

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

Permit Reissuance

MN0030112

Permittee: City of Fairmont
100 Downtown Plaza
Fairmont, Minnesota 56031-1709

Facility name: Fairmont Wastewater Treatment Facility
301 Margaret Street
Fairmont, Minnesota 56031

Current permit expiration date: April 30, 2015

Public comment period begins: April 16, 2021

Public comment period ends: June 16, 2021

Receiving water: Center Creek - Class 2B, 3C, 4A, 4B, 5, 6 water

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Purpose and participation

Applicable statutes

This fact sheet has been prepared according to the 40 CFR § 124.8 and 124.56 and Minn. R. 7001.0100, subp. 3 in regards to a draft National Pollutant Discharge Elimination System (NPDES)/State Disposal System (SDS) permit to construct and/or operate wastewater treatment facilities and to discharge into waters of the State of Minnesota.

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.

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 one through three 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 one 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.

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

Marcell Mikkelson
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota 55155

The permit will be reissued if the MPCA determines that the proposed Permittee or Permittees 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

Background information

This Facility has a continuous discharge (SD001) to Center Creek (Class 2B, 3C, 4A, 4B, 5, 6 water) and then to the Blue Earth River. This is a Class A facility.

Facility location

The Fairmont Wastewater Treatment Facility (Facility) is an existing municipal wastewater treatment facility that treats wastewater from the community of Fairmont. The Facility is located in the NW $\frac{1}{4}$ of section 5, Township 102 North, or approximately $\frac{1}{2}$ mile south of Interstate 90 on the north edge of the city of Fairmont.

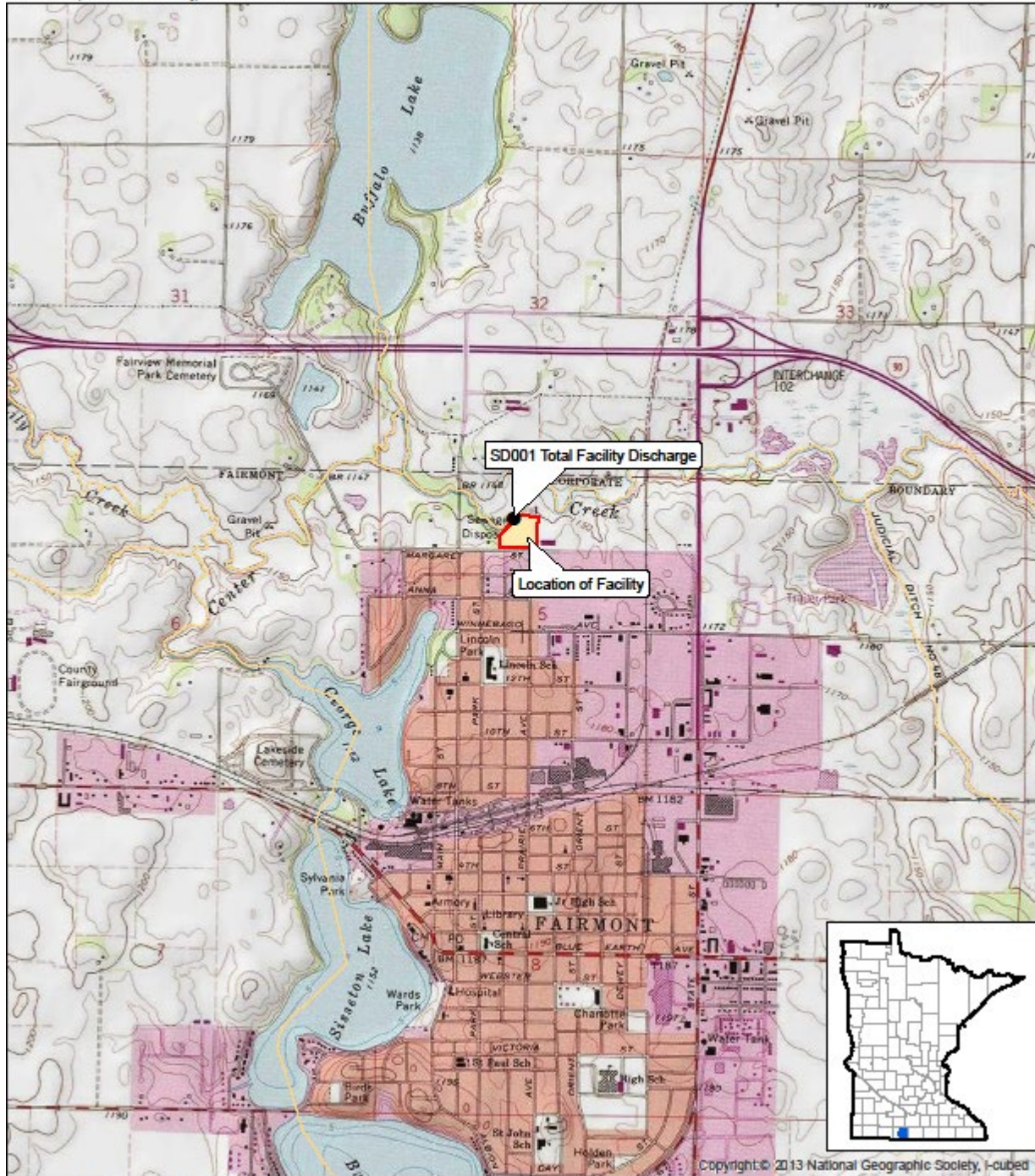
Outfall location

The continuous discharge outfall for this Facility (SD 001 in the permit) is located in the NW $\frac{1}{4}$ of section 5, Township 102 North, or approximately $\frac{1}{2}$ mile south of Interstate 90 on the north edge of the city of Fairmont.

