



WPDES PERMIT

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES
**PERMIT TO DISCHARGE UNDER THE WISCONSIN POLLUTANT DISCHARGE
ELIMINATION SYSTEM**

MADISON METROPOLITAN SEWERAGE DISTRICT

is permitted, under the authority of Chapter 283, Wisconsin Statutes, to discharge from a facility
located at

1610 Moorland Road, Madison, WI

to

**BADFISH CREEK, FROM OUTFALL 001, AND GROUNDWATER OF THE YAHARA RIVER AND LAKE
MONONA WATERSHED, FROM OUTFALL 008, BOTH IN THE LOWER ROCK RIVER BASIN
AND TO**

**BADGER MILL CREEK, FROM OUTFALL 005, IN THE SUGAR-PECATONICA RIVER BASIN,
ALL IN DANE 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 _____
Lloyd L. Eagan
South Central Regional Director

Date Permit Signed/Issued

PERMIT TERM: EFFECTIVE DATE - October 01, 2009

EXPIRATION DATE - September 30, 2014

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1 Influent Requirements

1.1 Sampling Point(s)

Sampling Point Designation	
Sampling Point Number	Sampling Point Location, WasteType/Sample Contents and Treatment Description (as applicable)
701	Influent to the wastewater treatment plant.

1.2 Monitoring Requirements

The permittee shall comply with the following monitoring requirements.

1.2.1 Sampling Point 701 - INFLUENT TO PLANT

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		MGD	Continuous	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	

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, 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 In-Plant Requirements

2.1 Sampling Point(s)

Sampling Point Designation	
Sampling Point Number	Sampling Point Location, WasteType/Sample Contents and Treatment Description (as applicable)
111	In plant mercury monitoring - collect a mercury field blank at the Effluent Building using the Clean Hands/Dirty Hands sample collection procedure excerpted from EPA Method 1669.
112	Wet weather diversion structure to Nine Springs Creek tributary.

2.2 Monitoring Requirements and Limitations

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

2.2.1 Sampling Point 111 - In plant mercury monitoring

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Mercury, Total Recoverable		ng/L	Monthly	Blank	

2.2.1.1 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.

2.2.2 Sampling Point 112 - Diversion structure

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Volume		MGD	Per Occurrence	Estimated	
Fecal Coliform		#/100 ml	Per Occurrence	Grab	

2.2.2.1

During wet weather high flow conditions, when necessary to maintain the proper function of the wastewater treatment facility, the permittee may operate in-plant diversion facilities that have been designed and constructed for that purpose. In-plant diversion shall only be used by the permittee when there are high wet weather wastewater flows to the treatment facility and when such alternative operations are necessary to supplement effluent pumping capacity.

2.2.2.2

The use of these facilities is authorized on the condition that the permittee shall: 1) implement a program of management, operation, and maintenance of the sanitary sewage collection system that is designed to effectively reduce, to the maximum extent practicable, the entry of wet weather flows into the sewerage system and, 2) implement diversion option 4 as described in the February 8, 2005 Effluent Diversion Evaluation Report and as approved by the Department.

3 Surface Water Requirements

3.1 Sampling Point(s)

Sampling Point Designation	
Sampling Point Number	Sampling Point Location, WasteType/Sample Contents and Treatment Description (as applicable)
001	Disinfected effluent sample point at Effluent Building - Nine Springs Wastewater Treatment Plant; effluent discharged to Badfish Creek.
005	Same sample point as 001; effluent discharged to Badger Mill Creek.

3.2 Monitoring Requirements and Effluent Limitations

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

3.2.1 Sampling Point (Outfall) 001 - EFFL/BADFISH CREEK

Monitoring Requirements and Effluent Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		MGD	Continuous	Continuous	
BOD ₅ , Total	Monthly Avg	19 mg/L	Daily	24-Hr Comp	
BOD ₅ , Total	Weekly Avg	20 mg/L	Daily	24-Hr Comp	
Suspended Solids, Total	Monthly Avg	20 mg/L	Daily	24-Hr Comp	
Suspended Solids, Total	Weekly Avg	23 mg/L	Daily	24-Hr Comp	
Dissolved Oxygen	Daily Min	5.0 mg/L	Daily	Grab	
pH Field	Daily Max	9.0 su	Daily	Grab	
pH Field	Daily Min	6.0 su	Daily	Grab	
Phosphorus, Total	Monthly Avg	1.5 mg/L	Daily	24-Hr Comp	
Fecal Coliform	Geometric Mean	400 #/100 ml	2/Week	Grab	Limit applies April 15 - October 15.
Nitrogen, Ammonia (NH ₃ -N) Total	Monthly Avg	1.8 mg/L	Daily	24-Hr Comp	Limit applies May - September.
Nitrogen, Ammonia (NH ₃ -N) Total	Daily Max	17 mg/L	Daily	24-Hr Comp	Limit applies year-round.
Nitrogen, Ammonia (NH ₃ -N) Total	Weekly Avg	4.4 mg/L	Daily	24-Hr Comp	Limit applies May - September.
Nitrogen, Ammonia (NH ₃ -N) Total	Monthly Avg	4.1 mg/L	Daily	24-Hr Comp	Limit applies October - April.
Nitrogen, Ammonia (NH ₃ -N) Total	Weekly Avg	10 mg/L	Daily	24-Hr Comp	Limit applies October - April.
Acute WET		rTUa	Quarterly	24-Hr Comp	Sample during the quarters specified in section 3.2.1.5 .

