

National Pollutant Discharge Elimination System/State Disposal System

MN0001317

Permittee: Hope Creamery
Facility name: Hope Creamery
Receiving water: Straight River - Class 2Bg, 3C, 4A, 4B, 5, 6 water;
City or Township: Hope, **County:** Steele
Issuance date: TBD
Expiration date: TBD

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 and to discharge from this facility to the receiving water 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 the U.S. Clean Water Act, Minnesota statutes and rules, and federal laws and regulations.

This permit expires at midnight on the expiration date identified above.

Signature:

This document has been electronically signed.

for the Minnesota Pollution Control Agency

Elise Doucette
Supervisor
Industrial Division

Submit eDMRs

Submit via the MPCA e-Services at
https://rsp.pca.state.mn.us/TEMPO_RSP/Orchestrate.do?initiate=true

Submit WQ reports to:

Electronically: wq.submittals.mPCA@state.mn.us
Include *Water quality submittals form*:
<https://www.pca.state.mn.us/sites/default/files/wq-wwprm7-71.docx>

Or, by mail:

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

*Whole Effluent Testing (WET) and Pretreatment Annual Reports
must be mailed to the WQ Submittals Center*

Questions on this permit?

For eDMR and other permit reporting issues, use the directory listed at the bottom of the DMR page:
<https://www.pca.state.mn.us/water/discharge-monitoring-reports>

For specific permit requirements, contact your compliance staff:
<https://www.pca.state.mn.us/water/wastewater-compliance-and-enforcement-staff-contacts>

Wastewater Permit Program general questions, contact:

MPCA, 651-282-6143 or 1-800-657-3938.

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• Ridge and Furrow LA Stations	
• 10-Step Guide to Land Applying	

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1. Permitted facility description

The Hope Creamery facility (facility) is located at 9043 SW 37th Ave, Somerset Township, Minnesota 56046, Steele County.

The primary activity at this facility is the production of butter from purchased cream. The plant operates two to three days per week, approximately every other week. The facility produces an average of 250,000 pounds and a maximum of 300,000 pounds of butter per year.

The facility discharges process wastewater, wash water and solids (industrial by-products) associated with butter production to a land application system; and non-contact cooling water to the Straight River. Process wastewater from the facility consists of boiler blow-down, compressor water, and equipment and product wash water (including floor drains), all of which is discharged to the land application site. The Permittee also has the ability to direct a portion of the non-contact cooling water flow to the ridge and furrow system to aid in flow distribution. The treatment system consists of a grinder pump, a proposed grease and solids collection system, 3,500 feet of 1 ½ inch force main, and a 1.2-acre ridge and furrow land application site divided up into two 0.6-acre cells (identified as the north and south cells). The ridge and furrow system is planted with reed canary grass. Process wastewater is discharged to the site year-round at an average flow rate of approximately 2,000 gallons per day (gpd) and a maximum rate of 15,000 gpd. Typically, one cutting of the grass crop is removed annually.

The water source for cleaning and the non-contact cooling water is an on-site well. No chemical additives are added to the non-contact cooling water. Non-contact cooling water from the pasteurizing units is discharged to a tile line that discharges to the storm sewer which flows approximately one (1) mile to the Straight River (Class 2Bg, 3C, 4A, 4B, 5, 6 Water) at an average flow rate of 2,200 gpd and a maximum flow rate of 15,000 gpd. Peak flows tend to occur during the summer months when more water is required to cool the pasteurized cream.

Changes to the facility may result in an increase in pollutant loading to surface waters or other causes of degradation to surface waters. If a change to the facility will result in a net increase in pollutant loading or other causes of degradation that exceed the maximum loading authorized through conditions specified in the existing permit, the changes to the facility are subject to antidegradation requirements found in Minn. R. 7050.0250 to 7050.0335.

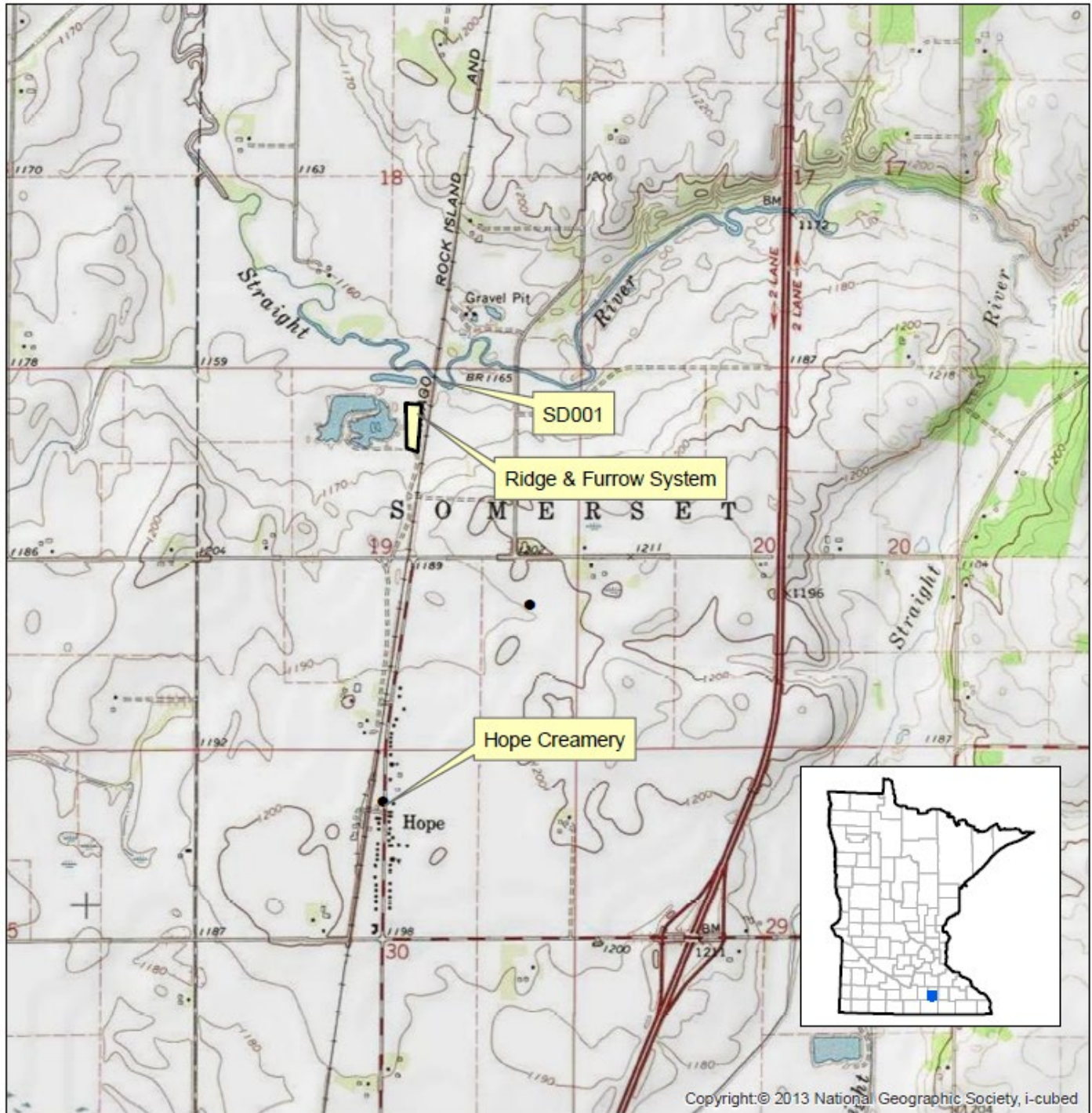
This Permit also complies with Minn. R. 7053.0275 regarding anti-backsliding.

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

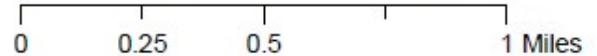
2. Location map of permitted facility

Topographic Map of Permitted Facility

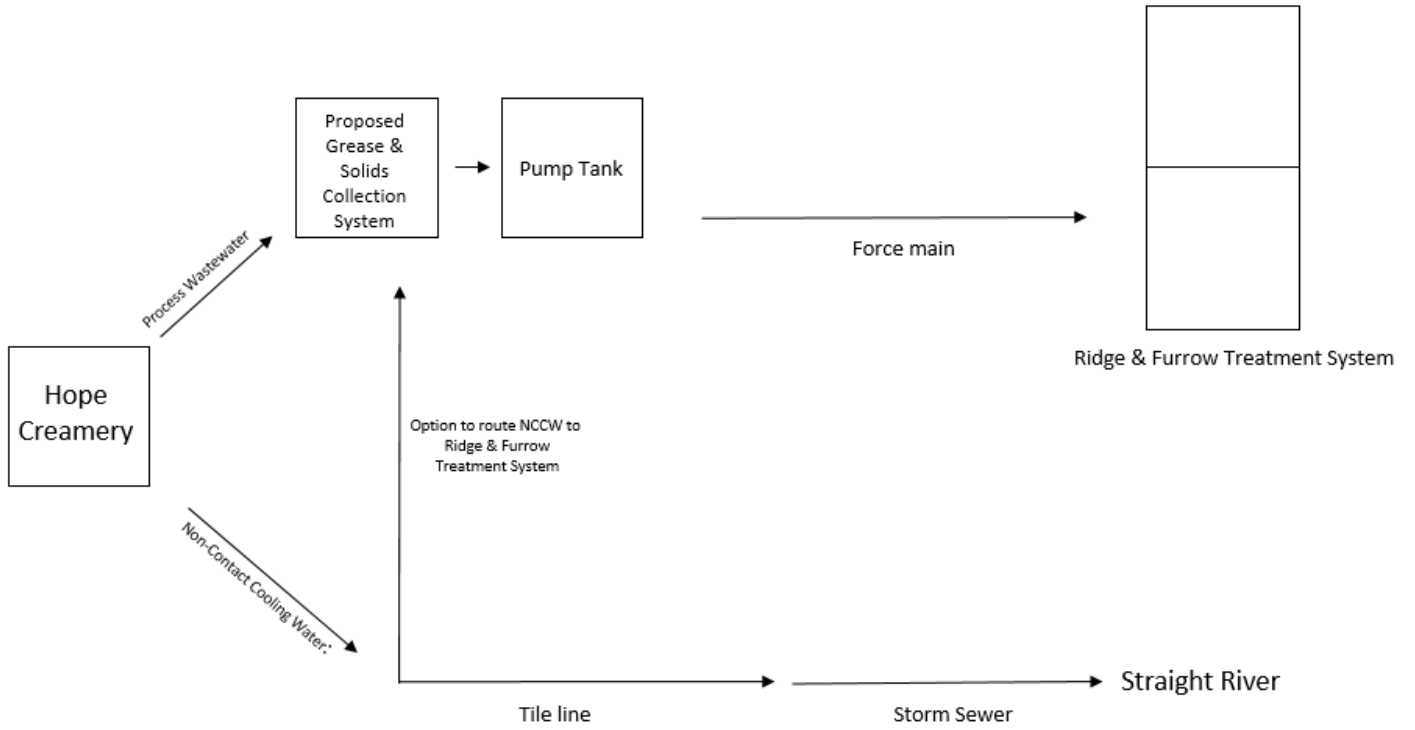
MN0001317: Hope Creamery Wastewater Treatment Facility
T106N, R20W, Section 19
Hope, Steele County, Minnesota



