The state of Minnesota, on behalf of its citizens through the Minnesota Pollution Control Agency (MPCA), authorizes the Permittee to land apply industrial by-products, in accordance with the requirements of this permit.

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

This permit is effective on the issuance date identified above, or on the date of the attached cover letter, whichever is most recent. This permit supersedes the previous general permit MNG960000 (General Permit Authorization to Land Apply Wastes Generated from Food, Beverage, and Agro-Industrial Processing Facilities) issued for these types of facilities on December 1, 2008.

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

Signature: Jeff Udd, P.E.
Supervisor, Water Quality Permits Unit
Water Section
Industrial Division

Questions on this permit?
- For eDMR and other permit reporting issues, contact: Belinda Nicholas, 651-296-8838.
- General permit or NPDES/SDS program questions contact the appropriate MPCA regional office found on page two of this Permit.
- General permit or NPDES program questions, contact: MPCA Customer Assistance Center, 651-282-6143 or 800-657-3938
**MPCA Offices**

Toll Free Number: 800-657-3864

To report emergencies, call the Minnesota State Duty Officer at 651-649-5451 or toll free at 800-422-0798

Telephone Device for Deaf (TTY): 651-282-5332

24-hour emergency number: 651-297-5353 or 800-627-3529

<table>
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<tr>
<th>Office Location</th>
<th>Address</th>
<th>Phone</th>
<th>Fax</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Brainerd/Baxter Office</strong></td>
<td>7678 College Road, Suite 105</td>
<td>218-828-2492</td>
<td>218-828-2594</td>
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<tr>
<td><strong>Mankato Office</strong></td>
<td>12 Civic Center Plaza, Suite 2165</td>
<td>507-389-5977</td>
<td>507-389-5422</td>
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<tr>
<td><strong>Detroit Lakes Office</strong></td>
<td>714 Lake Avenue, Suite 220</td>
<td>218-847-1519</td>
<td>218-846-0719</td>
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<tr>
<td><strong>Marshall Office</strong></td>
<td>504 Fairgrounds Road, Suite 200</td>
<td>507-537-7146</td>
<td>507-537-6001</td>
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<tr>
<td><strong>Duluth Office</strong></td>
<td>525 Lake Avenue South, Suite 400</td>
<td>218-723-4660</td>
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<tr>
<td><strong>Rochester Office</strong></td>
<td>18 Wood Lake Drive SE</td>
<td>507-285-7343</td>
<td>507-280-5513</td>
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<tr>
<td><strong>St. Paul Office</strong></td>
<td>520 Lafayette Road North</td>
<td>651-296-6300</td>
<td>651-297-8676</td>
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<tr>
<td><strong>Willmar Office</strong></td>
<td>1601 Highway 12 East, Suite 1</td>
<td>320-214-3786</td>
<td>320-214-3787</td>
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Municipal and Industrial Pond Attachment
Desktop Water Balance Worksheet
## Limits and Monitoring Requirements

### Waste Stream Station: Industrial By-Product to Land Application

**Table 1. Analytical requirements for specific industrial by-products.**

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Units 1</th>
<th>Dairy</th>
<th>Antibiotic Milk or Milk</th>
<th>Rinse &amp; Wash Waters</th>
<th>All Primary &amp; Secondary Wastewater Treatment Sludges</th>
<th>Vegetable Screenings</th>
<th>Sweet Corn Silage</th>
<th>Miscellaneous By - Products and Wash Waters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chloride, Dry Weight (as Cl)</td>
<td>mg/kg</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Nitrogen, Ammonia, Dry Weight</td>
<td>%</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Nitrogen, Kjeldahl, Total, Solids Fraction, Dry Weight</td>
<td>%</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Oil and Grease, Total Recoverable (Hexane Extraction)</td>
<td>mg/kg</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>pH, sludge</td>
<td>SU</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Phosphorus, Total</td>
<td>%</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Sodium, Dry Weight (as Na)</td>
<td>mg/kg</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Solids, Total</td>
<td>%</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Solids, Total Volatile, Percent of Total</td>
<td>%</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Process Controls:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>• Temperature</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>• Solids Retention Time</td>
<td>Varies</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

1. Reported on a dry weight basis, except for pH.
2. Monitoring not required because of adequate information on constituents present.
3. Required only at facilities where grease and oil are present in waste stream.
Table 2. Minimum analysis frequencies for industrial by-products (IBPs).

<table>
<thead>
<tr>
<th>Quantity Land Applied Per Year (dry tons)</th>
<th>When Total Solids of IBP are Greater Than or Equal to 20%, use this analysis frequency</th>
<th>When Total Solids of IBP are Less Than 20%, use this analysis frequency</th>
<th>Minimum Frequency of Analysis per Cropping Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>No Sampling Required</td>
<td></td>
</tr>
<tr>
<td>&gt; 0 but &lt; 320</td>
<td>&gt; 0 but &lt; 1.5</td>
<td>Once</td>
<td></td>
</tr>
<tr>
<td>&gt; 320 but &lt; 1,650</td>
<td>&gt; 1.5 but &lt; 8.0</td>
<td>Four</td>
<td></td>
</tr>
<tr>
<td>&gt; 1,650 but &lt; 16,500</td>
<td>&gt; 8.0 but &lt; 80</td>
<td>Six</td>
<td></td>
</tr>
<tr>
<td>&gt; 16,500</td>
<td>&gt; 80</td>
<td>Twelve</td>
<td></td>
</tr>
</tbody>
</table>

Land Application Station: Land Application Sites

Table 3. Analytical requirements for specific land application sites.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Limit</th>
<th>Units</th>
<th>Limit Type</th>
<th>Effective Period</th>
<th>Sample Type</th>
<th>Frequency</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organic Matter, Total in Soil</td>
<td>Monitor Only</td>
<td>%</td>
<td>Crop Year Max</td>
<td>Sep-Aug</td>
<td>Composite</td>
<td>1x 3 Years</td>
<td>1</td>
</tr>
<tr>
<td>pH</td>
<td>Monitor Only</td>
<td>SU</td>
<td>Crop Year Max</td>
<td>Sep-Aug</td>
<td>Composite</td>
<td>1x 3 Years</td>
<td>1</td>
</tr>
<tr>
<td>Phosphorus, BRAY-1 Ext in Soil</td>
<td>200</td>
<td>ppm</td>
<td>Crop Year Max</td>
<td>Sep-Aug</td>
<td>Composite</td>
<td>1x 3 Years</td>
<td>1,2</td>
</tr>
<tr>
<td>Phosphorus, Olson Ext in Soil</td>
<td>180</td>
<td>ppm</td>
<td>Crop Year Max</td>
<td>Sep-Aug</td>
<td>Composite</td>
<td>1x 3 Years</td>
<td>1,2</td>
</tr>
<tr>
<td>Potassium, NH4AC, Exch in Soil</td>
<td>Monitor Only</td>
<td>ppm</td>
<td>Crop Year Max</td>
<td>Sep-Aug</td>
<td>Composite</td>
<td>1x 3 Years</td>
<td>1</td>
</tr>
<tr>
<td>Salts, Water Soluble in Soil</td>
<td>4</td>
<td>mmh/cm</td>
<td>Crop Year Max</td>
<td>Sep-Aug</td>
<td>Composite</td>
<td>1x 3 Years</td>
<td>1</td>
</tr>
<tr>
<td>Soil Texture</td>
<td>Monitor Only</td>
<td>-</td>
<td>Crop Year Max</td>
<td>Sep-Aug</td>
<td>Composite</td>
<td>1x3 Years</td>
<td>3</td>
</tr>
</tbody>
</table>

NOTES:
1. Soil testing must be conducted on each site that is used for land application within the 3-year period prior to the date that the land application is conducted. The soil tests submitted with the ‘Industrial By-Products Site Notification’ form must be collected no greater than 6 months prior to submittal of the form. The composite sample shall consist of a mixture of 15-20 sub-samples taken in the plow layer for every 40 acres.
2. The soil test method used for extractable phosphorus in soil is either the Bray P-1 test, or the Olson test; the Olson test procedure should be used if the soil pH is 7.4 or higher.
3. USDA Classification.
Ground Water Station: Tile Line Discharges

Table 4. Analytical requirements for discharges from pond tile lines to surface water. These are only applicable to those facilities who have pond tile line discharges identified at their facility.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Limit</th>
<th>Units</th>
<th>Limit Type</th>
<th>Effective Period</th>
<th>Sample Type</th>
<th>Frequency</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chloride, Total</td>
<td>Monitor Only</td>
<td>mg/L</td>
<td>Calendar Month Maximum</td>
<td>Apr, July, Oct</td>
<td>Grab</td>
<td>1xmonth</td>
<td>1</td>
</tr>
<tr>
<td>Fecal Coliform, MPN or Membrane Filter 44.5C</td>
<td>Monitor Only</td>
<td>#100ml</td>
<td>Calendar Month Maximum</td>
<td>Apr, July, Oct</td>
<td>Grab</td>
<td>1xmonth</td>
<td>1</td>
</tr>
<tr>
<td>Nitrogen, Kjeldahl, Total</td>
<td>Monitor Only</td>
<td>mg/L</td>
<td>Calendar Month Maximum</td>
<td>Apr, July, Oct</td>
<td>Grab</td>
<td>1xmonth</td>
<td>1</td>
</tr>
<tr>
<td>Nitrogen, Nitrate, Total (as N)</td>
<td>Monitor Only</td>
<td>mg/L</td>
<td>Calendar Month Maximum</td>
<td>Apr, July, Oct</td>
<td>Grab</td>
<td>1xmonth</td>
<td>1</td>
</tr>
<tr>
<td>Oxygen, Dissolved</td>
<td>Monitor Only</td>
<td>mg/L</td>
<td>Calendar Month Maximum</td>
<td>Apr, July, Oct</td>
<td>Grab</td>
<td>1xmonth</td>
<td>1</td>
</tr>
<tr>
<td>pH</td>
<td>Monitor Only</td>
<td>SU</td>
<td>Calendar Month Maximum</td>
<td>Apr, July, Oct</td>
<td>Grab</td>
<td>1xmonth</td>
<td>1</td>
</tr>
<tr>
<td>Solids, Total Dissolved (TDS)</td>
<td>Monitor Only</td>
<td>mg/L</td>
<td>Calendar Month Maximum</td>
<td>Apr, July, Oct</td>
<td>Grab</td>
<td>1xmonth</td>
<td>1</td>
</tr>
<tr>
<td>Specific Conductance</td>
<td>Monitor Only</td>
<td>umh/cm</td>
<td>Calendar Month Maximum</td>
<td>Apr, July, Oct</td>
<td>Grab</td>
<td>1xmonth</td>
<td>1</td>
</tr>
</tbody>
</table>

