

# **Soil Standards and Soil Management Rule Development**

**Soil Standards - White Paper PAH Soil Standards  
& Referring to EPA Exposure Assumptions**

**Soil Management - Proposed Rule Revisions  
Wis. Admin. Code chs. NR 708, NR 718, NR 724**

**Remediation & Redevelopment Program  
April 9, 2019**





# Agenda

Welcome and Introductions (Skwarok/Haag)

Introductory white paper regarding soil standards-related revisions to Wis. Admin. Code ch. NR 720.

Discuss changes to NR 720 to refer to EPA exposure assumptions used to calculate direct contact soil standards

Introductory presentation and draft rule changes regarding soil management-related revisions to Wis. Admin. Code chs. NR 708, NR 718, and NR 724.

Review of draft rule changes (second draft) proposed to address statutory revisions made under 2015 Wis. Act 204, relating to:

- a. Fees and procedures to include interim actions on database (NR 708, NR 714)
- b. Modify requirement to notify property owners to include sediment cover (NR 725)
- c. Database listings and notifications (NR 722, NR 725, NR 726)

Conclude and Adjourn (Haag)



# Soil Standards

- PAH RCLs
  - Permanent scope
  - NR 720 and NR 722 to include cumulative approach and background considerations for PAH contaminants
  - Modify reference to EPA exposure values
  - Cross-reference other portions of code where standard exposure assumptions are found

