NR 151 TAC Meeting Notes
March 14, 2017
GEF 2
Madison, WI

Attendees: Scott Laeser, Kevin Erb, Nathen Nysse, John Ramsden, Davina Bonness, Eric Cooley, Amy Callis, Sara Walling, Tim Strobel, Jen Keuning, Mitch Breunig, John Holevoet, Paul Zimmerman, Mary Anne Lowndes, Jordan Lamb, Audrey Boerner, Dean Hoegger, Sarah Gatzke, Bill Eberle (for Todd Willer), Matt Krueger (for Raj Shukla), Roy Lemmenes, Maureen Muldoon.

Opening message describing the purpose of the meeting was presented by Mary Anne Lowndes.

Recap of advisory group recommendations from February meeting.
An updated summary of the TAC meetings from October through March was provided to the group. Additional information to be added to the summary was collected.

- The rule should have more "or" used to allow for options.
- There is no authority to include the southwest part of the state in this rule.
- If recommendations are already in the new 590 standard, they don't need to be repeated in this rule.

Discussion of Suggested Performance Standards-Performance Standards or Technical Standards? (site assessment, depth recommendations, setbacks, closed depression areas)

Using recommendations from the Kewaunee co. workgroup, the TAC identified what parts of the recommendations are performance standards, technical standards, or has elements that could be in both PS and TS. The results of this exercise can be found in the *'TAC suggested standards'* document on the NR 151 webpage http://dnr.wi.gov/topic/nonpoint/nr151strategy.html .

Differences between northeast and southwest Wisconsin, and appropriate performance standards.

TAC provided feedback on what they consider as appropriate performance standards for the carbonate bedrock areas of the state when considering the geologic differences between the northeast and southwest. Each member of the TAC in attendance used colored stickers to indicate which Kewaunee workgroup recommendations they consider appropriate for this rule to address pathogens in groundwater. The results of this activity can be found in the *'TAC feedback of Kewaunee workgroup recommendations'* document located on the NR 151 webpage http://dnr.wi.gov/topic/nonpoint/nr151strategy.html .

- Is there conflicts between the new 590 silurian area and recommendations for southwest?

Discussion of the 'Sensitive Area' definition

The TAC provided additional information to consider for defining the 'sensitive area' that this targeted performance standard would apply.

- From a groundwater quality standpoint, this should apply to areas of the state with at least 20 ft. of soil over fractured bedrock.
- How will people know in the southwest part of the state if they are in areas with 5 – 20 ft. of soil depth?
- It's difficult to regulate if we don't have location information (maps). Consider 5 ft. because there is consistent data available.
- Maps could be developed (like the Sherrill map) using well log information.
- If maps could be developed for the southwest in the future, could we still define it as 20 ft. soil depth but only when mapping data is available?
- Consider different zones of performance standards (ex: no requirements 5-20 ft. in SW).
- Consider reviewing neighboring states definitions.
- It hasn't been proven that the new 590 standard could meet water quality needs.
- All farms should be held to the same standard. Draft a rule that applies to everyone, and enforce it. Difficulty in supporting new rules when some farms don't have to follow the rules.
- Need to be clear on where closed depressions apply. At what depth?

Parking Lot:

- Is there a definition of pathogen?
- What is an acceptable pathogen level?
- Is there a definition of composting?
- Reference definition of solid and liquid manure.
- Define "shallow" in relation to 'shallow fractured bedrock.'

Next Steps:

The Department will take the information provided by the TAC and work on developing a draft rule. It is planned that public hearings on the rule will be held in June 2017. The goal is to have this rule to the legislature for January 2018. The NR 151 website will be updated as this works through the process. Be sure to follow the website for updates at http://dnr.wi.gov/topic/nonpoint/nr151strategy.html .

