

**Permit Changes and Response to Comments  
Richfield Dairy  
WPDES Permit No. WI-0064815-01-0**

Following is a summary of significant comments and any significant changes which have been made in the terms and conditions set forth in the draft permit.

Comments Received from the Applicant, Individuals or Groups and Any Permit Changes as Applicable

The noticed public comment period provided the general public an opportunity to comment on the proposed Richfield Dairy permit beginning May 11, 2011 and ending July 25, 2011. During this time period, the Department received approximately 106 written comments; with 25 expressing support for the proposed permit and 81 expressing opposition.

The Department also held an informational session and public hearing on July 18, 2011, 12:00 p.m., at the Adams County Community Center, 569 North Cedar Street, Adams, WI 53910. Department staff estimated that there were approximately 340 individuals in attendance at the Richfield Dairy public hearing. Of the 247 hearing appearance forms submitted at the hearing, 141 individuals registered in support of Richfield Dairy, 88 registered in opposition of Richfield Dairy, and 19 did not indicate a position. Of the 79 people who provided oral testimony, 43 individuals spoke in favor of the Richfield Dairy project, 35 individuals spoke in opposition of the project and one individual did not identify a position in support or opposition.

The Department received comments at the hearing concerning groundwater, surface water, runoff pollution, property values, jobs, soil conditions, whether an Environmental Impact Statement (EIS) should be required, concentration of CAFOs in the area, concerns about local roads and infrastructure, odor, noise levels, inadequate DNR resources to monitor and regulate, use of antibiotics, air quality, nutrient management plans, reduced property values and quality of life, working conditions and the use of illegal immigrants, effect on family farms, exclusion of potential impacts on nearby creeks, increased truck traffic, use of manure as a nutrient verses man-made chemicals, quantity and quality of milk production, use and diversion of water in the Great Lakes Basin, potential health impacts, manure digesters.

Comments Received from EPA or Other Government Agencies and Any Permit Changes as Applicable

No comments received.

**WPDES Comments–Changes Made**

**Comment #1:** “The reasons for the hearing (request) are for the WDNR to consider and take comment on issues of public concern related to the Draft Permit, including whether

the Draft Permit includes water quality based effluent limitations sufficient to protect water quality standards of the receiving waters.”

**Response:** For WQBELs for the production area, for any authorized discharge, the permit requires compliance with state water quality standards and ground water standards. This satisfies the requirements in s. 283.13(5), Stats. Also, the Department has added language that prohibits any discharges from the production area to a 303(d) listed water (Reference Section 1.1 below). As for the land application areas, the Department cannot apply WQBELs to agricultural stormwater runoff.

### ***1.1 Production Area Discharge Limitations***

*The permittee shall comply with the livestock performance standards and prohibitions in ch. NR 151. In accordance with s. NR 243.13, the permittee may not discharge manure or process wastewater pollutants to navigable waters from the production area, including approved manure stacking sites, unless all of the following apply:*

- *Precipitation causes an overflow of manure or process wastewater from a containment or storage structure.*
- *The containment or storage structure is properly designed, constructed and maintained to contain all manure and process wastewater from the operation, including the runoff and the direct precipitation from a 25-year, 24-hour rainfall event for this location (**Adams County – 4.7 inches**).*
- *The production area is operated in accordance with the inspection, maintenance and record keeping requirements in s. NR 243.19.*
- *The discharge complies with surface water quality standards. For all new or increased discharges to an ORW or ERW, any pollutant discharged shall not exceed existing levels of the pollutant immediately upstream of the discharge site. For any new or increased discharge to other fish and aquatic life waters, the discharge shall not cause a significant lowering of water quality under chapter NR 207, Wis. Adm. Code.*
- *A permittee may not discharge any pollutants from the production area to a 303(d) listed surface water if the pollutants discharged are related to the cause of the impairment, unless the discharge is allowed under a EPA approved TMDL.*

*All structures shall be designed and operated in accordance with ss. NR 243.15 and NR 243.17 to control manure and process wastewater for the purpose of complying with discharge limitations established above and groundwater standards.*

*The permittee may not discharge pollutants to navigable waters under any circumstance or storm event from areas of the production area, including manure stacks on cropland, where manure or process wastewater is not properly stored or contained by a structure.*

*Production area discharges to waters of the state authorized under this permit shall comply with water quality standards, groundwater standards and may not impair wetland functional values.*

*NOTE: Wastewater treatment strips, grassed waterways or buffers are examples of facilities or systems that by themselves do not constitute a structure.*

**Comment #2:** The Department received a number of comments (see comments throughout this document) expressing concerns about potential impacts to groundwater from the operation’s production area land application practices and whether the permit conditions and monitoring requirements were protective of water quality. One comment states, “The reasons for the hearing (request) are for the WDNR to consider and take comment on issues of public concern related to the Draft Permit, including whether the Draft Permit includes limitations sufficient to comply with groundwater protection standards established under Wis. Stat. ch. 160.”

**Comment #3:** An additional comment states, “The reasons for the hearing (request) are for the WDNR to consider and take comment on issues of public concern related to the Draft Permit, including whether the draft permit includes sufficient monitoring and reporting requirements in order to ensure its terms and conditions are met at all times.”

**Response:** The proposed and finalized WPDES permit contains permit conditions that protect groundwater and surface water and are consistent with ch. NR 243, Wis. Adm. Code, the code that establishes permit requirements for CAFOs throughout the state. To address these unique site conditions for this operation, the Department also added the following site specific permit conditions within the permit.

For the production area:

The permittee has designed some production area structures above current design standards. However, given that the sandy soils present at the production area are porous in nature, the Department recognizes there is an increased risk of groundwater impacts at the site. The Department believes that additional monitoring requirements (groundwater monitoring wells, leak detection) are warranted to determine if manure and process wastewater structures/systems have been constructed and are operated properly. The following changes have been made to the permit to reflect these concerns.

- Section 2, “Production Area Monitoring Requirements,” has been added to the permit requiring the installation and monitoring of groundwater monitoring wells for the production area. In addition, chemical monitoring of the leak detection systems installed underneath the Attenuation Basin and Sweet Corn Silage Bunkers is being required.
- A construction schedule (section 3.3 “Production Area Monitoring-Groundwater Monitoring Well Installation) has been added to the “Schedules” section of the permit outlining the timing of the required installation of groundwater monitoring wells at the production area.
- Section 4.2, “Groundwater Standard Requirements,” has been added to the Standard Requirements of the permit associated with the groundwater monitoring requirements.

For land application areas:

The Department has added three conditions to section 1.6.3, “Additional Nutrient Management Plan Requirements,” designed to provide information on timing of incorporation and planting following manure and process wastewater applications on highly permeable soils and to address applications of materials with low solids content on highly permeable soils.

**Comment #4:** DNR's public notice in the present case does not make any mention of Applicant's submitted NMP. There is no announced determination that DNR has either approved the NMP or that DNR is seeking comment on the NMP. DNR provided no notice to the public that terms of the NMP are applicable permit requirements.

DNR has not provided the same straightforward public access to the Richfield Dairy NMP that it provided for the Draft Permit itself. DNR cannot deem the present public notice proceeding to be properly executed without effectively placing the draft Richfield Dairy NMP up for public review and notice as permit applicable requirements.

Taken as a whole, the public notice for the Draft Permit is defective because it never informed the public of a pending decision for the required terms of the NMP. These terms are required to be incorporated in issued permits as enforceable effluent limitations, subject to public notice and comment, and subject to a formal final DNR agency decision in writing.

Commenter's provide several extensive comments on the version of the Richfield Dairy NMP obtained from WDNR in response to Commenter's' public records request, but nonetheless reserve their right to object to WDNR's failure to make the NMP available for public notice and comment and to notify the public of WDNR's approval of the NMP.

**Response:** The Department believes it has provided adequate notice of the NMP. The Department originally public noticed the Richfield Dairy's WPDES permit on May 11, 2011. The Department renoticed the permit on June 8, 2011, in part because of a comment it received regarding concerns that the Department had originally noticed the permit without an approved NMP.

In public noticing the permit, the Department also is public noticing the NMP. The public noticed version of the permit contains numerous references to the NMP (see section 1.6) and the fact that Richfield Dairy's land application practices must comply with the NMP. The public's knowledge of its ability to comment on the NMP (and permit) is reflected in the numerous requests for the NMP and the number of comments it received on NMP conditions. Department staff discussed the NMP with a number of members of the public during the public comment period. In response to the public comment process for the WPDES permit, the Department mailed out copies (on CD) of the Richfield NMP to 17 people. Also, four copies were handed out at the July 18th hearing. A copy was also provided to Midwest Environmental Advocates (the organization making this comment) during the public comment period. To further clarify the fact that the NMP is an enforceable part of the permit, the following language has been added to section 1.6 of the permit:

*Failure to comply with the requirements of a nutrient management plan developed and approved by the Department in accordance with this permit and s. NR 243.14, is a permit violation.*

**Comment #5:** The same final EPA regulation set forth above at 40 C.F.R. §122.42(e)(6) (See Attachment #1 at FR page 70484-485) set requirements for decision

making and determination on adopting changes to NMPs and are binding on state NPDES permit programs. The regulations require that changes to the NMP that are substantial enough to require changes to the 'terms of the NMP' included in a NPDES permit must be subjected to public notice and comment and final permit-issuance-authority decision making. Other procedures are required for lesser changes.

The Draft Permit fails to incorporate the required changes under 40 C.F.R. §122.42(e)(6). The third paragraph of Section 1.6 of the Draft Permit contemplates a process which does not comply with the public participation opportunities required by 40 C.F.R. §122.42(e)(6) for significant NMP changes and changes to 'terms of the NMP.' Similarly, Section 3.2.5 of the Draft Permit does not provide any public notice and comment on Department-initiated amendments of the Richfield Dairy NMP.

The Monitoring and Inspection Program is part of nutrient management requirements. However, Section 1.7.1 only requires submittal of such a program after permit issuance and this provision does not provide for DNR approval authority of such a monitoring and inspection program. Monitoring and inspection requirements must be considered part of the permit that should be subject to public notice and comment as highly substantial applicable requirements binding on the Applicant.

The Draft Permit should be amended to provide a clear DNR approval authority carried out in compliance with procedures, review standards and public notice requirements contained in 40 C.F.R. §122.42(e)(6) for all of the types of NMP and other permit-required plan changes expected for future permittee operation.

**Response:** Change made. Under the federal CAFO rule, the Department must public notice significant changes to the Nutrient Management Plan, including addition of new land under a nutrient management plan. The following language has been added to section 1.5 (Nutrient Management) of the permit to address this comment and clarify the amendment process.

*NOTE: Some amendments to the nutrient management plan may be subject to formal public participation procedures under s. 283.53. Stats, and may not be implemented until the public participation procedures have been completed.*

Regarding the monitoring and inspection plan, Actual inspection requirements are specified in the permit (e.g., daily, weekly inspections) and are available for public review as part of the permit. The requirement to identify areas to inspect, who does the inspections and how inspections will be recorded and submitted are not part of a nutrient management plan.

#### **WPDES Comments – No changes made**

**Comment #6:** Richfield Dairy will negatively impact an area already facing water quality and quantity challenges.

**Response:** Existing environmental issues in the area are not a basis for denial of the WPDES permit. In addition, there is potential that water quality could improve due to the restrictions in the WPDES permit and associated NMP for Richfield Dairy.

**Comment #7:** Although the Department may require groundwater monitoring in the vicinity of the production area if certain site-specific concerns are documented, there has been no demonstration of site-specific concerns at the Richfield Dairy site.

**Response:** The Department disagrees with this comment. Because of the porous nature of the sandy soils at the Richfield Dairy site and the potential for groundwater impacts associated with potential leakage from manure and process wastewater handling structures/systems at the site, the Department believes groundwater monitoring is warranted at the Richfield Dairy production area. Also, see response to comments #2 and #3.

**Comment #8:** Milk Source operates another CAFO in Fond du Lac County known as Rosendale Dairy. Due in part to its massive size, it was required to conduct groundwater monitoring as a condition of obtaining facility permits. That monitoring shows exceedance well above PALs (Nitrate Preventive Action Limit of 2 mg/l) and the enforcement standard for nitrates and coliform. (See attached monitoring data through February 2011.) Risk of groundwater contamination underneath Richfield Dairy, with its sandy soils and greater propensity for contamination, is not theoretical. At the least, DNR should ascertain what is causing these major exceedences at Rosendale, and if these causes can be addressed by better operational practices that can be made a condition of the Richfield Dairy permit, prior to approving the WPDES permit for Richfield Dairy.

**Response:** Rosendale Dairy does have a shallow groundwater monitoring network in place; the purpose of these wells is to monitor trends over time and watch for any increases in parameters monitored that may indicate a problem at the production facility. To date, the data has shown stable trends with no indication the production area is impacting groundwater. Based on alternative concentration limits established for the permit (total nitrogen 18.1 mg/L), there have not been exceedences of nitrogen in any of the monitoring wells. Coliform has been detected as expected as monitoring wells are not designed or intended to be bacteriologically safe. It should be noted that up-gradient wells of Rosendale Dairy have similar results indicating that the data collected may represent background conditions in shallow groundwater for an area with historical and predominant agricultural use. Alternative concentrations limits are calculated based on background or up-gradient concentrations of specific substances. In the case of Rosendale, up-gradient concentrations or nitrate in groundwater exceed the groundwater standard

**Comment #9:** The issue of unregulated small operations is real and I feel many don't realize the potential problems that small operations present. I have seen manure spread in waterways during the summer, manure piles with leachate draining half ways across a 40-acre field, small manure lagoons with obvious manure overflowing and running into waterways, (dead plants are a give away). So small farms do not necessarily correlate to no problems.

**Response:** The Department is also aware of an increase in water quality impact incidents from non-permitted facilities.

**Comment #10:** There were a number of comments that expressed concern about the public noticing of the Richfield Dairy WPDES permit and associated informational hearing, particularly residents and groups located in nearby areas of Waushara County.

{Note: Resolution was passed by our members at PLMD Annual Meeting July 2010 and forwarded to the DNR requesting to become a participant in the permit; see copy attached; to date we have never received any notice pertaining our requests.}

**Response:** Per Chapter NR 203.02 (4)(a), WPDES Public Notices are published one time (class 1 legal notice) in a newspaper of general circulation in the area affected by the discharge under ch. 985, Stats. A public notice for an informational hearing is published at least 30 days prior to the scheduled hearing. The public notice for Richfield Dairy was published on May 11, 2011 and again on June 8, 2011, only within the Adams County newspaper certified to publish legal notices. The Department does not control how local (County or Township) governments provide notice of projects of this nature.

**Comment #11:** After attending the Informational and Public Hearings in Adams on Monday July 18, I question if the DNR accepts views of people like the 204 member property owners of Pleasant Lake and the Lake District Board as partners. More alarming was the apparent preferential treatment during the hearings towards the WPDES permit applicant Milk Source, Inc., their employees, business interests and paid lobbyist/legal team. In my opinion input from these sources were not science- or fact-based, but anecdotal stories about various business relationships and a regurgitation of a PR/marketing presentation sold to both the Town of Richfield and Adams County to obtain conditional use permits, and to the Town of Coloma, Village of Coloma and other local groups to find support for their interests.

