October 18, 2016

LIVESTOCK OPERATIONS STUDY GROUP
Thursday, November 3, 2016, 1:00 p.m., Courthouse, Room 207C
1313 Belknap Street, Superior, Wisconsin

Please call the County Clerk's Office (715-395-1569) if you are unable to attend.

MEMBERS: Mary Lou Bergman, Chair
Pat Ryan
Jane Anklam
Christine Ostern
Carolyn Pierce (Advisor)
Nick Baker
Terry White
Steve Rannenberg
Sue Hendrickson (Alternate)

A G E N D A

(Committee to maintain a two-hour meeting limit *or* take action to continue meeting beyond that time.)

1. Roll call.
2. Approval of minutes from the September 19, 2016, meeting (attached).
3. Informational items:
   a) Review of previous meeting (attached);
   b) Proposal to address groundwater goal from the Land and Water Resource Management Plan (attached);
   c) Douglas County Livestock Facilities Licensing Ordinance 8.10 (attached); and
   d) Application of liquid livestock manure using spray irrigation systems (attached).
3. Action item: Set meeting schedule and topics (review Bayfield County ordinance challenge results and review remaining two Bayfield County ordinances).
4. Future agenda items.
5. Adjournment.

A quorum of the Zoning Committee will be present at this meeting due to membership of this committee's members on that committee.

Cc: Shelley Nelson (Telegram), Carolyn Pierce, Douglas County Website, Andy Lisak, Susan Sandvick, Sue Hendrickson, Ben Dufford, Fred Strand, Jason Fischbach

NOTE: Attachments to agenda are available in County Clerk's Office for review or copying. Action may be taken on any item listed on the agenda. The County of Douglas complies with the Americans with Disabilities Act of 1990. If you are in need of an accommodation to participate in the public meeting process, please contact the Douglas County Clerk's Office at (715) 395-1341 by 4:00 p.m. on the day prior to the scheduled meeting. Douglas County will attempt to accommodate any request, depending on the amount of notice we receive.

Posted: Courthouse, Government Center, Telegram Copied

Heidi Ferdinagen 10-18-16

Name *Date*

LIVESTOCK OPERATIONS STUDY GROUP
Monday, September 19, 2016, 1:00 p.m., Forestry Headquarters
9182 East Hughes Avenue, Solon Springs, Wisconsin

Meeting called to order by Chair Mary Lou Bergman.

ROLL CALL: Present – Mary Lou Bergman, Pat Ryan, Jane Anklam, Christine Ostern, Nick Baker, Terry White, Steve Rannenberg, Carolyn Pierce (Advisor). Others present – Ben Dufford, Jason Fischbach, Dan Corbin, Fred Strand, Mark Liebaert, Shelley Nelson, Kaci Lundgren, Committee Clerk.

PRESENTATION: Fred Strand, Bayfield County Board, Jason Fischbach, Bayfield County UW-Extension, and Ben Dufford, Bayfield County, presented on large-scale livestock facility study and regulation. Overall conclusion resulted in creation of an ordinance to help manage facility presence.

ACTION: Motion by Ryan, second White, to extend meeting beyond two-hour time limit. Motion carried.

ACTION ITEMS:
Identify Next Steps: Motion by Ryan, second White, to refer item to next meeting. Motion carried.

Set Meeting Schedule: Bergman, Liebaert, and Ostern to set next date/time.

FUTURE AGENDA ITEMS: Identify next steps; set meeting schedule.

ADJOURNMENT: Motion by White, second Ryan, to adjourn. Motion carried. Meeting adjourned at 3:12 p.m.

Submitted by,
Kaci Jo Lundgren, Committee Clerk

Bayfield County Livestock Ordinances

Title 5 – Public Safety

Chapter 2: Livestock Facilities Licensing
Chapter 3: Application of Liquid Livestock Manure Using Spray Irrigation Systems
~~**Chapter 4:** Moratorium on Livestock Facilities Licensing~~ EXPIRED
Chapter 6: Large-Scale Concentrated Animal Feeding Operations
Chapter 7: South Fish Creek Watershed Animal Waste Storage and Management

Ch. 2: Livestock Facilities Licensing

- Administered by Land Conservation
- DATCP assists the county with administration

Ch. 3: Application of Liquid Livestock Manure Using Spray Irrigation Systems

- Administered by the Land Conservation
- Prohibits using spray irrigation to apply liquid manure

Ch. 4: Moratorium on Livestock Facilities Licensing

- One year prohibition on licensing livestock facilities
- One year has passed, so has expired

Ch. 6: Large-Scale Concentrated Animal Feeding Operations

- Administered by the County Board, applications taken by the Clerk's Office (not directly administered by any departments or sub-committees)
- Only pertains to facility operations based on public health and safety, not facility siting
- More restrictive than state, county believes this is acceptable because the ordinance only pertains to operations based on public health and safety, so does not need agency review and approval
- Modeled after frac-sand mining ordinances in other counties (again, pertaining only to operations based on public health and safety)
- Contains unique clause that an operator must show experience operating similar size facilities in similar environmental conditions for at least 10 years with no complaints or violations of any kind
- Ordinance has not been tested

Ch. 7: South Fish Creek Watershed Animal Waste Storage and Management

- Administered by Land Conservation
- Only applies to CAFOs in the South Fish Creek watershed
- The county has sent this ordinance to WDNR and DATCP for review and approval, WDNR responded denying approval, decision is being appealed in court

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Procedure for a proposed CAFO in Bayfield County (if not in the South Fish Creek Watershed):

- *Apply to Land Conservation for Ch. 2 Livestock Facilities Licensing*
- *Apply to the County Board through the Clerk's Office for Ch. 6 Large-Scale Concentrated Animal Feeding Operations*

Moving Forward

Bayfield County Large-Scale Livestock Study Committee
Report and Recommendations to the Bayfield County Board

Last Updated: January 19, 2016

Committee Members:
Fred Strand, Board Supervisor-District 8, Committee Chair
Dee Kittleson, Board Supervisor-District 5, Committee Vice, Chair
Bill Bussey, Board Supervisor-District 2
Bucky Jardine, Board Supervisor-District 3
Marco Bichanich, Board Supervisor-District 10
Jim Crandall, Board Supervisor-District 12
John Sauer, Citizen
Dale Peacock, Citizen
Alex Strachota, Citizen

Advisory Committee Members:
Jason Fischbach, UW-Extension Agriculture Agent
Mark Abeles-Alison, Administrator
Ben Dufford, County Conservationist
Robert Schierman, Zoning Administrator
Terri Kramolis, Health Department Director/Health Officer
Michelle Dale, Environmental Health Sanitarian

Executive Summary

The Bayfield County Large-Scale Livestock Study Committee was established by County Amendatory Ordinance No. 2015-06 and convened in April of 2015 with the task of researching, analyzing, and synthesizing scientific literature regarding the impact of large-scale livestock facilities on ground water, surface water, and air quality, specifically as those issues apply to Bayfield County. In addition, the Committee was tasked with reporting recommendations on appropriate county-level regulatory approaches relative to the siting and/or operation of livestock facilities within Bayfield County to the County Board.

The Committee recognizes the economic and cultural importance of agriculture to Bayfield County and is guided by the dual goals of having a thriving agricultural community and maintaining the public's health and safety and a healthy environment.

The Committee has organized its work around four primary issues: groundwater, surface water, microbiology, and air quality. For each of these issues the Committee has: 1) Identified the primary risks and impacts associated with large-scale livestock operations, 2) Assessed whether the existing regulations and best management practices adequately mitigate those risks given the conditions in Bayfield County, and 3) For risks the Committee determined are not adequately addressed by existing regulations, proposed actions the Committee feels would mitigate those risks.

Since April, the Committee has received presentations and information from 17 professionals working in the field of livestock agriculture. These include professors and researchers from the University of Wisconsin, Wisconsin Geological Survey, and the USDA. The information presented to the Committee was used to make Findings-of-Fact (Facts) in each of the four topic areas, identify gaps in existing regulations or best management practices (Gaps), and identify actions to address those gaps (Solutions).

Given the unique climate, geography, and soils of Bayfield County and the unique circumstances of individual livestock operations, the Committee is recommending adoption of a Large-Scale Confined Animal Feeding Operations Ordinance. The ordinance will require new or expanding livestock operations of 1000 animal units or more to demonstrate the operations of the proposed livestock facility will not cause pollution or a private or public nuisance in order to obtain an Operations Permit from Bayfield County. In addition, the Committee is recommending the Bayfield County Land and Water Conservation and Health Departments consider new outreach education, cost-share and incentive programs, and regulatory actions to enable new and existing livestock operations to protect surface water, groundwater, and public health.

Committee Recommendations

1. **The Committee recommends the Bayfield County Board adopt the Large-Scale Concentrated Animal Feeding Operations Ordinance and Application Form as presented in Appendix 1.**

   Key aspects of the recommended Operations Ordinance include:

   - Bayfield County has the legal authority and responsibility to enact an ordinance to comprehensively regulate the *operations* of large-scale CAFOs of 1,000 animal units or greater.
   - New or expanding livestock operations of 1,000 animal units or more are required to obtain an Operations Permit from Bayfield County prior to beginning operations.
   - To the extent not preempted by state or federal law, the County Board may attach conditions to an operations permit to protect public health, safety, and general welfare, prevent pollution and the creation of private nuisances and public nuisances, and preserve the quality of life and environment of the County. Such conditions may include, but are not limited to matters of:
     - prevention of point and non-point pollution of air and water
     - management of animal or other waste
     - prevention of the spread of zoonotic disease
     - maintenance of animal health and welfare
     - transportation of animals, feed, or waste
     - maintenance of air quality related to dust or other hazardous air emissions
     - protection of private and public property rights and values.
   - The applicant shall provide evidence that a CAFO having substantially similar operational characteristics, housing the same species of animals, and utilizing similar operations, has been continuously operated in the United States for at least ten (10) years without causing pollution of groundwater or surface water, and without causing either a private nuisance or a public nuisance. The County Board may waive this requirement at its discretion.
   - The ordinance requires the applicant to ensure that sufficient funds will be available for pollution clean-up, nuisance abatement, and proper closure of the CAFO if it is abandoned or otherwise ceases to operate as planned and permitted.
   - The applicant is required to compensate the County for all legal services, expert consulting services, and other expenses which may be reasonably incurred by the County in reviewing and considering the application, regardless of whether or not the application for a permit is subsequently approved, with or without conditions, or denied by the County Board.

2. **The Committee recommends the Bayfield County Board adopt the South Fish Creek Watershed Animal Waste Storage and Management Ordinance as presented in Appendix 2.**

   Key aspects of the recommended Operations Ordinance include:

   - The ordinance is necessary to reduce the risk of nutrient runoff and consequent downstream degradation of water quality in South Fish Creek and the Chequamegon Bay.
   - The ordinance applies to concentrated animal feeding operations (CAFOs) with 1000 or more animal units located or utilizing owned or rented land within the South Fish Creek watershed in Bayfield County for the housing of livestock, production of crops, spreading of manure, or any other agricultural activity.
   - Five-hundred forty (540) days of manure storage capacity will allow for storage of manure if manure spreading windows are missed due to weather, soil conditions, or equipment breakdowns.
   - Cropping plans with multiple spreading windows will provide for flexibility for applying manure and reduce the risk of emergency spreading due to missed spreading windows.
   - Restrictions on field-edge loss of phosphorus will limit phosphorus loading in the already impaired South Fish Creek, thereby reducing the risk of degradation of water quality in Chequamegon Bay.
   - Requirements to incorporate manure when applied close to wells and surface waters will reduce the risk of contamination of surface and ground water.

Additional Recommendations

3. **To further protect surface water, the Committee recommends the Bayfield County Land and Water Conservation Department and/or Bayfield County Health Department Committees *consider* the following actions:**

   a. Provide *additional outreach education* to farmers and landowners to understand and adopt best management practices and comply with existing regulations.
      i. Prioritize work duties of existing County staff to ensure continuation of the South Shore Nutrient Management Farmer Education Program.
      ii. Provide outreach education to assist agricultural producers with compliance with existing regulations and best management practices.
      iii. Provide up to $1000/farm of cost-sharing for five farms per year for development of a farm succession plan through the South Shore Farm Succession Program.

b. *Provide additional outreach education and cost-share dollars* to assist farmers and landowners in adopting best-management practices, installing conservation practices, and complying with existing regulations.
    i. Provide funding for cost-sharing barnyard runoff control projects.
    ii. Provide funding for cost-sharing well abandonment projects.
    iii. Provide staff for project implementation and implementation of livestock ordinances.
c. Adopt a Bayfield County Animal Waste Storage and Management Ordinance requiring:
    i. An Animal Manure Permit and adherence to the NRCS 313 Standard for all new or significantly modified manure storage structures with volume greater than 500 cu ft.
    ii. Closure of any permitted animal waste storage structure if unused for 24 consecutive months.
    iii. An Animal Manure Permit for all new or significantly modified livestock feeding operations with 50 animal units or more and adherence to barnyard NRCS Technical Standards.
    iv. Manure storage capacity of 180 days for new or expanding livestock operations with 200 to 499 animal units and 360 days of storage for livestock operations with 500 to 999 animal units.
d. Incorporate NR 151 standards into the Bayfield County Animal Waste Storage and Management Ordinance to allow for local enforcement.
e. Develop and implement a Bayfield County Water Quality Trading Program to allow new or expanding operations to purchase phosphorus credits to offset a planned increase in phosphorus loading to surface waters.
f. Each of the remaining risk management strategy options listed in the *Surface Water Findings-of-Fact Document (Appendix 2,)* given the unique geography, topography, soils, water resources, air quality and other natural features of Bayfield County, and potential legal considerations, may or may not be appropriate for consideration as a condition of a permit issued pursuant to any individual application under the Bayfield County Large-Scale Confined Animal Feeding Operations Ordinance.

4. To further protect groundwater, the Committee recommends the Bayfield County Land and Water Conservation Department and/or Bayfield County Health Department Committees *consider* the following actions:

a. Implement a well-testing outreach and education program to encourage and facilitate annual testing of private well water and repair of substandard wells.

b. Provide funding to test water from at least 10 private wells in each Township in Bayfield County to establish a baseline water quality understanding.
c. Establish a County-maintained database with all well-drilling records and water test information.
d. Develop a depth-to-bedrock map for Bayfield County to identify areas with less than 20 feet of soil to the bedrock.
e. Analyze all known well-drilling records to identify wells with less than 20 feet of silty-clay till over water-bearing sand and gravel deposits.
f. Develop a groundwater susceptibility map for Bayfield County to identify areas, such as those near Gilles Road, that have increased susceptibility to groundwater contamination compared to areas with deep silty-clay till.
g. Identify abandoned wells and rate the risk of each well to groundwater quality for prioritizing abandonment efforts. Or conversely, identify fields with highest likelihood of groundwater contamination and look for abandoned and existing wells in and adjacent to these fields first.
h. Utilize groundwater flow maps and groundwater susceptibility mapping to design groundwater monitoring programs for sited livestock facilities.
i. Each of the remaining risk management strategy options listed in the *Groundwater Findings-of-Fact Document (Appendix 3,)* given the unique geography, topography, soils, water resources, air quality and other natural features of Bayfield County, and potential legal considerations, may or may not be appropriate for consideration as a condition of a permit issued pursuant to any individual application under the Bayfield County Large-Scale Confined Animal Feeding Operations Ordinance.

5. **To further protect air quality, the Committee recommends the Bayfield County Land and Water Conservation Department and/or Bayfield County Health Department *consider* the following actions:**

a. Expand outreach education and cost-sharing to assist existing producers in implementation of the Beneficial Management Practices recommended by the Wisconsin Air Emissions Advisory Group as listed in Appendix 3.
b. Require implementation of applicable Air Quality Beneficial Management Practices listed in Appendix 3 for new or expanding operations through local ordinance.
c. Each of the remaining risk management strategy options listed in the *Air Quality Findings-of-Fact Document (Appendix 4,)* given the unique geography, topography, soils, water resources, air quality and other natural features of Bayfield County, and potential legal considerations, may or may not be appropriate for consideration as a condition of a permit issued pursuant to any individual application under the Bayfield County Large-Scale Confined Animal Feeding Operations Ordinance.

6. **To further protect human and animal health from microbiological pathogens, the Committee recommends the Bayfield County Land and Water Conservation Department and/or Bayfield County Health Department *consider* the following actions:**

    a. Implement manure-spill response training for emergency responders, health-care workers, and natural resource agencies.
    b. Implement a public health ordinance to require large-scale swine and poultry operations to develop and implement a plan to monitor and contain influenza and other viral disease outbreaks.
    c. Provide market incentives to enable installation of manure digesters, such as purchase of carbon credits for methane reductions, or tax incentives for co-location of energy-intensive businesses (greenhouses, kilns) with livestock operations.
    d. Provide cost-sharing for feasibility studies for construction and operation of manure storage, handling, and treatment systems.
    e. Provide incentives for adoption of managed intensive grazing systems for livestock production, such as per acre conservation payments or assistance with marketing or enterprise development.
    f. To enable hoseline transport and injection of manure:
        i. Implement an incentive program for installation of culverts or hardlines for crossing roads at locations with minimal risk of manure reaching surface water in the event of a break in the hose.
        ii. Provide cost-sharing for secondary containment or hardline hoses for waterway crossings.
    g. Each of the remaining risk management strategy options listed in the *Microbiology Findings-of-Fact Document (Appendix 5,)* given the unique geography, topography, soils, water resources, air quality and other natural features of Bayfield County, and potential legal considerations, may or may not be appropriate for consideration as a condition of a permit issued pursuant to any individual application under the Bayfield County Large-Scale Confined Animal Feeding Operations Ordinance.

Agriculture in Bayfield County

Agriculture in Bayfield County is concentrated in two main areas (Figure 1). The northwest region between Port Wing and Iron River supports hay and forage production with some beef and dairy production. The east-central region is home to the majority of agricultural activity in Bayfield County with a mix of dairy, beef, forage, and grain operations. There is also a concentrated fruit growing region outside of Bayfield supporting nearly 20 small diversified fruit operations.
In 2012, the agricultural economy in Bayfield County had total farm gates sales (revenues) of $13.9 million split across six main sectors: milk-$5.3 million, seed and hay-$2.1 million, cattle and calves-$2.0 million, aquaculture-$1.4 million, grain-$1.2 million, and apples and berries-$1.1 million.[1] Bayfield County agriculture contributes $74.8 million of economic activity and provides more than 600 jobs[2]. Despite the cultural and economic importance of agriculture to Bayfield County, the agricultural economy is relatively modest compared to other counties in NW Wisconsin. Agriculture in Burnett County, for example, generates $293.8 million in economic activity.

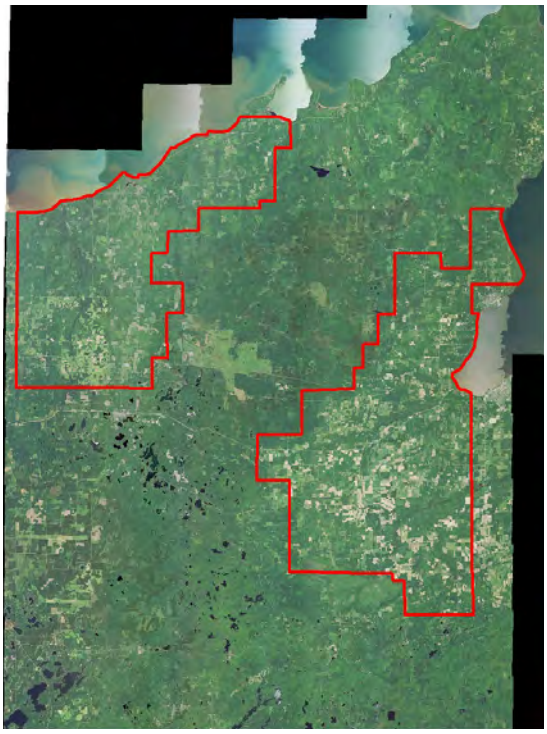


Figure 1. Primary Agricultural Areas of Bayfield County.

Agriculture in Bayfield County is dominated by production of perennial forage crops, with 87% of the cropland acres in the two main agricultural regions being used to produce grass hay, alfalfa, clover, or pasture (Table 1). Corn silage is produced on a limited basis by dairy farms and there is some small grain and soybean production. The 2014 data is consistent with historical crop production trends for the region as annual row crop production is far riskier in the short season and wet clay soils of the region compared to perennial forages. This current land use information is important as significant changes within a given watershed, such as conversion from perennial forage crops to annual crops like or corn or soybeans, may result in changes to surface water quality.

Crop	2014 Acreage
Grass/Pasture	29760
Other Hay/Non Alfalfa	11960
Alfalfa	3601
Corn	3363
Soybeans	1445
Oats	1245
Winter Wheat	177
Rye	175
Clover	149
Spring Wheat	90
Dry Beans	50
Barley	38
Other Annual Crops	26

Table 1. Cropland Acres in the Agricultural Regions of Bayfield County

Like many Counties in Northern Wisconsin, Bayfield County has seen a significant decline in agricultural activity in the last 40 years. In 1970, there were 850 total farms in Bayfield County. By 2012 the number had declined to 352. There were 112 dairy farms in 1992 and less than 30 still in operation in 2015. In 1992 there were 4300 dairy cows and

[1] Wisconsin Agricultural Statistics Service, 2013
[2] Deller, S., 2012. Bayfield County Agriculture: Value and Economic Impact. UW-Extension

by 2012 only 1750. Likewise, as cheap apples from Washington and Michigan flooded markets, the surrounding forest quickly reclaimed the Bayfield apple orchards and, today, there are fewer than 300 acres of apple production in the Bayfield area spread across fewer than 20 small orchards.

The reasons for the decline are many, but farming has never been an easy lifestyle or occupation anywhere and is particularly challenging in Bayfield County due to the very short growing season and wet clay soils or dry sandy soils. Opportunities in town or in regional cities like Duluth, Minneapolis, or Wausau have offered an easier way of life and more pay. Today, the average revenue for farms in Bayfield County is $39,530[3], and even with a best-case profit margin of 30%, the average farm in Bayfield County is not able to support a family. As such, the agricultural economy of Bayfield County is largely dependent on the rest of the economy providing off-farm income.

Of the 1.3 million acres in Bayfield County, 89,000 are in farms with 56,000 of those used for crops or pasture. With the low intensity of agriculture in the county, the demand for cropland is low, which is reflected in cropland values of less than $2000/acre and cropland lease values averaging $24/acre[4]. With land values in other parts of the Upper Midwest surpassing $10,000 per acre and annual cash rent exceeding $250/acre, the agricultural lands in the county will become increasingly attractive to outside producers, even with the short season and challenging soils.

Through the South Shore Nutrient Management Planning program run by UW-Extension and the Land Conservation Departments of Ashland and Bayfield Counties, soil tests on more than 12,000 acres of cropland have been conducted since 2010, representing 664 different fields primarily on dairy farms in the region. As shown in Table 2, soil test phosphorus is generally low with 74% of tested acres at or below 20 ppm. More importantly, only 11% of tested acres would be considered to have excessive phosphorus. Generally, soil test potassium levels of 90 ppm or higher would be considered optimum for most crops. Only 57% of the tested acres that high. For most field crops soil pH should be between 6.0 and 7.0. Roughly 66% of the test soils were higher than 6.0. Combined, the soil test levels are indicative of past and current farming practices. Soil fertility in the region is generally low to start with and pasture and forages have not received much phosphorus and potassium fertilizer over the years. However, with an ample supply of affordable lime in Duluth and Superior, soil pH has been relatively well managed.

Soil Test P	%	Soil Test K	%	Soil pH	%
<10 PPM	31%	<50 PPM	7%	<5.0	0%
10-20 PPM	43%	50-65 PPM	9%	5.0-5.5	11%
21-30 PPM	15%	66-90 PPM	27%	5.6-6.0	24%
31-50 PPM	8%	91-110 PPM	25%	6.1-6.5	31%
51-100 PPM	3%	111-130 PPM	16%	6.6-7.0	25%
>100	0%	>130 PPM	16%	>7.0	10%

Table 2. Soil test levels as a percentage of 12,137 cropland acres in Ashland and Bayfield Counties tested between 2010 and 2015 through the South Shore Nutrient Management Program.