Monitoring Requirements and Effluent Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Chronic WET		rTU _c	Quarterly	24-Hr Comp	Sample during the quarters specified in section 3.2.1.5 .
Cadmium, Total Recoverable		µg/L	Monthly	24-Hr Comp	
Chromium, Total Recoverable		µg/L	Monthly	24-Hr Comp	
Copper, Total Recoverable		µg/L	Monthly	24-Hr Comp	
Lead, Total Recoverable		µg/L	Monthly	24-Hr Comp	
Nickel, Total Recoverable		µg/L	Monthly	24-Hr Comp	
Zinc, Total Recoverable		µg/L	Monthly	24-Hr Comp	
Mercury, Total Recoverable	Daily Max	5.7 ng/L	Monthly	Grab	
BOD ₅ , Total	Monthly Avg	7,923 lbs/day	Daily	Calculated	
BOD ₅ , Total	Weekly Avg	8,340 lbs/day	Daily	Calculated	
Suspended Solids, Total	Monthly Avg	8,340 lbs/day	Daily	Calculated	
Suspended Solids, Total	Weekly Avg	9,591 lbs/day	Daily	Calculated	
Chloride	Weekly Avg	481 mg/L	Weekly	24-Hr Comp	"This interim limit applies until 06/30/2014 when the target value of 430 mg/L becomes effective as the target limit. (See section 6.2)
Chloride	Weekly Avg	200,000 lbs/day	Weekly	Calculated	

3.2.1.1 Total Metals Analyses

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

3.2.1.2 Sample Analysis

Samples shall be analyzed using a method which provides adequate sensitivity so that results can be quantified, unless not possible using the most sensitive approved method.

3.2.1.3 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.

3.2.1.4 Non-Wet Weather and Alternative Wet Weather Mass Limit

This parameter (chloride) has a mass limit based on weather conditions. The applicable non-wet weather mass limit is 200,000 pounds/day. The applicable wet weather mass limit is 260,000 pounds/day. Report the applicable mass limit on the Discharge Monitoring Report form in the variable limit column. See Standard Requirements for "Applicability of Alternative Wet Weather Mass Limitations" and "Appropriate Formulas for Effluent Calculations".

3.2.1.5 Whole Effluent Toxicity (WET) Testing

Primary Control Water: Control water shall be standard laboratory control water which has a hardness of +/- 10 % of the hardness of: 1) the Yahara River above the confluence with Badfish Creek. Different control water may be used if prior approval has been given by the Department.

Instream Waste Concentration (IWC): 93%

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% (if the IWC \leq 30%) or 100, 75, 50, 25, 12.5% (if the IWC >30%) and any additional selected by the permittee.

WET Testing Frequency: Tests are required during the following quarters.

- **Acute:** Oct – Dec 2009, July – Sep 2010, Jan – Mar 2011, July – Sep 2012, April – June 2013, Jan – Mar 2014
- **Chronic:** Oct – Dec 2009, April – June 2010, July – Sep 2010, Jan – Mar 2011, Oct – Dec 2011, April – June 2012, July – Sep 2012, Jan – Mar 2013, April – June 2013, Jan – Mar 2014

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 Watershed Management, 101 S. Webster St., P.O. Box 7921, Madison, WI 53707-7921, within 45 days of test completion. The original Discharge Monitoring Report (DMR) form and one copy shall be sent to the contact and location provided on the DMR 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: If $LC_{50} \geq 100$, then $TU_a = 1.0$. If LC_{50} is < 100 , then $TU_a = 100 \div LC_{50}$. A chronic toxicity test shall be considered positive if the Relative Toxic Unit - Chronic (rTU_c) is greater than 1.0 for either species. The rTU_c shall be calculated as follows: If $IC_{25} \geq IWC$, then $rTU_c = 1.0$. If $IC_{25} < IWC$, then $rTU_c = IWC \div IC_{25}$.

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 retests shall be completed using the same species and test methods specified for the original test (see the Standard Requirements section herein).

3.2.1.6 Chloride Variance – Implement Source Reduction Measures

This permit contains a variance to the water quality-based effluent limit (WQBEL) for chloride granted in accordance with s. NR 106.83(2), Wis. Adm. Code. As conditions of this variance the permittee shall (a) maintain effluent quality

at or below the interim effluent limitation specified in the table above, (b) implement the chloride source reduction measures specified below, and (c) perform the actions listed in the compliance schedule. (See the Schedules of Compliance section herein.):

1. Identify sources of chloride to the sewer system.
2. Require significant industrial and commercial contributors to evaluate their chloride discharges and make recommendations for significantly reducing them, with the results of that evaluation being the basis for potential restrictions of chloride discharges.
3. Educate homeowners on the impact of chloride from residential softeners, discuss options available for increasing softener salt efficiency, and request voluntary reductions.
4. Recommend residential softener tune-ups on a voluntary basis.
5. Request voluntary support from local water softening businesses in the efforts described in subds. 2. and 3.
6. Educate licensed installers and self-installers of softeners on providing optional hard water for outside faucets for residences.

3.2.1.7 Compliance with Dissolved Oxygen Limit

D.O. values of 4.5 mg/L or greater, as measured at sample point 001, will be deemed as compliant by the Department based on the results of a previous study by the permittee sent to the Department on 8/18/1999 and approved 9/22/1999. This study documented that the minimum D.O. gain across the Badfish Creek aerator was 0.5 mg/L.

3.2.1.8 Watershed-Based Trading to Meet Future Rock River TMDL Phosphorus Requirements

The District may implement watershed-based trading approaches to meet future phosphorus reduction goals that may be required under a Total Maximum Daily Load for the Rock River Basin to the extent that such trading is authorized under state statutes and approved by the Department.

3.2.2 Sampling Point (Outfall) 005 - EFFL/BADGER MILL CREEK

Monitoring Requirements and Effluent Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		MGD	Continuous	Continuous	
BOD ₅ , Total	Weekly Avg	16 mg/L	Daily	24-Hr Comp	Limit applies November - April.
BOD ₅ , Total	Weekly Avg	7.0 mg/L	Daily	24-Hr Comp	Limit applies May - October.
Suspended Solids, Total	Monthly Avg	10 mg/L	Daily	24-Hr Comp	Limit applies May - October.
Suspended Solids, Total	Monthly Avg	16 mg/L	Daily	24-Hr Comp	Limit applies November - April.
Dissolved Oxygen	Daily Min	5.0 mg/L	Daily	Grab	See section 3.2.2.7 regarding compliance with this limit.

