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State of Wisconsin
Department of Natural Resources
PO Box 7921, Madison WI 53707-7921
dnr.wi.gov

Industrial Storage Structure Plan Approval Request

Notice: In accordance with s. NR. 108.04(2)(a), Wis. Adm. Code, this form is authorized to accompany final plans and specifications for any reviewable industrial storage structure project that is submitted to the Department of Natural Resources (Department) pursuant to s. 281.41, Wis. Stats. and s. NR 108.03, Wis. Adm. Code. Completion of this form is required by the Department for any industrial storage structure plan submittal to evaluate conformance with requirements in chs. NR 108 and 213, Wis. Adm. Code.

All necessary information must be provided on this form. Failure to complete this form correctly may result in rejection of this form by the Department. Personal information collected will be used for administrative purposes and may be provided to requesters to the extent required by Wisconsin's Open Records law (ss. 19.31 - 19.39, Wis. Stats.).

Please type or clearly print your answers to all questions.

Applicability: This form is applicable to all tanks, stacking structures, and other storage or treatment structures that receive industrial, commercial or agricultural wastewaters, associated sludges from industrial, commercial or agricultural sources, by-product solids and any resulting leachates. This form is **not** applicable to lagoons or to manure storage pits repurposed for storage of industrial wastewater or sludge.

Definitions: Storage structure means either an earthen containment structure or a storage tank used for the storage of wastewater or biological fermentation leachates or a structure constructed for stacking and storage of by-product solids or other material. **Storage tank** means a containment vessel fabricated of concrete, glass-reinforced plastic or steel for the purpose of storage or treatment of wastewater or biological fermentation leachates. **Treatment structure** means either an earthen treatment structure or a treatment tank used for the chemical, physical or biological treatment of wastewater or biological fermentation of leachates or a structure constructed for chemical, physical or biological treatment of by-product solids or other material. A treatment structure is a storage structure but not all storage structures are treatment structures.

INDUSTRIAL STORAGE STRUCTURE SUBMITTAL INSTRUCTIONS:

The following is a listing of information that must be submitted when requesting an approval of an industrial storage structure project:

1. A completed Wastewater System Approval Request (Form 3400-205) has been included? ◯ Yes ◯ No
2. Two sets of paper plans, specifications, and engineering design reports signed and sealed by a Professional Engineer have been included with the submittal? ◯ Yes ◯ No
3. One set of plans, specifications, and an engineering design report signed and sealed by a Professional Engineer have been included on a CD with the submittal? ◯ Yes ◯ No
4. A map has been included that shows the location of the proposed storage structure in relation to all setbacks in accordance with ch. NR 213, Wis. Adm. Code? ◯ Yes ◯ No
5. Soil borings have been included that define and confirm the subsurface soil conditions and depth to groundwater and/or bedrock at the site? ◯ Yes ◯ No
6. For by-product solids stack structures, an engineering design report has been submitted that outlines the entire project and include, at a minimum, the following information: legal description of the site subgrade conditions, soil classification, percent soil passing a No. 200 sieve, soil plasticity index, depth to bedrock and to seasonal high groundwaters, waste sources, and waste volume and materials and specifications of the proposed structure? ◯ Yes ◯ No ◯ N/A

Note: If you plan to install a holding tank for non-domestic wastewater, or mixed non-domestic and domestic wastewater, please complete and submit Form 3400-185 to the Department. More information can be found here: http://dnr.wi.gov/topic/wastewater/HoldingTanks.html. Submittal of Form 3400-225 is not required for non-domestic wastewater, or mixed non-domestic and domestic wastewater holding tanks unless the proposed design does not pass the validation of Form 3400-185.

A. General Information

Owner Name	Project Name		
Facility Name	Facility Contact		
Facility Address	City	State	ZIP Code
E-mail Address	Phone Number (include area code)	Alternative Phone Number	

B. Storage Structure Location

Location Address/Description			County		
GPS Location	Township ◯ N ◯ S	Range ◯ E ◯ W	Section	Quarter	Quarter-Quarter

C. General Site Criteria

(1) Separation between Water Supplies

A. Is the storage structure at least 1,000 feet from a well serving a community public water supply system? ◯ Yes ◯ No

Please specify the distance: _____

Note: Please call the DNR Drinking Water and Groundwater Staff to confirm the location of the community public water supply system.

