

Draft Guidance: Discharge of Industrial Liquid Wastes into Manure Storage Units

Background Information

Liquid industrial waste is one of the most common non-farm wastes discharged into manure storage units. Examples include, but are not limited to process water, wash water, whey permeate, silage leachate, etc. In many cases, industrial wastewaters discharge into manure storage units to liquefy the manure (reduce bulking), and thus aid the farmer in more easily pumping the manure out of the storage unit. More commonly, industrial facilities discharge wastewater to these manure storage units on a routine basis as a viable disposal option in lieu of landspreading, disposing wastewater at a wastewater treatment facility, and/or landfilling it.

Historically, it was difficult for Department staff to track the number of manure storage units approved for the disposal of industrial wastes, and identify where these units were located. In addition, there have been inconsistencies statewide over the criteria used to evaluate these requests, and how to share that information across Department programs (primarily DNR Groundwater, Runoff Management, and Wastewater Programs).

The goal of this guidance is to improve consistency when reviewing liquid industrial wastewater discharge requests as well as to improve Department cross-program communication (especially regarding discharges to permitted farms). This guidance outlines:

- Waste generator requirements for submitting a discharge request package,
- The types of discharges to non-permitted and permitted farms,
- The roles and responsibilities of Department staff from the Wastewater and Runoff Management Programs, and
- The responsibilities of waste generator and/or permitted farm after approval of manure storage unit.

NOTE: Separate guidance documents (currently in progress) cover discharge of by-product solids, industrial sludge, domestic sewage sludge, and septage wastes into manures storage units. In addition, this guidance does not cover wastes that are mixed with other wastes (examples include but are not limited to comingled industrial/municipal and industrial/septage wastes).

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**BUREAU OF WATER QUALITY
BUREAU OF WATERSHED MANAGEMENT**

PROGRAM GUIDANCE

WDNR Landspreading Work Group

Discharge of Industrial Liquid Wastes into Manure Storage Units

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Table of Contents

Page

1.0 Definitions 3

2.0 Acronyms..... 5

3.0 Applicability.....6

4.0 Background7

5.0 Components for an Industrial Liquid Waste Discharge Request Package.....8

6.0 Discharge Scenarios: Department Review Process & Waste Generator/Farm Responsibilities
.....9

 6.1 Non-Permitted Farm with Total Industrial Liquid Waste <10% Total Volume..... 10

 6.2 Non-Permitted Farm with Total Industrial Liquid Waste >10% Total Volume..... 12

 6.3 Permitted Farms with Total Industrial Liquid Waste <10% Total Volume..... 14

 6.4 Permitted Farms with Total Industrial Liquid Waste 10-30% Total Volume.....17

 6.5 Permitted Farms with Total Industrial Liquid Waste >30% Total Volume..... 20

 6.6 Emergency Maintenance Events.....22

7.0 Enforcement Recommendations.....24

8.0 Appendices

 8.1 Appendix A.....26

 8.2 Appendix B.....27

 8.3 Appendix C.....30

 8.4 Appendix D.....31

 8.5 Appendix E.....32

 8.6 Appendix F.....33

 8.7 Appendix G.....34

 8.8 Appendix H.....36

 8.9 Appendix I.....37

9.0 Acknowledgements.....48

1.0 Definitions

1. **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 (referenced from s. NR 214.03(4) Wis. Adm. Code).

2. **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 health (referenced from s. NR 214.03(10) Wis. Adm. Code).

3. **Industrial liquid waste or industrial wastewater:** means process wastewater (non-agriculture process wastewater) and waste liquids, including silage leachate, whey, whey permeate, whey filtrate, contact cooling water, cooling or boiler water containing water additives, and wash water generated in industrial, commercial, and agricultural operations (referenced from s. NR 214.03(27), Wis. Adm. Code).

Note: non-domestic wastewater may be considered liquid industrial wastes (regulated per ch. 214 Wis. Adm. Code) provided wastes are land applied for beneficial reuse (nutrients, organic matter, etc.) and are non-hazardous (per s. NR 660.10(52), Wis. Adm. Code).

Note: Chapter NR 243.03(53) defines “process wastewater” as “wastewater from the production area directly or indirectly used in the operation of animal feeding operation that result from...water that comes into contact with any raw materials or animal by-products including manure, feed, milk, eggs, or bedding.” Permitted farm (CAFO) process wastewater is not considered a ch. NR 214 Wis. Adm. Code regulated waste.

4. **Land Application Geodatabase (LAG):** an ArcGIS geodatabase used to review and catalog liquid industrial wastes, industrial sludge, by-product solids, domestic sewage sludge, and septage landspreading fields (regulated under chs. NR 214, 204, and 113 Wis. Adm. Codes, respectively).

5. **Landspreading system** (landspreading): means a system where a controlled quantity of liquid waste or 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 sub-surface injector. The wastes are to be applied for the benefit of the vegetative cover. Landspreading systems also include those systems where liquid wastes are occasionally applied through temporary irrigation piping at a frequency similar to that of application by vehicle (referenced from s. NR 214.03(26), Wis. Adm. Code).

6. **Land treatment system:** means a system that utilizes the physical, chemical, and biological abilities of the soil to decompose pollutants in the wastes. Land treatment systems include:

A. Absorption or seepage pond systems,

- B. Ridge and furrow systems,
- C. Spray irrigation systems,
- D. Overland flow systems,
- E. Subsurface absorption field systems,
- F. Landspreading systems for liquid wastes or organic by-products,
- G. Sludge spreading systems, and
- H. Any other land area receiving liquid wastes, by-products, or sludge discharges (referenced from s. NR 214.03(24) Wis. Adm. Code).

7. Manure (animal waste): means a material that consists primarily of litter or excreta, treated or untreated, from livestock, poultry or other animals. Manure includes material mixed with runoff, bedding contaminated with litter or excreta, or process wastewater (referenced from s. NR 243.03(36), Wis. Adm. Code).

8. Manure storage unit: any above or below ground unit designed (NRCS 313 standards) and approved to store manure. An approval may be the county land and water conservation department or pursuant to ch. NR 243 Wis. Adm. Code requirements. For the purposes of this guidance document, manure digesters are considered manure storage units.

9. Non-Permitted Farm: farm that does not have a WPDES permit (general or individual) that authorizes the application of liquid industrial waste or manure to cropland (groundwater).

10. Permitted Farm: livestock operation that has a WPDES permit (example: Concentrated Animal Feeding Operation or CAFO) that authorizes the application of liquid and/or solid manure to croplands (groundwater) or authorizes a discharge to surface waters.

11. Process wastewater (agricultural): means wastewater from the production area directly or indirectly used in the operation of animal feeding operation that result from any of the following:

- A. Spillage or overflow from animal or poultry watering systems;
- B. Washing, cleaning, or flushing pens, barns, manure pits, or other animal feeding operation facilities;
- C. Direct contact swimming, washing, or spray cooling of animal or dust control;
- D. Water that comes into contact with any raw materials or animal byproducts including manure, feed, milk, eggs, or bedding (referenced from s. NR 243.03(53), Wis. Adm. Code).

Note: Process wastewater includes milkhouse (or milking center) waste as well as silage leachate if it is discharged into the manure storage unit pursuant to ch. NR 243 Wis. Adm. Code.

12. Septage: means wastewater or contents of septic or holding tanks, dosing chambers, grease interceptors, seepage beds, seepage pits, seepage trenches, privies, or portable restrooms (referenced from s. NR 113.03(55), Wis. Adm. Code).

13. Sewer sludge or “sludge” or biosolids: means solid, semi-solid, or liquid residue generated during the treatment of domestic sewage in a treatment works. Sewage sludge includes scum or solids removed in primary, secondary or advanced wastewater treatment processes and material derived from sewage sludge. Sewage sludge does not include ash generated during the firing of a sewage sludge incinerator or grit and screenings generated during preliminary treatment of domestic sewage in a treatment works (referenced from s. NR 204.03(55) Wis. Adm. Code).

14. Sludge (industrial sludge): means accumulated solids generated during the biological, physical or chemical treatment, coagulation or sedimentation of water or wastewater (referenced from s. NR 214.03(34), Wis. Adm. Code).

15. SWAMP: a department database used to record wastewater documents and data.

16. Total Volume: total gallons of manure currently held in the storage unit just prior to land application. Example: A total volume of 500,000 gallons limits industrial input to less than 50,000 gallons to qualify for the s. NR 214.17(1), Wis. Adm. Code exemption.

17. Wastewater-Non-Domestic: includes, but is not limited to wastes collected from non-residential garages used for storage, maintenance, or washing of motor vehicles, commercial food processing, commercial laundromats, animal shelters, or kennels, animal rendering, metal fabricating, electronic component manufacturing, chemical manufacturing, milkhouses and other industrial and commercial process water. [clarified pursuant to DSPS (DComm) and DNR Memo of Understanding dated December 16, 1999]. *Note: this guidance excludes any tanks containing a mix of nondomestic and domestic wastes.*

2.0 Acronyms

1. CAFO: Concentrated Animal Feeding Operation
2. COD: Chemical Oxygen Demand
3. DNR: Wisconsin Department of Natural Resources (aka: “department”)
4. DSPS: Department of Safety and Professional Services
5. IWW: Industrial Wastewater
6. LAG: Land Application Geodatabase
7. NMP: Nutrient Management Plan

8. NRCS: Natural Resource Conservation Service (formerly known as the U.S. Soil Conservation Service (SCS))
9. POTW: Publically Owned Wastewater Treatment Work
10. SWAMP: System for Wastewater Applications, Monitoring, and Permits
11. TKN: Total Kjeldahl Nitrogen
12. WPDES: Wisconsin Pollutant Discharge Elimination System

3.0. Applicability

This guidance document addresses the discharge of industrial liquid wastes (regulated under s. NR 214.17, Wis. Adm. Code) to manure storage units. For the purposes of this guidance document and pursuant to ch. NR 243, Wis. Adm. Code manure digesters are considered manure storage units.

Some digesters are not included within the scope of this guidance document. These include, but are not limited to:

- Non-farm WPDES permitted digesters (including industrial digesters that use manure as influents) that may already be permitted to accept industrial liquid wastes;
- Non-WPDES permitted digesters that do not discharge to the waters of the state (i.e. digestate discharged to collection system of POTWs such as an energy digester); and
- Public Service Commission (PSC) consortium digester [Integrated Anaerobic Digester System Program request for proposal issued January 3, 2017] and other similar digester systems.

Industrial liquid wastes include, but are not limited to, liquid wastes generated by fruit and vegetable processing, dairy processing, mink raising operations, aquaculture, commercial laundromat, motor vehicle cleaning operations, and any other industrial, commercial, or agricultural operation which results in a point source discharge that has no detrimental effects to the soil, vegetation, or groundwater (reference s. NR 214.02(1), Wis. Adm. Code).

Discharges of non-domestic wastewater may be considered industrial liquid wastes (regulated per ch. 214 Wis. Adm. Code) provided wastes are landspread for beneficial reuse (fertilizer, soil conditioner, etc.) and are non-hazardous (per s. NR 660.10(52), Wis. Adm. Code).

This guidance document does NOT address discharge of other non-farm and/or farm wastes into manure storage units, including, but not limited to:

- 1) Wastes excluded per s. NR 214.02(3) Wis. Adm. Code;
- 2) By-product solids;
- 3) Industrial sludge (food processing sludge and grease, etc.);
- 4) Domestic sewage sludge (biosolids);
- 5) Septage wastes (septic and holding tanks, sanitary grease, portable restrooms, etc.);
- 6) Mixed wastes (examples include, but are not limited to, mixed industrial sludge/industrial liquid wastes, industrial/municipal, and industrial/septage wastes); and
- 7) Farm process wastewater regulated per ch. NR 243 Wis. Adm. Code.