Monitoring Requirements and Effluent Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
pH Field	Daily Min	6.0 su	Daily	Grab	
pH Field	Daily Max	9.0 su	Daily	Grab	
Phosphorus, Total	Monthly Avg	1.5 mg/L	Daily	24-Hr Comp	
Fecal Coliform	Geometric Mean	400 #/100 ml	2/Week	Grab	Limit applies May - September.
Nitrogen, Ammonia (NH ₃ -N) Total	Weekly Avg	8.7 mg/L	Daily	24-Hr Comp	Limit applies October - April.
Nitrogen, Ammonia (NH ₃ -N) Total	Weekly Avg	2.6 mg/L	Daily	24-Hr Comp	Limit applies May - September.
Nitrogen, Ammonia (NH ₃ -N) Total	Monthly Avg	3.8 mg/L	Daily	24-Hr Comp	Limit applies October - April.
Nitrogen, Ammonia (NH ₃ -N) Total	Daily Max	11 mg/L	Daily	24-Hr Comp	Limit applies year-round.
Nitrogen, Ammonia (NH ₃ -N) Total	Monthly Avg	1.1 mg/L	Daily	24-Hr Comp	Limit applies May - September.
Acute WET		rTU _a	Quarterly	24-Hr Comp	Sample during the quarters specified in section 3.2.2.5 .
Chronic WET		rTU _c	Quarterly	24-Hr Comp	Sample during the quarters specified in section 3.2.2.5 .
Chloride	Weekly Avg	481 mg/L	Daily	24-Hr Comp	This interim limit applies until 06/30/2014 when the target value of 430 mg/L becomes effective as the target limit. (See section 6.2)
Chloride	Weekly Avg	14,000 lbs/day	Daily	24-Hr Comp	
Mercury, Total Recoverable	Daily Max	5.7 ng/L	Daily	Grab	

3.2.2.1 Total Metals Analyses

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

3.2.2.2 Sample Analysis

Samples shall be analyzed using a method which provides adequate sensitivity so that results can be quantified, unless not possible using the most sensitive approved method.

3.2.2.3 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.

3.2.2.4 Non-Wet Weather and Alternative Wet Weather Mass Limit

This parameter (chloride) has a mass limit based on weather conditions. The applicable non-wet weather mass limit is 14,000 pounds/day. The applicable wet weather mass limit is not applicable to this outfall because all effluent is pumped, with a maximum pump rate of 3.6 MGD. Report the applicable mass limit on the Discharge Monitoring Report form in the variable limit column. See Standard Requirements for “Applicability of Alternative Wet Weather Mass Limitations” and “Appropriate Formulas for Effluent Calculations”.

3.2.2.5 Whole Effluent Toxicity (WET) Testing

Primary Control Water: Control water shall be standard laboratory control water which has a hardness of +/- 10 % of the hardness of: 1) the Sugar River above the confluence with Badger Mill Creek, for Outfall 005. Different control water may be used if prior approval has been given by the Department.

Instream Waste Concentration (IWC): 97%

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% (if the IWC \leq 30%) or 100, 75, 50, 25, 12.5% (if the IWC >30%) and any additional selected by the permittee.

WET Testing Frequency: Tests are required during the following quarters.

- **Acute:** Oct – Dec 2009, July – Sep 2010, Jan – Mar 2011, July – Sep 2012, April – June 2013, Jan – Mar 2014
- **Chronic:** Oct – Dec 2009, April – June 2010, July – Sep 2010, Jan – Mar 2011, Oct – Dec 2011, April – June 2012, July – Sep 2012, Jan – Mar 2013, April – June 2013, Jan – Mar 2014

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 Watershed Management, 101 S. Webster St., P.O. Box 7921, Madison, WI 53707-7921, within 45 days of test completion. The original Discharge Monitoring Report (DMR) form and one copy shall be sent to the contact and location provided on the DMR 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: If $LC_{50} \geq 100$, then $TU_a = 1.0$. If LC_{50} is < 100, then $TU_a = 100 \div LC_{50}$. A chronic toxicity test shall be considered positive if the Relative Toxic Unit - Chronic (rTU_c) is greater than 1.0 for either species. The rTU_c shall be calculated as follows: If $IC_{25} \geq IWC$, then $rTU_c = 1.0$. If $IC_{25} < IWC$, then $rTU_c = IWC \div IC_{25}$.

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 retests shall be completed using the same species and test methods specified for the original test (see the Standard Requirements section herein).

3.2.2.6 Chloride Variance – Implement Source Reduction Measures

This permit contains a variance to the water quality-based effluent limit (WQBEL) for chloride granted in accordance with s. NR 106.83(2), Wis. Adm. Code. As conditions of this variance the permittee shall (a) maintain effluent quality at or below the interim effluent limitation specified in the table above, (b) implement the chloride source reduction

measures specified for Outfall 001, and (c) perform the actions listed in the compliance schedule. (See the Schedules of Compliance section herein.)

3.2.2.7 Compliance with Dissolved Oxygen Limit

D.O. values of 3.8 mg/L or greater, as measured at sample point 001, will be deemed as compliant by the Department based on the results of a previous study by the permittee sent to the Department on 8/18/1999 and approved 9/22/1999. This study documented that the minimum D.O. gain across the Badger Mill Creek aerator was 1.2 mg/L.

4 Land Treatment Requirements

4.1 Sampling Point(s)

Sampling Point Designation	
Sampling Point Number	Sampling Point Location, Waste Description/Sample Contents and Treatment Description (as applicable)
008	Demonstration project - spray irrigation of final effluent on golf course.

4.2 Monitoring Requirements and Limitations

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

4.2.1 Sampling Point (Outfall) 008 - Golf Course Spray Irrigation, Spray Irrigation

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		gal	Daily	Total Daily	
Hydraulic Application Rate	Monthly Avg	10,000 gal/ac/day	Monthly	Calculated	
BOD ₅ , Total	Monthly Avg	16 mg/L	Monthly	24-Hr Flow Prop Comp	Use sample result from outfall 001.
Suspended Solids, Total		mg/L	Monthly	24-Hr Flow Prop Comp	Use sample result from outfall 001.
pH Field		su	Monthly	Grab	Use sample result from outfall 001.
Nitrogen, Total Kjeldahl		mg/L	Monthly	24-Hr Flow Prop Comp	Use sample result from outfall 001.
Nitrogen, Ammonia (NH ₃ -N) Total		mg/L	Monthly	24-Hr Flow Prop Comp	Use sample result from outfall 001.
Nitrogen, Organic Total		mg/L	Monthly	Calculated	Use sample result from outfall 001.
Nitrogen, Nitrite + Nitrate Total		mg/L	Monthly	24-Hr Flow Prop Comp	Use sample result from outfall 001.
Nitrogen, Total		mg/L	Monthly	Calculated	Use sample result from outfall 001.
Chloride		mg/L	Monthly	24-Hr Flow Prop Comp	Use sample result from outfall 001.

