

Rosendale Dairy CAFO

Draft Environmental Impact

Statement

Comment Summary and Response

Wisconsin Department of Natural Resources
February 27, 2009

Environmental Impact Statement Comment Summary and Response for Rosendale Dairy WPDES Permit

February 27, 2009

Introduction:

During the public comment period, the Department of Natural Resources (DNR, Department) received comments from 662 commenters on the environmental impact statement (EIS) for the Rosendale Dairy (RD) project. Most of the comments received are summarized categorically, with a response to each type of comment provided. The major sections of this document are: EIS/WEPA process, general EIS content, EIS chapters I - VI, general permitting, WPDES permit, air quality, and EIS errors and omissions.

EIS/WEPA Process:

Comment: Approve of the DNR decision to follow the EIS process.

Response: Comment noted.

Comment: Concern expressed that the decision to follow the EIS process was inappropriate, expensive, delayed the project, and/or was precedent-setting. A related comment made by several commenters was that the livestock siting law should have precluded the EIS review.

Response: DNR is authorized to choose to follow the EIS process for a Type 2 action under NR150.20(1)(c)3 on a case by case basis. The decision does not set any legal precedent. Information requirements for an EA and an EIS under NR150.22(2) are identical, therefore there should be little cost difference. We are not aware of any delay in the review of the project.

The livestock siting law does not supersede DNR's requirements under s. 1.11 Stats. and NR 150, Wis. Adm. Code. WEPA compliance is an informational disclosure burden for state agencies, it is not a regulatory requirement for permit applicants.

Comment: Concern that the EIS is not labeled "draft", and that a final version must follow.

Response: The EIS is not a "draft". NR 150 does not require "draft" and "final" EIS versions, except for NR150.22(4)(b) which calls for a reissued EIS if needed to respond to "substantial public comments". This comment summary and response document, which includes a section on EIS errors and omissions, is sufficient to address public comments without an EIS reissuance.

Comment: EIS does or should set permit requirements, and/or called for a statement regarding the relationship of the EIS in controlling the permit decision.

DNR decision to follow the EIS process indicates that the DNR has already denied the permit.

Response: The EIS has no authority to determine or condition the permit decision.

Comment: Concurrent EIS and permit review shows a lack of commitment to EIS and is in conflict with NR 150. Commenter quotes a portion of NR150.025(2)(e) as saying "The environmental review under WEPA 'must be part of the *initial* planning process for [DNR] projects and initiated *at an early stage* of the regulatory review process.' Wis. Admin. Code § NR 150.025(2)(e) (emphasis added)."

Response: The complete text of NR150.025(2)(e) is: "Implement the environmental review procedure as *an integrated process, not a separate sequence of activities*, that must be part of the initial planning process for department projects and initiated at an early stage of the regulatory review process" (DNR emphasis). The commenter's assertion therefore claims the exact opposite of the clear meaning of the rule. There is no requirement that WEPA compliance be completed before the permit review is conducted. The permit cannot, however, be issued until WEPA has been complied with.

Comment: Holding the EIS and permit hearings on the same day indicated that the permit decision was already made.

Response: The permit decision cannot be made until the WEPA process is complete. Holding both hearings on the same day is both allowable and makes sense by allowing citizens to express concerns on both topics at one meeting.

Comment: DNR did not appear to be in control because RD had an information table set up and their supporters received tee shirts and caps. A related comment was that some hearing attendees came from outside the area.

Response: The hearing was held in conformance with ch. 227, Wis. Stat. requirements and the Department does not limit who can attend hearing or who can submit oral or written comments. The Department did not limit who could distribute information at the hearing or who could set up informational tables.

Comment: Concerned that some who testified at the hearing talked about economic, as opposed to environmental, issues.

Response: WEPA requires evaluation of the "human environment" which includes socioeconomic. See s. 1.11, Stats. and s. NR 150, Wis. Adm. Code.

Comment: New laws should be developed to protect against environmental degradation from RD.

Response: Rules and statutes are enacted by the state legislature with input by state agencies. Changes to laws in the future will not affect the permit decision currently before the DNR for RD.

General EIS Content:

Comment: Concern expressed about various environmental attributes, including: surface waters and wetlands, groundwater, air quality, flora, fauna, property values, agricultural economics, wages, health, noise, lighting, and traffic. Many of these comments, however, did not suggest any changes to, or deficiencies in, the EIS.

Response: These issues are adequately addressed in the EIS.

Comment: The EIS failed to include the required analysis of energy impacts.

Response: We agree, this was inadvertently omitted. Compliance with this code provision is therefore met with the addition of section V.D. See the EIS Errors and Omissions section.

Comment: The nutrient management plan (NMP) is not included in the EIS. Evaluating the NMP is critical to evaluating the effect this operation will have on the local and regional environment and this information must be made available to the public online.

Response: The NMP was attached to the EIS by reference. The department agrees that evaluating the NMP is critical to evaluating the effect this operation will have on the local and regional environment and this information must be made available to the public online. The department did this on its website - <http://dnr.wi.gov/runoff/ag/permits.htm> - under the heading WPDES Concentrated Animal Feeding Operation (CAFO) Permits – Rosendale Dairy.

Comment: The EIS is inconsistent in stating both that no soil borings were available (I-9, I-24), and that soil borings were submitted along with plans and specs (III-30).

Response: This inconsistency is corrected in the EIS Errors and Omissions section.

Comment: The EIS did not provide assurance that impacts to surface and groundwater would not occur.

Response: It is not the purpose of a WEPA analysis to make assurances. Rather the analysis is to disclose information about the project.

Comment: The EIS was repetitive.

Response: The EIS is intended to cover the required information.

Comment: Concerned that DNR used applicant-supplied information in producing the EIS.

Response: Applicant-supplied information may be used in a WEPA analysis if vetted by the DNR. See s. NR 150.22(1)(a)1 Wis. Adm. Code: "Any part of an environmental analysis may be prepared by an applicant or by the applicant's consultant following the department's evaluation of the environmental issues and acceptance of responsibility for its scope and content."

EIS Chapter I - Project Description:

Comment: Concerned about the status of the domestic wastewater system for the proposed facility.

Response: At the time the EIS was written, the domestic wastewater system proposal had not been finalized. We understand that a mound system has recently been approved by Fond du Lac County.

Comment: The EIS did not adequately describe the drain tile and berms constructed at the production site.

Response: The EIS describes these features on p. I-4.

Comment: The EIS should evaluate Phase II of the proposed project.

Response: The EIS did consider Phase II.

Comment: The EIS was not clear on the fact that most of the production site has already been developed.

Response: The EIS is very clear on this point.

EIS Content, Chapter II - Authorities and Approvals:

Comment: The EIS failed to analyze the conformance or nonconformance of the project with applicable statutes, rules, and regulations as required by s. NR 150.22(2)(f) Wis. Adm. Code.

Response: We agree. The Errors and Omissions section provides additional information.

Comment: The EIS statement that the proposed project is not in conflict with governmental plans and policies is contradicted by research.

Response: "Research" is not a public plan or policy.

EIS Content, Chapter III - Existing Environment:

Comment: Question how effects on water bodies can be analyzed when EIS states (p. III-37) that "little is known" about the water bodies in the manure spreading area.

Response: The statement in the EIS is that "little is specifically known", meaning detailed information on each stream is lacking. The next paragraph on EIS p. III-37, however, does describe what is known about those streams. This information is sufficient to reach conclusions about environmental effects.

Comment: RD will tie up cropland that otherwise might be available for acquisition in the Glacial Habitat Restoration Area.

Response: The EIS addressed this topic on p. IV-21.

Comment: Other agencies were not informed about EIS information on traffic effects.

Response: The EIS was made available to local and state officials.

Comment: The Fond du Lac county-wide land use data is too general for use in the EIS.

Response: The EIS describes the project landscape on several levels: area, production site, spreading sites, and soil borrow and disposal sites. We did not rely solely on Fond du Lac County landuse data.

Comment: The EIS statement that most native grassland cover has been lost (EIS p. III-23) is wrong since some has been restored.

Response: "Most" should not be misinterpreted as "all".

Comment: Concerned about the accuracy and use of the 1-mile buffer NHI review for birds.

Response: The buffer in question is a geographic search area, not a protection area. The birds in question found within this area were found on shoreline areas, not at the RD site which includes no shoreline habitat. The general public only has access to county-level data. DNR relies on the most detailed level of NHI data, which by law is not public information.

Comment: The EIS statement on p. III-30 that site topography was changed only slightly is wrong because of all the other changes that occurred at the production site.

Response: The EIS statement on p. III-30 had to do strictly with topography.

EIS Content, Chapter IV - Environmental Effects:

Comment: The EIS (p. IV-4) conclusion that landspreading effects of manure will be minimal is unsupported in the analysis.

Response: The EIS section cited describes effects at the production site, not at manure spreading sites.

Comment: Question DNR's ability to control ammonia discharges to water given EIS statement on p. IV-6 that amount of Wisconsin's ammonia discharges are known.

Response: The comment confuses air emissions of ammonia (p. IV-6) with surface water emissions.

Comment: Question EIS statement (p. IV-15) that water quality will not worsen due to manure spreading based on pathogens.

Response: We agree that chemical fertilizers do not pose a risk for pathogens. Following all the requirements of the permit and abiding by the Nutrient Management Plan, however, will minimize the potential for pathogens affecting water quality.

Comment: Economic data that appears to support the proposed project should not appear in the EIS.

Response: The EIS must evaluate economic effects in an unbiased manner. See s. NR 150.22(2)(d), Wis. Adm. Code.

Comment: Discount claimed wage levels for the proposed project based on a 2005 study from Missouri.

Response: A two year old study from another state that generalizes industry-wide wages cannot be compared to specific current information about this project. The numbers presented in the EIS are the best information available about RD.

Comment: Concerned about monitoring ground water contamination in area wells.

Response: The EIS recommends that well owners have their wells tested regularly. See EIS p. IV-20.

Comment: CAFOs increase risks to human health because of the use of drugs and pesticides, and because large numbers of animals are confined together.

Response: The EIS addressed this concern on p. IV-33.

Comment: An analysis of groundwater recharge should be provided.

Response: EIS p. IV-5 deals with this issue. The purpose of the well monitoring is to provide the kind of information being asked for.

Comment: RD will take over, or have taken over, agricultural resources and markets in the area to the detriment of smaller operators.

Response: The EIS addressed with this issue on page IV-36.

Comment: The DNR should have considered the entire project in the EIS, not just the production site.

Response: The EIS covered the production site, the manure spreading areas, soil borrow and disposal sites, and the area in general.

Comment: EIS section IV.A.1.h only deals with fauna issues at the production site, rather than the entire project area.

Response: This EIS section is on the topic of the production site. Other EIS sections deal with fauna issues for other areas affected by RD.

Comment: Question the EIS statement that adequate wildlife habitat will remain despite manure spreading.

Response: This conclusion is explained on EIS p. IV-17.

Comment: Concerned about impacts to birds.

Response: The EIS adequately deals with bird disturbances from the proposed project.

Comment: Concerned about effects on property values.

Response: The EIS adequately covers this topic.

Comment: RD should pay for road repair.

Response: DNR cannot require this.

Comment: The EIS did not consider effects on local residents.

Response: The EIS deals with this issue throughout section IV.B.

Comment: Lands owned by RD are becoming barren of wildlife habitat value due to being stripped and filled, etc.

Response: DNR has no evidence of this. The commenter offers no evidence.

Comment: Where will sweepers cleaning local roads discharge their waste.

Response: We are not aware of a proposal to clean local roadways using sweepers.

Comment: The EIS did not account for all RD-related truck traffic.

Response: The EIS states on p. I-21 that truck traffic numbers are estimates, and indicates on p. IV-35 that additional traffic may be generated by the project.

Comment: Question the truck traffic numbers and effects.

Response: The EIS existing traffic data is the most recent available (2003 - 2008) from the WDOT in Green Bay. The Fond du Lac County Highway Commission rates CTH "M" between STH 44 and 23 to be in "poor" condition (a 3 on a scale of 1 - 10) with two to three ft. wide shoulders and 10 ft. traffic lanes. The predicted RD traffic will cause and/or accelerate wear to the roadway.

EIS Content, Chapter V - Evaluation:

Comment: Concerned that the EIS is inconsistent in claiming that data is lacking on groundwater, but information is in the NMP.

Response: This inconsistency is corrected in EIS Corrections and Omissions section.

Comment: The positive effects listed in EIS Table 8 are only opinion, rather than science, and should therefore not be included.

Response: All the effects evaluated in Table 8 are expert opinions.

Comment: Table 8 did not rely on current data in reaching the conclusion of positive economic effects.

Response: Table 8 is a generalization. Economic effects were adequately described in chapter IV.

Comment: Several commenters made various calculations of the numbers and percentages of positive and negative effects listed in Table 8, and reached the conclusion that the table indicates that RD is clearly bad for the environment.

Response: The EIS failed to identify the information in the table as relative risks. Nevertheless, the information in the table is rank level (ordinal) data, not cardinal (continuous) data having arithmetic values. Not only is this true, but the table cell rankings are relative to the existing environment, not to other cells within the table. The table information cannot, therefore, be arithmetically combined with any validity.

EIS Content, Chapter VI - Alternatives:

Comment: DNR failed to adequately evaluate alternatives, and used information from the applicant rather than our own information.

Response: The DNR has but three alternatives in this regulatory action: deny, approve or conditionally approve. These are adequately described in the EIS. The permit and NMP review constitute a detailed review of reasonable alternatives that may limit environmental impacts.

Applicant-supplied information may be used in a WEPA analysis if vetted by the DNR. See NR 150.22 (1) (a) 1 "Any part of an environmental analysis may be prepared by an applicant or by the applicant's consultant following the department's evaluation of the environmental issues and acceptance of responsibility for its scope and content."

Comment: The numbers of CAFOs in the area and county are incomplete.

Response: This information is in chapter III and represents the information available as of preparation of the EIS in November 2008.

Comment: Few mitigation measures were discussed in the mitigation section on page VI-8.

Response: The section labeled "mitigation" is brief, but many mitigating measures are discussed throughout the EIS.

General Permitting:

Comment: Concerned about local governmental permitting.

Response: DNR has no authority over local land use decisions.

Comment: Permitting of RD is unacceptable in an economic environment in which milk prices are low.

Response: Commodity prices are not a factor in WPDES permitting.

WPDES Permit:

Comment: DNR urged to deny the permit on the basis of fulfilling the Department's mission statement.

Response: The mission statement serves Department staff as general guidance. It is not law, and does not supersede law.

Comment: The permit should be denied on the basis of traffic safety concerns.

Response: The DNR permit authority does not extend to traffic safety.

Comment: Why are there different rules for large dairies and small ones?

Response: Both federal and Wisconsin law classify Concentrated Animal Feeding Operations (CAFO's) as so-called "point" sources of pollution, just as publicly-owned sewage treatment works and paper mills, among other facilities, are point sources. Point sources are required to obtain discharge permits under the law. CAFO's are specifically defined as farms with greater than 1,000 animal units (700 dairy cows.) Under state and federal law, smaller farms are not regulated unless they cause pollution problems.

Comment: It is vital to clearly document the soil investigation process, a fundamental first step in design and construction. The EIS mistakenly indicates that no soil borings were available (I-9) for the manure storage facilities, while simultaneously contradicting the data with other statements (III-30, IV-3) declaring that soil boring logs were submitted with the plans and specifications, and that investigations were conducted in accordance with NKCS technical standards (I-24). The county approved construction of the storage facilities and determined compliance with NRCS 313, which requires adequate soils investigation and a determination of separation to groundwater. In fact, over 200 soil investigations (test pits) were dug, most under county and NRCS supervision.