Note: Process wastewater (milkhouse waste, silage leachate, etc.) generated at the agricultural facility (permitted and non-permitted) and discharged into a manure storage unit is typically classified as an agricultural waste. In contrast, process wastewater generated at an industrial facility and discharged as a waste is considered an industrial liquid waste. Wastes from agricultural and industrial facilities may be characteristically similar, but are regulated pursuant to the type and/or origin of waste generation.

4.0 Background

There are several options available to industrial liquid waste generators to dispose of their waste. Any discharge to the environment may require WPDES permits, treatment, and other requirements necessary to protect public health and the waters of the state. Disposal options include, but are not limited to the following:

- Privately owned industrial wastewater treatment works,
- Publically owned wastewater treatment works (POTWs),
- Pretreatment facilities that initially treats the waste prior to discharge to a POTW,
- Other WPDES permitted facilities (example: WPDES permitted contract haulers),
- Licensed landfills (chs. NR 500 through 536 Wis. Adm. Code), and
- WPDES permitted land treatment systems (ch. NR 214 Wis. Adm. Code).

Land treatment systems include multiple methods of utilizing soils and crops to treat industrial liquid waste such that there are no detrimental effects to the soil, vegetation, or groundwater (reference s. NR 214.02(1), Wis. Adm. Code). Landspreading is one method of land treatment, and is the focus of this guidance document.

The landspreading of industrial liquid waste requires the waste generator to apply for and receive a WPDES permit (Wis. Stats. s. 283.31 and Wis. Adm. Code s. NR 214.02(2)). The WPDES permit provisions include, but are not limited to: site location criteria, vehicle and storage criteria, discharge monitoring and limitations, operating requirements, and soil investigation and groundwater monitoring.

Alternatively, landspreading of industrial liquid wastes can be accomplished indirectly by mixing with manure into manure storage units and landspreading the mixed waste beneficially as a soil conditioner or fertilizer. Industrial liquid waste is one of the most common non-farm wastes discharged into manure storage units.

Manure storage units may be owned and operated by farms. These farms may or may not be covered under a WPDES permit. In some cases, industrial wastewaters are discharged into a manure reception pit or directly into a manure storage unit to liquefy the manure. This addition helps remove blockages and/or reduce bulking.

WPDES permitted industrial facilities discharge industrial liquid waste to these manure storage units on a routine basis. Manure storage units are a viable disposal option for small amounts of industrial liquid waste. Several discharge scenarios exist for the discharge of industrial liquid waste into a manure storage unit.

In the past the Department had difficulty tracking approved manure storage units. Further, communication and review process inconsistencies within and across department programs have been challenging. This guidance document overcomes these issues and outlines:

1. Guidelines for submitting a manure storage unit request package,
2. Department staff roles and responsibilities (submittal review and compliance) between Wastewater and Runoff Management Programs, and
3. Post-approval responsibilities of the WPDES industrial liquid waste permittee and/or WPDES permitted farm.

5.0 Components for an Industrial Liquid Waste Discharge Request Package

A standardized discharge request package is required for all scenarios listed in Section 6.0. If a waste generator desires approval for disposing industrial liquid waste into multiple manure storage units, then the liquid waste generator must submit a request package for each manure storage unit (even if the storage units are in the same general location). Generally, an industrial liquid waste generator requesting to discharge to a manure storage unit must provide the following information in a discharge request package:

- 1) *Request Form*. Completed Form # 3400-196 “Notice of Intent to Store Industrial Wastes in Existing Off-Site Manure Storage Structures” (see Appendix A).
- 2) *Design Documentation*. Signed and stamped documentation from a Wisconsin registered professional engineer indicating that construction of storage unit complies with the requirements from ch. NR 213 Wis. Adm. Code or documentation from county conservation staff that the manure storage unit meets NRCS 313 (2/86), 425 (10/83), or equivalent design standards.

- 3) *Storage Unit Identification.* Manure storage unit location relative to other onsite units. Examples: aerial photograph and up-close photographs showing identifying characteristics of the requested unit.
- 4) *Liquid Waste Type.* General liquid waste description (type of industry and all sources of wastewater that may be discharged into the manure storage unit).
- 5) *Liquid Waste Characteristics.* Test results of a representative sample of waste from waste generator (see Appendix B).
- 6) *Chemicals.* Identification of any chemicals that may be present in the wastewater and all relevant data safety sheets.
- 7) *Waste Source(s).* Verify all waste sources (industrial, municipal, or septage, etc.) discharged into the manure storage unit.
 - A. IMPORTANT: Mixing of multiple non-farm waste sources may require an individual WPDES permit or permit modification of existing WPDES permit. The WPDES permit may include additional requirements and limitations pursuant to administrative codes for all wastes mixed within the storage unit.
 - B. IMPORTANT: For non-permitted farms to comply with the “less than 10% exemption,” the department assumes one wastewater source per manure storage unit.
- 8) *Permitting Application.* If necessary, the waste generator must submit a WPDES permit application or request a WPDES permit modification.
- 9) *WPDES Permitted Farm Requirements.* Request packages must contain the 180-day storage capacity calculation worksheet (Appendix H), demonstrating 180-day storage capacity of the manure storage unit. This calculation includes all wastes discharged into the storage unit including manure, leachate, collected stormwater, and industrial liquid waste.

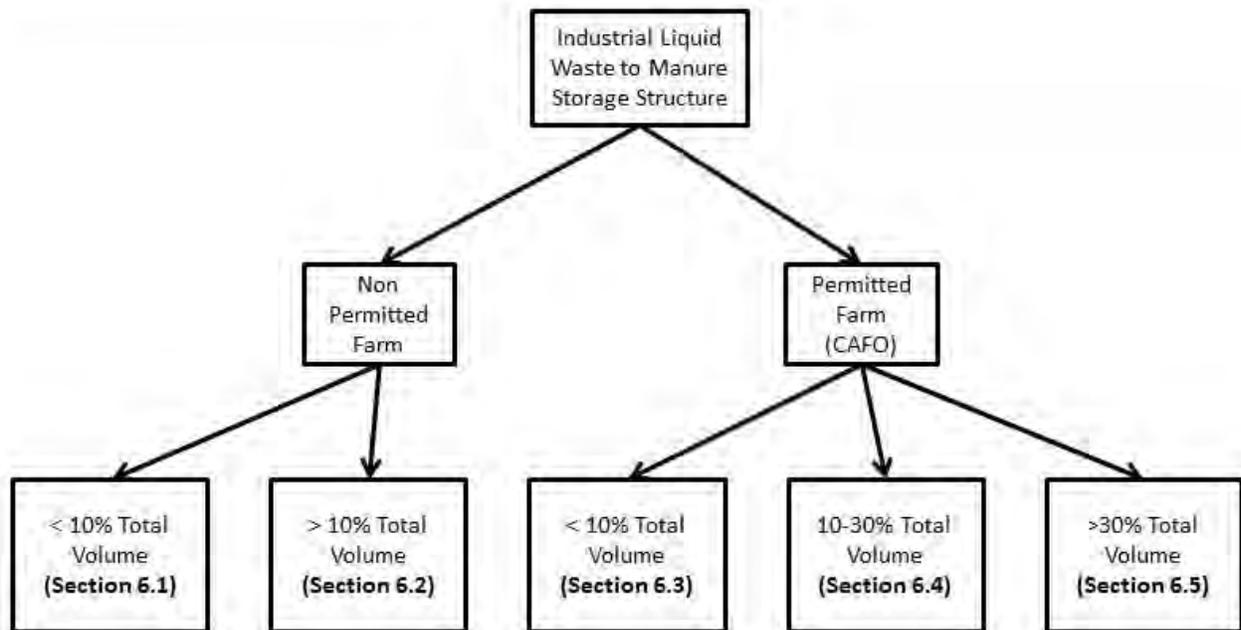
Note: Discharge into a CAFO’s manure storage unit is only permissible if adequate winter storage capacity (180 days) is available.

6.0 Discharge Scenarios: Dept. Review Process & Waste Generator/Farm Responsibilities

Different discharge scenarios exist depending on the type of facility (non-permitted farms and permitted farms) and the percent volume discharged into a manure storage unit.

- 1) Non-Permitted Farm with Total Industrial Liquid Waste <10% Total Volume (Section 6.1)
- 2) Non-Permitted Farm with Total Industrial Liquid Waste >10% Total Volume (Section 6.2)
- 3) Permitted Farms with Total Industrial Liquid Waste <10% Total Volume (Section 6.3)
- 4) Permitted Farms with Total Industrial Liquid Waste 10-30% Total Volume (Section 6.4)
- 5) Permitted Farms with Total Industrial Liquid Waste >30% Total Volume (Section 6.5)

Industrial Liquid Waste Discharge to Manure Storage Units Discharge Scenarios



The protocols below outline the review and approval process for department staff as well as the responsibilities of the wastewater generator and/or permitted farm once the manure storage unit has been approved by the department.

6.1 Non-Permitted Farm with Total Industrial Liquid Waste <10% Total Volume

Pursuant to s. NR 214.17(1), Wis. Adm. Code, an exemption allows discharging low volume industrial liquid waste (<10% total volume of manure storage unit) to non-permitted farms. This exemption states:

“Industrial liquid wastes mixed into liquid manure at a volume less than 10% of the volume of the mixture at the time it is landspread may be exempted in writing by the department on a case-by-case basis from the requirements of s. NR 214.17(2), (3), (4) and (7) if the liquid waste mixture has beneficial properties as a soil conditioner or fertilizer, is applied in accordance with accepted agricultural practices, and does not cause detrimental effects. However, liquid

manure storage facilities used to store less than 10% industrial liquid waste shall meet the USDA SCS technical bulletin section IV design criteria 313 (2/86) or 425 (10/83) [now NRCS 313 standards] or equivalent sealing specifications acceptable to the department.”

A. Wastewater Program—Internal Review Process

1. *New requests for manure storage units.* For new manure storage unit discharge requests, a review can be completed by either a wastewater specialist or a wastewater engineer. Once the review has been completed, the wastewater specialist/engineer sends an approval or denial letter to the liquid waste generator (see Appendix E). A copy of this letter is transmitted to the regional department non-point source coordinator and the county land conservationist. The wastewater specialist/engineer enters the manure storage unit information (approved or denied) into the SWAMP “Site” tab and the LAG “Storage Structure” layer.

In subsequent years, the assigned wastewater program regulator reviews the WPDES industrial liquid waste generator’s 3400-052 (“Other Method of Disposal”) reports, responds to any complaints regarding the manure storage unit, verifies compliance, and provides and addresses internal and external information requests. If the County Land and Water Conservation Department determines that mixed waste is not landspread in accordance with accepted agricultural practices, then the wastewater regulator may rescind authorization to discharge industrial liquid wastes into the manure storage unit and/or consider stepped enforcement.

2. *Manure Storage Unit Reauthorizations.* All previously approved manure storage units are re-evaluated during the next WPDES industrial liquid waste generator permit term.

Note: the WPDES permit should include the standard manure pit exemption language in the “Land Application” section of the permit.