NR 151 TAC Feedback of Kewaunee Workgroup Recommendations

	Performance Standard in Silurian Dolomite Area			Performance Standard in Carbonate Bedrock Area	
	YES	NO		YES	NO
0 – 1 feet Soil Depth					
No mechanical applications of manure.	19	0		12	8
0 – 2 feet Soil Depth					
No liquid manure applications.	17	0		13	7
1 – 2 feet Soil Depth					
No mechanical applications of liquid manure.	17	0		12	8
Apply solid manure in spring only @ rate of 15 tons/acre;	2	12		1	18
Apply within 10 days or less from planting date or apply on growing crop.	12	8		7	14
Apply composted solid manure to reduce pathogens.	9	10		7	15
2 – 3 feet Soil Depth					
Solid					
All solid manure applied to these areas cannot exceed 15 tons/acre and;	3	10		1	13
Must be treated to significantly reduce pathogens using a composting process or another method where the manure pathogen limit is 500,000 CFU/ml or less;	13	5		7	9
Solid manure shall be incorporated within 72 hours unless applied to fields following no-till practices or fields with perennial forage or other established crops.	17	1		4	12
Liquid					
All liquid manure applied to these areas must be treated to reduce pathogens to 500,000 CFU / ml or less.	7	10		3	10
Liquid manure shall be applied at weekly rates not to exceed NR 214.17(4)(d), Table 3 application rates;	6	10		1	13

Use as low an application rate as is safe and practical to avoid hydraulic loading of soil;	19	0		11	6
If the solid content of the liquid manure is 2% or less, reduce application rate by 50% and apply in two applications spaced at least one week apart.	9	7		3	14
Both					
Manure must be applied within 10 days of planting (including a cover crop) or to a growing crop.	8	3		3	12
Manure must not be incorporated or injected more than four inches below the land surface in these areas.	15	0		10	8
3 – 5 feet Soil Depth					
Liquid manure shall be applied to these areas at a rate of no greater than 13,500 gals per week.	10	8		5	12
Manure must be applied in these areas within 10 days of planting or to a growing crop. *(Tech Standard)*	5	14		2	15
Incorporate solid manure within 72 hours unless applied to fields following no-till practices or fields with perennial forage or other established crops.	17	2		12	5
Manure must not be incorporated or injected more than six inches below the land surface in these areas.	21	2		11	8
2 – 20 feet Soil Depth					
No emergency manure application or headland stacking is allowed when soils are frozen or snow covered.	3	10		6	12
Application of manure is prohibited when rainfall > 1 inch is forecast within 24 hours	15	2		14	3
If manure is surface applied before planting or after harvest, except on fields with perennial forage or other established crops, the manure must be incorporated within twenty four hours or prior to a rain event, whichever is sooner.	4	11		4	11
Complete tillage prior to application of liquid manure using injector or incorporation method to a depth of at least two inches below the depth of manure injection or incorporation, unless field follows no-tillage practices or has perennial forage or other established crops.	2	15		0	17

5 – 20 feet Soil Depth					
Liquid manure shall be applied at weekly rates not to exceed NR 214.17(4)(d), Table 3 application rates;	2	13		1	15
Use as low an application rate as is safe and practical to avoid hydraulic loading of soil.	12	6		15	3
Manure must not be incorporated or injected more than eight inches below the land surface in these areas.	5	9		6	12
Closed Depression Areas					
Mechanical application of manure is prohibited under the following conditions:					
a) During the months of October through December after crop harvest,	2	14		5	10
within closed depressions unless the manure is injected or immediately incorporated and a fall forage cover crop is established within the application area.					
b) In the months of March through September,	12	1		11	6
within 100 feet of an area **in a closed depression where water ponds to a seasonal high water mark**,					
or					
within one mile of these areas	1	14		0	14
unless the manure is injected or incorporated within twenty four hours or prior to a rain event, whichever occurs first.	6	4		2	8
Does not apply to areas following no-till practices or fields with perennial forage or other established crops.	5	7		3	5
2. No surface application of manure is permitted on slopes of 12% or greater, or on slopes 6% or greater that drain to a closed depression area unless the spread material is immediately incorporated. This does not apply to fields with perennial forage or other established crops.	11	5		10	7
Setback Distances					
No manure application within:					
a. 1000 feet of public “community” water supply wells.	17	0		16	3

