



**National Pollutant Discharge  
Elimination System /State Disposal  
System (NPDES/SDS) Permit Program  
Fact Sheet**

<b>Permittee:</b> City of Fergus Falls PO Box 868 Fergus Falls, MN 56538-0868	<b>Facility Name:</b> Fergus Falls Wastewater Treatment Facility 311 Kennedy Park Road South Fergus Falls, MN 56537	<b>Permit Number:</b> MN0050628
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**Current Permit Expiration:** June 30, 2012

**Public Comment Period Begins:** July 2, 2012

**Period Ends:** August 1, 2012

**Receiving Water:** Ottertail River, Class 1C, 2Bd, 3B, 3C, 4A, 4B, 5, 6 Water

**Proposed Action:** Permit Reissuance

**Permitting Contact**

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## **Purpose and Participation**

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### **Purpose**

This fact sheet outlines the principal issues related to the preparation of this draft permit and documents the decisions that were made in the determination of the effluent limitations and conditions of this permit.

### **Applicable Statutes**

This fact sheet has been prepared according to the Title 40 Federal Code of Regulations (CFR) 124.8 and 124.56 and Minn R. 7001.0100, Subp. 3 in regards to a draft NPDES/SDS permit to construct and/or operate wastewater treatment facilities and to discharge into waters of the State of Minnesota.

### **Public Participation**

You may submit written comments on the terms of the draft permit or on the Commissioner's preliminary determination. Your written comments must include the following:

1. A statement of your interest in the permit application or the draft permit.
2. A statement of the action you wish the Minnesota Pollution Control Agency (MPCA) to take, including specific references to sections of the draft permit that you believe should be changed.
3. The reasons supporting your position, stated with sufficient specificity as to allow the Commissioner to investigate the merits of your position.

You may also request that the MPCA Commissioner hold a public informational meeting. A public informational meeting is an informal meeting which the MPCA may hold to help clarify and resolve issues.

In accordance with Minn. R. 7000.0650 and Minn. R. 7001.0110, your petition requesting a public informational meeting must identify the matter of concern and must include the following: items 1 through 3 identified above; a statement of the reasons the MPCA should hold the meeting; and the issues you would like the MPCA to address at the meeting.

In addition, you may submit a petition for a contested case hearing. A contested case hearing is a formal hearing before an administrative law judge. Your petition requesting a contested case hearing must include a statement of reasons or proposed findings supporting the MPCA decision to hold a contested case hearing pursuant to the criteria identified in Minn. R. 7000.1900, subp. 1 and a statement of the issues proposed to be addressed by a contested case hearing and the specific relief requested. To the extent known, your petition should include a proposed list of witnesses to be presented at the hearing, a proposed list of publications, references or studies to be introduced at the hearing, and an estimate of time required for you to present the matter at hearing.

You must submit all comments, requests, and petitions during the public comment period identified on page 1 of this notice. All written comments, requests, and petitions received during the public comment period will be considered in the final decisions regarding the permit. If the MPCA does not receive any written comments, requests, or petitions during the public comment period, the Commissioner or other MPCA staff as authorized by the Commissioner will make the final decision concerning the draft permit. During the public comment period, however, you may request that the draft permit be presented to the MPCA's Citizens' Board (Board) for final decision. You may participate in the activities of the Board as provided in Minn. R. 7000.0650.

**Comments, petitions, and/or requests must be submitted by the last day of the public comment period to:**

Holly Christensen  
Minnesota Pollution Control Agency  
714 Lake Avenue, Suite 220  
Detroit Lakes, MN 56501

The permit will be reissued if the MPCA determines that the proposed Permittee will, with respect to the facility or activity to be permitted, comply or undertake a schedule to achieve compliance with all applicable state and federal pollution control statutes and rules administered by the MPCA and the conditions of the permit and that all applicable requirements of Minn. Stat. ch. 116D and the rules promulgated thereunder have been fulfilled.

More detail on all requirements placed on the Facility may be found in the permit document.

## **Facility Description**

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### **Background Information**

#### Facility Location

The Fergus Falls Wastewater Treatment Facility (Facility) is an existing municipal treatment facility that treats wastewater from the city of Fergus Falls. The Facility is located in the NE 1/4 of Section 5, Township 132 North, Range 43 West, Buse Township, Otter Tail County, Minnesota.

#### Outfall Location

The outfall pipe is located directly to the south of the Facility, at the northern edge of the Ottertail River. The outfall discharges on a continuous basis directly to the Ottertail River in the NE 1/4 of Section 5, Township 132 North, Range 43 West, Buse Township, Otter Tail County, Minnesota. See Station SD001 on Figure 1: Map of Permitted Facility shown on page 5. Figure 2: Facility Flow Diagram on page 7 shows the layout and flow of the components at the Facility.

