

## Chapter NR 518

## LAND SPREADING OF SOLID WASTE

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**NR 518.01 Purpose.** The purpose of this chapter is to help ensure that efficient, nuisance-free and environmentally acceptable solid waste management procedures are practiced in Wisconsin and to outline the requirements regarding land spreading of solid waste. This chapter is adopted under ss. 144.43 to 144.47, and 227.11, Stats.

**History:** Cr. Register, January, 1988, No. 385, eff. 2-6-88.

**NR 518.02 Applicability.** (1) Except as otherwise provided, this chapter governs all solid waste land spreading facilities as defined in s. NR 500.03, except hazardous waste facilities as defined in s. 144.61 (5m), Stats., and regulated under chs. NR 600 to 685, and metallic mining operations as defined in s. 144.81 (5), Stats., and regulated under ch. NR 182.

(2) This chapter does not apply to the design, construction or operation of industrial wastewater facilities, sewerage systems and waterworks treating liquid wastes approved under s. 144.04, Stats., or permitted under ch. 147, Stats., nor to facilities used solely for the disposal of liquid municipal or industrial wastes which have been approved under s. 144.04, Stats., or permitted under ch. 147, Stats., except for facilities used for the disposal of solid waste.

**History:** Cr. Register, January, 1988, No. 385, eff. 2-6-88; correction in (1) made under s. 13.93 (2m) (b) 7, Stats., Register, May, 1994, No. 461.

**NR 518.03 Definitions.** The terms used in this chapter are defined in s. NR 500.03.

**History:** Cr. Register, January, 1988, No. 385, eff. 2-6-88.

**NR 518.04 Exemptions.** No person may operate or maintain a solid waste land spreading facility unless the person has obtained written approval from the department under s. NR 518.06, except as otherwise provided in this section.

(1) **GENERAL.** The following land spreading facilities are exempt from the requirements of this chapter provided the solid waste or solid waste derived product is applied as a soil conditioner or fertilizer in accordance with accepted agricultural practices and the facility is operated and maintained in a safe, nuisance-free manner.

(a) Facilities used for the land spreading of nonhazardous solid waste from a single family or household, a member of which is the owner, occupant or lessee of the property used for solid waste disposal.

(b) Farms on which only nonhazardous agricultural solid wastes resulting from the operation of a farm, including farm animal manure, are disposed.

(c) Facilities receiving only sludge from a publicly-owned treatment work or a privately-owned domestic sewage treatment work having a permit under ch. 147, Stats., providing the sludge disposal is accomplished in accordance with the requirements of the permit.

(d) Facilities used exclusively for the disposal of waste regulated under s. 146.20, Stats.

(e) Facilities used for the disposal of treated liquid municipal or industrial wastewater approved under s. 144.04, Stats., or permitted under ch. 147, Stats.

(f) Facilities used for the land spreading of whey.

(g) Facilities used for the land spreading of vegetable waste from canned, frozen or preserved fruit and vegetable processing operations.

(h) Facilities used for the land spreading of composted leaves, grass, brush and other similar vegetable matter.

(2) **RESEARCH PROJECTS.** Facilities used solely for research purposes under the direction of a registered professional engineer in the state of Wisconsin or a scientist employed by a university located within this state are exempt from the plan submittal requirements of this chapter if the applicant provides to the department information sufficient to show that the project meets the following requirements:

(a) The net plot area, excluding plot borders and buffer strips, may not exceed 4 acres,

(b) The available nitrogen and heavy metal additions averaged over the total plot area may not exceed the rates specified by the department in ch. NR 204 for municipal sewage sludges or those identified in the literature as being toxic to specific plants or plant groups,

(c) The facility shall be developed, operated, monitored and maintained in a safe, nuisance-free manner, and

(d) Copies of the research proposal shall be provided to the department in advance of initiating the research. Written approval from the department is not required prior to initiation of the project. However, the research proposal should discuss the project objectives, methods for demonstrating beneficial characteristics and methods for evaluating project performance. If the department finds, after review of this material, that the proposal would not provide the information necessary to make a determination, a response will be issued which contains recommendations on how the study should be amended. All reports

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and research publications pertaining to the facility shall be provided to the department. The final report shall, at a minimum, summarize the project performance, any limitations and areas of further study.