**Response:** The Department seriously considers and evaluates all comments received on a proposed WPDES permit. In an attempt to provide additional information to people interested in the Richfield Dairy (RD) project, the Department provided a limited amount of time to Jim Ostrum of Milk Source as part of the informal informational session prior to the formal informational hearing.

**Comment #12:** I individually requested information from Tom Bauman of DNR on 7/19/2011 on how to file a formal complaint; to date, I have yet to receive a response.

**Response:** The Department received an e-mail "Request for Information on filing a formal complaint with Ag Runoff Mgt./Hearing Examiner" on July 20, 2011 from Jean MacCubbin and responded with applicable information on July 25, 2011.

**Comment #13:** A number of comments expressed general concerns about the Department's implementation of the WPDES permit program and that these concerns should serve as a basis for permit denial. These comments include:

- Some CAFO have operated without necessary permits and many never receive an on site inspection.
- The Department has never denied or revoked a permit, even after repeated environmental violations. The most glaring disappointment in this whole public process was the obvious impending approval of the WPDES permit.

- Concerns about water quality impacts (e.g., spills, runoff).

We feel that the DNR is incapable (whether from lack of staff, funding or administrative direction) of closely monitoring these CAFOs and their waste plans. There is too much history of pollution and adverse health effects of CAFOs.

**Response:** Department efforts to educate and cover all operations with 1,000 animal units or more are ongoing. Where the Department discovers operations over the permit threshold and without a permit, enforcement action for failing to apply for a permit is an option. In addition, operations over the permit threshold that have a discharge and do not have a WPDES permit are subject to additional forfeitures.

The Department does not claim that CAFO WPDES permits are “zero risk” permits. As with any license or permit that is issued, there is always the potential for environmental impacts associated with permit noncompliance or situations not easily or explicitly addressed by prescriptive permit requirements. In these instances, the Department has included general performance measures as permit conditions (e.g., manure may not runoff except under very limited circumstances, a CAFO cannot cause the fecal contamination of water in a well).

The Department acknowledges that there have been impacts associated with CAFOs and that some of those impacts have been significant. However, the Department believes that the WPDES permit program has been an effective means to address these impacts and avoid impacts from occurring in the future. The Department discussed staffing issues in comment #24.

However, neither Department staffing nor concerns over potential impacts are a basis for conducting an EIS or denying issuance of a WPDES permit (refer to comment response #15). The potential to cause significant adverse effects is not the threshold requiring the full EIS process under NR 150, Wis. Adm. Code. Rather it is a finding of significant impacts that is the EIS threshold. The Richfield Dairy EA, as amended, did not find significant impacts.

With regard to permit denials, the WPDES program, which covers multiple types of discharges to waters of the state such as paper mills and municipal wastewater treatment plants as well as CAFOs, has been issuing and re-issuing 5-year permits since 1974 to the roughly 1200 wastewater dischargers in the state. Over that period of time, the number of individual permits that have been issued or re-issued numbers approximately 7500. To our knowledge, during this time period a WPDES permit has not been denied. That is not to say that permit denials are not legally possible, only that permit denials have not been made and the statutory authority to deny permits is limited.

The absence of even one permit denial is not an oversight and it is not a product of lax enforcement of water quality laws and regulations. The WPDES program has been a high profile one since its inception. It has been implemented and administered by highly qualified and respected staff members—many of whom have gone on to oversee other environmental regulatory programs within the Department. It is a program that is

overseen by the U. S. Environmental Protection Agency. One of the greatest successes of the adoption of the Clean Water Act was the creation of a "permit" system to replace the previous regulatory system. That previous system was "order" based, which allowed discharges to occur until and unless an order was issued mandating better pollution control. The cost and difficulty of proving environmental contamination made that approach essentially ineffective.

A simple scan of the permit system might suggest that it provides dischargers with a license to pollute. In a way it does—in that permits are operating licenses and almost all have conditions that allow some level of pollutants to be added to the environment. But that fails to account for the key success of the NPDES/WPDES permit program. Permits set out the terms and conditions under which a facility not only needs to operate but also needs to self-monitor and self-report. They allow pollutants to be added to the environment, but only in compliance with state ground water and surface water standards and using the best science available.

For operations that have compliance issues, the primary goal of permit enforcement actions is not to put an operation out of business. Rather, permit enforcement is designed to get operations back into compliance. Sometimes, an operation has repeated violations. One option would be to revoke a permit or deny reissuance of the permit. The absence of a WPDES permit would either require facilities previously permitted to go out of business or, theoretically, reduce the size of their operation to under that number of animals regulated by the permit program.

The Department's air pollution permit program operates in a similar manner. With one exception, that program has also never denied a permit. The one exception was when the permit applicant stated that its operation could not and would not meet the requirements that appeared in the draft permit as publicly noticed. Based on that representation, the Department denied the permit—only to have that decision challenged and overturned. The judge determined that the Department could not deny the permit; rather it had the ability to condition the permit as needed, and if the company could not meet the terms of the permit, it could not operate.

The Department acknowledges that there have been CAFOs that have had multiple instances of permit noncompliance. However, under these circumstances, the Department has used or is currently using enforcement to get the operations into compliance with their WPDES permit. None of these instances of noncompliance have risen to the level of revoking/denying reissuance of a WPDES permit.

**Comment #14:** I am saddened that the DNR is about to make a decision based on economics (mostly spoon-fed by the permit applicant) and not the negative impacts to the environment on a regional level brought to the DNR's attention at the hearing. Many question if this is the mission of the "NEW DNR", catering to business at the expense of the environment. This is why an EIS is so important in moving forward on this WPDES permit as land spreading of manure of this magnitude in the Central Sands and on other resources could also be affected—Mecan, Chaffee and Tagatz creeks.

**Response:** While economics are part of the disclosure process associated with the EA, economic impacts, positive or negative, are not a basis for denial of the WPDES permit, nor are they a basis for conditions in a WPDES permit. Potential impacts to area surface and groundwater quality, and how the WPDES permit addresses these impacts, are covered under other comments in this document

Chapter NR 150.22(2), Wis. Adm. Code, determines the required content of EAs and EISs for the Department or Natural Resources. There is no difference in the content requirements for EAs or EISs under this chapter and completion of an EIS would not provide additional authority to address impacts beyond current authority the Department already has. That is because EA's and EIS's are information documents only and not regulatory documents (they do not cause a decision to be made). The Department has adequately disclosed potential impacts to the human environment as part of the EA for the Richfield Dairy project. The Richfield Dairy EA (as amended), did not find a significant level of environmental risk. To date, the Department has issued approximately 230 CAFO permits; several of these facilities are located within the Central Sands. Catastrophic environmental impacts have not been known to have occurred.

**Comment #15:** The DNR, although charged with the mission statement and responsibilities to protect the environment, has not currently been given the tools or resources to adequately manage this growing industry. Based on this situation combined with the unknowns presented in the EA, the DNR should deny the permit based on current evidence that indicates groundwater contamination will occur or, at the very least, postpone granting the permit and give your department time to complete the aforementioned studies so that proper regulations and best practices can be determined.

**Response:** The Department has found no evidence to indicate that groundwater contamination will occur. The Richfield Dairy EA adequately covers the content requirements of NR 150.22(2), and did not find significant impacts that would otherwise require the EIS process under NR 150.20(1)(c)3. The EA references the NMP, which addresses all manure spreading acreages, and requires application measures to minimize the risk of surface water or groundwater contamination. As noted previously, the Department has issued approximately 230 WPDES CAFO permits to date, several of which are located within the Central Sands area, and no known catastrophic environmental impacts occurred. The Richfield Dairy application submittal meets all the requirements and technical standards which apply. The Department believes it has included conditions in the WPDES permit for Richfield Dairy that will provide an adequate level of groundwater and surface water quality protection based on NR 243 and any unique water quality concerns in the area.

**Comment #16:** If you do grant the permit, I would insist upon at least yearly on-site visits by DNR personnel to insure the permitted activities are being followed. In addition there should be a requirement for a representative amount of water sampling wells so that ground water contamination can be adequately determined.

**Response:** The Department has committed to inspecting all CAFOs at least once during the five-year permit term. The Department has evaluated the operation and unique site conditions for this operation (reference response to comments #2 and #3).

**Comment #17:** Does having this abundance of land available for spreading in fact make it easier for the dairy to expand as has been done in the past?

**Response:** Having adequate land base is one factor that an operation may take into consideration when looking to expand. An additional consideration is the requirement for a facility to maintain a minimum of 180-days of manure storage. The Department is not limiting the size of Richfield Dairy via the WPDES permit.

**Comment #18:** One commenter requested that the Department put a hold on the project until more of the local resident's questions can be answered.

**Response:** As part of the permit process, the Department reviews and responds to the comments and questions received on the draft permit. Through this process, the Department will answer the resident's questions in the response to comments document which becomes a part of the permit file.

**Comment #19:** There were comments that expressed gratitude that the Department granted the request of multiple citizens to hold a public hearing on the Richfield Dairy WPDES permit; however, many citizens at the hearing were upset at the way the hearing for the Richfield Dairy, held on July 18, 2011, was run. For example:

- There were issues with organization resulting in temporary misplacement of appearance slips.
- Hearing slips were segregated.
- The applicant was allowed to make a presentation at the beginning of the informational portion of the hearing, while others were denied the ability to present.
- There was a general sense at the hearing that attendees—especially project opponents—were the “enemy,” that the DNR had made up its mind about the project, and that it was simply enduring the day.
- There were concerns about behavior of Department staff at the hearing.
- The fact that the DNR didn't possess or communicate basic, accurate information about the applicant (such as Milk Source's environmental violations at its other facilities).
- People were allowed to discuss issues not related to water quality.
- The room in which the hearing was held was also too small for all those who wished to attend.

The above events, taken together, amount to noncompliance with the requirements and intent of Wis. Stat. § 283.49 and Wis. Admin. Code § NR 203.10. A hearing conducted like the Richfield Dairy public hearing was conducted only fans the flames of public discontent. We hope the DNR adjusts its practices in the future.

**Response:** The Department disagrees that the hearing was not held in accordance with §283.49, Wis. Stat. and Wis. Adm. Code NR § 203.10. It is very difficult for the Department to gage how many people will attend a permit hearing. Typically, a hearing for a WPDES permit has at most 20-30 people in attendance. The Department had recently held a hearing on a CAFO in the near vicinity and approximately 140 residents

attended. It is also very difficult to change the venue of a hearing after it has been public noticed. The informational portion of the meeting held prior to the hearing is not subject to ch. NR 203 requirements. The fact that hearing slips were temporarily misplaced was unfortunate and unintended. The Department is examining the process for collecting and organizing hearing slips to avoid the error in the future.

There is no requirement for a constant mix of pros and cons in ch. NR 203. The hearing officer separated the pile of hearing slips into those that indicated that they would like to speak and those that indicated that they did not want to present oral testimony. Unfortunately, a stack of unsorted appearance slips was placed in the sorted stack of slips of those that did not want to present oral testimony. In the future, the Department will have individuals collecting slips instead of being placed in a box and will attempt to collect and call those witnesses in the order people arrive at the hearing.

It is true that a number of speakers made statements not related to water quality and the WPDES permit. The Department is only required as part of the WPDES permit process to respond to those comments relating to the WPDES permit. Instead of interrupting each individual going off subject, the hearing examiner strictly limited the testimony to 3 minutes for each speaker.

The Department always strives to improve its hearing process based on experience.

**Comment #20:** Certainly, more information about proper procedure could be put into the public notice. Even better, there could be a reference to a page on the DNR website where people could get information prior to the hearing or register to speak in advance, etc. Specific issues from this meeting:

**Response:** Noted. The Department will consider the recommendation.

**Comment #21:** It is inappropriate for WDNR staff to testify publicly in opposition to a permit that WDNR has proposed to issue. We request the Department disregard comments from Department staff with a personal property interest in the outcome of a permit application to be allowed in the processing of a permit application.

**Response:** Department staff - provided they are not acting as agents of the Department, have the right to voice their concerns and comment on a Department permit/project. These comments are given no more weight than any other members of the public.

**Comment #22:** There were a number of comments in support of Richfield Dairy, the WPDES permit and associated Environmental Assessment. A number of these comments pointed to the environmental protections offered by the WPDES permit and economic benefits that the operation will bring to the area.

**Response:** Thank you for your comment.

**Comment #23:** The Richfield Dairy is not welcome. It will never be welcome. We will be fighting this dairy. We are partnered with many others in this fight. The Crawford Stewardship Project, Sustain Rural Wisconsin Network, Family Farm Defenders, members of Trout Unlimited, the nationally recognized Socially Responsible Ag Project,

and Lynn Henning of the Sierra Club...a 2010 Goldman Environmental Prize recipient honored for her work against CAFO's nationwide. And we are supported by individuals with a long history in the WI DNR defending your very mission statement.

And if we are not successful we will be watching. We will be monitoring. We will be waiting. A new organization, Friends of the Central Sands, has been formed to provide a long term focus on education and water monitoring to sustain our natural environment here in the Central Sands. You will not be left alone, we will be with you (DNR) every step of the way.

**Response:** The Department encourages local residents to monitor the activities of WPDES permitted facilities and to contact the respective regional DNR contact regarding any legitimate water quality related concerns.

**Comment #24:** At the hearing on July 18, it was stated that the DNR closely monitors CAFOs. Yet a Wisconsin State Journal investigation found that the DNR inspected only 19 CAFOs in 2009 and at that rate, it would take nearly 10 yrs. for the agency to inspect all current CAFOs for permit compliance. It also reported that enforcement of pollution requirements against CAFOs is sporadic at best and usually triggered by citizen complaint.

**Response:** There are a number of ways the Department monitors a CAFO's compliance with its WPDES permit, including site visits/compliance inspections and review of submitted reports. The Department has committed to completing at least one full-operation inspection during each five-year permit term, typically during the last year of the permit term. Other inspections may occur on a more frequent basis due to specific issues at a given operation or in response to citizen complaints. That said, it is an ongoing challenge to ensure there is adequate staff and time to conduct these activities. The Department is continually working to find ways to increase the amount of time staff can spend on compliance and enforcement activities. DNR staff also regularly visit CAFO facilities as a result of citizen complaints, compliance issues or random site visits.

WPDES permitted facilities are required to submit annual reports by the end of January summarizing all land spreading activities from the previous growing season, lab analyses of manure samples taken at sample points, lab results of soil analyses and monitoring and inspection reports. Permitted facilities are also required to submit annual updates of their respective nutrient management plans by the end of March.

**Comment #25:** Several comments included concerns about past compliance issues with Milk Source, the owner of the proposed Richfield Dairy. One comment noted that the company Milk Source has previously been cited for building the state's largest current CAFO without a permit.

**Response:** All of Milk Source's permitted CAFO facilities are in substantial compliance with their WPDES permit, with only a few instances of noncompliance.

**Comment #26:** The department received a number of general comments stating their opposition to the issuance of a permit to Richfield Dairy based on (1) potential and actual impacts to the environment (groundwater, air quality), as well as impacts to people in the

community (e.g., human health, property values, etc.). The Department received a petition with 156 signatures in opposition to WPDES permit issuance to Richfield Dairy based on these concerns.

**Response:** The WPDES permit is a water quality protection based permit intended to protect surface water, groundwater and wetlands. The WPDES permit does not regulate air emissions, odor, dust, noise, traffic or lighting issues and cannot deny permit issuance based on non-water quality related impacts. Further information on the DNR's Air Program's efforts to address air emissions from Large Dairy CAFO's is located on the Department's website at <http://dnr.wi.gov/air/agWaste.html>.

