

PERMIT FACT SHEET

General Information

Permit Number:	WI-0057665-06-0
Permit Name:	Landspreading of By-Product Solids
Permittee:	Point source dischargers in the state of Wisconsin
Discharge Location:	Statewide
Receiving Water:	Discharges to groundwater via landspreading on department approved sites in the state of Wisconsin.

Section 283.35, Wis. Stats., authorizes the Department of Natural Resources (hereafter department) to issue a general permit (GP) for discharge from specified categories or classes of point sources if they are not a significant contributor of pollution. It is more efficient for the department to cover multiple facilities under a GP rather than issuing individual permits for each facility when no special circumstances warrant site specific permit requirements or limitations. The GP program is intended to minimize effort for the permittee and the department while ensuring that groundwater quality standards are met.

When a GP is issued, all facilities meeting its requirements may be covered by the GP. Upon receipt of a request of coverage and determination that the facility is eligible, the department sends a letter granting coverage and a copy of the permit to the facility. The letter includes the department's determination that the permittee's discharge is covered under the GP.

A permittee may need to be covered under more than one GP, depending on the different types of waste streams that a facility discharges. For example, if a farmer stores and landspreads silage and the stored silage generates leachate. The landspreading of the silage would need to be covered under the Landspreading of By-Product Solids GP and the landspreading of the separated silage leachate would need to be covered under the Landspreading of Industrial Liquid Wastes GP. However, if the silage is combined with the leachate prior to landspreading to the environment, then the landspreading discharge may be covered under the Landspreading of By-Product Solids GP alone.

Section 214.10, Wis. Adm. Code, states that the department may withdraw a discharge from the coverage of this general Wisconsin Pollution Discharge Elimination System (WPDES) permit and issue an individual WPDES permit pursuant to s. 283.35, Wis. Stats., on its own motion, or upon the petition of any general permittee, affected state, or 5 or more persons affected by the disposal practices of this general permittee. If the department determines that a discharge covered by this general WPDES permit is better regulated by an individual WPDES permit, it shall notify the affected person in writing of the need to apply for an individual permit and shall provide the person with an application form. Any person so notified shall submit that application form within 60 days of receipt of the notice and application form.

Changes from Previous Permit

Minor changes are proposed to the Landspreading of By-Product Solids General Permit (WI-0057665-06). Any changes to the previous permit language is to clarify requirements in chs. NR 140, 205, 213, and 214, Wis. Adm. Code. Changes to the format of the permit and fact sheet were made to be consistent with standard language in other WPDES permits. Changes to Section 4 "By-Product Solids Landspreading Requirements" include adding water extractable phosphorus and changing the sample frequency for total solids, Total Kjeldahl Nitrogen, and chloride from "Quarterly" to "Annual". The landspreading of by-product solids for most permittees is infrequent or occurs on annual basis and the Department believes that characteristics of by-product solids will stay relatively constant from year-to-year so the sample frequency was changed from quarterly to annual to reflect these reasons. The permit was previously

named “Land Application of By-Product Solids”; the name was changed to “Landspreading of By-Product Solids” to match wording in ch. NR 214, Wis. Adm. Code. Several requirements were referenced by code, but were not explicitly stated in the permit. These requirements are now explicitly explained in the permit to clarify the requirements to permittees. The due date of the Characteristics Report (Form 3400-049) has been changed from annually by January 31st to 21 days after end of the reporting period whether or not waste is landspread. The change of the due date is to provide better compliance and follow-up for general permittees.

General Permit Description

The landspreading of by-product solids is regulated by ch. NR 214, Wis. Adm. Code, entitled “Land Treatment of Industrial Liquid Waste, By-product Solids and Sludges.” The regulation of by-product solids is necessary because experience has shown that improper management of these by-products can lead to surface water or groundwater pollution. The department is responsible for approving the suitability of sites used for landspreading of these by-product solids and to protect the groundwater from contamination.