NOTES:
1. Required only if discharge present. If there is no discharge from the tile line, check the ‘no discharge’ box on the DMR.
Chapter 1. General Industrial By-Products

1. Authorization

1.1 This permit authorizes the Permittee, as identified by name, location and facility description on the accompanying Letter of Coverage, to land apply industrial by-products in accordance with the provisions of this permit.

Examples of industrial by-products eligible for coverage under this permit include liquid or dewatered wastewater treatment sludges, wash water from food preparation industries, livestock truckwash wash water and solids, pretreatment solids settled from wastewater before discharging to a municipal wastewater system, whey from cheese processing, sweet corn silage, sweet corn silage leachate and ethanol by-products. Industries that produce industrial by-products which have characteristics similar to the above by-products may also apply for coverage under this permit.

1.2 All conditions of this permit must be met in order to be eligible for continued coverage by this permit. The Permittee (generator of the industrial by-product(s)) covered by this permit is responsible for ensuring that all requirements of this permit are met.

2. General Permit Applicability Criteria

2.1 All criteria identified in this part must be met in order for an industrial by-product to be eligible for coverage under this permit.

2.2 Characterization of the industrial by-product at the time of permit application must indicate all of the eligibility requirements in this part are met.

   a. The industrial by-product cannot be a hazardous waste.

   b. Concentrations of any of the analytes in the industrial by-products cannot exceed the limits for the specified analytes below. Industrial by-products cannot be diluted or mixed with other materials before this determination has been made.

Concentration limits for industrial by-products on a dry weight basis:

- Total Arsenic: 41 mg/kg
- Total Cadmium: 39 mg/kg
- Total Copper: 1500 mg/kg
- Total Lead: 300 mg/kg
- Total Mercury: 5 mg/kg
- Total Molybdenum: 75 mg/kg
- Total Nickel: 420 mg/kg
- Total Selenium: 100 mg/kg
- Total Zinc: 2800 mg/kg
- Total Dioxin equivalents: 10 parts per trillion
- Total Polychlorinated biphenyls: 6 mg/kg

   c. Annual application rates of the industrial by-product cannot exceed a sodium application rate limitation of 170 lb/acre/year.
Chapter 1. General Industrial By-Products

2. General Permit Applicability Criteria

2.3 The following do not qualify for coverage under this permit:

a. Egg shells managed in accordance with Minn. R. 7035.2860 (Beneficial Use Rules);

b. Industrial by-products from the processing of sugar beets;

c. Animal manures and paunch manure covered under Minn. R. 7020 (Feedlot Rules). Animal manures and paunch manure generated and land applied by an industry are not regulated by Minn. R. 7020, thus are authorized to land apply under this permit;

d. Dead animals;

e. Residuals from the treatment of drinking water or for conditioning of industrial process water managed in accordance with Minn. R. chapter 7035.2860 or covered under general permit MNG820000 or MNG640000 (water treatment plant general permits); and

f. Solid or liquid wastes generated at these facilities as part of other operations, such as vehicle maintenance, shipping, and cooling water.

2.4 If the MPCA finds that the facility site of a permit applicant or a Permittee covered under this permit would be more appropriately covered under an individual permit, the MPCA may require an individual permit for the applicant or Permittee, in accordance with Minn. R. 7001.0210, subp. 6.

2.5 If there is any change in the operation of a facility covered by this general permit or conditions exist which may cause the facility to violate any of the terms and conditions of this permit, the Permittee shall notify the MPCA immediately of the changes, and if so requested by the MPCA, shall submit an application for an individual permit.

3. Sampling, Analysis, and Field Equipment Calibration Plan

3.1 Submit a Sampling, Analysis and Field Equipment calibration plan to address storage, management, and land application schedules by 60 days after permit issuance. This submittal is required for all permitted facilities. If the plan was submitted as part of a previous permit term, an updated version is acceptable under the terms of this permit.
Chapter 1. General Industrial By-Products

3. Sampling, Analysis, and Field Equipment Calibration Plan

3.2 The Sampling, Analysis and Field Equipment Calibration plan must include, but is not limited to the following:

a. A description of how samples will be collected to ensure representative samples of the industrial by-product land applied are obtained, which shall include the identification of sampling locations, and a description of a sampling schedule;

b. A list of all parameters that will be analyzed, the frequency they will be analyzed, maximum holding times, and preservation methods that will be used;

c. The laboratory methods used for analysis and reporting limits necessary;

d. A schedule and detailed procedures which will be followed for calibration of field equipment to determine actual application rates of industrial by-product;

e. Example of record keeping forms that will be used for sampling, analysis, and equipment calibration;

f. Position of the person(s) responsible for sampling and calibration of field equipment; and

g. Description of measures and practices that will be implemented to provide reasonable assurance that the land application, staging and/or storage of industrial by-product will not cause nuisance conditions.

Sampling Requirements

3.3 The Permittee shall measure flows to ensure accuracy within plus or minus ten percent of the true flow values. Flow meters shall be calibrated in accordance with Chapter 1, Section 17.19 of this Permit. The Permittee shall maintain written records of all calibrations and maintenance.

4. Limits and Monitoring Requirements

4.1 Parameters. Samples for each industrial by-product must be sampled and analyzed for the parameters listed in the Limits & Monitoring Section of this permit. If the facility produces more than one type of industrial by-product, it must analyze each industrial by-product individually. Analysis is not required for sweet corn silage. Analysis of "Oil and Grease, Total" is not required at facilities where oil and grease are not present in the waste stream.

4.2 Analysis Frequency. Refer to the Limits & Monitoring Section of this permit to determine the minimum frequency of analysis for the analytes identified in the Limits and Monitoring section. Minimum analytical frequency must be determined for each type of industrial by-product land applied. In some cases to obtain representative samples the minimum frequencies of analysis will not be adequate and additional analysis may be required.

5. Site Suitability Criteria

5.1 The criteria in this section detail the suitability of land application sites for receiving industrial by-products. All criteria within this section must be met for a site to qualify as being suitable for land application of an industrial by-product.

5.2 The Permittee is responsible for determining the suitability of the site for industrial by-product application, including a determination that the site meets the soil sample limitations identified above for Land Application Stations in the 'Limits and Monitoring' section of this permit, and the 'Site Suitability Criteria' of this part. The Permittee shall submit this information to the Agency according to the procedures in Chapter 1, Section 11.1 before land application.

5.3 Slope Restrictions. The slope restrictions in Table 5 of the appendix to this permit apply to all sites used for land application of industrial by-products.
Chapter 1. General Industrial By-Products

5. Site Suitability Criteria

5.4 Separation Distances. The separation distances in Table 6 of the appendix to this permit shall be maintained on all land application sites.

6. Soil Sampling Requirements and Limits

6.1 Soil samples must be collected and analyzed within the three-year period prior to industrial by-product application for the parameters listed below:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Limit</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Texture (USDA textural classification)</td>
<td>Monitor Only</td>
<td>%</td>
</tr>
<tr>
<td>Organic Matter, Total in Soil</td>
<td>Monitor Only</td>
<td>SU</td>
</tr>
<tr>
<td>pH</td>
<td>Monitor Only</td>
<td></td>
</tr>
<tr>
<td>Phosphorus, BRAY-1 Ext in Soil</td>
<td>200</td>
<td>ppm</td>
</tr>
<tr>
<td>Phosphorus, Olson Ext in Soil</td>
<td>180</td>
<td>ppm*</td>
</tr>
<tr>
<td>Potassium, NH4AC, Exch In Soil</td>
<td>Monitor Only</td>
<td>ppm</td>
</tr>
<tr>
<td>Salts, Water Soluble in Soil</td>
<td>4</td>
<td>mmho/cm</td>
</tr>
</tbody>
</table>

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

A site shall not be used for land application until sample results are received and evaluated to determine soil suitability.

If any of the soil limits are exceeded, the site shall not be used for land application by the Permittee until sample results show limits are met.

6.2 Soil samples shall be a composite sample consisting of a mixture of 15-20 sub-samples taken in the plow layer. A minimum of one composite sample per site is required. On sites that are greater than 40 acres in size, a minimum of one composite sample per 40 acres of area is required.

7. Soil Suitability Requirements

7.1 The soil will be considered suitable if the site is used for growing a crop which is harvested and removed during the cropping year that the industrial by-product is land applied.

