LSRWA

LOWER SUGAR RIVER
watershed • association

Dedicated to the care & enjoyment of our water resources

September 12, 2015

Todd Jenson, County Conservationist
Green County Department of Land Conservation
1627 4th Avenue West
Monroe, WI 53566

Oscar Olson, Chair
Land & Water Conservation Committee
Green County Dept of Land Conservation
1627 4th Avenue West
Monroe, WI 53566

Arthur Carter, Board Chair
Green County Board of Supervisors
1016 16th Avenue
Monroe, WI 53566

Anna Anderson, Chair
Town of Sylvester
N4505 State Road 59
Monroe, WI 53566

Allen Schneider, Chair
Town of Decatur
P.O. Box 333, 1408 14th St.
Brodhead, WI 53520

Re Concern for Water Quality and Important Resource Areas in the Lower Sugar River Watershed with Increasing Pressure from Concentrated Animal Feeding Operations (CAFOs)

Dear Mr. Jenson, Land & Water Conservation Committee Chair and Members, Board of Supervisors Chair and Supervisors, and Sylvester and Decatur Township Chairs and Supervisors,

The Lower Sugar River Watershed Association is a not-for-profit volunteer conservation organization initiated in 2010 to respond to growing public concern for water quality in the 300-square-mile Lower Sugar River Watershed (LSRW), a significant portion of which encompasses the southeastern corner of Green County, as well as parts of Rock County and neighboring Stephenson and Winnebago Counties in Illinois. Eighty percent of the land base in the LSRW is agricultural, largely in row crops. Outside of the small developed areas represented by smaller villages, the remaining 20% of non-agricultural land is comprised of forest, wetlands, grass and shrublands on private lands and protected in publicly-owned management areas.

For the past five years, we have collaborated with the Upper Sugar River Watershed Association (established in 2000) and many other public and private partners to raise awareness of the problem of impaired waters, and through citizen science education

and open public forums, we have worked to empower our community with experience and knowledge to care for and enjoy our water resources. We have trained over one hundred adult and student volunteers to monitor conditions at more than 400 stream crossings in our watershed, and worked with the Wisconsin Department of Natural Resources and UW-Extension citizen-based monitoring program to sample stream health and phosphorus levels at key locations to contribute to identifying and designating Clean Water Act Section 303(d) impaired[1] streams and other water bodies in the state. Our commitment to the community is based in our belief that **we all have a stake in clean water.** We also believe that solving our problem of water quality will be achieved by bringing people together in an open forum to find the most durable and lasting solutions.

On behalf of our Board of Directors, I want to thank you for the opportunity to provide the following statements regarding the 5,000-cow dairy operation (CAFO) proposed to be constructed in Green County in the Searles Creek basin in Sylvester Township, a project which has been reported widely in local newspapers and discussed in county and township public meetings. Searles Creek is one of thirteen tributary streams draining the LSRW, and is one of two federally impaired streams in our watershed with an EPA-approved Total Maximum Daily Load (TMDL) requirement as of 2005. Forty-five additional miles of the Sugar River mainstem beginning in Dane County and the 109-acre Decatur Lake impoundment just below the confluence with Searles Creek were recently added to the state impaired list in 2014 for total phosphorus, and do not yet have a TMDL. Elsewhere in the watershed and Green County, approximately 130 additional stream miles have been designated as impaired due to sediment, total phosphorus, or low dissolved oxygen. Significant natural assets occur downstream in the Sugar River corridor, including a large state-owned wetland complex known as the Avon Bottoms Wildlife Area. **With these existing impairments and at-risk resources in mind, we want to be clear from the start that regardless of whether or not this CAFO is permitted and constructed, there is already a great deal that needs to be done in many parts of our watershed and county to clean up and restore functional landscapes that we as a society insist must produce an ever increasing food supply and yet be counted on to deliver clean water and air and a multitude of other ecosystem services.** It is our belief that this will not likely happen in the foreseeable future under the current regulations and business as usual approach. We propose that at the present moment we have an opportunity before us to take a more collaborative and systems-wide approach, using innovations in nutrient management and ecosystem restoration methods, that would have a greater likelihood of giving us both a productive sustainable agricultural economy and a resilient biologically diverse landscape with all the services that such a functioning landscape would provide. To do this will require "sharing the love" so to speak, and the responsibility for taking care of our water. **The remainder of this letter is in support of this proposition.**