Monitoring Requirements and Limitations

Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Solids, Total Dissolved		mg/L	Monthly	24-Hr Flow Prop Comp	Use sample result from outfall 001.
Nitrogen, Max Applied On Any Zone		lbs/ac/yr	Annual	Total Annual	
Fecal Coliform	Geometric Mean	400 #/100 ml	2/Week	Grab	Use sample result from outfall 001.
Phosphorus, Total		mg/L	Daily	24-Hr Flow Prop Comp	Use sample result from outfall 001.

Daily Log – Monitoring Requirements and Limitations

All discharge and monitoring activity shall be documented on log sheets. Originals of the log sheets shall be kept by the permittee as described under “Records Retention” in the Standard Requirements section, and if requested, made available to the Department.

Parameters	Limit	Units	Sample Frequency	Sample Type
Zone or Location Being Sprayed	-	Number	As Needed	Log
Acres Being Sprayed	-	Acres	As Needed	Log
Start to End Time	-	Date, Hour	As Needed	Log
Wastewater Loading Volume	-	Gallons	As Needed	Log
Wastewater Loading Volume	-	Gallons/Acre	As Needed	Calculated
Visual Observations	-	-	As Needed	Log

Annual Report – Monitoring Requirements and Limitations

The Annual Report is due by January 31st of each year for the previous calendar year.

Parameters	Limit	Units	Sample Frequency	Sample Type
Total Volume Applied Per Zone	-	Gallons	Annual	Total Annual
Total Volume Applied Per Zone	-	Gallons/Acre	Annual	Total Annual
Total Nitrogen Applied per Zone	-	Pounds/Acre/Year	Annual	Calculated
Soil Analysis	-	-	Annual	Composite

Annual Report – Monitoring Requirements and Limitations				
The Annual Report is due by January 31 st of each year for the previous calendar year.				
Parameters	Limit	Units	Sample Frequency	Sample Type
Fertilizer Used	-	Pounds/Acre/Year	Annual	Total Annual

Note: Inches/load cycle = gallons/acre/load cycle divided by 27,154.

4.2.1.1 Monthly Avg Flow – LT Calculation

The monthly average discharge flow for Land Treatment systems is calculated by dividing the total wastewater volume discharged for the month by the total number of days in the month.

4.2.1.2 Spray Irrigation Site - Soil Analysis

The soil at each spray irrigation site shall be tested annually for nitrate-nitrogen, available phosphorus, available potassium and pH.

4.2.1.3 Additional Demonstration Irrigation Project Requirements at Outfall 008

Irrigation may be conducted at Outfall 008 under the following conditions:

1. **Prior Approval Necessary for Equipment or Operational Changes:** The District shall provide written notice to the department in advance of substantive changes to equipment or operating procedures at this outfall. The written notice shall provide information on the proposed changes.
2. **Application of Effluent:** Effluent shall only be applied by direct irrigation and may not be applied during times of the day when the golf course is open for golfing or during times when wind conditions may be expected to cause significant drift.
3. **Irrigation Season:** Effluent may only be applied during the period of April 15th through October 15th.
4. **Irrigation Ponds:** Effluent storage in irrigation ponds shall only be done according to a department-approved management plan.
5. **Soil Samples:** A routine soil sample shall be collected from each spray field according to current UW Soils Dept. methods, and tested for the purpose of obtaining plant available nutrients and for making fertilizer and liming recommendations for the cover crop being grown.
6. **Golf Course Signage:** Adequate signage shall be placed in each area where effluent is used, advising the public that the test plot is being irrigated using non-potable treated effluent and that all golfers or other persons using the areas should practice good personal hygiene and hand washing before eating, drinking or smoking.

4.2.1.4 Additional Demonstration Irrigation Projects at Other Sites

The District may conduct other effluent reuse demonstration projects subject to prior review and approval by DNR and to terms/conditions specified by DNR.

5 Land Application Requirements

In order for biosolids to be land applied it must at a minimum, meet all of the following criteria: the ceiling concentration limits for metals established in this permit; Class B pathogen requirements established in this permit; and one of the vector control requirements specified in this permit.

The permittee may publicly distribute biosolids if it meets the exceptional quality (EQ) criteria specified in s. NR 204.03(19). These criteria require EQ biosolids to meet the following: the high quality metal concentration limits; Class A process requirements for pathogens as well as either a fecal coliform limit of less than 1000 MPN/g TS or a *Salmonella* limit of less than 3 MPN/4g TS; and one of the process requirements for vector attraction reduction. If the biosolids do not meet the exceptional quality criteria specified in s. NR 204.03(19), the permittee may not publicly distribute the biosolids, but the biosolids may be land applied if the minimum criteria specified in this section are met.

5.1 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)
002	Anaerobically digested, gravity belt thickened liquid sludge. Monitoring shall apply only when this outfall is active.
009	Sequencing batch temperature phased anaerobically digested liquid sludge. Notify the Department when this outfall becomes active.
010	Sequencing batch temperature phased anaerobically digested, centrifuged cake sludge. Notify the Department when this outfall becomes active.

5.2 Monitoring Requirements and Limitations

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

5.2.1 Sampling Points (Outfalls) 002, 009 and 010

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Solids, Total		Percent	1/ 2 Months	Composite	
Arsenic Dry Wt	High Quality	41 mg/kg	1/ 2 Months	Composite	Sample 010 annually.
Arsenic Dry Wt	Ceiling	75 mg/kg	1/ 2 Months	Composite	
Cadmium Dry Wt	High Quality	39 mg/kg	1/ 2 Months	Composite	Sample 010 annually.
Cadmium Dry Wt	Ceiling	85 mg/kg	1/ 2 Months	Composite	
Copper Dry Wt	High Quality	1,500 mg/kg	1/ 2 Months	Composite	Sample 010 annually.
Copper Dry Wt	Ceiling	4,300 mg/kg	1/ 2 Months	Composite	
Lead Dry Wt	High Quality	300 mg/kg	1/ 2 Months	Composite	Sample 010 annually.
Lead Dry Wt	Ceiling	840 mg/kg	1/ 2 Months	Composite	
Mercury Dry Wt	High Quality	17 mg/kg	1/ 2 Months	Composite	Sample 010 annually.