7.2 If the site does not meet this condition or the application site is set aside land (CRP), pasture land, non-agricultural land, or the industrial by-product contain pathogens, all the soil suitability criteria in a through c, below, must be met:

a. The soil texture at the zone of industrial 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.

b. The depth to bedrock must be at least 3 feet, unless the soil is classified as a highly permeable soil, in which case the minimum depth is increased to 5 feet.

c. The depth to the seasonal high water table must be at least 3 feet, unless the soil is classified as a highly permeable soil, in which case the minimum depth is increased to 5 feet.

7.3 On sites where tile drainage is installed, the depth to tile lines is considered the depth to the seasonal high water table. Tiling must be adequate to ensure the three-foot separation distance can be maintained. Maps of the tiling system must be provided indicating their depth and placement in the field. Water tables classified as perched or epi-saturated by the Natural Resources Conservation Service are not considered to be the seasonal high water table.
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7. Soil Suitability Requirements

7.4 Soil suitability can be determined by obtaining information from soil surveys published by the Natural Resources Conservation Service or by characterization of the site by a state of Minnesota licensed soil scientist or other qualified person.

8. Site Management, Limitations, and Restrictions

8.1 Annual Application Limits.

Annual application rates of the industrial by-product cannot exceed a sodium application rate limitation of 170 lb/acre/year.

8.2 Hydraulic Loading Limits. Hydraulic loading are set to prevent ponding and runoff from land application sites. The limitations specified in this part shall not cause any other application limits of this permit to be exceeded.

Daily application rates for industrial by-products which are surface applied are limited to:

a. 10,000 gallons/acre/day for fine textured surface soils with United States Department of Agriculture (USDA) textural classifications of clay loam, silty clay loam, sandy clay, silty clay;

b. 15,000 gallons/acre/day for medium textured surface soils with USDA textural classifications of loam, silt, silt loam, and sandy clay loam; and,

c. 25,000 gallons/acre/day for coarse textured surface soils with USDA textural classifications of sand, loamy sand, and sandy loam.

8.3 Winter Application. During the time that soils are frozen or snow covered, so that incorporation or injection is not possible, the following requirements shall be met:

a. A maximum hydraulic loading rate of 15,000 gallons/acre/winter for liquid industrial by-product shall not be exceeded.

b. Applications are restricted to areas with 0 % to 2 % slopes.

c. All separation distances identified in Table 6 of the appendix to this permit must be maintained.

d. For the purposes of this permit, it is assumed that industrial by-product is unable to be incorporated or injected during the months of December, January, February, and March unless specific field or climatic conditions are observed and documented appropriately in the Daily Hauling Record.

8.4 Additional measures may be necessary to prevent runoff of the material during the Spring thaw, such as installation of silt fences and berms and planting of grass buffer strips, to meet the requirement that no runoff of the industrial by-product from the application site is allowed.
Chapter 1. General Industrial By-Products

8. Site Management, Limitations, and Restrictions

8.5 Miscellaneous Management Practices/Restrictions. All of the following standards apply to the land application of industrial by-products.

a. No runoff of the industrial by-product from the application site is allowed. Management tools such as installation of silt fences and berms, and planting of grass buffer strips may be required to meet the no-runoff requirement.

b. No ponding of liquid industrial by-products is allowed after 6 hours of application.

c. All of the industrial by-product land applied must be uniformly distributed over the area of the site used during application.

d. 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, and fences, and so forth, identification is not necessary.

e. The industrial by-product must be immediately incorporated or injected on sites subject to flooding.

f. Application of the industrial by-product is not allowed on areas of a site ponded with water or industrial by-product.

g. Application of the industrial by-product is not allowed on areas that remain fallow for the entire cropping year.

h. Liquid industrial by-products must be injected or immediately incorporated when applied on soil with a surface horizon permeability rate of less than 0.2 inches/hour.

i. The industrial by-product shall not be applied by spraying from public roads or across road right of ways without prior written MPCA approval.

8.6 Nuisance conditions. Land application, staging and/or storage of industrial by-product shall be performed to minimize odors, noise, and vector attraction. The Permittee shall provide reasonable assurance that the land application, staging and/or storage of industrial by-product will not cause nuisance conditions. All aspects of land application of the industrial by-product shall be considered in providing reasonable assurance, to include loading, unloading, transportation, storage and land application of the industrial by-product, and shall be specified in the Sampling, Analysis, and Field Calibration Equipment Plan.
Chapter 1. General Industrial By-Products

9. Additional Requirements - Industrial By-Products Supplying Nitrogen

Total Available Nitrogen

9.1 For the purposes of this permit, the total quantity of nitrogen available for crop uptake during the cropping year is the sum of available organic nitrogen and ammonia nitrogen.

a. Available organic nitrogen. The available organic nitrogen shall be determined by one of the methods in items i or ii:

i. The total quantity of organic nitrogen present in the industrial by-product will be considered 50% available during the cropping year it is applied and 25% the following cropping year (carry over nitrogen).

ii. The quantity of organic nitrogen available in the industrial by-product during the cropping year it is applied and subsequent years (carry over) will be determined by a mineralization study. The mineralization study will determine the rate and quantity of organic nitrogen mineralized during the cropping year it is applied and the rate and quantity of nitrogen mineralized during the second cropping year after application. To be used for the purposes of this permit, the mineralization study, including study protocol, must be approved by MPCA prior to initiation of the study.

b. Ammonia nitrogen. The quantity of ammonia nitrogen used for calculating total available nitrogen is equal to 100% of the ammonia nitrogen contained in the industrial by-product when it is injected or immediately incorporated or 50% of the ammonia nitrogen when it is surface applied without immediate incorporation.

Maximum Allowable Nitrogen Application Rates

9.2 Maximum allowable nitrogen application rates shall be based on recommendations from the University of Minnesota Extension Service. These recommendations are based on soil analyses, realistic crop yield goals, and previously grown crops. This information is available from the MPCA upon request. When information on recommended nitrogen application rates is not readily available or agreed upon, MPCA written approval must be obtained for the nitrogen application rate proposed.

9.3 Total available nitrogen loading limit cannot exceed the maximum allowable nitrogen application rate for the cropping year.

9.4 Maximum allowable nitrogen application rates for selected crops which do not have University of Minnesota Extension Service recommendations for nitrogen are provided in Table 8 of the appendix to this permit.

9.5 Industrial by-products shall not be applied at rates that cause the annual maximum allowable nitrogen application rate to be exceeded. Maximum allowable nitrogen application rates must take into account all available nitrogen supplied by farmers, industrial and municipal by-products such as manure, biosolids, compost and septage, other industrial by-products and fertilizers applied on the site.

Application Management

9.6 When no crop is grown on the application site during the time period between July 1 through August 31, the following requirements apply:

a. Applications are limited to rates which supply no more than 50 pounds per acre of available nitrogen.

b. Available nitrogen for the following cropping year shall be the sum of the total amount of nitrogen applied between July 1 and August 31 plus applicable carry over from earlier industrial by-product application.

9.7 The maximum application rate of an industrial by-product allowed after the second cutting of a hay crop shall not provide more than 50 percent of the maximum allowable nitrogen based on the recommendations from the University of Minnesota Extension Service or Table 8 in the appendix of this permit.
Chapter 1. General Industrial By-Products

10. Additional Requirements - Industrial By-Products Containing Pathogens

10.1 Applicability. Industrial by-products containing pathogens have additional separation distances and site restrictions which must be met (Table 7 of the appendix). For purposes of this permit, an industrial by-product will be assumed to contain pathogens when it contains waste streams known or likely to contain pathogens, including wastes containing blood, animal feces and raw meats. All requirements of this section must be met for industrial by-products containing pathogens.

Site Restrictions for Industrial By-Products Containing Pathogens

10.2 The restrictions on crop harvest and access restriction described below must be met on all land application sites when industrial by-products containing pathogen are land applied. If necessary, the area must be posted to ensure these restrictions are being met. Minimum duration between time of application of an industrial by-product containing pathogens and harvest, grazing, and public access to the site are as follows:

a. For food crops whose harvested part may touch the soil/industrial by-product mixture, such as melons, squash, and tomatoes, the waiting period is 14 months.

b. For food crops whose harvested parts grow in the soil, such as potatoes and carrots, the waiting period is 38 months. This waiting period can be reduced to a 20 month duration between application and harvest when the industrial by-product is surface applied and stays on the soil surface four months or longer prior to incorporation into the soil.

c. For feed, other food crops, such as field corn or sweet corn, hay, or fiber crop, the waiting period is 30 days.

d. For the grazing of animals, the waiting period is 30 days.

e. For public access to land with a high potential for exposure, including public contact sites, reclamation sites located in populated areas, turf farms, or plant nurseries, the waiting period is one year.

f. For public access to land with a low potential for exposure, including lands with infrequent public use such as agricultural land, forests, or reclamation sites located in an unpopulated area, the waiting period is 30 days.

11. Notification Procedures

Notification to MPCA

11.1 Prior to the use of a site for land application of an industrial by-product for the first time, the Permittee shall submit a completed 'Industrial By-Products Land Application Site Application Form', at least 30 days prior to application of industrial by-product at the respective site. The soil test results submitted with this form shall be collected no greater than six (6) months prior to submittal of the form. This notification must be repeated if any of the properties or conditions of the site changes, including a change in site name, site ownership, acreage used, soil types, slope and/or drainage capacity (tile lines). A copy of the form is included in the appendices section of this permit and is available electronically at http://www.pca.state.mn.us/water/landapp.html.