b. Private potable and public "non-community" water supply wells.					
100 ft.	14	0		12	3
250 ft.	4	8		5	9
c. 100 feet of all other "direct conduits to groundwater" and 300 feet when soil is frozen or snow covered.	17	0		16	2
d. 100 feet of defined channels that lead to a, b or c (above), unless manure is incorporated then no setback required.	15	0		15	3
Site Assessment Criteria					
1. **Soil depth to and direct conduits to groundwater shall be determined** using the most current NRCS, WGNHS, or county maps and by in-field verification methods, whichever method or combination of methods can provide the most accurate results **for 0-5 feet**.	20	0		14	3
2. **Frequency for Checking:** Fields with sensitive areas- karst geology **shall be inspected yearly** to determine location(s) of sensitive areas, direct conduits to groundwater, depression areas and any contributing channels that lead or drain to such features.	8	9		6	13
3. **When to Inspect**: Field inspections shall be completed either before spring application of manure, tillage or planting or in late summer or fall after crop harvest, but before manure application tillage or planting. Fields with perennial vegetation shall be inspected in spring, or summer before or 7-10 days after cutting/harvest to determine locations of uneven crop growth that may indicate location of sensitive areas. Inspection results shall be recorded and retained with the nutrient management plan.	9	4		4	11
4. **How to Document:** Fields with sensitive areas-karst geology receiving manure applications **shall have a map** which shows depth to bedrock determinations, direct conduits to groundwater and, any identified contributing channels that drain to direct conduits to groundwater and closed depressions.	7	4		10	3
Direct conduits to groundwater identified during inspections **shall be permanently marked** in the field and shown on application maps.	10	3		9	3
5. **Rank Fields:** After inspection, evaluate all fields used for manure application according to the following criteria and rank them based on the risk of groundwater contamination. **Apply manure to fields in order of lowest to highest risk**.	1	18		2	17

1. Percent of restricted area based on slope and required setbacks					
2. Number of karst features within or immediately adjacent to the field					
3. Percent of the field area with sensitive areas-karst geology and/or fracture traces					
4. Number of channels in the field that lead to sensitive areas-karst geology					
5. Soil depth to bedrock, soil type and conditions					

0 – 1 feet Soil Depth

No mechanical applications of manure.

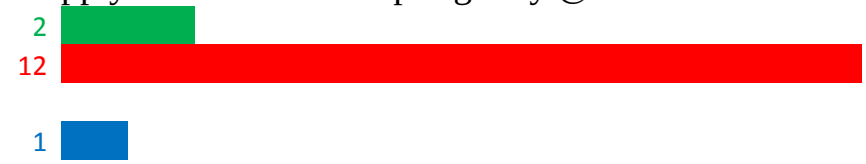
0 – 2 feet Soil Depth

No liquid manure applications.

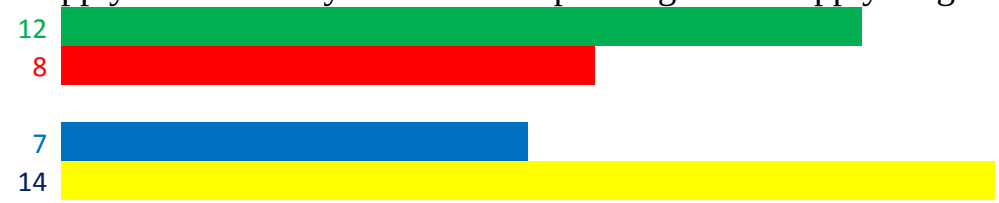
1 – 2 feet Soil Depth

1. No mechanical applications of liquid manure.

2. Apply solid manure in spring only @ rate of 15 tons/acre;



3. Apply within 10 days or less from planting date or apply on growing crop.



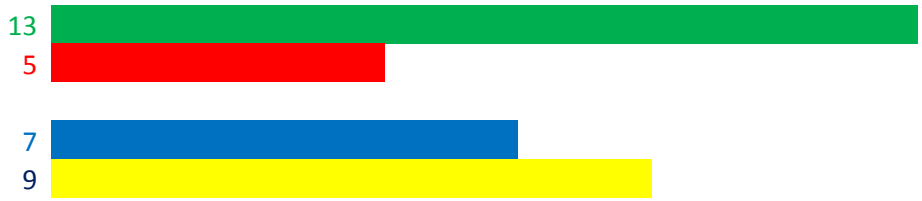
4. Apply composted solid manure to reduce pathogens.