Map produced by: MPCA Staff, 7/16/2020
Scale: 1:24,000



3. Flow diagram



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4. Summary of stations and station locations

Station	Type of station	Local name	PLS location
LA 301	Application Site, Spray with Soils Tests	Ridge & Furrow Land Application Site - North Cell	T106N, R20W, S19, NW Quarter of the SE Quarter
LA 302	Application Site, Spray with Soils Tests	Ridge & Furrow Land Application Site - South Cell	T106N, R20W, S19, NW Quarter of the SE Quarter
SD 001	Effluent To Surface Water	Non-Contact Cooling Water Discharge	T106N, R20W, S30, NW Quarter of the NE Quarter
WS 001	Intermediate: WW to Land	Process Wastewater to Ridge and Furrow Treatment and Disposal System	T106N, R20W, S19, SE Quarter of the NW Quarter
WS 301	Solids to Land Treatment/Application	IBP Solids	T106N, R20W, S19, NW Quarter of the SE Quarter

5. Permit requirements

SD 001	Effluent To Surface Water	
Facility Specific Limit and Monitoring Requirements		
	5.1.1	The Permittee shall submit a monthly DMR: Due by 21 days after the end of each calendar month following permit issuance. [Minn. R. 7001.0150, Subp. 2(B)]
	5.1.2	Sampling Location. [Minn. R. 7001.0150, Subp. 2(B)]
	5.1.3	Samples for Station SD001 shall be taken at a point representative of the non-contact cooling water discharge to surface waters. [Minn. R. 7001.0150, Subp. 2(B)]
	5.1.4	The Permittee shall submit monitoring results in accordance with the limits and monitoring requirements for this station. If conditions are such that no sample can be acquired, the Permittee shall report "No Flow" or "No Discharge" on Discharge Monitoring Report (DMR) and shall add a Comments attachment to the DMR detailing why the sample was not collected. [Minn. R. 7001.0150, Subp. 2(B)]
WS 001	Intermediate: WW to Land	
Facility Specific Limit and Monitoring Requirements		
	5.2.1	The Permittee shall submit a monthly DMR: Due by 21 days after the end of each calendar month following permit issuance. [Minn. R. 7001.0150, Subp. 2(B)]
	5.2.2	Sampling Location. [Minn. R. 7001.0150, Subp. 2(B)]
	5.2.3	Samples for Station WS001 shall be taken at a point representative of the total waste flow to the ridge and furrow system north cell. If a single sample is not representative of the total waste flow, sample each unique waste flow. Calculate and report a flow-weighted value for each parameter. Flow will be reported as the total volume sent to WS001. pH results will not be weighted. [Minn. R. 7001.0150, Subp. 2(B)]
	5.2.4	The Permittee shall submit monitoring results in accordance with the limits and monitoring requirements for this station. If conditions are such that no sample can be acquired, the Permittee shall report "No Flow" or "No Discharge" on Discharge Monitoring Report (DMR) and shall add a Comments attachment to the DMR detailing why the sample was not collected. [Minn. R. 7001.0150, Subp. 2(B)]
MN0001317	Hope Creamery	
Land Application Station General Requirements		
	5.3.1	Analysis Requirements. [Minn. R. 7001]
	5.3.2	Soil Samples. [Minn. R. 7001]
	5.3.3	Soil samples shall be taken in May of each year. [Minn. R. 7001]
	5.3.4	Soil samples shall be a composite of a mixture of 12 equally proportioned subsamples taken from a 0- to 8-inch core. At least one composite sample shall be collected for each 0.6 acre cell of the 1.2 acre permitted ridge and furrow system. [Minn. R. 7001]
	5.3.5	Application Rates. [Minn. R. 7001]
	5.3.6	Nitrogen and sodium land application rate limits apply to the sum of all sources of nitrogen or sodium applied to a permitted application site. [Minn. R. 7001]
	5.3.7	If nitrogen or sodium are applied to a permitted land application site from other sources including commercial fertilizer, manure, silage, sewage or wastewater treatment solids and sludges, then these other nitrogen or sodium sources shall be included in the sum of nitrogen or sodium applied to determine compliance with application rate limits at that site. [Minn. R. 7001]

5.3.8	The nitrogen application rate shall be calculated as the sum of the total annual mass Kjeldahl nitrogen and nitrate-plus-nitrite nitrogen applied to the site, divided by the acreage of the site on which waste is applied. [Minn. R. 7001]
	Surface Discharge Station General Requirements
5.4.9	Analysis Requirements. [Minn. R. 7001]
5.4.10	Temperature and pH analyses must be conducted within 15 minutes of sample collection. [Minn. R. 7053]
5.4.11	Representative Samples. [Minn. R. 7001]
5.4.12	Samples and measurements required by this permit shall be representative of the monitored activity. [Minn. R. 7001]
5.4.13	Surface Discharge Prohibitions. [Minn. R. 7001]
5.4.14	Floating solids or visible foam shall not be discharged in other than trace amounts. [Minn. R. 7001]
5.4.15	Oil or other substances shall not be discharged in amounts that create a visible color film. [Minn. R. 7001]
5.4.16	The Permittee shall install and maintain outlet protection measures at the discharge stations to prevent erosion. [Minn. R. 7001]
5.4.17	Winter Sampling Conditions. [Minn. R. 7001]
5.4.18	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. [Minn. R. 7001]
5.4.19	Phosphorus Limits and Monitoring Requirements. [Minn. R. 7001]
5.4.20	The Permittee shall use a test method capable of a low level detection (0.050 mg/L) for analyzing the discharge for total phosphorus. The Permittee shall inform the laboratory conducting the sampling, that this is a cooling water waste stream rather than industrial process or domestic wastewater effluent. [Minn. R. 7001]
5.4.21	Nitrogen Limits and Monitoring Requirements. [Minn. R. 7001]
5.4.22	"Total Nitrogen" is to be reported as the summation of the Total Kjeldahl Nitrogen and Total Nitrite plus Nitrate Nitrogen values. [Minn. R. 7001]
	Waste Stream Station General Requirements
5.5.24	Analysis Requirements. [Minn. R. 7001]
5.5.25	pH analysis shall be conducted within 15 minutes of sample collection. [Minn. R. 7001]
5.5.26	Representative Samples. [Minn. R. 7001]
5.5.27	Grab and composite samples shall be collected at a point representative of total influent flow to the system. [Minn. R. 7001]
	Compliance Schedule
5.6.28	Compliance Schedule - Ridge and Furrow Treatment and Disposal System. [Minn. R. 7001]
5.6.29	The Permittee shall complete elevation surveying of the ridge and furrow system and submit the results of the elevation survey to the MPCA within 30 days of permit issuance. The elevation survey must be conducted prior to any maintenance activities occurring. complete corrective action: Due within 30 days. [Minn. R. 7001]
5.6.30	Ridge and Furrow Optimization Plan - Ridge and Furrow System. [Minn. R. 7001]
5.6.31	Upon issuance of this permit, the Ridge and Furrow wastewater treatment system (system) does not meet the permitted performance criteria described in the Operation and Maintenance and Limits and Monitoring sections of the permit.

	<p>Deficiencies:</p> <ul style="list-style-type: none"> · Equal wastewater distribution (5.9.82) · Complete draining of the header ditch after loading (5.9.83) · Exceeding the annual nitrogen loading limit (Appendix A: Limits & Monitoring) <p>In order to address these deficiencies the Permittee shall submit a Ridge and Furrow Optimization Plan (Plan) that describes any activities or actions the Permittee will complete so the Ridge and Furrow wastewater treatment system can meet the permitted performance criteria described in the permit. The Plan must provide details of any construction or reconstruction, including a schedule of construction, with a planned date for completion.</p> <p>The Plan must be submitted to the MPCA within 90 days of permit issuance for review. The MPCA will notify the Permittee in writing of Plan approval, denial or a need for clarification. The Permittee will have 30 days after notification to respond to any MPCA inquiry on the submitted Plan. Once the Plan is approved by the MPCA, the Plan will be an enforceable part of the permit thereafter. Any construction described in the Plan must occur within 730 days after plan approval.</p> <p>Failure to comply with this schedule may result in permit modification or revocation. complete corrective action: Due by 90 days after permit issuance. [Minn. R. 7001]</p>
5.6.32	<p>Performance Evaluation - South Cell. [Minn. R. 7001]</p>
5.6.33	<p>The Permittee shall submit an evaluation of system performance and determination (with justification) of whether the south cell of the facility meets the current treatment needs and performance criteria described in the permit. The system performance evaluation shall include the following:</p> <ul style="list-style-type: none"> a) Photographs of the facility displaying the wastewater distribution during dosing at the south cell and a description of where the photographs were taken from. b) Elevation survey results c) Description of operation/maintenance enhancements made and proposed to continue for future operations d) Documentation of performance based enhancements in the south cell, including the following: <ul style="list-style-type: none"> · Description of the distance wastewater travels down each furrow relative to the length of each furrow · Average percentage of the system covered by each dosing event · Description of volume of wastewater present in the header ditch after each dosing event and length of time water stays in the header ditch if not traveling through the furrows. <p>The Permittee shall submit the final performance evaluation for the south cell within 365 days after the approval of the Optimization Plan. If it is determined the south cell does not meet the current treatment needs and performance criteria described in the permit, the Permittee shall performance additional maintenance. The system performance evaluation and additional maintenance will continue until the Permittee is able to justify the facility meets the performance criteria as described in the Operation and Maintenance section of this permit. [Minn. R. 7001]</p>
5.6.34	<p>Performance Evaluation - North Cell. [Minn. R. 7001]</p>
5.6.35	<p>Upon completion of maintenance activities in the north cell, the Permittee shall submit an evaluation of system performance and determination (with justification) of whether the north cell of the facility meets the current treatment needs and performance criteria described in the permit. The system performance evaluation shall include the following:</p> <ul style="list-style-type: none"> a) Photographs of the facility displaying the wastewater distribution during dosing at the north cell and a description of where the photographs were taken from. b) Elevation survey results c) Description of operation/maintenance enhancements made and proposed to continue for future