Figure 1: Map of Permitted Facility



## **Components and Treatment Technology**

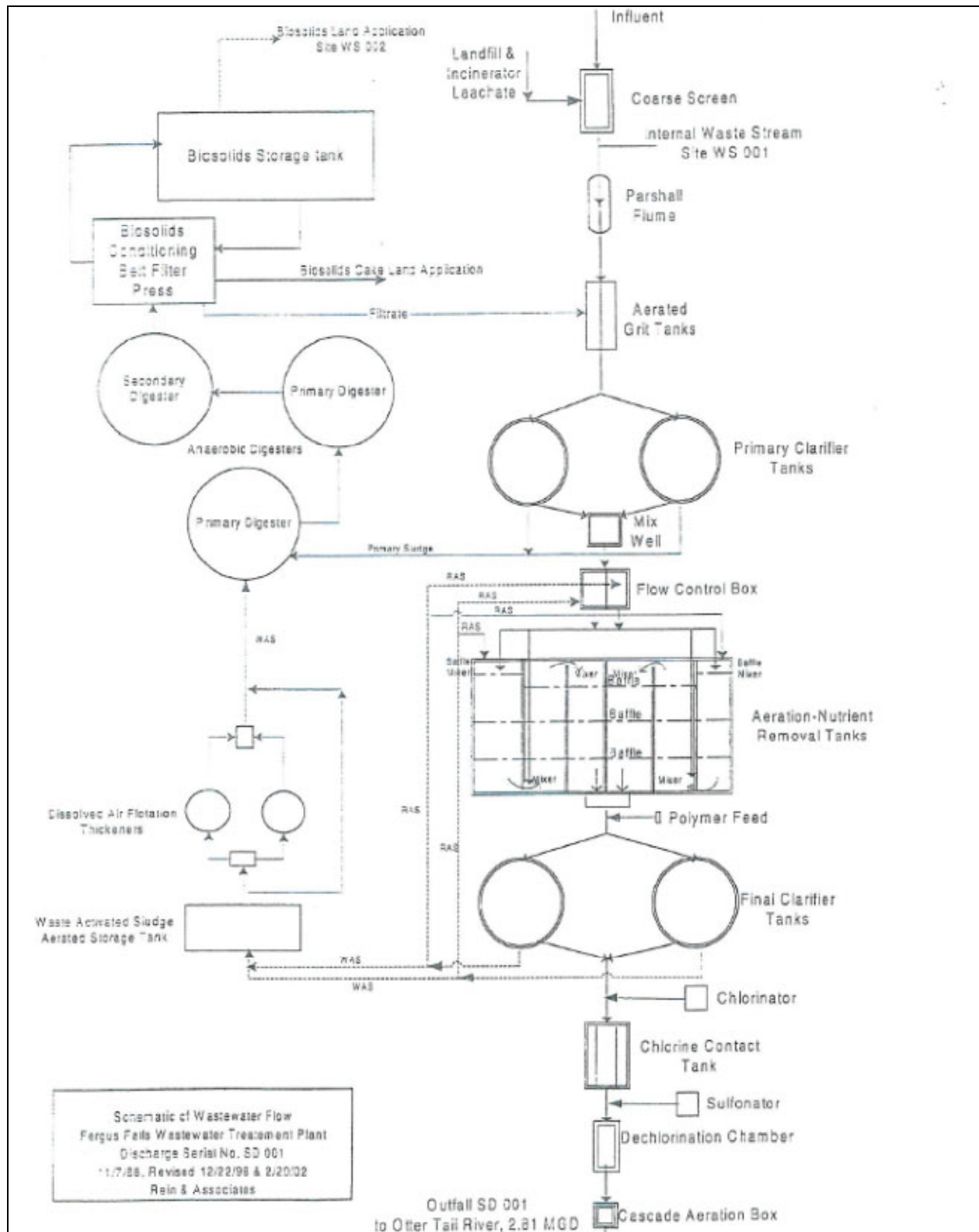
### Current Information

Major components of this Class A Facility include:

- 1 Bar Screen - mechanical
- 2 Grit Removal Units
- 2 Primary Clarifiers - 138,000 gallons each
- 2 Activated Sludge Units - extended aeration, 1,113,000 gallons each
- 2 Secondary Clarifiers
- 1 Phosphorus Removal Unit - chemical
- 1 Chlorine Contact Tank
- 1 Dechlorination Chamber
- Chemical Addition for pH Adjustment
- 1 Waste Activated Sludge Aerobic Storage Tank – 276,000 gallons
- 1 Dissolved Air Flotation Thickener
- 3 Anaerobic Digesters- complete mixed, heated – mesophilic, 471,000 gallons each
- 1 Belt Filter Press, Gravity Belt
- 1 Biosolids Storage Tank

The existing Facility is designed to treat an average wet weather flow of 2.81 million gallons per day (mgd), with a 5-day carbonaceous biochemical oxygen demand concentration of 282 milligrams per liter (mg/l), a total suspended solids concentration of 267 mg/l, and a total phosphorus concentration of 8.0 mg/l. The Facility has a continuous discharge (SD001) to the Ottertail River (Class 1C, 2Bd, 3B, 3C, 4A, 4B, 5, 6 Water). There are no bypass or overflow points known to exist in this treatment system.

Figure 2: Flow Schematic



## Changes to Facility or Operation

There are no planned changes to the Facility or its operation for this permit cycle.

## Significant Industrial Users (SIUs)

The Facility has a pretreatment Significant Industrial User agreement with one industry, Quality Circuits. Quality Circuits produces circuit boards and intermittently discharges approximately 26,000 gallons per day (gpd) of process wastewater and 1,000 gpd of non-process wastewater to the Facility. The Facility is required to monitor for both total lead and total copper based on the SIU process wastewater.