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Mercury Dry Wt	Ceiling	57 mg/kg	1/ 2 Months	Composite	
Molybdenum Dry Wt	Ceiling	75 mg/kg	1/ 2 Months	Composite	Sample 010 annually.
Nickel Dry Wt	High Quality	420 mg/kg	1/ 2 Months	Composite	Sample 010 annually.
Nickel Dry Wt	Ceiling	420 mg/kg	1/ 2 Months	Composite	
Selenium Dry Wt	Ceiling	100 mg/kg	1/ 2 Months	Composite	Sample 010 annually.
Selenium Dry Wt	High Quality	100 mg/kg	1/ 2 Months	Composite	
Zinc Dry Wt	High Quality	2,800 mg/kg	1/ 2 Months	Composite	Sample 010 annually.
Zinc Dry Wt	Ceiling	7,500 mg/kg	1/ 2 Months	Composite	Sample 010 annually.
Nitrogen, Total Kjeldahl		Percent	1/ 2 Months	Composite	Sample 010 annually.
Nitrogen, Ammonium (NH ₄ -N) Total		Percent	1/ 2 Months	Composite	Sample 010 annually.
Phosphorus, Total		Percent	1/ 2 Months	Composite	Sample 010 annually.
Potassium, Total Recoverable		Percent	1/ 2 Months	Composite	Sample 010 annually.
Municipal Sludge Priority Pollutant Scan			Once	Composite	As specified in ch. NR 215.03 (1-4), Wis. Adm. Code. Sample Outfall 002 only, in 2013.

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.	Sample 002 or 009 Bimonthly. Sample 010 Annually.
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.	Sample 002 or 009 Bimonthly. Sample 010 Annually.

5.2.1.1 Exception to Bimonthly Sludge Sample Frequency

Where bimonthly sludge sampling is required, the requirement for the January – February period is hereby waived. To compensate, a sixth sample shall be collected and reported during any of the other bimonthly report periods.

5.2.1.2 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.

5.2.1.3 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.

5.2.1.4 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.

5.2.1.5 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. This requirement applies for the entire calendar year in which any exceedance of Table 3 of s. NR 204.07(5)(c), is experienced. Such loading records shall be kept for all List 1 parameters for each site land applied in that calendar year. The formula to be used for calculating cumulative loading is as follows:

$$[(\text{Pollutant concentration (mg/kg)} \times \text{dry tons applied/ac}) \div 500] + \text{previous loading (lbs/acre)} = \text{cumulative lbs pollutant per acre}$$

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

5.2.1.6 Sludge Analysis for PCBs

The permittee shall analyze the sludge for Total PCBs one time during **2013**. 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 and the conditions specified in Standard Requirements of this permit. PCB results shall be submitted by January 31, following the specified year of analysis.

5.2.1.7 Lists 1, 2, 3, and 4

<p>List 1 TOTAL SOLIDS AND METALS</p> <p>See the Monitoring Requirements and Limitations table above for monitoring frequency and limitations for the List 1 parameters</p>
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 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/g TS	1,000
OR		
Salmonella	MPN/4g TS	3
AND, ONE OF THE FOLLOWING PROCESS OPTIONS		
Temp/Time based on % Solids	Alkaline Treatment	
Prior test for Enteric Virus/Viable Helminth Ova	Post test for Enteric Virus/Viable Helminth Ova	
Composting	Heat Drying	
Heat Treatment	Thermophilic Aerobic Digestion	
Beta Ray Irradiation	Gamma Ray Irradiation	
Pasteurization	PFRP Equivalent Process	

* For Class A sludge, each sampling event shall satisfy the numerical standards specified above.

**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
Equivalent Process	Approved by the Department	Varies with process
Injection	-	When applied
Incorporation	-	Within 6 hours of application

5.2.1.8 Daily Land Application Log

Daily Land Application Log		
Discharge Monitoring Requirements and Limitations		
<p>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.</p> <p>NOTE: The Department considers the information maintained in the District’s Metrogro Database as satisfying this requirement.</p>		
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

6 Schedules of Compliance

6.1 Mercury Pollutant Minimization Program

The permittee shall implement or continue a pollutant minimization program whenever, after the first 24 months of mercury monitoring, a mercury effluent limitation is necessary under the procedure in s. NR 106.145(2), Wis. Adm. Code.

Required Action	Date Due
Implement the Mercury Pollutant Minimization Program: The permittee shall implement the PMP as submitted or as amended by agreement of the permittee and the Department.	
Submit Annual Status Reports: The permittee shall submit to the Department an annual status report on the progress of the PMP as required by s. NR 106.145(7), Wis. Adm. Code. Submittal of each annual status report is required by March 31, annually. Note: If the permittee wishes to apply for an alternative mercury effluent limitation, that application is due with the application for permit reissuance by 6 months prior to permit 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.	

6.2 Chloride Target Value

As a condition of the variance to the water quality based effluent limitation(s) for chloride granted in accordance with s. NR 106.83(2), Wis. Adm. Code, the permittee shall perform the following actions.