11.2 Prior to the use of a structure for the storage of an industrial by-product, the appropriate and respective certifications required by the Industrial By-Product Storage section of this permit shall be provided to the MPCA.
Chapter 1. General Industrial By-Products

11. Notification Procedures

   Local Notification

   11.3 Before land application activities are initiated within a county, city or township for the first time, written
notification shall be provided to local officials at least 30 days before initiating land application activities in the
respective jurisdiction. The first time a Permittee applies an industrial by-product within a county, township, or
city, the Permittee must satisfy the following notification procedures:

   a. Notify the county's Planning and Zoning or Solid Waste Officer (whichever is appropriate for the county) in
writing 30 days before the industrial by-product is land applied within the county; and,

   b. Notify the township clerk in writing 30 days before the industrial by-product is land applied within the
township; or,

   c. Notify the mayor or other appropriate official of the city in writing 30 days before the industrial by-product is
land applied within the city limits.

   11.4 Notifications must be dated and contain a description of how the industrial by-product will be managed during
land application, to include the following elements:

   a. Description of the industrial by-product to be land applied, including a description of how the industrial
by-product is produced, what nutrients/pollutants are present in the industrial by-product, and the limiting
nutrient/pollutant in the industrial by-product being applied.

   b. Description of how any staging and/or short-term storage of the industrial by-product will be conducted prior
to land application.

   c. Description of the applicable slope and setback requirements that will be followed during land application.

   d. Response section must be provided to notify the local officials there is an opportunity to request additional
information regarding copies of records, testing information, individual site information, listing of all sites, etc;
and/or a section to provide information to the generator of the waste, applicator(s) and land owner(s) of any local
requirements.

   11.5 If any significant changes in the management of the industrial by-product described in the notification occur,
including changes affecting the staging and/or storage of the industrial by-product, the notification process must
be repeated.

   End User Notification

   11.6 For each site used for land application of the industrial by-product, the end user must receive, at a minimum, the
information necessary to meet the requirements of this permit. This includes information such as actual nutrient
application rates, any restrictions on the by-product use, crop restrictions, and so forth. The application rates
provided to the end user should be the same nutrient loading rates submitted in the annual report.

   11.7 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. Records demonstrating compliance with end user notification shall
be maintained in accordance with the Records section of this permit.

   11.8 The Permittee shall inform end users that they 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.

12. Operator Certification

   12.1 All land application activities must be done by or under the supervision of a Type IV certified operator.
Chapter 1. General Industrial By-Products

12. Operator Certification

12.2 The number of certified operators required for land application activities is subject to the requirements of Minn. R. 7048.0500.

13. Records

13.1 Record Retention. The following records shall be maintained at the facility for a minimum of three (3) years, and shall be available at the facility for review at any time by MPCA staff:

a. Copy of the submitted 'Site Notification Form' for each land application site, including the site map identifying the exact site location of the site, soil types on the site, and areas that are required to be excluded from use.

b. Documentation of site suitability of each site, including a copy of any lab results and other analytical information related to the industrial by-product or site used for application.

c. Documentation of loading calculations for each site, including the maximum allowable industrial by-product application rate for each site being used during the current cropping year.

d. Documentation of acres used for application.

e. Daily hauling records which indicate quantities of industrial by-product transferred to storage or land applied with the storage or site location identified for each land application site or storage area/structure.

f. Sampling and calibration records as required by the Sampling, Analysis and Field Equipment Calibration Plan as well as a copy of the submitted Sampling, Analysis, and Field Equipment Calibration Plan.

g. Copy of the submitted Industrial By-Products Annual Report Form and any other reported information necessary to prepare the Annual Report.

h. Copy of notification letter(s) and other information submitted to each city, county and township.

i. Copy of written information provided to each end user of the industrial by-product.

13.2 Record Retention continued:

j. Any approved plans or special approvals required by this permit.

k. Copy of any 'Transfer to Manure Storage Form' submitted for storage of industrial by-product in a manure storage structure.

l. Any applicable records requirements pertaining to the storage of industrial by-product as specified by Industrial By-Products Storage section of this permit.
Chapter 1. General Industrial By-Products

13. Records

13.3 The following information shall be maintained as the 'Daily Hauling Record,' organized by site or storage area/structure for each site or storage unit used for the land application or storage of industrial by-product covered by this permit and structures used for the storage of sweet corn silage:

a. Name of site;

b. Date delivered to site/storage area/structure;

c. Date applied to site/removed from storage area/structure;

d. Volume applied/delivered to site/storage area/structure;

e. Application rate;

f. Visual observations of site, including but not limited to an indication of whether soils are frozen or snow covered, such that incorporation or injection of industrial by-product is not possible; and

g. Running total of industrial by-product applied to site/added to storage unit during the cropping year.

Records for industrial by-product transferred to manure storage structures do not need to include items c, e or f above; however these do need to indicate on the 'Daily Hauling Record' whether three-foot freeboard existed within the manure structure at the time of transfer.

14. Industrial By-Product Storage

General Requirements Applicable for Storage of Dewatered and Liquid Industrial By-Product

14.1 Applicability. Storage or staging of industrial by-product prior to land application is allowed only under the terms and conditions of this permit for the industrial by-product(s) covered by this permit. This section is divided into several subparts. This first section is applicable to all industrial by-product storage. Additional requirements for dewatered and liquid industrial by-product are listed following this section.

14.2 Prior to use of an area or structure for storage of an industrial by-product within a county, township, or city, the Permittee must notify the appropriate local authorities as described below. Notification to local officials as required by this section shall include at least the following information, and a response section:

a. a description of the necessity for storage at the land application site;

b. the location of the storage area delineated on maps submitted;

c. the dimensions of the storage area;

d. the quantity of industrial by-product to be stored;

e. expected duration of storage before land application; and,

f. a description of precautions or practices to minimize or prevent drainage, runoff or nuisance conditions at the storage area.
Chapter 1. General Industrial By-Products

14. Industrial By-Product Storage

14.3 Management of Storage Area. All of the following requirements apply to areas and structures used for the storage of industrial by-products:

a. No runoff of the industrial by-product from the storage site is allowed.

b. If the storage area contains any particulate matter that may be subject to wind dispersion, the owner or operator must cover or otherwise manage the waste to control wind dispersion.

c. Nuisance conditions resulting from the storage of industrial by-product must be controlled and managed by the Permittee.

14.4 Records Requirements. In addition to the records retention requirements of this permit, owners and operators of structures used for the storage of industrial by-products shall retain, for the life of the storage structure, the following additional records:

a. maintenance and repair documentation;

b. third-party certifications of storage structure(s) used for the storage of industrial by-product; and

c. as-built drawings of any storage structure(s) used for the storage of industrial by-product.

Additional requirements pertaining to record retention is required in accordance with Minn. R. chapter 7151 for storage of an industrial by-product in a tank or tank system.

A. Requirements for the Storage of Industrial By-Product in an Aboveground Storage Tank System

14.5 If industrial by-product is stored in an aboveground storage tank system as defined in Minn. R. 7151.1200, subp. 2, the Permittee shall comply with the design and operating requirements of Minn. R. ch. 7151 as applicable to storage of other regulated substances as defined in Minn. R. 7151.1200, subp. 25. The exclusion for wastewater treatment equipment in Minn. R. 7151.1300, subp. 2.A, does not apply to such storage.

14.6 Certification Required. Prior to use of a tank for the storage of an industrial by-product under this section, owners and operators must obtain written certification from an engineer licensed in Minnesota stating that the tank, based on their assessment of the applicable provisions of Minn. R. chapter 7151 is compliant with the Aboveground Storage Tank Rules.

B. Additional Requirements for the Transfer of Industrial By-Products to Manure Storage Structures

14.7 Applicability. Structures designed primarily for the storage of manure wherein industrial by-product and manure are co-mingled are regulated by the requirements of this section.

14.8 Maximum Amount Transferred to Each Structure. A maximum of 50,000 gallons of industrial by-product, or up to 10% of the available volume of the structure, whichever is greater, is allowed to be transferred to each approved manure storage structure. A second transfer to the manure storage structure during a cropping year is also subject to a maximum of 50,000 gallons, or up to 10% of the available volume of the structure, whichever is greater. Two transfers of product are allowed as long as the first quantity is removed prior to receiving the second transfer. The available capacity of the structure at the time of transfer and the amount transferred shall be maintained in the Daily Hauling Record, as required by the Records section of this permit.
Chapter 1. General Industrial By-Products

14. Industrial By-Product Storage

14.9 Storage Structure Minimum Standards. The following restrictions apply to the storage of industrial by-product in a manure storage structure:

   a. The structure shall meet the design and operational standards of Minn. R. 7020.2100 pertaining to liquid manure storage areas.

   b. Biological treatment lagoons shall not be used for the storage of industrial by-product.

   c. The manure storage structure shall be operated to maintain a minimum of three-foot freeboard at all times.

   c. Industrial by-products must be compatible with the structure and manure to prevent damage to the structure and changes in biological activity. Examples of problems associated with incompatible wastes are damage to concrete and soil liners, physical or chemical changes in the mixture which make it difficult to agitate or pump, cause odors, or cause other nuisance or structural problems.

14.10 Approval Required. Use of manure storage structures for the storage of industrial by-products requires written MPCA approval prior to use of these structures.