Response: This has been corrected. See "Rosendale Dairy Environmental Impact Statement Errors and Omissions."

Comment: Similar to regulating the waste storage facilities, Fond du Lac County issued permits under county ordinances for stormwater management and a septic system. The septic permit process is described in some detail (IV-5) though a description of final outcome is missing. By adding details to describe the county's involvement, the EIS can clarify the design review, construction inspection and other activities relating to the county stormwater (I-23), manure storage (II-2, V-7) and the septic permits (IV-5).

Response: This has been corrected. See "Rosendale Dairy Environmental Impact Statement Errors and Omissions."

Comment: The CAFO proposes to store liquid waste on site in holding tanks, which have strong potential for leaks and contamination of groundwater. Yet there is no plan to monitor the groundwater, and the EIS indicates, in two places, that no soil borings were made to determine the depth to groundwater or bedrock. The DNR should require groundwater monitoring. The EIS then states, "the NRCS standard requires an extensive site assessment to determine area soils and depth to ground water and bedrock to ensure structures are properly designed and constructed" (IV-3). Yet, the EIS also says, "no soil borings were available to determine depth to ground water or bedrock at the site prior to the construction of the storage lagoons. Borings would show if the finished elevation of the bottom of the storage lagoon is 3 feet from the water table as required in NRCS3 13"

(1-9). This means that Rosendale Dairy is in direct violation of standards and codes in place to protect our ground water. To us, it seems that this alone should be enough grounds on which to deny them a permit, and we again question the integrity and honesty of the entire project.

Response: The WPDES permit requires groundwater monitoring at the production area which includes monitoring the manure storage structures. Further, an extensive site assessment was conducted that included greater than 150 soil test pit investigations. The Environmental Impact Statement has been corrected accordingly. See “Rosendale Dairy Environmental Impact Statement Errors and Omissions.”

Comment: With the proposed increase of animal units from 700 to over 8000, what assurance does one have that the groundwater will not bear the byproducts and metabolites of antibiotics and chemicals fed to the cattle and used at the Rosendale dairy?

Response: The Department’s regulatory authority does not extend to these issues. Please note, however, that the process of cheesemaking can be severely compromised if antibiotic-tainted milk is used. As such, use of antibiotics is closely restricted under food quality regulations administered by the Wisconsin Department of Agriculture, Trade and Consumer Protection and other agencies.

Comment: The EIS admits that “little is known about depth to groundwater around the spreading sites.” It also states that “very little is specifically known about the water bodies closest to the fields identified in the nutrient management plan. Documentation of the hydrology, water quality, habitat, and biological communities.... is lacking.” Yet the DNR appears ready to permit the CAFO without this information. The DNR should require additional information prior to allowing further development of this CAFO.

Response: The EIS was in error on these issues. This has been corrected. See “Rosendale Dairy Environmental Impact Statement Errors and Omissions.”

Comment: We are concerned that DNR physical visits are limited to every five years. Records are kept by and dispensed to the DNR/state by the owners and operators of the CAFO. We feel physical visits need to be done often to assure safe and accurate rules are followed and records are kept.

Response: DNR makes every effort to visit facilities as frequently as staff resources allow. Given the scale of this operation, DNR will visit this facility at a much greater frequency, particularly if verified complaints ensue or other unusual circumstances come to light.

Comment: Aerial photos are provided in the EIS showing the areas where spreading is to occur. Photos show that almost all fields border, or are close to intermittent or permanent waterways that have been ditched to improve drainage on the fields. However, apparently nowhere does the EIS discuss another common field drainage technique: drain tile. How much of the proposed spreading acreage contains historic and or current use drain tile and

how does this affect the amount of spreadable acreage available to Rosendale to spread their waste?

Response: See “Notice of Final Determination/Summary of Comments” associated with the WPDES permit.

Comment: I would like to see a higher standard than a 25 year rain event for overflow protection of the manure holding ponds. Given the unpredictability of weather and projections of more volatile weather patterns due to climate change, I think greater safeguards should be in place to protect our water resources and wildlife.

Response: See “Notice of Final Determination/Summary of Comments” associated with the WPDES permit.

Comment: DNR appears willing to allow the CAFO to move forward while, at the same time, it is unwilling to exercise its departmental authority to require state-of-the-art technologies to reduce these risks.

Response: See “Notice of Final Determination/Summary of Comments” associated with the WPDES permit.

Comment: The draft permit indicates only one or two groundwater monitoring wells will be required. This does not appear to cover enough of the broad area of wet soils in the proposed manure spreading area. Please explain in further detail how this requirement will be sufficient for the protection of down gradient users?

Response: See “Notice of Final Determination/Summary of Comments” associated with the WPDES permit.

Comment: The ground water monitoring well installation(s) will be required by Oct. 1, 2009. This is after the WPDES permit is planned for issuance Mar. 1, 2009. What are the consequences if that is not completed, and Rosendale Dairy already has 5,720 cows by Oct. 1, 2009?

Response: See “Notice of Final Determination/Summary of Comments” associated with the WPDES permit.

Comment: According to EIS paragraph III-16, there are “strong downward gradients” in western Fond du Lac County that are a concern, because contamination can be quickly drawn in the lower sandstone from which many private and public wells draw drinking water. Ripon’s public water wells are located within Ripon along Silver Creek. Water is currently pumped from 150 feet to 190 feet depths with nitrate levels of 0.12 milligrams per liter to 1.90 milligrams per liter. Bacteria have never been an issue. The City of Ripon feels that groundwater monitoring wells should be strategically placed to help intercept increased bacteria and nitrate detection levels, before they impact public water supply. Please indicate proposed groundwater monitoring well locations.

Response: Subsequent analysis by DNR groundwater staff has determined that a groundwater divide exists west of the Rosendale site and east of Ripon. Since all spreading sites are east of the divide, spreading activities pose no threat to the Ripon wells or other water supply wells west of the divide.

Comment: Finally, the lack of information about the impact on areas around manure spreading sites is disturbing, especially the need for advance knowledge of soils, area water supplies for humans, and mandating on-going monitoring. Although it applies only to the vicinity of the RD site, we note the suggestion that testing of private wells be made more vigilant (page IV-5). Although unstated, the inevitable conclusion is that because the authors of the EIS feel that contamination of wells and resulting health risks is a real threat. Wouldn't it be better public policy to prevent such a serious problem, instead of simply saying that the public should watch out for it?

Response: Significant information is known about areas around manure spreading sites as well as information on locations of private water supply wells. This information is contained in the nutrient management plan. Furthermore,, the permit requires ongoing groundwater monitoring at the production area. The department recommends that private well owners should test their wells at least annually regardless of the proximity of a Concentrated Animal Feeding Operation. If a test finds contamination from manure, that can be reasonably traced to a farm, the operator has, in the past, been held responsible for replacement of contaminated wells.

Comment: The EIS states, "there are strong downward gradients between the Galena-Platteville and St. Peter Sandstone units. These downward gradients are a concern in western Fond du Lac County because contamination can be drawn quickly into the lower sandstone from fractures and bedding planes in the upper, less porous dolomite". How can it be safe to have the largest CAFO in Wisconsin built in this area?

Response: Subsequent analysis by DNR groundwater staff has determined that a groundwater divide exists west of the Rosendale site and east of Ripon. Since all spreading sites are east of the divide, spreading activities pose no threat to the Ripon wells or other water supply wells west of the divide.

Comment: The EIS also states that, "there is no ground water monitoring planned at the site" (1-24) and "Under NR243, ground water monitoring could be required for the manure storage lagoons and the spreading sites" (1-9). We question the lack of monitoring and would like to have the DNR make those requirements.

Response: This has been corrected; the permit requires a groundwater monitoring system at the production area of the farm. Also, see "Rosendale Dairy Environmental Impact Statement Errors and Omissions."

Comment: It may be that in this part of Wisconsin, given the value of water resources and the nature of rural residential life, no project of this size can be built in a single place. At the very least, we suggest issuing a permit for a limited number of animal units (probably the number there now) and then carefully monitoring the results for a period of time. This will allow collection of needed data and determination of which of the negative effects really will occur, as well as testing some of the mitigation strategies described in the EIS (pages VI-3 through VI-8); then a truly informed conclusion about the maximum desirable size of the project can be formed. Once there has been damage to the environment, water quality, and human health, it is difficult or impossible to repair; the dairy can always be expanded beyond its present size at a later time.

Response: The permit will be initially issued for 5,750 animal units, half of the number planned by Rosendale. If Rosendale wishes to expand to their proposed population of 11,500, they will need to seek a modification of their WPDES permit. It is important to understand that if any facility can demonstrate ability to comply with existing regulations, as Rosendale has up to 5,750 animal units, the DNR does not have authority to arbitrarily limit the facility to a lesser number.

Comment: I strongly disagree with the statement on page V-9 of the EIS that, "This proposed CAFO is not precedent setting." The size of the RD operation, the quantity of manure and wastewater they will produce, the breadth of the landscape that will be used for manure spreading and the magnitude of the potential impacts this size factory has to surface waters, ground water and air quality, loss of our rural aesthetics and for those of us close to the factory, noise pollution, are unprecedented in Wisconsin. I cannot see how as a responsible State Agency, you can pursue any course of action but to utilize all feasible tools at your disposal to demand and achieve the protection and improvement of both surface and ground water resources affected by this industry. The outline of available tools under VI.A.2.c, should be used to maximum effect. Any shortcomings in authority should result in you promulgation of needed rule changes to achieve adequate resource protection-including air quality!

Response: A number of permitted dairy farms currently operate in Wisconsin with greater than 4,000 animal units as do many smaller dairy farms. It is important to understand that Rosendale Dairy and the other permitted farms in Wisconsin are regulated and are held to a higher standard than unregulated, smaller operations. It is also important to understand that the regulations that apply to agriculture are generally less rigorous than those that apply to industry. Promulgation of any additional regulations is within the authority of the legislature, not DNR.

Comment: I was reading the EIS on Rosendale Dairy; in particular, the section that refers to the permitting on the sweet corn silage pad. How can you even consider permitting this pad when it does not meet the town's local set back code of 100 feet from the center line of County Highway M? If they have to move the northwest corner back five feet, would that not destroy the integrity of the liquid tight concrete surface?

Response: The Department defers to the Town of Rosendale to address this issue. If the town decides there is a need to honor the setback distance, the Department will then ask the engineering consultant to determine the impact the setback may have on the sweet corn pad design.

Comment: It concerns us that the EIS repeatedly refers to reliance on the dairy following Best Management Practices (BMP) however these practices are never spelled out or referenced. How does a concerned citizen learn what they are and comment on them if they are not defined in the EIS? If not defined for the dairy, once the dairy is up and running how can these BMPs be evaluated and monitored? How can the dairy be held accountable for following BMPs when they are not defined in the EIS? Further, who decides what the BMPs are? We would think that the motivation for determining BMPs would be very different depending on whether the DNR decides on them (hopefully designed to protect the environment) or the dairy (designed to be the most economical).

Response: Best Management Practices (BMP's) applicable to Rosendale Dairy are specifically identified in Chapter NR 243, Wisconsin Administrative Code. Citizen may access information about NR 243 at the following website:

<http://dnr.wi.gov/runoff/rules/nr243/nr243.htm>. The EIS does not provide regulatory authority for Rosendale Diary. The WPDES permit provides that authority. BMP's relating to livestock agriculture are maintained primarily by the USDA-Natural Resources Conservation Service with additional BMP's specified in Chapter NR 243 as promulgated by DNR.

Comment: General questions that were not addressed: Were biosolids being spread on any of the fields before RD? What is the impact of no longer buying, making or transporting all of the commercial fertilizers that will now be replaced by manure?

Response: With respect to biosolids, the RD NMP the department reviewed and approved as in compliance with NR 243 and NRCS 590 on December 10, 2008 contains historical information on what nutrients were spread RD NMP fields in 2008 in order to estimate any applicable credits for those same fields in 2009. For 2008, no fields show biosolid nutrients were applied. There is no record for years before 2008 in the NMP.

With respect to impacts from manure replacing commercial fertilizers, the department expects positive impacts (e.g., less energy and natural resources used to make and transport commercial fertilizers).

Comment: Spreading of 46,000,000 gallons of manure (and possibly double that in Phase 2) per year over 3255 "spreadable acres" results in spreading over 3 gallons of liquid manure per square foot. To myself as a layperson this would seem quite excessive considering no spreading can take place during certain times of the year.

Response: The commenter's calculations are incorrect. The amount applied is approximately 1/3 gallon per foot. Calculations are listed below:

46,000,000 gallons / 3255 acres = 14,132 gallons/acre.

There are 43,560 square feet in an acre.

14,132 gallons/acre divided by 43,560 square feet = 0.323 gallons applied per square foot.

This is not an excessive application rate. Furthermore, the department reviewed and approved the Rosendale NMP as complete and in compliance with NR 243 and NRCS 590 criteria on December 10, 2008. Approval was based, in part, upon the following criteria:

- SNAP-plus calculations show all crop fields for the entire rotation (7 years) receiving nutrient sources (manure, commercial fertilizer) in amounts that were below or matched UW crop nutrient recommendations. UW recommendations limit how much N, P or K is applied to fields in order for sustained crop yields, to achieve full utilization of all applied nutrients and to minimize or eliminate nutrient entry into surface water, ground waters while maintaining the physical, chemical and biological condition of the soil.

Comment: There also needs to be an exact accounting of land to be used, in number of acceptable acres with an adequate water table and where drainage tiles are located. If this is too burdensome for either the DNR or the Rosendale Dairy how would we expect the manure spreaders to know where to spread in a manner to prevent any contamination.

Response: The NMP that the department reviewed and approved as in compliance with NR 243 and NRCS 590 on December 10, 2008 contains, to quote the commenter, an exact accounting of land (fields) to be used for nutrient management. The NMP did not identify or include any drainage tiles. However, the NMP does contain identification and best management practices to specifically address drain tiles and to demonstrate compliance with NR 243 and 590. These procedures and practices include:

- Procedures to update submitted NMP maps or other NMP documents, by completing ongoing field investigations of all NMP fields, beginning in spring 2009, and before manure applications are completed. This includes investigations for subsurface drainage systems and their outlets on NMP fields.
- Visual inspection of tile line outlets during and after applications (section 6.0).
- Using buffers on fields with tile lines (section 6.0).
- Reducing rates of applications to fields with tile lines (section 6.0).
- Containing tile line discharges from release into waterways (section 6.0).
- Continue monitoring all NMP fields to document all potential SWQMA areas (section 4.1).
- Before any manure is hauled in a calendar year, conduct meetings with the manure hauler, Nutrient Management Plan writer and operations manager to ensure manure is applied correctly (section 6.5)
- During meetings, the manure hauler, the plan writer and the operations manager will conduct a thorough review and discussion of all restriction maps and sensitive areas (section 6.5).

- To ensure effective communication of NR243 spreading restrictions, setbacks and sensitive areas, each meeting will also include field inspections of these areas (section 6.5).
- Several meetings will occur each year to account for changing weather conditions or crop type (section 6.5)
- Meetings will be documented, all attendees will sign an attendance list, and this documentation will be included in the annual report to the department (section 6.5).

The department believes the field investigation procedures and best management practices included the NMP adequately address drain tiles that may be located on some NMP fields. They demonstrate how the applicant will meet the “maximum extent practicable” basis for tile lines required by Wisconsin Code NR 243.14(2)(e).

The department received additional comments from Rosendale residents regarding presence of drain tiles on some fields listed in the Rosendale NMP. This is new information that was not available to the department during its review and approval of the Rosendale NMP on December 10, 2008. The department intends to review this, and any other site specific drain tile information it receives, with the applicant and then require the NMP be amended to: (1) reflect all identified drain tile fields and outlets and (2) include accompanying best management practices for drain tile fields. The NMP also contains such procedures (described above).