2 – 3 feet Soil Depth

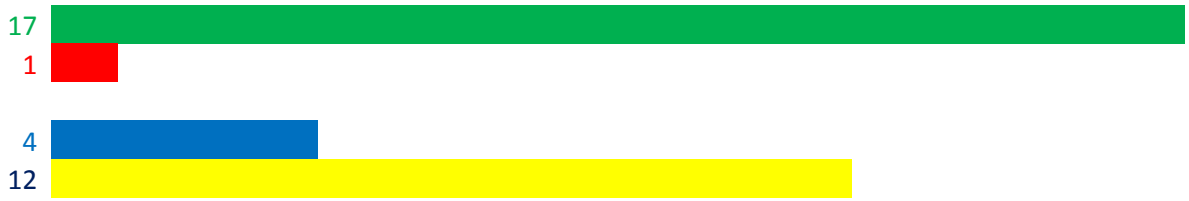
Solid

1. All solid manure applied to these areas cannot exceed 15 tons/acre and;

2. Must be treated to significantly reduce pathogens using a composting process or another method where the manure pathogen limit is 500,000 CFU/ml or less;



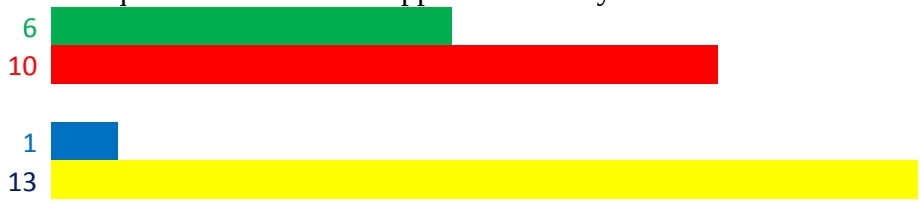
3. Solid manure shall be incorporated within 72 hours unless applied to fields following no-till practices or fields with perennial forage or other established crops.



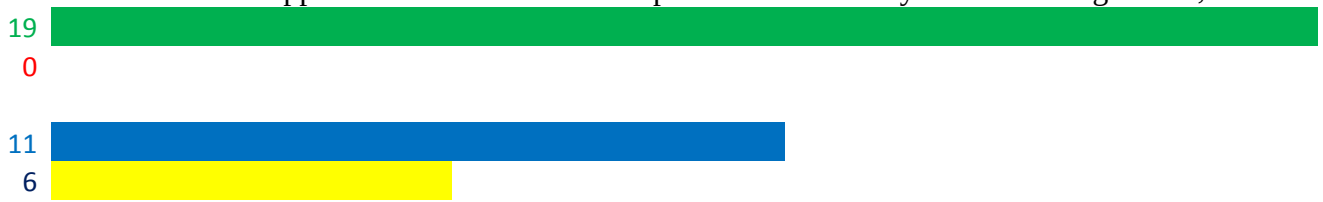
Liquid

1. All liquid manure applied to these areas must be treated to reduce pathogens to 500,000 CFU / ml or less.

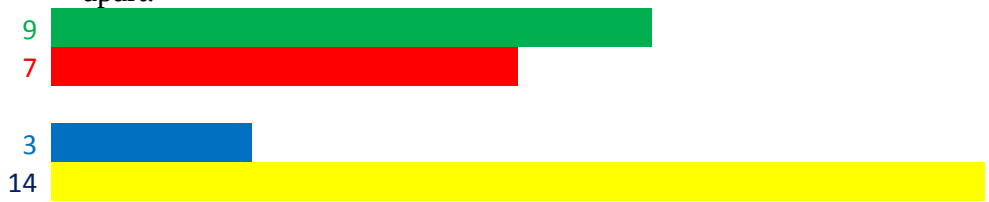
2. Liquid manure shall be applied at weekly rates not to exceed NR 214.17(4)(d), Table 3 application rates;



3. Use as low an application rate as is safe and practical to avoid hydraulic loading of soil;



4. If the solid content of the liquid manure is 2% or less, reduce application rate by 50% and apply in two applications spaced at least one week apart.