	<p>operations</p> <p>d) Documentation of performance based enhancements in the north cell, including the following:</p> <ul style="list-style-type: none"> · Description of the distance wastewater travels down each furrow relative to the length of each furrow · Average percentage of the system covered by each dosing event · Description of volume of wastewater present in the header ditch after each dosing event and length of time water stays in the header ditch if not traveling through the furrows. <p>The Permittee shall submit the final performance evaluation for the north cell within 730 days after the approval of the Optimization Plan. If it is determined the north cell does not meet the current treatment needs and performance criteria described in the permit, the Permittee shall performance additional maintenance. The system performance evaluation and additional maintenance will continue until the Permittee is able to justify the facility meets the performance criteria as described in the Operation and Maintenance section of this permit. [Minn. R. 7001]</p>
5.6.36	<p>Operation and Maintenance Plan. [Minn. R. 7001]</p>
5.6.37	<p>90 days after the completion of the north cell performance evaluation, the Permittee shall submit a complete Operation and Maintenance Management Plan for MPCA review as described below in the Operation and Maintenance section of this permit. The Operation and Maintenance Plan should reflect changes in operation of the facility resulting from maintenance. [Minn. R. 7001]</p>
5.6.41	<p>a. Facility information, to include the following:</p> <ul style="list-style-type: none"> i. Ridge & furrow facility description and maps; ii. Locations of all monitoring locations; and iii. General description of the ridge & furrow operation. <p>b. A description of the management of process wastewater application, including the following:</p> <ul style="list-style-type: none"> i. Irrigation scheduling; ii. Irrigation intensity; iii. Loading rates (hydraulic and nutrient); and iv. Load and rest cycle. <p>c. A description of crop management practices, including the following:</p> <ul style="list-style-type: none"> i. List of cover crop type(s); ii. Description of crop establishment and maintenance procedures; iii. Schedule for crop harvest and removal; and iv. Method(s) of estimation for determining weight of crop removed. <p>d. Solids management plan and schedule, including industrial by-product management.</p> <ul style="list-style-type: none"> i. A description of sample collection methods to ensure representative samples of the industrial by-product land applied, including sampling location identification, and a description of a sampling schedule; and ii. A description of how the industrial by-product will be land applied evenly within the ridge and furrow system. <p>e. Description of the inspection and maintenance program for pipe line breaks and associated irrigation equipment.</p> <p>f. Identify qualified staff or contractor responsible for operation of the wastewater treatment system.</p> <p>g. A "Spill Prevention and Response Procedure," as described in the following subparts.</p> <p>h. A "Contingency Plan," as described in the following subparts.</p> <p>i. A "Monitoring Plan," as described in the following subparts. [Minn. R. 7001]</p>

5.6.42	<p>A 'Spill Prevention and Response Procedure' must be prepared and implemented, and must include the following elements, at a minimum:</p> <ul style="list-style-type: none"> a. Identification of where spills have occurred and where they have the potential to occur; b. Determination and identification of drainage points for potential spill areas, and develop appropriate spill prevention and containment measures for these areas; c. Detailed description of procedures for notifying state, local, and company personnel in the event of a spill shall be developed and made available to appropriate personnel; d. Detailed procedures for containing and cleaning up spills shall be developed and made available to appropriate personnel; e. A list of all spill control equipment including the equipment location; and, f. An employee training program to inform appropriate personnel of notification and spill response procedures. [Minn. R. 7001]
5.6.43	<p>A 'Contingency Plan' for managing the wastewater system during time periods when application to the ridge and furrow site is not possible due to adverse climate conditions or equipment failure. The plan should include a discussion of alternatives such as:</p> <ul style="list-style-type: none"> a. Storage tanks or ponds; b. Transporting process wastewater; and c. Processing shutdown. [Minn. R. 7001]
5.6.44	<p>A 'Monitoring Plan' must be prepared and implemented, and at a minimum, must contain the following information:</p> <ul style="list-style-type: none"> a. Sampling point identification; b. Sampling protocol for all monitoring points; c. Sampling schedule; d. List of parameters to be analyzed; e. Standard test methods; and f. Reporting limits. [Minn. R. 7001]
	<p>Special Requirements</p>
5.7.46	<p>Total Maximum Daily Load. [Minn. R. 7001]</p>
5.7.47	<p>The Cannon River and Mississippi River are downstream of this facility and are both impaired for total suspended solids. The permit contains a monthly average limit of 1.94 kg/day and an annual mass limit of 707 kg/year (applied at SD001) as identified as a protective waste load allocation in the Cannon River TMDL and the South Metro Mississippi River TMDL.</p> <p>The facility's non-contact cooling water is upstream of Lake Byllesby which is impaired for nutrients. A phosphorus limit was not assigned to this permit at this time, however, the company will be required to sample for phosphorus quarterly in the reissued permit using a lab with a detection level less than 0.05 mg/L. [Minn. R. 7001]</p>
5.7.48	<p>Analysis of Total Phosphorus. [Minn. R. 7001]</p>
5.7.49	<p>The Permittee shall use a test method capable of a low level detection (0.050 mg/L) for analyzing the discharge for total phosphorus. The Permittee shall inform the laboratory conducting the sampling, that this is a cooling water waste stream rather than industrial process or domestic wastewater effluent. [Minn. R. 7001]</p>
5.7.50	<p>Industrial By-Products. [Minn. R. 7001]</p>
5.7.51	<p>The Permittee is authorized to land apply industrial by-products (IBP) from the pump tank as well as the grease and solids collection system at a rate of no more than 50,000 gallons/year (total). The Permittee is authorized to land apply its industrial by-products from the pump tank and grease and solids collection system at the Ridge and Furrow Treatment and Disposal System as described in the Facility Description section of this permit and by following the 10-step guide in Appendix A, including characterization of the industrial by-product. [Minn. R. 7001]</p>

5.7.52	The total volume of industrial by-products land applied, as well as application dates, must be reported on the Ridge and Furrow Treatment System Annual Report as described in the Ridge and Furrow Treatment System chapter of this permit. [Minn. R. 7001]
5.7.53	If the volume of IBP land applied exceeds, or has the potential to exceed, an application rate greater than 50,000 gallons/year, the Permittee shall submit a permit application for the land application of industrial by-products found at https://www.pca.state.mn.us/water/wastewater-permit-forms . [Minn. R. 7001]
5.7.54	Proposed Grease and Solids Collection System. [Minn. R. 7001]
5.7.55	The Permittee shall submit plans and specifications for the proposed grease and solids collection to the MPCA for review 30 days prior to the planned construction of the proposed grease and solids collection system. [Minn. R. 7001]
5.7.56	The Permittee shall notify the MPCA at least seven days prior to commencing construction or installation of the proposed grease and solids collection system. [Minn. R. 7001]
	Industrial Process Wastewater
5.8.59	Prohibited Discharges. [Minn. R. 7001]
5.8.60	This permit does not authorize the discharge of sewage, wash water, scrubber water, spills, oil, hazardous substances, or equipment/vehicle cleaning and maintenance wastewaters to ditches, wetlands or other surface waters of the state. [Minn. R. 7001.1090, Subp. 1(A)]
5.8.61	The Permittee shall prevent the routing of pollutants from the facility to a municipal wastewater treatment system in any manner unless authorized by the pretreatment standards of the MPCA and the municipal authority. [Minn. R. 7001.1090, Subp. 1(A)]
5.8.62	The Permittee shall not transport pollutants to a municipal wastewater treatment system that will interfere with the operation of the treatment system or cause pass-through violations of effluent limits or water quality standards. [Minn. R. 7049.140, Subp. 2]
5.8.63	Toxic Substance Reporting. [Minn. R. 7001]
5.8.64	The Permittee shall notify the MPCA immediately of any knowledge or reason to believe that an activity has occurred that would result in the discharge of a toxic pollutant listed in Minnesota Rules, pt. 7001.1060, subp. 4 to 10 or listed below that is not limited in the permit, if the discharge of this toxic pollutant has exceeded or is expected to exceed the following levels: <ul style="list-style-type: none"> a. for acrolein and acrylonitrile, 200 ug/L; b. for 2,4-dinitrophenol and 2-methyl-4,6-dinitrophenol, 500 ug/L; c. for antimony, 1mg/L; d. for any other toxic pollutant listed in Minnesota Rules, pt. 7001.1060, subp. 4 to 10, 100 ug/L; or e. five times the maximum concentration value identified and reported for that pollutant in the permit application. [Minn. R. 7001.1090, Subp. 2]
5.8.65	The Permittee shall notify the MPCA immediately if the Permittee has begun or expects to begin to use or manufacture as an intermediate or final by-product a toxic pollutant that was not reported in the permit application under Minnesota Rules, pt. 7001.1050, subp. 2.J. [Minn. R. 7001.1050, Subp. 2(J)]
5.8.66	Polychlorinated Biphenyls (PCBs). [Minn. R. 7001]
5.8.67	PCBs, including but not limited to those used in electrical transformers and capacitors, shall not be discharged or released to the environment. [Minn. R. 7001.150, Subp. 2]
5.8.68	In addition to the requirements in the Permit Modifications section of this permit, the Permittee shall submit to the MPCA detailed plans and specifications for the proposed methods of achieving discharge limits for turbidity and total suspended solids, based in part upon representative water quality data for untreated wastewater and a detailed map and diagram description of the proposed design for the flow control structures, and route of the discharge to receiving waters. [Minn. R. 7001.170]
5.8.69	Application for Permit Reissuance. [Minn. R. 7001, Minn. R. 7001]
5.8.70	The permit application shall include analytical data as part of the application for reissuance of this permit. These analyses shall be done on individual samples taken during the twelve-month period before the reissuance application is submitted. [Minn. R. 7001.50]