Industrial, commercial or agricultural facilities produce a variety of food and animal related by-product solids. Sweet corn cobs, leaves and husks are by far the most common type of by-product solids landspread under this GP. However, due to several reasons, such as the high cost of constructing a storage site to ch. NR 213, Wis. Adm. Code, design specifications, the oversupply of silage feed, or unsuitability of the product, the generator may wish to dispose of by-product solids by direct application to the soil. Other examples of by-product solids from the vegetable processing industry are peelings from potatoes, carrots, beets and onions, cabbage leaves and cores from sauerkraut processing, snap bean tips, and solid particles screened from wastewater. Fruit processing by-product solid examples are pits and waste fruit. From the meat processing industry, a common by-product solid is paunch manure, which is the stomach contents of slaughtered animals. These wastes can have beneficial use as a fertilizer and/or a soil conditioner if they are properly managed and are evenly distributed over the land.

This GP is intended to be issued for the continuous or seasonal direct landspreading of small volumes of food processing by-products or for short-term landspreading of larger volumes of by-product solids. Additionally, this GP is available for the department to use for urgent requests to landspread by-product solids due to unexpected problems.

The following situations are examples of how this permit can be used to regulate landspreading of by product solids:

1. Landspreading of Small Volumes of By-product Solids

If a food processor has a small quantity of by-product that can be landspread with a low potential for environmental harm, it can be regulated with the GP. This situation might arise if the food processor, such as a potato chip or onion ring processor, discharges process wastewater to a publicly owned treatment works and has no other WPDES permit.

2. Short Term or One-Time Disposal

Food processors will sometimes need to dispose of by-products due to some unexpected event. This might include by such things as substandard or spoiled product, loss of their regular by-product market, an over-supply of raw material or a change in their processing method. The GP is appropriate to regulate these types of landspreading events regardless of volume, if they occur as short-term events and are landspread in accordance with a department approved management plan. However, if the event occurs for the entire processing season, or for more than one season, it should be regulated as an outfall in an individual WPDES permit.

3. Interim Regulation

Until such time as the department can issue, reissue or modify site specific permits for entities that landspread food processing by-products, this GP can be used as interim WPDES permit. An independent contractor that manages the disposal of by-products may be covered under this permit in this case. In all cases, the permittee must develop and follow a management plan approved by this department.

This GP will require that the permittee submit a Landspreading Management Plan containing pertinent information about the industrial or commercial process that generates the by-product solids, the by-product solids storage and transportation system, and the landspreading sites. It will also require a tracking of the volume landspread and representative sampling and analyses for pollutants that are expected to be present in significant quantities.

1 Applicability Criteria

1.1 Activities Covered

The permit is applicable to landspreading of low volume by-product solids from an industrial, commercial or agricultural facility to a land spreading system. “By-product solids” means waste materials from animal product or food processing industry including, but not limited to: remains of butchered animals, paunch manure, and vegetable waste materials such as leaves, cuttings, peelings and actively fermenting sweet corn silage as defined in s. NR 214.03(4), Wis. Adm. Code. “Landspreading system” means a system where a controlled quantity of by-product solid is uniformly applied onto, or incorporated into, the soil surface of designated sites by means of a vehicle with a spreader bar, spray gun or subsurface injector as defined in s. NR 214.03(26), Wis. Adm. Code. All by-product solids shall have no detrimental effect on soils, vegetation or groundwater of a land spreading system and shall have beneficial properties as a soil conditioner or fertilizer as specified in s. NR 214.02(1), Wis. Adm. Code.

1.2 Activities Not Covered

This permit is not applicable to landspreading discharges that meet any of the following conditions:

a. Industrial Liquid Wastes

The landspreading of industrial liquid wastes is not covered by this GP. “Liquid Wastes” means process wastewater and waste liquid products, including silage leachate, whey, whey permeate, whey filtrate, contact cooling water, cooling or boiler water containing water treatment additives, and wash water generated in industrial, commercial and agricultural operations which result in a point source discharge to a land treatment system as defined in s. NR 214.03(27), Wis. Adm. Code. Industrial liquid wastes may be covered under the Landspreading of Industrial Liquid Wastes General Permit WI-0055867 or an individual WPDES permit.

b. Sludges

The landspreading of industrial or municipal sludges are not covered by this GP. “Sludge” means the accumulated solids generated during the biological, physical or chemical treatment, coagulation or sedimentation of water or wastewater as specified in s. NR 214.03(34), Wis. Adm. Code. Industrial sludges may be covered under the Landspreading of Industrial Sludge General Permit WI-0055867 or an individual WPDES permit. Municipal sludges are covered under an individual WPDES permit.