Both

1. Manure must be applied within 10 days of planting (including a cover crop) or to a growing crop.

2. Manure must not be incorporated or injected more than four inches below the land surface in these areas.

3 – 5 feet Soil Depth

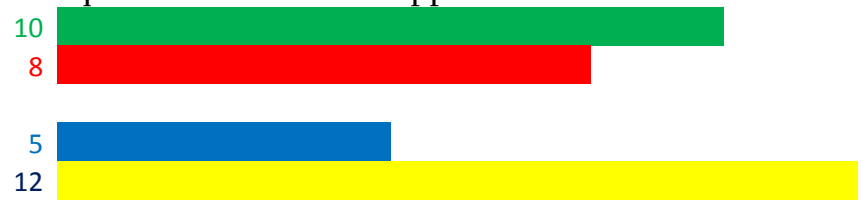
Performance Standard in Silurian Dolomite Area

YES NO

Performance Standard in Carbonate Bedrock Area

YES NO

1. Liquid manure shall be applied to these areas at a rate of no greater than 13,500 gals per week.



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2. Manure must be applied in these areas within 10 days of planting or to a growing crop.

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3. Incorporate solid manure within 72 hours unless applied to fields following no-till practices or fields with perennial forage or other established crops.

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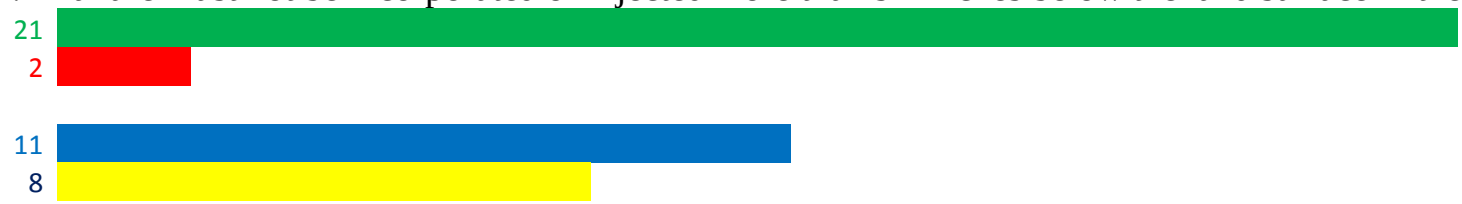
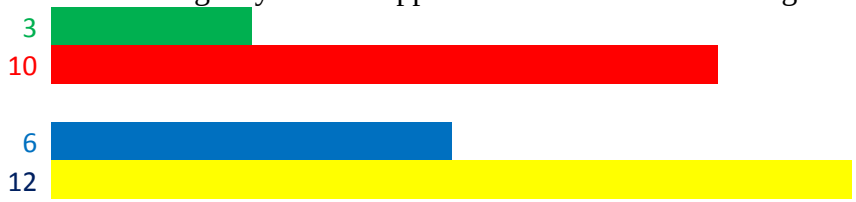
4. Manure must not be incorporated or injected more than six inches below the land surface in these areas.



2 – 20 feet Soil Depth

Performance Standard in Silurian Dolomite Area		Performance Standard in Carbonate Bedrock Area	
YES	NO	YES	NO

1. No emergency manure application or headland stacking is allowed when soils are frozen or snow covered.



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2. Application of manure is prohibited when rainfall > 1 inch is forecast within 24 hours

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3. If manure is surface applied before planting or after harvest, except on fields with perennial forage or other established crops, the manure must be incorporated within twenty four hours or prior to a rain event, whichever is sooner.

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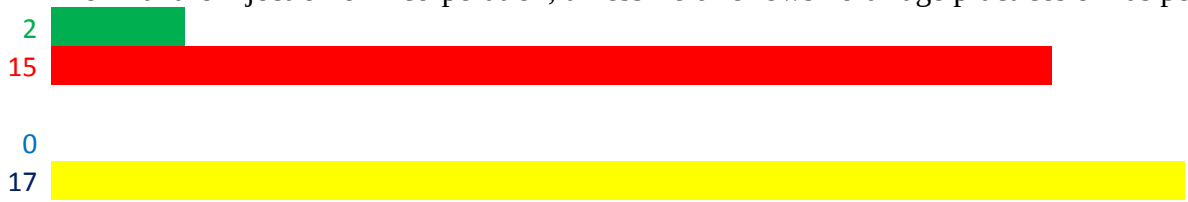
4. Complete tillage prior to application of liquid manure using injector or incorporation method to a depth of at least two inches below the depth of manure injection or incorporation, unless field follows no-tillage practices or has perennial forage or other established crops.