Such local knowledge is critical for assessing the presence/absence of field drain tiles. We encourage additional comments like this to be submitted to the department on a ongoing basis. The applicant has, and will continue to amend the NMP when new information was learned or obtained in the past. This iterative or adaptive management process is essential for keeping the NMP current to reflect known field conditions, which, in turn, helps the applicant comply with all NR 243 and WPDES permit requirements.

Comment: First, I would like to have a commitment that the liquid manure be injected rather than spread and disked. This is due to my observation of manure spreading by Lake Breeze Dairy near Pipe, WI. The stench from the liquid manure was very bad. I would like to avoid such smell from happening in this area. What may be the smell of money to some people is just a stench to others. If it is not possible to impose such a condition in the permit, I would like to see same day incorporation vs. the 48 hr timeline provided in the proposed permit. The previous statements do not apply to the liquid sprayed on standing crops (alfalfa, etc).

Response: The department reviewed and approved the Rosendale NMP as complete and in compliance with NR 243 and NRCS 590 criteria on December 10, 2008. Approval was based, in part, upon the following criteria:

- Section 1.0 of the NMP states: The dairy anticipates land applying manure approximately twice a month for 3-4 day periods in May, July, Oct, and Nov. In the summer, liquid manure is top dressed on alfalfa. In the fall and spring, liquid

- manure is either injected as much as possible, or incorporated within 48 hours of surface application. All manure not injected will be incorporated using a disc-till.
- The NMP requires compliance with NR 243.14(2)(b)(12) which states: Where incorporation of land applied manure is required under NRCS 590, the incorporation shall occur within 48 hours.
 - The NMP requires compliance with NR 243.14(4)(a)(1) which states, whenever manure or process wastewater is applied within areas of a SWQMA, no applications will be made within 25 feet of the SWQMA and inject or incorporate within the remaining areas of the SWQMA.

Based upon the NMP criteria above, there is a partial commitment that liquid manure will be injected first, and spread and disked second.

Comment: Paragraph 111-36) Where does it say in this report where the fields with high potential for nitrogen leaching are located. This needs to be in the report.

Response: Nitrogen loss is dependent on a complex set of factors including temperature, moisture and soil characteristics. Rosendale Dairy is required to adhere to a phosphorus-based nutrient management plan. As such, Rosendale will typically be applying nitrogen below crop nitrogen needs that will contribute to preventing nitrogen leaching to groundwater.

Comment: I was startled to receive information today that greatly influences citizen efforts to adequately address the permitting process for Rosendale Dairy. As you know, the current deadline for our comments is February 4. I understand that Rosendale Dairy has modified the original NMP submitted to DNR. I suppose they can do that, but citizens have been thoroughly reviewing an NMP which now is no longer accurate or even valid. Our comments likewise would be invalid and inaccurate. I believe this resembles the practice Rosendale Dairy used earlier when submitting previous application documents and engineering plans - expecting drafts to be reviewed again and again until a final was accepted. This is, therefore, a formal request for a minimum of 30-days' extension of the February 4 deadline in order to allow citizens the time we need to return to our review of the newly-submitted documents. I believe we are entitled to this extension. There is a direct bearing between the NMP and both the EIS and WPDES.

Response: The Department does not believe the adjustments to the nutrient management plan associated with the use of the updated SNAP-plus software are significant. The twenty fields (approximately 15% of all fields in Rosendale Dairy NMP) that the applicant proposed to change during the public comment period were minor changes to an existing NMP that was written for agronomic utilization of all applied nutrients by crops to all NMP fields. The proposed changes to the NMP were for crop years 2011 and 2012 – at least two or three years in the future from proposed permit issuance date of 2009. The proposed changes do not include new fields or increased rates of application above or beyond the NMP that the department reviewed and approved on December 10, 2008 and the public was given an opportunity to review and comment upon. In fact, the

proposed changes call for decreasing application rates of manure or commercial fertilizer on most of the twenty fields in question.

Second, the changes to the NMP based on the updated Snap-plus program (version 1.129) provide more environmental protection. The new version of SNAP-plus:

- Improves soil erosion estimates (using a revised version of Wisconsin P index) making field rotational soil loss and P delivery calculations more accurate and easier to evaluate when a NMP field exceeds T or rotational P Index is greater than 6.
- Makes more clear whether or not fields receive over applications of N (by calculating second year credits and showing – with red markings- when crop applications exceed UW recommendations).

The proposed changes improve the Rosendale NMP and make it more protective of water quality.

Third, the new update to Snap-Plus by UW Soil Science and DATCP occurred during the time the permit was public noticed, and accordingly, the permittee requested use of the updated software during the public comment period. The Department may consider this change along with all other suggested changes to the permit submitted by the permittee or other commenter's. If the Department makes changes to a WPDES permit pursuant to comments made during the public comment period, the Department does not have to repeat the entire public notice and comment period again; otherwise, the permit process would never end.

Finally, NMPs are not static documents. They are meant to be changed over time to reflect new information that was not known, or considered, at the time the NMP was first written (or approved as in compliance by the department). Many portions of the NMP project what will happen in the future for the entire crop rotation or permit term. Once the projections are complete, the permittee is required to track what actually happened (crops, application rates, times, methods, fields, field conditions, etc) and then update the NMP to reflect what occurred on each field. The management practices completed on each field are required to meet NR 243 and NRCS 590 criteria. Changes from projected application rates and timing, for example, in one year can impact how much manure or commercial fertilizer to apply to next years crop. Application rates must remain, however, within UW crop recommendations for N, P and K. Another example is that drain tiles or new grassed waterways or intermittent streams may be identified through field verification procedures that were not found or detected using existing maps (e.g., USGS, Web Soil Survey, Aerial photos) or field surveys or evaluations (e.g., NRCS soil surveys, wetland identifications).

Over time, the NMP is designed to be based upon actual conditions versus projected conditions. The minimum frequency for NMP updates is one year. The annual reporting requirements for WPDES CAFO permitted operations is one year.

Comment: Drain tile is present in many of the fields where Rosendale Dairy is planning to spread manure. This drain tile effectively drains excess moisture from the fields and transports it to nearby streams or wetlands, this would seem to be a major issue of concern for contamination of these streams and wetland areas the DNR has been seeking to protect. Why allow spreading of liquid manure on these fields?

Response: The department reviewed and approved the Rosendale NMP as complete and in compliance with NR 243 and NRCS 590 criteria on December 10, 2008. Approval was based, in part, upon the following criteria:

- The NMP contains several types of maps that document locations of SWQMA's and other NR 243 features on fields, or next to fields where the application of manure is planned by Rosendale Dairy. No drain tiles were identified.
- The NMP maps were created from existing and available sources (e.g., USGS, Web Soil Survey, aerial photos, DNR) or from prior field surveys and evaluations (e.g., NRCS soil surveys, wetland identifications).
- The NMP contains language regarding the accuracy and completeness of submitted maps and also procedures to update the maps or other NMP documents, by completing ongoing field investigations of all NMP fields, beginning in spring 2009, and before manure applications are completed. This includes investigations for subsurface drainage systems and their outlets on NMP fields.

The NMP also contains best management practices the applicant will implement to specifically address drain tiles and to demonstrate compliance with NR 243 and 590. The NMP drain tile best management practices include:

- Visual inspection of tile line outlets during and after applications (section 6.0).
- Using buffers on fields with tile lines (section 6.0).
- Reducing rates of applications to fields with tile lines (section 6.0).
- Containing tile line discharges from release into waterways (section 6.0).
- Continue monitoring all NMP fields to document all potential SWQMA areas (section 4.1).
- Before any manure is hauled in a calendar year, conduct meetings with the manure hauler, Nutrient Management Plan writer and operations manager to ensure manure is applied correctly (section 6.5)
- During meetings, the manure hauler, the plan writer and the operations manager will conduct a thorough review and discussion of all restriction maps and sensitive areas (section 6.5).
- To ensure effective communication of NR243 spreading restrictions, setbacks and sensitive areas, each meeting will also include field inspections of these areas (section 6.5).
- Several meetings will occur each year to account for changing weather conditions or crop type (section 6.5)
- Meetings will be documented, all attendees will sign an attendance list, and this documentation will be included in the annual report to the department (section 6.5).

The department believes the field investigation procedures and best management practices included the NMP adequately address drain tiles that may be located on some NMP fields. They demonstrate how the applicant will meet the “maximum extent practicable” basis for tile lines required by Wisconsin Code NR 243.14(2)(e) and also applicable NR 243.14(2)(b) criteria related to field subsurface drain system discharges to state waters.

The department received additional comments from Rosendale residents regarding presence of drain tiles on some fields listed in the Rosendale NMP. This is new information that was not available to the department during its review and approval of the Rosendale NMP on December 10, 2008. The department intends to review this, and any other site specific drain tile information it receives, with the applicant and then require the NMP be amended to: (1) reflect all identified drain tile fields and outlets and (2) include accompanying best management practices for drain tile fields. The NMP also contains such procedures (described above).

Such local knowledge is critical for assessing the presence/absence of field drain tiles. We encourage additional comments like this to be submitted to the department on a ongoing basis. The applicant has, and will continue to amend the NMP when new information was learned or obtained in the past. This iterative or adaptive management process is essential for keeping the NMP current to reflect known field conditions, which, in turn, helps the applicant comply with all NR 243 and WPDES permit requirements.

Comment: On page 1-18 the EIS recommendations concerning wet soils seems to be referencing both NR243 and 590 requirements. The distinctions between the two standards should be made clear. The interim guidance DNR provided to Rosendale regarding manure applications to wet soils should also be included or should replace the NR243 and 590 discussion since the guidance supersedes both.

Response: NRCS 590 is a technical standard. NR 243 is a Wisconsin regulation. NR 243 requires that permitted farms' NMPs must contain the information necessary to document how the operations land application activities will comply with the restrictions in NRCS 590. With respect to wet or ‘w’ soils, the major difference between NRCS 590 and NR 243 is:

- NR 243 **prohibits** manure and process wastewater applications on areas of a field with a depth to groundwater or bedrock is less than 24 inches (this may and often does include ‘w’ or wet soils).
- NRCS 590 **limits, but does not prohibit**, manure and process wastewater applications to “w” soils, soils with bedrock less than 20 inches and soils with high permeability (as defined in Tech Note WI-1).

The interim guidance DNR provided to Rosendale regarding manure applications to wet soils is included in the NMP that the department reviewed and approved on December 10, 2008. The department disagrees that the interim guidance supersedes both NRCS 590

and NR 243. The interim guidance reflects or supports each one to the degree allowed by WI code (NR 243).

Comment: The EIS acknowledges that a “majority of fields listed in the NMP contain wet soils” which threaten “increased risk for bacterial pollution of ground water from manure spreading activities.” Yet the DNR seems willing to accept self monitoring and self-reporting from the CAFO of spills, leakage, or leaching.

Response: With respect to the self monitoring and self-reporting, the WPDES permit requires the CAFO to complete specific self monitoring actions and self reporting of spills, leakage, or leaching. We expect RD to comply with these requirements. Failure to do so may result in the department issuing enforcement actions.

With respect to a “majority of fields listed in the NMP contain wet soils and the soils present an increased risk for bacterial pollution of ground water from manure spreading activities, the department developed interim guidance to address wet soils when applying manure or process wastewater to fields. The interim guidance was written to address the fact that many Wisconsin dairy fields, including Rosendale’s fields, may have shallow groundwater field conditions. A copy of the guidance was adopted into the NMP. The guidance is interim and may be subject to change by the department in the future.

The guidance recommends using the most readily available information on groundwater depth and soils that have shallow groundwater conditions: the NRCS Web Soil Survey - <http://websoilsurvey.nrcs.usda.gov/app/>. This tool shows helps identify groundwater depth for ‘w’ soil units in a field *may* be and also describes *that groundwater depth can vary by calendar month*. What this means is that for some ‘w’ soils, groundwater may be within 24 inches of surface during certain months of the year and for other months of the year groundwater is below 24 inches depth. Seasonal, soil and drainage factors make assessing groundwater depth dynamic and not static. We found this to be case on many of fields listed in the Rosendale dairy NMP.

Because of groundwater depth can vary, the option to prohibit, via WPDES permit or the NMP, all manure applications to areas of fields with ‘w’ soils is not possible. Instead, a field specific and verifiable test for groundwater depth before manure application is necessary and warranted. As with other parts of the NMP, the permittee is responsible for completing and documenting these procedures and incurs legal responsibility for maintaining compliance with this NR 243 requirement. DNR staff may also elect to complete their own analysis on application fields to verify compliance. These reasons, and the reasons listed below, are why we approved the interim guidance included in the Rosendale Dairy NMP.

The interim guidance provides three methods to show if fields have a groundwater depth or likely have groundwater depth within 24 inches of the field surface. The field verification option selected must be recorded for each field and included within a CAFO’s required daily or annual reports. Before explaining the three options, please note that the guidance also recommends avoiding manure applications to fields:

- (1) when field conditions show the field has been idle – meaning out of agricultural production - for some time (e.g., no crops or perennial wetland vegetation)
- (2) at times of year where groundwater – according to NRCS Web Soil survey – shows groundwater may be within 24 inches of surface.

The three guidance field verification options to determine groundwater depth include a trafficable and plantable test, a drain tile depth verification test or a 30 inch depth test pit excavation test.

The first option is included to reflect the practical realities of agricultural crop production. The ‘trafficable’ and ‘plantable’ test relies upon the fact the wet soils is just that: wet. This not only makes heavy equipment use difficult – due to equipment getting stuck or causing significant rutting and soil compaction - but also makes crop establishment difficult – due to low oxygen and wet soil conditions. Absent some type of drainage system (e.g., ditches, field tiles), many wet fields are not ideal for establishing or growing crops. Farmers who work fields regularly to grow crops often know where wet fields or portions of fields that are wet are located and will, accordingly, avoid these areas or can explain to custom haulers where such areas are at so they can avoid manure applications them. Fields with drainage systems that contain ‘w’ soils may lower the water table below 24 inches and make agricultural use of the wet field more likely than fields without such drainage. Drain tiled fields are discussed below.

Although the ‘trafficable’ and ‘plantable’ test does not directly confirm actual groundwater depth, it does offer indirect evidence of groundwater depth that is, for most situations, demonstrably equivalent to measuring groundwater depth. It can be easily determined by the farmer or custom hauler when they make a manure application to a field with ‘w’ soils.

The second and third options involve completing some type of excavation to determine drain tile depth or actual groundwater depth. Both tests directly confirm whether groundwater depth is within 24 inches of surface and can be completed, just like other field verification procedures, prior to manure application to fields ‘w’ soil field. Both tests require selecting areas that are representative of the entire field to determine groundwater depth for the entire field. The department recognizes that selecting representative areas of a field may result in some bias towards actual groundwater depth. Every NRCS soil survey contains similar language about variability of soil types. It explains soil units can change over very short distances – requiring field verification. Moreover, each manure sample, soil sample or other water sample collected also contains some bias or margin of error and is, accordingly, not always 100% accurate. Still, the department believes it is better to measure than to not measure groundwater depth on areas of fields with the potential for having a 24 inch depth to groundwater.

Implementation of the guidance will result in improved protection of water quality and allow, were permissible by NR 243, agricultural use of fields when groundwater depth is greater than 24 inches.

Comment: The WPDES permit provides that manure or process waste water may not be applied on areas of as field with a depth to groundwater or bedrock of less than 24 inches, but the EIS makes it clear the data necessary to assure compliance with this condition is not available.

