Wastewater Treatment Facility Plan

Northfield, Minnesota

BMI Project No. M21.109430

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NORTHFIELD, MINNESOTA

WASTEWATER TREATMENT FACILITY PLAN

JANUARY 2016

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I hereby certify that this plan, specification or report was prepared by me or under my direct supervision, and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

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SECTION 1 INTRODUCTION

A. PURPOSE

This report provides the City of Northfield, Minnesota with recommendations for wastewater facility improvements, including a prioritized list of items for repair or replacement. Recommendations are based on input from the City staff, a visual inspection of the infrastructure, and an evaluation of facility requirements in accordance with the current recommended practice and regulatory agency requirements.

Section 2 provides a summary of design considerations and projected effluent limits for the facility. In section 3, an evaluation of existing facilities is provided. Alternatives for improvements are developed in Section 4, with cost estimates for the potential improvements summarized in Section 5. Section 6 presents recommendations and a proposed implementation plan.

B. BACKGROUND

The City of Northfield operates a Wastewater Treatment facility which treats wastewater from the community and discharges it to the Cannon River under a National Pollution Discharge Elimination System (NPDES) permit issued by the Minnesota Pollution Control Agency (MPCA). The City's current NPDES permit is included in Appendix A for reference.

The Northfield Wastewater Treatment Facility was originally constructed in 1958. Several significant improvements have been constructed over the years, including the latest improvements that were completed in 2002. In 1996, the City of Dundas constructed a wastewater collection system and began to discharge wastewater to the City of Northfield for treatment. The agreement between the two cities is included in Appendix B for reference. The current facility configuration consists of influent lift pumps, pretreatment, primary clarification utilizing lamella plate clarifiers, secondary treatment utilizing biological aerated filters, and ultraviolet disinfection. Biosolids are treated utilizing a lime pasteurization process, and dried cake solids are stored on site. Figure 1.1 shows the location of the existing treatment facility in Dakota County.

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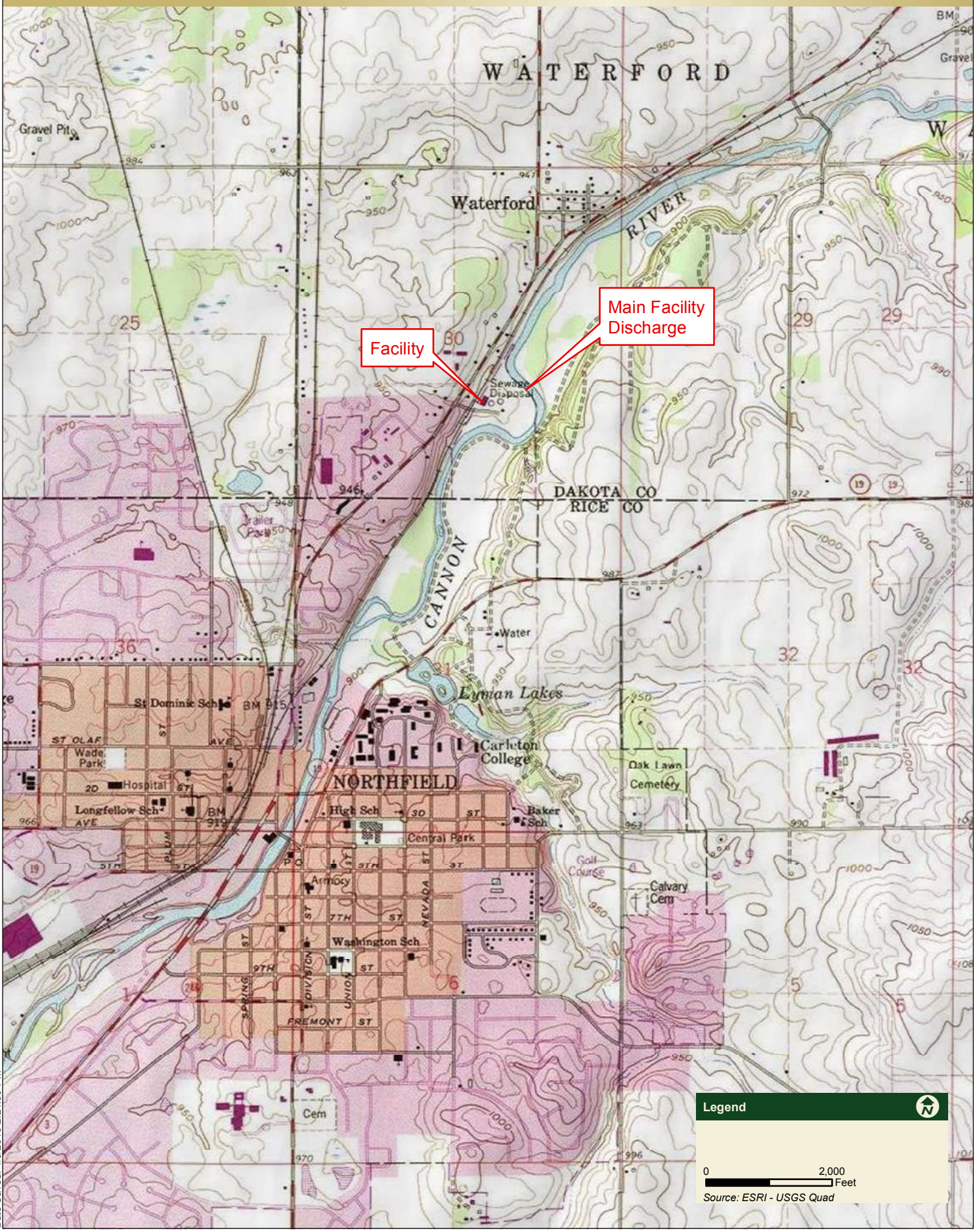
FIGURE 1.1

Northfield Wastewater Treatment Facility | **NPDES/SDS Permit No. MN0024368**

Northfield, Rice & Dakota Co. MN

Figure 1.1 - Existing Wastewater Treatment Facility

April, 2015



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The existing facility was designed with treatment capacity to meet the needs of the community to the year 2020 based on community development projections outlined in a Facility Plan developed in 1998. This Facility Plan will evaluate the treatment capacity for the future community needs and treatment requirements. In addition, the condition of the existing facilities will be evaluated in order to determine the need for improvements to structures and treatment facilities to maintain the investment the community has in the existing facilities.

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SECTION 2 DESIGN CONSIDERATIONS

A. PLANNING PERIOD

Wastewater treatment facilities are typically designed based on a 20-year planning period, as it is generally not feasible to make numerous changes in the capacity of a wastewater treatment facility. In addition, a 20-year planning period is required for the project to be eligible for funding assistance with the Minnesota Public Facilities Authority (PFA).

A design year of 2035 is used for this evaluation. Projected wastewater flows and loadings are determined using a combination of population trends and expected commercial and industrial growth

B. CUSTOMER/USER PROJECTIONS

The basis for projecting wastewater treatment needs for the community includes the residential population served by the facility, the commercial development and industrial users. For the Northfield Wastewater Treatment Facility, this includes residential and commercial flows from both the City of Northfield and the City of Dundas, and flows from three significant industrial users. Key considerations in making projections are as follows:

- Historical and projected population data for the City of Northfield were provided by the City's planning department. Future population projections were based on 16% growth per decade in the City.

- Historical population data for Dundas were based on City of Dundas planning documents, and Minnesota State Demographer's data. Future population projections were based on 16% growth per decade in the City of Dundas.

- The mix of commercial and residential users will remain similar to existing conditions in both communities.

- The three significant industrial users (Malt-O-Meal, Inc., Multek Flexible Circuits, Inc., and All Flex, Inc.) currently have user agreements with the City of Northfield. Future projections will be based on flow and loading parameters in

these agreements. The current agreements are included in Appendix B for reference.

Table 2.1 summarizes the historical and projected populations for the City of Northfield and the City of Dundas.

TABLE 2.1
Historical and Projected Service Population

Year	City of Northfield Population	City of Dundas Population	Total Service Population	Notes
1990	14,684	473	14,684	(1)
2000	17,147	547	18,067	
2010	20,007	1,367	21,374	2010 census
2015	21,608	1,476	23,084	Estimated
2020	23,208	1,586	24,794	Projected
2025	25,065	1,713	26,777	Projected
2030	26,921	1,839	28,761	Projected
2035	29,075	1,987	31,062	Projected
(1) Dundas connected to the Northfield system in 1996.				

C. WASTEWATER FLOWS

The determination of projected wastewater flows is one of the most important design parameters required to assess future treatment capacity needs. Wastewater flows from five sources must be assessed.

- Residential flows include wastewater from homes and apartments within the service area.
- Commercial / institutional flows include wastewater from businesses, restaurants, city offices and wastewater from the educational institutions such as elementary, middle, and high school, as well as colleges and universities. These flows typically vary in ratio similar to residential wastewater flows and will be projected with the residential flows for future flows.
- Industrial flows include wastewater generated by industrial users. The components of the wastewater, as well as the volume, are dependent on the

industrial process; therefore, flow projections are based on agreements and projections provided by the industrial users.

- Inflow is water other than wastewater that enters the wastewater collection system from sources such as roof leaders, yard drains, manhole covers and other cross connections between storm sewer and wastewater collection systems. Determination of this flow is based on historical flow data taken during rainfall events.
- Infiltration is water other than wastewater that enters the wastewater collection system from the ground through defective collection pipes, pipe joints and manholes. Determination of this flow is based on historical flow data taken during high groundwater periods.

The Minnesota Pollution Control Agency (MPCA) has guidelines for determining flow projections. Future projections are developed for four flow conditions critical to the design and operation of treatment facilities.

- The Average Dry Weather (ADW) flow is based on the flow with no inflow due to precipitation and/or snow melt and no infiltration due to high groundwater. The ADW flow typically occurs in winter months or in very dry summer months.
- The Average Wet Weather (AWW) flow, or peak month flow, is the daily average flow for the wettest 30 consecutive days for mechanical treatment systems such as the Northfield facility. AWW flow is based on flow with infiltration due to high groundwater and typical inflow due to precipitation and/or snowmelt.
- The Peak Hourly Wet Weather (PHWW) flow is the peak flow during the peak hour of the day at a time when the ground water is high and a five-year storm is occurring. This flow is used to size clarifier and disinfection systems.
- The Peak Instantaneous Wet Weather (PIWW) flow is the peak instantaneous flow during the day at a time when the ground water is high and a 25 year one hour storm event is occurring. This flow is used for sizing preliminary treatment systems and pump and piping systems.

An MPCA Determination of Design Flows worksheet was prepared for the current (2015) condition and the future (2035) condition. Historical wastewater flow data and future population and industrial flow projections were used in preparing these worksheets.

Table 2.2 provides a summary of historical wastewater flow data for the Northfield Wastewater Treatment Facility.

TABLE 2.2
Summary of Historical Wastewater Flows

	2010	**2011**	**2012**	**2013**	**2014**
Service Population [(1)]	21,374	21,716	22,058	22,400	22,742
Average Daily Flow (MGD)	2.13	2.36	2.15	2.29	2.27
Max. Month Flow (MGD)	2.80	2.79	2.80	2.89	3.10
Max. Day Flow (MGD)	6.52	3.17	4.60	4.13	4.70

[(1)] Service population for 2010 based on Census Data. Populations for 2011-2014 estimated based on planning data.

Determination of design flows for 2015 and 2035 are presented in Tables 2.3 and 2.4.

TABLE 2.3
Determination of Design Flows for 2015
City of Northfield, Minnesota

		MGD
A.	**For determination of peak hourly wet weather design flow (PHWW)**	
(1)	Present peak hourly dry weather flow	2.78
(2)	Present peak hourly flow during high groundwater period (no runoff)	3.34
(3)	Present peak hourly dry weather flow (same as (1)) -	2.78
(4)	Present peak hourly infiltration =	0.56
(5)	Present hourly flow during high groundwater period and runoff at point of greatest distance between Curves Y and Z	6.52
(6)	Present hourly flow during high groundwater (no runoff) at same time of day as (5) measurement	2.46
(7)	Present peak hourly inflow =	4.06
(8)	Present peak hourly inflow adjusted for a 5 year - 1 hour rainfall event	4.06
(9)	Present peak hourly infiltration (same as (4))	0.56
(10)	Peak hourly infiltration cost effective to eliminate -	0
(11)	Peak hourly infiltration after rehab (where rehab is cost effective)=	0.56
(12)	Present Peak hourly adjusted inflow (same as (8))	4.06
(13)	Peak hourly inflow cost effective to eliminate -	0
(14)	Peak hourly inflow after rehab (where rehab is cost effective) =	4.06
(15)	Population increase 7550 @ 115 gpcd times 2.5 (peaking factor)	0
(16)	Peak hourly flow from planned industrial increase	0.67
(17)	Estimated peak hourly flow from future unidentified industries	0
(18)	Peak hourly flow from other future increases	0
(19)	Peak hourly wet weather design flow (1+11+14+15+16+17+18) =	8.07
B.	**For determination of peak instantaneous wet weather design flow (PIWW)**	
(20)	Peak hourly wet weather design flow (same as (19))	8.07
(21)	Present peak hourly inflow adjusted for a 5 year - 1 hour rainfall event (same as (8))	4.06
(22)	Present peak inflow adjusted for a 25 year - 1 hour rainfall event +	5.34
(23)	Peak instantaneous wet weather design flow =	9.35
C.	**For determination of average dry weather design flow (ADW)**	
(24)	Present average dry weather flow	1.83
(25)	Population increase: 7550 at 115 gpcd	0
(26)	Average flow from planned industrial increase +	0.41
(27)	Estimated average flow from other future unidentified industries +	0
(28)	Average flow from other future increases +	0
(29)	Average dry weather design flow (24+25+26+27+28) =	2.24
D.	**For determination of average wet weather design flow (30 day average for mechanical plant) (AWW)**	
(30)	Present average dry weather flow	1.83
(31)	Average infiltration after rehab (where rehab is cost effective) +	0.22
(32)	Average inflow after rehab (where rehab is cost effective) +	1.62
(33)	Population increase: 7550 at 115 gpcd +	0
(34)	Average flow from planned industrial increase +	0.41
(35)	Estimated average flow from other future unidentified sources +	0
(36)	Average flow from other future increases +	0
(37)	Average wet weather design flow (30+31+32+33+34+35+36) =	4.09

TABLE 2.4
Determination of Design Flows for 2035
City of Northfield, Minnesota

		MGD
A.	**For determination of peak hourly wet weather design flow (PHWW)**	
(1)	Present peak hourly dry weather flow	2.78
(2)	Present peak hourly flow during high groundwater period (no runoff)	3.34
(3)	Present peak hourly dry weather flow (same as (1)) -	2.78
(4)	Present peak hourly infiltration =	0.56
(5)	Present hourly flow during high groundwater period and runoff at point of greatest distance between Curves Y and Z	6.52
(6)	Present hourly flow during high groundwater (no runoff) at same time of day as (5) measurement	2.46
(7)	Present peak hourly inflow =	4.06
(8)	Present peak hourly inflow adjusted for a 5 year - 1 hour rainfall event	4.06
(9)	Present peak hourly infiltration (same as (4))	0.56
(10)	Peak hourly infiltration cost effective to eliminate -	0
(11)	Peak hourly infiltration after rehab (where rehab is cost effective)=	0.56
(12)	Present Peak hourly adjusted inflow (same as (8))	4.06
(13)	Peak hourly inflow cost effective to eliminate -	0
(14)	Peak hourly inflow after rehab (where rehab is cost effective) =	4.06
(15)	Population increase 7550 @ 115 gpcd times 2.5 (peaking factor)	2.29
(16)	Peak hourly flow from planned industrial increase	0.67
(17)	Estimated peak hourly flow from future unidentified industries	0
(18)	Peak hourly flow from other future increases	0
(19)	Peak hourly wet weather design flow (1+11+14+15+16+17+18) =	10.36
B.	**For determination of peak instantaneous wet weather design flow (PIWW)**	
(20)	Peak hourly wet weather design flow (same as (19))	10.36
(21)	Present peak hourly inflow adjusted for a 5 year - 1 hour rainfall event (same as (8))	4.06
(22)	Present peak inflow adjusted for a 25 year - 1 hour rainfall event +	5.34
(23)	Peak instantaneous wet weather design flow =	11.64
C.	**For determination of average dry weather design flow (ADW)**	
(24)	Present average dry weather flow	1.83
(25)	Population increase: 7550 at 115 gpcd	0.92
(26)	Average flow from planned industrial increase +	0.41
(27)	Estimated average flow from other future unidentified industries +	0
(28)	Average flow from other future increases +	0
(29)	Average dry weather design flow (24+25+26+27+28) =	3.16
D.	**For determination of average wet weather design flow (30 day average for mechanical plant) (AWW)**	
(30)	Present average dry weather flow	1.83
(31)	Average infiltration after rehab (where rehab is cost effective) +	0.22
(32)	Average inflow after rehab (where rehab is cost effective) +	1.62
(33)	Population increase: 7550 at 115 gpcd +	0.92
(34)	Average flow from planned industrial increase +	0.41
(35)	Estimated average flow from other future unidentified sources +	0
(36)	Average flow from other future increases +	0
(37)	Average wet weather design flow (30+31+32+33+34+35+36) =	5.01

D. WASTEWATER LOADINGS

Pollutant loadings are required to determine the size of the treatment units at the wastewater treatment facility. Pollutant loadings utilized to determine treatment capacity are five-day carbonaceous biochemical oxygen demand ($CBOD_5$), total suspended solids (TSS), total Kjeldahl nitrogen (TKN) and phosphorus (P). Projected loadings are calculated based on historical data, residential and commercial growth, projected industrial contributions based on historical discharges, industry estimates, and discharges agreed to in industrial user agreements.

Table 2.5 provides a summary of the historical loading data from 2010 to 2014 for the facility.

TABLE 2.5
Historical Influent Loadings
City of Northfield, Minnesota

	2010	**2011**	**2012**	**2013**	**2014**
$CBOD_5$ – Average Daily (kg/d)	1992	1916	1732	1736	1730
$CBOD_5$ – Max. Month (kg/d)	2221	2304	1988	2231	2051
$CBOD_5$ – Max. Day (kg/d)	3732	4334	4260	4512	6883
TSS – Average Daily (kg/d)	1963	1977	1866	1829	1821
TSS – Max. Month (kg/d)	2270	2238	2085	2569	3281
TSS – Max. Day (kg/d)	3829	3112	3825	6650	17,064
P – Average Daily (kg/d)	35	35	50	30	31

Future wastewater loading projections include the following considerations:

- Increases in $CBOD_5$ due to population growth and community development were based on 0.08 Kg $CBOD_5$/person per day. This value is typical for similar communities, and correlates well with City of Northfield historical values.

- Increases in TSS due to population growth and community development were based on 0.09 Kg TSS/person per day. This value is typical for similar communities, and correlates well with City of Northfield historical values.

- Increases in phosphorous due to population growth and community development were based on 0.0016 Kg/person per day, based on historical values.

- Industrial contributions have historically been below the average daily discharge values allocated in the SIU agreements. Future allocations were based on industrial contributions identified in the SIU agreements.

Projected design flows and loadings are summarized in Table 2.6. Projections have been made to the year 2035, in 5-year increments, to assist in planning of wastewater improvements.

TABLE 2.6
Projected Design Flows and Loadings
City of Northfield, Minnesota

Parameter	Existing Design Basis	2015	2020	2025	2030	2035
Population	26,400	23,084	24,794	26,777	28,761	31,062
AWW Flow (MGD)	5.2	4.09	4.28	4.51	4.74	5.01
PHWW Flow (MGD)	10.41	8.07	8.56	9.13	9.70	10.36
PIWW Flow (MGD)	11.74	9.35	9.84	10.41	10.98	11.64
$CBOD_5$ – Ave. Day (kg/d)	2818	1821	2501	2653	2804	2980
$CBOD_5$ – Max. Month (kg/d)	3636	2840	3520	3672	3823	3999
$CBOD_5$ – Max. Day (kg/d)	4545	3841	4521	4673	4824	5000
TSS – Ave. Day (kg/d)	2273	1891	2407	2586	2764	2971
TSS – Max. Month (kg/d)	2909	2765	3281	3460	3638	3845
P – Ave. Day (kg/d)	157	36	39	42	45	49

Future wastewater loading will exceed the nominal design basis of the facility in the next 10-15 years, depending on actual population growth and industrial contributions. In the past, the treatment capacity of the facility has been evaluated based on operational data. Previous evaluations indicate that the facility has capacity to provide treatment at a higher loading rate than the nominal design basis. Memos regarding the evaluation of design capacity are included in Appendix F for reference. Based on these evaluations, it appears the facility has the capacity to treat the projected 2035 design flows and loading to current effluent standards. In addition, Section 3 contains further discussion of design capacity evaluation.

E. BIOSOLIDS PRODUCTION PROJECTIONS

Biosolids are produced at the wastewater treatment facility based on influent loadings of $CBOD_5$, TSS, phosphorous and TKN. Projections for future biosolids production were made based on the following criteria.

- The biosolids generated by TSS will be based on 100 percent removal of influent TSS.

- Biosolids generated by $CBOD_5$ removal will be based on 100 percent removal of $CBOD_5$, and an average yield of 0.41 Kg biosolids per Kg $CBOD_5$ removed.
- The biosolids projections include an allocation for lime, based on continued utilization of the existing biosolids treatment system.
- Treated Biosolids cake will have a 42.5% dry weight, including lime.

Table 2.7 presents historical and projected biosolids production.

TABLE 2.7
Biosolids Historical and Projected Production
City of Northfield, Minnesota

Parameter	2011	2012	2013	2014	Projected 2035
Biosolids Dry Weight Basis (ton/yr)	898	1020	1036	1041	1684
Biosolids Cake including Lime (ton/yr)	2635	2899	3249	3847	6637

F. EFFLUENT LIMITS

The Northfield wastewater treatment facility discharges wastewater to the Cannon River. The Cannon River was designated an Outstanding Resource Value Water (ORVW) in November 1984. Based on this designation, the NPDES Permit for this facility includes mass limits for $CBOD_5$, TSS, copper, total phosphorous and ammonia. Based on the current permit, effluent limits are summarized in Table 2.8.

TABLE 2.8
Existing Effluent Limits SD001
City of Northfield, Minnesota

Parameter	Limit
$CBOD_5$	322 Kg/d, 25 mg/L, 85% removal – Monthly Ave. 515 Kg/d, 40 mg/L – Max. Weekly Ave.
TSS	386 Kg/d, 30 mg/L, 85% removal – Monthly Ave. 578 Kg/d, 45 mg/L – Max. Weekly Ave.
Copper	1.45 Kg/d, 113 µg/L – Daily Max.
Total P	19.6 Kg/d, 1.0 mg/L – Monthly Ave. 7174 Kg/yr – Annual Max.
Nitrogen Ammonia	393 Kg/d, 20 mg/L – April–May – Monthly Ave. 175 Kg/d, 8.9 mg/L – June–Sept. – Monthly Ave. 668 Kg/d, 34 mg/L – Oct.–Nov. – Monthly Ave.

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SECTION 3 EVALUATION OF EXISTING FACILITIES

A. GENERAL

The wastewater treatment facility has been evaluated based on the following service requirements:

1. Treatment processes evaluated for ability to provide level of treatment required to meet NPDES Permit limits.
2. Treatment processes evaluated for ability to provide treatment capacity to meet the communities' needs.
3. Treatment equipment and facilities evaluated for condition and expected service life.
4. Ancillary facilities evaluated for condition and expected service life.

Figure 3.1 provides a schematic process flow diagram for the facility.

B. DESCRIPTION OF TREATMENT PROCESSES

1. Influent Pumping

Wastewater from the community flows to the facility via a 42 inch gravity interceptor which discharges to the influent pump station. Wastewater is pumped to the preliminary treatment processes from the influent pump station.

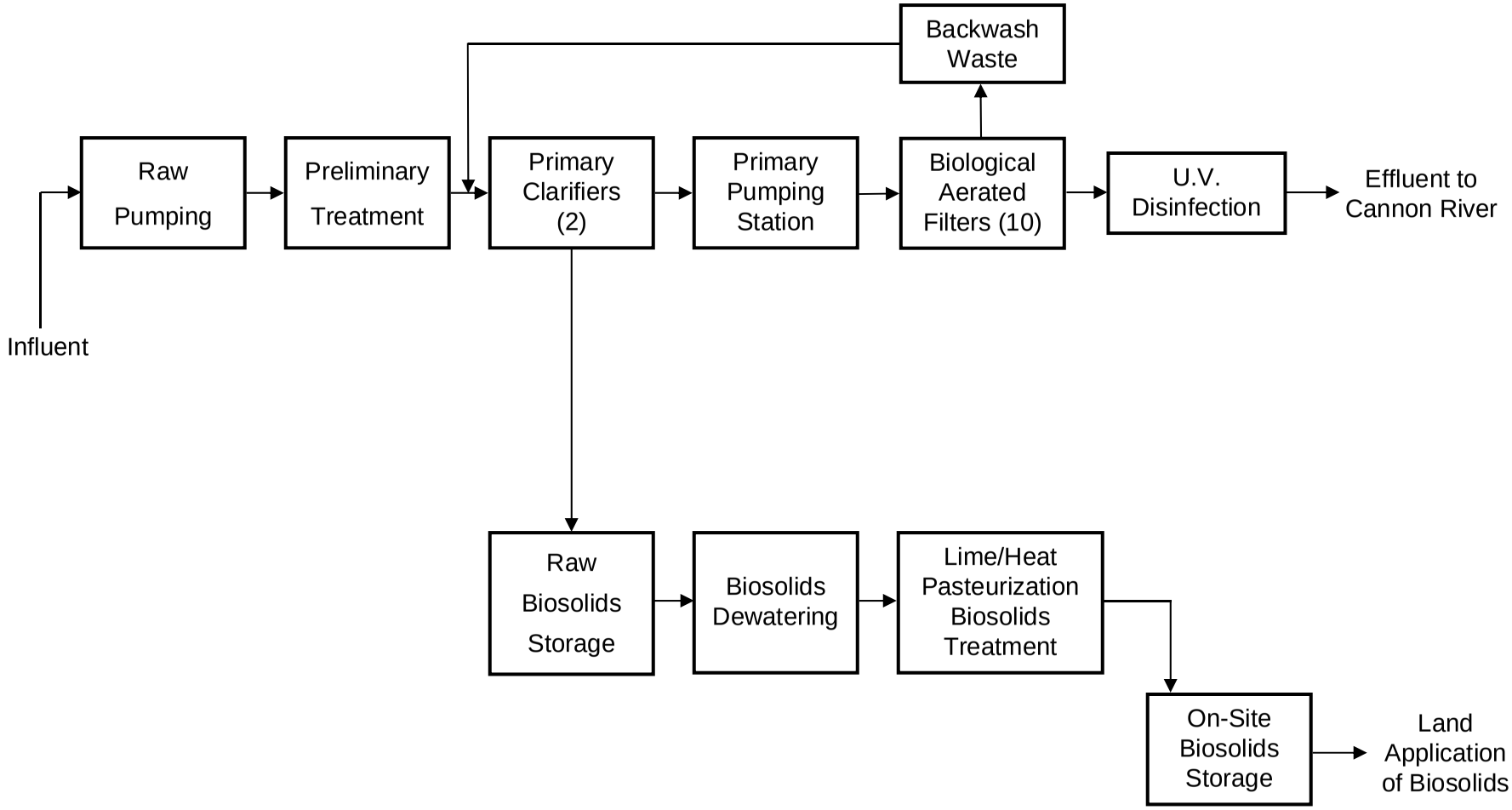
The pump station structure was constructed in 1958. This facility was renovated in 1982, and again in 2002. Currently, the pump station has three pumps, with a capacity of 3,615 gpm each. These pumps are Fairbanks Morse submersible dry pit installation pumps, with 86.25 HP motors.

2. Preliminary Treatment

Preliminary treatment processes include the following:

a. Fine screening
b. Grit removal
c. Influent wastewater sampling
d. Influent flow metering

FIGURE 3.1
Wastewater Treatment Schematic 2015
Northfield, Minnesota



H:\NOFD\M21109430\3_Design\C_Reports\Facility Plan 2015\Figure 3-1 WWT Schematic 2015.ppt

The preliminary treatment processes are located in the clarifier/pretreatment building, and were constructed in 2002.

- Fine screening is accomplished with fine screens ME-FS-1 and ME-FS-2. The fine screens are Lakeside Equipment cylindrical fine screen units. The wastewater flows through a fine screen where the material is removed from the flow stream by stainless steel screens. The wastewater treatment facility is equipped with two units to insure that one is operational should the other unit be down for service or repair.

- The grit removal system is composed of a grit pump, paddle drive and grit classifier screw. The grit chamber is a 1.0 HP, Smith & Loveless Pista® Grit Model 7.0 and the grit classifier is 0.5 HP Wemco 12" classifier type.

- The influent sampler is a refrigerated sampler and is located in the influent pump building.

- Influent flow metering is accomplished with a Parshall flume located in the influent pump building.

3. Primary Treatment

Primary treatment consists of clarification utilizing a coagulation / flocculation / clarification process. There are two clarifier process trains, each designed to treat a peak flow of 11.74 MGD. The process equipment was supplied by Kruger, Inc., and was constructed in 2002. The key components of the primary treatment process are as follows.

- The rapid mixing basins are set up in two trains of three basins each for a total of six basins. The trains are to be operated in parallel. The basins in each individual train are run in series. Each of the basins is 10' by 11' with a 15'-0" side water depth. Each basin is equipped with a top entering 2 hp Philadelphia variable speed mixer.

- Upon entering the first of the rapid mixing basin, ferric chloride is added. Ferric chloride, when added, will remove the phosphorous from the wastewater and will bind it to solids and particles present in the wastewater.

- Wastewater leaving the last of the rapid mixing basins enters a flocculation tank. This 16'-3" by 21'-0" tank has a side water depth of 15'-0". There are two flocculation basins, each of which follows one of the rapid mixing basins trains. Each of the flocculation basins is equipped with a top entering 1 hp Philadelphia variable speed flocculation mixer. Polymer is added to the flocculation basin.

- After flowing through the flocculation basin, the flocculated water flows from the flocculation basin to the clarifier through an influent channel distributor located along the length of the clarifier. Each clarifier is 14' by 58' and has a side water depth of 15'-0". The clarifiers are equipped with chain and flight biosolids collection system, traveling bridge skimmer, and parallel plates.

4. Secondary Treatment

- Secondary treatment at the City of Northfield Wastewater Treatment Facility is accomplished by use of biological aerated filters (BAF) process. The process equipment was supplied by Kruger, Inc. and was constructed in 2002. Biological aerated filters are multi-cell, aerated, submerged, fixed-film, biological filter systems. This system can reduce the biochemical oxygen demand, total suspended solids, and ammonia nitrogen in the wastewater. After leaving the clarifiers, the effluent collects in a common wet well and is pumped by three primary lift pumps (BAF pumps) to a splitter box where the wastewater is split amongst the filter cells.

- The facility contains 10 filters, 20'-8" by 22'-6½". The media in the filters is 10 feet of polystyrene beads. The media serves as a home to the microorganisms, which consume the pollutants in the wastewater. After passing through the media, the wastewater flows through a media retaining nozzle deck, and then flows to the effluent tank.

- The BAF pumps (P-PP-1, 2, and 3) are Fairbanks Morse Model DV573IMVS submersible 75 hp pumps capable of pumping 3615 gpm at 45' TDH.

- Each filter is supplied with air for the biological process of the filter media. Air is also supplied for backwashing. The supplied air comes from one of 11 enclosed blowers capable of 350 CFM @ 12.5 PSIG.

- Solids are removed from the media utilizing a backwash process. The counter-current backwashing sequence ensures efficient removal of accumulated solids. During backwashing sequences, the downward flow expands the filter media and utilizes gravity to aid in flushing solids from the bottom of the filter. The water and solids are then collected in drainpipes in the bottom of the filters and flow to a backwash holding tank. One of two backwash pumps then pumps the water back to the splitter structure in the preliminary treatment area. The backwash pumps P-BW-1, 2 are Fairbanks Morse Model DJ5434SMV submersible 15 hp pumps capable of pumping 1390 gpm at 15' TDH.

5. Disinfection

- Disinfection is a process designed to kill harmful organisms, prior to effluent discharge. Disinfection of the final effluent at the City of Northfield Wastewater Treatment Facility is by the use of ultraviolet (UV) light. Ultraviolet light is a physical rather than a chemical disinfecting agent. A proper dosage of ultraviolet radiation is an effective bactericide and virucide while not contributing to the formation of toxic compounds. The UV building was constructed in 1982, and was retrofitted with the current equipment in 2002. It should be noted that disinfection is only required from April 1 to October 31 of each year.

- The disinfection system is an open channel gravity flow ultraviolet disinfection system. The open channel is 33'-10" long, 4'-8" wide, with an effluent depth in the channel of 4'-0". The ultraviolet disinfection system consists of UV lamp assemblies mounted in racks and submerged in series in

the flowing wastewater. The existing system is a medium pressure bulb type system manufactured by Calgon Carbon Corp., Aurora model.

6. Biosolids Storage and Treatment

- Biosolids produced in the facility are a combination of influent solids removed from the raw wastewater, and biological solids produced in the BAF cells and removed from the liquid stream in the clarifiers prior to land application of the biosolids. They are further processed to reduce the volume of biosolids to be handled, to reduce the organic matter to inert organic and inorganic compounds, to reduce the potential for odor problems, and to minimize potential problems from pathogens present in the biosolids. The process utilized is a lime/heat pasteurization developed by RDP, Inc. This process was constructed in 2002. The biosolids produced at the facility meet MPCA Class A-EQ Standards. Meeting the MPCA Class A-EQ standard indicates the biosolids discharged from the Northfield Facility meet the most stringent requirements for pathogen destruction, vector attraction, and metals content in the biosolids. Meeting Class A EQ standards provides operational flexibility in terms of disposal of the biosolids in terms of where the biosolid are land applied, and how it is applied.

- Wasting of clarifier sludge to the biosolids storage tank is accomplished by the primary biosolids pumps. The primary biosolids pumps (P-PS-1, 2 and 3) are Gorman-Rupp air driven diaphragm wastewater pumps.

- Scum from the clarifiers is pumped to the biosolids holding tank. Clarifier scum flows to the scum wetwell where it is pumped by scum pump P-PS-3 to the biosolids liquid holding tank. The scum pump is a Gorman-Rupp air driven diaphragm wastewater pump with a capacity of 100 gpm.

- The biosolids in the liquid storage tank is mixed by air from carrier pipes with ½" holes, which also provides oxygen for any active bacteria present in the biosolids. The biosolids storage tank has a capacity of 180,000 gallons.

- There are two biosolids transfer pumps that transfer the biosolids from the biosolids liquid holding tank to the belt filter press. The pumps are Wemco Hidrostal screw centrifugal pumps capable of pumping 145 gpm @ 23' TDH. Each pump is piped to feed the belt filter press. Also provided is one, 6-inch magnetic flow meter (FE-7) to measure the filter press biosolids supply.

- The belt filter press is a biosolids dewatering device utilized to remove water from the biosolids prior to pasteurization. The belt filter press utilizes a 3 HP motor for operation of the press rollers, and requires 80 gpm of wash water during operation. The belt filter press is capable of dewatering 1500 pounds of dry solids per hour.

- Once the biosolids is conditioned, pressed, and the dewatered cake is formed, lime is added to the cake. The dry solids are discharged from the belt press onto a conveyor, which transfers biosolids to the ThermoBlender unit. The lime is added to the biosolids in the ThermoBlender. The ThermoBlender blends the lime with the biosolids to produce a homogeneous end product. The mixing of the lime to the cake will generate heat from the chemical reaction. Along with the supplemental electrical heat system of the ThermoBlender, the mixture's temperature will be raised above 70°C during mixing in the ThermoBlender.

- Next, the biosolids enters the Pasteurization Vessel, which is designed to treat the biosolids discharged from the ThermoBlender to meet the Process to Further Reduce Pathogens (PFRP) criteria of the EPA. The Pasteurization Vessel is a 500 ft^3 hopper with heated sides and slow moving bottom.

- Once through the Pasteurization Vessel, the biosolids are conveyed to the dry biosolids storage area. This indoor 82' by 72' storage facility will accommodate approximately 35,000 cubic feet of biosolids.

C. EVALUATION OF TREATMENT FACILITIES

Treatment equipment and structures were evaluated for adequacy of treatment capacity, and physical condition. The following paragraphs provide an analysis of each treatment

process. The following Table 3.1 provides a summary of the evaluation of the existing treatment facilities.

1. Influent Pumping

The influent pumping system has experienced a significant amount of maintenance to pump seals and motors. Influent pumps are highly critical to the operation of the facility and a pro-active maintenance and replacement program needs to be implemented to maintain these pumps. While hydraulic capacity is adequate, the condition of these pumps warrants that plans be developed for these pumps to be replaced.

In addition, the condition of the wet well is deteriorating due to the corrosive nature of influent wastewater. A coating system to protect the structure should be applied to the wet well.

The pump motor variable frequency drives should be upgraded at the time of the pump replacement. Controls, instrumentation, and communication hardware can be upgraded at the time of other SCADA upgrades.

2. Preliminary Treatment

Preliminary treatment equipment has adequate capacity to treat projected flows and loadings. Basic maintenance of equipment will be required. Due to redundancy and the ability to bypass the preliminary treatment facilities, the preliminary treatment facilities have a critical impact on overall operations is rated to be low.

Controls, instrumentation and communications for the preliminary treatment should be upgraded at the time of a full SCADA upgrade.

3. Primary Clarification

The primary clarifier equipment has adequate capacity to treat the projected flows and loadings. Basic maintenance of equipment will be required. There are two clarifiers which provide redundancy in the operation. The clarifiers are a key to providing adequate treatment, and thus are of medium criticalness to the operation.

Controls, instrumentation, and communications for the primary clarifier equipment should be upgraded at the time of a full SCADA upgrade.

4. Secondary Treatment

The secondary treatment equipment has capacity to meet the future design flows and loadings. As noted in the analysis provided in Appendix F, the secondary treatment (BAF system), in conjunction with the primary clarifier, performs substantially better than the nominal design of the facility. In order to continue to provide treatment, there are several equipment components of the secondary treatment process that will need to be replaced of upgraded in the next 5-8 years.

The backwash return pumps would provide significantly improved operations if VFD's were installed in the motor controls for these pumps. This can be undertaken as part of a SCADA upgrade.

The aeration blowers have required a number of motor replacements due to overheating. Typical blower package service life is projected to be twenty years. Aeration blowers are critical to the operation of the BAF cells and a pro-active maintenance/replacement program should be implemented. Replacement of the blower with higher efficiency motor/blower configuration would save up to 10% of annual power cost for the blower.

Blower controls should be upgraded, either in conjunction with the blower replacement or SCADA upgrade.