B. Is the storage structure at least 250 feet from other potable water supply wells? ◯ Yes ◯ No

Please specify the distance: _____

(2) Separation between Dwellings

A. Is the storage structure at least 500 feet from an inhabited dwelling? ◯ Yes ◯ No

Please specify the distance: _____

i. If no, has written permission been given from the owner or occupants of the residence for the reduced distance and is a copy of the permission attached to this submittal? ◯ Yes ◯ No

(3) Floodway

Applicants should determine if construction of the storage structure will be within the floodway. (**Note:** "Floodway" means the channel of a river or stream, and those portions of the floodplain adjoining the channel required to carry the regional flood discharge. "Regional flood" means a flood determined to be representative of large floods known to have occurred in Wisconsin or which may be expected to occur on a particular lake, river or stream once in every 100 years.)

A. Is the storage structure located outside of the floodway and does it conform with the requirements in ch. NR 116, Wis. Adm. Code? ◯ Yes ◯ No

B. Are the regional (100-year) flood elevation contours indicated on the plans? ◯ Yes ◯ No

(4) Wetlands

Applicants for storage structure projects must review the DNR surface water data viewer (SWDV) web site (http://dnrmaps.wi.gov/SL/Viewer.html?Viewer=SWDV&runWorkflow=Wetland) and, if necessary, conduct an on-site field inspection to determine whether the proposed storage structure construction will impact any wetland areas prior to completing and submitting this form. (**Note:** "Impact" means any construction-related disturbance resulting in any temporary or permanent change in the characteristics of the wetland including direct excavation within the wetland area, temporary or permanent soil placement / removal within the wetland area, drainage modifications within or adjacent to the wetland area that may cause hydrological changes to the wetland, etc. "Wetland" 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.)

A. Have you reviewed the DNR SWDV web site (see link above) and if necessary conducted an on-site field inspection to verify whether the proposed storage structure construction will impact any wetland areas? ◯ Yes ◯ No

i. Is the SWDV map attached to this submittal? ◯ Yes ◯ No

B. Based on the review in part A, will the proposed storage structure construction impact any wetlands? ◯ Yes ◯ No

(5) Groundwater or Bedrock Separation

A. Is the bottom of the subbase of the storage structure at least 5 vertical feet from either bedrock or the seasonal high groundwater level (whichever is higher)? ◯ Yes ◯ No

i. Please specify the distance to bedrock or groundwater (whichever is higher): _____

ii. Is documentation that confirms the distance in part i (e.g. soil borings, test pits, data sources, etc.) provided with this submittal ? ◯ Yes ◯ No

(6) Design and Operation

A. Will the storage structure be designed and operated to minimize the level of substances in the groundwater and to prevent exceedance of the groundwater preventive action limits (PALs) to the extent technically and economically feasible? ◯ Yes ◯ No

i. Please describe such groundwater protection design, operation, and maintenance measures in the engineering design report. ◯ Yes ◯ No

Instructions: If the proposed system is a sweet corn silage stack of greater than 150 tons which do not exceed 1200 tons at any one time, please fill-out and follow instruction in section D. If the proposed system is a stack structure for by-product solids, please fill-out section E. If the proposed system is a storage tank, please fill-out section F.

D. Sweet Corn Silage Stacks Greater than 150 Tons Which Do Not Exceed 1200 Tons at Any One Time Design Requirements

1. Does at least 50% of the natural soil in the upper 24-inches at the stacking site pass a No. 200 sieve? ◯ Yes ◯ No

   A. Please specify the percent passing through a No. 200 sieve: _____ %

2. Is no greater than 5%, by weight, of the upper 24-inches of the natural soil at the stacking site retained on a No. 4 sieve? ◯ Yes ◯ No

   A. Please specify the percent passing through a No. 4 sieve: _____ %

3. Does the natural soil at the stacking site have a plasticity index equal to or greater than 7? ◯ Yes ◯ No

   A. Please specify the plasticity index: _____

4. Is the base of the stack located on a site that does not exceed 2% slope? ◯ Yes ◯ No

5. Is the stack located at least 200 feet from the nearest surface water? ◯ Yes ◯ No

   Please specify the distance to the nearest surface water: _____

Note: "Surface waters" means all natural and artificial named and unnamed lakes and all naturally flowing streams within the boundaries of the state, but not including cooling lakes, farm ponds and facilities constructed for the treatment of wastewaters.

6. Will the leachate from the stack be collected and landspread in a manner that prevents surface water and groundwater pollution? ◯ Yes ◯ No

   A. Please describe the collection system and landspreading system in the engineering design report.

Note: Landspreading of leachate requires coverage under a Wisconsin Pollutant Discharge Elimination System (WPDES) permit prior to being discharged to the land surface.

If you answered no to any of the above questions (D1 - D6), please fill-out section E.