Response: The WPDES permit and the RD Nutrient Management Plan (NMP) requires compliance with NR 243. NR 243.14(2)(b)(7) requires manure or process waste water may not be applied on areas of as field with a depth to groundwater or bedrock of less than 24 inches. We agree the EIS makes it clear the data necessary to assure compliance with this condition is not currently available. This is because making a groundwater depth determination is site specific and different depth results are possible depending on the time of year and upon environmental conditions, including: weather patterns, field soil type(s), field topography, presence of nearby wetlands and drainage features such as ditches or drain tiles on or adjacent to the field. Given this variability, the data necessary to assure compliance with this condition is not currently available.

In response to this variability, however, Rosendale Dairy received and adopted into the NMP, interim guidance from DNR on how to meet the NR243.14(2)(b)7 requirement. The interim guidance may be subject to change by the department.

The interim guidance explains groundwater depth can vary significantly throughout the year. Environmental conditions (weather patterns, soils, presence of nearby wetlands) are key groundwater depth factors. The guidance states Rosendale must evaluate fields for shallow groundwater **before applying manure** and then, as a first option *avoid the area of field, with shallow groundwater* when applying manure.

If avoidance is not possible, the interim guidance requires Rosendale to complete more field by field verification for groundwater depth using one, or more, of the following options:

- Digging test pits on field.
- Determining drain tile depth on field
- Verifying field is trafficable and plantable with loaded manure tanker.

Implementation of the guidance will result in improved protection of water quality and also allow, where permissible, agricultural use of fields that, at certain times of year, do when groundwater depth is greater than 24 inches.

Comment: The EIS and our initial study indicates that 50% to 70% of the proposed land for manure spreading is not suitable for that practice in accordance with NR 243.14 (i.e.: Manure or process wastewater may not be applied in areas of land with a depth to groundwater or bedrock of less than 24 inches). In addition, paragraph III-36 of the EIS says a majority of fields listed in the Nutrient Management Plan (NMP) contain soils described as "w" units, with less than 12 inches to apparent ground water table at certain times of the year. Per NRCS 590 standards, the "w" soils are identified as having a high potential for nitrogen leaching to ground water. The close proximity of ground water for "w" soil fields, at certain times of the year, represents an increased risk for bacteria

pollution of ground water from manure spreading activities. The percentage of w-soils for each field listed is varied; but may be greater than 90% of the total field areas. In view of applicable administrative codes and standards, we want to know why manure spreading will be allowed in these critical areas? Please explain the rationale for it and what conditions will be applied in terms of manure spreading?

Response: The department reviewed and approved the Rosendale NMP as complete and in compliance with NR 243 and NRCS 590 criteria on December 10, 2008. Before making this determination, the department required the NMP to be amended several times by RD. Some of the NMP amendments we required were related to the commenter's concerns regarding w soil fields and elevated water table listed above.

We agree that:

1. Rosendale Dairy fields have wet or 'w' soils and these same fields are where the dairy proposes to apply manure and process wastewater primarily in the spring or the fall.
2. Wis. Admin. Code § 243.14(2)(b)(7) prohibits the application of manure or process wastewater to areas of a field with a depth to groundwater or bedrock of less than 24 inches.
3. The significant threat to groundwater posed by Rosendale Dairy is the predominance of wet soils on fields where the dairy proposes to apply manure and process wastewater.

We disagree that:

- RD NMP contains no assurance that the workers driving and operating the equipment will avoid high risk areas in individual fields.
- RD WPDES permit should prohibit the application of manure and process wastewater on any 'w' soil.
- It is impractical to determine depth to groundwater on 'w' soil field areas prior to every application.

The department developed interim guidance for complying with the 24 inch depth to groundwater requirement when applying manure or process wastewater to fields. The interim guidance was written to address the fact that many Wisconsin dairy fields, including Rosendale's fields, may have shallow groundwater field conditions. A copy of the guidance was adopted into the NMP. The guidance is interim and may be subject to change by the department in the future.

The guidance recommends using the most readily available information on groundwater depth and soils that have shallow groundwater conditions: the NRCS Web Soil Survey - <http://websoilsurvey.nrcs.usda.gov/app/>. This tool shows helps identify groundwater depth for 'w' soil units in a field *may be* and also describes *that groundwater depth can vary by calendar month*. What this means is that for some 'w' soils, groundwater may be within 24 inches of surface during certain months of the year and for other months of the year groundwater is below 24 inches depth. Seasonal, soil and drainage factors make

assessing groundwater depth dynamic and not static. We found this to be case on many of fields listed in the Rosendale dairy NMP.

Because of groundwater depth can vary, the option to prohibit, via WPDES permit or the NMP, all manure applications to areas of fields with ‘w’ soils is not possible. Instead, a field specific and verifiable test for groundwater depth before manure application is necessary and warranted. As with other parts of the NMP, the permittee is responsible for completing and documenting these procedures and incurs legal responsibility for maintaining compliance with this NR 243 requirement. DNR staff may also elect to complete their own analysis on application fields to verify compliance. These reasons, and the reasons listed below, are why we approved the interim guidance included in the Rosendale Dairy NMP.

The interim guidance provides three methods to show if fields have a groundwater depth or likely have groundwater depth within 24 inches of the field surface. The field verification option selected must be recorded for each field and included within a CAFO’s required daily or annual reports. Before explaining the three options, please note that the guidance also recommends avoiding manure applications to fields:

- (3) when field conditions show the field has been idle – meaning out of agricultural production - for some time (e.g., no crops or perennial wetland vegetation)
- (4) at times of year where groundwater – according to NRCS Web Soil survey – shows groundwater may be within 24 inches of surface.

The three guidance field verification options to determine groundwater depth include a trafficable and plantable test, a drain tile depth verification test or a 30 inch depth test pit excavation test.

The first option is included to reflect the practical realities of agricultural crop production. The ‘trafficable’ and ‘plantable’ test relies upon the fact the wet soils is just that: wet. This not only makes heavy equipment use difficult – due to equipment getting stuck or causing significant rutting and soil compaction - but also makes crop establishment difficult – due to low oxygen and wet soil conditions. Absent some type of drainage system (e.g., ditches, field tiles), many wet fields are not ideal for establishing or growing crops. Farmers who work fields regularly to grow crops often know where wet fields or portions of fields that are wet are located and will, accordingly, avoid these areas or can explain to custom haulers where such areas are at so they can avoid manure applications them. Fields with drainage systems that contain ‘w’ soils may lower the water table below 24 inches and make agricultural use of the wet field more likely than fields without such drainage. Drain tiled fields are discussed below.

Although the ‘trafficable’ and ‘plantable’ test does not directly confirm actual groundwater depth, it does offer indirect evidence of groundwater depth that is, for most situations, demonstrably equivalent to measuring groundwater depth. It can be easily determined by the farmer or custom hauler when they make a manure application to a field with ‘w’ soils.

The second and third options involve completing some type of excavation to determine drain tile depth or actual groundwater depth. Both tests directly confirm whether groundwater depth is within 24 inches of surface and can be completed, just like other field verification procedures, prior to manure application to fields ‘w’ soil field. Both tests require selecting areas that are representative of the entire field to determine groundwater depth for the entire field. The department recognizes that selecting representative areas of a field may result in some bias towards actual groundwater depth. Every NRCS soil survey contains similar language about variability of soil types. It explains soil units can change over very short distances – requiring field verification. Moreover, each manure sample, soil sample or other water sample collected also contains some bias or margin of error and is, accordingly, not always 100% accurate. Still, the department believes it is better to measure than to not measure groundwater depth on areas of fields with the potential for having a 24 inch depth to groundwater.

Implementation of the guidance will result in improved protection of water quality and also allow agricultural use of fields that have, at certain times of year, 24 inches groundwater depth.

Comment: I have major concerns about both run-off and groundwater contamination. If you visit this area in May and June, you will see that in spite of the only moderately rolling terrain, there are major run-off problems during thunderstorms or even moderately heavy rains. Any local farmer will be able to tell you exactly where these run-offs occur. This run-off ends up in a maze of agricultural drainage ditches and, eventually, drains into the Lake Winnebago system. If the EIS is unable to guarantee that even under the most ideal conditions—the CAFO manure is spread days before any rain and plowed into the soil--run-off pollution will not occur from this operation, imagine what can occur when the manure is top-dressed on a field a few hours before a surprise thunderstorm? The EIS says the NMP, under ideal conditions, if followed to the letter, will “minimize” risk of run-off. It does not, however, explicitly say the obvious, and that is that under real-world conditions, run-off pollution is going to occur.

Response: First, the RD NMP contains the following language regarding forecasted precipitation procedures:

RD will follow NR 243.14(2)(b)(13). Manure or process wastewater may not be surface applied when precipitation capable of producing run-off is forecasted within 24 hours of the time of the planned application. Both prior to and during manure applications, www.accuweather.com will be consulted for weather forecast data. All weather forecast data will be submitted with annual reports as an attachment to weather records in section 8.

The procedures listed above explain how RD manure application activities will meet and track this NR 243 requirement.

Second, the department reviewed and approved the Rosendale NMP as complete and in compliance with NR 243 and NRCS 590 criteria on December 10, 2008. In making this determination, the department found the NMP to contain several procedures or practices that will prevent manure and process wastewater runoff from application fields. The

department expects RD will follow its NMP at all times. Full implementation of the NMP will address many of the environmental risks and associated concerns of the commenter listed above.

Last, the WPDES permit and NR 243 NMP requirements do not assume that RD will never have a surface water discharge from the collection area or from application fields. To the contrary, such discharges are considered agricultural stormwater discharges and are considered non-point sources of pollutants (provided the permittee is in compliance with all land application and other restrictions in NR 243, NRCS 590 and the WPDES permit when such discharges occur). The non-point source discharges may carry nutrients with them from fields to surface waters and this may cause or contribute to pollution of such waters. Both the scope and frequency of such discharges are minimized significantly by the requirements of NR 243, NRCS 590 and the WPDES permit.

Comment: The nutrient management plan compliance is documented (I-17, VI-26, VI-26) but the EIS does not clearly explain the difference between the NRCS 590 and NR 243 requirements, such as for wet soils. Nor does the EIS clearly elaborate when the facility's plan components go beyond the minimum requirements (111-37, V1-7), such as testing the depth to groundwater at application sites (IV-20). Please refer to the specific comments about nutrient management that we have attached.

Response: NRCS 590 is a technical standard. NR 243 is a Wisconsin regulation. NR 243 requires permitted farms NMPs must contain the information necessary to document how the operations land application activities will comply with the restrictions in NRCS 590. With respect to wet or 'w' soils, the major difference between NRCS 590 and NR 243 is:

- NR 243 **prohibits** manure and process wastewater applications on areas of a field with a depth to groundwater or bedrock is less than 24 inches (this may and often does include 'w' or wet soils).
- NRCS 590 **limits, but does not prohibit**, manure and process wastewater applications to "w" soils, soils with bedrock less than 20 inches and soils with high permeability (as defined in Tech Note WI-1).

Comment: On page I-17 there appears to be an inconsistency between the requirements of NR243 and the EIS recommendation. NR243 in some cases calls for immediate incorporation of manure whereas the EIS suggests only incorporation within 48 hours. DATCP suggests following NR243 requirements.

Response: The department agrees. The WPDES permit and NMP, that the department reviewed and approved on December 10, 2008, requires compliance with all NR 243 criteria, including immediate incorporation.

Comment: Page IV-11 states that "manure spreading not expected to have any short or long term negative effects to soils because the project is required to comply with its NMP and WPDES permit requirements" and this same paragraph goes on to say "...only expected short term effects to soils will be from spring or fall tillage or application

activity... ." The EIS is contradicting itself. It should explain what is meant by "effects" and why tillage and applications are the only activities listed. If soil disturbance or compaction is meant then there should be other activities listed: planting, fertilizing, harvesting. The EIS states nothing about potential long-term effects. DATCP recommends the EIS also explores whether there could be any positive impacts to the soil now that manure is been applied, such as nutrients, increased organic matter or biological activity.

Response: The commenter accurately notes the question in the EIS is what are the short or long term **negative** effects to soils and the Rosendale is not expected to have any short or long term negative effects to soils because the project is required to comply with its NMP and WPDES permit requirements. The department expects that following the NMP will be positive, as the commenter explains, in terms of applied nutrients increasing organic matter, biological activity and overall productivity for crop growth. The short term negative impacts are from tillage and manure applications may cause, as the commenter notes, soil disturbance (making it more prone to erosion) and compaction. The department does not believe planting, fertilizing, harvesting crops, done accordance with an approved NMP that meets NR 243, will have short term or long term negative impacts when compared to a similar operation that does not meet the NMP criteria.

Comment: On page V-8 the EIS states that "The operation has also proposed to avoid surface application when certain rainfall events are forecasted." The EIS should specifically explain what timeframes and what size rain events the operation will be managing around and what this management entails. The EIS should also be clear as to what is required in NR243 for mitigation runoff risk and the types of runoff that are or are not allowed under the standards.

Response: The department disagrees that the EIS should specifically explain what timeframes and what size rain events the operation will be managing around and what this management entails. This must be defined in code or regulation and, presently, it is not within NR 243. The department believes when the EIS cited NR 243, NR 243 is clear about the criteria that (1) must be followed for mitigation runoff risk and (2) the types of runoff that are or are not allowed under the standards (e.g. agricultural stormwater discharge).

Comment: If I were to build a new home today on purchased land, I would be held to a standard for my septic and well. These regulations are very specific for a homeowner. Why would this any different for a CAFO? If I were to deposit human or animal manure close to my neighbor's well, I would be in violation of our health regulations. According to a map of the Rosendale Dairy proposed manure spread areas, the actual spread will be inside of 200 feet from my own well on my property.

Response: The setback from private wells required by the proposed permit is 200 feet. If a proposed field has areas, or is entirely within the 200 foot setback, manure spreading will not be allowed in that area.

Comment: I note that Rosendale Dairy constructed many of its facilities before it had obtained necessary permits or completed environmental assessments. Yet the DNR took no action.

Response: Historically, DNR has exercised stepwise enforcement discretion with regulated facilities. Steps or levels of enforcement, in escalating order, are: 1) issuance of Notice of Noncompliance, 2) issuance of a Notice of Violation and 3) referral to the Wisconsin Department of Justice for potential prosecution. Successful prosecution can result in monetary forfeitures or other penalties. The level of enforcement action considers factors such as the extent of environmental harm and the past environmental performance record of the facility. It is important to understand that while the law provides that regulated facilities must receive written plan and specification approval from DNR prior to construction, the facility is not required to have a WPDES permit prior to construction. Rosendale Dairy has been treated consistently with the long-standing practice of stepwise enforcement.

Specifically, in June of 2008, DNR informed developers of Rosendale Dairy that if they elected to construct reviewable facilities prior to Department approval, 1) they did so at their own risk, 2) that any discharges or water quality impairments resulting from construction at their site would be treated as violations of applicable water laws and, 3) under no circumstance could the facility be populated with livestock in excess of 1,000 animal units unless and until a permit is actually issued for the facility. While Rosendale Dairy has not caused apparent water quality impairments nor have they populated in excess of 1,000 animal units, the DNR alleges that they failed to submit complete plans and specifications for certain reviewable building projects and constructed certain reviewable facilities before obtaining approval. Although Rosendale Dairy disputes these allegations, DNR issued a Notice of Violation to Rosendale Dairy on January 26, 2009. Again, DNR does not believe any environmental harm has resulted from Rosendale's alleged failures. But to further assure that is the case, DNR has evaluated as-built plans of the facilities. Additionally, the draft WPDES permit requires that Rosendale Dairy conduct groundwater monitoring at the production area of the facility to better protect the environment in the unlikely event of structural failure of these facilities. The Notice of Violation establishes a performance record for the facility that would be carefully considered, including the possibility of referral to the Department of Justice, in the event that Rosendale would persist in operating outside of the law.