Required Action	Date Due
Annual Chloride Progress Report: Submit an annual progress report, that shall indicate which chloride source reduction measures have been implemented. The report shall also include a calculated annual mass discharge of chloride based on chloride sampling and flow data. After the first progress report is submitted, the permittee may submit a written request to the department to waive further annual progress reports. If after evaluating the progress of the source reduction measures, the department decides to accommodate the request, the department shall notify the permittee in writing that the subsequent annual reports are waived. The Final Chloride Report cannot be waived and shall be submitted by the Date Due. Note that the interim limitation of 481 mg/L remains enforceable until 6/30/2014, when the target value of 430 mg/L becomes effective. The first annual chloride progress report is to be submitted by the Date Due.	06/30/2010
Annual Chloride Progress Report #2: Submit a chloride progress report.	06/30/2011
Annual Chloride Progress Report #3: Submit a chloride progress report.	06/30/2012
Annual Chloride Progress Report #4: Submit a chloride progress report.	06/30/2013
Final Chloride Report: Submit a final report documenting the success in meeting the chloride target value of 430 mg/L, as well as the anticipated future reduction in chloride sources and chloride effluent concentrations. This report shall also include proposed target values and source reduction measures for negotiations with the department if the permittee intends to seek a renewed chloride variance per s. NR 106.83, Wis. Adm. Code, for the reissued permit. Note that the target value is the benchmark for evaluating the effectiveness of the chloride source reduction measures, but is not an enforceable limitation until the last day of this permit, 09/30/2014.	06/30/2014

7 Standard Requirements

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).

7.1 Reporting and Monitoring Requirements

7.1.1 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. When submitting a paper Discharge Monitoring Report form, the original and one copy of the Wastewater Discharge Monitoring Report Form shall be submitted to the return address printed 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.

All Wastewater Discharge Monitoring Reports submitted to the Department should be submitted using the electronic Discharge Monitoring Report system. Permittees who may be unable to submit Wastewater Discharge Monitoring Reports electronically may request approval to submit paper DMRs upon demonstration that electronic reporting is not feasible or practicable.

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.

An Electronic Discharge Monitoring Report Certification sheet shall be signed and submitted with each electronic Discharge Monitoring Report submittal. This certification sheet, which is not part of the electronic report form, shall be signed by a principal executive officer, a ranking elected official or other duly authorized representative and shall be mailed to the Department at the time of submittal of the electronic Discharge Monitoring Report. The certification sheet certifies that the electronic report form is true, accurate and complete. Paper reports shall be signed by a principal executive officer, a ranking elected official, or other duly authorized representative.

7.1.2 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 shall be performed by a laboratory certified or registered in accordance with the requirements of ch. NR 149, Wis. Adm. Code. Groundwater sample collection and analysis shall be performed in accordance with ch. NR 140, Wis. Adm. Code. The analytical methodologies used shall enable the laboratory to quantitate all substances for which monitoring is required at levels below the effluent limitation. If the required level cannot be met by any of the methods available in 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.

7.1.3 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.

7.1.4 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.

7.1.5 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 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.

7.1.6 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 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.

A separate CMAR certification document, that is not part of the electronic report form, shall be mailed to the Department at the time of electronic submittal of the CMAR. The CMAR certification shall be signed and submitted by an authorized representative of the permittee. The certification shall be submitted by mail. The certification shall verify the electronic report is complete, accurate and contains information from the owner's treatment works.

7.1.7 Records Retention

The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings 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.

7.1.8 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.

7.2 System Operating Requirements

7.2.1 Noncompliance Notification

- 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 an unanticipated 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.

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**

7.2.2 Flow Meters

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

7.2.3 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 500-536, Wis. Adm. Code.

7.2.4 Sludge Management

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

7.2.5 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.

7.2.6 Unscheduled Bypassing

Any unscheduled bypass or overflow of wastewater at the treatment works or from the collection system is prohibited, and the Department may take enforcement action against a permittee for such occurrences under s. 283.89, Wis. Stats., unless:

- 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, retention of untreated wastes, 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 preventive maintenance; and
- The permittee notified the Department as required in this Section.

Whenever there is an unscheduled bypass or overflow occurrence at the treatment works or from the collection system, the permittee shall notify the Department within 24 hours of initiation of the bypass or overflow occurrence by telephoning the wastewater staff in the regional office as soon as reasonably possible (FAX, email or voice mail, if staff are unavailable).

In addition, the permittee shall within 5 days of conclusion of the bypass or overflow occurrence report the following information to the Department in writing:

- Reason the bypass or overflow occurred, or explanation of other contributing circumstances that resulted in the overflow event. If the overflow or bypass is associated with wet weather, provide data on the amount and duration of the rainfall or snow melt for each separate event.
- Date the bypass or overflow occurred.
- Location where the bypass or overflow occurred.
- Duration of the bypass or overflow and estimated wastewater volume discharged.
- Steps taken or the proposed corrective action planned to prevent similar future occurrences.
- Any other information the permittee believes is relevant.

7.2.7 Scheduled Bypassing

Any construction or normal maintenance which results in a bypass of wastewater from a treatment system is prohibited unless authorized by the Department in writing. If the Department determines that there is significant public interest in the proposed action, the Department may schedule a public hearing or notice a proposal to approve the bypass. Each request shall specify the following minimum information:

- proposed date of bypass;
- estimated duration of the bypass;

- estimated volume of the bypass;
- alternatives to bypassing; and
- measures to mitigate environmental harm caused by the bypass.

7.2.8 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. The wastewater treatment facility shall be under the direct supervision of a state certified operator as required in s. NR 108.06(2), Wis. Adm. Code. 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.

7.3 Surface Water Requirements

7.3.1 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.

7.3.2 Appropriate Formulas for Effluent Calculations

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

Weekly/Monthly average concentration = the sum of all daily results for that week/month, divided by the number of results during that time period.

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.

7.3.3 Visible Foam or Floating Solids

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

7.3.4 Percent Removal

During any 30 consecutive days, the average effluent concentrations of BOD₅ 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.

7.3.5 Fecal Coliforms

The limit for fecal coliforms shall be expressed as a monthly geometric mean.

7.3.6 Seasonal Disinfection

Disinfection shall be provided from May 1 through September 30 of each year for the Badger Mill Creek Outfall (005) and from April 15 through October 15 of each year for the Badfish Creek Outfall (001). Monitoring requirements and the limitation for fecal coliforms apply only during the period in which disinfection is required. Whenever chlorine is used for disinfection or other uses, the limitations and monitoring requirements for residual chlorine shall apply. A dechlorination process shall be in operation whenever chlorine is used.

7.3.7 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.

7.3.8 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 Watershed Management, 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.