The WPDES permit drafter generates a compliance schedule requiring reauthorization of each manure storage unit. This compliance schedule is included in the waste generator’s WPDES permit during the permit reissuance process (compliance schedule language is provided in Appendix F). In accordance with this compliance schedule, the industrial liquid waste generator resubmits a discharge request package (as outlined in Section 5.0) for each manure storage unit.

Department staff reviews the reauthorization request package(s). Once the review is complete, the wastewater specialist/engineer sends an approval or denial letter to the industrial liquid waste generator (see Appendix E). A copy of this letter is transmitted to the regional department non-point source coordinator and the county land conservationist. The wastewater specialist/engineer enters the manure storage unit information into the SWAMP “Site” tab and the LAG “Storage Structure” layer.

B. Industrial Liquid Waste Generator Responsibilities (Post Manure Storage Unit Approval)

Once approved, requirements for the industrial liquid waste generator include:

- 1) *Land Application Management Plan*. Update the facility's land application management plan to include the manure storage unit.
- 2) *Analytical Results*. Provide analytical results annually to manure storage unit owner, and retain a copy of the results during the WPDES permit term.
- 3) *Waste Stream Notification*. Notify the manure storage unit owner of any process change (influent addition, change in treatment, etc.) that results in changes to waste stream characteristics.
- 4) *Log Report*. Maintain a daily disposal log (see Appendix D).
- 5) *Percentage Calculations*. Verify total contents of manure storage unit are <10% industrial wastewater (see Appendix C).
- 6) *Annual Report*. Submit the 3400-052 "Other Methods of Disposal" report.
- 7) *Additional Non-Farm Waste*. Communicate with manure storage unit owner, and confirm that no additional non-farm waste sources are discharged into the manure storage unit.
NOTE: The industrial liquid waste generator notifies the department if additional waste sources are identified.
- 8) *Annual Inspections*. Older manure storage units (> 10 years past construction date) should be inspected annually by a qualified individual.
- 9) *Land Application from Storage Unit*. Verify that the farmer is landspreading the mixed waste (manure + industrial liquid waste) in accordance with accepted agricultural practices, and the landspreading does not cause detrimental impacts to waters of the state or public health.

Note: the manure storage unit owner may be required to follow other regulations and/or implement a NRCS 590 NMP.

6.2 Non-Permitted Farm with Total Industrial Liquid Waste >10% Total Volume

There is no codified exemption to ch. NR 214 Wis. Adm. Code for discharging >10% total volume industrial liquid waste into manure storage units. If the permittee requests >10% discharge (total volume), then the waste generator becomes responsible for the storage and landspreading of the mixed waste under its WPDES permit.

The entire manure storage unit and associated landspreading activities are regulated under ch. NR 214, Wis. Adm. Code, including prior department approval of landspreading sites (Wis. Adm. Code s. NR 214.17(2)). The industrial liquid waste generator must request a WPDES permit modification to include this manure storage unit. If more than one manure storage unit contains >10% total volume, then each manure storage unit is assigned a land application outfall in the modified WPDES permit.

NOTE: Under this scenario, the manure storage unit can be approved to mix different industrial wastes (i.e. acceptance of more than one industrial liquid waste, industrial sludge, etc.). On a case-by-case basis, additional monitoring and/or limitations may be factored into the WPDES permit (Wis. Adm. Code s. NR 214.17(5)).

A. Wastewater Program—Internal Review Process.

1. *New requests for manure storage units.* For new manure storage unit discharge requests, review is completed by a wastewater engineer (review meets ch. NR 213 Wis. Adm. Code requirements). Once the review is completed, the wastewater engineer sends an approval or denial letter to the wastewater generator (see Appendix E). If approved, the assigned department regulator coordinates with permit drafter to modify/reissue the facility’s WPDES permit to include the new storage structure, outfall sample point, and monitoring requirements. A copy of this letter is transmitted to the regional department non-point source coordinator and county land conservationist. The wastewater engineer or department regulator enters the manure storage unit information into the SWAMP “Site” tab and the LAG “Storage Structure” layer.

In subsequent years, the assigned department regulator reviews the WPDES facility’s 3400-055 (“Annual Land Application”) and 3400-052 (“Other Method of Disposal”) reports, responds to complaints regarding the storage unit, verifies compliance, and provides and addresses internal and external information requests.

2. *Storage Unit Reauthorizations.* All previously approved storage units are re-evaluated during the next permit term. The WPDES permit drafter generates a compliance schedule into the waste generator’s WPDES permit during the permit reissuance process (compliance schedule language is provided in Appendix F). The waste generator resubmits a discharge request package (as outlined in Section 5.0) for each manure storage unit.

Department staff reviews the reauthorization request packages. Once the review is complete, the wastewater engineer sends an approval or denial letter to the wastewater generator (see Appendix E). A copy of this letter is transmitted to the regional department Non-Point Source Coordinator and County Land Conservationist. The wastewater specialist/engineer enters the manure storage unit information into the SWAMP “Site” tab and the LAG “Storage Structure” layer.

B. Industrial Liquid Waste Generator Responsibilities (Post Manure Storage Unit Approval)

The industrial liquid waste generator requests a WPDES permit modification. The WPDES permit modification is needed to add new storage unit and outfall sample location (sample point will contain monitoring/limitations based on volume discharged to storage unit, capacity of storage unit, concentration of waste discharged, etc.). The storage unit cannot be used by the industrial liquid waste generator until the permit modification has been completed.

Once approved, requirements for the industrial liquid waste generator include:

- 1) *Land Application Management Plan.* Update the facility’s land application management plan to include the manure storage unit.
- 2) *WPDES Permit Sampling.* Sample mixed wastes per WPDES permit requirements.
- 3) *Analytical Results.* Provide analytical results annually to manure storage unit owner, and retain a copy of the results during the WPDES permit term.

- 4) *Waste Stream Notification.* Notify the manure storage unit owner of any process change (influent addition, change in treatment, etc.) that results in changes to waste stream characteristics.
- 5) *Log Report.* Maintain a daily disposal log (see Appendix D).
- 6) *Annual Report.* Submit the 3400-055 “Annual Land Application” report.
- 7) *Additional Non-Farm Waste.* Verify with manure storage unit owner that only authorized waste sources are discharged into the manure storage unit.
NOTE: The liquid waste generator notifies the department if additional waste sources are identified.
- 8) *Maintenance.* Regularly inspect and maintain the storage unit per ch. NR 213 Wis. Adm. Code requirements.

Note: The manure storage unit owner may be required to follow other regulations and/or implement a NRCS 590 NMP.

6.3 Permitted Farms with Total Industrial Liquid Waste <10% Total Volume

Pursuant to s. NR 214.17(1), Wis. Adm. Code, an exemption allows discharging low volume industrial wastewater (<10% total volume of manure storage unit) to CAFOs. This exemption states:

“Industrial liquid wastes mixed into liquid manure at a volume less than 10% of the volume of the mixture at the time it is landspread may be exempted in writing by the department on a case-by-case basis from the requirements of s. NR214.17(2), (3), (4) and (7) if the liquid waste mixture has beneficial properties as a soil conditioner or fertilizer, is applied in accordance with accepted agricultural practices, and does not cause detrimental effects. However, liquid manure storage facilities used to storage less than 10% industrial liquid waste shall meet the USDA SCS technical bulletin section IV design criteria 313 (2/86) or 425 (10/83) [now NRCS 313 standards] or equivalent sealing specifications acceptable to the department.”

However, the requirements of ch. NR 214, Wis. Adm. Code are typically less stringent than the requirements of ch. NR 243, Wis. Adm. Code. Pursuant to s. NR 243.18, Wis. Adm. Code, mixed waste (manure including agricultural process wastewater + industrial liquid waste) shall be stored and land applied in accordance with ch. NR 243, Wis. Adm. Code.

Mixed waste may be required to meet chs. NR 213 and NR 214, Wis. Adm. Codes. Once the Department approves the disposal of industrial liquid wastes into the WPDES permitted farm storage unit, the mixed waste in the storage unit and the landspreading of the mixed waste must be covered under the farm’s WPDES permit. A farm’s WPDES permit typically contains standards for mixed wastes found in ss. NR 243.16 through NR 243.18, Wis. Adm. Code. In any case, the CAFO regulator verifies the permitted farm is in compliance with its WPDES permit and NMP prior to acceptance of industrial liquid waste into the manure storage unit.

A. Wastewater Program—Internal Review Process.

For new manure storage requests, wastewater staff notifies the assigned department CAFO regulator of the request, and initially reviews the request package. This initial review can be completed by either a wastewater specialist or wastewater engineer. Once the review is complete, comments are sent to the CAFO regulator. The CAFO regulator is responsible for formally approving/denying the request (see below). The wastewater specialist/engineer enters the manure storage unit information (approved or denied) into the SWAMP “Site” tab and the LAG “Storage Structure” layer.

In subsequent years, the assigned wastewater program regulator reviews the WPDES industrial liquid waste generator’s 3400-052 (“Other Method of Disposal”) report. The wastewater program regulator notifies the CAFO regulator of any complaints regarding the storage unit. Information about this storage unit is provided to internal and external entities upon request.

B. Runoff Management Program—Internal Review Process

1. *New requests for manure storage units.* For new manure storage requests, the assigned CAFO regulator coordinates with wastewater staff to review the discharge request package. Once the review is complete, the CAFO regulator sends an approval or denial letter to the wastewater generator and CAFO authorized representative (see Appendix G). The CAFO regulator also reviews the updated NMP and 180-day storage calculation submitted by the CAFO that accounts for the new waste source added to the manure storage unit.

Considerations for approval include, but are not limited to, the following:

- 1) CAFO’s current and past compliance status regarding manure and process wastewater management,
- 2) CAFO’s verification to maintain both a minimum of 180 days of storage capacity and adequate land base to support acceptance of off-site wastes, and
- 3) CAFO’s use of alternative treatment systems prior to disposal of off-site wastes into manure storage units (i.e. digester).

In subsequent years the CAFO regulator evaluates and verifies that industrial liquid waste taken into a CAFO’s storage is unit <10% (Appendix C). This evaluation likely occurs during the permit reissuance process or during annual report review. The CAFO regulator responds to complaints (if applicable), and verifies that no unauthorized sources are being discharged into the storage unit. The CAFO regulator is responsible for any land application complaints regarding the CAFO’s manure storage unit.

2. *Manure Storage Unit Reauthorizations.* All previously approved storage units (for the industrial liquid waste generator) are re-evaluated during the next permit term. *Note: the waste generator’s WPDES permit should include the standard manure pit exemption language in the “Land Application” section of the permit.* The wastewater program permit drafter populates a

compliance schedule into the waste generator's WPDES permit during the permit reissuance process (compliance schedule language is provided in Appendix F). The waste generator resubmits a discharge request package (as outlined in Section 5.0) for each manure storage unit.

Both Wastewater and Runoff Management Program staff reviews the reauthorization request packages. Once the review is complete, the CAFO regulator sends an approval or denial letter to the wastewater generator and CAFO authorized representative (see Appendix G). A copy of this letter is transmitted to the appropriate County Land Conservationist. The wastewater specialist/engineer then enters the manure storage unit information into the SWAMP "Site" tab and the LAG "Storage Structure" layer.