Despite the overall decline in the agricultural economy, there are reasons to be optimistic about the future of agriculture in the region. As evidenced in Ashland County, with successful farm succession and modernization, dairy farming can be profitable in the region. Hay and forage producers are having success exporting hay to buyers outside the region. With support from the Northern Aquaculture Demonstration

[3] 2012 Census of Agriculture, National Agricultural Statistics Service
[4] Bussler, G. 2014. Wisconsin Ag News – County Cash Rent. USDA-NASS

Center and area fish hatcheries there is a growing interest in aquaculture for bait, stocking, and food production. Pioneers in blueberry production have led the way in diversifying Bayfield's fruit economy. Enterprising livestock producers are having success with managed intensive grazing and direct marketing of meats. Strong but volatile markets for small grains are providing new opportunities for cash-croppers. There is also a new wave of young, beginning, and aspiring farmers in the region capitalizing on the growing local food movement and are farming following a model of diversification, direct marketing, and product differentiation. Export of high-value agricultural products to larger urban markets is a positive development and is likely an area of significant growth potential.

The recent proposal for a large-scale hog operation in the Town of Eileen would bring a scale of agriculture that is increasingly common elsewhere in the Upper Midwest, but is new to the Lake Superior region. Such large-scale livestock operations have potential to bring new agricultural activity to the region, but also represent a significant change from the current system of distributed small-scale dairy operations managing predominantly perennial forage crops. A transition to large-scale concentrated animal feeding operations managing annual row crops (corn and soy) would significantly change land-use practices with concerns as to impacts to surface and groundwater quality.

The Soils and Water of Bayfield County

Soils

With the exception of the Bayfield fruit growing region, agriculture in Bayfield County takes place in the Superior Clay Plain on the Miller Creek Formation (Figure 2). The soils are predominantly clayey lacustrine till formed at the bottom of ice-margin lakes during periods of glacial retreat. Areas of well-drained sand and outwash gravel occur in correlation with beach ridges and lake and river terraces. The soils are predominantly poorly-drained, but areas can be well- to excessively-drained depending upon outwash deposition.

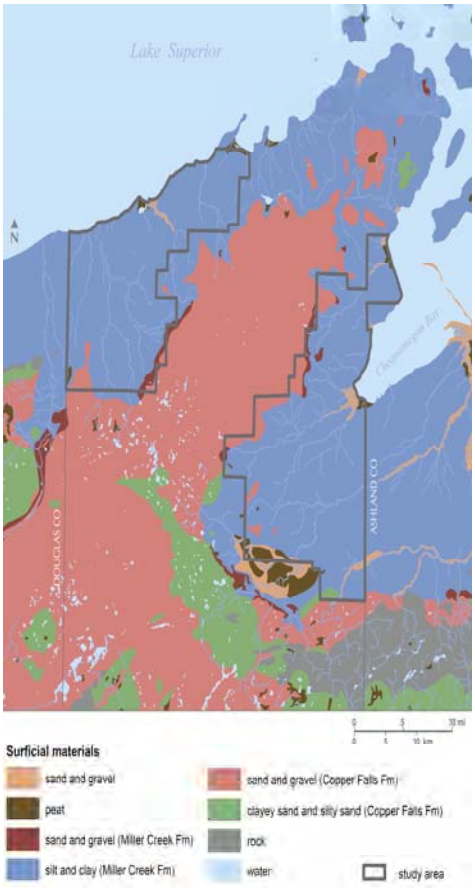


Figure 2. Surficial Geology of Bayfield County (Adapted from Gotkowitz and Li, 2015)

Groundwater

Based on analysis of 660 well-drilling records in the agricultural areas of Bayfield County, 67% are drilled into sand and gravel deposits within the silty-clay Miller Creek Formation and the rest are drilled into the sandstone bedrock beneath the formation.[5] For the wells drilled into the embedded sand and gravel deposits, the average casing depth is 149 feet with a range from 36 to 488 feet. Figure 3 (in Appendix 7) shows a cross-sectional profile of the County running from the Bibon Swamp northeast toward Ashland illustrating water-bearing sand and gravel deposits within the glacial till. The silty-clay soils of the Miller Creek formation provide significant protection of groundwater from percolation of contaminants from the surface. As

[5] Gotkowitz, M.B., and Y. Li, 2015. Groundwater and Wells in Agricultural Regions of Bayfield County: Report to the Large-Scale Livestock Study Committee. Wisconsin Geological and Natural History Survey

such, the primary threat to groundwater in these areas is at points where the silty-clay cap is penetrated, such as with well casings from active or abandoned wells. Testing of 66 private wells in 2015 within the agricultural area of west-central Bayfield County found 10 with coliform bacteria, but 0 with E. coli, suggesting that some wells may need structural improvements such as new casing caps, but there is no evidence of biological contamination of groundwater from agricultural operations[6]. Isolated areas within the agricultural areas of Bayfield County do have surficial deposits of sandier soils with higher porosity and greater rates of infiltration. Wells drilled in such areas are more susceptible to groundwater contamination compared to areas with the silty-clay. An example of such an area is the higher ground along and North of Hwy 118 and East of Gilles Road. Testing of groundwater from private wells in this area shows nitrate concentrations between 0.2 and 5 mg/L, which is safe to drink, but indicates nitrates from human activities are reaching the groundwater (Figure 4).

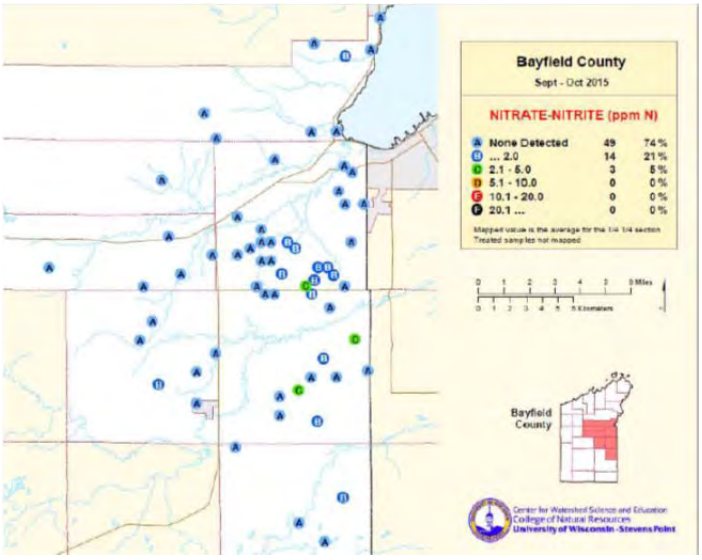


Figure 4. Results of 2015 Nitrate Test of 66 Private Wells in Bayfield County

Surface Water

Farming on clay has significant advantages and disadvantages. The soils hold nutrients and water, but are often excessively wet inhibiting root growth and narrowing operational windows. To farm the soils, producers must enhance and maintain surface drainage networks to remove excess moisture (Figure 5). This results in faster rates and higher volumes of runoff and can result in soil and nutrient losses to surface waters and erosive peak flow events in streams and rivers. Efforts to protect streambank integrity and aquatic habitat in the region seek to "Slow the Flow" by reducing runoff and retaining more stormwater in upland areas.[7] As such there exists an underlying tension between efforts to farm the land and efforts to protect water quality.

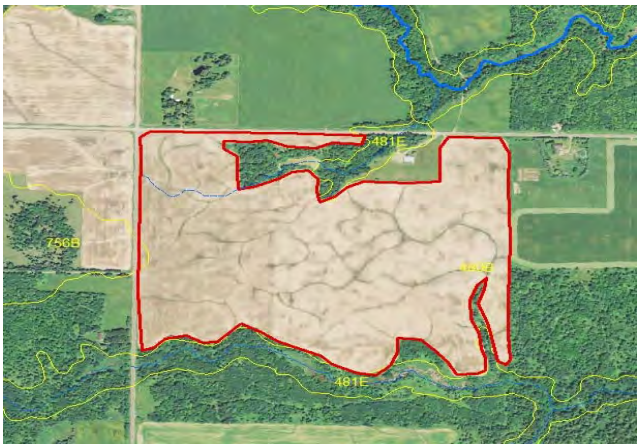


Figure 5. Typical Agricultural Field in Bayfield County with Extensive Surface Drainage

Surface waters in Bayfield County in general meet WI DNR water quality standards with many achieving outstanding or exceptional designation (Figure 6). Recent water quality testing, however, indicates some streams in the region may not be meeting water quality standards. South Fish Creek in the Town of Eileen near Ashland, in particular, has excessive phosphorus (Figure 7). High levels of phosphorus in streams and lakes can cause excessive algae growth

[6] Results of coliform and E. coli testing conducted by the Bayfield County Health Department in 2015

[7] Hudson, M., Damstra, V. 2011. Marengo River Watershed Partnership Project Watershed Action Plan. Bad River Watershed Association

leading to a range of problems including beach closures and dead zones where fish can't survive.

Phosphorus occurs naturally in the environment, but agricultural operations can be significant contributors of phosphorus to surface waters via non-point runoff from fields. The elevated phosphorus levels in South Fish Creek are particularly concerning as the majority of dairy cows in Bayfield County are currently in the South Fish Creek watershed and the proposed new hog facility would be located near a tributary draining to South Fish Creek. Any increase in annual row cropping or manure applications within the watershed could make it more difficult to reduce already elevated levels. Phosphorus loss modeling proposed for the watershed will provide a better understanding of the phosphorus sources and help guide efforts to reduce losses to South Fish Creek.

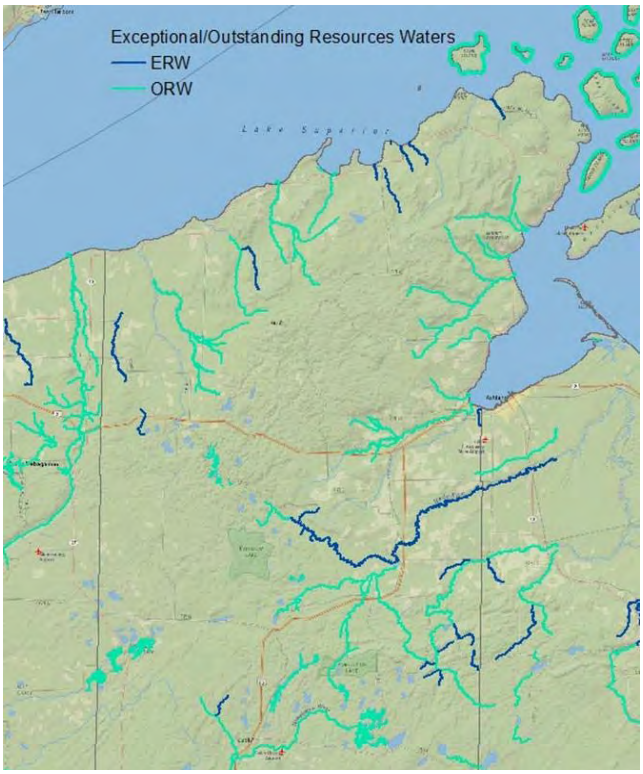


Figure 6. Exceptional and Outstanding Resource Waters in Bayfield County (Adapted from Miller, 2015)

Committee Members and Process

As directed by the Bayfield County Board, the Large-Scale Livestock Study Committee consists of nine voting members. Six are County Board Supervisors and three are citizens chosen by the County Board specifically to provide relevant expertise to the Committee's work. In addition, the Committee has six advisory members working to provide information at the Committee's request.

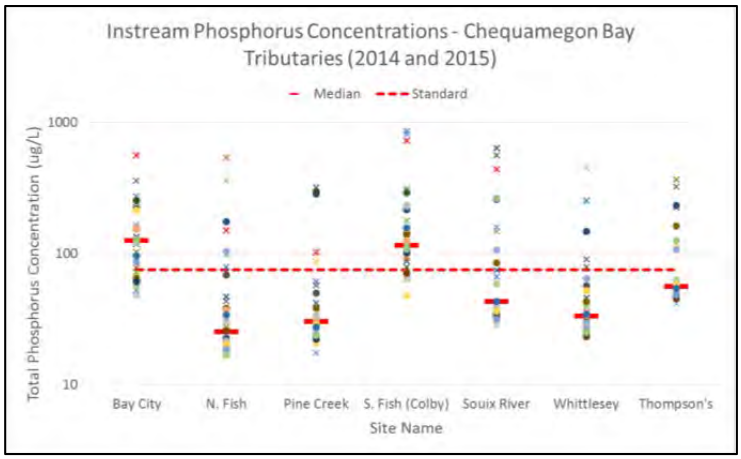


Figure 7. 2014 and 2015 Phosphorus Levels in Seven Chequamegon Bay Tributaries (dotted red line is the water quality standard, heavy red line is the measured median concentration) (Adapted from Lehr, 2015)

The Committee recognizes that livestock operations provide a range of benefits to a community including economic activity and employment for Bayfield County citizens and, of course, the food we eat. However, the task delegated to the Committee by the Bayfield County Board was to analyze potential negative impacts and, therefore, that has been the focus of its work and is the focus of this report. The County Board will have to consider both the positive and negative impacts of large-scale livestock operations in determining how to act on the recommendations made by the Committee.

At the beginning of its work, the Committee decided to analyze the impacts of large-scale livestock operations in four broad topic areas: surface water, groundwater, microbiology, and air quality. For each of

the topic areas, the Committee invited experts in the field to present relevant information to the Committee regarding the impacts and existing regulations meant to mitigate those impacts (Appendix 8). Committee members also toured a large-scale livestock operation to see animal housing and manure management systems and see first-hand how existing regulations are implemented by agricultural producers. Based on the information presented, the Committee developed Findings-of Fact documents for each topic area as presented in Appendix 3-6. Based on those facts and gaps in existing regulations or outreach education, the Committee developed recommendations to the County Board on actions the Board could take to mitigate the impacts posed by large-scale livestock operations on public health and environmental quality.

An important aspect of the Committee's work has been inclusion of the public and stakeholders in the Committee's work. All meetings have been open to the public with 15 minutes of public comment available at each meeting. The Committee has also partnered with UW-Extension to host the Large-Scale Livestock Study Committee Presentation Series with most of the presenters to the Committee also presenting to the public either before or after their presentation at a Committee meeting. This has allowed the public to ask questions and engage in discussion with the presenters. Copies of the presentations are available at the Bayfield County UW-Extension website at: http://bayfield.uwex.edu/2015/07/08/bayfield-county-large-scale-livestock-study-committee-presentation-series/. In addition, a formal public hearing was held to solicit feedback from the public and from stakeholders regarding the recommendations made by the Committee.

Relevant Existing Regulations

ATCP 51 – Livestock Facility Siting Regulations

A number of State regulations apply to livestock operations, most prominently and comprehensively are Wisconsin Administrative Code Chapter ATCP 51 and Chapter NR 243. ATCP 51 implements the Livestock Facility Siting Law (Section 93.90 of the Wisconsin Statutes) and sets statewide standards in five areas: setbacks from property lines, odor and air emissions, nutrient management, waste storage facilities, and runoff from livestock facilities. The standards set forth in the ATCP 51 only apply to livestock facilities if a County or Town in which the livestock facility is located has adopted the standards through local ordinance. In addition, ATCP 51 only applies to livestock facilities with new and expanding livestock operations with 500 or more animal units. Bayfield County adopted the standards with establishment of the Bayfield County Livestock Facilities Licensing Ordinance in January of 2015. To date, Bayfield County has not yet issued a livestock facilities license and there are currently no livestock operations with 500 or more animal units within Bayfield County.

The Livestock Facility Siting Law was passed in WI primarily to provide uniform regulation of livestock facilities. As stated specifically in ATCP 51, the law and standards are intended to be "protective of public health or safety, practical and workable, cost-effective, objective, based on available scientific evidence that has been subject to peer review, designed to promote growth and viability of animal agriculture, and designed to balance the economic viability of farm operations with protecting natural resources and other community interests". Because the Siting Law was intended to provide uniform regulation of livestock facilities, local governments are not allowed to enact more stringent standards unless: 1) the standards are

based on reasonable and scientifically defensible findings-of-fact, and 2) the findings-of-fact show the standards are needed to protect public health or safety.

The Siting Law is very specific in prohibiting a local government unit from restricting the size of a livestock facility. However, the Siting Law does allow a local government unit to utilize local zoning to create zoning districts or overlays as a means to regulate the size of operations within each of the zoning districts as long as at least one district within the local government unit allows livestock operations of unlimited size.

ATCP 51 does provide regulatory certainty to livestock operations and the public as to what is required to operate anywhere in Wisconsin. Providing this regulatory certainty does limit local regulatory discretion and can somewhat limit the controversy associated with local land-use decisions. However, it is important to note the standards set in ATCP 51 are a compromise between environmental and economic considerations and may not necessarily be adequate to protect surface and groundwater under the full range of soil and climate conditions in Wisconsin. Of particular concern is nutrient loading in surface and groundwater from non-point runoff from fields. With more than 35% of Wisconsin lakes and rivers impaired from excessive nutrients[8] and 30% or more of wells in some regions unsafe due to nitrate contamination[9], the Committee recognizes ATCP 51 may be limited in effectively managing non-point runoff. As such, with the responsibility to protect the public health and environment of the citizens of Bayfield County, the County Board should not necessarily rely on the statewide standards of the Siting Law to manage the impacts of large-scale livestock operations.

NR 243 – Confined Animal Feeding Operations

In addition to meeting the locally-adopted standards of ATCP 51, livestock operations with 1000 or more animal units (CAFOs) are required to have a Wisconsin Pollutant Discharge Elimination System (WPDES) permit from the WI DNR as outlined in NR 243. Under WPDES, a CAFO is required to have zero discharge[10] of pollutants from livestock production facilities and is required to develop and implement a nutrient management plan as outlined in the NRCS 590 Nutrient Management Planning Practice Standard. Livestock operations required to have a WPDES permit also have additional manure storage capacity requirements and manure spreading restrictions compared to operations only covered by the Siting Law.

It is important to note the zero discharge requirement in a WPDES permit applies only to the actual buildings and animal lots in the farmstead. It does not apply to non-point runoff from fields managed by the CAFO. The nutrient management rules are meant to address non-point runoff by limiting nutrient losses from fields, but the nutrient management rules do not prohibit nutrient losses. In fact, current rules allow for loss of 12 lbs of phosphorus in any single year with no more than an average of 6 lbs over an eight

[8] EPA, 2015- http://www2.epa.gov/nutrient-policy-data/waters-assessed-impaired-due-nutrient-related-causes Accessed Nov 21, 2015. Source: State's most recent electronic Integrated Report or 305(b) Report data submitted to the EPA's Assessment, TMDL Tracking And Implementation System (ATTAINS) website. Date of data pull: 11/4/11

[9] Wisconsin Groundwater Coordinating Council Report to the Legislature, 2015.

[10] Per NR 243.13, a CAFO may not discharge pollutants from a production area directly to navigable waters except for manure storage overflows caused by storm events and the operation had at least enough excess manure storage capacity to accommodate a 25-year, 24-hour storm event at the time of the storm. Swine operations must maintain enough storage capacity at all times to accommodate a 100-year, 24-hour storm event.

year rotation. This is significantly more than average phosphorus losses from forestland or hayland, which is less than 0.5 lbs/acre/yr.[11]

County Manure Storage and Nutrient Management Ordinance

The ATCP 51 standards and the WPDES permit requirement apply to large-scale livestock operations. Most counties in Wisconsin have also adopted a county manure storage and nutrient management ordinance to regulate livestock operations under 500 animal units (Figure 8). In most cases, the ordinance requires anyone building a new or significantly altering an existing manure storage facility to obtain a manure storage permit from the county. To obtain the permit the operator typically has to follow the NRCS 313 Waste Storage Facility Practice Standard and develop a nutrient management plan. In addition, the ordinance typically requires operators with animal housing or feeding facilities, such as feedlots or barns, to install clean water diversions and runoff treatment infrastructure such as grass lined waterways to limit discharge of manure and nutrients to navigable waters. Bayfield County does not currently have a county manure storage and nutrient management ordinance.

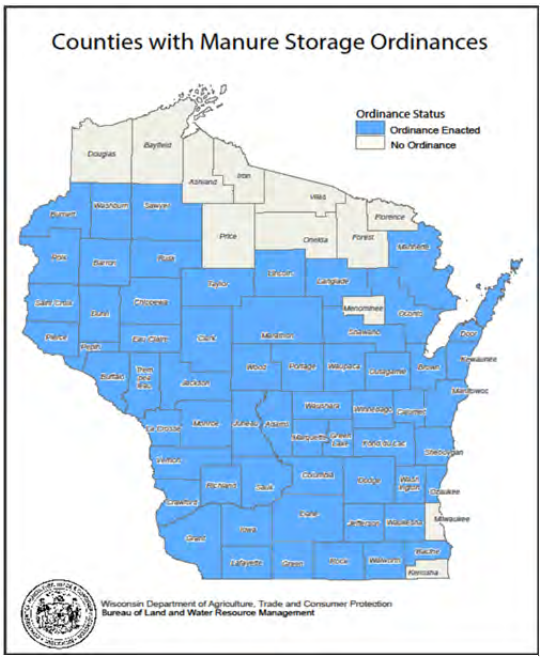


Figure 8. Wisconsin Counties with Manure Storage Ordinances Covering Operations with Less Than 500 Animal Units

Wisconsin Statute § 92.15(3)(a): Exceeding Agricultural Performance Standards

WI Statute § 281.16 and WI Administrative Code Chapter NR 151 outline agricultural performance standards and prohibitions meant to limit non-point runoff from agricultural field operations. Central to the Statute and Code is the NRCS 590 Nutrient Management Practice Standard that outlines specific restrictions, practices, or methods livestock operations must follow when applying fertilizer or manure. WI Statute § 92.15(3)(a) allows a local government unit to enact more stringent regulations than included in the 590 Practice Standard, but only if the local government unit gains approval from the WI DNR or WI DATCP that such regulations are necessary to achieve the water quality standards outlined in WI Statute § 281.15.

Facts, Gaps, and Solutions

For each of the four topic areas, the Committee summarized the information it received from presenters and Advisory Committee Members into: "Findings-Of-Fact"(Facts), "Gaps in Existing Regulations, Enforcement, and Outreach Education"(Gaps), and "Risk Management Strategy Options for Bayfield County"(Solutions). The full range of risk management strategy options for each topic area is shown to demonstrate the depth and breadth of options considered by the Committee. After deliberation by the Committee only some are included in the Committee recommendations to the County Board. The full text

[11] WI Department of Natural Resources, 2013, Pollutant Load Ratio Estimation Tool Documentation, Validation, & Analysis Version 1.10. Located at: http://dnr.wi.gov/topic/SurfaceWater/documents/PRESTO/PRESTOv1.1DocumentationAnalysis.pdf. Accessed 01/13/2016

of each of these four documents is found in Appendix 2-5. Key aspects and considerations for each of the topic areas are summarized below:

Surface Water

The clay soils of the agricultural regions of Bayfield County result in slow infiltration rates and consequent runoff to adjacent waterways. Most nutrient and sediment loss from agricultural operations occurs during the spring melt season and immediately after storm events. As such, the primary threat from agriculture to surface water in Bayfield County is from surface runoff carrying sediment, nutrients, and manure. Protecting water quality, while also enabling agricultural production, is a matter of risk management. The following agricultural practices and situations on clay ground in northern Wisconsin pose the greatest risk to surface water quality:

- Spreading manure during periods of high runoff risk.
- Constructing manure pits without pre-construction soil borings or engineering plans.
- Applying manure to concentrated flow areas.
- Lack of perennial vegetation in concentrated flow areas.
- Animal grazing within intermittent and perennial stream drainages in which animals have unrestricted access to the stream and/or vegetative cover within the drainage is lost.
- Barnyards, feedlots, and dry lots with unmitigated runoff to surface waters.
- Over-application of nutrients resulting in annual loss of excess nitrogen and/or increased risk of phosphorus loss due to higher soil phosphorus levels.
- Application of manure without incorporation

Regulations and best management practices are intended to mitigate these risks and minimize nutrient and sediment loss to surface waters. The Committee has determined that the existing regulations in NR 151, ATCP 51, and NR 243 are comprehensive at mitigating many of these risks. However, there are important gaps that existing regulations do not adequately address as outlined in Appendix 2. Of most concern is the regulation of non-point runoff associated with field operations. In particular:

1. In the event surface waters become impaired due to excessive nutrient loads, the WI DNR is required to develop a plan to lower the nutrient loads in that water body. Such a plan may involve a Total Maximum Daily Load (TMDL) and forced nutrient discharge reductions from WPDES permitted facilities. Such forced reductions do not apply to non-point nutrient sources such as runoff from agricultural fields. As such, under current regulations, new and expanding livestock operations of 1000 animal units or more may be sited upstream of impaired waters even if the operations will increase field-edge phosphorus losses compared to prior land-use. Such an increase is likely when perennial forages receiving no manure are converted to annual row crops receiving manure.