## Recent Compliance History

Minnesota Pollution Control Agency staff completed the most recent inspection at the Facility on April 15, 2009. During the review period of September 1, 2007 through February 28, 2009, only one violation was documented: one month where total phosphorus exceeded the permitted limit. There were no other violations during this 18-month time period.

## Recent Monitoring History

Table 1: Discharge Monitoring Summary, May 2011 through April 2012

Surface Discharge Station SD001 (Surface Water Discharge)															
Parameter Name	Limit and Units	Limit Type	5/11	6/11	7/11	8/11	9/11	10/11	11/11	12/11	1/12	2/12	3/12	4/12	Ave
BOD, Carbonaceous 05 Day (20 Deg C)	85 %	MnCalMoAvg	98	98	98	98	98	99	98	98	98	98	97	98	98.0
Percent Removal															
BOD, Carbonaceous 05 Day (20 Deg C)	266 kg/day	CalMoAvg	21	21	21	27	28	24	36	37	38	43	49	34	31.583
BOD, Carbonaceous 05 Day (20 Deg C)	425 kg/day	MxCalWkAvg	21	21	21	39	32	28	56	50	57	64	64	46	41.583
BOD, Carbonaceous 05 Day (20 Deg C)	25 mg/L	CalMoAvg	2	2	2	3	3	3	3	4	4	4	5	3	3.167
BOD, Carbonaceous 05 Day (20 Deg C)	40 mg/L	MxCalWkAvg	2	2	2	4	3	4	5	5	5	6	6	4	4.0
Chlorine, Total Residual	0.038 mg/L	DailyMax	.03	0.03	<0.03	.03	0.03	.03						0.03	0.03
Copper, Total (as Cu)	ug/L	SingleVal			<5										
Fecal Coliform, MPN or Membrane Filter 44.5C	200 #100ml	CalMoGeoMn	10	26	29	21	7	5					8		15.143
Lead, Total (as Pb)	ug/L	SingleVal			<0.5										
Mercury, Total (as Hg)	ng/L	CalMoAvg		1.21			1.31			0.724			2.02		1.316
Nitrogen, Ammonia, Total (as N)	45.7 kg/day	CalMoAvg		0.922	1.53	10.709	8.77								5.483
Nitrogen, Ammonia, Total (as N)	4.3 mg/L	CalMoAvg		0.1	0.1	1	.8								0.5
Nitrogen, Ammonia, Total (as N)	mg/L	CalMoAvg	4.9					.1	0.1	0.4	3.1	12.5	16.5	6.6	5.525
Oxygen, Dissolved	mg/L	CalMoMin	3.8	4.1	4.3	3.4	3.3	3.3	4.8	2.7	3.5	4.4	2.4	4.8	3.733
pH	9.0 SU	CalMoMax	7.8	7.7	7.5	7.6	7.5	7.4	7.7	7.6	7.5	7.6	7.6	7.6	7.592
pH	6.0 SU	CalMoMin	7.4	7.2	7.0	7.1	6.8	6.9	7.1	7	7.1	7.3	7.2	7.1	7.1
Phosphorus, Total (as P)	10.6 kg/day	CalMoAvg	3.7	2.6	2.9	7.6	2.5	1.9	1.8	2.2	2.4	3	2.9	2.5	3.0
Phosphorus, Total (as P)	1.0 mg/L	CalMoAvg	.035	0.25	.27	.72	0.23	.18	0.17	0.21	0.22	.28	0.27	0.23	0.255
Solids, Total Suspended (TSS) Percent Removal	85 %	MnCalMoAvg	97	98	98	97	98	98	98	98	97	97	95	97	97.333
Solids, Total Suspended (TSS)	319 kg/day	CalMoAvg	45	26	38	39	43	30	38	40	51	49	82	40	43.417
Solids, Total Suspended (TSS)	478 kg/day	MxCalWkAvg	46	28	43	50	67	36	50	53	57	85	92	42	54.083
Solids, Total Suspended (TSS)	30 mg/L	CalMoAvg	4	2	4	4	4	3	4	4	5	5	8	4	4.25
Solids, Total Suspended (TSS)	45 mg/L	MxCalWkAvg	4	3	4	5	6	4	5	5	5	8	9	4	5.167
Waste Stream Station WS001 (Influent Waste Stream)															
Parameter Name	Limit and Units	Limit Type	5/11	6/11	7/11	8/11	9/11	10/11	11/11	12/11	1/12	2/12	3/12	4/12	Ave
BOD, Carbonaceous 05 Day (20 Deg C)	mg/L	CalMoAvg	117	142	133	145	151	158	177	174	177	183	158	168	156.917
BOD, Carbonaceous 05 Day (20 Deg C)	mg/L	CalMoMax	148	127	152	188	171	174	209	199	228	264	186	234	190.0
Flow	MG	CalMoTot	77.478	68.708	72.589	71.717	60.711	60.1	55.523	55.693	55.186	51.509	58.762	59.909	62.348
Flow	mgd	CalMoMax	2.499	2.293	2.342	2.313	2.024	1.939	1.851	1.803	1.780	1.776	1.896	1.997	2.043
Flow	mgd	CalMoMax	2.761	2.596	3.537	3.52	2.242	2.047	1.988	1.892	1.904	1.906	2.129	2.917	2.453
Mercury, Total (as Hg)	ng/L	CalMoAvg		65.5			287			142			35.4		132.475
Parameter Name	Limit and Units	Limit Type	5/11	6/11	7/11	8/11	9/11	10/11	11/11	12/11	1/12	2/12	3/12	4/12	Ave
pH	SU	CalMoMax	7.6	9.4	7.8	7.5	7.9	8.4	7.9	7.9	7.9	7.9	7.9	7.9	8.0
pH	SU	CalMoMin	9.1	7.4	7.4	7.8	7.6	7.6	7.6	7.6	7.6	7.7	7.4	7.6	7.7
Phosphorus, Total (as P)	mg/L	CalMoAvg	3.48	3.58	3.95	3.54	3.95	4.19	3.99	4.22	4.21	4	3.67	4.1	3.907
Precipitation	in	CalMoTot	2.8	1.63	7.0	3.16	.58	.76	0.12	0.13	0.35	.66	0.89	3.71	1.816
Solids, Total Suspended (TSS)	mg/L	CalMoAvg	132	151	178	150	185	189	155	180	154	149	180	144	158.917
Solids, Total Suspended (TSS)	mg/L	CalMoMax	188	172	324	232	448	232	192	284	188	180	223	176	236.417