The gate frames for each of the BAF cells have deteriorated to the point that the gates are not functional. These gates are critical to the operations in times of maintenance at the BAF cells, as maintenance to a cell is not possible if the well cannot be isolated from the effluent channel.

Instrumentation in the BAF effluent channel should be upgraded, either at time of BAF gate replacement or SCADA upgrade.

5. Disinfection

The disinfection equipment has required maintenance over the past five years, and the procurement of repair parts will become difficult as the manufacturer plans to discontinue support of this equipment in the next two years. In addition, there has been corrosion to some of the electrical components of the UV system. This system is critical to the operation of the facilities during summer months, when disinfection is required by the NPDES permit.

Communication and control systems, as well as the electrical service to the UV building will need to be upgraded at the time of the UV replacement.

6. Liquid Biosolids Storage

The biosolids storage tank is an 180,000 gallon concrete tank located below the biosolids treatment building. Staff have reported that the concrete tank is spalling in areas, and due to inconsistent aeration, the solids deposit in portions of the tank and are not removed during pumping operations. This limits the operational capacity of this tank. Current liquid biosolids production averages 34,500 gallons per day, and is projected to increase to 55,300 gallons/day by 2035.

Under current conditions, this tank will provide five days of storage. Under projected conditions, three days of storage would be provided. Typically, facilities of similar size as Northfield would have seven to ten days of storage at design average capacity to allow operations staff flexibility in processing biosolids during periods when process equipment is off line for maintenance, long weekends, or other operational issues.

Additional storage should be implemented to meet minimum storage requirements. Staff are having the biosolids storage tank cleaned and inspected this year. Depending on the findings of the cleaning out the existing storage tank, repair and coating of this tank should be scheduled.

7. Biosolids Dewatering and Treatment

Biosolids are dewatered using the belt filter press. The existing belt filter press was installed in 2002 as part of the Wastewater Treatment Facility upgrade. The

belt filter press has provided reliable service. Renovation of the belt and rollers will be required to maintain service in the future. The control system will also require replacement/upgrading. In addition, with only one dewatering unit available, there is no redundant method of dewatering biosolids in the system. Options for repair or replacement need to be evaluated, along with options for providing at least partial redundancy for the dewatering process.

The biosolids treatment equipment consists of the lime pasteurization equipment. This equipment is in need of repair to motors, conveyors, heating elements and controls. The unit is also showing some structural issues to the frame and vessels which may limit viability of the unit over time. In addition, this equipment will need to be run longer periods as the biosolids production at the facility increases. Alternatives for replacing this unit are evaluated in this report under Section 4.

8. Biosolids Cake Storage

The existing biosolids cake storage facility provides 116 days of storage under current conditions, and 73 days under projected conditions. Typically, other facilities similar to Northfield provide 180-240 days of storage. This allows operators to store biosolids through winter months and through summer crop growing months, so that biosolids can be applied in the spring and fall when the ground is not frozen or covered with crops. In addition, the existing facility is showing the impact of corrosion from the ammonia released from the biosolids cake.

Due to the levels of storage available, significant labor is required to utilize the facility. Biosolids are loaded out 3 to 4 times per year , requiring that suitable land be available during the frozen winter months and summer crop growing months. and operator time is utilized to stack biosolids to do this. Options should be evaluated for replaced of this structure.

TABLE 3.1
Existing Facilities Summary

Unit Process	Equipment / Capacity	Condition / Notes
Influent Pumping	3 pumps (P-LS-1, 2, 3); 3615 gpm each 10.41 MGD firm capacity	• Adequate capacity. • Pumps require significant maintenance, and need a better cooling system for motors.
Preliminary Treatment	2 fine screens (ME-FS-1, 2) 11.74 MGD each	• Adequate capacity. • Good condition.
	Grit removal equipment (ME-GS-1) 11.74 MGD capacity	• Adequate capacity. • Good condition.
	Grit separator (ME-GS-2) 305 gpm capacity	• Adequate capacity. • Good condition.
	Grit pump (P-GS-1) 250 gpm capacity	• Adequate capacity. • Good condition.
	Grit dewatering screen (ME-GS-3) 16 gpm capacity	• Adequate capacity. • Good condition.
Primary Clarification	2 trains of 3 rapid mix basins, followed by flocculation basin, followed by clarifier unit.	• Adequate capacity. • Rapid mixers: good condition. • Flocculator mixers: good condition. • Clarifier mechanisms: good condition.
	Primary sludge pump (P-PS-1, 2, 3) 100 gpm capacity each	• Adequate capacity.
Secondary Treatment	3 process lift pumps (P-PP-1, 2, 3) 3615 gpm each 10.41 MGD firm capacity.	• Adequate capacity. • Good condition.
	2 backwash return pumps (P-BWR-1, 2) 1390 gpm each	• Adequate capacity. • VFD would improve operational functions and reduce energy use.
	11 aeration blowers (ME-A-1-11) 350 scfm each	• Blowers need significant maintenance. • Blower replacement with higher efficiency units would improve energy use.
	10 biological aerated filters 1808 gpm capacity each	• Adequate capacity. • Control gates require replacement. • Valve actuators require maintenance.
Disinfection	2 ultraviolet disinfection units (ME-UV-1, 2) 11.74 MGD capacity	• Units require significant repair. • Units will be obsolete, making service difficult to obtain.
Biosolids Liquid Storage	1 storage tank Volume 180,000 gallons	• Tank condition poor. • Mixing inadequate. • Insufficient long term capacity
	1 aeration/mixer blower (ME-A-12) 765 scfm capacity	• Blower capacity adequate. • No redundancy.
Biosolids Dewatering	2 dewatering feed pumps (P-ST-1, 2) 145 gpm each	• Capacity adequate.
	1 belt filter press (ME-ST-1)	• Single belt press provides no redundancy.
Biosolids Treatment	1 lime/heat pasteurization unit (ME-ST-2, 3) 3400 lbs. dry cake/day capacity	• Units require significant maintenance. • No redundancy.
Dry Cake Biosolids Storage	82 ft. x 72 ft. x16 ft. tall 1312 CY nominal storage	• Vertical clearances limit handling equipment. • Additional storage required to optimize cake handling operations. • Building is in need of repair/replacement.

D. DESCRIPTION AND EVALUATION OF ANCILLARY FACILITIES

Ancillary facilities consist of the equipment, structures, and operating system which supports the process treatment functions and the facilities. The following paragraphs will describe the ancillary facilities, and provide an evaluation of necessary improvements. Table 3.2 provides a summary of the ancillary facilities evaluation.

1. Supervisory Control and Data Acquisition (SCADA) and Electrical

The Supervisory Controls and Data Acquisition (SCADA) and electrical system for the treatment process was updated in 2002. This system includes all computers, PLC's, instrumentation, telemetry, motor control centers (MCC), variable frequency drives (VFDs) and communications systems. The existing SCADA system is in need of upgrade to meet current standards. Technology upgrades in computer hardware and software, instrumentation, motor control centers (MCC's), variable frequency drives (VFDs) and programmable logic controllers (PLCs) have made support of existing equipment and software problematic as manufacturers phase out support of old technology,. Newer technology provides operations staff with increased access to operational data, both on site and remote from the facility utilizing tablets or hand-held devices. Under the existing system, as equipment PLC's and instrumentation is upgraded, the existing facilities SCADA system programming is adjusted to utilize the new hardware. Typically, the new hardware is supplied with communication and control options not supported by the existing network computers, thus the new hardware and controllers are not fully utilized.

The SCADA system is critical to the operation of the facility. Plans for implementing an upgrade of the SCADA system within the next 5 to 8 years should be developed

2. Air Quality / Odor Treatment

There are three air quality/odor treatment units in the facility:

- MS-OC-1 is located in the clarifier building, and is designed to treat air from the pretreatment/clarifier process rooms.

- MS-OC-2 is a wet scrubber in the biosolids treatment building primarily for removal of lime dust from the thermo blender unit.

- MS-OC-3 is an odor treatment unit located in the biosolids building for treatment of air in the biosolids storage building and the biosolids treatment building.

The odor control equipment appears to be in good condition, and will require only basic maintenance to continue to provide service to the treatment facility.

3. Compressed Air System

There are three compressed air systems in the facility:

- Pretreatment/clarifier building system supplies air for valve operation and air diaphragm pump operation. This unit was installed in 2002. The existing unit leaks oil, and is undersized for the operation of the air diaphragm pumps and should be replaced.

- Operations building compressed air system supplies air for maintenance uses. This unit was installed in 1982 and provides adequate service with basic maintenance.

- BAF building air compressor supplies air for valve operations. This unit was installed in 2002 and provides adequate service with basic maintenance.

4. Water Supply System

Water supply to the wastewater treatment facility is provided by a single well on site. This well provides water for both potable and non-potable uses at the facility. The well and well pump house were constructed in 1958. This well has limited capacity and has a leaking casing, which prohibits repair/renovation of the existing well. Replacement of the plant water supply should be evaluated.

5. Emergency Power System

There is one, 1500 kW on-site power generator which provides backup power for the facility in case of power outage. This unit was installed in 2002 and provides adequate service with basic maintenance.

6. Laboratory Facilities

The operations building houses laboratory facilities and was constructed in 1982. The existing facilities are utilized sparingly, as testing is sent to contracted labs.

7. Building Infrastructure

The building infrastructure includes the structures, roofing, and HVAC system of the facility's buildings. These include:

- Pump building constructed in 1958
- Operations building constructed in 1982
- UV building constructed in 1982
- BAF building constructed in 2002
- Pretreatment/clarifier building constructed in 2002

For each of these buildings, the roofing systems and the HVAC make up air units are in need of replacement. Table 3.2 provides a summary of the ancillary facilities evaluation.

TABLE 3.2
Ancillary Facilities Evaluation

Facility / System	Equipment / Structure	Condition / Notes
Supervisory Control and Data Acquisition (SCADA) and electrical systems	System includes computers, PLC's, instrumentation and telemetry, MCC, and VFD equipment	• Generally equipment is in good condition. Some equipment is becoming technologically obsolete, and will need to be replaced. • Arcflash study needs to be completed.
Air Quality / Odor Treatment	Pretreatment odor scrubber	• Scrubber in good condition. Basic maintenance required.
	Biosolids odor scrubber	• Scrubber in good condition. Basic maintenance required.
Compressed Air Systems	Pretreatment/clarifier building	• Air compressor leaks oil. System should be replaced with larger capacity system.
	Operations building	• Compressor system in good condition.
	BAF building	• Compressor system in good condition.
Water Supply System	Potable water supply	• New well or other water source required to meet plant requirements. • Utility water system could be expanded to provide non-potable water for screens and press operations from wastewater effluent source.
Emergency Power System	One generator	• Generator in good condition.
Laboratory Facilities	Lab space in existing operations building	• Lab used for operational purposes. Some space could be reassigned to other staff functions.
Building Infrastructure	Pump building	• Roofing replaced in 2013. • Replace/upgrade HVAC.
	BAF building	• Replace roofing. • Replace/upgrade HVAC.
	Operations building	• Replace roofing on operations portion. • Biosolids portion of building slated for demolition. • Replace/upgrade HVAC. • Boiler system needs to be replaced. Has been on-line since 1982.
	Biosolids building	• Replace roofing. • Replace/upgrade HVAC.
	Pretreatment/clarifier building	• Replace roofing. • Replace/upgrade HVAC.
	UV building	• Replace roofing. • Replace/upgrade HVAC.
Miscellaneous	Access hatches at tanks	• All hatches need fall protection equipment.
	Doors	• Doors/hardware are requiring maintenance/repair.

E. POTENTIAL FUTURE TREATMENT REQUIREMENTS

Proposed future NPDES effluent limits from the Minnesota Pollution Control Agency (MPCA) have not been issued. Based on trends in permit requirements and existing mass loading limits on the facility, future NPDES requirements may include the following:

- Limitations on "salty" discharges – discharges of wastewater high in chlorides, sulfates, salinity and other constituents which impact the receiving stream.
- Total nitrogen limits which require removal of nitrogen for the waste stream prior to discharge.
- Lowered phosphorous concentrations – The facility currently has a mass limit of phosphorous based on Total Mass Daily Limits (TMDL) directed by the MPCA. Future permits may require a lower concentration be discharged based on effluent stream quality requirements.
- Mercury limits – The facility currently monitors for mercury in the discharge and from the implemented Mercury Minimization Program.
- Lower CBOD and TSS limits – The facility has a mass load limit for CBOD and TSS, limiting the mass of these constituents. In the future, higher design flows will result in lower effluent concentrations of these parameters requiring additional treatment.

In order to meet the future discharge requirements, the following treatment technologies would be required:

- Tertiary filtration following the biological aerated filter. Tertiary filter would provide treatment for lower phosphorous, CBOD and TSS requirements.
- Nitrification/denitrification program, implemented in conjunction with the BAF, in order to provide treatment to meet Total Nitrogen requirements.

Future facility planning will need to allow space for implementing these technologies.

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SECTION 4 FACILITY IMPROVEMENT ALTERNATIVES

A. GENERAL

Facility improvements are generally required to meet three criteria:

- Improvements required to provide adequate treatment to meet effluent discharge requirements.

- Improvements required to provide adequate treatment capacity to meet community development requirements.

- Improvements required to maintain and/or replace treatment facility infrastructure and equipment.

Typically, improvements are implemented based on consideration of all three of the above criteria. The City of Northfield improvements' alternatives have been evaluated based on the following:

- The existing facility provides treatment which meets the existing effluent discharge requirements. New discharge requirements may be implemented in the next 5-10 years, which would require treatment process modifications. Improvement planning at this time should include allocation of appropriate space on the facility's site to implement required modifications.

- The existing facility has adequate treatment capacity for the projected community development for the next 20 years. Future capacity needs may require treatment process modifications. Improvement planning at this time should include allocation of appropriate space on the facility's site to implement any required modifications.

- Due to the age and condition of the existing facilities and equipment, significant maintenance work on the facility will be required to maintain the investment the community has made to date in the existing facility. A plan for implementation of equipment repair and replacement should be developed, with completion of this plan in 5 to 8 years. The following paragraphs will summarize the specific improvements required to maintain the facility.

B. SUMMARY OF WASTEWATER FACILITY IMPROVEMENTS

1. Biosolids Storage and Treatment Facilities

The existing biosolids storage and treatment facilities will require modification/replacement to meet the future facility loadings. The following paragraphs will identify these improvements.

Biosolids Storage: In order to meet future needs of the facility, proposed improvements to liquid storage include the following:

- Construct a tank for storage of the biosolids in the area on the east side of the facility over the abandoned sludge storage facility. A tank with 400,000 gallons would provide 7 days of storage at the 2035 design projection. Provide mixing of the solids in the tank, and a submersible pump for transfer of solids to the dewatering facility.

- Renovate the existing storage tank, including repair and coating of the structure. This tank will be used as a process staging tank, with biosolids transferred from storage to this tank for feeding the dewatering pumps. Three days of storage would be provided by this tank at future design loadings.

- Implementation of these improvements will provide ten days of storage at future loadings. A tank with a capacity of 230,000 gallons could be constructed, thus providing seven days total storage. However, the net savings is estimated to be $180,000 for the smaller tank, and construction of the smaller tank will limit the ability to add any further tank capacity in the future. The recommended approach is to construct a 400,000 gallon tank.

- Construction of additional liquid storage in the near term will provide operational flexibility for staff in terms of managing the biosolids treatment process, which will allow management of staffing and processing operations cost effectively. The additional storage will also allow staff to manage biosolids processes and disposal during later construction of biosolids treatment upgrades, as well as provide options for dealing with un-planned system shutdowns in the interim prior to the treatment system upgrades.

Estimated cost of the liquid storage improvements is summarized as follows:

Liquid Biosolids Storage – Estimated Cost	
Concrete Tank (400,000 gallons):	$435,000
Demo Existing Tank, site preparation	20,000
Pumps, Piping Mixers:	100,000
Renovation of Exisiting Tank:	200,000
Subtotal	**$755,000**
Contingencies:	75,500
Engineering and Administration:	207,625
Total Estimated Cost:	**$1,038,125**

Biosolids Dewatering and Treatment:

Biosolids treatment is accomplished by dewatering biosolids with the belt filter press, and treating the biosolids cake with the lime pasteurization equipment.

Options for replacing or upgrading the biosolids dewatering and treatment equipment include the following:

- Replace the existing lime/heat pasteurization equipment with a unit of similar capacity to the existing. Under this option, the belt filter press would be renovated to allow for continued use of this equipment. As facility loadings increase, and the volume of biosolids produced by the facility increase, the operational times will increase. This will result in increased labor costs for operation of this equipment.

- Replace the existing lime/heat pasteurization equipment with a unit with additional treatment capacity. The upgraded unit can be configured to fit within the space utilized by the current lime/heat pasteurization equipment. This will require that the dewatering equipment be replaced to provide additional dewatering capacity to feed the lime/heat pasteurization process. Two screw presses with a nominal capacity of 1,190 lbs/hr (dry solids) would provide the

dewatering capacity needed to optimize the lime/heat process. These screw presses can be configured to fit in the space currently occupied by the belt filter press.

- As an alternative to replacing the lime/heat pasteurization unit, a biosolids dryer could be installed. This dryer would eliminate the use of lime in the facility. Dryers do require a significant use of natural gas. In addition, the biosolids dryer produces a lower volume of biosolids to be stored; however, due to potential of the product becoming flammable, storage requirements for either bagged storage or storage in an oxygen-free environment result in increased storage costs. Due to the significant cost of a dryer, this option was not considered further.

The estimated capital costs and 20 year operational costs, for the two lime/heat pasteurization process options, are summarized as follows:

	Upgrade Capacity of Treatment Process		**Replace Existing Equipment**
Biosolids Treatment and Dewatering			
Lime/Heat Pasteurization Unit Replacement	$ 900,000		$ 700,000
2 New Screw Presses	800,000		---
Renovate Belt Press	---		200,000
Installation of New Equipment	150,000		150,000
Demolish Existing Equipment	150,000		125,000
Biosolids Processing During Construction	200,000		200,000
Subtotal:	**$2,200,000**		**$1,375,000**
Contingencies (10%)	220,000		127,500
Engineering/Admin. (25%)	605,000		350,625
Total Capital Cost:	**$3,025,000 0**		**$1,853,125**
20 Year Labor	2,371,974		4,346,785
20 Year Power	529,840		542,479
Total Expenditure:	**$5,926,814**		**$6,742,380**

Key criteria in evaluating the two options are as follows:

- The existing lime/heat pasteurization process has a throughput capacity of 1000 lbs biosolids (dry weight) per hour. The upgraded facility would have throughput capacity of 2000 lbs biosolids (dry weight) per hour.

- At a throughput capacity of 1000 lbs/hour, the facility would be required to operate twice as many hours as the 2000 lbs/hour unit. Thus labor costs for the upgraded capacity option are considerably less than for the facility operating at current capacity. During early years of operation of the upgraded unit, staff will be required to spend less time in biosolids operation than they now do.

- The 2000 lb/hour process does have a higher power requirement than the 1000 lb/hour unit. However, the longer operating times required of the 1000 lb/hour unit results in an overall higher power cost.

- Appendix G contains calculations utilized to develop labor and power costs for the biosolids treatment comparison.

  The single belt filter press does not have the capacity to dewater biosolids at a rate to keep the upgraded unit operating efficiently. Two screw presses in the existing building will provide sufficient treatment capacity. In addition, the screw presses do not require significant amounts of washwater, thus reducing the amount of water required to process the biosolids.

- Based on the capital and operational costs, the proposed upgrade of the biosolids treatment process to a 2000 lb/hr unit is the most cost effective in the long term and is the recommended option.

  Biosolids Cake Storage:

  Proposed improvements to biosolids cake storage include the following:

  - Replace existing cake storage facility. A fabric-type structure could be utilized for storage of the lime/heat pasteurized product. A structure 65' wide by 150' long with storage depth of 10 to 15 feet would provide six months of storage.
  - The proposed fabric type structure could be constructed in one of two locations
    - Demolish the existing cake storage structure and the SBC structure to make room for the new structure.

- Demolish the existing clarifier structures and construct the new storage facility just north of the existing biosolids processing building.

- Due to the condition and size of the existing structure, it is not viable to renovate this structure for biosolids cake storage. The pre cast roof will need replacement to correct the corrosion of the steel reinforcement. In addition, in order to provide additional depth of storage (and thus additional days of storage), the structure foundations will need to be replaced. This makes renovation of the structure cost prohibitive in comparison with a fabric type structure.

Biosolids Cake Storage - Estimated Cost	
New Fabric Structure	$210,000
Concrete Bunker	210,000
Demolition of existing structure	30,000
Subtotal	**$450,000**
Contingencies:	45,000
Engineering and Administration:	123,750
Total Estimated Cost:	**$618,750**

2. Influent Lift Pumps

The existing influent lift pumps consist of three, 86.25 HP dry pit submersible pumps located in the basement of the lift station structure. These pumps are exhibiting the need for increasing levels of maintenance. There are two options available for renovation of these pumps:

- Replace the existing dry pit submersible pumps with vertical centrifugal wastewater pumps. Upgrade the valves, piping and VFDs, for these pumps. Renovate the existing wetwell with coatings system.

- Installation of traditional wet well submersible pumps in the yard adjacent to the existing lift station structure. This type of installation provides a more accessible pump removal for maintenance, and eliminates the need for the external cooling jackets on the dry pit pumps, which has proven to be a significant maintenance issue.

- The estimated construction costs for these options are as follows:

Influent Pumping Revisions – Estimated Cost			
	Dry Pit Centrifugal		**Wet Well Submersible**
Raw Lift Pumps:	$500,000		$ 500,000
Installation	50,000		50,000
Wet Well Structure:	50,000		1,000,000
Valves and Piping:	100,000		250,000
VFD Replacement	125,000		125,000
Subtotal	**$825,000**		**$1,975,000**
Contingencies	82,500		192,500
Engineering/Administration	226,875		529,375
Total Estimated Cost:	**$1,134,375**		**$2,646,875**

1. Wet well structure cost for the dry pit Centrifugal option involves coasting of the wet well structure to deal with corrosion issues.

Based on the estimated cost, the recommended approach is to replace the pumps in the existing pump station.

3. Biological Aerated Filters (BAF) Gate Replacement

The existing BAF gates have corroded and are not operational. The primary option is to replace the gates. Due to the deterioration of both the gate rails and the gates themselves, renovation of the existing gates is not a viable option.

Replacement of the gates will require that each BAF cell be taken out of service, with temporary blocking of the openings required. The existing gates will be removed, and new gates, of either stainless steel or composite material construction, installed. The estimated cost of this replacement project is as follows:

BAF Gate Replacement – Estimated Cost	
Gates (20 @ $15,000 each):	$400,000
Installation of Gates:	150,000
Subtotal	**$550,000**
Contingencies:	55,000
Engineering and Administration:	151,250
Total Estimated Cost:	**$756,250**

4. Ultraviolet (UV) Disinfection Unit

The existing UV system requires on-going maintenance, and the manufacturer has indicated that they will stop providing support to this model in the next 2 years. It is recommended that the existing UV equipment be replaced. The existing system would be replaced during a non-disinfection period. This would require removal of the existing units, modification of the channel to accommodate the new units, and installation of the new UV units and power supplies. In addition, upgrades would be made to the SCADA system to accommodate system monitoring. The estimated cost for this work is as follows:

UV Equipment Replacement – Estimated Cost	
New UV Equipment:	$350,000
Installation of Equipment:	75,000
Electrical System Upgrade:	225,000
Subtotal	**$650,000**
Contingencies:	65,000
Engineering/Administration:	178,750
Total Estimated Cost:	**$893,750**

5. Make Up Air Units

Make up air units and HVAC units throughout the facility need renovation or replacement. Estimated cost for these improvements is as follows:

Makeup Air Unit – Estimated Cost					
Unit	**Location**	**Construction Cost**	**Contingencies (10%)**	**Eng/Admin (25%)**	**Total Replacement Cost**
MAU-1	Pretreatment Roof	$11,500	$1,150	$3,163	$15,813
MAU-2	Pretreatment Roof	$19,500	$1,950	$5,363	$26,813
MAU-3	Pretreatment Roof	$11,500	$1,150	$3,163	$15,813
MAU-4	BAF – Pipe Gallery	$12,000	$1,200	$3,300	$16,500
MAU-5	BAF – Blower Room	$11,500	$1,150	$3,163	$15,813
MAU-6	BAF – Roof	$14,000	$1,400	$3,850	$19,250
MAU-7	Biosolids Bldg Roof	$11,500	$1,150	$3,163	$15,813
MAU-8	Biosolids Bldg Roof	$10,500	$1,050	$2,888	$14,438
MAU-9	Pump Building	$11,500	$1,150	$3,163	$15,813
MAU-10	Pump Building	$11,500	$1,150	$3,163	$15,813
	TOTAL	**$125,000**	**$12,500**	**$34,375**	**$171,875**

6. Controls System Replacement/Upgrades

Costs for upgrading the SCADA system are estimated for the following categories: instrumentation, computer (including software), PLC/Local Control, communications upgrades, and VFD replacement. Costs are provided as follows:

SCADA System Upgrade – Estimated Cost								
Location	**Instrumentation**	**Computer**	**PLC/ Local Control**	**Communications**	**VFD Replacement**	**Contingencies**	**Engineering/ Admin**	**Total**
Biosolids Bldg	$10,000	$25,000	$75,000	$25,000	$50,000	$18,500	$50,875	$254,375
BAF Bldg	$10,000	$25,000	$75,000	$25,000		$13,500	$37,125	$185,625
UV Bldg				$25,000		$2,500	$6,875	$34,375
Pretreatment Bldg	$10,000	$25,000	$25,000	$25,000	$200,000	$28,500	$78,375	$391,875
Pump Bldg	$20,000		$25,000	$25,000		$7,000	$19,250	$96,250
Control Bldg		$150,000				$30,000	$82,500	$412,500
Total	$50,000	$225,000	$200,000	$275,000	$250,000	$100,000	$275,000	$1,375,000

7. Water Supply System

The existing utility water (UW) system is supplied by a single well on the facility site. This well has limited capacity and has a leaking casing, which prohibits repair/renovation of the existing well.

The City has undertaken a project to replace the existing well. Estimated cost of the project is $325,000.

In addition to the potable water supply, the facility has a significant water requirement, which can be supplied by utilizing non-potable re-use water recovered from the treated wastewater effluent. Considerations for a re-use system are as follows:

- There is an approximate 160 gpm water demand for the facility, which can be supplied by re-use water. This includes 80 gpm from the belt press operations, 29 gpm from odor treatment unit operations, and 30 gpm from fine screen operations. In addition, the utility water system provides water for wash down of clarifiers and pretreatment areas. A total of 45,000 gallons of water per day can be recovered from a water re-use system.

- The existing UW distribution system provides water to the BAF, pretreatment/ clarifier building, and biosolids building. This system is supplied UW from the potable water supply.

- Potable water supply can be connected to the facility's water system in the operations building, and can provide a backup source of water to the UW system.

Implementation of a re-use system to supply utility water to the facility will require the following:

- Installation of 4" water meter on potable water supply.

- Piping connection of new potable water system to existing water supply system in operations building.

- Installation of new potable water supply to the biosolids building. Install backflow preventer in biosolids building at connection to UW system..
- Install connection in operations building to supply potable water to UV building.
- Install a service connection from UV water supply to Pretreatment / Clarifier building to provide potable water supply at Pretreatment/Clarifier building. Install backflow preventer and connect new potable water supply to UW system in Pretreatment / Clarifier building to provide a back-up supply for the UW system.
- Installation of two, 211 gallon pressure tanks in BAF building.
- Installation of one, 200 gpm pump with VFD control in BAF building to provide water to UW system from BAF effluent.
- Installation of 3" water meter on UW system.
- Utilize existing utility water piping from the BAF building to the Biosolids building and the Pretreatment/clarifier building.

The estimated cost for the UW re-use system is as follows:

Utility Water System – Estimated Cost	
Item	**Cost**
Pressure Tanks and Pump	$30,000
Installation of tanks and pump, with electrical	30,000
Flow Meters, Piping, Backflow Preventer	35,000
Distribution Piping	15,000
Subtotal	**$110,000**
Contingencies (10%)	11,000
Engineering and Administration	30,250
Total Estimated Cost	**$151,250**

8. Blower Replacement

The existing blowers are requiring increasing amounts of maintenance. Staff have been replacing blower motors and ancillary equipment on an as needed basis. Replacement of the blowers will alleviate the cost in materials and labor for maintenance, and provide more efficient blower operations. Estimated cost is as follows:

Blower Replacement – Estimated Cost	
Item	**Cost**
Blower Equipment	$480,000
Blower Installation	60,000
Subtotal	**$540,000**
Contingencies (10%)	54,000
Engineering and Administration	$149,500
Total Estimated Cost	**$742,500**

9. Roof Replacement

Roof replacement for all buildings will be required over the next 3-5 years. Estimated capital cost for this work is as follows:

Roof Replacement – Estimated Cost	
Item	**Cost**
BAF Building	$275,000
Pretreatment/Clarifier Building	$305,000
Biosolids Building	$100,000
UV Disinfection Building	$30,000
Operations Building	$100,000
Total Estimated Cost:	**$810,000**

10. Miscellaneous Items

Several miscellaneous items are also in need of alteration at the facility:

- Replacement of doors is required, as doors corrode and become inoperable due to normal wear at the facility. Staff have nearly completed replacement of all doors that require replacement at this time.

- Installation of safety grates at all access hatches, required under current OSHA rules.

- Installation of new air compressor system in the pretreatment /clarifier building. The existing unit leaks oil, and is undersized for the operation of the air diaphragm pumps.

- Replacement of the boiler system in the operations building. The existing unit was installed in 1982, and has reached the end of its service life.

These items have been identified by staff as ongoing needs at the facility. Estimated cost is as follows:

Miscellaneous Items – Estimated Cost	
Item	**Cost**
Access Hatch Installation (24 hatches at $500 ea.)	$12,000
New Air Compressor in pretreatment/clarifier building:	$25,000
Replace boiler system in operations building:	$75,000
Total Estimated Cost	**$112,000**

11. Green Design Options

There are a number of options for implementing green design concepts- design options which would involve implementing sustainable energy projects at the facility. A summary of several options is presented tin the following paragraphs.

- Solar Power
    - Summary:
        - Water treatment facilities typically have significant power requirements. Solar power alternatives can provide power for use at the facility as well as for transfer to the electric power grid. The proposed biosolids storage tank will have 4,000 square feet of roof area for installing solar panels.

- Assessment:

  - As an initial assessment of the potential for providing power with solar collections, the storage tank top was identified as the most viable location for initial placement. The tank is south facing, which provides optimal orientation for collecting solar power. In addition, the tank top has no roofing materials, thus minimizing the impact of the solar collector arrays on future facility roofing maintenance. Key issues in evaluating this area for potential solar panels are as follows:

    1. The tank top has a surface area of approximately 4,000 square feet. This would accommodate a 40 kilowatts (kW) system with potential for generating
       45,000 kw hr per year. Based on the anticipated power consumption at this facility for both treatment and facility needs, all power is expected to be utilized at the facility at all times of the day for the treatment processes and the heating and cooling systems.

    2. The estimated capital costs for this system is as follows:

Solar Area	$150,000
Electrical System Modifications	$ 25,000
Engineering	$ 25,000
Total Capital Cost	$200,000

    3. The estimated annual savings, based on 45,000 kw-hr per year, at $0.08/kw-hr is $3,600 per year.

    4. The projected payback period, without including any rebates or incentives, is estimated as follows:

       - $200,000 ÷ $3,600/yr = 55 years

- Recommendations:
    - A 40 kW system may qualify for tax incentives which are targeted at systems of 40 kW or less. We recommend meeting with additional solar power system vendors and facility power suppliers to determine whether an alternative finance option, such as a third party lease arrangement, is possible.

- Hydrothermal Recovery Systems
    - Summary
        - Heat recovery systems utilize geothermal concepts to extract heat from wastewater. Wastewater typically enters the treatment facility between 45° F and 75° F. Systems are closed loop type system, with no contamination of the fluids involved. Wastewater is routed through a heat exchanger, and a heat pump routes the heated fluid to the building's heating/cooling system.
    - Recommendation
        - The efficiency and potential cost savings are dependent on temperature fluctuation in the wastewater, and fresh air temperature fluctuation for make-up air units in the building system. In order to determine the viability of this system, a study will need to be performed which documents temperature fluctuation, wastewater flows and building heating and cooling system modifications required to accommodate the heat recovery system.

- Solar Air Heating
    - Summary
        - The wastewater treatment facility building utilizes make-up air units (MAU's) to provide fresh air to the building, and maintain temperature within the building. Substantial energy is utilized to heat cold, fresh air before routing this air into the building.
        - Solar walls pre-heat the ventilation air, providing significant energy savings. The aluminum or steel panels are attached to south facing walls. A fan is used to move the heated air to the make-up air unit.
    - Recommendations
        - With make-up air unit replacement scheduled over the next ten years, the potential for installing solar walls should be investigated. Based on air requirements and modification repairs, the potential payback per installation will vary.

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SECTION 5 PROJECT COSTS AND FUNDING

A. GENERAL

Published and unpublished data on costs for similar types of construction were used to prepare the opinion of costs presented below. Annual inflation rates for this type of construction have ranged from approximately 4 to 6 percent in recent years. The cost opinions presented are intended for use as guidelines in the decision process. Once preparation of final drawings and specifications is underway, the cost estimates can be refined.

B. CAPITAL COSTS

A summary of the opinion of costs are presented in Table 5.1 and include engineering, construction observation, and administration. Costs are placed in order of priority, based on evaluation and discussion with City Staff.

TABLE 5.1
Capital Cost Opinion
City of Northfield, Minnesota

Item	Cost
1. UW System	$151,250
2. UV Disinfection	$893,750
3. Biosolids Treatment and Dewatering	$3,025,000
4. Biosolids Cake Storage	$618,750
5. Liquid Biosolids Storage	$1,038,125
6. BAF Gate Replacement	$756,250
7. Influent Lift Pumps	1,134,375
8. Blower Replacement	$742,500
9. SCADA Upgrade	1,375,000
10. Make-up Air Units	$171,875
11. Roof Replacement	$810,000
12. Miscellaneous	$112,000
TOTAL	**$10,828,875**

C. PROJECT FUNDING

There are several alternatives that the City can consider for project funding.

1. Bonding

The City could sell general obligation, local improvement, or revenue bonds in order to raise the capital costs to improve the treatment facility. The proceeds of the bonds would need to be repaid, either through property taxes, assessments, or user charges to the system.

2. Assessment

A portion of the capital costs of the project can be assessed to local property owners under Minnesota Statute 429. Using this method, a one-time assessment could be levied and repaid over a period of 10 to 20 years. This cost could help offset some monthly increases in user fees and permit use of general obligation bonding.

3. Rural Development (RD) Loan

The City may be eligible to secure a loan or grant through Rural Development for the wastewater improvements. Repayment could be through an increase in local property tax rates, user fees or assessments. A portion of the project costs may be eligible for grant funding as a part of this program depending on the economic status of the residents in the City.

In order to be considered for Rural Development monies, a Preliminary Engineering Report (PER) must be completed and submitted to RD. This provides specific treatment and financial information for RD to consider.

Rural Development uses an Equivalent Dwelling Unit (EDU) calculation for assisting in determining the amount and type of funding for which a community is eligible. The preliminary EDU calculations for the City of Northfield indicate that it is unlikely the project would be eligible for grant financing, but loan financing may still be available. The PER would provide more specific information on the City's eligibility.

4. State Revolving Fund Loan (through the PFA)

The loan program was created under the State Revolving Fund (SRF) provisions in the Federal Clean Water Act to provide financial assistance for water pollution control projects. Minnesota's revolving loan program provides loans to municipalities for planning, design and construction of wastewater treatment projects. The loans are typically for a 20-year period at an interest rate of two to four percent. The loan monies are administered through the Public Facilities Authority. To be eligible for PFA funding, the City must submit this Facilities Plan for review and approval by the Minnesota Pollution Control Agency.

Revenue for loan repayment is typically generated by user rates, availability charges or assessment.

5. Wastewater Infrastructure Funding Program

Supplemental assistance to municipalities is currently available through the wastewater infrastructure (WIF) program. The Public Facilities Authority (PFA) administers the WIF program to those communities what are applying for funding under the clean water revolving fund loan program or the United States Department of Agriculture Rural Economic and Community Development's (USDA/RECD) Water and Waste Disposal Loans and Grants Program.

Assistance is in the form of zero percent loans, which may be forgiven upon receipt of the notice from MPCA that the project operational performance standards have been met.

6. Economic Development Administration

The Economic Development Administration (EDA) has a grant program, which is used to help communities develop the infrastructure required to attract or maintain businesses or industries. Grant sizes vary depending upon the community's need and the impact the project would have on the community.

7. Point Source Implementation Grant

The Point Source Implementation Grant (PSIG) is a newly (2013) developed grant program to assist and encourage communities to make infrastructure improvements for stringent wastewater limits. The program is funded through the Clean Water Legacy Program and is competitive based on scoring from the MPCA under the same criteria as the CWRF.

The grant program provides 50% grant on eligible portions of the project up to a maximum of $3 Million dollars

8. Budgetary Funding

Projects which can be implemented over a several-year schedule can be funded through the City's annual budget process. These types of projects would typically be building improvement and renovation, including roof repairs, HVAC equipment replacement and other miscellaneous improvements.

SECTION 6 RECOMMENDATION AND IMPLEMENTATION

A. GENERAL

Previous sections of this report evaluated the existing facilities and determined viable options for upgrading the wastewater treatment facility. This section will present options for implementation of the recommended projects.

B. IMPLEMENTATION PLAN

Table 6.1 on following page shows the proposed plan for implementing the project finances incrementally over a ten-year period. For planning purposes, 3% annual inflation was included in developing the finance plan.

Table 6.2 shows the proposed implementation schedule based on the project finance plan.

Table 6.2

Proposed Implementation Schedule

Project	Design Phase	Bid Phase	Construction Phase
UV Disinfection	Jan. 2016 – July 2016	Aug. 2016 – Sept. 2016	Nov. 2016 – March 2017
BAF Gate Replacement	Oct. 2018 – Jan. 2019	Feb. 2019 – April 2019	May 2019 – Nov. 2019
Biosolids Liquid Storage Biosolids Treatment Upgrade Biosolids Cake Storage	May 2019 – May 2020	May 2020 – July 2020	Aug. 2020 - Dec. 2021
SCADA Upgrade	Jan. 2021 – Sept. 2021	Sept. 2021 – Dec 2021	Jan. 2022 – Dec. 2022
Influent Lift Pumps	Oct. 2022 – Mar. 2023	April 2023 – May 2023	July 2023 – Dec. 2023
Blower Replacement	Oct. 2023 – Mar. 2024	April 2024 – May 2024	July 2024 – Dec. 2024
Water Reuse System	Oct. 2024 – Mar. 2025	April 2025 – May 2025	July 2025 – Dec. 2025
On-Going Maintenance Projects (Roof replacement, MAU Replacement, Miscellaneous Items) will be addressed on an annual basis.			