We understand through the recent Green County Department of Land Conservation board meeting on September 3 and via the public media (Duwe/Gazette 8 Aug 2015) that the $30-40M CAFO operation has not yet been permitted, but is targeted to be constructed and online by the end of 2016, producing an estimated 40,000

[1] Impaired water bodies are those that are not meeting their designated uses (e.g. fishing, swimming) or water quality criteria, due to pollutants and other impairments. Section 303(d) of the Clean Water Act requires states to publish an Impaired Waters List of all waters that do not meet water quality standards (WDNR 2014). Every two years, the list is updated with newly added waters or waters that are removed based on changes in water quality status. States are required to develop a nutrient reduction plan or Total Maximum Daily Load (TMDL) for each of these water bodies that assign the maximum amount of a pollutant a waterbody can receive and still meet water quality standards (WDNR 2014). One of the goals of the CWA is to improve and eventually delist the impaired waters.

gallons of milk and 325,000 – 500,000 pounds of manure daily, requiring 6,000 acres for periodic injection spreading within a 5-mile radius of the operation via land agreements. Manure and other effluents will be stored in constructed lagoons, three of which will be covered, and manure will be periodically piped underground from these facilities to fields within the 5-mile radius. The operation would utilize an estimated 200,000 to 230,000 gallons of water a day drawn from two deep aquifer (570 feet) high-capacity wells. In design and scale, the new operation would be a "mirror image" of the applicant's four-year-old Rock Prairie Dairy located east of Janesville in Rock County (Gazette Editorial 30 Aug 2015; Idzerda/Gazette 23 Aug 2015). This CAFO would be more than twice the size of one of Green County's current largest CAFOs.

We respectfully ask that the following comments be included in the public record and considered in advance of accepting this or other CAFO permit applications of such a large scale, until it can be demonstrated that meaningful protections and a comprehensive water quality improvement strategy can be put in place. We believe it is imperative to address the potential for 1) further deterioration of already impaired local surface water bodies, 2) risk to groundwater, and 3) risk to significant downstream natural resource investments in the LSRW, posed by potential spills and chronic elevated nitrate and phosphorus levels that may result from the large quantity of manure that would be introduced into the system by this operation. The following questions and discussion help to further articulate these concerns:

1. **How will this dairy operation contribute to meeting target TMDL limits for Searles Creek and make it possible to achieve the necessary improvements to Searles Creek and the recently listed Sugar River and Decatur Lake that would ensure theses waterbodies can be removed from the impaired list in the foreseeable future?**
   Searles Creek is a nine-mile long low gradient stream, which flows east to join the Sugar River at the north end of Decatur Lake. The stream supports a warm water *forage* fishery and has been designated since 2004 as an impaired stream for excess sediment originating largely from heavily tilled croplands, approximately 75% of which is in corn production (WDNR 2005). Extensive reaches of the stream have been ditched and straightened contributing to erosion of ditch banks and habitat impairment; some reaches are or have been accessible by grazing livestock which also contributes to bank and channel degradation. The TMDL for this stream, if followed, would have the potential to elevate the stream to function as a warm water *sport* fishery. In 2014, during the State's two-year review, the receiving water bodies, the Sugar River and Decatur Lake, were added to the impaired waters listing. It has been ten years since the Searles Creek TMDL was written, and it is unknown if government and private investments in best practices have made needed improvements to put this stream on a positive trajectory. We propose this be understood and baseline measurements be taken relevant to the TMDL for sediment and also for nutrients (phosphorous in surface waters and nitrates in groundwater) prior to placement of this CAFO or any future operation of this scale. This will allow much needed monitoring to occur and guide and facilitate future investments in practical and ecological adaptive management of this basin.

2. **How will the new operation prevent degradation of our watershed's sensitive natural resource assets and conservation investments, which provide valuable ecosystem services and contribute to local ecotourism and recreation economies?** The Lower Sugar River includes natural resource assets of state