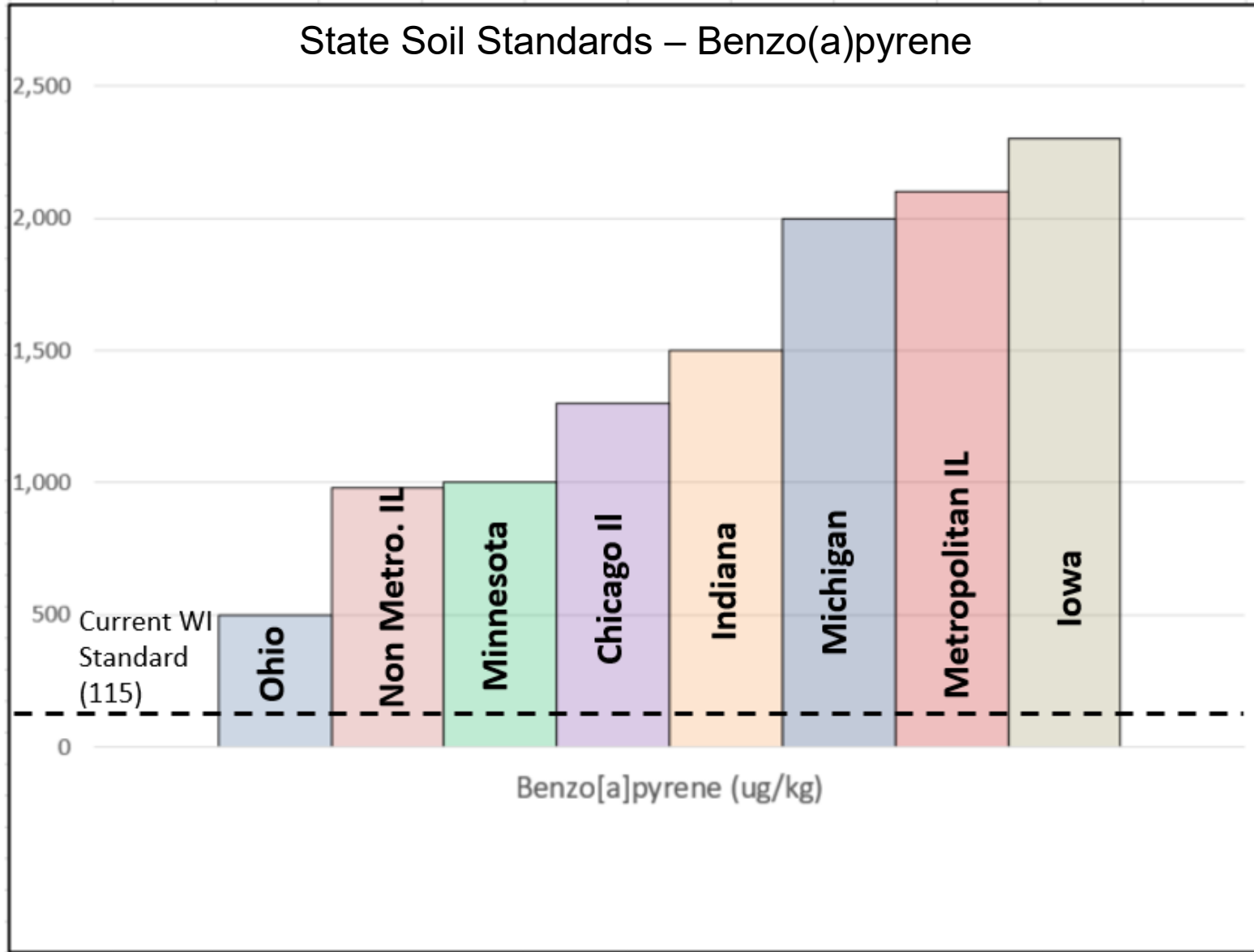


# Calculating WI Direct Contact RCLs

- Calculated to meet target cancer risk value between  $1e-4$  to  $1e-6$
- NR 720 currently calculates RCLs to meet compound specific target  $1e-6$ , cumulative risk target  $1e-5$
- Increasing risk targets => higher RCLs
- PAHs in soil samples often exceed RCLs, attributed to 'urban background'
- Other state standards and background studies examined to assess whether WI RCLs too conservative



### State Soil Standards – Benzo(a)pyrene

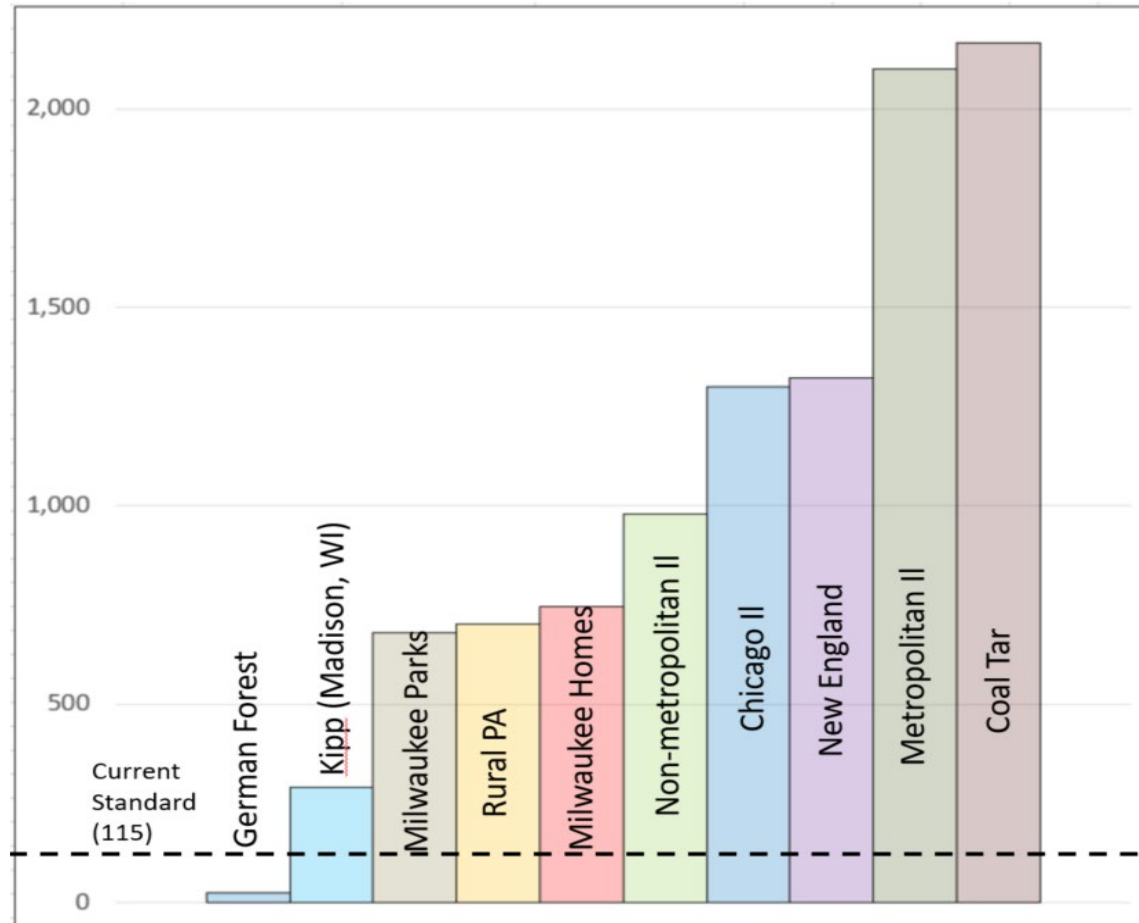




## Other State Standards

- Benzo(a)pyrene – used for comparison, most significant risk, common in samples, commonly exceeds standards
- Different states develop standards using different methods
  - MN and OH cumulative (values on chart are estimated)
  - IL background
  - others calculated meet some risk target.
- Assumed that values of each are established to be protective/attainable