The attached Proposed Improvements Site Plan shows the projected locations of the proposed new facilities.

Table 6.1
Northfield MN Wastewater Treatment Facility
Project Implementation Schedule

	Project	Capital Cost	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
1	Water Reuse System	$ 151,250										$ 192,088
2	UV Disinfection	$ 893,750		$ 920,563								
3	Biosolids Treatment Upgrade	$ 3,025,000						$ 3,478,750				
4	Biosolids Cake Storage	$ 618,750						$ 711,563				
5	Biosolids Liquid Storage	$ 1,038,125						$ 1,193,844				
6	BAF Gate Replacement											
	BAF Cell 1	$ 75,625				$ 82,431						
	BAF Cell 2	$ 75,625				$ 82,431						
	BAF Cell 3	$ 75,625				$ 82,431						
	BAF Cell 4	$ 75,625				$ 82,431						
	BAF Cell 5	$ 75,625				$ 82,431						
	BAF Cell 6	$ 75,625				$ 82,431						
	BAF Cell 7	$ 75,625				$ 82,431						
	BAF Cell 8	$ 75,625				$ 82,431						
	BAF Cell 9	$ 75,625				$ 82,431						
	BAF Cell 10	$ 75,625				$ 82,431						
7	Influent Lift Pumps	$ 1,134,375								$ 1,372,594		
8	Blower Replacement											
	Blower 1	$ 61,875									$ 76,725	
	Blower 2	$ 61,875									$ 76,725	
	Blower 3	$ 61,875									$ 76,725	
	Blower 4	$ 61,875									$ 76,725	
	Blower 5	$ 61,875									$ 76,725	
	Blower 6	$ 61,875									$ 76,725	
	Blower 7	$ 61,875									$ 76,725	
	Blower 8	$ 61,875									$ 76,725	
	Blower 9	$ 61,875									$ 76,725	
	Blower 10	$ 61,875									$ 76,725	
	Blower 11	$ 61,875									$ 76,725	
	Blower 12	$ 61,875									$ 76,725	
9	SCADA Upgrade	$ 1,375,000							$ 1,622,500			
10	MAU Replacement											
	MAU-1	$ 15,813		$ 16,287								
	MAU-2	$ 26,813			$ 28,421							
	MAU-3	$ 15,813				$ 17,236						
	MAU-4	$ 16,500					$ 18,480					
	MAU-5	$ 15,813						$ 18,184				
	MAU-6	$ 19,250							$ 22,715			
	MAU-7	$ 15,813								$ 19,133		
	MAU-8	$ 14,438									$ 17,903	
	MAU-9	$ 15,813										$ 20,082
	MAU-10	$ 15,813										$ 20,082
11	Roof Repacement											
	BAF Building	$ 275,000							$ 324,500			
	PreTreatment /Clarifier Building	$ 305,000							$ 359,900			
	Biosolids Building	$ 100,000						$ 115,000				
	UV Disinfection building	$ 30,000						$ 34,500				
	Operations Building	$ 100,000			$ 106,000							
12	Miscellaneous Items											
	Access hatches safety equipment	$ 12,000	$ 12,000									
	Air Compressor at Pretreatment/clarifier building	$ 25,000	$ 25,000									
	Boiler replacement at operations building	$ 75,000	$ 75,000									
	Annual Inflation rate (%)	3.0%										
Total Expense w/o Inflation		$ 10,828,875										
Total Expense w/ Inflation		$ 12,487,335	$ 112,000	$ 936,849	$ 134,421	$ 841,548	$ 18,480	$ 5,551,841	$ 2,329,615	$ 1,391,727	$ 938,603	$ 232,251

Northfield WWTF

Proposed Improvements

APPENDIX A

NPDES Permit

Minnesota Pollution Control Agency

Rochester Office | 18 Wood Lake Drive SE | Rochester, MN 55904 | 507-285-7343

800-657-3864 | 651-282-5332 TTY | www.pca.state.mn.us | Equal Opportunity Employer

September 19, 2011

The Honorable Mary Rossing
Mayor, City of Northfield
801 Washington Street
Northfield, MN 55057-2565

RE: Final Minor Modified NPDES/SDS Permit No. MN0024368
Northfield Wastewater Treatment Facility
Section 30, T112N, R19W, city of Northfield, Dakota County, Minnesota

Dear Mayor Rossing:

Enclosed is the final minor modified National Pollutant Discharge Elimination System (NPDES)/State Disposal System (SDS) Permit for the city of Northfield's (City) Wastewater Treatment Facility (Facility). This NPDES/SDS Permit supersedes an earlier NPDES/SDS permit that was issued on November 19, 2010, and minor modified on June 30, 2011.

It is the responsibility of the City to maintain compliance with all of the terms and conditions of this NPDES/SDS Permit. Please carefully review the entire Permit. A "Submittals Checklist" that is specific for the City's Facility is attached for your use. You may find this checklist to be a convenient tool in tracking the due dates and status of submittals required by the final minor modified Permit.

Special attention should be directed to the following:

Limits and Monitoring Requirements

This Permit has been modified to fix an error in the limits and monitoring section. The limit type for phosphorus, kilograms per year, in the January through December monitoring period was erroneously listed as a calendar month average. The correct limit type is a calendar year-to-date total.

Chapter 6: Surface Discharge Stations

Subchapter 2.1, Special Requirements, describes the calendar year-to-date total phosphorus limit in units of kilograms per year is calculated as follows: For each month multiply the total volume of effluent flow (in million gallons) by the monthly average concentration of effluent phosphorus (in mg/L) and by a 3.785 conversion factor (liters per gallon) to get phosphorus in units of kilograms per month. Then add all monthly values from the first month in the effective period to the end date of the reporting period. For example, if the effective period is January through December and the reporting period ends June 30th, add the monthly values from January through June and report that value as the calendar year-to-date total.

Calculation:
Total monthly flow (MG) x Avg. monthly P conc. (mg/L) x 3.785 L/gal = kg/month

Questions about your Permit should be directed to the appropriate staff contacts listed on the first page of your Permit.

Sincerely,

Randall D. Hukriede for

Marni Karnowski
Supervisor, Southeast Regional Unit
Municipal Wastewater Section
Municipal Division

MK/MM:slr

Enclosures

cc: Lillie Davis, U.S. EPA Region 5, Chicago Office (w/final Permit)
Glenn Lindroos, Wastewater Operator, City of Northfield (w/enclosures)
Deb Little, Clerk, City of Northfield (w/final Permit)
Marco Graziani, MPCA, St. Paul Office (w/final Permit)
Lisa McCormick, MPCA, Willmar Office (w/final Permit)
Eric Pederson, MPCA, St. Paul Office (w/final Permit)
Jennifer Satnik, MPCA, St. Paul Office (w/final Permit)
Steve Weiss, MPCA, St. Paul Office (w/final Permit)
Justin Watkins, MPCA, Rochester Office (w/final Permit)

COPY

STATE OF MINNESOTA

Minnesota Pollution Control Agency

Municipal Division

State Disposal System (SDS) Permit MN0024368

PERMITTEE: City of Northfield

FACILITY NAME: Northfield Wastewater Treatment Facility

RECEIVING WATER: Cannon River (Class 2B, 3B, 3C, 4A, 4B, 5, 6 water)

CITY: Northfield **COUNTY: Dakota**

MODIFICATION DATE: September 19, 2011
ISSUANCE DATE: November 19, 2010 **EXPIRATION DATE: October 31, 2015**

The state of Minnesota, on behalf of its citizens through the Minnesota Pollution Control Agency (MPCA), authorizes the Permittee to operate a disposal system at the facility named above, in accordance with the requirements of this permit.

The goal of this permit is to reduce pollutant levels in point source discharges and protect water quality in accordance with Minnesota and U.S. statutes and rules, including Minn. Stat. chs. 115 and 116, Minn. R. chs. 7001, 7050, 7053, 7060, and the U.S. Clean Water Act.

This permit is effective on the issuance date identified above, as modified on September 19, 2011. This permit expires at midnight on the expiration date identified above.

Signature: Randall G. Hukriede

Marni Karnowski *for* *for* The Minnesota Pollution Control Agency
Supervisor, Southeast Regional Unit
Municipal Wastewater Section
Municipal Division

Submit DMRs to:
Attention: Discharge Monitoring Reports
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

Submit Other WQ Reports to:
Attention: WQ Submittals Center
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

Questions on this permit?

- For DMR and other permit reporting issues, contact: Jennifer Satnik, 651-757-2692.
- For specific permit requirements or permit compliance status, contact: Eric Pederson, 651-757-2645.
- General permit or NPDES program questions, contact: MPCA, 651-282-6143 or 1-800-657-3938.

Table of Contents

Facility Description

The Northfield Wastewater Treatment Facility (Facility) is located at the NW¼ of the SE¼ of Section 30, Township 112 North, Range 19 West, city of Northfield, Dakota County, Minnesota. This is a Class A facility. The Facility also treats wastewater from the city of Dundas through the terms of an interconnection contract.

The application and plans indicate that the existing Facility consists of a raw wastewater pumping station, parshall flume, flow metering, fine screening, vortex grit removal, six rapid-mix tanks, two flocculation tanks, two lamella plate intermediate clarifiers, primary biosolids pumping, intermediate pumping, 10 upflow biological aerated filters, a backwash tank, a biosolids filter-belt press, biosolids lime pasteurization, biosolids storage, odor control equipment, and ultraviolet light for disinfection. Phosphorus removal is provided through chemical precipitation using ferric chloride and polymer in the primary lamella plate system. The biosolids treatment system consists of a filter-belt press and heat pasteurization/lime stabilization to produce exceptional quality biosolids. The biosolids are stored on site and are land applied two to three times per year.

The Facility has an average wet weather (AWW) design flow of 5.2 million gallons per day (mgd) and an average dry weather design flow of 3.23 mgd. The Facility has a continuous discharge to the Cannon River.

The Cannon River was designated an Outstanding Resource Value Water (ORVW) on November 5, 1984. The design AWW flow of this Facility on the date of ORVW designation is 3.4 mgd. In accordance with MPCA rules regarding nondegradation for ORVWs, nondegradation review is required for any new or expanded discharge (Minn. R. 7050.0180). A new discharge is a discharge that was not in existence on the effective date that the ORVW was designated, as described in Minn. R. 7050.0460 and 7050.0470. An expanded discharge is a discharge that changes in volume, quality, location, or any other manner after the effective date that the ORVW was designated, as described in Minn. R. 7050.0460 and 7050.0470, such that an increased loading of one or more pollutants results. Any change that results in an increased mass loading of one or more pollutants is subject to nondegradation review in accordance with Minn. R. 7050.0180.

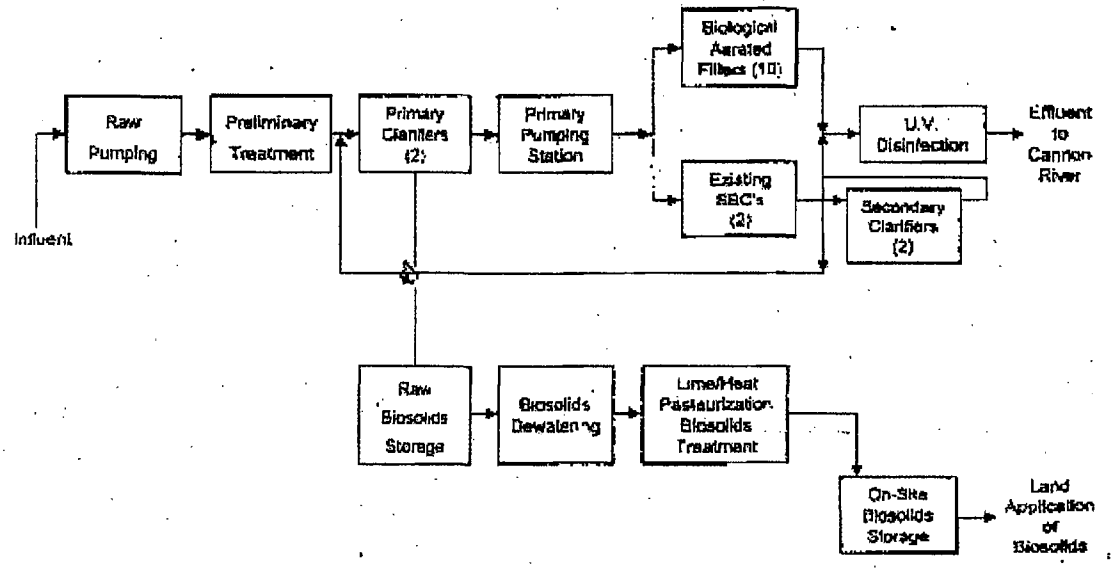
The Permittee's expansion from 3.4 mgd to 5.2 mgd AWW design flow did not meet the definition of an "expanded" discharge under the nondegradation policy, as the Permittee will provide additional treatment so that there is no increase in mass loading. The permit includes mass limits for carbonaceous biological oxygen demand, total suspended solids, and copper, based on the 3.4 mgd AWW design flow as of November 5, 1984. The mass loadings for total phosphorus and ammonia were not limited on November 5, 1984. Therefore, the current 5.2 mgd AWW design flow is used to set the mass limits for these two parameters.

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 MPCA 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.

The Facility is further described in the plans and specifications that are on file with the MPCA in an engineering report by the firm of Bolton and Menk, Inc., dated April 23, 1998, and letters from Bolton and Menk, Inc., dated through February 23, 2000.

The location of the Facility is shown on the attached topographical map.

Flow Schematic

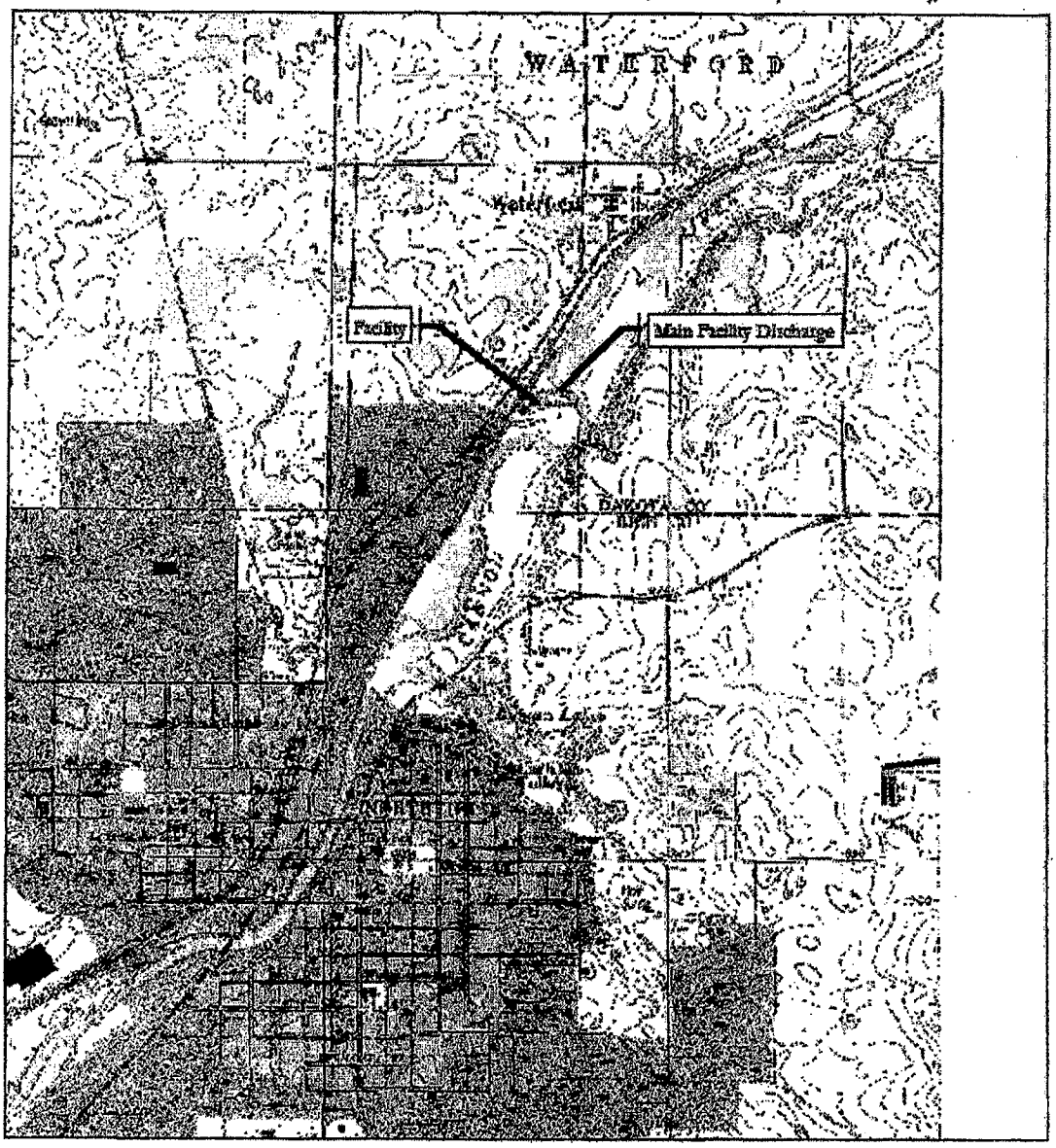


Map of Permitted Facility

Northfield Wastewater Treatment Facility

NPDES/SDS Permit No. MN0024368

T112N, R19W, Section 30
Northfield, Dakota County and Rice County, Minnesota



Source USGS Quad
1:24,000
11/4/2009

N

0 0.25 0.5 1 Miles

Minnesota Pollution Control Agency

Surface Discharge Stations

Station	Type of Station	Local Name	PLS Location
SD006	Effluent To Surface Water	Main Facility Discharge	NW Quarter of the SE Quarter of Section 30, Township 112 North, Range 19 West

Waste Stream Stations

Station	Type of Station	Local Name	PLS Location
WS001	Influent Waste	Influent Waste Stream	NW Quarter of the SE Quarter of Section 30, Township 112 North, Range 19 West

Northfield WWTP
Limits and Monitoring Requirements

The Permittee shall comply with the limits and monitoring requirements as specified below.

SD 006: Main Facility Discharge

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
BOD, Carbonaceous 05 Day (20 Deg C)	322	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)	515	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	
Chronic Toxicity Testing	10	TUc	Annual WET Testing	Jan-Dec, effective January 01, 2011	24-Hour Flow Composite	1 x Year	
Copper, Total (as Cu)	1.45	kg/day	Daily Maximum	Jan-Dec	24-Hour Flow Composite	2 x Month	2
Copper, Total (as Cu)	113	ug/L	Daily Maximum	Jan-Dec	24-Hour Flow Composite	2 x Month	2
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	
Mercury, Total (as Hg)	Monitor Only	ng/L	Calendar Quarter Maximum	Jan-Dec	Grab	1 x Quarter	3
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	Dec-Mar	24-Hour Flow Composite	3 x Week	
Nitrogen, Ammonia, Total (as N)	393	kg/day	Calendar Month Average	Apr-May	24-Hour Flow Composite	3 x Week	
Nitrogen, Ammonia, Total (as N)	20	mg/L	Calendar Month Average	Apr-May	24-Hour Flow Composite	3 x Week	
Nitrogen, Ammonia, Total (as N)	175	kg/day	Calendar Month Average	Jun-Sep	24-Hour Flow Composite	3 x Week	
Nitrogen, Ammonia, Total (as N)	8.9	mg/L	Calendar Month Average	Jun-Sep	24-Hour Flow Composite	3 x Week	
Nitrogen, Ammonia, Total (as N)	668	kg/day	Calendar Month Average	Oct-Nov	24-Hour Flow Composite	3 x Week	
Nitrogen, Ammonia, Total (as N)	34	mg/L	Calendar Month Average	Oct-Nov	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)	19.6	kg/day	Calendar Month Average	Jan-Dec	24-Hour Flow Composite	3 x Week	
Phosphorus, Total (as P)	1.0	mg/L	Calendar Month Average	Jan-Dec	24-Hour Flow Composite	3 x Week	
Phosphorus, Total (as P)	7174	kg/yr	Calendar Year To Date Total	Jan-Dec	24-Hour Flow Composite	3 x Week	4

Northfield WWTP
Limits and Monitoring Requirements

The Permittee shall comply with the limits and monitoring requirements as specified below.

SD 006: Main Facility Discharge

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Solids, Total Dissolved (TDS)	Monitor Only	mg/L	Calendar Month Average	Apr, Sep	24-Hour Flow Composite	1 x Month	
Solids, Total Suspended (TSS)	386	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)	578	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	

WS 001: Influent Waste Stream

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
BOD, Carbonaceous 05 Day (20 Deg C)	Monitor Only	mg/L	Calendar Month Average	Jan-Dec	24-Hour Flow Composite	3 x Week	
BOD, Carbonaceous 05 Day (20 Deg C)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	24-Hour Flow Composite	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	
Mercury, Total (as Hg)	Monitor Only	ng/L	Calendar Quarter Maximum	Jan-Dec	Grab	1 x Quarter	3
pH	Monitor Only	SU	Calendar Month Maximum	Jan-Dec	Grab	1 x Day	1
pH	Monitor Only	SU	Calendar Month Minimum	Jan-Dec	Grab	1 x Day	1
Phosphorus, Total (as P)	Monitor Only	mg/L	Calendar Month Average	Jan-Dec	24-Hour Flow Composite	3 x Week	
Precipitation	Monitor Only	in	Calendar Month Total	Jan-Dec	Measurement	1 x Day	
Solids, Total Suspended (TSS)	Monitor Only	mg/L	Calendar Month Average	Jan-Dec	24-Hour Flow Composite	3 x Week	
Solids, Total Suspended (TSS)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	24-Hour Flow Composite	3 x Week	

Notes:
1 -- Analyze immediately.
2 -- EPA Method 220.2
3 -- EPA method 1631, with clean techniques method 1669, and any revisions to those methods. Please refer to Chapter 1 Mercury Minimization Plan for further information.
4 -- The mass load of P is reduced by 10 kg/yr based on a pre-TMDL trade agreement with MNDOT - Heath Creek Rest Area (MN0069639).

Chapter 1. Non-waste Streams -- Mercury Minimization Plan

1. Mercury Pollutant Minimization Plan

1.1 Mercury is present in all municipal and many industrial wastewater discharges. Mercury is a powerful neurotoxin that affects human health and the environment. A naturally-occurring element, mercury does not break down into less-harmful substances over time. Instead, mercury released into the environment accumulates in fish and animal tissues, a process known as bioaccumulation. Widespread mercury contamination has prompted the Minnesota Department of Health (MDH) to issue fish consumption advisories throughout the state. Most of Minnesota's impaired waters are contaminated by mercury and other bioaccumulative toxins. The MPCA is carefully evaluating all mercury discharges in the state.

1.2 The Permittee is required to complete and submit a Mercury Minimization Plan (MMP) to the MPCA as detailed in this section. If the Permittee has previously submitted a MMP, it must update its MMP and submit the updated MMP to the MPCA. The purpose of the MMP is to evaluate collection and treatment systems to determine possible sources of mercury as well as potential mercury reduction options. Guidelines for developing a MMP are detailed in this section.

1.3 The Permittee shall submit a MMP by 180 days after permit issuance. At a minimum, the MMP must include the following:

a) A summary of mercury influent and effluent concentrations and biosolids monitoring data using the most recent five years of monitoring data, if available.

b) Identification of existing and potential sources of mercury concentrations and/or loading to the facility. As appropriate for your facility, you should consider residential, institutional, municipal, and commercial sources (such as dental clinics, hospitals, medical clinics, nursing homes, schools, and industries with potential for mercury contributions). You should also consider other influent mercury sources, such as stormwater inputs, ground water (inflow & infiltration) inputs, and waste streams or sewer tributaries to the wastewater treatment facility.

c) An evaluation of past and present facility operations to determine those operating procedures that maximize mercury removal.

d) A summary of any mercury reduction activities implemented during the last five years.

e) A plan to implement mercury management and reduction measures during the next five years.

1.4 In addition to the sampling required in the Limits and Monitoring section of this permit, the Permittee shall sample effluent from the total facility discharge station for Dissolved Mercury and TSS on a quarterly basis throughout the life of this permit. The sampling method is a concurrent grab sample for the two parameters. Dissolved Mercury shall be analyzed using an EPA approved low level mercury analysis method. Samples shall be taken at any time during the calendar quarter and reported on the custom supplemental form provided by the MPCA. The custom supplemental form must be submitted with the DMR for the last month of each quarter.

Chapter 2. Whole Effluent Toxicity (WET) Testing - Chronic

1. General Requirements

1.1 The Permittee shall conduct annual chronic toxicity test batteries on Discharge SD006 beginning with the issuance date of the permit. The first set of annual results are due one year from the end of the calendar quarter of permit issuance and annually thereafter. (For example, if the permit is issued April 28, the first test results are due June 30 of the following year.)

1.2 Any test that exceeds 10 TUc shall be re-tested according to the Positive Toxicity Results requirement(s) that follow to determine if toxicity is still present above 10 TUc (RWC< 10%).

Chapter 2. Whole Effluent Toxicity (WET) Testing - Chronic

2. Species and Procedural Requirements

2.1 Tests shall be conducted in accordance with procedures outlined in EPA-821-R-02-013 "Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms" - Fourth Edition (Chronic Manual) and any revisions to the Manual. Any test that is begun with an effluent sample that exceeds a total ammonia concentration of 5 mg/l shall use the carbon dioxide-controlled atmosphere technique to control pH drift.

2.2 Test organisms for each test battery shall include the fathead minnow (Pimephales promelas)-Method 1000.0 and Ceriodaphnia dubia-Method 1002.0.

2.3 Static renewal chronic serial dilution tests of the effluent shall consist of a control, 6, 12, 25, 50 and 100% effluent. A 10% Receiving Water Concentration (RWC) may be substituted for the 12% effluent concentration or provided in addition to the above dilution series.

2.4 All effluent samples shall be flow proportioned, 24-hour composites. Test solutions shall be renewed daily. Testing of the effluent shall begin within 36 hours of sample collection. Receiving water collected outside of the influence of discharge shall be used for dilution and controls. Chronic toxicity tests shall be conducted in accordance with procedures outlined in EPA-821-R-02-013 "Short-term Methods for Measuring the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms" - Fourth Edition (Chronic Manual) and any revisions to the Manual.

2.5 Any other circumstances not addressed in the previous requirements or that require deviation from that specified in the previous requirements shall first be approved by the MPCA.

3. Quality Control and Report Submittals

3.1 Any test that does not meet quality control measures, or results which the Permittee believes reflect an artifact of testing shall be repeated within two (2) weeks. These reports shall contain information consistent with the report preparation section of the Chronic Manual. The MPCA shall make the final determination regarding test validity.

4. Positive Toxicity Result for WET

4.1 Should a test exceed 10 TUc for whole effluent toxicity based on results from the most sensitive test species, the Permittee shall conduct two repeat test batteries on all species. The repeat tests are to be completed within forty-five (45) days after completion of the positive test. These tests will be used to determine if toxicity exceeding 10 TUc remains present for any test species. If no toxicity is present above 10 TUc for any test species, the Permittee shall return to the test frequency specified by the permit. If the repeat test batteries indicate toxicity above 10 TUc for any test species, the Permittee shall submit for MPCA review a plan for conducting a Toxicity Reduction Evaluation (TRE), including the Facility Performance Review (to be submitted to the MPCA WQ Submittals Center within 60 days after toxicity discovery date) and, at a minimum, provide quarterly reports starting from the date of TRE submittal, regarding progress towards the identity, source, and any plans for the removal of the toxicity. The TRE shall be consistent with EPA guidance or subsequent procedures approved by the MPCA in attempting to identify and remove the source of the toxicity. Routinely scheduled chronic toxicity test batteries required in this permit section shall be suspended for the duration of the TRE. The return to routine chronic toxicity testing is subject to successful completion of conformation testing, as determined by the MPCA. Amendments to the initial TRE shall be approved by MPCA staff and the schedules identified therein.

Chapter 2. Whole Effluent Toxicity (WET) Testing - Chronic

5. WET Data and Test Acceptability Criteria (TAC) Submittal

5.1 All WET test data and TAC must be submitted to the MPCA by the dates required by this section of the permit using the following form(s) and associated instruction forms:
Minnesota Pollution Control Agency Acute Toxicity Test Report/ Minnesota Pollution Control Agency Ceriodaphnia dubia Chronic Toxicity Test Report/ Minnesota Pollution Control Agency Fathead Minnow Chronic Toxicity Test Report. Data not submitted on the correct form(s), or submitted incomplete, will be returned to the permittee and deemed incomplete until adequately submitted on the designated form (identified above). Data should be submitted to:

MPCA
Attn: WQ Submittals Center
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

6. Permit Re-opening for WET

6.1 Based on the results of the testing, the permit may be modified to include additional toxicity testing and a whole effluent toxicity limit.

7. Whole Effluent Toxicity Requirement Definitions

7.1 "Chronic Whole Effluent Toxicity (WET) Test" is a static renewal test conducted on an exponentially diluted series of effluent. The purpose is to calculate appropriate biological effect endpoints (NOEC/LOEC or IC25), specified in the referenced chronic manual. A statistical effect level less than or equal to the Receiving Water Concentration (RWC) constitutes a positive test for chronic toxicity. The RWC equals the 10 percent effluent concentration or 10 TUc.

7.2 "Chronic toxic unit (TUc)" is the reciprocal of the effluent dilution that causes no unacceptable effect on the test organisms by the end of the chronic exposure period. For example, a TUc equals [7Q10flow (mgd) + effluent average dry weather flow (mgd)]/[effluent average dry weather flow (mgd)].

7.3 "Test" refers to an individual species.

7.4 "Test Battery" consists of WET testing of all test species for the specified test. For chronic WET testing, all test species includes Fathead minnows and ceriodaphnia dubia.

Chapter 3. Pretreatment

1. Preliminary Delegated Pretreatment Program Development Submittal

1.1 By 180 days after permit issuance, the Permittee shall submit the following information and evaluations to facilitate development of an approvable delegated pretreatment program:

a. An evaluation of present legal authority compared to the required legal authority for a delegated pretreatment program.

b. Copies of all existing documents relied on for legal authority.

c. A description and evaluation of POTW organization and its suitability for operating a delegated pretreatment program.

d. A preliminary evaluation of funding levels, equipment and manpower needed for operating a delegated pretreatment program.

e. A preliminary evaluation of existing program procedures and new program procedures needed to operate a delegated pretreatment program.

f. A preliminary draft of an Enforcement Response Plan outlining authorities, personnel and actions to be taken in response to non-compliance by industrial users.

g. A draft of the technical calculations needed to set and justify local limits.

h. A list of Significant Industrial Users (SIUs) and Categorical Industrial Users (CIUs) with characterization and categorization. (Minn. R. 7049.0810 through 7049.0870)

2. Final Delegated Pretreatment Program Development Submittal

2.1 By one year after permit issuance, the Permittee shall submit a request for pretreatment program delegation and approval. The submittal shall include the following in final approvable form:

a. A statement of legal authority indicating that the permittee has the required legal authorities.

b. Copies of all ordinances, agreements, and other legal authority relied on by the permittee. If any document relied on is not final at the time or submittal, it must come with a statement, signed by the proper authority, stating that the authority intends to finalize the document once it is approved.

c. A description of the POTW organization which identifies personnel or positions responsible for operating all aspects of the delegated pretreatment program.

d. A description of funding levels, equipment and manpower which will be used to operate the delegated pretreatment program.

e. A description of the program procedures which will be used to operate the delegated pretreatment program.

f. An Enforcement Response Plan outlining authorities, personnel and actions that will be taken in response to non-compliance by industrial users.

g. Local Limits technical calculations justifying the local limits included in the final legal authority. (Minn. R. 7049.0810 through 7049.0870)

Chapter 3. Pretreatment

3. Pretreatment - Definitions

3.1 An "Individual Control Mechanism" is a document, such as an agreement or permit, that imposes limitations or requirements on an individual industrial user of the POTW.

3.2 "Significant Industrial User" (SIU) means any industrial user that:

a. discharges 25,000 gallons per day or more of process wastewater;

b. contributes a load of five (5) % or more of the capacity of the POTW; or

c. is designated as significant by the Permittee or the MPCA on the basis that the SIU has a reasonable potential to adversely impact the POTW, or the quality of its effluent or residuals. (Minn. R. 7049.0120, Subp. 24)

4. Pretreatment - Permittee Responsibility to Control Users

4.1 It is the Permittee's responsibility to regulate the discharge from users of its wastewater treatment facility. The Permittee shall prevent any pass through of pollutants or any inhibition or disruption of the Permittee's facility, its treatment processes, or its sludge processes or disposal that contribute to the violation of the conditions of this permit or any federal or state law or regulation limiting the release of pollutants from the POTW. (Minn. R. 7049.0600)

4.2 The Permittee shall prohibit the discharge of the following to its wastewater treatment facility:

a. pollutants which create a fire or explosion hazard, including any discharge with a flash point less than 60 degrees C (140 degrees F);

b. pollutants which would cause corrosive structural damage to the POTW, including any waste stream with a pH of less than 5.0;

c. solid or viscous pollutants which would obstruct flow;

d. heat that would inhibit biological activity, including any discharge that would cause the temperature of the waste stream at the POTW treatment plant headworks to exceed 40 degrees C (104 degrees F);

e. pollutants which produce toxic gases, vapors, or fumes that may endanger the health or safety of workers; or

f. any pollutant, including oxygen demanding pollutants such as biochemical oxygen demand, released at a flow rate or pollutant concentration that will cause interference or pass through. (Minn. R. 7049.0140)

4.3 The Permittee shall prohibit new discharges of non-contact cooling waters unless there is no cost effective alternative. Existing discharges of non-contact cooling water to the Permittee's wastewater treatment facility shall be eliminated, where elimination is cost-effective, or where an infiltration/inflow analysis and sewer system evaluation survey indicates the need for such removal.

4.4 If the Permittee accepts trucked-in wastes, the Permittee shall evaluate the trucked in wastes prior to acceptance in the same manner as it monitors sewered wastes. The Permittee shall accept trucked-in wastes only at specifically designated points. (Minn. R. 7049.0140, Subp. 4)

4.5 Pollutant of concern means a pollutant that is or may be discharged by an industrial user that is, or reasonably should be of concern on the basis that it may cause the permittee to violate any permit limits on the release of pollutants. The following pollutants shall be evaluated to determine if they should be pollutants of concern: pollutants limited in this permit, pollutants for which monitoring is required in this permit, pollutants that are likely to cause inhibition of the Permittee's POTW, pollutants which may interfere with sludge disposal and pollutants for which the Permittee's treatment facility has limited capacity. (Minn. R. 7049.0120, Subp. 13)

Chapter 3. Pretreatment

5. Control of Significant Industrial Users

5.1 The Permittee shall impose pretreatment requirements on SIUs which will ensure compliance with all applicable effluent limitations and other requirements set forth in this permit or any federal or state law or regulation limiting the release of pollutants from the POTW. These requirements shall be applied to SIUs by means of an individual control mechanism. (Minn. R. 7049.0600)

5.2 The Permittee shall not knowingly enter into an individual control mechanism with any user that would allow the user to contribute an amount or strength of wastewater that would cause violation of any limitation or requirement in the permit, or any applicable federal, state or local law or regulation. (Minn. R. 7049.0600 Subp. 3)

6. Monitoring of Significant Industrial Users

6.1 The Permittee shall obtain from SIUs specific information on the quality and quantity of the SIU's discharges to the Permittee's POTW. Except where specifically requested by the Permittee and approved by the MPCA, this information shall be obtained by means of representative monitoring conducted by the Permittee or by the SIU under requirements imposed by the Permittee in the SIU's individual control mechanism. Monitoring performed to comply with this requirement shall include all pollutants for which the SIU is significant and shall be done at a frequency commensurate with the significance of the SIU. (Minn. R. 7049.0710)

7. Reporting and Notification

7.1 If a SIU discharges to the POTW during a given calendar year, the Permittee shall submit a Pretreatment Annual Report for that calendar year, due by January 31 of the following year. The Pretreatment Annual Report shall be submitted on forms provided by the agency or shall provide equivalent information.

The Permittee shall submit the pre-treatment report to the following address:

MPCA
Attn: WQ Submittals Center
520 Lafayette Road North
St. Paul, Minnesota 55155-4194 (Minn. R. 7049.0720)

7.2 The Permittee shall notify the MPCA in writing of any:

a. SIU of the Permittee's POTW which has not been previously disclosed to the MPCA;

b. anticipated or actual changes in the volume or quality of discharge by an industrial user that could result in the industrial user becoming an SIU as defined in this chapter; or

c. anticipated or actual changes in the volume or quality of discharges by a SIU that would require changes to the SIU's required local limits.

This notification shall be submitted within 30 days of identifying the IU as a SIU. Where changes are proposed, they must be submitted prior to changes being made. (Minn. R. 7049.0700, Subp. 1)

Chapter 3. Pretreatment

7. Reporting and Notification

7.3 Upon notifying the MPCA of a SIU or change in a SIU discharge as required above, the Permittee shall submit the following information on forms provided by the agency or in a comparable format:

a. the identity of the SIU and a description of the SIU's operation and process;

b. a characterization of the SIU's discharge;

c. the required local limits that will be imposed on the SIU;

d. a technical justification of the required local limits; and

e. a plan for monitoring the SIU which is consistent with monitoring requirements in this chapter. (Minn. R. 7049.0700)

7.4 In addition, the Permittee shall, upon request, submit the following to the MPCA for approval:

a. additional information on the SIU, its processes and discharge;

b. a copy of the individual control mechanism used to control the SIU;

c. the Permittee's legal authority to be used for regulating the SIU; and

d. the Permittee's procedures for enforcing the requirements imposed on the SIU. (Minn. R. 7049.0700, Subp. 3)

7.5 The permittee shall notify MPCA of any of its industrial users that may be subject to national categorical pretreatment standards.

7.6 This permit may be modified in accordance with Minnesota Rules, ch. 7001 to require development of a pretreatment program approvable under the Federal General Pretreatment Regulation (40 CFR 403).

Chapter 4. Biosolids Land Application

1. Authorization

1.1 This permit authorizes the Permittee to store and land apply domestic wastewater treatment biosolids and Exceptional Quality Biosolids in accordance with the provisions in this chapter and Minnesota Rules, Chapter 7041.

1.2 Exceptional Quality Biosolids produced by the Permittee may not be blended with other materials at the treatment facility before distibuting it to other persons.