and national importance downstream of the proposed CAFO, including one of the largest floodplain complexes in southern Wisconsin and northern Illinois. When combined with bordering grassland buffers protected by easements, these properties exceed 7,000 acres of conservation lands managed for wildlife habitat, public recreation and hunting, and water quality, providing our area with significant nature-based recreational opportunities and ecotourism dollars for the local economy. These assets also protect significant natural capital important to the protection of biological diversity and multiple ecosystem services that provide clean air, water, flood protection, and more. In Wisconsin, the state-owned Avon Bottoms Wildlife Area and contiguous State Natural Areas (Avon Bottoms SNA and Swenson Wet Prairie SNA) are identified as a Conservation Opportunity Area of state significance for the conservation of floodplain forest communities in Wisconsin's Wildlife Action Plan (WDNR 2008). These properties manage for and protect multiple unique habitat types and 46 animal species of Greatest Conservation Need that are rare or declining in the state, including state threatened and endangered species. The Sugar River and its associated riparian natural communities are recognized by the State as one of the most important and biologically diverse river systems in Wisconsin, featuring more than 50 species of fishes (WDNR-BNHC 2013). The Wisconsin Wetland Association recognizes Avon Bottoms as a State Wetland Gem, and the Audubon Society and the State recognize it as an Important Bird Area for both forest and grassland birds. In 2001, The Nature Conservancy recognized this area in their conservation plan as important for protecting habitats of the Prairie-Forest Border Ecoregion.

The state recently conducted a master planning process for properties in the Sugar River Planning Group, which includes the Avon Bottoms complex (WDNR 2013). In their report, the State reiterates the statewide importance of these properties as a refuge for diverse native flora and fauna, high quality natural communities, and a robust fishery, providing for public hunting, fishing, trapping, birding, paddling and other passive outdoor recreation activities. Among the identified major threats to the ecological integrity of these properties are habitat degradation and loss of species diversity due to proliferation of invasive species, pollution from sedimentation and nutrient enrichment, changes in surface and groundwater systems, habitat fragmentation, and long-term effects from climate change. <u>If southern Wisconsin is to become the next CAFO siting opportunity in the nation, we need a game changer in this scenario to strengthen regulations or to put more partnerships into place that balance investments in large-scale industrial development with natural capital investments that protect water, air, and habitat quality at greatest risk for degradation in the short and long term—or both. Among other investigations, an Environmental Review for the proposed CAFO should include an evaluation of the potential risks to ground and surface water supplies and to protected unique habitats that support rare, threatened, and endangered species documented in the Sugar River corridor near to and downstream of the proposed CAFO and its zone of manure application. From a risk management perspective, the amount of waste produced by a 5,000-cow operation would be the equivalent of a city of 822,500, according to the USEPA (USEPA 2004). Untreated waste of this magnitude from a city or other industry would not be tolerated. We would advocate for waste treatment equivalent to that of municipal and industrial wastewater dischargers.</u>

3. **The State's new rules for lowering phosphorus levels to meet EPA standards are challenging local municipalities located on and discharging to the Sugar River with costly infrastructure improvements**

to sewage treatment facilities. How can the proposed dairy, which has the potential to significantly elevate phosphorus levels in the Lower Sugar River and local tributary streams resulting from the application of manure on the 6,000 acres of land in the watershed needed to manage the manure stream, be effectively monitored and held accountable independently of the contributions of municipalities, who must measure and meet water quality standards? We propose that in addition to baseline ground- and surface water data, soil nutrient data should be provided as part of the project nutrient management plan submittal, and which should also lay out an ongoing monitoring program that insures phosphorus indices of the lands receiving manure do not exceed the state standard of 6, which if measured as being in excess would restrict the application of additional nutrients.

4. **How are climate change considerations being weighed in the long-term operation and practical adaptive management of a facility of this scale, particularly as they affect ground and surface water quality and other natural resources, as well as human health?** Perhaps the greatest challenge requiring an adaptive approach in land use and all aspects of life will come with the increasing changes in climate projected by Wisconsin scientists (WICCI 2011; UW-Extension 2009). According to the Wisconsin Initiative on Climate Change Impacts (WICCI 2011), Wisconsin's climate is generally expected to become warmer and wetter. By the middle of the century, annual average temperatures in the southern part of the state are projected to increase by 6°F, accompanied by an increase in the number of days over 90°F by up to 28 days, meaning an increase in extreme heat waves and more frequent droughts. The greatest projected warming will occur during winter months, with increasing mid-winter thaws, freezing rains, ice storms, and flooding. Although the average annual amount of precipitation is not expected to change much (+1.5 inches in southern Wisconsin), when it does rain or snow, it's likely to be in larger amounts with increasing frequency of severe thunderstorms, hail and strong tornadoes. These changes are expected to contribute to a broad range of economic, environmental, and societal problems associated with an increase in catastrophic events. Southwest Wisconsin has already experienced these effects in recent years with the routine occurrence of damaging floods (UW-Extension 2009). In our built environments, current design standards for stormwater and transportation systems may be insufficient to handle more frequent and higher volume storm events and the problems associated with higher sustained temperatures that cause concrete, pavement, and metal to expand beyond engineered specifications (UW-Extension 2009). The resiliency of natural systems will also be compromised, with the overall effect being a loss of biological diversity through the extinction or displacement of individual species and their interactions with a host of other organisms (WICCI 2011). Given these predicted changes and risks, it will be prudent to consider the possible scenarios for climate related impacts to facility operations and manure management processes, as well as potential risks to water quality, if not already addressed in nutrient management plans.