Map of permitted facility

Topographic Map of Permitted Facility

MN0030112, Fairmont Wastewater Treatment Facility
T102N, R30W, Section 5
Fairmont, Martin County, Minnesota



Map produced by: MPCA Staff, 11/21/2014
Source: USGS Quad
Scale: 1:24,000

0 0.25 0.5 1 Miles



Components and treatment technology

Current information

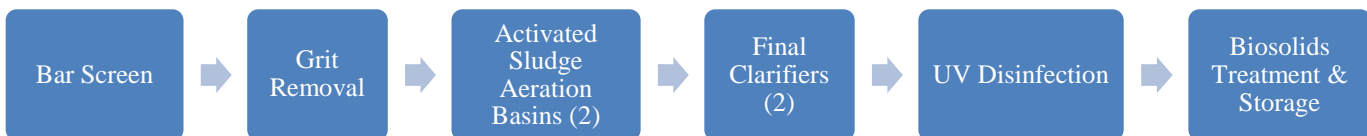
The existing facility is designed to treat:

- An average wet weather design (AWWD) flow of 3.9 million gallons per day (MGD)
- An average annual design flow of 2.35 million gallons per day (MGD)
- A maximum daily (MD) flow of 6.0 million gallons per day (MGD)
- A peak hourly wet weather (PHWW) flow of 9.4 million gallons per day (MGD)
- 5-day carbonaceous biochemical oxygen demand (CBOD5) of 250 milligrams per liter (mg/L), based on average annual flow

The application and plans indicate that the Facility consists of two mechanical bar screens, two grit chambers, two primary clarifiers, three activated sludge aeration basins, four secondary clarifiers, and Ultraviolet light disinfection. Biosolids treatment consists of two primary digesters, a sludge storage tank, a belt filter press, and a storage building for dried Class A biosolids. In the event that the Facility does not meet the requirements for Class A biosolids, the Permittee shall be required to meet other applicable provisions in this permit for land application of Class B biosolids.

The Permittee is proposing site work and piping improvements, new screens and grit pumps, new dewatering and dryer equipment, new expanded solids storage and a new Ultraviolet light disinfection building along with improvements.

Flow schematic



Changes to facility or operation

The City of Fairmont has submitted a facility plan that indicates two construction projects are planned during the upcoming permit cycle. In a November 3 email from Kris Swanson at Bolton & Menk, the first project is described as an equipment replacement project to replace influent screen and UV equipment. This project will be bid in summer 2021. The second project consists of a \$15 million+ project to replace the biosolids dryer at the Facility, and will be bid in 2022/2023 depending on funding availability.

Significant industrial users (SIUs)

This Facility receives process wastewater from two Significant Industrial Users (SIUs): 3M Company and Central Harvest States Soybean Oil Processing. These SIU's are controlled by contracts enforced by the Permittee. Pollutants of concern are monitored and or limited by the Permittee to an extent necessary to prevent interference or passthrough.

Recent compliance history

An inspection was completed on July 7, 2020 with a subsequent Notice of Violation (NOV) issued August 31, 2020, citing release violations. The Permittee submitted a satisfactory response to the sole corrective action (for I&I issues), and the Case Conclusion Letter was issued February 22, 2021. There are no other compliance related issues that need to be addressed in this permit reissuance.

Table 1. Recent monitoring history for SD 001: January 2020 - December 2020

Parameter Desc	Abbr Statistical Basis Desc	Limit	Abbr Units	20-Jan	20-Feb	20-Mar	20-Apr	20-May	20-Jun	20-Jul	20-Aug	20-Sep	20-Oct	20-Nov	20-Dec
Bicarbonates (HCO3)	CalMoMax		mg/L	215	142	215	281	245	235	132	77	44	27	67	82
BOD, Carbonaceous 05 Day (20 Deg C)	CalMoAvg	15	mg/L	1.7	2.2	1	0.13	2.7	0.92	0	0.33	0.15	1.1	2.5	3.5
BOD, Carbonaceous 05 Day (20 Deg C)	CalMoAvg	221	kg/d	8.7	10	9.9	1.3	30	6.5	0	1.3	0.58	4.4	11	14
BOD, Carbonaceous 05 Day (20 Deg C)	MxCaWkAvg	25	mg/L	2	3	1.3	2	6	2.7	0	2	2	2.3	3	8.7
BOD, Carbonaceous 05 Day (20 Deg C)	MxCaWkAvg	369	kg/d	11	14	13	17	83	19	0	9.7	8.7	9.5	13	36
BOD, Carbonaceous 05 Day (20 Deg C) Percent Removal	MnCalMoAvg	85	%	99	99	99	99	96	99	99	99	99	99	99	99
Calcium, Total (as Ca)	CalMoMax		mg/L	79	63	75	101	75	87	62	59	43	49	49	50
Chloride, Total	CalMoMax		mg/L	168	202	142	111	147	130	163	193	211	209	249	241
Fecal Coliform, MPN or Membrane Filter 44.5C	CalMoGeoMn	200	#/100ml				35	9.4	15	19	14	8	5.9		
Flow	CalMoAvg		mgd	1.4	1.3	2.6	2.1	2.4	1.7	1.4	1.1	1.091	1.1	1.1	1.052
Flow	CalMoMax		mgd	1.7	1.6	3.3	2.8	6	2.3	1.8	1.3	1.19	1.3	1.3	1.14
Flow	CalMoTot		Mgal	43	38	80	64	73	51	42	35	32.733	34	33	32.609

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Parameter Desc	Abbr Statistical Basis Desc	Limit	Abbr Units	20-Jan	20-Feb	20-Mar	20-Apr	20-May	20-Jun	20-Jul	20-Aug	20-Sep	20-Oct	20-Nov	20-Dec
Hardness, Calcium & Magnesium, Calculated (as CaCO3)	CalMoMax		mg/L	317	278	307	388	298	347	246	228	177	202	209	232
Magnesium, Total (as Mg)	CalMoMax		mg/L	29	29	29	33	27	31	22	20	17	19	21	26
Mercury, Total (as Hg)	CalMoAvg	10	ng/L	0	1.7	1.3	0.9	2.3	2.1	0.6	0.6	1	0.7	0.5	1
Mercury, Total (as Hg)	DailyMax	17	ng/L	0	1.7	1.3	0.889	2.3	2.1	0.605	0.592	0.972	0.74	0.526	0.974
Nitrite Plus Nitrate, Total (as N)	CalMoAvg		mg/L				12					19			
Nitrogen, Ammonia, Total (as N)	CalMoAvg	1	mg/L						0	0	0	0			
Nitrogen, Ammonia, Total (as N)	CalMoAvg	2.7	mg/L										0	0	
Nitrogen, Ammonia, Total (as N)	CalMoAvg	5	mg/L	0	0	0									0
Nitrogen, Ammonia, Total (as N)	CalMoAvg	5.3	mg/L				0	0							
Nitrogen, Ammonia, Total (as N)	CalMoAvg	15	kg/d						0.12	0	0	0			
Nitrogen, Ammonia, Total (as N)	CalMoAvg	40	kg/d										0	0	
Nitrogen, Ammonia, Total (as N)	CalMoAvg	74	kg/d	0	0.14	0									0
Nitrogen, Ammonia, Total (as N)	CalMoAvg	78	kg/d				0	0							
Nitrogen, Kjeldahl, Total	CalMoAvg		mg/L				2					1.7			
Oxygen, Dissolved	CalMoMin	5	mg/L	8.7	8.8	8.8	8.3	6.9	7.7	6.5	6.8	7.1	7.3	7.6	7.2
pH	CalMoMax	9	SU	7.7	7.4	7.6	7.6	7.6	7.6	7.6	7.3	7.1	7.1	7.2	7.2
pH	CalMoMin	6	SU	7.3	7.3	7.4	7.4	7.3	7.2	7.2	6.7	6.7	6.8	7	6.9