**(3) LIME SLUDGE.** Facilities used for the land spreading of lime sludges from papermills or water supply treatment facilities are exempt from the requirements of this chapter provided that the proposal is reviewed and approved by the department and the material meets the following requirements. This section does not apply to lime sludges from papermills which were being landspread prior to January 1, 1987.

(a) Analyzed in accordance with s. NR 518.06 (1),

(b) Determined by the department to have value as a soil conditioner or fertilizer, and

(c) Applied in accordance with accepted agricultural practices and any department issued approval.

**(4) INDUSTRIAL SLUDGES.** Facilities used exclusively for the land spreading of nonhazardous industrial sludges are exempt from the requirements of this chapter provided that the material is:

(a) Analyzed in accordance with s. NR 518.06 (1),

(b) Determined by the department to have value as a soil conditioner or fertilizer. The department may on a case-by-case basis require greenhouse or experimental field studies and may consider federal regulations, technical guidelines and other related research in determining whether a sludge has value as a soil conditioner or fertilizer,

(c) Generated at an industrial wastewater treatment facility and the land spreading facility has been approved or permitted under ch. NR 214, and

(d) Not repeatedly applied such that excessive accumulation of hazardous substances occur in soil or vegetation, or cause a detrimental effect on surface water quality or cause a detrimental effect on groundwater quality or cause or exacerbate an attainment or exceedance of any preventive action limit or enforcement standard at a point of standards application as defined in ch. NR 140.

**(5) WOOD AND COAL ASH.** Facilities used for the land-spreading of wood or coal ash are exempt from the requirements of this chapter provided that the proposal is reviewed and approved by the department and the material is:

(a) Analyzed in accordance with s. NR 518.06 (1),

(b) Determined by the department to have value as a soil conditioner or fertilizer,

(c) Applied in accordance with accepted agricultural practices and any department issued approval. As part of this approval, the department may require additional testing, monitoring, reporting or other information as appropriate, and

(d) Not repeatedly applied such that excessive accumulation of hazardous substances occur in soil or vegetation, or cause a detrimental effect on surface water quality or cause a detrimental effect on groundwater quality or cause or exacerbate an attainment or exceedance of any

preventive action limit or enforcement standard at a point of standards application as defined in ch. NR 140.

**(6) OTHER WASTES.** Facilities for the land spreading of other wastes such as fish or the remains of butchered animals may be exempted from the requirements of this chapter provided that the department approves the proposal in writing and the following requirements are met:

(a) The material is analyzed in accordance with s. NR 518.06 (1),

(b) The material is determined by the department to have value as a soil conditioner or fertilizer,

(c) A brief discussion is included which identifies the facility location, proposed application rates, the proposed method for incorporating the material and the length of time each facility will be used, and

(d) The material is applied in accordance with accepted agricultural practices and any department issued approval.

History: Cr. Register, January, 1988, No. 385, eff. 2-6-88.

**NR 518.05 Location and performance standards. (1) GENERAL.** An applicant submitting a land spreading plan shall demonstrate to the department that the proposed facility will comply with all of the location and performance standards of this section unless an exemption is granted.

**(2) EXEMPTIONS.** Exemptions from compliance with subs. (3) (a) to (d) and (4) (a), (b), (e) and (f) may be granted only upon demonstration by the applicant of circumstances which warrant such an exemption. Exemptions from compliance with sub. (4) (c) will not be granted. Exemptions from compliance with sub. (4) (d) may be granted only according to the procedures set forth in ch. NR 140.

**(3) LOCATION STANDARDS.** No person may establish, construct, operate, maintain or permit the use of property as a land spreading facility within the following areas:

(a) Within 100 feet of any navigable body of water.