In general, under ch. NR 243, the DNR has limited authority to require case-by-case best management practices. Ch. NR 243 and permits issued under this authority already have requirements designed to address issues such as surface runoff as well as a number of other potential surface and groundwater related concerns. In most cases, these requirements are reflected in the WPDES permit and will be the requirements with which Richfield Dairy must comply.

**Comment #27:** The Department received several general comments related to concerns about manure deposits left on roadways during manure transport and the potential for these deposits to impact groundwater quality.

**Response:** Richfield Dairy will transport manure from the facility to each respective field utilizing enclosed manure spreader tanks, which eliminate the potential for roadway manure deposits. In the event that material from equipment tracks onto a public roadway after exiting a field, Milk Source will have a street sweeper available to remove excess residue from the roadway. Milk Source has a street sweeper located at each of its WPDES permitted facilities.

**Comment #28:** Please work to make the proposed large scale cow factory a sustainable and useful endeavor. I don't eat a lot of meat but this has the potential to affect me in a negative way, in a collective manner. Specifically, these criteria should apply:

- **Only organic feed**, to prevent pesticides from being spread
- **Restricted water & electricity usage**, since cows should live outside and not need us to provide these in summer.
- **Methane capture** and reuse as an electricity generating fuel.

If these can not be met, the CAFO shouldn't be allowed.

**Response:** Pesticide usage is regulated by the Wisconsin Department of Agriculture, Trade & Consumer Protection (DATCP). Richfield Dairy will introduce crop rotations into area fields, which will result in less of a need for pesticide applications, particularly during those years in which manure is applied to fields. Regarding methane capture, Milk Source has expressed interest in biogas technology and has recently partnered with the University of Wisconsin – Oshkosh to implement such a system at the Rosendale Dairy site in Pickett. Reference response to comment #33 for additional information regarding EPA best technology requirements.

**Comment #29:** I believe this information should help stop the building of the two CAFOs in East Adams county close to Coloma, WI. What can the Dept that is supposed

to protect our air, lakes, wild life and countryside do to stop them? I would also appreciate your suggestions as to what we can do to prevent their building.

**Response:** It is not within the Department's authority to determine where a given CAFO should be sited. The Department's authority is limited to issuing a permit that is protective of water quality should a CAFO decide to locate at a given site. The Department of Natural Resources is tasked with the responsibility to ensure that WPDES permit applicants meet all required technical standards before a permit is issued. Based upon the authority granted to the Department, Richfield Dairy has met or exceeded these requirements.

**Comment #30:** "The reasons for the hearing (request) are for the WDNR to consider and take comment on issues of public concern related to the Draft Permit, including whether the proposed discharges will negatively impact Fordham Creek, Little Roche Cri Creek, area Lakes such as Pleasant Lake, and groundwater's of the State, and whether the Draft Permit contains conditions that will sufficiently limit the impact of such discharges."

**Response:** The Department understands concerns about potential impacts to water quality associated with both the production area and land application activities. It is the intent of the WPDES permit for Richfield Dairy to avoid impacts to human health and exceedences of groundwater and surface water quality standards. There are a number of standard WPDES permit conditions as well as additional restrictions specific to Richfield Dairy that provide additional levels of water quality protection beyond what is required of operations that do not require coverage under a WPDES permit. These restrictions have been adopted in part, in response to practices that have resulted in impacts in the past. While these restrictions and the WPDES permit do not completely eliminate the risk for impacts, they significantly reduce the potential for such impacts to occur.

In accordance with s. NR 243.13, Wis. Adm. Code, the permittee may not discharge manure or process wastewater pollutants to navigable waters from the production area, including approved manure stacking sites, unless all of the following apply:

- Precipitation causes an overflow of manure or process wastewater from a containment or storage structure.
- The containment or storage structure is properly designed, constructed and maintained to contain all manure and process wastewater from the operation, including the runoff and the direct precipitation from a 25-year, 24-hour rainfall event for this location (Adams County – 4.7”).
- The production area is operated in accordance with the inspection, maintenance and record keeping requirements in s. NR 243.19, Wis. Adm. Code.
- The discharge complies with groundwater and surface water quality standards.

**Comment #31:** The DNR must include a series of prohibitions in any CAFO PDES draft permit, including this Permit. These prohibitions include:

- *no discharge* from the facility, except in a 25 year 24 hour rainfall event or chronic or catastrophic rainfall event; and
- no manure spreading within 200 feet of a stream or conduit to groundwater unless the manure is incorporated within 72 hours. *See NRCS Standard 590.*

However, the Draft PDES permit does not include these prohibitions OR even bother to refer to 590 except in Sec. 1.6 where it vaguely states:

"Land application practices shall not exceed crop nutrient budgets determined in accordance with NRCS Standard 590...." Therefore, we request that the DNR in the very least amend its permit to more expressly and specifically address and require no discharges close to applicable streams (esp. trout streams) or local groundwater conduits, especially given the acknowledged high local water table.

**Response:** The "no discharge" requirements are outlined in sec. 1.1 "Production Area Discharge Limitations" of the permit. While the above referenced nutrient management requirements are not included verbatim in the WPDES permit, the permit and the Department approved Nutrient Management Plan make direct reference to all the requirements stated above (e.g., NR 243.14) and are enforceable conditions of the permit. The Department believes the issued permit contains conditions that are consistent with ch. NR 243 and are protective of water quality.

**Comment #32:** "The reasons for the hearing (request) are for the WDNR to consider and take comment on issues of public concern related to the Draft Permit, including whether the Draft Permit specifies maximum levels of discharges as required by Wis. Stat. 283.31(5)c."

**Response:** The permit does specify a maximum level of discharge allowed in narrative form which is implemented through required Best Management Practices. The production area restriction language in the permit states that a discharge can't exceed water quality standards.

**Comment #33:** The Department received a number of comments requesting that the DNR require Richfield Dairy to install additional treatment technologies (digesters, covers on both lagoons).

**Response:** Storage of manure and process wastewater and subsequent land application of these stored materials is considered the best technology by U.S. EPA. Pursuant to Chapter 283, Wis. Stats., the Department cannot require more stringent technology based limitations, such as requiring other methods of manure treatment.

**Comment #34:** WDNR Did Not Properly Provide for Terms of the Nutrient Management Plan in the Draft RD WPDES Permit in the Manner Required by Applicable Federal CAFO Effluent Regulations.

The Wisconsin Department of Natural Resources' (WDNR) public notice for the Draft Permit is defective because of its erroneous handling of the procedural and final approval aspects of the Draft Richfield Dairy Nutrient Management Plan ("NMP"). The Draft Permit published by WDNR does not contain 'terms of the nutrient management plan' as defined by present federal regulations that are mandatory for inclusion in the permit because they constitute effluent limitations under the Clean Water Act.

By making these errors, WDNR has failed to ensure that its approval process properly complies with certain elements of the Second Circuit's decision in *Water keeper Alliance v. EPA* in the matter of nutrient management plans, required public participation and

comment procedures, and the EPA regulations that addressed that Second Circuit Water keeper decision. WDNR's error is not harmless because it has the effect of denying required protections for public comment and review, final agency decision making and compliance assurance on effluent limitations inherently within an NMP addressing elements of best management practices, alternatives consideration, and field-specific practices that were supposed to be remedied after the Waterkeeper court's remand to EPA for further rulemaking action.

In response to the Second Circuit Waterkeeper decision, the U.S. EPA promulgated revised final rules for issuance of CAFO permits on November 20, 2008. These rules, in part, required that terms of the CAFO NMPs be incorporated into NPDES permits since such terms were considered as 'effluent limitations'

Among other elements, the required 'terms of the NMP' information included field-specific nutrient application rates using either a 'linear approach' or a 'narrative rate approach.'

The Draft Permit does not comply with the EPA rule requirement to include 'terms of the NMP' within the permit. Field-specific NMP information is not found in the Draft Permit, and WDNR generally failed to provide the required NMP term elements found at 40 C.F.R. §122.42(e)(5) in the Draft Permit.

**Response:** The Department disagrees. Field specific NMP information – crop and field specific application rates set according to UW recommendations (using narrative rate approach) are found within the Richfield Dairy NMP that was submitted to the commenter. The WPDES permit contains requirements / terms that are field specific (e.g. selecting SWQMA management and assessing P delivery to surface waters) and also apply to application rates.

The Department also believes it followed appropriate procedure by reviewing and issuing a preliminary approval of the Richfield Dairy NMP on June 2, 2011 prior to public notice of the permit on June 8, 2011. The act of issuing a preliminary approval is meant only to indicate that the NMP is ready for public notice and is not a final approval action for the NMP. The Department also believes the NMP that was preliminarily approved and noticed for public comment does contain field specific nutrient application rates. Field specific nutrient application rates and other information are outlined in the NMP developed using SNAP Plus (nutrient management planning software).

**Comment #35:** The WPDES permit does not ensure there will be no discharges of manure from land spreading (a point source of pollution) to surface and ground water. At best, it requires Richfield Dairy to minimize runoff, but not eliminate it entirely or ensure there will be no discharge of pollution to waters of the state. We ask the permit to stipulate that if known discharges occur to surface or ground water, the land spreading should cease until the situation is rectified.

**Response:** The WPDES permit does not prohibit discharges from land spreading activities to waters of the state. In accordance with ch. NR 243, the permit allows discharges of manure and process wastewater pollutants to navigable waters provided the

manure/process wastewater is applied in accordance with permit conditions. The permit conditions minimize the risk of this runoff. Any discharges that do occur from land application activities done in compliance with the WPDES permit are considered agricultural stormwater runoff. Discharges to groundwater are allowed provided they do not exceed groundwater standards or result in the bacterial contamination of a well.

**Comment #36:** The Department received a number of comments expressing concerns that the proposed Richfield Dairy is to be located on sand, which is a different soil type than the other facilities owned and operated by Milk Source. A number of similar comments expressed water quality concerns about applying manure to sands, including:

- I am concerned about the porous nature of the soil and how injecting huge amounts of nitrates and other effluvia into an already delicate ecosystem.
- “Why build a CAFO in sand country where the filtration effects are not well suited for manure application. I believe this area in general has issues with high nitrates from the irrigation systems currently being utilized. How is spreading of this waste from the CAFO going to not have an effect?”
- The nutrient management plan leaves too many opportunities for possible ground and surface water contamination and private wells are already known to be at risk. Without additional study, there are many unknown questions regarding the spreading of manure on these fields and the resulting impact on water quality.
- With so much manure spreading, on the porous sandy soil of this area, we are concerned about increased nitrates and other pollutants in our groundwater. According to the EA, the groundwater flows south easterly – right toward Pleasant Lake, a wonderful natural lake. And a few miles further is Wood Lake. Both of these will be in danger of contamination from pollutants.
- Spreading waste and manure on these lands makes sense? Land’s that your own (DNR) study found where nitrate levels are high in many well with 24% exceeding the Enforcement Standard threshold? The potential for damaging more private wells is extreme...And how does this make sense?
- I am told to appreciate that land spreading will occur on over 16,000 acres. This is understandably a much higher ratio. Could it be because this sandy coarse textured soil doesn’t accept manure well? Could it be that this land simply doesn’t hold water and nutrients well and is a poor retainer of Phosphorus? Are you (DNR) not concerned that 200 + lb. / acre nitrogen application rate may (be) too high considering that actual groundwater testing in the Central Sands show that wells down gradient from application fields are commonly contaminated? I am wondering why the 165 lbs. of Nitrogen/acre limitation was removed from the Rock Prairie Dairy final permit. Can we expect this to happen to us as well?
- Because Pleasant Lake is a seepage lake that is dependent on groundwater inputs, any increase in groundwater nutrients means an increase in the lake nutrient levels as well. The lake is currently mesotrophic and is very clear.
- How does manure degrade and release its nutrients in sand country?
- What is the timeframe for digestion and what byproducts are produced?
- How fast will they move into groundwater?

**Response:** The Department agrees that the Richfield Dairy NMP depicts planned manure spreading on many fields that contain sandy, highly permeable soils. These soils, in general, have a higher risk for leaching of nitrates and other pollutants to groundwater.

The Department believes the permit as issued complies with Ch. NR 243 and provides an adequate level of water quality protection. Information on permit conditions that protect water quality can be found throughout this document. These permit conditions may actually reduce nutrient loading to groundwater and surface waters in the area. The Department believes the risk for manure applications to cause contamination of groundwater or surface waters, via groundwater recharge, is effectively reduced by the following factors:

### **Manure vs. Commercial Fertilizer Properties**

- In general, commercial N fertilizers have a higher risk for leaching nitrate nitrogen into groundwater than manure in sandy soils. Currently, commercial N is used to meet all crop nutrient needs for all acres within the Richfield Dairy NMP. Most of these N applications are currently not being applied consistent with the NRCS Standard and UW crop recommendations.
- Manure is primarily an organic source of N. Organic N is not immediately plant available (and leachable) and acts as a slow release fertilizer source for plants. Manure organic N must be converted by soil bacteria to a form that is immediately plant available (ammonium and nitrate). Ammonium-N does not bind tightly to soil particles, is highly soluble in water and leaches readily. Ammonium nitrogen can, under optimum conditions, quickly change to nitrate nitrogen (warm, moist, well aerated soils and with pH of 6.5 – 7.0).
- Conversion of manure organic N to plant available forms of N requires correct soil temperature (>50 degrees, ideal between 70-75 degrees) correct soil moisture and correct soil oxygen to occur. Conversion of organic N, however, is not an immediate or rapid process. It converts slowly over time during the crop growing season allowing for the applied N from manure to be utilized by established crops. This is key factor when considering risks for manure to cause N leaching into groundwater.

### **Timing and Method of Manure Application**

- The Richfield dairy NMP shows that the timing of all planned manure applications occur in the spring or early summer months. All spring manure applications are planned within a short period (approximately 2 weeks) prior to crop establishment. All spring applied manure will be incorporated immediately. No manure applications are planned for fall or winter months. Applying manure N just before crop establishment in the spring, lowers the risk for N conversion and nitrate N leaching into groundwater, as manure, by definition, is a slow release N source compared to commercial fertilizer N (immediately plant available) sources. Incorporating manure immediately after application will help to further retain applied nutrients within the root zone of target crops. Established alfalfa crops are planned to receive surface manure applications in summer months without incorporation.

### **Irrigation**

- The need for irrigation of sandy soils (and corresponding higher risk for leaching of applied nutrients) during spring months is less likely, or will not occur altogether, for

### **Sand Soil properties and Organic Matter**

- Because sandy soils have less organic matter they retain less water compared to medium and fine textured soils. Without adequate moisture in sandy soil, conversion of manure organic N to inorganic plant available N is less likely or rapid compared to commercial N fertilizers.
- Manure applications to sandy soils will, over time, help improve sandy soil structure with more organic matter. More organic matter helps a soil, particularly sands, retain more water and this ability helps reduce the risk for leaching nutrients into groundwater. In addition, the Richfield Dairy NMP also has planned crop rotations that will help create more organic matter than current crops grown in the area, such as potato, sweet corn and snap beans. These crops include corn silage, corn grain, winter wheat and alfalfa. These crops all have large root systems that help increase organic matter in sandy soils, over time.