   This issue is particularly relevant in the South Fish Creek watershed, which is likely impaired due to elevated phosphorus levels (Figure 7). If phosphorus levels in South Fish Creek, a major tributary to the Chequamegon Bay, continue to increase such that phosphorus levels increase in the Chequamegon Bay, it is possible the Washburn and Ashland wastewater treatment plants, as permitted WPDES discharge facilities, would be required to reduce their phosphorus discharge at

taxpayer expense. Thus, finding ways to reduce phosphorus loading into South Fish Creek is imperative, especially if new or expanding livestock facilities are sited within the watershed.

2. Winter-spreading of manure, particularly in late-winter and early-spring, constitutes a significant risk to water quality. If climate change results in more freeze-thaw cycles during the winter months the risk becomes that much greater. One method of mitigating this risk is restricting applications to flat fields with significant no-spread buffers around waterways. If such fields are not available, there needs to be sufficient manure storage capacity to store manure until the spring when soils have thawed. Operations with a WPDES permit are required to demonstrate 180 days of storage capacity going into each winter season unless they are unable to spread manure in the fall due to adverse weather conditions. This may result in emergency land-spreading situations during the winter as the WI DNR mandates land-spreading manure if overflow from a storage facility is imminent. As has been experienced at times in WI, if one livestock operation is unable to spread manure in the fall most likely all of the producers in the region are unable to spread, resulting in region-wide emergency winter-spreading. If a winter-thaw or runoff event occurs shortly after the spreading, the nutrient loss can be severe.

   As such, the 180-day storage capacity may not be sufficient for the long winters and wet clay soils of Bayfield County. Furthermore, reliance on a single manure spreading window, such as in the fall after the corn is harvested, increases the chance that adverse weather results in full manure storage facilities and emergency spreading. Having multiple spreading windows during the year is a possible risk management strategy that is particularly appropriate for Bayfield County given the short season and narrow operational windows created by the clay soils.

3. Livestock operations are required to maintain concentrated flow areas and direct conduits to navigable waters in perennial vegetation. The perennial vegetation protects the flow areas from erosion and can hold and filter nutrients from runoff. Such concentrated flow areas are extensive in Bayfield County agricultural fields (Figure 5) and are actively maintained by producers to remove excess moisture from the fields. During harvest operations with annual crops these flow areas can be rutted, requiring periodic scraping and re-shaping, particularly in wet years. In addition, with the complexity and scale of the surface drainage networks it can be difficult for tillage, manure application, and herbicide spraying application to avoid the drainages. Regardless of the methodology used, protecting these flow areas is key to protecting surface water in Bayfield County.

<u>Groundwater</u>

Groundwater in the agricultural areas of Bayfield County is largely protected from surface activities by the high bulk density and slow infiltration rates of the silt-clay glacial till of the Miller Creek Formation. Protecting groundwater in these areas is largely a matter of avoiding application of manure or nutrients near abandoned or active well casings. That said, there are areas of sandier soils within the agricultural regions of Bayfield County that may be more susceptible to surface activities. Nitrate levels slightly above background levels in a cluster of wells near Hwy 118 (Figure 4) highlights the need to evaluate the specific conditions of each well and evaluate any threats to the groundwater quality near that well.

Nitrate and microbial contamination are the most common groundwater problems associated with manure storage facilities and land-spreading activities. Because it is nearly impossible to source-identify nitrates, it is important to establish background water quality data prior to installation of a new or expanding livestock operation. The Committee provided funding to test 66 private wells in the east-central agricultural area of Bayfield County during the fall of 2015, but additional testing of private wells is needed. It is also prudent to monitor groundwater immediately downgradient of manure storage facilities in order to determine the degree of nitrate loss (if any) from the facility or possible microbial contamination. Such information can be useful in determining the cause of nitrate contamination of private wells downgradient of a livestock facility.

Although groundwater monitoring is important, existing regulations do not explicitly require monitoring of large-scale livestock operations. NR 243 authorizes the WI DNR to require groundwater monitoring for CAFOs, but because such required monitoring is at the discretion of the WI DNR, such decisions can and have been contested. With clean groundwater currently in Bayfield County, implementation of a monitoring and contaminant source-verification system would help ensure livestock operations don't contaminate groundwater.

Air Quality

Livestock facilities may generate hazardous air emissions such as particulate matter (dust), ammonia, or hydrogen sulfide. Such emissions are not as easily controlled as smokestack emissions, and are currently exempt from WI air emissions rules as the WI DNR awaits guidance from federal efforts to develop a regulatory framework and methodologies for hazardous air emissions from livestock operations. The primary means currently envisioned by the WI DNR to control air emissions from animal feeding operations is through implementation of a series of best management practices. To that end, in April of 2010, the WI DNR convened the WI Agricultural Waste Air Emissions Advisory Group to develop best management practices for the reduction of emissions of hazardous air pollutants (primarily ammonia and hydrogen sulfide) from livestock operations. Many of these best management practices are included in the odor standard of the Siting Law.

In addition to the odor standard, the Siting Law utilizes setbacks to help protect neighbors from hazardous air emissions. Simple dispersal and dilution of hazardous gasses from stored manure, for example, is an effective strategy of quickly lowering concentrations to safe levels. The setbacks in the Siting Law require 350' between a manure storage facility and a property line. However, for manure storage under housed animals (such as in swine operations), such facilities are classified as livestock facilities and only have a required setback of 100' to 200' depending on the size of the operation. Although aggressive odor control practices would be required for a barn that close to a property line to meet the odor standard, it is possible the standard could be met. In the event of equipment malfunction there is a greater chance that hydrogen sulfide concentrations could exceed ambient air quality standards on an adjacent property when the barn is only 100' to 200' from a neighboring residence compared to when the distance is 350' or more.

Road dust and odor from transport and land-spreading of manure remain highly controversial issues in Wisconsin. Both the Siting Law and Right-to-Farm rules in Wisconsin address these issues by giving priority to agricultural land use in agricultural areas. In other words, residents in agricultural areas should expect odor and road dust as part of living in an agricultural area. Affected residents do have recourse via nuisance laws, but typically must show an adverse health impact from a specific chemical or compound

exceeding air quality standards. Odor from land-spreading of manure typically does not expose neighbors to hazardous levels of ammonia or hydrogen sulfide, thus, bad odor has not typically been enough to constitute a nuisance, despite the negative impact it can have on quality of life.

There is no clear resolution to the odor issue related to land-spreading of manure. There is a growing effort to demonstrate odor itself can cause adverse psychosocial impacts leading to negative impacts on physical health, particularly if the odor is present for extended periods of time.[12] It is possible such impacts may be sufficient to win nuisance lawsuits. If so, regulations to specifically minimize odor from land-spreading of manure may have stronger standing. Until then, odor management will likely rely on a combination of zoning, land-use planning, and voluntary best-management practices. An Operations Ordinance, as recommended by the Committee, may allow Bayfield County to address the nuisance and public health impacts associated with land-spreading of manure through conditions to an operations permit.

Microbiology

Zoonotic disease is a disease caused by microbiological pathogens that can spread from animals to humans. Livestock manure generally contains three classes of zoonotic disease organisms: bacteria (campylobacter, salmonella, E. coli), protozoa (cryptosporidium, giardia), and viruses (rotavirus, enterovirus, hepatitis E). If humans and livestock facilities are co-located, there will always be some risk of transmission of zoonotic disease, but there are many steps that can be taken to minimize the risk, as outlined in Appendix 5. Currently, there are no regulations to measure or minimize pathogen loads in stored or land-spread manure. Protecting public health is achieved primarily through practices meant to protect surface and groundwater quality.

Recently, livestock operations have used irrigation systems to apply manure, typically through spray guns or other high volume delivery mechanisms. This has raised concerns about not only odor but also spreading microbial pathogens through mist and aerosols produced by the irrigation equipment. Bayfield County passed an ordinance in 2015 prohibiting application of manure through aerial irrigation equipment.

Anaerobic manure digestion is an increasingly common system used to harvest methane from stored manure for energy production. Such systems also reduce pathogen loads, but have not yet been required as part of manure handling systems in livestock operations.

Antibiotic resistance in zoonotic pathogens is of growing concern in the United States with some evidence indicating routine use of antibiotics in livestock operations may be contributing to development of antibiotic resistance. Revisions to the Veterinary Feed Directive in 2015 have banned sub-therapeutic use of antibiotics in livestock operations and now require veterinary approval prior to treating a herd through feed or water.

An increase in antibiotic resistant microbes in a community, such as MRSA, could be caused by overuse of antibiotics or could be caused simply by an increase in animal populations , and thus, an increase in the probability of exposure. As such, in addition to minimizing over-use of antibiotics in livestock (and human)

[12] Schiffman, S.S., Studwell, C.E., Landerman, L.R., Berman, K., and Sundy, J.S. 2005. Symptomatic Effects of Exposure to Diluted Air Sampled from a Swine Confinement Atmosphere on Healthy Human Subjects. Environmental Health Perspectives. 113(5): 567-576.

populations, strong biosecurity practices are key in reducing the chances of transport and exposure of zoonotic disease.

Rationale and Justification for Committee Recommendations

The Committee recommendations outlined in this report are intended to address the gaps identified for each of the topic areas as discussed above and in Appendix 2-5. The Committee recommends consideration and adoption of the Operations Ordinance by the Bayfield County Board. The remaining recommendations are a combination of outreach education, cost-share assistance, incentive programs, and some additional regulations, all of which require further consideration by the Land and Water Conservation and/or Health Department as it relates to priorities, budget, and staffing details.

The Committee reviewed a wide range of additional regulations for each topic area as means to address identified gaps in existing regulations. The Committee considered recommending codifying some or all of the possible additional regulations through amendment of the county siting ordinance, amendment of the county zoning code, or enactment of a new ordinance such as a manure storage and nutrient management ordinance. Such an approach would require DATCP and/or DNR approval of any regulations determined to be more stringent than existing regulations. In addition, codifying regulations would require the County to anticipate the full range of possible situations or impacts presented by livestock operations now and into the future.

Taking all considerations into account, the Committee is recommending adoption of an Operations Ordinance that requires new or expanding livestock facilities with 1000 or more animal units to demonstrate that the *operations* of the facility, including field operations, will not cause pollution or a private or public nuisance (Appendix 1). This allows the County to evaluate the specific circumstances, operations, and possible impacts of each proposed facility, and if necessary, apply specific conditions to an issued operations permit. It does allow a livestock facility of any size to operate in Bayfield County as long as it does not cause pollution or a private or public nuisance. In addition, the Committee is recommending adoption of a manure storage and management ordinance specific to the South Fish Creek watershed in order to reduce the risk of nutrient loading in South Fish Creek and consequent degradation of water quality in the Chequamegon Bay (Appendix 2).

Through the course of its work, the Committee and its members have come to appreciate and recognize the complexity of the issues raised by large-scale livestock operations. Having food to eat and clean water is not an either/or decision and having both requires a comprehensive approach involving research, outreach education, cost-share and incentive programs, and regulations. As such, the Committee strongly recommends Bayfield County carefully consider the specific recommendations outlined in this report and take steps to implement them.

Appendix 1 - Large-Scale Concentrated Animal Feeding Operations Ordinance and Application Form

No. 2015-___

BAYFIELD COUNTY LARGE-SCALE

CONCENTRATED ANIMAL FEEDING OPERATIONS ORDINANCE

WHEREAS, the special Bayfield County Large-Scale Livestock Study Committee has determined, based on well-documented factual findings, that it is necessary and appropriate for Bayfield County to regulate both the *operations* and *siting* of large-scale Concentrated Animal Feeding Operations ("CAFOs"), in order to adequately protect public health (including human and animal health), safety, and general welfare, prevent public and private nuisances, and preserve the quality of life, environment, and existing livestock and other agricultural operations of Bayfield County; and

WHEREAS, on January 27, 2015, the Bayfield County Board of Supervisors enacted Chapter 2 "Livestock Facilities Licensing Ordinance" of Title 5 [Public Safety] of the Code of Ordinances, Bayfield County, Wisconsin (hereinafter "Livestock Facilities Licensing Ordinance"), pursuant to the powers granted under the Wisconsin Constitution and Wisconsin Statutes, including but not limited to Wis. Stat. § 93.90 ("Livestock Siting Law"), and Wis. Admin. Code Ch. ATCP 51; and

WHEREAS, the Livestock Facilities Licensing Ordinance was enacted pursuant to Wis. Stat. § 93.90, and Wis. Admin. Code Ch. ATCP 51, to establish standards and procedures for licensing the *siting* of new and expanded livestock facilities, to protect the public health and safety of the people of Bayfield County; and

WHEREAS, on February 18, 2015, the Bayfield County Board of Supervisors enacted Chapter 4 "Moratorium on Livestock Facilities Licensing" under Title 5 "Public Safety" for a duration of twelve (12) months (with a possible extension of up to 6 more months), pursuant to Wis. Stat. § 59.03(2), to provide adequate time to determine whether amendments to the Livestock Facilities Licensing Ordinance or creation of another ordinance is necessary to adequately protect public health and safety, and determine whether adequate resources exist to enforce any new or existing livestock facilities ordinances; and

WHEREAS, pursuant to Wis. Stat. § 59.03(2), the Bayfield County Board of Supervisors "is vested with all powers of a local, legislative and administrative character, including without limitation because of enumeration, the subject matter of water, sewers, streets and highways, fire, police, and health, and to carry out these powers in districts which it may create for different purposes, or throughout the county…." Wis. Stat. § 59.03(2); and

WHEREAS, pursuant to Wis. Stat. § 59.70(1), Bayfield County has authority to "enact building and sanitary codes, make necessary rules and regulations in relation thereto and provide enforcement of the codes, rules and regulations by forfeiture or otherwise"; and

WHEREAS, pursuant to Wis. Stat. § 92.15, Wis. Admin. Code § ATCP 50.60(1), and Wis. Admin. Code § NR 151.096(3), Bayfield County has authority to issue individual permits that require livestock facilities to comply with uncodified conservation or water quality protection standards that may exceed state standards, without prior review and approval by Wisconsin Department of Agriculture, Trade, and Consumer Protection ("DATCP") or the Wisconsin Department of Natural Resources ("DNR"), provided such permit requirements or standards are not routinely applied as *de facto* regulatory enactments; and

WHEREAS, although Wis. Stat. § 93.90, and Wis. Admin. Code Ch. ATCP 51, impose limitations on Bayfield County's authority to restrict the *siting* of livestock facilities of over 500 animal units, these laws do not limit or withdraw Bayfield County's authority to regulate the ongoing *operations* of such facilities to prevent pollution, protect public health, safety, and general welfare, and prevent or abate nuisances which may be caused by livestock facilities, and this was expressly recognized in *Adams v. Wis. Livestock Facilities Siting Review Bd.*, 2012 WI 85, ¶ 65 n. 30 & ¶¶ 75, 83-84, 342 Wis. 2d 444, 820 N.W.2d 404; and

WHEREAS, in *Adams v. Wis. Livestock Facilities Siting Review Bd.*, a majority of the Wisconsin Supreme Court stated that:

> Our decision does not leave political subdivisions without recourse against polluters. Most importantly, political subdivisions retain the authority to bring nuisance abatement actions against polluting farms. *See* Wis. Stat. § 823.01. More generally, this decision does not speak to political subdivisions' ability to regulate livestock facility *operations.* It simply says that the legislature has forbidden them from regulating livestock facility *siting* except as permitted by the Siting Law.

Id., 2012 WI 85, ¶ 65 n. 30; and

WHEREAS, pursuant to Wis. Stat. § 254.51(5), Bayfield County has authority to enact "ordinances that set forth requirements for animal-borne and vector-borne disease control to assure a safe level of sanitation, human health hazard control or health protection for the community"; and

WHEREAS, pursuant to Wis. Stat. § 254.59(7), Bayfield County has authority to "enact an ordinance concerning abatement or removal" of human health hazards that is "at least as restrictive as" Wis. Stat. § 254.59, which may be enforced in Bayfield County; and

WHEREAS, in addition to the Livestock Facilities Licensing Ordinance enacted on January 27, 2015, it is in the best interests of the County of Bayfield to enact a separate ordinance, to more effectively, efficiently, and comprehensively regulate the *operations* of large-scale CAFOs of 1,000 animal units or greater, regardless of where they may be sited, to adequately protect public health (including human and animal health), safety, and general welfare, and to prevent public and private

nuisances, and preserve the quality of life, environment, and existing small-scale livestock and other agricultural operations of Bayfield County; and

WHEREAS, it is deemed to be in the best interest of the County of Bayfield that the Code of Ordinances, Bayfield County, Wisconsin, be further modified and amended in the manner set forth.

NOW, THEREFORE, the Bayfield County Board of Supervisors does hereby ordain as follows:

Section 1. Chapter 6 [Large-Scale Concentrated Animal Feeding Operations Ordinance] of Title 5 [Public Safety] of the Code of Ordinances, Bayfield County, Wisconsin is hereby created to read as follows:

Chapter 6 Large-Scale Concentrated Animal Feeding Operations Ordinance

Sec. 5-6-1 Authority

This ordinance is adopted pursuant to the powers granted under the Wisconsin Constitution and the Wisconsin Statutes, including but not limited to Wis. Stats. §§ 59.03(2), 59.70(1), 254.51(5) & 254.59(7).

Sec. 5-6-2 Title and Purpose

The title of this ordinance is the Large-Scale Concentrated Animal Feeding Operations Ordinance.

The purpose of this ordinance is to effectively, efficiently, and comprehensively regulate the *operations* of Large-Scale Concentrated Animal Feeding Operations of 1,000 animal units or greater ("CAFOs"), without respect to siting, to protect public health (including human and animal health), safety, and general welfare, to prevent pollution and the creation of private nuisances and public nuisances, and to preserve the quality of life, environment, and existing small-scale livestock and other agricultural operations of Bayfield County ("the County").

Sec. 5-6-3 Definitions

(a) All definitions located in Section 5-2-3 of the Bayfield County Code of Ordinances are hereby adopted and incorporated by reference as if set forth herein.

(b) "Large-Scale Concentrated Animal Feeding Operation" or "CAFO" means a lot or facility, other than a pasture or grazing area, where 1,000 or more animal units have been, are or will be stabled or concentrated, and will be fed or maintained by the same owner(s), manager(s) or operator(s) for a total of 45 days or more in any 12-month period. Two or more smaller lots or facilities under common ownership or common management or operation are a single Large-Scale Concentrated Animal Feeding Operation or CAFO if the total number of animals stabled or concentrated at the lots or facilities equal 1,000 or more animal units and at least one of the following is true: (1) The operations are adjacent; (2) The operations

utilize common systems for the land spreading of manure or other wastes; (3) Animals are transferred between the lots or facilities; (4) The lots or facilities share staff, vehicles, or equipment; or (5) Manure, barnyard runoff or other wastes are commingled in a common storage facility at any time.

(c) "Operations" means a course of procedure or productive activity for purposes of conducting and carrying on the business of a "Large-Scale Concentrated Animal Feeding Operation" or "CAFO," including populating animal housing facilities, storing and managing animal and other waste materials, and conducting any other business activities.

(d) "Pollution" means degradation that results in any violation of any environmental law as determined by an administrative proceeding, civil action, criminal action or other legal or administrative action, investigation or proceeding, including but not limited to a determination of a violation of a livestock or cropland performance standard under Wis. Admin. Code. §§ NR 151 & 243.23, a determination that any type of unacceptable practice has occurred under Wis. Admin. Code § NR 243.24, a determination that malodorous emissions have been caused or allowed in violation Wis. Admin. Code § NR 429.03. For the purpose of this paragraph, issuance of an order or other communication addressing corrective action or a stipulated agreement, fine, forfeiture or other penalty, is considered a determination of a violation, regardless of whether there is a finding or admission of liability.

(e) "Private nuisance" means a nontrespassory invasion of another's interest in the private use and enjoyment of land, and the invasion is either: (1) Intentional and unreasonable, or (2) Unintentional and otherwise actionable under the rules controlling liability for negligent or reckless conduct, or for abnormally dangerous conditions or activities.

(f) "Public nuisance" means a thing, act, occupation, condition or use of property which shall continue for such length of time as to: (1) Substantially annoy, injure or endanger the comfort, health, repose or safety of the public; (2) In any way render the public insecure in life, health or in the use of property; or (3) Unreasonably and substantially interfere with, obstruct or tend to obstruct or render dangerous for passage or public use any street, alley, highway, navigable body of water or other public way or the use of public property or other public rights.

(g) "Siting" means determination of the place where the structures and other physical facilities associated with development of a "Large-Scale Concentrated Animal Feeding Operation" or "CAFO" may be located, pursuant to Chapter 2 "Livestock Facilities Licensing Ordinance" of Title 5 [Public Safety] of the Code of Ordinances, Bayfield County, Wisconsin, Wis. Stat. § 93.90, and Wis. Admin. Code Ch. ATCP 51.

Sec. 5-6-4 Large-Scale Concentrated Animal Feeding Operations or CAFOs

(a) Regardless of siting, a Large-Scale Concentrated Animal Feeding Operation or CAFO shall be allowed to conduct operations within the County only as provided for under this ordinance.

(b) The applicant shall apply for a "CAFO Operations Permit" prior to conducting any operations associated with a Large-Scale Concentrated Animal Feeding Operation or CAFO within the County. The application shall be submitted on a form provided to the applicant by the County Clerk, a copy of which is attached hereto as Appendix A.

(c) The Bayfield County Board of Supervisors ("County Board") shall decide whether or not to approve and issue a CAFO Operations Permit to an applicant that has submitted a complete application and paid the required application fee, after holding a public hearing on the application and considering any evidence concerning the application and the proposed CAFO presented by the applicant and any other interested persons or parties, including members of the public and other governmental agencies or entities, and special legal counsel and expert consultants who may be hired by the County to review the application and advise the County Board.

(d) The County Board shall approve and issue a CAFO Operations Permit, either with or without conditions, if it determines by a majority vote of all members of the County Board, supported by clear and convincing evidence presented by the applicant, that the operations of the proposed CAFO, with or without conditions, will protect public health (including human and animal health), safety, and general welfare, prevent pollution and the creation of private nuisances and public nuisances, and preserve the quality of life, environment, and existing small-scale livestock and other agricultural operations of the County, and that the application meets all other requirement of this Ordinance.

(e) The County Board shall issue a CAFO Operations Permit, with or without conditions, to an applicant that has met all other requirements of this Ordinance provided it determines, based on information provided by the applicant and verified by the County, that a CAFO having substantially similar operational characteristics, housing the same species of animals, and utilizing similar operations, has been continuously operated in the United States for at least ten (10) years without causing pollution of groundwater or surface water, and without causing either a private nuisance or a public nuisance, as determined by an administrative proceeding, civil action, criminal action or other legal or administrative action, investigation or proceeding. However, this requirement may be waived by the County Board at the specific request of the applicant for a CAFO Operations Permit if the County Board determines after a hearing and based on clear and convincing information provided by the applicant and verified by the County, that the proposed CAFO will otherwise meet the requirements set forth in Sec. 5-6-4 (d), above.

(f) A CAFO Operations Permit approved by the County Board can be voided at any time if the permittee violates any conditions of the permit or any conditions of any other required Federal, State or County permits or licenses, at any time. The County Board shall hold a hearing in advance of the voiding of any permit and provide the permitee an opportunity to prove, by clear and convincing evidence, that there have been no violation of conditions of the permit or condition of any other required Federal, State or County permits or licenses.

Sec. 5-6-5 Procedures

(a) An applicant for a CAFO Operations Permit shall complete a Bayfield County CAFO Operations Permit Application (Appendix A) and pay the required application fee of one dollar ($1.00) per proposed animal unit to Bayfield County, at the time the application is submitted to the County Clerk.