# Average B(a)P Found in Background Studies



- DNR will consider background studies to see what is attainable, but will not establish background concentrations.



# Background Study

- Certain PAHs common in surface soil
- 5 cPAHs commonly found above RCL
- Other 13 PAHs have relatively high RCLs





# Background Study

- Requiring cleanup of properties to meet RCLs may not be reasonable if PAHs occur 'naturally' at surface
- Requiring cleanups of all properties impacted by aerial deposition is not practicable
- Supports reassessing PAH standards



# Naphthalene – the exception

- No changes to Naphthalene recommended
  - Poses GW risk
  - More volatile, not expected in background samples
  - Often associated with discharges of hazardous substances



# Naphthalene – the exception

## State Standards – Naphthalene

	Naphthalene
Wisconsin	5,520
Minnesota	10,000
Illinois	12,000
Indiana	53,000
Ohio	69,000
Iowa	1,100,000
Michigan	16,000,000

## Background Study Results – Naphthalene

	Naphthalene
Non-Metropolitan II	170
Chicago	40
Metropolitan II	200
Milwaukee Parks (mean)	37



# Change to Target Cancer Risk Goal

- General DHS comments on different target cancer risk values:
  - A risk threshold of  $1e-6$  is almost no risk
  - $1e-5$  represents a low amount of risk.
  - $1e-4$  would not be considered protective by DHS.



# Change to Target Cancer Risk Goal

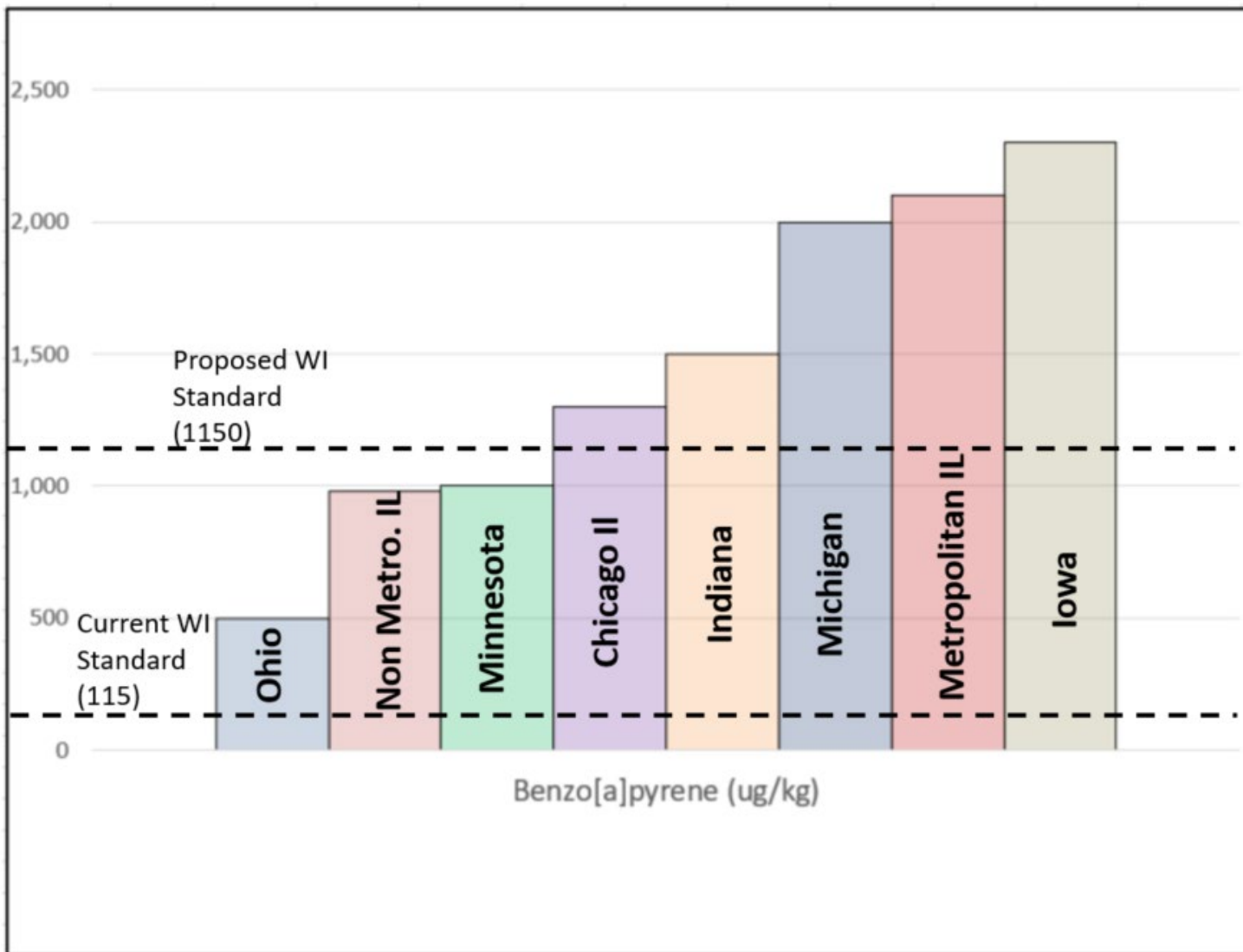
- A risk of  $1e-5$  for PAHs (except naphthalene) to determine DC RCL is proposed to balance risk/attainability
- Set at 10% of what maximum RCL could be