14.11 To request approval of the manure storage structure, the Permittee shall:

   a. Complete an Industrial By-Product Transfer to Manure Storage Application Form and submit it to the appropriate county official (feedlot officer in delegated counties or the county solid waste official in nondelegated counties) in the county in which the manure storage structure is located. A copy of the 'Industrial By-Product Transfer to Manure Storage' form is included in the appendices section of this permit and is available electronically at http://www.pca.state.mn.us/water/landapp.html.

   b. Submit a copy of the county completed and signed form to the township or city where the manure storage structure is located.

   c. Submit a copy of the county completed and signed form to the MPCA for review and approval.

14.12 Feedlot Facility Minimum Standards

In consideration for approval of a manure storage structure for industrial by-product use, the following standard applies to the facility storing the industrial by-product:

   a. The feedlot receiving the industrial by-product must be in compliance with agency feedlot and manure management requirements and have no unresolved compliance issues.
Chapter 1. General Industrial By-Products

14. Industrial By-Product Storage

14.13 Land Application of Industrial By-product/Manure Mixtures. The following requirements apply to the land application of mixtures of industrial by-products and manure:

a. Sampling and analysis of the industrial by-product/manure mixture must occur prior to land application to determine allowable application rates;

b. Land application of the mixture shall be in accordance with Minn. R. 7020.2225, pertaining to the land application of manure; and

c. The Permittee shall provide the following information to the owner and operator of the manure storage structure at the time of transfer:

   i. a copy of the analysis of the industrial by-product as required in the 'Limits and Monitoring' section and Table 5 of the appendix to this permit; and

   ii. an account of the volume transferred to the manure storage facility.

14.14 Land Application of Industrial By-product/Manure Mixtures (continued)

d. The Permittee shall obtain a copy of the Manure Management Plan from the owner or operator of the manure storage structure and ensure that the addition of the industrial by-product is appropriately addressed in the Plan. A Manure Management Plan is required by Minn. R. chapter 7020 for operations with more than 300 animal units; for operations with less than 300 animal units, a MMP is not required, but the manure must be land applied in accordance with the requirements of Minn. R. chapter 7020;

e. The Permittee shall not relinquish control of the industrial by-product until the Manure Management Plan has been appropriately updated or if there is reason to believe that the industrial by-product will not be managed in accordance with this permit or Minn. R. 7020.2225;

f. The total quantity of by-product transferred and a copy of analysis results shall be submitted to the agency in accordance with the 'Annual Report' part of this chapter;

g. Daily Hauling Records pertaining to the transfer of the industrial by-product to/from a manure storage structure, as required by the Records section of this permit; and

h. The resulting mixture of materials land applied will be managed as manure and subject to the requirements for manure management.

Requirements for the Storage of Dewatered Industrial By-Product

14.15 Dewatered industrial by-products being spread concurrent with the unloading of bulk material on the land application site and not stockpiled overnight are not considered storage and are not subject to the additional requirements for storage under this part.

14.16 Storage of a dewatered industrial by-product that has already been approved under a previous permit action or other written approval must meet the requirements of the applicable parts of this chapter.

14.17 Separation Distances. The separation distances in Table 9 of the 'Tables for Industrial By-Product Chapter' appendix of this permit shall be maintained for all areas and structures used for the storage of industrial by-products.
Chapter 1. General Industrial By-Products

14. Industrial By-Product Storage

   A. Requirements for Short-Term Storage of Dewatered Industrial By-Product

   14.18 Short-term storage requirements under this section are applicable to industrial by-products that meet the definition of "Dewatered Industrial By-product", as defined by this permit.

   14.19 The following standards apply to the short-term storage of industrial by-products:

   a. Storage under this section shall not exceed thirty (30) days.

   b. Short-term storage shall only occur on the land application site where the industrial by-product will be applied. The quantity of industrial by-product to be stored at an application site shall not exceed the quantity of material that can be applied to that site.

   c. Short-term storage shall not take place on land with a slope greater than two percent (2%) unless measures are taken to control water runoff.

   B. Requirements for Long-Term Storage of Dewatered Industrial By-Product

   14.20 Long-term storage requirements under this section are applicable to industrial by-products that meet the definition of "Dewatered Industrial By-product", as defined by this permit.

   14.21 The following standards apply to the long-term storage of industrial by-products:

   a. Long term storage shall not exceed a period of 7 months.

   b. Long-term storage of an industrial by-product is allowed only when land application will occur on the site where it is stored, or on land that is owned, leased, or rented by the same person, and all sites are within a one-half mile radius of the storage site.

   c. Long-term storage shall not be allowed on land with greater than a two percent (2%) slope unless measures are taken to control water runoff.

   d. Long-term storage areas shall be located in areas where the texture of all the horizons in the soil profile to a depth of five feet is sandy loam or finer, unless an impervious pad with a drainage collection system is constructed.

   e. Long-term storage shall not take place on the same area for two or more consecutive years unless an impervious pad with a drainage collection system is constructed.

   f. Prior to the use of an area for long-term storage (whether or not a pad is constructed), the Permittee shall submit boring logs from at least two soil borings taken to a depth of ten feet at the perimeter of the proposed storage area.

   Boring logs must include the following information:

   i. Texture and thickness of each soil horizon encountered;

   ii. Color and presence or absence of mottling for each soil horizon encountered (by the Munsell Soil Color Charts);

   iii. Depth to seasonal high water table, if encountered; and,

   iv. Depth to bedrock, if encountered.
Chapter 1. General Industrial By-Products

14. Industrial By-Product Storage

14.22 Locational Prohibitions. All of the locational standards in Table 9 apply to all areas and structures used for the storage of industrial by-products.

14.23 Certification Required. Prior to use of a constructed pad or other structure for the long-term storage of an industrial by-product under this section, owners and operators must obtain and submit written certification from a Professional Engineer registered in the state of Minnesota stating that the storage area and/or structure (storage facility), based on their assessment of the requirements of the Long Term Storage of Dewatered Industrial By-Products section of this permit, is suitable for the long-term storage of the industrial by-product.

14.24 Certification Required. Prior to the use of an area for the long-term storage of an industrial by-product, the Permittee shall submit written certification by a Professional Soil Scientist registered by the state of Minnesota or a Professional Engineer registered in the state of Minnesota, that the site, based on their assessment of the boring logs required under the Long Term Storage of Dewatered Industrial By-Products of this permit, is suitable for the long-term storage of the industrial by-product.

C. Additional Requirements for the Permanent Storage of Dewatered Industrial By-Product

14.25 Permanent Storage Requirements are applicable to Dewatered Industrial By-Products that are stored for a period of more than seven months and are not stored in a tank or tank system.

14.26 The following standards apply to the permanent storage of industrial by-products:

a. Any area used for permanent storage of dewatered industrial by-products must be paved with asphalt, concrete, or other material designed to restrict seepage to less than 500 gallons per acre per day, and must be sufficient to bear the weight of unloading and loading trucks and equipment without cracking. The pad must be sloped and curbed to collect all runoff water. Runoff water must be collected and managed in a manner approved by the MPCA.

b. The industrial by-product shall not be stored at the permanent storage location for more than three years without being processed or utilized.

c. Prior to operation of a storage facility, the Permittee shall evaluate the potential for migration of contaminants into adjacent subsurface soil, groundwater, or surface water from the stored industrial by-product. This evaluation must take into consideration the characteristics of the industrial by-product, the quantity of industrial by-product to be stored, and the length of time the industrial by-product will be stored.

14.27 Certification Required. Prior to use of a constructed area or structure for the permanent storage of an industrial by-product under this section, the Permittee must obtain and submit written certification from an engineer licensed in Minnesota stating that the storage area and/or structure (storage facility), based on their assessment of the requirements of this permit are suitable for the permanent storage of the industrial by-product.

Requirements for the Storage of Liquid Industrial By-Product in an Industrial Pond

14.28 If manure becomes co-mingled with industrial by-products, all the waste in the structure is considered an industrial by-product.

14.29 Liner Performance. Wastewater ponds at the facility shall maintain liner systems that restrict infiltration losses to less than 500 gallons per acre per day if the pond was constructed after May 16, 1975 or less than 3,500 gallons per acre per day if the pond was constructed before May 16, 1975.
Chapter 1. General Industrial By-Products

14. Industrial By-Product Storage

14.30 Locational Standards. All of the following locational standards apply to any wastewater impoundment at the Facility:

a. The impoundment must be located entirely above the high water table. A minimum separation of 4 feet (1.2m) between the bottom of the pond and the maximum ground water elevation should be maintained;

b. The impoundment may not be located within a shoreland or wild and scenic river land use district governed by Minn. R. chapters 6105 and 6120;

c. The impoundment may not be located within a wetland;

d. The impoundment may not be located within a location where emissions of air pollutants would violate the ambient air quality standards in Minn. R. chapters 7005, 7007, 7009, 7011, 7017, 7019, and 7028 and Minn. R. parts 7023.0100 to 7023.0120;

e. The impoundment may not be located in the designated Karst Region in the Southeastern portion of Minnesota that was subject to the 1993 Administrative Order that required the preparation of a contingency plan; and

f. The impoundment should not be located in an area which is unsuitable because of topography, geology, hydrology, or soils.

14.31 Operating Depth. All of the following apply to impoundments at the Facility:

a. Except for impoundments lined with synthetic material, such as HDPE or PVC, impoundments that do not discharge continuously shall maintain a minimum depth of 2 feet at all times, except for maintenance; and

b. At least 3 feet freeboard on all impoundments and wastewater solids containment dams at the Facility shall be maintained at all times.