### **More Stringent and Enforceable Nutrient Management Regulations / Practices**

- The department understands that some groundwater resources in proximity to Richfield Dairy fields are currently impaired for nitrates and a majority source for such impairment are current agricultural land use/activities. Richfield Dairy will be required, via WPDES permit and NR 243, to meet more stringent nutrient management requirements than current agricultural activities on the 16,429 acres within their NMP. Current agricultural activities in the area either do not have a NMP or do not follow the requirements of a NRCS 590 NMP. Nor are growers in the area required, by state regulations, to have a WPDES permit that regulates how, where and when they apply nutrients (commercial fertilizer) to their fields and discharge to waters of the state. Richfield Dairy proposed WPDES requires this farm to not only develop and implement the NMP, but also meet strict recordkeeping and reporting requirements. The land spreading and nutrient management practices and procedures as well as recordkeeping and reporting requirements within the NMP are all enforceable conditions via the proposed WPDES permit. Because Richfield Dairy is required to meet higher regulatory and recordkeeping standards for nutrient management than current growers in the area, the department believes fewer nutrients will enter groundwater than under current agricultural land use conditions.

### **Current Groundwater Conditions and Agricultural Land Use**

- The department evaluated existing groundwater well sampling data for 2000-2011 years within each township and range that contained fields listed within Richfield Dairy NM plan. We found 16% (N= 169/1065) of all private well samples showed nitrate contamination above the enforcement standard of 10mg/L and 6% (N= 73/1065) exceeded 20mg/L. This amount of contamination reflects current land use in the area (which is dominated by row crop agriculture. These operations either do not have NM plans or do not follow NRCS 590 NM plan requirements. No growers in the area use manure - a slow release organic based source of N to meet crop fertility. Bacterial sampling of private wells was also evaluated, but not considered

### **Compliance Record of Three Existing CAFO Farms that Applied Manure to Sands**

- The department evaluated the compliance record of three existing CAFO permitted farms (Central Sands, Gordondale Farms and Ostrowski Farms) who have repeatedly applied liquid manure, over multiple years, to fields with sandy, highly permeable soils. We found no direct or circumstantial evidence that these three farms have caused any nitrate and bacterial contamination of drinking water wells, groundwater or lakes or streams from repeatedly applying manure to fields with sand soils over the multiple years they have applied manure to sand soils.

### **Pathogen Movement Risk associated with Sands**

- The Department evaluated the risk for movement of pathogens (defined as bacteria, viruses and parasites that cause disease) within sand soils to groundwater associated with manure applications planned by Richfield Dairy. Land application of manure can contaminate groundwater with pathogens where *groundwater is vulnerable to contamination and where conditions allow pathogens to survive and sometimes thrive*. The unsaturated zone (the upper soil and sediment layers that have some water in pore spaces) can play an important role in slowing down pathogen transport and survival. This factor must be considered when determining the vulnerability of the aquifer to contamination, particularly with sands. Sand soils do not support ideal conditions for pathogen survival because they, by definition, have low organic matter and low moisture levels. Pathogens move easily in groundwater when pores and fractures in soil are full of water (referred to as saturated flow). Sands, compared to other soils, do not have fractures and do not support conditions for saturated flow, due to physical and permeability properties.
- In general, sand soils provide some filtering/attenuation of pathogens due to their physical and high oxygen content properties; aerobic decomposition of pathogens is more possible with sands vs. other soil types, provided conditions for pathogen movement is reduced or minimized. The department has experience with using sands in stormwater and wastewater treatment systems for pollutant removal, including some pathogens. Sands have been used as part of on-site septic systems design to reduce risk for pathogen movement and to increase pathogen attenuation.
- Shallow depth to groundwater represents a higher risk to groundwater contamination from pathogens. Accordingly, the department evaluated static water levels for private groundwater well sampling data (2000-2011 years) for all wells located within each township and range that contained fields listed within Richfield Dairy NMP. For all private wells, the static water level, at time of construction, was found to be greater than 10 feet in depth. This measured distance to groundwater demonstrates there is an unsaturated zone between the field surface and groundwater. This zone helps reduce the risk for pathogen delivery to groundwater, especially when compared other soil types in the state that currently receive manure from CAFO farms and have known corresponding static water levels that are close to or at the surface (0-5 feet) or soils with shallow bedrock properties (karst). Last, the department recognizes that many factors, environmental and those specific to each species, control the survival and movement of pathogens once they reach groundwater and the interaction of

### **Richfield Dairy NMP Requirements and Procedures**

- The department approved NMP for Richfield Dairy has several items that help reduce risks for groundwater contamination, including:
  1. Procedures for evaluating fields before, during and after applications for restricted or prohibited features, to follow correct setbacks from restricted areas (i.e., wells, wetlands, streams or lakes) and to determine if any manure runoff occurs and for taking immediate corrective action if manure or process wastewater runoff, ponding is identified.
  2. Planned manure applications are set to not exceed crop nutrient budgets determined in accordance with NRCS 590 standard, UW crop recommendations, the WPDES permit and s. NR 243.14. All manure applications are required to be based upon current manure and process wastewater analyses, soil tests, and other sources of nutrients applied to a field.
  3. All spring manure applications are planned within approximately 2-weeks prior to crop establishment and followed by incorporation of applied manure. No manure applications are planned for fall or winter months. Applying manure just before crop establishment in the spring, lowers the risks for N conversion and then N leaching into groundwater, as manure, by definition, is a slow release N source compared to commercial fertilizer N (immediately plant available) sources.
  4. Second year credits are calculated for manure, legumes and other planned nutrient sources applied to fields.
  5. Daily recordkeeping of all manure and process wastewater applications to fields to track what was actually applied vs. planned.
  6. Regular collection and analysis of representative samples of land applied manure and process wastewater.
  7. Reviewing and amending the NMP on, at a minimum, annual basis to reflect any changes in operations over the previous year (including incorporation of previous years amendments to actual crops grown, nutrients applied, nutrient concentrations, etc.) and include projected changes for upcoming year.
  8. Cover crops are planned on 145 out of 224 (65%) of fields; primarily following early harvest potato or sweet corn crops. Cover crops not only help control soil erosion, but also help scavenge residual nitrogen and prevent nutrient pollution of both surface and groundwater and help build soil organic matter, over time.
  9. Procedures for manure applications to fields with high potential for N leaching to groundwater, soil temperature, application rate and timing restrictions. Such procedures require Richfield Dairy to either apply manure in the spring, or measure soil temperatures on fields and delay fall applications of manure until soil temperatures fall below 50 degrees F. All manure applications in NMP are planned for spring and early summer. No applications of manure are planned in late summer, fall or winter.

### **Other Conditions within the WPDES Permit**

- The WPDES permit contains several restrictions that require Richfield Dairy to manage manure and also apply manure and process wastewater to fields in a

1. Manure and process wastewater applications may not cause fecal contamination of a well.
2. Manure and process wastewater may not be applied within 100 ft of direct conduits to groundwater and within 100 ft of private wells.
3. Land application practices shall maximize use of available nutrients for crop production, prevent delivery of manure or process wastewater to waters of the state, and minimize loss of nutrients and other contaminants to waters of the state to prevent exceedences of groundwater and surface water quality standards. Practices shall retain land applied manure and process wastewater on the soil they are applied with minimal movement.
4. Land application practices shall not exceed crop nutrient budgets determined in accordance with NRCS 590 standard, WPDES permit and s. NR 243.14 and shall be based upon manure and process wastewater analyses, soil tests, as well as other sources of nutrients applied to a field.
5. Manure or process-wastewater may not be applied to saturated soils, nor pond on application sites.
6. Construct and then maintain at least 180 days of liquid manure storage.
7. The NMP shall be reviewed and amended on an annual basis to reflect any changes in operations over the previous year (including incorporation of previous year's amendments to actual crops grown, nutrients applied, etc) and include projected changes for upcoming year.
8. No surface applications of manure and process wastewater on frozen or snow covered ground, except in emergency.
9. Collect and analyze representative samples of land applied manure and process wastewater and use such sample results to guide application rates of manure and process wastewater to fields.

**Comment #37:** Because of Highly Permeable Soils at the Richfield Dairy Land Application Sites, Proposed Dairy Operations May Pose Serious Risks for Protection of Groundwater and Compliance with Groundwater Quality Standards.

WDNR may only issue WPDES permits where the permitted discharge will comply with “[g]roundwater protection standards established under [Wis. Stat. §] 160.” Wis. Stat. § 283.31(3)(f). Pursuant to its authority in § NR 160, WDNR has promulgated a number of public health groundwater quality standards. See generally Wis. Admin. Code § NR 140.10, Table 1. Most relevant to CAFO permits are the groundwater protection standards for nitrate and total coliform bacteria. Nitrate has an enforcement standard of 10 mg/L and a preventive action limit of 2 mg/L; total coliform bacteria has both an enforcement standard and preventive action limit of 0 (i.e., no detection of bacteria).

The presence of N restrictions on many of the Richfield Dairy process wastewater land application fields means the proposed dairy operations may pose a risk to groundwater resources or make cause or contribute to groundwater quality standard violations. At the very least, DNR must consider or review what effect dairy operations will have on such

groundwater resources. Issuance of a WPDES permit must not be an action that results in harm to water resources from ammonia, nitrate, chloride or pathogen releases arising from RD operations.

Commenter's reviewed Applicant's soil class designation of N-restricted fields. The designation of P, W or R fields with N restricted soils occur at 190 out of 225 of the fields in the RD submitted NMP (at 84%), with a total acreage in N restrictions of 14217.3 acres out of a farm total of 16292.4 acres (at 87%).

**Response:** The department agrees that highly permeable soils found within many Richfield Dairy fields have risks for groundwater contamination and for the farm to maintain compliance with groundwater quality standards. With that said, the department considers the factors listed under comment response #36, will help minimize the risk for Richfield Dairy manure applications to cause additional discharges of nitrate N to groundwater resource(s).

**Comment #38:** The Waushara County Watershed Lakes Council, Inc., an organization of lakes located in Waushara County, by unanimous vote of its members at the Council's May 21st meeting, requests a public hearing regarding Milk Source Holding, Inc.

The Council is concerned about the amount of manure and wastewater that will be produced at the dairy and spread within our watershed. Pleasant Lake, Chaffee Creek, and the Mecan Springs all lie in Waushara County east of the proposed dairy, and will likely be affected by the manure and wastewater produced at the dairy and spread on local fields. Animal waste includes a number of potentially harmful pollutants.

According to the EPA, pollutants associated with CAFO waste principally include:

- nutrients, such as nitrogen and phosphorus
- organic matter
- solids; including the manure itself and other elements mixed with it such as spilled feed, bedding and litter materials, hair, feathers and animal corpses
- pathogens (disease-causing organisms such as bacteria and viruses)
- salts
- trace elements such as arsenic
- odorous/volatile components such as carbon dioxide, methane, hydrogen sulfide and ammonia
- antibiotics
- pesticides and hormones

**Response:** A public hearing was held on July 18, 2011, for the RD WPDES CAFO permit. The Department believes the risk for manure applications to cause contamination of Pleasant Lake, Chaffee Creek, and the Mecan Springs and other surface water resources via groundwater recharge, or surface runoff is reduced by the following factors:

With respect to discharge to surface waters, 98% of all fields in Richfield Dairy NMP have a Phosphorus Index score (PI), below 1. The average PI score for all fields in the NMP is 0.56. The PI is a field specific evaluation that represents the risk for delivery of phosphorus nutrients to discharge from each field to the nearest perennial stream or lake. The low PI score is primarily from the large amounts of sandy, highly permeable soils

within these fields. Sandy soils have greater infiltration capacity versus other medium or fine textured soils.

With respect to groundwater contamination, in general, commercial N has a higher risk for leaching nitrate nitrogen into groundwater than manure. Currently, commercial N is used to meet all crop nutrient needs for all acres within the Richfield Dairy NMP and it cannot be confirmed if this commercial N is being applied consistent with an NRCS 590 standard NMP and UW crop recommendations. Reference comment response #36 for additional information.

**Comment #39:** The Richfield Dairy proposal notes that the dairy intends to dump wastewater and manure (55.3 million gallons of wastewater, plus an additional 8,552 tons of separated manure solids) produced at the dairy on land just west of Pleasant Lake, Chaffee Creek, and the Mecan Springs, all important surface water bodies in central Wisconsin. The soil profile of the Wisconsin central sands allows for more rapid percolation of liquids through the soil than other Wisconsin soils upon which the WPDES standards are based. Further, although the proposed dairy is to be located in Adams County the primary effect of its pollutants will occur in Waushara County.

**Response:** Richfield Dairy will land apply, not dump, manure and process wastewater to crop fields according to a Department reviewed and approved NMP and in accordance with all land spreading requirements within the proposed WPDES permit. Failure to follow the NMP and permit may result in an enforcement action by the Department. The NMP and permit contain several specific and general manure land spreading requirements that apply to all fields in the NMP. The requirements are more restrictive than the nutrient management practices currently used by growers in both Adams and Waushara Counties. The NMP plan shows that 61% of the acres are located in Adams County and 38% of the total plan acreage is located in Waushara County. Regarding the commenter's concerns about the permeable nature of the soil, the Department believes the risk for groundwater impacts is effectively reduced by the factors referenced within comment response #36.

**Comment #40:** The soils in Adams and Waushara Counties are poorly suited for land application of liquid and solid manure. Neither the nitrogen nor the phosphorus contained in the manure is likely to be adsorbed by the soil because of the low organic content and high porosity. The likelihood of nutrient contamination with nitrates, E. coli and fecal coliform bacteria of the groundwater is very high. Already another high capacity cattle feedlot within one mile of the proposed location has been referred to the Department of Justice for contamination of groundwater. My private well has elevated nitrates and recently tested positive for atrazine.

**Response:** The Department believes the comparison of Richfield Dairy to a WPDES Permitted Facility located in the vicinity, which has been referred to the Department of Justice for violation of the groundwater standard, is an inappropriate comparison. The facility referenced utilizes an open feed lot concept without manure containment, collection or the necessary runoff management practices to meet the no discharge requirement. The Richfield Dairy facility is designed to meet or exceed all NRCS

Technical Standards including total confinement of all livestock under roof and collection and containment of all manure / process wastewater.

With respect to the soils in Adams and Waushara counties, the Department believes the risk for groundwater impacts is effectively reduced by the factors referenced within comment response #36.

**Comment #41:** The 4,550 cows and steers at the facility would generate approximately 12 tons of manure per animal per year and therefore will produce approximately 546,000 pounds of nitrogen per year, assuming 10 pounds of nitrogen per ton of manure (Mechenich, D.J. and G.J. Kraft. 1997). The manure would be spread on surrounding fields per the nutrient management plan (NMP). In addition, the on-site wastewater treatment system will add nitrogen from human wastes.

