

# ATCP 51 Livestock Facility Siting NRCS Conservation Practice Standard Update



## 313 Waste Storage Facility

- Presentation by: Dennis Marquardt, PE – Conservation Engineer

DEPARTMENT OF AGRICULTURE, TRADE AND CONSUMER PROTECTION

March 6, 2023

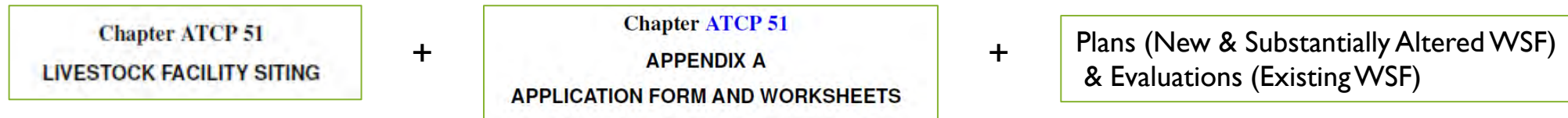
# ATCP 51 & APPENDIX A

## Political Subdivision

- County, town, city or village
- ATCP 51.18 outlines the siting rules for acceptability of new and existing WSFs.

## Applicant

- Landowner or consultant
- New or expanding facility
- Application form and worksheets
- Plans for new/substantially altered facilities
- Evaluations of existing facilities to remain



Approved

Disapproved



# AGENDA

- Define Waste Storage Facilities (WSF)
- Conservation Practice Standard 313 (CPS) Updates
  - Summary of Changes between 2004 and 2017 versions
  - New Requirements
- Summary of influence from updates
- Permit application & worksheet coordination



# WASTE STORAGE FACILITIES

“An Agricultural waste storage impoundment or containment made by constructing an embankment, excavating a pit or dugout, or by fabricating a structure.”



# ATCP 51 REFERENCE & REVISION HISTORY

## ATCP 51.18 “Waste Storage Facilities”

(2) Existing Facilities

(3) New or Substantially Altered Facilities

References NRCS Technical Guide

Manure Storage Facility Standard 313 (Nov. 2004)

## NRCS Conservation Practice Standard 313 Wisconsin Revision History:

Nov. 2004

Dec. 2005

Jun. 2009

Sep. 2012

Jun. 2013

Jan. 2014

Oct. 2017 (Current)



# LINERS

## Nov. 2004 Version

313 Standard – All Liners

Each liner has a dedicated specification.

## Oct. 2017 Version

313 Standard – In-Place Soil Liners

520 Pond Sealing or Lining – Compacted Soil

521 Pond Sealing or Lining – Flexible Membrane

522 Pond Sealing or Lining – Concrete

318 Short Term Storage of Animal Waste

Addition of Wisconsin Construction Spec 4-WWS – Embedded or Expansive Waterstop



# SOILS INVESTIGATIONS

## Nov. 2004 Version

- Depth to show separation to groundwater & bedrock, based on liner type
- No requirement for transfer system pipe test pits (only reception structures)

## Oct. 2017 Version

- Depth to show separation to groundwater & bedrock, based on liner type
- Transfer system must be no further than 100' from a test pit
- EFH Supplement Chapter 4, Exhibit A (May, 2020)
- Additional guidance for storages located:
  - In Karst Areas
  - Above Ground Tanks
- Requirements for in-place soils testing (PI & P200)



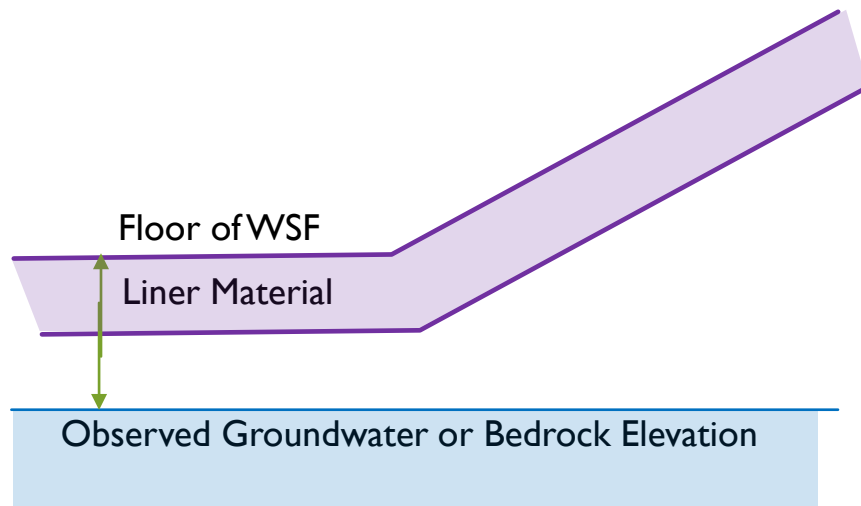
# SEPARATION DISTANCES

## Nov. 2004 Version

All shown in CPS 313

Saturation 2' – 5.5'

Bedrock 2' – 5'



## Oct. 2017 Version

All listed in dedicated liner standards

Saturation 2.5' – 8'

Bedrock 2.5' – 8'

All separation distances have increased.