(b) Upon signing and submitting a CAFO Operations Permit Application to the County Clerk, the applicant shall agree to fully compensate the County for all legal services, expert consulting services, and other expenses which may be reasonably incurred by the County in reviewing and considering the application, regardless of whether or not the application for a permit is subsequently approved, with or without conditions, or denied by the County Board. Within thirty (30) days of a request by the County Administrator, the applicant shall provide an administrative fee deposit with the County Clerk in an account such that funds are available to be withdrawn by the County and used to pay for or reimburse the County for the costs and expenses the County incurs in connection with processing the permit application. The County Administrator, in consultation with other County employees, independent consultants and/or legal counsel, shall determine the initial administrative fee deposit based upon the anticipated costs necessary to process the application. After the initial administrative fee deposit, should the County Board at any time determine that additional fees related to the processing of the application will be necessary, the applicant will make an additional fee deposit into the related administrative fee account within fifteen (15) days of receipt of a request for additional funds by the County Board. Any funds remaining in the administrative fee account once the permit application process is complete shall be returned to the applicant. If the administrative fee account is insufficient to cover all remaining costs related to the CAFO Operations Permit Application, the County shall issue a bill for the remaining costs to the applicant, who shall pay said bill within thirty (30) days.

(c) After receiving the application and the application fee, the County Clerk shall mail a notice that a CAFO Operations Permit Application has been received to all landowners within 3 miles of the proposed CAFO with the date and time of the County Board meeting at which the application will be first considered. The notice shall provide information on how interested persons and parties may inspect and obtain a copy of the application.

(d) The County Clerk shall then place the application on the agenda for the next regular County Board meeting for which required notice can be provided, at which time the County Board shall conduct an initial review of the application and schedule further proceedings for review and consideration of the application by the County Board. Such proceedings shall include: (a) Considering the need to hire special legal counsel and expert consultants to review the application and advise the County Board; (b) Developing a plan to make a determination of the completeness of the application within a reasonable amount of time; (c) Developing a plan to schedule further proceedings, including scheduling a formal public hearing before the County Board on the application at least sixty (60) days after the application has been determined to be complete by the County Board, and scheduling a subsequent special meeting of the County Board to decide whether

or not to grant the requested permit and what, if any, conditions shall be required if the requested permit is granted, within a reasonable amount of time.

(e) At the formal public hearing held by the County Board on the application at least sixty (60) days after it has been determined to be complete, the County Board shall consider any evidence concerning the application and the proposed CAFO presented by the applicant and any other interested persons or parties, including members of the public and other governmental agencies or entities, and special legal counsel and expert consultants who may be hired by the County to review the application and advise the County Board.

(f) In its review and consideration of a CAFO Operations Permit Application, the County Board shall act in a quasi-judicial capacity, and its final decision on whether or not to approve and issue a CAFO Operations Permit, either with or without conditions, shall be based on written findings of fact and conclusions of law consistent with the provisions of this ordinance, which shall be filed with the County Clerk and served on the applicant by regular U.S. Mail.

(g) The County Board shall approve and issue a CAFO Operations Permit, either with or without conditions, if it determines by a majority vote of all members of the County Board, supported by clear and convincing evidence presented by the applicant, that the operations of the proposed CAFO, with or without conditions, will protect public health (including human and animal health), safety, and general welfare, prevent pollution and the creation of private nuisances and public nuisances, and preserve the quality of life, environment, and existing small-scale livestock and other agricultural operations of the County and that the application meets all other requirement of this Ordinance.

(h) The County Board shall issue a CAFO Operations Permit, with or without conditions, to an applicant that has met all other requirements of this Ordinance if it determines, based on information provided by the applicant and verified by the County, that a CAFO having substantially similar operational characteristics, housing the same species of animals, and utilizing similar operations, has been continuously operated in the United States for at least ten (10) years without causing pollution of groundwater or surface water, and without causing either a private nuisance or a public nuisance. However, this requirement may be waived by the County Board at the specific request of the applicant for a CAFO Operations Permit if the County Board determines, upon a hearing and based on clear and convincing information provided by the applicant and verified by the County, that the proposed CAFO will otherwise meet the requirements set forth in Secs. 5-6-4 (d) and 5-6-5 (g), above.

(i) The County Board shall, in granting any CAFO Operations Permit, require the applicant to ensure that sufficient funds will be available for pollution clean-up, nuisance abatement, and proper closure of the CAFO if it is abandoned or otherwise ceases to operate as planned and permitted, based on the following provisions:

1. Notification. The County Board shall determine the required financial assurance level of the CAFO and shall notify the applicant. As a condition of a permit, the County Board shall require financial assurance to be filed with the County Board in an amount sufficient to clean-up environmental contamination if the same were to occur, to abate public nuisances caused by CAFO operations, including but not limited to the testing and replacement of any potentially contaminated private and public wells and water supplies within the areas subject to CAFO operations, and to ensure proper closure of the CAFO, should the applicant elect to close or should the closure occur for some other reason. Upon notification of the required financial assurance levels by the County Board, but prior to commencing operations of the CAFO, the applicant shall file with the County Board said financial assurance conditioned on faithful performance of all requirements of this chapter and the permit. Upon notification by the County Board of financial assurance or deposit approval and conformance with permit conditions, the applicant may commence CAFO operations.

2. Bond Requirements.

(a) Bonds shall be issued by a surety company licensed to do business in this state. At the option of the applicant or permit holder a performance bond or a forfeiture bond may be filed. Surety companies may have the opportunity to complete the clean-up of environmental contamination or complete proper closure of the CAFO in lieu of cash payment to the County.

(b) Each bond shall provide that the bond shall not be canceled by the surety, except after not less than 90 days notice to the County Board, in writing, by registered or certified mail. Not less than 30 days prior to the expiration of the 90 day notice of cancellation, the applicant or permit holder under this chapter must deliver to the County Board a replacement bond or approved alternate financial assurance in absence of which all CAFO operations shall cease.

(c) The bond shall be payable to “Bayfield County, Wisconsin”.

3. Alternate Financial Assurance. An applicant or permit holder may deposit cash, irrevocable letters of credit, irrevocable trusts, established escrow accounts, negotiable certificates of deposit or negotiable government securities with the County in lieu of a bond. Certificates of Deposit shall be automatically renewed or replaced with an alternate security before the maturity date. Any interest earned by the financial assurance will be paid to the applicant at the time such financial assurance is cancelled or withdrawn.

4. Financial Assurance Reevaluation.

(a) The County Board may reevaluate and adjust accordingly the amount of the financial assurance required for the CAFO, including reevaluating said financial assurance when requested to do so by the applicant or permit holder, provided that the applicant or permit holder may only request a reevaluation once per year.

(b) The applicant or permit holder shall notify the County Board in writing if there is a ten percent (10%) change in the average daily number of animal units housed at the CAFO in any 365 day period. This notification shall be provided at any time such a change occurs, and not just for financial assurance reevaluation.

(c) The County Board shall notify the applicant in writing within 60 days of a decision to adjust the amount of the financial assurance for the CAFO, whether the adjustment results in a greater or lesser financial assurance requirement.

5. Financial Assurance on Multiple Projects. Any applicant or permit holder that receives a permit from the County Board for two or more CAFOs may elect, at the time the second or subsequent CAFO is approved, to post a single financial assurance in lieu of separate financial assurance on each CAFO. Any financial assurance so posted shall be in an amount equal to the estimated cost to the County to clean-up environmental contamination if the same were to occur at all such CAFOs, to abate public nuisances caused by CAFO operations, including but not limited to the testing and replacement of any potentially contaminated private and public wells and water supplies within the areas subject to CAFO operations, and to ensure proper closure of all such CAFOs, should the applicant elect to close or should the closure occur for some other reason. When an applicant elects to post a single financial assurance in lieu of separate financial assurance previously posted on an individual CAFO the separate financial assurance shall not be released until the new financial assurance has been accepted by the County Board.

6. Financial Assurance Release. The County Board shall release the applicant's or permit holder's financial assurance after providing notice to all property owners within 3 miles of the CAFO of the intent to release financial insurance and allowing such owners 90 days to object, if it finds, after inspection of the CAFO and documentation provided by the permit holder, that the permit holder has completed or ceased CAFO operations at the permitted location and all associated parcels, and that there is no environmental contamination or public nuisance remaining at any locations used for any part of the CAFO operations, after operations have ceased.

7. Cancellation. The financial assurance shall provide that it may not be canceled by the surety or other holder or issuer except after not less than ~~a~~ 90 days notice to the County Board in writing by registered or certified mail. Not less than 30 days prior to the expiration of the 90 days notice of cancellation, the applicant or permit holder shall deliver to the County Board a replacement financial assurance. In the absence of this replacement financial assurance, all CAFO operations shall cease until the time the required financial assurance is delivered and in effect.

8. Changing Methods of Financial Assurance. The operator of a CAFO may change from one method of financial assurance to another. This may not be done more than once a year unless required by an adjustment imposed pursuant to this chapter. The permit holder shall give the County Board at least 60 days notice prior to changing methods of financial assurance and may not actually change methods without the written approval of the County Board.

9. Bankruptcy Notification. The applicant or permit holder under this chapter shall notify the County Board by certified or registered mail of the commencement of voluntary or involuntary proceedings under the United States Bankruptcy Code, U.S. Code Title 11--Bankruptcy, naming the applicant or permit holder as a debtor, within 10 days of commencement of the bankruptcy proceeding.

(j) The County Board may approve a CAFO Operations Permit and attach conditions to protect public health (including human and animal health), safety, and general welfare, prevent pollution and the creation of private nuisances and public nuisances, and preserve the quality of life, environment, and existing small-scale livestock and other agricultural operations of the County. To the extent not expressly or otherwise preempted by Wis. Stat. § 93.90, and Wis. Admin. Code Ch. ATCP 51 or any other provision of state or federal law, such conditions may include, but are not limited to:

1. Conditions relating to the operational characteristics of the proposed CAFO, to protect public health, prevent point and non-point sources of air and water pollution, and prevent private nuisances and public nuisances;

2. Conditions relating to the management of animal and other waste that may be generated as part of a CAFO's ongoing operations, to protect public health, prevent point and non-point sources of air and water pollution, and prevent private nuisances and public nuisances;

3. Conditions relating to the population and depopulation of individual animal housing facilities, to protect public health and prevent the spread of animal-borne and vector-borne disease, to assure a safe level of sanitation, and to assure human health hazard control or health protection for the community;

4. Conditions relating to biosecurity and the maintenance of animal health and welfare, to prevent the spread of animal-borne and vector-borne disease, to protect public health, and provide for animal safety and welfare;

5. Conditions relating to transportation of animals as part of a CAFO's ongoing operations, to protect public health, prevent pollution, and prevent private nuisances and public nuisances;

6. Conditions relating to protection of private and public drinking and agricultural wells, and other public water supplies, as part of a CAFO's ongoing operations to protect public health, prevent pollution, and prevent private nuisances and public nuisances;

7. Conditions relating to air emissions and dust control as part of a CAFO's ongoing operations, to protect public health, prevent pollution, and prevent private nuisances and public nuisances;

8. Conditions relating to protection of the private and public property rights and property values of affected property owners, as part of a CAFO's ongoing operations, to protect the general welfare of the County's residents and property owners, and to prevent private nuisances and public nuisances;

9. Conditions relating to permit compliance, enforcement, and monitoring, including establishment of fees that may be assessed against the permittee to cover the costs of hiring, training, and maintaining County personnel, or for contracting with private consultants, to conduct permit compliance, enforcement and monitoring activities for the County; and

10. Any other conditions deemed reasonably necessary or appropriate by the County Board to effectively, efficiently, and comprehensively regulate the *operations* of a CAFO, to protect public health (including human and animal health), safety, and general welfare, prevent pollution and the creation of private nuisances and public nuisances, and preserve the quality of life, environment, and existing small-scale livestock and other agricultural operations of the County.

(k) An applicant or any other person or party who is aggrieved by a final decision of the County Board on whether or not to approve and issue a CAFO Operations Permit, either with or without conditions, or a taxpayer, or any officer, department, board or bureau of the County, may, within thirty (30) days after the filing of the decision with the County Clerk, commence an action seeking the remedy available by certiorari in the Bayfield County Circuit Court. The court shall not stay the decision appealed from, but may, with notice to the County Board, grant a restraining order. The County Board shall not be required to return the original papers acted upon by it, but it shall be sufficient to return certified or sworn copies thereof. If necessary for the proper disposition of the matter, the court may take evidence, or appoint a referee to take evidence and report findings of fact and conclusions of law as it directs, which shall constitute a part of the proceedings upon which the determination of the court shall be made. The court may reverse or affirm, wholly or partly, or may modify, the decision brought up for review.

(l) In any certiorari proceeding brought under the preceding paragraph, attorney fees and costs shall not be allowed against the County Board unless it shall appear to the court that it acted with gross negligence, or in bad faith, or with malice in making the decision appealed from.

(m) A final decision of the County Board under this ordinance is not subject to appeal under Wis. Stat. 93.90(5) or the provisions of Chapter 2 "Livestock Facilities Licensing Ordinance" of Title 5 [Public Safety] of the Code of Ordinances, Bayfield County, Wisconsin, Wis. Stat. § 93.90, and Wis. Admin. Code Ch. ATCP 51, which apply only to *siting* decisions.

(n) The County Board, or its designee, shall work to ensure on an ongoing basis that all requirements and conditions of any permit issued under this ordinance are followed by the permittee. To assist in accomplishing this task, any permit issued pursuant to this ordinance shall be subject to an annual renewal fee in the amount of $1 per animal unit.

Sec. 5-6-6 Permit Term & Extensions

(a) A permit issued by the County Board under this ordinance shall be for an initial term of five (5) years, so long as the permittee remits the annual renewal fee set forth in Sec. 5-6-5(n), above. Thereafter, if no substantial changes or modifications are proposed to the CAFO operations and there have been no permit violations or compliance problems a permittee may apply for extension of the same permit for additional five (5) year periods. The County Board may request any information it finds reasonably necessary to evaluate whether no substantial changes or modification are proposed or have taken place, and the permittee shall provide such information. If substantial changes or modifications are determined to have taken place, or if there have been violations of the permit conditions or requirements under this ordinance, or under any state or federal requirements, the permittee shall have to reapply for an Operations Permit and follow all steps required under this ordinance.

Sec. 5-6-7 Penalties

(a) Any violation of this ordinance shall be punishable by a forfeiture of not less than $100.00 or more than $5,000.00 per day for every day of violation of this ordinance, plus the costs of prosecution, including the County's reasonable attorney fees and costs, for each and every violation.

(b) Each day of violation shall constitute a separate offense. In addition, the County Board may: (1) issue a notice of violation and order that specifies required remedial action, which may include a stop operations and work order; (2) suspend or revoke the permit; or (3) impose any other available enforcement remedy.

Section 2. Except as specifically modified and amended by this ordinance, the Bayfield County Code of Ordinances shall remain in force and effect exactly as originally adopted and previously amended. All ordinances or parts of ordinances inconsistent with or in contravention of the provisions of this ordinance are hereby repealed.

Section 3. **Severability.** If a court of competent jurisdiction adjudges any section, clause, provision, or portion of this ordinance, unconstitutional or invalid, the remainder of this ordinance shall remain in full force and effect and shall not be affected thereby. In addition, if a court of competent jurisdiction adjudges any section, clause, provision, condition, or portion of any CAFO Operations Permit approved and issued by the County Board, pursuant to this ordinance, unconstitutional or invalid, the remainder of the CAFO Operations Permit shall remain in full force and effect and shall not be affected thereby.

Section 4. **Effective Date.** This ordinance shall take effect and be in full force from the date of its passage by the County Board.

BAYFIELD COUNTY CAFO OPERATIONS PERMIT APPLICATION

Application Filing Fee: $ _____ (# of Animal Units) **x** $1.00 per AU = $ _____

Date of Application: _____

Name of Individual or Organization Operating CAFO): _____

_____

Name of Individual Completing Application: _____

Federal Employer ID# _____ State Employer ID# _____

Contact Person: _____

Address: _____

City _____State _____Zip _____

Phone: ( )_____ Fax: ( )_____ Cell Phone: ( )_____

Email: _____

Provide the Legal Description and owner name and contact information for each parcel of the land at which the livestock facilities will be located. If any of the land is rented include a copy of the lease agreement or other document demonstrating permission to use the land and/or facilities as proposed. Provide the following information for each parcel.

___ 1/4 of ___ 1/4, Section____Township ____N. Range____W. Town of _____

Tax Parcel ID Number: _____ Acreage _____

Name and Address of Land Owner:

Name: _____

Address: _____

City _____State _____Zip _____

Provide the Legal Description and owner name and contact information for each parcel of **Owned or Rented** land proposed to be used in conjunction with CAFO Operations (e.g. manure spreading). For each parcel of **Rented** land include a copy of a cropland lease agreement or other document demonstrating permission to use the land as proposed. The term of the lease agreement must be clearly indicated in the lease agreement. Provide the following information for each parcel.

___ 1/4 of ___ 1/4, Section____Township ____N. Range____W. Town of _____

Tax Parcel ID Number: _____ Acreage _____

Name and Address of Land Owner:

Name: _____

Address: _____

City _____State _____Zip _____

(1) Describe current land uses within and immediately adjacent to the proposed CAFO site, including aerial photographs. For lands being used for crop production, include a description of crops currently being grown with an estimate of acreage of each crop.

(2) Permits:

a. Does this CAFO have a Bayfield County Siting License? **Yes** **No**

b. Does this CAFO have a Wisconsin Pollutant Discharge Elimination Systems Permit? **Yes** **No**

c. Does this CAFO have Bayfield County Land Use Permit(s)? **Yes** **No**

d. If so, identify the permits held.

e. If this CAFO lacks any of the above permits, please set forth all plans to obtain any of the above permits, including when applications have been or will be filed, and the expected date for approval or denial of the permit.

(3) Location/Crops/Phosphorus:

a. Identify each structure or facility intended to be used in conjunction with the proposed CAFO, setting forth the location, physical dimensions, and intended use for each structure, as well as how many animal units, if any, will be housed in each structure. At a minimum, include all information and drawings required by Wisconsin Administrative Rules, Chapter NR 243.12(1)(a) 1 through 5.

b. List each crop that will be grown on land managed by the CAFO. Provide an annual yield estimate for each crop and an explanation of how that estimate was determined.

c. Provide aerial photos that identify all perennial streams, intermittent streams, navigable waters, and direct conduits to navigable waters on or within 1,000 feet of any parcel of land intended to be used in conjunction with the proposed CAFO.

d. Provide a soil map using SSURGO data for all parcels of land intended to be used in conjunction with the proposed CAFO. Include a soil map unit description for each predominant and critical soil type shown on the maps and include an estimate of soil depth to bedrock or gravel or sand deposits. Include soil test data for phosphorus with one sample per five acres. The soil test data must have been collected no more than 12 months prior to submission of this application.

e. Using the P-Trade report in SNAP-PLUS or other viable means, provide an estimate of total annual field edge phosphorus losses for all fields to be used in conjunction with the proposed CAFO for each of the two full calendar years prior to the date submitting this application.

f. Provide an estimate of total annual phosphorus losses for each of the two full calendar years prior to the date submitting this application for all existing agricultural facilities (buildings, animal lots, animal feeding areas, feed storage etc.) on all lands to be used in conjunction with the CAFO.

g. Provide an estimate of total annual phosphorus losses for each of the full five calendar years of the proposed operations for all existing agricultural facilities (buildings, animal lots, animal feeding areas, feed storage, etc.) on all lands to be used in conjunction with the CAFO.

(4) CAFO operations:

a. Describe the method or methods the CAFO will employ to store any and all animal waste products, including describing the exact location where such products will be stored at any time during operation of the CAFO. You may refer to information and drawings submitted in response to paragraph (3) a. above, as appropriate.

b. Describe the method or methods the CAFO will employ to handle and process any and all animal waste products, including the specific machinery and methods that will be employed, the location where the processing of waste will take place, and any materials or chemicals that will be used. Describe any technology or processes that will be used (such as anaerobic digestion) that will alter pathogen loads, nutrient content, or moisture levels of the manure prior to land-spreading.

c. Provide a complete nutrient management plan that meets the requirements of Wisconsin Administrative Code NR 243.14. The plan shall be based on the volume of manure that will be generated by the operation in each of the five calendar years covered by this Permit. Include all lands being used in conjunction with the operations of the CAFO, including but not limited to: spreading manure, growing

and harvesting crops, applying commercial fertilizer, shall be included in the nutrient management plan. Provide a copy of a cropland lease agreement or other document for all rented lands included in the nutrient management plan. The lease agreements must clearly allow the land use as proposed in the nutrient management plan.

d. Provide an estimate of how many livestock mortalities are expected for the operation in a given year and a description of how that estimate was determined. Describe the method or methods the CAFO will use to store dead animals (carcasses), including describing the exact location where such carcasses will be stored and for how long.

e. Describe the method or methods the CAFO will use to handle, process, and dispose of any and all dead animals, including the specific technology, machinery, and methods that will be employed, the location where the processing/disposal of carcasses will take place, and any materials or chemicals that will be used. If licenses or approvals are necessary from the Wisconsin Department of Natural Resources or other state, town, or federal agency, provide copies of those licenses, permits, and/or approvals. If this CAFO lacks any of the required licenses, permits, and/or approvals, describe all plans and expected dates for receiving them.

f. Describe the technologies or method(s) the CAFO will employ to reduce, eliminate, or treat methane, nitrous oxide, ammonia, hydrogen sulfide, and particulate emissions from the proposed CAFO, including the specific technology, machinery, and methods that will be employed, and any materials or chemicals that will be used.

f. Describe how animals will be transported to, from, and within the CAFO, including a description of the type, size and weight (loaded gross vehicle and each axle) of the transportation vehicles, all highways or roads within the County that will be used, the proposed hours of operation for said transportation, and the specific path of travel for all such transportation.

g. Describe how all animal waste will be transported to, from and within the CAFO, including a description of the type, width, length, and weight (loaded gross vehicle and each axle) of the transportation vehicles, all highways or roads within the County that will be used, the proposed hours of operation for said transportation, and the specific path of travel for all such transportation.

h. Describe how all other products or materials (apart from animals or manure) will be transported to, from and within the CAFO, including a description of the type, width, length, and weight (loaded gross vehicle and each axle) of the transportation vehicles, all highways or roads within the County that will be used, the proposed

hours of operation for said transportation, and the specific path of travel for all such transportation.

i. Describe the type, width, length, and weight (loaded gross vehicle and each axle) of each implement of husbandry (excluding manure and animal hauling equipment) that will be used on highways or roads within the County. Provide an aerial photos showing the specific path of travel for the implements of husbandry and the estimated hours of operation of the equipment on the highways or roads in Bayfield County.

j. If manure is transported by pipeline (permanent or temporary) to fields for land-spreading provide a map showing the intended route and the location and photo of every culvert used along the route. Show all perennial streams, intermittent streams, and direct conduits to navigable waters on the map(s). If required, provide a copy of the permit(s) allowing use of the right-of-way or culvert. If crossing driveways or land not under the control of the CAFO, provide a letter from the landowner clearly granting permission to cross the driveway or land with the permanent or temporary pipeline.

k. Identify all residential and business structures within 500 feet of a gravel road in Bayfield County used at any time of the year by implements of husbandry, agricultural CMVs, tractor-trailers, or semi-trailers. Describe how road dust generated by use of the gravel roads by the CAFO will be controlled.

l. Identify the source of all water to be used at the proposed CAFO facility and the anticipated quantity of water that will be necessary for all CAFO related operations, and also set forth the location of any private or public well located within 1000 feet of any parcel of real estate to be used in conjunction with the proposed CAFO facility. Provide well-drilling records, if available, for all private or public wells within 1000 feet of any parcel of real estate to be used in conjunction with the proposed CAFO facility.

m. Identify a CAFO having substantially similar operational characteristics, housing the same species of animals, and utilizing similar operations, that has been continuously operated in the United States for at least ten (10) years without causing pollution of groundwater or surface water, and without causing either a private nuisance or a public nuisance. Set forth in what ways said existing CAFO has similar operational characteristics of the CAFO proposed in this application. In the alternative, state whether the applicant is requesting a waiver of this requirement and, if so, provide information that may be verified by the County, to show that the proposed CAFO will otherwise meet the requirements set forth in Secs. 5-6-4 (d) and 5-6-5 (g), of the Ordinance.