14.32 An approved rip rap cover that meets MPCA's "Riprap Criteria for Stabilization Ponds" (5/91) shall be maintained on any earthen wastewater impoundment dikes from one foot above the high water line to the toe of the dike. Where riprap is not used, the Permittee shall maintain a vegetative cover of shallow-rooted, perennial, low-growing grasses that withstand erosion and inundation and that can be mowed.

14.33 Plants with long root structures, such as alfalfa, reed canary, willows, poplars, cottonwoods, shrubs, and cattails shall not be allowed to grow in the pond or on the dikes, regardless of water depth in the pond. Such harmful vegetative growth shall be controlled and such plants removed from the pond and pond structure.

14.34 The Permittee shall use approved methods to prevent muskrats and other burrowing animals from tunneling and causing damage to the pond liner or dikes.

14.35 The Permittee shall provide appropriate signs around the wastewater treatment system to designate the nature of the facility and advise against trespassing. At least one sign shall be provided on each side of the site, and one for every 500 feet of its perimeter.

14.36 In addition to the requirements of this Permit, the Permittee shall operate and maintain the pond system in general accordance with relevant sections of MPCA's "Stabilization Pond Systems" (2013).

14.37 Prior to the excavation or removal of solids from any wastewater pond at the facility, the Permittee shall implement measures to maintain the integrity of the pond liner during the removal process. Solids that are removed incidental to routine liquid pumping activities does not constitute excavation or removal of solids and will not be considered to trigger the requirements of parts 14.38 and 14.39.
**Chapter 1. General Industrial By-Products**

**14. Industrial By-Product Storage**

14.38 A water balance evaluation shall be completed on the pond within seven months of excavation or removal of solids, the results of which shall be made available for MPCA review at the facility or upon request. The water balance evaluation procedure is described in the MPCA document "Prefill and Water Balance Criteria (7/89)."

14.39 Ground water quality monitoring results shall be evaluated before and after the excavation or removal of solids to assess the potential impacts of the pond on ground water. Any significant changes shall be reported to the MPCA on the next scheduled report.

14.40 No impact demonstration. The requirements of parts 14.38 and/or 14.39 of this Chapter can be foregone if the Permittee can successfully demonstrate that the removal action will not impact the liner of the wastewater impoundment, or the integrity thereof. To make this demonstration, submit a Removal Plan for MPCA review and approval at least 90 days prior to the anticipated removal date. The Removal Plan should include, at a minimum, a description of the proposed methodolog(ies) to be used for the excavation or removal of solids, any proposed deviations from the water balance procedure cited in subpart a, above, and justification that the removal action does not impact the liner of the wastewater impoundment. The requirement to comply with parts 14.37 and/or 14.38 of this Chapter shall only be waived after written confirmation of approval of the Removal Plan by the Agency.

14.41 The Permittee shall inspect the pond system weekly, and shall take measurements of pond water depth, estimate the coverage of aquatic plants, floating mats and ice cover on the surface of the ponds, and note odors, the condition of the dikes and the presence of muskrats. The Permittee shall maintain records of these weekly inspections for the last three (3) years.

14.42 The Permittee shall maintain daily precipitation records.

14.43 By the end of each calendar five years following permit issuance, wastewater treatment ponds; related conveyances; and appurtenances to the pond system at the permitted facility shall be inspected and certified for structural integrity, complete containment, and compliance with performance standards. The inspection and certification shall be completed by a registered professional engineer with expertise in wastewater structures. An inspection report shall be prepared by the professional engineer and submitted with the application for permit reissuance and/or every five years, whichever comes first. If repairs are necessary as a result of the professional engineer's inspection, a detailed proposal for restoration shall be submitted to the Agency for review within 180 days of discovery, and at least 60 days prior to initiation of restoration work.
Chapter 1. General Industrial By-Products

14. Industrial By-Product Storage

14.44 A Pond Performance Evaluation Report shall be submitted with the application for permit reissuance 180 days prior to permit expiration. The Pond Performance Evaluation report shall include at least the following elements for each wastewater impoundment at the Facility:

a. Pond performance data, calculations and graphs for each impoundment at the Facility. Pond performance data includes, but is not limited to, water balance data or desktop water balance data; influent and effluent flow data for the ponds, and capacity/volume use comparisons;

b. A determination of whether the seepage requirements specified by part 14.29 of this chapter, relative to liner integrity of each impoundment at the Facility are being met;

c. Completed "Municipal and Industrial Pond Attachment" form, which is included in the appendices section of this Permit, for each impoundment at the Facility;

d. A certification from a registered professional engineer with expertise in wastewater structures that the respective impoundment at the Facility meets the technical criteria specified by parts 14.29, 14.30 and 14.31 of this chapter; or,

e. If the professional engineer cannot certify that all impoundments meet the required technical criteria, a Pond Restoration Plan shall be submitted for MPCA review and approval, to be completed by a registered professional engineer with expertise in wastewater structures. The Pond Restoration Plan shall include, at minimum, a proposal of corrective actions for the restoration of any impoundment at the Facility to meet the technical criteria in parts 14.29, 14.30 and/or 14.31 of this chapter, and an implementation schedule for the proposed actions.

15. Annual Report

15.1 Submit an Industrial By-Product Land Application Annual Report by December 31 of each year following permit issuance. Report on the form provided by the MPCA in the appendices section of this permit or the Annual Report form available electronically at http://www.pca.state.mn.us/water/landapp.html or another MPCA approved form.
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15. Annual Report

15.2 The Industrial By-Product Land Application Annual Report must include the following information:

a. Total quantity of each industrial by-product land applied during the cropping year (if none land applied, this can be indicated on the form).

b. Results of all analyses conducted and the average of these analyses.

c. Site specific information:
   i. Crops grown/vegetation receiving nutrient benefit;
   ii. Realistic yield goal;
   iii. Months site used;
   iv. Soil analysis results;
   v. Application rate of industrial by-product;
   vi. Application rates for sodium, phosphorus, and nitrogen; and,
   vii. Description of any management problems associated with land application that occurred during the cropping year and how these problems have been or will be resolved.

d. Total quantity of industrial by-product transferred to/from a storage area/structure under the terms of the Industrial By-Product Storage section of this permit, if applicable.

15.3 The Permittee shall report monitoring results for the completed reporting period in the units specified by this permit on the Industrial By-Product Land Application Annual Report form, as provided in the appendices section of this permit or electronically at http://www.pca.state.mn.us/water/landapp.html.

16. Ground Water Stations/Pond Tile Line Monitoring

16.1 Tile Line Discharge Monitoring. Permittees that are required to conduct tile line sampling will be notified in the Notice of Coverage that accompanies this permit.

16.2 Samples for the Tile Line Discharge Station shall be collected from the final outlet prior to entering any surface water.

16.3 For all applicable GW (Tile Line) stations, submit a DMR monthly by 21 days after the end of each calendar month for which sampling is required following permit issuance.

16.4 If there is no discharge from the tile line, check the 'no discharge' box on the DMR.

17. Total Facilities Requirements

General Requirements

17.1 No Discharge. There shall be no point source discharge to surface water from the permitted activity.

17.2 Incorporation by Reference. The following applicable federal and state laws are incorporated by reference in this permit, are applicable to the Permittee, and are enforceable parts of this permit: 40 CFR pts. 122.41, 122.42, 136, 403 and 503; Minn. R. pts. 7001, 7041, 7045, 7050, 7052, 7053, 7060, and 7080; and Minn. Stat. Sec. 115 and 116.
Chapter 1. General Industrial By-Products

17. Total Facilities Requirements

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

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

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

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

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

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

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

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

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

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

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

17.14 Control Users. The Permittee shall regulate the users of its wastewater treatment facility so as to prevent the introduction of pollutants or materials that may result in the inhibition or disruption of the conveyance system, treatment facility or processes, or disposal system that would contribute to the violation of the conditions of this permit or any federal, state or local law or regulation.
Chapter 1. General Industrial By-Products

17. Total Facilities Requirements

Sampling

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

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

17.17 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. Stat. Sec. 144.97 through 144.98 and Minn. R. 4740.2010 and 4740.2050 through 4740.2120) (Minn. R. 4740.2010 and 4740.2050 through 2120)

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

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

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

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

   b. The date of analysis;

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

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

   e. The results of the analysis.

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

Required forms may include:

DMR Supplemental Form

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

17.22 Submitting Reports. Discharge Monitoring Reports (DMRs), DMR supplemental forms, and related attachments shall be submitted electronically via the MPCA Online Services Portal after authorization is approved. Authorization must be applied for and approved prior to submittal via the Online Services Portal.

DMRs and DMR Supplemental Forms shall be electronically submitted by the 21st day of the month following the monitoring period end or as otherwise specified in this permit. Electronic DMR submission must be complete on or before 11:59 PM of the 21st day of the month following the end of the monitoring period or as otherwise specified in this permit. A DMR shall be submitted for each required station even if no discharge occurred during the monitoring period. (Minn. R. 7001.0150, subps. 2.B and 3.H)

If electronic submittal is not possible, the Permittee must apply for an exception to electronic submittal. Exceptions requests for extreme conditions (no computer on-site is not an extreme condition) must at a minimum contain the extreme reason for the exception, actions to be taken, and date the facility will submit eDMR. All exception requests, and paper DMRs, DMR supplemental forms, and related attachments must be submitted by the 21st day of the month following the monitoring period end to:

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

Other reports required by this permit shall be submitted on or before the due date specified in the permit to:

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

17.23 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 subp. 3, item G)

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

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

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

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

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

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

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

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

Noncompliance and Enforcement

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

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

17.30 Noncompliance Defense. It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. (40 CFR 122.41(c))
Chapter 1. General Industrial By-Products

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17.31 Effluent Violations. If sampling by the Permittee indicates a violation of any discharge limitation specified in this permit, the Permittee shall immediately make every effort to verify the violation by collecting additional samples, if appropriate, investigate the cause of the violation, and take action to prevent future violations. 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:

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; and

e. steps taken to reduce any adverse impact resulting from the event. (Minn. R. 7001.0150, subp. 3k)

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

a. The specific cause of the upset;

b. That the upset was unintentional;

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

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

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

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

Release

17.33 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 and Minn. Stat. Sec 115.061)
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17. Total Facilities Requirements

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

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

b. Notify the Minnesota Department of Public Safety Duty Officer at 1(800)422-0798 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).