Comment: I question why "stop work" orders which have been ignored by Rosendale Dairy have not been enforced or acted upon by the DNR?

Response: See previous response.

Comment: Due to all of the negative results to the community found in the EIS and the fact that Rosendale Dairy started without their proper permits I feel they should be denied their permits, let them suffer the consequences.

Response: See previous response.

Comment: We are very disturbed by reports that early construction of the RD facility was done without obtaining required permits, and in violation of some environmental protection. We do not know if this is true, but believe the DNR should investigate prior to making a decision about permits. If true, there should be a more serious consequence than "whoops, you caught me," and that it should be considered evidence against granting the requested permits. Perhaps somewhere there is even a statute that requires this.

Response: See previous response.

Comment: The EIS begins with a pivotal subject which we have questioned all through the 2008 year. The key phrase is, "the majority of the structures have already been constructed" @p. I-4). As these structures are already built, we wonder how it is that places requiring such meticulous safety precautions and precise building methods may be constructed before assessments and permits are complete. How can the DNR know that the various structures have been correctly built according to the designs presented, and with the materials proposed? It would seem that this compromises the integrity of most all of the statements in the EIS regarding structure, because the DNR cannot know for sure that codes were followed- because Ostrom built first and asked for permission second.

Response: See previous response.

Comment: I question why the DNR have not physically walked the proposed land where the 46 million gallons of manure will be applied. I question why the DNR isn't interested in where tile lines and lift pumps are on the proposed land where the manure is to be spread. Do you think it is wise to allow a permit based on the information received solely from Rosendale Dairy?

Response: DNR staff has, in fact, walked a number of the fields where manure spreading is proposed. The WPDES permit has language requiring monitoring of known and observed field tiles associated with manure spreading sites. The permit has been based on information from many sources, not just Rosendale Dairy.

Comment: If the CAFO is allowed to proceed as planned, it will generate between 50 and 100 million gallons of liquid waste per year. Hauling this manure over local roads and spreading it on fields presents grave environmental risks. The DNR should require, as part of Best Management Practices, that this waste is first treated onsite or broken down with a digester.

Can the use of the digester method be required when the number of animal units exceed specific numbers?

The discussion of alternative, particularly at pp V-I- to V-4, makes it quite clear that DNR is not in the least willing to push the envelope in terms of requiring better technologies to protect groundwater, in spite of the fact that it has the authority. It wants

more studies and evidence that the new technologies make a difference, when others have concluded that they do reduce risks: "As a matter of current and past practice when issuing WPDES permits for CAFOs, the Department has relied on the implementation of best management practices rather than requiring treatment technologies when additional levels of water quality protection are determined to be necessary. That appears to be an admission that technologies that are better than the "best management practices" exist and are not required. This reflects a strong tendency on the part of the Department to make decisions that favor private interests over those that protect natural resources, leaving the burden of challenging the actions of the department on those who would protect the resources.

I am not pro factory dairy farming or the noncompliance of Rosendale Dairy and the minimal amount of contact the DNR will have. As a taxpayer, I pay the DNR to carry out their mission to protect our land and water. I urge you to limit herd size to keep this area pollution-free, or require an on-site waste water treatment plant for Rosendale Dairy.

It is ironic there is no mention of alternative technologies for waste treatment except in Phase 2. Throughout the state there exist quite a few CAFOs of smaller size that have digesters. While they are not perfect technologies they would alleviate some of the nutrient management concerns. These are proven methods to reduce the effects of the CAFO and I can't understand why they are not addressed in more detail. Again if a municipality did this the outcry would be substantial!

There are 22 digesters at 17 CAFO industrial farms in the state. The EIS briefly mentions this alternative, as well as other wastewater treatment systems. Overall, properly operated wastewater treatment systems, like manure digesters, mitigates many of the environmental concerns and the potential risks involved with manure and wastewater from large diary operations. Based on a reliable source, it is my understanding that the manure and wastewater generated by the proposed Rosendale Dairy operation is the equivalent of sewage and wastewater from a city of 75,000 people. Why aren't wastewater treatment options explored in greater detail?

If permits are not denied then do to the size of Rosendale Dairy and the potential for air and water pollution I think they should have to treat animal waste like cities have to treat their waste.

It is amazing to us that what will be the largest and supposedly the most modern and state-of-the-art dairy in the state is going with the old system of storing manure in lagoons and then spreading the manure on open fields. At one of our first meetings with Jim Ostrum at a Rosendale Town Meeting he indicated that although Phase 1 would have a "traditional manure" system Phase 2 would have an "advanced manure system". The systems that he listed as possibilities were a digester, ultra filtration reverse osmoses, and flocculation/biological treatment (please see attached). The EIS mentions anaerobic digester, dissolved air flotation coupled with center pivot irrigation, and ultra filtration (page 1-21). With the EIS's concerns for the negative impact of the dairy on ground water wells, surface waters, and air quality we would think that one of these

"advanced technologies" should be required by the DNR especially since Mr. Ostrum told our town that this would be done in Phase 2. Finally, why aren't these "advanced technologies" considered BMPs? It is our understanding that the use of these technologies has proven to be quite effective at protecting area waters near CAFOs.

Response: The department does not have the authority to require anaerobic digesters or wastewater treatment as part of a WPDES water permit. While anaerobic digestion is valuable for alternative energy production, it has limited utility to contribute to water quality protection. Certainly bacteria is reduced by this process, but nutrients such as phosphorus are not impacted at all by the process. Additionally, digesters typically reduce manure volume by less than 5%. Wastewater treatment is not recognized by USEPA as a standard technology for CAFOS at present, so a great deal of modeling must be accomplished to show that the effluent limitations are equivalent to what would be discharged from a 25 year, 24 hour storm event. Even then, USEPA may not approve the approach. What is approved, are the practices contained in the proposed permit. Rosendale Dairy has indicated a willingness to consider some alternative technologies as part of phase 2 of the project. If this phase begins to move forward, the department will work with the dairy to assess their feasibility and gain USEPA approvals.

Comment: One of the major concerns that I have with the EIS treatment of this is that I am left with the impression that the Dept. simply states these facts as information and seems to accept it in the context of that's the way it is, so what? This is exactly the concern with the manure spreading on any of these headwater lands and is the very reason that RD should be required to establish monitoring stations at some critical fields, lift pump sites or stream/ditch flow intersections as part of the permitting process. Additional comments relating to this appear under VI.A.2.c. of the EIS. The point is made in par. two as the lack of "unique" surface water resources. Whereas the approach should be, to use every tool to strive to improve both surface and ground water, the Dept. seems to be more focused on separation of the two, and different levels of importance/treatment rather than their inter-relationship. In this context several options are enumerated but there seems to be no direction, analysis or conclusion much less recommendations. Why?

Response: The department is not clear on what is being asked here, because no detail as to the options referred to is provided. This question seems more rhetorical than specific.

Comment: What can be asked of Rosendale Dairy, Inc. to insure the optimum protection of the FdL watershed, Green Lake, Fox River and Rush Lake, and the Upper Rock River?

In discussing surface water quality, there are repeated EIS references to poor water quality and "Impaired Waters." We would think this would make the DNR especially vigilant in limiting any large scale activity (such as the proposed RD) that could further degrade water quality and create health risks in so doing. Again we may have missed it, but we do not see consideration of this aspect of the issue.

Response : The lands where Rosendale Dairy proposes to spread manure are being farmed currently, largely with no nutrient management plan being implemented. The department is requiring the dairy to follow a nutrient management plan designed to protect water quality by such practices as limiting volume of manure spread, providing setbacks to waters and wells and prohibiting manure spreading during times of the year that pose the greatest risk of runoff. This provides greater control of pollution risk than currently exists on these lands.

Comment: The Upper Rock Watershed and the Big Green Lake Watershed contain waters, (Rock River & Silver Creek) impaired by nutrients and sediment. The Rush Lake-Fox River Watershed does not itself, contain impaired waters, but discharges to an impaired water, Lake Butte des Morts. The West Branch of the FDL watershed also discharges to an impaired water, L. Winnebago. (The decision on whether or not to increase setbacks is programmatic and could set precedence for future CAFO's.)

Response: The Department agrees that Rosendale (a new source) cannot discharge a pollutant from the production area to a 303(d) listed segment if the pollutant discharged is the cause of the impairment. Although a discharge from the production area to a 303(d) listed stream segment is extremely unlikely, the Department has added a sentence to the production area restrictions that this type of discharge is prohibited.

As for the land application areas, any residual discharges from land application areas are considered agricultural storm water runoff . More importantly, once a parcel of land comes under coverage of a chapter NR 243 nutrient management plan, the risk of pollutant runoff should be reduced.

Comment: The draft permit indicates only one or two groundwater monitoring wells will be required. This does not appear to cover enough of the broad area of wet soils in the proposed manure spreading area. Please explain in further detail how this requirement will be sufficient for the protection of down gradient users?

Response: The Department has retained requirements for production area groundwater monitoring. However, the Department has removed requirements for groundwater monitoring associated with land application activities. Given that (1) the presence of manure and process wastewater applications on “w” soils are a statewide issue not unique to Rosendale Dairy and (2) the potential difficulties in designing and implementing a groundwater monitoring regime for an individual operation’s land application activities, the Department believes that monitoring the effectiveness of best management practices in relation to “w” soils is best dealt with outside of the WPDES permit. The Department is committed, within the constraints of available resources, to convening stakeholder groups to develop a monitoring effort that will help to assess and address concerns associated with land application of manure and process wastewater on “w” soils on a statewide basis. This effort would likely require the involvement of agency (DNR, DATCP, NRCS) and University (e.g., Discovery Farms) experts to develop and implement an effective groundwater monitoring study to provide useful and timely information relevant to this issue.

Comment: The ground water monitoring well installation(s) will be required by Oct. 1, 2009. This is after the WPDES permit is planned for issuance Mar. 1, 2009. What are the consequences if that is not completed, and Rosendale Dairy already has 5,720 cows by Oct. 1, 2009?

Response: The department has every intention of ensuring that the ground water monitoring well installations are completed as required. Delays however, would not be expected to have any adverse environmental consequences, as the monitoring wells are designed to detect leaks, which are very unlikely in a new facility.

Comment: If groundwater in this area is susceptible and vulnerable to contamination should the spreading of liquid manure be allowed at all?

Response: Livestock operations spread manure in areas all across the state with varying levels of groundwater susceptibility to contamination. Where manure is applied according to an approved nutrient management plan, the risk of contamination is significantly reduced, and is accomplished safely in virtually all circumstances.

Comment: Perhaps, I'm showing my ignorance here, but since construction started with excavation, why were collection lines not installed under the WSF's during construction as is done with basements for homes? Since this or some other techniques for monitoring groundwater contamination risks were not included, it seems appropriate to require use of monitoring wells utilizing the NR243 authority (I.D.2).

Response: The technical standards for construction of waste storage facilities do not require installation of collection lines. However, DNR is requiring installation of a groundwater monitoring system at the production area to monitor the possibility of leakage from the waste storage facilities and any subsequent exfiltration to groundwater.

Comment: The table on page V-13 of the EIS, which summarizes impacts of the project, does not fairly characterize the benefits of nutrient management. The EIS correctly asserts that strict adherence to a nutrient management plan will reduce risks of manure discharge (both chronic and acute) (IV-15, IV-16, V-3), yet does not recognize the role of plans in protecting groundwater. For example, adherence to a nutrient management plan can reduce chronic delivery of nitrates to groundwater. Text describing impacts to wetlands, impaired water bodies, and the associated watersheds do not always come to the same conclusions.

Response: The Department concurs that adherence to nutrient management plans may provide water resource protection. With that said, however, the extent of protection is difficult to quantify.

Comment: The first four bullets on page 1-20 use unclear terms. Definitions should be provided for what high and low risk conditions are, the kind of monitoring that will be done and the sort of application results Rosendale should monitor.

DATCP suggests following NR243 and 590 in all of these situations.

Response: This information is specified in the nutrient management plan.

Comment: It appears that in the meetings with the haulers, the level of required documentation goes beyond the codes and DATCP recommends the farm receives commendations in situations where they are agreeing to exceed standards in order to protect water quality.

Response: While DNR does not necessarily agree that Rosendale has exceeded code and permit requirements, Rosendale may seek Green Tier status under recent legislation that provides recognition for bona fide superior environmental performance.

Comment: On page IV-37 it also states that the "dairy has purchased approximately 2,500 acres" but this number does not match the 1,831 acres as listed on page I-17 that the dairy owns. DATCP believes the EIS should be consistent throughout.

Response: DNR concurs.

Comment: Can't the number of animal units in this case be restricted to a lesser number?

Response: The permit already restricts the number of animals to $\frac{1}{2}$ the number originally proposed.

Comment: Can the DNR take a stance in their mission to protect Wisconsin resources, that this farm request is too excessive?

Response: The department is responsible to analyze a proposal and require a nutrient management plan and permit with requirements that are protective of water quality, which it believes it has accomplished.

Comment: The EIS states specifically "no boring logs showing depth to water have been provided." Apart from the obvious inconsistency, what basis does the department have regarding the depth to groundwater other than the application? There has been no independent confirmation.

Response: The EIS was incorrect in its assertion that no boring logs were provided. In fact over 150 borings were conducted. This has been addressed in the EIS Errors and Omissions section.

Comment: EIS p. IV-34. Maintaining the woodlot should be a permit requirement.

Response: DNR does not have permit authority to protect the entire woodlot. The Department does, however, have regulatory authority to protect the wetlands within the woodlot.

Comment: The WPDES permit provides that manure or process waste water may not be applied on areas of as field with a depth to groundwater or bedrock of less than 24 inches, but the EIS makes it clear the data necessary to assure compliance with this condition is not available.

Response: The operator is required to verify through adherence to guidance provided by the department that manure is not applied to ground where the depth to groundwater or bedrock is less than 24 inches.

Comment: What procedures do our state agencies have in place should the Rosendale Dairy compromise the integrity of our wells and the quality of our air and groundwater? What procedures are in place to follow in the event of a major disease outbreak as a result of unsafe or inadvertent agricultural practices? Based on the present EIS to my understanding there is no groundwater monitoring plan, the construction of some facilities has taken place previous to permit approval; fields with 'w' soils have not been identified in Mr. Olstrom's plan, nor have there been any procedures set for monitoring these local fields owned by local farmers and contracted out to Rosendale Dairy.

Response: Groundwater monitoring is required by the proposed permit around the production area. 'W' soils have been identified in the nutrient management plan. The department believes that the risk to wells is very small, as long as the operation adheres to the conditions in the nutrient management plan and the permit. If a well is contaminated from manure, that can be reasonably traced to a farm, the operator has, in the past, been held responsible for replacement of contaminated wells.

Comment: I talked to a geologist at USGS (Bill Batten 608-262-9903) and he indicated it has Karst characteristics. These have never been investigated or verified. The EIS does not adequately address soil profiles, depth to water table, whether fields are tiled, Karst features of areas to be spread and so on.

Response: NR 243 contains additional setbacks for spreading manure in karst areas. The evaluation of additional restrictions is part of the nutrient management plan review process. The proposed permit requires verification of the presences of tiles in fields prior to landspreading. 'W' soils have been identified in the nutrient management plan. The department believes that the risk to wells is very small, as long as the operation adheres to the conditions in the nutrient management plan and the permit.