c. Other Methods of Disposal

Any portion of by-product solids that is hauled to another permitted facility such as a publicly-owned treatment works (POTW), a landfill, an incinerator, a livestock feeding operation, or a contract hauler is not covered under this GP. Rather, this GP applies only to landspreading of by-product solids directly to department approved landspreading sites.

d. Toxic or Hazardous Substances

The landspreading of by-product solids that contain toxic or hazardous substances that are required to be reported under ch. NR 706, Wis. Adm. Code, is not authorized by this permit in accordance with s. NR 214.05, Wis. Adm. Code. Exemptions for landspreading discharge of these substances require an individual permit which provides the oversight, monitoring and discharge limitations necessary to protect groundwater. Discharges containing only toxic or hazardous substances to land treatment systems are prohibited as specified in s. NR 664.0270, Wis. Adm. Code.

e. Landspreading Requirements and Groundwater Standards

The landspreading discharges from facilities eligible for this GP are not expected to exceed groundwater standards. Facilities with landspreading discharges that have a reasonable potential to violate groundwater standards in ch. NR 140, Wis. Adm. Code, may be issued an individual WPDES permit.

f. Landspreading of Solid Waste

The landspreading of by-product solids that are regulated under the provisions of ch. NR 518, Wis. Adm. Code, are not eligible under this permit in accordance with s. NR 214.02, Wis. Adm. Code. Chapter NR 518, Wis. Adm. Code, entitled “Landspreading of Solid Waste”, exempts vegetable waste specifically and has a general exemption for non-detrimental wastes applied as a soil conditioner or fertilizer. The wastes regulated by the GP must be exempt from ch. NR 518, Wis. Adm. Code, and this is the case for those by-product solids described above.

g. Wetlands

This permit does not cover landspreading discharges of by-product solids to wetlands. “Wetlands” means an area where water is at, near or above the land surface long enough to be capable of supporting aquatic or hydrophytic vegetation and which has soils indicative of wet conditions as defined in s. NR 214.03(38), Wis. Adm. Code. In accordance with s. NR 214.05, Wis. Adm. Code, discharges of by-product solids to land treatment systems shall be operated to prevent detrimental effects on wetlands. “Detrimental effect” means contamination of the lands or waters of the state, or making the same injurious to public health, harmful for commercial or agricultural use, or deleterious to animal or plant life as defined in s. NR 214.03(10), Wis. Adm. Code.

h. Surface Waters

This permit does not cover landspreading discharges of by-product solids to surface waters. In accordance with s. NR 214.05, Wis. Adm. Code, discharges of by-product solids to land treatment systems shall be operated to prevent detrimental effects on surface waters. “Detrimental effect” means contamination of the lands or waters of the state, or making the same injurious to public health, harmful for commercial or agricultural use, or deleterious to animal or plant life as defined in s. NR 214.03(10), Wis. Adm. Code. Additionally, by-product solids shall be stored and disposed of in a manner to prevent any pollutant from entering the waters of the state in accordance with s. NR 205.07(3)(a), Wis. Adm. Code.

i. Endangered and Threatened Resources

Landspreading discharges that affect endangered and threatened resources are not eligible for this permit, unless the department determines that the discharges comply with the endangered and

threatened resource protection requirements of s. 29.604, Wis. Stats., and ch. NR 27, Wis. Adm. Code. Facilities with discharges that require more oversight to ensure that they do not violate these protection requirements may need to be covered by an individual permit.

j. Discharges within Tribal Lands

The department lacks the authority to issue WPDES permits within tribal lands due to the state delegation agreement with U.S. EPA. In such instances, the Tribe or U.S. EPA regulates the landspreading discharge and would issue a permit.

k. Commingled By-Product Solids

The landspreading of by-product solids that are mixed with other industrial wastes are not eligible under this permit. The department's intent for this GP is not to be used for contract haulers servicing multiple industrial customers generating dissimilar by-product solids as this can lead to a greater risk of surface water or groundwater pollution. In the event that a contract hauler landspreads mixed, dissimilar by-product solids from multiple industries, an individual permit is required.