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.

17.35 Sampling of a release. Upon discovery of a release, the Permittee shall:

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.

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.

17.36 Bypass

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 (40 CFR 122.41(m)(2) and 122.41(m)(3) and Minn. R. Ch. 7001.1090, subp. 1, J).

The notice of the need for an anticipated bypass shall include the following information:

a. The proposed date and estimated duration of the bypass;

b. The alternatives to bypassing; and

c. A proposal for effluent sampling during the bypass. Any bypass wastewater must 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.
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17.37 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.

In the event of an unanticipated bypass, the permittee shall:

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

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). (Minn. Stat. Sec 115.061)

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.

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.

Operation and Maintenance

17.38 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.

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

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

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

17.42 Control Tests. In-plant control tests shall be conducted at a frequency adequate to ensure compliance with the conditions of this permit. (Minn. R. 7001.0150. subp. 3, item F and Minn. R. 7001.0150. subp. 2, item B)
Chapter 1. General Industrial By-Products

17. Total Facilities Requirements

Changes to the Facility or Permit

17.43 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. (Minn. R. 7001.0030)

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

17.44 No person required by statute or rule to obtain a permit may construct, install, modify, or operate the facility to be permitted except as provided under Minnesota Statutes, section 115.07, subdivisions 1 and 3, 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.

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

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

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

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

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

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

a. The process for which the additive will be used;
b. Material Safety Data Sheet (MSDS) which shall include aquatic toxicity, human health, and environmental fate information for the proposed additive. 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;
c. A complete product use and instruction label;
d. The commercial and chemical names and Chemical Abstract Survey (CAS) number for all ingredients in the additive (If the MSDS does not include information on chemical composition, including percentages for each ingredient totaling to 100%, the Permittee shall contact the supplier to have this information provided); and
e. The proposed method of application, application frequency, concentration, and daily average and maximum rates of use. (Minn. R. 7001.0170)
Chapter 1. General Industrial By-Products

17. Total Facilities Requirements

17.48 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.

17.49 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.

17.50 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 122.44.1.2.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.

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

17.52 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.

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

The MPCA may require the Permittee to establish and maintain financial assurance to ensure performance of certain obligations under this permit, including closure, 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. Sec. 116.07, subd. 4)

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

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

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

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

c. The Permittee has submitted an application with major deficiencies or has failed to properly supplement the application in a timely manner after being informed of deficiencies.
Chapter 1. General Industrial By-Products

18. Definitions

18.1 "Agency" means the Minnesota Pollution Control Agency (MPCA).

18.2 "Agronomic Rate" means the industrial by-product application rate (dry weight basis) designed to:

   a. provide the amount of nitrogen which can be utilized by the food crop, feed crop, fiber crop, cover crop, or vegetation grown on the land; and

   b. minimize the amount of nitrogen in the industrial by-product that passes below the root zone of the crop or vegetation grown on the land to the ground water.

18.3 "Available Nitrogen" means the nitrogen present in the industrial by-product which is available for the plant to use during the cropping year.

18.4 "By-Product" has the same meaning as solid waste given in Minn. R. 7035.0300.

18.5 "Carbon to Nitrogen Ratio" means the calculated ratio of total elemental carbon to total elemental nitrogen reported on a dry weight basis.

18.6 "Class 2 Surface Water," as defined in Minn. R. 7050.0200, means all waters of the state that are or may be used for fishing, fish culture, bathing, or any other recreational purpose, and for which quality control is or may be necessary to protect aquatic or terrestrial life, or the public health, safety, or welfare.

18.7 "Compatible" means the ability of two or more substances or materials in a tank system to maintain their respective physical and chemical properties upon contact with one another.

18.8 "Cover Crop" means vegetation which is planted specifically to prevent soil erosion and to take up nutrients that may otherwise be lost before the next cropping year. This typically includes crops such as rye, oats, or other types of fast-growing vegetation. Cover crops, in general, are not harvested.

18.9 "Cropping Year" means a year beginning on September 1 of the year prior to the growing season and ending August 31 the year the crop is harvested. For example, the 1994 cropping year began September 1, 1993 and ended August 31, 1994.

18.10 "Crop Year Total" is the calculated total quantity of a given measurement for a cropping year (September 1 - August 31). For example, total quantity of biosolids land applied during the cropping year. The "Crop Year Total" limit is an upper limit.

18.11 "Dewatered Industrial By-product" means an industrial by-product with a total solids content of 20% or greater or which can be transported and handled as a solid material.

18.12 "Dike" means an embankment, ridge, or wall which is impermeable to stored substances and which forms the perimeter of the secondary containment area.

18.13 "Dry Weight Basis" means calculated on the basis of having been dried at 105 degrees Celsius until reaching a constant mass, or essentially 100 percent solids content.

18.14 "End User" means the person that has accepted the by-product for their use as a soil amendment.

18.15 "Fallow Land" means land which is not cropped throughout a cropping year and has a vegetative cover of less than 25 percent.

18.16 "Farm Tank" means an aboveground storage tank located on a tract of land devoted to the production of crops or raising of animals, and whose contents are used by the tank owner or operator for farming purposes and are not being commercially distributed.

18.17 "Field-Erected Tank" means an aboveground storage tank that is constructed by final assembly at a facility.
Chapter 1. General Industrial By-Products

18. Definitions

18.18 "Grassed Waterways" means 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.

18.19 "Highly Permeable Soil" means soils whose soil leaching potentials are rated as severe, poor filter for soil pesticide loss, by the Natural Resources Conservation Service using the procedure found in part 620, Soil Interpretation Rating Guides of the United States Department of Agriculture-Natural Resources Conservation Service National Soils Survey Handbook.

18.20 "Immediately Incorporated" means incorporated into the soil with tillage within 48 hours after surface application of an industrial by-product.

18.21 "Indoor tank" means an aboveground storage tank located inside a building or other type of enclosed structure, resting on or elevated above an impermeable floor surface, from which a release would:

a. be entirely contained within a secondary containment structure;

b. not escape from the buildings through any doorways, floor drains, or other means; or,

c. be directed by any drainage system of the building either to a permitted on-site wastewater treatment facility or to a permitted municipal wastewater treatment facility.

18.22 "Industrial By-Product" has the same meaning as solid waste given in Minn. R. 7035.0300.

18.23 "Intermittent Stream" means a drainage channel with definable banks that provides for runoff flow to any of the surface waters during snow melt or rainfall events.

18.24 "Karst topography" means an area underlain by fractured carbonate bedrock in which erosion has produced geological characteristics such as: sinkholes; springs, subsurface drainage; caves; sinking streams; dissolutionally enlarged joints (grikes) or bedding planes, and bedrock surface channels (karren). Counties known for karst features include parts of Dakota, Rice, Dodge, and Mower, and most of Goodhue, Olmsted, Winona, Wabasha, Houston and Fillmore.

18.25 "Liquid Industrial By-Product" means any industrial by-product that does not meet the definition of dewatered industrial by-product.

18.26 "Long-term Storage" means storage of dewatered industrial by-product less than 7 months. Further requirements are listed in the Industrial By-Product Storage section of the permit.

18.27 "Maximum Allowable Nitrogen Application Rate" means the maximum amount of available nitrogen which can be applied to a site during a single cropping year.

18.28 "MPCA" means the Minnesota Pollution Control Agency, or Minnesota Pollution Control Agency staff as delegated by the Minnesota Pollution Control Agency.

18.29 "Other Regulated Substances" means any substance, including a food-based product intended for human or animal consumption, which may cause pollution of waters of the state and is not:

a. a petroleum substance under standard temperature and pressure; or,

b. a hazardous material.

18.30 "Pathogens" means organisms that are capable of producing an infection or disease in a susceptible host.
Chapter 1. General Industrial By-Products

18. Definitions

18.31 "Perched Water Table" means the soil is saturated with water in one or more layers within 200 centimeters of the mineral soil surface and has one or more unsaturated layers with an upper boundary above 200 centimeters in depth below the saturated layer. The zone of saturation, i.e. the water table is perched on top of a relatively impermeable layer. The Natural Resources Conservation Service also classifies this as epi-saturation.

18.32 "Permanent Storage" means storage of dewatered industrial by-product more than 7 months. Further requirements are listed in the Industrial By-Product Storage section of the permit.

18.33 "Permittee" means the entity identified as Permittee on the cover letter authorizing coverage under this permit.

18.34 "Public Contact Site" means land with a high potential for contact by the public. This includes, but is not limited to, public parks, ball fields, cemeteries, and golf courses.

18.35 "Realistic Yield Goal" means the most recent five-year average of crop yields, excluding the worst year, or the most recent three to five year average yield increased by ten percent. If the crop has never been grown, the yield goal can be determined based on information provided by the Natural Resources Conservation Service, county Extension agent, or crop consultant.