As discussed above, the soil and hydrogeological characteristics of the Central Sands, which include the proposed manure spreading areas, result in an excessive leaching of nitrogen into the groundwater from applied agricultural nutrients, even when best management practices are observed. Using a groundwater nitrogen loading rate of 100 pounds per acre per year and a groundwater recharge rate of 9 inches per year (0.75 ft/yr) the resultant nitrate concentration can be calculated as follows:

Nitrate-N concentration (mg/l) in groundwater underlying cropped field = [(100 lbs. N/acre) (454 g/lb) (1000mg/g)] / [(0.75 ft) (43,569 ft<sup>2</sup>/acre) (27.7 l/ft<sup>3</sup>)] = 50.2 mg/l

Similar nitrate concentrations have been found in the groundwater underlying cropped areas in the Central Sands. This indicates that in the vicinity of the cropped fields the groundwater is likely to exceed the federal Safe Drinking water Standard and NR 140, Wis. Adm. Code Enforcement Standard of 10.0 mg/l. Since the groundwater already exceeds the nitrate groundwater standard of 10.0 mg/l in much of the Town of Richfield and it is likely the concentrations throughout the area will continue to increase as the groundwater flow system reaches a steady state equilibrium with the continued existing groundwater nitrogen loading, the permitting of an additional load of 546,000 pounds of nitrogen from the Richfield Dairy would constitute a significant additional cumulative impact harming the waters of the State of Wisconsin. Once the facility is permitted, a long term commitment to the management of the animal waste will result in an activity that would not easily be reversed. Therefore the DNR should deny the facility WPDES permit using its delegated duty and authority for protection of the State's public trust. The DNR has the authority and a general duty to consider whether a proposed WPDES permit may harm waters of the state.

**Response:** The department cannot deny the facility a WPDES permit based generally on the protection of the State's public trust. The department is legally required to issue a WPDES permit to a CAFO that has submitted a complete permit application if the proposed facility satisfies applicable statutes and regulations. We believe Richfield Dairy has submitted a complete permit application, which includes a department reviewed and approved NMP that is consistent with NR 243 performance standard. The WPDES permit is the primary regulatory tool the department uses to protect waters of the state from

pollutants associated with a CAFO's manure and process wastewater applications to fields and subjects Richfield Dairy to the risk for issuance of enforcement action(s) if they fail to comply with permit conditions.

The department disagrees that issuing a permit to Richfield Dairy will likely result in the farm increasing concentrations of nitrate in groundwater throughout the area. Richfield Dairy will be required, via WPDES permit and NR 243, to meet more stringent nutrient management requirements than current agricultural activities on the 16,429 acres within their NMP. Current agricultural activities in the area either do not have a NMP or do not follow the requirements of a NRCS 590 NMP, including UW crop recommendations. Nor are growers in the area required, by state regulations, to have a WPDES permit that regulates how, where and when they apply nutrients (commercial fertilizer) to their fields and discharge to waters of the state. The Richfield Dairy proposed WPDES permit requires the farm to not only develop and implement the NMP, but also meet strict record keeping and reporting requirements. The land spreading and nutrient management practices and procedures as well as record keeping and reporting requirements within the NMP are all enforceable conditions via the proposed WPDES permit. Because Richfield Dairy is required to meet higher regulatory and recordkeeping standards for nutrient management than current growers in the area, the department believes fewer nutrients will enter groundwater than under current agricultural land use conditions.

The department disagrees that permitting of an additional load of 546,000 pounds of nitrogen from the Richfield Dairy would constitute a significant additional cumulative impact harming the waters of the State of Wisconsin. The Richfield Dairy NMP shows all manure generated is planned to be applied on approximately 8,500 out of 16,429 total acres without any over applications of Nitrogen above UW crop recommendations for crops selected. Commercial fertilizer, in addition to manure, is planned to meet crop fertility needs on most fields.

The department also disagrees that the proposed manure spreading within the Richfield Dairy NMP will result in excessive leaching of nitrogen into the groundwater from applied agricultural nutrients for the reasons noted under comment response #36.

**Comment #42:** The Draft RD WPDES Permit Fails to Incorporate Specific Groundwater Protection Requirements and Duties.

The Draft Permit readily acknowledges that the proposed permit allows discharges to groundwater in the subject watersheds. However, no provisions in the DNR Draft Richfield Dairy WPDES permit require compliance with groundwater protection standards. As such, the Draft Permit fails to incorporate the required provision at s. 283.31(3) and (4).

The Draft Richfield Dairy WPDES Permit contains no groundwater standard requirements, such as were provided for the final permit issuance in the matter of Richfield Dairy (See Section 4.1 of that final permit).

The most important provision the final Rock Prairie Dairy WPDES Permit that is missing from the Draft RD Permit is the following one: “5.2.1 Application of NR 140 to Substances Discharged.

This permit does not authorize the permittee to discharge any substance in a concentration which would cause an applicable groundwater standard of ch. NR 140, Wis. Adm. Code, to be exceeded. The Department may seek a response under NR 140 if the permittee’s discharge causes exceedance of an applicable groundwater standard for any substance, including substances not specifically limited or monitored under this permit.”

DNR’s decision to drop any groundwater protection provisions in the present case that were otherwise applied to Richfield Dairy constitutes arbitrary and selective enforcement of duties to protect groundwater in the case of Richfield Dairy.

The Draft Permit and RD NMP should be amended to provide for groundwater monitoring around process wastewater land application fields.

The Applicant should be placed under a burden to show the occurrence of present nitrate contaminated domestic and other wells and their hydrological relation to up-gradient process wastewater land application fields. The Applicant should not be allowed to carry out process wastewater land applications on fields where such operations will cause an existing groundwater quality violation to be exacerbated or to otherwise cause a new groundwater contamination problem. DNR failure to require such provisions means the agency has abdicated its required role to protect the public’s health and environmental from the deleterious effects of Applicant’s planned effluent discharges to groundwater.

The draft versions of the Rock Prairie Dairy WPDES permit contained a 165 lb/acre total Kjeldahl Nitrogen application limit and a chloride application limit. DNR did not explain why these limits were removed from the final Richfield Dairy WPDES permit. With the present case, there is even more justification for imposing a restricting total nitrogen process wastewater land application limit because of the extensive, highly permeable soils with rapid infiltration rates at the Richfield Dairy land application fields.

DNR should amend the Draft RD WPDES Permit to provide for requirements found at N.R.C.S. Code 590-WI, Section V.B limiting N application rates for fall application of process wastewater.

**Response:** With respect to the NRCS 590 comment, the Richfield Dairy NMP already contains requirements found at NRCS Code 590-WI, Section V.B limiting N application rates for fall application of process wastewater.

With respect to comment for imposing a total nitrogen process wastewater land application limit because of the extensive, highly permeable soils with rapid infiltration rates on the Richfield Dairy land application fields, the UW crop recommendations for crops are enforceable limits, codified by the NR 243 standard, referenced within the WPDES permit and NMP, the Department will use to determine maximum nitrogen

application rates, on a field specific basis, applied in a current year or in future planned years. To do this, each specific N nutrient source applied to fields is required to be calculated and included in the NMP and annual reports, including all process wastewater and dairy solids sources used by the farm. The NMP uses SNAP+ software, which allows users to generate a SNAP+ 590 assessment report that evaluates all fields in the NMP to determine if any exceed UW annual N recommendations for crops selected. Each time this report is created the calculation is completed, field(s) and individual crop year(s) where the over application of N is calculated are shown at top of the report. If no fields exceed UW crop N recommendations, no fields are shown at the top of this report.

The WPDES permit has several references that require compliance with surface and groundwater quality standards, both directly in the permit language and via references to NR 243. Since the public noticed Richfield Dairy permit was based on the implementation of best management practices and not on monitoring of surface waters or groundwater, there were no specific references to standards contained in NR 140 or other administrative codes containing water quality standards. Since the issued version of the Richfield Dairy permit does contain production area groundwater monitoring, the standard requirements associated with groundwater monitoring (including a reference to standards in NR 140) have been included in the permit (similar to Rock Prairie Dairy).

With respect to comments related to the requirement for groundwater monitoring around process wastewater land application fields and that the applicant should not be allowed to carry out process wastewater land applications on fields where such operations will cause an existing groundwater quality violation to be exacerbated, or to otherwise cause a new groundwater contamination problem, the department considers the factors listed within comment response #36 will help minimize the risk for Richfield Dairy manure applications to cause additional discharges of nitrate N to groundwater resource(s). Also reference comment response #41 for more information.

**Comment #43:** In reference to the nutrient management plan, one commenter noted concerns that the nutrient management plan states that Richfield Dairy will be managing fertilizer applications based on Nitrogen and has concerns that this method will result in excess phosphorus applications and discharges into surface and groundwater resources.

**Response:** Under normal circumstances, manure application rates are based on the nitrogen needs of the crop. Crops utilize more nitrogen than phosphorus and if manure is applied to meet nitrogen needs, phosphorus soil levels will become elevated over time. In order to protect against increased phosphorus loadings to area surface waters, the WPDES permit requires that the operation's NMP address phosphorus loadings from fields where the operation land spreads manure. While phosphorus is a critical component of ensuring healthy crop growth, excessive phosphorus that is applied on land can make its way to surface waters where it contributes to excessive algal growth. The permittee will need to implement field specific restrictions and practices as part of their NMP that was submitted to the Department for review and approval. These restrictions and practices require the permittee to account for existing soil nutrient levels, buffers, crop rotations, and other relevant factors. Specific restrictions are also included within

the WPDES permit to address phosphorus impacts associated with the operation's land spread manure.

**Comment #44:** On behalf of the 900 supporters of Crawford Stewardship Project, I am registering our opposition to the Richfield Dairy CAFO due to issues listed below:

- Inadequate assessment of soils: Sandy soils of the region are vulnerable to allowing water pollutants easy transfer. Soil sampling should be required annually to assure that over application of manure does not occur.
- Water quality concerns: Already 24% of the area wells are high in nitrates. Additional overload of nitrates to groundwater through run-off and application of liquid manure to fields could harm neighboring wells. Further, the WPDES proposed permit does not ensure there will be no discharge of manure from land spreading to surface waters. We are asking for no discharge allowance. The permit should not allow application of manure on fields with a phosphorus index more than 1. Ranges from 5-6 is likely to cause phosphorus pollution to surface waters. In addition, other fertilizer application rates need to be included in the NMP or there is a risk of over application of nutrients. The permit and NMP identify water courses on fields inadequately, thus proper buffer zones are not identified that are needed to keep pollutants from entering the surface waters.
- Monitoring needed. Given the vulnerabilities listed above, the DNR should set up monitoring of discharges when run-off from fields occur. This is supported by Wis. Stat s.283-55(1).

In conclusion, Crawford Stewardship Project opposes this application. The risk to community health is great given the water quality concerns alone.

**Response:** With respect to Inadequate Assessment of Soils: soil sampling annually, and alone, will not confirm if over application of manure has occurred on specific fields. Regular soil sampling manure source sampling applied to fields each year and then entering sampling data into department approved NMP each year will help confirm if manure has been over applied above UW crop recommendations/NMP.

With respect to Water Quality Concerns the WPDES permit and NR 243 performance standard each require that all applied Richfield Dairy manure and process wastewater may not runoff the application site, nor discharge to waters of the state through subsurface drains, during dry weather or precipitation events (exception for 25-yr/24-hr rain events). Refer to NR 243.14(2)(b)(2)&(3).

The NMP currently shows 98% of fields with planned manure applications have a calculated phosphorus index less than 1. Other planned fertilizer application rates and amounts, and applicable second year nutrient credits from manure and legume sources are currently included in the NMP on a field specific basis, to prevent over application of nutrients.

The department approved NMP contains restriction maps that identify water courses and other restricted areas on fields and are in compliance with NR 243 land spreading requirements. The NMP also contains detailed procedures for evaluating fields before, during and after applications so correct setbacks from restricted areas (i.e., wells, wetlands, streams or lakes) are followed, to determine if any manure runoff occurs and

for taking immediate corrective action if manure or process wastewater runoff, ponding is identified.

The department disagrees that chemical or biological monitoring of discharges is necessary when run-off from fields occur and is supported by Wis. Stat s.283.55(1). The WPDES permit and NR 243 standard require CAFO permit farms to *prevent* manure runoff from occurring. Setting up and then operating monitoring station(s) on all application fields is prohibitive and the department does not have the authority to require such monitoring under NR 243. Also, the risk for surface runoff from fields in this NMP, which are predominately comprised of sandy soils, is very low. Visual monitoring of fields for runoff, however, is required by the permit and NMP, as is taking immediate corrective action to prevent manure discharges from fields to surface or groundwater conduits (wells, drain tiles, etc). The Department believes the factors listed within comment response #36 will effectively reduce the risk of groundwater contamination.

**Comment #45:** Field 500-003:

The application restriction map does not show a Surface Water Quality Management Area around an intermittent stream in the SE quadrant of this field.

**Response:** Richfield Dairy NMP narrative (section 6.1) describes the following procedures will be followed for all NR 243 SWQMA areas on NMP fields:

#### **SWQMA spreading option chosen**

The current process chosen for handling applications in SWQMA areas under corn and corn silage rotations is option #1 – the farm will not apply in the 25 foot no spread areas (as seen on the maps) and will inject immediately in the rest of the SWQMA area. The complete incorporation of all nutrients (no ponding allowed) in the remaining area of the SWQMA prevents movement of nutrients off the field. The 25 foot buffer adds an additional measure to prevent movement off the field and will be more than adequate to protect SWQMA areas. Utilizing SWQMA application restriction option #1 will assure that nutrients do not leave the field.

Surface spreading on Alfalfa rotations will follow the 100' no spread areas (as seen on the maps). Manure will then be applied at the maximum rates found in NR 243 by soil type. The proper application rate will be entered into Snap Plus and the entire field will be spread at that application rate.

The spreading restriction map legend indicates 25 foot or 100 foot setbacks (with injection or immediate incorporation) will be followed during land spreading along all perennial streams, intermittent streams and concentrated flow channels. Taken together, the map and NMP narrative meet all applicable NR 243 SWQMA land spreading requirements.

**Comment #46:** Field 500-004:

The application restriction map does not show a Surface Water Quality Management Area around an intermittent stream just south of the south field boundary of the western

portion of the this field. The listed distance to water of 5001-10000 should be 0-300 on the 590 field data map.

**Response:** The spreading restriction map legend indicates 25 foot or 100 foot setbacks (with injection or immediate incorporation) will be followed during land spreading along all perennial streams, intermittent streams and concentrated flow channels shown on map. The map legend also contains a bar to measure distances on map. Using the map distance bar, the distance from field boundary to intermittent stream is > 300 ft but less than 500 ft. Accordingly, there are SWQMA area requirements that apply to the intermittent stream. The distance to water within SNAP+ should be changed to 300-1000ft as noted by the commenter. The department has instructed RD to modify the NMP to reflect this change.

**Comment #47:** Field 500-007:

This field may contain concentrated flow lines not shown on the spreading restriction map.

**Response:** Richfield Dairy NMP (section 8.3) contains detailed field and map verification procedures that require the farm to check each field and map before planned manure spreading for any restricted or prohibited features, including concentrated flow channels. If found, spreading maps are required to be amended and such areas be avoided or have applicable setbacks followed during manure spreading. Failure to complete these procedures may result in department citing farm for WPDES permit violations related to NMP implementation and meeting NR 243 general and specific land spreading requirements.

**Comment #48:** Field 503-032:

The spreading restriction map shows a wetland contiguous to Fordham Creek to the SW of the field. The SWQMA used the wetland boundary, instead of considering the wetland to be a conduit to surface waters.