5. **Is this what *sustainable agriculture* looks like?** The economy-of-scale approach in agriculture that supports industrial scale operations may be seen as profitable and necessary to function in today's global market place and to provide food at low cost, especially absent total cost accounting, which would otherwise include in the equation environmental and human health costs, negative impacts to diverse local economies, legal challenges, and more. However, environmentally conscious consumers are increasingly supporting a more sustainable food economy and agriculture that supplies locally grown

foods and that accounts for not only where and how the food is grown and how healthful it is, but also how proficiently resources are utilized and protected (Dane County PDD 2011; Slow Money 2010; APHA 2007; UN 2012). Locally, in Wisconsin and Green County, hand-made and small batch artisan and farmstead (made on the farm from milk produced on the farm) dairy products and specialty cheeses are a growing market promoted widely by the dairy industry and featured in popular local events (WMMB 2011). Throughout the country, concern for water quality has increasingly sought to make agriculture more accountable (Looker 2015; Neely 2015; McEowen 2015; Ziemba 2015).

- Consumer demand for food quality and sustainable production accountability is about to hit a peak with the soon to be released National Sustainable Agricultural Standard now being finalized by over 600 stakeholder groups and the American National Standards Institute (Leonardo Academy 2014). This standard will provide a voluntary rating and certification system similar to those developed by national consortiums interested in promoting "green" built structures and landscapes (LEED and SITES certifications[2]). An agricultural standard such as this would provide producers with sustainability guidelines and a voluntary path to certification that demonstrates responsible accountability for all aspects of production and can be used to market products with added value. Such standards can also be useful to regulators when charting a course for sustainable growth and responsible use of limited natural resources. When certification systems such as this become part of the mainstream market, they change the marketplace and the regulatory environment, and provide the sort of voluntary incentives desired by producers. Such systems may ultimately be most important to the parties who purchase milk from CAFO's and sell cheese and other milk based products in a marketplace that is increasingly demanding food accountability, traceability, and sustainability. Should the sustainable agricultural standard become adopted and as quickly and widely used as LEED, producers and operators may find as housing and building developers learned, that even bank financing will often require a score and demonstration of threshold minimums for approval. Such a standard scoring method with a minimum threshold could be adopted by the county and townships to judge applications for sustainability and responsible practices, providing greater reassurances to citizens during the permitting process and provide additional layers for short term and long term accountability.
- In spite of agricultural exemptions in the Clean Water Act, recent legal action around the country is challenging dairies and county drainage districts for the nitrates in private wells and in surface waters used to provide municipal drinking water, seeking to make farmers more accountable for runoff entering ground and surface waters. In a landmark ruling in the Yakima Valley in Washington State, a federal judge defined cow manure and urine as "solid waste" rather than a nutrient as defined in the federal Resource Conservation and Recovery Act (RCRA) when manure is not used as a beneficial fertilizer or soil conditioner, which can be the case when applied in excess of fertilization needs (Associated Press 2015; Geiling 2015; McEowen 2015; Morrow 2015; Tebbutt 2015; Wheat 2015; Ziemba 2015). In Des Moines, IA the Public

[2] LEED (Leadership in Energy and Environmental Design) is a rating system for "green" buildings supported by the United States Green Building Council. SITES (Sustainable Sites Initiative) is a rating system produced by Green Business Certification, Inc.