1.3 Exceptional Quality Biosolids produced by the process described in this permit are not subject to the general requirements in Minn. R. 7041.1000 or the management practices in Minnesota Rules pt., 7041.1200, except Minnesota Rules, part 7041.1200, subp. 8, item D, E & F as follows:

D. Long term storage of Exceptional Quality Biosolids shall not take place within 1,000 feet of any downgradient surface waters, wetlands, tile inlets, or sinkholes unless measures are taken to control runoff in which case the separation distance may be reduced to 200 feet.

E. Long-term storage of biosolids of bulk biosolids shall not be allowed on land with greater than a two percent slope.

F. Long-term storage of biosolids must not exceed seven months.

Chapter 4. Biosolids Land Application

1. Authorization

1.4 The total nitrogen, phosphorus, potassium, content, and the effective neutralizing power (ENP) of the exceptional quality biosolids must be supplied by the person who prepares the exceptional quality biosolids to the person who applies or distributes the biosolids for that person's use in recommending application rates.

2. Notification Requirements

2.1 The Permittee shall provide information needed to comply with the biosolids requirements of Minnesota Rules ch. 7041 to others who prepare or use the biosolids.

2.2 The Permittee shall inform in writing persons who receive the bulk Exceptional Quality Biosolids of the storage requirements in part 1.3 of this chapter.

3. Pollutant Limits

3.1 Biosolids which are applied to the land must not exceed the ceiling concentrations in Table 1 and must not be applied so that the cumulative amounts of pollutant in Table 2 are exceeded.

Table 1 Ceiling Concentrations

Arsenic - 75 mg/kg
Cadmium - 85 mg/kg
Copper - 4300 mg/kg
Lead - 840 mg/kg
Mercury - 57 mg/kg
Molybdenum - 75 mg/kg
Nickel - 420 mg/kg
Selenium - 100 mg/kg
Zinc - 7500 mg/kg

Table 2 Cumulative Limits

Arsenic - 37 lbs/acre
Cadmium - 35 lbs/acre
Copper - 1339 lbs/acre
Lead - 268 lbs/acre
Mercury - 15 lbs/acre
Molybdenum - not established*
Nickel - 375 lbs/acre
Selenium - 89 lbs/acre
Zinc - 2500 lbs/acre

*The cumulative limit for molybdenum has not been established at the time of permit issuance

Chapter 4. Biosolids Land Application

3. Pollutant Limits

3.2 Exceptional Quality Biosolids must not exceed the ceiling concentrations in Table 1 and must meet the pollutant concentrations in Table 3.

Table 3 Pollutant Concentrations

Pollutant	Concentration (mg/kg)1
Arsenic	41
Cadmium	39
Copper	1500
Lead	300
Mercury	17
Nickel	420
Selenium	100
Zinc	2800

1 On a dry-weight basis, the arithmetic mean of all measurements taken during the month.

4. Pathogen and Vector Attraction Reduction

4.1 Biosolids shall be processed, treated, or be incorporated or injected into the soil to meet one of the vector attraction reduction requirements in Minnesota Rules ch. 7041.1400.

4.2 Biosolids shall be processed or treated by one of the alternatives in Minnesota Rules ch. 7041.1300 to meet the Class A or Class B standards for the reduction of pathogens. When Class B biosolids are applied to the land, the site restrictions in Minnesota Rules ch. 7041.1300 must also be met.

4.3 Exceptional Quality Biosolids described in this permit must meet vector attraction reduction described in Minnesota Rules part, 7041.1400, subp. 2, item F: the pH of the biosolids shall be raised to 12 or higher by alkali addition and, without the addition of more alkali, shall remain at 12 or higher for two hours and then at 11.5 or higher for an additional 22 hours.

4.4 Exceptional Quality Biosolids described in this permit must meet the Class A pathogen reduction requirement for pasteurization that ensures that all biosolids are treated at 70 degrees Celsius or greater for 30 minutes or more as required in Minn. R. 7041.1300, subp 2, item G (7). In addition, either the density of fecal coliform in the biosolids must be less than 1000 MPN/gram of total solids (dry weight basis), or the density of Salmonella sp. bacteria in the biosolids must be less than three MPN per four grams of total solids (dry weight) basis) at the time the biosolids are applied to land, prepared for sale or giveaway in a bag or other container for application to land, or when the biosolids or material derived from the biosolids is prepared to meet the requirements of exceptional quality biosolids.

5. Management Practices

5.1 The management practices for the land application of biosolids are described in detail in Minnesota Rules, pt. 7041.1200 and must be followed as specified in part 2.3 of this Chapter.

Chapter 4. Biosolids Land Application

5. Management Practices

5.2 Overall management requirements:

a. Biosolids must not be applied to the land if it is likely to adversely affect a threatened or endangered species listed under Section 4 of the Endangered Species Act or its designated critical habitat.

b. Biosolids must not be applied to flooded, frozen or snow covered ground so that the biosolids enter wetlands or other waters of the state.

c. Biosolids must be applied at an agronomic rate unless specified otherwise by the MPCA in a permit.

d. Biosolids shall not be applied within 33 feet of a wetland or waters of the state unless specified otherwise by the MPCA in a permit.

6. Monitoring Requirements

6.1 Representative samples of biosolids applied to the land must be analyzed for the following parameters: arsenic, cadmium, copper, lead, mercury, molybdenum, nickel, selenium, zinc, Kjeldahl nitrogen, ammonia nitrogen, total solids, volatile solids, phosphorus, potassium and pH.

6.2 At a minimum, biosolids must be monitored at the frequencies specified in Table 4 for the parameters listed above, and any pathogen or vector attraction reduction requirements in Minnesota Rules, pts. 7041.1300 and 7041.1400 if used to determine compliance with those parts.

Table 4 Minimum Sampling Frequencies

Biosolids Applied* (metric tons/365-day period)	Biosolids Applied* (tons/365-day period)	Frequency (times/365-day period)
>0 but <290	>0 but <320	1
>=290 but <1,500	>=320 but <1,650	4
>=1,500 but <15,000	>=1,650 but <16,500	6
>=15,000	>=16,500	12

* Either the amount of bulk biosolids applied to the land or the amount of biosolids received by a person who prepares biosolids that are sold or given away in a bag or other container for application to the land (dry weight basis).

6.3 In addition to the minimum sampling frequency listed in section 7.2, Exceptional Quality Biosolids shall be monitored at a minimum of twice a year. Seven samples shall be taken at the minimum sampling frequency to check for bacterial regrowth as required in part 5.4 of this chapter.

Chapter 4. Biosolids Land Application

6. Monitoring Requirements

6.4 Increased sampling frequencies are specified for the parameters listed in Table 5. Sampling at a frequency at least twice the minimum frequencies listed in Table 4 is required if concentrations listed in Table 5 are exceeded (based on the average of all analyses made during the previous cropping year).

Table 5 Increased Frequency of Sampling

Arsenic - 38 mg/kg of dry weight
Cadmium - 43 mg/kg of dry weight
Copper - 2150 mg/kg of dry weight
Lead - 420 mg/kg of dry weight
Mercury - 28 mg/kg of dry weight
Molybdenum - 38 mg/kg of dry weight
Nickel - 210 mg/kg of dry weight
Selenium - 50 mg/kg of dry weight
Zinc - 3750 mg/kg of dry weight

6.5 When depending on the use of pH for part, or all, of the vector attraction reduction process, pH meters shall be calibrated each day they are used. pH must be taken on the liquid fraction of the material and correct or 25 degrees Celsius. A description of how to do this can be found in the Biosolids Manual.

7. Records

7.1 The Permittee shall keep records of the information necessary to show compliance with pollutant concentrations and loadings, pathogen reduction requirements, vector attraction reduction requirements and management practices as specified in Minnesota Rules, pt. 7041.1600, subp. 3 for Class B biosolids and Minnesota Rules, pt. 7041.1600, subp. 2 for Exceptional Quality Biosolids.

8. Reporting Requirements

8.1 By December 31 following the end of each cropping year, the Permittee submit a Biosolids Annual Report for the land application of biosolids on a form provided by or approved by the MPCA. The report shall include the requirements in Minnesota Rules, part 7041.1700.

If, during any cropping year, biosolids were transferred, or not land applied, the Permittee shall submit a report by December 31 following the end of the cropping year. The report shall state that biosolids were not land applied, how much was generated, and where they were transferred to, if applicable.

Submit the report to:

Biosolids Coordinator
Minnesota Pollution Control Agency
520 Lafayette Road
St. Paul, Minnesota 55155-4194

8.2 The Permittee must notify the MPCA in writing when 90 percent or more of any of the cumulative pollutant loading rates listed for any Land Application Sites has been reached for a site.

Chapter 5. Domestic Wastewater -- Mechanical System

1. Bypass Structures

1.1 All structures capable of bypassing the treatment system shall be manually controlled and kept locked at all times.

Chapter 5. Domestic Wastewater -- Mechanical System

2. Sanitary Sewer Extension Permit

2.1 The Permittee may be required to obtain a Sanitary Sewer Extension Permit from the MPCA prior to the start of construction of any addition, extension or replacement to the sanitary sewer. If a sewer extension permit is required, no construction of any part of the system may begin until that permit has been issued.

3. Operator Certification

3.1 The Permittee shall provide a Class A state certified operator who is in direct responsible charge of the operation, maintenance and testing functions required to ensure compliance with the terms and conditions of this permit.

3.2 The Permittee shall provide the appropriate number of operators with a Type IV certification to be responsible for the land application of biosolids or semisolids from commercial or industrial operations.

3.3 If the Permittee chooses to meet operator certification requirements through a contractual agreement, the Permittee shall provide a copy of the contract to the MPCA, WQ Submittals Center. The contract shall include the certified operator's name, certificate number, company name if appropriate, the period covered by the contract and provisions for renewal; the duties and responsibilities of the certified operator; the duties and responsibilities of the permittee; and provisions for notifying the MPCA 30 days in advance of termination if the contract is terminated prior to the expiration date.

3.4 The Permittee shall notify the MPCA within 30 days of a change in operator certification or contract status.

Chapter 6. Surface Discharge Stations

1. Requirements for Specific Stations

1.1 SD 006: Submit a monthly DMR by 21 days after the end of each calendar month following permit issuance.

2. Special Requirements

Calendar Year to Date Total Phosphorus Limit

2.1 The Calendar Year to Date Total Phosphorus limit in units of kg/year is calculated as follows: For each month multiply the total volume of effluent flow (in million gallons) by the monthly average concentration of effluent Phosphorus (in mg/L) and by a 3.785 conversion factor (liters per gallon) to get Phosphorus in units of kg/month. Then add all monthly values from the first month in the effective period to the end date of the reporting period. For example, if the 'effective period' is Jan-Dec and the reporting period ends June 30th, add the monthly values from January through June and report that value as the Calendar Year to Date Total.

3. Sampling Location

3.1 Samples for Station SD006 shall be taken at a point representative of the total facility discharge. (")

3.2 Samples and measurements required by this permit shall be representative of the monitored activity.

4. Surface Discharges

4.1 Floating solids or visible foam shall not be discharged in other than trace amounts.

4.2 Oil or other substances shall not be discharged in amounts that create a visible color film.

4.3 The Permittee shall install and maintain outlet protection measures at the discharge stations to prevent erosion.

Chapter 6. Surface Discharge Stations

5. Winter Sampling Conditions

5.1 The Permittee shall sample flows at the designated monitoring stations including when this requires removing ice to sample the water. If the station is completely frozen throughout a designated sampling month, the Permittee shall check the "No Discharge" box on the Discharge Monitoring Report (DMR) and note the ice conditions in Comments on the DMR.

6. Whole Effluent Toxicity Requirement Definitions

6.1 "Chronic Whole Effluent Toxicity (WET) Test is a static renewal test conducted on an exponentially diluted series of effluent. The purpose is to calculate appropriate biological effect endpoints (NOEC/LOEC or IC25), specified in the referenced chronic manual. A statistical effect level less than or equal to the Receiving Water Concentration (RWC) constitutes a positive test for chronic toxicity. The RWC equals the 10 percent effluent concentration or 10 TUc.

6.2 "Chronic toxic unit (TUc)" is the reciprocal of the effluent dilution that causes no unacceptable effect on the test organisms by the end of the chronic exposure period. For example, a TUc equals [7Q10flow (mgd) + effluent average dry weather flow (mgd)]/[effluent average dry weather flow (mgd)].

7. Priority Pollutants - Monitoring Requirements

7.1 The Permittee shall monitor the effluent three times in the life of the permit for the following specified priority pollutants. Sampling events shall not be less than one year apart.

Monitoring shall be for the organic priority pollutants identified under the volatile, acid, base/neutral, and pesticide fractions using EPA methods 624, 625 and 608 (40 CFR Part 136, October 25, 1984) as listed in Table II of 40 CFR Part 122, Appendix D.

The following priority pollutant total metals shall also be monitored using either EPA method 200.8 or their corresponding graphite furnace method found in Table IB of 40 CFR Part 136: antimony, arsenic, beryllium, cadmium, chromium, copper, lead, nickel, selenium, silver, thallium, and zinc. In addition, the Permittee shall monitor for Total Cyanide (EPA method 335), Total Phenolic Compounds (EPA method 420), and Hardness (total as CaCO3) (EPA method 130). Total Mercury shall be monitored by EPA method 1631, if not already required by the permit.

The sampling results shall be submitted to the MPCA within 30 days of completion of the analysis.

7.2 Submit the results of the first sampling event no later than three years prior to the expiration date of this permit.

7.3 Submit the results of the second sampling event no later than two years prior to the expiration date of this permit.

7.4 Submit the results of the third or final sampling event no later than one year prior to the expiration date of this permit.

8. Discharge Monitoring Reports

8.1 The Permittee shall submit monitoring results for discharges in accordance with the limits and monitoring requirements for this station. If no discharge occurred during the reporting period, the Permittee shall check the "No Discharge" box on the Discharge Monitoring Report (DMR).

Chapter 7. Waste Stream Stations

1. Requirements for Specific Stations

1.1 WS 001: Submit a monthly DMR by 21 days after the end of each calendar month following permit issuance.

Chapter 7. Waste Stream Stations

2. Sampling Location

2.1 Grab and composite samples shall be collected at a point representative of total influent flow to the system.

Chapter 8. Total Facility Requirements

1. General Requirements

General Requirements

1.1 Incorporation by Reference. The following applicable federal and state laws are incorporated by reference in this permit, are applicable to the Permittee, and are enforceable parts of this permit: 40 CFR pts. 122.41, 122.42, 136, 403 and 503; Minn. R. pts. 7001, 7041, 7045, 7050, 7052, 7053, 7060, and 7080; and Minn. Stat. Sec. 115 and 116.

1.2 Permittee Responsibility. The Permittee shall perform the actions or conduct the activity authorized by the permit in compliance with the conditions of the permit and, if required, in accordance with the plans and specifications approved by the Agency. (Minn. R. 7001.0150, subp. 3, item E)

1.3 Toxic Discharges Prohibited. Whether or not this permit includes effluent limitations for toxic pollutants, the Permittee shall not discharge a toxic pollutant except according to Code of Federal Regulations, Title 40, sections 400 to 460 and Minnesota Rules 7050, 7052, 7053 and any other applicable MPCA rules. (Minn. R. 7001.1090, subp.1, item A)

1.4 Nuisance Conditions Prohibited. The Permittee's discharge shall not cause any nuisance conditions including, but not limited to: floating solids, scum and visible oil film, acutely toxic conditions to aquatic life, or other adverse impact on the receiving water. (Minn. R. 7050.0210 subp. 2)

1.5 Property Rights. This permit does not convey a property right or an exclusive privilege. (Minn. R. 7001.0150, subp. 3, item C)

1.6 Liability Exemption. In issuing this permit, the state and the MPCA assume no responsibility for damage to persons, property, or the environment caused by the activities of the Permittee in the conduct of its actions, including those activities authorized, directed, or undertaken under this permit. To the extent the state and the MPCA may be liable for the activities of its employees, that liability is explicitly limited to that provided in the Tort Claims Act. (Minn. R. 7001.0150, subp. 3, item O)

1.7 The MPCA's issuance of this permit does not obligate the MPCA to enforce local laws, rules, or plans beyond what is authorized by Minnesota Statutes. (Minn. R. 7001.0150, subp.3, item D)

1.8 Liabilities. The MPCA's issuance of this permit does not release the Permittee from any liability, penalty or duty imposed by Minnesota or federal statutes or rules or local ordinances, except the obligation to obtain the permit. (Minn. R. 7001.0150, subp.3, item A)

1.9 The issuance of this permit does not prevent the future adoption by the MPCA of pollution control rules, standards, or orders more stringent than those now in existence and does not prevent the enforcement of these rules, standards, or orders against the Permittee. (Minn. R. 7001.0150, subp.3, item B)

1.10 Severability. The provisions of this permit are severable and, if any provisions of this permit or the application of any provision of this permit to any circumstance are held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby.

1.11 Compliance with Other Rules and Statutes. The Permittee shall comply with all applicable air quality, solid waste, and hazardous waste statutes and rules in the operation and maintenance of the facility.

Chapter 8. Total Facility Requirements

1. General Requirements

1.12 Inspection and Entry. When authorized by Minn. Stat. Sec. 115.04; 115B.17, subd. 4; and 116.091, and upon presentation of proper credentials, the agency, or an authorized employee or agent of the agency, shall be allowed by the Permittee to enter at reasonable times upon the property of the Permittee to examine and copy books, papers, records, or memoranda pertaining to the construction, modification, or operation of the facility covered by the permit or pertaining to the activity covered by the permit; and to conduct surveys and investigations, including sampling or monitoring, pertaining to the construction, modification, or operation of the facility covered by the permit or pertaining to the activity covered by the permit. (Minn. R. 7001.0150, subp.3, item I)

1.13 Control Users. The Permittee shall regulate the users of its wastewater treatment facility so as to prevent the introduction of pollutants or materials that may result in the inhibition or disruption of the conveyance system, treatment facility or processes, or disposal system that would contribute to the violation of the conditions of this permit or any federal, state or local law or regulation.

Sampling

1.14 Representative Sampling. Samples and measurements required by this permit shall be conducted as specified in this permit and shall be representative of the discharge or monitored activity. (40 CFR 122.41 (j)(1))

1.15 Additional Sampling. If the Permittee monitors more frequently than required, the results and the frequency of monitoring shall be reported on the Discharge Monitoring Report (DMR) or another MPCA-approved form for that reporting period. (Minn. R. 7001.1090, subp. 1, item E)

1.16 Certified Laboratory. A laboratory certified by the Minnesota Department of Health shall conduct analyses required by this permit. Analyses of dissolved oxygen, pH, temperature and total residual oxidants (chlorine, bromine) do not need to be completed by a certified laboratory but shall comply with manufacturers specifications for equipment calibration and use. (Minn. Stat. Sec. 144.97 through 144.98 and Minn. R. 4740.2010 and 4740.2050 through 4740.2120) (Minn. R. 4740.2010 and 4740.2050 through 2120)

1.17 Sample Preservation and Procedure. Sample preservation and test procedures for the analysis of pollutants shall conform to 40 CFR Part 136 and Minn. R. 7041.3200.

1.18 Equipment Calibration: Flow meters, pumps, flumes, lift stations or other flow monitoring equipment used for purposes of determining compliance with permit shall be checked and/or calibrated for accuracy at least twice annually. (Minn. R. 7001.0150, subp. 2, items B and C)

1.19 Maintain Records. The Permittee shall keep the records required by this permit for at least three years, including any calculations, original recordings from automatic monitoring instruments, and laboratory sheets. The Permittee shall extend these record retention periods upon request of the MPCA. The Permittee shall maintain records for each sample and measurement. The records shall include the following information (Minn. R. 7001.0150, subp. 2, item C):

a. The exact place, date, and time of the sample or measurement;

b. The date of analysis;

c. The name of the person who performed the sample collection, measurement, analysis, or calculation; and

d. The analytical techniques, procedures and methods used; and

e. The results of the analysis.

Chapter 8. Total Facility Requirements

1. General Requirements

1.20 Completing Reports. The Permittee shall submit the results of the required sampling and monitoring activities on the forms provided, specified, or approved by the MPCA. The information shall be recorded in the specified areas on those forms and in the units specified. (Minn. R. 7001.1090, subp. 1, item D; Minn. R. 7001.0150, subp. 2, item B)

Required forms may include:

DMR Supplemental Form
Individual values for each sample and measurement must be recorded on the DMR Supplemental Form which, if required, will be provided by the MPCA. DMR Supplemental Forms shall be submitted with the appropriate DMRs. You may design and use your own supplemental form; however it must be approved by the MPCA. Note: Required summary information MUST also be recorded on the DMR. Summary information that is submitted ONLY on the DMR Supplemental Form does not comply with the reporting requirements.

1.21 Submitting Reports. DMRs and DMR Supplemental Forms shall be submitted to:

MPCA
Attn: Discharge Monitoring Reports
520 Lafayette Road North
St. Paul, Minnesota 55155-4194.

DMRs and DMR Supplemental Forms shall be postmarked by the 21st day of the month following the sampling period or as otherwise specified in this permit. A DMR shall be submitted for each required station even if no discharge occurred during the reporting period. (Minn. R. 7001.0150, subps. 2.B and 3.H)

Other reports required by this permit shall be postmarked by the date specified in the permit to:

MPCA
Attn: WQ Submittals Center
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

1.22 Incomplete or Incorrect Reports. The Permittee shall immediately submit an amended report or DMR to the MPCA upon discovery by the Permittee or notification by the MPCA that it has submitted an incomplete or incorrect report or DMR. The amended report or DMR shall contain the missing or corrected data along with a cover letter explaining the circumstances of the incomplete or incorrect report. (Minn. R. 7001.0150 subp. 3, item G)

1.23 Required Signatures. All DMRs, forms, reports, and other documents submitted to the MPCA shall be signed by the Permittee or the duly authorized representative of the Permittee. Minn. R. 7001.0150, subp. 2, item D. The person or persons that sign the DMRs, forms, reports or other documents must certify that he or she understands and complies with the certification requirements of Minn. R. 7001.0070 and 7001.0540, including the penalties for submitting false information. Technical documents, such as design drawings and specifications and engineering studies required to be submitted as part of a permit application or by permit conditions, must be certified by a registered professional engineer. (Minn. R. 7001.0540)

Chapter 8. Total Facility Requirements

1. General Requirements

1.24 Detection Level. The Permittee shall report monitoring results below the reporting limit (RL) of a particular instrument as "<" the value of the RL. For example, if an instrument has a RL of 0.1 mg/L and a parameter is not detected at a value of 0.1 mg/L or greater, the concentration shall be reported as "<0.1 mg/L." "Non-detected," "undetected," "below detection limit," and "zero" are unacceptable reporting results, and are permit reporting violations. (Minn. R. 7001.0150, subp. 2, item B)

Where sample values are less than the level of detection and the permit requires reporting of an average, the Permittee shall calculate the average as follows:

a. If one or more values are greater than the level of detection, substitute zero for all nondetectable values to use in the average calculation.

b. If all values are below the level of detection, report the averages as "<" the corresponding level of detection.

c. Where one or more sample values are less than the level of detection, and the permit requires reporting of a mass, usually expressed as kg/day, the Permittee shall substitute zero for all nondetectable values. (Minn. R. 7001.0150, subp. 2, item B)

1.25 Records. The Permittee shall, when requested by the Agency, submit within a reasonable time the information and reports that are relevant to the control of pollution regarding the construction, modification, or operation of the facility covered by the permit or regarding the conduct of the activity covered by the permit. (Minn. R. 7001.0150, subp. 3, item H)

1.26 Confidential Information. Except for data determined to be confidential according to Minn. Stat. Sec. 116.075, subd. 2, all reports required by this permit shall be available for public inspection. Effluent data shall not be considered confidential. To request the Agency maintain data as confidential, the Permittee must follow Minn. R. 7000.1300.

Noncompliance and Enforcement

1.27 Subject to Enforcement Action and Penalties. Noncompliance with a term or condition of this permit subjects the Permittee to penalties provided by federal and state law set forth in section 309 of the Clean Water Act; United States Code, title 33, section 1319, as amended; and in Minn. Stat. Sec. 115.071 and 116.072, including monetary penalties, imprisonment, or both. (Minn. R. 7001.1090, subp. 1, item B)

1.28 Criminal Activity. The Permittee may not knowingly make a false statement, representation, or certification in a record or other document submitted to the Agency. A person who falsifies a report or document submitted to the Agency, or tampers with, or knowingly renders inaccurate a monitoring device or method required to be maintained under this permit is subject to criminal and civil penalties provided by federal and state law. (Minn. R. 7001.0150, subp.3, item G., 7001.1090, subps. 1, items G and H and Minn. Stat. Sec. 609.671)

1.29 Noncompliance Defense. It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. (40 CFR 122.41(c))

1.30 Effluent Violations. If sampling by the Permittee indicates a violation of any discharge limitation specified in this permit, the Permittee shall immediately make every effort to verify the violation by collecting additional samples, if appropriate, investigate the cause of the violation, and take action to prevent future violations. Violations that are determined to pose a threat to human health or a drinking water supply, or represent a significant risk to the environment shall be immediately reported to the Minnesota Department of Public Safety Duty Officer at 1(800)422-0798 (toll free) or (651)649-5451 (metro area). In addition, you may also contact the MPCA during business hours. Otherwise the violations and the results of any additional sampling shall be recorded on the next appropriate DMR or report.

Chapter 8. Total Facility Requirements

1. General Requirements

1.31 Unauthorized Releases of Wastewater Prohibited. Except for conditions specifically described in Minn. R. 7001.1090, subp. 1, items J and K, all unauthorized bypasses, overflows, discharges, spills, or other releases of wastewater or materials to the environment, whether intentional or not, are prohibited. However, the MPCA will consider the Permittee's compliance with permit requirements, frequency of release, quantity, type, location, and other relevant factors when determining appropriate action. (40 CFR 122.41 and Minn. Stat. Sec 115.061)

1.32 Discovery of a release. Upon discovery of a release, the Permittee shall:

a. Take all reasonable steps to immediately end the release.

b. Notify the Minnesota Department of Public Safety Duty Officer at 1(800)422-0798 (toll free) or (651)649-5451 (metro area) immediately upon discovery of the release. In addition, you may also contact the MPCA during business hours at 1(800) 657-3864.

c. Recover as rapidly and as thoroughly as possible all substances and materials released or immediately take other action as may be reasonably possible to minimize or abate pollution to waters of the state or potential impacts to human health caused thereby. If the released materials or substances cannot be immediately or completely recovered, the Permittee shall contact the MPCA. If directed by the MPCA, the Permittee shall consult with other local, state or federal agencies (such as the Minnesota Department of Natural Resources and/or the Wetland Conservation Act authority) for implementation of additional clean-up or remediation activities in wetland or other sensitive areas.

d. Collect representative samples of the release. The Permittee shall sample the release for parameters of concern immediately following discovery of the release. The Permittee may contact the MPCA during business hours to discuss the sampling parameters and protocol. In addition, Fecal Coliform Bacteria samples shall be collected where it is determined by the Permittee that the release contains or may contain sewage. If the release cannot be immediately stopped, the Permittee shall consult with MPCA regarding additional sampling requirements. Samples shall be collected at least, but not limited to, two times per week for as long as the release continues.

e. Submit the sampling results as directed by the MPCA. At a minimum, the results shall be submitted to the MPCA with the next DMR.

1.33 Upset Defense. In the event of temporary noncompliance by the Permittee with an applicable effluent limitation resulting from an upset at the Permittee's facility due to factors beyond the control of the Permittee, the Permittee has an affirmative defense to an enforcement action brought by the Agency as a result of the noncompliance if the Permittee demonstrates by a preponderance of competent evidence:

a. The specific cause of the upset;

b. That the upset was unintentional;

c. That the upset resulted from factors beyond the reasonable control of the Permittee and did not result from operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventative maintenance, or increases in production which are beyond the design capability of the treatment facilities;

d. That at the time of the upset the facility was being properly operated;

e. That the Permittee properly notified the Commissioner of the upset in accordance with Minn. R. 7001.1090, subp. 1, item I; and

f. That the Permittee implemented the remedial measures required by Minn. R. 7001.0150, subp. 3, item J.

Chapter 8. Total Facility Requirements

1. General Requirements

Operation and Maintenance

1.34 The Permittee shall at all times properly operate and maintain the facilities and systems of treatment and control, and the appurtenances related to them which are installed or used by the Permittee to achieve compliance with the conditions of the permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. The Permittee shall install and maintain appropriate backup or auxiliary facilities if they are necessary to achieve compliance with the conditions of the permit and, for all permits other than hazardous waste facility permits, if these backup or auxiliary facilities are technically and economically feasible Minn. R. 7001.0150. subp. 3, item F.

1.35 In the event of a reduction or loss of effective treatment of wastewater at the facility, the Permittee shall control production or curtail its discharges to the extent necessary to maintain compliance with the terms and conditions of this permit. The Permittee shall continue this control or curtailment until the wastewater treatment facility has been restored or until an alternative method of treatment is provided. (Minn. R. 7001.1090, subp. 1, item C)

1.36 Solids Management. The Permittee shall properly store, transport, and dispose of biosolids, septage, sediments, residual solids, filter backwash, screenings, oil, grease, and other substances so that pollutants do not enter surface waters or ground waters of the state. Solids should be disposed of in accordance with local, state and federal requirements. (40 CFR 503 and Minn. R. 7041 and applicable federal and state solid waste rules)

1.37 Scheduled Maintenance. The Permittee shall schedule maintenance of the treatment works during non-critical water quality periods to prevent degradation of water quality, except where emergency maintenance is required to prevent a condition that would be detrimental to water quality or human health. (Minn. R. 7001.0150. subp. 3, item F and Minn. R. 7001.0150. subp. 2, item B)

1.38 Control Tests. In-plant control tests shall be conducted at a frequency adequate to ensure compliance with the conditions of this permit. (Minn. R. 7001.0150. subp. 3, item F and Minn. R. 7001.0150. subp. 2, item B)

Changes to the Facility or Permit

1.39 Permit Modifications. No person required by statute or rule to obtain a permit may construct, install, modify, or operate the facility to be permitted, nor shall a person commence an activity for which a permit is required by statute or rule until the Agency has issued a written permit for the facility or activity. (Minn. R. 7001.0030)

Permittees that propose to make a change to the facility or discharge that requires a permit modification must follow Minn. R. 7001.0190. If the Permittee cannot determine whether a permit modification is needed, the Permittee must contact the MPCA prior to any action. It is recommended that the application for permit modification be submitted to the MPCA at least 180 days prior to the planned change.

1.40 Construction. No construction shall begin until the Permittee receives written approval of plans and specifications from the MPCA (Minn. Stat. Sec. 115.03(f)).

Plans, specifications and MPCA approval are not necessary when maintenance dictates the need for installation of new equipment, provided the equipment is the same design size and has the same design intent. For instance, a broken pipe, lift station pump, aerator, or blower can be replaced with the same design-sized equipment without MPCA approval.

If the proposed construction is not expressly authorized by this permit, it may require a permit modification. If the construction project requires an Environmental Assessment Worksheet under Minn. R. 4410, no construction shall begin until a negative declaration is issued and all approvals are received or implemented.

Chapter 8. Total Facility Requirements

1. General Requirements

1.41 Report Changes. The Permittee shall give advance notice as soon as possible to the MPCA of any substantial changes in operational procedures, activities that may alter the nature or frequency of the discharge, and/or material factors that may affect compliance with the conditions of this permit. (Minn. R. 7001.0150, subp. 3, item M)

1.42 Chemical Additives. The Permittee shall receive prior written approval from the MPCA before increasing the use of a chemical additive authorized by this permit, or using a chemical additive not authorized by this permit, in quantities or concentrations that have the potential to change the characteristics, nature and/or quality of the discharge.

The Permittee shall request approval for an increased or new use of a chemical additive at least 60 days, or as soon as possible, before the proposed increased or new use.

This written request shall include at least the following information for the proposed additive:

a. The process for which the additive will be used;
b. Material Safety Data Sheet (MSDS) which shall include aquatic toxicity, human health, and environmental fate information for the proposed additive;
c. A complete product use and instruction label;
d. The commercial and chemical names and Chemical Abstract Survey (CAS) number for all ingredients in the additive (If the MSDS does not include information on chemical composition, including percentages for each ingredient totaling to 100%, the Permittee shall contact the supplier to have this information provided); and
e. The proposed method of application, application frequency, concentration, and daily average and maximum rates of use.

Upon review of the information submitted regarding the proposed chemical additive, the MPCA may require additional information be submitted for consideration. This permit may be modified to restrict the use or discharge of a chemical additive and include additional influent and effluent monitoring requirements.

Approval for the use of an additive shall not justify the exceedance of any effluent limitation nor shall it be used as a defense against pollutant levels in the discharge causing or contributing to the violation of a water quality standard. (Minn. R. 7001.0170)

1.43 MPCA Initiated Permit Modification, Suspension, or Revocation. The MPCA may modify or revoke and reissue this permit pursuant to Minn. R. 7001.0170. The MPCA may revoke without reissuance this permit pursuant to Minn. R. 7001.0180.

1.44 TMDL Impacts. Facilities that discharge to an impaired surface water, watershed or drainage basin may be required to comply with additional permits or permit requirements, including additional restriction or relaxation of limits and monitoring as authorized by the CWA 303(d)(4)(A) and 40 CFR 122.44.l.2.i., necessary to ensure consistency with the assumptions and requirements of any applicable US EPA approved wasteload allocations resulting from Total Maximum Daily Load (TMDL) studies.

1.45 Permit Transfer. The permit is not transferable to any person without the express written approval of the Agency after compliance with the requirements of Minn. R. 7001.0190. A person to whom the permit has been transferred shall comply with the conditions of the permit. (Minn. R., 7001.0150, subp. 3, item N)

Chapter 8. Total Facility Requirements

1. General Requirements

1.46 Facility Closure. The Permittee is responsible for closure and postclosure care of the facility. The Permittee shall notify the MPCA of a significant reduction or cessation of the activities described in this permit at least 180 days before the reduction or cessation. The MPCA may require the Permittee to provide to the MPCA a facility Closure Plan for approval.

Facility closure that could result in a potential long-term water quality concern, such as the ongoing discharge of wastewater to surface or ground water, may require a permit modification or reissuance.

The MPCA may require the Permittee to establish and maintain financial assurance to ensure performance of certain obligations under this permit, including closure, postclosure care and remedial action at the facility. If financial assurance is required, the amount and type of financial assurance, and proposed modifications to previously MPCA-approved financial assurance, shall be approved by the MPCA. (Minn. Stat. Sec. 116.07, subd. 4)

1.47 Permit Reissuance. If the Permittee desires to continue permit coverage beyond the date of permit expiration, the Permittee shall submit an application for reissuance at least 180 days before permit expiration. If the Permittee does not intend to continue the activities authorized by this permit after the expiration date of this permit, the Permittee shall notify the MPCA in writing at least 180 days before permit expiration.

If the Permittee has submitted a timely application for permit reissuance, the Permittee may continue to conduct the activities authorized by this permit, in compliance with the requirements of this permit, until the MPCA takes final action on the application, unless the MPCA determines any of the following (Minn. R. 7001.0040 and 7001.0160):

a. The Permittee is not in substantial compliance with the requirements of this permit, or with a stipulation agreement or compliance schedule designed to bring the Permittee into compliance with this permit;

b. The MPCA, as a result of an action or failure to act by the Permittee, has been unable to take final action on the application on or before the expiration date of the permit;

c. The Permittee has submitted an application with major deficiencies or has failed to properly supplement the application in a timely manner after being informed of deficiencies.

Chapter 9. Special Requirements

1. Special Requirements

Pre-Total Maximum Daily Load (TMDL) Phosphorus Trading

1.1 The Permittee and the Minnesota Department of Transportation (MnDOT) have entered into a Trade Agreement (agreement). The SD 006 (Total Facility Discharge) limits and monitoring reflects the May 5, 2011 phosphorus trade agreement. The limit applies for the duration of the agreement. At the end of the term of the agreement, the permit limit will increase to 7,184 kg/year to restore the limit amount that was reduced during the duration of the trade. The agreement may be renewed for an additional time period in compliance with applicable regulations. The MPCA recommends an agreement term to coincide with the NPDES/SDS permit term and the ability to amend this agreement should either party require it.

1.2 Should the Permittee decide to terminate the agreement prior to the end of the term of the agreement, the Permittee shall notify the buyer and the MPCA 180 days prior to the termination of the agreement to allow time for the buyer to secure a new agreement.

Submittals and Actions Checklist
Northfield WWTP

This checklist is intended to assist you in tracking the reporting requirements of your permit. However, it is only an aid. PLEASE CONSULT YOUR PERMIT FOR THE EXACT REQUIREMENTS.

Please note: This checklist only details submittal requirements for the next five years. DMRs, Annual Reports, and many other submittals are required even after the expiration date of this permit, and continue to be due until the permit is either reissued or terminated.

Submit DMRs to:
Attention: Discharge Monitoring Reports
Minnesota Pollution Control Agency
520 Lafayette Rd N
St. Paul, MN 55155

Submit other WQ reports to:
Attention: Submittals Center
Minnesota Pollution Control Agency
520 Lafayette Rd N
St. Paul, MN 55155

MPCA Staff Contacts:
For DMR-related questions:
Jennifer Satnik at (651)757-2692
For other questions:
Eric Pederson at (651)757-2645

2011

- [ ] Submit DMR (due before Sep 22)
- [ ] Submit DMR (due before Oct 22)
- [ ] Final Delegated Pretreatment Program Development Submittal (due before Nov 19) {Permit Req't. 3.2.1}
- [ ] Submit DMR (due before Nov 22)
- [ ] Submit DMR (due before Dec 22)

2012

- [ ] Submit DMR (due before Jan 22)
- [ ] Submit DMR (due before Feb 22)
- [ ] Submit DMR (due before Mar 22)
- [ ] Submit DMR (due before Apr 22)
- [ ] Submit DMR (due before May 22)
- [ ] Submit DMR (due before Jun 22)
- [ ] Submit DMR (due before Jul 22)
- [ ] Submit DMR (due before Aug 22)
- [ ] Submit DMR (due before Sep 22)
- [ ] Submit DMR (due before Oct 22)
- [ ] Submit the results of the first priority pollutant sampling event (due before Oct 30) {Permit Req't. 6.7.2}
- [ ] Submit DMR (due before Nov 22)
- [ ] Submit DMR (due before Dec 22)

2013

- [ ] Submit DMR (due before Jan 22)
- [ ] Submit DMR (due before Feb 22)
- [ ] Submit DMR (due before Mar 22)
- [ ] Submit DMR (due before Apr 22)
- [ ] Submit DMR (due before May 22)
- [ ] Submit DMR (due before Jun 22)
- [ ] Submit DMR (due before Jul 22)
- [ ] Submit DMR (due before Aug 22)
- [ ] Submit DMR (due before Sep 22)
- [ ] Submit DMR (due before Oct 22)
- [ ] Submit the results of the second priority pollutant sampling event (due before Oct 30) {Permit Req't. 6.7.3}
- [ ] Submit DMR (due before Nov 22)
- [ ] Submit DMR (due before Dec 22)

2014

- [ ] Submit DMR (due before Jan 22)
- [ ] Submit DMR (due before Feb 22)
- [ ] Submit DMR (due before Mar 22)
- [ ] Submit DMR (due before Apr 22)
- [ ] Submit DMR (due before May 22)
- [ ] Submit DMR (due before Jun 22)
- [ ] Submit DMR (due before Jul 22)
- [ ] Submit DMR (due before Aug 22)

Submittals and Actions Checklist
Northfield WWTP

This checklist is intended to assist you in tracking the reporting requirements of your permit. However, it is only an aid. PLEASE CONSULT YOUR PERMIT FOR THE EXACT REQUIREMENTS.

