) hours after becoming aware of the bypass or overflow. This notification requirement does not apply to any controlled diversions or blending if specifically allowed in this permit. **Owner(s) of Drinking Water Intakes:** City of Oak Creek, City of South Milwaukee, City of Cudahy, City of Milwaukee, and the North Shore Water Commission.

5.2.2 Sampling Point (Outfall) 002 – JONES ISLAND EFFLUENT

Monitoring Requirements and Effluent Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Daily	Continuous	
BOD_5, Total	Weekly Avg	45 mg/L	Daily	24-Hr Flow Prop Comp	
BOD_5, Total	Monthly Avg	30 mg/L	Daily	24-Hr Flow Prop Comp	
Suspended Solids, Total	Weekly Avg	45 mg/L	Daily	24-Hr Flow Prop Comp	
Suspended Solids, Total	Monthly Avg	30 mg/L	Daily	24-Hr Flow Prop Comp	
Suspended Solids, Total	Weekly Avg	51,332 lbs/day	Daily	Calculated	Effective January, March, May, July, August, October, and December
Suspended Solids, Total	Weekly Avg	56,832 lbs/day	Daily	Calculated	Effective February
Suspended Solids, Total	Weekly Avg	53,043 lbs/day	Daily	Calculated	Effective April, June, September, and November
Suspended Solids, Total	Monthly Avg	30,195 lbs/day	Daily	Calculated	Effective January, March, May, July, August, October, and December
Suspended Solids, Total	Monthly Avg	33,430 lbs/day	Daily	Calculated	Effective February
Suspended Solids, Total	Monthly Avg	31,202 lbs/day	Daily	Calculated	Effective April, June, September, and November
pH Field	Daily Max	9.0 su	Daily	Grab	
pH Field	Daily Min	6.0 su	Daily	Grab	
Nitrogen, Ammonia (NH_3-N) Total		mg/L	Daily	24-Hr Flow Prop Comp	
Chlorine, Total Residual	Daily Max	38 µg/L	Daily	Grab	
Chlorine, Total Residual	Weekly Avg	36 µg/L	Daily	Grab	
Chlorine, Total Residual	Monthly Avg	36 µg/L	Daily	Grab	

Monitoring Requirements and Effluent Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Fecal Coliform	Geometric Mean - Wkly	972 #/100 ml	Daily	Grab	Limit effective October through April annually. Effective as interim limit May through September annually until the E. coli limit goes into effect per the Effluent Limitations for E. coli Schedule.
Fecal Coliform	Geometric Mean - Monthly	400 #/100 ml	Daily	Grab	Limit effective October through April annually. Effective as interim limit May through September annually until the E. coli limit goes into effect per the Effluent Limitations for E. coli Schedule.
E. coli		#/100 ml	Daily	Grab	Monitoring only May through September annually until the final limit goes into effect per the Effluent Limitations for E. coli Schedule.
E. coli	Geometric Mean - Monthly	126 #/100 ml	Daily	Grab	Limit effective May through September annually per the Effluent Limitations for E. coli Schedule.
E. coli	% Exceedance	10 Percent	Monthly	Calculated	Limit effective May through September annually per the Effluent Limitations for E. coli Schedule. See the E. coli Percent Limit section below. Enter the result in the DMR on the last day of the month.
Phosphorus, Total	Monthly Avg	0.66 mg/L	Daily	24-Hr Flow Prop Comp	
Phosphorus, Total	Monthly Avg	664 lbs/day	Daily	Calculated	Effective January, March, May, July, August, October and December
Phosphorus, Total	Monthly Avg	735 lbs/day	Daily	Calculated	Effective February
Phosphorus, Total	Monthly Avg	686 lbs/day	Daily	Calculated	Effective April, June, September and November
Mercury, Total Recoverable	Daily Max	4.1 ng/L	Monthly	Grab	See sections 5.2.2.5 and 5.2.2.7 below.

Monitoring Requirements and Effluent Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Arsenic, Total Recoverable		µg/L	Quarterly	24-Hr Flow Prop Comp	See sections 5.2.2.5 and 5.2.2.6 below.
Cadmium, Total Recoverable		µg/L	Monthly	24-Hr Flow Prop Comp	See section 5.2.2.5 below.
Chromium, Total Recoverable		µg/L	Monthly	24-Hr Flow Prop Comp	See section 5.2.2.5 below.
Copper, Total Recoverable		µg/L	Monthly	24-Hr Flow Prop Comp	See section 5.2.2.5 below.
Lead, Total Recoverable		µg/L	Monthly	24-Hr Flow Prop Comp	See section 5.2.2.5 below.
Nickel, Total Recoverable		µg/L	Monthly	24-Hr Flow Prop Comp	See section 5.2.2.5 below.
Zinc, Total Recoverable		µg/L	Monthly	24-Hr Flow Prop Comp	See section 5.2.2.5 below.
Temperature Maximum		deg F	Daily	Continuous	Monitoring in calendar year 2029 (January – December). See section 5.2.2.8 below.
PFOS		ng/L	Monthly	Grab	Monitoring only. See PFOS/PFOA Minimization Plan Determination of Need schedule.
PFOA		ng/L	Monthly	Grab	Monitoring only. See PFOS/PFOA Minimization Plan Determination of Need schedule.
Nitrogen, Total Kjeldahl		mg/L	Quarterly	24-Hr Flow Prop Comp	
Nitrogen, Nitrite + Nitrate Total		mg/L	Quarterly	24-Hr Flow Prop Comp	
Nitrogen, Total		mg/L	Quarterly	Calculated	Total Nitrogen shall be calculated as the sum of reported values for Total Kjeldahl Nitrogen and Total Nitrite + Nitrate Nitrogen.
Acute WET		TU_a	See Listed Qtr(s)	24-Hr Flow Prop Comp	Sample annually in rotating quarters. See WET section 5.2.2.11 below.
Chronic WET		TUc	See Listed Qtr(s)	24-Hr Flow Prop Comp	Sample annually in rotating quarters. See WET section 5.2.2.11 below.

5.2.2.1 Annual Average Design Flow

The annual average design flow of the Jones Island Water Reclamation Facility is 123 MGD.

5.2.2.2 E. coli Percent Limit

No more than 10 percent of E. coli bacteria samples collected in any calendar month may exceed 410 #/100 ml. Bacteria samples may be collected more frequently than required. All samples shall be reported on the monthly discharge monitoring reports (DMRs). The following calculation should be used to calculate percent exceedances.

$$\frac{\#\ of\ Samples\ greater\ than\ 410\ \#/100\ mL}{Total\ \#\ of\ samples} \times 100 = \%\ Exceedance$$

5.2.2.3 Total Maximum Daily Load (TMDL) – Total Suspended Solids Limitation(s)

Approved TMDL: The Milwaukee River Basin TMDL Waste Load Allocation (WLA) for Total Phosphorus and Total Suspended Solids was approved by the U.S. Environmental Protection Agency in March 2018. The TMDL derived limits are expressed as weekly and monthly average effluent mass. The approved TMDL derived limits for Total Suspended Solids are:

Total Suspended Solids (TSS) Effluent Limitations

Month	Weekly Average TSS Effluent Limit (lbs/day)	Monthly Average TSS Effluent Limit (lbs/day)
January	51,332	30,195
February	56,832	33,430
March	51,332	30,195
April	53,043	31,202
May	51,332	30,195
June	53,043	31,202
July	51,332	30,195
August	51,332	30,195
September	53,043	31,202
October	51,332	30,195
November	53,043	31,202
December	51,332	30,195

5.2.2.4 Total Maximum Daily Load (TMDL) – Total Phosphorus Limitation(s)

Approved TMDL: The Milwaukee River Basin TMDL Waste Load Allocation (WLA) for Total Phosphorus and Total Suspended Solids was approved by the U.S. Environmental Protection Agency in March 2018. The TMDL derived limits are expressed as monthly average effluent mass limitations. The approved TMDL derived limits for Total Phosphorus are:

Total Phosphorus Effluent Limitations

Month	Monthly Average TP Effluent Limit (lbs/day)
January	664
February	735
March	664
April	686
May	664

June	686
July	664
August	664
September	686
October	664
November	686
December	664

5.2.2.5 Total Metals Analyses

Measurements of total metals and total recoverable metals shall be considered as equivalent.

5.2.2.6 Sample Analysis – Arsenic

Samples shall be analyzed using a method which provides adequate sensitivity so that results can be quantified at a level of quantitation below the calculated/potential effluent limit. For arsenic, the level of quantitation should be less than 0.2 ug/L, unless not possible using the most sensitive approved method.

5.2.2.7 Mercury Monitoring

The permittee shall collect and analyze all mercury samples according to the data quality requirements of ss. NR 106.145(9) and (10), Wisconsin Administrative Code. The limit of quantitation (LOQ) used for the effluent and field blank shall be less than 1.3 ng/L, unless the samples are quantified at levels above 1.3 ng/L. The permittee shall collect at least one mercury field blank for each set of mercury samples (a set of samples may include combinations of intake, influent, effluent or other samples all collected on the same day). The permittee shall report results of samples and field blanks to the Department on Discharge Monitoring Reports.

5.2.2.8 Effluent Temperature Monitoring

For monitoring temperature continuously, collect measurements in accordance with s. NR 218.04(13), Wis. Adm. Code. This means that discrete measurements shall be recorded at intervals of not more than 15 minutes during the 24-hour period. Report the maximum temperature measured during the day on the DMR.

5.2.2.9 PFOS/PFOA Sampling and Reporting Requirements

For grab samples, as defined per s. NR 218.04(10), Wis. Adm. Code, a single sample at a location as defined by the sample point description shall be taken during the time of the day most representative to capture all potential discharges. If extra equipment besides the sample bottle is used to collect the sample, it is recommended that a one-time equipment blank is collected with the first sample. An equipment blank would be collected by passing laboratory-verified PFAS-free water over or through field sampling equipment before the collection of a grab sample to evaluate potential contamination from the equipment used during sample.

If any equipment blanks are performed, these results shall be reported in the comments section of the eDMR and shall also documented in the reports submitted as part of the PFOS/PFOA Minimization Plan Determination of Need schedule of the permit.

5.2.2.10 PFOS/PFOA Minimization Plan Determination of Need

The permittee shall monitor PFOS and PFOA as specified in the table above and report on the effluent concentrations including trends in monthly and annual average PFOS and PFOA concentrations as specified in the PFOS/PFOA Minimization Plan Determination of Need Schedule.

If, after reviewing the data, the Department determines that a minimization plan for PFOS and PFOA is necessary based on the procedures in s. NR 106.98(4), Wis. Adm. Code, the Department will notify the permittee in writing that a PFOS and PFOA minimization plan that satisfies the requirements in s. NR 106.99, Wis. Adm.

Code, is required. The permittee shall submit an initial plan for Department approval no later than 90 days after written notification was sent from the Department in accordance with s. NR 106.985(2)(a), Wis. Adm. Code. Pursuant to s. NR 106.985(2)(b), Wis. Adm. Code, as soon as possible after Department approval of the PFOS and PFOA minimization plan, the Department will modify or revoke and reissue the permit in accordance with public notice procedures under ch. 283, Wis. Stats., and ch. NR 203, Wis. Adm. Code, to include the PFOS and PFOA minimization plan and other related terms and condition.

If, however, the Department determines that a PFOS and PFOA minimization plan is unnecessary based on the procedures in s. NR 106.98(4), Wis. Adm. Code, the Department shall notify the permittee that no further action is required. Per s. NR 106.98(3)(a), Wis. Adm. Code, the Department may reduce monitoring frequency to once every 3 months (quarterly) on a case-by-case basis, but only after at least 12 representative results have been generated. If the permittee requests a reduction in monitoring and the Department agrees a reduction would be appropriate, the permit may be modified in accordance with public notice procedures under ch. 283, Wis. Stats., and ch. NR 203, Wis. Adm. Code, to incorporate this change.

5.2.2.11 Whole Effluent Toxicity (WET) Testing

Primary Control Water: Lake Michigan, offshore and outside of the mixing zone of the discharge and any other discharges

Instream Waste Concentration (IWC): 20%

Dilution series: At least five effluent concentrations and dual controls must be included in each test.

- **Acute:** 100, 50, 25, 12.5, 6.25% and any additional selected by the permittee.
- **Chronic:** 100, 30, 10, 3, 1% and any additional selected by the permittee.

WET Testing Frequency:

Acute tests shall be conducted once each year in rotating quarters in order to collect seasonal information about the discharge. Tests are required during the following quarters.

- **Acute:** *October – December 2026; July – September 2027; April – June 2028; January – March 2029; and October – December 2030*

  Acute WET testing shall continue after the permit expiration date (until the permit is reissued) in accordance with the WET requirements specified for the last full calendar year of this permit. For example, the next test would be required in *October – December 2031*.

Chronic tests shall be conducted once each year in rotating quarters in order to collect seasonal information about the discharge. Tests are required during the following quarters.

- **Chronic:** *October – December 2026; July – September 2027; April – June 2028; January – March 2029; and October – December 2030*

  Chronic WET testing shall continue after the permit expiration date (until the permit is reissued) in accordance with the WET requirements specified for the last full calendar year of this permit. For example, the next test would be required in *October – December 2031*.

Testing: WET testing shall be performed during normal operating conditions. Permittees are not allowed to turn off or otherwise modify treatment systems, production processes, or change other operating or treatment conditions during WET tests.

Reporting: The permittee shall report test results on the Discharge Monitoring Report form, and also complete the "Whole Effluent Toxicity Test Report Form" (Section 6, "*State of Wisconsin Aquatic Life Toxicity Testing Methods Manual, 2nd Edition*"), for each test. The original, complete, signed version of the Whole Effluent Toxicity Test Report Form shall be sent to the Biomonitoring Coordinator, Bureau of Water Quality, 101 S.

Webster St., P.O. Box 7921, Madison, WI 53707-7921, within 45 days of test completion. The Discharge Monitoring Report (DMR) form shall be submitted electronically by the required deadline.

Determination of Positive Results: An acute toxicity test shall be considered positive if the Toxic Unit - Acute (TU_a) is greater than 1.0 for either species. The TU_a shall be calculated as follows: $TU_a = 100 \div LC_{50}$. A chronic toxicity test shall be considered positive if the Toxic Unit - Chronic (TU_c) is greater than 5.0 for either species. The TU_c shall be calculated as follows: $TU_c = 100 \div IC_{25}$.

Additional Testing Requirements: Within 90 days of a test which showed positive results, the permittee shall submit the results of at least 2 retests to the Biomonitoring Coordinator on "Whole Effluent Toxicity Test Report Forms". The 90-day reporting period shall begin the day after the test which showed a positive result. The retests shall be completed using the same species and test methods specified for the original test (see the Standard Requirements section herein).

5.2.2.12 Notification of Drinking Water System Owners

Whenever there is a bypass, a sanitary sewer overflow, a sewage treatment facility overflow or a scheduled bypass, the permittee shall notify the following owner(s) of drinking water intakes located in surface waters as quickly as practicable, but no greater than eight (8) hours after becoming aware of the bypass or overflow. This notification requirement does not apply to any controlled diversions or blending if specifically allowed in this permit. **Owner(s) of Drinking Water Intakes:** City of Oak Creek, City of South Milwaukee, City of Cudahy, City of Milwaukee, and the North Shore Water Commission.

6 Groundwater Requirements

6.1 Operational Requirements

The permittee shall operate and maintain a groundwater monitoring system for groundwater piezometric level measurement and groundwater quality monitoring for the Inline Storage System (ISS) and the Northwest Side Relief Sewer (NWSRS) in accordance with the following operational requirements. For purposes of this permit, "Inline Storage System" means the three original legs of the ISS (Crosstown, North Shore, and KKLM) and the 27th Street ISS Extension Tunnel; ISS does not include the Northwest Side Relief Sewer.

6.1.1 Water Level Requirements

Operate the ISS in a manner that ensures it will not be filled above the crown of the ISS main tunnel (Elevation -177.17 MMSD) at its upstream terminus. Water levels in the ISS shall be monitored on a continuous basis. Results of this monitoring shall be reported to the Department on the monthly DMRs under the parameter "Water Surface Elevation of Tunnel". For any event during which the ISS is filled above -177.17 MMSD, the permittee shall notify the Department's Southeast Regional Office by telephone or electronic mail within 24 hours. In addition, the permittee shall notify the Department in writing of each such event by letter within 72 hours.

6.1.2 Net Positive Head Requirements and Compliance Assessment Method

The ISS shall be operated in a manner that ensures a net positive head is maintained to the extent necessary to minimize exfiltration from the storage system. Groundwater monitoring wells 803 (CT-MW- 01) and 806 (CT-MW-05) shall not be subject to this section. Compliance with this net positive head requirement will be demonstrated by using the multi-step approach described below:

1. **Net Positive Head:** Water levels in all adjacent wells or piezometers (listed in this permit or subsequently approved by the Department) shall be compared to water levels in the ISS. A well or piezometer exhibits a net positive head if it has a hydraulic head greater than the hydraulic head of the ISS during all phases of tunnel operation, as determined according to this procedure:

    (a) In the case of wells fitted with continuous data loggers, the "net head" shall be computed as the difference between hourly data at the well and tunnel level meter PS0801 (or PS0802 if PS0801 data are not available) hourly data, (*i.e.,* {data logger reading} – {PS0801 reading}). This difference will be calculated for data measurements taken at approximately the same time.
    (b) For wells that are not fitted with continuous data loggers (*i.e.,* wells with piezometers or manually read), the "net head" shall be computed as the difference between the reading at the well and the tunnel level meter recorded at approximately the same time (*i.e.,* {well level reading} – {PS0801 reading at same hour as well reading}).
    (c) All wells demonstrating a net positive head will be deemed in compliance with this net positive head requirement and not subject to further analysis. Wells not demonstrating a net positive head as described here are subject to further analysis as described below.

2. **Groundwater Analysis:** If requested by the Department in writing, groundwater modeling simulations shall be conducted by the permittee to reasonably replicate operation of the ISS during the time periods when well(s) have not demonstrated a net positive head under paragraph 1 above. Modeling simulations and other information will be used by the Department to assess if migration of contaminants from the ISS in the bedrock is, or is not, likely to have occurred beyond a distance of 150 feet from the ISS, which is the design management zone in Permit Section 6.3. If the Department agrees that the groundwater analysis indicates that contaminant migration did not move beyond the 150-foot design management zone boundary during the simulated time period, the permittee will be deemed to be in compliance with the net positive head requirement. If contaminant migration is assessed to have moved beyond the 150-foot design management zone boundary during the simulated time period, the Department shall provide its

conclusions in writing to the permittee and may require the permittee to prepare and implement an action plan that may include the construction of additional monitoring wells.

6.1.3 Procedures for Future Well Abandonment/Inactivation

In the event the permittee would need to abandon a monitoring well during the permit term, the permittee shall follow the requirements outlined below to request Department approval.

Submit all monitoring well abandonment request to the DNR Wastewater Section Manager using Form 3400-205 and copy the WDNR Compliance Engineer for the facility. The submittal should provide the following; the date of the most recent well inspection, location of the well, age of the well, condition of the well, explanation why the well should be abandoned (i.e. well is damaged beyond repair, well is no longer necessary, potential for groundwater contamination) and proposed well replacement or justification why the well is not being replaced. In some cases, the Department will not conduct an official plan review or issue an approval but will provide a letter confirming that the Department has no objection to the proposed work proceeding as a maintenance project. If a well is abandoned submit the abandonment report to the DNR Wastewater Section Chief and copy the WDNR Compliance Engineer for the facility within 60 days of the date of abandonment per s. NR 141.26(4), Wis. Adm. Code.