> Water Works this year filed a lawsuit against ten agricultural drainage districts in three northern Iowa counties over high nitrate levels that the City spends hundreds of thousands of dollars to remove from the Raccoon and Des Moines Rivers that provide drinking water to a half-million central Iowans. Faced with increasing levels and an aging facility, the City will soon be required to build a new one at a cost of up to $184M to comply with federal pollution laws (Looker 2015; Neely 2015; Vock 2015; Smith 2015; Meinch 2015; Eller 2015). This lawsuit contends that underground tile drain systems have been overlooked as point sources under the Clean Water Act and have effectively transported high concentrations of nitrate into surface and groundwater supplies. A Des Moines Register poll shows that Iowans (63%) support the water pollution lawsuit (Eller 2015). <u>It is important to understand these challenges and ultimately to determine what needs to be done to truly ensure safe and sustainable water supplies. This may require going beyond the minimum requirements for nutrient management plans and the current level of enforcement, as well as requiring more widely adopted best management practices including treating water that exits field drainage pipes before entering streams to make agriculture more accountable for the quality of the water supply.</u>

Given these concerns, we would respectfully propose that as part of a thorough Environmental Review, the following information is necessary for a responsible assessment and accounting of the potential short and long-term impacts of the proposed dairy CAFO in Sylvester and Decatur Townships, in the Lower Sugar River Watershed, and in broader Green County. This, we believe, is necessary for determining the true cost of ensuring safe water supplies and protecting critical ecosystem services, necessary to support and sustain human wellbeing and a diverse and robust economy that can co-exist with agriculture.

1. A full accounting of the potential adverse impacts of the proposed 5,000 cow operation including a full and transparent accounting of those costs normally incurred by the operator and the "external" costs to others such as taxpayers to prevent or reverse these impacts, including but not limited to cost of monitoring and maintaining air and water quality, cost of monitoring and protecting natural resource assets, costs of monitoring and maintaining human health and wellbeing, costs to offset impacts to local family farms, alternative food systems, and recreational and ecotourism industries.
2. A full accounting of the existing conditions in the Searles Creek basin and on the proposed property—geology, topo, soils (including hydric soils), hydrology, streams and drainageways, natural communities, flora and fauna, endangered resources, and existing water quality (measures of ground and surface water) to understand the critical resource issues that must be addressed in the planning process and to provide a baseline for how this dairy operation can measurably improve the water quality, ecology and recreational conditions for the Searles Creek basin and the Lower Sugar River Watershed.
3. Review of the siting alternatives analysis and of the proposed facility and operations design and nutrient management and monitoring plan, with existing stormwater and nutrient runoff measurements to Searles Creek and tributaries, to the Lower Sugar River, and to subsurface groundwater aquifers to use in modeling potential for increased levels of nutrients and contaminants in surface and groundwater from point source and non-point sources associated with the operation and nutrient management activities on the landscape over time. We propose that to be fully accountable and provide data useful for adaptive management, a nutrient management plan for the CAFO should provide for monitoring by

an independent third party using EPA quality control and assurance requirements, that exceeds current requirements in state and local permit regulations, so that, using continuously recording technology, monitoring data can be made available online for the operator, regulators, and the public to access and assess data on current conditions at all times.

4. A full accounting of baseline (pre-construction) conditions over the course of a year of all groundwater wells within a 5-mile radius of the proposed operation, to allow tracking of changes in nitrate levels, regardless of the source. This would allow all producers and operators and septic owners to consider adaptive management approaches to assess and adjust nutrient inputs accordingly. It would also allow changes from existing contamination levels to be allocated to their rightful source, especially should manure and urine be found as in Washington State, to be a solid waste. Culpability for all legacy and future excessive nutrient and other contaminant levels could otherwise become the responsibility of the CAFO applicant without such a defensible technical baseline study and mapping.
5. Consideration for what nutrient management technological innovations and collaborations with other landowners can be brought to bear on the problem of industrial agriculture of any scale to minimize and correct the problem of soil erosion, nutrient and toxic chemical pollution of surface and groundwater, air quality, and stream impairment. Are there alternatives and new technologies available to manage large quantities of manure and decrease the nutrient and contaminant inputs to groundwater and surface waters in our landscape? For example, instead of land injection spreading, can the manure waste-stream be viewed as a resource to manufacture biotic fertilizers that can be used locally (and sold more broadly out of the watershed) to supplement and supplant a large percentage of the nitrogen and phosphorus fertilizer used by farmers to grow crops. Studies by USDA's Agriculture Research Service lab at Iowa State University have found 50-70% nitrogen reductions in surface and ground water and an improved corn yield over the state average where manure-based PerfectBlend biotic fertilizer has been used in side-by-side tests with conventional N, P, K fertilizers (Ruen 2011). In a study in the Pecatonica River Watershed, a targeted approach in applying conservation practices at the watershed scale demonstrated it is possible to cut estimated annual average phosphorus runoff and erosion by almost half (TNC 2014). Constructed treatment wetlands that capture discharge from drain tiles have been studied and promoted as part of the CREP voluntary program to remove nitrates and herbicides (Kovacic et al. 2000; Asberry 2011). Field-based research by scientists in the Iowa State University STRIPS program (Science-based Trials of Row-crops Integrated with Prairie Strips) have demonstrated that with as little as 10 percent of a row-cropped field to perennial prairie—in narrow patches along contours and foot slopes—producers can reduce sediment movement off their field by 95 percent, and total nitrogen loss by nearly 85 percent, as well as (Leopold Center for Sustainable Agriculture).
6. An assessment of the carrying capacity of natural systems in the watershed to maintain air and water quality with increasing number of CAFOs: What is the limit, where do we draw the line when it comes to permitting industrial scale operations in our watershed? What is the best balance between small family-sized food production systems with larger industrial scale systems? How do natural resources fair at both scales? How will changing energy policy and global climate change affect our choices and ability to sustain productive landscapes and quality of life?
7. Creation of a new ordinance(s) that offers protection above and beyond the State of Wisconsin's existing water quality and agricultural operations purview and requirements. Such an ordinance would ensure that strict enforcement, robust and defensible measurement and monitoring, and operational