Variable increases based on liner type.





# SENSITIVE ENVIRONMENTAL SETTINGS

Oct. 2017 Version contains provisions for storages located in Sensitive Environmental Settings.

What is a Sensitive Environmental Setting?

Sites where one or more of the following are met:

- Bedrock or Saturation separation distances are less than required.
- Sub-Liner soils do not meet required thicknesses or percent fines.
- Structures located near karst features.

These facilities must be constructed using Structural Concrete (ACI-350) or Reduced Seepage Concrete with a Secondary Containment Liner.



# SUB-LINER SOILS FOR CONCRETE LINERS

## Nov. 2004 Version

Concrete liner options:

- Concrete with Waterstop
- Concrete - Soil Composite

(No Sub-Liner Soil required)

## Oct. 2017 Version

Concrete liner options:

- Reduced Seepage Concrete with Waterstop
- Reduced Seepage Concrete – Soil Composite

(Both require a Sub-Liner Soil Component)

- SES Liquid Tight Concrete (ACI-350) with Waterstop
- SES Reduced Seepage Concrete (ACI-318) with Waterstop PLUS Secondary Containment Liner



# WASTE TRANSFER REFERENCE & REVISION HISTORY

ATCP 51.18 “Waste Storage Facilities”  
(3) New or substantially altered facilities  
References NRCS Technical Guide Waste  
Transfer Standard 634 (Nov. 2004)

NRCS Conservation Practice Standard  
634 Wisconsin Revision History:

—————→ Nov. 2004  
Dec. 2005  
Feb. 2007  
Jun. 2009  
Sep. 2012  
Nov. 2022 Current Version



# MANUFACTURED STRUCTURES

## Nov. 2004 Version

Listed on WI Dept. of Commerce Plumbing Product Approvals

Approved Water-Tight and Structural Strength

Use with wastewater, contaminated runoff, leachate (not manure)

Designed to CPS 313 if used for manure

## Oct. 2017 Version

Must be verified for water tightness and structural soundness by structural analysis or performance testing.

Department of Commerce Plumbing Product list no longer recognized as pre-approval. New in 2022.

A new list of tested and pre-approved structures will be kept by NRCS as testing documentation is reviewed.



## POTENTIAL COST IMPLICATIONS

Liner – Thicker soil liners may require more earthwork and compaction

Soil Investigations – Not much impact

Separation Distances – May impact design causing larger footprint of facility

Sensitive Environmental Settings – Substantial impact of costs for structural concrete design or secondary containment liner addition

Sub-Liner Soils – In-situ soils would not be impacted, but may influence siting



## OTHER INFLUENCES

Engineering Complexity – Soil liners and sub-soils may restrict depth and location of waste storage facilities.

Increased Environmental Protection

Alignment of Current Design Standards could coordinate ATCP 51.18 design requirements and most Manure Storage Ordinances referencing current versions of practice standards.



# PERMIT APPLICATION AND WORKSHEETS

Appendix A of ATCP 51 is the Permit Application  
Application Form (5 Pages)