6.2 Groundwater Level Monitoring Requirements

6.2.1 Groundwater Monitoring System for Depth to GW & GW Elevation – Northwest Side Relief Sewer

Location of Monitoring Systems: Northwest Side Relief Sewer

Groundwater Level (Only) Monitoring Well Locations			
Well Number	**Well ID**	**Well Location**	**Level Measurement Type**
865	NWSR-1	6751 N. 91st Street at MMSD Structure	Non-Continuous
875	NWSR-22	Menomonee River Parkway, south of W. Capitol Dr.	Non-Continuous
883	NWSR-31	County Grounds at MMSD facility	Non-Continuous
886	GM-IR-12	Bluemound Country Club	Non-Continuous

Required Monitoring: The permittee shall report the lowest "Groundwater Elevation" and associated "Depth to Groundwater" measurement during the monitoring period. Data should be reported on a monthly basis using the DMRs and should be reported to the nearest 0.01 feet. For monthly reporting of "Peak Hourly Volume of NWSRS", the permittee shall report the maximum recorded value for the month.

PARAMETER	UNITS	PREVENTIVE ACTION LIMIT	ENFORCEMENT STANDARD	MONITORING FREQUENCY	REPORTING FREQUENCY
Depth To Groundwater	feet	*****	N/A	Monthly	Monthly
Groundwater Elevation	feet MSL	*****	N/A	Monthly	Monthly
Peak Hourly Volume of NWSRS	MG	N/A	N/A	Monthly	Monthly

6.2.2 Groundwater Monitoring System for Depth to GW & GW Elevation – Inline Storage System (ISS)

Location of Monitoring Systems: General vicinity of MMSD Inline Storage System

Groundwater Level (Only) Monitoring Well Locations			
Well Number	**Well ID**	**Well Location**	**Level Measurement Type**
803	CT-MW-01	Jones Island, between 5th and 7th clarifiers	Non-Continuous
806	CT-MW-05	N. 25th Street and W. Canal Street	Non-Continuous
807	CT-MW-10	3000 W. Greves Street	Non-Continuous
808	CT-MW-07	W. Wells Street and N. 45th Street	Non-Continuous
815	NS-MW-05	1301 N. Park Place at Urban Ecology Center	Non-Continuous
816	NS-MW-06	3299 N. Cambridge Avenue	Non-Continuous
818	NS-MW-08	W. River Woods Parkway at Milwaukee River	Non-Continuous
831	CT-MR-08D	4250 N. Sherman Boulevard (BACKGROUND)	Non-Continuous
835	CT-MW-02	101 S. First Street	Non-Continuous
836	CT-MW-06	I-94 and S. 44th Street, at We Energies Substation	Non-Continuous
838	NS-MR-01D	4910 N. Green Bay Avenue	Non-Continuous
840	CT-MW-11	101 S. First Street	Non-Continuous
841	CT-MW-12	3000 W. Greves Street	Non-Continuous
861	KK-MW-05	400 E. Greenfield Avenue	Non-Continuous
894	WA-AL-4	5650 N. 27th Street	Non-Continuous
897	J10-36-PZ	Jones Island WRF, behind ISHF Building	Non-Continuous

Required Monitoring: The permittee shall report the lowest "Groundwater Elevation" and associated "Depth to Groundwater" measurement during the monitoring period to ensure compliance with section 6.1.2 Net Positive Head Requirements. Data should be reported on a monthly basis using the DMRs and should be reported to the nearest 0.01 feet. Should NPH loss occur, then this will be entered into the form as "0.00" and the magnitude of the negative value will be reported in the general remarks section of the DMR.

PARAMETER	UNITS	PREVENTIVE ACTION LIMIT	ENFORCEMENT STANDARD	MONITORING FREQUENCY	REPORTING FREQUENCY
Depth To Groundwater	feet	*****	N/A	Monthly	Monthly
Groundwater Elevation	feet MSL	*****	N/A	Monthly	Monthly
Water Surface Elevation of Tunnel (PS0801)	feet MSL	*****	N/A	Monthly	Monthly
Net Positive Head	feet	N/A	N/A	Monthly	Monthly

6.3 Groundwater Quality Requirements and Limitations

6.3.1 Groundwater Monitoring System for GW Quality – Northwest Side Relief Sewer

For the NWSRS groundwater monitoring wells listed below, the permittee will perform groundwater quality analysis, as soon as practicable following the NWSRS being drained, at all wells for any wet weather events that cause the peak hourly volume in the NWSRS to be greater than or equal to 88 MG.

Location of Monitoring System: General vicinity of MMSD Northwest Side Relief Sewer

Groundwater Quality Monitoring Locations			
Well Number	**Well ID**	**Well Location**	**Level Measurement Type**
884	GM-IR-10	5551 N. 107th Street	Continuous
885	GM-IR-11	4699 N. Mayfair Road	Continuous

Compliance Well(s) for Enforcement Standards (ESs): Enforcement standards are to be met in groundwater located beyond the 150-foot design management zone. See the Standard Requirements section of this permit for additional conditions related to exceedance of groundwater standards.

Required Monitoring: For monitoring wells that are equipped with continuous data loggers, the permittee shall report the lowest "Groundwater Elevation" and associated "Depth to Groundwater" measurement during the monthly monitoring period. Data should be reported on a monthly basis using the DMRs and should be reported to the nearest 0.01 feet.

Grab samples shall be collected from each well to be monitored per the frequency specified in section 6.3.3. The grab samples shall be analyzed for the parameters specified in the table below.

PARAMETER	UNITS	PREVENTIVE ACTION LIMIT	ENFORCEMENT STANDARD	MONITORING FREQUENCY	REPORTING FREQUENCY
Depth To Groundwater	feet	*****	N/A	Daily	Monthly
Groundwater Elevation	feet MSL	*****	N/A	Daily	Monthly
Peak Hourly Volume of NWSRS	MG	N/A	N/A	Daily	Monthly
Nitrogen, Nitrite + Nitrate (as N) Dissolved	mg/L	2.0	10	Monthly – Per Occurrence	Monthly – Per Occurrence
Nitrogen, Ammonia Dissolved	mg/L	0.97	9.7	Monthly – Per Occurrence	Monthly – Per Occurrence
Total Coliform General	#/100 ml	0	0	Monthly – Per Occurrence	Monthly – Per Occurrence
Nitrogen, Organic Dissolved	mg/L	*****	N/A	Monthly – Per Occurrence	Monthly – Per Occurrence
Chloride, Dissolved	mg/L	125	250	Monthly – Per Occurrence	Monthly – Per Occurrence (see section 6.3.3)
Sulfate, Dissolved	mg/L	125	250	Monthly – Per Occurrence	Monthly – Per Occurrence (see section 6.3.3)

6.3.1.1 Preventive Action Limits To Be Calculated For Indicator Parameters

*****Preventive Action Limits (PALs) for NR 140 Indicator Parameters have not yet been established for this site. For more information see "Indicator Parameter – Preventive Action Limits" in the Standard Requirements section. PALs are not calculated for Depth to Groundwater, Groundwater Elevation, nor Dissolved Organic Nitrogen.

6.3.2 Groundwater Monitoring System for GW Quality – Inline Storage System (ISS)

For the ISS groundwater monitoring wells listed below, the permittee will perform groundwater quality analysis, as soon as practicable following the ISS being drained, at any well that shows an absence of net positive head due to wet weather events as determined according to the procedures in section 6.1.2.

Location of Monitoring System: General vicinity of MMSD Inline Storage System

Groundwater Quality Monitoring Locations			
Well Number	**Well ID**	**Well Location**	**Level Measurement Type**
805	CT-MW-04	S. Emmber Lane and W. Canal Street	Continuous
809	CT-MW-08	5900 W. State Street	Continuous
810	CT-MW-09	7735 W. Harwood Avenue (Wauwatosa Municipal Parking Lot)	Continuous
811	NS-MW-01	401 N. 3rd Street	Continuous
812	NS-MW-02	310 W. Highland Avenue	Continuous
813	NS-MW-03	280 E. Vine Street	Continuous
814	NS-MW-04	1971 N. Commerce Street	Continuous
817	NS-MW-07	4099 N. Humboldt Boulevard	Continuous
824	NS-MW-10	2250 W. Hampton Avenue	Continuous
825	NS-MW-11	3025 W. Ruby Avenue (City of Milwaukee Garage)	Continuous
826	KK-MW-01	400 E. Greenfield Avenue	Continuous
827	KK-MW-02	105 W. Maple Street	Continuous
828	KK-MW-03	2299 S. First Street	Continuous
829	KK-MW-04	400 W. Rosedale Avenue	Continuous
830	LM-MW-01	2395 S. Lincoln Memorial Drive	Continuous
888	CT-MW-26	Jones Island by clarifier #1	Continuous
889	NS-MW-19	3000 W. Hampton Avenue	Continuous
890	NS-MW-20	2800 W. Mill Road at We Energies substation	Continuous

Compliance Well(s) for Enforcement Standards (ESs): Enforcement standards are only applicable in groundwater wells located beyond the 150-foot design management zone. See the Standard Requirements section of this permit for additional conditions related to exceedance of groundwater standards.

Required Monitoring: For monitoring wells that are equipped with continuous data loggers, the permittee shall report the lowest "Groundwater Elevation" and associated "Depth to Groundwater" measurement during the monitoring period to ensure compliance with section 6.1.2 Net Positive Head Requirements. Data should be reported on a monthly basis using the DMRs and should be reported to the nearest 0.01 feet. Report the elevation and depths from PS0801 and wells on the day that the least NPH value occurs.

Grab samples shall be collected from each well to be monitored per the frequency specified in section 6.3.3. The grab samples shall be analyzed for the parameters specified in the table below.

PARAMETER	UNITS	PREVENTIVE ACTION LIMIT	ENFORCEMENT STANDARD	MONITORING FREQUENCY	REPORTING FREQUENCY
Depth To Groundwater	feet	*****	N/A	Daily	Monthly
Groundwater Elevation	feet MSL	*****	N/A	Daily	Monthly

PARAMETER	UNITS	PREVENTIVE ACTION LIMIT	ENFORCEMENT STANDARD	MONITORING FREQUENCY	REPORTING FREQUENCY
Water Surface Elevation of Tunnel	feet MSL	*****	N/A	Daily	Monthly
Net Positive Head	feet	N/A	N/A	Daily	Monthly
Nitrogen, Nitrite + Nitrate (as N) Dissolved	mg/L	2.0	10	Monthly – Per Occurrence	Monthly – Per Occurrence
Nitrogen, Ammonia Dissolved	mg/L	0.97	9.7	Monthly – Per Occurrence	Monthly – Per Occurrence
Nitrogen, Ammonia Dissolved **(Well 812)**	mg/L	3.9 See section 6.3.3	9.7	Monthly – Per Occurrence	Monthly – Per Occurrence
Nitrogen, Ammonia Dissolved **(Well 817)**	mg/L	3.1 See section 6.3.3	9.7	Monthly – Per Occurrence	Monthly – Per Occurrence
Total Coliform General	#/100 ml	0	0	Monthly – Per Occurrence	Monthly – Per Occurrence
Nitrogen, Organic Dissolved	mg/L	*****	N/A	Monthly – Per Occurrence	Monthly – Per Occurrence
Chloride, Dissolved	mg/L	125	250	Monthly – Per Occurrence	Monthly – Per Occurrence (see section 6.3.3)
Sulfate, Dissolved	mg/L	125	250	Monthly – Per Occurrence	Monthly – Per Occurrence (see section 6.3.3)

6.3.2.1 Preventive Action Limits To Be Calculated For Indicator Parameters

*****Preventive Action Limits (PALs) for NR 140 Indicator Parameters have not yet been established for this site. For more information see "Indicator Parameter – Preventive Action Limits" in the Standard Requirements section. PALs are not calculated for Depth to Groundwater, Groundwater Elevation, nor Dissolved Organic Nitrogen.

6.3.3 Required Response Actions for NR 140 PAL and ES Exceedances

The Preventive Action Limits (PALs) and Enforcement Standards (ESs) for public health parameters are those established in ch. NR 140, Wis. Adm. Code, groundwater quality (except where the Department has granted an exemption under s. NR 140.28, Wis. Adm. Code and established an Alternate Concentration Limit).

- Public health parameters: If a PAL for Nitrogen Ammonia, Dissolved; Nitrogen Nitrite + Nitrate as N Dissolved; or Total Coliform is exceeded, monitoring shall occur monthly at that well until the contaminant exceeding a PAL returns to background levels.
- Alternate Concentration Limit: Based on analysis of available data the Department has calculated an alternative concentration limit for Nitrogen Ammonia at wells 812 (NS-MW-02) and 817 (NS-MW-07). In the event the ACL at these wells is exceeded, monitoring shall occur monthly at that well until the PAL returns to background levels.
- Public welfare parameters: In the event a public health parameter PAL is exceeded at a monitoring well subsequent monthly sampling shall include testing for dissolved chloride and dissolved sulfate. This monthly monitoring shall continue until the original contaminant exceeding a PAL returns to a level below the PAL.

- Total Coliform: For total coliform bacteria, the standard for both the preventive action limit and the enforcement standard is that total coliform bacteria are not present in any 100 ml sample using either the membrane filter (MF) technique, the presence-absence (P-A) coliform test, the minimal medium ONPG-MUG (MMO-MUG) test or not present in any 10 ml portion of the 10-tube multiple tube fermentation (MTF) technique.

Groundwater level measurements shall continue to be conducted and reported monthly for each groundwater quality well in sections 6.3.1 and 6.3.2, and piezometer well in sections 6.2.1 and 6.2.2.

7 Land Application Requirements

7.1 Sampling Point(s)

The discharge(s) shall be limited to land application of the waste type(s) designated for the listed sampling point(s) on Department approved land spreading sites or by hauling to another facility.

Sampling Point Designation	
Sampling Point Number	**Sampling Point Location, Waste Type/Sample Contents and Treatment Description (as applicable)**
005	South Shore Class B, anaerobically digested, plate press, centrifuge, or belt filter press thickened cake sludge. Representative samples shall be collected at the cake in storage prior to land application or landfilling.
006	Jones Island Class A, with anaerobically digested primary solids and sometimes anaerobically digested secondary solids, dewatered, hot gas dried sludge. PRODUCTION. Representative samples shall be collected at the composite sampler after drying and before storage. Sewage sludge particle temperature shall be monitored at each dryer for the heat drying requirement and near the bottom of each recycle bin immediately prior to the bin outlet gates to classification for the time-temperature requirement.
008	Jones Island Class A, with anaerobically digested primary solids and sometimes anaerobically digested secondary solids, dewatered, hot gas dried and stored sludge. SHIPPING Representative samples shall be collected during the loading of trucks or railcars.
009	Jones Island Class A, with anaerobically digested primary solids and sometimes anaerobically digested secondary solids, dewatered, hot gas dried and stored sludge. BAGGING. Representative samples shall be collected during bagging at the bagging contractor's facility at the primary location (currently Milwaukee, Wisconsin).
010	Jones Island Class B, anaerobically digested, belt filter press cake. Representative samples shall be collected prior to prior to land application or landfilling.
012	Jones Island Class A, with anaerobically digested primary solids and sometimes anaerobically digested secondary solids, dewatered, hot gas dried and stored sludge. BAGGING. Representative samples shall be collected during bagging at an alternative bagging facility or contractor.

7.2 Monitoring Requirements and Limitations

The permittee shall comply with the following monitoring requirements and limitations.

7.2.1 Sampling Point (Outfall) 005 – South Shore Cake Sludge

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Solids, Total		Percent	BiMonthly	Composite	See sections 7.2.1.1 and 7.2.1.2
Arsenic Dry Wt	Ceiling	75 mg/kg	BiMonthly	Composite	See sections 7.2.1.1 and 7.2.1.2
Arsenic Dry Wt	High Quality	41 mg/kg	BiMonthly	Composite	See sections 7.2.1.1 and 7.2.1.2
Cadmium Dry Wt	Ceiling	85 mg/kg	BiMonthly	Composite	See sections 7.2.1.1 and 7.2.1.2

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Cadmium Dry Wt	High Quality	39 mg/kg	BiMonthly	Composite	See sections 7.2.1.1 and 7.2.1.2
Copper Dry Wt	Ceiling	4,300 mg/kg	BiMonthly	Composite	See sections 7.2.1.1 and 7.2.1.2
Copper Dry Wt	High Quality	1,500 mg/kg	BiMonthly	Composite	See sections 7.2.1.1 and 7.2.1.2
Lead Dry Wt	Ceiling	840 mg/kg	BiMonthly	Composite	See sections 7.2.1.1 and 7.2.1.2
Lead Dry Wt	High Quality	300 mg/kg	BiMonthly	Composite	See sections 7.2.1.1 and 7.2.1.2
Mercury Dry Wt	Ceiling	57 mg/kg	BiMonthly	Composite	See sections 7.2.1.1 and 7.2.1.2
Mercury Dry Wt	High Quality	17 mg/kg	BiMonthly	Composite	See sections 7.2.1.1 and 7.2.1.2
Molybdenum Dry Wt	Ceiling	75 mg/kg	BiMonthly	Composite	See sections 7.2.1.1 and 7.2.1.2
Nickel Dry Wt	Ceiling	420 mg/kg	BiMonthly	Composite	See sections 7.2.1.1 and 7.2.1.2
Nickel Dry Wt	High Quality	420 mg/kg	BiMonthly	Composite	See sections 7.2.1.1 and 7.2.1.2
Selenium Dry Wt	Ceiling	100 mg/kg	BiMonthly	Composite	See sections 7.2.1.1 and 7.2.1.2
Selenium Dry Wt	High Quality	100 mg/kg	BiMonthly	Composite	See sections 7.2.1.1 and 7.2.1.2
Zinc Dry Wt	Ceiling	7,500 mg/kg	BiMonthly	Composite	See sections 7.2.1.1 and 7.2.1.2
Zinc Dry Wt	High Quality	2,800 mg/kg	BiMonthly	Composite	See sections 7.2.1.1 and 7.2.1.2
Nitrogen, Total Kjeldahl		Percent	BiMonthly	Composite	See sections 7.2.1.1 and 7.2.1.2
Nitrogen, Ammonium (NH_4-N) Total		Percent	BiMonthly	Composite	See sections 7.2.1.1 and 7.2.1.2
Phosphorus, Total		Percent	BiMonthly	Composite	See sections 7.2.1.1 and 7.2.1.2
Phosphorus, Water Extractable		% of Tot P	BiMonthly	Composite	See sections 7.2.1.1 and 7.2.1.2
Potassium, Total Recoverable		Percent	BiMonthly	Composite	See sections 7.2.1.1 and 7.2.1.2
PCB Total Dry Wt	Ceiling	50 mg/kg	Once	Composite	See section 7.2.1.7
PCB Total Dry Wt	High Quality	10 mg/kg	Once	Composite	See section 7.2.1.7
PFOA + PFOS		µg/kg	Annual	Calculated	Report the sum of PFOA and PFOS. See PFAS Permit Sections for more information.

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
PFAS Dry Wt		µg/kg	Annual	Grab	Perfluoroalkyl and Polyfluoroalkyl Substances based on updated DNR PFAS List. See PFAS Permit Sections for more information.

Other Sludge Requirements	
Sludge Requirements	**Sample Frequency**
List 3 Requirements – Pathogen Control: The requirements in List 3 shall be met prior to land application of sludge.	**BiMonthly**
List 4 Requirements – Vector Attraction Reduction: The vector attraction reduction shall be satisfied prior to, or at the time of land application as specified in List 4.	**BiMonthly**

7.2.1.1 Sample Frequency

The monitoring parameters listed in section 7.2.1 have a sample frequency of "BiMonthly" based on the amount of sludge anticipated to be generated from Outfall 005. If sludge production exceeds 16,540 dry U.S. tons (15,000 dry metric tons) in a 365-day period, the permittee shall notify the Department prior to discharge and the sample frequency shall be increased to "Monthly".

7.2.1.2 Sample Frequency and Analytical Requirements for Landfilled Sludge

The permittee is not required to analyze for List 2,3, and 4 parameters unless land application of sludge is initiated. As long as landfilling is the sole disposal method, only List 1 and PFAS analysis is required. The metals limits in the table above do not apply to landfilled sludge. Monitoring for landfilled sludge may remain at Annual as long as that is the sole method of disposal. If sludge is land applied the sample frequency may increase based on the amount of sludge generated in accordance with Table A in s. NR 204.06, Wis. Adm. Code.

