

ADMINISTRATIVE RULES Fiscal Estimate & Economic Impact Analysis

Manitowoc, Milwaukee, Outagamie, Ozaukee, Racine, Walworth, Washington, and Waukesha.

Within the Silurian bedrock area, the rule sets forth spreading rates and practices that vary according to the depth to bedrock. Not all of these practices are required to be applied together throughout the sensitive area. Instead, the practices to follow are dependent on soil depth ranges over Silurian bedrock, including 0-2 feet, 2-3 feet, 3-5 feet, and 5-20 feet. The total number of farmers affected and the total number of acres of cropland where changes in practices may be required are unknown. In addition, because the rule provides options for compliance, total costs are difficult to assess. CAFOs that operate in the Silurian bedrock area will be required to comply with the standards in the rule through their WPDES permit. Non-permitted farms that operate in the Silurian bedrock area will be required to comply in certain circumstances. Where construction of appropriate best management practices is needed for compliance and those practices are eligible for cost-sharing, non-permitted farms will be required to comply only where cost share is offered. Non-permitted farms may be required to adopt certain changes absent cost share if a local unit of government adopts a local ordinance requiring farms to adopt changes consistent with the rule. The Department has prepared a preliminary draft economic analysis for review and comment; the preliminary analysis is attached. The economic impact is estimated to be moderate (less than \$20 million).

13. Benefits of Implementing the Rule and Alternative(s) to Implementing the Rule

Implementation of the proposed rule will help protect groundwater from pathogen contamination to protect public health. Benefits to protection of groundwater and public health are significant but have not been quantified. The average cost to replace a contaminated well is \$12,000 per well. The rule includes alternatives because it provides farmers with options on how to comply. One alternative to implementing the rule is to do nothing; this alternative does not ensure that water quality standards will be met in the areas identified in the rule. Another alternative is to expand the rule provisions to apply to more sensitive areas statewide; the Department chose to propose rule revisions targeted to those areas of the state identified as most vulnerable for contamination.

14. Long Range Implications of Implementing the Rule

The protection of public health and avoidance of groundwater contamination is a long term benefit. For farmers, changes in practice may be required. For non-permitted operators, those changes will be required only if accompanied by cost share dollars for those practices that are eligible for cost share.

15. Compare With Approaches Being Used by Federal Government

The federal government does not directly regulate discharges to groundwater in Silurian bedrock areas.

16. Compare With Approaches Being Used by Neighboring States (Illinois, Iowa, Michigan and Minnesota)

This rule is consistent with neighboring states in creating manure spreading setback requirements for direct conduits to groundwater. The proposed rule is tailored to the conditions present in Wisconsin's Silurian bedrock.

17. Contact Name	18. Contact Phone Number
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ATTACHMENT A

1. Summary of Rule's Economic and Fiscal Impact on Small Businesses (Separately for each Small Business Sector, Include Implementation and Compliance Costs Expected to be Incurred)

See section 12 above. The impacts to small businesses are expected to be the same as impacts to other businesses.

2. Summary of the data sources used to measure the Rule's impact on Small Businesses

See section 12 above and the attached preliminary draft economic analysis.

3. Did the agency consider the following methods to reduce the impact of the Rule on Small Businesses?

- Less Stringent Compliance or Reporting Requirements
- Less Stringent Schedules or Deadlines for Compliance or Reporting
- Consolidation or Simplification of Reporting Requirements
- Establishment of performance standards in lieu of Design or Operational Standards
- Exemption of Small Businesses from some or all requirements
- Other, describe:

The rule allows options and flexibility for ways to comply with the new requirements.

4. Describe the methods incorporated into the Rule that will reduce its impact on Small Businesses

The requirements vary based on soil depth. The more restrictive requirements only apply to the most vulnerable areas, and become less restrictive as soil depth increases. Within each soil depth there is flexibility in compliance.

5. Describe the Rule's Enforcement Provisions

Permitted CAFO farms will be required to comply with this rule through their WPDES permit. Non permitted farms may be required to comply in limited circumstances when cost sharing is required and available through state grant programs, or when cost sharing is not required. Local units of government may implement this rule through an ordinance.

6. Did the Agency prepare a Cost Benefit Analysis (if Yes, attach to form)

- Yes No
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Preliminary Economic Impact Analysis
WT 15-16

This rule package proposes agricultural performance standards that will apply in Silurian bedrock areas. The performance standards are designed to minimize the risk for pathogen delivery to groundwater in these areas. Silurian bedrock is located in the eastern portion of the state, including areas of Brown, Calumet, Dodge, Door, Fond du Lac, Kenosha, Kewaunee, Manitowoc, Milwaukee, Outagamie, Ozaukee, Racine, Walworth, Washington and Waukesha counties.

Within the Silurian bedrock area, the rule sets forth spreading rates and practices that vary according to the depth to bedrock. Not all of these practices are required to be applied together throughout the Silurian bedrock area. Instead, the practices to follow are dependent on soil depth ranges over Silurian bedrock, including 0-2 feet, 2-3 feet, 3-5 feet and 5-20 feet. The rule provides options for compliance, depending on soil depth. The department's preliminary draft economic analysis considers the costs for various changes in practice that may result from the proposed rule requirements.