(b) Within 10,000 feet of any airport runway used or planned to be used by turbojet aircraft or within 5,000 feet of any airport runway used only by piston type aircraft or within such other areas where a substantial potential bird hazard to aircraft would be created. This criteria is only applicable where a facility is used for disposing of putrescible waste.

(c) Within 1,000 feet of public water supply wells or 200 feet of private water supply wells.

(d) Within 500 feet of any residence, unless written consent is obtained from the resident. This distance may also be reduced for the residence of the property owner on whose land solid waste is spread.

**(4) PERFORMANCE STANDARDS.** No person may establish, construct, operate, maintain or permit the use of property as a land spreading facility within an area where there is a reasonable probability that the facility will cause:

(a) A significant adverse impact on wetlands

(b) A significant adverse impact on critical habitat areas.

(c) A detrimental effect on any surface water.

(d) A detrimental effect on groundwater quality or will cause or exacerbate an exceedance of any preventive action limit or enforcement standard at a point of standards application as defined in ch. NR 140. For the purposes of design, the point of standards application is defined by s. NR 140.22 (1).

(e) The migration and concentration of explosive gases in any structures or in the soils or air at or beyond the facility property boundary in excess of 25% of the lower explosive limit for such gases at any time.

(f) The emission of any hazardous air contaminant exceeding the limitations for those substances contained in s. NR 445.03.

**History:** Cr. Register, January, 1988, No. 385, eff. 2-6-88.

**NR 518.06 Solid waste land spreading plan.** No person may establish, construct, operate or maintain a solid waste land spreading facility or expand an existing facility without first obtaining written approval from the department of a solid waste land spreading plan as provided in this section. Specific requirements of this section may be waived by the department based on a review of the material characteristics.

(1) **WASTE CHARACTERIZATION.** The land spreading plan shall include a detailed description and analysis of each waste type proposed to be spread at a land spreading facility. Unless otherwise approved by the department in writing, data on waste types shall include, at a minimum, the following information:

(a) The sources, processes or treatment systems from which the wastes originate including a list of all chemicals added during these processes. Material safety data sheets or other data sources providing information specific to these chemicals shall be included.

(b) Waste pretreatment or waste processing techniques utilized prior to land spreading.

(c) The volumes of solid waste to be spread, stored or disposed.

(d) Physical characteristics of the waste material including the solids fraction and the organic fraction.

(e) A priority pollutant scan of the waste material for all priority pollutants as identified by the U.S. environmental protection agency and any chemicals identified in par. (a) which have the potential to adversely affect the environment.

(f) pH of the waste material.

(g) Nutrient content including Kjeldahl-nitrogen, ammonia-nitrogen, nitrate and nitrate-nitrogen, phosphorus and potassium.

(h) Metals content including aluminum, barium, boron, calcium, copper, iron, manganese, magnesium, sodium, strontium and zinc.

(i) Salt content including chlorides, fluorides and sulfates.

(j) Biological populations including total coliform, fecal coliform and any virus present in the waste material.

(k) Leach tests shall be performed on the waste material, the soil types most representative of the proposed facilities to be used and on a mixture of waste material and soil for those parameters identified under the testing program described in pars. (e) to (i). This analysis shall use detection limits which are at or below the preventive action limits established in ch. NR 140. If no preventive action limit exists, the detection limits shall be the lowest level achievable using approved methods. The leach tests performed on the mixture of waste material and soil shall represent the anticipated field conditions.

(l) Bulk chemical analyses performed on the waste material and soil shall be accompanied with a list of detection limits, the limits of accuracy and a statement whether these limits were selected for environmental or health-related impacts.

(2) **WASTE USE DETERMINATION.** An assessment and analysis of data including conclusions drawn concerning the potential benefits and adverse effects of the land spreading program shall be included. This assessment shall include information showing that the waste has value as a soil conditioner or fertilizer or will not cause a detrimental effect to public health, welfare or the environment. At a minimum, the following information shall be submitted:

(a) Documentation of previous successful uses of the solid waste, or other solid wastes with similar composition, properties and characteristics.