control decisions, such as to cease and desist operations should there be violations of local ordinances regarding odor, water quality, and other environmental considerations and regulations, would reside first with local regulators to enforce more stringent requirements than are currently required by the State.

Thank you for considering our comments. We are eager to contribute in any way we can to achieving lasting protections for our precious natural resources that will make the Lower Sugar River Watershed and Green County great places to live for generations to come.

Sincerely,
Lower Sugar River Watershed Association

Susan Lehnhardt

Susan Lehnhardt
Board Member and President

Cc: Todd Tuls, Owner, Rock Prairie Dairy
Stephanie Bader-Cornfield, Carrousel Farms-Dairy Unit
Wayne Matzke, President, Grande Cheese Company
Dean Foods, Chemung, IL
Mark Aquino, Secretary's Director for Southern Wisconsin, WDNR
Andy Morten, Natural Resources Basin Coordinator, Wisconsin DNR
Jim Amrhein, Water Quality Biologist, Wisconsin DNR
Jason Thomas, District Conservationist, Green County NRCS
Thomas Sweeny, County Conservationist, Rock County Land Conservation
David Gundlach, District Conservationist, Rock County NRCS
Jim Ritterbusch, District Conservationist, Stephenson County SWCD
Josh Franks, District Conservationist, Winnebago County SWCD
Mike Holan, Executive Director, Winnebago County Forest Preserve District
Janis Ringhand, Wisconsin 15th Senate District
Howard Marklein, 17th Senate District
Jon Erpenbach, 27th Senate District
Mark Spreitzer, 45th Assembly District
Todd Novak, 51st Assembly District
Sondy Pope, 80th Assembly District
Kim Blumer, President, Village of Albany
Douglas Pinnow, Mayor, City of Brodhead
Harvey Mandel, Chair, Town of Jefferson (Juda)
David Olsen, President, Village of Orfordville
Gary Haughton, President, Village of Durand
Steve Richter, Director of Conservation Programs in Wisconsin, The Nature Conservancy
Brian Glenzinski, Wisconsin Regional Biologist, Ducks Unlimited

Wade Moder, Executive Director, Upper Sugar River Watershed Association
Denny Caneff, Executive Director, River Alliance of Wisconsin
Jamie Johannsen, Four Rivers Environmental Coalition
David Clutter, Executive Director, Driftless Area Land Conservancy
Kerry Leigh, Executive Director, Natural Land Institute
Neil Deupree, President, Green Rock Audubon Society
Frank Kapel, President, Lake Winnetka-Sugar River Improvement Association
Lena Verkuilen, Executive Director, Welty Environmental Center
Jen Reimer, Green County Defending Our Farmland
John Winters, President, Decatur Lake Mill Race Association
Lake Summerset Association

References

American Public Health Association. "Toward a Healthy Sustainable Food System". APHA Web. 06 Nov. 2007. https://www.apha.org/policies-and-advocacy/public-health-policy-statements/policy-database/2014/07/29/12/34/toward-a-healthy-sustainable-food-system

Asberry, Sarah. "CREP: 10 years of rebuilding Iowa wetlands". Agriculturist. Web. 2011 http://farmprogress.com/library.aspx/crep-10-years-rebuilding-iowa-wetlands-1/6/1181

Associated Press. "Judge: Dairy Pollution Threatens Washington Valley's Water". The New York Times Web. 15 Jan. 2015.