Parameter Desc	Abbr Statistical Basis Desc	Limit	Abbr Units	20-Jan	20-Feb	20-Mar	20-Apr	20-May	20-Jun	20-Jul	20-Aug	20-Sep	20-Oct	20-Nov	20-Dec
Phosphorus, Total (as P)	CalMoAvg	1	mg/L	0.6	0.6	0.4	0.4	0.7	0.6	0.8	0.7	0.5	0.5	0.6	0.5
Phosphorus, Total (as P)	CalMoAvg	14.8	kg/d	3.4	3	3.8	3	6.2	3.6	4.1	2.7	2.1	2.2	2.5	2.2
Potassium, Dissolved (as K)	CalMoMax		mg/L	9.7	11	7.8	6.3	8.8	8.3	10	12	12	13	12	13
Sodium, Total (as Na)	CalMoMax		mg/L	103	125	85	61	80	75	91	111	112	118	137	136
Solids, Total Dissolved (TDS)	CalMoMax		mg/L	632	656	562	586	580	647	578	660	591	581	649	682
Solids, Total Suspended (TSS)	CalMoAvg	30	mg/L	8.3	9.3	8.5	6.8	16	9.9	4.8	5.9	8.2	14	13	15
Solids, Total Suspended (TSS)	CalMoAvg	443	kg/d	45	45	79	53	155	68	25	24	35	59	57	60
Solids, Total Suspended (TSS)	MxCalWkAvg	45	mg/L	13	12	11	8.3	25	20	7	7	9	17	16	21
Solids, Total Suspended (TSS)	MxCalWkAvg	664	kg/d	81	57	106	66	342	158	47	29	39	71	69	86
Solids, Total Suspended (TSS) Percent Removal	MnCalMoAvg	85	%	96	96	96	97	92	95	99	98	98	96	96	96
Specific Conductance	CalMoMax		umhos/cm	1127	1134	968	947	992	991	995	1062	995	1024	1192	1169
Sulfate, Total (as SO4)	CalMoMax		mg/L	47	46	52	60	49	65	54	35	50	43	46	47

Receiving water(s)

Use classification

This Facility discharges to Center Creek, and then the Blue Earth River. This water is classified as a 2B, 3C, 4A, 4B, 5, 6 Water. This classification indicates that the body of water is capable of sustaining aquatic life and recreation. Aquatic life and recreation includes the ability to support fish, other aquatic life, bathing, boating, or other recreational purposes for which water quality control is or may be necessary to protect aquatic or terrestrial life and its habitat or public health, safety, or welfare. Information on the classification of waters can be found in Minn. R. 7050.0140.

Impairments and Total Maximum Daily Load Studies (TMDLs)

Table 2. Impaired Waters & TMDL Status

Downstream Impairments	Number of Impairments	TMDL Status
Center Creek (07020009-503)	4	
Fecal Coliform	1	Blue Earth River Watershed
		Blue Earth River Fecal Coliform TMDL ; EPA approved June 7, 2007. A WLA is assigned to this facility's discharge. See the WLA section below.
Turbidity	1	Blue Earth River Watershed
		Minnesota River and Greater Blue Earth River TSS TMDL ; EPA approved February 12, 2020. A WLA is assigned to this facility's discharge. See the WLA section below.
Fishes Bioassessments	1	Blue Earth River Watershed
		A TMDL has not been developed to address this impairment.
Unionized Ammonia	1	See the Additional Information section below.

Blue Earth River (07020009-514)		17
Mercury in Fish Tissue	6	
Mercury in Water Column	2	See the WLA section below.
Fecal Coliform	2	Blue Earth River Watershed
<p>Blue Earth River Fecal Coliform TMDL; EPA approved June 7, 2007. A WLA is assigned to this facility's discharge. See the WLA section below.</p>		
Turbidity	5	Blue Earth River Watershed
<p>Minnesota River and Greater Blue Earth River TSS TMDL; EPA approved February 12, 2020.</p> <p>A WLA is assigned to this facility's discharge. See the WLA section below.</p>		
Nutrients	1	Blue Earth River Watershed
Fishes Bioassessments	1	A TMDL has not been developed to address this impairment.
Minnesota River (07020007-722)		36
Dissolved Oxygen	1	Lower Minnesota River Watershed
<p>Lower Minnesota River Low Dissolved Oxygen TMDL; EPA approved September 28, 2004.</p> <p>This TMDL is implemented through the Minnesota River Basin General Phosphorus Permit. This facility is included in the General Permit with a WLA.</p>		
Mercury in Fish Tissue	6	
Mercury in Water Column	6	See the WLA section below.

Fecal Coliform

3 [Minnesota River – Mankato Watershed](#)
(07020007-723)

[Minnesota River – Mankato Watershed TMDL](#);
EPA approved February 20, 2020.

A WLA is not assigned to this facility's discharge.

[Lower Minnesota River Watershed](#)

07020012-799, -800

[Lower Minnesota River Watershed TMDL](#); EPA
approved March 13, 2020.

A WLA is not assigned to this facility's discharge.

Turbidity

6 [Minnesota River – Mankato Watershed](#)

Benthic Macroinvertebrate
Bioassessments

1 07020007-723

[Lower Minnesota River Watershed](#)

07020012-799, -800, -506, and -505

[Minnesota River and Greater Blue Earth River TSS
TMDL](#); EPA approved February 12, 2020.

A WLA is assigned to this facility's discharge. See
the WLA section below.

[Minnesota River – Mankato Watershed TMDL](#);
EPA approved February 20, 2020.

A WLA is not assigned to this facility's discharge.

Nutrients

6 [Minnesota River – Mankato Watershed](#)
07020007-722, and -723

Lower Minnesota River Watershed

07020012-799, -800, -506, and -505

Minnesota River – Mankato Watershed TMDL;
 EPA approved February 20, 2020.

A WLA is not assigned to this facility’s discharge.

Lower Minnesota River Watershed TMDL; EPA
 approved March 13, 2020.

A WLA is not assigned to this facility’s discharge.