## Receiving Water

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### Use Classification

The receiving water is a Class 1C, 2Bd, 3B, 3C, 4A, 4B, 5, 6 Water.

7050.0200 Water Use Classifications for Waters of the State

Subp. 2. **Class 1 waters, domestic consumption.** Domestic consumption includes all waters of the state which are or may be used as a source of supply for drinking, culinary or food processing use of other domestic purposes, and for which quality control is or may be necessary to protect the public health, safety, or welfare.

Subp. 3. **Class 2 waters, aquatic life and recreation.** Aquatic life and recreation includes all waters of the state which do or may support fish, other aquatic life, bathing boating or other recreational purposes, and where quality control is or may be necessary to protect aquatic or terrestrial life or their habitats, or the public health, safety, or welfare.

Subp. 4. **Class 3 waters, industrial consumption.** Industrial consumption includes all waters of the state which are or may be used as a source of supply for industrial process or cooling water, or any other industrial or commercial purposes, and for which quality control is or may be necessary to protect the public health, safety, or welfare.

Subp. 5. **Class 4 waters, agriculture and wildlife.** Agriculture and wildlife includes all waters of the state which are or may be used for any agriculture purposes, including stock watering and irrigation, or by waterfowl or other wildlife, and for which quality control is or may be necessary to protect terrestrial life and its habitat or the public health, safety, or welfare.

Subp. 6. **Class 5 waters, aesthetic enjoyment and navigation.** Aesthetic enjoyment and navigation includes all waters of the state which are or may be used for any form of water transportation or navigation, or fire prevention, and for which quality control is or may be necessary to protect the public health, safety, or welfare.

Subp. 7. **Class 6 waters, other uses.** Other uses includes all waters of the state which are or may serve the above listed uses or any other beneficial uses not listed herein, including without limitation any such uses in this or any other state, province, or nation of any waters flowing through or originating in this state, and for which quality control is or may be necessary for the above declared purposes, or to conform with the requirements of the legally constituted state or national agencies having jurisdiction over such waters, or any other considerations the agency may deem proper.

There are no endangered/threatened species living in the receiving water.

### Impairments

There are widespread fish consumption advisories in Minnesota, including Orwell Lake downstream of SD001 on the Ottertail River. This reach is listed on the 303(d) list of impaired waters.

Table 2: Impairments

AUID or Lake ID#	AUID Description or Lake Name	Assessment Category	Pollutants or Impairment
56-0945-00	Orwell Lake	4A	Mercury in Fish Tissue

TMDL Name and Approval Date: Statewide Mercury TMDL, 2008

### Existing Permit Effluent Limits

The limits and monitoring requirements in the current Permit are presented in Table 3 and list both water quality based limits and technology based limits.

Table 3: Existing Permit Effluent Limits

SD 001: Surface Water Discharge

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
BOD, Carbonaceous 05 Day (20 Deg C)	266	kg/day	Calendar Month Average	Jan-Dec	24-Hour Flow Composite	3 x Week	
BOD, Carbonaceous 05 Day (20 Deg C)	25	mg/L	Calendar Month Average	Jan-Dec	24-Hour Flow Composite	3 x Week	
BOD, Carbonaceous 05 Day (20 Deg C)	425	kg/day	Maximum Calendar Week Average	Jan-Dec	24-Hour Flow Composite	3 x Week	
BOD, Carbonaceous 05 Day (20 Deg C)	40	mg/L	Maximum Calendar Week Average	Jan-Dec	24-Hour Flow Composite	3 x Week	
BOD, Carbonaceous 05 Day (20 Deg C) Percent Removal	85	%	Minimum Calendar Month Average	Jan-Dec	Calculation	3 x Week	
Chlorine, Total Residual	0.038	mg/L	Daily Maximum	Apr-Oct	Grab	1 x Day	3
Copper, Total (as Cu)	Monitor Only	ug/L	Single Value	Jul	24-Hour Flow Composite	1 x Month	
Fecal Coliform, MPN or Membrane Filter 44.5C	200	#100ml	Calendar Month Geometric Mean	Apr-Oct	Grab	3 x Week	
Lead, Total (as Pb)	Monitor Only	ug/L	Single Value	Jul	24-Hour Flow Composite	1 x Month	
Mercury, Total (as Hg)	Monitor Only	ng/L	Calendar Month Average	Jan-Dec	Grab	1 x Quarter	2
Nitrogen, Ammonia, Total (as N)	Monitor Only	mg/L	Calendar Month Average	Oct-May	24-Hour Flow Composite	3 x Week	
Nitrogen, Ammonia, Total (as N)	45.7	kg/day	Calendar Month Average	Jun-Sep	24-Hour Flow Composite	3 x Week	
Nitrogen, Ammonia, Total (as N)	4.3	mg/L	Calendar Month Average	Jun-Sep	24-Hour Flow Composite	3 x Week	
Oxygen, Dissolved	Monitor Only	mg/L	Calendar Month Minimum	Jan-Dec	Grab	1 x Day	1