Dane County Planning and Development Department. 2011. Southern Wisconsin Food Hub Feasibility Study. Conducted in partnership with FamilyFarmed.org, Dane County UW Extension, UW Extension, and WI DATCP. Web. http://www.ngfn.org/resources/ngfn-database/knowledge/SoWisFoodHubStudy-HR.pdf

Duwe, Gina. "Rock Prairie Dairy owner proposes 5,000-cow farm—Planned site in Green County would be operational by 2016". The Gazette [Janesville] 8 Aug. 2015: 1A. Print.

Eller, Donnelle. "Will Des Moines water lawsuit change farming rules?". www.desmoinesregister.com Web. 19 Jan. 2015.

Eller, Donnelle. "Most Iowans support water pollution lawsuit, poll says". www.desmoinesregister.com Web. 26 Feb. 2015.

Geiling, Natasha. "This Washington State Case Could Have a National Impact on Agricultural Pollution". Climate Progress Web. 14 May 2015.

Giovannucci, Daniele, Sara Scherr, Danielle Nierenberg, Charlotte Hebebrand, Julie Shapiro, Jeffery Milder, and Keith Wheeler. 2012. Food and Agriculture: the future of sustainability. A strategic input to the Sustainable Development in the 21st Century (SD21) project. New York: United Nations Department of Economic and Social Affairs Division for Sustainable Development. Web.

https://sustainabledevelopment.un.org/content/documents/agriculture_and_food_the_future_of_sustainability_web.pdf

Hribar, Carrie. 2010. Understanding Concentrated Animal Feeding Operations and Their Impact on Communities. National Association of Local Board of Health. Environmental Health pub.

Idzerda, Catherine W. "The smell test—Neighbors to 5,000 cows get questions from neighbors of proposed dairy". The Gazette [Janesville] 23 Aug. 2015: 1A. Print.

Janesville Gazette Editorial Board. "Residents should welcome dairy". The Gazette [Janesville] 30 Aug 2015: 6A. Print.

Kovacic, David A., mark B. David, Lowell E. Gentry, Karen M. Starks, and Richard A. Cooke. 2000. Effectiveness of Constructed Wetlands in Reducing Nitrogen and Phosphorus Export from Agricultural Tile Drainage. Journal of Environmental Quality, Vol 29, no.4, July-Aug. 2000.

Leonardo Academy. 2014. Draft LEO-4000 National Sustainable Agriculture Standard V3: December 17, 2014.

Leopold Center for Sustainable Agriculture. STRIPS Research Team. Iowa State University. Web. http://www.leopold.iastate.edu/strips-research-team

Looker, Daniel. "Looking for Ways Out of Water Lawsuit". *Agriculture.com* Web. 5 Aug. 2015.

McEowen, Roger A. "Court Says Application of Manure to Farmland in Manner Inconsistent with Good Husbandry Agricultural Practices is Subject to Federal Regulation as Solid Waste". Iowa State University Center for Agricultural Law and Taxation. Web. 11 May 2015.

Meinch, Timothy. "Water Works votes to sue 3 Iowa counties over nitrates". Des Moines Register. Web. 11 Mar. 2015.

Meinch, Timothy. "Water Works requests damages in federal suit". Des Moines Register. Web. 16 Mar. 2015.

Morrow, Alison. "Dairy farmers must supply neighbors clean water". King 5 News. Web. 20 June 2015.

Neely, Todd. "Ag's Draining Water Fight". Hertz Farm Management, Inc. Web. 15 Jul. 2015.

O'Connor, Kara/WI Farmers Union. "New giant dairy would benefit Nebraska family, not Green County". The Gazette [Janesville] 3 Sep 2015: 6A/Local Views. Print.

Ruen, Jim. "Soil Biology Revolution". Ag Professional magazine. Reprinted by Perfect Blend, LLC. 5 Aug. 2011.

Slow Money Staff. 2010. Top 13 Trends in Sustainable Food and Agriculture. Web. 14 Dec. 20110. https://slowmoney.org/524/

Smith, Mitch. "Conflict Over Soil and Water Quality Puts 'Iowa Nice' to a Test". The New York Times. Web. 18 Apr. 2015.

Smith, Ryan. "Water Works to proceed with Lawsuit over nitrates". KCCI 8 News. Web. 11 Mar. 2015.