7.3.9 Whole Effluent Toxicity (WET) and Chloride Source Reduction Measures

Acute whole effluent toxicity testing requirements and acute whole effluent toxicity limitations may be held in abeyance by the department until chloride source reduction actions are completed, according to s. NR 106.89, Wis. Adm. Code, if either:

- the permittee can demonstrate to the satisfaction of the department that the effluent concentration of chloride exceeds 2,500 mg/L, or
- the permittee can demonstrate to the satisfaction of the department that the effluent concentration of chloride is less than 2,500 mg/L, but in excess of the calculated acute water quality-based effluent limitation, and additional data are submitted which demonstrate that chloride is the sole source of acute toxicity.

Chronic whole effluent toxicity testing requirements and chronic whole effluent toxicity limitations may be held in abeyance by the department until chloride source reduction actions are completed, according to s. NR 106.89, Wis. Adm. Code, if either:

- the permittee can demonstrate to the satisfaction of the department that the effluent concentration of chloride exceeds 2 times the calculated chronic water quality-based effluent limitation, or
- the permittee can demonstrate to the satisfaction of the department that the effluent concentration of chloride is less than 2 times the calculated chronic water quality-based effluent limitation, but in excess of the calculated chronic water quality-based effluent limitation, and additional data are submitted which demonstrate that chloride is the sole source of chronic toxicity.

Following the completion of chloride source reduction activities, the department shall evaluate the need for whole effluent toxicity monitoring and limitations.

7.4 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:

7.4.1 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 March 31 of each year as part of the annual pretreatment program report required herein.

7.4.2 Regulation of Industrial Users

7.4.2.1 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.

7.4.2.2 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.

The permittee shall provide a copy of all newly issued, reissued, or modified discharge permits to the Department.

7.4.2.3 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.

At least one time per year the permittee shall inspect and sample the discharge from each significant industrial user, or more frequently if so specified in the permittee's approved pretreatment program. At least once every 2 years the permittee shall evaluate whether each significant industrial user needs a slug control plan. 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.

7.4.2.4 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 s. 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 September 30 of each year and for the period July through December shall be provided to the Department by March 31 of the succeeding year, unless alternate submittal dates are approved.

7.4.2.5 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 March 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.

7.4.2.6 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.

7.4.3 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 March 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.

7.4.4 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.

7.4.5 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.

7.5 Land Treatment (Land Disposal) Requirements

7.5.1 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

7.5.2 Appropriate Formulas for Nitrogen

Total Nitrogen = Total Kjeldahl Nitrogen (mg/L) + [NO₂ + NO₃] Nitrogen (mg/L)

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

7.5.3 Toxic or Hazardous Pollutants

The discharge of toxic or hazardous pollutants to land treatment systems is prohibited unless the applicant can demonstrate and the department determines that the discharge of such pollutants will be in such small quantities that no detrimental effect on groundwater or surface water will result pursuant to s. NR 206.07(2)(c), Wis. Adm. Code. The criteria used shall include but not be limited to the toxicity of the pollutant, capacity of the soil to remove the pollutant, degradability, usual or potential presence of the pollutant in the existing environment, method of application and all other relevant factors.

7.5.4 Industrial Waste - Pretreatment Requirements

Industrial waste discharges tributary to municipal land treatment systems shall be in compliance with the applicable pretreatment standards under ch. NR 211 Wis. Adm. Code pursuant to s. NR 206.07(2)(e), Wis. Adm. Code.

7.5.5 Overflow

Discharge to a land treatment system shall be limited so that the discharge and any precipitation which falls within the boundary of the disposal system during such discharge does not overflow the boundary of the system unless the WPDES permit authorizes collection and discharge of runoff to surface water pursuant to s. NR 206.07(2)(g), Wis. Adm. Code.

7.5.6 Management Plan Requirements

All land treatment systems shall be operated in accordance with an approved management plan. The management plan shall conform to the requirements of s. NR 110.25(3m), Wis. Adm. Code, per s. NR 206.07(2)(h), Wis. Adm. Code.

7.5.7 Monthly Average Hydraulic Application Rate

Determine the monthly average hydraulic application rate (in gal/acre/day) for each outfall by calculating the total gallons of wastewater applied onto the site for the month, dividing that total by the number of wetted acres loaded during the month, and then dividing this resulting value by the number of days in the month. Enter this calculated monthly average value on the Discharge Monitoring Report form in the box for the last day of the month, in the "Hydraulic Application Rate" column.

7.5.8 Nitrogen Loading Requirements for Spray Irrigation

The annual total pounds of nitrogen applied to the irrigation acreage shall be restricted to the annual nitrogen needs of the cover crop as specified in the irrigation annual report table. The Department may approve an alternate nitrogen loading limit in the management plan, pursuant to s. NR 206.06, Wis. Adm. Code.

7.5.9 Runoff

Discharge shall be limited to prevent any runoff of effluent from the spray irrigation site. Wastewater may not be sprayed during any rainfall event that causes runoff from the site, pursuant to s. NR 206.08(2)(b)1, Wis. Adm. Code.

7.5.10 Ponding

The volume of discharge to a spray irrigation system shall be limited to prevent ponding, except for temporary conditions following rainfall events, pursuant to s. NR 206.08(2)(b)2, Wis. Adm. Code.

7.5.11 Frozen Ground

Spray irrigation onto frozen ground is prohibited, pursuant to s. NR 110.255(2)(a)2, Wis. Adm. Code.

7.5.12 Land Treatment Annual Report

Annual Land Treatment Reports are due by January 31st of each year for the previous calendar year.

7.6 Land Application Requirements

7.6.1 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.

7.6.2 General Sludge Management Information

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

7.6.3 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.

7.6.4 Land Application Characteristic Report

Each report shall consist of a Characteristic Form 3400-49 and Lab Report, unless approval for not submitting the lab reports has been given. Both reports shall be submitted by January 31 following each year of analysis.

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.

7.6.5 Calculation of Water Extractable Phosphorus

The permittee shall use the following formula to calculate and report Water Extractable Phosphorus:

Water Extractable Phosphorus (% of Total P) =

$$[\text{Water Extractable Phosphorus (mg/kg, dry wt)} \div \text{Total Phosphorus (mg/kg, dry wt)}] \times 100$$

7.6.6 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 as follows.