Comment: These large CAFOs have the potential of lowering the aquifers, similar what has been done in western states by the number of irrigation wells. There is provision in DNR regulations dealing with the lowering of surface water, but not with ground water tables. In some areas of the state there are no large bodies of water, lakes, rivers or swamps that will potentially recharge ground water aquifers, but must depend upon seasonal rain and snowfall. EIS need to look at this issue as being critical for permitting. Not only water quality, but potential groundwater recharge rate needs to be addressed.

Response: Based on current test results, the department does not believe that the high capacity wells in use by the operation will adversely affect private wells. However, the department does not currently have the authority in law to provide protection for private wells from draw downs caused by high capacity wells operating in the vicinity.

Comment: Not to mention, what will happen to the groundwater when the very large manure pit on the Rosendale Dairy site begins to leak as we all know it will it time, unless you can show me concrete that doesn't crack.

Response: Leaks from manure pits occur very slowly and seldom impact groundwater to a great degree. The proposed permit has a requirement to design and install a groundwater monitoring system at the production area designed to provide early detection of any leakage so that corrective action can be taken prior to groundwater contamination.

Comment: The dairy should have to pay for a professional hydrogeologist (one picked by the town of Rosendale, not the dairy) to conduct an exhaustive study of the area's groundwater and groundwater flows. That report should be delivered (mailed) to every resident in the area who has as much as a 0.01% chance of suffering a noticeable contamination event, with additional time provided for comment on the study. In short, the dairy should bear the burden of proving that their waste management procedures are safe. Local taxpayers and individual property owners should not be left to face the prospect of contaminated drinking water.

Response: The department does not have the authority to require this.

Comment: The EIS does not adequately address the significant role of county government in overseeing this project. Even though DNR did not issue formal construction approvals (VI-1), the Fond du Lac County Land and Water Conservation Department (LWCD) gave critical approvals under the county animal waste storage facility ordinance. Working in cooperation with DATCP and the Natural Resources Conservation Services (NRCS), the county LWCD ensured that Rosendale Dairy's extensive manure storage and transfer system was designed according to NRCS technical standards. County staff also inspected the construction site to verify that structures built to date have satisfied standards.

The CAFO externalizes the risks and costs of air and water pollution by transferring them to area and downstream residents. A simple example of this is that despite the fact that the CAFO is located in an area with "relatively shallow soils over groundwater and is also close to areas where karst topography has been identified as a significant concern," local residents are left to fend for themselves in monitoring their private wells. The DNR should require the dairy to inspect and sample area wells for baseline and ongoing water quality. The EIS would benefit from a discussion of local efforts to assess groundwater quality. The DNR recommends landowners test their wells yet makes no connection to ongoing local efforts. In March 2008 the Town of Rosendale held a meeting where Clean Water Technologies LLC offered discounted pricing for testing town resident's well

water for contaminants. At the county level, UWEX coordinated the Fond du Lac County Groundwater Quality Advisory Council, which hosted meetings last year to formulate recommendations to protect groundwater quality, including manure management <http://www.uwex.edu/ces/cty/fonddulac/cnred/WaterQuality.html>. The Fond du Lac County Code Enforcement Office routinely offers well testing assistance to residents; including tests completed in the Town of Rosendale after last years spring flooding.

Response: A good job of making the point.

Comment: The Town of Rosendale's issuance of a building permit to Rosendale Dairy under the town zoning ordinance is omitted; however, the DNR concludes that the site appears to meet the intent of local zoning (IV-35). There is no discussion of the relationship between the building permit issued the operation and the town's livestock facility siting ordinance. Specifically a siting permit was not required of the facility, because the town siting ordinance was adopted after this greenfield project started. Much space is given to traffic volumes and the safety of Highway M, yet there is no mention of the town ordinance which regulates traffic and potential damage to roads.

Response: A good job of making the point.

Comment: The final paragraph in section I.E.2.d on page I-20 states "...applying manure and process wastewater to fields as a fertilizer for plant uptake only...significantly reduces the risk for nutrient pollution...". It is unclear if DNR is limiting nutrient applications to "plant uptake only" and not UW recommendations as stated in 590. The current UW recommendations are not based on crop removal and requiring such would allow more N to go on certain crops. DATCP recommends the nutrient recommendations in 590 and NR243 are followed.

Response: Thank you for a good and valid observation.

Comment: If any existing fields slated to receive manure are not currently following a nutrient management plan, the Rosendale Dairy's nutrient management plan will positively impact the environment. The fields already receive some type of fertilizers: either manure (V-2) or only commercial fertilizer (I-19). Regardless, the EIS makes it clear that implementation of NRCS 590 and NR243 requirements will provide a better level of nutrient management than currently practiced on these fields (I-18, V-2), in contrast to what is stated in the summary table on V-13.

Response: Thank you for your comment.

Comment: Page III-37 there is another opportunity to recognize Rosendale Dairy for planning ahead with water quality in mind by purposely not purchasing fields adjacent to 303(d) listed waters in order to avoid further contamination. The EIS should also discuss the requirements in NR243 near these impaired waters. A map should also be provided indicating where 303(d) waters are in relation to Rosendale Dairy and their spreading sites and list why they are impaired.

Response: A map of 303(d) listed waters is available on the DNR web site. This discussion occurs as part of the nutrient management plan.

Comment: Page III-37 contains the following statement: "Water quality is generally poor due to nutrient enrichment and sediment deposition from runoff pollution." However, the EIS neglects to state that the nutrient management plan should reduce both of these by requiring nutrients to be applied according to UW-recommendations and requiring that credits are being taken for manure and legumes. Sediment loadings to streams should be reduced by requiring fields to meet tolerable soil loss and protect gully erosion.

Response: Thank you for making a good and valid observation.

Comment: On page V-8 the 3rd full paragraph state that Rosendale Dairy "...is also close to areas where karst topography has been identified..." The EIS should indicate how close these areas are to Rosendale Dairy's planned acreage as DATCP believes any risk for karst features is several townships to the East and south of the town of Rosendale. The EIS should also explain how NR243 protects karst areas because the EIS goes on to say, in reference to the identified karst and increased potential for impacts to groundwater, that DNR "...will be evaluating the need for additional restrictions on land application activities as part of the WPDES permit issuance process." The EIS should explain how DNR will be evaluating this and how CAFO's in areas that have identified karst features on their property's are being handled by DNR.

Response: NR 243 contains additional setbacks for spreading manure in karst areas. The evaluation of additional restrictions is part of the nutrient management plan review process.

Comment: If our goal is to improve our state economy based on the dairy industry, how can we justify compromising the integrity of residential wells and the quality of groundwater that charges them? Assuming the residential wells have been checked by a certified well inspector, and the water sampled regularly, what control would the homeowner have over any outside insult to the integrity of the well or the groundwater entering in from the local area should it be contaminated with chemicals, bacteria, or toxins?

Response: Proper well construction with adequate casing depth is paramount to protecting drinking water supplies. The department has placed requirements and restrictions in the proposed nutrient management plan and the proposed permit to significantly minimize the risk of well contamination. If a test finds contamination from manure, that can be reasonably traced to a farm, the operator has, in the past, been held responsible for replacement of contaminated wells.

Comment: Site specific groundwater information for each known spreading site is not available.. Thin unconsolidated deposits overlying the fractured bedrock aquifer or elevated water table makes groundwater in this area susceptible to contamination.

Because the aquifer is vulnerable to contamination, it is recommended that wells be inspected and tested for nitrate and bacteria annually or if a change is detected in the taste, color or smell of the water.

One paragraph deserves a full reprinting. "A review of well driller construction reports for wells within adjoining sections of known spreading sites indicated a large number of wells, which are cased to relatively shallow depth. Also included are wells that represent a dual aquifer well. A dual aquifer well is well that has open borehole through or into different geological formations and is not cased through the different geological formations. There, contaminants that are able to access an upper aquifer are also able to contaminate a lower aquifer by moving downward through the borehole" Unbelievably this is stated with no further recommendation. Another red flag for the risk of ground water contamination and the total inability for a private landowner to prevent. Another example of poor location for Rosendale Dairy.

Response: Dual aquifer wells, and wells with shallow casing are not unique to this area. Permitted livestock facilities operate in other areas of the state with these types of wells with no impact to the drinking water.

Comment: As I recommended permanent water quality monitoring sites at some field and lift pump sites, it also seems logical to utilize elements of the leachate collection systems (feed and sweet corn I.C.3) and the WSF 1 and 2 perimeter drain be adopted for use as part of a formal monitoring system.

Response: The proposed permit requires design and installation of a groundwater monitoring system at the production area.

Comment: Perhaps the water withdrawal issue is a subject for a separate permit, but we see a connection between that and this EIS. If water is drawn down by withdrawals, there will be a higher concentration of pollutants from discharges (less dilution); we note that the EIS does state a concern about the drawing down of contaminants into the aquifer (pages 111-16 and IV-16), but has there been any analysis of a kind of suction effect from the combination of withdrawals and discharges in a limited area? Could this result in contamination of wells in some areas while others are unaffected? Perhaps we missed it, but we don't see any analysis that addresses this important issue. For example, in the section on environmental impacts, there is a listing of municipal and other wells (pages IV-29-30) without any discussion of whether or how they could be impacted, and what would happen if they were. In terms of aquifer water flow and well depth, which wells are safe, and which are at risk?

Response: The department believes that the risk to wells is very small, as long as the operation adheres to the conditions in the nutrient management plan and the permit.

Comment: Ground water- we understand they will be using 52 million gallons of water per year per 5700 animal units (phase 1). What happens to the area wells and ground

water levels? Who is held responsible if my well dries up or is contaminated? Average water table is within 1 foot of surface in Fond du Lac county.

Response: Based on current test results, the department does not believe that the high capacity wells in use by the operation will adversely affect private wells. However, the department does not currently have the authority in law to provide protection for private wells from draw downs caused by high capacity wells operating in the vicinity.

Comment: There does not seem to be a detailed consideration of the ability of the aquifer involved to sustain the large water withdrawals

Response: Well tests to date have not shown that the aquifer cannot supply the volume of water needed.

Comment: While there is a map showing water subterranean water flows (Figure 13), it is on a large scale, and does not show detail in the area of the RD or where manure will be spread.

Response: Detailed maps of aquifers of the sort described here do not exist for this area.

Comment: Rosendale Dairy needs to be held responsible for private well testing and replacement if necessary.

Response: The department recommends that private well owners should test their wells at least annually regardless of the proximity of a Concentrated Animal Feeding Operation. If a test finds contamination from manure, that can be reasonably traced to a farm, the operator has, in the past, been held responsible for replacement of contaminated wells.

Comment: Is there any provision for notifying area homeowners of the method, frequency and day and time manure will be spread on fields adjacent to private residences?

Response: The department has no authority to require this. Rosendale Dairy, however, has indicated their intent to notify all neighbors within 1 mile of the dairy 3 days before agitation and emptying of the facilities commences.

Comment: Who do landowners and homeowners contact with complaints related to the issues noted above? It would seem prudent to provide contact numbers for the dairy, the DNR and Fond du Lac County departments with which to file complaints related to the operation of a mega farm.

Response: Rosendale Dairy can be contacted at 920-371-4861. The Department's NE Region contact responsible for Rosendale Dairy is Liz Spaeth-Werner who can be contacted at 920-303-5426 or at Elizabeth.spaethwerner@wisconsin.gov. For reporting

of spills, the Spills Hotline number is 800-943-0003. The Department also has a complaint hotline number: 1-888-936-7463.

Comment: The EIS statement states that no soil borings had been done at the site of the buildings, so we'll never know the groundwater situation there. Yet Rosendale Dairy stated they did over 200 borings- why would they not include this critical site? The EIS states that some fields are up to 90% "W", with so much marsh land in the immediate area why would they even see this as a suitable site.

Response: This inconsistency is corrected in the EIS Errors and Omissions section.

Air Quality:

Comment: The Department received a number of comments on the air quality portions of the EIS for the Rosendale Dairy. The majority of these air related issues covered the following:

- Commenters raised general concerns about odor, ammonia, hydrogen sulfide, volatile organic compounds (VOC), and/or particulate matter (PM) causing negative health and environmental effects;
- Commenters assert the Department did not adequately quantify or qualify air emissions for the Rosendale Dairy project and at least one commenter provided information to support this claim;
- Commenters stated the Department must require Rosendale Dairy to implement specific measures to address and/or mitigate air emissions, such as requiring anaerobic digesters and/or waste storage facility covers for the project;
- Commenter stated the Department must issue an air quality permit to Rosendale Dairy because they are an industry and would otherwise exceed "standards" or permitting thresholds;
- Commenter suggest the Department require baseline air quality monitoring at Rosendale Dairy and during operation of Rosendale Dairy;
- Commenters assert the Department has the authority under chs. NR 405, 406 and 407, Wis. Adm. Code to issue air quality permits.

Response: In response to continued concern about the impact of air emissions from Rosendale Dairy, a more detailed review of the dispersion modeling was performed and is included below. This review provides a more refined assessment of the expected impact from ammonia emissions, the hazardous air contaminant most likely to be a cause of concern from the Rosedale operations.

The Department lacks the authority to require air quality baseline monitoring at Rosendale at this time. However, the Department does recognize the need for agriculture related monitoring information, and as such has been participating in an air monitoring study with DATCP since 2005. This study assesses odors as well as hydrogen sulfide and ammonia concentrations related to waste lagoons at six large dairy farms in different parts of the state. This study is in the final phases, and a complete final report will be available after July of this year.

As stated in the EIS, the Department has not adopted the methodology or programs of other states with regard to dairy and air quality permitting. Instead, the Department has decided to coordinate its work in this area with the outcome of US EPA's national concentrated animal feeding operations (CAFO) monitoring effort, of which Wisconsin is part.

Potentially applicable permitting thresholds are contained in Chs. NR 405, 406 and 407 Wis. Adm. Code. These authorities were inadvertently left out of the authorities listed in the EIS, on page II-2. However, permitting thresholds under Chs. NR 406 and 407 were listed in the EIS on page IV-6, although s. NR 405.02(22)(a)2, was also inadvertently left out.

Chs. NR 406, 407, and 445 contain provisions that allow a source to exclude emissions of hazardous air contaminants associated with agricultural waste in determining the need for an air permit until July 31, 2011. These provisions apply to hazardous air contaminants only and do not apply for criteria pollutants such as PM or VOCs or to PSD major source permitting thresholds contained in Ch. NR 405, Wis. Adm. Code.

Information describing criteria and hazardous air emissions from animal agriculture, including dairy operations, is available in studies done internationally, nationally, and in Wisconsin. Some of the information does not apply to the type of operations at Rosendale and some is contradictory. Furthermore, there is no final guidance from US EPA regarding quantification of these emissions from dairy operations. Hence, there is considerable difficulty in using the information at this time to properly estimate emissions, determine applicable standards, and establish control requirements for dairy operations.

To our knowledge, emissions from dairy operations have not been regulated nationally under the New Source Review Prevention of Significant Deterioration or Title V permitting programs. We are aware of other states permitting these types of operations under their own state programs. However, we have not fully evaluated either the rationale for these other states decisions or the appropriateness of their permitting thresholds.

The Air Management Program is moving forward on this important environmental issue concurrently with the national monitoring study. There are more than 13,000 dairy operations in Wisconsin. Of these, less than 200 have greater than 700 head. Rosendale Dairy with Phase 1 is among the dozen or so operations with 4000 head or greater in Wisconsin. Regulatory decisions on permitting, applicable standards and ways to mitigate

the impact on the environment from animal agriculture emissions will need to consider the type and size of these operations, as well as the results of the national emissions study.

Comment:

At least one commenter stated the Department should have evaluated the air pollutant methanol, a volatile organic compound (VOC) and Federal Hazardous Air Pollutant, emitted from the Rosendale Dairy operations.