SD 001: Surface Water Discharge

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
pH	9.0	SU	Calendar Month Maximum	Jan-Dec	Grab	1 x Day	1
pH	6.0	SU	Calendar Month Minimum	Jan-Dec	Grab	1 x Day	1
Phosphorus, Total (as P)	10.6	kg/day	Calendar Month Average	Jan-Dec	24-Hour Flow Composite	1 x Week	
Phosphorus, Total (as P)	1.0	mg/L	Calendar Month Average	Jan-Dec	24-Hour Flow Composite	1 x Week	
Solids, Total Suspended (TSS)	319	kg/day	Calendar Month Average	Jan-Dec	24-Hour Flow Composite	3 x Week	
Solids, Total Suspended (TSS)	30	mg/L	Calendar Month Average	Jan-Dec	24-Hour Flow Composite	3 x Week	
Solids, Total Suspended (TSS)	478	kg/day	Maximum Calendar Week Average	Jan-Dec	24-Hour Flow Composite	3 x Week	
Solids, Total Suspended (TSS)	45	mg/L	Maximum Calendar Week Average	Jan-Dec	24-Hour Flow Composite	3 x Week	
Solids, Total Suspended (TSS) Percent Removal	85	%	Minimum Calendar Month Average	Jan-Dec	Calculation	3 x Week	

**Technology Based Effluent Limits (TBELs)**

The five-day carbonaceous biochemical oxygen demand (CBOD5), total suspended solids (TSS), and pH limits are technology based limits developed for achieving secondary treatment standards. The limits are specified in 40 CFR §133.102 and Minn. R. 7050.0211 and Minn. R. 7053.0215.

**State Discharge Restriction Limits (SDRs)**

The fecal coliform and total phosphorus limits are State Discharge Restriction limits that are specified in Minn. R. Ch. 7053.

**Water Quality Based Effluent Limits (WQBELs)**

The total ammonia nitrogen and total residual chlorine limits are water quality based limits. Because the facility has the reasonable potential to exceed this standard, a WQBEL is required for this parameter.

## Proposed Permit Effluent Limits

The limits and monitoring requirements in the proposed Permit are presented in Table 4 and list both water quality based limits and technology based limits.

Table 4: Proposed Permit Effluent Limits

SD 001: Surface Water Discharge

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
BOD, Carbonaceous 05 Day (20 Deg C)	265.5	kg/day	Calendar Month Average	Jan-Dec	24-Hour Flow Composite	3 x Week	
BOD, Carbonaceous 05 Day (20 Deg C)	25	mg/L	Calendar Month Average	Jan-Dec	24-Hour Flow Composite	3 x Week	
BOD, Carbonaceous 05 Day (20 Deg C)	424.9	kg/day	Maximum Calendar Week Average	Jan-Dec	24-Hour Flow Composite	3 x Week	
BOD, Carbonaceous 05 Day (20 Deg C)	40	mg/L	Maximum Calendar Week Average	Jan-Dec	24-Hour Flow Composite	3 x Week	
BOD, Carbonaceous 05 Day (20 Deg C) Percent Removal	85	%	Minimum Calendar Month Average	Jan-Dec	Calculation	3 x Week	
Chloride, Total	Monitor Only	mg/L	Calendar Month Maximum	Apr, Sep	24-Hour Flow Composite	1 x Month	
Chlorine, Total Residual	0.038	mg/L	Daily Maximum	Apr-Oct	Grab	1 x Day	4
Copper, Total (as Cu)	Monitor Only	ug/L	Calendar Month Maximum	Jul	24-Hour Flow Composite	1 x Month	3
Fecal Coliform, MPN or Membrane Filter 44.5C	200	#100ml	Calendar Month Geometric Mean	Apr-Oct	Grab	3 x Week	
Flow	Monitor Only	mgd	Calendar Month Average	Jan-Dec	Measurement, Continuous	1 x Day	
Flow	Monitor Only	mgd	Calendar Month Maximum	Jan-Dec	Measurement, Continuous	1 x Day	
Flow	Monitor Only	MG	Calendar Month Total	Jan-Dec	Measurement, Continuous	1 x Day	
Lead, Total (as Pb)	Monitor Only	ug/L	Calendar Month Maximum	Jul	24-Hour Flow Composite	1 x Month	3
Mercury, Dissolved (as Hg)	Monitor Only	ng/L	Calendar Month Maximum	May, Sep	Grab	1 x Month	2
Mercury, Total (as Hg)	Monitor Only	ng/L	Calendar Month Maximum	May, Sep	Grab	1 x Month	2
Nitrite Plus Nitrate, Total (as N)	Monitor Only	mg/L	Calendar Month Average	Apr, Sep	24-Hour Flow Composite	1 x Month	
Nitrogen, Ammonia, Total (as N)	Monitor Only	mg/L	Calendar Month Average	Oct-May	24-Hour Flow Composite	3 x Week	
Nitrogen, Ammonia, Total (as N)	45.7	kg/day	Calendar Month Average	Jun-Sep	24-Hour Flow Composite	3 x Week	
Nitrogen, Ammonia, Total (as N)	4.3	mg/L	Calendar Month Average	Jun-Sep	24-Hour Flow Composite	3 x Week	
Nitrogen, Kjeldahl, Total	Monitor Only	mg/L	Calendar Month Average	Apr, Sep	24-Hour Flow Composite	1 x Month	
Oxygen, Dissolved	Monitor Only	mg/L	Calendar Month Minimum	Jan-Dec	Grab	1 x Day	1
pH	9.0	SU	Calendar Month Maximum	Jan-Dec	Grab	1 x Day	1
pH	6.0	SU	Calendar Month Minimum	Jan-Dec	Grab	1 x Day	1
Phosphorus, Total (as P)	10.6	kg/day	Calendar Month Average	Jan-Dec	24-Hour Flow Composite	1 x Week	
Phosphorus, Total (as P)	1.0	mg/L	Calendar Month Average	Jan-Dec	24-Hour Flow Composite	1 x Week	
Solids, Total Dissolved (TDS)	Monitor Only	mg/L	Calendar Month Average	Apr, Sep	24-Hour Flow Composite	1 x Month	
Solids, Total Suspended (TSS)	318.7	kg/day	Calendar Month Average	Jan-Dec	24-Hour Flow Composite	3 x Week	
Solids, Total Suspended (TSS)	30	mg/L	Calendar Month Average	Jan-Dec	24-Hour Flow Composite	3 x Week	