(b) Documentation of compliance with existing Wisconsin department of agriculture, trade and consumer protection regulations pertaining to the licensing and marketing of fertilizers or soil conditioners.

(c) Successful completion of an approved experimental solid waste land spreading program.

(d) Other justification for use of the solid waste.

(3) **FACILITY CHARACTERISTICS.** Information on the characteristics of the facilities to be used for the land spreading program shall include, at a minimum, the following:

(a) The facility locations, including copies of soils maps, plat maps and USGS topographic maps.

(b) A description of the contracts or agreements covering use of the land including the owner's name, address and telephone number.

(c) A description of land uses at the facility and current land uses on surrounding properties.

(d) A description of the regional geology and hydrogeology near the facility including the depth to groundwater, groundwater flow direction and soil conditions.

(e) An identification of all homes and private wells located within *PN* mile of the facility.

(f) A description of the crops to be grown or dominant vegetation on the facility.

(g) Soil test results from samples taken at the facility. Parameters to be analyzed shall include soil pH, organic matter, available phosphorus, available potassium, and any other parameters deemed necessary for analysis and design of the proposed operation.

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(h) A description of other soil additives to be used.

(i) Identification of the floodplain and its relationship to the proposed facility.

**(4) FACILITY DESIGN, DEVELOPMENT AND OPERATION.** Information to be submitted regarding the design, development and operating plans for the facility shall include the following:

(a) Provisions for interim waste storage and disposal when normal land spreading facilities are unavailable or inaccessible including the type of storage or disposal facility, the location and capacity of the facility, construction details, any property interest or contractual agreement allowing use of the facility, future anticipated use of the facility and an evaluation of the environmental effects resulting from use of the facility.

(b) Proposed mode of waste transportation including the transporter of the waste, method of transportation, type of vehicles used for waste transportation, spill contingency plans and notification procedures.

(c) Proposed waste application rates, techniques, disposal frequencies and locations.

(d) Proposed maximum rates of application, both annual and cumulative, for nitrogen, arsenic, cadmium, chromium, copper, lead, mercury, nickel, zinc and other heavy metals in accordance with ch. NR 204, technical bulletin 88 and any other appropriate technical literature.

**Note:** Copies of technical bulletin 88, dealing with the landspreading of municipal wastewater sludge, may be obtained from the Department of Natural Resources, Bureau of Solid Waste Management, 101 South Webster Street, Natural Resources Building, P.O. Box 7921, Madison, WI 53707.

(e) Proposed crop, soil, groundwater and surface water monitoring.

(f) Proposed record keeping and reporting procedures to be used for monitoring waste volumes applied, application rates, disposal locations and cumulative waste loading applied to each facility.

**History:** Cr. Register, January, 1988, No. 385, eff. 2-6-88.

**NR 518.07 Land spreading operation and monitoring. (1) OPERATING REQUIREMENTS.** No person may operate or maintain a solid waste land spreading facility except in accordance with any solid waste land spreading plan approval issued by the department and the following minimum requirements:

(a) Only approved waste types shall be disposed at the facility. Plans to accept additional waste types require separate written approval from the department.

(b) Depending on the type of operation to be conducted, solid waste materials shall be plowed, disced or otherwise incorporated into the surface soil layer at appropriate intervals as specified in the solid waste land spreading plan to minimize surface water runoff, surface leaching and to control objectionable odors. A vegetative buffer strip shall be maintained between any navigable water and the application area.

(c) No solid waste may be deposited in areas containing ponded or standing water.

(d) Maximum one time and cumulative application rates of cadmium and other heavy metals shall be in ac-

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cordance with ch. NR 204, technical bulletin 88 and any other appropriate technical literature.

(e) Waste materials with significant pathogen bacteria content shall be properly stabilized prior to land spreading.

(f) Food chain crops grown on solid waste land spreading facilities which have received waste applications containing pesticides or persistent organic materials may not be marketed or used for human or animal consumption unless the crops meet all applicable contaminant levels as established by the United States food and drug administration or the state of Wisconsin.