Southwestern Wisconsin Regional Planning Commission. 2006. Green County Wisconsin Comprehensive Plan (Adopted April 18, 2006). SWRPC and Wisconsin Department of Administration.

Tebbutt, Charlie. "Dairy farmers must supply neighbors clean water". In the News, Law Offices of Charlie Tebbutt, Environmental Lawyer. Web. Jun. 2015.

The Nature Conservancy. 2014. "Targeted approach to improving water quality in the Pecatonica River Watershed could change the way we clean up Wisconsin waters". The Nature Conservancy. Web. http://www.nature.org/ourinitiatives/regions/northamerica/unitedstates/wisconsin/howwework/pilot-on-the-pecatonica-testing-a-new-approach-to-improving-water-quality.xml

The Nature Conservancy. 2014. Pecatonica River: Targeting conservation practices in a watershed to improve water quality. Fact Sheet: Web. http://www.nature.org/ourinitiatives/regions/northamerica/unitedstates/wisconsin/howwework/pilot-on-the-pecatonica-testing-a-new-approach-to-improving-water-quality.xml

Thomas, Janell. "Des Moines Water Works' nitrate lawsuit filed". Farm Futures. Web. 17 Mar. 2015.

United States Department of Agriculture Natural Resources Conservation Service. 2008. Rapid Watershed Assessment Sugar River Watershed (June 2008).

United States Department of Agriculture Natural Resources Conservation Service. "Targeted Changes to Agriculture Practices Result in Cleaner Water—Study in Southwest Wisconsin Watershed Shows Significant Reduction in Phosphorus". Bulletin Web. 12 Aug. 2015.

United State Environmental Protection Agency. http://www2.epa.gov/cleanwaterrule/clean-water-rule-factsheets

Vock, Daniel C. "Farmers and Cities Play the Water Pollution Blame Game". www.governing.com Web. June 2015.

USEPA. 2004. Risk Management Evaluation for Concentrated Animal Feeding Operations. http://nepis.epa.gov/Exe/ZyNET.exe/901V0100.txt?ZyActionD=ZyDocument&Client=EPA&Index=2000%20Thru%202005&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&UseQField=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A%5CZYFILES%5CINDEX%20DATA%5C00THRU05%5CTXT%5C00000011%5C901V0100.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h%7C-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=p%7Cf&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=2

Wheat, Dan. "Dairies, environmentalists settle lawsuit". Capital Press—The West's Ag Website Web. 12 May 2015.

Wisconsin Bureau of Water Quality. 2013. TMDL Development and Implementation Guidance: Integrating the WPDES and Impaired Waters Programs Edition No. 3. Guidance Number: 3400-2013-02.

Wisconsin Department of Natural Resources. 2005. TMDLs for Sediment Impaired Streams in the Sugar-Pecatonica River Basin (June 28, 2005).

Wisconsin Department of Natural Resources. 2013. Regional and Property Analysis Sugar River Planning Group. PUB-LF 078.

Wisconsin Department of Natural Resources, Bureau of Natural Heritage Conservation. 2013. Rapid Ecological Assessment for Sugar River Planning Group—A Rapid Ecological Assessment Focusing on Rare Plants, Selected Rare Animals, and High-quality Natural Communities. PUB-NH-846 2013.

Wisconsin Department of Natural Resources. 2014. 2014 Impaired Waters List. http://dnr.wi.gov/topic/impairedwaters/2014IR_IWList.html

Wisconsin Department of Natural Resources. 2014. 2014 Impaired Waters. http://dnr.wi.gov/topic/impairedwaters/

Wisconsin Department of Natural Resources. 2008. Wisconsin's Wildlife Action Plan (2005 – 2015).

Wisconsin Initiative on Climate Change Impacts. 2011. Wisconsin's Changing Climate: Impacts and Adaptation. Nelson Institute for Environmental Studies, University of Wisconsin – Madison and the Wisconsin Department of Natural Resources, Madison, Wisconsin. www.wicci.wisc.edu

Wisconsin Initiative on Climate Change Impacts. 2011. Maps of Recent and Projected Climate Change in Wisconsin. http://www.wicci.wisc.edu/climate-map.php

Wisconsin Milk Marketing Board. 2011. Wisconsin Artisan, Specialty & Farmstead Dairy. Web. http://www.eatwisconsincheese.com/assets/pdfs/WisconsinCheeseArtisanDirectory.pdf

Ziemba, Leah H. "Yakima case a bellwether of future challenges ahead". Hoard's Dairyman. Web. 5 Jun 2015.