7.2.1.3 List 2 Analysis

If the monitoring frequency for List 2 parameters is more frequent than "Annual" then the sludge may be analyzed for the List 2 parameters just prior to each land application season rather than at the more frequent interval specified.

7.2.1.4 Changes in Feed Sludge Characteristics

If a change in feed sludge characteristics, treatment process, or operational procedures occurs which may result in a significant shift in sludge characteristics, the permittee shall reanalyze the sludge for List 1, 2, 3 and 4 parameters each time such change occurs.

7.2.1.5 Multiple Sludge Sample Points (Outfalls)

If there are multiple sludge sample points (outfalls), but the sludges are not subject to different sludge treatment processes, then a separate List 2 analysis shall be conducted for each sludge type which is land applied, just prior to land application, and the application rate shall be calculated for each sludge type. In this case, List 1, 3, and 4 and PCBs need only be analyzed on a single sludge type, at the specified frequency. If there are multiple sludge sample

points (outfalls), due to multiple treatment processes, List 1, 2, 3 and 4 and PCBs shall be analyzed for each sludge type at the specified frequency.

7.2.1.6 Sludge Which Exceeds the High-Quality Limit

Cumulative pollutant loading records shall be kept for all bulk land application of sludge which does not meet the high-quality limit for any parameter after any exceedance of Table 3 of s. NR 204.07(5)(c), Wis. Adm. Code, is experienced. Such loading records shall be kept for all List 1 parameters for each site land applied. The formula to be used for calculating cumulative loading is as follows:

[(Pollutant concentration (mg/kg) x dry tons applied/ac) ÷ 500] + previous loading (lbs/acre) = cumulative lbs pollutant per acre

When a site reaches 90% of the allowable cumulative loading for any metal established in Table 2 of s. NR 204.07(5)(b), Wis. Adm. Code, the Department shall be so notified through letter or in the comment section of the annual land application report (Form 3400-55).

7.2.1.7 Sludge Analysis for PCBs

The permittee shall analyze the sludge for Total PCBs once during the permit term prior to land application. The results shall be reported as "PCB Total Dry Wt". Either congener-specific analysis or Aroclor analysis shall be used to determine the PCB concentration. The permittee may determine whether Aroclor or congener specific analysis is performed. Analyses shall be performed in accordance with Table EM in s. NR 219.04, Wis. Adm. Code. PCB results shall be submitted by January 31, following the specified year of analysis.

7.2.1.8 Lists 1, 2, 3, and 4

List 1 **TOTAL SOLIDS AND METALS** See the Monitoring Requirements and Limitations table above for monitoring frequency and limitations for the List 1 parameters
Solids, Total (percent)
Arsenic, mg/kg (dry weight)
Cadmium, mg/kg (dry weight)
Copper, mg/kg (dry weight)
Lead, mg/kg (dry weight)
Mercury, mg/kg (dry weight)
Molybdenum, mg/kg (dry weight)
Nickel, mg/kg (dry weight)
Selenium, mg/kg (dry weight)
Zinc, mg/kg (dry weight)

List 2 **NUTRIENTS** See the Monitoring Requirements and Limitations table above for monitoring frequency for the List 2 parameters
Solids, Total (percent)
Nitrogen Total Kjeldahl (percent)
Nitrogen Ammonium (NH4-N) Total (percent)
Phosphorus Total as P (percent)
Phosphorus, Water Extractable (as percent of Total P)
Potassium Total Recoverable (percent)

List 3
PATHOGEN CONTROL FOR CLASS B SLUDGE

The permittee shall implement pathogen control as listed in List 3. The Department shall be notified of the pathogen control utilized and shall be notified when the permittee decides to utilize alternative pathogen control.

The following requirements shall be met prior to land application of sludge.

Parameter	Unit	Limit
Fecal Coliform*	MPN/gTS or CFU/gTS	2,000,000
OR, ONE OF THE FOLLOWING PROCESS OPTIONS		
Aerobic Digestion	Air Drying	
Anaerobic Digestion	Composting	
Alkaline Stabilization	PSRP Equivalent Process	

***** The Fecal Coliform limit shall be reported as the geometric mean of 7 discrete samples on a dry weight basis.

List 4
VECTOR ATTRACTION REDUCTION

The permittee shall implement any one of the vector attraction reduction options specified in List 4. The Department shall be notified of the option utilized and shall be notified when the permittee decides to utilize an alternative option.

One of the following shall be satisfied prior to, or at the time of land application as specified in List 4.

Option	Limit	Where/When it Shall be Met
Volatile Solids Reduction	≥38%	Across the process
Specific Oxygen Uptake Rate	≤1.5 mg O_2/hr/g TS	On aerobic stabilized sludge
Anaerobic bench-scale test	<17 % VS reduction	On anaerobic digested sludge
Aerobic bench-scale test	<15 % VS reduction	On aerobic digested sludge
Aerobic Process	>14 days, Temp >40°C and Avg. Temp > 45°C	On composted sludge
pH adjustment	>12 S.U. (for 2 hours) and >11.5 (for an additional 22 hours)	During the process
Drying without primary solids	>75 % TS	When applied or bagged
Drying with primary solids	>90 % TS	When applied or bagged
Injection	-	When applied
Incorporation	-	Within 6 hours of application

7.2.1.9 Daily Land Application Log

Daily Land Application Log

Discharge Monitoring Requirements and Limitations

The permittee shall maintain a daily land application log for biosolids land applied each day when land application occurs. The following minimum records must be kept, in addition to all analytical results for the biosolids land applied. The log book records shall form the basis for the annual land application report requirements**.**

Parameters	Units	Sample Frequency
DNR Site Number(s)	Number	Daily as used

Daily Land Application Log		
Discharge Monitoring Requirements and Limitations The permittee shall maintain a daily land application log for biosolids land applied each day when land application occurs. The following minimum records must be kept, in addition to all analytical results for the biosolids land applied. The log book records shall form the basis for the annual land application report requirements**.**		
Parameters	**Units**	**Sample Frequency**
Outfall number applied	Number	Daily as used
Acres applied	Acres	Daily as used
Amount applied	As appropriate * /day	Daily as used
Application rate per acre	unit */acre	Daily as used
Nitrogen applied per acre	lb/acre	Daily as used
Method of Application	Injection, Incorporation, or surface applied	Daily as used

*gallons, cubic yards, dry US Tons or dry Metric Tons

7.2.1.10 Sludge Monitoring for PFAS

Sampling shall occur for perfluoroalkyl and polyfluoroalkyl compounds (PFAS) listed in the table below and as indicated in sampling point sections above. Monitoring shall occur at each sample point when sludge is generated regardless of the end use (i.e. land applied, hauled to another facility, landfilled).

PERFLUOROALKYLCARBOXILIC Acids (PFCAs)	
PFBA	Perfluorobutanoic acid
PFPeA	Perfluroropentanoic acid
PFHxA	Perfluorohexanoic acid
PFHpA	Perfluoroheptanoic acid
PFOA	Perfluorooctanoic acid
PFNA	Perfluorononanoic acid
PFDA	Perfluorodecanoic acid
PFUnA	Perfluroroundecanoic acid
PFDoA	Perfluorododecanoic acid
PFTrDA	Perfluorotridecanoic acid
PFTeDA	Perfluorotetradecanoic acid
PERFLUOROALKYLSULFONIC Acids (PFSAs)	
PFBS	Perfluorobutane sulfonic acid
PFPeS	Perfluroropentane sulfonic acid
PFHxS	Perfluorohexane sulfonic acid
PFHpS	Perfluoroheptane sulfonic acid
PFOS	Perfluorooctane sulfonic acid
PFNS	Perfluorononane sulfonic acid
PFDS	Perfluorodecane sulfonic acid

PFDoS	Perfluorododecane sulfonic acid
TELOMER SULFONIC Acids	
4:2FTSA	*1H,1H,2H,2H*-Perfluorohexane sulfonic acid
6:2FTSA	*1H,1H,2H,2H*-Perfluorooctane sulfonic acid
8:2FTSA	*1H,1H,2H,2H*-Perfluorodecane sulfonic acid
PERFLUOROOCTANCESULFONAMIDES (FOSAs)	
PFOSA	Perfluroroctane sulfonamide
NMeFOSA	N-Methyl perfluoroocatane sulfonamide
NEtFOSA	N-Ethyl perfluorooctane sulfonamide
PERFLUOROOCTANCESULFONAMIDOACETIC Acids	
NMeFOSAA	N-Methyl perfluoroocatane sulfonamidoacetic acid
NEtFOSAA	N-Ethyl perfluorooctane sulfonamidoacetic acid
NATIVE PERFLUOROOCTANCESULFONAMIDOETHANOLS (FOSEs)	
NMeFOSE	N-Methyl perfluorooctane sulfonamideoethanol
NEtFOSE	N-Ethyl perfluorooctane sulfonamidoethanol
PERFLUOROALKYLETHERCARBOXYLIC Acids (PFECAs)	
HFPO-DA	Hexafluoropropylene oxide dimer acid
ADONA	4,8-dioxa-3*H*-perfluorononanoic acid
PFMPA	Perfluoro-3-methoxypropanoic acid
PFMBA	Perfluoro-4-methoxybutanoic acid
NFDHA	Nonafluoro-3,6-dioxaheptaoic acid
CHLORO-PERFLUOROALKYLSULFONATE	
9Cl-PF3ONS	9-chloroehexadecafluoro-3-oxanone-1-sulfonic acid
11Cl-PF3OUdS	11-chloroelcosafluoro-3-oxaundecane-1-sulfonic acid
PFEESA	Perfluroro(2-ethoxyethane)sulfonic acid
TELOMER SULFONIC Acids	
3:3FTCA	3-Perfluoropropyl propanoic acid
5:3FTCA	*2H,2H,3H,3H*-Perfluorooctanoic acid
7:3FTCA	3-Perfluoroheptyl propanoic acid

7.2.1.11 Sampling and Reporting Sludge Samples for PFAS

Representative sludge samples shall be collected at each sample point as listed. At minimum, liquid sludge storage/digesters should be thoroughly mixed prior to sampling. Cake sludge samples should consist of seven equal size discrete samples and be collected from different areas and depths then composited into one sample for laboratory analysis.

Note: If additional equipment is used for collecting sludge samples (i.e., shovels, compositing buckets, bottles, etc.), then a one-time equipment blank is recommended to be collected with the first sample. An equipment blank sample is collected by passing laboratory verified PFAS-free water over or through field sampling equipment before the collection of a representative sludge sample. The equipment blank result shall be reported on the annual Sludge Characteristics Form (3400-049) in the comment section when reporting PFAS concentrations in the sludge.

The permittee shall report each of the PFAS sludge monitoring results on the annual Sludge Characteristics and Monitoring Form (3400-049) as provided by the department. The permittee shall also report the summation of PFOS

and PFOA on this same form. All results shall be reported in dry weight. The annual Sludge Characteristics and Monitoring Form (3400-049) are due January 31, of the year following the collection of the sludge samples.

The laboratory performing the analysis on any samples shall be certified for the applicable PFAS compounds in the solids matrix by the Wisconsin Laboratory Certification Program established under s. 299.11, Wis. Stats., and in accordance with s. NR 149.41, Wis. Adm. Code. The department may reject any sample results if results are produced by a laboratory that is not in compliance with certification requirements under ch. NR 149, Wis. Adm. Code.

7.2.1.12 PFAS Land Application Requirements

The department recommends the landspreading and/or land application of sludge be done in a manner consistent with the most recent version of the "Interim Strategy for Land Application of Biosolids and Industrial Sludges containing PFAS".

7.2.2 Sampling Point (Outfall) 006 – Jones Island EQ Sludge – PRODUCTION

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Arsenic Dry Wt	High Quality	41 mg/kg	Monthly	Composite	
Cadmium Dry Wt	High Quality	39 mg/kg	Monthly	Composite	
Copper Dry Wt	High Quality	1,500 mg/kg	Monthly	Composite	
Lead Dry Wt	High Quality	300 mg/kg	Monthly	Composite	
Mercury Dry Wt	High Quality	17 mg/kg	Monthly	Composite	
Molybdenum Dry Wt	Ceiling	75 mg/kg	Monthly	Composite	
Nickel Dry Wt	High Quality	420 mg/kg	Monthly	Composite	
Selenium Dry Wt	High Quality	100 mg/kg	Monthly	Composite	
Zinc Dry Wt	High Quality	2,800 mg/kg	Monthly	Composite	
Nitrogen, Total Kjeldahl		Percent	Monthly	Composite	
Nitrogen, Ammonium (NH_4-N) Total		Percent	Monthly	Composite	
Phosphorus, Total		Percent	Monthly	Composite	
Phosphorus, Water Extractable		% of Tot P	Monthly	Composite	
Potassium, Total Recoverable		Percent	Monthly	Composite	
PCB Total Dry Wt	Ceiling	50 mg/kg	Daily	Composite	See section 7.2.2.9
PCB Total Dry Wt	High Quality	10 mg/kg	Daily	Composite	See section 7.2.2.9
Solids, Total	Daily Min	90 Percent	2/Week	Composite	See section 7.2.2.1 for reporting requirements.
Fecal Coliform	Daily Max	1000 MPN/gTS	Weekly	Grab	See section 7.2.2.4 and List 3 in section 7.2.2.10
Municipal Sludge Priority Pollutant Scan			2/Year	Composite	As specified in s. NR 215.03 (1-4), Wis. Adm. Code
PFOA + PFOS		µg/kg	Annual	Calculated	Report the sum of PFOA and PFOS. See PFAS Permit Sections for more information.

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
PFAS Dry Wt		µg/kg	Annual	Grab	Perfluoroalkyl and Polyfluoroalkyl Substances based on updated DNR PFAS List. See PFAS Permit Sections for more information.

Other Sludge Requirements	
Sludge Requirements	**Sample Frequency**
List 3 Requirements – Pathogen Control: The requirements in List 3 shall be met prior to land application of sludge.	**Weekly**
List 4 Requirements – Vector Attraction Reduction: The vector attraction reduction shall be satisfied prior to, or at the time of land application as specified in List 4.	**2/Week**

7.2.2.1 Total Solids Reporting Requirements

The permittee shall analyze the sludge for Total Solids 2/Week. The lowest recorded value for the month shall be reported on the monthly Land Application Monitoring Form 3400-49. The permittee shall submit the individual weekly results to the Department, via the WDNR Compliance Engineer assigned to the facility, in electronic spreadsheet form at the same time as the 3400-49 forms are submitted.

7.2.2.2 Heat Drying Requirements

Dry the sludge by direct or indirect contact with hot gases to reduce the moisture content of the sludge to 10% or lower. Either the temperature of the sewage sludge particles shall exceed 80° C (176° F) or the wet bulb temperature of the gas in contact with the sludge as the sludge leaves the dryer shall exceed 80° C.

The permittee shall continuously monitor the temperature of sewage sludge particles for each dryer in production. Temperature monitoring shall be conducted in accordance with s. NR 218.04(13), Wis. Adm. Code. The permittee shall maintain a daily log of the sewage sludge particle temperature and periods of production for each dryer. Recorded temperatures shall be reported as the average temperature for each compliance thermowell located at each dryer where averaging intervals shall not exceed 15 minutes. Also, the permittee shall detail response actions taken during any time period when both the heat drying treatment process and the corresponding time-temperature pathogen control process are not in compliance. The dried sewage sludge product produced during such time shall be recycled for further drying or segregated in silos. Product segregated in silos may be subject to further testing to establish Class A status, or distributed as Class B biosolids, or sent to landfill or other approved means for disposal. This record shall be submitted in electronic spreadsheet form annually to the Department in accordance with Schedule 8.9.

7.2.2.3 Time-Temperature Requirements

An increased sewage sludge temperature shall be maintained for a prescribed period of time according to the following guidelines and the temperature and time period shall be determined using the applicable equation in the table below. The temperature of the sewage sludge shall be 50 degrees Celsius (122 degrees Fahrenheit) or higher.

TOTAL SOLIDS	TEMP	TIME	EQUATION Where: D = time in days t = temp in °C	NOTES
≥7%	≥50° C	≥20 min.	$D = \frac{131{,}700{,}000}{10^{0.14t}}$	No heating of small particles by warmed gases or immiscible liquid.
≥7%	≥50° C	≥15 sec.	$D = \frac{131{,}700{,}000}{10^{0.14t}}$	Small particles heated by warmed gases or immiscible liquid.

The permittee shall continuously monitor the temperature of sewage sludge particles for each recycle bin in operation. Temperature monitoring shall be conducted in accordance with s. NR 218.04(13), Wis. Adm. Code. The permittee shall record and maintain a daily log of the sludge particle temperature and holding time for each recycling bin, the periods the system was used to demonstrate pathogen control, and a comparison of the sludge holding times in each recycling bin to the required time in days, (D) necessary to demonstrate compliance. Recorded temperatures shall be the average temperature for each compliance thermowell located at each recycle bin where averaging intervals shall not exceed 15 minutes. This record shall be submitted in electronic spreadsheet form annually to the Department in accordance with Schedule 8.9.

7.2.2.4 Fecal Coliform Reporting Requirements

The permittee shall analyze the sludge for Fecal Coliforms weekly. The highest recorded value for the month shall be reported on the monthly Land Application Monitoring Form 3400-49. The permittee shall submit the individual weekly results to the Department, via the WDNR Compliance Engineer assigned to the facility, in electronic spreadsheet form at the same time as the 3400-49 forms are submitted.

7.2.2.5 List 2 Analysis

If the monitoring frequency for List 2 parameters is more frequent than "Annual" then the sludge may be analyzed for the List 2 parameters just prior to each land application season rather than at the more frequent interval specified.

7.2.2.6 Changes in Feed Sludge Characteristics

If a change in feed sludge characteristics, treatment process, or operational procedures occurs which may result in a significant shift in sludge characteristics, the permittee shall reanalyze the sludge for List 1, 2, 3 and 4 parameters each time such change occurs.

7.2.2.7 Multiple Sludge Sample Points (Outfalls)

If there are multiple sludge sample points (outfalls), but the sludges are not subject to different sludge treatment processes, then a separate List 2 analysis shall be conducted for each sludge type which is land applied, just prior to land application, and the application rate shall be calculated for each sludge type. In this case, List 1, 3, and 4 and PCBs need only be analyzed on a single sludge type, at the specified frequency. If there are multiple sludge sample points (outfalls), due to multiple treatment processes, List 1, 2, 3 and 4 and PCBs shall be analyzed for each sludge type at the specified frequency.

7.2.2.8 Sludge Which Exceeds the High-Quality Limit

Cumulative pollutant loading records shall be kept for all bulk land application of sludge which does not meet the high-quality limit for any parameter after any exceedance of Table 3 of s. NR 204.07(5)(c), Wis. Adm. Code, is experienced. Such loading records shall be kept for all List 1 parameters for each site land applied. The formula to be used for calculating cumulative loading is as follows:

[(Pollutant concentration (mg/kg) x dry tons applied/ac) ÷ 500] + previous loading (lbs/acre) = cumulative lbs pollutant per acre

When a site reaches 90% of the allowable cumulative loading for any metal established in Table 2 of s. NR 204.07(5)(b), Wis. Adm. Code, the Department shall be so notified through letter or in the comment section of the annual land application report (Form 3400-55).

7.2.2.9 Sludge Analysis for PCBs

The permittee shall analyze the sludge for Total PCBs daily. The highest recorded value for the month shall be reported on the monthly Land Application Monitoring Form 3400-49. The permittee shall submit the individual daily results to the Department in electronic form on a monthly basis. This data shall be submitted to the WDNR Compliance Engineer assigned to the facility.