PCBF

6

PCBW

1 See the Additional Information section below.

**Mississippi River
 (07010206-814)**

12

Mercury in Fish Tissue

2 See the WLA section below.

Mercury in Water Column

2

Fecal Coliform

1 Mississippi River – Twin Cities Watershed

Upper Mississippi River Bacteria TMDL; EPA
 approved November 20, 2014.

A WLA is not assigned to this facility’s discharge.

Total Suspended Solids

2 Mississippi River – Twin Cities Watershed
Mississippi River – Lake Pepin Watershed

South Metro Mississippi River TSS TMDL; EPA
 approved April 26, 2016.

A WLA is assigned to this facility’s discharge. See
 the WLA section below.

Nutrients

1 Mississippi River – Twin Cities Watershed

[Draft Lake Pepin and Mississippi River Eutrophication TMDL](#)

A WLA is assigned to this facility's discharge. See the WLA section below.

PCBF	2	
PFOS-F	1	
PFOS-W	1	See the Additional Information section below.
Lake Pepin (25-0001-00)	1	
Nutrients	1	<u>Mississippi River – Lake Pepin Watershed</u>

[Draft Lake Pepin and Mississippi River Eutrophication TMDL](#)

A WLA is assigned to this facility's discharge. See the WLA section below.

Mississippi River (07040003-627)	6	
Mercury in Fish Tissue	3	See the WLA section below.
PCBF	3	See the Additional Information section below.
Grand Total	76	

The Fairmont WWTP discharges to Center Creek in the Blue Earth River Watershed. There are 76 impairments downstream of this discharge, including the following parameters: unionized ammonia, benthic macroinvertebrates bioassessments, dissolved oxygen, fecal coliform, fishes bioassessments, mercury in fish tissue, mercury in water column, nutrients, PCB in fish tissue, PCB in water column, Perfluorooctane Sulfonate (PFOS) in fish tissue, Perfluorooctane Sulfonate (PFOS) in water column, total suspended solids, and turbidity. Following are the draft and final TMDLs that are applicable to this facility's discharge.

Wasteload Allocations:

[Blue Earth River Fecal Coliform TMDL](#)

- Bacteria WLA = 0.886 trillion organisms per month (t-orgs/mo)(page 65, Table 6.2b)
- The WLA is equivalent to the permit's existing 200 organism/100 mL effluent limit based on the facility's 3.9 mgd average wet weather design flow.

Minnesota River and Greater Blue Earth River TSS TMDL

- TSS WLA = 0.488 tons per day (Appendix E, page E-3)
- The WLA is equivalent to the existing permitted TSS effluent limit of 443 kg/day.

Statewide Mercury TMDL - Mercury in Fish Tissue and Mercury in Water Column Impairments

- Mercury limits, monitoring, and MMP requirements in the permit should be in accordance with the [Mercury Permit Writers Guidance](#).

Lower Minnesota River Low Dissolved Oxygen TMDL

- Total Phosphorus WLA = 22.8 lbs/day (page 35, Table 6.6)
- TMDL implementation was through the [Minnesota River Basin General Phosphorus Permit](#).
- The current permit has an existing effluent total phosphorus mass limit of 14.8 kg/day.
- See the ELS for the final permit limitations.

South Metro Mississippi River TSS TMDL

- TSS WLAs = 443.00 kg/day and 161,695 kg/year (page 92)
- The WLA is equivalent to the current permitted effluent mass TSS limit.
- This WLA is included in Appendix A.2. Minnesota Wastewater Permits with TSS Limits > 32 mg/L and Not Eligible for Future WLA Increase.

Draft Lake Pepin and Mississippi River Eutrophication TMDL

- Total Phosphorus WLA = 4,310 kg/year 12 month moving total and 11.808 kg/day (Appendix B, page 127)
- The draft WLA is more stringent than the existing permitted total phosphorus mass limit of 14.8 kg/day.
- See the ELS for the final permit limitations.

Additional Information:

There are a number of Unionized Ammonia, Polychlorinated Biphenyls – Fish (PCBF), Perfluorooctane Sulfonate in Fish (PFOS-F) and Perfluorooctane Sulfonate in the water column (PFOS-W) impairments that were not specifically outlined in this review. TMDLs are not underway for Unionized Ammonia, PCBF or PFOS impairments at this time.

Existing permit effluent limits

The effluent limits and monitoring requirements in the current permit are presented in Table 3 below. This table lists both water quality based and technology based effluent limits, and state discharge restrictions.

Technology based effluent limits (TBELs)

The TSS, pH, and percent removal limits are technology based limits developed for achieving secondary treatment standards. These limits are specified in 40 CFR §133.102, and Minn. R. 7053.0215.

Water quality based effluent limits (WQBELs)

The CBOD₅ and dissolved oxygen limits are water quality based limits necessary to protect the use classification of the receiving water. The phosphorus limit has been developed in accordance with the Total Phosphorus WLA established by the Draft Lake Pepin and Mississippi River Eutrophication TMDL.

State Discharge Restrictions (SDRs)

The limit for fecal coliform has been developed to meet state discharge restrictions specified under Minn. R. 7053.0255.

Table 3. Existing Limits and Monitoring requirements

Parameter	Req't Type Desc	Limit	Units	Limit type abbr	Desc Which Months
Bicarbonates (HCO ₃)	Monitoring		mg/L	CalMoMax	Jan-Dec
BOD, Carbonaceous 05 Day (20 Deg C)	Monitoring		kg/d	CalMoAvg	Jan-Dec
BOD, Carbonaceous 05 Day (20 Deg C)	Monitoring		kg/d	MxCalWkAvg	Jan-Dec
BOD, Carbonaceous 05 Day (20 Deg C)	Monitoring		mg/L	CalMoAvg	Jan-Dec
BOD, Carbonaceous 05 Day (20 Deg C)	Monitoring		mg/L	MxCalWkAvg	Jan-Dec
BOD, Carbonaceous 05 Day (20 Deg C)	Limitation	221	kg/d	CalMoAvg	Jan-Dec
BOD, Carbonaceous 05 Day (20 Deg C)	Limitation	369	kg/d	MxCalWkAvg	Jan-Dec
BOD, Carbonaceous 05 Day (20 Deg C)	Limitation	15	mg/L	CalMoAvg	Jan-Dec
BOD, Carbonaceous 05 Day (20 Deg C)	Limitation	25	mg/L	MxCalWkAvg	Jan-Dec
BOD, Carbonaceous 05 Day (20 Deg C) Percent Removal	Monitoring		%	MnCalMoAvg	Jan-Dec
BOD, Carbonaceous 05 Day (20 Deg C) Percent Removal	Limitation	85	%	MnCalMoAvg	Jan-Dec
Calcium, Total (as Ca)	Monitoring		mg/L	CalMoMax	Jan-Dec
Chloride, Total	Monitoring		mg/L	CalMoMax	Jan-Dec
Fecal Coliform, MPN or Membrane Filter 44.5C	Monitoring		ml100/#	CalMoGeoMn	Apr-Oct
Fecal Coliform, MPN or Membrane Filter 44.5C	Limitation	200	ml100/#	CalMoGeoMn	Apr-Oct
Flow	Monitoring		Mgal	CalMoTot	Jan-Dec
Flow	Monitoring		mgd	CalMoAvg	Jan-Dec