5.8.71	The permit application shall include analytical data for at least the following parameters at monitoring station SD001: Biochemical oxygen demand, total suspended solids, pH, ammonia, temperature, nitrate-nitrite (as nitrogen), total Kjeldahl nitrogen, total organic nitrogen, oil and grease, total phosphorus, chloride, sulfate, alkalinity, total dissolved solids, hardness, bicarbonates, and specific conductance. [Minn. R. 7001, Minn. R. 7001.50]
5.8.72	The Permittee shall include, as part of the application for reissuance of this permit: a. a current map of the ridge and furrow system and location of the non-contact cooling water discharge route, including sampling locations; b. an updated water balance for the facility. [Minn. R. 7001, Minn. R. 7001.50]
	Ridge and Furrow Treatment Systems
5.9.73	Authorization. [Minn. R. 7001]
5.9.74	This chapter authorizes the Permittee to apply process wastewater as described in the 'Facility Description' section of this permit, to a ridge and furrow land application system. This activity is limited by the 'Limits & Monitoring' section of this permit, as well as the other terms and conditions of this permit. [Minn. R. 7001]
5.9.75	Operation and Maintenance. [Minn. R. 7001]
5.9.76	General Operation and Maintenance Requirements. [Minn. R. 7001]
5.9.77	The hydraulic flow must not exceed 1,900 gallons per acre per day (based on a yearly average). [Minn. R. 7001]
5.9.78	A cover crop must be maintained on the ridge and furrow system throughout the growing season. [Minn. R. 7001]
5.9.79	The cover crop must be cut and removed at least once during the growing season. In addition to cutting and removing the cover crop, the cover crop may be burned as necessary. Burning the cover crop does not take place of cutting and removing the cover crop. [Minn. R. 7001]
5.9.80	Wastewater must be applied to the north and south cells of the ridge and furrow system on a rotational basis of two-operational cycles of the creamery (e.g. apply to the north cell for two creamery operational cycles, rest the north cell for two creamery operational cycles) while applying to the south cell for two creamery operational cycles. The cells must be allowed to rest for two weeks between applications. An operational cycle is defined as the day(s) the facility is making butter, preceded by and followed by days where the facility is not making butter. If the operational cycle continues for more than 7 consecutive days, it will be considered two operational cycles for the purposes of this requirement. [Minn. R. 7001]
5.9.81	The wastewater flow to the ridge and furrow land application system must be operated in a manner to allow even distribution of wastewater and wastewater solids applied. Solids must not be allowed to collect in the furrows and must be evenly distributed within the furrows without compromising the distribution system. [Minn. R. 7001]
5.9.82	The furrows must be graded to allow for equal liquid distribution throughout all the furrows in each cell. [Minn. R. 7001]
5.9.83	Operation of the ridge and furrow system must allow complete drainage of the header ditch within 24-hours after directing the flow to the other treatment cell, either by distribution to the furrows or soil absorption. [Minn. R. 7001]
5.9.84	Wastewater must be applied so as not to harm vegetation and so that prolonged saturated soil conditions do not develop due to the application. [Minn. R. 7001]
5.9.85	The Permittee shall prevent the surface runoff of wastewater, and precipitation runoff mixed with wastewater from the ridge and furrow system. [Minn. R. 7001]

5.9.86	If odor resulting from the operation of the wastewater disposal system creates a nuisance condition, the Permittee shall immediately take appropriate action to control or abate the odor. The Permittee shall notify the MPCA (Attn: Point Source Compliance Staff) of a nuisance condition within five (5) days of discovery of the incident. [Minn. R. 7001]
5.9.87	The Permittee shall maintain on the dikes a vegetative cover of shallow-rooted, perennial, low-growing grasses that withstand erosion and inundation that can be mowed. [Minn. R. 7001]
5.9.88	Plants with damaging long root structures and trees must not be allowed to grow on the dikes or in the system. Such harmful vegetative growth must be controlled and such plants removed. [Minn. R. 7001]
5.9.89	The Permittee shall use approved methods to prevent muskrats and other burrowing animals from tunneling and causing damage to the system or dikes. [Minn. R. 7001]
5.9.90	Inspection of the Ridge and Furrow Treatment System. [Minn. R. 7001]
5.9.91	<p>The Permittee shall inspect the system twice a month, and shall note the following:</p> <ul style="list-style-type: none"> a. The presence and extent of ponded water in the header ditches and/or irrigation furrows; b. Estimate the crop coverage; c. Note obstructions in the furrows due to vegetation, ice, or miscellaneous debris and ice cover on the surface; d. Note any odors; e. Note the condition of the dikes and the presence of muskrats; and f. Estimate the area to which wastewater was applied to the Ridge and Furrow treatment area. Describe how many acres of the Ridge and Furrow was dosed with wastewater during each operational cycle. <p>The Permittee shall maintain records of the bi-monthly inspections for the last three (3) years and submit the results with the Discharge Monitoring Reports (DMRs). [Minn. R. 7001]</p>
5.9.92	Annual Report. [Minn. R. 7001]
5.9.93	The Permittee shall submit a Ridge and Furrow Treatment System Annual Report by February 1 of each year following permit reissuance. The report must be for the previous year. Land application monitoring results for the previous calendar year must be summarized to the MPCA by a person with expertise in wastewater structures and land application wastewater treatment systems. submit a report: Due annually, by the 1st of February. [Minn. R. 7001]
5.9.94	<p>The Ridge and Furrow Annual Report must include, at a minimum, the following information:</p> <ul style="list-style-type: none"> a. A description of any changes made to the treatment system during the year. b. A description of the system operation during the past year, including the following: <ul style="list-style-type: none"> i. Nutrient and hydraulic loading; ii. Crop harvesting, including an estimate of the tons of crop removed, and where applicable, burning activities; and iii. Problems encountered and any remedial actions. c. A description of system maintenance during the past year, including the following: <ul style="list-style-type: none"> i. Crop irrigation; ii. Soil analysis; iii. Irrigation equipment; and iv. Dike maintenance. d. A description of the industrial by-product from the pump tank and the grease and solids collection system land applied to the ridge and furrow system. Include the following information: <ul style="list-style-type: none"> i. Total volume of industrial by-product solids land applied; ii. Dates industrial by-product solids land applied; and iii. Nutrient loading from all by-products applied.

	<p>e. A summarization of monitoring results obtained during the past year:</p> <ul style="list-style-type: none"> i. Sample results of wastewater land applied to the ridge and furrow system; and ii. Sample results of the industrial by-product solids land applied to the ridge and furrow system. <p>f. An analysis of the information submitted, and recommendations for changes, including the following:</p> <ul style="list-style-type: none"> i. Analysis of the year's operation; and ii. Proposed changes for the coming year's operation. <p>g. Describe all methods and procedures used for analyzing and evaluating the data. [Minn. R. 7001]</p>
5.9.95	Records. [Minn. R. 7001]
5.9.96	The Permittee shall maintain a record of the operation and observations of the ridge and furrow system at the facility, which shall be available at the facility for review by MPCA staff. [Minn. R. 7001]
	Total Facility Requirements (NPDES/SDS)
5.10.100	Definitions. Refer to the 'Permit Users Manual' found on the MPCA website (www.pca.state.mn.us) for standard definitions. [Minn. R. 7001.]
5.10.101	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. ch. 115 and 116. [Minn. R. 7001]
5.10.102	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(E)]
5.10.103	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(A)]
5.10.104	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]
5.10.105	Property Rights. This permit does not convey a property right or an exclusive privilege. [Minn. R. 7001.0150, subp. 3(C)]
5.10.106	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(O)]
5.10.107	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(D)]
5.10.108	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(A)]
5.10.109	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(B)]
5.10.110	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. [Minn. R. 7001]

5.10.111	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. [Minn. R. 7001]
5.10.112	Inspection and Entry. When authorized by Minn. Stat. ch. 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(I)]
5.10.113	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. [Minn. R. 7001.0150, subp. 3(F)]
5.10.114	Sampling. [Minn. R. 7001]
5.10.115	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)]
5.10.116	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(E)]
5.10.117	Certified Laboratory. A laboratory certified by the Minnesota Department of Health and/or registered by the MPCA shall conduct analyses required by this permit. Analyses of dissolved oxygen, pH, temperature, specific conductance, 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. R. 4740.2010, Minn. R. 4740.2050 through 2120]
5.10.118	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. [40 CFR 136, Minn. R. 7041.3200]
5.10.119	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, 2(B and C)]
5.10.120	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: 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; d. the analytical techniques, procedures and methods used; and e. the results of the analysis. [Minn. R. 7001.0150, 2(C)]

5.10.121	<p>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.</p> <p>Required forms may include DMR Supplemental/Sample Value Form Individual values for each sample and measurement shall be recorded on the DMR Supplemental/Sample Value Form which, if required, will be provided by the MPCA. DMR Supplemental/Sample Value Forms shall be submitted with the appropriate DMRs. You may design and use your own supplemental form; however it shall be approved by the MPCA. Note: Required summary information shall also be recorded on the DMR. Summary information that is submitted ONLY on the DMR Supplemental/Sample Value Form does not comply with the reporting requirements. [Minn. R. 7001.1090, 1(D), Minn. R. 7001.150, 2(B)]</p>
5.10.122	<p>Submitting Reports. DMRs, DMR supplemental forms and related attachments must be electronically submitted via MPCA e-Services after authorization is approved.</p> <p>DMRs and DMR Supplemental Forms shall be electronically submitted by the 21st day of the month following the sampling period or otherwise as specified in this permit. Electronic DMR submittal shall be complete on or before 11:59 PM of 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.</p> <p>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. [Minn. R. 7001.0150, 2(B), Minn. R. 7001.0150, 3(H)]</p>
5.10.123	<p>Incomplete or Incorrect Reports. The Permittee shall immediately submit an electronically 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. If it is impossible to electronically amend the report or DMR, the Permittee shall immediately notify the MPCA and the MPCA will provide direction for the amendment submittals. [Minn. R. 7001.0150, 3(G)]</p>
5.10.124	<p>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 shall 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, shall be certified by a registered professional engineer. [Minn. R. 7001.0540]</p>
5.10.125	<p>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.</p> <p>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:</p> <ol style="list-style-type: none">If one or more values are greater than the level of detection, substitute zero for all nondetectable values to use in the average calculation.If all values are below the level of detection, report the averages as "<" the corresponding level of detection.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, 2(B)]