C. Industrial Liquid Waste Generator Responsibilities (Post Manure Storage Unit Approval)

Once approved, requirements for the industrial liquid waste generator include:

- 1) *Land Application Management Plan*. Update the facility's land application management plan to note industrial liquid waste is being sent to a permitted farm.
- 2) *Analytical Results*. Provide analytical results annually to manure storage unit owner, and retain a copy of the results during the WPDES permit term.
- 3) *Waste Stream Notification*. Notify the manure storage unit owner of any process change (influent addition, change in treatment, etc.) that results in changes to waste stream characteristics.
- 4) *Log Report*. Maintain a daily disposal log (see Appendix D).
- 5) *Percentage Calculations*. Verify total contents of manure storage unit are <10% industrial liquid waste (see Appendix C),
- 6) *Annual Report*. Submit the 3400-052 "Other Methods of Disposal" report.
- 8) *Annual Inspections*. Older manure storage units (> 10 years past construction date) should be inspected annually by a qualified individual. The waste generator should coordinate with the permitted farm to verify inspection of the unit.
- 9) *Application from Storage Unit*. Verify that the CAFO is land applying the mixed waste (manure + industrial liquid waste) in accordance with accepted agricultural practices (NMP) and does not cause detrimental impacts to waters of the state or public health.

D. Permitted Farm Responsibilities (Post Manure Storage Unit Approval)

The CAFO is required to update their NMP to account for the increased waste volume and update the farm's 180-day manure storage calculation spreadsheet (refer to Appendix H). The CAFO shall periodically request analytical results and disposal logs from the waste generator as well as verify that the total volume of the storage unit is <10% industrial liquid waste. The CAFO should regularly inspect and maintain the storage unit. The mixed waste (manure + industrial liquid waste) in the storage structure and the land application of the mixed waste must be covered under the CAFO's WPDES permit.

6.4 Permitted Farms with Total Industrial Liquid Waste 10-30% Total Volume

There is no codified exemption to ch. NR 214 Wis. Adm. Code for discharging >10% total volume industrial liquid waste into manure storage units. However, the requirements of ch. NR 214, Wis. Adm. Code are typically less stringent than the requirements of ch. NR 243, Wis. Adm. Code. Pursuant to s. NR 243.18, Wis. Adm. Code, mixed waste (manure including agricultural process wastewater + industrial liquid waste) shall be stored and land applied in accordance with ch. NR 243, Wis. Adm. Code.

A WPDES permitted industrial liquid waste generator with an approved landspreading outfall may dispose of its liquid waste at any WPDES permitted facility (including WPDES permitted farms), provided the accepting facility's WPDES permit allows the acceptance of the waste, where by the total discharge is less than 30% total volume and all other applicable permit requirements are met.

Mixed waste may be required to meet chs. NR 213 and NR 214, Wis. Adm. Code. Once the Department approves the disposal of industrial liquid wastes into the WPDES permitted farm storage unit, the mixed waste in the storage unit and the landspreading of the mixed waste must be covered under the farm's WPDES permit. A farm's WPDES permit typically contains standards for mixed wastes found in ss. NR 243.16 through NR 243.18, Wis. Adm. Code. In any case, the CAFO regulator verifies the permitted farm is in compliance with its WPDES permit and NMP prior to acceptance of industrial liquid waste into the manure storage unit.

Note: The characteristics of the mixed waste significantly change when the industrial liquid waste intake exceeds 30% total volume. In these cases, a WPDES permit modification may be necessary to include additional provisions of chs. NR 213 and NR 214 Wis. Adm. Code.

For discharges <30% total volume of industrial liquid waste, requirements of NRCS Standard 590 and ch. NR 243 Wis. Adm. Code may be more stringent, and may be used in lieu of several requirements as required by chs. NR 213 and NR 214 Wis. Adm. Code. Several examples are provided below.

Nutrient Management Plan Example: A NMP per s. NR 243.14 Wis. Adm. Code requires similar vertical and horizontal setbacks to restrictive features as well as an agronomic nitrogen limitation. In addition, s. NR 243.14 Wis. Adm. Code contains more stringent limits such as phosphorus application limitations. Land application fields must be registered under the NMP; this is comparable to Department review of ch. NR 214 Wis. Adm. Code land application fields.

Manure Storage Unit Evaluation Example: Section NR 243.16 Wis. Adm. Code requires evaluation (by a qualified individual such as a professional engineer) of any manure storage unit. This evaluation is similar to ch. NR 213 Wis. Adm. Code plans and specification review of industrial waste storage units.

Combined Waste Example: Under s. NR 243.18 Wis. Adm. Code, requires combined waste (manure including process wastewater + other waste not generated by farm operation) to be stored and land applied in accordance with ch. NR 243 Wis. Adm. Code. In other words, once the Department approves the disposal of industrial liquid wastes into the CAFO storage structure, the storage and landspreading of the mixed waste must be covered under the CAFO permit.

A. Wastewater Program—Internal Review Process

For new manure storage requests, wastewater staff notifies the assigned department CAFO regulator of the request, and initially reviews the request package. This review can be completed by either a wastewater specialist or wastewater engineer. Once the review is complete, comments are sent to the CAFO regulator. The CAFO regulator is responsible for formally approving/denying the request (see below). The wastewater specialist/engineer then enters the manure storage unit information into the SWAMP “Site” tab and the LAG “Storage Structure” layer.

In subsequent years the assigned department regulator reviews the waste generator’s 3400-052 (“Other Methods of Disposal”) report. The wastewater regulator notifies the CAFO regulator of any complaints regarding the storage unit. Information about this unit is provided to internal and external entities upon request. The CAFO regulator is responsible for any land application complaints regarding the CAFO’s manure storage unit.

B. Runoff Management Program—Internal Review Process

1. *New requests for manure storage units.* For new manure storage requests, the assigned CAFO regulator coordinates with wastewater staff to review the discharge request package. Once the review is complete, the CAFO regulator sends an approval or denial letter to the wastewater generator (see Appendix G). The CAFO regulator also reviews the updated NMP and 180-day storage calculation submitted by the CAFO that accounts for the new waste source added to the manure storage unit.

Considerations for approval include, but are not limited to, the following:

- 1) CAFO’s current and past compliance status regarding manure and process wastewater management,
- 2) CAFO’s verification to maintain both a minimum of 180 days of storage capacity and adequate land base to support acceptance of off-site wastes, and
- 3) CAFO’s use of alternative treatment systems prior to disposal of off-site wastes into manure storage units (i.e. digester).

In subsequent years, the CAFO regulator evaluates and verifies that industrial liquid waste storage is $\leq 30\%$. This evaluation likely occurs during the permit reissuance process or annual report review. The CAFO regulator responds to complaints (if applicable), and verifies that no unauthorized sources are being discharged into the storage unit.

2. *Manure Storage Unit Reauthorizations.* All previously approved storage units are re-evaluated during the next permit term. The wastewater program permit drafter populates a compliance schedule into the waste generator's WPDES permit during the permit reissuance process (compliance schedule language is provided in Appendix F). The waste generator resubmits a discharge request package (as outlined in Section 5.0) for each manure storage unit. The CAFO regulator is responsible for any land application complaints regarding the CAFO's manure storage unit.

Both wastewater and runoff management program staff review the reauthorization request packages. Once the review is complete, the CAFO regulator sends an approval or denial letter to the wastewater generator and CAFO authorized representative (see Appendix G). A copy of this letter is transmitted to the appropriate county land conservationist. The wastewater specialist/engineer then enters the manure storage unit information into the SWAMP "Site" tab and the LAG "Storage Structure" layer.

C. Industrial Liquid Waste Generator Responsibilities (Post Manure Storage Unit Approval)

Once approved, requirements for the liquid waste generator include:

- 1) *Land Application Management Plan.* Update the facility's land application management plan to include the manure storage unit.
- 2) *Analytical Results.* Provide analytical results annually to manure storage unit owner, and retain a copy of the results during the WPDES permit term.
- 3) *Waste Stream Notification.* Notify the manure storage unit owner of any process change (influent addition, change in treatment, etc.) that results in changes to waste stream characteristics.
- 4) *Log Report.* Maintain a daily disposal log (see Appendix D).
- 5) *Percentage Calculations.* Verify total contents of manure storage unit are $\leq 30\%$ industrial liquid waste (see Appendix C),
- 6) *Annual Report.* Submit the 3400-052 "Other Methods of Disposal" report.
- 7) *Application from Storage Unit.* Verify that the CAFO is land applying the mixed waste (manure + liquid waste) in accordance with accepted agricultural practices (NMP) and does not cause detrimental impacts to waters of the state or public health.

D. Permitted Farm Responsibilities (Post Manure Storage Unit Approval)

The CAFO is required to update their NMP to account for the increased waste volume and update the farm's 180-day manure storage calculation spreadsheet (refer to Appendix H). The CAFO shall periodically request analytical results and disposal logs from waste generator as well as verify that the total volume of the storage unit is $< 30\%$ industrial liquid waste. The CAFO should regularly inspect and maintain the storage unit. The mixed waste (manure + industrial liquid waste) in the storage structure and the land application of the mixed waste must be covered under the CAFO's WPDES permit.

NOTE: CAFOs can accept industrial liquid waste from multiple sources, provided the total volume is $\leq 30\%$ total volume. The CAFO must keep accurate records of the volume of offsite wastes taken.

6.5 Permitted Farms with Total Industrial Liquid Waste $>30\%$ Total Volume

There is no codified exemption to ch. NR 214 Wis. Adm. Code for discharging $>10\%$ total volume industrial liquid waste into manure storage units. A WPDES permitted industrial liquid waste generator with an approved landspreading outfall may dispose of its industrial liquid waste at any WPDES permitted facility (including WPDES permitted farms) provided the accepting facility's WPDES permit allows the acceptance of the industrial liquid waste.

Contributions of significant volume ($>30\%$ total volume) of industrial liquid waste into a manure storage unit impacts characteristics of the mixed waste. Requirements pursuant to chs. NR 213, NR 214, and NR 243, Wis. Adm. Codes, are included in the farm's WPDES permit. In these cases, a WPDES permit modification is necessary. The WPDES permit is reviewed for compliance prior to acceptance of industrial liquid waste into the manure storage unit.

In addition to all ch. NR 243, Wis. Adm. Code requirements, the WPDES permitted farm is required to meet all ch. NR 214, Wis. Adm. Code landspreading requirements including site location criteria (s. NR 214.17(2), Wis. Adm. Code), vehicle and storage criteria (s. NR 214.17(3), Wis. Adm. Code), discharge limitations (s. NR 214.17(4), Wis. Adm. Code), monitoring (s. NR 214.17(5), Wis. Adm. Code), and operation requirements (s. NR 214.17(6), Wis. Adm. Code). Fields are approved and inventoried by the department.

Additional monitoring and limitation may be warranted for potential pollutants present in mixed waste (manure + industrial liquid waste) outfall per ss. NR 214.17(5) and NR 243.18, Wis. Adm. Code. Chloride monitoring is likely, given the significant chloride concentration typically present in most industrial liquid waste. Wastewater and runoff management staff should also reference Appendix B to determine if any other potential pollutants warrant sampling in the mixed waste.

The requirements of the NRCS 590 Standard and ch. NR 243, Wis. Adm. Code may be more stringent for discharges $>30\%$ total volume. The WPDES permit may include these more stringent requirements in lieu of several requirements of chs. NR 213 and NR 214, Wis. Adm. Code.

A. Wastewater Program—Internal Review Process

For new manure storage requests, wastewater staff notifies the assigned department CAFO regulator of the request, and initially reviews the request package. This review can be completed by either a wastewater specialist or wastewater engineer. Once the review is complete, comments are sent to the CAFO regulator. The CAFO regulator is responsible for formally approving/denying the request. If approved, the wastewater specialist/engineer enters the manure storage unit information into the SWAMP "Site" tab and the LAG "Storage Structure" layer. The

wastewater regulator may need to assist the CAFO regulator with incorporating relevant ch. NR 214 Wis. Adm. Code requirements during permit drafting or permit modification.