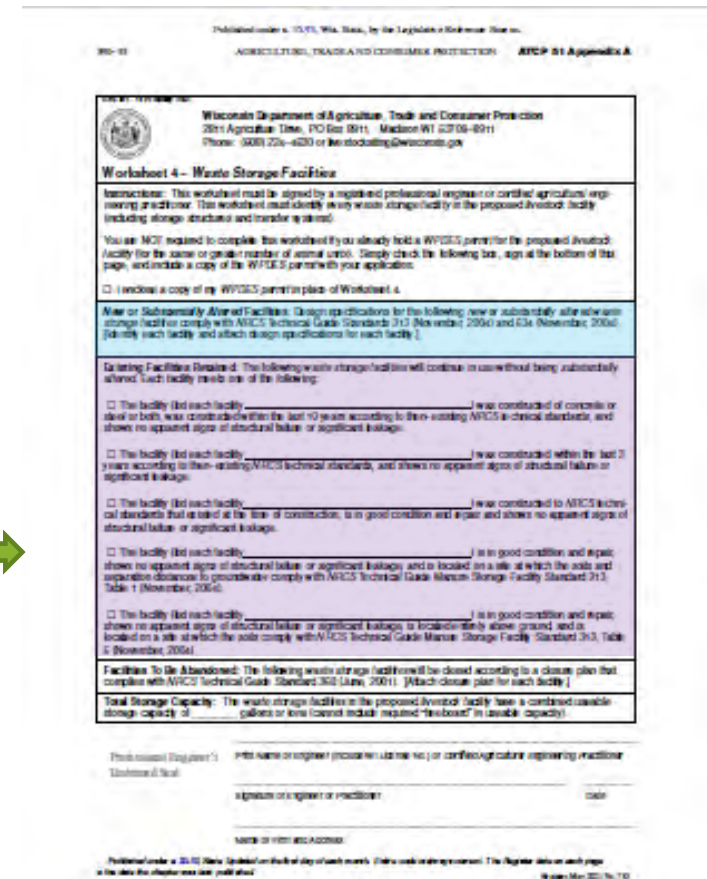
Worksheet 1 – Animal Units

Worksheet 2 – Odor Management

Worksheet 3 – Waste and Nutrient Management

Worksheet 4 – Waste Storage Facilities 

Worksheet 5 – Runoff Management



Published under s. 19.75, Wis. Stats., by the Legislature of the State of Wisconsin.

AGRICULTURE, TRADE AND CONSUMER PROTECTION ATCP 51 Appendix A

Wisconsin Department of Agriculture, Trade and Consumer Protection  
2011 Agricultural Drive, PO Box 8811, Madison WI 53708-8811  
Phone: (608) 724-4200 or fax: (608) 724-4200

### Worksheet 4 - Waste Storage Facilities

**Instructions:** This worksheet must be signed by a registered professional engineer or certified agriculture engineering practitioner. This worksheet must identify every waste storage facility at the proposed livestock facility (including storage structures and transfer equipment).

**You are NOT required to complete** this worksheet if you already hold a WFOGS permit for the proposed livestock facility for the same or greater number of animal units. Simply check the following box, sign at the bottom of this page, and include a copy of the WFOGS permit with your application.

I enclose a copy of my WFOGS permit in place of Worksheet 4.

**New or Substantially Altered Facilities:** Design specifications for the following new or substantially altered waste storage facilities must comply with NRCS Technical Guide Standards 213 (November 2004) and 214 (November 2004) (identify each facility and attach design specifications for each facility).

**Existing Facilities Remain:** The following waste storage facilities will continue in use without being substantially altered. Each facility must be one of the following:

- The facility (list each facility \_\_\_\_\_) was constructed of concrete or steel or both, was constructed within the last 10 years according to then-existing NRCS technical standards, and shows no apparent signs of structural failure or significant leakage.
- The facility (list each facility \_\_\_\_\_) was constructed within the last 10 years according to then-existing NRCS technical standards, and shows no apparent signs of structural failure or significant leakage.
- The facility (list each facility \_\_\_\_\_) was constructed to NRCS technical standards that at the time of construction, is in good condition and shows no apparent signs of structural failure or significant leakage.
- The facility (list each facility \_\_\_\_\_) is in good condition and repair, shows no apparent signs of structural failure or significant leakage, and is located on a site at which the soils and separation distance to groundwater comply with NRCS Technical Guide Manure Storage Facility Standard 213, Table 1 (November 2004).
- The facility (list each facility \_\_\_\_\_) is in good condition and repair, shows no apparent signs of structural failure or significant leakage, is located entirely above ground and is located on a site at which the soils comply with NRCS Technical Guide Manure Storage Facility Standard 213, Table 2 (November 2004).

**Facilities To Be Abandoned:** The following waste storage facilities will be closed according to a closure plan that complies with NRCS Technical Guide Standard 303 (June 2001). [Attach closure plan for each facility.]

**Total Storage Capacity:** The waste storage facilities at the proposed livestock facility have a combined available storage capacity of \_\_\_\_\_ gallons or less (cannot include required "leakboord" in available capacity).

Print Name of Engineer's  
Signature & Seal: \_\_\_\_\_  
Signature of Engineer or Practitioner: \_\_\_\_\_ Date: \_\_\_\_\_

NAME OF FIRM AND ADDRESS: \_\_\_\_\_

Published under s. 19.75, Stats., by the Legislature of the State of Wisconsin. The Register date on each page in this notice of publication was published: \_\_\_\_\_ (Register May 2011 No. 110)



# WORKSHEET 4 – WASTE STORAGE FACILITIES

CPS 313 (Nov. 2004)  
Referenced for New  
or Substantially Altered Facilities

**New or Substantially Altered Facilities:** Design specifications for the following *new or substantially altered waste storage facilities* comply with NRCS Technical Guide Standards 313 (November, 2004) and 634 (November, 2004). [Identify each facility and attach design specifications for each facility.]