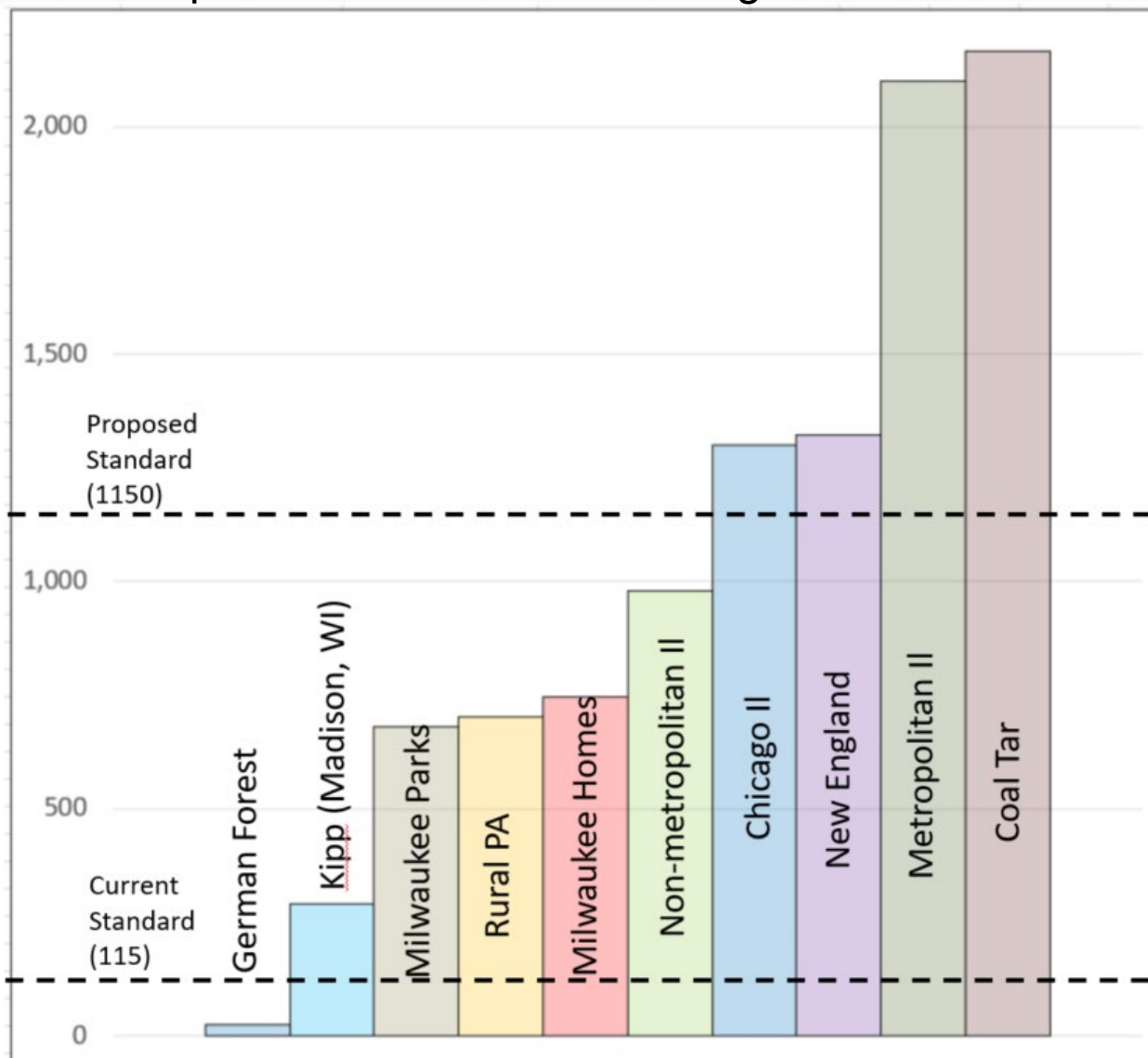
**Table 3: Benzo(a)pyrene standards based on Different Cancer Risks**