Please note: This checklist only details submittal requirements for the next five years. DMRs, Annual Reports, and many other submittals are required even after the expiration date of this permit, and continue to be due until the permit is either reissued or terminated.

Submit DMRs to:
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Minnesota Pollution Control Agency
520 Lafayette Rd N
St. Paul, MN 55155

Submit other WQ reports to:
Attention: Submittals Center
Minnesota Pollution Control Agency
520 Lafayette Rd N
St. Paul, MN 55155

MPCA Staff Contacts:
For DMR-related questions:
Jennifer Satnik at (651)757-2692
For other questions:
Eric Pederson at (651)757-2645

2014

- [ ] Submit DMR (due before Sep 22)
- [ ] Submit DMR (due before Oct 22)
- [ ] Submit the results of the third priority pollutant sampling event (due before Oct 30) {Permit Req't. 6.7.4}
- [ ] Submit DMR (due before Nov 22)
- [ ] Submit DMR (due before Dec 22)

2015

- [ ] Submit DMR (due before Jan 22)
- [ ] Submit DMR (due before Feb 22)
- [ ] Submit DMR (due before Mar 22)
- [ ] Submit DMR (due before Apr 22)
- [ ] Submit an application for permit reissuance (due before May 4) {Permit Req't. 8.1.4.7}
- [ ] Submit DMR (due before May 22)
- [ ] Submit DMR (due before Jun 22)
- [ ] Submit DMR (due before Jul 22)
- [ ] Submit DMR (due before Aug 22)
- [ ] Submit DMR (due before Sep 22)
- [ ] Submit DMR (due before Oct 22)

APPENDIX B

Agreements

- City of Dundas Agreement
- SIU Agreements

Revised Wastewater Treatment Agreement
(Revised 04/09/2001)

This Revised Wastewater Treatment Agreement is dated as of _____ 2001; is by and between the City of Dundas, Minnesota, and the City of Northfield, Minnesota; replaces in its entirety that certain Wastewater Treatment Agreement previously signed by the parties and dated as of May 6, 1996; and provides as follows:

Section 1. Recitals.

(a) Northfield owns and operates its wastewater treatment facility and has established and revises from time to time rates charged to the users thereof.

(b) Dundas has installed a wastewater collection system within its corporate limits for discharge into Northfield's treatment facility, and Northfield is willing to provide such treatment services upon the terms provided in this Agreement.

(c) Dundas and Northfield have entered into previous agreements and are entering into this Agreement as a joint and cooperative exercise of powers agreement pursuant to Minnesota law, including Minnesota Statutes, Section 471.59 and Section 444.075, Subdivision 5, provided that this Agreement shall replace in its entirety any previous agreements relating to the same subject matter.

(d) Dundas and Northfield are authorized by Minnesota Statutes, Section 444.075, to own and operate wastewater facilities and they acknowledge and agree that this Agreement shall, in accordance with its terms, involve the exercise of certain powers, rights, remedies, or interests outside of their respective territorial limits, as authorized by Minnesota Statutes, Section 471.59.

(e) It is the intent of the parties in entering into this Agreement to cooperate in the area of wastewater treatment, upon the terms and conditions provided herein.

(f) Dundas acknowledges that it is familiar with the terms of the Northfield Ordinances, including the provision in Section 1410:00 of the Northfield City Code specifying that Northfield's Wastewater Disposal Ordinance shall apply to all persons outside Northfield that are, by contract or agreement, users of the WWTF. Notwithstanding the foregoing, it is agreed by the Parties hereto that Dundas shall not be deemed a "significant industrial user" within the meaning of the Northfield Ordinances.

Section 2. Definitions; Rules of Interpretation. As used in this Agreement, unless the context clearly requires otherwise, the following terms have the following meanings, respectively:

"Agreement" means this Revised Wastewater Treatment Agreement, as the same may be amended or supplemented.

"Basic Rate" means, for each basis upon which users of the WWTF are currently or may hereafter be charged, the applicable rate, as that rate may be amended from time to time by resolution of the Northfield City Council, and including any future basis or change in basis upon which such charges may be made. Pursuant to Resolution #2001-010, adopted by the Northfield City Council on January 2, 2001, the current Basic Rates under this Agreement are $1.95/100 cubic feet for volume of effluent (domestic user rate), $0.50/lb. for BOD, and $0.43/lb. for SS.

"BOD" means biochemical oxygen demand, as further described in the Northfield Ordinances.

"Daily Limit" refers to one or more of : (1) The gallons per day (GPD) of flow; (2) The pounds per day of biochemical oxygen demand (BOD), and/or (3) The pounds per day of suspended solids (SS) which are allocated to Dundas under this Agreement or any future modification hereof. Gallons per day of flow shall be measured against average daily flow and not against average wet

weather flow.

"DCS Service Area" means properties within the city limits of Dundas.

"Dundas" means the City of Dundas, Minnesota.

"Dundas Collection System" or "DCS" means the wastewater collection system installed or to be installed by Dundas for the DCS Service Area as further described in Section 5.

"Dundas Ordinances" means the wastewater disposal ordinance or ordinances adopted or to be adopted by Dundas as a condition to connection of the DCS to the WWTF, as further described in Section 7.

"GPD" means gallons per day.

"Interceptor Extension" means the extension of the WWTF interceptor necessary to allow connection of the DCS to the WWTF, as further described in Section 8.

"Metering/Sampling Station" or "M/S Station" means the facility (including all equipment and other components thereof) installed by Dundas at the point of connection of the DCS to the WWTF, as further described in Section 6.

"Monthly Limit" means the actual number of days in each particular month times the GPD, BOD and/or SS allocations allotted to Dundas under this Agreement or any future modification hereof.

"Northfield Ordinances" means the Northfield ordinances, resolutions, and policies, as the same may be in effect, amended, or supplemented from time to time (including without limitation the Wastewater Disposal Ordinance in Section 1400 of the Northfield City Code) regulating the discharge of sewage and addressing other matters respecting the operation, availability, rates and charges for, and use of the WWTF.

"Party" means Dundas or Northfield, and "Parties" means both.

"SS" means suspended solids, as further described in the Northfield Ordinances.

"WWTF" means Northfield's wastewater treatment facility, including the Interceptor Extension and existing interceptors.

Except where the context clearly requires otherwise or a different meaning is provided herein, (1) each definition or abbreviation herein shall have the same meanings as in the Northfield Ordinances, (2) reflexive terms such as "herein," "hereof," and "hereunder" refer to this Agreement, (3) "current" and "currently" refer to the date hereof provided above, and "then-current" means as applicable or in effect at any particular time (whether or not different than at any other time) and (4) any otherwise unidentified reference to a particular Section is a reference to that Section hereof.

The word "shall" is mandatory, denoting an obligation. The word "may" is permissive and, for example, does not and shall not be interpreted to denote or imply any obligation to exercise any such permissive right reserved to either Party. The word "including" shall be interpreted as though the phrase "including without limitation" appeared in its stead.

Provisions hereof referring to or specifying compliance with "applicable law" include without limitation all applicable state and federal laws, regulations, rulings, agency or other administrative rules, permits, and directives, court decisions, and all applicable ordinances of the Parties, including the Northfield Ordinances; and all changes to or supplements of applicable law shall upon their date of effect be deemed an amendment hereof.

Section 3. Connection to WWTF; Basic Terms.

(a) Connection to WWTF. Dundas and Northfield agree that the Dundas Collection System has been and shall remain connected to the WWTF upon satisfaction of the following

conditions precedent and in accordance with the other terms of this Agreement:

(1) Dundas has completed the DCS and the Metering/Sampling Station and obtained financing for the costs thereof, and the Interceptor Extension has been completed in accordance with Section 8. The DCS (or the portion thereof at the time so completed) and the M/S Station are operable as planned and suitable for connection to the WWTF. Dundas residential and business owners shall connect to the collection system as they are accepted by the City of Dundas. The City of Northfield has the right to review construction plans and specifications to assure that all serviceable areas of the City of Dundas will be served by any current or future construction contract.

(2) Dundas has adopted the Dundas Ordinances and established rates to be charged to the domestic, commercial, industrial, and other users of the DCS, all in compliance with applicable law.

(3) Dundas has paid to Northfield the connection charges described in Section 9.

(4) Dundas is and at all times shall be in compliance with the terms of this Agreement.

(5) Northfield has received from Dundas a construction schedule, which was acceptable to Northfield and in compliance herewith, for the connection of users to the DCS.

(6) Each Party delivered to the other a certified copy of a resolution of its governing body, in form and of substance acceptable to the other Party, authorizing the execution and delivery of the previous agreement and of this Agreement.

(b) Basic Terms.

(1) During the continuation of any Event of Default by Dundas (as described in Section 10), and at any other times that a reasonable basis exists therefor, Northfield may undertake inspection of users of the DCS and such enforcement measures against said users as may be allowed under any provision of the Northfield Ordinances and/or this Agreement. Northfield shall notify Dundas before

it undertakes any inspection of users of the DCS or imposes any enforcement measures against said users. Dundas shall cooperate with Northfield in identifying and remedying any violation of this Agreement or of Northfield Ordinances, by any user of the DCS.

(2) Dundas shall not permit and shall prevent, and the Dundas Ordinances shall expressly prohibit, the discharge into the DCS of slug loads or any other materials or substances, or concentrations thereof, or other effluents which violate applicable law (including the Northfield Ordinances), which cause a substantial adverse impact on the WWTF, or which present a substantial health or safety risk. Northfield may inspect or test for such conditions and may stop all effluent of the DCS from entering the WWTF in order to prevent such prohibited conditions to exist therein. Provided however that Northfield may not stop or refuse effluents of the DCS without first giving reasonable notice to Dundas of the intent to cease acceptance and treatment of effluents from the DCS and the reason therefor. Any refusal to accept and treat effluents from the DCS shall be for as short a period of time as possible, to give Dundas the opportunity to identify the source of any prohibited substances, and to give the parties the opportunity to mutually agree on how to resolve the problem with any such prohibited effluents. Acceptance and treatment of effluents from the DCS shall resume as soon as possible after any cessation. All fines, penalties, additional treatment or repair costs, and other consequential costs resulting from such prohibited conditions shall be paid by Dundas, and Northfield shall have no responsibility therefor, and Dundas shall defend, indemnify and hold Northfield harmless against any and all expense or liability therefrom, including without limitation any liability, loss, or other cost arising from Northfield's cessation of acceptance and treatment of effluent from the DCS. Dundas shall pay all such fines, penalties, costs, expenses, liability and loss which are duly established by accurate analytical testing by the City of Northfield,

without regard to the potential liability of any third party therefor, provided that Northfield shall cooperate in any action taken by Dundas against such third party to recover amounts lawfully owing by such third party.

(3) Nothing in this Agreement shall interfere with, limit, or otherwise proscribe or affect the discretion of Northfield respecting its ownership, maintenance, operation, or governance of the WWTF, including without limitation the right to amend the Northfield Ordinances or to revise rates to users of the WWTF.

The rights in the WWTF granted to Dundas hereunder are connection and use rights, and Dundas shall have no incidents of ownership of the WWTF; similarly, the DCS and the M/S Station shall be and remain the property of Dundas, subject to Northfield's non-ownership rights and interests therein provided hereunder.

Section 4. Capacity Allocations; Rates; Billing; Covenants.

(a) Capacity Allocations. Dundas acknowledges that the WWTF is subject to flow, load, and other limitations due to a variety of factors, including plant size and capacities and current or future federal and state laws and regulations and the Northfield Ordinances, and Dundas recognizes that Northfield's willingness to enter into this Agreement is in recognition of Northfield's primary responsibility to meet its own present and future wastewater treatment needs and, accordingly, is premised on an allocation to Dundas of not more than 4.6% of all such flow, load, and other limitations on the WWTF, as provided in Appendix A attached hereto and incorporated by reference herein.

When and if the capacities of the WWTF are changed, as determined by the design engineer for the WWTF and approved by the Minnesota Pollution Control Agency, Dundas' share of the

changed capacities shall continue to be 4.6% unless the Parties agree otherwise. Dundas shall also be limited to 4.6% of the WWTF influent loading capacity for all substances including, but not limited to, nutrients, heavy metals, chemicals, pesticides and herbicides that are currently or in the future limited by local, county, state, or federal regulation.

To ensure clarity of the intent more generally provided herein, the Parties agree that there is allocated to Dundas 4.6% of the WWTF capacity with respect to all regulated loads. Dundas shall be subject to a 4.6% allocation of any limitation to which the WWTF is now, or may hereafter, become subject. Changes in load and flow limitations, allocations thereof, and Basic Rates shall take effect hereunder 60 days after Northfield gives Dundas written notice thereof.

The City of Dundas shall have the right to request additional flows under this Agreement when flows from the DCS reach 70% of 239,200 gallons per day (AWW). The request must be made in writing. Northfield agrees to negotiate in good faith Dundas' request for additional flows. If an agreement cannot be reached, both parties agree to submit the issue to good faith non-binding mediation.

If the Minnesota Pollution Control Agency (PCA), or other state agency, limits or restricts future extensions or additions to the WWTF, then any such restriction or limitation shall be imposed first upon additional connections or extensions in the City of Northfield, until such time as Dundas has reached 50% of its capacity allocation.

(b) Rates. The Parties recognize that excess and peak wastewater loads present capacity and treatment difficulties, and the Parties agree that observance of the above allocation limits shall be addressed in part through the following rate structure:

(1) Dundas shall pay 86% of the Northfield domestic user Basic Rate (currently $1.95/100

cubic feet) for each gallon of effluent within the monthly limit and 3 times 86% of the Basic Rate for each gallon in excess thereof. This rate shall be reviewed from time to time and adjusted if necessary to accurately reflect a fair price for the services rendered.

(2) Dundas shall pay 3 times the Basic Rate for BOD and SS (as of 04/09/2001, those Basic Rates are $ 0.50 and $0.43 per pound, respectively) for volumes thereof which exceed the applicable monthly limit.

(3) Metering and sampling shall be performed as provided in Appendix A and in Section 6 of this agreement. Monthly effluent, BOD and SS volumes shall be determined by averaging all 24-hour composite samples taken by Northfield, as provided in Section 6(b). The average concentration of the composite samples analyzed during each month, and the average daily flow for the month, shall be utilized to calculate the monthly discharge for the month.

(4) For any day in which the volume of effluent, BOD, or SS exceeds 150% of the respective allocations provided in Appendix A, Dundas shall pay an amount equal to the product obtained by multiplying (i) the volume of the excess by (ii) 2 times the applicable Basic Rate. These charges shall be in addition to the charges provided in (b)1 and (b)2 of this Section above.

(5) There shall be no charges for BOD or SS except those provided in (b)2 and (b)4 of this Section above, or except as provided in Appendix A.

(c) Billing. Rate charges and all other costs, fines, penalties, or other amounts payable by Dundas to Northfield hereunder (collectively, the "Charges") shall be billed to Dundas approximately 30 days after the end of each month, shall be due and payable within 30 days of billing, and shall be subject to a late payment charge of 1.5% for each month or portion thereof overdue. Each bill or charge sent from Northfield to Dundas shall include written or documentary

evidence of all flows, and all analytical testing for BOD, SS, and other regulated loads, upon which Northfield computed or calculated the charge.

The rate charges shall be calculated on the applicable data from the Metering/Sampling Station, except that for each day that the M/S Station is malfunctioning, inoperative, or otherwise not yielding sufficient or reliable data for billing purposes, the flows and loads for that day, for purposes of calculating the corresponding Charges, shall be deemed to equal the average of the daily flows and loads of the preceding 2 calendar months.

Northfield shall provide Dundas with written notice of any change in the Basic Rates at least 60 days prior to the effective date of such change.

(d) Covenants Made by Dundas.

Dundas makes the following covenants for the benefit of Northfield:

(1) Dundas shall continue to own, maintain, and operate the DCS as a public utility and shall cause all revenue derived therefrom (the "Revenue") to be properly accounted for.

(2) Dundas shall impose and collect rates and charges, and revise the same as may be necessary from time to time, including those of the nature authorized by Minnesota Statutes, Section 444.075, at the times and in the amounts required to produce sufficient Revenue to pay, when due, the Charges in full and to operate and maintain the DCS and pay all other costs and expenses related thereto.

(3) Dundas shall keep and maintain proper and adequate books and records of account for the DCS.

(4) The payment to Northfield of the Charges shall and is hereby agreed to be a first and prior lien on the Revenue to the fullest extent permitted by applicable law, and Dundas shall not take or

cause to be taken, or suffer any event to occur or condition to exist the effect of which would be to impair said lien, its priority, or the security provided to Northfield thereby.

(5) Dundas shall promptly pay the Charges in full, when due. If Dundas has a dispute with Northfield as to the amount or propriety of any charges, then Dundas shall pay all charges which are not in dispute in full, and shall fully describe the nature of the dispute with respect to the balance of the charge. Disputed charges, or billings with respect to wastewater treatment, shall be submitted to binding arbitration as described in Section 11, within 30 days of the due date.

(6) If the Revenue and other moneys available to Dundas are ever insufficient to make timely and full payment to Northfield of the Charges, Dundas shall levy an ad valorem tax on all taxable property within Dundas in the amount of such deficiency and use the proceeds thereof to pay the Charges.

(7) For purposes of collecting any Charges which are more than 60 days overdue, Dundas hereby assigns to Northfield the right to bill to and collect additional user fees from users of the DCS and, in such events, to increase said rates to the extent necessary to do so, and to impose and collect connection charges, special assessments, or similar assessments and to take such other actions as may be permitted by applicable law.

(e) Covenants Made by Northfield.

For the benefit of Dundas, Northfield covenants that it shall at all times adequately maintain the WWTF in good operating condition. Northfield further covenants that in the event of a service shortage, users of the DCS will be serviced first, until such time as Dundas is using 50% of its allotted capacity. Thereafter, all existing users of the WWTF shall share proportionately in any reduction in service, and requests for extensions shall be granted in the order that any potential user

has applied to the Minnesota Pollution Control Agency for an extension permit.

Section 5. Dundas Collection System. Dundas shall construct, own, operate, and maintain the DCS in compliance with applicable law. The DCS shall serve only the properties within the Dundas city limits and Dundas shall not extend the DCS beyond those limits or otherwise cause or permit effluent arising from sources outside those limits to enter the DCS. Dundas reserves the right to annex additional property, which shall then be eligible for connection to the DCS, subject to Dundas's allocated capacities hereunder, provided that at the time Dundas receives any requests for annexation, Dundas shall submit to Northfield notice of such request, and provided that Dundas shall not extend the DCS into Northfield's urban expansion boundary.

Dundas shall notify Northfield when any proposed industrial user may require connection to or extension of the DCS. Notice shall be given to Northfield before any connection can be made to the DCS. Northfield shall have thirty (30) days after receipt of such notification to comment on the proposed industrial development. Dundas shall consider Northfield's comments prior to negotiating any development agreement with any proposed industrial user who wishes to connect to the DCS. Any industrial user development agreement shall be subject to this joint wastewater treatment agreement with the City of Northfield.

Dundas shall also notify Northfield of any application to the MPCA, for any industrial extension permit within the DCS. If an industrial user is subject to federal categorical limits, or is required by the MPCA to enter into an industrial user agreement with Dundas, then Dundas shall submit a copy of such industrial user agreement to Northfield for comment prior to final submission thereof to the MPCA. Dundas shall monitor compliance with any such industrial user agreement, and shall provide Northfield with copies of all documents relating to such monitoring activities upon

request.

The DCS shall extend to all present and future potential users as and where connection is feasible. The DCS shall not be a selective collection system otherwise targeted for a particular user, users, or class of users, but shall be a broad-based, generally available system for the entire DCS Service Area to the fullest extent possible. All existing and future units of every class shall be required by Dundas to connect to the DCS, where available and feasible from time to time.

Section 6. Metering/Sampling Station.

(a) Repair and Maintenance. At the point of connection of the DCS to the WWTF, Dundas shall at its own expense construct, equip, own, and establish a suitable maintenance program for and so maintain the Metering/Sampling Station, which shall be an enclosed, above-ground, walk-in structure; shall contain an automatic flow measuring device, a 24 hour composite sampler, and such other related or additional equipment as may be necessary to implement the terms of this Agreement, including the determinations of volume and composition of effluent; and shall be constructed and equipped in accordance with applicable law and with plans and specifications acceptable to and approved by Northfield.

Should Dundas fail to maintain the M/S Station to the reasonable satisfaction of Northfield in good repair, condition, and working order, Northfield may cause all necessary repairs or replacements to be made at Dundas' expense. Dundas shall be notified of any non-emergency repairs before repairs are done. Unless repairs must be made on an emergency basis, Northfield may not cause repairs or replacements to be made unless it has given Dundas advance notice, and Dundas has failed or refused to make the repair or replacement within a reasonable period of time.

Northfield shall keep the records and reports of the measuring and sampling equipment and shall provide copies thereof to Dundas' City Clerk or her/his designee with Northfield's monthly

billing statement to Dundas. The equipment shall be calibrated at least annually by the Parties jointly or by an independent consultant, and the costs shall be shared equally by the Parties. With prior notice to the other Party, either Party may at its own expense have the equipment calibrated. Both Parties shall have access to the M/S Station at any reasonable time.

(b) Sampling and Testing. Routine sampling and testing shall be done by Northfield at no direct cost to Dundas on a schedule determined by Northfield's Wastewater Superintendent or designee. Sampling and testing for BOD, SS, or other regulated loads, shall be made as indicated in Appendix A.

For purposes of determining monthly limits, sampling and testing shall be performed approximately weekly, with each sample date being at least 4 days from the next. Each month there shall be no fewer than 4, and no more than 7 samples which shall be tested for purposes of determining monthly limits.

For purposes of determining daily limits and charges, daily composite sampling and testing may be performed at any time, at the discretion of Northfield's Wastewater Superintendent or his designee.

Dundas may at any reasonable time, at its expense, and upon prior written notice to Northfield retain an independent consultant to perform such tests or measure effluent flows.

The Parties shall share the costs of performing any additional testing and sampling as may be required by state or federal agencies, except that Dundas shall pay the cost of all special testing arising out of problems with or concerns about Dundas' effluent.

In addition to other specific requirements hereof, each Party shall share all test or calibration results with the other Party upon request, and all records, accounts, and other documentation relating

to the WWTF, the DCS, the M/S Station, the Northfield Ordinances, or the Dundas Ordinances, or as may otherwise be reasonably relevant to this Agreement, shall be available for inspection by the Dundas City Clerk and the Northfield Wastewater Superintendent, or their designee(s), at any reasonable time. If any monthly charge to Dundas includes charges for BOD, SS, or other regulated loads which exceed the daily or monthly limit, then the bill must have attached to it a written explanation describing the manner in which the additional charge was calculated.

Section 7. Dundas Ordinances. Dundas has adopted and shall enforce wastewater disposal ordinances (collectively, the "Dundas Ordinances") which comply with applicable law and the requirements of this Agreement, and Dundas shall use its best efforts to amend the same from time to time as may be necessary to remain in such compliance. The Dundas Ordinances:

(a) shall prohibit the discharge into the DCS of any sewage, polluted water, or other effluent which is prohibited by applicable law (including the Northfield Ordinances);

(b) shall assure that new sewers and connections to the DCS are properly designed, constructed, and inspected;

(c) shall, to the fullest extent possible, except where to do so would clearly contravene or be inconsistent with the terms hereof, incorporate in full or by clear reference all of the terms, regulations, rights and obligations of the Northfield Ordinances and this Agreement and shall clearly authorize the rights reserved to Northfield hereunder, including rights herein to inspect, monitor, impose and collect rates, or require pretreatment within the DCS Service Area; and

(d) shall be no less stringent and regulatory than the Northfield Ordinances, including in such areas as the regulation of and/or required pretreatment by significant and other industrial users, permitting and monitoring, prohibited discharges and concentrations, and inspections.

Section 8. Interceptor Extension; Expansion of WWTF.

(a) In order to complete the connection of the DCS to the WWTF, it has been necessary to extend the WWTF interceptor from its terminus in Northfield at Riverview Drive to the Dundas/Northfield border. Both cities have worked together in obtaining the easements for the interceptor sanitary sewer and Dundas has completed this Interceptor Extension. Dundas has paid the costs of the Interceptor Extension. Northfield was required to impose special assessments and/or connection charges against properties in Northfield for the lateral benefit arising therefrom and to remit such payments to Dundas. Northfield has allowed connections to the said Interceptor Extension, and therefore, is now required to impose assessments or charges as to those connections for the purpose of reimbursing Dundas for the cost of said Interceptor Extension. In lieu thereof, and in lieu of the deferral of such payments by Northfield to Dundas until all of the subject properties in Northfield are developed, Northfield shall immediately upon approval of this Agreement pay to Dundas such amount as is indicated in the attached Appendix B, which shall be full and final settlement of Northfield's obligation to contribute to the cost of the Interceptor Extension described herein, as well as full and final settlement of the other matters contained in said Appendix B. Northfield shall have full and unrestricted rights and obligation to use, operate, and maintain the Interceptor Extension as a part of the WWTF, and Dundas shall have the use rights granted pursuant to this Agreement.

(b) If the WWTF is expanded, including lift stations, collection facilities, and all other improvements which benefit Dundas directly, Dundas shall pay Northfield such percentage of all costs which will not be funded by Northfield from grants or user fees, as equals Dundas' then-current allocation of treatment plan capacity hereunder (4.6% at this time). It is specifically understood and

agreed that user fees, present and future, will be used to pay for most expansions, improvements, and repairs to the WWTF, some of which will benefit one part of the system more than another, and some of which will benefit the system as a whole. Dundas shall have no obligation to pay for expansions, repairs, or improvements to the collection system which do not benefit Dundas.

Any increase in Northfield's user rate attributable to capital improvements made to the WWTF collection system which are not beneficial to Dundas, shall not be imposed upon Dundas or users of the DCS. When Northfield increases the user fee for Northfield residents, as a result of capital improvements, expansions, or repairs, Northfield shall notify Dundas of the proposed user fee increase, and shall verify to Dundas whether such user fee increase is due to improvements that benefit Dundas. If the user fee increase is for capital improvements which do not benefit Dundas, then Northfield shall recalculate (downward) the percentage of the Northfield domestic user basic rate which shall be paid by users of the DCS. Presently, under this agreement, Dundas pays 86% of the Northfield domestic user basic rate [see Section 4(b)(1)].

Section 9. Connection Charges. Dundas has paid Northfield $250,000 for connection of the DCS to the WWTF.

Section 10. Events of Default; Remedies. The following are Events of Default under this Agreement:

(a) Failure by either Party to pay in a full and timely manner amounts due and payable under this Agreement.

(b) Failure by either Party in a timely manner to substantially observe or perform any covenant, condition, obligation, or agreement on its part to be observed or performed under this Agreement.

An Event of Default shall also include any occurrence which with the passage of time or giving of notice would reasonably be expected to become an Event of Default as defined hereinabove.

Whenever any Event of Default occurs, in addition to all other remedies available to the non-defaulting Party at law or in equity or elsewhere in this Agreement, (1) the non-defaulting Party may suspend its performance under this Agreement until it receives assurances from the defaulting Party, deemed adequate by the non-defaulting Party, that the defaulting party has cured its default and will continue its performance under this Agreement or (2), may terminate this agreement in accordance with Section 13(c).

No remedy herein conferred upon or reserved to either Party is intended to be exclusive of any other available remedy or remedies, but each and every such remedy shall be cumulative and shall be in addition to every other remedy given under this Agreement or now or hereafter existing at law or in equity. No delay or omission to exercise any right or power accruing upon any default shall impair any such right or power or shall be construed to be a waiver thereof, but any such right and power may be exercised from time to time and as often as may be deemed expedient.

Should any provision of this Agreement be breached by either Party and thereafter waived by the other Party, such waiver shall be limited to the particular breach so waived and shall not be deemed to waive any other concurrent, previous, or subsequent breach hereunder.

Section 11. Good Faith; Dispute Resolution. Both Parties have endeavored to make this Agreement workable and fair and to anticipate and address changes which may occur over time. They recognize, however, that current assumptions and expectations may not be realized and that unforeseen circumstances may arise. Accordingly, they agree that if at any time either Party conveys

to the other Party in writing its concern that this Agreement may have become unworkable or inequitable in practice, the Parties shall meet in good faith and use their best efforts, which efforts may include mediation or other non-binding dispute resolution methods, to resolve the issues of concern by attempting to negotiate an amendment or supplement to this Agreement which is acceptable to each Party in its sole discretion.

In addition, should there arise between the Parties a dispute about the meaning or implementation of any of the specific terms hereof, or regarding any charge or billing for wastewater treatment, upon written request made by either Party to the other, the matter shall be submitted to binding arbitration in accordance with the rules of the American Arbitration Association; provided that the Parties agree that this right to arbitrate shall apply only to disagreements about the correct interpretation of the terms of this Agreement and regarding any charge or billing; the right to arbitrate shall not apply to any requested change in, amendment of or supplement to the terms of this Agreement. The parties shall share equally the cost of any such arbitration, subject to the right of either party to request an award of such costs from the other party on the ground that the dispute was raised for an improper purpose, such as to cause unnecessary delay or was otherwise frivolous or without a reasonable basis.

Section 12. Liabilities; Release and Indemnification Covenants.

(a) Nothing in this Section or this Agreement is intended or shall be interpreted to release liability or require indemnification with respect to acts of negligence, willful misrepresentation, or willful or wanton misconduct.

(b) All covenants, stipulations, promises, agreements, and obligations contained herein shall be deemed to be made by the applicable responsible Party and not by its governing body member,

officer, agent, servant, or employee.

(c) Dundas agrees that the obligations and covenants of Northfield hereunder are made to Dundas in Dundas' capacity as a city and not to any other public body or to the individual residents of Dundas or the potential users of the DCS and that, accordingly, the Parties agree that there are no third-party beneficiaries of the rights, obligations, covenants, and responsibilities of Northfield to Dundas hereunder, and no such party (other than Dundas) shall ever have the right to enforce performance by Northfield hereunder or to assert damage or loss as a liability of Northfield arising or allegedly arising because of Northfield's failure to discharge its obligations hereunder or its failure to enforce the performance by Dundas hereunder.

(d) Dundas releases from and covenants and agrees that Northfield and its governing body members, officers, agents (including its independent contractors, consultants, and legal counsel), servants, and employees (hereinafter, for purposes of this Section, collectively defined as the "Indemnified Parties") shall not be liable for and agrees to indemnify and hold harmless the Indemnified Parties against any loss, liability, damage to property, injury, or other alleged liability occurring at or about or resulting from any defect in, failure of, lack of availability of, or other matter respecting the DCS or the M/S Station, or from the exercise by Northfield of its rights hereunder.

(e) Notwithstanding the approval or right of approval by Northfield of any plans or specifications relating to the DCS or the Metering/Sampling Station, Dundas agrees to protect and defend the Indemnified Parties and to hold the same forever harmless from any claim, demand, suit, action, or other proceeding whatsoever by any person or entity whatsoever arising or purportedly arising from this Agreement or the transactions contemplated hereby, provided that this indemnification shall not apply to the warranties made or obligations undertaken by Northfield in

this Agreement.

(f) As provided in Section 3, Dundas indemnifies Northfield against loss or liability which may arise with respect to the discharge of prohibited effluent into the DCS.

Section 13. Term; Expiration or Termination.

(a) Dundas' right hereunder to connect the DCS to the WWTF shall be without specific limitation as to term except that it shall not expire or be terminated sooner than the end of the term of the United States Department of Agriculture ("USDA") Rural Development loan for this project or the pay-off of that loan prior to the end of the full term thereof, whichever occurs first. If Northfield sells or conveys the WWTF or any part of the WWTF capacity to any other entity or third party, then such conveyance shall be subject to this Agreement.

(b) Subject to the terms of Section 13(a), at any time, for any reason, and in its sole discretion, either Party may terminate this Agreement by giving 18 months' prior written notice thereof to the other Party. The termination rights under this subsection shall be absolute, notwithstanding any other terms of this Agreement except Section 13(a), provided that this Agreement may not be terminated during the term of the USDA loan for the project without the written consent of the USDA-Rural Development.

(c) Subject to the terms of Section 13(a), if either party to this agreement is in default, and the event of default has not been cured within 30 days after the defaulting party has received notice of the event of default from the non-defaulting party, then the non-defaulting party may terminate this agreement, unless the defaulting party provides assurances to the non-defaulting party that the default will be promptly cured.

(d) If this Agreement expires or is terminated in accordance with any of its terms, Northfield

shall pay Dundas the amount derived by dividing by 60 the product obtained by multiplying (i) the amounts paid by Dundas pursuant to Section 9 by (ii) 60 minus the number of years (including any fractional portion of a year) from the date of connection of the DCS to the WWTF to the date of such expiration or termination, except that Northfield may deduct therefrom any unpaid amounts owed to Northfield by Dundas hereunder. Dundas shall then also be entitled to a similar refund of costs paid by it under Section 8(b), based on a similar calculation made with respect the date upon which the facilities described therein may be placed in service from time to time.

(e) No termination or expiration of this Agreement shall terminate the rights of either Party to indemnification payment, or other outstanding performance, remedy, or recourse arising with respect to an event, circumstance, or Event of Default occurring or existing prior to the date of termination or expiration.

Section 14. Additional Provisions. The titles of the several Sections of this Agreement are inserted for convenience of reference only and shall be disregarded interpreting any of the provisions hereof.

Any notice, billing, demand, or other communication under this Agreement by either Party to the other shall be sufficiently given or delivered if sent by regular mail, postage prepaid, or delivered personally and addressed to the applicable City Hall to the attention of the City Clerk in the case of Dundas and to the City Administrator in the case of Northfield, or to such other address or attention with respect to either such Party as that party may, from time to time, designate in writing and forward to the other Party as provided in this Section.

This Agreement is the entire agreement of the Parties respecting the matters addressed herein and it supersedes any prior actual or assumed agreements or understandings, whether written or oral.

In executing this Agreement, neither Party has relied upon any assumption, assurance, or representation not expressly stated herein.

This agreement may not be assigned in whole or in part by either Party without the written consent of the other Party, which it may withhold in its sole discretion.

No amendment of or supplement to this Agreement shall be of any effect unless made in writing and duly executed by both Parties.

Should any provision of this Agreement become invalid or unenforceable under applicable law, the remainder thereof shall remain in full force and effect to the same extent as if said offending provision did not appear herein.

Unless expressly agreed in writing, no amount due and payable or other performance by either Party to the other hereunder shall be subject to offset, delay, or excuse by any other amount payable, liability, or performance arising or allegedly arising under this agreement or from other than this agreement.

This agreement may be executed in any number of counterparts, each of which shall constitute an original hereof and all of which shall constitute one and the same instrument.

The Parties agree that this agreement shall be governed by and construed in accordance with the laws of the State of Minnesota. Time shall be of the essence in this agreement.

This Agreement shall be binding upon and inure to the benefit of the Parties hereto and their successors and/or assigns.

IN WITNESS WHEREOF, the parties have duly executed this Agreement by their duly authorized and legally competent representatives as of the date first provided above.

CITY OF DUNDAS, MINNESOTA

By _____
Its Mayor

By _____
Its City Clerk

CITY OF NORTHFIELD, MINNESOTA

By _____
Its Mayor

By _____
Its Finance Director/City Clerk

Appendix B

SETTLEMENT OF VARIOUS MATTERS UNDER WASTEWATER TREATMENT AGREEMENT

I.	**Amounts owing by Dundas to Northfield:**	
	For sewer service utilized by Dundas between August and December, 1997:	$ 3,182
	For BOD and SS surcharges for January through April, 1998 (compromised amount):	15,000
	For BOD and SS surcharges for May, 1998 through April, 1999:	10,908
	For Dundas' 4.6% share of cost of arboretum interceptor (no contribution to cost of SRBC will be required of Dundas)	0
	Total owing by Dundas:	$ 29,090
II.	**Amounts owing by Northfield to Dundas:**	
	For Northfield's share of the cost of the Interceptor Extension which serves Dundas:	$109,457
	For oversizing of watermain constructed by Dundas within Northfield city limits:	14,633
	Reimbursement for above-ground metering station	5,000
	Total owing by Northfield:	$129,090
III.	**Offset of amounts owing by Northfield and Dundas:**	$129,090
		- 29,090
	Amount payable by Northfield to Dundas:	$100,000

APPENDIX A
NORTHFIELD/DUNDAS
REVISED WASTEWATER TREATMENT AGREEMENT (4/9/01)

I. CAPACITY ALLOCATIONS AND MONITORING REQUIREMENTS

1. Dundas is authorized to discharge process wastewater in compliance with the limits and monitoring requirements specified in this Appendix A and the Agreement of which it is a part.

2. Discharge limits and monitoring requirements for the "interim period" (as defined hereafter) for flow, BOD and SS are listed in Table 1. The interim period shall be from the effective date of the Agreement until Northfield has placed into operation improvements currently being made to the wastewater treatment facility. These improvements are intended to be completed by December 31, 2002, however, the interim limits shall be in effect until written notice has been issued by Northfield to Dundas stating that the improvements have been completed and the effective discharge limits have been changed to the limits listed in Table 2.

Table 1 – Interim Period Discharge Limits and Monitoring Requirements for Flow, CBOD and TSS

Effluent Characteristic	Northfield WWTF Capacity (AWW)	Average Day Discharge Limit	Monitoring Requirements	
			Minimum Measurement Frequency	Sample Type
Flow	3.96 MGD	182,160 gpd	Continuous	Recorded
BOD	5,000 lb/day	230 lb/day	Weekly	Composite
SS	2,400 lb/day	212 lb/day	Weekly	Composite

Table 2 – Discharge Limits and Monitoring Requirements for Flow, CBOD and TSS

Effluent Characteristic	Northfield WWTF Capacity (AWW)	Average Day Discharge Limit	Monitoring Requirements	
			Minimum Measurement Frequency	Sample Type
Flow	5.20 MGD	239,200 gpd	Continuous	Recorded
BOD	6,200 lb/day	285 lb/day	Weekly	Composite
SS	5,000 lb/day	230 lb/day	Weekly	Composite

Maximum Day Discharge Limits shall be equal to 150% of the Average Day Discharge Limits.