The assigned wastewater regulator reviews the waste generator's 3400-052 ("Other Method of Disposal") report annually. The wastewater regulator notifies the CAFO regulator of any complaints received regarding the storage unit. Information regarding this unit is provided to internal and external entities upon request

Fields must be approved in SWAMP, and cataloged in the LAG "Permitted Fields" layer.

B. Runoff Management Program—Internal Review Process

1. *New requests for manure storage units.* For new manure storage requests, the assigned CAFO regulator coordinates with wastewater staff to review the site request package. Once the review is complete, the CAFO regulator sends an approval or denial letter to the wastewater generator and CAFO authorized representative (see Appendix G). If approved, the CAFO regulator modifies the WPDES permit to include ch. NR 214 Wis. Adm. Code requirements and public notices the updated permit. The CAFO regulator also reviews the updated NMP and 180-day storage calculation submitted by the CAFO that accounts for the new waste source added to the manure storage unit.

Considerations for approval include, but are not limited to, the following:

- 1) CAFO's current and past compliance status regarding manure and process wastewater management,
- 2) CAFO's verification to maintain both a minimum of 180-days of storage capacity and adequate land base to support acceptance of off-site wastes, and
- 3) CAFO's use of alternative treatment systems prior to disposal of off-site wastes into manure storage units (i.e. digester).

The CAFO regulator evaluates and verifies the total industrial liquid waste storage volume is within approved limits. This evaluation likely occurs during the permit reissuance or annual report review. The CAFO regulator responds to complaints (if applicable) and verifies that only authorized sources are being discharged into the storage unit.

2. *Manure Storage Unit Reauthorizations.* All previously approved storage units are re-evaluated during the next permit term. A compliance schedule is populated into the CAFO's WPDES permit during the permit reissuance process (compliance schedule language is provided in Appendix F).

Both Wastewater and Runoff management program staff review the reauthorization request packages. Once the review is complete, the CAFO regulator sends an approval or denial letter to the industrial liquid waste generator (see Appendix E). A copy of this letter is transmitted to the appropriate county land conservationist. The wastewater specialist/engineer then enters the

manure storage unit information into the SWAMP “Site” tab and the LAG “Storage Structure” layer.

C. Industrial Liquid Waste Generator Responsibilities (Post Manure Storage Unit Approval)

Once approved, requirements for the industrial liquid waste generator include:

- 1) *Land Application Management Plan*. Update the facility’s land application management plan to include the manure storage unit.
- 2) *Analytical Results*. Provide analytical results annually to manure storage unit owner, and retain a copy of the results during the WPDES permit term.
- 3) *Waste Stream Notification*. Notify the manure storage unit owner of any process change (influent addition, change in treatment, etc.) that results in changes to waste stream characteristics.
- 4) *Log Report*. Maintain a daily disposal log (see Appendix D).
- 5) *Percentage Calculations*. Verify total contents of manure storage unit are $\geq 30\%$ industrial wastewater (see Appendix C),
- 6) *Annual Report*. Submit the 3400-052 “Other Methods of Disposal” report.
- 7) *Application from Storage Unit*. Verify that the CAFO is land applying the mixed waste (manure + industrial liquid waste) in accordance with accepted agricultural practices (NMP) and does not cause detrimental impacts to waters of the state or public health.

D. Permitted Farm Requirements. The CAFO requests a WPDES permit modification, unless the current WPDES permit already contains ch. NR 214 Wis. Adm. Code requirements. The CAFO also updates their NMP to account for the increased mixed waste volume to be land applied. The NMP includes any additional ch. NR 214, Wis. Adm. Code landspreading requirements that are more stringent than ch. NR 243, Wis. Adm. Code (see Appendix I). The CAFO shall periodically request analytical results and disposal logs from waste generator as well as verify that the total industrial liquid waste discharged into the manure storage unit. Regular inspection and maintenance of the manure storage unit is expected.

NOTE: CAFOs may accept industrial liquid waste from approved multiple sources, provided that the CAFO maintains accurate records of the volume of non-farm wastes received.

6.6 Emergency Maintenance Event

In emergency situations, some owners of unapproved manure storage units elect to receive industrial liquid wastes prior to department approval. This unauthorized industrial liquid waste discharge into the manure storage unit may create potential compliance issues for both the waste generator and the storage unit owner.

Infrequently, non-permitted and permitted farms receive small quantities of industrial liquid waste to help remove blockages (frozen lines, clogs due to high % solid material, etc.) in discharge lines

to manure storage units. These discharge events typically contribute significantly less than 1% of the total volume discharged into the manure storage unit. If discharge is without department approval, the Department recommends that the wastewater generator and manure storage unit owner observe the following guidelines:

- 1) *Industrial Liquid Waste Origin.* Industrial liquid waste originates from a WPDES permitted facility with a liquid waste land application outfall.
- 2) *Waste Characteristics.* Industrial liquid waste does not contain any hazardous substances (refer to Tables 1 and 2 in Appendix B).
- 3) *Pathogens.* Industrial liquid waste does not contain any pathogens (domestic waste, meat and poultry rendering wastes, etc.).
- 4) *Emergency Discharge Event Notification.* The WPDES permitted industrial liquid waste generator notifies the DNR regulator no later than 48 hours after the material is placed in manure line or storage unit. This notification must include the total volume discharged to the manure storage unit.
- 5) *Minimal Discharge.* The department recommends the storage owner use the minimum volume needed to rectify the emergency event. Typical emergency discharge events rarely exceed 10,000 gallons/manure storage unit/year.
- 6) *Discharge Log.* The WPDES permitted industrial liquid waste generator logs the discharge event (see Appendix D).
- 7) *Annual Report.* Discharged wastewater is reported on the waste generator's 3400-052 ("Other Methods of Disposal" report).
- 8) *Volume Verification.* Waste generator verifies that the total contents of the manure storage unit is <10% industrial liquid waste (Appendix C).
- 9) *Event Frequency.* Discharge frequency is limited to no more than two emergency maintenance events/manure storage unit/year.

After the emergency maintenance event, the department may require the WPDES permitted industrial liquid waste generator to submit a request package per one of the five discharge scenarios listed in this guidance (refer to Section 5.0) under these example situations:

- Discharge events are frequent or common practice (greater than two events/year),
- A significant volume of industrial liquid waste is discharged into the manure storage unit (e.g., exceeding 10,000 gallons/manure storage unit/year), or
- Significant compliance issues are identified with either the WPDES permitted waste generator or the farm.

If emergency discharge events are repetitive or significant volumes of industrial liquid waste are added to an unapproved manure storage unit, stepped enforcement may be considered.

7.0 Enforcement Recommendations

Wisconsin DNR, more specifically, the Wastewater and Runoff Management Programs possess the ability to rescind manure storage unit approvals at any time if requirements of chs. NR 214, NR 243, and/or WPDES permit are violated. Further, the department may implement stepped enforcement on a case-by-case basis.

DRAFT

Appendix

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8.1 Appendix A. Form 3400-196 [last revised 7/2010]. Note: This form will be subject to periodic review and revision.

State of Wisconsin
Department of Natural Resources
dnr.wi.gov

**Notice of Intent to Store Industrial Wastes
in Existing Off-Site Manure Structures**
Form 3400-196 (7/10)

Notice: Collection of this information is authorized under s. 283.55, Wis. Stats., and Chapter NR 214, Wis. Adm. Code. Failure to provide this information may result in penalties. Personally identifiable information collected will be used for program administration and other governmental programs and may be provided to requesters as required by Wisconsin's Open Records law [ss. 19.31-19.39, Wis. Stats.].

Wastewater Generator Information

Legal Name of Operation				WPDES Permit No.	
Address - Street, Route or Box		City		State	ZIP Code
Amount of waste to be directed to storage facility:	Maximum Month:	gallons	Annually:	gallons	

Location of Storage Structure

Farm Name			County		Township
Address - Street, Route or Box		City		State	ZIP Code
Quarter/Quarter	Quarter	Section	Town Number	Range Number	County Parcel No. or Computer Number
			N	<input type="checkbox"/> E <input type="checkbox"/> W	

Storage Structure Design

Storage Type:
 Glass lined Clay Concrete Geomembrane Geosynthetic Clay Other (describe) _____

IMPORTANT: Attach documentation by a professional engineer or other qualified individual that design and construction of the structure meets NRCS Standard 313 or NR 213, Wis. Adm. Code, requirements.

Construction Date: _____ Storage Capacity: _____ gallons

Is the proposed storage structure currently being used for storing manure? Yes No

If no, when was the last date manure was stored in the structure? _____

If yes,

- How many days of storage are provided by the structure without addition of liquid industrial wastes? _____ days
- How many days of storage are provided by the structure with addition of liquid industrial wastes? _____ days
- Does the amount of industrial waste to be stored exceed 10% of the materials stored in the storage structure? Yes No

If yes, submit documentation by a professional engineer or other qualified individual that design and construction of the structure complies with the requirements of NR 213, Wis. Adm. Code.

Generator Certification

I certify that I am familiar with the information contained in this notice and that to the best of my knowledge and belief such information is true, complete and accurate.

Printed or Typed Name of Official Representative	Title
Signature of Official Representative	Date Signed

Land Application and Farmer/Producer Certification

Does the farmer/producer have a current nutrient management plan? Yes No

I and/or my agronomist have been provided with a waste analysis of the proposed waste. I certify that the proposed waste will be factored into my nutrient management plan or other land application practices.

Printed or Typed Name of Farmer/Producer	Signature of Farmer/Producer	Date Signed
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County Land Conservation Department Notification

The wastewater generator has discussed with appropriate County Land Conservation Department staff the proposed use of the manure storage facility for storage of industrial waste. The County has determined that its resource management issues relating to storage and land spreading of these industrial wastes have been addressed and that storage of industrial waste is consistent with cost-share agreement conditions that may apply to the facility.

Printed or Typed Name of Official County Representative	Title
Signature of Official County Representative	Date Signed

The WPDES permittee shall submit this completed form along with the request for approval to discharge wastes to the manure storage structure to its DNR Regional contact.

8.2 Appendix B. Representative sampling of IWW from waste generator.

Analysis results shall be provided on a wet weight bases for wastewaters.

Lab analyses (from a certified or registered laboratory) shall be performed to characterize the chemical composition of the wastewater. An analysis shall be performed for the following parameters: COD, pH, TKN, organic nitrogen, total phosphorus, chloride, and potassium.

Sampling for arsenic, cadmium, copper, fecal coliform, lead, mercury, molybdenum, nickel, selenium, zinc, as well as parameters from Table 1 may also be required if the waste is believed to contain these substances.

In addition, if any material is received from a primary industry listed in Table 2, the results of a pollutant scan of that waste material for the applicable pollutant group (shown in Table 2) shall be submitted.