**Response:** The spreading map does not show the wetland to be a conduit to surface waters and, therefore is not part of the SWQMA. The spreading restriction map legend indicates 25 foot setbacks will be followed for wetland areas shown on map. The map legend contains a bar to measure distances on map. Using the map distance bar, the distance from field boundary to wetland is > 300 feet. Accordingly, no SWQMA area requirements apply to the wetland.

**Comment #49:** Field 506-018:

The SWQMA is not marked or provided for Plainville Creek which is SE of the field. There may be evidence of concentrated flow lines just outside the SE field boundary.

**Response:** The spreading restriction map legend indicates 25 foot or 100 foot setbacks (with injection or immediate incorporation) will be followed during land spreading along all perennial streams, intermittent streams and concentrated flow channels shown on map. The map legend also contains a bar to measure distances on map. Using the map distance bar, the distance from field boundary to intermittent stream is > 300 ft; no NR 243 SWQMA area requirements that apply to the intermittent stream.

**Comment #50:** Field 506-019:

This field has evidence of concentrated flow lines to the southern and eastern boundaries of the field that might be draining the southern half of the field.

**Response:** The spreading map does not show evidence of flow channels within the field boundary. Refer to comment response #47 for additional information regarding the verification procedures.

**Comment #51:** Fields 508-007, 508-006 and 508-009:

These two fields are directly adjacent to a large wetland complex, which is also contiguous to blue line streams. Wetlands that are contiguous to blue line streams are conduits to surface waters and should be designated as SWQMAs with appropriate setbacks.

**Response:** The spreading restriction map shows wetlands and/or intermittent stream adjacent to fields 508-008, 009 and 006. The spreading restriction map legend indicates 25 foot setbacks will be followed along wetland areas shown on map and 25 foot or 100 foot setbacks (with injection or immediate incorporation) will be followed along all perennial streams, intermittent streams and concentrated flow channels shown on map. The NMP narrative (sections 6.1) and 1.0 (see below)) confirms all liquid manure applied to fields will be either injected or incorporated to prevent movement of manure from field to nearby surface waters or wetlands. The narrative demonstrates manure will be applied to fields in a manner that treats all wetland areas as conduits to surface waters and are part of the SWQMA. Also reference comment response #47 for more information on verification procedures.

#### Richfield Dairy NMP narrative section 1.0

In the fall and spring, liquid manure will either be injected as much as possible, or incorporated within 48 hours of surface application whichever is more appropriate for conditions at the time of application. All manure not injected will be incorporated with a disk till, or in the case of No-Till or alfalfa it will be surface applied in accordance with all NR 243 and NRCS 590 rules.

Furthermore, Richfield Dairy NMP (section 8.3) contains detailed field and map verification procedures that require the farm to check each field and map before planned manure spreading for any restricted or prohibited features, including wetlands that may be conduits to streams. If found, spreading maps are required to be amended and such areas be avoided or have applicable setbacks followed during manure spreading. Failure to complete these procedures may result in department citing farm for WPDES permit violations related to NMP implementation and meeting NR 243 general and specific land spreading requirements.

**Comment #52:** Field 508-008:

This field is traversed by an intermittent blue line stream which is a conduit to surface waters, but is not marked as a SWQMA.

**Response:** Richfield Dairy NMP narrative (section 6.1), describes the procedures which will be followed for all NR 243 SWQMA areas on NMP fields. Refer to comment response #47 for more information on verification procedures.

The spreading restriction map legend indicates 25 foot or 100 foot setbacks (with injection or immediate incorporation) will be followed during land spreading along all perennial streams, intermittent streams and concentrated flow channels. Taken together, the map and NMP narrative meet all applicable NR 243 SWQMA land spreading requirements.

**Comment #53:** Field 508-010:

The northern boundary of this field is adjacent to an intermittent stream which is a conduit to surface waters, but is not marked as a SWQMA around that intermittent stream.

**Response:** Reference previous comment ( Field 508-008), regarding spreading restrictions and comment response #47 for more information on field / map verification procedures.

**Comment #54:** Fields 508-011, 508-012 and 508-013:

These fields are directly adjacent to a large wetland complex, which is also contiguous to blue line streams. Wetlands that are contiguous to blue line streams are conduits to surface waters and should be designated as SWQMAs with appropriate setbacks. The 590 restriction map has obliterated a USGS intermittent stream channel running close to and north of the northern boundary of field 508-011 and should have been designated as a SWQMA. Similarly, Fields 508-013 and 508-012 are directly adjacent to a USGS intermittent stream channel running south of the southern border of these fields and the area around the intermittent stream should have been designated as a SWQMA, including the wetlands that are conduits to surface waters. The wetlands present on Field 508-013 are directly conduits to surface waters and should receive no applications of wastes and fertilizers as such applications would be discharges to waters of the United States.

**Response:** With respect fields 508-011, 012 and 013, the spreading restriction maps show wetlands and/or intermittent stream adjacent to these fields. The spreading restriction map legend indicates 25 foot setbacks will be followed along wetland areas shown on map and 25 foot or 100 foot setbacks (with injection or immediate incorporation) will be followed along all perennial streams, intermittent streams and concentrated flow channels shown on map. The NMP narrative (sections 6.1 and 1.0) confirms all liquid manure applied to fields will be either injected or incorporated to prevent movement of manure from field to nearby surface waters or wetlands. The narrative demonstrates manure applied to these fields will be completed as if all wetland areas are conduits to surface waters and are part of the SWQMA.

With respect to comment regarding 590 restriction map obliterating USGS intermittent stream channel running close to and north of the northern boundary of field 508-011, the spreading restriction map does not show any intermittent stream and, therefore, no SWQMA restrictions apply to this area of the field.

With respect to comment re: field 508-013 should not receive applications of wastes and fertilizers as such applications would be discharges to waters of the United States, the aerial photo layer of the spreading restriction map shows no evidence of a wetland

(Wisconsin state waters) located within field boundary. Instead, the map shows evidence of a cropped field.

Reference comment response 58(c) for additional information on field and map verification procedures.

**Comment #55:** Fields 509-012 and 509-014:

The restriction map for these fields fails to show the intermittent stream on the southern border of Field 509-012 and the northern border of Field 509-014 as a SWQMA as it is required.

**Response:** The spreading restriction maps show an intermittent stream adjacent (within 300 ft) these two fields. The spreading restriction map legend indicates 25 foot or 100 foot setbacks (with injection or immediate incorporation) will be followed along all perennial streams, intermittent streams and concentrated flow channels shown on map. Reference comment response 58(c) for additional information on field and map verification procedures.

**Comment #56:** Field 510-100:

This field is adjacent to a wetland which is directly contiguous to surface waters to the ESE. Such wetlands should be shown as SWQMA.

**Response:** Reference comment response #58(a), (b) & (c), for more information regarding conduits to navigable waters and field / map verification procedures..

**Comment #57:** Fields 510-110, 510-120 and 510-130:

The 590 field restriction map for these fields is a good example showing the failure of the NRCS work product used by Applicant to properly depict SWQMA boundaries when wetlands that are contiguous to streams are involved. A wetland that is contiguous to a stream is a conduit to surface waters. Under NR 243.03(66)(d), a 300 foot buffer to the border or location of a conduit to surface waters for the SWQMA must be from the outer edge of the contiguous wetland and not from the stream center. Numerous maps in the RD NMP have this defect.

**Response:** The department disagrees with these comments for the following reasons:

- 1) Fields 110 and 130, the restriction map shows a wetland area that overlaps with SWQMA area for a perennial stream. The spreading restriction map legend indicates 25 foot setbacks will be followed along all wetland areas shown on map and 25 foot or 100 foot setbacks (with injection or immediate incorporation) will be followed along all perennial streams, intermittent streams and concentrated flow channels shown on map. The NMP narrative (sections 6.1 and 1.0) confirms *all liquid manure applied to fields will be either injected or incorporated* to prevent movement of manure from field to nearby surface waters or wetlands. Accordingly, the narrative demonstrates manure applied to For these fields will be completed as if all wetland areas are conduits to surface waters and are part of the SWQMA.
- 2) For field 120, comment #1 also applies. In addition, it is not clear that wetlands on this map discharge *via channelized flow* to navigable waters. NR 243.03(14) defines conduits to navigable water to mean a natural and man made area or structure that discharges to a navigable water *via channelized flow* (italics added by DNR). The

Reference comment response 58(c) for additional information on field and map verification procedures.

**Comment #58:** Field 510-140:

This field does not show a SWQMA boundary on the north that is 300 feet from the wetland boundary. In addition, no SWQMA designation area at all is shown around the intermittent stream close to the western center field boundary.

**Response:** First, it is not clear that the wetland on the map discharges *via channelized flow* to navigable waters.

- (a) NR 243.03(14) defines conduits to navigable water to mean a natural and man made area or structure that discharges to a navigable water *via channelized flow*. The spreading maps do not show any evidence to indicate the wetland discharges via channelized flow to the perennial stream (navigable waters).
- (b) The spreading restriction map legend indicates 25 foot setbacks will be followed along all wetland areas shown on map and 25 foot or 100 foot setbacks (with injection or immediate incorporation) will be followed along all perennial streams, intermittent streams and concentrated flow channels shown on map. The NMP narrative (sections 6.1 and 1.0) confirms *all liquid manure applied to fields will be either injected or incorporated* to prevent movement of manure from field to nearby surface waters or wetlands. Accordingly, the narrative demonstrates manure applied to these fields will be completed as if all wetland areas are conduits to surface waters and are part of the SWQMA.
- (c) Richfield Dairy NMP (section 8.3) contains detailed field and map verification procedures that require the farm to check each field and map before planned manure spreading for any restricted or prohibited features, including conduits to navigable waters that may reside within or be adjacent to field boundaries. If found, spreading maps are required to be amended and such areas be avoided or have applicable setbacks followed during manure spreading (NOTE: if wetlands are found to be conduits to the stream via channelized flow, 25 foot setbacks – with injection or immediate incorporation - are required according to restriction map legend). Failure to complete these procedures may result in the department citing farm for WPDES permit violations related to NMP implementation and meeting NR 243 general and specific land spreading requirements.

**Comment #59:** Fields 510-170 and 510-180:

On the northern borders of these fields, 590 field restriction maps in the RD NMP do not properly show the SWQMA boundary from the directly contiguous wetlands to the creek.

Wetlands that are directly contiguous to streams are conduits to streams under NR 243.03(66)(d) and require 300 ft SWQMA boundary spacing.

**Response:** First, it is not clear wetlands directly contiguous to streams are conduits to streams under NR 243.03(66)(d) and require 300 ft SWQMA boundary spacing because it is not clear the wetland on the map discharges *via channelized flow* to navigable waters. NR 243.03(14) defines conduits to navigable water to mean a natural and man made area or structure that discharges to a navigable water *via channelized flow*. The spreading maps do not show any evidence to indicate the wetland discharges via channelized flow to the stream (navigable waters). Reference comment response #58(b) & 58(c) for more information on SWQMA boundaries and the field / map verification procedure.

**Comment #60:** The following SWQMA issues were raised on the following fields.

- Field 510-230: No SWQMA is designated on the NE boundary of this field associated with the intermittent stream in that area, which is a conduit to surface waters under NR 243.03(66)(d).
- Fields 511-005 and 511-008: No SWQMA area is designated for the intermittent stream traversing field 511-005 and approaching Field 511-008.
- Field 511-012: No SWQMA area is designated for the intermittent stream north of the northern boundary of Field 511-012.
- Field 511-019: No SWQMA area is designated for the intermittent stream on the SW lower boundary of this field.
- Field 511-026: No SWQMA area is designated for the intermittent stream at the SW corner boundary of this field.
- Field 513-010: This field is traversed and bordered by intermittent streams but not SWQMA area designation is shown for such streams that are conduits to surface waters.

**Response:** The spreading restriction map legend indicates 25 foot setbacks will be followed along all wetland areas shown on map and 25 foot or 100 foot setbacks (with injection or immediate incorporation) will be followed along all perennial streams, intermittent streams and concentrated flow channels shown on map. Reference comment response #58(c) for more information on the field / map verification procedure.

**Comment #61:** Field 511-027:

The SWQMA area boundary extends from stream center instead of from the wetlands which are hydrologically connected and are a conduit to the stream within the meaning of NR 243.03(66)(d).

**Response:** First, it is not clear wetlands directly contiguous to streams are conduits to streams under NR 243.03(66)(d) and require 300 ft SWQMA boundary spacing because it is not clear the wetland on the map discharges *via channelized flow* to navigable waters. NR 243.03(14) defines conduits to navigable water to mean a natural and man made area or structure that discharges to a navigable water *via channelized flow* (italics added by DNR). The spreading maps do not show any evidence to indicate the wetland discharges via channelized flow to the stream (navigable waters). Reference response to comment #58(b) and (c) for more information on SWQMA boundaries and field / map verification procedures.

**Comment #62:** Field 513-008:

The intermittent stream that traverses the west part of this field is a conduit to surface waters within the meaning of NR 243.03(66)(d), but no SWQMA area designation is shown.

**Response:** The spreading restriction map legend indicates 25 foot setbacks will be followed along all wetland areas shown on map and 25 foot or 100 foot setbacks (with injection or immediate incorporation) will be followed along all perennial streams, intermittent streams and concentrated flow channels shown on map. The NMP narrative (sections 6.1 and 1.0) confirms *all liquid manure applied to fields will be either injected or incorporated* to prevent movement of manure from field to nearby surface waters or wetlands. Accordingly, the narrative demonstrates manure applied to these fields will be completed as if all intermittent streams areas are conduits to surface waters and are part of the SWQMA. Reference response to comment #58(c) for more information on the field / map verification procedures.

**Comment #63:** Field 515-001:

Wetlands that are likely conduits to surface waters shown on the topographic maps are not shown for wetland boundaries on the 590 field restriction map. Neither is a SWQMA designation shown.

**Response:** It is not clear wetlands shown adjacent to field boundary are conduits to surface waters and require 300 ft SWQMA boundary spacing because it is not clear the wetland on the map discharges *via channelized flow* to navigable waters. NR 243.03(14) defines conduits to navigable water to mean a natural and man made area or structure that discharges to a navigable water *via channelized flow* (italics added by DNR). The spreading maps do not show any evidence to indicate the wetland discharges via channelized flow to the stream (navigable waters). The aerial photo layer of the spreading restriction map shows no evidence of a wetland (Wisconsin state waters) located within field boundary. Instead, the map shows evidence of a cropped field. Reference comment response #58(c) for more information on the field / map verification procedure.

**Comment #64:** Fields 500-001, 515-141 and 515-139:

These fields are close to a fish hatchery with open ponds which may receive undesirable atmospheric deposition of ammonia from the proposed facility's land spreading operations on these fields.

**Response:** The WPDES permit and NR 243.14 general and specific manure land spreading requirements do not address or regulate atmospheric deposition of ammonia to surface waters from manure spreading. The department does not have the legal authority, via the WPDES permit and NR 243, to regulate atmospheric deposition of ammonia created by manure land spreading from CAFO farms.

**Comment #65:** Fields 515-141 and 515-142:

These fields are directly adjacent to drainage features for highway 51 which will lead to a stream north of Field 515-141. Such drainage will be a conduit to surface waters but no SWQMA designation is shown.

**Response:** The aerial photo layer of the spreading restriction map shows no evidence of highway 51 drainage system that leads to stream north of field 515-141. Reference comment response #58(c) for more information on the field / map verification procedure.