Flow, BOD and SS limits set in Tables 1 and 2 are based on 4.6 percent of the total available flow and BOD and SS are based on the WWTF's design capacity. It should be noted that normal domestic wastewater discharge of 100 gallons per person per day produces 0.17 lbs of BOD. Therefore Dundas could reach its maximum allowable BOD loading of 285 lbs/day at flow rate of 167,600 gallons per day, rather than 239,200 gallons per day, and may be subject to excess flow charges in accordance with the terms of the Agreement.

3. In addition to the monitoring requirements listed in Tables 1 and 2, the pH of the effluent from Dundas shall be between 5.0 and 11.0 at all times.

4. Samples shall be collected in compliance with the monitoring requirements specified in this Appendix A and the Agreement. Samples shall be collected at the Dundas Metering/Sampling Station prior to discharge to the Northfield wastewater system.

5. Dundas shall comply with all use and rate regulations for wastewater treatment as stated in the Northfield Ordinances.

6. Upon detection of any violations of the limits or monitoring requirements specified herein, Northfield shall notify Dundas within 24 hours after the test results are obtained. Northfield shall also re-sample for the violated parameter within 30 days. Detection shall include all required and discretionary samples or monitoring by Northfield and any other self-monitoring of regulated parameters as described in the Agreement.

7. Dundas shall be responsible for continuously monitoring waste flow from its facilities. Dundas shall be permitted to monitor waste flow by reading its total daily discharge as recorded by the flow monitoring equipment. Dundas shall also be responsible for furnishing, installing and maintaining composite sampling equipment for monitoring of waste flow from Dundas.

8. On a weekly basis, on a day of Northfield's choice and at any other times in Northfield's discretion, a 24-hour composite sample shall be collected for analysis by an independent testing laboratory for BOD and SS analysis. For purposes of determining monthly limits, any sample used in this computation must be at least 4 days from the previous or following sample used, and no fewer than 4 nor more than 7 samples in a month may be used in the computation. The composite sample shall be collected with an automatic sampler operating in conjunction with a flow meter by either of two methods: (1) by withdrawing samples of equal volume in response to incremental changes in totalizer flow, or (2) by withdrawing separate samples every hour for 24 hours and afterwards preparing a composite made up of the 24 samples, the volume of each a constant proportion of the waste flow at the time of

withdrawal, as measured by the flow meter.

9. The independent testing laboratory shall be certified by the State of Minnesota. The choice of the independent testing laboratory shall be by mutual agreement between Northfield and Dundas. Instructions to the testing laboratory shall be that both Northfield and Dundas shall receive copies of all test results. All costs involved in the testing shall be billed to Northfield.

10. Dundas shall be responsible for calibrating and performing maintenance on its analytical instruments as required to ensure accuracy of measurements. In the event that flow monitoring equipment and/or sampling equipment must be out of service for any length of time, Dundas shall inform Northfield of the condition and the estimated duration of non-service. During the period of non-service, wastewater flows may be estimated by Northfield based on averaging of past flow monitoring results. If the period of non-service is estimated to exceed 10 days, or will prevent Northfield from collecting the required number of monthly samples, arrangements shall be made by Dundas to install portable sampling equipment.

II. Violations and Violation Procedures

1. The discharge of a waste not in compliance with the limitations set forth in this Appendix A shall be considered a violation subject to the violation procedures and/or fines described herein in addition to the charges set forth in the Agreement.

2. For each day that pollutant monitoring data is collected for BOD and SS, the daily pollutant load shall be calculated as follows:

pollutant concentration (mg/L) x Dundas wastewater flow (MGD) x 8.34 =
lbs. of pollutant/day = Daily Pollutant Load (DPL)

3. If the DPL for BOD or SS on any day exceeds the permitted maximum day discharge permitted level, a Notice of Violation shall be issued to Dundas.

4. If the average DPL for BOD or SS for the month exceeds the permitted maximum month daily discharge limit, a Notice of Violation shall be issued to Dundas.

5. If a Notice of Violation is issued for exceeding pollutant discharge limits listed in Table 1 or Table 2 of this Appendix A, any individual user of the DCS responsible for such excess discharge shall be subject to a fine in an amount not to exceed $500 per violation, as determined by Northfield, and Dundas shall assist Northfield in collecting such fine(s) by billing such fine(s) to the responsible user and paying all amounts collected to Northfield. Dundas City is not responsible for payment of any fine.

PERMIT FOR
INDUSTRIAL USER DISCHARGE TO THE
NORTHFIELD, MINNESOTA
MUNICIPAL WASTEWATER TREATMENT FACILITIES

Permit No.: MOM-2013

This permit is issued to:

MOM Brands, Inc. (formerly Malt-O-Meal, Inc., and interchangeably referred to as MOM Brands in this document) and permits the discharge of industrial wastes to the Northfield, Minnesota, Municipal Wastewater Treatment Facilities. Effluent limitations, monitoring requirements, general permit conditions and other specific conditions are set forth in Attachment A of this permit.

Effective Date: 1st day of September, 2013

Expiration Date: 1st day of September, 2018

Issued By: City of Northfield, Minnesota

Date: October 16, 2013

This permit issued in accordance with the Northfield Code of Ordinances, Use and Rate Regulations for Municipal Wastewater Treatment Facilities.

Attachment A contains pages 1 through 6.

This permit supersedes any prior permit.

ATTACHMENT A
TO
NORTHFIELD, MINNESOTA, INDUSTRIAL USER DISCHARGE PERMIT

A. Initial Permit Application Data.

1. Company Name: MOM Brands, Inc.
   Mailing Address: 701 West 5th Street, Northfield, MN 55057-0180
   Address of Premises: 701 West 5th Street, Northfield, MN 55057-0180
   Contact Name: Robert C. Lambert
   Title: Environmental, Health & Safety Manager
   Phone: 507-645-6681

2. Standard Industrial Classification Code 2043

3. Product

   MOM Brands, Inc., manufactures breakfast cereals.

4. Description of Pretreatment Provided, if any:

   None

5. Hours of operation during peak day 24 hours

6. Number of days of operation per week 7

7. Describe any batch or periodic discharges:

   All discharge is continuous.

8. Describe the source and volume of any non-contact cooling water to be discharged to the municipal treatment facility.

NA

B. Permit Effluent Limitations and Monitoring Requirements

1. The permittee is authorized to discharge process wastewater in compliance with the limits and monitoring requirements specified in this permit beginning September 1, 2013 and lasting through September 1, 2018. No discharge may take place under this permit after the above expiration date. In order to receive authorization to discharge after the above expiration date, the user shall file a permit application with the City of Northfield. Applications will be made 180 days prior to the expiration date of the user's existing permit.

2. Discharge limits and monitoring requirements for flow, BOD and TSS are listed in Table 1.

Table 1 – Discharge Limits and monitoring Requirements for Flow, BOD, and TSS

				Monitoring Requirements	
Effluent Characteristic	**Maximum Day Discharge Limit**	**Maximum Month Daily Discharge Limit**	**6 Month Rolling Average Daily Discharge Limits**	**Minimum Measurement Frequency**	**Sample Type**
Flow	425,000 gpd	375,000 gpd	300,000 gpd	Continuous	Recorded
BOD	5,000 lbs/day (2268 kg/day)	3,000 lb/day (1360 kg/day)	1,975 lb/day 898 kg/day	Weekly	Composite
TSS	2,000 lb/day (909 kg/day)	1,200 lb/day (545 kg/day)	1,000 lb/day (445 kg/day)	Weekly	Composite

3. In addition to monitoring requirements listed in Tables 1 and 2, pH shall be between 5.0 and 11.0 at all times.

4. Samples shall be collected in compliance with the monitoring requirements specified in this permit and shall be taken at the following location(s):

   At the MOM Brands site, prior to discharge to the municipal wastewater system.

5. In addition, the Permittee shall comply with the requirements stated in the Northfield Ordinance for Use and Rate Regulations for Municipal Wastewater Treatment Facilities.

6. The City of Northfield, upon detection of any violations of the limits or monitoring requirements specified herein, shall notify MOM Brands within 24 hours after the test results are obtained. The City may also re-sample for the violated parameter within 30 days. Detection shall include all required and discretionary samples or monitoring by the City and any other self-monitoring of regulated parameters as described in Section B of the Industrial User Discharge Permit.

7. MOM Brands shall be responsible for continuously monitoring waste flow from its facility. MOM Brands shall be permitted to monitor waste flow by reading its total daily discharge as recorded by the flow monitoring equipment. MOM Brands shall also be responsible for furnishing, installing and maintaining composite sampling equipment for monitoring of waste flow from its facility.

8. On a weekly basis, on a day of the City's choice and at any other times in the City's discretion, a 24-hour composite sample shall be collected for analysis by an independent testing laboratory for BOD and TSS analysis. The composite sample shall be collected with an automatic sampler operating in conjunction with a flow meter by either of two approved methods: (1) by withdrawing samples of equal volume in response to incremental changes in totalizer flow, or (2) by withdrawing separate samples every hour for 24-hours and afterwards preparing a composite made up of the 24 samples, the volume of each a constant proportion of the waste flow at the time of withdrawal, as measured by the flow meter.

9. The independent testing laboratory shall be certified by the State of Minnesota. The choice of the independent testing lab shall be by mutual agreement between MOM Brands and the City. Instructions to the testing laboratory will be that both MOM Brands and the City receive copies of the results. All costs involved in the testing shall be billed to MOM Brands.

10. MOM Brands shall be responsible for calibrating and performing maintenance on its analytical instruments as required to insure accuracy of measurements. In the event that flow monitoring equipment and/or sampling equipment must be out of service for any length of time, MOM Brands shall inform the City of the condition and the estimated duration of non-service. During the period of non-service, wastewater flows may be estimated based on City water supply meters. If the period of non-service is estimated to exceed 10 days, or will prevent the City from collecting the required number of monthly samples, arrangements shall be made by the company to install portable sampling equipment.

11. MOM Brands shall grant to the City access to the industry's flow metering and sampling equipment at the City's request for the purpose of inspection or data collection. The City shall also have authority to enter the industry's facility at any time for purposes of installation of its own monitoring equipment.

12. The average daily discharge shall be calculated based on a 6-month rolling average basis. The average concentration of all the composite samples collected by the City and analyzed during each month by the independent testing laboratory, and the average daily flow for the month shall be utilized to calculate the monthly average daily discharge for the given month. The 6-month rolling average will be calculated based on the average daily discharge calculation for each month of the 6-month period.

C. Submission of Reports and Records

1. The Permittee shall notify the City of Northfield, in writing, of any discharge of a substance that would, if otherwise disposed of, be considered a hazardous waste under 40 CFR Part 261. Notification shall take place at least 30 days before the date of discharge and conform to 40 CFR Section 403.12(p). No discharge of any hazardous wastes may take place without prior approval of the City of Northfield.

2. MOM Brands shall submit to the City once a month a report containing daily records of wastewater flow. The report shall be submitted to the City no later than the eighth day of each month unless MOM Brands makes arrangements with the City for reporting. The monthly report shall contain daily records for the previous month. The average daily flow for the month shall be calculated in the report.

3. The failure to submit a monthly report shall be considered a violation of the conditions of this discharge permit and shall be subject to the violation procedures.

4. MOM Brands shall include in its monthly reports a summary of all self-monitoring of regulated parameters conducted by the Permittee. MOM Brands shall grant access to the City to review all self-monitoring records of regulated parameters as described in Section B of the Industrial User Discharge Permit upon the City's request.

D. Violations and Violation Procedures

1. The discharge of a waste not in compliance with the effluent limitations set forth in Section B of this permit shall be considered a violation subject to the violation procedures and/or violation fines described herein.

2. For each day that pollutant monitoring data is collected for CBOD and TSS, the daily pollutant load shall be calculated as follows:

   Pollutant concentration (mg/L) x Permittee wastewater flow (MGD) x 8.34 = lbs. of pollutant/day = Daily Pollutant Load (DPL)

3. If the DPL for CBOD or TSS on any day exceeds the maximum day discharge permitted level, a Notice of Violation will be issued to MOM Brands.

4. If the average DPL for CBOD or TSS for the month exceeds the permitted maximum month daily discharge limit, a Notice of Violation will be issued to MOM Brands.

5. If the average DPL for CBOD or TSS over the previous 6-month period exceeds the permitted 6-month rolling average daily discharge limit, a Notice of Violation will be issued to MOM Brands.

6. If the measured discharge flow for any day is in excess of the permitted maximum day limit, a Notice of Violation will be issued to MOM Brands.

7. If the average daily discharge flow for the month exceeds the permitted maximum month daily flow, a Notice of Violation will be issued to MOM Brands.

8. If the average daily discharge flow for the previous 6-month period exceeds the permitted 6-month rolling average daily discharge limit, a Notice of Violation will be issued to MOM Brands.

9. If a Notice of Violation is issued for exceeding pollutant discharge limits listed in Section B of this permit, MOM Brands may be subject to a fine the amount of which is to be determined by the City, not to exceed $500.00.

10. If a Notice of Violation is issued for exceeding flow discharge limits listed is Section B of this permit, MOM Brands may be subject to a fine the amount of which is to be determined by the City, not to exceed $100.00.

11. Any missing figures or discontinuity in the flow record submitted to the City each month shall be interpreted as a violation, with each day on which a flow measurement is absent constituting a separate violation. The City may assess a fine not to exceed $100.00 for each violation. In the case of a failure of the wastewater flow monitoring equipment it shall be acceptable for the permittee to use City water meter readings to estimate wastewater flow.

12. If the monthly monitoring report for any reason is not submitted to the City by the eighth day of the month, MOM Brands shall notify the City to explain reasons for the tardiness, at which time the City may assess a fine not to exceed $100.00. Each subsequent day on which the report is not received may be a violation subject to an additional $100.00 fine.

13. In the event that any Notice of Violation exceeds the stated applicable limitation by more than 25%, MOM Brands shall, within thirty (30) days, submit to the City a compliance plan to prevent further such excesses. The compliance plan shall be submitted to the City within thirty (30) days after notice of such violation. If an acceptable compliance plan is not submitted to the City within thirty (30) days, MOM Brands shall be subject to the violation procedures and/or violation fines described in the City Ordinances.

E. General Conditions

1. Industrial wastewater discharges from MOM Brands shall be in accordance with applicable provisions of the Northfield Code of Ordinances and this Permit.

2. MOM Brands shall not knowingly make a false statement, representation or certification in any record, report, or plan required to be submitted to the City of Northfield under the provisions of the Northfield Code of Ordinances, or this Permit.

3. This Permit is non-transferable.

4. MOM Brands shall maintain and retain plant records relating to wastewater discharge as specified by the City for a minimum of three years.

5. MOM Brands shall notify the City of Northfield immediately of any slug discharge as defined in the Northfield Code of Ordinances, or any other discharge of a substance or wastewater in violation of the Northfield Code of Ordinances or this Permit.

6. MOM Brands shall install, operate, and maintain sampling and monitoring devices in proper working order at its own expense.

7. MOM Brands shall allow the City of Northfield personnel to enter upon MOM Brands premise to inspect any monitoring point, collect samples, and determine compliance with the Northfield Code of Ordinances, the Federal Pretreatment Regulations, and this permit.

8. The City of Northfield may revoke this permit if MOM Brands fails to comply with the conditions of this permit, the Northfield Code of Ordinances, or applicable State and Federal Regulations.

9. In the event of MOM Brands noncompliance, MOM Brands shall be subject to penalties and surcharge fees in accordance with the Northfield Code of Ordinances, in addition to any penalties which may be imposed pursuant to this permit.

10. Any significant change in volume or characteristics of industrial wastewater introduced into the Northfield Wastewater Treatment Facilities by MOM Brands shall be immediately reported to the Wastewater Superintendent or City Administrator. Significant changes shall be defined as any changes which will result in the industry becoming out of compliance with the permitted values listed in Section B of this permit. In such cases this permit may be subject to modification.

11. Notice of any anticipated increase in pollutants contributed shall be given to the City 30 days in advance of such increase, in the form of a request for a new permit.

12. The terms and conditions of the permit may be subject to modifications by the City of Northfield during the term of the permit as limitations or requirements are modified or other just cause exists, including changes resulting from revisions to any state or federal regulation. The user shall be informed of any proposed changes in this permit at least 30 days prior to the effective date of change. MOM Brands may request that a reasonable transition period for implementation of the permit limitations or requirements be established. Such request must be made in writing prior to the effective date of change. The decision by the City of Northfield's Public Works Director regarding the reasonableness of that transition period shall be final.

Approved:

Joseph L. Stapf, P.E., Public Works Director/City Engineer
City of Northfield, MN

3 Feb 2014
Date

STATE OF MINNESOTA)
) ss.
COUNTY OF RICE)

The foregoing instrument was acknowledged before me this 3rd day of February, 2014, by Joseph L. Stapf, P.E., Public Works Director/City Engineer of the City of Northfield, a Minnesota municipal corporation, on behalf of the municipal corporation and pursuant to the authority established under Section 82-213 of the Northfield City Code.

Barbara J. Neitzel
Notary Public

BARBARA J. NEITZEL
NOTARY PUBLIC - MINNESOTA
My Commission Expires Jan. 31, 2015

PERMIT FOR
INDUSTRIAL USER DISCHARGE TO THE
NORTHFIELD, MINNESOTA
MUNICIPAL WASTEWATER TREATMENT FACILITIES

Permit No. Multek-2013

This permit is issued to:

Multek Flexible Circuits, Inc. (MFC)
and permits the discharge of industrial wastes to the Northfield, Minnesota, Municipal Wastewater Treatment Facilities. Effluent limitations, monitoring requirements, general permit conditions and other specific conditions are set forth in Attachment A of this permit.

Effective Date: 1st day of November, 2013

Expiration Date: 1st day of November, 2018

Issued By: City of Northfield, Minnesota

Date: October 31, 2013

This permit issued in accordance with the Northfield Code of Ordinances, Use and Rate Regulations for Municipal Wastewater Treatment Facilities.

Attachment A contains pages 1 through 6.

This permit supersedes any prior permit.

ATTACHMENT A
TO
NORTHFIELD, MINNESOTA, INDUSTRIAL USER DISCHARGE PERMIT

A. Initial Permit Application Data.

1. Company Name: Multek Flexible Circuits, Inc. (MFC)
   Mailing Address: 1150 Sheldahl Road, Northfield, MN 55057
   Address of Premises: (East Building) 805 North Highway 3, Northfield, Mn 55057 and (West Building) 1150 Sheldahl Road, Northfield, MN 55057
   Contact Name: Ron Keller
   Title: Manager, Health, Safety and Environment
   Phone: (507) 663 8274

2. Standard Industrial Classification Code 3679

3. Product

   MFC manufactures flexible printed circuitry and discharges a waste stream containing heavy metals and cyanide.

4. Description of Pretreatment Provided, if any:

   Pretreatment includes ion exchange for treating and recovering copper, lead, and other select metals, a neutralization system, and a batch chemical precipitation system for concentrating metal solutions.

5. Hours of operation during peak day: 24 hours

6. Number of days of operation per peak week: 7

7. Describe any batch or periodic discharges:

   MFC Resource Recycling Department operates on a continuous discharge basis.

8. Describe the source and volume of any non-contact cooling water to be discharged to the municipal treatment facility.

   No non-contact cooling water shall be discharged, except during maintenance of MFC's dechlorination system and dechlorination input overflow from the City Water Tank.

B. Permit Effluent Limitations and Monitoring Requirements

1. The permittee is authorized to discharge process wastewater in compliance with the limits and monitoring requirements specified in this permit beginning November 1, 2013 and lasting

through November 1, 2018. No discharge may take place under this permit after the above expiration date. In order to receive authorization to discharge after the above expiration date, the permittee shall file a permit application with the City of Northfield. The permit application shall consist of a summary of any changes in MFC operations from the most recent permit renewal that may affect permit conditions and any planned operational changes that may affect permit conditions. Applications will be made 180 days prior to the expiration date of the user's existing permit. **Detailed discharge limits are hereby established in Attachment B, supplemented by the discharge limitations established below. Attachment B generally establishes different limits for different sampling/monitoring frequencies. Should it be determined there is a conflict, that which is deemed the more restrictive shall govern.**

2. Discharge limits and monitoring requirements for flow, BOD and TSS are listed in Table 1.

Table 1 - Discharge Limits and Monitoring Requirements for Flow, BOD and TSS

			Monitoring Requirements	
Effluent Characteristic	**Maximum Daily Limits**	**Monthly Average Daily Limits**	**Minimum Measurement Frequency**	**Sample Type**
Flow	525,000 gpd	400,000 gpd	Continuous	Recorded
BOD	900 lb/day (410 kg/day)	700 lb/day (317 kg/day)	Monthly	Composite
TSS	300 lb/day (136 kg/day)	200 lb/day (91 kg/day)	Monthly	Composite

3. Discharge limits and monitoring requirements for metals and cyanide are listed in Table 2.

Table 2 - Discharge Limits and Monitoring Requirements for Metals and Cyanide

				Monitoring Requirements	
Effluent Characteristic	**Maximum Monthly Average Discharge Limit (kg/day)**	**6 month Rolling Average Discharge Limit (kg/day)**	**Maximum Day Discharge Concentration (ug/L)**	**Minimum Measurement Frequency**	**Sample Type**
Arsenic	0.077	0.049	NA	Monthly	Composite
Cadmium	.053	0.032	NA	Monthly	Composite
Chromium	1.794	1.184	7,000	Monthly	Composite
Copper	1.0	1.0	4,500	Monthly	Composite
Lead	0.763	0.533	600	Monthly	Composite
Mercury	0.054	0.03	NA	Monthly	Composite
Molybdenum	0.059	0.038	NA	Monthly	Composite
Nickel	.359	0.193	4,100	Monthly	Composite
Selenium	0.091	0.058	NA	Monthly	Composite
Zinc	0.55	0.55	4,200	Monthly	Composite

Cyanide	0.91	0.91	1,900	Monthly	Composite
Cyanide Amenable to Chlorination	0.30	0.3	NA	Monthly	Composite

4. In addition to monitoring requirements listed in Tables 1 and 2, pH shall be between 5.0 and 11.0 at all times.

5. Samples shall be collected in compliance with the monitoring requirements specified in this permit and shall be taken at the following location(s):

   At the MFC sites, prior to discharge to the municipal wastewater system.

6. In addition, the permittee shall comply with the requirements stated in the Northfield Ordinance for Use and Rate Regulations for Municipal Wastewater Treatment Facilities.

7. The City of Northfield, upon detection of any violations of the limits or monitoring requirements specified herein, shall notify MFC within 24 hours after the test results are obtained. The City shall also re-sample for the violated parameter within 30 days. Detection shall include all required and any other self-monitoring.

8. MFC shall be responsible for continuously monitoring waste flow from the permittee's facility. MFC shall be permitted to monitor waste flow by reading the total daily discharge as recorded by the flow monitoring equipment. MFC shall also be responsible for furnishing, installing and maintaining composite sampling equipment for monitoring of waste flow from the facility(s).

9. On a monthly basis, on a day of the City' s choice, a 24-hour composite sample shall be collected and analyzed by an independent testing laboratory for BOD, TSS, metals, and cyanide. The composite sample shall be collected with an automatic sampler operating in conjunction with a flow meter by either of two approved methods: (1) by withdrawing samples of equal volume in response to incremental changes in totalizer flow, or (2) by withdrawing separate samples every hour for 24-hours and afterwards preparing a composite made up of the 24 samples, the volume of each a constant proportion of the waste flow at the time of withdrawal, as measured by the flow meter.

10. The independent testing laboratory shall be certified by the State of Minnesota. The choice of the independent testing lab shall be by mutual agreement between MFC and the City. Instructions to the testing laboratory will be that both MFC and the City receive copies of the results. All costs involved in the testing shall be billed to MFC.

11. MFC shall be responsible for calibrating and performing maintenance on the permittee's analytical instruments as required to insure accuracy of measurements. In the event that flow monitoring equipment and/or sampling equipment must be out of service for any length of time, MFC shall inform the City of the condition and the estimated duration of non-service. During the period of non-service, wastewater flows may be estimated based on City water supply meters. If the period of non-service is estimated to exceed 10 days, or will prevent the City from collecting the required number of samples, arrangements shall be made by the MFC to install portable sampling equipment.

12. MFC shall grant to the City access to the industry' s flow metering and sampling equipment at the City' s request for the purpose of inspection or data collection. The City shall also have authority to enter the industry' s facility at any time for purposes of installation of the City's own monitoring equipment.

13. If any of the metals or cyanide is not detected at minimum detection limit in any of the first three composite samples collected from MFC, the metal or cyanide may be excluded from the list of effluent characteristics to be monitored monthly, and thereafter,

monitored annually. If the metal or cyanide is measured at or above the detection limit during the annual testing, it shall be monitored monthly until it is not detected at its minimum limit in three consecutive monthly samples.

14. The average concentration of the composite samples analyzed during each month by the independent testing laboratory, and the average daily flow for the month shall be utilized to calculate the maximum monthly average discharge for the given month. The 6-month rolling average will be calculated based on the maximum monthly average discharge calculation for each month of the 6-month period.

C. Submission of Reports and Records

1. The permittee shall notify the City of Northfield, in writing, of any discharge of a substance that would, if otherwise disposed of, be considered a hazardous waste under 40 CFR Part 261. Notification shall take place at least 30 days before the date of discharge and conform to 40 CFR Section 403.12(p). No discharge of any hazardous wastes may take place without prior approval of the City of Northfield.

2. MFC shall submit to the City once a month a report containing data the City has requested. The report shall be submitted to the City no later than the eighth day of each month unless MFC makes arrangements with the City for reporting. The monthly report shall contain records for the previous month. The average daily flow for the month shall be calculated in the report.

3. The failure to submit a monthly report shall be considered a violation of the conditions of this discharge permit and shall be subject to the violation procedures.

4. The permittee shall include in the permittee's monthly reports a summary of all self monitoring requested by the City. The permittee shall grant access to the City to review all self monitoring records upon the City' s request.

D. VIOLATIONS AND VIOLATION PROCEDURES

1. The discharge of a waste not in compliance with the effluent limitations set forth in Section B of this permit shall be considered a violation subject to the violation procedures and/or violation fines described herein.

   a. If the result of the laboratory analysis for any monthly 24-hour composite sample yields a BOD or SS loading in excess of the maximum day limitation, a violation of the conditions of this permit shall have occurred. The City is authorized to draw another composite sample for BOD and SS for analysis immediately after receiving the laboratory analysis result indicating a violation or soon thereafter at a date of the City's choice. The costs involved in analyzing this supplemental composite sample shall be billed to MFC. The supplemental sample is not to be analyzed for metals or cyanide.

   b. If the result of the laboratory analysis of the second 24-hour composite sample yields a second consecutive violation of either BOD or SS, the City is authorized to draw another composite sample for lab analysis, and to continue drawing samples for analysis for as long as the violation of monthly average limitations continues, with all costs involved in the testing billed to MFC.

c. If the arithmetic mean of any three consecutive BOD or SS measurements, from either three regular monthly composite samples, or three consecutive supplemental composites, or three consecutive tests that are a combination of the two, exceeds the effluent limitations for the average of three consecutive measurements set forth in Section B of this permit, MFC shall be subject to a fine, the amount of which is to be determined by the City, not to exceed $500.00.

d. If the result of a regular monthly composite sample analysis yields a heavy metal or cyanide loading or concentration in excess of the maximum day limitation, a violation of the conditions of this permit shall have occurred and MFC shall be subject to a fine, the amount of which is to be determined by the City, not to exceed $500.00.

e. If any daily flow from MFC or the average flow of any three consecutive months exceeds the quantities set forth in Section B of this permit, MFC shall be subject to a fine, the amount of which is to be determined by the City, not to exceed $100.00.

2. Any missing figures or discontinuity in the flow record submitted to the City each month, other than days when no industrial discharge occurred, shall be interpreted as a violation, with each day on which a flow measurement is absent constituting a separate violation.

3. If the monthly monitoring report is not submitted to the City by the eighth day of the month, MFC shall notify the City to explain reasons for the tardiness, at which time the City may assess a fine not to exceed $100.00. Each subsequent day on which the report is not received shall be a violation subject to an additional $100.00 fine.

E. General Conditions

1. Industrial wastewater discharges from a permittee shall be in accordance with applicable provisions of the Northfield Code of Ordinances and this Permit.

2. The permittee shall not knowingly make a false statement, representation or certification in any record, report, or plan required to be submitted to the City of Northfield under the provisions of the Northfield Code of Ordinances, or this Permit.

3. This Permit is non-transferable.

4. The permittee shall maintain and retain plant records relating to wastewater discharge as specified by the City for a minimum of three years.

5. The permittee shall notify the City of Northfield immediately of any slug or accidental discharge of a substance or wastewater in violation of the Northfield Code of Ordinances or this Permit.

6. The permittee shall install, operate, and maintain sampling and monitoring devices in proper working order at the permittee' s expense.

7. The permittee shall allow the City of Northfield personnel to enter upon the permittee' s premise to inspect any monitoring point, collect samples, and determine compliance with the Northfield Code of Ordinances, the Federal Pretreatment Regulations, and this permit.

8. The City of Northfield may revoke the permit of any user if he fails to comply with the conditions of this permit, the Northfield Code of Ordinances, or applicable State and Federal Regulations.

9. In the event of an industrial users noncompliance, the user shall be subject to penalties and surcharge fees in accordance with Northfield Code of Ordinances.

   Surcharge fees and/or penalties on flows and loadings exceeding the limits on Tables 1 and 2 shall be determined on an annual basis by the City Council. Surcharges shall be as outlined in the Sewer Service Charge System adopted by Council resolution.

10. Any significant change in volume or characteristics of industrial wastewater introduced into the Northfield Wastewater Treatment Plant system shall be immediately reported to the Wastewater Superintendent or City Administrator. In such cases this permit may be subject to modification.

11. Notice of any anticipated increase in pollutants contributed shall be given to the City 30 days in advance of such increase, in the form of a new permit application.

12. The terms and conditions of the permit may be subject to modifications by the City of Northfield during the term of the permit as limitations or requirements are modified or other just cause exists. The user shall be informed of any proposed changes in this permit at least 30 days prior to the effective date of change. MFC may request that a transition period for implementation of the permit limitations or requirements be established. Such request must be made in writing prior to the effective date of change.

13. Implementation of major changes in the City of Northfield wastewater treatment plant liquid or solids treatment processes may impact the discharge limits listed in this permit. Upon implementation of any such changes, the City will review the discharge limits and propose any changes deemed appropriate to MFC in writing.

14. MFC shall notify the City of Northfield prior to any discharge of non-contact cooling water to the industrial wastewater discharge flume. MFC shall provide an estimate of the duration and volume of the discharge. MFC shall notify the City of Northfield when the discharge has been discontinued. Discharge of non-contact cooling water shall be limited to occasions when maintenance activities are scheduled for the MFC dechlorination system and dechlorination input overflow from the RO City Raw Water tank.

Approved:

Joseph L. Stapf, P.E., Public Works Director/City Engineer
City of Northfield, MN

13 Feb 2014
Date

STATE OF MINNESOTA)
) ss.
COUNTY OF RICE)

The foregoing instrument was acknowledged before me this 13th day of February, 20 14, by Joseph L. Stapf, P.E., Public Works Director/City Engineer of the City of Northfield, a Minnesota municipal corporation, on behalf of the municipal corporation and pursuant to the authority established under Section 82-213 of the Northfield City Code.

Barbara Neitzel
Notary Public

BARBARA J. NEITZEL
NOTARY PUBLIC - MINNESOTA
My Commission Expires Jan. 31, 2015

Attachment B

Supplemental Discharge Limits
&
Monitoring Frequencies

Multek Flexible Circuits, Inc.

Table of Contents

Facility Description

Multek Flexible Circuits Inc. has two site locations covered by this pretreatment permit: (1) the Interconnect (east) Building, which is located at T112N, R19W, Section 31 (805 Highway 3), Northfield, Rice County, Minnesota, and (2) the Materials (West) Building, which is located at T112N, R19W, Section 30 (1150 Sheldahl Road), Northfield, Dakota County, Minnesota. Both waste streams are discharged to the city of Northfield POTW.

The Interconnect (east) Building manufactures flexible printed circuit boards, copper foil laminates, and electric graphic displays. Wastewater from the circuit board operation is generated from copper and solder plating lines, and by chemical etching operation from various treatment solutions and rinses. Pretreated wastewater is discharged at average and maximum rates of 0.109 million gallons per day (mgd) and 0.176 mgd, respectively, to the city of Northfield POTW.

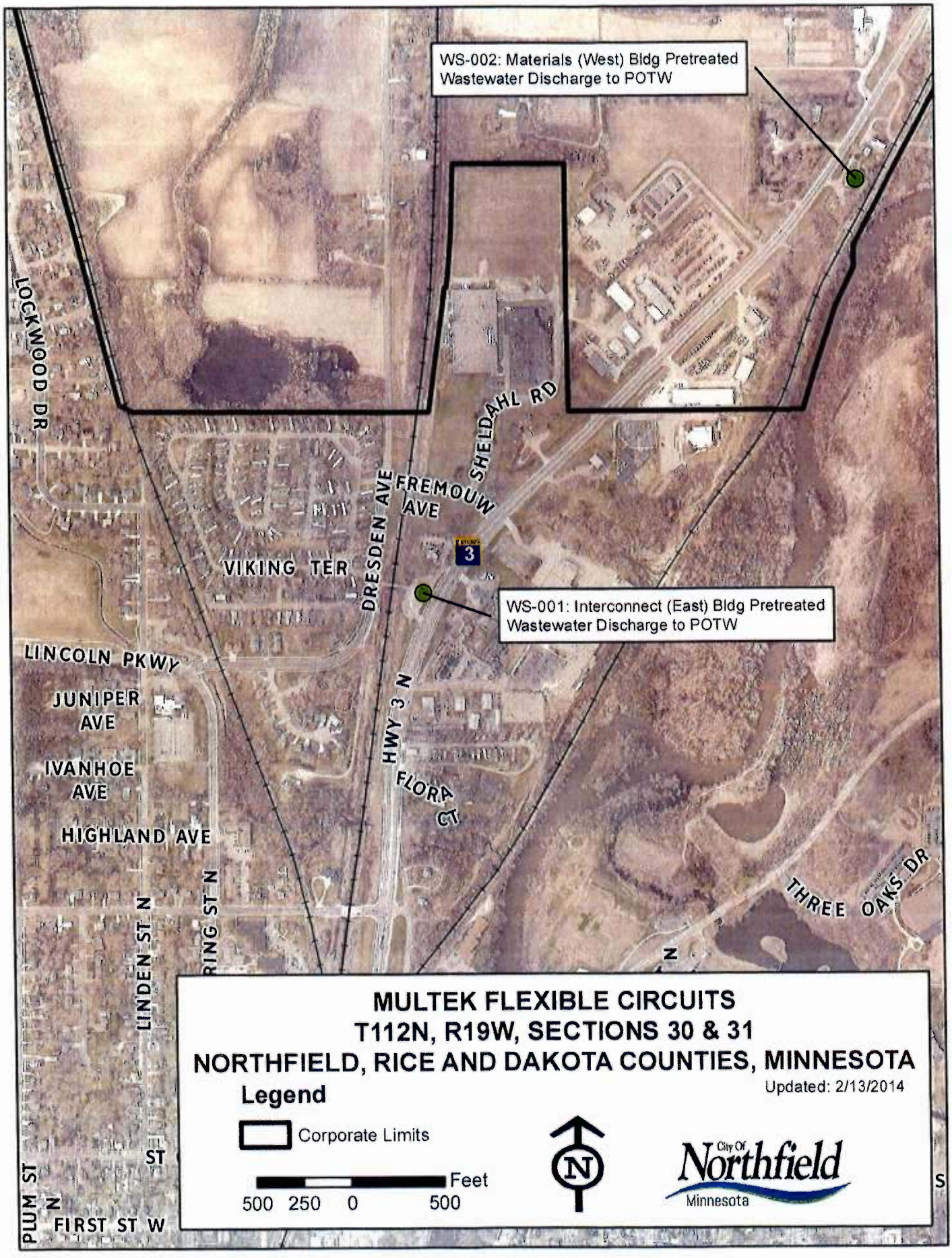
Discharges from the Interconnect (East) Building are subject to the categorical pretreatment standards for existing job shops and independent circuit board manufacturers, as specified in 40 CFR 413 (Electroplating). The limitations for "WS-001: Interconnect (East) Bldg Pretreated Wastewater Discharge to POTW" in the "Limits and Monitoring" section of this permit reflect the provisions of 40 CFR 413.

The Materials (West) Building manufactures laminate, tapes, and other flexible material, including Indium Tin Oxide (ITO). This waste stream was permitted to discharge on June 22, 2007. Prior to that date this location had no wet processes subject to regulation. Thus, this waste stream is considered a new source. Discharges from this location consist of wastewater from the imaging and etching of ITO of laminate, including rinses from each step. Pretreated wastewater is discharged at average and maximum rates of 0.008 mgd and 0.0344 mgd, respectively, to the city of Northfield POTW.

Discharges from the Materials (West) Building are subject to the categorical pretreatment standards for metal finishing discharges, as specified in 40 CFR 433 (Metal Finishing), as opposed to regulation under 40 CFR 413 (Electroplating), which is for existing sources rather than new sources. The limitations for "WS-002: Materials (West) Bldg Pretreated Wastewater Discharge to POTW" in the "Limits and Monitoring" section of this permit reflect the provisions of 40 CFR 433.

The location of designated monitoring stations is specified on the attached "Summary of Stations and Station Locations" report.

The location of the facility is shown on the attached topographical map.