Parameter	Req't Type Desc	Limit	Units	Limit type abbr	Desc Which Months
Flow	Monitoring		mgd	CalMoMax	Jan-Dec
Magnesium, Calculated (as CaCO3) & Hardness, Calcium	Monitoring		mg/L	CalMoMax	Jan-Dec
Magnesium, Total (as Mg)	Monitoring		mg/L	CalMoMax	Jan-Dec
Mercury, Total (as Hg)	Monitoring		ng/L	CalMoAvg	Jan-Dec
Mercury, Total (as Hg)	Monitoring		ng/L	DailyMax	Jan-Dec
Mercury, Total (as Hg)	Monitoring		ng/L	CalMoAvg	Jan-Dec
Mercury, Total (as Hg)	Limitation	10	ng/L	CalMoAvg	Jan-Dec
Mercury, Total (as Hg)	Limitation	17	ng/L	DailyMax	Jan-Dec
Mercury, Total (as Hg)	Limitation	21	ng/L	CalMoAvg	Jan-Dec
Nitrite Plus Nitrate, Total (as N)	Monitoring		mg/L	CalMoAvg	Apr, Sep
Nitrogen, Ammonia, Total (as N)	Monitoring		kg/d	CalMoAvg	Apr-May
Nitrogen, Ammonia, Total (as N)	Monitoring		kg/d	CalMoAvg	Dec-Mar
Nitrogen, Ammonia, Total (as N)	Monitoring		kg/d	CalMoAvg	Jun-Sep
Nitrogen, Ammonia, Total (as N)	Monitoring		kg/d	CalMoAvg	Oct-Nov
Nitrogen, Ammonia, Total (as N)	Monitoring		mg/L	CalMoAvg	Apr-May
Nitrogen, Ammonia, Total (as N)	Monitoring		mg/L	CalMoAvg	Dec-Mar
Nitrogen, Ammonia, Total (as N)	Monitoring		mg/L	CalMoAvg	Jun-Sep
Nitrogen, Ammonia, Total (as N)	Monitoring		mg/L	CalMoAvg	Oct-Nov
Nitrogen, Ammonia, Total (as N)	Limitation	78	kg/d	CalMoAvg	Apr-May
Nitrogen, Ammonia, Total (as N)	Limitation	74	kg/d	CalMoAvg	Dec-Mar
Nitrogen, Ammonia, Total (as N)	Limitation	15	kg/d	CalMoAvg	Jun-Sep
Nitrogen, Ammonia, Total (as N)	Limitation	40	kg/d	CalMoAvg	Oct-Nov
Nitrogen, Ammonia, Total (as N)	Limitation	5.3	mg/L	CalMoAvg	Apr-May

Parameter	Req't Type Desc	Limit	Units	Limit type abbr	Desc Which Months
Nitrogen, Ammonia, Total (as N)	Limitation	5	mg/L	CalMoAvg	Dec-Mar
Nitrogen, Ammonia, Total (as N)	Limitation	1	mg/L	CalMoAvg	Jun-Sep
Nitrogen, Ammonia, Total (as N)	Limitation	2.7	mg/L	CalMoAvg	Oct-Nov
Nitrogen, Kjeldahl, Total	Monitoring		mg/L	CalMoAvg	Apr, Sep
Oxygen, Dissolved	Monitoring		mg/L	CalMoMin	Jan-Dec
Oxygen, Dissolved	Limitation	5	mg/L	CalMoMin	Jan-Dec
pH	Monitoring		SU	CalMoMax	Jan-Dec
pH	Monitoring		SU	CalMoMin	Jan-Dec
pH	Limitation	9	SU	CalMoMax	Jan-Dec
pH	Limitation	6	SU	CalMoMin	Jan-Dec
Phosphorus, Total (as P)	Monitoring		kg/d	CalMoAvg	Jan-Dec
Phosphorus, Total (as P)	Monitoring		mg/L	CalMoAvg	Jan-Dec
Phosphorus, Total (as P)	Limitation	14.8	kg/d	CalMoAvg	Jan-Dec
Phosphorus, Total (as P)	Limitation	1	mg/L	CalMoAvg	Jan-Dec
Potassium, Dissolved (as K)	Monitoring		mg/L	CalMoMax	Jan-Dec
(Na Sodium, Total (as	Monitoring		mg/L	CalMoMax	Jan-Dec
Solids, Total Dissolved (TDS)	Monitoring		mg/L	CalMoMax	Jan-Dec
Solids, Total Suspended (TSS)	Monitoring		kg/d	CalMoAvg	Jan-Dec
Solids, Total Suspended (TSS)	Monitoring		kg/d	MxCalWkAvg	Jan-Dec
Solids, Total Suspended (TSS)	Monitoring		mg/L	CalMoAvg	Jan-Dec
Solids, Total Suspended (TSS)	Monitoring		mg/L	MxCalWkAvg	Jan-Dec
Solids, Total Suspended (TSS)	Limitation	443	kg/d	CalMoAvg	Jan-Dec
Solids, Total Suspended (TSS)	Limitation	664	kg/d	MxCalWkAvg	Jan-Dec
Solids, Total Suspended (TSS)	Limitation	30	mg/L	CalMoAvg	Jan-Dec

