

Summary of 2018 NR 151

****Table is a summary ONLY, please see WDNR for full details and definitions of terms****

Silurian Bedrock Performance Standards
Mechanical application shall not cause fecal contamination of water in a well
No mechanical application of manure where 24 inches or less of separation between the ground surface and apparent water table
Manure shall be applied in conformance with a NMP that is: consistent with NR 151.07, NRCS 590 (2015), consistent with targeted performance standards, identifies Silurian bedrock within or adjacent to cropland and pastures
Prior to mechanical manure applications use infield bedrock verification to locate Silurian bedrock having soil depths less than 5 feet

Definitions
Direct Conduits to Groundwater: wells, sinkholes, swallets, fractured bedrock at the surface, mineshafts, non-metallic mines, tile inlets discharging to groundwater, quarries or depressional groundwater recharge areas over shallow fractured bedrock.
Concentrated flow channel: natural channel or constructed channel that has been shaped or graded to required dimensions and established in perennial vegetation for the stable conveyance of runoff. Concentrated flow channel may also include non-vegetated channels caused by ephemeral erosion, intermittent streams, drainage ditches, and drainage ends identified on the NRCS soil survey and may be identified as contiguous up-gradient deflections of contour lines on the USGS 1:24,000 scale topographic map.
Long term no-till: no-till farming that has been implemented a minimum of 3 consecutive years.
Pre-tillage: using mechanical equipment to reduce soil preferential flow paths, worm holes, root holes, and cracks by turning and mixing the soil prior to and at least 2 inches below the depth of manure application.
Sites that is susceptible to groundwater: Areas 20 Feet or less to Bedrock
a) An area 250 feet of a private well
b) An area 1000 feet of a community well
c) An area 300 feet upslope or 100 feet downslope of a direct conduit to groundwater
d) A channel that flows to a direct conduit to groundwater (road ditch, concentrated flow channel, tile etc..)
e) An area where the soil depth to groundwater or bedrock is less than 2 feet
f) An area where the soil layer does not exhibit one of the following soil characteristics:
1. At least a 2-foot soil layer with 40% fines or greater above groundwater or bedrock
2. At least a 3-foot soil layer with 20% fines or greater above groundwater or bedrock
3. At least a 5-foot soil layer with 10% fines or greater above groundwater or bedrock
Water quality management area: "WQMA" area within 1,000 feet from the ordinary high water mark of a navigable waters (lake, pond or flowage), 300 feet from the ordinary high water mark of navigable waters that consist of a river or stream; and a site that is susceptible to groundwater contamination, or that has the potential to be a direct conduit for contamination to reach groundwater.

Setbacks: Areas 20 Feet or less to Bedrock
a) 250 feet of a private well
b) 1000 feet of a community well
c) 300 feet upslope or 100 feet downslope of a direct conduit to groundwater
d) 100 feet of defined channels that lead to a, b or c

Depth to Silurian Bedrock

< 5 feet		- Evaluate and rank fields for risk of pathogen delivery to groundwater prior to mechanically applying manure. High risk areas shall be avoided or be lowest priority for manure application.
		- Mechanical application of manure is prohibited when rainfall greater than one inch is forecast within 24 hours of planned application

0-2 feet	Solid Manure	Liquid Manure
	(12% or greater solid material by volume)	
	Mechanical manure application is prohibited	Mechanical manure application is prohibited

2- 3 feet	Solid Manure	Liquid Manure
	No mechanical application unless both:	No mechanical application unless meets all:
	1) Incorporated within 72 hrs. to no more than 4 inches below ground (unless long-term no-till or have perennial or established crop)	1) Pre-tillage completed (except if long term no-till or has perennial or established crops) Surface application on no-till, perennial or established crop may not exceed 6,750 gal/ac per application
	2) And at least one of:	2) Injected or incorporated within 24 hrs. to no more than 4 inches below ground
	a) Rate is 15 t/acre/yr. or UW A2809 annual application rate, whichever is less	3) And at least one of:
	b) Applied within 10 days of planting date or on perennial or other established crop	a) Rate limited to Table 1. in rule or UW A2809 annual application rate, whichever is less
	c) Manure is composted or treated to reduce pathogen levels to a fecal coliform bacteria density of 500,000 colony- forming units, or most probable number per gram total solids on a dry weight basis	b) Applied within 10 d of planting date or on perennial or other established crop
		c) Treated to substantially reduce pathogen levels via practices to a fecal coliform bacteria density of less than 500,000 most probable number or colony-

Table 1. Silurian Bedrock Maximum Liquid Manure Application Rates

Soil Texture	2 to 3 Feet Depth (gal/ac/yr.)	3 to 5 Feet Depth (gal/ac/wk.	5 to 20 Feet Depth (gal/ac/wk.
Sand	6,750	6,750	13,500
Sandy Loam	13,500	13,500	27,000*
Loam	13,500	13,500	27,000*
Silt Loam	13,500	13,500	27,000*
Clay Loam	13,500	13,500	20,000*
Clay	6,750	6,750	13,500

* It is anticipated that this rate would exceed the UW A2809 annual (crop year) application rate.

3-5 feet	Solid Manure	Liquid Manure
	No mechanical application unless both:	No mechanical application unless meets all:
	1) Incorporated within 72 hrs. to no more than 6 inches below ground (except if long term no-till or has perennial or established crops)	1) Pre-tillage completed (except if long term no-till or has perennial or established crops) Surface application on no-till, perennial or established crop may not exceed 6,750 gal/ac per application
	2) And at least one of:	2) Injected or incorporated within 24 hrs. to no more than 6 inches below ground
	a) Rate is 15 t/acre/yr. or UW A2809 annual application rate, whichever is less	3) And at least one of:
	b) Applied within 10 days of planting date or on perennial or other established crop	a) Rate limited to Table 1. in rule or UW A2809 annual application rate, whichever is less
	c) Manure is composted or treated to reduce pathogen levels to a fecal coliform bacteria density of 500,000 colony- forming units, or most probable	b) Applied within 10 d of planting date or on perennial or other established crop
		c) Treated to substantially reduce pathogen levels via practices to a fecal coliform bacteria density of less than 500,000 most probable number or colony-forming units per 100 milliliter sample.

5-20 feet	Solid Manure	Liquid Manure
		No mechanical application unless meets all:
		1) Pre-tillage completed (except if long term no-till or has perennial or established crops) Surface application on no-till, perennial or established crop may not exceed 10,000 gal/ac per application
		2) Injected or incorporated within 24 hrs. to no more than 6 inches below ground
		2) And at least one of:
		a) Rate limited to Table 1. in rule or UW A2809 annual application rate, whichever is less
		b) Applied within 10 d of planting date or on perennial or other established crop
		c) Treated to substantially reduce pathogen levels via practices to a fecal coliform bacteria density of less than 500,000 most probable number or colony-forming units per 100 milliliter sample.

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