E. Stack Structures of By-Product Solids Design Requirements

(1) General Design and Construction Criteria

A. Are the base, walls, and joints of the by-product solids stack structure constructed for maximum containment of any leachate generated such that all leachate is conveyed to and stored in an approved leachate storage facility? ◯ Yes ◯ No

B. Is the minimum slope for the base of the structure greater than or equal to 2%? ◯ Yes ◯ No

C. Does construction of the bituminous concrete structure or concrete structure comply with the WDOT standards for road and bridge construction? ◯ Yes ◯ No

Note: Other materials for stack structures may be proposed in the plans and specifications submitted to the Department. Approval of any material shall be based on the capability of the material to meet the purpose of ch. NR 213, Wis. Adm. Code.

D. Is a surface water runoff diversion system provided in the storage structure design? ◯ Yes ◯ No

(2) Site Preparation

A. Will, prior to construction, the site area be cleared of all vegetation, brush, roots, and stumps? ◯ Yes ◯ No

B. Will all materials encountered above the required elevations be excavated and will all depressions in the subgrade be filled? ◯ Yes ◯ No

C. Will the subgrade be smoothed, shaped, and compacted to the required grade, section, and uniform density? ◯ Yes ◯ No

D. Will the subgrade be scarified to the depth necessary for shaping and compaction? ◯ Yes ◯ No

E. Will all stones over 6-inches in diameter be removed during site preparation? ◯ Yes ◯ No

Note: If constructing a non-bituminous concrete structure, skip to question 4.

(3) Bituminous Concrete Structure: ◯ Yes ◯ No ◯ N/A

A. Will the pavement structure consist of a minimum of 10 inches of well drained subgrade or subbase? ◯ Yes ◯ No

i. For the subgrade or subbase, please specify the percent passing through a No. 200 sieve: _____ %

ii. For the subgrade or subbase, please specify the plasticity index: _____

Note: A suitable subgrade is one with 35% or less passing a No. 200 sieve, and a plasticity index of 10 or less.

B. Will the base course contain a minimum 8 inches of crushed aggregate and will the surface course be 3 inches of bituminous concrete pavement in 2 layers? ◯ Yes ◯ No

C. Will the aggregates of the base course conform to the gradation requirements for gradation No. 2 in accordance with sec. 304.2.6, WDOT standards for road and bridge construction? ◯ Yes ◯ No

D. Will the aggregates of the bituminous concrete pavement not be of dolomitic or limestone origin? ◯ Yes ◯ No

E. Will the bituminous concrete pavement be laid in 2 lifts of ≥ 1 3/4 inch binder course and ≥ 1 1/4 inch surface course? ◯ Yes ◯ No

F. Is the bituminous mix design laboratory sheet submitted with the plans and specifications? ◯ Yes ◯ No

G. Will the aggregates in the binder course conform to the gradation requirements for gradation No. 2 in accordance with sec. 304.2.6, WDOT standards for road and bridge construction? ◯ Yes ◯ No

H. Will the aggregates in the surface course conform to the gradation requirements for gradation No. 3 in accordance with sec. 304.2.6, WDOT standards for road and bridge construction? ◯ Yes ◯ No

I. Will the asphalt meet the 120-150 penetration grade in accordance with AASHTO T49? ◯ Yes ◯ No

J. Will the design mix of asphalt cement and aggregates yield a Marshall stability of no less than 1000 with an air void of the compacted mixture no more than 2%? ◯ Yes ◯ No

K. Will the binder course be compacted to at least 93% 50 blow Marshall? ◯ Yes ◯ No

L. Will the surface course be compacted to at least 95% 50 blow Marshall? ◯ Yes ◯ No

M. Will the surface course be applied such that a minimum 2 foot overlap will be provided over the binder course joints? ◯ Yes ◯ No

N. Will curbing or side walls be provided at the perimeter of the base and be sealed to prevent exfiltration at the seams and undercutting by rainfall? ◯ Yes ◯ No

O. Will dumping pads be paved and contiguous with the structure? ◯ Yes ◯ No

P. Will a qualified inspector be on site during construction to document compaction measurements? ◯ Yes ◯ No

Q. Will compaction be measured with a nuclear density meter, or other approved method? ◯ Yes ◯ No

(4) Concrete Structure: ◯ Yes ◯ No ◯ N/A

A. Will the pavement structure consist of a minimum of 10 inches of well-drained soil subgrade or subbase? ◯ Yes ◯ No

i. For the subgrade or subbase, please specify the percent passing through a No. 200 sieve: _____ %

ii. For the subgrade or subbase, please specify the plasticity index: _____

Note: A suitable subgrade is one with 35% or less passing a No. 200 sieve and a plasticity index of 10 or less.