**TABLE 1
TOXIC POLLUTANTS AND HAZARDOUS SUBSTANCES TO BE IDENTIFIED
(if Believed Present)**

Asbestos	Dimethyl amine	Nitrotoluene
Acetaldehyde	Dinitrobenzene	Parathion
Allyl alcohol	Diquat	Phenolsulfanate
Allyl chloride	Disulfoton	Phosgene
Amyl acetate	Diuron	Propargite
Aniline	Epichlorohydrin	Propylene oxide
Benzonitrile	Ethion	Pyrethrins
Benzyl chloride	Ethylene diamine	Quinoline
Butyl acetate	Ethylene dibromide	Resorcinol
Butylamine	Formaldehyde	Strontium
Captan	Furfural	Strychnine
Carbaryl	Guthion	Styrene
Carbofuran	Isoprene	2,4,5-T (2,4,5-Trichloro- phenoxy acetic acid)
Carbon disulfide	Isopropanolamine	TDE (Tetrachloro- Diphenylethane)
Chlorpyrifos	Dodecylbenzenesulfonate	2,4,5-TP [2-(2,4,5-Trichloro- phenoxy) propanoic acid]
Coumaphos	Kelthane	Trichlorofan
Cresol	Kepone	Triethanolamine dodecyl- Benzenesulfonate
Crotonaldehyde	Malathion	Triethylamine
Cyclohexane	Mercaptodimethur	Trimethylamine
2,4-D (2,4-Dichlorophenoxy acetic acid)	Methoxychlor	Uranium
Diazinon	Methyl mercaptan	Vanadium
Dicamba	Methyl methacrylate	Vinyl acetate
Dichlobenil	Methyl parathion	Xylene
Dichlone	Mevinphos	Xylenol
2,2-Dichloropropionic acid	Mexacarbate	Zirconium
Dichlorvos	Monoethyl amine	
Diethyl amine	Monomethyl amine	
	Naled	
	Naphtenic acid	

TABLE 2
PRIMARY INDUSTRIES AND POLLUTANT GROUPS REQUIRING TESTING

INDUSTRIAL CATEGORY	POLLUTANT GROUPS				
	Volatile Organics	Acid Extractable Compounds	Base/Neutral Compounds	Pesticides	Dioxins and Furans
Adhesives and sealants	X	X	X		
Aluminum forming	X	X	X		
Auto and other laundries	X	X	X	X	
Battery manufacturing	X		X		
Coal mining	X	X	X	X	
Coil coating	X	X	X		
Copper forming	X	X	X		
Electric and electronic compounds	X	X	X	X	
Electroplating	X	X	X		
Explosives manufacturing	X	X	X		
Foundries	X	X	X		
Gum and wood chemicals					
All subparts except D and F	X	X			
Subpart D	X	X	X		
Subpart F	X	X	X		
Inorganic chemicals manufacturing	X	X	X		
Iron and steel manufacturing	X	X	X		
Leather tanning and finishing	X	X	X		X
Mechanical products manufacturing	X	X	X		
Nonferrous metals manufacturing	X	X	X	X	
Ore mining (applies to Subpart B)		X			
Organic chemicals manufacturing	X	X	X	X	X
Paint and ink forming	X	X	X		
Pesticides	X	X	X	X	
Petroleum refining	X				X
Pharmaceutical preparations	X	X	X		
Photographic equipment and supplies	X	X	X		
Plastic and synthetic materials manufacturing	X	X	X	X	
Plastic processing	X				

INDUSTRIAL CATEGORY	POLLUTANT GROUPS				
	Volatile Organics	Acid Extractable Compounds	Base/Neutral Compounds	Pesticides	Dioxins and Furans
Porcelain enameling					
Printing and publishing	X	X	X	X	
Pulp, paper and paperboard mills					
Subpart A - Dissolving Kraft	X	X			X
Subpart B - Bleached Papergrade Kraft and Soda	X	X			X
Subpart C - Unbleached Kraft		X		X	X
Subpart D - Dissolving Sulfite	X	X			X
Subpart E - Papergrade Sulfite	X	X	X		X
Subpart F - Semi-chemical		X			X
Subpart G - Mechanical Pulp	X	X			X
Subpart H - Non-Wood Chemical Pulp	?	?	?	?	X
Subpart I - Secondary Fiber Deink	X	X		X	X
Subpart J - Secondary Fiber Non-Deink	X	X		X	X
Subpart K - Fine and Lightweight Papers from Purchased Pulp		X			X
Nonintegrated Fine					
Nonintegrated Lightweight	X	X		X	X
Subpart L - Tissue, Filter, Non-Woven and Paperboard from Purchased Pulp	X	X		X	X
Rubber processing	X	X	X		
Soap and detergent manufacturing	X	X	X		
Steam electric power plants	X	X			
Textile mills (excluding Subpart C)	X	X	X		
Timber products processing	X	X	X	X	

8.3 Appendix C. Calculating industrial liquid waste volume for manure storage units.

DETERMING INDUSTRIAL WASTEWATER VOLUME IN MANURE STORAGE UNITS

Manure Storage Unit

1) Volume of Manure Storage Unit: _____ gallons

Note: The volume of manure storage is not the total volume of the pit but rather the volume up to the maximum operating level (MOL).

2) Typical Number of Times Emptied Each Year: _____/year

3) Decimal Percent Full when Emptied: _____

Example: If the pit is emptied when it's 75% full the decimal percent would be 0.75.

4) Annual Maximum Allowable Industrial Liquid Waste Volume: _____ gallons
-- (Line 1 * Line 2 * Line 3 * 0.10)

Note: Line 4 calculates volume based on NR 214.17(1) Wis. Adm. Code exemption. To calculate max industrial wastewater volume <30% total volume substitute 0.30 for 0.10)

5) Max. Industrial Liquid Waste Volume Between Hauling Events: _____ gallons
-- (Line 4 / Line 2)

OR

Nutrient Management Plan (NMP) Records

6) Annual Manure Applied based on NMP: _____ gallons

Note: It is recommend that the manure estimate be an average of the last three years records. For a new/proposed farm, the department will accept an estimate for annual manure generation.

7) Typical Number of Hauling Events Each Year: _____/year

8) Annual Max. Industrial Liquid Waste Volume: _____ gallons
-- (Line 6 * 0.10)

9) Max. Industrial Liquid Waste Volume between Hauling Events: _____ gallons
-- (Line 8 / Line 7)

8.4 Appendix D. Example daily disposal log (IWW to manure storage unit).

Facility Name:			
Month/Year:			
Date	Time AM/PM	Manure Storage Unit Name / Location	Total Volume (gpd)
1			
2			
3			
4			
5			
6			
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		Total Month Volume:	

8.5 Appendix E. Template approval letter (wastewater generator) for discharge of industrial liquid waste into manure storage unit.

[Enter Date]

[Enter Waste Generator Contact Information]

RE: Approval of discharge of industrial liquid waste into [enter manure storage name] under [enter waste generator facility name] (WPDES permit # [enter WPDES permit #])

Dear [Enter name],

Thank you for submitting a request to store industrial liquid waste in the [enter manure storage unit] located at [enter legal description or address of manure storage unit]. The Department of Natural Resources (department) has reviewed and approved this request, provided the following provisions are met.

1. [Enter facility name] shall update the facility's land application management plan to include this off-site manure storage unit.
2. [Enter facility name] will provide representative analytical results of industrial liquid waste to owner of the manure storage unit annually. In addition, the manure storage unit owner will be notified of any changes in process that may result in changes to waste stream characteristics or pollutants.
3. [Enter facility name] will maintain a daily disposal log for all industrial liquid waste discharged into this manure storage unit. An example daily discharge log is attached with this letter.
4. Liquid industrial wastes must be less than 10% of the total volume of the manure storage unit.
5. Total volume discharged to this manure storage unit will be reported on the 3400-052 ("Other Methods of Disposal" report)
6. [Enter facility name] will periodically communicate with the manure storage owner to verify that no additional waste sources (industrial wastes, biosolids, septage, etc.) are being discharged into this off-site storage unit.

If you have any questions regarding this approval letter, please call me at [enter phone number] or email me at [enter email address]. Thank you for your attention to this matter.

Sincerely,

[Enter Signature Block]

Attachments: Example daily disposal log
Industrial liquid waste calculation worksheet
cc. permit file

8.6 Appendix F. WPDES permit language for reauthorization of manure storage units (for waste generator's WPDES permit)

Re-certification of Existing Manure Storage Units: Evaluate and re-certify each existing manure storage unit that stores off-site industrial wastewater. As part of the re-certification, submit the following documents: 1) form 3400-0196 (“Notice of Intent to Store Industrial Wastes in Existing Off-Site Manure Structures”), 2) documentation from a professional engineer (or qualified equivalent) indicating that construction of the structure complies with the requirements from ch. NR 213 Wis. Adm. Code, and 3) storage unit identification (unit location relative to other onsite units), 4) general liquid waste description and characterization, 5) identification of any chemicals present in industrial liquid wastewater, and 6) verification of all waste sources for manure storage unit.

Proposed compliance schedule due date: 2 years after permit reissuance.

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8.7 Appendix G. Template approval letter for discharge of industrial wastewater into CAFO manure storage unit (note: <30% total industrial wastewater). Note: Yellow highlighted areas can be kept/deleted as necessary.

[Enter Date]

[Enter CAFO Contact Information]

SUBJECT: Nutrient Management Plan (NMP) Non-Substantial Revision Approval, Acceptance of Offsite Waste Less than 30%, [Farm Name], WPDES Permit No. [Permit #]

Dear Mr./Ms./Messrs. [Enter Last Name]:

On [Date Received] the department received a NMP non-substantial revision request from [Farm Name] to accept [Waste Type] from [Waste Generator Name] into [Manure Storage Name]. After completing our review of [Farm Name's] NMP revision request to add off site industrial liquid waste to the farm's manure lagoon the Wisconsin Department of Natural Resources (department) is providing conditional approval that is consistent with ch. NR 243 Wis. Adm. Code. A revision to the NMP to accept low volumes of industrial wastewater (less than 30%) is considered a non-substantial revision to the NMP. The NMP non-substantial revision request was submitted by [Applicant Name, Applicant Company], and received by the department on [Date Received].

By approving this request, the department has determined that:

1. [Farm Name] will be able to maintain at least 180-days of storage for liquid manure and process wastewater with the addition of the industrial liquid waste.
2. [Farm Name] has an adequate landbase to account for the increased volume of waste.
3. The industrial liquid waste meets the criteria under s. NR 214.02(1), Wis. Adm. Code.
4. [Farm Name] is not accepting other offsite wastes into [Manure Storage Name].

The department hereby approves the [Date Received] NMP non-substantial revision request to modify [Farm Name's] NMP subject to the following conditions:

1. [Waste Type] shall only be discharged into [Manure Storage Name].
2. At any given time, the percent of [Waste Type] in [Manure Storage Name] shall not exceed [Enter xx%].
3. **FOR HIGH CHLORIDE STRENGTH WASTE:** Manure samples collected for nutrient analysis from [Manure Storage Name] shall also be analyzed for chlorides.

4. **FOR HIGH CHLORIDE STRENGTH WASTE:** The total pounds of chloride applied shall be limited to 170 pounds per year or 340 pounds per acre per 2 year period (reference ch. NR 214 Wis. Adm. Code). Note: this limit must be identified in the updated NMP.
5. Analytical results of [Waste Type] and copies of the daily disposal log for all [Waste Type] discharged into [Manure Storage Name] shall be submitted annually with the NMP Update.
6. If [Farm Name] is notified by the industrial liquid waste generator that there has been a change in the waste stream process that would result in a change to the waste characteristics, [Farm Name] shall notify the department of the change within 7 days.
7. **INSTANCES REQUIRING NR 214 REQUIREMENTS:** On a case-by-case basis other requirements in ch. NR 214, specifically s. NR 214.17(2) through (7), may be added if deemed necessary. Note: the additional requirements must be identified in the updated NMP.