<b>Cancer Risk</b>	<b>% of Samples Collected during Milwaukee Park Study in Compliance</b>	<b>% of Study Areas Assessed by Study Wholly in Compliance</b>	<b>Non-industrial Direct Contact RCL (ug/kg)</b>	<b>Industrial Direct Contact RCL (ug/kg)</b>
<b>1e-6</b>	3%	4%	115	2,110
<b>5e-6</b>	60%	32%	575	10,550
<b>1e-5</b>	<b>86%</b>	<b>62%</b>	<b>1,150</b>	<b>21,110</b>
<b>2e-5</b>	97%	87%	2,300	42,220
<b>3e-5</b>	99%	96%	3,450	63,330
<b>1e-4</b>	100%	100%	11,500	211,000

## Comparison of WI RCLs to Other States' Direct Contact Standards



## Comparison of WI RCLs to Background Studies







## **Other Changes to PAH Standards**

Cumulative assessment (modified calculator) will not be changed for now  
– and probably no longer be used



## **Other Changes to PAH Standards**

Cumulative requirement in NR 720 will not require a specific target value be met



## **Other Changes to PAH Standards**

RCLs to determine risk to groundwater will not be calculated for PAHs (other than naphthalene)



# Implications of the Change

- May be more NAR sites
  - NAR determination still requires DNR review and concurrence
  - NAR sites will still be recorded in BRRTS
- May increase amount of soil managed as exempt
- NR 706 reporting requirements will not change



# Support for RCL Change

- $1e-5$  represents little actual risk for this type of contamination and the pathway of concern
- RCLs will be similar to background in certain areas of state
- Only direct contact RCLs for cPAHs will change



# Soil Standards

## EPA Default Exposure Assumptions

- NR 720 includes default exposure assumptions used to determine direct contact residual contaminant levels (RCLs)
- Values in NR 720.12(3) were based on values used by EPA at time rules were written
- Proposed rule changes will remove specific values and instead reference variables used in the EPA Regional Screening Levels (RSL) calculator



**Questions?**



# Soil Management Overview

- Proposed changes discussed today are:
  - Clarify documentation requirements
  - Update/remove sections of NR 718 that are no longer used.
  - Add sediment to NR 718 authority





# Soil Management Summary

- Update/remove sections of NR 718 that are no longer used.
  - Remove reference to landspreading for petroleum contamination
  - Adds language codifying current practice of allowing soil to be moved to NMM if reclamation plan allows
  - Allows exemption to existing self-implementing stockpiling time/volume parameters.



# Soil Management Summary

- Clarify Documentation Requirements
  - Removes reference to “Soil Management Plan”
  - Clarifies that NR 718 exemption applies to immediate, remedial and interim actions
  - Adds cross-reference to NR 718 documentation requirements in NR 708 and NR 724



# Soil Management Rule Language

Discussion of proposed rule language:

<https://dnr.wi.gov/topic/Brownfields/RuleChanges.html>



# **Act 204 Database Listings, Fees, Notifications Rule Draft**

Revised draft language for discussion:

<https://dnr.wi.gov/topic/Brownfields/RuleChanges.html>



# Thank You

Post-meeting comments may be directed to:

[DNRRRNR700input@wisconsin.gov](mailto:DNRRRNR700input@wisconsin.gov)



**Questions?**