The results shall be reported as "PCB Total Dry Wt". Either congener-specific analysis or Aroclor analysis shall be used to determine the PCB concentration. The permittee may determine whether Aroclor or congener specific analysis is performed. Analyses shall be performed in accordance with Table EM in s. NR 219.04, Wis. Adm. Code. PCB results shall be submitted by January 31, following the specified year of analysis.

7.2.2.10 Lists 1, 2, 3, and 4

List 1 **TOTAL SOLIDS AND METALS** See the Monitoring Requirements and Limitations table above for monitoring frequency and limitations for the List 1 parameters
Solids, Total (percent)
Arsenic, mg/kg (dry weight)
Cadmium, mg/kg (dry weight)
Copper, mg/kg (dry weight)
Lead, mg/kg (dry weight)
Mercury, mg/kg (dry weight)
Molybdenum, mg/kg (dry weight)
Nickel, mg/kg (dry weight)
Selenium, mg/kg (dry weight)
Zinc, mg/kg (dry weight)

List 2 **NUTRIENTS** See the Monitoring Requirements and Limitations table above for monitoring frequency for the List 2 parameters
Solids, Total (percent)
Nitrogen Total Kjeldahl (percent)
Nitrogen Ammonium (NH4-N) Total (percent)
Phosphorus Total as P (percent)
Phosphorus, Water Extractable (as percent of Total P)
Potassium Total Recoverable (percent)

List 3
PATHOGEN CONTROL FOR CLASS A SLUDGE
The permittee shall implement pathogen control as listed in List 3. The Department shall be notified if the permittee decides to utilize alternative pathogen control.
The following requirements shall be met prior to land application or distribution of sludge.

Parameter	Unit	Limit
Fecal Coliform	MPN/gTS	1000
AND, ONE OF THE FOLLOWING PROCESS OPTION		
Heat Drying (≥80 ºC and ≤ 10% moisture) Time-Temperature based on % Solids (s. NR 204.07(6)(a), Wis. Adm. Code)		

List 4
VECTOR ATTRACTION REDUCTION
The permittee shall implement the vector attraction reduction options specified in List 4. The Department shall be notified if the permittee decides to utilize an alternative option.
The following shall be satisfied prior to, or at the time of land application or distribution as specified in List 4.

Option	Limit	Where/When it Shall be Met
Drying with primary solids	>90 % TS	When land applied, distributed, or bagged

7.2.2.11 Sludge Monitoring for PFAS

Sampling shall occur for perfluoroalkyl and polyfluoroalkyl compounds (PFAS) listed in the table below and as indicated in sampling point sections above. Monitoring shall occur at each sample point when sludge is generated regardless of the end use (i.e. land applied, hauled to another facility, landfilled).

PERFLUOROALKYLCARBOXILIC Acids (PFCAs)	
PFBA	Perfluorobutanoic acid
PFPeA	Perfluroropentanoic acid
PFHxA	Perfluorohexanoic acid
PFHpA	Perfluoroheptanoic acid
PFOA	Perfluorooctanoic acid
PFNA	Perfluorononanoic acid
PFDA	Perfluorodecanoic acid
PFUnA	Perfluroroundecanoic acid
PFDoA	Perfluorododecanoic acid
PFTrDA	Perfluorotridecanoic acid
PFTeDA	Perfluorotetradecanoic acid
PERFLUOROALKYLSULFONIC Acids (PFSAs)	
PFBS	Perfluorobutane sulfonic acid
PFPeS	Perfluroropentane sulfonic acid
PFHxS	Perfluorohexane sulfonic acid
PFHpS	Perfluoroheptane sulfonic acid
PFOS	Perfluorooctane sulfonic acid
PFNS	Perfluorononane sulfonic acid

PFDS	Perfluorodecane sulfonic acid
PFDoS	Perfluorododecane sulfonic acid
TELOMER SULFONIC Acids	
4:2FTSA	*1H,1H,2H,2H*-Perfluorohexane sulfonic acid
6:2FTSA	*1H,1H,2H,2H*-Perfluorooctane sulfonic acid
8:2FTSA	*1H,1H,2H,2H*-Perfluorodecane sulfonic acid
PERFLUOROOCTANCESULFONAMIDES (FOSAs)	
PFOSA	Perfluroroctane sulfonamide
NMeFOSA	N-Methyl perfluoroocatane sulfonamide
NEtFOSA	N-Ethyl perfluorooctane sulfonamide
PERFLUOROOCTANCESULFONAMIDOACETIC Acids	
NMeFOSAA	N-Methyl perfluoroocatane sulfonamidoacetic acid
NEtFOSAA	N-Ethyl perfluorooctane sulfonamidoacetic acid
NATIVE PERFLUOROOCTANCESULFONAMIDOETHANOLS (FOSEs)	
NMeFOSE	N-Methyl perfluorooctane sulfonamideoethanol
NEtFOSE	N-Ethyl perfluorooctane sulfonamidoethanol
PERFLUOROALKYLETHERCARBOXYLIC Acids (PFECAs)	
HFPO-DA	Hexafluoropropylene oxide dimer acid
ADONA	4,8-dioxa-3*H*-perfluorononanoic acid
PFMPA	Perfluoro-3-methoxypropanoic acid
PFMBA	Perfluoro-4-methoxybutanoic acid
NFDHA	Nonafluoro-3,6-dioxaheptaoic acid
CHLORO-PERFLUOROALKYLSULFONATE	
9Cl-PF3ONS	9-chloroehexadecafluoro-3-oxanone-1-sulfonic acid
11Cl-PF3OUdS	11-chloroelcosafluoro-3-oxaundecane-1-sulfonic acid
PFEESA	Perfluroro(2-ethoxyethane)sulfonic acid
TELOMER SULFONIC Acids	
3:3FTCA	3-Perfluoropropyl propanoic acid
5:3FTCA	*2H,2H,3H,3H*-Perfluorooctanoic acid
7:3FTCA	3-Perfluoroheptyl propanoic acid

7.2.2.12 Sampling and Reporting Sludge Samples for PFAS

Representative sludge samples shall be collected at each sample point as listed. At minimum, liquid sludge storage/digesters should be thoroughly mixed prior to sampling. Cake sludge samples should consist of seven equal size discrete samples and be collected from different areas and depths then composited into one sample for laboratory analysis.

Note: If additional equipment is used for collecting sludge samples (i.e., shovels, compositing buckets, bottles, etc.), then a one-time equipment blank is recommended to be collected with the first sample. An equipment blank sample is collected by passing laboratory verified PFAS-free water over or through field sampling equipment before the collection of a representative sludge sample. The equipment blank result shall be reported on the annual Sludge Characteristics Form (3400-049) in the comment section when reporting PFAS concentrations in the sludge.

The permittee shall report each of the PFAS sludge monitoring results on the annual Sludge Characteristics and Monitoring Form (3400-049) as provided by the department. The permittee shall also report the summation of PFOS and PFOA on this same form. All results shall be reported in dry weight. The annual Sludge Characteristics and Monitoring Form (3400-049) are due January 31, of the year following the collection of the sludge samples.

The laboratory performing the analysis on any samples shall be certified for the applicable PFAS compounds in the solids matrix by the Wisconsin Laboratory Certification Program established under s. 299.11, Wis. Stats., and in accordance with s. NR 149.41, Wis. Adm. Code. The department may reject any sample results if results are produced by a laboratory that is not in compliance with certification requirements under ch. NR 149, Wis. Adm. Code.

7.2.2.13 PFAS Land Application Requirements

The department recommends the landspreading and/or land application of sludge be done in a manner consistent with the most recent version of the "Interim Strategy for Land Application of Biosolids and Industrial Sludges containing PFAS".

7.2.3 Sampling Point (Outfall) 008 – Jones Island EQ Sludge – SHIPPING

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Weight		tons/day	Monthly	Estimated	Maintain a daily log of un-bagged EQ sludge transferred from on-site storage prior to shipping. Report tons/day as a monthly average on the monthly forms.
Solids, Total	Daily Minimum	90 Percent	Monthly	Grab	See section 7.2.3.1 below.
Fecal Coliform	Daily Maximum	1000 MPN/g TS	Monthly	Grab	See section 7.2.3.2 below.

7.2.3.1 Total Solids Reporting Requirements

The permittee shall analyze the sludge for Total Solids Monthly. If more than one sample is collected, then the lowest recorded value for the month shall be reported on the monthly Land Application Monitoring Form 3400-49. The permittee shall submit the individual monthly results to the Department, via the WDNR Compliance Engineer assigned to the facility, in electronic spreadsheet form at the same time as the 3400-49 forms are submitted.

7.2.3.2 Fecal Coliform Reporting Requirements

The permittee shall analyze the sludge for Fecal Coliforms monthly. If more than one sample is collected, then the highest recorded value for the month shall be reported on the monthly Land Application Monitoring Form 3400-49. The permittee shall submit the individual monthly results to the Department, via the WDNR Compliance Engineer assigned to the facility, in electronic spreadsheet form at the same time as the 3400-49 forms are submitted.

7.2.3.3 Land Application or Landfilling Requirements

If land application or landfilling occurs of the EQ sludge instead of being shipped, the permittee shall follow the applicable portions of ch. NR 204, Wis. Adm. Code.

7.2.4 Sampling Points (Outfalls) 009 & 012 – Jones Island EQ Sludge – BAGGING

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Weight		tons/day	Monthly	Estimated	Maintain a daily log of un-bagged EQ sludge transported from on-site storage to bagging facility in Milwaukee. Report tons/day as a monthly average on the monthly forms.
Solids, Total	Daily Minimum	90 Percent	Monthly	Grab	See section 7.2.4.1 below.
Fecal Coliform	Daily Maximum	1000 MPN/g TS	Monthly	Grab	See section 7.2.4.2 below.

7.2.4.1 Total Solids Reporting Requirements

The permittee shall analyze the sludge for Total Solids Monthly. If more than one sample is collected, then the lowest recorded value for the month shall be reported on the monthly Land Application Monitoring Form 3400-49. The permittee shall submit the individual monthly results to the Department, via the WDNR Compliance Engineer assigned to the facility, in electronic spreadsheet form at the same time as the 3400-49 forms are submitted.

7.2.4.2 Fecal Coliform Reporting Requirements

The permittee shall analyze the sludge for Fecal Coliforms monthly. If more than one sample is collected, then the highest recorded value for the month shall be reported on the monthly Land Application Monitoring Form 3400-49. The permittee shall submit the individual monthly results to the Department, via the WDNR Compliance Engineer assigned to the facility, in electronic spreadsheet form at the same time as the 3400-49 forms are submitted.

7.2.5 Sampling Point (Outfall) 010 – Jones Island Filter Press Cake Sludge

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Solids, Total		Percent	Annual	Composite	See section 7.2.5.1
Arsenic Dry Wt	Ceiling	75 mg/kg	Annual	Composite	See section 7.2.5.1
Arsenic Dry Wt	High Quality	41 mg/kg	Annual	Composite	See section 7.2.5.1
Cadmium Dry Wt	Ceiling	85 mg/kg	Annual	Composite	See section 7.2.5.1
Cadmium Dry Wt	High Quality	39 mg/kg	Annual	Composite	See section 7.2.5.1
Copper Dry Wt	Ceiling	4,300 mg/kg	Annual	Composite	See section 7.2.5.1
Copper Dry Wt	High Quality	1,500 mg/kg	Annual	Composite	See section 7.2.5.1
Lead Dry Wt	Ceiling	840 mg/kg	Annual	Composite	See section 7.2.5.1
Lead Dry Wt	High Quality	300 mg/kg	Annual	Composite	See section 7.2.5.1
Mercury Dry Wt	Ceiling	57 mg/kg	Annual	Composite	See section 7.2.5.1
Mercury Dry Wt	High Quality	17 mg/kg	Annual	Composite	See section 7.2.5.1
Molybdenum Dry Wt	Ceiling	75 mg/kg	Annual	Composite	See section 7.2.5.1
Nickel Dry Wt	Ceiling	420 mg/kg	Annual	Composite	See section 7.2.5.1

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Nickel Dry Wt	High Quality	420 mg/kg	Annual	Composite	See section 7.2.5.1
Selenium Dry Wt	Ceiling	100 mg/kg	Annual	Composite	See section 7.2.5.1
Selenium Dry Wt	High Quality	100 mg/kg	Annual	Composite	See section 7.2.5.1
Zinc Dry Wt	Ceiling	7,500 mg/kg	Annual	Composite	See section 7.2.5.1
Zinc Dry Wt	High Quality	2,800 mg/kg	Annual	Composite	See section 7.2.5.1
Nitrogen, Total Kjeldahl		Percent	Annual	Composite	See section 7.2.5.1
Nitrogen, Ammonium (NH_4-N) Total		Percent	Annual	Composite	See section 7.2.5.1
Phosphorus, Total		Percent	Annual	Composite	See section 7.2.5.1
Phosphorus, Water Extractable		% of Tot P	Annual	Composite	See section 7.2.5.1
Potassium, Total Recoverable		Percent	Annual	Composite	See section 7.2.5.1
PCB Total Dry Wt	Ceiling	50 mg/kg	Once	Composite	See section 7.2.5.6
PCB Total Dry Wt	High Quality	10 mg/kg	Once	Composite	See section 7.2.5.6
PFOA + PFOS		µg/kg	Annual	Calculated	Report the sum of PFOA and PFOS. See PFAS Permit Sections for more information.
PFAS Dry Wt		µg/kg	Annual	Grab	Perfluoroalkyl and Polyfluoroalkyl Substances based on updated DNR PFAS List. See PFAS Permit Sections for more information.

Other Sludge Requirements	
Sludge Requirements	**Sample Frequency**
List 3 Requirements (section 7.2.8) – Pathogen Control: The requirements in List 3 shall be met prior to land application of sludge.	**Annual**
List 4 Requirements (section 7.2.8) – Vector Attraction Reduction: The vector attraction reduction shall be satisfied prior to, or at the time of land application as specified in List 4.	**Annual**

7.2.5.1 Sample Frequency and Analytical Requirements for Landfilled Sludge

The permittee is not required to analyze for List 2,3, and 4 parameters unless land application of sludge is initiated. As long as landfilling is the sole disposal method, only List 1 and PFAS analysis is required. The metals limits in the table above do not apply to landfilled sludge. Monitoring for landfilled sludge may remain at Annual as long as that is the sole method of disposal. If sludge is land applied the sample frequency may increase based on the amount of sludge generated in accordance with Table A in s. NR 204.06, Wis. Adm. Code.

7.2.5.2 List 2 Analysis

If the monitoring frequency for List 2 parameters is more frequent than "Annual" then the sludge may be analyzed for the List 2 parameters just prior to each land application season rather than at the more frequent interval specified.

7.2.5.3 Changes in Feed Sludge Characteristics

If a change in feed sludge characteristics, treatment process, or operational procedures occurs which may result in a significant shift in sludge characteristics, the permittee shall reanalyze the sludge for List 1, 2, 3 and 4 parameters each time such change occurs.

7.2.5.4 Multiple Sludge Sample Points (Outfalls)

If there are multiple sludge sample points (outfalls), but the sludges are not subject to different sludge treatment processes, then a separate List 2 analysis shall be conducted for each sludge type which is land applied, just prior to land application, and the application rate shall be calculated for each sludge type. In this case, List 1, 3, and 4 and PCBs need only be analyzed on a single sludge type, at the specified frequency. If there are multiple sludge sample points (outfalls), due to multiple treatment processes, List 1, 2, 3 and 4 and PCBs shall be analyzed for each sludge type at the specified frequency.

7.2.5.5 Sludge Which Exceeds the High-Quality Limit

Cumulative pollutant loading records shall be kept for all bulk land application of sludge which does not meet the high-quality limit for any parameter after any exceedance of Table 3 of s. NR 204.07(5)(c), Wis. Adm. Code, is experienced. Such loading records shall be kept for all List 1 parameters for each site land applied. The formula to be used for calculating cumulative loading is as follows:
[(Pollutant concentration (mg/kg) x dry tons applied/ac) ÷ 500] + previous loading (lbs/acre) = cumulative lbs pollutant per acre
When a site reaches 90% of the allowable cumulative loading for any metal established in Table 2 of s. NR 204.07(5)(b), Wis. Adm. Code, the Department shall be so notified through letter or in the comment section of the annual land application report (Form 3400-55).

7.2.5.6 Sludge Analysis for PCBs

The permittee shall analyze the sludge for Total PCBs one time during **2027**. The results shall be reported as "PCB Total Dry Wt". Either congener-specific analysis or Aroclor analysis shall be used to determine the PCB concentration. The permittee may determine whether Aroclor or congener specific analysis is performed. Analyses shall be performed in accordance with Table EM in s. NR 219.04, Wis. Adm. Code. PCB results shall be submitted by January 31, following the specified year of analysis.

7.2.5.7 Lists 1,2,3, and 4

List 1 **TOTAL SOLIDS AND METALS** See the Monitoring Requirements and Limitations table above for monitoring frequency and limitations for the List 1 parameters
Solids, Total (percent)
Arsenic, mg/kg (dry weight)
Cadmium, mg/kg (dry weight)
Copper, mg/kg (dry weight)
Lead, mg/kg (dry weight)
Mercury, mg/kg (dry weight)
Molybdenum, mg/kg (dry weight)
Nickel, mg/kg (dry weight)
Selenium, mg/kg (dry weight)
Zinc, mg/kg (dry weight)

List 2 NUTRIENTS See the Monitoring Requirements and Limitations table above for monitoring frequency for the List 2 parameters
Solids, Total (percent)
Nitrogen Total Kjeldahl (percent)
Nitrogen Ammonium (NH4-N) Total (percent)
Phosphorus Total as P (percent)
Phosphorus, Water Extractable (as percent of Total P)
Potassium Total Recoverable (percent)

List 3
PATHOGEN CONTROL FOR CLASS B SLUDGE

The permittee shall implement pathogen control as listed in List 3. The Department shall be notified of the pathogen control utilized and shall be notified when the permittee decides to utilize alternative pathogen control. The following requirements shall be met prior to land application of sludge.

Parameter	Unit	Limit
Fecal Coliform*	MPN/gTS or CFU/gTS	2,000,000
OR, ONE OF THE FOLLOWING PROCESS OPTIONS		
Aerobic Digestion	Air Drying	
Anaerobic Digestion	Composting	
Alkaline Stabilization	PSRP Equivalent Process	
* The Fecal Coliform limit shall be reported as the geometric mean of 7 discrete samples on a dry weight basis.		

List 4
VECTOR ATTRACTION REDUCTION

The permittee shall implement any one of the vector attraction reduction options specified in List 4. The Department shall be notified of the option utilized and shall be notified when the permittee decides to utilize an alternative option. One of the following shall be satisfied prior to, or at the time of land application as specified in List 4.

Option	Limit	Where/When it Shall be Met
Volatile Solids Reduction	≥38%	Across the process
Specific Oxygen Uptake Rate	≤1.5 mg O_2/hr/g TS	On aerobic stabilized sludge
Anaerobic bench-scale test	<17 % VS reduction	On anaerobic digested sludge
Aerobic bench-scale test	<15 % VS reduction	On aerobic digested sludge
Aerobic Process	>14 days, Temp >40°C and Avg. Temp > 45°C	On composted sludge
pH adjustment	>12 S.U. (for 2 hours) and >11.5 (for an additional 22 hours)	During the process
Drying without primary solids	>75 % TS	When applied or bagged
Drying with primary solids	>90 % TS	When applied or bagged
Injection	-	When applied
Incorporation	-	Within 6 hours of application

7.2.5.8 Daily Land Application Log

Daily Land Application Log		
Discharge Monitoring Requirements and Limitations The permittee shall maintain a daily land application log for biosolids land applied each day when land application occurs. The following minimum records must be kept, in addition to all analytical results for the biosolids land applied. The log book records shall form the basis for the annual land application report requirements.		
Parameters	**Units**	**Sample Frequency**
DNR Site Number(s)	Number	Daily as used
Outfall number applied	Number	Daily as used
Acres applied	Acres	Daily as used
Amount applied	As appropriate * /day	Daily as used
Application rate per acre	unit */acre	Daily as used
Nitrogen applied per acre	lb/acre	Daily as used
Method of Application	Injection, Incorporation, or surface applied	Daily as used

*gallons, cubic yards, dry US Tons or dry Metric Tons

7.2.5.9 Sludge Monitoring for PFAS

Sampling shall occur for perfluoroalkyl and polyfluoroalkyl compounds (PFAS) listed in the table below and as indicated in sampling point sections above. Monitoring shall occur at each sample point when sludge is generated regardless of the end use (i.e. land applied, hauled to another facility, landfilled).