(5) Animal Welfare:

a. Describe how all animals will be housed in the proposed CAFO, including a description of the size of each pen or stall any animal will be kept in, the number of animals that will be kept within each pen, and the location and type of any outdoor area allotted for animals.

b. In the event of power outages or equipment failure, describe how the welfare of animals housed by the CAFO will be maintained including, but not limited to: providing water, venting hazardous air emissions, cooling, and feeding.

c. Describe how all animal units will be fed, including the type of feed, the amount of feed per animal, the method of feeding each animal, etc.

d. Apart from the feed identified above, identify all products (including chemicals or medicines) that will be injected in, fed to, or otherwise administered to animals in the CAFO on an ongoing basis (i.e. at least once per month):

e. Identify any and all measures that will be taken to prevent the spread of disease between animals and between animals and humans at the proposed CAFO.

f. Identify all veterinary care that will be routinely administered to or available to the animals of the proposed CAFO, and identify all medicines or treatments that are anticipated to be administered to animals of the proposed CAFO. Identify steps that will be taken by the CAFO to limit development of resistance to antibiotics.

(6) Employee Welfare:

a. Identify the number of anticipated employees at the proposed CAFO.

b. What type of education will employees receive regarding operating safe CAFOs and maintaining safe and healthful conditions for animals and employees at said facility?

c. What type of healthcare will be made available to employees of the proposed CAFO, or what type of routine medical examinations will be performed?

d. What are the hours and days of anticipated operation of the proposed CAFO specifically identifying days and times where machinery or other equipment that may make noise detectable to neighboring properties will be in use?

(7) Emergency management:

a. Set forth in detail an emergency plan of action in the event of soil, water or air contamination emanating from the proposed CAFO, or in the event of a spill of animal waste products, whether on or off the proposed CAFO site, including the name and contact information for emergency management response team members, the equipment and location of equipment available to respond to such an

emergency situation, the anticipated timeline for response to an emergency event, and the anticipated testing measures to be used to ensure the emergency response was effective. At a minimum, include all information and drawings required by Wisconsin Administrative Rules, Chapter NR 243.12(13)6.

b. Set forth in detail an emergency plan of action in the event of a mass animal mortality event (death of more than 5% of the animals within a 72 hour period) caused by natural disaster, disease, equipment failure, or other cause. Include the name and contact information for the emergency management response team members, the equipment and location of equipment available to respond to such an emergency situation, the anticipated timeline for response to an emergency event, and the anticipated testing measures to be used to ensure the emergency response was effective.

c. Identify all residences and businesses within 1000' of the proposed CAFO site and provide names and contact information for all the owners of those residences and businesses. Indicate how each of those owners will be contacted within 30 minutes of a failure of air filtration or other equipment intended to limit emission of hazardous gasses or particulates.

d. Set forth in detail all regular testing or monitoring that will take place to ensure that no contamination or environmental degradation is occurring as a result of CAFO related activities. Provide a description of the testing or monitoring protocols and schedule as well as how the data will be communicated to the County.

(8) Environmental impact:

a. List resources that may be impacted by the proposed CAFO such as timber, agriculture, surface water, ground water, air quality, noise pollution and plant, wildlife or fish habitat. Describe measures that will be taken to mitigate those impacts.

b. Are there any known endangered species on or near the proposed CAFO site? **Yes / No**. If yes – describe the species and whether an environmental impact statement will need to be prepared?

c. Will groundwater monitoring wells be installed? If not, describe why not. If so, provide information on each monitoring well including anticipated well depth, well location, chemicals and/or substances that will be monitored, and the schedule and protocol for testing the water from each well. How will this information be shared with Bayfield County and the public?

d. Describe erosion control practices that will be used during the CAFO operations. If no measures will be used, explain why none are needed.

e. Describe how concentrated flow areas and direct conduits to surface waters will be maintained in perennial vegetation. If concentrated flow areas and/or direct conduits to groundwater are rutted during field operations, describe how the concentrated flow areas and/or direct conduits to surface water will be repaired. Provide an estimate of how often the concentrated flow areas and/or direct conduits to surface water will need to be repaired.

(9) Public and private nuisances:

a. Describe measures that will be taken to screen the CAFO operation from view of surrounding land uses or explain why such measures are not needed (include photos of the area to show affected areas or why no areas will be affected).

b. Describe how odor from the livestock facilities and land-spreading activities will be controlled. If no such measures are necessary, explain why. Also explain the schedule and method for air quality testing, if any, within a quarter mile of the proposed CAFO's boundaries before, during and after the CAFO is opened, worked and closed.

(10) Financial Security:

a. Set forth all bonds already in place in relation to CAFO operations and in support of this permit or, if no such bonds exist, set forth the amount the operation anticipates obtaining in a bond amount. Explain why this amount is sufficient pursuant to the terms of the Bayfield County Livestock Operations Ordinance.

(11) Example CAFO Operations:

a. Set forth all bonds already in place in relation to CAFO operations and in support of this permit or, if no such bonds exist, set forth the amount the operation anticipates obtaining in a bond amount. Explain why this amount is sufficient pursuant to the terms of the Bayfield County Livestock Operations Ordinance.

Print or Type the Livestock Operator's Name: _____

Legal Name of Livestock Company: _____

Legal address of Livestock Company: _____

City _____State _____Zip _____

Signature:

_____ _____

Authorized Operating Company Representative's Signature Date

Note: Signature of this application by the applicant or applicant's representative authorizes the County and its designees to enter upon the property to perform needed inspections at any time and on as many occasions as the County or its designee deems necessary without prior notice to applicant(s).

Note: Applicant(s) are required to provide ***twenty-five (25) copies*** of their completed application to the County Clerk upon submission, along with the application filing fee. The additional copies are for the County Board, adjoining landowners, and the general public at the public hearing.

Note: If the answers to any of the above questions can be found in an approved Bayfield County Siting Permit or WPDES permit, applicant may refer to the appropriate sections of said permit and attach a copy thereof to this application.

Appendix 2 - South Fish Creek Watershed Animal Waste Storage and Management Ordinance

BAYFIELD COUNTY ORDINANCE No. 2016-_____

FINDINGS:

The Bayfield County Board of Supervisors makes the following findings:

1. The predominant farmed soils in Bayfield County are clay-loams originating from glacial till. With high bulk density and slow infiltration, runoff during the spring snowmelt and after heavy rains is common.
2. To farm the clay soils of Bayfield County, agricultural producers maintain extensive surface drainage networks to rapidly remove excess water.
3. Drainage practices that increase runoff rates from agricultural lands lead to higher peak flows in streams, resulting in increased streambank erosion and consequent loading of particulate phosphorus and sediment into downstream surface waters.
4. As such, the primary threat from agriculture to surface water in Bayfield County is from surface run-off carrying sediment, nutrients, and manure.
5. Phosphorus loading in surface waters and consequent algal blooms constitute a threat to human health due to toxins produced by the algae.
6. Microbiological pathogens from manure in runoff and surface waters constitute a threat to human health.
7. Most erosion, sedimentation, and nutrient loss from agricultural lands occur during spring snowmelt and during large storm events.
8. Historical precipitation data and future climate modeling indicate the Chequamegon Bay region is and will continue to receive more precipitation in larger storm events.
9. Increasing manure and fertilizer applications within a watershed is likely to increase nutrient loading into surface waters within that watershed.
10. The required manure storage capacity for Concentrated Animal Feeding Operations under NR 243 Wis. Adm. Code, given the climate and soils of Bayfield County, is likely inadequate to ensure no winter manure applications.
11. The short growing season for grain crops such as corn, soybeans, and sunflowers, and the likelihood of saturated or frozen ground conditions after harvest increases the likelihood that manure cannot be applied after harvest, and consequently, livestock operations covered by NR 243 relying on application of manure in the fall after harvest of grain crops are likely to utilize emergency spreading allowances for winter applications of manure.
12. Manitowoc County in Wisconsin, with soils similar to those found in Bayfield County, has implemented additional limits on mechanical application of manure in order to achieve water quality standards in surface waters.
13. The phosphorus levels in South Fish Creek in northeast Bayfield County have exceeded the maximum thresholds permitted under NR 102.06 Wis. Adm. Code in 2014 and 2015. (Lehr, 2015)
14. The phosphorus levels in nearshore areas of Chequamegon Bay have exceeded the maximum thresholds permitted under NR 102.06 Wis. Adm. Code in 2014 and 2015. (Lehr, 2015)
15. The Wisconsin Department of Natural Resources, Bureau of Drinking Water and Groundwater, "Source Water Assessment For Ashland Water Utility, Ashland, Wisconsin, March 27, 2003" has determined:
    a. The City of Ashland, Wisconsin, located on the south shore of Lake Superior's Chequamegon Bay, relies solely on source water from the bay to provide drinking water to its residents. (p.2)

b. The area providing Ashland's source water includes the watersheds of Bono Creek, Boyd Creek, Whittlesey Creek, and the north and south branches of Fish Creek, located in Bayfield County. These streams drain an area of relatively flat, impermeable red clay soils, resulting in heavy sedimentation. (p.5)
c. The source area contains a mixture of agricultural activities identified by the Department as having negative impacts on the south branch of Fish Creek (South Fish Creek). (p.6)
d. The shallow nature of Chequamegon Bay has multiple negative impacts on source water quality, including warmer summer and autumn temperatures, more easily suspended lake bottom sediments and less dilution of contaminants entering the bay. (p.7)
e. The normal counterclockwise circulation pattern in the bay negatively impacts source water by drawing the discharge of the Fish Creek and Bay City Creek east along the shoreline towards the drinking water intake. (p.8)
f. Ashland's municipal water supply has one surface water intake located in southeastern Chequamegon Bay. The calculated sensitivity of the intake—defined as the likelihood that source water will be impacted by contaminants due to the intrinsic physical attributes of the source water area—is very high. (p.9)
g. Concentrated animal feeding operations (over 1000 animal units) have the potential to contribute pollutants such as inorganic, synthetic organic, microbial contaminants as well as hormones and antibiotics to the source water. (p.10)
h. Ashland's source water quality is significantly impacted by local factors and highly susceptible to contamination. (p.14)
i. Manure management is a recommended means of dealing with negative impacts on Ashland's source water. (p.15)

Based on the foregoing findings, the Board further finds that the following regulations pertaining to the operations of Concentrated Animal Feeding Operations within the South Fish Creek watershed are necessary to achieve water quality standards under section 281.15 of the Wisconsin Statutes and to protect public health and safety.

NOW, THEREFORE, the Bayfield County Board of Supervisors does hereby ordain as follows:

Chapter 7 of Title 5 [Public Safety] is hereby created to read as follows:

Chapter 7 South Fish Creek Watershed Animal Waste Storage and Management Ordinance

Sec 5-7-1 Authority. This chapter is adopted under authority granted under Section 59.02, 59.03, 59.70, 92.15, and 92.16 of the Wisconsin State Statutes.

Sec. 5-7-2 Applicability. All Concentrated Animal Feeding Operations, as defined in Sec. 5-6-3(b) of the Bayfield County Code of Ordinances, located or utilizing owned or rented land within the South Fish Creek watershed in Bayfield County for the housing of livestock, production of crops, spreading of manure, or any other agricultural activity shall comply with the regulations in this chapter.

Sec. 5-7-3 Interpretation. In their interpretation and application, the provisions of this chapter shall be held to be minimum requirements and shall be liberally construed in favor of Bayfield County, and shall not be deemed a limitation or repeal of any other power granted by the Wisconsin State Statutes.

Sec. 5-7-4 Severability Clause. If any provision or portion of this chapter is ruled invalid by a court, the

remainder of the chapter shall not for that reason be rendered ineffective.

Sec. 5-7-5 Effective Date. This chapter shall become effective upon its adoption and publication by the Bayfield County Board of Supervisors and approval by the Wisconsin Department of Natural Resources under s. 92.15 of the Wisconsin Statutes and NR 151.096 of the Wisconsin Administrative Code.

Sec. 5-7-6 Definitions. Definitions herein are to conform to the provisions set forth in the Wisconsin Administrative Code and Bayfield County Code.

(a) Compliance Order. A document or notification from the Land Conservation Committee, or their designee, outlining the nature of the violation(s) of the provisions of this chapter and corrective measures.

(b) Conduit to a navigable water. A natural or man-made area or structure that discharges to a navigable water via channelized flow. This includes open tile line intake structures, open vent pipes, sinkholes, agricultural well heads, drainage ditches that discharge to navigable waters and grassed waterways that drain directly to a navigable water.

(c) Intermittent stream. A watercourse with a bed and bank where water does not flow continuously and that is identified as an intermittent stream on a United States Geological Survey 1:24,000 quadrangle map.

(d) Manure. Excreta from livestock, poultry, or other animals. Manure includes the following when intermingled with excreta in normal farming operations: debris including bedding, water, soil, hair, and feathers: processing derivatives including separated sand, separated manure solids, precipitated manure sludges, supernatants, digested liquids, composted biosolids, and process water; and runoff collected from barnyards, animal lots, and feed storage areas.

(e) Manure storage facility. An impoundment made by constructing an embankment or excavating a pit or dugout or by fabricating a structure to contain manure and other animal or agricultural wastes that has a volume of 500 cubic feet or more and a depth of 2 feet or more.

(f) Nutrient Management Plan. A plan that outlines the management and crediting of nutrients from all nutrient sources including soil reserves, commercial fertilizer, manure, organic byproducts, legume crops, and crop residues. All nutrient sources shall be accounted for and properly utilized. This plan must meet the current NRCS 590 standard, and NR 243 where applicable, and applies to all fields where plant nutrient sources and soil amendments are applied during the course of a rotation. Management includes the rate, method, and timing of the application of all sources of nutrients to minimize the amount of nutrients entering surface water and groundwater. The plan includes manure nutrient testing and routine soil testing and is developed according to USDA –NRCS Technical Standard 590.

(g) Operator. A person responsible for the oversight or management of equipment, facilities or livestock at a livestock operation, or is responsible for land management in the production of crops.

(h) Perennial stream. A channel where water flows continuously and that is identified as a perennial stream on a United States Geological Survey 1:24,000 quadrangle map.

(i) One hundred (100)-year, twenty-four (24)-hour rainfall event. A rainfall event measured in terms of the depth of rainfall occurring within a twenty-four(24)-hour period and having an expected recurrent interval of once in one hundred (100) years.

Sec. 5-7-7 Manure storage capacity. Animal manure storage facilities shall be properly designed to provide a minimum of 540 days of manure storage. In addition, liquid manure storage and containment facilities shall also have markers near the bottom of the facility indicating the levels at which the facility provides 180 and 270 days of storage, respectively. Such capacity shall include storage at all times for direct precipitation and runoff from a 100 yr, 24 hr storm event.

Liquid storage facilities shall be emptied so that the 270-day level indicator is visible on at least one day between July 15 and September 1. In addition, the storage facility shall be emptied so that the 180-level indicator is visible on at least one day between October 15 and November 30. The operator shall record the days on which the 270-day and 180-day level indicators were visible and send a photo of the indicator to the Bayfield County Land Conservation Department. In the event the facility is not emptied to show the 270-day level indicator for any reason AND the facility is not emptied to show the 180-day level indicator by November 30 of the same calendar year for any reason, the operator shall transfer the manure to another manure storage facility or waste treatment plant in such quantity as to empty the facility to show the 180-day level indicator by December 10 of that calendar year.

If the facility was emptied to show the 270-day level indicator in the required time period, but was not emptied to show the 180-day level indicator during the required time period for any reason, the operator shall submit a written plan to the Land Conservation Department for approval by December 5 showing how the storage facility shall be emptied to show the 180-day level indicator by December 15 of that calendar year. Such a plan may include land-spreading the manure subject to any applicable local, state, or federal restrictions and upon approval by the Land Conservation Department. Approval of any proposed land-spreading by the Department shall depend on the ground conditions of the fields proposed for spreading, the method and rate of spreading, the forecasted weather during that time, and the Land Conservation Department's determination of the risk of runoff from such land-spreading. Land-spreading shall not be an option unless the operator can demonstrate that weather conditions or other factors beyond the operator's control prevented the spreading that otherwise would have resulted in emptying the pit to the required level by the required time.

Sec. 5-7-8 Spreading windows. The annually updated nutrient management plan required under NR 243.14 Wis. Adm. Code shall include for each cropping year at least three distinct manure spreading windows in which at least 1/3 of the total manure produced and stored annually by the animal feeding operation is capable of being mechanically applied according to the spreading rates allowed by the nutrient management plan. Spreading windows include, but are not limited to: prior to planting in the spring, after each harvest of hay or perennial forage in the summer and fall, after harvest of small grains in the summer and fall, after harvest of corn or soybeans in the fall, or at any other time when the ground is not frozen or snow-covered and the application is allowable under the NR 243.14 Wis. Adm. Code.

Sec. 5-7-9 Phosphorus. For fields within the South Fish Creek watershed, the operator may not increase soil test phosphorus levels over a 4-year crop rotation unless the operator can demonstrate that deliverability of phosphorus to the impaired waterbody will not increase as a result of increases in soil test phosphorus in the field. The operator may not raise soil test phosphorus levels over a 4-year crop rotation above the optimum level for the highest phosphorus demanding crop in the rotation for a field with soil

test phosphorus levels below optimum levels. In addition, for fields within the South Fish Creek watershed, the Phosphorus Index shall not be higher than 2 for any single cropping year in the rotation. The application of this provision shall be suspended if and when it is satisfactorily demonstrated to the County Board that the phosphorus levels in the South Fish Creek watershed have not exceeded the maximum permitted levels of phosphorus under NR 102.06 for at least two consecutive years immediately preceding such determination, but any such suspension shall terminate upon a subsequent satisfactory demonstration to the County Board that such levels have again been in excess of the maximum permitted levels for at least two consecutive years.

Sec 5-7-10 Further limits on mechanical application of manure. Mechanical application of manure is only permitted to meet crop needs and is subject to the following limitations:

(a) Manure or process wastewater may not be applied by any means when precipitation capable of producing runoff is forecast by the National Weather Service within 48 hours of the time of planned application. In addition, manure or process wastewater may not be applied by any means on days with a high or medium risk of runoff as indicated in the Runoff Risk Advisory Forecast by the Wisconsin Manure Management Advisory System.

(b) No manure at any time of the year may be mechanically applied to any channel or concentrated flow area that flows to an intermittent stream, lake, perennial stream, pond, or sinkhole. This includes all conduits to intermittent stream or navigable waters.

(c) No manure at any time of the year may be mechanically applied to land within 100 feet of an active or inactive well unless that well has been abandoned per USDA-NRCS Technical Standard 351. Manure that is mechanically applied to land that is more than 100, but less than 300 feet, and is upslope of an active or inactive well and that drains to a well must be incorporated into the soil within 48 hours of application.

(d) No manure at any time of the year may be mechanically applied to land that is within 300 feet of and that drains to a drainage tile surface inlet, intermittent stream, or perennial stream, unless the manure is incorporated into the soil within 48 hours of application.

(e) No manure at any time of the year may be mechanically applied to land that is within 1,000 feet of a lake or pond and that drains to the lake or pond unless it is incorporated into the soil within 48 hours of application.

(f) Spreading restrictions listed in this article shall be in addition to any other rules or provisions regulating the mechanical application of animal manure including, but not limited to, WPDES permits issued under NR 243 or Operations Permits issued by Bayfield County. In the case of conflict, the most stringent provisions shall apply.

Sec. 5-7-11 Inspection Authority. Bayfield County, or its designee, is authorized to enter upon any lands affected by this chapter to inspect the land or manure storage facility to determine compliance with this chapter.

Sec. 5-7-12 Penalties and Enforcement.

(a) Any violation of this chapter shall be punishable by a forfeiture of not less than $100 or more than $5000 per day for each violation of this chapter, plus the costs of prosecution, including the County's reasonable attorney fees and costs. Each day of violation shall constitute a separate offense.

(b) In addition, the County Board, or its designee, may issue a notice of violation and order that specifies required remedial action, which may include a stop operations and work order, or the Board may impose or seek any other available enforcement remedy, including injunctive relief.

Appendix 3 – Surface Water Findings-of-Fact Document

Bayfield County Large-Scale Livestock Study Committee
Adopted December 3, 2015

Surface Water

Findings-of-Fact (Facts)

1. The predominant farmed soils in Bayfield County are clay-loams originating from glacial till. With high bulk density and slow infiltration, runoff during the spring snowmelt and after heavy rains is common.

2. To farm the clay soils of Bayfield County, agricultural producers maintain extensive surface drainage networks to rapidly remove excess water.

3. Drainage practices that increase runoff rates from agricultural lands lead to higher peak flows in streams, resulting in increased streambank erosion and consequent loading of particulate phosphorus and sediment into downstream surface waters.

4. As such, the primary threat from agriculture to surface water in Bayfield County is from surface run-off carrying sediment, nutrients, and manure.

5. Phosphorus loading in surface waters and consequent algal blooms constitute a threat to human health due to toxins produced by the algae.

6. Microbiological pathogens from manure in runoff and surface waters constitute a threat to human health, particularly to swimmers and others in direct contact with the water.

7. Most erosion, sedimentation, and nutrient loss from agricultural lands occur during spring snowmelt and during large storm events.

8. Natural (background) and anthropocentric sources contribute phosphorus to surface waters. Anthropocentric phosphorus comes from both point-source (outflow pipes) and non-point sources (surface runoff).

9. Historical precipitation data and future climate modeling indicate the Chequamegon Bay region is and will continue to receive more precipitation in larger storm events.

10. Engineered edge-of-field mitigation and conservation practices such as settling ponds can be effective in retaining stormwater and reducing peak flows and nutrient loading in adjacent waterways.

11. Phosphorus loss from agricultural lands varies considerably with management practices and precipitation, but averages 2.0 lbs/ac. Total maximum daily load (TMDL) levels are typically set at

between 0.16-0.33 lbs/ac. Agriculture will increase phosphorus loading to surface waters compared to background levels.

12. Increasing manure and fertilizer applications within a watershed is likely to increase nutrient loading into surface waters within that watershed.

13. In Bayfield County it is currently unknown how much phosphorus can enter surface waters from agricultural lands before surface waters become impaired. Likewise, the predominant sources of phosphorus within each major watershed in Bayfield County have not been quantified. Therefore, it is unknown how much phosphorus loss from agricultural lands can occur before surface waters become impaired.

14. Protecting water quality and human health while also enabling agricultural production is a matter of risk management. The following agricultural practices and situations on clay ground in northern Wisconsin pose the greatest risk to surface water quality and downstream human health:

    a. Spreading manure during periods of high runoff risk.
    b. Constructing manure pits without pre-construction soil borings or engineering plans.
    c. Applying manure to concentrated flow areas.
    d. Lack of perennial vegetation in concentrated flow areas.
    e. Animal grazing within intermittent and perennial stream drainages in which animals have unrestricted access to the stream and/or vegetative cover within the drainage is lost.
    f. Barnyards, feedlots, and dry lots with unmitigated runoff to surface waters.
    g. Over-application of nutrients resulting in annual loss of excess nitrogen and/or increased risk of phosphorus loss due to higher soil phosphorus levels.

Gaps in Existing Regulations, Enforcement, and Outreach Education (Gaps)

1. The required manure storage capacity in the 590 Standard, NR 243, and ATCP 51, given the climate and soils of Bayfield County, is likely inadequate to ensure no winter manure applications.

2. The short growing season for corn and the likelihood of saturated or frozen ground conditions after harvest increases the likelihood that manure cannot be applied after harvest and livestock operations covered by NR 243 will utilize emergency spreading allowances for winter applications of manure.

3. Manure storage facilities on farms with fewer than 500 animal units are not currently required to follow the NRCS 313 Technical Standard for manure storage structures.

4. Existing barnyards and winter lots in Bayfield County contribute nutrient runoff to surface waters and there is insufficient cost-share resources and staffing to help producers mitigate the runoff problems.

5. Local enforcement of NR 151 currently relies on DNR staffing, which may not be adequate to respond to compliance problems.

6. The 590 Nutrient Management Standard adopted by NR 243, ATCP 51, and NR 151 allows single year Phosphorus Index values of 12 and 8-year average values of 6, likely resulting in increased loading of phosphorus into adjacent waterways compared to existing conditions.