Restrictions on Manure Application

In areas with less than 2 feet of soil depth above Silurian bedrock or saturation, the rule prohibits the mechanical application of manure. Most of the croplands with less than two feet of soil over Silurian bedrock are located in Door and Kewaunee counties. Permitted CAFOs are already required to follow this prohibition, so CAFO farms will incur no additional cost. For non-permitted farms, increased costs may include the price of commercial fertilizer needed for fields where mechanical application of manure is not allowed. Other costs may include renting additional farmland on which to spread manure if a farmer cannot shift manure application to other fields. The department estimates the cost for farmers who convert to commercial fertilizer would be approximately \$150¹ per acre; the average price per acre for renting additional crop land in Wisconsin is \$134¹ per acre. These compliance options - use of commercial fertilizer and renting additional crop land - may also be used for areas with more than 2 feet of soil depth to bedrock.

Cover Crop or Pre-Tillage Requirements

For areas of the state with 2-3 feet, 3-5 feet, and 5-20 feet of soil depth above Silurian bedrock, the rule contains requirements for how producers apply liquid and/or solid manure to minimize the risk of leaching pathogens through the soil column into groundwater. Pre-tillage and incorporation or injection requirements apply unless cropland is in long term no-till or has perennial or established crops. Establishing a cover crop is a cost shareable best management practice through the state runoff management grant program. The state provides a flat rate cost share for cover crops of \$25 per acre.

Cropland that does not implement perennial or cover crops will have to be tilled prior to liquid manure application to break up macropores and reduce the risk of manure leaching through the soil column. No mechanical application of liquid manure is allowed unless pre-tillage is completed and manure is injected or incorporated within 24 hours. In areas with 2-3 feet and in areas with 3-5 feet of soil depth, no mechanical application of solid manure is allowed unless the

manure is incorporated within 72 hours. The department estimates the cost of tillage (pre-tillage or incorporation) would be approximately \$15ⁱⁱ per acre.

If a farmer chooses incorporation or injection, the rule prohibits the incorporation or injection of manure at specified depths, depending on the amount of soil above the Silurian bedrock. The department estimates the average cost to inject manure is \$80ⁱⁱⁱ per acre, while the average cost to incorporate manure with tillage equipment is \$15 per acre. Given these options, the department anticipates that farmers will choose incorporation over injection.

Reduced Application Rates

The rule provides specified manure application rates as a compliance option for all soil depths greater than 2 feet. Liquid manure application rates are based on the type of soil. Reduced application in some areas may increase the manure hauling cost to other croplands. The department estimates the increased hauling may cost approximately \$3 per acre of cropland if a farmer chooses to comply by reducing application.

Timing of Manure Application

If a farmer chooses the timing of manure application for compliance (manure must be applied within 10 days of planting or to a growing crop), additional manure storage capacity may be required. Any cost associated with holding manure for a longer time before land application would be building more manure storage, which is a cost shareable best management practice through the state runoff management grant program (cost share rate for manure storage 70%). The department estimates the cost of additional storage would be approximately \$500^{iv} per cow.

Pathogen Treatment Facilities

Other options to comply with the requirements include reducing pathogens in manure before application using pathogen treatment facilities (manure digesters and manure composting). For liquid manure the average capital cost to construct a complete digester system that reduces pathogens to 500,000 CFU/ml or less is estimated to be \$1,500 per cow^v. Given this cost, the department anticipates that producers will choose other less costly compliance options such as reduced application rates or timing of manure application.

Setback Requirements

Setbacks and restrictions apply throughout the Silurian bedrock area where manure applications are prohibited. These setbacks include the following features: community system, private system, direct conduit to groundwater, channels, closed depression and slopes draining to Silurian bedrock greater than 6% with a defined channel. Compliance actions in those areas could include increased use of commercial fertilizer and possibly the leasing of additional croplands for manure application. The department estimates the cost for farmers who convert to commercial fertilizer would be approximately \$150 per acre; the average price per acre for renting additional crop land in Wisconsin is \$134 per acre.

Summary

Based on the department's preliminary analysis, the department estimates the cost of the requirements of this rule to be a moderate economic impact (less than \$20 million). The costs would be shared through the state cost share grant programs and between cropland owners within the Silurian bedrock area.

ⁱ United State Department of Agriculture, Economic Research Service. " Commodity Costs and Returns: Corn, 2010-2015". Accessed June 6, 2017. <https://www.ers.usda.gov/data-products/commodity-costs-and-returns/>

ⁱⁱ University of Wisconsin, Eau Claire. "Wisconsin Agricultural Land Prices" <http://counties.uwex.edu/eau Claire/files/2014/04/Wisconsin-Ag-Land-Prices-2008-2013.pdf>

ⁱⁱⁱ University of Idaho Extension, 'Cost of Liquid Manure Application Systems,' Bulletin 888, 2014.

^{iv} University of Wisconsin Center for Dairy Profitability, 'Transitioning in Steps: Costs of Modernization,' February, 2005.

^v Cooperative Extension System, "Economics of Anaerobic Digesters for Processing Animal Manure," October 27, 2015. <http://articles.extension.org/pages/19461/economics-of-anaerobic-digesters-for-processing-animal-manure>