PERFLUOROALKYLCARBOXILIC Acids (PFCAs)	
PFBA	Perfluorobutanoic acid
PFPeA	Perfluroropentanoic acid
PFHxA	Perfluorohexanoic acid
PFHpA	Perfluoroheptanoic acid
PFOA	Perfluorooctanoic acid
PFNA	Perfluorononanoic acid
PFDA	Perfluorodecanoic acid
PFUnA	Perfluroroundecanoic acid
PFDoA	Perfluorododecanoic acid
PFTrDA	Perfluorotridecanoic acid
PFTeDA	Perfluorotetradecanoic acid
PERFLUOROALKYLSULFONIC Acids (PFSAs)	
PFBS	Perfluorobutane sulfonic acid
PFPeS	Perfluroropentane sulfonic acid
PFHxS	Perfluorohexane sulfonic acid
PFHpS	Perfluoroheptane sulfonic acid

PFOS	Perfluorooctane sulfonic acid
PFNS	Perfluorononane sulfonic acid
PFDS	Perfluorodecane sulfonic acid
PFDoS	Perfluorododecane sulfonic acid
TELOMER SULFONIC Acids	
4:2FTSA	*1H,1H,2H,2H*-Perfluorohexane sulfonic acid
6:2FTSA	*1H,1H,2H,2H*-Perfluorooctane sulfonic acid
8:2FTSA	*1H,1H,2H,2H*-Perfluorodecane sulfonic acid
PERFLUOROOCTANCESULFONAMIDES (FOSAs)	
PFOSA	Perfluroroctane sulfonamide
NMeFOSA	N-Methyl perfluoroocatane sulfonamide
NEtFOSA	N-Ethyl perfluorooctane sulfonamide
PERFLUOROOCTANCESULFONAMIDOACETIC Acids	
NMeFOSAA	N-Methyl perfluoroocatane sulfonamidoacetic acid
NEtFOSAA	N-Ethyl perfluorooctane sulfonamidoacetic acid
NATIVE PERFLUOROOCTANCESULFONAMIDOETHANOLS (FOSEs)	
NMeFOSE	N-Methyl perfluorooctane sulfonamideoethanol
NEtFOSE	N-Ethyl perfluorooctane sulfonamidoethanol
PERFLUOROALKYLETHERCARBOXYLIC Acids (PFECAs)	
HFPO-DA	Hexafluoropropylene oxide dimer acid
ADONA	4,8-dioxa-3*H*-perfluorononanoic acid
PFMPA	Perfluoro-3-methoxypropanoic acid
PFMBA	Perfluoro-4-methoxybutanoic acid
NFDHA	Nonafluoro-3,6-dioxaheptaoic acid
CHLORO-PERFLUOROALKYLSULFONATE	
9Cl-PF3ONS	9-chloroehexadecafluoro-3-oxanone-1-sulfonic acid
11Cl-PF3OUdS	11-chloroelcosafluoro-3-oxaundecane-1-sulfonic acid
PFEESA	Perfluroro(2-ethoxyethane)sulfonic acid
TELOMER SULFONIC Acids	
3:3FTCA	3-Perfluoropropyl propanoic acid
5:3FTCA	*2H,2H,3H,3H*-Perfluorooctanoic acid
7:3FTCA	3-Perfluoroheptyl propanoic acid

7.2.5.10 Sampling and Reporting Sludge Samples for PFAS

Representative sludge samples shall be collected at each sample point as listed. At minimum, liquid sludge storage/digesters should be thoroughly mixed prior to sampling. Cake sludge samples should consist of seven equal size discrete samples and be collected from different areas and depths then composited into one sample for laboratory analysis.

Note: If additional equipment is used for collecting sludge samples (i.e., shovels, compositing buckets, bottles, etc.), then a one-time equipment blank is recommended to be collected with the first sample. An equipment blank sample is collected by passing laboratory verified PFAS-free water over or through field sampling equipment before the

collection of a representative sludge sample. The equipment blank result shall be reported on the annual Sludge Characteristics Form (3400-049) in the comment section when reporting PFAS concentrations in the sludge.

The permittee shall report each of the PFAS sludge monitoring results on the annual Sludge Characteristics and Monitoring Form (3400-049) as provided by the department. The permittee shall also report the summation of PFOS and PFOA on this same form. All results shall be reported in dry weight. The annual Sludge Characteristics and Monitoring Form (3400-049) are due January 31, of the year following the collection of the sludge samples.

The laboratory performing the analysis on any samples shall be certified for the applicable PFAS compounds in the solids matrix by the Wisconsin Laboratory Certification Program established under s. 299.11, Wis. Stats., and in accordance with s. NR 149.41, Wis. Adm. Code. The department may reject any sample results if results are produced by a laboratory that is not in compliance with certification requirements under ch. NR 149, Wis. Adm. Code.

7.2.5.11 PFAS Land Application Requirements

The department recommends the landspreading and/or land application of sludge be done in a manner consistent with the most recent version of the "Interim Strategy for Land Application of Biosolids and Industrial Sludges containing PFAS".

8 Schedules

8.1 Surface Water Intake

No later than 14 days following each compliance date, the permittee shall notify the Department in writing of its compliance or noncompliance with the required action. Timely submittal fulfills the written notification requirement.

Required Action	Due Date
Annual Intake Flow Report: The permittee shall submit a report of the annual intake flow from the water intake structure, as specified in section 2.2.1.2.	01/31/2027
Annual Intake Flow Report: The permittee shall submit a report of the annual intake flow from the water intake structure, as specified in section 2.2.1.2.	01/31/2028
Annual Intake Flow Report: The permittee shall submit a report of the annual intake flow from the water intake structure, as specified in section 2.2.1.2.	01/31/2029
Annual Intake Flow Report: The permittee shall submit a report of the annual intake flow from the water intake structure, as specified in section 2.2.1.2.	01/31/2030
Annual Intake Flow Report: The permittee shall submit a report of the annual intake flow from the water intake structure, as specified in section 2.2.1.2.	01/31/2031
Annual Intake Flow Reports After Permit Expiration: In the event this permit is not reissued by the expiration date, the permittee shall continue to submit annual reports by January 31st.	

8.2 Surface Water Quality Monitoring Reports

The permittee's ongoing surface water quality monitoring program described in the most recent Surface Water Quality Monitoring plan will be used to track water quality through the permit term.

Required Action	Due Date
Annual Report: The permittee shall submit a report of the monitoring results from the previous year, as described in the most recent monitoring plan.	06/30/2027
Annual Report #2: Submit a report of the monitoring results from the previous year, as described in the monitoring plan.	06/30/2028
Annual Report #3: Submit a report of the monitoring results from the previous year, as described in the monitoring plan.	06/30/2029
Annual Report #4: Submit a report of the monitoring results from the previous year, as described in the monitoring plan.	06/30/2030
Annual Report #5: Submit a report of the monitoring results from the previous year, as described in the monitoring plan.	06/30/2031
Annual Reports After Permit Expiration: In the event this permit is not reissued by the expiration date, the permittee shall continue to submit annual reports by June 30th.	

8.3 Wet Weather Management

Required Action	Due Date

Submit Biannual Progress Report #1: The permittee shall submit to the Department a biannual progress report summarizing the wet weather management projects and initiatives implemented in the previous two permit years. The report shall summarize the green infrastructure practices and control measures that were put in place and provide data analysis on the total retention capacity added for the year.	03/31/2027
Submit Biannual Progress Report #2: The permittee shall submit to the Department the second biannual report on the progress of implementing the selected wet weather management projects. Submittal of the second biannual progress report is required by the Date Due.	03/31/2029
Submit Final Report: The permittee shall submit to the Department the final report on the progress of implementing the selected wet weather management projects during the permit term. The report should provide a summary of the total retention capacity added during the permit term and propose new targets for implementation in the next permit term.	03/31/2030
Biannual Progress Reports After Permit Expiration: In the event this permit is not reissued by the expiration date, the permittee shall continue to submit biannual progress reports by March 31st in odd years.	

8.4 Mercury Pollutant Minimization Program

As a condition of the mixing zone phase out exception for mercury granted in accordance with s. NR 106.06(2)(br), Wis. Adm. Code, and 40 CFR 132, Appendix F, the permittee shall perform the following actions in accordance with s. NR 106.145, Wis. Adm. Code.

Required Action	Due Date
Submit Annual Status Reports: The permittee shall submit to the Department an annual status report to summarize and evaluate mercury monitoring data and other relevant information collected to document background and effluent levels of mercury. The report shall also document any continuing reasonable cost-effective efforts to identify and reduce potential sources of mercury in the effluent. The first annual report shall be due on the date specified and annually thereafter.	09/30/2027
Submit Annual Status Report #2: The permittee shall submit to the Department the second annual status report on the progress of the PMP. Submittal of the second annual status report is required by the Date Due.	09/30/2028
Submit Annual Status Report #3: The permittee shall submit to the Department the third annual status report on the progress of the PMP. Submittal of the third annual status report is required by the Date Due.	09/30/2029
Submit Annual Status Report #4: The permittee shall submit to the Department the fourth annual status report on the progress of the PMP. Submittal of the fourth annual status report is required by the Date Due.	09/30/2030
Final Status Report: Submit a final report documenting the success in reducing or maintaining mercury concentrations in the effluent. The report shall summarize mercury pollutant minimization activities that have been implemented during the current permit term. The report shall include an analysis of trends in monthly and annual total effluent mercury concentrations based on mercury sampling during the current permit term. The report shall also include an analysis of how influent and effluent mercury varies with time and with significant loading of mercury such as loads from industries into the collection system. Note: If the permittee wishes to apply for an alternative mercury effluent limitation in the next permit, that application is due with the application for permit reissuance, 6 months prior to permit	03/31/2031

expiration. The permittee should submit or reference the PMP plan as updated by the Annual Status Report or more recent developments as part of that application.	
Annual Reports After Permit Expiration: In the event this permit is not reissued by the expiration date, the permittee shall continue to submit annual mercury status reports by September 30th.	

8.5 Arsenic Pollutant Minimization Program

Required Action	Due Date
Annual Arsenic Progress Reports: Submit an annual arsenic progress report related to the pollutant minimization activities for the previous year. The annual arsenic progress report shall: Indicate which arsenic pollutant minimization activities or activities outlined in the Pollutant Minimization Program Plan have been implemented and state which, if any, activities from the Pollutant Minimization Program Plan were not pursued and why; Include an assessment of whether each implemented pollutant minimization activity appears to be effective or ineffective at reducing pollutant discharge concentrations and identify actions planned for the upcoming year; Identification of barriers that have limited program effectiveness and adjustments to the program that will be implemented during the next year to help address these barriers; Include an analysis of trends in total effluent arsenic concentrations based on arsenic sampling; and Include an analysis of how influent and effluent arsenic varies with time and with significant loading of arsenic. The first annual arsenic progress report is to be submitted by the Due Date.	01/31/2027
Annual Arsenic Progress Report #2: Submit an arsenic progress report, related to the pollutant minimization activities for the previous year, as defined above.	01/31/2028
Annual Arsenic Progress Report #3: Submit an arsenic progress report, related to the pollutant minimization activities for the previous year, as defined above.	01/31/2029
Annual Arsenic Progress Report #4: Submit an arsenic progress report, related to the pollutant minimization activities for the previous year, as defined above.	01/31/2030
Final Arsenic Report: Submit a final report documenting the success in reducing arsenic concentrations in the effluent, as well as the anticipated future reduction in arsenic sources and arsenic effluent concentrations. The report shall: Summarize arsenic pollutant minimization activities that have been implemented during the current permit term and state which, if any, activities from the Pollutant Minimization Program Plan were not pursued and why; Include an assessment of which pollutant minimization activities appear to have been effective or ineffective. Evaluate any needed changes to the pollutant reduction strategy accordingly; Identification of barriers that have limited program effectiveness and adjustments to the program that will be implemented during the next variance term (if applicable) to help address these barriers;	12/31/2030

Include an analysis of trends in arsenic concentrations based on sampling and data during the current permit term; and Include an analysis of how influent and effluent arsenic varies with time and with significant loadings of arsenic. If the permittee intends to reapply for an arsenic variance per s. 283.15, Wis. Stats, for the reissued permit, a detailed Pollutant Minimization Program Plan outlining the pollutant minimization activities proposed for the upcoming permit term shall be submitted along with the final report. An updated pollutant minimization plan shall: Include an explanation of why or how each pollutant minimization activity will result in reduced discharge of the target pollutant; Evaluate any new available information on pollutant sources, timing, and concentration to update the mass balance assumptions and expected sources of the pollutant; and Identify any information needs that would help to better determine pollutant sources and make plans to collect that information.	
Annual Arsenic Reports After Permit Expiration: In the event that this permit is not reissued by the date the permit expires, the permittee shall continue to submit annual arsenic reports for the previous year following the due date of Annual Arsenic Progress Reports listed above. Annual Arsenic Progress reports shall include the information as defined above.	

8.6 Effluent Limitations for *E. coli* (Outfalls 001 and 002)

The permittee shall comply with surface water limitations for *E. coli* as specified. No later than 14 days following each compliance date, the permittee shall notify the Department in writing of its compliance or noncompliance. If a submittal is required, a timely submittal fulfills the notification requirement.

Required Action	Due Date
Final Plans and Specifications: The permittee shall submit final construction plans to the Department for approval pursuant to ch. NR 108, Wis. Adm. Code, specifying treatment plant upgrades that must be constructed to achieve compliance with final *E. coli* limitations and a schedule for completing construction of the upgrades by the complete construction date specified below.	06/30/2027
Treatment Plant Upgrade to Meet Limitations: The permittee shall initiate bidding, procurement, and/or construction of the project. The permittee shall obtain approval of the final construction plans and schedule from the Department pursuant to s. 281.41. Stats., prior to initiating activities defined as construction under ch. NR 108, Wis. Adm. Code. Upon approval of the final construction plans and schedule by the Department pursuant to s. 281.41, Stats., the permittee shall construct the treatment plant upgrades in accordance with the approved plans and specifications.	06/30/2028
Construction Upgrade Progress Report: The permittee shall submit a progress report on construction upgrades.	06/30/2029
Construction Upgrade Progress Report #2: The permittee shall submit a progress report on construction upgrades.	06/30/2030
Complete Construction: The permittee shall complete construction of wastewater treatment system upgrades.	03/31/2031

Achieve Compliance: The permittee shall achieve compliance with final *E. coli* limitations.	05/01/2031

8.7 PFOS/PFOA Minimization Plan Determination of Need (Outfalls 001 and 002)

Required Action	Due Date
Report on Effluent Discharge: Submit a report on effluent PFOS and PFOA concentrations and include an analysis of trends in monthly and annual average PFOS and PFOA concentrations. This analysis should also include a comparison to the applicable narrative standard in s. NR 102.04(8)(d), Wis. Adm. Code. This report shall include all additional PFOS and PFOA data that may be collected including any influent, intake, in-plant, collection system sampling, and blank sample results.	09/30/2027
Report on Effluent Discharge and Evaluation of Need: Submit a final report on effluent PFOS and PFOA concentrations and include an analysis of trends in monthly and annual average PFOS and PFOA concentrations of data collected over the last 24 months. The report shall also provide a comparison on the likelihood of the facility needing to develop a PFOS/PFOA minimization plan. This report shall include all additional PFOS and PFOA data that may be collected including any influent, intake, in-plant, collection system sampling, and blank sample results. The permittee shall also submit a request to the department to evaluate the need for a PFOS/PFOA minimization plan. If the department determines a PFOS/PFOA minimization plan is needed based on a reasonable potential evaluation, the permittee will be required to develop a minimization plan for department approval no later than 90 days after written notification was sent from the department. The department will modify or revoke and reissue the permit to include PFOS/PFOA minimization plan reporting requirements along with a schedule of compliance to meet WQBELs. Effluent monitoring of PFOS and PFOA shall continue as specified in the permit until the modified permit is issued. If, however, the department determines there is no reasonable potential for the facility to discharge PFOS or PFOA above the narrative standard in s. NR 102.04(8)(d), Wis. Adm. Code, no further action is required and effluent monitoring of PFOS and PFOA shall continue as specified in the permit.	09/30/2028

8.8 Biosolids Management Plan

An updated management plan is required for the biosolids handling and processing systems, as described below.

Required Action	Due Date
Biosolids Management Plan Submittal: Submit an updated management plan, to the Department for review and approval, detailing system controls, operations and maintenance procedures, and compliance monitoring and reporting for biosolids production at each active land application outfall and/or distribution outfall listed in section 7 of the permit. This management plan shall include in sufficient detail; 1) a description of how the pathogen requirements are met including the locations specifying the where the organism density monitoring is completed, the methods used for analyses including hold times and sample collection, the pathogen treatment process including monitoring procedures and locations of monitoring equipment, data collection, and other data to support appropriate pathogen treatment; 2) a description of how the vector attraction reduction requirements are met; 3) an updated laboratory quality assurance and control plan consistent with 40 CFR 503.8; 4)	07/31/2027

monitoring procedures; 5) a contingency plan for equipment breakdown and/or maintenance and repair; 6) a contingency plan for handling Class A biosolids material that does not meet the Class A requirements specified in ch. NR 204, Wis. Adm. Code, and 40 CFR part 503 specifically as they relate to pathogen control and vector attraction requirements; and 7) any other pertinent information. Any changes to the plan must be approved by the Department prior to implementing the changes.	

8.9 Biosolids Daily Logs

Required Action	Due Date
Daily Log Annual Report Submittal #1: Submit to the Department in electronic spreadsheet form, the applicable information as described in sections 7.2.2.2 and 7.2.2.3 for heat drying and time-temperature requirements. The daily logs shall be submitted by January 31 for the previous calendar year.	01/31/2027
Daily Log Annual Report Submittal #2: Submit to the Department in electronic spreadsheet form, the applicable information as described in sections 7.2.2.2 and 7.2.2.3 for heat drying and time-temperature requirements. The daily logs shall be submitted by January 31 for the previous calendar year.	01/31/2028
Daily Log Annual Report Submittal #3: Submit to the Department in electronic spreadsheet form, the applicable information as described in sections 7.2.2.2 and 7.2.2.3 for heat drying and time-temperature requirements. The daily logs shall be submitted by January 31 for the previous calendar year.	01/31/2029
Daily Log Annual Report Submittal #4: Submit to the Department in electronic spreadsheet form, the applicable information as described in sections 7.2.2.2 and 7.2.2.3 for heat drying and time-temperature requirements. The daily logs shall be submitted by January 31 for the previous calendar year.	01/31/2030
Daily Log Annual Report Submittal #5: Submit to the Department in electronic spreadsheet form, the applicable information as described in sections 7.2.2.2 and 7.2.2.3 for heat drying and time-temperature requirements. The daily logs shall be submitted by January 31 for the previous calendar year.	01/31/2031
Daily Log Annual Reports After Permit Expiration: In the event this permit is not reissued by the expiration date, the permittee shall continue to submit annual reports by January 31.	

9 Standard Requirements

Chapter NR 205, Wisconsin Administrative Code: The conditions in ss. NR 205.07(1) and NR 205.07(2), Wis. Adm. Code, are included by reference in this permit. The permittee shall comply with all of these requirements. Some of these requirements are outlined in the Standard Requirements section of this permit. Requirements not specifically outlined in the Standard Requirement section of this permit can be found in ss. NR 205.07(1) and NR 205.07(2), Wis. Adm. Code.