Response:

While there may be limited evidence in the literature regarding methanol emissions from dairy operations (research at UC Davis), the science is still emerging. To our knowledge, no state has made a regulatory decision based on methanol emissions nor has the US EPA published or cited information to suggest this pollutant could exceed 10 tons/year. The Department will continue to evaluate information on methanol and other air emissions from dairy operations as the information becomes available.

CORRESPONDENCE/MEMORANDUM

DATE: January 19, 2009
TO: Andrew Stewart – AM/7
FROM: John Roth – AM/7
SUBJECT: Air Dispersion Modeling for Rosendale Dairy - Rosendale

Rosendale Dairy is proposing to construct a confined animal feeding operation (CAFO) in Rosendale Township in Fond du Lac County. The proposal will include up to two large barns and three waste storage ponds on the property. Below is a summary of the dispersion modeling efforts.

- In September 2008, Tom Bauman (DNR Waste Bureau) requested an air dispersion analysis for ammonia (NH_3) and hydrogen sulfide (H_2S) from the proposed Rosendale Dairy in support of an environmental assessment (EA).
- A review was performed of the available emission factors for ammonia and hydrogen sulfide from large dairy farms, and a wide range of estimates was found. Details on the emission estimates are provided below.
- Due to the broad emission ranges and the limited data provided about the physical parameters of Rosendale Dairy, it was decided to perform dispersion modeling using the same information as was used in a previous CAFO analysis of Maple Leaf Dairy. Maple Leaf Dairy was the first and only time dispersion modeling was performed for a CAFO prior to Rosendale Dairy.
- The results contained in the September 15, 2008 memorandum predict a potential exceedance of the Wisconsin 24-hour ammonia standard both in Phase 1 and in Phase 2 of the Rosendale project.
- In October 2008, comments were received by the DNR from Milksource, owners and operators of Rosendale Dairy. These comments included a modeling analysis of ammonia emissions commissioned by Milksource and performed by Conestoga-Rovers & Associates that demonstrated attainment of the standards.
- Air Management review of the Milksource submittal found no significant concerns with the analysis, and the conclusion that the standards would be attained was accepted.
- In early December 2008 the DNR began preparing an Environmental Impact Statement (EIS) for the Rosendale Dairy rather than an environmental assessment. Air Management compiled qualitative information with respect to impacts of air emissions from CAFOs without performing revised dispersion modeling.
- In January 2009 due to continued concern about the impact of air emissions from Rosendale Dairy, a more detailed review of the dispersion modeling provided by Milksource was performed.

The following sections provide a response to the Milksource comments from October 2008, and include additional sensitivity analyses related to the ammonia emissions from Rosendale Dairy.

January 2009 Air Dispersion Modeling

On October 14, 2008 Milksource LLC submitted comments related to the September 15, 2008 DNR air dispersion modeling analysis. In summary, the Milksource comments questioned the emission rates used by the DNR, the placement of receptors, the method used to estimate ground elevations, and the nature of the emission sources. Each of these four components is responded to below, followed by the documentation for the January 2009 DNR modeling analysis.

Ammonia Emission Rates

There is a wide variety of emission factors available to estimate ammonia emissions from agricultural operations. Most of the ammonia emissions are expected from the housing of animals so the discussion is centered on this process. Milksource provided information from six different sources, including the data used by the DNR. The table below details the estimates.

ROSENDALE AMMONIA EMISSION RATES Animal Housing (2 Barns)	
Source of Emission Factor	Rate (#/hr)
Ganzer Report (used in 9-15-08 DNR analysis)	31.44
USEPA 2001 AFO Report	21.00
U of Iowa 2002 AFO Study	33.00
Idaho 2005 Dairy Study	16.90
Kansas State 2007 Barn Study	21.20
North Carolina 2002 Waste Handling Study	24.45
AVERAGE	24.67

Note: Full citations of all reports are available in the Milksource comments

The Milksource modeling used the average rate from the six studies, but did not provide justification for doing this, other than quoting the uncertainty. Since these six estimates do not represent the entirety of the possible emission rates, it is equally likely that any one rate may be correct rather than the average. For these reasons, the January 2009 DNR modeling will consider both the initial Ganzer rate and the Milksource reported average rate.

In addition to the animal housing (two barns), there will be up to three waste storage lagoons on the Rosendale property. These will also emit ammonia and the total yearly emissions from the entire Dairy were computed. The facility will be built in two phases, and Milksource is proposing to cover two of the three storage lagoons in the second phase. The table below details the annual ammonia emissions from the phases, assuming both covered and uncovered lagoons and using both the Ganzer estimate for the barns and the Milksource estimate.

ROSENDALE AMMONIA EMISSION RATES		
Annual Emissions (tons per year)		
Phase/Options	Rate (Ganzer)	Rate (Milksource)
Phase 1 (One Barn, Waste Lagoons 1 & 2)	101.5	86.7
Phase 2 Proposed (Two Barns, Waste Lagoon 1)	145.6	115.9
Phase 2 Worst-Case (Two Barns, Three Lagoons)	192.6	162.9

Receptor Placement

Milksource questioned the placement of receptors in the initial DNR modeling analysis. Compliance with the Wisconsin ammonia standard is measured at the property boundary. During the September 2008 initial analysis, the full Rosendale property boundary was not provided, so a conservative estimate was used. The October 2008 Milksource modeling contained the property owned by Rosendale, including parcels located across public roads. Receptors were removed from the entire area owned by Milksource, without regard for roads. While receptors can be removed from the parcels owned by Milksource, they must remain on the public road network. Therefore, the January 2009 DNR modeling will consider a property boundary of Rosendale that is constrained by the public road network.

Determination of Terrain Elevation

Milksource questioned the DNR inputs to the terrain processor AERMAP. Milksource stated that the DNR terrain elevations from AERMAP were incorrect because the digitized elevation data is in NAD27, while the DNR locations are in NAD83. The Milksource statement is an incorrect assumption of the input to AERMAP.

The surface of the earth is a sphere and when mapping the curved surface to a flat projection (for mapping purposes) certain assumptions are made. The projection allows X- and Y-coordinates to be calculated for each point on the globe, while accounting for the curvature of the earth. The X- and Y-coordinates then can be used within the dispersion model. The map datum corresponds to the year and geographic center of the projection. The North American Datum of 1927 (NAD27) is commonly used in United States Geologic Service (USGS) topographic maps and in the USGS digitized elevation models (DEM). However, most aerial photos available on the world wide web use the North American Datum of 1983 (NAD83). For a given point on the ground, the X- and Y-coordinate using NAD27 is different than when using NAD83 due to the different projections. Therefore it is important to keep track of the datums to insure consistency.

The locations in the September 2008 DNR analysis were derived using aerial photos in NAD83. Although the DEM files are in NAD27, the current version of AERMAP converts the coordinates within the program to provide the correct terrain elevation for each point. The DEM file contains a marker that indicates to AERMAP the datum. The input file to AERMAP contains a field where the user identifies the datum of the points. AERMAP converts the coordinates to insure consistency and outputs the proper value. Comparing the AERMAP output to topographic maps of the area confirms this. Therefore the terrain elevations derived by the DNR will be used in the January 2009 analysis.

Nature of Emission Sources

In the October 2008 comments, Milksource provided details on the nature of the emission releases from the animal housing units. The initial DNR analysis assumed that the barns would be open on all sides and thus

modeled the emissions as volume sources. Milksource stated that the barns will be enclosed and ventilated by many fans on one side of each barn. Their modeling used multiple horizontally released point sources and this will be used in the January 2009 DNR analysis. To simplify the modeling, one modeled source represents six actual sources. Since the fans are all identical, this is acceptable. However, Milksource incorrectly summed the area of the six stacks and used this for the diameter of each modeled stack. Unless the sources are vented to a common location, the modeled stack should have the parameters of a single actual stack. Further, the Milksource analysis did not account for building downwash. Therefore, the January 2009 DNR analysis will assume 12' stack height with the diameter of one fan, and 20' average barn height.

In addition, Milksource modeled the waste storage lagoons as area sources, but in the second phase they assumed that two of the three lagoons would be covered. To provide a range of impacts and sensitivity, the January 2009 DNR analysis will examine multiple scenarios with lagoons both covered and uncovered.

Dispersion Modeling Inputs

- Two different ammonia emission scenarios were modeled, corresponding to the Ganzer estimate (15.72 #/hr per barn) and the Milksource estimate (12.38 #/hr per barn). All sources were assumed to emit 24 hours per day.
- It was assumed that the barns are ventilated by fans blowing out the sidewall of each barn with 12' above ground stack height. Thirty-three (33) stacks were modeled for each barn. Building downwash was accounted for using BPIP-PRIME and assuming an average barn height of 20'.
- The waste storage ponds will be flat surfaces open to the air, so these were characterized as area sources. One rectangular area source was assumed for each pond. The total surface area as given on the plot plans was used to calculate the total emission rate, and the identical rate per unit area was modeled for each of the three area sources. Further, a small berm was assumed around each basin so that the modeled height is 2' above ground.
- The AERMIC Model (AERMOD) model was used in the analysis, with rural dispersion coefficients and the regulatory default options. These allow for calm wind and missing data correction, buoyancy induced dispersion, and building downwash including recirculation cavity effects.
- Five years (1998-2002) of preprocessed meteorological data was used in this analysis. The surface data was collected in Juneau (UNU), and the upper air meteorological data originated in Green Bay.
- Receptors were placed around the facility along the property boundary, as modified by the roadway network. Terrain elevations as derived from AERMAP were included. Please refer to Figure 1 for details.

Modeling Results

Results are provided for multiple scenarios and different groups of sources, including both covered and uncovered lagoons. Please note that the Wisconsin 24-hour ammonia standard is 418.0 $\mu\text{g}/\text{m}^3$ and the annual ammonia standard is 100.0 $\mu\text{g}/\text{m}^3$.

ROSENDALE AMMONIA MODELING RESULTS		
Concentrations (micrograms per cubic meter)		
Ganzer Emission Estimates		
Phase/Options	24-hour	Annual
South Barn (SB) Only	308.8	28.6
SB, Waste Lagoon 1 (WSF1)	368.4	30.1
SB, WSF 1 & WSF 2 (Phase 1)	368.4	32.4
SB, North Barn (NB)	416.9	48.6
SB, NB, WSF1 (Rosendale Phase 2)	421.3	50.0
SB, NB, WSF1, WSF2	434.1	52.7
SB, NB, WSF1, WSF2, WSF3	577.5	58.6

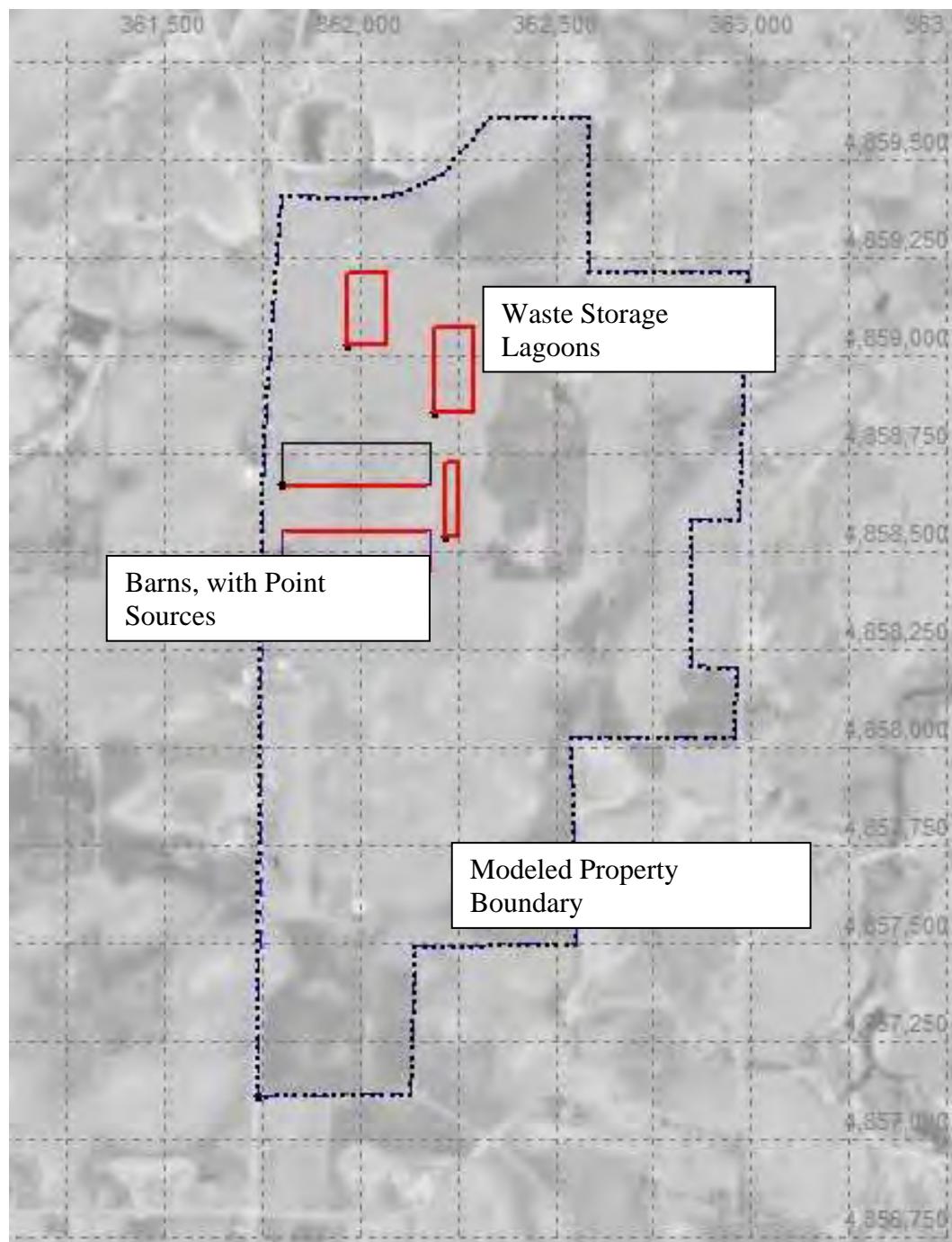
ROSENDALE AMMONIA MODELING RESULTS		
Concentrations (micrograms per cubic meter)		
Rosendale Emission Estimates		
Phase/Options	24-hour	Annual
South Barn (SB) Only	257.4	23.8
SB, Waste Lagoon 1 (WSF1)	317.0	25.3
SB, WSF 1 & WSF 2 (Phase 1)	317.0	27.6
SB, North Barn (NB)	347.4	40.5
SB, NB, WSF1 (Rosendale Phase 2)	358.6	41.9
SB, NB, WSF1, WSF2	375.8	44.6
SB, NB, WSF1, WSF2, WSF3	576.1	50.5

Source Parameters

ROSENDALE DAIRY – FOND DU LAC COUNTY						
Ammonia Emission Rates & Point Source Parameters						
ID	LOCATION (UTM83)	HEIGHT (M)	DIAM (M)	TEMP (K)	Ganzer Rate (#/hr)	Rosendale Rate (#/hr)
South Barn	33 Point Sources (361816, 4858577) To (362168, 4858577)	3.66	1.62	299.8	15.72	12.38
North Barn	33 Point Sources (361816, 4858673) To (362168, 2858673)	3.66	1.62	299.8	15.72	12.38

ROSENDALE DAIRY – FOND DU LAC COUNTY Waste Storage Emission Rates & Area Source Parameters					
ID	LOCATION (UTM83)	HEIGHT (M)	X-Dimen (M)	Y-Dimen (M)	NH ₃ RATE (g/s-m ²)
WSF1	362217, 4858542	0.61	36.58	189.0	3.286E-5
<i>Waste Storage Basin #1 Total Emission (#/hr)</i>					<i>1.80</i>
WSF2	362192, 4858857	0.61	99.06	219.2	3.286E-5
<i>Waste Storage Basin #2 Total Emission (#/hr)</i>					<i>5.66</i>
WSF3	361966, 4859027	0.61	103.6	187.5	3.286E-5
<i>Waste Storage Basin #3 Total Emission (#/hr)</i>					<i>5.07</i>

Figure 1
DNR January 2009 Dispersion Modeling Layout



Errors and Omissions

I. Project description

I.A. Paragraph 4, page I-1

Revise the sentence as follows:

The primary purpose of the Rosendale Dairy project is the production of milk and beef.