**(2) MONITORING.** The owner or operator of a solid waste land spreading facility with an approved solid waste land spreading plan shall submit monitoring reports to the department on a frequency specified in the land spreading plan approval. The report shall include the following information for each facility utilized during the preceding reporting period:

(a) The amount of solid waste applied in tons per acre on a dry weight basis.

(b) The amount of nitrogen applied in pounds per acre on a dry weight basis.

(c) The estimated mineralization rate of the applied nitrogen.

(d) The amount of cadmium applied in pounds per acre on a dry weight basis.

(e) The total amount of each specific metal specified by the department applied in pounds per acre on a dry weight basis.

(f) The department may require monitoring as part of the land spreading plan approval including soil concentrations, surface water, groundwater, plant tissue or other parameters as appropriate. If borings or wells are required, they shall be installed in accordance with ch. NR 508.

(g) A description of any adverse environmental health, or social effects that occurred due to solid waste disposal.

(h) A description of any action not in conformance with the approved land spreading plan.

**History:** Cr. Register, January, 1988, No. 385, eff. 2-6-88.

**NR 518.08 Closure of land spreading facilities.** The owner or operator of a land spreading facility, or any person who permits the use of property for such purpose, shall accomplish closure, maintenance and long-term care of the facility in accordance with any solid waste land spreading plan approval issued by the department and with the following minimum practices.

**(1) NOTIFICATION.** At least 120 days prior to the closing of a solid waste land spreading facility, the owner or operator shall notify the department, in writing, of the intent to close the facility. The department will review the notice of intent to close the facility and shall approve or disapprove in writing the proposed closure procedures. The department may require additional information, or may require additional closure, maintenance or long-term care procedures to be implemented to insure proper closure of

the facility. This notice shall include the following information:

(a) The proposed final date by which all solid waste disposal or land spreading operations will be terminated.

(b) The current waste types, sources and volumes of solid wastes being land spread at the facility.

(c) The cumulative volumes of waste which were applied to the facility during active operations.

(d) The reasons for closing the facility.

(e) The proposed future land uses of those areas previously used for waste deposition.

(f) Special precautions to be utilized to limit access to the facility, and to insure that no further solid waste materials are deposited after the closure date.

(g) The proposed monitoring and long-term care procedures to be implemented following closure of the facility. These procedures shall be in accordance with the approved solid waste land spreading plan and any modifications to the plan.

(h) The alternate licensed or approved facilities to be utilized for waste disposal or land spreading purposes following closure of the facility.

(2) **CLOSURE.** No person may deposit any solid waste materials at a closed facility without prior written approval from the department. Within 90 days of the final closure date of a facility, all closure work shall be completely and finally performed in accordance with this section. Final closure of a land spreading facility shall include, but is not limited to:

(a) Discing, plowing or otherwise incorporating all deposited solid waste materials into the surface soil layers,

or covering all land spreading areas with an adequate thickness of final earth cover material.

(b) Providing for the control of surface water runoff to minimize adverse effects on surface water and groundwater quality.

(c) Establishing a vegetative cover to promote evapotranspiration and to control soil erosion, and otherwise preparing the land surface for the intended future land use.

(d) Continuing to grow crops and conducting the associated monitoring work.

(e) Performing the required environmental monitoring work associated with the approved final closure and long-term care plans.

**History:** Cr. Register, January, 1988, No. 385, eff. 2-6-88.

**NR 518.09 Licensing.** Land spreading facilities which are approved under this chapter are exempt from the licensing requirements of s. 144.44, Stats.

**History:** Cr. Register, January, 1988, No. 385, eff. 2-6-88.

**NR 518.10 Waste management fund.** Land spreading facilities which are approved under this chapter are exempt from having to contribute to the waste management fund.

**History:** Cr. Register, January, 1988, No. 385, eff. 2-6-88.

**NR 518.11 Proof of facility registry.** The owner or operator shall submit proof that a notation of the existence of the facility has been recorded in the office of the register of deeds in each county in which a portion of the facility is located.

**History:** Cr. Register, January, 1988, No. 385, eff. 2-6-88.