WS-002: Materials (West) Bldg Pretreated Wastewater Discharge to POTW
WS-001: Interconnect (East) Bldg Pretreated Wastewater Discharge to POTW
LOCKWOOD DR
SHELDAHL RD
FREMOUW AVE
DRESDEN AVE
VIKING TER
LINCOLN PKWY
JUNIPER AVE
IVANHOE AVE
HIGHLAND AVE
HWY 3 N
FLORA CT
THREE OAKS DR
LINDEN ST N
PLUM ST N
FIRST ST W
MULTEK FLEXIBLE CIRCUITS
T112N, R19W, SECTIONS 30 & 31
NORTHFIELD, RICE AND DAKOTA COUNTIES, MINNESOTA
Updated: 2/13/2014
Legend
Corporate Limits
Feet
500 250 0 500
N
City Of Northfield
Minnesota

Multek Flexible Circuits Inc
Summary of Stations

Waste Stream Stations

Station	Type of Station	Local Name	PLS Location
WS001	Intermediate: Pretreatment	Interconnect (East) Bldg Pretreated Wastewater Discharge to POTW	Section 31, Township 112 North, Range 19 West
WS002	Intermediate: Pretreatment	Materials (West) Bldg Pretreated Wastewater Discharge to POTW	Section 30, Township 112 North, Range 19 West

Multek Flexible Circuits, Inc.
Limits and Monitoring Requirements

WS 001: Interconnect (East) Building Pretreated Wastewsater Discharge to POTW

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Cadmium, Total (as Cd)	1.20	mg/l	Daily Max.	Jan-Dec	24-Hour Flow Composite	1 x /Month	
Cadmium, Total (as Cd)	0.70	mg/l	Four Day Ave.	Jan-Dec	24-Hour Flow Composite	1 x /Month	
Chromium, Total (as Cr)	7.00	mg/l	Daily Max.	Jan-Dec	24-Hour Flow Composite	1 x /Month	
Chromium, Total (as Cr)	4.00	mg/l	Four Day Ave.	Jan-Dec	24-Hour Flow Composite	1 x /Month	
Copper, Total (as Cu)	4.50	mg/l	Daily Max.	Jan-Dec	24-Hour Flow Composite	1 x /Month	
Copper, Total (as Cu)	2.70	mg/l	Four Day Ave.	Jan-Dec	24-Hour Flow Composite	1 x /Month	3
Cyanide, Total (as CN)	1.90	mg/l	Daily Max.	Jan-Dec	24-Hour Flow Composite	1 x /Month	3
Cyanide, Total (as CN)	1.00	mg/l	Four Day Ave.	Jan-Dec	24-Hour Flow Composite	1 x /Month	2
Flow	Monitor Only	MGD	Calendar Month Ave.	Jan-Dec	Measurement	1 x /Day	2
Flow	Monitor Only	MGD	Calendar Month Max.	Jan-Dec	Measurement	1 x /Day	2
Flow	Monitor Only	MG	Calendar Month Total	Jan-Dec	Measurement	1 x /Day	
Lead, Total (as Pb)	0.60	mg/l	Daily Max.	Jan-Dec	24-Hour Flow Composite	1 x /Month	
Lead, Total (as Pb)	0.40	mg/l	Four Day Ave.	Jan-Dec	24-Hour Flow Composite	1 x /Month	7
Metals, Total	10.50	mg/l	Daily Max.	Jan-Dec	Calculation	1 x /Month	7
Metals, Total	6.80	mg/l	Four Day Ave.	Jan-Dec	Calculation	1 x /Month	
Nickel, Total (as Ni)	4.10	mg/l	Daily Max.	Jan-Dec	24-Hour Flow Composite	1 x /Month	
Nickel, Total (as Ni	2.60	mg/l	Four Day Ave.	Jan-Dec	24-Hour Flow Composite	1 x /Month	
pH	9.00	SU	Instantaneous Maximum	Jan-Dec	Grab	1 x /Day	
pH	5.00	SU	Instantaneous Minimum	Jan-Dec	Grab	1 x /Day	

Zinc, Total (as Zn)	4.20	mg/l	Daily Max.	Jan-Dec	24-Hour Flow Composite	1 x /Month	
Zinc, Total (as Zn)	2.60	mg/l	Four Day Ave.	Jan-Dec	24-Hour Flow Composite	1 x /Month	

WS 002: Interconnect (West) Building Pretreated Wastewsater Discharge to POTW

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Cadmium, Total (as Cd)	0.70	mg/l	Calendar Qrtr Ave.	Jan-Dec	24-Hour Flow Composite	1 x /Quarter	
Cadmium, Total (as Cd)	0.11	mg/l	Daily Max.	Jan-Dec	24-Hour Flow Composite	1 x /Quarter	4
Chromium, Total (as Cr)	1.71	mg/l	Calendar Qrtr Ave.	Jan-Dec	24-Hour Flow Composite	1 x /Quarter	4
Chromium, Total (as Cr)	2.77	mg/l	Daily Max.	Jan-Dec	24-Hour Flow Composite	1 x /Quarter	1
Copper, Total (as Cu)	2.07	mg/l	Calendar Qrtr Ave.	Jan-Dec	24-Hour Flow Composite	1 x /Quarter	1
Copper, Total (as Cu)	3.38	mg/l	Daily Max.	Jan-Dec	24-Hour Flow Composite	1 x /Quarter	1
Cyanide, Total (as CN)	0.65	mg/l	Calendar Qrtr Ave.	Jan-Dec	24-Hour Flow Composite	1 x /Quarter	
Cyanide, Total (as CN)	1.20	mg/l	Daily Max.	Jan-Dec	24-Hour Flow Composite	1 x /Quarter	
Flow	Monitor Only	MGD	Calendar Month Ave.	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)	0.43	mg/l	Calendar Month Ave.	Jan-Dec	24-Hour Flow Composite	1 x /Quarter	
Lead, Total (as Pb)	0.69	mg/l	Daily Max.	Jan-Dec	24-Hour Flow Composite	1 x /Quarter	
Nickel, Total (as Ni)	2.38	mg/l	Calendar Qrtr Ave.	Jan-Dec	24-Hour Flow Composite	1 x /Quarter	
Nickel, Total (as Ni)	3.98	mg/l	Daily Max.	Jan-Dec	24-Hour Flow Composite	1 x /Quarter	
pH	9	SU	Instantaneous Maximum	Jan-Dec	Grab	1 x /Day	
pH	6	SU	Instantaneous Minimum	Jan-Dec	Grab	1 x /Day	
Silver, Total (as Ag)	0.24	mg/l	Calendar Qrtr Ave.	Jan-Dec	24-Hour Flow Composite	1 x /Quarter	

Silver, Total (as Ag)	0.43	mg/l	Daily Max.	Jan-Dec	24-Hour Flow Composite	1 x /Quarter	
Zinc, Total (as Zn)	1.48	mg/l	Calendar Qrtr Ave.	Jan-Dec	24-Hour Flow Composite	1 x /Quarter	
Zinc, Total (as Zn)	2.61	mg/l	Daily Max.	Jan-Dec	24-Hour Flow Composite	1 x /Quarter	

Multek Flexible Circuits Inc
Limits and Monitoring Requirements

The Permittee shall comply with the limits and monitoring requirements as specified below.

Notes:
1 -- Flow measured shall be representative of the flow from the permitted Metal Finishing process, including all Metal Finishing batch discharges. Flow measurement shall not include RO concentrate wastewater flow. Flow shall be measured by a continuous flow meter read daily, and/or summation of measured batch discharges.
2 -- Flow measured shall be representative of the flow from the permitted electroplating process, including all electroplating batch discharges. Flow measurement shall not include RO concentrate wastewater flow. Flow shall be measured by a continuous flow meter read daily, and/or summation of measured batch discharges.
3 -- If cyanide is used at the facility, cyanide monitoring samples shall be taken at a point representative of the cyanide containing process flow following treatment, with no dilution flow such as cooling water or domestic wastewater and prior to mixing with other electroplating waste streams. If cyanide is not used at the facility, sampling shall be representative of the flow from the permitted electroplating process, including all electroplating batch discharges.
4 -- If cyanide is used at the facility, cyanide monitoring samples shall be taken at a point representative of the cyanide containing process flow following treatment, with no dilution flow such as cooling water or domestic wastewater and prior to mixing with other metal finishing waste streams. If cyanide is not used at the facility, sampling shall be representative of the flow from the permitted Metal Finishing process, including all Metal Finishing batch discharges.
5 -- The discharge limitations listed are for new sources under the pretreatment standards. The Calendar Month Average limit for existing sources under pretreatment standards for cadmium is 0.26 mg/l (see 40 CFR 433.15).
6 -- The discharge limitations listed are for new sources under the pretreatment standards. The Daily Maximum limit for existing sources under pretreatment standards for cadmium is 0.69 mg/l (see 40 CFR 433.15).
7 -- Values for Cu, Ni, Cr, Zn added together.

Chapter 1. Industrial Pretreatment

1. Authorization

1.1 This chapter authorizes the Permittee to discharge treated metal finishing and electroplating process wastewater generated at the facility to the City of Northfield Wastewater Treatment Facility. This activity is limited by the 'Limits and Monitoring' section of this permit, as well as the other terms and conditions of this permit, and the general and categorical pretreatment standards in 40 CFR 413 and 433. 40 CFR 413 applies to the discharge of regulated waste stream from 'WS-001: Interconnect (East) Building Pretreated Wastewater Discharge to POTW'; 40 CFR 433 applies to the discharge of regulated waste streams from 'WS-002: Materials (West) Building Pretreated Wastewater Discharge to POTW.'

1.2 The Permittee has certified that no constituents of Total Toxic Organics (TTO) are used in the Interconnect (East) Building (waste stream WS-001). Use of materials or products with constituents of TTO are not authorized by this permit, except as provided in subpart 4.1 of this chapter.

1.3 The Permittee has certified that constituents of Total Toxic Organics (TTO) are used in the Materials (West) Building (waste stream WS-002); the applicable daily maximum limitation for Total Toxic Organics is 2.13 milligrams per liter (40 CFR 433.16). Use of materials or products with constituents of TTO are authorized by this permit under the terms and conditions of this permit.

2. Local Limits

2.1 In addition to the terms of this permit, the Permittee must also comply with the prohibitions of the State General Pretreatment Regulations (Minn. R. 7049.0140); any local prohibitions and effluent limitations; and, any other requirements imposed by the POTW to which the Permittee discharges. In the event of a discrepancy between the limitations in this permit and any local prohibitions or requirements, the most restrictive limitations are controlling.

3. Sampling and Analysis Plan

3.1 The Sampling and Analysis Plan shall be designed to obtain representative sampling of the Metal Finishing and Electroplating wastewater discharge with no dilution water, and shall describe:

a. How and at what point wastewater flow will be measured;

b. How, when, and at what point pH will be measured;

c. How and where wastewater samples will be obtained;

d. All routine batch dumps; and

e. How batch dumps will be monitored to ensure that sampling is representative.

3.2 The Permittee shall maintain the Sampling and Analysis Plan on-site and shall amend the Plan whenever needed to reflect changes in process discharge or monitoring procedures; changes to the Plan shall be submitted to MPCA within 30 days of the change(s).

4. Toxic Organics

4.1 The Permittee shall investigate its chemical usage to determine whether any of the constituents of Total Toxic Organics (TTO) are used at the facility. The constituents of TTO are listed in Appendix 1 of this permit.

Self-Monitoring Report

4.2 Submit a Self-Monitoring Report by the end of each calendar quarter following permit issuance. A self-monitoring report consists of either the Total Toxic Organics (TTO) sampling and analysis results, or a certification on the form provided in the Appendices Section of this permit indicating there are no TTO constituents present in the wastewater.

Chapter 1. Industrial Pretreatment

4. Toxic Organics

4.3 If the certification statement CAN be made, the certification statement may be signed by an authorized representative of the company and submitted in lieu of reporting self-monitoring results for the constituents of Total Toxic Organics (TTO).

4.4 If the certification statement CANNOT be made, the results of Total Toxic Organics (TTO) sampling and analysis must be included as part of the self-monitoring report. Sampling and analysis for TTO is required for those components comprising TTO that can reasonably be expected to be present in the discharge. The Permittee is responsible for comparing the constituents of TTO to those chemicals and chemical compounds used or stored at the facility to determine which regulated organics could potentially be present in the wastewater.

5. Removed Substances

5.1 Removed substances must be evaluated to determine if they are hazardous waste under the Minnesota Hazardous Waste Rules (Minn. R. ch. 7045), and if hazardous, managed in accordance with these Rules.

Chapter 2. Facility Specific Definitions

1. Definitions

1.1 "24-hour Flow Composite Sample" is a composite sample taken over the operating hours of one day, including all clean-up.

1.2 "Act" means the federal Clean Water Act, as amended, 33 U.S. Code 1251 et seq.

1.3 "Agency" means the Minnesota Pollution Control Agency (MPCA).

1.4 "Calendar Month Average" is calculated by adding all daily values measured during a calendar month and dividing by the number of daily values measured during that month. The "Calendar Month Average" limit is an upper limit.

1.5 "Calendar Quarter Average" is calculated by adding all daily values measured during a calendar quarter and dividing by the number of daily values measured during that quarter. The "Calendar Quarter Average" is an upper limit.

1.6 "CFR" means the Code of Federal Regulations.

1.7 "Daily Maximum" means the maximum allowable discharge of pollutant during a calendar day. Where daily maximum limitations are expressed in units of mass, the daily discharge is the total mass discharged over the course of the day. Where daily maximum limitations are expressed in terms of a concentration, the daily discharge is the arithmetic average measurement of the pollutant concentration derived from all measurements taken that day. The "Daily Maximum" is an upper limit.

1.8 "Dilution Water" means wastewater from a pretreatment facility that is not production wastewater, such as boiler blowdown streams, non-contact cooling streams, stormwater streams, and demineralization streams, except if such streams contain a significant amount of pollutant that would result in reduction of the pollutant if combined prior to pretreatment.

1.9 "DMR" means the Discharge Monitoring Report form.

1.10 "Discharge" or "Indirect Discharge" means the introduction of pollutants into a POTW from any non-domestic source regulated under section 307(b), (c) or (d) of the Act.

1.11 "Electroplating Process Wastewater" is wastewater generated in operations from existing job shops and independent circuit board manufacturers, in which metal is electroplated on any basis material and to related metal finishing operations, as described by the relevant subcategory of 40 CFR 413.

Chapter 2. Facility Specific Definitions

1. Definitions

1.12 "Existing Source" means any building, structure, facility or installation from which there is or may be a discharge of pollutants and which was in existence at the time of the publication of proposed pretreatment standards under section 307(c) of the Act. Existing sources which become industrial users subsequent to the promulgation of an applicable categorical pretreatment standard shall be considered existing industrial users, except where such sources meet the definition of a new sources, as defined by this permit.

1.13 "Flow Composite" sample type is a combination of individual grab samples taken at periodic intervals over the defined time period. Either samples taken at equal time intervals shall be combined using a volume of each sample that is proportional to the flow that sample represents, or equal volume samples shall be combined that are taken at intervals of equal flow volumes.

1.14 "Four-Day Average" is calculated by adding the values of samples taken in four (4) consecutive monitoring events and dividing the sum by four (4). Each monitoring event shall be representative of one operating day. The "Four-Day Average" is an upper limit.

1.15 "Grab" sample type is an individual sample collected from one location at one point in time.

1.16 "Independent Circuit Board Manufacturer" means a facility which manufactures printed circuit boards primarily for sale to other companies.

1.17 "Industrial User" means a source of indirect discharge.

1.18 "Instantaneous Minimum" is the lowest value recorded when continuous monitoring is used or when the reporting frequency is not specifically defined. The "Instantaneous Minimum" is a lower limit. The lowest value recorded is reported.

1.19 "Job Shop" means a facility that owns not more than 50% (annual area basis) of the materials undergoing metal finishing.

1.20 "MPCA" means the Minnesota Pollution Control Agency, or Minnesota Pollution Control Agency staff as delegated by the Minnesota Pollution Control Agency.

1.21 "Metal Finishing" is any one of the following six metal finishing operations on any basis material: Electroplating, Electroless Plating, Anodizing, Coating (chromating, phosphating, and coloring), Chemical Etching and Milling, and Printed Circuit Board Manufacture and 40 associated process operations (see 40 CFR 433.10), except for metallic platemaking and gravure cylinder preparation conducted within or for printing and publishing facilities; and existing job shops and independent circuit board manufacturers that are covered by 40 CFR 413.

1.22 "New Source" means any building, structure, facility or installation from which there is or may be a discharge of pollutants, the construction of which commenced after the publication of proposed pretreatment standards under section 307(c) of the Act which will be applicable to such source if such standards are thereafter promulgated in accordance with that section, provided that:

a. The building, structure, facility or installation is constructed at a site at which no other source is located; or

b. The building, structure, facility or installation totally replaces the process or production equipment that causes the discharge of pollutants at an existing source; or

c. The production or wastewater generating processes of the building, structure, facility or installation are substantially independent of an existing source at the same site. In determining whether these are substantially independent, factors such as the extent to which the new facility is integrated with the existing plant, and the extent to which the new facility is engaged in the same general type of activity as the existing source should be considered.

Chapter 2. Facility Specific Definitions

1. Definitions

1.23 "POTW or Publicly Owned Treatment Works" means a wastewater treatment works owned and operated by a municipality or sanitary district for public use, and the authority operating such a treatment works.

1.24 "Permittee" means the entity identified as Permittee on the cover letter authorizing coverage under this permit.

1.25 "Pass Through" means a discharge which exits the POTW into waters of the State in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation).

1.26 "Pretreatment" means the reduction of the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties in wastewater prior to or in lieu of discharging or otherwise introducing such pollutants into a POTW. The reduction or alteration may be obtained by physical, chemical or biological processes, process changes or by other means, except as prohibited by 40 CFR 403.6 (d). Appropriate pretreatment technology includes control equipment, such as equalization tanks or facilities, for protection against surges or slug loadings that might interfere with or otherwise be incompatible with the POTW. However, where wastewater from a regulated process is mixed in an equalization facility with unregulated wastewater or with wastewater from another regulated process, the effluent from the equalization facility must meet an adjusted pretreatment limit calculated in accordance with 40 CFR 403.6 (e).

1.27 "Single Value" is a reported value from a single sample or measurement for which there is no limit.

1.28 "Total Metals" means the sum of the concentration or mass of copper, nickel, chromium (total), and zinc.

1.29 "Total Toxic Organics or TTO" means the summation of all values greater than 0.01 milligrams per liter (mg/l) for the toxic organics listed in Appendix 1of this permit and found in the discharge from the Permittee's facility.

Chapter 3. Waste Stream Stations

1. Requirements for Specific Stations

1.1 WS 001: Submit a monthly DMR monthly by 21 days after the end of each calendar month following permit issuance.

1.2 WS 002: Submit a quarterly DMR quarterly by 21 days after the end of each calendar quarter following permit issuance.

2. Sampling Location

2.1 Samples for Station WS-001 (Interconnect (east) Building) shall be taken at a point representative of the total process discharge of regulated waste streams from the Facility to the City of Northfield, including batch dumps. Samples shall not include dilution flow.

2.2 Samples for Station WS-002 (Materials (west) Building) shall be taken at a point representative of the total process discharge of regulated waste streams from the Facility to the City of Northfield, including batch dumps. Samples shall not include dilution flow.

2.3 If sampling includes dilution flow, the combined waste stream formula (40 CFR 403.6 (e) would apply, which will involve a change in the limitations expressed in the 'Limits and Monitoring' section of the permit. A change to the 'Limits and Monitoring' section would require the need for a permit modification.

Chapter 4. Total Facility Requirements

1. General Requirements

General Requirements

Chapter 4. Total Facility Requirements

1. General Requirements

1.1 No Discharge. There shall be no discharge to surface water from these facilities.

1.2 Incorporation by Reference. The following applicable federal and state laws are incorporated by reference in this permit, are applicable to the Permittee, and are enforceable parts of this permit: 40 CFR pts. 122.41, 122.42, 136, 403 and 503; Minn. R. pts. 7001, 7041, 7045, 7050, 7052, 7053, 7060, and 7080; and Minn. Stat. Sec. 115 and 116.

1.3 Permittee Responsibility. The Permittee shall perform the actions or conduct the activity authorized by the permit in compliance with the conditions of the permit and, if required, in accordance with the plans and specifications approved by the Agency. (Minn. R. 7001.0150, subp. 3, item E)

1.4 Toxic Discharges Prohibited. Whether or not this permit includes effluent limitations for toxic pollutants, the Permittee shall not discharge a toxic pollutant except according to Code of Federal Regulations, Title 40, sections 400 to 460 and Minnesota Rules 7050, 7052, 7053 and any other applicable MPCA rules. (Minn. R. 7001.1090, subp.1, item A)

1.5 Nuisance Conditions Prohibited. The Permittee's discharge shall not cause any nuisance conditions including, but not limited to: floating solids, scum and visible oil film, acutely toxic conditions to aquatic life, or other adverse impact on the receiving water. (Minn. R. 7050.0210 subp. 2)

1.6 Property Rights. This permit does not convey a property right or an exclusive privilege. (Minn. R. 7001.0150, subp. 3, item C)

1.7 Liability Exemption. In issuing this permit, the state and the MPCA assume no responsibility for damage to persons, property, or the environment caused by the activities of the Permittee in the conduct of its actions, including those activities authorized, directed, or undertaken under this permit. To the extent the state and the MPCA may be liable for the activities of its employees, that liability is explicitly limited to that provided in the Tort Claims Act. (Minn. R. 7001.0150, subp. 3, item O)

1.8 The MPCA's issuance of this permit does not obligate the MPCA to enforce local laws, rules, or plans beyond what is authorized by Minnesota Statutes. (Minn. R. 7001.0150, subp.3, item D)

1.9 Liabilities. The MPCA's issuance of this permit does not release the Permittee from any liability, penalty or duty imposed by Minnesota or federal statutes or rules or local ordinances, except the obligation to obtain the permit. (Minn. R. 7001.0150, subp.3, item A)

1.10 The issuance of this permit does not prevent the future adoption by the MPCA of pollution control rules, standards, or orders more stringent than those now in existence and does not prevent the enforcement of these rules, standards, or orders against the Permittee. (Minn. R. 7001.0150, subp.3, item B)

1.11 Severability. The provisions of this permit are severable, and if any provisions of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby.

1.12 Compliance with Other Rules and Statutes. The Permittee shall comply with all applicable air quality, solid waste, and hazardous waste statutes and rules in the operation and maintenance of the facility.

1.13 Inspection and Entry. When authorized by Minn. Stat. Sec. 115.04; 115B.17, subd. 4; and 116.091, and upon presentation of proper credentials, the agency, or an authorized employee or agent of the agency, shall be allowed by the Permittee to enter at reasonable times upon the property of the Permittee to examine and copy books, papers, records, or memoranda pertaining to the construction, modification, or operation of the facility covered by the permit or pertaining to the activity covered by the permit; and to conduct surveys and investigations, including sampling or monitoring, pertaining to the construction, modification, or operation of the facility covered by the permit or pertaining to the activity covered by the permit. (Minn. R. 7001.0150, subp.3, item I)

Chapter 4. Total Facility Requirements

1. General Requirements

1.14 Control Users. The Permittee shall regulate the users of its wastewater treatment facility so as to prevent the introduction of pollutants or materials that may result in the inhibition or disruption of the conveyance system, treatment facility or processes, or disposal system that would contribute to the violation of the conditions of this permit or any federal, state or local law or regulation.

Sampling

1.15 Representative Sampling. Samples and measurements required by this permit shall be conducted as specified in this permit and shall be representative of the discharge or monitored activity. (40 CFR 122.41 (j)(1))

1.16 Additional Sampling. If the Permittee monitors more frequently than required, the results and the frequency of monitoring shall be reported on the Discharge Monitoring Report (DMR) or another MPCA-approved form for that reporting period. (Minn. R. 7001.1090, subp. 1, item E)

1.17 Certified Laboratory. A laboratory certified by the Minnesota Department of Health shall conduct analyses required by this permit. Analyses of dissolved oxygen, pH, temperature and total residual oxidants (chlorine, bromine) do not need to be completed by a certified laboratory but shall comply with manufacturers specifications for equipment calibration and use. (Minn. Stat. Sec. 144.97 through 144.98 and Minn. R. 4740.2010 and 4740.2050 through 4740.2120) (Minn. R. 4740.2010 and 4740.2050 through 2120)

1.18 Sample Preservation and Procedure. Sample preservation and test procedures for the analysis of pollutants shall conform to 40 CFR Part 136 and Minn. R. 7041.3200.

1.19 Equipment Calibration: Flow meters, pumps, flumes, lift stations or other flow monitoring equipment used for purposes of determining compliance with permit shall be checked and/or calibrated for accuracy at least twice annually. (Minn. R. 7001.0150, subp. 2, items B and C)

1.20 Maintain Records. The Permittee shall keep the records required by this permit for at least three years, including any calculations, original recordings from automatic monitoring instruments, and laboratory sheets. The Permittee shall extend these record retention periods upon request of the MPCA. The Permittee shall maintain records for each sample and measurement. The records shall include the following information (Minn. R. 7001.0150, subp. 2, item C):

a. The exact place, date, and time of the sample or measurement;

b. The date of analysis;

c. The name of the person who performed the sample collection, measurement, analysis, or calculation; and

d. The analytical techniques, procedures and methods used; and

e. The results of the analysis.

Chapter 4. Total Facility Requirements

1. General Requirements

1.21 Completing Reports. The Permittee shall submit the results of the required sampling and monitoring activities on the forms provided, specified, or approved by the MPCA. The information shall be recorded in the specified areas on those forms and in the units specified. (Minn. R. 7001.1090, subp. 1, item D; Minn. R. 7001.0150, subp. 2, item B)

Required forms may include:

Supplemental Report Form (Supplemental)
Individual values for each sample and measurement must be recorded on the Supplemental which, if required, will be provided by the MPCA. Supplementals shall be submitted with the appropriate DMRs. You may design and use your own Supplemental; however it must be approved by the MPCA. Note: Required Summary information MUST also be recorded on the DMR. Summary information that is submitted ONLY on the Supplemental does not comply with the reporting requirements.

1.22 Submitting Reports. DMRs and Supplementals shall be submitted to:

MPCA
Attn: Discharge Monitoring Reports
520 Lafayette Road North
St. Paul, Minnesota 55155-4194.

DMRs and Supplementals shall be postmarked by the 21st day of the month following the sampling period or as otherwise specified in this permit. A DMR shall be submitted for each required station even if no discharge occurred during the reporting period. (Minn. R. 7001.0150, subps. 2.B and 3.H)

Other reports required by this permit shall be postmarked by the date specified in the permit to:

MPCA
Attn: WQ Submittals Center
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

1.23 Incomplete or Incorrect Reports. The Permittee shall immediately submit an amended report or DMR to the MPCA upon discovery by the Permittee or notification by the MPCA that it has submitted an incomplete or incorrect report or DMR. The amended report or DMR shall contain the missing or corrected data along with a cover letter explaining the circumstances of the incomplete or incorrect report. (Minn. R. 7001.0150 subp. 3, item G)

1.24 Required Signatures. All DMRs, forms, reports, and other documents submitted to the MPCA shall be signed by the Permittee or the duly authorized representative of the Permittee. Minn. R. 7001.0150, subp. 2, item D. The person or persons that sign the DMRs, forms, reports or other documents must certify that he or she understands and complies with the certification requirements of Minn. R. 7001.0070 and 7001.0540, including the penalties for submitting false information. Technical documents, such as design drawings and specifications and engineering studies required to be submitted as part of a permit application or by permit conditions, must be certified by a registered professional engineer. (Minn. R. 7001.0540)

Chapter 4. Total Facility Requirements

1. General Requirements

1.25 Detection Level. The Permittee shall report monitoring results below the reporting limit (RL) of a particular instrument as "<" the value of the RL. For example, if an instrument has a RL of 0.1 mg/L and a parameter is not detected at a value of 0.1 mg/L or greater, the concentration shall be reported as "<0.1 mg/L." "Non-detected," "undetected," "below detection limit," and "zero" are unacceptable reporting results, and are permit reporting violations. (Minn. R. 7001.0150, subp. 2, item B)

Where sample values are less than the level of detection and the permit requires reporting of an average, the Permittee shall calculate the average as follows:

a. If one or more values are greater than the level of detection, substitute zero for all nondetectable values to use in the average calculation.

b. If all values are below the level of detection, report the averages as "<" the corresponding level of detection.

c. Where one or more sample values are less than the level of detection, and the permit requires reporting of a mass, usually expressed as kg/day, the Permittee shall substitute zero for all nondetectable values. (Minn. R. 7001.0150, subp. 2, item B)

1.26 Records. The Permittee shall, when requested by the Agency, submit within a reasonable time the information and reports that are relevant to the control of pollution regarding the construction, modification, or operation of the facility covered by the permit or regarding the conduct of the activity covered by the permit. (Minn. R. 7001.0150, subp. 3, item H)

1.27 Confidential Information. Except for data determined to be confidential according to Minn. Stat. Sec. 116.075, subd. 2, all reports required by this permit shall be available for public inspection. Effluent data shall not be considered confidential. To request the Agency maintain data as confidential, the Permittee must follow Minn. R. 7000.1300.

Noncompliance and Enforcement

1.28 Subject to Enforcement Action and Penalties. Noncompliance with a term or condition of this permit subjects the Permittee to penalties provided by federal and state law set forth in section 309 of the Clean Water Act; United States Code, title 33, section 1319, as amended; and in Minn. Stat. Sec. 115.071 and 116.072, including monetary penalties, imprisonment, or both. (Minn. R. 7001.1090, subp. 1, item B)

1.29 Criminal Activity. The Permittee may not knowingly make a false statement, representation, or certification in a record or other document submitted to the Agency. A person who falsifies a report or document submitted to the Agency, or tampers with, or knowingly renders inaccurate a monitoring device or method required to be maintained under this permit is subject to criminal and civil penalties provided by federal and state law. (Minn. R. 7001.0150, subp.3, item G., 7001.1090, subps. 1, items G and H and Minn. Stat. Sec. 609.671)

1.30 Noncompliance Defense. It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. (40 CFR 122.41(c))

1.31 Effluent Violations. If sampling by the Permittee indicates a violation of any discharge limitation specified in this permit, the Permittee shall immediately make every effort to verify the violation by collecting additional samples, if appropriate, investigate the cause of the violation, and take action to prevent future violations. Violations that are determined to pose a threat to human health or a drinking water supply, or represent a significant risk to the environment shall be immediately reported to the Minnesota Department of Public Safety Duty Officer at 1(800)422-0798 (toll free) or (651)649-5451 (metro area). In addition, you may also contact the MPCA during business hours. Otherwise the violations and the results of any additional sampling shall be recorded on the next appropriate DMR or report.

Chapter 4. Total Facility Requirements

1. General Requirements

1.32 Unauthorized Releases of Wastewater Prohibited. Except for conditions specifically described in Minn. R. 7001.1090, subp. 1, items J and K, all unauthorized bypasses, overflows, discharges, spills, or other releases of wastewater or materials to the environment, whether intentional or not, are prohibited. However, the MPCA will consider the Permittee's compliance with permit requirements, frequency of release, quantity, type, location, and other relevant factors when determining appropriate action. (40 CFR 122.41 and Minn. Stat. Sec 115.061)

1.33 Discovery of a release. Upon discovery of a release, the Permittee shall:

a. Take all reasonable steps to immediately end the release.

b. Notify the Minnesota Department of Public Safety Duty Officer at 1(800)422-0798 (toll free) or (651)649-5451 (metro area) immediately upon discovery of the release. In addition, you may also contact the MPCA during business hours at 1(800) 657-3864.

c. Recover as rapidly and as thoroughly as possible all substances and materials released or immediately take other action as may be reasonably possible to minimize or abate pollution to waters of the state or potential impacts to human health caused thereby. If the released materials or substances cannot be immediately or completely recovered, the Permittee shall contact the MPCA. If directed by the MPCA, the Permittee shall consult with other local, state or federal agencies (such as the Minnesota Department of Natural Resources and/or the Wetland Conservation Act authority) for implementation of additional clean-up or remediation activities in wetland or other sensitive areas.

d. Collect representative samples of the release. The Permittee shall sample the release for parameters of concern immediately following discovery of the release. The Permittee may contact the MPCA during business hours to discuss the sampling parameters and protocol. In addition, Fecal Coliform Bacteria samples shall be collected where it is determined by the Permittee that the release contains or may contain sewage. If the release cannot be immediately stopped, the Permittee shall consult with MPCA regarding additional sampling requirements. Samples shall be collected at least, but not limited to, two times per week for as long as the release continues.

e. Submit the sampling results as directed by the MPCA. At a minimum, the results shall be submitted to the MPCA with the next DMR.

1.34 Upset Defense. In the event of temporary noncompliance by the Permittee with an applicable effluent limitation resulting from an upset at the Permittee's facility due to factors beyond the control of the Permittee, the Permittee has an affirmative defense to an enforcement action brought by the Agency as a result of the noncompliance if the Permittee demonstrates by a preponderance of competent evidence:

a. The specific cause of the upset;

b. That the upset was unintentional;

c. That the upset resulted from factors beyond the reasonable control of the Permittee and did not result from operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventative maintenance, or increases in production which are beyond the design capability of the treatment facilities;

d. That at the time of the upset the facility was being properly operated;

e. That the Permittee properly notified the Commissioner of the upset in accordance with Minn. R. 7001.1090, subp. 1, item I; and

f. That the Permittee implemented the remedial measures required by Minn. R. 7001.0150, subp. 3, item J.

Chapter 4. Total Facility Requirements

1. General Requirements

Operation and Maintenance

1.35 The Permittee shall at all times properly operate and maintain the facilities and systems of treatment and control, and the appurtenances related to them which are installed or used by the Permittee to achieve compliance with the conditions of the permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. The Permittee shall install and maintain appropriate backup or auxiliary facilities if they are necessary to achieve compliance with the conditions of the permit and, for all permits other than hazardous waste facility permits, if these backup or auxiliary facilities are technically and economically feasible Minn. R. 7001.0150. subp. 3, item F.

1.36 In the event of a reduction or loss of effective treatment of wastewater at the facility, the Permittee shall control production or curtail its discharges to the extent necessary to maintain compliance with the terms and conditions of this permit. The Permittee shall continue this control or curtailment until the wastewater treatment facility has been restored or until an alternative method of treatment is provided. (Minn. R. 7001.1090, subp. 1, item C)

1.37 Solids Management. The Permittee shall properly store, transport, and dispose of biosolids, septage, sediments, residual solids, filter backwash, screenings, oil, grease, and other substances so that pollutants do not enter surface waters or ground waters of the state. Solids should be disposed of in accordance with local, state and federal requirements. (40 CFR 503 and Minn. R. 7041 and applicable federal and state solid waste rules)

1.38 Scheduled Maintenance. The Permittee shall schedule maintenance of the treatment works during non-critical water quality periods to prevent degradation of water quality, except where emergency maintenance is required to prevent a condition that would be detrimental to water quality or human health. (Minn. R. 7001.0150. subp. 3, item F and Minn. R. 7001.0150. subp. 2, item B)

1.39 Control Tests. In-plant control tests shall be conducted at a frequency adequate to ensure compliance with the conditions of this permit. (Minn. R. 7001.0150. subp. 3, item F and Minn. R. 7001.0150. subp. 2, item B)

Changes to the Facility or Permit

1.40 Permit Modifications. No person required by statute or rule to obtain a permit may construct, install, modify, or operate the facility to be permitted, nor shall a person commence an activity for which a permit is required by statute or rule until the Agency has issued a written permit for the facility or activity. (Minn. R. 7001.0030)

Permittees that propose to make a change to the facility or discharge that requires a permit modification must follow Minn. R. 7001.0190. If the Permittee cannot determine whether a permit modification is needed, the Permittee must contact the MPCA prior to any action. It is recommended that the application for permit modification be submitted to the MPCA at least 180 days prior to the planned change.

1.41 Construction. No construction shall begin until the Permittee receives written approval of plans and specifications from the MPCA (Minn. Stat. Sec. 115.03(f)).

Plans, specifications and MPCA approval are not necessary when maintenance dictates the need for installation of new equipment, provided the equipment is the same design size and has the same design intent. For instance, a broken pipe, lift station pump, aerator, or blower can be replaced with the same design-sized equipment without MPCA approval.

If the proposed construction is not expressly authorized by this permit, it may require a permit modification. If the construction project requires an Environmental Assessment Worksheet under Minn. R. 4410, no construction shall begin until a negative declaration is issued and all approvals are received or implemented.

Chapter 4. Total Facility Requirements

1. General Requirements

1.42 Report Changes. The Permittee shall give advance notice as soon as possible to the MPCA of any substantial changes in operational procedures, activities that may alter the nature or frequency of the discharge, and/or material factors that may affect compliance with the conditions of this permit. (Minn. R. 7001.0150, subp. 3, item M)

1.43 Chemical Additives. The Permittee shall receive prior written approval from the MPCA before increasing the use of a chemical additive authorized by this permit, or using a chemical additive not authorized by this permit, in quantities or concentrations that have the potential to change the characteristics, nature and/or quality of the discharge.

The Permittee shall request approval for an increased or new use of a chemical additive at least 60 days, or as soon as possible, before the proposed increased or new use.

This written request shall include at least the following information for the proposed additive:

a. The process for which the additive will be used;
b. Material Safety Data Sheet (MSDS) which shall include aquatic toxicity, human health, and environmental fate information for the proposed additive;
c. A complete product use and instruction label;
d. The commercial and chemical names and Chemical Abstract Survey (CAS) number for all ingredients in the additive (If the MSDS does not include information on chemical composition, including percentages for each ingredient totaling to 100%, the Permittee shall contact the supplier to have this information provided); and
e. The proposed method of application, application frequency, concentration, and daily average and maximum rates of use.

Upon review of the information submitted regarding the proposed chemical additive, the MPCA may require additional information be submitted for consideration. This permit may be modified to restrict the use or discharge of a chemical additive and include additional influent and effluent monitoring requirements.

Approval for the use of an additive shall not justify the exceedance of any effluent limitation nor shall it be used as a defense against pollutant levels in the discharge causing or contributing to the violation of a water quality standard. (Minn. R. 7001.0170)

1.44 MPCA Initiated Permit Modification, Suspension, or Revocation. The MPCA may modify or revoke and reissue this permit pursuant to Minn. R. 7001.0170. The MPCA may revoke without reissuance this permit pursuant to Minn. R. 7001.0180.

1.45 TMDL Impacts. Facilities that discharge to an impaired surface water, or to a watershed or drainage basin that contains impaired waters, may be required, at some future date, to comply with additional permits, or permit requirements, including additional restriction or relaxation of limits and monitoring as authorized by the CWA 303(d)(4)(A)) and 40 CFR 122.44.l.2.i, based on the conclusions of any applicable US EPA approved Total Maximum Daily Load (TMDL) studies, their associated implementation plans or additional sampling or monitoring.

1.46 Permit Transfer. The permit is not transferable to any person without the express written approval of the Agency after compliance with the requirements of Minn. R. 7001.0190. A person to whom the permit has been transferred shall comply with the conditions of the permit. (Minn. R., 7001.0150, subp. 3, item N)

Chapter 4. Total Facility Requirements

1. General Requirements

1.47 Facility Closure. The Permittee is responsible for closure and postclosure care of the facility. The Permittee shall notify the MPCA of a significant reduction or cessation of the activities described in this permit at least 180 days before the reduction or cessation. The MPCA may require the Permittee to provide to the MPCA a facility Closure Plan for approval.

Facility closure that could result in a potential long-term water quality concern, such as the ongoing discharge of wastewater to surface or ground water, may require a permit modification or reissuance.