5.10.126	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, 3(H)]
5.10.127	Confidential Information. Except for data determined to be confidential according to Minn. Stat. ch. 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 shall follow Minn. R. 7000.1300. [Minn. R. 7000.1300]
5.10.128	Noncompliance and Enforcement. [Minn. R. 7001]
5.10.129	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. ch. 115.071 and 116.072, including monetary penalties, imprisonment, or both. [Minn. R. 7001.1090, 1(B)]
5.10.130	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, 3(G), Minn. R. 7001.1090, 1(G and H), Minn. Stat. ch. 609.671, 1]
5.10.131	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)]
5.10.132	<p>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. If the permittee discovers that noncompliance with a condition of the permit has occurred which could endanger human health, public drinking water supplies, or the environment, the Permittee shall within 24 hours of the discovery of the noncompliance, orally notify the commissioner and submit a written description of the noncompliance within 5 days of the discovery. The written description shall include items a. through e., as listed below. If the Permittee discovers other non-compliance that does not explicitly endanger human health, public drinking water supplies, or the environment, the non-compliance shall be reported during the next reporting period to the MPCA with its Discharge Monitoring Report (DMR). If no DMR is required within 30 days, the Permittee shall submit a written report within 30 days of the discovery of the noncompliance. This description shall include the following information:</p> <ul style="list-style-type: none">a. a description of the event including volume, duration, monitoring results and receiving waters;b. the cause of the event;c. the steps taken to reduce, eliminate and prevent reoccurrence of the event;d. the exact dates and times of the event; ande. steps taken to reduce any adverse impact resulting from the event. [Minn. R. 7001.150, 3(K)]
5.10.133	<p>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:</p> <ul style="list-style-type: none">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

	<p>capability of the treatment facilities;</p> <p>d. that at the time of the upset the facility was being properly operated;</p> <p>e. that the Permittee properly notified the Commissioner of the upset in accordance with Minn. R. 7001.1090, subp. 1, item I; and</p> <p>f. that the Permittee implemented the remedial measures required by Minn. R. 7001.0150, subp. 3, item J. [Minn. R. 7001.1090]</p>
5.10.134	Release. [Minn. R. 7001]
5.10.135	Unauthorized Releases of Wastewater Prohibited. Except for discharges from outfalls specifically authorized by this permit, 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, Minn. Stat. ch. 115.061]
5.10.136	<p>Discovery of a release. Upon discovery of a release, the Permittee shall:</p> <p>a. Take all reasonable steps to immediately end the release.</p> <p>b. Notify the Minnesota Department of Public Safety Duty Officer at 1(800)422-0798 or (651)649-5451 (metro area) immediately upon discovery of the release. You may contact the MPCA during business hours at 1(800)657-3864 or (651)296-6300 (metro area).</p> <p>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. [Minn. R. 7001.1090]</p>
5.10.137	<p>Sampling of a release. Upon discovery of a release, the Permittee shall:</p> <p>a. 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.</p> <p>b. Submit the sampling results on the Release Sampling Form (http://www.pca.state.mn.us/index.php/view-document.html?gid=18867). The Release Sampling Form shall be submitted to the MPCA with the next DMR or within 30 days whichever is sooner. [Minn. R. 7001.1090]</p>
5.10.138	Bypass. [Minn. R. 7001]
5.10.139	<p>Anticipated bypass. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if the bypass is for essential maintenance to assure efficient operation of the facility. The permittee shall submit prior notice, if possible at least ten days before the date of the bypass to the MPCA.</p> <p>The notice of the need for an anticipated bypass shall include the following information:</p> <p>a. the proposed date and estimated duration of the bypass;</p> <p>b. the alternatives to bypassing; and</p> <p>c. a proposal for effluent sampling during the bypass. Any bypass wastewater shall enter waters of the state from outfalls specifically authorized by this permit. Therefore, samples shall be collected at the frequency and location identified in this permit or two times per week for as long as the bypass continues, whichever is more frequent. [40 CFR 122.41(m)(2 and 3), Minn. R. 7001.1090, 1(J)]</p>

5.10.140	<p>All other bypasses are prohibited. The MPCA may take enforcement action against the Permittee for a bypass, unless the specific conditions described in Minn. R. Ch. 7001.1090 subp. 1, K and 122.41(m)(4)(i) are met.</p> <p>In the event of an unanticipated bypass, the permittee shall:</p> <p>a. Take all reasonable steps to immediately end the bypass.</p> <p>b. Notify the Minnesota Department of Public Safety Duty Officer at 1(800)422-0798 or (651)649-5451 (metro area) immediately upon commencement of the bypass. You may contact the MPCA during business hours at 1(800)657-3864 or (651)296-6300 (metro area).</p> <p>c. Immediately take 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 directed by the MPCA, the Permittee shall consult with other local, state or federal agencies for implementation of abatement, clean-up, or remediation activities.</p> <p>d. Only allow bypass wastewater as specified in this section to enter waters of the state from outfalls specifically authorized by this permit. Samples shall be collected at the frequency and location identified in this permit or two times per week for as long as the bypass continues, whichever is more frequent. The permittee shall also follow the reporting requirements for effluent violations as specified in this permit. [40 CFR 122.41(m)(4)(i), Minn. Stat. ch. 115.061]</p>
5.10.141	Operation and Maintenance. [Minn. R. 7001]
5.10.142	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. [Minn. R. 7001.0150, 3(F)]
5.10.143	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, 1(C)]
5.10.144	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, Minn. R. 7041]
5.10.145	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, 3(F), Minn. R. 7001.150, 2(B)]
5.10.146	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, 3(F), Minn. R. 7001.150, 2(B)]
5.10.147	Changes to the Facility or Permit. [Minn. R. 7001]
5.10.148	<p>Permit Modifications. Except as provided under Minnesota Statutes, section 115.07, subdivisions 1 and 3, 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.</p> <p>Permittees that propose to make a change to the facility or discharge that requires a permit modification shall follow Minn. R. 7001.0190. If the Permittee cannot determine whether a permit</p>

	<p>modification is needed, the Permittee shall 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. [Minn. R. 7001.0030]</p>
5.10.149	<p>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.</p> <p>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. [Minn. R. 7001.0030]</p>
5.10.150	<p>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, 3(M)]</p>
5.10.151	<p>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.</p> <p>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:</p> <ol style="list-style-type: none">The process for which the additive will be used;Safety Data Sheet (SDS) which shall include aquatic toxicity, human health, and environmental fate information for the proposed additive. The aquatic toxicity information shall include at minimum the results of: a) a 48-hour LC50 or EC50 acute study for a North American freshwater planktonic crustacean (either Ceriodaphnia or Daphnia sp.) and b) a 96-hour LC50 acute study for rainbow trout, bluegill or fathead minnow or another North American freshwater aquatic species other than a planktonic crustacean;a complete product use and instruction label;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); andThe proposed method of application, application frequency, concentration, and daily average and maximum rates of use. <p>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]</p>
5.10.152	<p>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. [Minn. R. 7001.0170, Minn. R. 7001.0180]</p>
5.10.153	<p>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.</p>

	[40 CFR 122.44(l)(2)(i)]
5.10.154	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, 3(N)]
5.10.155	<p>Facility Closure. The Permittee is responsible for closure and post-closure 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.</p> <p>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.</p> <p>The MPCA may require the Permittee to establish and maintain financial assurance to ensure performance of certain obligations under this permit, including closure, post-closure 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. ch. 116.07, 4]</p>
5.10.156	<p>Permit Reissuance. If the Permittee desires to continue permit coverage beyond the date of permit expiration, the Permittee shall submit an application for permit reissuance: Due by 180 days prior to 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.</p> <p>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):</p> <ul style="list-style-type: none">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. <p>[Minn. R. 7001.0160]</p>

6. Submittal action summary

SD 001	Effluent To Surface Water	
		Facility Specific Limit and Monitoring Requirements
	6.1.1	The Permittee shall submit a monthly DMR: Due by 21 days after the end of each calendar month following permit issuance. [Minn. R. 7001.0150, Subp. 2(B)]
WS 001	Intermediate: WW to Land	
		Facility Specific Limit and Monitoring Requirements
	6.2.1	The Permittee shall submit a monthly DMR: Due by 21 days after the end of each calendar month following permit issuance. [Minn. R. 7001.0150, Subp. 2(B)]
MN0001317	Hope Creamery	
		Compliance Schedule
	6.3.1	The Permittee shall complete elevation surveying of the ridge and furrow system and submit the results of the elevation survey to the MPCA within 30 days of permit issuance. The elevation survey must be conducted prior to any maintenance activities occurring. Complete corrective action Due: within 30 days. [Minn. R. 7001]
	6.3.2	<p>Upon issuance of this permit, the Ridge and Furrow wastewater treatment system (system) does not meet the permitted performance criteria described in the Operation and Maintenance and Limits and Monitoring sections of the permit.</p> <p>Deficiencies:</p> <ul style="list-style-type: none"> · Equal wastewater distribution (5.9.82) · Complete draining of the header ditch after loading (5.9.83) · Exceeding the annual nitrogen loading limit (Appendix A: Limits & Monitoring) <p>In order to address these deficiencies the Permittee shall submit a Ridge and Furrow Optimization Plan (Plan) that describes any activities or actions the Permittee will complete so the Ridge and Furrow wastewater treatment system can meet the permitted performance criteria described in the permit. The Plan must provide details of any construction or reconstruction, including a schedule of construction, with a planned date for completion.</p> <p>The Plan must be submitted to the MPCA within 90 days of permit issuance for review. The MPCA will notify the Permittee in writing of Plan approval, denial or a need for clarification. The Permittee will have 30 days after notification to respond to any MPCA inquiry on the submitted Plan. Once the Plan is approved by the MPCA, the Plan will be an enforceable part of the permit thereafter. Any construction described in the Plan must occur within 730 days after plan approval.</p> <p>Failure to comply with this schedule may result in permit modification or revocation. Complete corrective action Due: by 90 days after permit issuance. [Minn. R. 7001]</p>