5 – 20 feet Soil Depth

Performance Standard in Silurian Dolomite Area		Performance Standard in Carbonate Bedrock Area	
YES	NO	YES	NO

1. Liquid manure shall be applied at weekly rates not to exceed NR 214.17(4)(d), Table 3 application rates;

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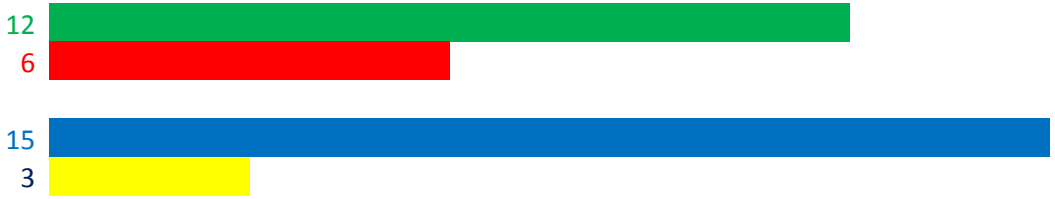
2. Use as low an application rate as is safe and practical to avoid hydraulic loading of soil.



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3. Manure must not be incorporated or injected more than eight inches below the land surface in these areas.

Closed Depression Areas

Performance Standard in Silurian Dolomite Area

Performance Standard in Carbonate Bedrock Area

Mechanical application of manure is prohibited under the following conditions:

a) During the months of October through December after crop harvest, within closed depressions unless the manure is injected or immediately incorporated and a fall forage cover crop is established within the application area.

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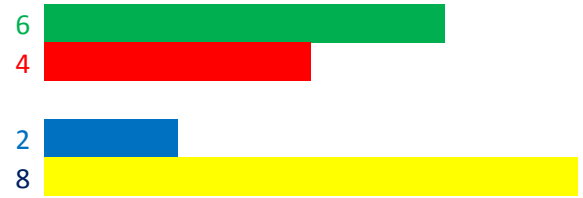
b) In the months of March through September, <u>within 100 feet</u> of an area **in a closed depression where water ponds to a seasonal high water mark**,

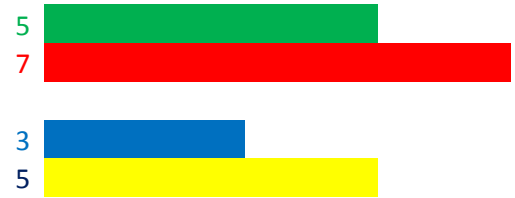
or

<u>within one mile</u> of these areas

unless the manure is injected or incorporated within twenty four hours or prior to a rain event, whichever occurs first.



Does not apply to areas following no-till practices or fields with perennial forage or other established crops.



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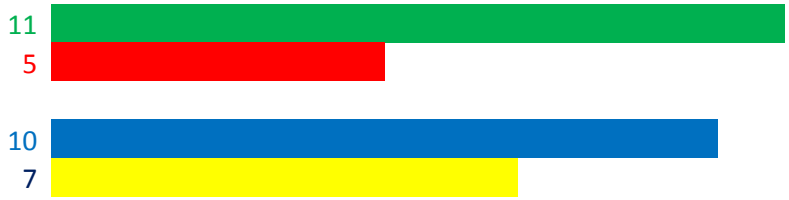
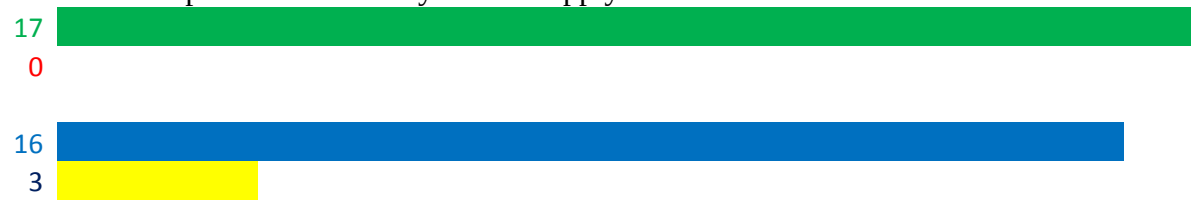
2. No surface application of manure is permitted on slopes of 12% or greater, or on slopes 6% or greater that drain to a closed depression area unless the spread material is immediately incorporated. This does not apply to fields with perennial forage or other established crops.