2 Landspreading Site Requirements

2.1 Landspreading Site Approval

The permittee is authorized to landspread by-product solids only on sites approved in writing by the department in accordance with s. NR 214.17(2), Wis. Adm. Code. or grant any case-by-case ch. NR 214, Wis. Adm. Code, exemptions in the written site approval letter. The permittee shall comply with all specified restrictions and exemptions. The permittee shall not landspread by-product solids on a site until approval is received from the department for the site.

The permittee shall submit a landspreading site request package including the following information: 1) Land Application Site Request (Form 3400-053) or equivalent; 2) verification of legal description (tax parcel record, land record, etc.) and; 3) field authorization form (from field owner). The site request package may also include location maps showing nearby residences and wells, soil maps, information on separation to groundwater and bedrock, and other information that demonstrates that by-product solids application on the site will comply with all applicable requirements of s. NR 214.17, Wis. Adm. Code and the conditions of the GP.

2.2 Landspreading Site Location Criteria

The landspreading site location criteria are included by reference from s. NR 214.17(2), Wis. Adm. Code in the permit. The permittee must comply with all these requirements.

3 Reporting Requirements

The permittee shall comply with the reporting requirements in the permit.

3.1 Daily Log

The permittee shall keep a daily log of all discharge and monitoring activity on log sheets in accordance with s. NR 205.07(1)(f), Wis. Adm. Code. At a minimum, the permittee shall record the parameters found in the permit on a daily basis. This includes the total daily by-product solids hauled volume. The original log sheets shall be kept by the permittee as described under section 7.2.6 "Records Retention" in the Standard Requirements of this permit, and if requested, made available to the department. These records shall be made available to department upon inspection or request.

3.2 Characteristic Report (Form 3400-49)

The analytical results from testing of by-product solids that are landspread shall be reported by the date indicated on the Characteristic Report Form 3400-49. The report form shall be submitted electronically and is due 21 days after end of the reporting period whether or not waste is landspread in accordance with s. NR 214.17(5)(c), Wis. Adm. Code. For instance, if a parameter is to be sampled quarterly, the monitoring results are due 21 days following the end of each quarter. Following submittal of the electronic Characteristic Report Form 3400-49, this form shall be certified electronically via the ‘eReport Certify’ page by a principal executive officer or duly authorized representative in accordance with s. NR 205.07(1)(g), Wis. Adm. Code. The ‘eReport Certify’ page certifies that the electronic report form is true, accurate, and complete.

Note: Monitoring is only required during periods of active landspreading.

3.3 Annual Land Application Report (Form 3400-55)

The annual totals for the landspreading loadings of by-product solids to field spreading sites shall be submitted electronically on the Land Application Report Form 3400-55 by January 31, each year whether or not waste is landspread in accordance with s. NR 214.17(5)(c), Wis. Adm. Code. Amounts of waste shall be reported as dry weight. Following submittal of the electronic Land Application Report Form 3400-55, this form shall be certified electronically via the ‘eReport Certify’ page by a principal executive officer or duly authorized representative in accordance with s. NR 205.07(1)(g), Wis. Adm. Code. The ‘eReport Certify’ page certifies that the electronic report form is true, accurate, and complete.

3.4 Other Methods of Disposal or Distribution Report (Form 3400-52)

The permittee may submit electronically the Other Methods of Disposal or Distribution Report Form 3400-52 by January 31, each year when waste is hauled to another facility, landfilled, or incinerated. Following submittal of the electronic Other Methods of Disposal or Distribution Report Form 3400-52, this form shall be certified electronically via the ‘eReport Certify’ page by a principal executive officer or duly authorized representative in accordance with s. NR 205.07(1)(g), Wis. Adm. Code. The ‘eReport Certify’ page certifies that the electronic report form is true, accurate, and complete.

Note: This form is not a requirement and is completely voluntary. However, the department recommends that permittees fill this form out when by-product solids are hauled to another facility, landfilled, or incinerated.

4 By-Product Solids Landspreading Requirements

Landspreading discharges include applying a controlled quantity of by-product solids uniformly onto, or incorporated into, soil surfaces in Wisconsin to utilize the physical, chemical and biological abilities of the soil to decompose and treat the pollutants in the wastes.