Parameter	Req't Type Desc	Limit	Units	Limit type abbr	Desc Which Months
Solids, Total Suspended (TSS)	Limitation	45	mg/L	MxCaLWkAvg	Jan-Dec
Solids, Total Suspended (TSS) Percent Removal	Monitoring		%	MnCaLMoAvg	Jan-Dec
Solids, Total Suspended (TSS) Percent Removal	Limitation	85	%	MnCaLMoAvg	Jan-Dec
Specific Conductance	Monitoring		umhos/cm	CaLMoMax	Jan-Dec
Sulfate, Total (as SO4)	Monitoring		mg/L	CaLMoMax	Jan-Dec
Toxicity, Whole Effluent (Chronic)	Limitation	1	TUc		
BOD, Carbonaceous 05 Day (20 Deg C)	Monitoring		mg/L	CaLMoAvg	Jan-Dec
BOD, Carbonaceous 05 Day (20 Deg C)	Monitoring		mg/L	CaLMoMax	Jan-Dec
Mercury, Total (as Hg)	Monitoring		ng/L	CaLQtrMax	Dec ,Mar, Jun, Sep
pH	Monitoring		SU	CaLMoMax	Jan-Dec
pH	Monitoring		SU	CaLMoMin	Jan-Dec
Phosphorus, Total (as P)	Monitoring		mg/L	CaLMoAvg	Jan-Dec
Precipitation	Monitoring		in	CaLMoTot	Jan-Dec
Solids, Total Suspended (TSS)	Monitoring		mg/L	CaLMoAvg	Jan-Dec
Solids, Total Suspended (TSS)	Monitoring		mg/L	CaLMoMax	Jan-Dec

Proposed permit effluent limits

The effluent limits and monitoring requirements for station SD 001 can be found in the limits and monitoring table of the accompanying draft permit. Applicable TBEL, WQBEL, and SDR limits are explained below.

Summary of monitoring changes from last reissuance

The following is a brief summary of changes made to the permitted monitoring requirements from the last permit issuance:

Surface Discharge Station SD 002:

- The Fairmont WWTP is receiving new limits for Phosphorus and Chloride in the reissued permit. The Permittee has indicated that the Facility will not be able to consistently meet these new limits upon reissuance, so a 5-year compliance schedule for Phosphorus and 8-year compliance schedule for Chloride have been included in the draft permit. The existing Phosphorus limits and interim Chloride limit of 528 mg/L daily maximum will be

referred to as “Phase 1”, while the final Phosphorus limits will be “Phase 2” and final Chloride limits will be “Phase 3”.

- Bicarbonates (HCO₃), Hardness, Calcium, Magnesium, Potassium, and Sodium monitoring frequency changed from once per month to twice per year, March and September.
- Solids, Total Suspended (TSS), grab (Mercury) monitoring added. Twice per month, Jan, Mar, May, Jul, Sep, Nov.
- Chloride monitoring frequency changed from once per month Jan-Dec to twice per month in Mar, Jun, Sep, and Dec.
- Total Dissolved Solids (TDS) and Specific Conductance changed from once per month Jan-Dec to once per quarter, taken at the same time as one of the Cl measurements.
- Copper monitoring is required 6 times during the next permit cycle, in addition to the 3 priority pollutant scans
- Sulfate monitoring is no longer required.
- The final limits for Mercury of 10 nanograms per liter (ng/L) calendar month average and 17 ng/L daily maximum mentioned in the previous permit will go into effect upon reissuance.

Waste Stream Station WS 001:

- Nitrite + Nitrate, Total Kjeldahl Nitrogen, and Total Nitrogen monitoring of once per month, Jan-Dec has been added to WS 001.
- Total Mercury (as Hg) monitoring of twice per month Jan, Mar, May, Jul, Sep, Nov has been added to WS 001.

Technology based effluent limits

The TSS, pH, and percent removal limits are technology based limits developed for achieving secondary treatment standards. These limits are specified in 40 CFR §133.102 and Minn. R. 7050.0211 and Minn. R. 7053.0215.

State Discharge Restrictions (SDRs)

The limit for fecal coliform has been developed to meet state discharge restrictions specified under Minn. R. 7053.0255.

Water quality based limits

The permit includes a proposed monthly total phosphorus WQBEL of 11.5 kilograms per day (kg/day), June - September, to protect for eutrophication impairments in the Blue Earth River and is consistent with River Eutrophication Standards (RES). The WQBEL of 11.5 kg/day is based off a five-year long-term average wasteload allocation (WLA) of 5.5 kg/day, June-September. The long-term average WLA of 5.5 kg/day is based on achieving RES 150 µg/L in the Blue Earth River. The MPCA projects that by complying with the 11.5 kg/day monthly limit, the Fairmont WWTF will have to average 5.5 kg/day, June-September, over a five-year/long-term period. After the five year permit cycle, MPCA will evaluate the facility's discharge and the downstream water quality. And if necessary, adjust the facility's 11.5 kg/day monthly average limit down to ensure that the long-term average WLA of 5.5 kg/day is achieved during the June-September effective period.

MNG42 Exclusion

Under this individual permit, the Fairmont Wastewater Treatment Facility (Facility) will comply with a Total Phosphorus effluent limit that is consistent with the goals of the Lower Minnesota River Low Dissolved Oxygen TMDL. The Facility also has coverage under the Minnesota River Basin General Phosphorus Permit (MNG420000) issued on December 1, 2005. Compliance with the Total Phosphorus (TP) effluent limit in this individual permit will make the Facility eligible for exclusion from the monitoring and reporting requirements and effluent limits of MNG420000. The Facility will be permanently excluded from the monitoring and reporting requirements and effluent limits of MNG420000 when it attains compliance with the river eutrophication based (RES) TP effluent limit. Upon compliance with the final TP effluent limit contained in this individual permit, the Facility will no longer be required to submit a Pre-Season Implementation Plan (PIP) and Annual Compliance Report or an Annual Exclusion Form. The Facility will also

no longer be required to monitor Total Phosphorus as per the frequency in the MNG420000 Permit, or comply with effluent limits specified in the MNG420000 Permit. The Facility should instead comply with the limits and monitoring section of this individual permit. The MNG42 Permit will be terminated once all MNG42 Permittees have been excluded from the MNG42 Permit.

Reasonable Potential for Chemical Specific Pollutants (40CFR122.44(d)(1))

Federal regulations require 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 Agency 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 (PEL) 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 water quality-based effluent limit (WQBEL) for that pollutant.

There have been no modifications to this wastewater treatment facility in the current or in the past permit cycle. In general, when this is the case, MPCA staff uses data from the past permit cycle together with the data collected in the current permit cycle to do the reasonable potential analysis for the parameters reported in the priority pollutant scans. However, a state of the art water treatment plant went on line during the current permit cycle (September 2013). This plant might produce a cleaner water influent to the wastewater treatment plant with respect to metals, and therefore metal data collected before the plant became operational might not reflect the current quality of the wastewater treatment plant effluent. Because of the uncertainty of how well the metal data may represent the current effluent from the wastewater treatment plant, a reasonable potential analysis was not done, however the data collected during this permit cycle were compared to the 2B class water quality standards to decide monitoring for the next permit cycle. The copper, nickel, lead, and zinc water quality standards are hardness dependent.