**Existing Facilities Retained:** The following *waste storage facilities* will continue in use without being *substantially altered*. Each facility meets one of the following:

- The facility (list each facility \_\_\_\_\_) was constructed of concrete or steel or both, was constructed within the last 10 years according to then-existing *NRCS* technical standards, and shows no apparent signs of structural failure or significant leakage.
- The facility (list each facility \_\_\_\_\_) was constructed within the last 3 years according to then-existing *NRCS* technical standards, and shows no apparent signs of structural failure or significant leakage.
- The facility (list each facility \_\_\_\_\_) was constructed to *NRCS* technical standards that existed at the time of construction, is in good condition and repair and shows no apparent signs of structural failure or significant leakage.
- The facility (list each facility \_\_\_\_\_) is in good condition and repair, shows no apparent signs of structural failure or significant leakage, and is located on a site at which the soils and separation distances to groundwater comply with NRCS Technical Guide Manure Storage Facility Standard 313, Table 1 (November, 2004). **In-Place earth**
- The facility (list each facility \_\_\_\_\_) is in good condition and repair, shows no apparent signs of structural failure or significant leakage, is located entirely above ground, and is located on a site at which the soils comply with NRCS Technical Guide Manure Storage Facility Standard 313, Table 5 (November, 2004). **Concrete**

CPS 313 (Nov. 2004)  
Referenced for Existing Facilities





# APPLICATION CONSIDERATIONS

## New and Substantially Altered Facilities

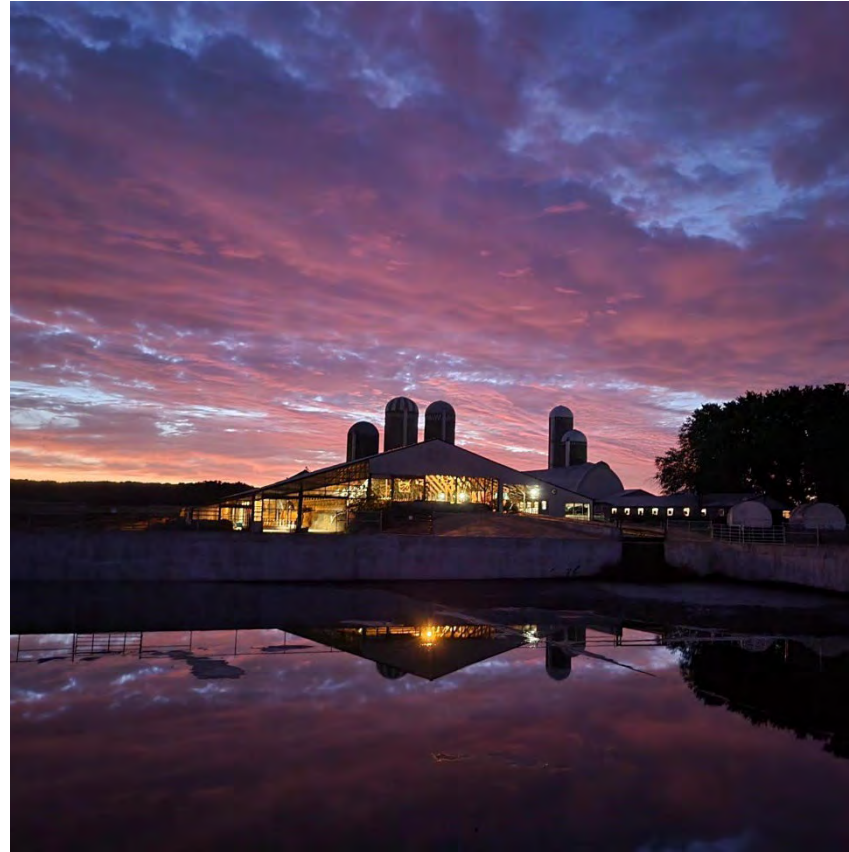
- Proposed facilities for new construction
- Proposed substantial alterations to existing facilities
- Currently references 2004 version of CPS 313 to be used
- Most Waste Storage Ordinances reference current CPS 313 version

## Existing Facilities

- Evaluation based on observation of site conditions
- Historical data may not exist
- Consider appropriate minimum standards acceptable



Questions?



CPS 313 WASTE STORAGE FACILITY





# Dennis Marquardt, Jr., PE

Conservation Engineering Section/Bureau of Land & Water Resources – Division of Ag Resource Management

608-381-6400 - [Dennis.MarquardtJr@Wisconsin.gov](mailto:Dennis.MarquardtJr@Wisconsin.gov) – [datcp.wi.gov](http://datcp.wi.gov)

March 6, 2023