18.36 "Short-term Storage" means storage of dewatered of industrial by-product less than 30 days. Further requirements are listed in the Industrial By-Product Storage section of the permit.

18.37 "Single Value" is a reported value from a single sample or measurement for which there is no limit.

18.38 "Soil Horizon" means a layer of soil that is approximately parallel to the soil surface and has some set of properties that has been produced by soil-forming processes, and has some properties that are not like those of the layers above and beneath it. These properties include color, structure, texture, consistency, and bulk density.

18.39 "Soil Texture" means the relative portion of the soil separates sand, silt, and clay. It can be measured using methods described in Minn. R. 7041.3400, subp. 1. Coarse texture is US Department of Agriculture textural classifications sand, loamy sand, and sandy loam. Medium texture is US Department of Agriculture classifications loam, silt, silt loam, and sandy clay loam. Fine texture is US Department of Agriculture classifications clay loam, silty clay loam, sandy clay, and clay.

18.40 "Type C substances" means asphalt cement, roofing flux, fuel oil numbers 5 and 6, and other regulated substances.

18.41 "Type IV Certified Operator or Inspector" means a person certified according to Minn. R. ch. 7048 for land application. A Type IV facility is any disposal facility that applies on the land any sewage sludge or semisolids from commercial or industrial operations.

18.42 "Underground Storage Tank" means any one or combination of containers including tanks, vessels, enclosures, or structures and appurtenances connected to them that is used to contain or dispense regulated substances pursuant to Minn. R. 7150, and the volume of which, including the volume of piping connected to them, is ten percent or more beneath the surface of the ground.

18.43 "Vector Attraction" means the characteristic of industrial by-product that attracts rodents, flies, mosquitoes, or other organisms capable of transporting infectious agents.

18.44 "Waters of the State" means all streams, lakes, ponds, marshes, wetlands, watercourses, waterways, wells, springs, reservoirs, aquifers, irrigation systems, drainage systems and all other bodies or accumulations of water, surface or underground, natural or artificial, public or private, which are contained within, flow through, or border upon the state or any portion thereof.
Chapter 1. General Industrial By-Products

18. Definitions

18.45 "Wetlands" means those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. Constructed wetlands designed for wastewater treatment are not waters of the state. Wetlands must have the following attributes:

a. a predominance of hydric soils;

b. inundated or saturated by surface water or groundwater at a frequency and duration to support a prevalence of hydrophytic vegetation typically adapted for life in a saturated soil condition; and,

c. under normal circumstances support a prevalence of such vegetation.
Appendix

Table 5. Slope restrictions for application sites where industrial by-product is applied.

<table>
<thead>
<tr>
<th>Slope (percent)</th>
<th>Surface application</th>
<th>Injection or Immediate Incorporation¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 6</td>
<td>Allowed</td>
<td>Allowed</td>
</tr>
<tr>
<td>&gt;6 - 12</td>
<td>Not allowed</td>
<td>Allowed</td>
</tr>
<tr>
<td>&gt;12</td>
<td>Not Allowed</td>
<td>Not Allowed</td>
</tr>
</tbody>
</table>

¹Immediate incorporation is mixing of the by-product into the soil with some form of tillage within 48 hours of application.

Table 6. Minimum separation distances from the land application site.

<table>
<thead>
<tr>
<th>Separation Distances (feet)</th>
<th>Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Surface Applied</td>
</tr>
<tr>
<td>Private drinking water supply wells</td>
<td>200 feet</td>
</tr>
<tr>
<td>Public drinking water supply wells</td>
<td>1000 feet</td>
</tr>
<tr>
<td>Down gradient lakes, rivers, streams, type 3, 4, and 5 wetlands, intermittent streams, or tile inlets connected to these surface water features,¹ and sinkholes</td>
<td>Slope 0 % to 6 %</td>
</tr>
<tr>
<td></td>
<td>Slope 6 % to 12 %</td>
</tr>
<tr>
<td></td>
<td>Winter (0 % to 2 %)</td>
</tr>
<tr>
<td>Grassed Water Ways²</td>
<td>Slope 0 % to 6 %</td>
</tr>
<tr>
<td></td>
<td>Slope 6 % to 12 %</td>
</tr>
</tbody>
</table>

¹Intermittent 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.
²Grassed 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.
Table 7. Additional minimum separation distances from application sites when the industrial by-product contains pathogens.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Surface Applied</th>
<th>Incorporated within 48 hours</th>
<th>Injected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residences</td>
<td>200 ft</td>
<td>200 ft</td>
<td>100 ft</td>
</tr>
<tr>
<td>Residential development</td>
<td>600 ft</td>
<td>600 ft</td>
<td>300 ft</td>
</tr>
<tr>
<td>Public contact site</td>
<td>600 ft</td>
<td>600 ft</td>
<td></td>
</tr>
<tr>
<td>Depth to Bedrock</td>
<td>5 ft</td>
<td>5 ft</td>
<td></td>
</tr>
<tr>
<td>Depth to Seasonal High Water Table or drain tile</td>
<td>5 ft</td>
<td>5 ft</td>
<td></td>
</tr>
</tbody>
</table>

1 This 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.
2 The separation distance may be decreased to 3 feet if the soil is not classified as a “highly permeable soil,” as defined by this permit.
3 The 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 8. Maximum allowable nitrogen application rates for selected crops.

<table>
<thead>
<tr>
<th>Crop</th>
<th>Maximum Allowable Nitrogen Application Rates - When Actual Yields Are Not Measured (lb/acre)</th>
<th>Maximum Allowable Nitrogen Application Rates - When Actual Yields Are Measured</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-harvested vegetation, set aside acreage, cover crops¹</td>
<td>50</td>
<td>–</td>
</tr>
<tr>
<td>Soybeans</td>
<td>–</td>
<td>Yield goal (bu/acre) x 3.5 lbs N</td>
</tr>
<tr>
<td>Alfalfa</td>
<td>200</td>
<td>Yield goal (tons/acre) x 50 lbs N/acre</td>
</tr>
<tr>
<td>Clover, alfalfa-grass, or clover-grass mixtures</td>
<td>100</td>
<td>Yield goal (tons/acre) x 50 lbs N/acre</td>
</tr>
<tr>
<td>Brome grass, orchard grass, or timothy</td>
<td>75</td>
<td>Yield goal (tons/acre) x 30 lbs N/acre</td>
</tr>
</tbody>
</table>

¹ This category does not include land used as pasture.
Table 9. Minimum separation distances for storage areas and structures of industrial by-products.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Short-Term Storage Area/Structure</th>
<th>Long-Term Storage Area/Structure</th>
<th>Permanent Storage Structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depth to Bedrock</td>
<td>3 feet</td>
<td>5 feet</td>
<td>3 feet</td>
</tr>
<tr>
<td>Depth to Seasonal High Water Table or drain tile ²</td>
<td>3 feet</td>
<td>5 feet</td>
<td>3 feet</td>
</tr>
<tr>
<td>Private drinking water supply wells</td>
<td>200 feet</td>
<td>200 feet</td>
<td>200 feet</td>
</tr>
<tr>
<td>Public drinking water supply wells</td>
<td>1000 feet</td>
<td>1000 feet</td>
<td>1000 feet</td>
</tr>
<tr>
<td>Irrigation Wells</td>
<td>50 feet</td>
<td>50 feet</td>
<td>50 feet</td>
</tr>
<tr>
<td>Residences</td>
<td>200 feet</td>
<td>1000³ feet</td>
<td>1000³ feet</td>
</tr>
<tr>
<td>Residential Development</td>
<td>600 feet</td>
<td>1000 feet</td>
<td>1000 feet</td>
</tr>
<tr>
<td>Public Contact Site</td>
<td>600 feet</td>
<td>1000 feet</td>
<td>1000 feet</td>
</tr>
<tr>
<td>Adjacent Properties/Roads</td>
<td>100 feet</td>
<td>100 feet</td>
<td>100 feet</td>
</tr>
<tr>
<td>Down gradient lakes, rivers, streams, type 3, 4, and 5 wetlands, intermittent streams, or tile inlets connected to these surface water features,⁵ and sinkholes</td>
<td>Slope 0 % to 2 % 200 feet</td>
<td>1000⁴ feet</td>
<td>1000⁴ feet</td>
</tr>
<tr>
<td></td>
<td>Slope 2 % to 12 % Not Allowed</td>
<td>Not Allowed</td>
<td>Not Allowed</td>
</tr>
<tr>
<td>Grassed Water Ways⁶</td>
<td>Slope 0 % to 2 % 100 feet</td>
<td>100 feet</td>
<td>100 feet</td>
</tr>
<tr>
<td></td>
<td>Slope 2 % to 12 % Not Allowed</td>
<td>Not Allowed</td>
<td>Not Allowed</td>
</tr>
</tbody>
</table>

¹ The separation distance may be decreased to 3 feet if the storage area or structure includes an engineered pad or liner.
² The 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.
³ Storage of industrial by-products at a location of 40 acres or less shall not take place within 400 feet from any residence. This separation distance shall increase 100 feet for every additional ten acres of land application area, or portion thereof, up to a maximum of 1,000 feet. Separation distances may be reduced if written permission is obtained from all persons residing within the otherwise protected distance.
⁴ Storage of industrial by-product shall not take place within 1,000 feet of any downgradient surface waters, wetlands, tile inlets, or sinkholes unless measures are taken to control runoff; in which case, the separation distance may be reduced to 200 feet.
⁵ Intermittent 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.
⁶ Grassed 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.