Arsenic, lead, selenium, chromium, nickel and zinc were detected in the effluent. Arsenic was detected twice; the highest value was 1.41 ug/L. Lead was detected once at a concentration of 0.18ug/L. Selenium was detected once (0.67 ug/L). The chronic water quality standards for 2B waters are 53 ug/L, 11 ug/L and 5 ug/L, respectively. The values observed for arsenic and lead were 46 and 56 times smaller than their respective chronic 2B water quality standards. Chromium was detected once (1.2 ug/L). Chromium chronic water quality standard (11 ug/L) is about 10 times larger than the detected value. The highest nickel concentration was 7.4 ug/L, about 48 times below the water quality standard (358 ug/L). The highest concentration of zinc measured (54 ug/L) is about 4 times smaller than the chronic water quality standard for zinc (241ug/L). Selenium was detected once and the measured value was less than 7 times chronic 2B water quality standard (5ug/L). The highest copper concentration, 19.7 ug/L is above the water quality standard, 17.9 ug/L.

The Facility has a final limit of 10 ng/L calendar month average and a 17 ng/L daily maximum that went into effect upon expiration of the previous permit. Fairmont WWTP is a major municipal wastewater treatment plant, as such, and because of the mercury limits, the facility needs to monitor total mercury in the influent twice per month in Jan, Mar, May, Jul, Sep, and Nov. and total and dissolved mercury together with total suspended solids in the effluent twice per month in Jan, Mar, May, Jul, Sep, and Nov. The values need to be reported as single values. Mercury samples need to be collected using clean hands sampling method 1669 (grab) or any revision to that method.

It is recommended that in addition to the three priority pollution scans, the facility samples the effluent two more times for arsenic, cadmium, chromium, lead, nickel and selenium during the life of the next permit. It is also recommended that in addition to the three priority pollution scans, the facility samples for copper six times during the life of the next permit. The additional data collected will assure that a reasonable potential analysis can be done in the next permit cycle.

All the organic priority pollutants were below the level of detection. Because of this, it is expected that they will not contribute to a water quality standards excursion.

Because of the newer water treatment plant, that might impact the quality of the influent to the waste water treatment plant, only salty parameter data collected from Oct 2013 onward were used in the reasonable potential analysis.

Minn. R. 7050.0222 subp. 4 lists the water quality standards for the class 2B, aquatic life use for chloride (chronic standard: 230 mg/L, maximum standard: 860 mg/L, and final acute value: 1,720 mg/L). Minn. R. 7050.0223 subp. 4 lists the water quality standards for the class 3C, industrial use, for chloride: 250 mg/L and for hardness (Ca + Mg as CaCO₃): 500 mg/L. Minn. R. 7050.0224 subp. 2 lists the water quality standards for class 4A, agricultural irrigation use, which are for bicarbonate: 5 meq/L; for specific conductance: 1000 µmhos/cm; and for total dissolved solids: 700 mg/L.

Table 4. Reasonable potential analysis for bicarbonates, hardness, chloride (Cl), sulfate (SO₄), total dissolved solids (TDS), and specific conductance.

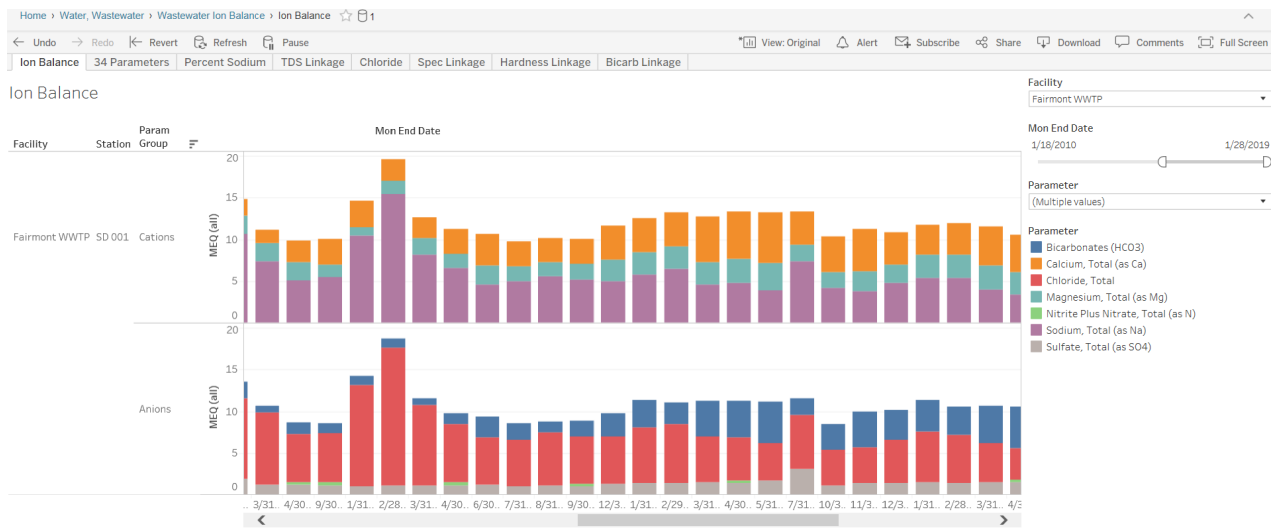
Parameter	Bicarbonates (mg/L)	Hardness (mg/L)	Cl (mg/L)	Cl (mg/L)	SO ₄ (mg/L)	TDS (mg/L)	SpecCond (umhos/cm)
Max measured value	309	468	587	587	168	1200	2290
# data points	72	70	72	72	72	72	72
PEQ	278	421	528	528	151	1080	2061
Plant flow ADWDF (mgd)	1.15	1.15	1.15	1.15	1.15	1.15	1.15
Receiving water flow, 7Q10(mgd)	0	0	0	0	0	0	0
Background concentration	168	264	29.5	29.5	4.27	443.6	554.5
Continuous standard (cs)	305	500	230	250	1000	700	1000
Maximum standard (ms)	NA	NA	860	NA	NA	NA	NA
Final acute value (FAV)	NA	NA	1720	NA	NA	NA	NA
Mass balance (cs)	305	500	230	250	1000	700	1000
Mass balance (ms)	NA	NA	860	NA	NA	NA	NA
Coeff. of variation (CV)	0.46	0.22	0.26	0.26	0.25	0.13	0.15
Long term average (cs)	234	456	165	221	901	661	938
Long term average (ms)	NA	NA	456	NA	NA	NA	NA
Preliminary effl. limits:							
Daily max	776	737	311	416	1544	894	1316
Monthly avg. (2 x month)	435	581	227	304	1182	769	1112
<u>Reasonable potential</u>							

PEQ > Daily max	FALSE	FALSE	TRUE	TRUE	FALSE	TRUE	TRUE
PEQ > FAV	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
PEQ > Monthly average	FALSE	FALSE	TRUE	TRUE	FALSE	TRUE	TRUE
Reasonable potential	No	No	Yes	Yes	No	Yes	Yes

The cations Na⁺, Ca²⁺, Mg²⁺, and K⁺ are measured to determine the ratio Na⁺ to the sum of cations. In this permit cycle, Na⁺ was 49.5 percent of the cations, below the 60 percent standard.