B. Will the base course contain a minimum of 4 inches of crushed aggregate? ◯ Yes ◯ No

C. Will the surface course be 6 inches of concrete? ◯ Yes ◯ No

D. Will curbing or side walls surround the base and be sealed to prevent exfiltration at the seams and undercutting by rainfall? ◯ Yes ◯ No

E. Will dumping areas be paved and contiguous with the structure? ◯ Yes ◯ No

F. Will the surface course curbing and walls be protected from chemical and biological decomposition with an appropriate sealant which is resistant to degradation from sunlight? ◯ Yes ◯ No

G. Will the aggregates of the base course conform to the gradation requirements for gradation no. 2 in accordance with sec.304.2.6, WDOT standards for road and bridge construction? ◯ Yes ◯ No

H. Will coarse aggregates of the concrete mixture be well graded between the limits specified in size no. 1 gradation in accordance with sec. 501.3.6.4.5, WDOT standards for road and bridge construction? ◯ Yes ◯ No

I. Will the concrete meet the mix grade A air-entrained concrete classification and a water to cement ratio of no greater than 0.45 with 6% air plus or minus 1%? ◯ Yes ◯ No

J. Will metal reinforcing rods or mesh be provided in the pavement structure? ◯ Yes ◯ No

K. Will contraction joints be placed no greater than 20 feet apart in all directions? ◯ Yes ◯ No

L. Will contraction and construction joints be sealed with appropriate caulk or sealant to prevent leakage? ◯ Yes ◯ No

M. Is the proposed sealant specified in the plans and specifications? ◯ Yes ◯ No

(5) Annual Inspection and Maintenance

A. Will all visible cracks be cleaned and sealed during operation of the structure? ◯ Yes ◯ No

B. Is an operation and maintenance plan included in the plans and specifications? ◯ Yes ◯ No

(6) Leachate Collection Systems

A. Are the design and construction plans of the leachate collection system, consisting of conveyance and storage, included with plans and specifications? ◯ Yes ◯ No

B. Will the leachate collection system be totally contained and constructed in accordance with ch. NR 213 Subchapter II, Wis. Adm. Code, or s. NR 213.15, Wis. Adm. Code? ◯ Yes ◯ No

C. Will the leachate storage structure be sized to provide adequate capacity to store the leachate generate between disposal events and normal rainfall as well as the larger volume generated by a 10-year, 24-hour rainfall event? ◯ Yes ◯ No

Note: Landspreading of by-product solids and leachate requires coverage under a WPDES permit prior to being discharged to the land surface.

F. Storage Tank Design Requirements

1. Will the storage tank be designed, installed and maintained to prevent leaks due to corrosion or structural failure? ◯ Yes ◯ No

2. Underground storage tank: ◯ Yes ◯ No **(if no, skip to question 3)**

A. Will the tank be cathodically protected against corrosion, constructed of noncorrosive material, constructed of coated steel with noncorrosive material, or their equivalent? ◯ Yes ◯ No

B. Will the materials of the tank or liner be compatible with the stored substance? ◯ Yes ◯ No

C. Will the tank be provided with an inspection manhole, vent and high water alarm? ◯ Yes ◯ No

D. Will periodic testing be performed, such as pressure testing, to ensure the integrity of the tank is maintained? ◯ Yes ◯ No

3. Above-ground storage tank: ◯ Yes ◯ No **(If no, skip question 3A-D)**

A. Will the tank be constructed of noncorrosive material, steel-lined with noncorrosive material, or their equivalent? ◯ Yes ◯ No

B. Will the materials of the tank or liner be compatible with the stored substance? ◯ Yes ◯ No

C. Will the tank be provided with an inspection manhole, vent, and high water alarm? ◯ Yes ◯ No

D. Will a containment dike around the storage tank be provided in locations where water pollution would potentially be caused by a spill or overflow? ◯ Yes ◯ No ◯ N/A

Note: Landspreading of industrial wastewater or sludge from storage tanks requires coverage under a WPDES permit prior to being discharged to the land surface.

G. Exemption Requests

Please describe any requested exemptions to the design requirements in ch. NR 213, Wis. Adm. Code:

H. Certification

I certify that this document, to the best of my knowledge and belief, is true, accurate, and complete.

_____ Date Signed _____

Signature of Consulting Engineer Responsible for Preparing this Form

Wisconsin P.E. Number _____

Phone Number (include area code) _____