9.1 Reporting and Monitoring Requirements

9.1.1 Monitoring Results

Monitoring results obtained during the previous month shall be summarized and reported on a Department Wastewater Discharge Monitoring Report. The report may require reporting of any or all of the information specified below under 'Recording of Results'. This report is to be returned to the Department no later than the date indicated on the form. A copy of the Wastewater Discharge Monitoring Report Form or an electronic file of the report shall be retained by the permittee.

Monitoring results shall be reported on an electronic discharge monitoring report (eDMR). The eDMR shall be certified electronically by a responsible executive or municipal officer, manager, partner or proprietor as specified in s. 283.37(3), Wis. Stats., or a duly authorized representative of the officer, manager, partner or proprietor that has been delegated signature authority pursuant to s. NR 205.07(1)(g)2, Wis. Adm. Code. The 'eReport Certify' page certifies that the electronic report form is true, accurate and complete.

If the permittee monitors any pollutant more frequently than required by this permit, the results of such monitoring shall be included on the Wastewater Discharge Monitoring Report.

The permittee shall comply with all limits for each parameter regardless of monitoring frequency. For example, monthly, weekly, and/or daily limits shall be met even with monthly monitoring. The permittee may monitor more frequently than required for any parameter.

9.1.2 Sampling and Testing Procedures

Sampling and laboratory testing procedures shall be performed in accordance with Chapters NR 218 and NR 219, Wis. Adm. Code, and completed by a laboratory certified or registered in accordance with the requirements of ch. NR 149, Wis. Adm. Code. Groundwater sampling shall be performed in accordance with procedures contained in s. NR 140.16, Wis. Adm. Code, and the WDNR publications, Groundwater Sampling Desk Reference (PUBL-DG-037-96) and Groundwater Sampling Field Manual (PUBL-DG-038-96). The analytical methodologies used shall enable the laboratory to quantitate all substances for which monitoring is required at levels below the effluent limitation and/or groundwater standard. If the required level cannot be met by any of the methods available in ch. NR 219, Wis. Adm. Code, then the method with the lowest limit of detection shall be selected. Additional test procedures may be specified in this permit.

9.1.3 Pretreatment Sampling Requirements

Sampling for pretreatment parameters (cadmium, chromium, copper, lead, nickel, zinc, and mercury) shall be done during a day each month when industrial discharges are occurring at normal to maximum levels. The sampling of the influent and effluent for these parameters shall be coordinated. All 24 hour composite samples shall be flow proportional.

9.1.4 Recording of Results

The permittee shall maintain records which provide the following information for each effluent measurement or sample taken:

- the date, exact place, method and time of sampling or measurements;
- the individual who performed the sampling or measurements;
- the date the analysis was performed;
- the individual who performed the analysis;
- the analytical techniques or methods used; and
- the results of the analysis.

9.1.5 Reporting of Monitoring Results

The permittee shall use the following conventions when reporting effluent monitoring results:

- Pollutant concentrations less than the limit of detection shall be reported as < (less than) the value of the limit of detection. For example, if a substance is not detected at a detection limit of 0.1 mg/L, report the pollutant concentration as < 0.1 mg/L.
- Pollutant concentrations equal to or greater than the limit of detection, but less than the limit of quantitation, shall be reported and the limit of quantitation shall be specified.
- For purposes of calculating NR 101 fees, the 2 mg/l lower reporting limits for BOD_5 and Total Suspended Solids shall be considered to be limits of quantitation
- For the purposes of reporting a calculated result, average or a mass discharge value, the permittee may substitute a 0 (zero) for any pollutant concentration that is less than the limit of detection. However, if the effluent limitation is less than the limit of detection, the department may substitute a value other than zero for results less than the limit of detection, after considering the number of monitoring results that are greater than the limit of detection and if warranted when applying appropriate statistical techniques.
- If no discharge occurs through an outfall, flow related parameters (e.g. flow rate, hydraulic application rate, volume, etc.) should be reported as "0" (zero) at the required sample frequency specified for the outfall. For example: if the sample frequency is daily, "0" would be reported for any day during the month that no discharge occurred.

9.1.6 Compliance Maintenance Annual Reports

Compliance Maintenance Annual Reports (CMAR) shall be completed using information obtained over each calendar year regarding the wastewater conveyance and treatment system. The CMAR shall be submitted and certified by the permittee in accordance with ch. NR 208, Wis. Adm. Code, by June 30, each year on an electronic report form provided by the Department.

In the case of a publicly owned treatment works, a resolution shall be passed by the governing body and submitted as part of the CMAR, verifying its review of the report and providing responses as required. Private owners of wastewater treatment works are not required to pass a resolution; but they must provide an Owner Statement and responses as required, as part of the CMAR submittal.

The CMAR shall be certified electronically by a responsible executive or municipal officer, manager, partner or proprietor as specified in s. 283.37(3), Wis. Stats., or a duly authorized representative of the officer, manager, partner or proprietor that has been delegated signature authority pursuant to s. NR 205.07(1)(g)2, Wis. Adm. Code. The certification verifies that the electronic report is true, accurate and complete.

9.1.7 Records Retention

The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings or electronic data records for continuous monitoring instrumentation, copies of all

reports required by the permit, and records of all data used to complete the application for the permit for a period of at least 3 years from the date of the sample, measurement, report or application. All pertinent sludge information, including permit application information and other documents specified in this permit or s. NR 204.06(9), Wis. Adm. Code shall be retained for a minimum of 5 years.

9.1.8 Other Information

Where the permittee becomes aware that it failed to submit any relevant facts in a permit application or submitted incorrect information in a permit application or in any report to the Department, it shall promptly submit such facts or correct information to the Department.

9.1.9 Reporting Requirements – Alterations or Additions

The permittee shall give notice to the Department as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is only required when:

- The alteration or addition to the permitted facility may meet one of the criteria for determining whether a facility is a new source.
- The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification requirement applies to pollutants which are not subject to effluent limitations in the existing permit.
- 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 of disposal sites not reported during the permit application process nor reported pursuant to an approved land application plan. Additional sites may not be used for the land application of sludge until department approval is received.

9.2 System Operating Requirements

9.2.1 Noncompliance Reporting

Sanitary sewer overflows and sewage treatment facility overflows shall be reported according to the 'Sanitary Sewer Overflows and Sewage Treatment Facility Overflows' section of this permit.

The permittee shall report the following types of noncompliance by a telephone call to the Department's regional office within 24 hours after becoming aware of the noncompliance:

- any noncompliance which may endanger health or the environment;
- any violation of an effluent limitation resulting from a bypass;
- any violation of an effluent limitation resulting from an upset; and
- any violation of a maximum discharge limitation for any of the pollutants listed by the Department in the permit, either for effluent or sludge.

A written report describing the noncompliance shall also be submitted to the Department's regional office within 5 days after the permittee becomes aware of the noncompliance. On a case-by-case basis, the Department may waive the requirement for submittal of a written report within 5 days and instruct the permittee to submit the written report with the next regularly scheduled monitoring report. In either case, the written report shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times; the steps taken or planned to reduce, eliminate and prevent reoccurrence of the noncompliance; and if the noncompliance has not been corrected, the length of time it is expected to continue.

A scheduled bypass approved by the Department under the 'Scheduled Bypass' section of this permit shall not be subject to the reporting required under this section.

NOTE: Section 292.11(2)(a), Wisconsin Statutes, requires any person who possesses or controls a hazardous substance or who causes the discharge of a hazardous substance to notify the Department of Natural Resources **immediately** of any discharge not authorized by the permit. **The discharge of a hazardous substance that is not authorized by this permit or that violates this permit may be a hazardous substance spill**. **To report a hazardous substance spill, call DNR's 24-hour HOTLINE at 1-800-943-0003.**

9.2.2 Flow Meters

Flow meters shall be calibrated annually, as per s. NR 218.06, Wis. Adm. Code.

9.2.3 Raw Grit and Screenings

All raw grit and screenings shall be disposed of at a properly licensed solid waste facility or picked up by a licensed waste hauler. If the facility or hauler are located in Wisconsin, then they shall be licensed under chs. NR 500-555, Wis. Adm. Code.

9.2.4 Sludge Management

All sludge management activities shall be conducted in compliance with ch. NR 204 "Domestic Sewage Sludge Management", Wis. Adm. Code.

9.2.5 Prohibited Wastes

Under no circumstances may the introduction of wastes prohibited by s. NR 211.10, Wis. Adm. Code, be allowed into the waste treatment system. Prohibited wastes include those:

- which create a fire or explosion hazard in the treatment work;
- which will cause corrosive structural damage to the treatment work;
- solid or viscous substances in amounts which cause obstructions to the flow in sewers or interference with the proper operation of the treatment work;
- wastewaters at a flow rate or pollutant loading which are excessive over relatively short time periods so as to cause a loss of treatment efficiency; and
- changes in discharge volume or composition from contributing industries which overload the treatment works or cause a loss of treatment efficiency.

9.2.6 Bypass

This condition applies only to bypassing at a sewage treatment facility that is not a scheduled bypass, approved blending as a specific condition of this permit, a sewage treatment facility overflow or a controlled diversion as provided in the sections titled ‘Scheduled Bypass’, ‘Blending’ (if approved), ‘SSO’s and Sewage Treatment Facility Overflows’ and ‘Controlled Diversions’ of this permit. Any other bypass at the sewage treatment facility is prohibited and the Department may take enforcement action against a permittee for such occurrences under s. 283.89, Wis. Stats. The Department may approve a bypass if the permittee demonstrates all the following conditions apply:

- The bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
- There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities or adequate back-up equipment, retention of untreated wastes, reduction of inflow and infiltration, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance. When evaluating feasibility of alternatives, the department may consider factors such as technical achievability, costs and affordability of implementation and risks to public health, the environment and, where the permittee is a municipality, the welfare of the community served; and

- The bypass was reported in accordance with the Noncompliance Reporting section of this permit.

9.2.7 Scheduled Bypass

Whenever the permittee anticipates the need to bypass for purposes of efficient operations and maintenance and the permittee may not meet the conditions for controlled diversions in the 'Controlled Diversions' section of this permit, the permittee shall obtain prior written approval from the Department for the scheduled bypass. A permittee's written request for Department approval of a scheduled bypass shall demonstrate that the conditions for bypassing specified in the above section titled 'Bypass' are met and include the proposed date and reason for the bypass, estimated volume and duration of the bypass, alternatives to bypassing and measures to mitigate environmental harm caused by the bypass. The department may require the permittee to provide public notification for a scheduled bypass if it is determined there is significant public interest in the proposed action and may recommend mitigation measures to minimize the impact of such bypass.

9.2.8 Controlled Diversions

Controlled diversions are allowed only when necessary for essential maintenance to assure efficient operation. Sewage treatment facilities that have multiple treatment units to treat variable or seasonal loading conditions may shut down redundant treatment units when necessary for efficient operation. The following requirements shall be met during controlled diversions:

- Effluent from the sewage treatment facility shall meet the effluent limitations established in the permit. Wastewater that is diverted around a treatment unit or treatment process during a controlled diversion shall be recombined with wastewater that is not diverted prior to the effluent sampling location and prior to effluent discharge;
- A controlled diversion does not include blending as defined in s. NR 210.03(2e), Wis. Adm. Code, and as may only be approved under s. NR 210.12. A controlled diversion may not occur during periods of excessive flow or other abnormal wastewater characteristics;
- A controlled diversion may not result in a wastewater treatment facility overflow; and
- All instances of controlled diversions shall be documented in sewage treatment facility records and such records shall be available to the department on request.

9.2.9 Blending

The Department has determined that blending as defined in s. NR 210.03(2e), Wis. Adm. Code, may occur at this sewage treatment facility. The following requirements shall apply whenever blending operations are in effect:

- Blending may occur temporarily only during wet weather or other high flow conditions when peak wastewater flow to the sewage treatment facility exceeds the maximum design and operating capacity of the biological treatment processes and when necessary to avoid severe property damage to the sewage treatment facility as described in NR 210.12 (2) (a), Wis. Adm. Code.;
- Untreated, or partially treated wastewater that is routed around the biological treatment process, or a portion of a biological treatment process, shall be recombined with the biologically treated wastewater and the combined flow shall be disinfected, if required by this permit, prior to discharge;
- Effluent from the sewage treatment facility shall be monitored to include all wastewater that is discharged from the facility, including those wastewaters that are diverted around the biological treatment process and shall meet the effluent limitations for Outfall 001 included in this permit; and
- Blending under this section and the circumstances that lead to blending shall be reported to the Department by telephone, fax or email no later than 24 hours from the time each blending operation ceases at the sewage treatment facility. Permittees shall also report the time, duration and volume of wastewater routed around the biological treatment process on the wastewater Discharge Monitoring Report (DMR) forms.

9.2.10 Proper Operation and Maintenance

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training as required in ch. NR 114, Wis. Adm. Code, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit.

9.2.11 Operator Certification

The wastewater treatment facility shall be under the direct supervision of a state certified operator. In accordance with s. NR 114.53, Wis. Adm. Code, every WPDES permitted treatment plant shall have a designated operator-in-charge holding a current and valid certificate. The designated operator-in-charge shall be certified at the level and in all subclasses of the treatment plant, except laboratory. Treatment plant owners shall notify the department of any changes in the operator-in-charge within 30 days. Note that s. NR 114.52(22), Wis. Adm. Code, lists types of facilities that are excluded from operator certification requirements (i.e. private sewage systems, pretreatment facilities discharging to public sewers, industrial wastewater treatment that consists solely of land disposal, agricultural digesters and concentrated aquatic production facilities with no biological treatment).

9.3 Sewage Collection Systems

9.3.1 Sanitary Sewage Overflows and Sewage Treatment Facility Overflows

9.3.1.1 Overflows Prohibited

Any overflow or discharge of wastewater from the sewage collection system or at the sewage treatment facility, other than from permitted outfalls, is prohibited. The permittee shall provide information on whether any of the following conditions existed when an overflow occurred:

- The sanitary sewer overflow or sewage treatment facility overflow was unavoidable to prevent loss of life, personal injury or severe property damage;
- There were no feasible alternatives to the sanitary sewer overflow or sewage treatment facility overflow such as the use of auxiliary treatment facilities or adequate back-up equipment, retention of untreated wastes, reduction of inflow and infiltration, or preventive maintenance activities;
- The sanitary sewer overflow or the sewage treatment facility overflow was caused by unusual or severe weather-related conditions such as large or successive precipitation events, snowmelt, saturated soil conditions, or severe weather occurring in the area served by the sewage collection system or sewage treatment facility; and
- The sanitary sewer overflow or the sewage treatment facility overflow was unintentional, temporary, and caused by an accident or other factors beyond the reasonable control of the permittee.

9.3.1.2 Permittee Response to Overflows

Whenever a sanitary sewer overflow or sewage treatment facility overflow occurs, the permittee shall take all feasible steps to control or limit the volume of untreated or partially treated wastewater discharged, and terminate the discharge as soon as practicable. Remedial actions, including those in s. NR 210.21 (3), Wis. Adm. Code, shall be implemented consistent with an emergency response plan developed under the CMOM program.

9.3.1.3 Permittee Reporting

Permittees shall report all sanitary sewer overflows and sewage treatment overflows as follows:

- The permittee shall notify the department by telephone, fax or email as soon as practicable, but no later than 24 hours from the time the permittee becomes aware of the overflow;
- The permittee shall, no later than five days from the time the permittee becomes aware of the overflow, provide to the department the information identified in this paragraph using department form number 3400-184. If an overflow lasts for more than five days, an initial report shall be submitted within 5 days as required in this paragraph and an updated report submitted following cessation of the overflow. At a minimum, the following information shall be included in the report:

  a) The date and location of the overflow;

  b) The surface water to which the discharge occurred, if any;

  c) The duration of the overflow and an estimate of the volume of the overflow;

  d) A description of the sewer system or treatment facility component from which the discharge occurred such as manhole, lift station, constructed overflow pipe, or crack or other opening in a pipe;

  e) The estimated date and time when the overflow began and stopped or will be stopped;

  f) The cause or suspected cause of the overflow including, if appropriate, precipitation, runoff conditions, areas of flooding, soil moisture and other relevant information;

  g) Steps taken or planned to reduce, eliminate and prevent reoccurrence of the overflow and a schedule of major milestones for those steps;

  h) A description of the actual or potential for human exposure and contact with the wastewater from the overflow;

  i) Steps taken or planned to mitigate the impacts of the overflow and a schedule of major milestones for those steps;

  j) To the extent known at the time of reporting, the number and location of building backups caused by excessive flow or other hydraulic constraints in the sewage collection system that occurred concurrently with the sanitary sewer overflow and that were within the same area of the sewage collection system as the sanitary sewer overflow; and

  k) The reason the overflow occurred or explanation of other contributing circumstances that resulted in the overflow event. This includes any information available including whether the overflow was unavoidable to prevent loss of life, personal injury, or severe property damage and whether there were feasible alternatives to the overflow.

  NOTE: A copy of form 3400-184 for reporting sanitary sewer overflows and sewage treatment facility overflows may be obtained from the department or accessed on the department's web site at http://dnr.wi.gov/topic/wastewater/SSOreport.html. As indicated on the form, additional information may be submitted to supplement the information required by the form.

- The permittee shall identify each specific location and each day on which a sanitary sewer overflow or sewage treatment facility overflow occurs as a discrete sanitary sewer overflow or sewage treatment facility overflow occurrence. An occurrence may be more than one day if the circumstances causing the sanitary sewer overflow or sewage treatment facility overflow results in a discharge duration of greater than 24 hours. If there is a stop and restart of the overflow at the same location within 24 hours and the overflow is caused by the same circumstance, it may be reported as one occurrence. Sanitary sewer overflow occurrences at a specific location that are separated by more than 24 hours shall be reported as separate occurrences; and

- A permittee that is required to submit wastewater discharge monitoring reports under s. NR 205.07 (1) (r), Wis. Adm. Code, shall also report all sanitary sewer overflows and sewage treatment facility overflows on that report.

9.3.1.4 Public Notification

The permittee shall notify the public of any sanitary sewer and sewage treatment facility overflows consistent with its emergency response plan required under the CMOM (Capacity, Management, Operation and Maintenance) section of this permit and s. NR 210.23 (4) (f), Wis. Adm. Code. Such public notification shall occur promptly following any overflow event using the most effective and efficient communications available in the community. At minimum, a daily newspaper of general circulation in the county(s) and municipality whose waters may be affected by the overflow shall be notified by written or electronic communication.

9.3.2 Capacity, Management, Operation and Maintenance (CMOM) Program

- The permittee shall have written documentation of the Capacity, Management, Operation and Maintenance (CMOM) program components in accordance with s. NR 210.23(4), Wis. Adm. Code. Such documentation shall be available for Department review upon request. The Department may request that the permittee provide this documentation or prepare a summary of the permittee's CMOM program at the time of application for reissuance of the WPDES permit.
- The permittee shall implement a CMOM program in accordance with s. NR 210.23, Wis. Adm. Code.
- The permittee shall at least annually conduct a self-audit of activities conducted under the permittee's CMOM program to ensure CMOM components are being implemented as necessary to meet the general standards of s. NR 210.23(3), Wis. Adm. Code.

9.3.3 Sewer Cleaning Debris and Materials

All debris and material removed from cleaning sanitary sewers shall be managed to prevent nuisances, run-off, ground infiltration or prohibited discharges.

- Debris and solid waste shall be dewatered, dried and then disposed of at a licensed solid waste facility.
- Liquid waste from the cleaning and dewatering operations shall be collected and disposed of at a permitted wastewater treatment facility.
- Combination waste including liquid waste along with debris and solid waste may be disposed of at a licensed solid waste facility or wastewater treatment facility willing to accept the waste.