**Comment #66:** Field 515-141:

The SWQMA area boundary does not consider wetlands that are direct conduits to surface waters at the NE field border location.

**Response:** It is not clear wetlands shown adjacent to field boundary are conduits to surface waters and require 300 ft SWQMA boundary spacing because it is not clear the wetlands on the map discharge *via channelized flow* to navigable waters. NR 243.03(14) defines conduits to navigable water to mean a natural and man made area or structure that discharges to a navigable water *via channelized flow* (italics added by DNR). The spreading maps do not show any evidence to indicate the wetland discharges via channelized flow to the stream (navigable waters). The aerial photo layer of the spreading restriction map shows no evidence of a wetland (Wisconsin state waters) located within field boundary. Instead, the map shows evidence of a cropped field. Reference comment response #58(c) for more information on the field / map verification procedure.

**Comment #67:** Commenter's obtained what was deemed by DNR to be the entire Richfield Dairy NMP submittal and review files. Our review indicates the Applicant made an electronic submittal of a draft NMP in February, 2011 featuring a common WI NMP format and file directory structure that organizes several individual files that are MS Word DOC files, MS Excel spreadsheet files, PDF, JPG and HTML files. Each of the files placed in the NMP directory structure are readily and directly viewable with very common electronic tools. The NMP directory structure provides important contextual information for each of the file elements provided that allows ready access to specific parts of the RD submitted draft NMP.

On April 14, 2011, DNR sent an email to the Applicant's consultants with comments on the RD submitted draft NMP. The email included a MS Excel spreadsheet that was the work product of DNR staff. The DNR spreadsheet provided numerous comments on the data shown on the submitted 590 field data report, which is found in section 5.3.1 of the RD submitted draft NMP.

The Applicant replied to the April 14, 2011 DNR email with an undated memorandum of replies to the DNR email. The Applicant reply also included one spreadsheet with a response column marked on the DNR-provided review spreadsheet, another spreadsheet on fields with P greater than 200 ppm, and a graphics files showing a modified field map.

The undated memorandum from the Applicant's consultants indicated, among other things, the following:

Fields needing correction or clarification are listed within excel 590 spreadsheet below.  
[from DNR Comment]

See spreadsheet 'Richfield Dairy LLC Fields590 Report- DNR review response' and zip file 'Richfield Dairy LLC SNAP Plus Database'.

Map change on field 515-149 is attached.

Added this 2011 spring soil samples to Snap-Plus. Some fields came back under the 101 ppm phosphorus default. Some came back over 200 ppm phosphorus, those are now included in the Spreadsheet: 'Fields over 200 ppm P Criteria'. See 'Richfield Dairy LLC SNAP Plus Database'.

The undated Applicant memo above is the last item found in the DNR Richfield Dairy NMP review file. There are no further memoranda, working papers or emails which document DNR review of the Applicant's response to the DNR NMP comments. Nor is there any preliminary or final approval letter of the submitted Richfield Dairy NMP.

In reviewing the DNR spreadsheet review and the Applicant's spreadsheet response comments, the matters raised by DNR are substantial and should have called for substantial and numerous modification of the previously submitted draft NMP plan tables, including the final 590 field data tables, nutrient budget and information tables and land spreading plan tables.

DNR indicated several fields had incorrect soil types and evidence of flow channels or conduits to navigable waters. Addressing such NMP changes should have required a narrative response, evidence of field observations, and changes to animal waste spreading restriction maps. This would have required re-submittal and amendment of previously submitted field restriction maps. Instead, the Applicant merely provided the comment "Will be field verified," which is not a sufficient response to finalize the NMP. Whether fields have unidentified concentrated flows is an important matter that must be addressed not only with restriction maps but also with a revised P index submittal for final approval if down slope distances to surface waters or conduits are different than what was originally submitted by the applicant in the 590 field data tables.

DNR indicated several fields had insufficient drawdown of phosphorus and the agency made comments about using a 2011-2014 rotation, errors about tillage and fields exceeding tolerable soil loss. All of these comments should have required substantive response from Applicant, would have required extensive changes in the submitted tables, and should have reflected further DNR review of Applicant's final responses. None of this appears in the DNR RD NMP review files. Therefore Commenter's can only assume that DNR did not carry out a substantive, documented review of the Applicant's response to the DNR April 14, 2011 NMP comment email and review spreadsheets.

If such a DNR review of the Applicant's revisions was documented, such documentation was not provided in response to Commenter's public record requests.

Further, as part of its review of the Applicant's submitted draft NMP and the preparation of their April 14, 2011 spreadsheet review, the DNR comment spreadsheet shows that

DNR set up the Applicant's implementation of SNAPPLUS, modified rotation periods, produced SNAPPLUS reports and then drew conclusions about the effects of such changes. No evidence of such work product (the production of SNAPPLUS reports by DNR from Applicant's SNAPPLUS database files produced in preparation of the April 14, 2011 email) was contained in documents disclosed to Commenter's.

**Response:** The Department did provide commenter's further memoranda, working papers or emails which document DNR review of the Applicant's response to the DNR NMP comments and were also provided a final copy of NMP and preliminary approval letter of Richfield Dairy NMP, dated 06-02-2011, via CD within the public comment period. The department specifically asked the commenter to contact the department for assistance with viewing or understanding the Richfield Dairy NMP on June 24, 2011. However, the department did not receive any requests for assistance with understanding or evaluating the NMP nor did it receive requests from commenter before or during public comment period for copy of complete NMP. The department cannot provide information the commenter needs/requests if commenter does not give notice for needing more information. Providing such notice, after the fact, is counterproductive to the intent of the public comment process.

With respect to comments re: modification of previously submitted draft NMP plan tables, including the final 590 field data tables, nutrient budget and information tables and land spreading plan tables, all of these 'tables' can be generated by creating reports from the Richfield Dairy SNAP+ file electronic file, which was sent to commenter first by email, via zip file, by and then again on CD by the department within the public comment period.

With respect to comments re: Richfield Dairy response to fields DNR identified with incorrect soil types and/or evidence of flow channels or conduits to navigable waters, the department disagrees there was an inadequate response by the applicant. The Richfield Dairy NMP contains procedures that require the farm to complete field and map verification of all fields prior to all manure applications. If new field features are found (e.g., flow channels) the farm is required to make amendments to the NMP, including narrative response, evidence of field observations, and changes to animal waste spreading restriction maps and SNAP+ calculations re: distance to water and PI calculations. These procedures ensure Richfield Dairy will complete manure applications in compliance with all NR 243 and WPDES permit requirements. These procedures are enforceable terms of the NMP and WPDES permit.

**Comment #68:** Summer top dressing of raw, untreated manure through hoses out the back of a tanker truck on alfalfa and on wheat after harvest constitutes spray irrigation. As such, it fails to meet the intent of the Thiboldeaux Memo, dated February 17, 2011 and should be eliminated as an acceptable practice. The intent of the Thiboldeaux Memo is that if you are using spray irrigation, the manure must be treated to reduce the microbial load.

**Response:** The Department does not consider the surface application of raw untreated manure through hoses and tanker trucks as spray irrigation.

**Comment #69:** The prior section discussed Applicant's real plans for spreading and the Applicant's intent is to spread process wastewater in March, among other months. NR 243.14(7)c prohibits process wastewater surface applications in March unless there is an approved emergency and NR 243.14(6)c restricts applications of solid waste in March. Applicant's submitted NMP fails to address how the Applicant will conform to DNR's rules when the matter of March land spreading operations is considered. In addition, Applicant's stated intention in the NMP to apply in March violates condition 1.6.6 of the Draft Permit.

**Response:** The manure application prohibitions in NR 243, Wis. Adm. Code and condition 1.6.6 of the WPDES permit cover manure applications when the ground is frozen or snow covered. The commenter fails to recognize that Section 1.0 of the NMP clearly states that there is no planned winter spreading, also referenced within section 3.3.2 SNAP-Plus Spreading Plan Report for land application schedules for specific fields. Section 3.0 and 5.0 of the NMP contain detailed, field specific nutrient budgeting and application information, based upon crop selected and set according to UW recommendations. No applications are planned during frozen or snow covered ground conditions. Eleven fields, totaling 831 spreadable acres, are listed in the NMP for winter spreading of liquid or solid manure. These fields were elevated and found to be in compliance with s.243.14(6-8) winter spreading requirements.

**Comment #70:** Applicant's Field P Index Table Determination Must Be Considered Unreliable and Erroneous Because of Its Reliance on Erroneous and/or Uncharacteristic Operations and Rotation Information Elsewhere in the Applicant's Submittal in a Manner that Violates N.R.C.S. Code 590-WI P Index Determination Requirements.

Applicant states that it is using the P Index procedure for addressing allowable phosphorus applications contained in land-applied process wastewater (See Section 1.0 of the submitted RD NMP). The Applicant has used SNAPPLUS to generate its February 2011 submittal of the 590 field data table in the submitted NMP at Section 5.3.1 and 5.4.1.7 SNAPPLUS algorithms inherently rely on the N.R.C.S. Code 590-WI required use of the Wisconsin P Index which requires the input of accurate input information to render an acceptable and representative result. Section 5.3.1 and 5.4.1 both contain what appears to be the same file of the 590 field data table.

The P Index score for each field contained in the Applicant's 590 field data table submittal inherently relies on the seasonal land application schedule and rotation used in the preparation of the other NMP tables for land application, soil testing, etc. However, a prior section of this comment showed that the land application schedule plan for mostly spring/summer animal waste land application operations is erroneous and uncharacteristic of the seasonal pattern of what the Applicant is actually planning to carry out. This means that Applicant's P Index determination work product relies on erroneous land application seasonal scheduling information. Without re-running the plan to use the Applicant's actual intended plan of operation, the current P Index determination should be considered unacceptable because of its reliance on the erroneous and uncharacteristic spring/summer-only land spreading schedule. Application and activities leading to fall

tillage will have an effect increasing P Index scores because expect soil erosion losses will be higher.

The Applicant's submitted P Index Determination shows the evaluated rotation of 2010 to 2013. Yet, all of the rest of the RD NMP submitted plan tables show six years of planning from 2010 to 2015. The Applicant never justified its use of a different rotation period of 2010-2013 for preparation of its field P Index determination. The 2010-2013 rotation cannot be considered as fully characteristic of planned operations and potentially considering of the highest risk of phosphorus transport from land application activities because there will be no animal waste applied in year 2010 and land spreading in 2011 will be significantly less than what was depicted in the plan. The Applicant should have used a 2011-2015 5 year rotation to properly determine the P index rotational average for each field.

**Response:** The department disagrees with the comment that spring/summer animal waste land application operations is erroneous and uncharacteristic of the seasonal pattern of what the permittee is actually planning to carry out and applicant's P Index determination work product relies on erroneous land application seasonal scheduling information. The commenter is correct that section 1.0 of the NMP contains land application schedule language that is contradictory with remaining sections of the NMP – section 1.0 mentions the option for farm to make manure application(s) in fall months. However, this section is only a general overview of the NMP and does not contain any field specific nutrient budgeting and application information, based upon crops selected and set according to UW recommendations. These sections show the schedule for manure and process wastewater applications to fields in the NMP that will occur only in the spring and early summer months. The Department accepted this vast majority of information as the applicants "intent" for planned land spreading of manure and process wastewater to fields within the NMP.

The Department disagrees with the comment that the Richfield Dairy NMP has erroneous and uncharacteristic spring/summer-only manure land spreading schedule. This schedule is not erroneous nor uncharacteristic for fields that are comprised of sandy, highly permeable soils, that comprise approximately 85% of fields in NMP. Spring manure applications on sands is: (1) possible due to excellent drainage and (2) best timing for applying manure nutrients immediately prior to crop establishment and helps to minimize the risk for mineralization of applied manure N and then leaching of manure N beyond crop root zone. Fall applications of manure on sand soils represent a higher risk for nutrient loss and groundwater contamination. This is main reason the applicant selected spring and early summer schedule for applying manure to fields.

Last, if Richfield Dairy selects fall manure application (and tillage) on fields in NMP, the department agrees that such change may increase P Index calculation scores on some fields. However, the department does not believe Fall applications and tillage will increase PI scores significantly to result in exceeding PI of 6 on any field in NMP. We believe this to be the case because approximately 95% of fields in NMP are comprised of sandy, highly permeable soils and fields. Sand soils, by definition, have a much lower soil erosion risk and corresponding P delivery risk compared to silt loams or silt-clay

loam or loess type soils found in other parts of the state because they infiltrate water rapidly.

**Comment #71:** Applicant's Submitted NMP Fails to Address the Inadequate Soil Test Record for Many of the Planned Spreading Fields and Justifies Permit Denial Unless Specific Permit Term Provisions Concerning Testing of Presently Un-tested Fields are Established.

Applicant's submitted NMP contain 225 fields totaling 16292.4 acres. However, review of soil test information indicates numerous fields are shown with the default soil test P number of 101 ppm. This figure was used as a default within Applicant's NMP for specific fields having no soil test results.

The RD NMP thus shows real soil test results for only 39 fields totaling 3670.1 acres, a result which is only 17% of the farm fields and 23% of the farm acreage. Applicant's performance in getting soil tests for all of its fields to provide for public review and P Index determination is sub-par.

The Applicant and DNR cannot carry out their respective responsibilities to evaluate and determine compliance with required practices when there is such a deficient record for testing of fields that will receive applications of animal waste.

All of the P Index determinations for fields at 101 ppm are rendered doubtful by reliance on this default soil testing value. For fields with a phosphorus soil test higher than 101 ppm, the submitted P Index determination calculated at 101 ppm will be understated since the P Index determination formula relies on soil test P to accurately determine the P Index score for particle-related phosphorus field runoff.

DNR should consider Applicant's gross failure to provide soil test information on the large majority of its farm operations to be a matter of an incomplete application. The purpose of nutrient management planning is defeated at its core by operations that do not have soil test data which are at the central core of NMP plan development. N.R.C.S. Code 590 requires soil tests every 4 years, but this rule cannot be considered as allowing NMPs that don't have soil testing for the large majority of fields as in the present case. Neither can this rule be interpreted as allowing the Applicant to evade submitting the required soil tests for the next 4 years.

If DNR does not reject Applicant's NMP submittal as being incomplete and non-approvable on ground of failure to provide soil tests for each field, then DNR should nevertheless ensure that the Applicant's Draft WPDES permit is amended to require the following:

No land applications of process wastewater or dairy solids shall be made to fields without soil test results.

Applicant must either submit soil tests for presently untested fields in the next 6 months and update NMP P Index fields determinations and spreading plans, or remove any fields from the NMP that remain untested.

**Response:** An applicant's failure to provide adequate soil test information would result in an incomplete application; this is not the case with the RD submittal. Section 7.6 of NMP establishes provisions concerning testing of presently un-tested fields. It states: Soil tests will be added upon sampling completion within 12 months of application approval. This schedule for soil testing fields with out of date test data results or fields without any soil test data was reviewed and approved by the department. No manure is scheduled to be applied to missing soil test fields in 2012 until retesting is completed. The schedule for retesting incomplete fields, listed above, is a term/condition of the NMP, as is the requirement to revise the plan to reflect new data before manure applications are completed so farm can determine if field meets all applicable rotational (T and PI) requirements. Since these two items are terms of a NMP, they are also enforceable conditions of the proposed WPDES permit.