4.1 Sampling Point(s)

The discharge shall be limited to landspreading of by-product solids for the listed sampling point(s) on department approved landspreading sites or by hauling to another permitted facility.

Sampling Point Designation	
Sampling Point Number	Sampling Point Location, Waste Type/Sample Contents and Treatment Description (as applicable)
001	The landspreading of by-product solids from an industrial, commercial or agricultural facility to a land spreading system on department approved landspreading sites.

4.2 Monitoring Requirements and Limitations

The permittee shall meet the limitations and monitoring requirements in this section based on s. NR 214.17(5), Wis. Adm. Code. Monitoring is only required when wastes related to this permit are landspread.

4.2.1 Sampling Point (Outfall) 001 – By-Product Solids

Monitoring Requirements and Effluent Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Solids Hauled		Tons/day	Daily	Total Daily	Record in a Daily Log. See Section 3.1
Solids, Total		Percent	Annual	Grab Comp	See Section 4.2.2
Nitrogen, Total Kjeldahl		Percent	Annual	Grab Comp	See Sections 4.2.2 and 4.3.2
Chloride		Percent	Annual	Grab Comp	See Sections 4.2.2 and 4.3.1
Phosphorus, Total		Percent	Annual	Grab Comp	See Section 4.2.2
Phosphorus, Water Extractable		% of Total P	Annual	Grab Comp	See Section 4.2.2

4.2.2 Sampling

Grab composite samples shall be collected prior to landspreading which are representative of all the by-product solids being discharged. “Grab Composite” means a combination of individual grab samples of equal volume taken at approximately equal intervals not exceeding one hour over a three-hour period in accordance with s. NR 218.04(11), Wis. Adm. Code. When the by product is large pieces of solids, such as sweet corn cobs and husks, a larger sample shall be collected and ground up to form a homogenous slurry for analysis.

Note: Monitoring is only required during periods of active landspreading.

4.3 Landspreading Limitations

The following landspreading limitations are based on s. NR 214.17(4)(e), Wis. Adm. Code. The permittee shall comply with these by-product solids landspreading limitations of the permit and the approved management plan.

4.3.1 Chloride Requirements for By-Product Solids

By-product solids contain varying concentrations of chloride. High concentrations of chloride can reduce yields in crops and possibly cause toxicity. It is important to follow the approved landspreading management plan when landspreading high chloride wastes. The total pounds of chloride applied may not exceed 340 pounds per acre per two-year period in accordance with s. NR 214.17(4)(e)4, Wis. Adm. Code. The most recent quarterly total solids sample shall be used in the calculation of chloride loading for pounds.

4.3.2 Nitrogen Requirements for By-Product Solids

The total pounds of nitrogen applied per acre per year shall be limited to the nitrogen needs of the cover crop (based on a reliable reference such as: *A2809 Nutrient Application Guidelines for Field, Vegetable and Fruit Crops in Wisconsin*, from UW-Ext., <http://www.soils.wisc.edu/extension/pubs/A2809.pdf>) minus any other nitrogen, including fertilizer or manure, added to the landspreading site in accordance with s. NR 214.17(4)(e)6, Wis. Adm. Code.

Nitrogen applied can be calculated on the basis of plant available nitrogen, as long as the release of nitrogen from the organic material is credited to future years. The permit requires the monitoring for Total Kjeldahl Nitrogen (TKN). TKN accounts for those forms of nitrogen that are readily available for plant uptake. The total pounds of nitrogen applied per acre per year shall not exceed 165 pounds of total nitrogen per acre per year (based on the nitrogen uptake of the most common cover crop - field corn) minus any other nitrogen, including fertilizer or manure, added to the application site. The department may specify or accept an alternate nitrogen loading amount for other cover crop nitrogen needs in the management plan approval. The most recent quarterly total solids sample shall be used in the calculation of TKN loading for pounds.

4.3.3 Carbon to Nitrogen Ratio

The carbon to nitrogen ratio is important for the health of soil microbes to promote decomposition of residues and the release of plant nutrients into the soil. Therefore, the permit requires that the total quantity of by-product solids landspread to the soil shall be within acceptable agricultural practices with respect to the carbon-to-nitrogen ratio in accordance with s. NR 214.17(4)(e)2, Wis. Adm. Code. The department believes that the carbon to nitrogen ratio will remain constant for the by-product solids. There, the carbon to nitrogen ratio shall be reported once during the permit term. The carbon-nitrogen ratio shall be reported in the comments section of the Annual Land Application Report (Form 3400-55).