7. Current regulations do not require a lower phosphorus index for fields draining to impaired, exceptional, or outstanding bodies of water unless the soil test P exceeds 100 ppm.

8. An impairment of the Chequamegon Bay due to elevated phosphorus caused by a mass balance increase in phosphorus or an increase in the average phosphorus index in surrounding watersheds will require the taxpayers of the City of Ashland and City of Washburn to pay for reductions in phosphorus discharges from their respective waste treatment facilities.

9. The prohibition of application of manure on frozen ground between February 1 and March 31 currently only applies to operations with 1000 or more animal units.

10. The current prohibition of application of manure on frozen ground between February 1 and March 31 may not accurately encompass the high-risk runoff period for Bayfield County.

11. It may not be possible for row crop producers in Bayfield County to maintain perennial vegetation in concentrated flow areas due to rutting that occurs during harvest operations and the subsequent grading and shaping that is necessary to ensure adequate drainage.

Risk Management Strategy Options for Bayfield County (Solutions)

1. Take no additional action and rely on farmers, existing regulations, and existing outreach education and cost-share capacity to limit nutrient and bacterial loading in surface waters. Rely on the Clean Water Act (as implemented by the DNR) and the TMDL process to fix a problem if it occurs.

2. Provide *additional outreach education* to farmers and landowners to understand and adopt best management practices and comply with existing regulations.
    a. Prioritize work duties of existing County staff to ensure continuation of the South Shore Nutrient Management Farmer Education Program.
    b. Provide outreach education to assist agricultural producers with compliance with existing regulations and best management practices.
    c. Provide up to $1000/farm of cost-sharing for five farms per year for development of a farm succession plan through the South Shore Farm Succession Program.

3. *Provide additional outreach education and cost-share dollars* to assist farmers and landowners in adopting best-management practices, installing conservation practices, and complying with existing regulations.
    a. Provide $270,000 per year for five years for cost-sharing barnyard runoff control projects.

b. Provide $9000 per year for five years for cost-sharing well abandonment projects.
c. Provide $70,000 per year for five years for 1.0 FTE position for project implementation and implementation of livestock ordinances.

4. Adopt additional regulations to mandate more aggressive risk management practices by farmers. Such regulations could include:
    a. Adopt a Bayfield County Animal Waste Storage and Management Ordinance requiring:
        i. An Animal Manure Permit and adherence to the NRCS 313 Standard for all manure storage structures with volume greater than 500 cu ft.
        ii. Closure of any permitted animal waste storage structure if unused for 24 consecutive months.
        iii. An Animal Manure Permit for all livestock feeding operations with 50 animal units or more and adherence to barnyard NRCS Technical Standards.
        iv. Required manure storage capacity of 180 days for new or expanding livestock operations with 200 to 499 animal units, 360 days of storage for livestock operations with 500 to 999 animal units, and 540 days of storage for livestock operations with 1000 or more animal units.
        v. For livestock operations storing liquid manure and with 1000 or more animal units, a requirement to show a 270-day indicator in the summer and a 180-day indicator in the fall.
        vi. A minimum of 3 spreading windows with the capability to spread at least 1/3 of the annual manure production during each of those windows.
        vii. No mechanical application of manure when precipitation capable of producing runoff is forecast within 48 hours.
        viii. Additional manure spreading restrictions between December 1 and April 15 including:
            1. No manure on slopes >12%.
            2. Liquid manure on slopes 6-12% only if incorporated within 48 hours.
            3. Solid manure on slopes 6-12% only if incorporated within 48 hours, farmed with contours, with perennial forages, or with 40% crop residue.
        ix. Additional manure spreading restrictions in and around concentrated flow areas and Surface Water Quality Management Areas (SWQMAs) including:
            1. No spreading of manure within 50 feet of all direct conduits to navigable waters.
            2. Incorporation of all manure within 48 hours when spreading on non-frozen ground within SWQMAs.
    b. Incorporate all NR 151 standards into the Bayfield County Animal Waste Storage and Management Ordinance to allow for local enforcement.

5. Limit livestock density in a watershed with zoning districts to limit impacts of changes in nutrient mass balance (ie elevated soil phosphorus levels) and to mitigate against low compliance and/or enforcement capacity. Such zoning options could include:

a. Create agricultural overlay districts to limit size of livestock operations in certain districts while allowing livestock operations of unlimited size in at least one district.
b. Change the Bayfield County A2 zoning district to an "intensive farming district". Operations with fewer than 500 animal units would be allowed on parcels zoned A1. Operations with 500 or more animal units would only be allowed on parcels zoned A2. With no parcels currently zoned A2 in Bayfield County, any livestock operation with 500 or more animal units would require a rezone to A2.

6. Minimize a phosphorus loading into surface waters in Bayfield County watersheds by:
    a. Requiring all livestock operations with an Animal Manure Permit to follow all NR 243 phosphorus regulations. In addition, require a Phosphorus Index of 2 or less for all fields adjacent to impaired, exceptional, or outstanding waters.
    b. Requiring new or expanding livestock operations to have no net increase in phosphorus loading to surface waters.
    c. Developing and implementing a Bayfield County Water Quality Trading Program to allow new or expanding operations to purchase phosphorus credits to offset a planned increase in phosphorus loading to surface waters.

Appendix 4 – Groundwater Findings-of-Fact Document

Bayfield County Large-Scale Livestock Study Committee
Adopted November 19, 2015

Groundwater

Findings-of-Fact (Facts)

1. Groundwater consists of the molecule H_2O and a broad array of physical and dissolved compounds. Anything other than H_2O is called an "impurity" and any time an impurity exceeds a given standard it is considered a "contaminant".
2. Groundwater contaminants from agricultural operations may be chemical or biological.
3. Biological contaminants of most concern are zoonotic pathogens including, but not limited to: E. coli, Salmonella, Campylobacter, Leptosporidia, Cryptosporidia, Giardia, and Norovirus. See the Bayfield County Large Scale Livestock Study Committee Microbiology Findings-of-Fact document for more information about zoonotic pathogens and surface and groundwater quality.
4. Chemical contaminants from agricultural operations include nutrients from fertilizer including nitrate, chloride, and potassium and soil-mobile pesticides such as triazine (Atrazine).
5. The porosity and depth to the water table are the primary determinants of how quickly water from the surface reaches groundwater. Water moving through sandy soils to a shallow water table will reach groundwater faster than moving through clay soils to a deep water table. Water and contaminants will move even more quickly via direct conduits to groundwater such as sinkholes, cracks in bedrock, or along unsealed well casings.
6. The longer it takes for water to move through the soil into the groundwater the more likely biological contaminants will be inactivated.
7. The soils in the agricultural regions of Bayfield County consist primarily of the Miller Creek formation, which consists of silty-clay glacial till with embedded sand and gravel deposits with a depth ranging from 0 to more than 400 feet.
8. Based on analysis of 660 well-drilling records in the agricultural areas of Bayfield County, roughly 67% are drilled into sand and gravel deposits within the silty-clay glacial till and the rest are drilled into bedrock beneath the glacial till.
9. For the wells drilled into the embedded sand and gravel deposits, the average casing depth is 149 feet with a range from 36 to 488 feet.
10. The Miller Creek formation in the agricultural areas of Bayfield County provides significant protection of groundwater from percolation of contaminants from the surface. As such, the primary threat to groundwater in these areas is at points where the silty-clay cap is penetrated, such as with well casings.
11. Testing of 66 private wells in 2015 within the agricultural area of west-central Bayfield County found 10 with coliform bacteria, but 0 with E. coli, suggesting that some wells may need structural improvements such as new casing caps, but there is no evidence of biological contamination of groundwater from agricultural operations.
12. Isolated areas within the agricultural areas of Bayfield County do have surficial deposits of sandier soils with higher porosity and greater rates of infiltration. Wells drilled in such areas are more susceptible to groundwater contamination compared to areas with the silty-clay. An example of

such an area is the higher ground along and North of Hwy 118 and East of Gilles Road. Testing of groundwater from private wells in this area shows nitrate concentrations between 0.2 and 5 mg/L, which is safe to drink, but indicates nitrates from human activities are reaching the groundwater.

13. Nitrate is the most common contaminant of groundwater and can come from a range of sources including agricultural fertilizer, manure, legumes, septic tanks, septage, and lawn fertilizer.
14. Nitrogen is a plant limiting nutrient that is key to crop production. Without nitrogen from biological nitrogen fixation (legumes) or conversion of atmospheric nitrogen to ammonia (Haber-Bosch), agricultural productivity would greatly decline.
15. Nitrogen comes in different forms in the environment and changes forms depending on temperature, moisture, and presence of other compounds. Nitrate, ammonia, and ammonium are the most common forms with nitrate and ammonium being available to plants.
16. Nitrogen in soil organic material is released as ammonium and when soil temperatures are at or above 50F the ammonium is converted to nitrate in a process called nitrification. Ammonium is a positively charged ion and is held tightly by soil. Nitrate is a negatively charged ion and moves readily in soil. For this reason, the nitrate form of nitrogen is of greater concern for groundwater contamination than ammonium. Nitrates can be absorbed by plants or soil biota and converted back into organic matter.
17. Biologically active soils with continuous living cover can greatly reduce nitrate losses through immobilization (incorporation of nitrates into organic matter).
18. In anaerobic conditions, such as in compacted or saturated soils, nitrates can be converted to nitrogen gas and lost to the atmosphere in a process called denitrification. In areas where contamination of surface water with nitrates is a problem, such as in the Raccoon River in Iowa, settling ponds within watersheds can denitrify the nitrogen out of the water and back into the atmosphere.
19. Urea is the most commonly used nitrogen fertilizer in Bayfield County and when applied will quickly convert to ammonium. When soil temperatures are above 50F, ammonium will either convert to nitrates in the soil or, if exposed to the atmosphere, convert to ammonia and be lost to the atmosphere. As such, incorporation and timing of urea applications is important toward limiting nitrogen losses.
20. The 590 Nutrient Management Standard includes stipulations to limit movement of nitrates to groundwater including: 1) Limiting nitrogen applications to the nitrogen need of the crop, 2) Prohibiting application of nitrogen to areas within 50 ft of a well, 3)Requiring incorporation of manure applied 200 feet upslope of a direct conduit to groundwater, 4) Prohibiting fall application of nitrogen fertilizer to soils with a high potential of nitrogen leaching to groundwater except for fall-seeded crops, 5) Requiring use of a nitrification inhibitor or split application for irrigated fields, 6) Encouraging application of manure in the fall after September 15 or when soil temperatures drop below 50F.
21. Manure is an excellent source of nitrogen for three reasons. There is ammonium available to plants immediately. There is nitrogen bound in microbes that is released slowly and available as the plants grow. The organic matter in the manure stimulates further biological activity in the soil resulting in tighter cycling and availability of nitrogen in the soil ecosystem.
22. The nitrogen content of manure can vary considerably. If manure is used as the primary source of nitrogen for a crop it is important to test the manure for nitrogen content to avoid over application.

The 590 Standard encourages manure testing, but does not require it. NR 243 requires CAFOs to test manure prior to spreading.

23. The pre-sidedress nitrate test can be an effective tool for determining spring carry-over nitrogen from manure from previous year applications. The test can be used to guide supplemental nitrogen applications in the spring.
24. Because nitrate from different sources is identical it can be difficult to identify the source when elevated nitrates are measured.
25. Elevated nitrogen measured at a single isolated well suggests the nitrate source may be from a single point such as a leaking septic tank. A cluster of wells with elevated nitrates suggests the nitrate source could be from surface applications of nitrogen from manure or fertilizer.
26. Groundwater flow models can be used to predict the movement of contaminants in groundwater and be a tool in identifying sources of contaminants. For example, if a cluster of wells down-gradient of a manure storage facility had elevated nitrate levels and wells up-gradient of the facility did not, that is strong evidence that the manure storage facility is leaking nitrates to the groundwater.
27. Livestock operations designated as Confined Animal Feeding Operations (CAFOs) by the WI DNR may be required to install monitoring wells depending on the design of the facility and whether groundwater in the area is susceptible to contamination (NR 243.15(3)(c)(2)).
28. Monitoring wells for manure storage facilities or land-spreading activities should be immediately down-gradient from the site (as determined by a groundwater flow model) and include sampling of water from multiple depths in the aquifer.

Gaps in Existing Regulations, Enforcement, and Outreach Education

1. There is insufficient groundwater testing information in the agricultural regions of Bayfield County to establish a background understanding of water quality as of 2015, particularly for the agricultural area in the northwest corner of the County.
2. The number and location of existing and abandoned wells in Bayfield County is not known. The risk of those wells contributing to the contamination of groundwater is also not known.
3. Monitoring of groundwater is not routinely required by existing rules covering livestock operations. NR 243 allows for monitoring wells for manure storage facilities, but at the discretion of the WI DNR.
4. Livestock operations covered by NR 243 are prohibited from spreading manure within 100 feet of a well, but other livestock operations may apply within 50 feet of a well.
5. Livestock operations covered by the 590 Nutrient Management Standard are prohibited from spreading nutrients within 200 feet upslope of a direct conduit to groundwater unless the nutrients are incorporated within 72 hours. Operations covered by NR 243 must incorporate nutrients in such areas within 48 hours. Rainfall events capable of causing runoff are not always accurately predicted 72 or even 48 hours in advance.
6. For operations covered by NR 243, manure or process wastewater may not be applied at any time on areas of a field with a depth to groundwater or bedrock of less than 24 inches. Likewise, manure may not be applied to fields with soils less than 5 feet thick over fractured bedrock when the ground is frozen or snow is present. Such regulations do not apply to fields with soils over sand and gravel deposits, even though groundwater in sand and gravel deposits is also very susceptible to

contamination. Furthermore, Kewaunee County applies the same restrictions to fields with 20 feet or less of soil.

Risk Management Strategy Options for Bayfield County

1. Implement a well-testing outreach and education program to encourage and facilitate annual testing of private well water and repair of substandard wells.
2. Provide funding to test water from at least 10 private wells in each Township in Bayfield County to establish a baseline water quality understanding.
3. Establish a County-maintained database with all well-drilling records and water test information.
4. Develop a depth-to-bedrock map for Bayfield County to identify areas with less than 20 feet of soil to the bedrock.
5. Analyze all known well-drilling records to identify wells with less than 20 feet of silty-clay till over water-bearing sand and gravel deposits. For such private wells within 1000 ft and downgradient of a sited livestock facility require the facility to dig a new and deeper well for the owner of the well.
6. Develop a groundwater susceptibility map for Bayfield County to identify areas, such as those near Gilles Road, that have increased susceptibility to groundwater contamination compared to areas with deep silty-clay till.
7. Identify abandoned wells and rate the risk of each well to groundwater quality for prioritizing abandonment efforts. Or conversely, identify fields with highest likelihood of groundwater contamination and look for abandoned and existing wells in and adjacent to these fields first.
8. Utilize groundwater flow models and groundwater susceptibility mapping to design groundwater monitoring programs for sited livestock facilities.
9. Require sited livestock operations to install a minimum of two monitoring wells immediately downgradient of the livestock facility at locations and depths recommended by a qualified hydrogeologist.
10. Provide semi-annual testing of water for all private wells within 1000 ft downgradient of a sited livestock facility or fields with permeable soils that receive manure or fertilizers from the livestock operation.
11. Prohibit all livestock operations, regardless of size, of applying nutrients within 100 feet of a private well.
12. Apply additional restrictions on application of nutrients within areas 200 feet upslope of a direct conduit to groundwater. Such restrictions could include:
    a. Prohibit application of nutrients of any kind or at any time within the area.
    b. Require injection or immediate incorporation if applying within the area.
13. Apply additional restrictions on application of nutrients on areas of fields with less than 20 feet of soil depth to bedrock or water-bearing sand and gravel deposits. Such restrictions could include:
    a. Prohibit application of all manure and nutrients on such areas when the soil is snow-covered or saturated or when precipitation capable of producing runoff is forecast within 48 hours of application.
    b. Require a nitrification inhibitor for all applications of urea or liquid manure on such areas.
    c. Prohibit fall application of manure to such areas unless the soil temperature is less than 50F.

Appendix 5 – Air Quality Findings-of-Fact Document

Bayfield County Large-Scale Livestock Study Committee
Adopted November 19, 2015

Air Quality

Findings-of-Fact (Facts)

Hazardous Air Emissions

1. Livestock operations have the potential to adversely affect local air quality through emissions of:
    a. Chemicals from excreted, stored, and land-spread manure.
    b. Dust and organic particulates from animal housing and field operations.
    c. Dust from vehicle and equipment operation on gravel or dirt roads.
    d. Pesticides from drift, overspray, or volatilization.
2. Animal waste is known to contain at least 25 toxic air contaminants, but ammonia and hydrogen sulfide are the two chemicals most likely to occur above levels of concern.
3. Ammonia results from the mixing of urease in feces with urea in urine. Ammonia is caustic and is an irritant to the lungs, airways, and eyes. It can be smelled starting between 0.04 and 53 ppm, becomes an irritant at 50 ppm, and is immediately lethal at 5000 ppm.
4. Ammonia can also react with other airborne chemicals to create fine particulate matter resulting in haze and respiratory problems. The volatilization of ammonia can also result in acid rain with deleterious effects to water quality and plant communities.
5. Wisconsin has an ambient air quality standard for ammonia of 0.55 ppm averaged over a 24-hour period.
6. Hydrogen sulfide is primarily released from livestock operations via anaerobic decomposition of sulfur-containing organic matter such as manure. Hydrogen sulfide is detectable as odor at very low concentrations and can cause headaches at 0.3 ppm, olfactory paralysis at 150 ppm, and loss of consciousness and death at 500 ppm.
7. Wisconsin has an ambient air quality standard of 0.22 ppm averaged over a 24-hour period. For perspective, Minnesota's ambient air quality standard is 0.03 ppm no more than twice in 5 days, averaged over 30-minutes.
8. The federal Clean Air Act sets standards for six "criteria pollutants" (ozone, carbon monoxide, sulfur oxides, nitrogen oxides, and lead) as well as for a list of "hazardous air pollutants". Ammonia and hydrogen sulfide from livestock operations are not currently considered hazardous air pollutants. The EPA conducted a study in 2006-2008 to monitor air emissions from large-scale livestock operations (National Air Emissions Monitoring Study) with the purpose of developing monitoring protocols and eventual rule-making regarding air emissions from large-scale livestock operations. The work has not yet been completed.
9. Hazardous air emissions from livestock operations are not as readily controlled as through smokestack emissions, as such the primary means envisioned by the WI DNR to control air emissions from animal feeding operations is through implementation of a series of best management practices. To that end, in April of 2010, the WI DNR convened the WI Agricultural Waste Air Emissions Advisory Group to develop best management practices for the reduction of

emissions of hazardous air pollutants (primarily ammonia and hydrogen sulfide) from livestock operations.

10. The DNR Advisory Group released a final report in December of 2010 outlining "beneficial management practices for mitigating hazardous air emissions from animal waste in Wisconsin". In June of 2011, the WI DNR proposed extending the exemption of animal agricultural waste from the control requirements of NR 445 and eliminating consideration of such emissions when determining applicability of permitting requirements in NR 406 and NR 407. The exemption remains in place as of October 2015, ostensibly to wait for the EPA to finalize federal regulations of hazardous air emissions from animal feeding operations. As such, the recommendations of the Advisory Group remain voluntary beneficial management practices.
11. Large-scale livestock operations emitting more than 100 lbs of ammonia per day are required by the federal Emergency Planning and Community Right to Know Act (EPCRA) to report their emissions to state or county emergency planning coordinators. Dairy operations with more than 700 cows or swine operations with more than 2500 sows are likely to emit more than 100 lbs of ammonia per day.

<u>Odor</u>

12. The combination of the chemical emissions, primarily from manure and stored feed, creates odors that may be offensive to neighbors. Odor is the most common complaint about livestock operations.
13. At high enough concentrations, the individual or combination of chemicals contributing to odor may cause negative impacts to physical health. Below such concentrations, odor may still be present and may cause psychosocial impacts (impacts to mental health or quality of life).
14. Wisconsin's Livestock Facility Siting Law creates an odor standard and requires new operations with 500 or more animal units and expanding operations with 1,000 or more animal units to meet the odor standard. Compliance with the odor standard is based on modeling and not a measurement of odor or specific chemicals.
15. Wisconsin's Livestock Facility Siting Law only applies an odor standard to the livestock facilities themselves and does not create an odor standard for land-spreading of manure. The rationale being that odor from a livestock facility is a daily ongoing event, whereas, odor from land-spreading is an occasional and episodic event.
16. Wisconsin's Livestock Facility Siting Law establishes a 350' property line setback for a manure storage facility. However, when manure is stored under a livestock housing facility it is considered a livestock housing facility with a property line setback of 100' for an operation of more than 500 but less than 1000 animal units and a setback of 200' for an operation with 1000 or more animal units.
17. The right-to-farm law in Wisconsin (WI Stat. 823.08) generally protects livestock operations from nuisance claims related to odor. A plaintiff has to prove an agricultural activity poses a "substantial threat to public health or safety". As such, with respect to odor, a plaintiff generally has to demonstrate a negative impact on physical health caused by a measurable chemical such as hydrogen sulfide or ammonia.

18. There is a growing body of literature suggesting the psychosocial impacts of odor may cause stress leading to negative impacts on physical health, particularly if the odor is present for extended periods of time. It is unknown whether such psychosocial impacts have successfully won a nuisance complaint under any State's right-to-farm law.

Road dust

19. Use of gravel roads by livestock operations can be extensive, particularly during travel-intensive operations like harvest or manure hauling.
20. The dust from gravel roads may fall into three separate categories: total suspended particulate (TSP), particulate matter up to 10 micrometers (PM10), and particulate matter up to 2.5 micrometers (PM2.5).
21. Road dust can make things dirty and reduce quality of life for properties adjacent to gravel roads, but of greater concern, PM10 and PM2.5 are associated with respiratory problems such as bronchitis and asthma.
22. Road dust can be controlled through road wetting prior to use, through application of calcium chloride binders, or by converting from gravel to asphalt.

Gaps in Existing Regulations, Enforcement, and Outreach Education

1. Current regulations do not specifically regulate dust created by the hauling of manure or use of gravel roads by livestock operations.
2. Existing regulations do not currently address odor associated with land-spreading of manure.
3. Existing regulations do not require new or expanding livestock operations to compensate existing neighbors for declines in property values due to the perceived or actual negative aspects of living near a livestock operation.
4. Only new operations with 500 or more animal units or existing operations that expand to 1,000 or more animal units are required to meet an odor standard or implement best management practices to limit hazardous air emissions or odor.
5. Livestock operations are currently exempt from the control requirements of NR 445 and permitting requirements in NR 406 and NR 407.
6. Manure storage facilities under livestock are considered barns and only have a required property line setback of 100' to 200' depending on the size of the operations. Other manure storage facilities have a property line setback requirement of 350'. Although aggressive odor control practices would be required for a barn with below-animal manure storage to meet the Odor Standard of ATCP 51, it is possible the standard could be met. In the event of equipment malfunction there is a greater chance that hydrogen sulfide concentrations could exceed ambient air quality standards on an adjacent property when the barn is only 100' to 150' from a neighboring residence compared to when the distance is 350' or more.

Risk Management Strategy Options for Bayfield County

1. Take no additional action and rely on existing regulations and voluntary implementation of best management practices to minimize hazardous air emissions.