Table 4 indicates that chloride, total dissolved solids, and specific conductance show a reasonable potential to cause or contribute to an exceedance of the water quality standards and the three parameters would need limits. Based on the chloride linkage concept, the facility will only receive interim and final effluent limits for chloride because it is expected that if the facility complies with the chloride limits it will also comply with the TDS and the specific conductance limits. The facility will be required to complete a chloride management plan to evaluate potential compliance strategies.

Figure 1 shows the concentration of ions in the effluent. Chloride constitutes most of the concentration of anions.



Even though the City of Fairmont has had a drinking water centralized lime softening system since 1926 some residents may still be using water softeners. In addition, according to Mr. Rainforth (email Oct 8, 2015) there may be an industry that discharges to the City of Fairmont WWTP that has a high concentration of chlorides. Even though the water treatment plant target is to have a total hardness of 120 mg/L in its treated water, the median hardness of the effluent from the wastewater treatment plant is 272 mg/L; this is probably due to some industry that is using groundwater and sending its effluent to the wastewater treatment plant.

Interim limits

If the facility is unable to comply with the daily maximum and the average monthly chloride concentration limits at this time the facility will be subject to a daily maximum interim limit of 528 mg/L. Interim limits are designed to assure that the pollutant concentration/parameter value in the discharge does not increase while the interim limits are in effect and are based on treatment levels currently achievable.

The interim daily maximum limit is a concentration below which it is expected that 95 percent of the effluent concentrations will be; that is the how MPCA computes the projected effluent quality. Therefore, the daily maximum limit is the projected effluent quality.

All data collected because of interim and final limits will be reported as individual data points along with other requirements in DMRs.

The final daily maximum concentration limit and a monthly average concentration limit **are applicable at the end of the compliance schedule.**

Salty parameters monitoring

Chloride needs to be monitored twice per month. Data taken quarterly, twice in the same month each quarter during the life of the permit is sufficient to do an analysis of the evolution of chloride. A total of 8 chloride samples per year. Monitor total dissolved solids and specific conductance once per quarter, one of the times that the effluent is sampled for chloride. Monitor the cations, bicarbonate and hardness twice per year.

Sulfate: the data submitted during this permit cycle provide sufficient information at the present time therefore sulfate sampling can be discontinued.

Analytical methods reporting levels for metals

The laboratory must utilize methods that are approved for use under the Clean Water Act of 1977 (see 40CFR136.3) and that achieve the following reporting levels.

Metal	Reporting Limit (ug/L)
Aluminum	2 to 5
Antimony	0.1 to 1
Arsenic	0.5 to 2
Beryllium	0.08 to 0.5
Cadmium	0.1 to 5
Chloroform	1.0
Chromium - total	0.5 to 2
Cobalt	0.5 to 1
Copper	0.5 to 1
Lead	0.1 to 1

Mercury	0.5-5 ng/L
Molybdenum	0.5 to 1
Nickel	0.5 to 1
Selenium	0.5 to 5
Silver	0.2 to 1
Thallium	0.1 to 1
Vanadium	0.5 to 2
Zinc	1 to 5

Priority Pollutants: The permittee must send three priority pollutant scans in the life of the permit.

Please, send in the entire priority pollutant report, including the QC section each time the priority pollutant scan is performed.

Additional requirements

Pollutant minimization plans (PMP)

The Permittee is required to submit a Mercury Minimization Plan (MMP) due 180 days after permit issuance. The MMP requirements include educating users with regard to proper mercury disposal in order to prevent its introduction into the waste stream.

Compliance schedules

The reissued permit will include a five-year compliance schedule for the newly proposed Phosphorus WQBELs, and an eight-year compliance schedule for the newly proposed Chloride WQBELs. Specific requirements, submittals, etc. can be found in the Compliance Schedule section of the accompanying draft permit.

Construction Schedule

The Permittee is required to submit a series of notification and documents pertaining to the proposed construction project as further detailed in the “*Construction Schedule*” section of the accompanying draft permit.

Total facility requirements (TFR)

Certified laboratory

Effective January 1, 2013, all Minnesota municipal, county or industrial laboratories that analyze wastewater per Clean Water Act requirements must be certified by the MPCA or the Minnesota Department of Health. Information regarding the MPCA laboratory certification is located on the MPCA’s website at <http://www.pca.state.mn.us/4p44whk>. If there are any questions concerning the MPCA laboratory certification, please contact the MPCA at 1-800-657-3864 or by email at qa.questions.mPCA@state.mn.us. Commercial laboratories doing these analyses must maintain Minnesota Department of Health certification.

Electronic Discharge Monitoring Reports (eDMRs)

The eDMRs, Sample Values/Operational Spreadsheets, and related attachments shall be electronically submitted via the MPCA e-Services (https://rsp.pca.state.mn.us/TEMPO_RSP/Orchestrate.do?initiate=true). Paper copies of DMRs will no longer be accepted. The eDMR and Sample Value/Operational Spreadsheets are generated directly from the limits and monitoring requirements in the reissued permit for the facility. They are generated by the Pollution Control Data Specialist assigned to manage the data for the facility and will be available online within 30 days of the permit action, please make sure to download the most recent version of the eDMR and Sample Value/Operational Spreadsheet prior to submitting the next monthly eDMRs.

Construction projects

Separate written approval of plans and specifications, in addition to the final issued permit, must be obtained from the MPCA before construction can begin for any planned construction projects.

Antidegradation and anti-backsliding

Changes to the facility may result in an increase in pollutant loading to surface waters or other causes of degradation to surface waters. If a change to the facility will result in a net increase in pollutant loading or other causes of degradation that exceed the maximum loading authorized through conditions specified in the existing permit, the changes to the facility are subject to antidegradation requirements found in Minn. R. 7050 to 7050.0335.

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 NPDES permit has been issued by the agency that contains effluent limits more stringent than those that would be established by Minn. R. 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.