This conditional approval does not limit the department's regulatory authority to require NMP revisions (based upon new information or manure irrigation research findings) or request additional information in order to confirm or ensure your farm operation remains in compliance with ch. NR 243 Wis. Adm. Code and your WPDES permit conditions. If additional information, project changes or other circumstances indicate a possible need to modify this approval, the department may ask you to provide further information relating to this activity.

Please keep in mind that approval by the Department of Natural Resources – Runoff Management Program does not relieve you of obligations to meet all other applicable federal, state or local permits, zoning and regulatory requirements.

If you have any questions regarding this approval I can be reached at [Enter Phone Number or Email Address].

Sincerely,

[Enter Signature Block]

cc: [Enter Supervisor Name], WDNR Watershed Field Supervisor, [Enter Email]
[Enter Name], WDNR Runoff Management Section Chief
[Enter Name], WDNR Nutrient Management Program Coordinator
[Enter Specialist Name], WDNR Wastewater Specialist, [Enter Email]
[Enter County Contact, Title, Email]
[Enter Crop Consultant, CCA, Company Name, Email]
File

8.8 Appendix H. Day Storage Verification Worksheet

Liquid Waste Storage Volume Calculation Worksheet		Client:	Dsn by:	Date:	03/22/2016	
Total Annual Liquid Waste Generation		Total Liquid Waste Storage Capacity (gallons)				
Liquids Collected/Stored	Annual Gallons	Waste Storage	Total Vol. from Settled Top to Bottom	-Solids Storage	-25-yr, 24-hr Precip. on Storage	
Manure and Bedding		#1			-Freeboard Vol.	
Parlor Wastewater		#2			Max. Operating Level (MOL) Vol.	
Feed Storage Leachate		#3			0	
Feed Storage Runoff Collected *		#4			0	
Feedlot Runoff		#5			0	
Net Precipitation on Storage Surface(s) **		#6			0	
Offsite Wastes					Total MOL Vol:	0
Other					Days of Storage:	#DIV/0!
Other					Meets Days of Storage Criteria:	#DIV/0!
Other						
Other						
Other						
TOTAL:	0					
Feb. 2014						
* Feed storage runoff volume can be calculated in the NRCS "Feed Storage Area Runoff - Treatment" spreadsheet, Tab 5.						
** Net annual precipitation on storage depth can be calculated in the NRCS "Waste Storage Design" spreadsheet and then multiplied by the storage top area to get the net annual precipitation volume.						
NOTE 1: Formula for days of storage: (Total Storage Capacity/Annual Liquid Waste Generation)*365 = Days of storage						
NOTE 2: The NRCS "Waste Storage Design" spreadsheet can be used to calculate the days of storage as well. Feed storage leachate and feed storage collected runoff volumes should be added to the average daily wastewater volume in cell D17, Tab 1 since there is no separate location to enter this. The storage sizing calculations work only for rectangular and circular storages. Calculations for net precipitation volumes are month specific and more precise than the average annual volume shown above.						
NOTE 3: The NRCS "Waste Storage Design" and "Feed Storage Area Runoff - Treatment" spreadsheets may be downloaded from the Wisconsin NRCS Engineering Resources website:						
http://www.nrcs.usda.gov/wps/portal/nrcs/detail/wi/technical/engineering/?cid=nrcs142p2_025422						

8.9 Appendix I. Liquid land application requirements for CAFOs accepting >30% industrial wastewater into permitted manure storage units.

The tables and information provided in this document contain a combination of the requirements under s. NR 214.17, Wis. Adm. Code and ch. NR 243 Wis. Adm. Code for landspreading by permitted farms who accept large volumes (>30% total volume) of industrial liquid waste into their manure storage units. If requirements from s. NR 214.17 and ch. NR 243 Wis. Adm. Codes conflict with one another the more stringent standard would apply and that is captured by this document.

The purpose of this appendix is to outline applicable code requirements and to identify the differences between chs. NR 214 and NR 243, Wis. Adm. Codes. For some manure storage units (i.e. older units), ch. NR 213 Wis. Adm. Code may apply. This outline and these differences are provided to summarize requirements for permit drafters and potential permittees considering storage of >30% (total volume) of industrial liquid waste.

Table of Contents	Page
Assumptions.....	38
Definitions.....	38
Nutrient & Pathogen Limitations.....	39
Nitrogen and Phosphorus (Agronomic Rate).....	39
Chloride.....	39
Sodium.....	39
Other Nutrients/Substances.....	39
Pathogens.....	40
Vertical Setbacks.....	40
Spring, Summer, Fall Spreading.....	40
Winter Spreading.....	41
Emergency Winter Spreading.....	41
Horizontal Setbacks.....	42
Spring, Summer, Fall Spreading.....	42
Winter Spreading.....	43
Emergency Winter Spreading.....	43
Slope Restrictions.....	44
Spring, Summer, Fall Spreading.....	44
Winter Spreading.....	45
Emergency Winter Spreading.....	45
Slope and Field Condition Restrictions.....	45

Assumptions

1. Industrial liquid waste meets applicability requirements of s. NR 214.02 Wis. Adm. Code.
2. Industrial liquid waste is stored and mixed with manure (under the farm's WPDES permit).
3. Total industrial liquid waste volume exceeds 30% (total volume) of the manure storage unit.

Definitions

In addition to the definitions provided under Section 1.0 of this guidance document, the following definitions apply to Appendix I.

1. Conduit to a navigable water: means a natural or man-made area or structure that discharges to a navigable water via channelized flow. This includes open tile line intake structures, open vent pipes, sinkholes, agricultural well heads, drainage ditches that discharge to navigable waters and grassed waterways that drain directly to a navigable water (referenced from s. NR 243.03(14), Wis. Adm. Code).
2. Direct conduits to groundwater: mean wells*, sinkholes, swallets, fractured bedrock at the surface, mine shafts, non-metallic mines, tile inlets discharging to groundwater quarries, or depressional groundwater recharge areas over shallow fractured bedrock (referenced from s. NR 243.03(20), Wis. Adm. Code). *Note: Wells include non-potable wells such as irrigation and monitoring wells.*
3. Surface water quality management areas ("SWQMA"): means all of the following:
 - (a) The area within 1,000 feet from the ordinary high water mark of navigable waters that consist of a lake, pond or flowage.
 - (b) The area within 1,000 feet from the high water mark of navigable waters that consist of a glacial pothole lake.
 - (c) The area within 300 feet from the ordinary high water mark of navigable waters that consist of a river or stream or other non-lake navigable waters.
 - (d) The area within 300 feet of conduits to navigable waters.

Note: referenced from s. NR 243.03(66), Wis. Adm. Code.

4a. Wetland, as defined in s. 23.32 (1), Stats., 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 (referenced from s. NR 214.03(38), Wis. Adm. Code).

4b. Wetland means areas delineated on a hydric soils map that are dominated by hydrophytic vegetation. Wetlands do not include prior converted or farmed wetlands (referenced from s. NR 243.03(75), Wis. Adm. Code).

Nutrient and Pathogen Limitations

Nitrogen and Phosphorus

- Maximum allowable rate for all major nutrients must be consistent with NRCS Standard 590 and UW Publication A2809. *Note: The Department recommends the permittee/applicant use SnapPlus to determine the allowable rate.*
- Fields with a soil test P level 100 ppm or less may receive applications based on the nitrogen need of the current/planned crop (s. NR 214.17(4)(d)(9), Wis. Adm. Code; ch. NR 243 Wis. Adm. Code; NRCS 590).
 - Nitrogen is based on the first year available nitrogen. Nitrogen for all other sources (commercial fertilizers, legume credits, manure credits, industrial waste, septage, biosolids, or any other nutrient source) must be credited against the total nitrogen need of the crop.
- Fields with a soil test P level between 101 and 199 ppm may receive applications provided that the cumulative application of phosphorus does not exceed 50% of the cumulative annual crop phosphorus removal over the rotation or the next 4-year period, whichever is less. (s. NR 243.14(5)(b)1., Wis. Adm. Code)
- Fields with a soil test P level 200 ppm or greater, applications are prohibited unless the permittee receives department approval. (s. NR 243.14(5)(b)2., Wis. Adm. Code)

Chloride

- The total pounds of chloride applied shall be limited to 170 pounds per acre per year or 340 pounds per acre per 2 year period. (s. NR 214.17(4)(d)7., Wis. Adm. Code)

Sodium

- The total pounds of sodium applied may be limited to prevent alteration of soil properties or groundwater contamination (s. NR 214.17(4)(d)8., Wis. Adm. Code)

Other Nutrients/Substances

- The concentration of any wastewater parameter that may impact groundwater quality shall be limited at the point of discharge to a value that will minimize the concentration of the substance in the groundwater to the extent technically and economically feasible and will

prevent exceedance of the preventive action limit in the groundwater (s. NR 214.17(4)(b) Wis. Adm. Code).

Pathogens

- Wastes containing viable pathogens may not be applied on fields used for growing crops that may be consumed raw by humans. (s. NR 214.17(4)(c), Wis. Adm. Code)

Vertical Setbacks

Spring, Summer, Fall Spreading

Restrictive Feature	Requirement	Code Reference
Depth to Bedrock <24"	Prohibited	s. NR 243.14(2)(b)7. Wis. Adm. Code
Depth to Bedrock 24 - 36"*	Maximum weekly volume (see Table 3 from NR 214) or other nutrient rate limitations, whichever is less.	NRCS 590(V)(A)(1)(f); ss. NR 214.17(2)(h), NR 214.17(4)(d)6., and NR 243.14(5) Wis. Adm. Code
Depth to Bedrock >36"	Maximum daily rate of 13,500 gallons/acre and maximum weekly volume (see Table 3 from NR 214) or other nutrient rate limitations, whichever is less.	NRCS 590(V)(A)(1)(f); ss. NR 214.17(2)(h), NR 214.17(4)(d)5., NR 214.17(4)(d)6., and NR 243.14(5) Wis. Adm. Code
Depth to Groundwater** <24"	Prohibited	s. NR 243.14(2)(b)7. Wis. Adm. Code
Depth to Groundwater** 24 - 36"*	Maximum weekly volume (see Table 3 from NR 214) or other nutrient rate limitations, whichever is less.	NRCS 590(V)(A)(1)(f); ss. NR 214.17(2)(h), NR 214.17(4)(d)6., and NR 243.14(5) Wis. Adm. Code
Depth to Groundwater** >36"	Maximum daily rate of 13,500 gallons/acre and maximum weekly volume (see Table 3 from NR 214) or other nutrient rate limitations, whichever is less.	NRCS 590 V(A)(1)(f); ss. NR 214.17(4)(d)5., NR 214.17(2)(h), NR 214.17(4)(d)6., and NR 243.14(5) Wis. Adm. Code

*Department has authority to prohibit applications on soils with less than 36" to groundwater or bedrock.

**Permittee must field verify depth to groundwater on 'W' soils or any other soil that may have groundwater near the ground's surface prior to land application.

Winter Spreading

Winter conditions are defined as having any amount of snow cover and/or one-half inch of frost in the ground's surface (per ss. NR 243.03(24) and NR 243.03(60) Wis. Adm. Code).

<i>Restrictive Feature</i>	<i>Requirement</i>	<i>Code Reference</i>
Depth to Bedrock <60 inches*	Prohibited	s. NR 243.14(2)(b)10., Wis. Adm. Code
Depth to Bedrock >60 inches	See "Soil and Field Condition Restrictions" Table below	
Depth to Groundwater < 24 inches	Prohibited	s. NR 243.14(2)(b)7., Wis. Adm. Code
Depth to Groundwater > 24 inches**	See "Soil and Field Condition Restrictions" Table below	

*s. NR 243.14(2)(b)(10), Wis. Adm. Code prohibits application over fractured bedrock; all types of bedrock in Wisconsin can be fractured and therefore this requirements is applied to all soils with bedrock within 60" of the ground's surface.