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Solids, Total Suspended (TSS)	478.0	kg/day	Maximum Calendar Week Average	Jan-Dec	24-Hour Flow Composite	3 x Week	
Solids, Total Suspended (TSS)	45	mg/L	Maximum Calendar Week Average	Jan-Dec	24-Hour Flow Composite	3 x Week	
Solids, Total Suspended (TSS) Percent Removal	85	%	Minimum Calendar Month Average	Jan-Dec	Calculation	3 x Week	
Solids, Total Suspended (TSS), grab (Mercury)	Monitor Only	mg/L	Calendar Month Maximum	May, Sep	Grab	1 x Month	2
Specific Conductance, Field	Monitor Only	umh/cm	Calendar Month Maximum	Apr, Sep	24-Hour Flow Composite	1 x Month	
Sulfate, Total (as SO <sub>4</sub> )	Monitor Only	mg/L	Calendar Month Maximum	Apr, Sep	24-Hour Flow Composite	1 x Month	

### Technology Based Effluent Limits (TBELs)

The five-day carbonaceous biochemical oxygen demand (CBOD<sub>5</sub>), total suspended solids (TSS), and pH limits are technology based limits developed for achieving secondary treatment standards. The limits are specified in 40 CFR §133.102 and Minn. R. 7050.0211 and Minn. R. 7053.0215.

### State Discharge Restriction Limits (SDRs)

The fecal coliform and total phosphorus limits are State Discharge Restriction limits that are specified in Minn. R. Ch. 7053.

### Water Quality Based Effluent Limits (WQBELs)

The total ammonia nitrogen, total residual chlorine, and chronic whole effluent toxicity limits are water quality based limits. Because the facility has the reasonable potential to exceed these standards, WQBELs are required for each of these parameters.

### Background

This permit is a reissuance for an existing major municipal discharger to the Otter Tail River. The Otter Tail River stream annual low flow (7Q<sub>10</sub>) is 13.9 mgd, and the average dry weather design flow for the plant is 2.305 mgd. Three priority pollutant scans and six chronic whole effluent toxicity test batteries have been completed. There has been additional annual monitoring for copper and lead, and quarterly monitoring for low level mercury. The Orwell Lake, just downstream on the Ottetail River is listed as impaired on the 303(d) list of impaired waters for mercury fish consumption advice (FCA).

### Reasonable Potential for Chemical Specific Pollutants (40CFR122.44(d)(1)) and Water Quality-based Effluent Limits

Federal regulations require the MPCA to evaluate the discharge to determine whether the discharge has the reasonable potential to cause or contribute to a violation of water quality standards. The MPCA must use acceptable technical procedures, accounting for variability (coefficient of variation, or CV), when determining whether the effluent causes, has the reasonable potential to cause, or contribute to an excursion of an applicable water quality standard. Projected effluent quality (PEQ) derived from effluent monitoring data is compared to Preliminary Effluent Limits (PELs) determined from mass balance inputs. Both determinations account for effluent variability. Where PEQ exceeds the PEL, there is reasonable potential to cause or contribute to a water quality standards excursion. When Reasonable Potential is indicated the permit must contain a WQBEL for that pollutant. In this case, the Preliminary Effluent Limit becomes the WQBEL pursuant to 40 CFR 122.44 (d)(1)(vii)(A).