5 Management Plan

The landspreading requirements are based on s. NR 214.17(6)(c), Wis. Adm. Code. The permittee shall comply with these management plan requirements in the permit.

5.1 Operate Consistent with an Approved Management Plan

All landspreading sites used for treatment of by-product solids shall be operated in accordance with a department approved management plan. The management plan shall be consistent with the requirements of this permit and s. NR 214.17, Wis. Adm. Code. A copy of the management plan shall be retained by the permittee and shall be made available upon department inspection. If operational changes are needed affecting the character, quality or quantity of the by-product solids landspread, the management plan shall be amended by submitting a written request to the department for approval.

5.2 Submittal of the Management Plan

If a landspreading management plan has not been approved by the department prior to the reissuance of this permit, then the permittee shall submit a management plan to the department for approval not more than 60 days from the date of reissuance of this permit or from the date that coverage under this permit was granted, whichever is later. When coverage is granted under this permit, if the department determines that a previously approved management plan must be amended to comply with the conditions of this permit and s. NR 214.17(6)(c), Wis. Adm. Code, the permittee shall submit an amended landspreading management plan to the department not more than 60 days from the date that coverage under this permit was granted. Management plans shall be submitted to department staff identified in the document granting coverage under this permit.

5.3 Management Plan Content

The management plan shall specify information on pretreatment processes, site identification on plat and soil maps, aerial photographs, if available, description of all site limitations, vegetative cover management and removal, availability of storage, type of transporting and spreading vehicle, load and rest schedules, monitoring procedures, contingency plans for periods of adverse weather or odor or nuisance abatement and any other pertinent information in accordance with s. NR 214.17(6)(c), Wis.

Adm. Code. Attached to this document is a management plan outline. The outline is intended solely as a suggested starting point and does not contain any mandatory requirements except where requirements found in Wisconsin statutes or administrative code are referenced.

6 Operational Requirements

The operations requirements are included by reference from ss. NR 214.17(3), (4), and (6), Wis. Adm. Code in the permit. The permittee must comply with all these requirements.

7 STANDARD REQUIREMENTS

The “Standard Requirements” are a group of permit conditions from ss. NR 205.07(1), 205.07(3), and 205.08, Wis. Adm. Code, that apply to all industrial wastewater pollutant dischargers, including requirements related to the department's rights to enter and inspect facilities, the permittee's responsibility to inform the department of changes at a facility, sampling procedures and other general conditions typically associated with a WPDES GP. These requirements are included by reference into the permit. The permittee shall comply with all of these requirements, except for s. NR 205.07(1)(n), Wis. Adm. Code which does not apply to facilities covered under GPs.

8 Summary of Reports Due

A summary of reports due has been added for informational purposes for permittees and to be consistent with individual WPDES permits.

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By-Products Management Plan Outline

Chapter NR 214, Wis. Adm. Code, requires permittees that landspread by-product to develop a management plan. The code requires each by-product solids waste generator to submit a management plan for optimizing system performance and demonstrating compliance with the requirements of this chapter. Following approval by the department, the system must be operated in conformance with the management plan. If the facility wishes to operate differently than specified in the approved plan, a written request must be submitted to the department for approval to amend the management plan.

The plan shall specify the following information: by-product volumes and characteristics, description of all site locations, availability of storage, type of transportation and application vehicles, by-product application rates, contingency plans for periods of adverse weather, odor and nuisance abatement, and any other pertinent information.

This document is a suggested management plan outline to assist the permittee with development a landspreading management plan for their operation. This document is intended solely as a suggested starting point and does not contain any mandatory requirements except where requirements found in statute or administrative rule are referenced. Any regulatory decisions made by the Department of Natural Resources in any matter related to a management plan approval will be made by applying the governing statutes and administrative rules to the relevant facts. Each item on the outline shall be adequately discussed in the management plan. If an item is omitted, the owner/operator shall have an explanation as to why the requested information is not relevant.

A. By-Product Source and Handling

1. Describe the industrial processes that generate the by-products. List the raw materials used and the products produced.