**Department has authority to prohibit applications on soils with less than 36" to groundwater or bedrock.

Emergency Winter Spreading

Applications for emergency winter spreading will have the same vertical setbacks at winter spreading however; the application rates differ. See the "Slope Restrictions" section below for emergency winter spreading application rates.

Chapter NR 214 Wis. Adm. Code

Table 3
Maximum Weekly Volume of Liquid Waste to be Applied
to Landspreading Sites (gal/ac/wk or in/wk)

Soil Texture	18"–36" Depth to Groundwater or Bedrock	Greater than 36" Depth to Groundwater or Bedrock
Sand	6,750 (¹ / ₄ in.)	13,500 (¹ / ₂ in.)
Sandy Loam	13,500 (¹ / ₂ in.)	27,000 (1 in.)
Loam	13,500 (¹ / ₂ in.)	27,000 (1 in.)
Silt Loam	13,500 (¹ / ₂ in.)	27,000 (1 in.)
Clay Loam	13,500 (¹ / ₂ in.)	20,000 (³ / ₄ in.)
Clay	6,750 (¹ / ₄ in.)	13,500 (¹ / ₂ in.)

Horizontal Setbacks

Spring, Summer, Fall Spreading

<i>Restrictive Feature</i>	<i>Requirement</i>	<i>Code Reference</i>
Private Well	100 feet	s. NR 243.14(2)(b)9. Wis. Adm. Code
Private Well	250 feet	s. NR 214.17(2)(c) Wis. Adm. Code
Community Well	1,000 feet	ss. NR 214.17(2)(c) and NR 243.14(2)(b)9. Wis. Adm. Code
<i>Direct Conduit to Groundwater</i>	100 feet and 200 feet upslope if surface applied	NRCS 590 (V)(A)(2)(a)(4); ss. NR 243.14(2)(b)8. Wis. Adm. Code
Inhabited Dwelling	500 feet*	s. NR 214.17(2)(b) Wis. Adm. Code
<i>Wetland</i>	50 feet when incorporated or injected; 100 feet when vegetative buffer strip is present; 200 feet when surface applied and no buffer	s. NR 214.17(2)(g) Wis. Adm. Code
Surface Water (Perennial Streams, Intermittent Streams, Lakes, Ponds & Flowage)	50 feet when incorporated or injected; 100 feet when vegetative buffer strip is present; 200 feet when surface applied and no buffer; subject to a <i>SWQMA</i> and maximum rates within <i>SWQMA</i> consistent with Table 3 in Ch. NR 243 for surface applications	ss. NR 214.17(2)(g) and NR 243.14(4) Wis. Adm. Code
Dry Run, Drainageway, flow channel, & areas of concentrated flow that drain directly to surface water and navigable waters.**	50 feet when incorporated or injected; 100 feet when vegetative buffer strip is present; 200 feet when surface applied and no buffer; subject to a <i>SWQMA</i> and maximum rates within <i>SWQMA</i> consistent with Table 3 in Ch. NR 243 for surface applications	ss. NR 214.17(2)(g) and NR 243.14(4) Wis. Adm. Codes

Dry Run, Drainageway, flow channel, & areas of concentrated flow that <u>do not</u> drain directly to surface water and navigable waters**	50 feet when incorporated or injected; 100 feet when vegetative buffer strip is present; 200 feet when surface applied and no buffer	s. NR 214.17(2)(g) Wis. Adm. Code
Other <i>conduits to navigable water</i> : open tile line intake structures, open vent pipes, sinkholes***, & agricultural well heads.	21-100 feet and subject to a SWQMA and maximum rate within SWQMA consistent with Table 3 in Ch. NR 243 for surface applications.	s. NR 243.14(4) Wis. Adm. Code

*Setback distance can be reduced to 200 feet with written consent from affected owners and occupants and the application is injected or incorporated. In addition, Department has authority to require a greater setback distance.

**s. NR 214.17 Wis. Adm. Code setbacks include both surface water and ch. NR 243 Wis. Adm. Code navigable waters.

***Sinkholes are also considered to be direct conduits to groundwater which requires a 100 foot setback and 200 foot setback when surface applications occur.

Chapter NR 243 Wis. Adm. Code

Surface Texture Class ¹	Max Application Rate (gallons/acre)
Fine	5,000
Medium	7,500
Coarse	10,000

¹ Fine – clay, silty clay, silty clay loam, clay loam.

Medium – sandy clay, sandy clay loam, loam, silt loam, silt.

Coarse – loamy sand, sandy loam, sand. This category includes peat and muck based on their infiltration capacity.

Winter Spreading

Winter spreading of liquid waste is prohibited unless the waste is incorporate or injected and snow depth is less than 4". When winter spreading is allowable the applicator must following the horizontal setbacks used for spring, summer, fall spreading.

Emergency Winter Spreading

<i>Restrictive Feature</i>	<i>Requirement</i>	<i>Code Reference</i>
Private Well	300 feet	s. NR 243.14(7)(d)1. Wis. Adm. Code

Community Well	1,000 feet	ss. NR 214.17(2)(c) and NR 243.14(2)(b)9. Wis. Adm. Code
<i>Direct Conduit to Groundwater</i>	300 feet	s. NR 243.14(7)(d)1. Wis. Adm. Code
Inhabited Dwelling	500 feet*	s. NR 214.17(2)(b) Wis. Adm. Code
<i>Wetland</i>	200 feet	s. NR 243.14(7)(d)1. Wis. Adm. Code
Surface Water (Perennial Streams, Intermittent Streams, Lakes, Ponds & Flowage)	300 feet for perennial & intermittent streams and 1,000 feet for lakes, ponds, and flowage.	s. NR 243.14(7)(d)1. Wis. Adm. Code
Dry Run, Drainageway, flow channel, & areas of concentrated flow that drain directly to navigable waters.	300 feet	s. NR 243.14(7)(d)1. Wis. Adm. Code
Dry Run, Drainageway, flow channel, & areas of concentrated flow that <u>do not</u> drain directly to navigable waters.	200 feet	s. NR 243.14(7)(d)1. Wis. Adm. Code
<i>Other conduits to navigable water</i> : open tile line intake structures, open vent pipes, sinkholes, & agricultural well heads.	300 feet	s. NR 243.14(7)(d)1. Wis. Adm. Code

*Setback distance can be reduced to 200 feet with written consent from affected owners and occupants and the application is injected or incorporated. In addition, Department has authority to require a greater setback distance.

Slope Restrictions

Spring, Summer, Fall Spreading

<i>Restrictive Feature</i>	<i>Requirement</i>	<i>Code Reference</i>
12% or less	Allowable	--
>12%	Prohibited	s. NR 214.17(2)(f)

Winter Spreading

Winter spreading of liquid waste is prohibited unless the waste is incorporate or injected and snow depth is less than 4”.

<i>Restrictive Feature</i>	<i>Requirement</i>	<i>Code Reference</i>
2% or less	Allowable	s. NR 214.17(2)(f) Wis. Adm. Code
2-6%	Allowable [case-by-case approval]	s. NR 214.17(2)(f) Wis. Adm. Code
>6%	Prohibited	s. NR 214.17(2)(f) Wis. Adm. Code

Emergency Winter Spreading

<i>Restrictive Feature</i>	<i>Requirement</i>	<i>Code Reference</i>
0-2%*	Maximum daily rate of 6,800 gallons per acre, maximum volume of 7,000 gallons per winter season, or 60 lbs. P per acre, whichever is less.	ss. NR 214.17(4)(d)5. and NR 243.14(7)(d)1.
2-6%**	Maximum volume of 3,500 gallons per winter season or 30 lbs. P per acre, whichever is less.	s. NR 243.14(7)(d)1.
>6%	Prohibited	ss. NR 214.17(2)(f) and NR 243.14(7)(d)1.

*Pre-tillage (i.e. fall tillage) required; does not have to be along the contour.

**Pre-tillage (i.e. fall tillage) required along the contour.

Soil and Field Condition Restrictions

Spring, Summer, Fall, Winter, Emergency Winter Spreading

<i>Restrictive Feature</i>	<i>Requirement</i>	<i>Code Reference</i>
Saturated Soils	Prohibited	s. NR 243.14(2)(b)5. Wis. Adm. Code
Permeable Soils ('P' soils)	Applications in late summer or fall apply the requirements of NRCS 590 V.B.2. & 3.	NRCS 590(V)(B)(2) and (3)
Ponding due to Application	Prohibited	ss. NR 214.17(4)(d)2. and NR

		243.14(2)(b)1. Wis. Adm. Code
Active Snow Melt of Field(s)	Prohibited	s. NR 243.14(2)(b)11. Wis. Adm. Code
Snow Depth 1-4 Inches	Inject or immediately incorporate; maximum rate of 6,800 gallons/acre; maximum weekly volume (see Table 3 from ch. NR 214 Wis. Adm. Code) or other nutrient rate limitations, whichever is less	NRCS 590(V)(A)(1)(f); ss. NR 243.14(7)(b)2., NR 214.17(4)(d)5., and NR 214.17(4)(d)6. Wis. Adm. Code
Snow Depth > 4 Inches	Prohibited*	s. NR 243.14(7)(b)3. Wis. Adm. Code
Frozen Ground	Surface applications prohibited*	s. NR 243.14(7)(a) Wis. Adm. Code
February and March	Surface application prohibited*	s. NR 243.14(7)(c) Wis. Adm. Code
Tolerable ('T') Soil Loss	T over the crop rotation cannot be exceeded. If T is exceeded applications are prohibited.	NRCS 590(V)(A)(2)(a)(6)
Phosphorus Index**	The average PI over the rotation must be 6*** or lower.	NRCS 590(V)(C)(2)(a)

* Except for department approved emergencies.

**Not applicable if the farm uses the soil test P phosphorus management strategy.

***For emergency winter spreading the field must meet an acute loss index value of 4 or less.

NRCS Standard 590 V.B.2. & 3.

2. When manure is applied in late summer or fall to meet the fertility needs of next year's crop and soil temperatures are greater than 50°F, apply one of the following options:
 - a. Use a nitrification inhibitor with liquid manure and limit N rate to 120 pounds available N per acre.
 - b. Delay applications until after September 15 and limit available N rate to 90 pounds per acre.
 - c. Apply to fields with perennial crops or fall-seeded crops. N application shall not exceed 120 pounds available N per acre or the crop N requirement, whichever is less.
3. When manure is applied in the fall and soil temperatures are 50°F or less, limit available N from manure application to 120 pounds per acre or the crop N requirement, whichever is less.

DRY

9.0 Acknowledgements: This guidance was developed by the WDNR Landspreading Work Group. This group is composed of members from the Groundwater (Mary Vollbrecht and Bill Phelps), Runoff Management (Mary Anne Lowndes, Casey Jones, and Joe Baeten), and Wastewater (Fred Hegeman, Tim Ryan, Mike Vollrath, Alan Hopfensperger, and Steve Warner) programs. The Landspreading Work Group would also like to thank the following staff for assistance drafting this guidance document: Leanne Hinke, Heidi Schmitt-Marquez, Doris Thiele, and Gretchen Wheat. For any questions regarding this guidance document please contact the Landspreading Work Group coordinator, Steve Warner.

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