The priority pollutant scan information of the effluent was evaluated using reasonable potential procedures. Copper (Cu), lead (Pb), zinc (Zn), mercury (Hg) and the trihalomethanes chloroform (CHCl<sub>3</sub>), bromodichloromethane (CHBrCl<sub>2</sub>) and dibromochloromethane (CHBr<sub>2</sub>Cl) were above the reporting level.

A reasonable potential analysis was completed on these parameters. Chloroform was evaluated singly, because there are water quality standards for it, and jointly with the other trihalomethanes, because there is a chronic water quality standard for the trihalomethanes group. Trihalomethanes are carcinogenic and are evaluated for a 30 day period. It is not possible to do a reasonable potential analysis of those pollutants that are low enough levels that cannot to be detected.

The Facility has been monitoring chronic whole effluent toxicity. The reasonable potential analysis was completed on the chronic toxicity units (chronic Whole Effluent Toxicity –WET). As the table below shows, Cu, Pb, Zn, mercury, (CHCl<sub>3</sub>), CHBrCl<sub>2</sub>, and CHBr<sub>2</sub>Cl indicated no reasonable potential to cause or contribute to an excursion above the applicable water quality standard. No effluent limits are needed. However, the chronic WET did show reasonable potential to cause or contribute to an excursion of the water quality standard and a limit is needed.

Table 5: Reasonable Potential Analyses

Parameter	Cu (µg/L)	Pb (µg/L)	Zn (µg/L)	Hg (ng/L)	CHCl <sub>3</sub> (µg/L)	CHBrCl <sub>2</sub> +CHBr <sub>2</sub> Cl +CHCl <sub>3</sub> (µg/L)	WET(TUc)
Max Measured Value	9	6.38	52	6.3	4.7	9.6	5.7
# data points	8	8	3	30	3	3	9
PEQ	17.1	12.1	156.0	7.6	14.1	28.8	10.3
Plant flow ADW (mgd)	2.3	2.3	2.3	2.3	2.3	2.3	2.3
Rec. water flow, 7Q10(mgd)	13.9	13.9	13.9	13.9	13.9	13.9	13.9
Background Conc.	1.4	0.6	4	6.9	0	0	0
Continuous Std (cs) 180 ppm hardness	14.1	6.7	174.4	6.9	53.0	80.0	1.0
Maximum Std (ms) 180 ppm hardness	30.8	172.5	192.6	2400.0	1392.0	NA	1.0
Final Acute Value (FAV) 264.5 ppm hardness	89	565	534	4900	2784	NA	NA
Mass Balance -cs	91.0	43.7	1202.1	6.9	372.6	562.4	7.0
Mass Balance -ms	208.4	1209.4	1329.6	16831	9786	NA	NA
Coeff of Variation (CV)	0.60	0.60	0.60	0.42	0.60	0.60	0.60
Long Term Avg-cs	48.0	23.0	634.0	5.8	290.7	438.9	NA
Long Term Avg-ms	66.9	388.3	426.9	7173.7	3142.3	NA	NA
Preliminary Effl limits:							

Daily Max	149.5	71.7	1329.6	13.6	905.5	1366.8	NA
Monthly Ave (2x/month)	86.3	41.4	767.5	8.9	522.7	788.9	NA
<u>Reasonable Potential</u>							
PEQ>Daily max	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	<b>TRUE</b>
PEQ> FAV	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	<b>NA</b>
Final Reasonable Potential	No	No	No	No	No	No	<b>Yes</b>

The Facility has a chronic WET monitoring requirement because the ratio of the Otter Tail River low flow 7Q<sub>10</sub> (13.9 mgd) to the Facility's average dry weather flow (ADW)(2.3 mgd) is less than 20:1.

The monitoring threshold value of 11 Toxic Units chronic (TUC) has been updated to 7.0 TUC based on updated information on the Facility's ADW flow and updated 7Q<sub>10</sub> receiving water flow.

Six chronic WET tests were done from July 2007 to August 2011. Two additional tests presented before 2007 were also included in the analysis. A reasonable potential evaluation was completed on the chronic WET tests to determine if there was cause to exceed the WET monitoring threshold value of 7.0 TUC. Reasonable potential was found to exceed this monitoring threshold. Because of this, a chronic WET limit of 7.0 TUC has been established.

#### Mercury:

There are widespread fish consumption advisories in Minnesota, including Orwell Lake downstream of SD001 on the Ottertail River. This reach is listed on the 303(d) list of impaired waters. 40 CFR 131.12(a)(1) provides that "existing instream uses and the level of water quality necessary to protect the existing uses shall be maintained and protected". This is the baseline protection provided by water quality standards, and water quality cannot be further degraded.

#### Permit Limitations for Mercury

The data that were used in the evaluation were collected from 2007 to 2011. The incinerator discharge to the Facility was discontinued before 2006; when it was discontinued mercury levels dropped substantially. Thirty low-level mercury data points were evaluated for this Facility. These data range from 0.7 to 22.4 ng/L total mercury and average 3.0 ng/L. The preliminary effluent limit (PEL) calculation assumes that the background mercury concentration is at the water quality standard (6.9 ng/l) when the listed stream impairment is for fish consumption advice, and no local river water column analytical data exist. To assure that the discharge does not cause or contribute to a water quality standards excursion for mercury impaired waters, the numeric water quality standard (6.9 ng/L) is applied at the point of discharge for the mass balance equation for the subsequent preliminary effluent limit calculations. Where PEQ exceeds the PEL, there is reasonable potential to cause or contribute to a water quality standards excursion. The mercury concentration of 22 ng/L is almost four times higher than the next high value. The lab reported that this concentration was correct. It was not used in the analysis because it seems like a chance event. The PEQ is lower than PEL and a WQBEL is not needed. The Facility needs to monitor twice per year during the life of the permit. MPCA staff recommends that the Facility submits the QA/QC sheets and trip blank sheets associated with each mercury sample.