2. Expand outreach education and cost-sharing to assist existing producers in implementation of the Beneficial Management Practices recommended by the Air Emissions Advisory Group as shown in Appendix A.
3. Require implementation of applicable Air Quality Beneficial Management Practices listed in Appendix A for new or expanding operations through local ordinance. Some practices may already be part of an operation's plan to comply with the Siting Law odor standard.
4. Increase the property line setback for livestock facilities with below-animal manure storage to 350 feet to match the setback required for manure storage structures.
5. Utilize zoning ordinances to locate livestock facilities in areas with low population density.
6. Require new or expanding livestock facilities to guarantee the property values of all residential properties within a certain distance of the operation.
7. Implement additional requirements to mitigate air quality impacts, including:
    a. Require no-spread or incorporation-only buffers for land-spreading within a certain distance of all residential properties.
    b. Require prior notification of adjacent landowners when land-spreading manure.
    c. Require the application of water or binding agent to gravel roads used by new or expanding livestock operations to reduce dust, particularly when roads are used intensively, such as during manure hauling or harvest times.

d. Reduce Milk Urea Nitrogen (MUN) levels in dairy operations through improved animal nutrition and diet formulation in order to reduce nitrogen excretions in urea and consequent ammonia emissions.
e. Formulate swine and poultry diets based on amino acids rather than crude protein as a means to reduce nitrogen excretion in urine and consequent ammonia emissions. In addition, reduce sulfur in water and feed to reduce hydrogen sulfide emissions.
f. Improve silage storage and handling practices to reduce spoilage and consequent ammonia and hydrogen sulfide emissions.
g. Utilize a biofilter for scrubbing exhaust air from animal housing and enclosed manure storage facilities. Exhaust air should be in contact with wetted media for 3-5 seconds prior to exiting the filter.
h. Use aerobic composting for manure to reduce hydrogen sulfide emissions. The carbon to nitrogen ratio of the manure mixture should be 25:1 to 40:1 with a moisture content of 40-65%.
i. Establish a 3-row vegetative environmental buffer around the perimeter of the livestock facility to deflect and filter exhaust air. One row should be shrubs, one confers, and one fast-growing deciduous trees.
j. Utilize mechanical scraping to clean dairy freestall housing rather than flushing with recycled water from manure storage.
k. Sprinkle vegetable oil on surface and manure in swine barns to suppress dust and gas emissions.
l. Replace pit fans in swine barns with wall or ceiling fans to reduce hazardous air emissions.
m. Apply alum to poultry litter to reduce litter pH to inhibit conversion of ammonium into ammonia.
n. Utilize a wet scrubber to use water to absorb gasses and particulate matter from exhaust air. Utilize both acid soluble and base soluble chemicals in the water to remove ammonia and hydrogen sulfide, respectively.
o. Utilize a floor design in animal barns to separate urine from feces to reduce conversion of urea to ammonia.
p. Utilize a vertical chimney for exhaust air to remove particulates.
q. For egg laying operations, capture manure on belts or scraper boards and treat with forced air to dry the litter prior to storage or land spreading in order to reduce ammonia emissions.
r. Cover manure storage with an impermeable barrier and draw off gases from under the barrier for flaring or treatment through a biofilter.
s. For bovine operations with organic bedding allow the natural crust to form. The biologically active crust acts as a biofilter with microbial degradation of ammonia. For operations without organic bedding, install a bio-cover (straw, air-filled clay balls, etc.) or geotextile permeable cover to reduce mass transfer of gas emissions.

t. Fill manure storage facilities from the bottom to reduce surface agitation and release of gasses.
u. Cover stockpiled solid manure on a concrete pad to reduce wetting and the consequent release of ammonia.
v. Utilize an anaerobic digester to capture methane, ammonia, and hydrogen sulfide. Hydrogen sulfide must be removed from the gas if used for electricity or heat generation.
w. Implement a wastewater treatment system involving an aeration/aerobic lagoon or phototrophic facultative circulating aerobic system to remove nutrients.
x. Scrape and remove manure from open animal lot surface at least once every three days when manure is not frozen and land-spread or treat. Reducing exposure of stored manure from precipitation and anaerobic conditions reduces hydrogen sulfide and ammonia emissions.
y. Incorporate chemically or biologically-active products known to reduce ammonia or hydrogen sulfide emissions into stored manure. Such products should not cause more harm when land-applied then the untreated manure.
z. Encourage rotational grazing systems to reduce concentration of manure and urine and feces separation. Urine soaks into pasture rather than mixing with feces, thereby reducing ammonia emissions. Feces remain aerobic thereby reducing hydrogen sulfide emissions.
aa. When land-applying manure inject to a depth of at least 4 inches to reduce ammonia losses.
bb. Incorporate manure into the soil immediately after spreading.
cc. Band apply manure to growing annual row crops using drop tubes from a boom applicator. Band application to actively growing crops reduces ammonia losses through decreased agitation compared to broadcast spreaders and immediate plant uptake.

Appendix 6 – Microbiology Findings-of-Fact Document

Bayfield County Large-Scale Livestock Study Committee
Adopted November 19, 2015

Microbiology

Findings-of-Fact (Facts)

Zoonotic Disease

1. A zoonotic disease is a disease that can be spread from animals to humans. Some zoonotic diseases require the animal biting the human, such as with deer ticks and lyme disease. Other zoonotic diseases can be spread through water droplets through the air, such as with swine flu (influenza). Enteric zoonotic diseases requires ingestion of a microorganism typically causing gastrointestinal problems.

2. Livestock manure generally contains three classes of zoonotic disease organisms (pathogens): bacteria (campylobacter, salmonella, E. coli), protozoa (cryptosporidium, giardia), and viruses (rotavirus, enterovirus, hepatitis E).

3. The presence and concentration of specific pathogens in excreted and stored manure varies considerably from farm-to-farm and throughout the year.

4. The Centers for Disease Control estimate that fourteen percent (14%) of all reported annual enteric illnesses are attributed to contact with animals or their environments.

5. Workers within livestock facilities are typically most at risk of zoonotic disease due to close proximity and long-term exposure to the animals and animal manure.

6. Neighbors and community members living near a livestock facility can also be at risk from zoonotic disease organisms if exposed to the manure through surface water, ground water or airborne particles.

7. Land spreading activities that put aerosols or fine water droplets into the air can result in downwind spread of manure and pathogens through the air.

8. Movement of pathogens in manure from farm fields is most likely to occur during run-off events.

9. Zoonotic and animal-to-animal disease can be spread rapidly and across long distances from livestock facilities via the movement of workers and vehicles servicing the facilities.

10. Manure spills from failure of storage facilities, accidents with hauling equipment, or breaks in draglines can have immediate and long-term negative impacts on water quality and health of humans and wildlife.

11. For an individual to become sick from a zoonotic disease three things must happen: 1) There must be a disease-causing organism, 2) There must be a susceptible host for the disease-causing organism, and 3) The susceptible host must be exposed to the viable disease causing organism and the environment must be conducive for the organism to colonize and infect the host. This "disease triangle" is used to quantify and characterize the risks posed by zoonotic diseases via a risk assessment process.

12. If humans and livestock facilities are co-located, there will always be some risk of transmission of zoonotic disease. When co-locating humans and livestock facilities, the following practices can help lower the risk of transmission:

    Limiting transport

    a. Applying manure at times when it is least likely to run off.
    b. Applying manure to fields with a low likelihood of run-off following a rain event or during the spring melt.
    c. Not applying manure to areas of concentrated water flows.
    d. Excluding livestock from surface waters and concentrated flows to surface waters.
    e. Diverting clean water (rainfall or runoff) away from livestock housing and manure storage structures.
    f. Not applying manure to direct conduits to groundwater or areas draining to direct conduits to groundwater.
    g. Injecting or immediately incorporating the manure into the soil.
    h. Maintaining biosecurity practices to minimize entry or exit of pathogens into or out of a livestock facility.
    i. Maintaining adequate separation distances between humans and manure spreading activities to account for downwind distribution of manure through the air.
    j. Implementing risk reduction strategies to minimize the risk of manure spills.

    Inactivation of pathogens

    k. Storing the manure for extended periods of time (3 months or more) prior to spreading to allow for reductions in pathogen populations.
    l. Maintaining healthy animals to prevent excretion of pathogens.
    m. Treating the manure with anaerobic digestion or thermophilic processing (composting) to reduce pathogen loads.
    n. Adjusting the pH of the manure to create a hostile environment for the pathogens.
    o. Applying manure in full sunlight and warm air temperatures to deactivate zoonotic disease organisms.

Antibiotic Resistance

1. Antibiotics are used in livestock operations to treat disease, prevent disease, or promote growth.

2. There are many different antibiotics used in livestock operations, but most are variations within different classes of antibiotics (aminoglycosides, carbodox, Beta-lactams, fluoroquinolones,

macrolides, sulfonamides, tetracyclines). The method in which a particular antibiotic kills or stops growth of an organism is called the "mode-of-action".

3. Antibiotics in dairy operations are primarily for treatment of disease (such as mastitis) and are typically given to individual cows. Treating the entire herd through feed or water would result in loss of the milk during the withholding period and is not typically done.

4. Antibiotics in swine or poultry operations are given to individual animals, but can also be delivered through feed and water in order to protect a herd from a fast-moving disease.

5. Starting in 2016, antibiotics used to treat disease in humans can no longer be used for sub-therapeutic uses in livestock, such as growth promotion.

6. Efforts to protect humans from antibiotics are focused in three areas: 1) Maintaining antibiotic residues in food products (meat, milk, eggs) below allowable limits, 2) Limiting development of antibiotic resistant microorganisms, and 3) Protecting the public from antibiotics in the environment.

7. Systems to protect the public from antibiotic residues in food products include mandatory withholding periods before products from an animal treated with antibiotics can enter the food supply and monitoring food products before and after they enter the supply chain to ensure residues are below allowable limits.

8. Growing concern about pathogen resistance to medically important antibiotics has prompted the FDA to take action with 2015 revisions of the Veterinary Feed Directive. Under the revised rules, medically important antibiotics can no longer be used in livestock operations for growth promotion purposes. In addition, when used for prevention or treatment of disease through feed or water, such antibiotics must be used under the direction of a veterinarian.

9. There is growing concern about antibiotics and intermediaries in wastewater and land-applied manure, but with limited research and understanding of the risks posed by antibiotics in the environment there has been little to no policy or regulations put in place.

10. The resistance of an individual disease organism (such as an individual bacterium) to an antibiotic depends on the heritable genetics of that individual organism. This genetically-controlled resistance, or lack thereof, is called intrinsic resistance.

11. Within a population of a disease organism, it is possible that all individuals are intrinsically resistant to an antibiotic, none are intrinsically resistant to the antibiotic, or only some are intrinsically resistant to the antibiotic.

12. It is possible for all individuals in a population to be intrinsically resistant to one antibiotic, but intrinsically susceptible to another antibiotic. This intrinsic resistance is a major factor in which antibiotic a doctor or veterinarian will recommend for treating a given disease.

13. Use of an antibiotic in a population of disease-causing organisms acts as a selection pressure where all susceptible individuals die and resistant individuals (if present) survive. As a result, a population can shift from mostly susceptible to mostly resistant. However, if all individuals within a population are susceptible to an antibiotic, the development of resistance within the population will take much longer and may not occur at all.

14. The *presence* of antibiotic resistant organisms in a livestock facility is not necessarily a result of use of antibiotics, as pre-existing intrinsic resistance is possible within any given population. Likewise, an *increase* in the number of resistant individuals in a population could be a result of an increase in the population in general due to improved environmental conditions for the population.

15. Antibiotics are essentially a pesticide. Managing resistance to pesticides is an important aspect of integrated pest management in agriculture, whether the goal is to treat a bacterial disease in livestock operations, kill weeds in row crop systems, or control fungal disease in fruit crops. The following practices can help reduce the chances of a population developing resistance to a pesticide, whether it be an antibiotic, herbicide, or fungicide:
    a. Maintain animal (or crop) health to prevent the need for treatment with an antibiotic.
    b. Use the full recommended dosage and duration of a pesticide to ensure the target organism is killed or controlled.
    c. Use pesticides with different modes-of-action to reduce the intensity of the selection pressure of any single mode-of-action.
    d. Utilize integrated pest management to ensure the pesticide is only used if absolutely necessary. If a pesticide is necessary, use it at the right time, the right place, and the right way.

Gaps in Existing Regulations, Enforcement, and Outreach Education (Gaps)

1. Emergency responders, natural resource professionals, and area livestock producers in Bayfield County may not have adequate training to appropriately handle a large-scale manure spill.

2. There are currently no regulations specifying allowable levels of zoonotic pathogens or antibiotics in land-applied manure.

3. There are currently no regulations requiring inactivation of zoonotic pathogens or degradation of antibiotics prior to land-spreading manure.

4. Current regulations do not specifically address the transport of zoonotic pathogens or exposure to the public related to land-spreading of manure.

5. There are currently no regulations requiring monitoring of pathogens or antibiotics in surface or groundwater near livestock facilities.

6. Current regulations do not allow limitations on the number of animals in a single enclosed space as a means to limit the magnitude and severity of contagious disease and, thus, the magnitude of antibiotic use.

7. Bayfield County currently is not able to regulate the density of livestock operations as a means to maintain biosecurity and reduce the spread of contagious disease.

Risk Management Strategy Options for Bayfield County (Solutions)

8. Take no additional action and rely on existing regulations and best management practices to minimize the risk of transmission of zoonotic disease and development of antibiotic resistant pathogens.

9. Implement manure-spill response training for emergency responders, health-care workers, and natural resource agencies.

10. Develop and implement incentive programs for livestock facility operators to achieve pathogen reduction targets in manure prior to land-spreading.
    a. Provide market incentives to enable installation of manure digesters, such as purchase of carbon credits for methane reductions, or tax incentives for co-location of energy-intensive businesses (greenhouses, kilns) with livestock operations.
    b. Provide cost-sharing for feasibility studies for construction and operation of manure storage, handling, and treatment systems.
    c. Provide incentives for adoption of managed intensive grazing systems for livestock production, such as per acre conservation payments or assistance with marketing or enterprise development.

11. Develop and implement incentive programs to enable hose-line transport and injection of manure.
    a. Install culverts or hardlines for crossing roads at locations with minimal risk of manure reaching surface water in the event of a break in the hose.
    b. Require and/or provide cost-sharing for secondary containment or hardline hoses for waterway crossings.

12. Require a monitoring program to track potential movement of manure-based pathogens.
    a. Monitor neighboring wells for zoonotic pathogens.
    b. Monitor for zoonotic pathogens in surface waters downstream from large-scale livestock operations.
    c. Secure the right to access a livestock facility at any time to pull manure samples for genetic fingerprinting of pathogens.

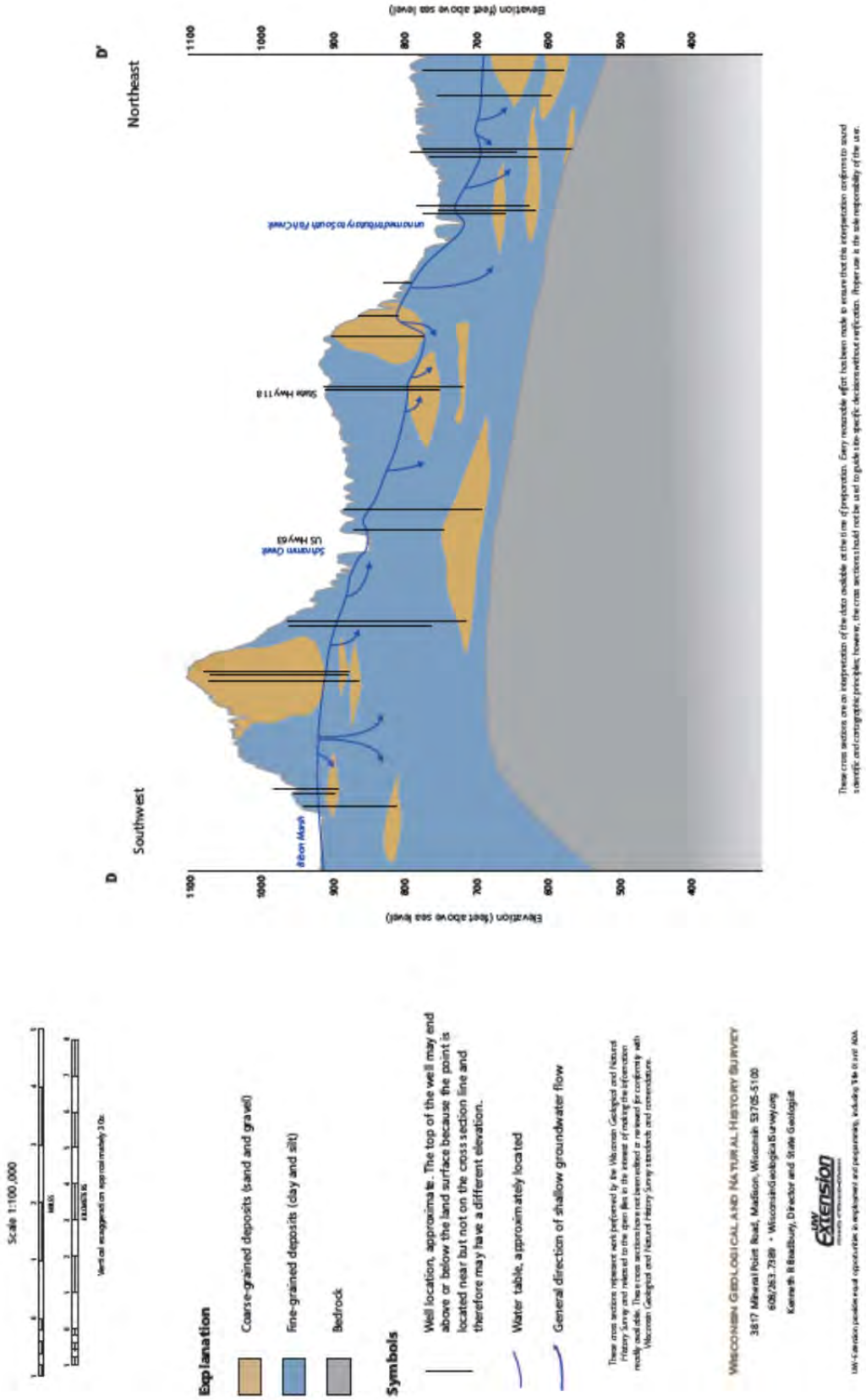
d. Require testing of manure for pathogen concentrations and antibiotic residues immediately prior to spreading and require stepped risk-reduction strategies concordant with the measured pathogen and antibiotic loads.

13. Require treatment of manure sufficient to achieve 90% (log 1) reductions in pathogen loads and antibiotic residues prior to land-spreading, such as with manure digesters.

14. Require additional risk-reduction actions to minimize chances of spread of zoonotic disease organisms associated with land-spreading. Such actions could include:
    a. Require injection of all manure.
    b. Require no-application or injection-only buffers around neighboring residences to account for downwind movement of manure.

15. Require additional risk-reduction actions to minimize likelihood of development of antibiotic resistant pathogens. Such actions could include:
    a. Limit the number of animals per building to limit the number of animals being treated in the event of a barn-wide disease outbreak.
    b. Require immediate and full implementation of the newly revised Veterinary Feed Directive.
    c. Require integrated disease management plans specifically to minimize the development of antibiotic resistance.

Appendix 7 – Hydrogeologic Cross-Section of Bayfield County



Appendix 8 – Presentations to the Large-Scale Livestock Study Committee

April 23, 2015

Groundwater and Drinking Water Education Program Overview, Kevin Masarik, Groundwater Education Specialist, UW-Steven's Point Center for Watershed Science and Education

Groundwater in Bayfield County, Madeline Gotkowitz, Hydrogeologist, Wisconsin Geological and Natural History Survey

May 7, 2015

Waste Storage Facility Practice Standard 313, Pete Wurzer, Conservation Engineer, Department of Agriculture Trade and Consumer Protection

State and Local Regulations of Livestock Operations, Jason Fischbach, Agriculture Agent, Bayfield County UW-Extension

May 28, 2015

Overview of Nutrient Management, Jason Fischbach, Agriculture Agent, Bayfield County UW-Extension

UW Discovery Farm: Understanding Nutrient and Sediment Loss from Agricultural Landscapes, Eric Cooley, Co-Director, University of Wisconsin Discovery Farms

June 4, 2015

Surface Water Quality in Bayfield County, Michelle Wheeler, Water Resources Management Specialist, Wisconsin Department of Natural Resources

Surface Water Quality in the Chequamegon Bay Region, Dr. Randy Lehr, Professor of Environmental Science and Management, Northland College

June 18, 2015

Clean Water Act, Impaired Waters, Total Maximum Daily Loads (TMDLS), and CAFO Permitting, Aaron Larson, Water Resources Management Specialist, Thomas Bauman, Wastewater Engineer, WI Department of Natural Resources

July 2, 2015

When It Hits The Fan…Pathogens from Human and Swine Sources in the Environment, Dr. Mark Borchardt, Research Microbiologist, USDA-Agricultural Research Service

August 13, 2015

Regulating the Operations of Large-Scale Livestock Operations, Glenn Stoddard, Attorney, Farms Not Factories

August 27, 2015

Concentrated Animal Feeding Operations and Human Health in Wisconsin, Dr. Robert Thiboldeaux, Senior Toxicologist, WI Bureau of Environmental and Occupational Health

September 10, 2015

Antibiotic Usage and Resistance on Dairy Farms, Dr. Pamela Ruegg, Milk Quality Specialist, University of Wisconsin – Madison

Antimicrobial and Drug Use in Swine, Locke Karriker, Associate Professor and Director, Swine Medicine Education Center, Iowa State University

September 24, 2015

From Waste to Worth: Anaerobic Digestion, Dr. Rebecca Larson, Biowaste Specialist, University of Wisconsin - Madison

Unintended Health and Environmental Consequences of CAFO Agriculture, Bob Watson

November 12, 2015

Groundwater Quality Overview, Kevin Masarik, Groundwater Education Specialist, UW-Steven's Point Center for Watershed Science and Education, Michelle Dale, Environmental Health Specialist, Bayfield County Health Department

November 19, 2015

2015 Results of Chequamegon Bay and Tributary Water Quality Monitoring, Dr. Randy Lehr, Professor of Environmental Science and Management, Northland College

Groundwater and Wells in Agricultural Regions of Bayfield County: Report to the Large-Scale Livestock Study Committee, Madeline Gotkowitz, Hydrogeologist, Wisconsin Geological and Natural History Survey

Groundwater Program Proposal
For Funding Through Wisconsin Coastal Management Grant Program

Background

The Douglas County Land and Water Resource Management Plan was developed to meet requirements in Chapter 92 of the Wisconsin Statutes. The intent of the plan is to foster local water quality planning and increase public participation in natural resource management. The plans are intended to provide counties, through their Land Conservation Committees, the tools, flexibility, and funding to be able to address both statewide goals as well as priorities identified at the local level. The goals, objectives, and actions contained in the Douglas County plan were established in 2009 by a workgroup of volunteer citizens from throughout the county and will guide the work of the Land Conservation Committee and their staff through 2020.

The Land and Water Resource Management Plan contains four goals; one of these goals addresses groundwater. Here is the groundwater goal from the plan:

Goal 2. Protect and understand groundwater quality to supply clean water for drinking and recharging surface waters and wetlands.

Objectives

A. A baseline inventory of drinking water quality is available in Douglas County.
B. Potential impacts to groundwater are minimized (road salt, herbicides, etc.).
C. Private wells are properly sealed and closed when not in use.
D. Manure storage systems follow standards to protect groundwater.

Activities

1. Develop and implement a home well sampling program – at a minimum test for nitrates and bacteria. Record the results in a data base and map in a Geographic Information System (GIS).
2. Provide cost sharing and technical assistance for well closures.
3. Provide technical assistance in the planning, design, and construction or closure of manure storage facilities.

Grant Proposal

We propose to apply to the Wisconsin Coastal Management Program for grant funding from the Great Lakes Education category for the following tasks:

Task 1: Groundwater Susceptibility GIS Analysis. This task will compile existing datasets and produce draft maps to guide design of a groundwater well sampling program. Geology and soils, depth to groundwater, land use, aquifer extent and use, surface water quality and impairment status information will be combined with data presented in the on-line 2007 USGS/UW-Extension Groundwater Contamination Susceptibility Map tool. The compiled data will be used to identify focus areas within the county that have both a moderate to high susceptibility for contamination, the potential for large livestock facilities use, and a scarcity of existing data on groundwater quality and use.

Timeline: April-May 2017

Major milestones: Draft maps will be completed and used to educate well owners and the public about the well sampling program and groundwater use and susceptibility in general.

Task 2: Groundwater Well Sampling Program. This task is aimed at providing an understanding of baseline groundwater quality conditions in areas of the county that are susceptible to groundwater contamination. A voluntary well sampling program will be designed, targeting up to 400 well owners, who will be contacted within the focus areas identified in Task 1. Participation will be limited to approximately 100 participants, and well owners will be charged a nominal fee ($20) for participation, a subsidized cost for well testing. Sampling kits will be distributed, collected, and delivered to the lab at UW-Stevens Point. Laboratory analysis results will be summarized and distributed to participants.