I.C.5. Paragraph 1, page I-5

Revise the first sentence as follows:

The proposed facility will require high capacity wells to supply an estimated 52.5 million gallons of water per day year.

I.C.5. Figure 3, page I-5

An incorrect map was inserted as figure 3 to illustrate the locations of the two high capacity wells WL980 and WN180 is on the last page of this document, and should be substituted for figure 3 on page I-5.

I.C.7. Paragraph 1, page I-8

Replace this paragraph with the following:

A private on-site domestic sewage system is designed to serve the 70 or so employees at Rosendale Dairy. Rosendale Dairy has indicated that domestic wastewater will be handled through an engineered mound system. Rosendale Dairy has applied for and received a sanitary permit for a mound system from Fond du Lac County. State and county licensed engineers and installers will be used to plan and construct the system.

I.D.2. Paragraphs 1 and 2, page I-9

Revise these paragraphs as follows:

~~There is no groundwater monitoring planned at the site.~~ Under NR 243, groundwater monitoring could be required for the manure storage lagoons and the spreading sites, ~~No~~ Soil borings were available to determine depth to groundwater or bedrock at the site prior to construction of the storage lagoons. ~~These~~ ~~B~~boring~~s~~ would show if established that the finished elevation of the bottom of the storage lagoons is were 3 feet from the water table as required in NRCS 313.

Waste Storage Facilities – ~~It is presumed that the g~~Groundwater separation distances for all of the waste storage facilities (WST1, WSF2 and WSF3) meet or exceed the requirements contained in NRCS Practice Standard, Code 313 Waste Storage Facility. All of the waste storage facilities are designed with water tight concrete liners and meet the requirements of NR 243.15.

I.D.2. Paragraph 3, first sentence, page I-9

Revise the first sentence of this paragraph as follows:

While all of the required separation distances are satisfied, a perimeter drain line around the eastern footprint of WSF1 and WSF 2 has also been designed. was installed on the east side of WSF 1 and on the east side of WSF 2 approximately ten feet east of the lower end of the sidewall and one foot below the floor level of the storage structures.

I.D.2. Paragraph 4, page I-9

Revise this paragraph as follows:

Feed Storage Structures – As mentioned above, both the feed storage pad and the sweet corn storage pad bunker have individual leachate collection and transfer systems to minimize potential impacts to the environment.

I.D.2. Paragraph 5, page I-9

Revise the first sentence of this paragraph as follows:

The feed pad leachate collection system is designed to collect all leachate and the first flush runoff from the feed pad and convey it to WST 2.

I.D.2. Paragraph 6, page I-10

Revise this paragraph as follows:

The sweet corn silage pad bunker leachate collection system has been designed with a concrete floor and 12 foot high precast concrete walls. The concrete will be protected using a high quality cure designed to protect against low pH products. All joints are sealed to prevent exfiltration of leachate. In addition, the sweet corn pad bunker has a below grade tile drainage system to further protect groundwater. Drain lines are installed around the perimeter and beneath the concrete slab. The drain tile lines lie on top of a 1.5-foot thick clay base. The clay exceeds the minimum requirements set forth in NR 213.10 and NR 213.11. The clay liner will impede vertical movement of any leachate that seeps through the concrete. Any liquids will flow into the tile lines and gravity flow to the HDPE pump sump and be transferred into WSF 3 for storage. All runoff from the sweet corn silage pad bunker will be collected and conveyed to WSF 3. When the rate of runoff exceeds the pumping capacity of the transfer pump, the runoff level in the transfer structure will rise until the overflow is reached. The overflow will discharge runoff to the HDPE lined equalization basin by gravity. Eventually, the runoff in the equalization will also be pumped into WSF 3. Thereby, All runoff from the sweet corn silage pad bunker will be collected and conveyed to WSF 3.

I.E.1.c. Paragraph 2, page I-12

Revise this paragraph as follows:

No hormones or antibiotics are used on animals prophylactically. Animals that are sick become ill will be treated as needed, including the use of antibiotics using established treatment protocols developed by the herd veterinarian. All treatments that include the use of antibiotics will be under the direction of the herd veterinarian.

I.E.2.c. Paragraph 7, page I-17

Revise the estimated combined animal units for Phase II from 11,200 to 11,500.

I.E.2.c. Paragraph 8, page I-17

Revise this paragraph as follows:

The NMP accounts for all nutrient sources, including soil reserves, commercial fertilizer, manure, organic byproducts and crop residues to ensure proper utilization and protection of water quality. The NMP is written to ensure all manure and process wastewater applied to fields is ~~incorporated into the soil as a fertilizer available as a fertilizer for plant uptake, either through tillage or injection into the soil, or top dressing on growing alfalfa fields,~~ thus significantly reducing the potential for nutrient pollution of surface or groundwater.

I.E.2.e. Paragraph 1, first two sentences, page I-20

Revise the first two sentences in paragraph 1 as follows:

A leachate collection and storage system is utilized to collect and ~~treat store~~ the leachate and first flush runoff coming from the feed ~~bunkers pad~~. Leachate and first flush runoff is collected in the leachate collection system and transferred into WSF 2, a concrete lined waste storage pumped into the earthen manure storage facility.

I.E.2.e. Paragraph 1, lines 7 and 8, page I-20

Revise the following sentence starting on line 7 and continuing on line 8:

Both the feed storage pad and the sweet corn ~~pad~~ bunker have individual leachate collection systems.

I.E.4.a. Paragraph 3, fifth sentence, page I-23

Revise the fifth sentence of the Post construction paragraph as follows:

The storm water conveyance system, and each wet detention basin will be inspected ~~a minimum of two times each year~~ weekly.

I.E.4.c. Paragraph 2, page I-24

Revise this paragraph as follows:

~~It is presumed that the~~ Groundwater separation distances for all of the waste storage facilities (WSF1, WSF2, and WSF3) meet or exceed the requirements contained in NRCS Practice Standard, Code 313 Waste Storage Facility. All of the waste storage facilities are designed with water tight concrete liners and meet the requirements of NR 243.15.

I.E.4.c. Paragraph 4, page I-24

Revise this paragraph as follows:

Feed Storage Structures – As mentioned above, both the feed storage pad and the sweet corn ~~storage pad~~ bunker have individual leachate collection and transfer systems to minimize potential impacts to the environment.

I.e.4.c Paragraph 6, page I-25

Revise this paragraph as follows:

The sweet corn ~~silage pad~~ bunker leachate collection system has been designed with a concrete floor and 12 foot high precast concrete walls. The concrete will be protected using a high quality cure designed to protect against low pH products. All joints are sealed to prevent exfiltration of leachate. In addition, the sweet corn ~~pad~~ bunker has a below grade tile drainage system to further protect groundwater. Drain lines are installed around the perimeter and beneath the concrete slab. The drain tile lines lie on top of a 1.5-foot thick clay base. The clay exceeds the minimum requirements set forth in NR 213.10 and NR 213.11. The clay liner will impede vertical movement of any leachate that seeps through the concrete. Any liquids will flow into the tile lines and gravity flow to the HDPE pump sump and be transferred into WSF 3 for storage. When the rate of runoff exceeds the pumping capacity of the transfer pump, the runoff ~~level in the transfer structure will rise until the overflow is reached.~~ The overflow will discharge ~~runoff~~ to the HDPE lined equalization basin by gravity. Eventually, the runoff in the equalization will also be pumped into WSF 3. Thereby, all runoff from the sweet corn ~~silage pad~~ bunker will be collected and conveyed to WSF 3.

II. Authorities and approvals

II.A. Third bullet point, page II-1

Revise this sentence as follows:

Storm water discharges from Rosendale Dairy construction sites ~~is~~ are regulated...

II.C. Paragraph 2, page II-2

Add a second paragraph as follows:

The Town of Rosendale requires:

- Building permit
- Restrictions on vehicle traffic during certain times of the year to reduce damage to roads.

III. Existing Environment

IIIA.2.e.01 Paragraph 1, second sentence, page III-30

Revise the sentence as follows:

There is a wetland within the woodlot on the east side of the site as well as a small wetland to the north.

III.A.2.e.02. Paragraph 6, line 2-4, page III-32

Revise the sentence starting on line 2 of paragraph 6 as follows:

The sweet corn ~~pad~~ bunker and Waste Storage Facilities, which constitute 22.20 acres of the site, are considered no-runoff areas since stormwater falling on or into them is contained and does not contribute to the flow of either stormwater basin.

III.A.2.f. Paragraph 1, page III-33

Revise this paragraph as follows:

According to the application, depth to groundwater at the site average 12 feet and ranged from 4 to 10 feet below the ground surface. ~~No boring logs showing depth to water have been provided.~~

III.A.4.a. Paragraph 3, page III-35

Revise the estimated combined animal units for Phase II from 11,200 to 11,500

III.B.c.01. Paragraphs 1 and 2, page III-57

Revise these paragraphs as follows:

Within approximately one mile of the dairy site, there are about 24 family residences. The majority of them are one quarter mile or further apart. Four of the residences closest to Rosendale Dairy were purchased by ~~Milksouree~~ Rosendale Dairy. They are all located along County Road M – one directly across the road to the west, two due south of the dairy on the same side of the road, and the fourth is the first residence north of Triangle Road on the west side of County Road M.

The remaining two residences closest to the dairy site not owned by ~~Milksouree~~ Rosendale Dairy are about a quarter mile north of the north property line and south of the south property line. There are several residences also located directly adjacent to the fields which will be used for landspreading.

IV. Environmental Effects

IV.A.1.e. Paragraph 1, pages IV-4 and IV-5

Revise this paragraph as follows:

There is a potential for increased nitrate and bacteria contamination in private wells in the vicinity of the dairy and spreading sites. Available private well construction reports show that the upper dolomite (Galena-Platteville) and the St. Peter sandstone in particular, are the main sources of drinking water ~~for the area and the in rural western Fond du Lac County. In western this part~~ Fond du Lac County, the glacially deposited sediments are relatively thin (0 to 70 feet), overlying the dolomite. Groundwater flow in the dolomite is via fractures and bedding planes with very little attenuation of contaminants. There is a moderately strong downward flow gradient from the Galena-Platteville dolomite into the underlying St. Peter sandstone. Once contamination reaches the dolomite, it will be able to move quickly along these bedding planes and fractures into to the St. Peter sandstone. ~~In Wells finished in the St. Peter formation would have a substantially increased risk of, contamination will be pulled into the lower aquifers by strong downward gradients that exist in this area. Once this happens, and~~ contamination could become widespread.

IV.A.1.e. Paragraph 3, page IV-5

Revise this paragraph as follows:

The facility will require a private on-site domestic sewage system to serve the employees. Improperly designed or maintained on-site systems have the potential to impact local groundwater. County permit conditions are in place to assure proper design, construction and maintenance of such systems. ~~Thus far, no permit has been issued by Fond du Lac County for the private sewage system. It has been determined this site is not suitable for a conventional septic system. The other options are construction of a mound septic system or installation of a holding tank. Fond du Lac County does not allow the construction of mound septic systems on disturbed sites and currently does not issue permits for holding tanks.~~ Rosendale Dairy has indicated that domestic wastewater will be handled through an engineered mound system. Rosendale Dairy has applied for and received a sanitary permit for a mound system from Fond du Lac County. State and county licensed engineers and installers will be used to plan and construct the system. The owners plan to provide portable toilets for on-site human waste disposal until such time as Fond du Lac County issues a permit for the mound system or holding tank.

IV.A.1.h. Paragraph 3, page IV-8

Add the following to the end of the paragraph

- there is to be no uncontrolled runoff from the dairy site.

IV.a.2. Paragraph 1, sentences 3 and 4, page IV-9

Revise these sentences as follows:

~~It is anticipated appears that all stockpiled topsoil will be was not used exclusively at the farm site. Appropriate erosion control measures were taken to ensure that any runoff from exposed and stockpiled materials did not result in this material leaving the construction site. There is an ongoing investigation into the disposition of some topsoil on surrounding and adjacent lands, including possibly wetlands.~~

IV.A.2. Paragraph 1, last sentence (line 10), page IV-9

Revise this sentence as follows:

A spokesperson for Michaels Materials informed the Department that they have at least 10 million tons of sand in inventory, more than the amount needed for bedding at Rosendale Dairy.

IV.A.4.h. Paragraph 2, second sentence, pages IV-19 and IV-20

Revise this sentence as follows:

It is also recommended that residents be given information on DNR well testing recommendations and well inspections.

IV.a.4.e. Paragraph 2, second sentence, page IV-21

Revise this sentence as follows:

Should excess nutrient and sediment runoff occur, the quality of the area wetland will degrade, and, as a consequence, wildlife species diversity will decline.

IV.B.3.a. Paragraph 4, page IV-25

Revise the estimated combined animal units for Phase II from 11,200 to 11,500

V. Evaluation

V.A.6. Paragraph 3, page V-5

Revise this paragraph as follows:

More intensive row crop production could increase sediment and nutrient runoff leading to greater wetland degradation of the existing wetland community, especially the remnant sedge meadow marshes. ~~Rosendale Dairy should put into place conservation practices to minimize the potential of offsite sediment and nutrient runoff. Rosendale Dairy's nutrient management plan includes a conservation plan that Rosendale Dairy intends to implement to minimize the potential of offsite sediment and nutrient runoff that could adversely affect these sites.~~

V.B. Paragraph 3, Sentence 2, pages V-7 and V-8

Revise the second sentence of this paragraph as follows:

The operation has indicated that subsurface monitoring is possible for WSF 1 and 2 and the sweet corn silage pad bunker.

V.D. Energy Impacts

Add this section as follows:

Construction and operation of Rosendale Dairy will require a large amount of energy from a variety of different sources. Energy consumption during construction is primarily diesel fuel for construction equipment and trucks. Major on-site energy needs once the facility is in operation would be electrical demands for lighting, ventilation and electrical machinery. Diesel fuel will be used for farm machinery on crop fields, trucks hauling feed and supplies into the facility, and trucks and equipment used in the manure spreading operations.

VI. Alternatives and their effects

VI.B.1.b. Paragraph 1, second sentence, page VI-5

Revise this sentence as follows

Lower animal numbers would reduce identified potential negative impacts associated with the site (traffic, odor, noise, lighting, water quality impacts), but it would also negate Decreasing animal unit numbers at the site would also reduce the potential positive impacts that would otherwise occur (economic development, additional employment opportunities, or tax revenue at the local and state level).

Source Water Assessment Program



Legend

- Public Water Supply Well
- Assessments Area
- Default Minimum Radius
- Default Minimum Radius
- Default Minimum Radius
- Calculated fixed radius
- hydrogeologic modeled capture area
- wellhead protection area
- County Boundaries
- 24K Open Water
- Municipalities
- Village
- City

Scale: 1:32,228



0 3000 6000 9000 ft.

The specific locations of drinking water wells, surface water intakes, and source water assessment areas are sensitive information. To prevent misuse of this information DNR staff may not provide this information outside of the Department. Information requests should be directed to Gabrielle Petersen, (608) 266-8470, Gabrielle.Petersen@wisconsin.gov.