In many cases this will simply be the inedible parts of a fruit or vegetable such as the husks and cobs from sweet corn or the leaves and cores from cabbage. In other cases, it will be solid material screened from process wastewater such as discarded corn kernels from sweet corn processing.

2. If the by-products are conditioned prior to disposal, describe the process used. This could be such things as mechanical or gravity dewatering, grinding, composting, or fermentation. List any chemicals used to aid conditioning.

Chemical conditioning occurs when chemicals are used as part of the process and become mixed with the by-product. One example is the use of caustic soda (sodium hydroxide) to peel vegetables. (Note: A hot peel process may be an alternative with less chemical use.) It is important to have the permittee declare all chemicals used in the process that may get mixed into the by-product.

B. By-Product Characteristics

1. A representative sample of by-product should be analyzed for percent solids, Total Kjeldahl Nitrogen (TKN), total phosphorus, water extractable phosphorus, chlorides, and the carbon-to-nitrogen ratio to provide a base for characterizing the waste material. Results shall be reported on a dry weight basis except for percent solids.
2. If the by-products are not homogeneous such as sweet corn cobs and husks, a larger composite sample shall be collected and ground up to produce a representative sample.

C. By-Product Storage and Transportation

1. If a by-product storage structure is used, describe its size, shape, volume, and materials of construction.

The permittee must provide a description of the by-product handling system from the generating site to the landspreading field. This shall include the equipment used to move the material to the loading spot and whether water is added as a transport media. Temporary storage or loading sites, if used, must be described. If a temporary stacking pad is used, the size, shape, material, type of soil under and around the pad and the depth to groundwater and bedrock are to be included. If leachate is generated, the management of this liquid waste must be explained. If a tank is used for storage, provide the size, shape, materials of construction, and location of the tank in relation to the factory. If the tank is buried, provide information on depth, type of soil, and depth to groundwater or bedrock. If the tank has a vent, manhole, or high-level alarm, these shall be described. Also describe the method of loading or pumping the leachate into the hauling vehicle.

2. Describe the method of loading the by-products onto the hauling vehicle and describe the type and capacity of the hauling vehicle.
3. Specify how the application vehicle will unload and apply the material evenly over the fields. Also specify if the material will be stored in piles in the field for landspreading by another machine.
4. State how the total volume hauled will be measured and what kind of records will be kept. Provide an example log with landspreading management plan.
5. Discuss what contingency plans have been developed in case of inclement weather.
6. Explain how the by-products will be incorporated into the soil. This can be done through normal agricultural tillage except when odors develop in which case incorporation must be completed within 72 hours.

D. By-Product Landspreading Site Information

1. Show the location of each landspreading site indicated on a site map such as a USDA soil survey map, the description of each soil type and slope and estimated depth to groundwater and bedrock must be included.
2. Provide either a site map, a USGS topographic map or aerial photograph with the proposed site outlined. Aerial photographs are generally available from the county Agricultural Stabilization and Conservation Service (ASCS) office.
3. Each site map shall clearly show (by cross hatching lines or some other means) exactly which areas have suitable conditions and are proposed for landspreading.
4. Describe the crops to be grown or the dominant vegetation on the landspreading site and the anticipated harvest and removal schedule.
5. Describe adjacent land use, drainage, and land features associated with the site. Show the distance to wells, and streams.
6. Explain the ownership of the site, and the site number used for identification by the hauler.
7. Attach a copy of any land use agreement.
8. Estimate the total acreage to which the by-product will be applied.

E. By-Products Land spreading Site Loading Information

1. Specify the total volume of by-product solids that can be applied to reach the nitrogen needs of the cover crop. The nitrogen loading rate for field corn is provided in the GP at 165 pounds per acre per year of total nitrogen from all sources. Appropriate alternate annual by-product nitrogen loading rates can be approved via the department landspreading management plan approval based on alternate crop needs and delayed nitrogen availability. If the department approved management plan does not contain a crop specific nitrogen loading table, then the default loading limit of 165 lbs/acre applies.
2. Calculate per acre the loading rate of phosphorus and chloride. The chloride loading limit is 340 lbs/acre/two year period).
3. Report the quantity of by-product to be landspread either on a daily, monthly, or annual basis.