Timeline: June-July 2017

Major milestones: An education/solicitation event will be held to encourage participation, a press article will be published, and flyers will be mailed. Samples will be collected by well-owners and delivered to a centralized location for courier delivery to UW-Steven's Point. Sample analysis will take place, and data received and verified by the county. Data will be added to the existing dataset, and baseline water quality maps will be prepared.

Task 3: Technical Assistance for Properly Closing Wells. This task will encourage proper well abandonment by educating targeted well owners about the importance of limiting the potential of well contamination on their property. Well owners will be offered technical assistance and cost sharing to properly seal wells that are no longer in use. Participation will be limited by requests and available cost share funding; however 5 wells will be sought to properly abandon.

Timeline: July – October 2017

Major milestones: Information and other educational materials about cost sharing and well abandonment will be included with the other outreach aspects of the county groundwater program. Five wells will be sought to properly abandon through cost share program.

Work products:

- Water quality data for areas of Douglas County that are susceptible to groundwater pollution. These will be made available to the UW-Extension for use in their water quality viewer.
- County-scale susceptibility and water quality maps for use in education and results distribution.
- Five wells properly abandoned through cost sharing and well abandonment program.

<u>Fiscal Note</u>

There are two funding categories available through the Wisconsin Coastal Management Program with different match requirements: $60,000 grant amount or less requires a 50% match; and over $60,000 grant amount requires a 60% match. We are planning for less than $60,000 grant amount.

So far we have identified these potential sources of match:

- County staff time, mileage, supplies, etc.
- Cost of county data added to state-wide dataset and hosted by on-line 2007 USGS/UW-Extension Groundwater Contamination Susceptibility Map tool
- staff time from UW-Extension and/or USGS (?)
- well owner portion of testing cost
- well owner time and mileage to participate in program
- cost sharing for well abandonments
- well owner portion of well abandonments

8.10 LIVESTOCK FACILITIES LICENSING ORDINANCE

THE COUNTY BOARD OF SUPERVISORS OF THE COUNTY OF DOUGLAS DOES HEREBY ORDAIN AS FOLLOWS:

SECTION I. AUTHORITY

This ordinance is adopted pursuant to the powers granted under Wisconsin Constitution, and Wisconsin Statutes including but not limited to Section 92.15 and 93.90.

SECTION II. PURPOSE AND FINDINGS

Purpose: The purpose of this ordinance is to comply with requirements of Section 93.90 of Wis. Statutes and ch. ATCP 51, Wis. Adm. Code (ATCP 51), and to establish standards and authority to protect the public health and safety of the people of the County of Douglas. This ordinance sets forth the procedures for obtaining a license for the siting of new and expanded livestock facilities in the County of Douglas.

SECTION III. DEFINITIONS

(1) ADJACENT: means located on land parcels that touch each other, or on land parcels that are separated only by a river, stream or transportation or utility right-of-way.

(2) ANIMAL UNIT: Has the meaning that was given in s. NR 243.03 (3) as of April 27, 2004.

(3) COMPLETE APPLICATION FOR LOCAL APPROVAL: Means an application that contains everything required under s. ATCP 51.30 (1) to (4).

(4) EXPANDED LIVESTOCK FACILITY: Means the entire livestock facility that is created by the expansion, after May 1, 2006, of an existing livestock facility. “Expanded livestock facility” includes all livestock structures in the expanded facility, regardless of whether those structures are new, existing or altered.

(5) EXPANSION: Means an increase in the largest number of animal units kept at a livestock facility on at least 90 days in any 12-month period. The acquisition of an existing livestock facility, by the operator of an adjacent

livestock facility, does not constitute an “expansion” unless that operator increases the largest number of animal units kept at the combined livestock facilities on at least 90 days in any 12-month period.

(6) LIVESTOCK: Means domestic animals traditionally used in this state in the production of food, fiber or other animal products. “Livestock” includes cattle, swine, poultry, sheep and goats. “Livestock” does not include equine animals, bison, farm-raised deer, fish, captive game birds, ratites, camelids or mink.

(7) LIVESTOCK FACILITY: Means a feedlot, dairy farm or other operation where livestock are or will be fed, confined, maintained or stabled for a total of 45 days or more in any 12-month period. A “livestock facility” includes all of the tax parcels of land on which the facility is located, but does not include a pasture or winter grazing area. Related livestock facilities are collectively treated as a single “livestock facility” for purposes of this chapter, except that an operator may elect to treat a separate species facility as a separate “livestock facility.”

(8) LIVESTOCK STRUCTURE: Means a building or other structure used to house or feed livestock, to confine livestock for milking, to confine livestock for feeding other than grazing, to store livestock feed, or to collect or store waste generated at a livestock facility. “Livestock structure” includes a barn, milking parlor, feed storage facility, feeding facility, animal lot or waste storage facility. “Livestock structure” does not include a pasture or winter grazing area, a fence surrounding a pasture or winter grazing area, a livestock watering or feeding facility in a pasture or winter grazing area, or a machine shed or like facility that is not used for livestock.

(9) MANURE: Means excreta from livestock kept at a livestock facility. “Manure” includes livestock bedding, water, soil, hair, feathers, and other debris that becomes intermingled with livestock excreta in normal manure handling operations.

(10) NEW LIVESTOCK FACILITY: Means a livestock facility that will be used as a livestock facility for the first time, or for the first time in at least 5 years. “New livestock facility” does not include an expanded livestock facility if any portion of that facility has been used as a livestock facility in the preceding 5 years.

(11) OPERATOR: Means a person who applies for or holds a local approval for a livestock facility.

(12) PERSON: Means an individual, corporation, partnership, cooperative, limited liability company, trust or other legal entity.

(13) POPULATE: Means to add animal units for which local approval is required.

(14) PROPERTY LINE: Means a line that separates parcels of land owned by different persons.

(15) RELATED LIVESTOCK FACILITIES: Means livestock facilities that are owned or managed by the same person, and related to each other in at least one of the following ways:

(a) They are located on the same tax parcel or adjacent tax parcels of land.

(b) They use one or more of the same livestock structures to collect or store manure.

(c) At least a portion of their manure is applied to the same land spreading acreage.

(16) SEPARATE SPECIES FACILITY: Means a livestock facility that meets all of the following criteria:

(a) They It has only one of the following types of livestock, and that type of livestock is not kept on any other livestock facility to which the separate species facility is related under sub. (15):

1. Cattle.
2. Swine.
3. Poultry.
4. Sheep.
5. Goats.

(b) It has no more than 500 animal units.

(c) Its livestock housing and manure storage structures, if any, are separate from the livestock housing and manure storage structures used by livestock facilities to which it is related under sub. (15).

(d) It meets one of the following criteria:

1. Its livestock housing and manure storage structures, if any, are located at least 750 feet from the nearest livestock

housing or manure storage structure used by a livestock facility to which it is related under sub. (15).

2. It and the other livestock facilities to which it is related under sub. (15) have a combined total of fewer than 1,000 animal units.

(17) WASTE STORAGE FACILITY: Means one or more waste storage structures. "Waste storage facility" includes stationary equipment and piping used to load or unload a waste storage structure if the equipment is specifically designed for that purpose and is an integral part of the facility. "Waste storage facility" does not include equipment used to apply waste to land.

(18) WASTE STORAGE STRUCTURE: Means a waste storage impoundment made by constructing embankments, excavating a pit or dugout, or fabricating a structure. "Waste storage structure" does not include equipment used to apply waste to land. For purposes of ss. ATCP 51.12 (2) and 51.14, "waste storage structure" does not include any of the following:

(a) A structure used to collect and store waste under a livestock housing facility.

(b) A manure digester consisting of a sealed structure in which manure is subjected to managed biological decomposition.

(19) WPDES permit – Means a Wisconsin pollutant discharge elimination system permit issued by DNR under ch. NR 243.

The remaining definitions in ATCP 51 are hereby incorporated by reference without reproducing them in full in this ordinance.

SECTION IV. <u>LICENSE REQUIRED</u>

(A) General

A license issued by the County of Douglas is required for *new* or *expanded* livestock facilities that will have 500 or more animal units.

(B) Licenses for Existing Livestock Facilities

(1) A license is required for the expansion of a pre-existing or previously approved livestock facility if the number of animal units

kept at the expanded livestock facility will exceed all of the following:

(a) The applicable size threshold for a license.

(b) The maximum number previously approved or, if no maximum number was previously approved, a number that is 20% higher than the number kept on (May 1, 2006 or on the effective date of the license requirement, whichever date is later).

(2) A license is not required for a livestock facility that existed before May 1, 2006 or before the effective date of the license requirement in this ordinance, except as provided in sub. 1).

(3) A license is not required for a livestock facility that was previously issued a conditional use permit, license or other local approval, except as provided in sub. 1). A prior approval for the construction of a livestock facility implies approval for the maximum number of animal units that the approved livestock facility was reasonably designed to house, except as otherwise clearly provided in the approval. Prior approval of a single livestock structure, such as a waste storage structure, does not constitute prior approval of an entire livestock facility.

SECTION V. LICENSING ADMINISTRATION

The County of Douglas does hereby create the position of Livestock Facility Siting Administrator who shall have the primary responsibility of administering this ordinance and related matters thereto. The Livestock Facility Siting Administrator shall be appointed by the county board to serve at the pleasure of said board.

SECTION VI. LICENSING STANDARDS

The standards for issuing a license are as follows:

(1) The state livestock facility siting standards adopted under ATCP 51, Wis. Adm. Code, inclusive of all appendixes and worksheets and any future amendments to this chapter, except as may be noted in this section of the ordinance, are incorporated by reference in this ordinance, without reproducing them in full.

(2) The following setbacks shall apply to livestock structures:

(a) Property lines

Except as provided for waste storage structures, livestock structures must be located a minimum of 100 feet from the property line if the livestock facility will have fewer than 1,000 animal units, and 200 feet from the property line if the livestock facility will have 1,000 or more animal units.

The setback requirement does not prevent the use or expansion of a livestock structure that was located within the setback area prior to the effective date of the setback requirement, except that a structure may not be expanded closer to the property line.

(b) Public road right-of-way

Except as provided for waste storage structures, livestock structures must be located a minimum of 100 feet from public road right-of-way if the livestock facility will have fewer than 1,000 animal units, and 150 feet from a public road right-of-way if facility will have 1,000 or more animal units.

The setback requirement does not prevent the use or expansion of a livestock structure that was located within the setback area prior to the effective date of the setback requirement, except that a structure may not be expanded closer to the property line.

(c) Waste Storage Structure

A new waste storage structure may not be located within 350 feet of a property line, or within 350 feet of the nearest point of any public road right-of-way.

A single new waste storage structure may be constructed closer to the property line or public road if a new structure is:

- Located on the same tax parcel as a waste storage structure in existence before May 1, 2006.
- No larger than the existing structure.
- No further than 50 feet from the existing structure.
- No closer to the road or property line than the existing structure.

This setback requirement *does not apply* to existing waste storage structures, except that an existing structure within 350 feet of a property line or road may not expand toward that property line or road.

SECTION VII. LICENSE APPLICATION

A livestock operator must complete the application form and worksheets prescribed by ATCP 51, including any authorized local modifications. The application form and worksheets demonstrate compliance with standards in ATCP 51 and this ordinance.

The operator must file 4 duplicate copies of the application form, including worksheets, maps and documents (other than engineering design specifications) included in the application.

SECTION VIII. LICENSE APPLICATION FEE

A non-refundable application fee of $200, payable to the County of Douglas, shall accompany an application submitted by an existing farm in operation as of the date of adoption of this ordinance, or $1,000 for a new farm, for the purpose of offsetting the county's costs to review and process the application.

SECTION IX. APPLICATION PROCEDURE

(1) Pursuant to ATCP 51.30 (5), within 45 days after a political subdivision receives an application, it shall notify the applicant whether the application is complete. If the application is not complete, the notice shall describe the additional information needed. Within 14 days after the applicant provides all of the required information, the political subdivision shall notify the applicant that the application is complete. This notice does not constitute an approval of the proposed livestock facility.

(2) Pursuant to ATCP 51.30 (6), within 14 days after a political subdivision notifies an applicant that the application is complete, the political subdivision shall notify adjacent landowners of the application. The political subdivision shall use the approved notice form in ATCP 51, and mail by first class mail a written notice to each adjacent landowner.

(3) Upon determination of completeness the county clerk shall give notice of a public hearing to receive information from the applicant and receive public input on the application. Public notice shall be a class 2 notice the last of which is at least a week before the date of the public hearing. The public hearing may be continued, but final decision shall be made within the time limits described in the next paragraph.

(4) Pursuant to ATCP 51.32, a political subdivision shall grant or deny an application within 90 days after the political subdivision gives notice that

the application is complete under paragraph 2 above. A political subdivision may extend this time limit for good cause, including any of the following:

- The political subdivision needs additional information to act on the application.
- The applicant materially modifies the application or agrees to an extension.

A political subdivision shall give written notice of any extension. The notice shall specify the reason for the extension, and the extended deadline date by which the political subdivision will act on the application.

SECTION X. CRITERIA FOR ISSUANCE OF A LICENSE

A license shall be issued if the application for the proposed livestock facility:

- Complies with this ordinance, and
- Is complete, and
- Contains sufficient credible information to show, in the absence of clear and convincing information to the contrary, that the proposed livestock facility meets the standards specified in this ordinance, specifically Section VI above.

A license shall be denied if any of the following apply:

- The application, on its face, fails to meet the standard for approval in the previous paragraph,
- The political subdivision finds, based on other clear and convincing information in the record, that the proposed livestock facility does not comply with applicable standards in this ordinance.
- Other grounds authorized by s. 93.90, States., that warrant disapproving the proposed livestock facility.

SECTION XI. RECORD OF DECISION

A political subdivision must issue its decision in writing. The decision must be based on written findings of fact supported by evidence in the record. Findings may be based in part on the presumptions created by ATCP 51.

If the political subdivision approves the application, it must give the applicant a duplicate copy of the approved application, marked “approved.” The duplicate copy

must include worksheets, maps and other documents (other than engineering specifications) included in the application.

The Zoning Department as required by ATCP 51.36 within 30 days of the county decision on the application shall do all of the following:

(a) Give the Department of Agriculture, Trade and Consumer Protection written notice of the county decision.

(b) File with the Department a copy of the final application granted or denied, if the county has granted or denied an application under this ordinance. (The copy shall include all of the worksheets, maps and other attachments included in the application, except that it is not required to include the engineering design specifications.)

(c) If the county has withdrawn a local approval under this ordinance, file with the department a copy of the county final notice or order withdrawing the local approval.

SECTION XII. TRANSFERABILITY OF LICENSE

A license and the privileges granted by this license run with the land approved under the license and remain in effect, despite a change in ownership of the livestock facility, as long as the new operator does not violate the terms of the local approval. An applicant may record with the register of deeds, at the applicant's expense, the duplicate copy of the approved application.

The county requests that upon change of ownership of the livestock facility, the new owner of the facility shall file information with the Zoning Department providing pertinent information, including but not limited to such information as the name and address of the new owner and date of transfer of ownership.

SECTION XIII. EXPIRATION OF LICENSE

A license remains in effect regardless of the amount of time that elapses before the livestock operator exercises the authority granted under license, and regardless of whether the livestock operator exercises the full authority granted by the approval. However, the political subdivision may treat a license as lapsed and withdraw the license if the license holder fails to do all of the following within 2 years after issuance of license:

- *Begin* populating the new or expanded livestock facility.

- *Begin* constructing all of the new or expanded livestock housing or waste storage structures proposed in the application for local approval.

SECTION XIV. LICENSE TERMS AND MODIFICATIONS

A license and the privileges granted by a license issued under this ordinance is conditioned on the livestock operator's compliance with the standards in this ordinance, and with commitments made in the application for a license. The operator may make reasonable changes that maintain compliance with the standards in this ordinance, and the political subdivision shall not withhold authorization for those changes. A violation of the license or a failure to comply with the commitments made in the application may result in suspension and/or termination of the license as provided in Section XIII of this ordinance.

SECTION XV. COMPLIANCE MONITORING

The political subdivision shall monitor compliance with the ordinance as follows:

(a) Upon notice to the livestock facility owner request the right of the County Livestock Facility Siting Administrator under Section 5 of this ordinance to personally view the licensed premises at a reasonable time and date to insure that all commitments of the application as approved are being complied with.

(b) If the livestock facility owner refuses the County Livestock Facility Siting Administrator the right to view the licensed premises, the Administrator may request the assistance of the Sheriff or a deputy Sheriff to obtain an inspection warrant from the circuit court to inspect the licensed premises for the purpose of protection of the public health and safety under Sec. 66.0119 of Wis. Statutes.

(c) If a licensed premises is found not to be in compliance with the commitments made in the approved application, the Livestock Facility Siting Administrator shall issue a written notice to the livestock facility owner stating the conditions of non-compliance and directing that compliance of the commitments of the approved application and license be complied with in a reasonable amount of time stated in this written notice.

(d) If non-compliance of the license conditions as described in the written notice given by the Administrator continue past the stated reasonable time to comply, the Administrator may take further action as provided in this

ordinance, including but not limited to issuance of a citation or seeking of injunctive relief.

(e) If the livestock facility owner disputes that the conditions of the license have not been complied with, the livestock facility owner may request a hearing in writing within five days of receipt of the notice of non-compliance. The County Zoning Committee shall schedule a hearing within five days to determine if the conditions of the license have been complied with or whether non-compliance of the commitments of the approved application and local approval exists.

SECTION XVI. PENALTIES

Any person who violates any of the provisions of this ordinance, or who fails, neglects or refuses to comply with the provisions of this ordinance, or who knowingly makes any material false statement or knowing omission in any document required to be submitted under the provisions hereof, shall be subject to the following penalties:

(a) Upon conviction by a court of law, pay a forfeiture of not less than $100 nor more than $1,000, plus the applicable surcharges, assessments and costs for each violation.

(b) Each day a violation exists or continues shall be considered a separate offense under this ordinance.

(c) In addition, the county may seek injunctive relief from a court of record to enjoin further violations.

(d) In addition, the County Zoning Committee may suspend or revoke the local approval of a license under this ordinance after due notice to the livestock facility owner and a public hearing to determine whether the license should be suspended or revoked.

A political subdivision shall exercise sound judgment in deciding whether to suspend or revoke a license. The political subdivision shall consider extenuating circumstances, such as adverse weather conditions, that may affect an operator's ability to comply.

In addition to any other penalty imposed by this ordinance the cost of abatement of any public nuisance on the licensed premises by the county may be collected under this ordinance or Sec. 823.06 of Wis. Statutes against the owner of the real estate upon which the public nuisance exists. Such costs of abatement may be recovered against the real estate as a special charge under Sec. 66.0627 of Wis. Statutes unless paid earlier.

SECTION XVII. APPEALS

In addition to other appeal rights provided by law, Sec. 93.90 (5) of Wis. Stats, provides that any “aggrieved person” may request review by the Livestock Facility Siting Review Board of any decision by the county in connection with a permit application. An “aggrieved person” may challenge the decision on the grounds that the county incorrectly applied the standards under this ordinance or violated sec. 93.30, Stats.

An “aggrieved person” under this section as defined in Sec. 93.90 (5) of Wis. Statutes means a person who applied to a political subdivision for approval of a livestock siting or expansion, a person who lives within 2 miles of the livestock facility that is proposed to be sited or expanded, or a person who owns land within 2 miles of a livestock facility that is proposed to be sited or expanded.

An “aggrieved person” may request review of any decision of the Livestock Facility Siting Administrator decision or action by the Board of Adjustment.

Any appeal brought under this section must be requested within 30 days of the Zoning Committee approval or disapproval or within 30 days after the decision on appeal before the Board of Adjustment..

Any appeal to the State Livestock Facility Siting Review Board shall comply with Sec. 93.90 of Wis. Statutes and administrative rules of said board.

SECTION XVIII. SEVERABILITY

If any provision of this ordinance or its application to any person or circumstance held invalid, the invalidity does not affect other provisions or applications of this ordinance that can be given effect without the invalid provision or application, and to that end, the provisions of this ordinance are severable.

SECTION XIX. EFFECTIVE DATE

This ordinance is effective the day after publication.

Dated this 21st day of September, 2006.

Chapter 3 Application of Liquid Livestock Manure Using Spray Irrigation Systems

Sec. 5-3-1 Authority

This ordinance is adopted pursuant to the authority granted under Wis. Stats. 59.02, 59.03(1) and 59.04 to enact ordinances and regulations promoting and protecting the health, safety, welfare, and convenience of the public, and defining and prohibiting public nuisances.

Sec. 5-3-2 Purpose and Findings

The County Board has researched the subject of spray irrigation of manure and, in doing so, has reviewed the following materials which raise concerns over the use of spray irrigation of manure and agricultural wastes through sprinkler systems, traveling guns, and center pivot irrigation:

(a) University of Nebraska - Lincoln Extension publication entitled "Application of Liquid Animal Manures Using Center Pivot Irrigation System", which suggests that the application of manure by center pivot manure distribution systems offers a large potential for significant odor release.

(b) Report of Robert Thiboldeaux, Wisconsin Division of Public Health, to Ken Johnson, Regional Water Leader, Wisconsin Department of Natural Resources, dated February 17, 2011, regarding public health setbacks for manure spray irrigation, which recognized that the Division of Health Services recommends that land application of manure liquids be managed to minimize impacts, particularly nuisance odor, that might inhibit the full use and enjoyment of neighboring private residences.

The Bayfield County Board has determined, based upon its review and research of materials as described above, that spray irrigation systems for irrigating liquid manure and agricultural wastes through sprinkler systems, traveling guns, and center pivot irrigation systems are a detriment to the health, safety, welfare, and convenience of the public, as they distribute manure odors recognized as a contributing factors to reduced quality of life, and that prohibition of spray irrigation systems for liquid livestock manure is in the best interests of the Bayfield County residents' public health, safety, general welfare and convenience.

Sec. 5-3-3 Definitions

(a) "Center Pivot Irrigation" means a system for spreading liquid livestock manure which involves a single lateral, fixed at one end and elevated on wheels that transport the lateral around the field at some speed of rotation.

(b) "Livestock" means domestic animals traditionally used in this state in the production of food, fiber or other animal products. "Livestock" includes cattle, swine, poultry, sheep, goats and mink.

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(c) "Manure" means excreta from livestock kept at a livestock facility.

(d) "Sprinkler Systems" means a system for spreading liquid livestock manure which involves a network of hoses or pipes with sprinklers on risers.

(e) "Traveling Guns: means a system for spreading liquid livestock manure with a sprinkler containing a large nozzle mounted on a wheeled unit that is propelled through the field.

Sec. 5-3-4 Liquid Livestock Manure Spraying Prohibited

No person shall spray liquid livestock manure above ground by use of a sprinkler system, traveling gun or center pivot irrigation in Bayfield County.

Sec. 5-3-5 Creation of Public Nuisance Prohibited

No person shall create a substantial threat to public health or safety by the spraying of liquid manure above ground by use of a sprinkler system, traveling gun, or center pivot irrigation in Bayfield County.

Sec. 5-3-6 Exemptions

This ordinance does not apply to the more common livestock manure spreading applications, including the following: box spreader, liquid manure tanker or drag hoses with knife injectors. In addition, this ordinance does not apply to the aerial spraying of treated municipal wastewater.

Sec. 5-3-7 License Penalties

Any person violating section 4 of this ordinance shall be subject to a forfeiture of not less than $500 nor more than $5,000 for each violation. Any person violating section 5 of this ordinance shall be subject to a forfeiture of not less than $2,000 nor more than $10,000 for each violation. Each day that a violation exists shall be considered a separate violation. In addition, upon conviction, the person in violation shall be subject to the imposition of court costs, actual expenses incurred by the County, engineering expenses if incurred, and actual and reasonable attorney fees incurred.

Sec. 5-3-8 Abatement of Violation

The Bayfield County Land and Water Conservation Committee may, in its discretion, require that a person in violation of this ordinance be enjoined from and prohibited from further violation of this ordinance upon order of a court of competent jurisdiction. In such event, the County shall be entitled to recovery of all costs and expenses incurred in such action, including engineering fees and actual and reasonable attorney fees.

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