## **Additional Requirements**

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### **Mercury Minimization Plans**

This draft permit contains requirements for mercury monitoring and for submittal of a Mercury Minimization Plan (MMP) or updated MMP. These requirements were added in response to the U.S. Environmental Protection Agency's approval of the Minnesota state-wide Mercury Total Maximum Daily Load (TMDL) plan. Guidance for completing the MMP is available on the MPCA internet site at <http://www.pca.state.mn.us/gp0rb25>. More information on the TMDL can be found on the MPCA internet site at <http://www.pca.state.mn.us/wfhy9ef>. Specific mercury monitoring requirements are found in the Surface Discharge Stations Chapter of this draft permit. Those requirements include sampling for TSS via a grab sample taken at the same time as the mercury grab samples are taken.

### **Additional Monitoring – Facilities at or above 100,000 gallons per day**

The draft permit requires additional monitoring for Nitrite plus Nitrate-Nitrogen, Total Kjeldahl Nitrogen, and Total Dissolved Solids at a frequency of two times per year for the five-year term of the permit. The data will be recorded on a custom supplemental form provided by the MPCA and must be submitted with the DMR for the month when the sample is collected. These additional parameters are being added to every permitted municipal facility with an average wet weather design flow of 100,000 gallons per day or greater.

### **Industrial Stormwater**

On April 5, 2010, the Industrial Stormwater General Permit (MNR050000) was issued. This permit addresses stormwater discharges associated with industrial activity for facilities that discharge stormwater to waters of the state, including Municipal Separate Storm Sewer Systems. The General Permit also addressed stormwater discharges associated with industrial activities at facilities that provide on-site infiltration of industrial stormwater discharges associated with the facility.

For both industrial and municipal wastewater facilities, in lieu of obtaining coverage under both the General Permit and the individual NPDES permit, the MPCA has added the necessary industrial stormwater requirements language and limits and monitoring to this permit so that coverage under this NPDES permit alone will cover both permits.

### **Priority Pollutants – Monitoring Requirements**

The permit (Chapter 1, Section 5) provides the requirements for priority pollutant monitoring on the effluent three times during the life of the permit. Sampling events will need to be done at least one year apart. This permit includes requirements to fulfill the priority pollutant monitoring requirements in the current U.S. Environmental Protection Agency (EPA) application form (EPA Form 3510-2A).

### **Chronic Whole Effluent Toxicity (WET) Testing Requirements**

An annual requirement to submit chronic toxicity test batteries now appears in the limits and monitoring section of your permit. The first set of annual chronic WET results are due one year from the end of the first calendar quarter following permit reissuance and annually thereafter. The test batteries are due by September 30<sup>th</sup> of each year.



**Biosolids Land Application**

This draft reissued permit authorizes the Permittee to store and land apply domestic wastewater treatment biosolids in accordance with the provisions in Chapter 7 of this draft permit and Minnesota Rules, ch. 7041.

**Compliance Schedules**

This draft permit does not contain a compliance schedule.

**Variances**

This draft permit does not contain any variances to Clean Water Act requirements.

**Total Facility Requirements**

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All NPDES permits issued in the State of Minnesota contain certain conditions that remain the same regardless of the size, location, or type of discharge. The standard conditions satisfy the requirements outlined in 40 CFR 122.41. These conditions are listed in the Total Facility Requirements chapter of an NPDES permit. These requirements cover a wide range of areas including recordkeeping, sampling, equipment calibration, equipment maintenance, reporting, facility upsets, bypass, solids handling, changes in operation, facility inspections, and permit reissuance.

**Nondegradation and Anti-Backsliding**

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In accordance with Minnesota Pollution Control Agency rules regarding nondegradation for all waters that are not Outstanding Resource Value Waters (ORVW), nondegradation review is required for any new or expanded significant discharge (Minn. R. 7050.0185). A significant discharge is 1) a new discharge (not in existence before January 1, 1988) that is greater than 200,000 gallons per day to any water other than a Class 7 water or 2) an expanded discharge that expands by greater than 200,000 gallons per day that discharges to any water other than a Class 7 water or 3) a new or expanded discharge containing any toxic pollutant at a mass loading rate likely to increase the concentration of the toxicant in the receiving water by greater than one percent over the baseline quality. The flow rate used to determine significance is the design average wet weather flow. The January 1, 1988 design average wet weather flow for this Facility is 2.81 million gallons per day.

This permit also complies with Minn. R. 7053.0275 regarding anti-backsliding.

Any point source discharger of sewage, industrial, or other wastes for which a National Pollutant Discharge Elimination System permit has been issued by the agency that contains effluent limits more stringent than those that would be established by parts 7053.0215 to 7053.0265 shall continue to meet the effluent limits established by the permit, unless the permittee establishes that less stringent effluent limits are allowable pursuant to federal law, under section 402(o) of the Clean Water Act, United States Code, title 33, section 1342.