9.4 Surface Water Requirements

9.4.1 Permittee-Determined Limit of Quantitation Incorporated into this Permit

For pollutants with water quality-based effluent limits below the Limit of Quantitation (LOQ) in this permit, the LOQ calculated by the permittee and reported on the Discharge Monitoring Reports (DMRs) is incorporated by reference into this permit. The LOQ shall be reported on the DMRs, shall be the lowest quantifiable level practicable, and shall be no greater than the minimum level (ML) specified in or approved under 40 CFR Part 136 for the pollutant at the time this permit was issued, unless this permit specifies a higher LOQ.

9.4.2 Appropriate Formulas for Effluent Calculations

The permittee shall use the following formulas for calculating effluent results to determine compliance with average concentration limits and mass limits and total load limits:

Weekly/Monthly/Six-Month/Annual Average Concentration = the sum of all daily results for that week/month/six-month/year, divided by the number of results during that time period. [Note: When a six-month average effluent limit is specified for Total Phosphorus the applicable periods are May through October and November through April.]

Weekly Average Mass Discharge (lbs/day): Daily mass = daily concentration (mg/L) x daily flow (MGD) x 8.34, then average the daily mass values for the week.

Monthly Average Mass Discharge (lbs/day): Daily mass = daily concentration (mg/L) x daily flow (MGD) x 8.34, then average the daily mass values for the month.

Six-Month Average Mass Discharge (lbs/day): Daily mass = daily concentration (mg/L) x daily flow (MGD) x 8.34, then average the daily mass values for the six-month period. [Note: When a six-month average effluent limit is specified for Total Phosphorus the applicable periods are May through October and November through April.]

Annual Average Mass Discharge (lbs/day): Daily mass = daily concentration (mg/L) x daily flow (MGD) x 8.34, then average the daily mass values for the entire year.

Total Monthly Discharge: = monthly average concentration (mg/L) x total flow for the month (MG/month) x 8.34.

Total Annual Discharge: = sum of total monthly discharges for the calendar year.

12-Month Rolling Sum of Total Monthly Discharge: = the sum of the most recent 12 consecutive months of Total Monthly Discharges.

9.4.3 Effluent Temperature Requirements

Weekly Average Temperature – The permittee shall use the following formula for calculating effluent results to determine compliance with the weekly average temperature limit (as applicable): Weekly Average Temperature = the sum of all daily maximum results for that week divided by the number of daily maximum results during that time period.

Cold Shock Standard – Water temperatures of the discharge shall be controlled in a manner as to protect fish and aquatic life uses from the deleterious effects of cold shock. 'Cold Shock' means exposure of aquatic organisms to a rapid decrease in temperature and a sustained exposure to low temperature that induces abnormal behavior or physiological performance and may lead to death.

Rate of Temperature Change Standard – Temperature of a water of the state or discharge to a water of the state may not be artificially raised or lowered at such a rate that it causes detrimental health or reproductive effects to fish or aquatic life of the water of the state.

9.4.4 Visible Foam or Floating Solids

There shall be no discharge of floating solids or visible foam in other than trace amounts.

9.4.5 Surface Water Uses and Criteria

In accordance with NR 102.04, Wis. Adm. Code, surface water uses and criteria are established to govern water management decisions. Practices attributable to municipal, industrial, commercial, domestic, agricultural, land development or other activities shall be controlled so that all surface waters including the mixing zone meet the following conditions at all times and under all flow and water level conditions:

- Substances that will cause objectionable deposits on the shore or in the bed of a body of water, shall not be present in such amounts as to interfere with public rights in waters of the state.
- Floating or submerged debris, oil, scum or other material shall not be present in such amounts as to interfere with public rights in waters of the state.
- Materials producing color, odor, taste or unsightliness shall not be present in such amounts as to interfere with public rights in waters of the state.
- Substances in concentrations or in combinations which are toxic or harmful to humans shall not be present in amounts found to be of public health significance, nor shall substances be present in amounts which are acutely harmful to animal, plant or aquatic life.

9.4.6 Percent Removal

During any 30 consecutive days, the average effluent concentrations of BOD_5 and of total suspended solids shall not exceed 15% of the average influent concentrations, respectively. This requirement does not apply to removal of total suspended solids if the permittee operates a lagoon system and has received a variance for suspended solids granted under NR 210.07(2), Wis. Adm. Code.

9.4.7 Fecal Coliforms

The weekly and monthly limit(s) for fecal coliforms shall be expressed as a geometric mean. In calculating the geometric mean, a value of 1 is used for any result of 0.

9.4.8 *E. coli*

The monthly limit for *E. coli* shall be expressed as a geometric mean. In calculating the geometric mean, a value of 1 is used for any result of 0.

9.4.9 Year-Round Disinfection (Fecal Coliform & *E. coli*)

Disinfection shall be provided year-round. Monitoring requirements and the limitation for fecal coliform apply October through April. Monitoring requirements and limitations for E. coli apply May through September. Whenever chlorine is used for disinfection or other effluent uses, the limitations and monitoring requirements for residual chlorine shall apply. A dechlorination process shall be in operation whenever chlorine is used for disinfection or other effluent uses.

9.4.10 Total Residual Chlorine Requirements

When total residual chlorine (TRC) limit(s) or monitoring are included in a permit, the permittee shall comply with the following conditions:

- The permittee shall perform TRC monitoring required in this permit using an approved method from ch. NR 219, Wis. Adm. Code, which produces a detection limit that is less than or equal to the permitted limit or produces the lowest economically feasible detection limit if the approved methods cannot meet the permit limit. If the facility cannot achieve a detection limit less than or equal to the permit limit using the approved methods, contact the laboratory accreditation program for guidance.
- The permittee shall determine the limit of detection (LOD) as specified in s. NR 149.48 (2)(b), Wis. Adm. Code, or the permittee shall contact the laboratory accreditation program for information on how to determine a verified detection limit allowed just for TRC. If the verified detection limit is determined using the special procedure, then the LOD and limit of quantitation (LOQ) shall be set to be equal to the verified detection limit determined from this special procedure.
- The permittee shall determine compliance with the TRC limit(s) as follows:
  a) If the facility determines a statistical LOD as specified in s. NR 149.48 (2)(b), Wis. Adm. Code, and the measured TRC levels are less than the LOD, the permittee shall report the results as less than the LOD (<LOD). For this situation the LOQ shall be established at 3.33 times the LOD or at the concentration of the lowest standard in the calibration curve. TRC levels that are < LOD are in compliance with the TRC limit.
  b) If the facility determines the verified detection limit using the laboratory accreditation program special procedure, this verified detection limit shall be reported as the LOD and LOQ. If the measured TRC levels are less than the LOD, the permittee shall report the results as < LOD. TRC levels that are < LOD are in compliance with the TRC limit.
  c) If the facility determines the statistical LOD as specified in s. NR 149.48 (2)(b), Wis. Adm. Code, and the measured TRC levels are greater than the statistical LOD but less than the LOQ, TRC levels are in compliance with the TRC limit - except when the measured levels are consistently reported between

the LOD and LOQ. When the measured TRC levels are consistently reported between the LOD and LOQ, the facility shall take action to determine the reliability of detected results (such as resampling and/or re-calculating dosages) and shall adjust the chemical feed system if necessary to reduce the chances of detecting levels between the statistical LOD and LOQ.

d) If the facility determines the statistical LOQ as specified in s. NR 149.48 (2)(b), Wis. Adm. Code, or determines the verified detection limit using the laboratory accreditation program special procedure, TRC measured levels that are greater than the statistical LOQ and the TRC limit, are not in compliance with the TRC limit. The permittee shall report the level as a limit exceedance.

e) If the facility determines the statistical LOD as specified in s. NR 149.48 (2)(b), Wis. Adm. Code, and the measured level is < LOD, then a "0" (zero) value may be substituted for any test result less than the statistical LOD when calculating the average or mass discharge values. Calculated values shall then be compared directly to the average or mass limits to determine compliance.

f) If the facility determines the verified detection limit using the laboratory accreditation program special procedure and the measured level is < LOD (set equal to the verified detection limit), then a "0" (zero) value may be substituted for any test result less than the LOD when calculating the average or mass discharge values. Calculated values shall then be compared directly to the average or mass limits to determine compliance.

9.4.11 Whole Effluent Toxicity (WET) Monitoring Requirements

In order to determine the potential impact of the discharge on aquatic organisms, static-renewal toxicity tests shall be performed on the effluent in accordance with the procedures specified in the *"State of Wisconsin Aquatic Life Toxicity Testing Methods Manual, 2nd Edition" (PUB-WT-797*, November 2004) as required by NR 219.04, Table A, Wis. Adm. Code). All of the WET tests required in this permit, including any required retests, shall be conducted on the *Ceriodaphnia dubia* and fathead minnow species. Receiving water samples shall not be collected from any point in contact with the permittee's mixing zone and every attempt shall be made to avoid contact with any other discharge's mixing zone.

9.4.12 Whole Effluent Toxicity (WET) Identification and Reduction

Within 60 days of a retest which showed positive results, the permittee shall submit a written report to the Biomonitoring Coordinator, Bureau of Water Quality, 101 S. Webster St., PO Box 7921, Madison, WI 53707-7921, which details the following:

- A description of actions the permittee has taken or will take to remove toxicity and to prevent the recurrence of toxicity;

- A description of toxicity reduction evaluation (TRE) investigations that have been or will be done to identify potential sources of toxicity, including some or all of the following actions:

  a) Evaluate the performance of the treatment system to identify deficiencies contributing to effluent toxicity (e.g., operational problems, chemical additives, incomplete treatment)
  b) Identify the compound(s) causing toxicity
  c) Trace the compound(s) causing toxicity to their sources (e.g., industrial, commercial, domestic)
  d) Evaluate, select, and implement methods or technologies to control effluent toxicity (e.g., in-plant or pretreatment controls, source reduction or removal)

- Where corrective actions including a TRE have not been completed, an expeditious schedule under which corrective actions will be implemented;

- If no actions have been taken, the reason for not taking action.

The permittee may also request approval from the Department to postpone additional retests in order to investigate the source(s) of toxicity. Postponed retests must be completed after toxicity is believed to have been removed.

9.4.13 PFOS and PFOA Requirements

The laboratory performing the analysis on any samples shall be certified for the applicable PFAS compounds in the aqueous matrix by the Wisconsin Laboratory Certification Program established under s. 299.11, Wis. Stats., in accordance with s. NR 149.41, Wis. Adm. Code. All laboratories are required to utilize EPA Method 1633A for sampling PFAS in sludge.

The Department may reject any sample results if results are produced by a laboratory that is not in compliance with certification requirements under ch. NR 149, Wis. Adm. Code.

9.4.14 Reopener Clause

Pursuant to s. 283.15(11), Wis. Stat. and 40 CFR 131.20, the Department may modify or revoke and reissue this permit if, through the triennial standard review process, the Department determines that the terms and conditions of this permit need to be updated to reflect the highest attainable condition of the receiving water.

9.5 Pretreatment Program Requirements

The permittee is required to operate an industrial pretreatment program as described in the program initially approved by the Department of Natural Resources including any subsequent program modifications approved by the Department, and including commitments to program implementation activities provided in the permittee's annual pretreatment program report, and that complies with the requirements set forth in 40 CFR Part 403 and ch. NR 211, Wis. Adm. Code. To ensure that the program is operated in accordance with these requirements, the following general conditions and requirements are hereby established:

9.5.1 Inventories

The permittee shall implement methods to maintain a current inventory of the general character and volume of wastewater that industrial users discharge to the treatment works and shall provide an updated industrial user listing annually and report any changes in the listing to the Department by May 31 of each year as part of the annual pretreatment program report required herein.

9.5.2 Regulation of Industrial Users

9.5.2.1 Limitations for Industrial Users:

The permittee shall develop, maintain, enforce and revise as necessary local limits to implement the general and specific prohibitions of the state and federal General Pretreatment Regulations.

9.5.2.2 Control Documents for Industrial Users (IUs)

The permittee shall control the discharge from each significant industrial user through individual discharge permits as required by s. NR 211.235, Wis. Adm. Code, and in accordance with the approved pretreatment program procedures and the permittee's sewer use ordinance. The discharge permits shall be modified in a timely manner during the stated term of the discharge permits according to the sewer use ordinance as conditions warrant. The discharge permits shall include at a minimum the elements found in s. NR 211.235(1), Wis. Adm. Code, and references to the approved pretreatment program procedures and the sewer use ordinance.

9.5.2.3 Review of Industrial User Reports, Inspections and Compliance Monitoring

The permittee shall require the submission of, receive, and review self-monitoring reports and other notices from industrial users in accordance with the approved pretreatment program procedures. The permittee shall randomly sample and analyze industrial user discharges and conduct surveillance activities to determine independent of information supplied by the industrial users, whether the industrial users are in compliance with pretreatment standards and requirements. The inspections and monitoring shall also be conducted to maintain accurate knowledge of local industrial processes, including changes in the discharge, pretreatment equipment operation, spill prevention control plans, slug control plans, and implementation of solvent management plans.

The permittee shall inspect and sample the discharge from each significant industrial user as specified in the permittee's approved pretreatment program or as specified in s. NR 211.235(3), Wis. Adm. Code. The permittee shall evaluate whether industrial users identified as significant need a slug control plan according to the requirements of s. NR 211.235(4), Wis. Adm. Code. If a slug control plan is needed, the plan shall contain at a minimum the elements specified in s. NR 211.235(4)(b), Wis. Adm. Code.

9.5.2.4 Enforcement and Industrial User Compliance Evaluation & Violation Reports

The permittee shall enforce the industrial pretreatment requirements including the industrial user discharge limitations of the permittee's sewer use ordinance. The permittee shall investigate instances of noncompliance by collecting and analyzing samples and collecting other information with sufficient care to produce evidence admissible in enforcement proceedings or in judicial actions. Investigation and response to instances of noncompliance shall be in accordance with the permittee's sewer use ordinance and approved Enforcement Response Plan.

The permittee shall make a semiannual report on forms provided or approved by the Department. The semiannual report shall include an analysis of industrial user significant noncompliance (i.e. the Industrial User Compliance Evaluation, also known as the SNC Analysis) as outlined in s. NR 211.23(1)(j), Wis. Adm. Code, and a summary of the permittee's response to all industrial noncompliance (i.e. the Industrial User Violation Report). The Industrial User Compliance Evaluation Report shall include monitoring results received from industrial users pursuant to ss. NR 211.15(1)-(5), Wis. Adm. Code. The Industrial User Violation Report shall include copies of all notices of noncompliance, notices of violation and other enforcement correspondence sent by the permittee to industrial users, together with the industrial user's response. The Industrial User Compliance Evaluation and Violation Reports for the period January through June shall be provided to the Department by November 30 of each year and for the period July through December shall be provided to the Department by May 31 of the succeeding year, unless alternate submittal dates are approved.

9.5.2.5 Publication of Violations

The permittee shall publish a list of industrial users that have significantly violated the municipal sewer use ordinance during the calendar year, in the largest daily newspaper in the area by May 31 of the following year pursuant to s. NR 211.23(1)(j), Wis. Adm. Code. A copy of the newspaper publication shall be provided as part of the annual pretreatment report specified herein.

9.5.2.6 Multijurisdictional Agreements

The permittee shall establish agreements with all contributing jurisdictions as necessary to ensure compliance with pretreatment standards and requirements by all industrial users discharging to the permittee's wastewater treatment system. Any such agreement shall identify who will be responsible for maintaining the industrial user inventory, issuance of industrial user control mechanisms, inspections and sampling, pretreatment program implementation, and enforcement.

9.5.3 Annual Pretreatment Program Report

The permittee shall evaluate the pretreatment program and submit the Pretreatment Program Report to the Department on forms provided or approved by the Department by May 31 annually, unless an alternate submittal date is approved.

The report shall include a brief summary of the work performed during the preceding calendar year, including the numbers of discharge permits issued and in effect, pollution prevention activities, number of inspections and monitoring surveys conducted, budget and personnel assigned to the program, a general discussion of program progress in meeting the objectives of the permittee's pretreatment program together with summary comments and recommendations.

9.5.4 Pretreatment Program Modifications

- Future Modifications: The permittee shall within one year of any revisions to federal or state General Pretreatment Regulations submit an application to the Department in duplicate to modify and update its approved pretreatment program to incorporate such regulatory changes as applicable to the permittee. Additionally, the Department or the permittee may request an application for program modification at any time where necessary to improve program effectiveness based on program experience to date.

- Modifications Subject to Department Approval: The permittee shall submit all proposed pretreatment program modifications to the Department for determination of significance and opportunity for comment in accordance with the requirements and conditions of s. NR 211.27, Wis. Adm. Code. Any substantial proposed program modification shall be subject to Department public noticing and formal approval prior to implementation. A substantial program modification includes, but is not limited to, changes in enabling legal authority to administer and enforce pretreatment conditions and requirements; significant changes in program administrative or operational procedures; significant reductions in monitoring frequencies; significant reductions in program resources including personnel commitments, equipment, and funding levels; changes (including any relaxation) in the local limitations for substances enforced and applied to users of the sewerage treatment works; changes in treatment works sludge disposal or management practices which impact the pretreatment program; or program modifications which increase pollutant loadings to the treatment works. The Department shall use the procedures outlined in s. NR 211.30, Wis. Adm. Code for review and approval/denial of proposed pretreatment program modifications. The permittee shall comply with local public participation requirements when implementing the pretreatment program.

9.5.5 Program Resources

The permittee shall have sufficient resources and qualified personnel to carry out the pretreatment program responsibilities as listed in ss. NR 211.22 and NR 211.23, Wis. Adm. Code.

9.6 Groundwater Standard Requirements

9.6.1 Application of NR 140 to Substances Discharged

This permit does not authorize the permittee to discharge any substance in a concentration which would cause an applicable groundwater standard of ch. NR 140, Wis. Adm. Code, to be exceeded. The Department may seek a response under NR 140 if the permittee’s discharge causes exceedance of an applicable groundwater standard for any substance, including substances not specifically limited or monitored under this permit.

9.6.2 Groundwater Sampling

Groundwater sampling shall be performed in accordance with procedures contained in s. NR 140.16, Wis. Adm. Code, and the WDNR publications, Groundwater Sampling Desk Reference (PUBL-DG-037-96) and Groundwater Sampling Field Manual (PUBL-DG-038-96).

9.6.3 Indicator Parameter – Preventive Action Limits

The methodology for the assessment of background groundwater quality and calculation of indicator PALs and ACLs can be found in "Calculating Preventive Action Limits and Evaluating Groundwater Quality Exemptions for Groundwater Discharges (3400-2024-04).

9.6.4 Groundwater Monitoring Forms

Results of the groundwater analyses shall be summarized and reported on Groundwater Monitoring Forms. This report form is to be returned to the Department no later than the date indicated on the form. A copy of the groundwater monitoring form or an electronic file of the form shall be retained by the permittee. Groundwater monitoring results shall be reported on an electronic groundwater monitoring form and certified electronically via the 'eReport Certify' page by a responsible executive or municipal officer, manager, partner or proprietor as specified in s. 283.37(3), Wis. Stats., or a duly authorized representative of the officer, manager, partner or proprietor that has been delegated signature authority pursuant to s. NR 205.07(1)(g)2, Wis. Adm. Code. The 'eReport Certify' page certifies that the electronic report form is true, accurate and complete.

9.6.5 Appropriate Formulas for Groundwater

Total Nitrogen = Total Kjeldahl Nitrogen (mg/L) + [NO_2 + NO_3] Nitrogen (mg/L)

Organic Nitrogen (mg/L) = Total Kjeldahl Nitrogen (mg/L) - Ammonia Nitrogen (mg/L)

9.6.6 Notification of Attaining or Exceeding Groundwater Quality Standards

The permittee shall notify the Department when monitoring results indicate that a Preventive Action Limit or Enforcement Standard has been attained or exceeded per ss. NR 140.24 (1)(a) and NR 140.26 (1)(a) Wis. Adm. Code. This notification may be provided in the general remarks section of the groundwater monitoring form or by letter attached to the groundwater monitoring form. Any values reported as exceeding a groundwater standard shall be confirmed as being from a representative sample and as a correct laboratory analysis result.