The MPCA may require the Permittee to establish and maintain financial assurance to ensure performance of certain obligations under this permit, including closure, postclosure care and remedial action at the facility. If financial assurance is required, the amount and type of financial assurance, and proposed modifications to previously MPCA-approved financial assurance, shall be approved by the MPCA. (Minn. Stat. Sec. 116.07, subd. 4)

1.48 Permit Reissuance. If the Permittee desires to continue permit coverage beyond the date of permit expiration, the Permittee shall submit an application for reissuance at least 180 days before permit expiration. If the Permittee does not intend to continue the activities authorized by this permit after the expiration date of this permit, the Permittee shall notify the MPCA in writing at least 180 days before permit expiration.

If the Permittee has submitted a timely application for permit reissuance, the Permittee may continue to conduct the activities authorized by this permit, in compliance with the requirements of this permit, until the MPCA takes final action on the application, unless the MPCA determines any of the following (Minn. R. 7001.0040 and 7001.0160):

a. The Permittee is not in substantial compliance with the requirements of this permit, or with a stipulation agreement or compliance schedule designed to bring the Permittee into compliance with this permit;

b. The MPCA, as a result of an action or failure to act by the Permittee, has been unable to take final action on the application on or before the expiration date of the permit;

c. The Permittee has submitted an application with major deficiencies or has failed to properly supplement the application in a timely manner after being informed of deficiencies.

Appendix 1
Constituents of Total Toxic Organics (TTO)

Acenaphthene
Acrolein
Acrylonitrile
Benzene
Benzidine
Carbon tetrachloride (Tetrachloromethane)
Chlorobenzene
1,2,4-trichlorobenzene
Hexachlorobenzene
1,2,-dichloroethane
1,1,1-trichloroethane
Hexarchloroethane
1,1,-dichloroethane
1,1,2-trichloroethane
1,1,2,2-tetrachloroethane
Chloroethane
Bis (2-chloroethyl) ether
2-chloroethyl vinyl ether (mixed)
2-chloronaphthalene
2,4,6-trichlorophenol
Parachlorometa cresol
Chloroform (trichloromethane)
2-chlorophenol
1,2-dichlorobenzene
1,3-dichlorobenzene
1,4-dichlorobenzene
3,3-dichlorobenzidine
1,1-dichloroethylene
1,2-trans-dichloroethylene
2,4-dichlorophenol
1,2-dichloropropane (1,3-dichloropropene)
2,4-dimethylphenol
2,4-dinitrotoluene
2,6-dinitrotoluene
1,2-diphenylhydrazine
Ethylbenzene
Fluoranthene
4-chlorophenyl phenyl ether
4-bromophenyl phenyl ether
Bis (2-chloroisopropyl) ether
Bis (2-chloroethoxy) methane
Methylene chloride (dichloromethane)
Methyl chloride (chloromethane)
Methyl bromide (bromomethane)
Bromoform (tribromomethane)
Dichlorobromomethane
Chlorodibromomethane
Hexachlorobutadiene
Hexachlorocyclopentadiene
Isophrone
Naphthalene
Nitrobenzene
Nitrophenol
2-nitrophenol
4-nitrophenol
2,4-dinitrophenol
4,6-dinitro-o-cresol
N-nitrosodimethylamine
N-nitrosodiphenylamine
N-nitrosodi-n-propylamine
Pentachlorophenol
Phenol
Bis (2-ethylhexyl) phthalate
Butyl benzyl phthalate
Di-n-butyl phthalate
Di-n-octyl phthalate
Diethyl phthalate
Dimethyl phthalate
1,2-benzanthracene (benzo(a)anthracene)
Benzo(a)pyrene (3,4-benzopyrene)
3,4-Benzofluoranthene (benzo(b)fluoranthene)
11,12-benzofluoranthene (benzo(k)-fluoranthene)
Chrysene
Acenaphthylene
Anthracene
1,12-benzoperylene (benzo(ghi)-perylene)
Fluorene
Phenanthrene
1,2,5,6-dibenzanthracene (dibenzo(a,h)anthracene)
Indeno(1,2,3-cd)pyrene (2,3-o-phenlene pyrene)
Pyrene
Tetrachloroethylene
Toluene
Trichloroethylene
Vinyl chloride (chloroethylene)
Aldrin
Dieldrin
Chlordane (technical mixture and metabolites)
4,4-DDT
4,4-DDE (p,p-DDX)
4,4-DDE (p,p-TDE)
Alpha-endosulfan
Beta-endosulfan
Endosulfan sulfate
Endrin
Endrin aldehyde
Heptachlor
Heptachlor epoxide (BHC-hexachlorocyclohexane)
Alpha-BHC
Beta-BHC
Gamma-BHC
Delta-BHC
(PCB-polychlorinated biphenyls)
PCB-1242 (Arochlor 1242)
PCB-1254 (Arochlor 1254)
PCB-1221 (Arochlor 1221)
PCB-1232 (Arochlor 1232)
PCB-1248 (Arochlor 1248)
PCB-1260 (Arochlor 1260)
PCB-1016 (Arochlor 1016)
Toxaphene
2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD)

Appendix 2
Certification of Non-Use of TTOs

Based on my inquiry of the persons directly responsible for managing this firm's compliance with the TTO limitations prescribed by permit number _____, I certify that, to the best of my knowledge and belief, no dumping of concentrated toxic organics into the POTW system has occurred since filing of the previous self-monitoring report on _____. I further certify that this facility is properly implementing the solvent management plan prepared by this firm and approved by the MPCA on _____.

your permit number

date of previous report

date approved

Date: _____ Signed: _____

Title: _____

Submittals and Actions Checklist
Multek Flexible Circuits Inc

This checklist is intended to assist you in tracking the reporting requirements of your permit. However, it is only an aid. PLEASE CONSULT YOUR PERMIT FOR THE EXACT REQUIREMENTS.

Please note: This checklist only details submittal requirements for the next five years. DMRs, Annual Reports, and many other submittals are required even after the expiration date of this permit, and continue to be due until the permit is either reissued or terminated.

Submit DMRs to:
Attention: Discharge Monitoring Reports
Minnesota Pollution Control Agency
520 Lafayette Rd N
St. Paul, MN 55155

Submit other WQ reports to:
Attention: Submittals Center
Minnesota Pollution Control Agency
520 Lafayette Rd N
St. Paul, MN 55155

MPCA Staff Contacts:
For DMR-related questions:
Belinda Nicholas at (651)757-2613
For other questions:
Gary Simonsen at (651)757-2726

2012

- [ ] Submit DMR (due before Mar 22)
- [ ] Submit a report (due before Apr 1) (Permit Req't. 1.4.2)
- [ ] Submit DMR (due before Apr 22)
- [ ] Submit DMR (due before Apr 22)
- [ ] Submit DMR (due before May 22)
- [ ] Submit DMR (due before Jun 22)
- [ ] Submit a report (due before Jul 1) (Permit Req't. 1.4.2)
- [ ] Submit DMR (due before Jul 22)
- [ ] Submit DMR (due before Jul 22)
- [ ] Submit DMR (due before Aug 22)
- [ ] Submit DMR (due before Sep 22)
- [ ] Submit a report (due before Oct 1) (Permit Req't. 1.4.2)
- [ ] Submit DMR (due before Oct 22)
- [ ] Submit DMR (due before Oct 22)
- [ ] Submit DMR (due before Nov 22)
- [ ] Submit DMR (due before Dec 22)

2013

- [ ] Submit a report (due before Jan 1) (Permit Req't. 1.4.2)
- [ ] Submit DMR (due before Jan 22)
- [ ] Submit DMR (due before Jan 22)
- [ ] Submit DMR (due before Feb 22)
- [ ] Submit DMR (due before Mar 22)
- [ ] Submit a report (due before Apr 1) (Permit Req't. 1.4.2)
- [ ] Submit DMR (due before Apr 22)
- [ ] Submit DMR (due before Apr 22)
- [ ] Submit DMR (due before May 22)
- [ ] Submit DMR (due before Jun 22)
- [ ] Submit a report (due before Jul 1) (Permit Req't. 1.4.2)
- [ ] Submit an application for permit reissuance (due before Jul 4) (Permit Req't. 4.1.48)
- [ ] Submit DMR (due before Jul 22)
- [ ] Submit DMR (due before Jul 22)
- [ ] Submit DMR (due before Aug 22)
- [ ] Submit DMR (due before Sep 22)
- [ ] Submit a report (due before Oct 1) (Permit Req't. 1.4.2)
- [ ] Submit DMR (due before Oct 22)
- [ ] Submit DMR (due before Oct 22)
- [ ] Submit DMR (due before Nov 22)
- [ ] Submit DMR (due before Dec 22)

Submittals and Actions Checklist
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Minnesota Pollution Control Agency
520 Lafayette Rd N
St. Paul, MN 55155

MPCA Staff Contacts:
For DMR-related questions:
Belinda Nicholas at (651)757-2613
For other questions:
Gary Simonsen at (651)757-2726

2010

- [ ] Submit DMR (due before Feb 22)
- [ ] Submit DMR (due before Mar 22)
- [ ] Submit a report (due before Apr 1) (Permit Req't. 1.4.2)
- [ ] Submit DMR (due before Apr 22)
- [ ] Submit DMR (due before Apr 22)
- [ ] Submit DMR (due before May 22)
- [ ] Submit DMR (due before Jun 22)
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- [ ] Submit DMR (due before Oct 22)
- [ ] Submit DMR (due before Oct 22)
- [ ] Submit DMR (due before Nov 22)
- [ ] Submit DMR (due before Dec 22)

2011

- [ ] Submit a report (due before Jan 1) (Permit Req't. 1.4.2)
- [ ] Submit DMR (due before Jan 22)
- [ ] Submit DMR (due before Jan 22)
- [ ] Submit DMR (due before Feb 22)
- [ ] Submit DMR (due before Mar 22)
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- [ ] Submit DMR (due before Oct 22)
- [ ] Submit DMR (due before Oct 22)
- [ ] Submit DMR (due before Nov 22)
- [ ] Submit DMR (due before Dec 22)

2012

- [ ] Submit a report (due before Jan 1) (Permit Req't. 1.4.2)
- [ ] Submit DMR (due before Jan 22)
- [ ] Submit DMR (due before Jan 22)
- [ ] Submit DMR (due before Feb 22)

PERMIT FOR
INDUSTRIAL USER DISCHARGE TO THE
NORTHFIELD, MINNESOTA
MUNICIPAL WASTEWATER TREATMENT FACILITIES

Permit No.: A-1

This permit is issued to:

All Flex, Inc.

and permits the discharge of industrial wastes to the Northfield, Minnesota, Municipal Wastewater Treatment Facilities. Effluent limitations, monitoring requirements, general permit conditions and other specific conditions are set forth in Attachment A of this permit.

Effective Date: 16th day of March, 2010

Expiration Date: 16th day of March, 2015

Issued By: City Council
City of Northfield, Minnesota

Date: March 16, 2010

This permit issued in accordance with the Northfield Code of Ordinances, Use and Rate Regulations for Municipal Wastewater Treatment Facilities.

Attachment A contains pages 1 through 6.

This permit supersedes any prior permit.

ATTACHMENT A
TO
NORTHFIELD, MINNESOTA, INDUSTRIAL USER DISCHARGE PERMIT

A. Initial Permit Application Data.

1. Company Name: All Flex, Inc.

   Mailing Address: 1701 Cannon Lane, Northfield, MN 55057

   Address of Premises: Same as above

   Contact Name: Chris Carlson / Anne Lundstrom

   Title: Chemical Engineer / President

   Phone: (507) 663-7162

2. Standard Industrial Classification Code 3692

3. Product

   All Flex, Inc., manufactures flexible printed circuitry and discharges a waste stream containing heavy metals.

4. Description of Pretreatment Provided, if any:

   Pretreatment includes a neutralization system, and a batch system for recovering concentrated metal solutions.

5. Hours of operation during peak day 24 hours

6. Number of days of operation per week 7

7. Describe any batch or periodic discharges:

   All discharge is continuous.

8. Describe the source and volume of any non-contact cooling water to be discharged to the municipal treatment facility.

NA

B. Permit Effluent Limitations and Monitoring Requirements

1. The permittee is authorized to discharge process wastewater in compliance with the limits and monitoring requirements specified in this permit beginning March 16, 2010 and lasting through March 16, 2015. No discharge may take place under this permit after the above expiration date. In order to receive authorization to discharge after the above expiration date,

the user shall file a permit application with the City of Northfield. The permit application shall consist of a summary of any changes in All Flex, Inc. operations from the most recent permit renewal that may affect permit conditions and any planned operational changes that may affect permit conditions. Applications will be made 180 days prior to the expiration date of the user's existing permit.

2. Discharge limits and monitoring requirements are listed in Table 1.

Table 1 - Discharge Limits and Monitoring Requirements for Flow, BOD and TSS

			Monitoring Requirements	
Effluent Characteristic	**Maximum Daily Limits**	**Average Daily Limits**	**Minimum Measurement Frequency**	**Sample Type**
Flow	35,000 gpd	25,000 gpd	Continuous	Recorded
BOD	18 kg/day	10 kg/day	Monthly	Composite
TSS	7 kg/day	4 kg/day	Monthly	Composite

3. Discharge limits and monitoring requirements for metals and cyanide are listed in Table 2.

Table 2 - Discharge Limits and Monitoring Requirements for Metals and Cyanide

				Monitoring Requirements	
Effluent Characteristic	**Maximum Monthly Average Discharge Limit (kg/day)**	**6 month Rolling Average Discharge Limit (kg/day)**	**Maximum Day Discharge Concentration (ug/L)**	**Minimum Measurement Frequency**	**Sample Type**
Arsenic	0.009	0.005	NA	Monthly	Composite
Cadmium	0.006	0.004	110	Monthly	Composite
Chromium	0.199	0.132	2,770	Monthly	Composite
Copper	0.273	0.181	3,380	Monthly	Composite
Lead	0.085	0.059	690	Monthly	Composite
Mercury	0.006	0.004	NA	Monthly	Composite
Molybdenum	0.007	0.004	NA	Monthly	Composite
Nickel	0.040	0.021	3,980	Monthly	Composite
Selenium	0.010	0.006	NA	Monthly	Composite
Zinc	0.476	0.300	2,610	Monthly	Composite
Cyanide	0.100	0.100	1,200	Monthly	Composite
Cyanide Amenable to Chlorination	0.030	0.030	NA	Monthly	Composite

4. In addition to monitoring requirements listed in Tables 1 and 2, pH shall be between 5.0 and 11.0 at all times.

5. Samples shall be collected in compliance with the monitoring requirements specified in this permit shall be taken at the following location(s):

   At the All Flex, Inc. site, prior to discharge to the municipal wastewater system.

6. In addition, the permittee shall comply with the requirements stated in the Northfield Ordinance for Use and Rate Regulations for Municipal Wastewater Treatment Facilities.

7. The City of Northfield, upon detection of any violations of the limits or monitoring requirements specified herein, shall notify All Flex, Inc. within 24 hours after the test results are obtained. The City shall also re-sample for the violated parameter within 30 days. Detection shall include all required and any other self-monitoring.

8. All Flex, Inc., shall be responsible for continuously monitoring waste flow from its facility. All Flex, Inc., shall be permitted to monitor waste flow by reading its total daily discharge as recorded by the flow monitoring equipment. All Flex, Inc. shall also be responsible for furnishing, installing and maintaining composite sampling equipment for monitoring of waste flow from its facility.

9. Once a month, on a day of the City' s choice, a 24-hour composite sample, shall be collected for analysis by an independent testing laboratory for BOD, SS, and metals and cyanide analysis. The composite sample shall be collected with an automatic sampler operating in conjunction with a flow meter by either of two approvable methods: (1) by withdrawing samples of equal volume in response to incremental changes in totalizer flow, or (2) by withdrawing separate samples every hour for 24-hours and afterwards preparing a composite made up of the 24 samples, the volume of each a constant proportion of the waste flow at the time of withdrawal, as measured by the flow meter.

10. The independent testing laboratory shall be certified by the State of Minnesota. The choice of the independent testing lab shall be by mutual agreement between All Flex, Inc. and the City. Instructions to the testing laboratory will be that both All Flex, Inc., and the City receive copies of the results. All costs involved in the testing shall be billed to All Flex, Inc..

11. All Flex, Inc. shall be responsible for calibrating and performing maintenance on its analytical instruments as required to insure accuracy of measurements. In the event that flow monitoring equipment and/or sampling equipment must be out of service for any length of time, All Flex, Inc., shall inform the City of the condition and the estimated duration of non-service.

12. All Flex, Inc. shall grant to the City access to the industry' s flow metering and sampling equipment at the City' s request for the purpose of inspection or data collection. The City shall also have authority to enter the industry' s facility at any time for purposes of installation of its own monitoring equipment.

13. If any of the metals (or cyanide) is not detected at minimum detection limit in any of the first three composite samples collected from All Flex, the metal (or cyanide) shall be excluded from the list of effluent characteristics to be monitored monthly, and thereafter, monitored

annually. If the metal (or cyanide) is measured at or above its detection limit during the annual testing, it shall be monitored monthly until it is not detected at its minimum limit in three consecutive monthly samples.

14. The average concentration of the composite samples analyzed during each month by the independent testing laboratory, and the average daily flow for the month shall be utilized to calculate the maximum monthly average discharge for the given month. The 6-month rolling average will be calculated based on the maximum monthly average discharge calculation for each month of the 6-month period.

C. Submission of Reports and Records

1. The permittee shall notify the City of Northfield, in writing, of any discharge of a substance that would, if otherwise disposed of, be considered a hazardous waste under 40 CFR Part 261. Notification shall take place at least 30 days before the date of discharge and conform to 40 CFR Section 403.12(p). No discharge of any hazardous wastes may take place without prior approval of the City of Northfield.

2. All Flex, Inc., shall submit to the City once a month a report containing daily records of waste flow. The report shall be submitted to the City no later than the eighth day of each month unless All Flex, Inc. makes arrangements with the City for reporting. The monthly report shall contain daily records for the previous month. The average daily flow for the month shall be calculated in the report.

3. The failure to submit a monthly report shall be considered a violation of the conditions of this discharge permit and shall be subject to the violation procedures.

4. The permittee shall include in their monthly reports a summary of all self monitoring conducted by the permittee. The permittee shall grant access to the City to review all self monitoring records upon the City's request.

D. VIOLATIONS AND VIOLATION PROCEDURES

1. The discharge of a waste not in compliance with the effluent limitations set forth in Section B of this permit shall be considered a violation subject to the violation procedures and/or violation fines described herein.

   a. If the result of the laboratory analysis for any monthly 24-hour composite sample yields a BOD or SS loading in excess of the maximum day limitation, a violation of the conditions of this permit shall have occurred. The City is authorized to draw another composite sample for BOD and SS for analysis immediately after receiving the laboratory analysis result indicating a violation or soon thereafter at a date of the City's choice. The costs involved in analyzing this supplemental composite sample shall be billed to All Flex. The supplemental sample is not to be analyzed for metals or cyanide.

   b. If the result of the laboratory analysis of the second 24-hour composite sample yields a second consecutive violation of either BOD or SS, the City is authorized to draw another composite sample for lab analysis, and to continue drawing samples for

analysis for as long as the violation of monthly average limitations continues, with all costs involved in the testing billed to All Flex

c. If the arithmetic mean of any three consecutive BOD or SS measurements, from either three regular monthly composite samples, or three consecutive supplemental composites, or three consecutive tests that are a combination of the two, exceeds the effluent limitations for the average of three consecutive measurements set forth in Section B of this permit, All Flex shall be subject to a fine the amount of which is to be determined by the City, not to exceed $500.00.

d. If the result of a regular monthly composite sample analysis yields a heavy metal or cyanide loading or concentration in excess of the maximum day limitation, a violation of the conditions of this permit shall have occurred and All Flex shall be subject to a fine the amount of which is to be determined by the City, not to exceed $500.00.

e. If any daily flow from All Flex or the average flow of any three consecutive months exceeds the quantities set forth in Section B of this permit, All Flex shall be subject to a fine the amount of which is to be determined by the City, not to exceed $100.00.

2. Any missing figures or discontinuity in the flow record submitted to the City each month shall be interpreted as a violation, with each day on which a flow measurement is absent constituting a separate violation.

3. If the monthly monitoring report for any reason is not submitted to the City by the eighth day of the month, All Flex shall notify the City to explain reasons for the tardiness, at which time the City may assess a fine not to exceed $100.00. Each subsequent day on which the report is not received shall be a violation subject to an additional $100.00 fine.

E. General Conditions

1. Industrial wastewater discharges from a permittee shall be in accordance with applicable provisions of the Northfield Code of Ordinances and this Permit.

2. The permittee shall not knowingly make a false statement, representation or certification in any record, report, or plan required to be submitted to the City of Northfield under the provisions of the Northfield Code of Ordinances, or this Permit.

3. This Permit is non-transferable.

4. The permittee shall maintain and retain plant records relating to wastewater discharge as specified by the City for a minimum of three years.

5. The permittee shall notify the City of Northfield immediately of any slug or accidental discharge of a substance or wastewater in violation of the Northfield Code of Ordinances or this Permit.

6. The permittee shall install, operate, and maintain sampling and monitoring devices in proper working order at his own expense, if required by this Permit.

7. The permittee shall allow the City of Northfield personnel to enter upon the Permittee's premise to inspect any monitoring point, collect samples, and determine compliance with the Northfield Code of Ordinances, the Federal Pretreatment Regulations, and this permit.

8. The City of Northfield may revoke the permit of any user if he fails to comply with the conditions of this permit, the Northfield Code of Ordinances, or applicable State and Federal Regulations.

9. In the event of an industrial users noncompliance, the user shall be subject to penalties and surcharge fees in accordance with Northfield Code of Ordinances.

   Surcharge fees and/or penalties on flows and loadings exceeding the limits on Tables 1 and 2 shall be determined on an annual basis by the City Council. Surcharges shall be as outlined in the Sewer Service Charge System adopted by Council resolution.

10. Any significant change in volume or characteristics of industrial wastewater introduced into the Northfield Wastewater Treatment Plant system shall be immediately reported to the Wastewater Superintendent or City Administrator. In such cases this permit may be subject to modification.

11. Notice of any anticipated increase in pollutants contributed shall be given to the City 30 days in advance of such increase, in the form of a new permit application.

12. The terms and conditions of the permit may be subject to modifications by the City of Northfield during the term of the permit as limitations or requirements are modified or other just cause exists. The user shall be informed of any proposed changes in this permit at least 30 days prior to the effective date of change. All Flex, Inc. may request that a transition period for implementation of the permit limitations or requirements be established. Such request must be made in writing prior to the effective date of change.

13. Implementation of major changes in the City of Northfield wastewater treatment plant liquid or solids treatment processes may impact the discharge limits listed in this permit. Upon implementation of any such changes, the City will review the discharge limits and propose any changes deemed appropriate to All Flex, Inc. in writing.

APPENDIX C

EIW
(To Be Inserted Later)

APPENDIX D1

Public Notice Materials
(To Be Inserted Later)

APPENDIX D2

Resolution
(To Be Inserted Later)

APPENDIX D3

Public Hearing Comments
(To Be Inserted Later)

APPENDIX E

SERP Mailing List

Minnesota Pollution Control Agency
520 Lafayette Road
St. Paul, MN 55155-4194

State Environmental Review Process (SERP) Mailing List (Local)* Form

Clean Water State Revolving Fund

Minnesota Rules 7077.0272, subp. 2.a.A.
Minnesota Rules 7077.0277, subp. 3.A.

Doc Type: Environmental Information Worksheet

Municipality name: City of Northfield

Project number:

Public Notice Address Information

This list of addresses for public notice purposes is submitted as required. Please type names and addresses on this form and return to the MPCA Staff Engineer.

1. The Honorable State Senator:

Greg Clausen (Dakota Co.) Vicki Jensen (Rice Co.)
75 Rev. Dr. Martin Luther King Jr. Blvd.
Capitol, Room 303
St. Paul, MN 55155-1606

2. The Honorable State Representative:

Tara Mack (Dakota Co.) Brian Daniels (Rice Co.)
545 State Office Building 551 State Office Building
100 Rev. Dr. Martin Luther King Jr. Blvd.
Saint Paul, Minnesota 55155

3. The Honorable County Board Chair:

Thomas A. Egan (Dakota Co.) Dave Miller (Rice Co.)
Administration Center 431 Tatepaha Blvd
1590 Highway 55 Faribault, MN 55021
Hastings MN 55033-2343

4. The Honorable Mayor:

Dana Graham
City of Northfield
801 Washington St.
Northfield, MN 55057

5. The Honorable Township Board Clerk:**

Castle Rock (Dakota Co.) Bridgewater (Rice Co.)
Barbara Lang Frances Boehning
2537 240th St. W. PO Box 246
Farmington MN 55024 Dundas, MN 55019-0246

6. City Administrator/Clerk:

Deb Little, City Clerk
City of Northfield
801 Washington St.
Northfield, MN 55057-2565

7. Engineering Consultant:

Jon D. Peterson, P.E.
Bolton & Menk, Inc.
1960 Premier Drive
Mankato, MN 56001

8. County Planning and Zoning Office:

Environmental Resources (Dakota Co); Planning & Zoning
Western Service Center (Rice Co.)
14955 Galaxie Ave 320 3rd St. NW
Apple Valley, MN 55124-8579 Faribault, MN 55021

9. Watershed District (if established):

None

10. Regional Development Commission:

Metropolitan Council
390 Robert St. North
St. Paul, MN 55101-1805

* This list should be considered minimum. If a more substantial mailing list is available for the Public Participation Program, it should be submitted along with this typed Mailing List. Use additional pages, if necessary.

** Include if any portion of the project (including the facility, interceptor, influent or outfall lines) will be located in the township(s).

Interested Citizens:

1.
2.
3.
4.
5.
6.
7.
8.
9.
10.

Interested Groups:***

1.
2.
3.
4.
5.
6.
7.
8.
9.
10.

*** i.e., homeowners associations, environmental, business, civic, etc., organizations

Property Owners:****

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

**** Property owner list should include all property owners of the site to be, or which has been previously acquired. For pond systems, include the property owner(s) of the pond site, spray irrigation site(s) and all property owners of homes within one-fourth mile of the pond site and any clusters of homes within one-half mile of the pond site.

Federal Agencies:

U.S. Fish and Wildlife Service
Twin Cities Field Office
4101 American Boulevard East
Bloomington, MN 55425-1665
ATTN: Field Supervisor

U.S. Army Corps of Engineers
St. Paul District
180 Fifth Street East, Suite 700
St. Paul, MN 55101-1678
ATTN: Randy Devendorf
MVP-PD

Federal Emergency Management Agency
Region V Office
536 South Clark Street, 6th Floor
Chicago, IL 60605
ATTN: Amanda Ratliff

State Agencies:

MN Dept. of Natural Resources
Division of Ecological and Water Resources
500 Lafayette Road , Box 25
St. Paul, MN 55155 -4025
ATTN: Steve Colvin

MN Historical Society
State Historic Preservation Office
345 West Kellogg Boulevard
St. Paul, MN 55102-1906
ATTN: Mary Ann Heidemann

MPCA Regional Office(s):

APPENDIX F

Capacity Review Documents

BOLTON & MENK, INC.
Consulting Engineers & Surveyors
1960 Premier Drive • Mankato, MN 56001-5900
Phone (507) 625-4171 • FAX (507) 625-4177

April 4, 2007

Joel Walinski
Public Services Coordinator
City of Northfield
801 Washington Street
Northfield, MN 55057-2598

RE: Wastewater Treatment Facility Capacity Evaluation
City of Northfield, Minnesota

Dear Joel:

Per our discussion, we have prepared a brief overview of the operational treatment capacity of the Wastewater Treatment Facility (WWTF). This overview has been prepared in conjunction with the overall sanitary sewer planning currently under review by the city. WWTF issues can be summarized in three broad categories:

1. WWTF Treatment Capacity
2. Ability of the WWTF to meet community development needs.
3. Expansion capacity of the WWTF at the current site

The following paragraphs will summarize these issues.

1. Wastewater Treatment Capacity

Wastewater Treatment Facility capacity is typically defined in terms of two sets of factors: the wastewater flows to be treated, and the organic and physical strength, or "loading" of the wastewater.

Wastewater flows have two critical components. The first component is the Average Wet Weather Flow (AWWF), which represents the maximum flow that the facility can reliably treat for an extended period of time. The second component is the Peak Hourly Wet Weather Flow (PHWWF), which represents the maximum flow that a facility can treat for a short period of time. The design flows for the facility are as follows:

Average Wet Weather Flow:	5.2 MGD
Peak Hourly Wet Weather Flow:	10.41 MGD

Wastewater loadings are typically defined using a number of components. The Carbonaceous Biochemical Oxygen Demand (CBOD) represents the organic load of the wastewater. Total Suspended Solids represents the amount of "settleable" solids present in the wastewater. Other constituents of concern in the wastewater include Phosphorous and Nitrogen. The design influent parameters for each of these components is as follows:

CBOD (average):	5,600 lbs/day
CBOD (maximum)	10,000 lbs/day
TSS	5,000 lbs/day
Phosphorous	780 lbs/day
TKN	1,120 lbs/day

The flows and loadings for the City of Northfield include residential, commercial and industrial wastewater .

2. **Community Development Needs**

The design flows and loadings summarized above were based on a number of factors. These include historical flows and loadings from the community, projected flows and loadings identified for industries in the community, and the projected service area population for the facility. The service area population utilized as the basis for the WWTF design is summarized as follows:

Northfield Population	26,400
Dundas Population	723
Total Design Population	**27,123**

Note that the Northfield population was projected to increase by 9,600 from 16,800 in 1997 to 26,400 in 2020.

3. **Expansion Capacity**

Expansion of the treatment capacity of the existing wastewater treatment facility can be accomplished by the following methods:

1. Addition of new treatment facilities on site. The facility design included provisions for additional treatment units, which will double the treatment capacity of the facility.
2. Addition of new technologies. New technologies, such as filtration of the wastewater stream prior to discharge to the Cannon River, can be added to the facility, again increasing the treatment capacity of the facility.
3. Reduction of inflow and infiltration in the sanitary sewer system. When peak flows to the facility are reduced, the available capacity of the facility for treatment is essentially increased. The City has already undertaken projects that have reduced inflow and infiltration to the system.
4. Increase the efficiency of existing facility. As we discussed, the existing treatment process of primary clarifiers with parallel plates and biological aerated filters is new technology in the United States. These units have shown the ability to perform at higher levels than was originally expected during the design process. As such, there is potentially additional treatment capacity available with the existing units.

A potential limit on the expansion of the facility is the classification of the river, which receives the wastewater treatment facility effluent. The Cannon River is identified as Outstanding Resource Value Water. Discharge to the river of certain components of the wastewater effluent are limited by the Minnesota Pollution Control Agency (MPCA) in an effort to maintain the water quality of the river. Limits of this type will require that the WWTF will need to remove a larger percentage of the limited components as the community grows and generates larger amounts of wastewater to treat.

Please call me at (507) 625-4171, ext. 1123 to discuss any comments or additional information you require pertaining to this evaluation.

Sincerely,

BOLTON & MENK, INC.

Jon D. Peterson, P.E.
Environmental Engineer

G:\Northfield\M2336881\Corresp\Walinski LT1.doc

April 6, 2005

Heidi Hamilton, P.E.
Public Works Director
City of Northfield
801 Washington Street
Northfield, MN 55057-2598

RE: Wastewater Treatment Facility Evaluation

Dear Heidi:

Per our discussion, we have reviewed the treatment capacity of the Wastewater Treatment Facility. The goal of this review is to determine the operational capacity of the treatment facility for comprehensive planning purposes.

1. **Design Basis**

   The Wastewater Treatment Facility Plan for the City of Northfield, Minnesota was prepared in April 1998 by Bolton & Menk, Inc. Design parameters were outlined in this document. These parameters are summarized as follows:

   a. **Population (Design Year 2020)**

Northfield Population	26,400
Dundas Population	723
Total Design Population	**27,123**

   Note that the Northfield population was projected to increase by 9,600 from 16,800 in 1992 to 26,400 in 2020.

   b. **Flows and Loadings**

   Flows and loadings include residential, commercial and industrial loadings from Northfield as well as residential/commercial flows and loadings from Dundas. The flows and loadings utilized for the facility design are summarized as follows:

	Northfield Residential/ Commercial	Northfield Industrial	Dundas	Total
Average Annual Flow (mgd)	2.245	0.865	0.12	3.23
Average CBOD ((lb/day)	3000	3000	200	6200
Average TSS (lb/day)	3800	1000	200	5000

2. **Industrial Flows and Loadings**

   Northfield has industrial user agreements with three industrial customers – Malt-O-Meal (MOM) Sheldahl and AllFlex. In addition, allocation was made for future unidentified industrial users in the facility plan design load calculations. In subsequent industrial user agreements, some adjustments have been made to the allocations. The following table summarizes the facility plan and current industrial flow and loading allocations. Flows and loadings from industrial sources in Northfield were allocated as follows:

	MOM		Sheldahl		AllFlex		Other		Total	
	Facility Plan Value	Current Agreement Value	Facility Plan Value	Current Agreement Value	Facility Plan Value	Current Agreement Value	Facility Plan Value	Current Agreement Value	Facility Plan Value	Current Agreement Value
Ave. Daily Flow (gpd)	300,000	300,000	400,000	400,000	15,000	15,000	150,000	150,000	865,000	865,000
Ave. Daily CBOD (lb/day)	2200	2200	600	600	22	22	178	178	3000	3000
Ave. Daily TSS (lb/day)	650	1000	200	200	9	9	141	0	1000	1209

3. Operational Capacity

Performance testing of the BAF/Clarification processes were performed by Kruger, Inc. from September 16, 2002 to October 15, 2002. This performance testing showed that the clarification process operates more effectively than the design assumptions. Specifically, the parallel plate clarifiers removed 81% of the influent TSS, compared to a design basis of 40% removal. The clarifiers also removed 69% of the influent CBOD, compared to a design basis 40% removal.

Higher removal rates in the clarifier system will result in a higher overall treatment capacity in the plant. Utilizing a conservative basis of 60% removal in the clarifiers instead of 40% for both CBOD and TSS, the design capacity of the plant increases by 1,240 lb/day CBOD and 1,000 lb/day TSS. Based on these operational capacity increases, the current and available treatment capacity is summarized in the following table.

Operational Capacity			
	ADW Flow (MGD)	**CBOD (lbs/day)**	**TSS (lbs/day)**
Existing Northfield Res/Comm	1.7967	2851	3345
Allocated Unused Northfield Res/Comm	0.4483	149	455
Existing Northfield Industrial	0.2928	1421	481
Unused Northfield Industrial Agreement	0.4222	1401	728
Existing Dundas	0.0585	110	110
Allocated Unused Dundas	0.0615	90	90
Unallocated Design Capacity	0.15	178	-209
Additional "operational" Capacity	0	1240	1000
Total Operational Capacity	**3.23**	**7440**	**6000**

Equivalent population growth capacity for each can be estimated for the facility based on the unused residential/commercial allocations, the unallocated design capacity and the additional "operational" capacity. Using a basis of 100 gpcd for flow, 0.17 lb/capita/day for CBOD, and 0.20 lb/capita/day for TSS, the following table summarizes the currently available equivalent population growth capacity.

Projected Equivalent Population Growth Capacity			
Northfield	4483	876	2275
Dundas	615	529	450
Unallocated	1500	8341	3955
Total	**6598**	**9747**	**6680**

Please call me at (507) 625-4171, ext. 1123 to discuss any comments or additional information you require pertaining to this evaluation.
Sincerely,

BOLTON & MENK, INC.

Jon D. Peterson, P.E.
Project Engineer

APPENDIX G
BIOSOLIDS TREATMENT CALCULATIONS

Biosolids Treatment Comparison							
Labor and Energy calculations							
7/13/2015							
Biosolids Projections	2015	2020	2025	2030	2035		
BOD yield (lb/lb)	0.41	0.41	0.41	0.41	0.41		
BOD (tons/year)	731	1004	1065	1126	1197		
Biosolids from BOD (tons/year)	300	412	437	462	491		
TSS (tons/year)	759	966	1038	1110	1193		
Biosolids (tons/year dry weight)	**1059**	**1378**	**1475**	**1571**	**1684**		
Cake % Solids	26.2%	26.2%	26.2%	26.2%	26.2%		
Cake (tons/year)	4042	5260	5629	5998	6426		
Lime/biosolids cake	17.7%	17.7%	17.7%	17.7%	17.7%		
Lime (tons)	715	931	996	1062	1137		
Lime + biosolids dry wt (tons/year)	1775	2309	2471	2633	2821		
% biosolids final product	42.5%	42.5%	42.5%	42.5%	42.5%		
Lime + Biosolids wet wt (tons/year)	**4176**	**5433**	**5814**	**6195**	**6637**		
Final Cake Volume (CF)	**108564**	**141267**	**151175**	**161082**	**172575**		
180 days storage (CF)	54282	70634	75587	80541	86287		
Projection of Operational Costs							
Biosolids Treatment Option 1- Upgrade Capacity							
Process Throughput (lb/hr dry cake solids)	1000	2000	2000	2000	2000		
Hours operation/year	2118	1378	1475	1571	1684		
Hours operation/week	41	27	28	30	32		
Hours operation per day	8.15	5.30	5.67	6.04	6.48		
Operational Cost							
Labor Cost							
Labor Cost/hr	75.00	75.00	75.00	75.00	75.00		
Labor cost/year	$ 158,865.11	$ 103,360.60	$ 110,609.53	$ 117,858.47	$ 126,267.23	Total Labor/20 yr=	$ 2,371,974
Power Cost							
Process Power (Kw)	117	228	228	228	228		
Kw/hr /year	247,830	314,216	336,253	358,290	383,852		
Cost/KW/hr	$ 0.08	$ 0.08	$ 0.08	$ 0.08	$ 0.08		
Power Cost/year	$ 19,826	$ 25,137	$ 26,900	$ 28,663	$ 30,708	Total Power Cost =	$ 529,840
Biosolids Treatment Option 2- Replace Exist Capacity							
Process Throughput (lb/hr dry cake solids)	1000	1000	1000	1000	1000		
Hours operation/year	2118	2756	2950	3143	3367	Total Hours =	52,662
Hours operation/week	41	53	57	60	65		
Hours operation per day	8.15	10.60	11.34	12.09	12.95		
Operational Cost							
Labor Cost							
Labor Cost/hr'	75.00	75.00	75.00	75.00	75.00		
Labor cost/year	$ 158,865.11	$ 206,721.20	$ 221,219.07	$ 235,716.93	$ 252,534.45	Total Labor/20 yr=	$ 4,346,785
Power Cost							
Process Power (Kw)	117	117	117	117	117		
Kw/hr /year	247,830	322,485	345,102	367,718	393,954		
Cost/KW/hr	$ 0.08	$ 0.08	$ 0.08	$ 0.08	$ 0.08		
Power Cost/year	$ 19,826	$ 25,799	$ 27,608	$ 29,417	$ 31,516	Total Power Cost =	$ 542,479