		Ridge and Furrow Treatment Systems
	6.4.3	The Permittee shall submit a Ridge and Furrow Treatment System Annual Report by February 1 of each year following permit reissuance. The report must be for the previous year. Land application monitoring results for the previous calendar year must be summarized to the MPCA by a person with expertise in wastewater structures and land application wastewater treatment systems. Submit a report: Due annually, by the 1st of February. [Minn. R. 7001]
		Total Facility Requirements (NPDES/SDS)
	6.5.4	<p>Permit Reissuance. If the Permittee desires to continue permit coverage beyond the date of permit expiration, the Permittee shall submit an application for permit reissuance: Due by 180 days prior to 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.</p> <p>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):</p> <ul style="list-style-type: none">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. <p>[Minn. R. 7001.0160]</p>

7. Limits and monitoring

Subject item	Parameter	Discharge limitations							Monitoring requirements			Notes
		Quantity /Loading avg.	Quantity /Loading max.	Quantity /Loading units	Quality /Conc. min.	Quality /Conc. avg.	Quality /Conc. max.	Quality/ Conc. units	Frequency	Sample type	Effective period	
SD 001 Non-Contact Cooling Water Discharge	Flow		Monitor only. calendar month total	million gallons		Monitor only. calendar month average		million gallons per day	once per day	Measurement	Jan-Dec	
SD 001 Non-Contact Cooling Water Discharge	Nitrite Plus Nitrate, Total (as N)					Monitor only. calendar year average		milligrams per liter	once per year	Grab	Jan-Dec	
SD 001 Non-Contact Cooling Water Discharge	Nitrogen, Kjeldahl, Total					Monitor only. calendar year average		milligrams per liter	once per year	Grab	Jan-Dec	
SD 001 Non-Contact Cooling Water Discharge	Nitrogen, Total (as N)					Monitor only. calendar year average		milligrams per liter	once per year	Grab	Jan-Dec	
SD 001 Non-Contact Cooling Water Discharge	pH				6.0 calendar month minimum		9.0 calendar month maximum	standard units	once per month	Grab	Jan-Dec	
SD 001 Non-Contact Cooling Water Discharge	Phosphorus, Total (as P)					Monitor only. calendar quarter average	Monitor only. calendar quarter maximum	milligrams per liter	once per quarter	Grab	Jan-Dec	

Permit issued: TBD
 Permit expires: TBD

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Subject item	Parameter	Discharge limitations							Monitoring requirements			Notes
		Quantity /Loading avg.	Quantity /Loading max.	Quantity /Loading units	Quality /Conc. min.	Quality /Conc. avg.	Quality /Conc. max.	Quality/ Conc. units	Frequency	Sample type	Effective period	
SD 001 Non-Contact Cooling Water Discharge	Solids, Total Suspended (TSS)	1.94 calendar quarter average	707 calendar year total	kilograms per day		Monitor only. calendar quarter average		milligrams per liter	once per quarter	Grab	Jan-Dec	
SD 001 Non-Contact Cooling Water Discharge	Temperature, Water (F)						86 daily maximum	degrees Fahrenheit	once per month	Measurement, Instantaneous	Jan-Dec	
WS 001 Process Wastewater to Ridge and Furrow Treatment and Disposal System	Area Of Disposal, Used	Monitor only. daily average	Monitor only. daily maximum	acres					once per week	Estimate, Visual	Jan-Dec	
WS 001 Process Wastewater to Ridge and Furrow Treatment and Disposal System	BOD, Carbonaceous 05 Day (20 Deg C)					Monitor only. calendar quarter average		milligrams per liter	once per quarter	Composite	Jan-Dec	
WS 001 Process Wastewater to Ridge and Furrow Treatment and Disposal System	Calcium, Total (as Ca)					Monitor only. calendar quarter average		milligrams per liter	once per quarter	Composite	Jan-Dec	

Subject item	Parameter	Discharge limitations							Monitoring requirements			Notes
		Quantity /Loading avg.	Quantity /Loading max.	Quantity /Loading units	Quality /Conc. min.	Quality /Conc. avg.	Quality /Conc. max.	Quality/ Conc. units	Frequency	Sample type	Effective period	
WS 001 Process Wastewater to Ridge and Furrow Treatment and Disposal System	Chloride, Total							milligrams per liter	once per quarter	Composite	Jan-Dec	
WS 001 Process Wastewater to Ridge and Furrow Treatment and Disposal System	Flow		Monitor only. calendar year to date total	million gallons					once per day	Measurement, Continuous	Jan-Dec	
WS 001 Process Wastewater to Ridge and Furrow Treatment and Disposal System	Flow		Monitor only. calendar month total	million gallons			Monitor only. calendar month average	million gallons per day	once per day	Measurement, Continuous	Jan-Dec	
WS 001 Process Wastewater to Ridge and Furrow Treatment and Disposal System	Magnesium, Total (as Mg)						Monitor only. calendar quarter average	milligrams per liter	once per quarter	Composite	Jan-Dec	

Subject item	Parameter	Discharge limitations							Monitoring requirements			Notes
		Quantity /Loading avg.	Quantity /Loading max.	Quantity /Loading units	Quality /Conc. min.	Quality /Conc. avg.	Quality /Conc. max.	Quality/ Conc. units	Frequency	Sample type	Effective period	
WS 001 Process Wastewater to Ridge and Furrow Treatment and Disposal System	Nitrite Plus Nitrate, Total (as N)					Monitor only. calendar month average		milligrams per liter	once per month	Composite	Jan-Dec	
WS 001 Process Wastewater to Ridge and Furrow Treatment and Disposal System	Nitrogen, Ammonia, Total (as N)					Monitor only. calendar month average		milligrams per liter	once per month	Composite	Jan-Dec	
WS 001 Process Wastewater to Ridge and Furrow Treatment and Disposal System	Nitrogen, Kjeldahl, Total					Monitor only. calendar month average		milligrams per liter	once per month	Composite	Jan-Dec	
WS 001 Process Wastewater to Ridge and Furrow Treatment and Disposal System	pH				6.0 calendar quarter minimum	9.0 calendar quarter maximum		standard units	once per quarter	Grab	Jan-Dec	

Subject item	Parameter	Discharge limitations							Monitoring requirements			Notes	
		Quantity /Loading avg.	Quantity /Loading max.	Quantity /Loading units	Quality /Conc. min.	Quality /Conc. avg.	Quality /Conc. max.	Quality/ Conc. units	Frequency	Sample type	Effective period		
WS 001 Process Wastewater to Ridge and Furrow Treatment and Disposal System	Phosphorus, Total (as P)							Monitor only. calendar quarter average	milligrams per liter	once per quarter	Composite	Jan-Dec	
WS 001 Process Wastewater to Ridge and Furrow Treatment and Disposal System	Precipitation		Monitor only. calendar month total	inches						once per day	Measurement	Jan-Dec	
WS 001 Process Wastewater to Ridge and Furrow Treatment and Disposal System	Sodium Adsorption Ratio (SAR)						8.5 calendar quarter average		ratio	once per quarter	Calculation	Jan-Dec	
WS 001 Process Wastewater to Ridge and Furrow Treatment and Disposal System	Sodium, Total (as Na)						Monitor only. calendar quarter average		milligrams per liter	once per quarter	Composite	Jan-Dec	

Permit issued: TBD
 Permit expires: TBD

Subject item	Parameter	Discharge limitations							Monitoring requirements			Notes
		Quantity /Loading avg.	Quantity /Loading max.	Quantity /Loading units	Quality /Conc. min.	Quality /Conc. avg.	Quality /Conc. max.	Quality/ Conc. units	Frequency	Sample type	Effective period	
WS 001 Process Wastewater to Ridge and Furrow Treatment and Disposal System	Solids, Total Suspended (TSS)					Monitor only. calendar quarter average		milligrams per liter	once per quarter	Composite	Jan-Dec	

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Appendix: Ridge and Furrow LA Stations

Ridge and Furrow Site with Soil Monitoring Requirements: LA301

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Area of Disposal, Used	0.6	acres	Instantaneous Maximum	Jan-Dec	Measurement	1/year	1
Crop Yield	Monitor Only	tons/acre	Calendar Year Total	Jan-Dec	Estimate	1/year	2
Flow Application Rate	0.350	MG/Year	Calendar Year Total	Jan-Dec	Calculation	1/year	3
Nitrogen, Total Annual Loading Rates	300	lbacyr	Calendar Year Total Intervention	Jan-Dec	Calculation	1/year	4
Organic Matter, Total in Soil	Monitor Only	%	Calendar Year Maximum	May	Composite	1/year	5
pH, 1 to 1 Soil to Water	Monitor Only	SU	Calendar Year Maximum	: May	Composite	1/year	5
Phosphorus, BRAY-1 Ext in Soil	Monitor Only	ppm	Calendar Year Maximum	May	Composite	1/year	5
Potassium, MH4AC, Exch in Soil	Monitor Only	ppm	Calendar Year Maximum	May	Composite	1/year	5
Salts, Water Soluble in Soil	3.0	mmhos/cm	Instantaneous Maximum Intervention	May	Composite	1/year	5