9.6.7 Preventive Action Limit (PAL) Exceedance

Sections NR 206.07 (1)(c) and NR 214.07 (1), Wis. Adm. Code, require all land disposal and land treatment system to be designed and operated to prevent exceedances of PALs. Results from groundwater samples that are less than this permit's PALs indicate that operation of the land treatment system is protective of groundwater quality. Substance concentrations that exhibit a trend over time of being greater than the PAL may indicate that additional technically and economically feasible actions are needed to reduce the discharge of the substance to the groundwater. In such a case, the Department may request an evaluation and response or propose a permit modification to require submittal of a groundwater evaluation report and implementation of a feasible response as specified in s. NR 140.24, Wis. Adm. Code.

9.6.8 Enforcement Standard Exceedance Within the Design Management Zone

Substance concentrations greater than this permit's ES in a permittee's monitoring well located within the property boundary and within the design management zone of the land treatment system may indicate that the groundwater concentration exceeds an ES outside of these boundaries. If the Department determines there is reasonable evidence that an ES is being attained or exceeded beyond the property boundary or beyond the design management zone, the Department may request an evaluation and response or propose a permit modification to require an evaluation report and appropriate response as specified in s. NR 140.24, Wis. Adm. Code, per s. NR 140.27, Wis. Adm. Code.

9.6.9 Enforcement Standard Exceedance Outside the Design Management Zone

The permittee's land treatment system shall not cause the concentration of a substance in groundwater to attain or exceed this permit's ES at any point of present groundwater use, at any point beyond the property boundary, or at any point beyond the design management zone established under s. NR 140.22, Wis. Adm. Code. When this condition is not met, **the permittee shall, within 120 days following notification to the Department of the attainment or exceedance of an ES beyond the compliance boundary, submit a groundwater quality evaluation and response report** as specified in s. NR 140.26(1)(b), Wis. Adm. Code. The Department may propose modification of this permit to require the permittee to implement additional treatment or other actions as specified in s. NR 140.26, Wis. Adm. Code.

9.7 Land Application Requirements

9.7.1 Sludge Management Program Standards And Requirements Based Upon Federally Promulgated Regulations

In the event that new federal sludge standards or regulations are promulgated, the permittee shall comply with the new sludge requirements by the dates established in the regulations, if required by federal law, even if the permit has not yet been modified to incorporate the new federal regulations.

9.7.2 General Sludge Management Information

The General Sludge Management Form 3400-48 shall be completed and submitted prior to any significant sludge management changes.

9.7.3 Sludge Samples

All sludge samples shall be collected at a point and in a manner which will yield sample results which are representative of the sludge being tested, and collected at the time which is appropriate for the specific test.

9.7.4 Land Application Characteristic Report

Each report shall consist of a Characteristic Form 3400 49 and Lab Report. The Characteristic Report Form 3400-49 shall be submitted electronically by January 31 following each year whether or not samples are analyzed. In years in which monitoring does not occur, the report shall be completed by checking on the form that monitoring/land application did not occur.

Following submittal of the electronic Characteristic Report Form 3400-49, this form shall be certified electronically via the 'eReport Certify' page by a responsible executive or municipal officer, manager, partner or proprietor as specified in s. 283.37(3), Wis. Stats., or a duly authorized representative of the officer, manager, partner or proprietor that has been delegated signature authority pursuant to s. NR 205.07(1)(g)2, Wis. Adm. Code. The 'eReport Certify' page certifies that the electronic report is true, accurate and complete. The Lab Report must be sent directly to the facility's DNR sludge representative or basin engineer unless approval for not submitting the lab reports has been given.

The permittee shall use the following convention when reporting sludge monitoring results: Pollutant concentrations less than the limit of detection shall be reported as < (less than) the value of the limit of detection. For example, if a substance is not detected at a detection limit of 1.0 mg/kg, report the pollutant concentration as < 1.0 mg/kg.

All results shall be reported on a dry weight basis.

9.7.5 Calculation of Water Extractable Phosphorus

When sludge analysis for Water Extractable Phosphorus is required by this permit, the permittee shall use the following formula to calculate and report Water Extractable Phosphorus:

Water Extractable Phosphorus (% of Total P) =

[Water Extractable Phosphorus (mg/kg, dry wt) ÷ Total Phosphorus (mg/kg, dry wt)] x 100

9.7.6 Monitoring and Calculating PCB Concentrations in Sludge

When sludge analysis for "PCB, Total Dry Wt" is required by this permit, the PCB concentration in the sludge shall be determined using either congener-specific analysis or Aroclor analysis. The permittee may decide which of these analyses is performed. Analyses shall be performed in accordance with the following provisions and Table EM in s. NR 219.04, Wis. Adm. Code:

- If congener-specific analysis is employed: All PCB congeners shall be delineated. Non-detects shall be treated as zero. The values that are between the limit of detection (LOD) and the limit of quantitation shall be used when calculating the total value of all congeners. All results shall be added together and the total PCB concentration by dry weight reported.
- If Aroclor analysis is employed, reporting protocols, consistent with s. NR 106.07(6)(e), should be as follows: If all Aroclors are less than the LOD, then the Total PCB Dry Wt result should be reported as less than the highest LOD. If a single Aroclor is detected, then that is what should be reported for the Total PCB result. If multiple Aroclors are detected, they should be summed and reported as Total PCBs. If the LOD cannot be achieved after using the appropriate clean up techniques, a reporting limit that is achievable for the Aroclors or each congener for the sample shall be determined. This reporting limit shall be reported and qualified indicating the presence of an interference.

9.7.7 Annual Land Application Report

Land Application Report Form 3400-55 shall be submitted electronically by January 31, each year whether or not non-exceptional quality sludge is land applied. Non-exceptional quality sludge is defined in s. NR 204.07(4), Wis. Adm. Code. Following submittal of the electronic Annual Land Application Report Form 3400-55, this form shall be certified electronically via the 'eReport Certify' page by a responsible executive or municipal officer, manager, partner or proprietor as specified in s. 283.37(3), Wis. Stats., or a duly authorized representative of the officer, manager, partner or proprietor that has been delegated signature authority pursuant to s. NR 205.07(1)(g)2, Wis. Adm. Code. The 'eReport Certify' page certifies that the electronic report form is true, accurate and complete.

9.7.8 Other Methods of Disposal or Distribution Report

The permittee shall submit electronically the Other Methods of Disposal or Distribution Report Form 3400-52 by January 31, each year whether or not sludge is hauled, landfilled, incinerated, or exceptional quality sludge is distributed or land applied. Following submittal of the electronic Report Form 3400-52, this form shall be certified electronically via the 'eReport Certify' page by a responsible executive or municipal officer, manager, partner or proprietor as specified in s. 283.37(3), Wis. Stats., or a duly authorized representative of the officer, manager, partner or proprietor that has been delegated signature authority pursuant to s. NR 205.07(1)(g)2, Wis. Adm. Code. The 'eReport Certify' page certifies that the electronic report form is true, accurate and complete.

9.7.9 Approval to Land Apply

Bulk non-exceptional quality sludge as defined in s. NR 204.07(4), Wis. Adm. Code, may not be applied to land without a written approval letter or Form 3400-122 from the Department unless the Permittee has obtained permission

from the Department to self approve sites in accordance with s. NR 204.06 (6), Wis. Adm. Code. Analysis of sludge characteristics is required prior to land application. Application on frozen or snow covered ground is restricted to the extent specified in s. NR 204.07(3) (l), Wis. Adm. Code.

9.7.10 Soil Analysis Requirements

Each site requested for approval for land application must have the soil tested prior to use. Each approved site used for land application must subsequently be soil tested such that there is at least one valid soil test in the four years prior to land application. All soil sampling and submittal of information to the testing laboratory shall be done in accordance with UW Extension Bulletin A-2100. The testing shall be done by the UW Soils Lab in Madison or Marshfield, WI or at a lab approved by UW. The test results including the crop recommendations shall be submitted to the DNR contact listed for this permit, as they are available. Application rates shall be determined based on the crop nitrogen recommendations and with consideration for other sources of nitrogen applied to the site.

9.7.11 Land Application Site Evaluation

For non-exceptional quality sludge, as defined in s. NR 204.07(4), Wis. Adm. Code, a Land Application Site Request Form 3400-053 shall be submitted to the Department for the proposed land application site. The Department will evaluate the proposed site for acceptability and will either approve or deny use of the proposed site. The permittee may obtain permission to approve their own sites in accordance with s. NR 204.06(6), Wis. Adm. Code.

9.7.12 Class A Sludge: Fecal Coliform Density Requirement

The fecal coliform density which must be < 1000 MPN/g TS as required in s. NR 204.07, Wis. Adm. Code, shall be satisfied immediately after the treatment process is completed. If the material is bagged or shipped at that time, no re-testing is required. If the material is stored and is not immediately bagged or shipped, the sludge shall be re-tested to ensure that regrowth of bacteria has not occurred. See Municipal Wastewater Sludge Guidance Memo #3 (Fecal Coliform Monitoring - Sampling and Analytical Procedures).

9.7.13 Class A Sludge: Heat Drying Process

Dry the sludge by direct or indirect contact with hot gases to reduce the moisture content of the sludge to 10% or lower. Either the temperature of the sewage sludge particles shall exceed 80° C (176° F) or the wet bulb temperature of the gas in contact with the sludge as the sludge leaves the dryer shall exceed 80° C.

9.7.14 Class A Sludge: Temperature/Time Process

An increased sewage sludge temperature shall be maintained for a prescribed period of time according to the following guidelines:

TOTAL SOLIDS	TEMP	TIME	EQUATION Where: D = time in days t = temp in °C	NOTES
≥7%	≥50° C	≥20 min.	$D = \frac{131{,}700{,}000}{10^{0.14t}}$	No heating of small particles by warmed gases or immiscible liquid.
≥7%	≥50° C	≥15 sec.	$D = \frac{131{,}700{,}000}{10^{0.14t}}$	Small particles heated by warmed gases or immiscible liquid.
<7%	>50° C	≥15 sec. To <30 min.	$D = \frac{131{,}700{,}000}{10^{0.14t}}$	

<7%	≥50° C	≥30 min.	$D = \frac{50{,}070{,}000}{10^{0.14t}}$	

In no case shall temperatures calculated using the appropriate equation be less than 50°C.

9.7.15 Class B Sludge: Fecal Coliform Limitation

Compliance with the fecal coliform limitation for Class B sludge shall be demonstrated by calculating the geometric mean of at least 7 separate samples. (Note that a Total Solids analysis must be done on each sample). The geometric mean shall be less than 2,000,000 MPN or CFU/g TS. Calculation of the geometric mean can be done using one of the following 2 methods.

Method 1:

Geometric Mean = $(X_1 \times X_2 \times X_3 \ldots \times X_n)^{1/n}$

Where X = Coliform Density value of the sludge sample, and where n = number of samples (at least 7)

Method 2:

Geometric Mean = antilog$[(X_1 + X_2 + X_3 \ldots + X_n) \div n]$

Where X = $\log_{10}$ of Coliform Density value of the sludge sample, and where n = number of samples (at least 7)

Example for Method 2

Sample Number	Coliform Density of Sludge Sample	$\log_{10}$
1	6.0×10^5	5.78
2	4.2×10^6	6.62
3	1.6×10^6	6.20
4	9.0×10^5	5.95
5	4.0×10^5	5.60
6	1.0×10^6	6.00
7	5.1×10^5	5.71

The geometric mean for the seven samples is determined by averaging the $\log_{10}$ values of the coliform density and taking the antilog of that value.

$(5.78 + 6.62 + 6.20 + 5.95 + 5.60 + 6.00 + 5.71) \div 7 = 5.98$

The antilog of $5.98 = 9.5 \times 10^5$

9.7.16 Class B Sludge: Anaerobic Digestion

Treat the sludge in the absence of air for a specific mean cell residence time at a specific temperature. Values for the mean cell residence time and temperature shall be between 15 days at 35° C to 55° C and 60 days at 20° C. Straight-line interpolation to calculate mean cell residence time is allowable when the temperature falls between 35° C and 20° C.

9.7.17 Vector Control: Volatile Solids Reduction

The mass of volatile solids in the sludge shall be reduced by a minimum of 38% between the time the sludge enters the digestion process and the time it either exits the digester or a storage facility. For calculation of volatile solids reduction, the permittee shall use the Van Kleeck equation or one of the other methods described in "Determination of Volatile Solids Reduction in Digestion" by J.B. Farrell, which is Appendix C of EPA's *Control of Pathogens in Municipal Wastewater Sludge* (EPA/625/R-92/013). The Van Kleeck equation is:

$$VSR\% = \frac{VS_{IN} - VS_{OUT}}{VS_{IN} - (VS_{OUT} \times VS_{IN})} \times 100$$

Where: VS_{IN} = Volatile Solids in Feed Sludge (g VS/g TS)

VS_{OUT} = Volatile Solids in Final Sludge (g VS/g TS)

VSR% = Volatile Solids Reduction, (Percent)

9.7.18 Vector Control: Drying With Primary Solids

Dry the sludge to 90% total solids when the sludge contains unstabilized solids from primary treatment. This shall be met at the time the sludge is bagged, distributed, land applied or disposed of.

9.7.19 Class B Sludge – Vector Control: Injection

No significant amount of the sewage sludge shall be present on the land surface within one hour after the sludge is injected.

9.7.20 Class B Sludge – Vector Control: Incorporation

Class A sludge shall be surface applied within 8 hours after being discharged from a pathogen treatment process and then be incorporated within 6 hours of surface application.

9.7.21 Landfilling of Sludge

General: Sewage sludge may not be disposed of in a municipal solid waste landfill unless the landfill meets the requirements of chs. NR 500 to 536, Wis. Adm. Code, and is an approved facility as defined in s. 289.01(3), Wis. Stats. Any facility accepting sewage sludge shall be approved by the Department in writing to accept sewage sludge. Disposal of sewage sludge in a municipal solid waste landfill shall be in accordance with ss. NR 506.13 and 506.14. Sewage sludge may not be disposed of in a surface disposal unit as defined in s. NR 204.03(62).

Approval: The permittee shall obtain approval from the Department prior to the disposal of sludge at a Wisconsin licensed landfill.

9.7.22 Sludge Landfilling Reports

The permittee shall report the volume of sludge disposed of at any landfill facility on Form 3400-52. The permittee shall include the name and address of the landfill, the Department license number or other state's designation or license number for all landfills used during the report period and a letter of acceptability from the landfill owner. In addition, any permittee utilizing landfills as a disposal method shall submit to the Department any test results used to indicate acceptability of the sludge at a landfill. Form 3400-52 shall be submitted annually by January 31, following each year sludge is landfilled.

10 Summary of Reports Due

FOR INFORMATIONAL PURPOSES ONLY

Description	Date	Page
Surface Water Intake – Annual Intake Flow Report	January 31, 2027	60
Surface Water Intake – Annual Intake Flow Report	January 31, 2028	60
Surface Water Intake – Annual Intake Flow Report	January 31, 2029	60
Surface Water Intake – Annual Intake Flow Report	January 31, 2030	60
Surface Water Intake – Annual Intake Flow Report	January 31, 2031	60
Surface Water Intake – Annual Intake Flow Reports After Permit Expiration	See Permit	60
Surface Water Quality Monitoring Reports – Annual Report	June 30, 2027	60
Surface Water Quality Monitoring Reports – Annual Report #2	June 30, 2028	60
Surface Water Quality Monitoring Reports – Annual Report #3	June 30, 2029	60
Surface Water Quality Monitoring Reports – Annual Report #4	June 30, 2030	60
Surface Water Quality Monitoring Reports – Annual Report #5	June 30, 2031	60
Surface Water Quality Monitoring Reports – Annual Report After Permit Expiration	See Permit	60
Wet Weather Management – Submit Biannual Progress Report #1	March 31, 2027	61
Wet Weather Management – Submit Biannual Progress Report #2	March 31, 2029	61
Wet Weather Management – Submit Final Report	March 31, 2030	61
Wet Weather Management – Biannual Progress Reports After Permit Expiration	See Permit	61
Mercury Pollutant Minimization Program – Submit Annual Status Reports	September 30, 2027	61
Mercury Pollutant Minimization Program – Submit Annual Status Report #2	September 30, 2028	61
Mercury Pollutant Minimization Program – Submit Annual Status Report #3	September 30, 2029	61
Mercury Pollutant Minimization Program – Submit Annual Status Report #4	September 30, 2030	61
Mercury Pollutant Minimization Program – Final Status Report	March 31, 2031	61
Mercury Pollutant Minimization Program – Annual Reports After Permit Expiration	See Permit	62
Arsenic Pollutant Minimization Program – Submit Annual Status Reports	September 30, 2026	62
Arsenic Pollutant Minimization Program – Submit Annual Status Report #2	September 30, 2027	62
Arsenic Pollutant Minimization Program – Submit Annual Status Report #3	September 30, 2028	62
Arsenic Pollutant Minimization Program – Submit Annual Status Report #4	September 30, 2029	62
Arsenic Pollutant Minimization Program – Final Arsenic Report	September 30, 2030	62

Arsenic Pollutant Minimization Program – Annual Reports After Permit Expiration	See Permit	63
Effluent Limitations for E. coli (Outfalls 001 and 002) – Final Plans and Specifications	June 30, 2027	63
Effluent Limitations for E. coli (Outfalls 001 and 002) – Treatment Plan Upgrade to Meet Limitations	June 30, 2028	63
Effluent Limitations for E. coli (Outfalls 001 and 002) – Construction Upgrade Progress Report	June 30, 2029	63
Effluent Limitations for E. coli (Outfalls 001 and 002) – Construction Upgrade Progress Report #2	June 30, 2030	63
Effluent Limitations for E. coli (Outfalls 001 and 002) – Complete Construction	March 31, 2031	63
Effluent Limitations for E. coli (Outfalls 001 and 002) – Achieve Compliance	May 1, 2031	64
PFOS/PFOA Minimization Plan Determination of Need – Report on Effluent Discharge	September 30, 2027	64
PFOS/PFOA Minimization Plan Determination of Need – Report on Effluent Discharge and Evaluation of Need	September 30, 2028	64
Biosolids Management Plan – Biosolids Management Plan Submittal	July 31, 2027	64
Biosolids Daily Logs – Daily Log Annual Report Submittal #1	January 31, 2027	65
Biosolids Daily Logs – Daily Log Annual Report Submittal #2	January 31, 2028	65
Biosolids Daily Logs – Daily Log Annual Report Submittal #3	January 31, 2029	65
Biosolids Daily Logs – Daily Log Annual Report Submittal #4	January 31, 2030	65
Biosolids Daily Logs – Daily Log Annual Report Submittal #5	January 31, 2031	65
Biosolids Daily Logs – Daily Log Annual Reports After Permit Expiration	See Permit	65
Compliance Maintenance Annual Reports (CMAR)	by June 30, each year	67
Industrial User Compliance Evaluation and Violation Reports	Semiannual	78
Pretreatment Program Report	Annually	78
General Sludge Management Form 3400-48	prior to any significant sludge management changes	81
Characteristic Form 3400-49 and Lab Report	by January 31 following each year of analysis	81
Land Application Report Form 3400-55	by January 31, each year whether or not non-exceptional quality sludge is land applied	82

Other Methods of Disposal or Distribution Report Form 3400-52	by January 31, each year whether or not sludge is hauled, landfilled, incinerated, or exceptional quality sludge is distributed or land applied	82
Groundwater Monitoring Forms	no later than the date indicated on the form	80
Wastewater Discharge Monitoring Report	no later than the date indicated on the form	66

Report forms shall be submitted electronically in accordance with the reporting requirements herein. Any facility plans or plans and specifications for municipal, industrial, industrial pretreatment and non industrial wastewater systems shall be submitted to the Bureau of Water Quality, P.O. Box 7921, Madison, WI 53707-7921. All other submittals required by this permit shall be submitted to:
Southeast Region, 1027 W St Paul Ave, Milwaukee, WI 53233