Setback Distances

No manure application within:

a. 1000 feet of public “community” water supply wells.



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b. Private potable and public “non-community” water supply wells.

100 ft.

250 ft.

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c. 100 feet of all other “direct conduits to groundwater” and 300 feet when soil is frozen or snow covered.

d. 100 feet of defined channels that lead to a, b or c (above), unless manure is incorporated then no setback required.

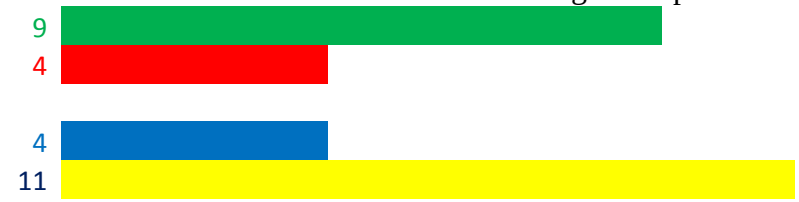
Site Assessment Criteria

Performance Standard in Silurian Dolomite Area		Performance Standard in Carbonate Bedrock Area	
YES	NO	YES	NO

1. **Soil depth to and direct conduits to groundwater shall be determined** using the most current NRCS, WGNHS, or county maps and by in-field verification methods, whichever method or combination of methods can provide the most accurate results **for 0-5 feet**.

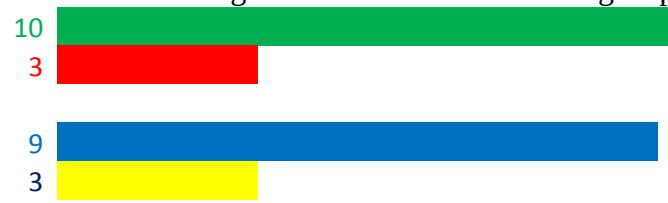
2. **Frequency for Checking:** Fields with sensitive areas- karst geology **shall be inspected yearly** to determine location(s) of sensitive areas, direct conduits to groundwater, depression areas and any contributing channels that lead or drain to such features.

3. **When to Inspect**: Field inspections shall be completed either before spring application of manure, tillage or planting or in late summer or fall after crop harvest, but before manure application tillage or planting. Fields with perennial vegetation shall be inspected in spring, or summer before or 7-10 days after cutting/harvest to determine locations of uneven crop growth that may indicate location of sensitive areas. Inspection results shall be recorded and retained with the nutrient management plan.



4. **How to Document:** Fields with sensitive areas-karst geology receiving manure applications **shall have a map** which shows depth to bedrock determinations, direct conduits to groundwater and, any identified contributing channels that drain to direct conduits to groundwater and closed depressions.

Direct conduits to groundwater identified during inspections **shall be permanently marked** in the field and shown on application maps.



5. **Rank Fields:** After inspection, evaluate all fields used for manure application according to the following criteria and rank them based on the risk of groundwater contamination. **Apply manure to fields in order of lowest to highest risk**.

1. Percent of restricted area based on slope and required setbacks
2. Number of karst features within or immediately adjacent to the field
3. Percent of the field area with sensitive areas-karst geology and/or fracture traces
4. Number of channels in the field that lead to sensitive areas-karst geology
5. Soil depth to bedrock, soil type and conditions

Suggested Standards: *Performance Standards or Technical Standards*

Depth Recommendations 2-3 ft.	Performance Standard	Technical Standard	Elements of both PS and TS
	Apply solid manure with "significant pathogen reduction" or "acceptable pathogen level?"	Composting, pathogen reduction, testing methods, pathogen level, reduce rate, (limit solid manure application rate to 15 tons/acre/year)	Definition of significant? Define pathogen?
	Apply liquid manure with demonstrated pathogen treatment/reduction "post pathogen reduction." AND implement the following: use as low application rate as is safe and practical to avoid hydraulic loading of soil	500,000 CFU/ ml or less Do not exceed NR 214.17(4)(d), Table 3 application rates; NR 204? UV disinfection option If the solid content of the liquid manure is 2% or less, reduce application rate by 50% and apply in two applications spaced at least one week apart. Consider knife spacing?	
	Apply liquid or solid manure to growing crop or as close as possible to crop establishment.	Number of days (10?)	
	Do not inject or incorporate manure below 4 inches depth.		