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 the following provisions and Table EM in s. NR 219.04, Wis. Adm. Code.

- EPA Method 1668 may be used to test for all PCB congeners. If this method is employed, all PCB congeners shall be delineated. Non-detects shall be treated as zero. The values that are between the limit of detection 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. **Note:** It is recognized that a number of the congeners will co-elute with others, so there will not be 209 results to sum.

- EPA Method 8082A shall be used for PCB-Aroclor analysis and may be used for congener specific analysis as well. If congener specific analysis is performed using Method 8082A, the list of congeners tested shall include at least congener numbers 5, 18, 31, 44, 52, 66, 87, 101, 110, 138, 141, 151, 153, 170, 180, 183, 187, and 206 plus any other additional congeners which might be reasonably expected to occur in the particular sample. For either type of analysis, the sample shall be extracted using the Soxhlet extraction (EPA Method 3540C) (or the Soxhlet Dean-Stark modification) or the pressurized fluid extraction (EPA Method 3545A). If Aroclor analysis is performed using Method 8082A, clean up steps of the extract shall be performed as necessary to remove interference and to achieve as close to a limit of detection of 0.11 mg/kg as possible. Reporting protocol, 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 congener specific analysis is done using Method 8082A, clean up steps of the extract shall be performed as necessary to remove interference and to achieve as close to a limit of detection of 0.003 mg/kg as possible for each congener. If the aforementioned limits of detection 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. The lab conducting the analysis shall perform as many of the following methods as necessary to remove interference:

3620C – Florisil	3611B - Alumina
3640A - Gel Permeation	3660B - Sulfur Clean Up (using copper shot instead of powder)
3630C - Silica Gel	3665A - Sulfuric Acid Clean Up

7.6.7 Land Application Report

Land Application Report Form 3400-55 shall be submitted by January 31, following each year non-exceptional quality sludge is land applied. Non-exceptional quality sludge is defined in s. NR 204.07(4), Wis. Adm. Code.

7.6.8 Other Methods of Disposal or Distribution Report

The permittee shall submit Report Form 3400-52 by January 31, following each year sludge is hauled, landfilled, incinerated, or when exceptional quality sludge is distributed or land applied.

7.6.9 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) (1), Wis. Adm. Code.

7.6.10 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.

7.6.11 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.

7.6.12 Class A Sludge: Fecal Coliform Density Requirement

If fecal coliform density is used to demonstrate compliance with Class A requirements, 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 distributed at that time, no re-testing is required. If the material is bagged, distributed or land applied at a later time, the sludge shall be re-tested and this requirement satisfied at that time also, to ensure that regrowth of bacteria has not occurred. See Municipal Wastewater Sludge Guidance Memo #3 (Fecal Coliform Monitoring - Sampling and Analytical Procedures).

7.6.13 Class A Sludge: Salmonella Density Requirements

If salmonella density is used to demonstrate compliance with Class A requirements, the salmonella density, which must be < 3 MPN/4 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 distributed at that time, no re-testing is required. If the material is bagged, distributed or land applied at a later time, the sludge shall be re-tested and this requirement satisfied at that time also, to ensure that regrowth of bacteria has not occurred.

7.6.14 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:

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

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

Method 2:

$$\text{Geometric Mean} = \text{antilog}[(X_1 + X_2 + X_3 \dots + X_n) \div n]$$

Where X = log₁₀ 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 x 10 ⁵	5.78
2	4.2 x 10 ⁶	6.62
3	1.6 x 10 ⁶	6.20
4	9.0 x 10 ⁵	5.95
5	4.0 x 10 ⁵	5.60
6	1.0 x 10 ⁶	6.00
7	5.1 x 10 ⁵	5.71

The geometric mean for the seven samples is determined by averaging the log₁₀ values of the coliform density and taking the antilog of that value.

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

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

7.6.15 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:

$$\text{VSR}\% = \frac{\text{VS}_{\text{IN}} - \text{VS}_{\text{OUT}}}{\text{VS}_{\text{IN}} - (\text{VS}_{\text{OUT}} \times \text{VS}_{\text{IN}})} \times 100$$

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)

7.6.16 Class B Sludge - Vector Control: Incorporation

Class B sludge shall be incorporated within 6 hours of surface application, or as approved by the Department.

8 Summary of Reports Due

FOR INFORMATIONAL PURPOSES ONLY

Description	Date	Page
Mercury Pollutant Minimization Program -Implement the Mercury Pollutant Minimization Program	See Permit	21
Mercury Pollutant Minimization Program -Submit Annual Status Reports	See Permit	21
Chloride Target Value -Annual Chloride Progress Report	June 30, 2010	21
Chloride Target Value -Annual Chloride Progress Report #2	June 30, 2011	21
Chloride Target Value -Annual Chloride Progress Report #3	June 30, 2012	21
Chloride Target Value -Annual Chloride Progress Report #4	June 30, 2013	21
Chloride Target Value -Final Chloride Report	June 30, 2014	21
Compliance Maintenance Annual Reports (CMAR)	by June 30, each year	22
Industrial User Compliance Evaluation and Violation Reports	Semiannual	28
Pretreatment Program Report	Annually	29
General Sludge Management Form 3400-48	prior to any significant sludge management changes	31
Characteristic Form 3400-49 and Lab Report	by January 31 following each year of analysis	31
Land Application Report Form 3400-55	by January 31, following each year non-exceptional quality sludge is land applied	32
Report Form 3400-52	by January 31, following each year sludge is hauled, landfilled, incinerated, or when exceptional quality sludge is distributed or land applied	32
Annual Land Treatment Reports	by January 31st of each year for the previous calendar year	31
Wastewater Discharge Monitoring Report	no later than the date indicated on the form	21

Report forms shall be submitted to the address printed on the report form. Any facility plans or plans and specifications for municipal, industrial, industrial pretreatment and non industrial wastewater systems shall be submitted to the Bureau of Watershed Management, P.O. Box 7921, Madison, WI 53707-7921. All other submittals required by this permit shall be submitted to:

Mr. Larry Benson, South Central Region, 3911 Fish Hatchery Road, Fitchburg, WI 53711-5397