Ridge and Furrow Site with Soil Monitoring Requirements: LA302

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Area of Disposal, Used	0.6	acres	Instantaneous Maximum	Jan-Dec	Measurement	1/year	1
Crop Yield	Monitor Only	tons/acre	Calendar Year Total	Jan-Dec	Estimate	1/year	2
Flow Application Rate	0.350	MG/Year	Calendar Year Total	Jan-Dec	Calculation	1/year	3
Nitrogen, Total Annual Loading Rates	300	lbacyr	Calendar Year Total Intervention	Jan-Dec	Calculation	1/year	4
Organic Matter, Total in Soil	Monitor Only	%	Calendar Year Maximum	May	Composite	1/year	5
pH, 1 to 1 Soil to Water	Monitor Only	SU	Calendar Year Maximum	: May	Composite	1/year	5
Phosphorus, BRAY-1 Ext in Soil	Monitor Only	ppm	Calendar Year Maximum	May	Composite	1/year	5
Potassium, MH4AC, Exch in Soil	Monitor Only	ppm	Calendar Year Maximum	May	Composite	1/year	5
Salts, Water Soluble in Soil	3.0	mmhos/cm	Instantaneous Maximum Intervention	May	Composite	1/year	5

1. As a measure of acreage to which waste is applied.
2. Report as a dry weight basis. Report the date each time a crop is harvested. If a crop is harvested more than once during the growing season, this characteristic shall be determined for each cutting.
3. Monitor the volume of wastewater that is applied to the ridge and furrow system and report this value in the Annual Report.
4. Calculate as flow-weighted sum of total annual mass Kjeldahl nitrogen and nitrate-plus-nitrite applied to site, divided by the acreage of the site. Limit applies to the sum of all sources of nitrogen applied to the site.
5. Sample once per year in the May or before application of commercial or other supplemental fertilizer. The composite shall consist of a mixture of 6 subsamples taken from a 0 to 8 inch core in each of the 0.6 acre cells of the furrow system (i.e. one composite sample for the north cell and once composite sample for the south cell).



10-Step Guide to Land Applying

Small amounts of industrial by-product generated from food, beverage and agro-industrial processing facilities

Who is this fact sheet for?

This fact sheet is intended for use by persons or operations that generate and land apply small amounts of industrial by-product (IBP) generated from food, beverage and agro-industrial processing, and have pre-determined that the land application activity does not require permit coverage. This fact sheet is not applicable to land application activities requiring a permit.

Consult with Minnesota Pollution Control Agency (MPCA) staff to determine whether a permit for land application is required. Typically, a permit is not required for land application of less than or equal to 50,000 gallons or 10 dry tons of IBP. Storage of IBP without a permit is limited, and a permit may be required even for these small volumes if loading and/or concentration limits may be exceeded, or if MPCA staff believes more oversight of the land application activity is needed.

If a permit is required for land application activities, refer to the MPCA land application webpage located at: <http://www.pca.state.mn.us/0agxeaf>.

Best Management Practices

Application of nutrients to agricultural areas, either in the form of conventional fertilizers or by the reuse of nutrients from IBP, must be done in accordance with scientifically established agronomic rates to avoid contamination of ground and/or surface waters from these nutrients washing off the land (to surface water) or through the soil profile (to groundwater).

Following the best management practices outlined in this fact sheet minimizes environmental risk in land applying small amounts of IBP through limitation of application rate, and the monitoring of soil to ensure that the crops and the land is using nutrients applied.

For more detailed information on these steps and additional land application topics, refer to the MPCA companion document to this fact sheet: *Guidelines for managing industrial by-products from food and beverage processing industries* (wq-Indapp2-03). Current versions of land application publications are maintained on the MPCA land application web page located at: <http://www.pca.state.mn.us/0agxeaf>.

Step 1: Analyze the industrial by-product to be land applied.

Industrial by-product that is land applied must be fully characterized before it is land applied the first time. After that, IBP to be land applied must be analyzed at least once per year.

Test a representative sample of each IBP to be land applied according to Table 1. Analytical sampling of sweet corn silage is not necessary.

Table 1. Baseline analytical requirements for industrial by-products.

Analyte	Unit of measure
Chloride, dry weight (as Cl)	mg/kg
Nitrogen, ammonia, dry weight	Percent
Nitrogen, kjeldahl, total, solid fraction, dry weight	Percent
pH, sludge	SU
Phosphorus, total	Percent
Sodium, dry weight (as Na)	mg/kg
Solids, total	Percent
Solids, total volatile, percent of total	Percent
Oil and grease, total recoverable (Hexane Extraction) ²	mg/kg

² Oil and Grease, Total, in mg/kg should be tested for when present in IBP(s)

To ensure that representative sampling is done, all pollutants with the ‘reasonable likelihood’ of being present should be analyzed for, which means that additional analytical testing may be needed (see list potential analytes in Table 2, below). To determine whether a particular pollutant has a reasonable likelihood, use your knowledge of the waste and waste generation process, as well as in consultation with MPCA staff; MPCA may also request additional analysis when the Notification is submitted (see Step 2). If there is a possibility that your IBP contains polychlorinated biphenyls (PCBs) or dioxin/furan compounds, these must also be analyzed for, and the test results discussed with the MPCA.

All analytical results should be reported on a dry weight basis; keep copies of the analysis results for your records.

Table 2. Additional analytical requirements.

Analyte	Unit of measure
Total Arsenic	mg/kg
Total Boron	mg/kg
Total Cadmium	mg/kg
Total Calcium	mg/kg
Total Cobalt	mg/kg
Total Copper	mg/kg
Total Iron	mg/kg
Total Lead	mg/kg
Total Magnesium	mg/kg
Total Manganese	mg/kg
Total Mercury	mg/kg
Total Molybdenum	mg/kg
Total Nickel	mg/kg
Total Potassium	mg/kg
Total Selenium	mg/kg
Total Sulfur	mg/kg
Total Zinc	mg/kg
Total Dioxin equivalents	parts per trillion
Total Polychlorinated biphenyls	mg/kg

Step 2. Complete a “Notification to land apply industrial by-product without a permit” form.

A notification to land apply industrial by-product without a permit (Notification) form must be completed and submitted for all facilities not requiring an MPCA permit. This form is located electronically at: <http://www.pca.state.mn.us/publications/wq-Indapp7-14.doc>.

A Notification form must be submitted at least 30 days prior to the initiation of land application activities. In some cases, MPCA staff may be able to reduce the amount of time needed for MPCA review. Within this 30 day timeframe, MPCA staff will review the Notification and either concur with the determination, or determine that a permit or additional information, such as additional sampling or monitoring, is required. If the MPCA concurs with your determination that a permit is not required, a formal response will not be sent; land application activity can commence at the end of the 30 day time period. If, after review of the Notification submitted, the MPCA does not concur with your determination that a permit is not required for the facility, the MPCA will notify you of this determination within the 30 day time period. Land application activity may not commence until the discrepancy has been resolved and a permit issued for the project, if required.

Step 3. Determine the suitability of proposed site(s) for land application.

Before a site can be used for the first time, the suitability of a proposed site must be determined to ensure that the soils are able to utilize the nutrients in the IBP, and that the geography of the site is amenable to land application.

Soil suitability can be determined by obtaining information from soil surveys published by the Natural Resources Conservation Service (available on-line at <http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm> or by characterization of the site by a state of Minnesota licensed soil scientist, or other qualified person, such as a Type IV certified land applicator.

An application site will be considered suitable if the site is used for growing a crop which is harvested and removed during the cropping year that the IBP is land applied AND the restrictions on slope, separation distances, and crop restrictions (applicable to pathogen-containing IBPs), as described in this fact sheet, are maintained.

Slope. Restrictions on slope allow IBP to maintain contact with soil and keep IBP where it is applied. This is necessary to ensure that IBP does not run off the land application site.

- The slope restrictions in Table 3 must be met for all sites used for land application of IBP.
- Winter application of IBP is restricted to sites with 0-2% slope.

Table 3. Slope restrictions for land application sites.

Slope (%)	Surface application	Injection or immediate incorporation
0 - 6	Allowed	Allowed
>6 - 12	Not allowed	Allowed
>12	Not allowed	Not allowed

Separation distances. Separation distances help prevent IBP from moving into surface waters or wetlands. In addition, separation distances and public access controls help prevent the public from coming into contact with the applied IBP.

The separation distances in Table 4 must be maintained on all land application sites.

Table 4. Minimum separation distances from the land application site.

Feature		Surface applied	Incorporated within 48 hours	Injected
Private drinking water supply wells		200	200	200
Public drinking water supply wells		1000	1000	1000
Down gradient lakes, rivers, streams, type 3, 4, and 5 wetlands, intermittent streams, or tile inlets connected to these surface water features ²	Slope 0% to 6%	300	50	50
	Slope 6% to 12%	Not allowed	100	100
	Winter (0% to 2%)	600	Not applicable	Not applicable
Grassed waterways ³	Slope 0% to 6%	100	33	33
	Slope 6% to 12%	Not allowed	33	33

¹This distance may be reduced with written permission from all persons responsible for residential developments, places of recreation, and all persons inhabiting residence within the designated separation distance.

²Intermittent stream means a drainage channel with definable banks that provides for runoff flow to any of the surface waters listed in the above table during snow melt or rainfall events.

³Grassed waterways are natural or constructed and seeded to grass as protection against erosion. Separation distances are from the centerline of grassed waterways. For a grassed waterway which is wider than the separation distances required, application is allowed to the edge of the grass strip.

Step 3a. Additional suitability requirements for pathogen-containing industrial by-product.

Industrial by-products containing pathogens have additional separation distances and site restrictions which must be met. An IBP is assumed to contain pathogens when it contains sewage from sanitary waste facilities, such as sanitary waste that is not separated from industrial flows, or it contains waste streams known or likely to contain pathogens, including wastes containing blood, animal feces and raw meats.

Soil texture. Soil must have the appropriate texture and structure to physically be able to filter and treat IBP, as well as to facilitate the chemical processes that take place in the soil. The soil texture at the zone of by-product application must be fine sand, loamy sand, sandy loam, loam, silt, silt loam, sandy clay loam, clay loam, sandy clay, silty clay loam, silty clay, or clay.

Depth to water table. Restrictions on depth to water table allow IBP to contact soil long enough so that the soil can act as a physical, chemical and biological filter.

- The depth to bedrock must be at least three feet, unless the soil is classified as a highly permeable soil, in which case the minimum depth is increased to five feet.
- The depth to the seasonal high water table must be at least three feet, unless the soil is classified as a highly permeable soil, in which case the minimum depth is increased to five feet.