Closed Depressions	Performance Standard	Technical Standard	Elements of both PS and TS
	Mechanical application of manure is prohibited under the following conditions: a) When frozen or snow covered ground, within closed depressions (referring to watershed)		
~~Mechanical application of manure is prohibited under the following conditions:~~ ~~a)~~ ~~When the ground is,~~ ~~within 100 feet~~ of ~~an area~~ **~~in a closed depression where water ponds to a seasonal high water mark~~**~~,~~ **~~or~~** ~~within one mile~~ of ~~these areas~~ ~~unless the manure is injected or incorporated within twenty four hours or prior to a rain event, whichever occurs first.~~ ~~Does not apply to areas following no-till practices or fields with perennial forage or other established crops.~~			
~~on~~ ~~slopes of 12% or greater,~~ ~~or~~	No surface application of manure is permitted on slopes 6% or greater that		

	drain to a closed depression area unless the spread material is immediately incorporated. This does not apply to fields with perennial forage or other established crops, (and no-till fields?).		

Setback Distances	Performance Standard	Technical Standard	Elements of both PS and TS
	<u>No manure application within:</u> a. 1000 feet of public "community" water supply wells.		
	No manure application within: b. Private potable and public "non-community" water supply wells. **100 ft.**, **250 ft.** (consistent with 243, 590?)		
	<u>No manure application within</u>: c. 100 feet of all other "direct conduits to groundwater" and 300 feet when soil is frozen or snow covered.		
	<u>No manure application within:</u> 100 feet of defined		

	channels that lead to a, b or c (above), unless manure is incorporated then no setback required.		

Site Assessment Criteria	Performance Standard	Technical Standard	Elements of both PS and TS
	Soil depth shall be determined using the most current NRCS, WGNHS, county maps, or by in-field verification methods, whichever method or combination of methods can provide the most accurate results **for 0-5 feet**.	Development and identification of credible maps clear field verification method CAFO verification guidance (2 per 5ac)	
	Initial mapping to identify direct conduits to groundwater in spring by field verification. (In notes: Ideal when water is flowing and vegetation is dormant?) **Frequency for Checking:** Fields with sensitive areas-karst geology **shall be inspected yearly** to determine location(s) of sensitive areas, direct conduits to groundwater, depression areas and any contributing channels that lead or drain to such features.		
		When to Inspect: Field	

		inspections shall be completed either before spring application of manure, tillage or planting or in late summer or fall after crop harvest, but before manure application tillage or planting. Fields with perennial vegetation shall be inspected in spring, or summer before or 7-10 days after cutting/harvest to determine locations of uneven crop growth that may indicate location of sensitive areas. Inspection results shall be recorded and retained with the nutrient management plan.	
4. **How to Document:**	Fields with sensitive areas-karst geology receiving manure applications **shall have a map** which shows depth to bedrock determinations, direct conduits to groundwater and, any identified contributing channels that drain to direct conduits to groundwater and closed depressions.		
	Direct conduits to groundwater identified during inspections **shall be marked in the field** and shown on application maps.		
~~**Rank Fields:** After inspection, evaluate all fields used for manure application according to the following criteria and rank them based on the risk of groundwater contamination.~~ ~~1. Percent of restricted area based on slope and required setbacks~~			

~~2. Number of karst features within or immediately adjacent to the field~~ ~~3. Percent of the field area with sensitive areas- karst geology and/or fracture traces~~ ~~4. Number of channels in the field that lead to sensitive areas- karst geology~~ ~~5. Soil depth to bedrock, soil type and conditions~~ (consider as a note for recommendation?)			