Separation distances. In addition to the separation distances specified in Table 4, the additional separation distances in Table 5 must be maintained from the application site.

Crop restrictions/public access. Restrictions on crop harvest and public access to land application sites are described in Table 6. If necessary, the area must be posted to ensure these restrictions are being applied.

Table 5. Additional separation distances for industrial by-product containing pathogens.

Feature	Separation distances (feet)		
	Surface applied	Incorporated within 48 hours	Injected
Residences	200 ¹ feet	200 ¹ feet	100 feet
Residential development	600 ¹ feet	600 ¹ feet	300 feet
Public contact site	600 feet	600 feet	300 feet
Depth to bedrock	5 ² feet	5 ² feet	5 ² feet
Depth to seasonal high water table or drain tile ³	5 ² feet	5 ² feet	5 ² feet

¹This distance may be reduced with written permission from all persons responsible for residential developments, places of recreation, and all persons inhabiting residence within the designated separation distance.

²The separation distance may be decreased to three feet if the soil is not classified as a “highly permeable soil”, as defined by the MNG960000 permit.

³The depth to subsurface drainage tiles shall be considered the depth to the seasonal high water table for sites that are designed according to Natural Resources Conservation Services engineering standards and criteria.

Table 6. Minimum duration between time of application of an industrial by-product containing pathogens and harvest, grazing, and public access to the site.

Crop types	Waiting period
Food crops whose harvested part may touch the soil/IBP mixture (melons, squash, tomatoes, etc.)	14 months
Food crops whose harvested parts grow in the soil (potatoes, carrots, etc.)	38 ¹ months
Feed, other food crops (field corn, sweet corn, etc.) hay, or fiber crop	30 days
Grazing of animals	30 days
Public access to land ²	
high potential for exposure	1 year
low potential for exposure	30 days

¹This can be reduced to a 20 month duration between application and harvest when the IBP is surface applied and stays on the soil surface four months or longer prior to incorporation into the soil.

²Lands with high potential for exposure are public contact sites, reclamation sites located in populated areas, turf farms, or plant nurseries. Lands with low potential for exposure are lands with infrequent public use and include areas such as agricultural land, forests, or reclamation sites located in an unpopulated area.

Step 4. Sample the soil at suitable land application site(s) that will be used during the upcoming cropping year (September 1 – August 31).

Soils must be tested for the parameters in Table 7, below, for each site proposed for land application of IBP. Soil sampling is required both before the site is used for the first time, and within three years prior to each application, thereafter. If a site is not used during a cropping year, there is no need to sample the soil. A minimum of one composite sample per 40 acres or per site, whichever is greater, is required.

Table 7. Soil analysis requirements and associated limits.

Parameter	Units	Sample type	Limits
Texture	USDA class	Composite ²	NA
Organic matter	Percent	Composite ²	NA
Phosphorus, extractable in soil ¹	ppm	Composite ²	200 ¹
Potassium, exchangeable in soil	ppm	Composite ²	NA
pH	Standard units	Composite ²	NA
Salts, water soluble in soil	mmhos/cm	Composite ²	4

¹The soil test method used for extractable phosphorus in soil is either the Bray P-1 test, or the Olson test; the Olson procedure should be used if the soil pH is 7.4 or higher.

²The composite shall consist of a mixture of 15-20 sub-samples taken in the plow layer.

Step 5. Notify local authorities at least 30 days before initiating land application in that jurisdiction.

Before land application activities are initiated within a county, city or township for the first time, written notification to local officials - which includes either the county planning and zoning or solid waste officer (whichever is appropriate), and either the township clerk or mayor (depending on location of the site) – must be done.

Timing of Notification. Notification must be provided at least 30 days before initiating land application activities. This notification period provides an opportunity for local officials to request additional information (copies of records, testing information, individual site information, etc.), inform the generator of the IBP about any ordinances they must comply with, and inform the generator of the IBP whether future notifications are necessary and if so, how, when, and what information to submit.

Content of Notification. Notifications must contain a description of how the IBP will be managed during land application, which includes staging, storage and response actions in the event of a spill, and a response section for the local official. If any changes in the management of the IBP described in the Notification occur, the notification process must be repeated.

A sample letter that can be used for notification purposes is included on the MPCA land application webpage located at: <http://www.pca.state.mn.us/0agxeaf>.

If a permit is not required for land application activities, the MPCA does not require MPCA site notification of sites that will be used for land application of IBP.

Step 6. Determine and calculate the allowable rate of application of the industrial by-product for each suitable site.

The effects of IBP on crops and the environment rely on the ability of the manager of land application activities to accurately calculate the amount of IBP to apply to a particular parcel of land. Inaccurate calculations can lead to the over-application of nitrogen, sodium, metals and other pollutants which can harm the environment. Incorrect calculations can also result in the under-application of these components, which result in a lower-than-expected crop yield.

IBP must be land applied in a manner so as not to exceed the loading limits of this section. Table 8 provides a summary of loading limitations for the application of IBP.

Nitrogen. Annual nitrogen application rates are restricted to what the crop needs during one growing season, based on the Maximum Allowable Nitrogen Application Rate (MANA) – which is set by recommendations from the University of Minnesota Extension Service. These recommendations are based on soil test results, realistic crop yield goals, and previously grown crops. This information is available from the MPCA or your extension agent.

Sodium. Application rates of sodium are limited to 170 pounds per acre in any one cropping year.

To calculate the maximum allowable rate of the IBP to meet the nitrogen and sodium limits, use the electronic application rate calculator included on the MPCA land application web page located at: <http://www.pca.state.mn.us/0agxeaf>.

Hydraulic limitations. Hydraulic loading rates are set for liquid IBP to prevent ponding and runoff at land application sites. The rates vary based on the ability of the soil to drain the hydraulic volume, but do not supersede the nutrient loading rates. That is, hydraulic limits cannot be used to exceed other application rate limits for nutrients or metals.

Table 8. Summary of application rate limits.

Loading factor	Limit
Nitrogen	Varies - MANA (lb/acre/year)
Sodium	170 lb/acre/year
Daily hydraulic rate ¹ :	
Soil texture fine	10,000 gal/acre/day
Soil texture medium	15,000 gal/acre/day
Soil texture coarse	25,000 gal/acre/day
Winter hydraulic rate	15,000 gal/acre/winter

¹ Fine, medium, and coarse textured soils are defined by the Department of Agriculture (USDA) textural classifications as [clay loam, silty clay loam, sandy clay, silty clay]; [loam, silt, silt loam, and sandy clay loam]; and [sand, loamy sand, and sandy loam, respectively].

Step 7. Follow general provisions for land applying industrial by-products.

There are some general provisions that must be followed when land applying IBP to prevent nutrients from washing off the land (to surface water) or through the soil profile (to groundwater), thereby avoiding contamination of ground and/or surface waters.

- An IBP must be immediately incorporated or injected on sites that are prone to flooding.
- Application of IBP is not allowed on areas of a site ponded with water or liquid IBP.
- Application of IBP is not allowed on areas that remain fallow for the entire cropping year.
- Liquid IBP must be injected or incorporated within 48 hours when applied on soil with a surface horizon permeability rate of less than 0.2 inches/hour.
- IBP must not be applied by spraying from public roads or across road right of ways without prior written MPCA approval.
- The application area must be clearly identified with flags, stakes, or other easily seen markers at the time of application to identify the site boundaries, separation distances, and unsuitable application areas within the site. Where site boundaries can be identified by field roads, fences, etc., identification is not necessary.
- IBP must be uniformly distributed over the application area at the site used for land application.
- Runoff of IBP from the application site is not allowed.
- Significant surface ponding of liquid IBP is not allowed within six hours of the application.

These may not be the only measures necessary to prevent runoff of the material during the Spring thaw. Management tools such as installation of silt fences and berms, and planting of grass buffer strips may be required in order to meet the requirement that no runoff of the IBP from the application site is allowed.

Step 8. Provide information to the end user, if other than yourself.

For each site used for land application of an IBP, the end user – if other than yourself – must be provided with the information necessary to ensure that – collectively, from all nutrient sources – a site is not receiving too many nutrients. An “end user” is the person that has accepted the IBP for their use as a soil amendment – usually a farmer.

Information the end user will need includes information such as actual nutrient application rates, any restrictions on the IBP use, crop restrictions, etc. The end user must be provided with this information in writing as soon as possible, and in no case more than 6 weeks after application has been completed. End users should take appropriate credits for all plant nutrients supplied by industrial and municipal by-products, manures, and fertilizers so that maximum allowable application rates are not exceeded.

Step 9. Record site information and application loadings to each suitable site.

The following records must be maintained at the facility for a minimum of three years after the land application activity:

- A copy of the Notification form submitted to the MPCA for land application activities.
- A copy of any notification letter submitted to local authorities (county and city/township).
- A copy of any lab results and other analytical information pertaining to the IBP land applied or soil information at sites used for land application.
- Documentation of the site suitability determination made in compliance with this guidance, for each site being used for land application activity.
- Documentation of the loading calculations indicating the maximum allowable IBP application rate for each site being used during the current cropping year.
- A listing of all other industrial or municipal by-product, manures, septage, and fertilizers applied on the same site and their rates of application.
- Daily hauling records which indicate quantities transferred to storage or land applied with the storage or site location identified.
- A running total of the quantity of IBP applied on each site for the given cropping year.
- A copy of written information provided to each end user of the IBP.

Records must be made available for review upon request by the MPCA. The retention period for these records can be extended by the MPCA in the event of permitting or compliance issued that need to be addressed.

Step 10. Contact Minnesota Pollution Control Agency staff to answer your questions and provide assistance related to the management of your industrial by-product.

Additional information is available to help you properly manage your IBP.

Refer to the MPCA companion document to this fact sheet for detailed information on these steps and additional land application topics: *Guidelines for managing industrial by-products from food and beverage processing industries* (wq-Indapp2-03). An electronic version of this and other documents referenced in this fact sheet, as well as land application forms, are available at the MPCA land application webpage located at: <http://www.pca.state.mn.us/0agxeaf>.

If you have questions or need assistance with the use of this document, contact the MPCA's land application staff at: 800-657-3864 (outstate) or 651-296-6300 (metro area).