**Comment #72:** The Applicant states that there are no drain tiles present at the 225 farm fields. However, there is no basis or justification of this statement, and no information on whether it is merely default assertion or whether the statement is supported by comprehensive field inspection activity. The Applicant must not be permitted to declare there are no field tiles present without a requirement to conduct a field inspection to find such systems.

**Response:** The Department accepted no drain tiles were present at the 225 farm fields after reviewing the NMP, which shows > 95% of fields are comprised of Coloma, Plainfield, Richford sandy, highly permeable soils, which do not require drain tiles. In addition the NMP contains procedures for evaluating fields before, during and after applications for restricted or prohibited features, to follow correct setbacks from restricted areas (i.e., wells, wetlands, streams or lakes), to determine if any manure runoff occurs and for taking immediate corrective action if manure or process wastewater runoff, ponding is identified.

**Comment #73:** The Submitted Nutrient Budget Information for 2010 to 2015 Fails to Indicate the Specific Breakdown of Nitrogen and Phosphorus Attributable to Process Wastewater Applications in the Present Year in a Manner that Renders the NMP Unenforceable for Restrictions on Process Wastewater or Dairy Solid Application Limitations.

The Applicant submitted SNAPPLUS reports for 2010 to 2015 on the recommended and planned total available nitrogen and phosphorus deemed to be available that year on a field by field basis from the combined influence of process wastewater and solids applied in the current crop year, commercial fertilizer applications and from 2nd and 3rd year 'manure' credits.

No report in the DNR file on Richfield Dairy indicates maximum application rates in the current year of nitrogen and phosphorus broken out by specific nutrient source and

particularly indicating the maximum nitrogen and phosphorus application rate each for process wastewater and dairy solids.

Because the planned phosphorus and nitrogen application rates per field are only specified a total nutrient basis for all applied nitrogen classes and credits, it is impossible to know or enforce any specifically stated maximum nitrogen and phosphorus application rate solely from process wastewater and dairy solids. In addition, because there is no breakout of the total application rate showing each nutrient source of nitrogen and phosphorus, it is impossible to verify that applicant is properly considering and properly determining 2nd and 3rd year process wastewater/dairy solid crediting.

Specifying volumetric (for liquids) and tonnage (for dairy solids) application rates might be enforced from tables showing totals applied to each field per crop year. However, all parties expect that those rates will be adjusted in the first year commensurate with process wastewater and dairy solids analytical results yet to be completed after commencement of dairy operations. As a result, the specific tables of volumetric and tonnage rates may not be practically enforceable in light of expected future waste analytical results.

Because volumetric and tonnage tables for applied process wastewater and dairy solids might not be practically enforceable in light of revised analytical determinations on wastes, it is essential that the maximum nitrogen and phosphorus nutrient applied rates for process waste be known for each crop year. The present NMP does not provide that information in the tables and forms submitted. The commenter noted that the SNAPPLUS electronic databases are not NMP tables and forms, and cannot be enforced as applicable NMP requirements.

**Response:** First, the commenter fails to understand that the SNAPPLUS electronic database, contained with Richfield Dairy NMP, and submitted to commenter, can be used by commenter to create various reports. These reports show the specific NMP tables and forms the commenter has repeatedly asked for. The CD provided to the commenter, during the comment period, contains many of these same SNAP reports, copied and saved as electronic html files, as well as the SNAP+ database. Either SNAP+ reports or SNAPPLUS electronic database can be used by the department, or others, to evaluate compliance with NMP requirements.

Second, SNAP+ software is designed to quickly allow users (farm, department, public) to evaluate if planned or actual applications of individual nutrient sources (based upon actual or planned concentrations and application rates) meet or exceed UW crop recommendations (A2809). The UW crop recommendations for crops are the enforceable limits, codified by the NR 243 standard and the proposed WPDES permit, the department uses to determine maximum nitrogen and maximum phosphorus application rates, on field specific basis, applied in a current year or in future planned years. To do this, each specific nutrient source applied to fields must be calculated and included in the plan, including all process wastewater and dairy solids sources used by farm. The NMP and proposed WPDES permit require such revision of NMP as new nutrient content information is generated. The proposed WPDES permit also requires the farm to submit

annual reports to the department. These reports show must contain results of actual manure sampling, by source and calculation of actual total manure and process waster applied, and actual, field specific, crops and manure application timing, rates, methods used by farm.

Third, if any planned or actual N or P applications, from all nutrient sources applied to a field in NMP, are set above UW recommendations, SNAP+ will flag the field or fields showing over applications of N and P to the user. Fields with N or P problems can be individually evaluated, using the SNAP+ cropping screen, or, all fields can be quickly evaluated using two different SNAP+ reports. The SNAP+ 590 assessment report evaluates all fields that exceed UW annual N recommendations. Each time this report is created the calculation is completed; field(s) and individual crop year(s) where the over application of N is calculated are shown at top of report. If no fields exceed UW crop N recommendations, no fields are shown at top of this report. The SNAP+ compliance report is designed to evaluate if planned or actual P application rates are in compliance with UW crop recommendations. This report flags fields and individual crop years in a similar fashion to 590 Report. As the NMP changes over time, these reports can be used to evaluate compliance with annual maximum nitrogen and phosphorus application rates – set according to UW crop recommendations - based upon all tested nutrient sources applied to individual fields.

**Comment #74:** All Reports Should be Converted to Crop Year Integration and Scheduling, Rather than the Present Calendar Year Integration.

DNR should convert all reporting requirements to crop year end reporting formats, schedule and timing. A nutrient budget must necessarily be indicated as a crop year function. The nutrients are applied starting at the beginning of the crop year and the crop year is ended at harvest. Yet, DNR is requiring calendar year reporting of applied wastes. The effect of providing annual reports integrated by calendar year rather than by crop year is to render the NMP virtually enforceable. Calendar year data integration on applied nutrients will necessarily mix together information and data for any particular crop year rotation with nutrient applications occurring before harvest with nutrient applications after harvest. This means that the annual reports submitted for a calendar year cannot be compared to the annual crop year nutrient budget which countenances time interval end points in a non-calendar manner. Such a process renders enforcement of maximum application rates as either difficult or impossible based only on a single calendar year report which actually describes parts of two different crop years.

**Response:** The department disagrees that the effect of providing annual reports by calendar year rather than by crop year will render the NMP virtually un-enforceable. The commenter was provided a copy of the Richfield Dairy NMP via email and on CD before and during the public comment period. From this information, the commenter can see the Richfield Dairy NMP uses SNAP+ software and SNAP+ is set up according to a cropping year (harvest to harvest – e.g., Fall 2012 to Summer 2013) versus a calendar year. SNAP+ reports have been regularly reviewed by the department to demonstrate compliance with WPDES annual reporting requirements.

The NMP is designed and required, via proposed WPDES permit, to be amended over time, with new information (e.g., actual spreading rates, timing, amounts, methods, manure sources & concentrations followed by farm). SNAP+ software is a primary method the department, and commenter, can use to evaluate if Richfield Dairy NM plan is being updated to reflect actual vs. planned practices and if such practices, according to crop year, meet all permit and NMP requirements (e.g., meeting UW recommendations for all manure and process wastewater applications to fields).

The department disagrees that annual reports submitted for a calendar year cannot be compared to the annual crop year nutrient budget which countenances time interval end points in a non-calendar manner. SNAP+ software automatically calculates all nutrient applications by cropping year (harvest to harvest). Therefore, compliance evaluations of the NMP, by cropping year, can be made by the department, by farm or by the public.

Last, the proposed WPDES permit requires the Richfield NMP to be revised each spring (March 30) to reflect actual cropping practices used by farm before such date (March 30). The NMP reviewed and approved by the department shows the schedule for all manure and process wastewater applications is spring and summer only; no fall manure applications are planned. With this schedule, the department or the public will have the opportunity to review which fields have received manure in prior cropping year and which fields are planned to receive manure, before such applications occur in the next cropping year.

**Comment #75:** The Department received the following comments questioning the effectiveness of the NMP to prevent groundwater contamination:

- A Nutrient Management Plan (NMP) does not prevent groundwater pollution. NMPs are a “put and take” system, not “no leaching” guarantees. Moreover, there is currently no data on manure nutrient management in the central sands. According to Matt Ruark of UW-Madison, NMP recommendations are currently based on field work completed in other regions with different soil types. I request that more work be done to determine what practices are safe for manure spreading in the central sands before the permit is issued. To assume the fine loamy soils of eastern Wisconsin can be used as a model for what is likely to result from CAFO agriculture in sand country is an error in judgment.
- “A NMP is a “put” and “take” system. IT does not insure no groundwater pollution.
- NMP plans in no way insure that groundwater pollution does not occur. Weather factors beyond our control have the potential to pollute no matter the NMP.
- What is the optimum application rate and timing of manure delivery in sand country?
- To claim that the proposed NMP will assure no groundwater pollution has no basis in fact or data collected and analyzed at this time. The nutrient management plan does not guarantee that there will be no groundwater pollution occurrences.

**Response:** The Department disagrees with the statement that NMP’s do not prevent groundwater pollution and that UW recommendations are not based upon research within the central sands region. The Richfield Dairy NMP and WPDES permit contain many specific requirements or prohibitions designed to specifically protect groundwater from pollution associated with manure applications. One example is the requirement for the

farm to meet UW crop recommendations (A2809) for nitrogen, phosphorus and potassium.

- (a) The department believes following UW crop recommendations (A 28909) for manure application rates/timing/amts within Richfield Dairy NMP will help reduce risk for leaching of nitrate and will also help ensure compliance with groundwater quality standards for nitrate. The UW crop recommendations were adopted by the department as regulatory/discharge limits via adoption of NR 151 and NR 243 performance standards. Compliance with the NR 243 standard is a condition within the proposed WPDES permit. Failure to meet this condition, may result is issuance of department enforcement action(s).
- (b) The UW recommendations are based upon years of peer reviewed agronomy/crop fertility, nutrient management and water quality research completed by UW faculty - <http://www.soils.wisc.edu/extension/dir.php> & <http://www.soils.wisc.edu/soils/staff.php> - at various UW Ag research stations - <http://www.ars.wisc.edu/> - throughout the state, including the central sands region. The department believes following UW nutrient application recommendations helps prevent over-application of nutrients and helps protect surface and ground waters of the state from environmental degradation. The underlying goal of the recommendations is to apply enough nutrients to the crop for optimum (not maximum) growth throughout the season. Because crop nutrient demands are not uniform throughout the growing season, an adequate supply must be available during the period of peak demand. The program defines the “critical” level as the cutoff between optimum and high soil test levels. The critical level determination within the UW recommendations is based upon the probability of yield increase to applied nutrients. If nutrient supply exceeds the critical soil test level, there is an increased risk of mobile nutrients moving into groundwater and surface water.
- (c) The UW Nitrogen rate recommendations for corn are based upon soil organic matter, soil texture, growing degree days and yield potential of the soil. Please note corn for grain or corn for silage crops represent 30% of total acres within Richfield NMP; all these acres have planned manure applications to meet corn crop needs using MRTN method. Recommendations for other crops are based upon soil organic matter and yield goal. The N recommendations are supported by field studies where crop responses to various rates of nitrogen have been measured on soils typically used for production of various crops. N recommendations vary according to crop to be grown, soil characteristics and yield potential, and soil organic matter content. The UW N recommendations are not written to maximize crop production.
- (d) The UW N recommendations contain a specific section entitled: Managing nitrogen to avoid losses. This section explains nitrogen rate, nitrogen credits and soil test nitrate recommendations assume best management practices will be used to control nitrogen losses. The following best management practices are

described in detail in this section to control nitrogen losses: (1) Nitrogen Rate, (2) Nitrogen Source, and (3) Nitrogen Timing. Many of these same best management practices will be used during manure applications planned by Richfield Dairy (e.g., following MRTN for all corn crop acres in plan; taking credit for manure and previous legume crops, applying manure in spring before crop establishment vs. fall application, regular testing of all manure sources applied to fields).

Some published studies that support UW nitrogen rate recommendations for corn and for reducing risks for nitrate leaching, include:

- Adraski, T.W., L.G. Bundy, and K.R. Brye. 2000. Crop management and corn nitrogen rate effects on nitrate leaching. *J. Environ. Qual.* 29:1095-1103.
- Hong, N., P.C. Scharf, J.G. Davis, N. R. Kitchen, and K.A. Sudduth. 2007. Economically optimal nitrogen rate reduces soil residual nitrate. *J. Environ. Qual.* 36:354-362.

The Department agrees that weather factors beyond our control pose a potential groundwater pollution concern if the event occurs shortly after a manure / process wastewater application has been made. This same principle applies to other soil types in the state and also for various manure management practices and procedures for preventing manure runoff from fields into surface waters or leaching into groundwater resources. Sandy soils found within many of RD fields have risks for groundwater contamination and pose a challenge for the facility to maintain compliance with groundwater quality standards. The department considers the factors listed under comment response #36, in addition to following UW recommendations, will help minimize the risk for Richfield Dairy manure applications to leach and cause additional discharges of nitrate N to groundwater resource(s).

Beyond the points listed under comment response #36, the Department supports the commenter's point that research needs to focus on leaching risks (under specific environmental conditions, crop types, management) associated with manure application on sandy soils. The department, however, does not have the authority, via WPDES permit and NR 243 performance standard, to require more research be completed by Richfield Dairy, or others, to determine what practices are "safe" for manure spreading in the central sands before issuing a permit. Also, the time required to conduct research to answer commenter's questions may take multiple years or decades to obtain conclusive answers.

**Comment #76:** There are a number of unknowns about this project including (1) to what degree manure will degrade in central sands (2) how irrigation will affect the percolation rate of manure and associated pollutants (3) the rate and timing of application and (4) the vertical distance from the surface to the groundwater.

**Response:** All manure application rates in the NMP are set according to UW crop recommendations, which considers whether sand soils are irrigated or not irrigated. Irrigated soils/fields have higher recommended nitrogen application rates versus non-irrigated soils. Irrigation practices, however, are not regulated by the WPDES permit.

The WPDES permit only regulates manure and process wastewater applications by the farm. If Richfield Dairy field receives commercial fertilizer, in addition to manure, the department still has authority to regulate the manure application because all nutrient sources, including commercial fertilizer amounts, must be considered/credited towards total crop need when applying manure to meet remainder of crop need/UW crop recommendations.

The Richfield Dairy NMP shows planned manure spreading on many fields that contain sandy, highly permeable soils. These soils, in general, have a higher risk for leaching of nitrates and other pollutants into groundwater. With that said, the Department believes the risk for manure applications to cause contamination of groundwater and surface waters, via groundwater recharge, is reduced by the factors listed within comment response #36. These factors address all points made by the commenter.

**Comment #77:** Regarding the statement within the environmental assessment noting that Richfield Dairy will have approximately 205 days of manure storage, the Department received the following comments:

- “This would mean that spreading will take place throughout the year. Spreading when plants are not growing will likely result in nutrient loss to groundwater.”
- “NMP claims 180 days?”

**Response:** The NMP and other documentation submitted as part of Richfield Dairy’s permit application demonstrates that the farm has and can maintain approximately 205 days of manure storage. The WPDES permit requires the farm to have and maintain 180 days of storage.

The Department reviewed and approved NMP shows the timing of all planned manure applications are for spring or early summer months. All spring manure applications are planned within a short period (approximately two-weeks) prior to crop establishment. All spring applied manure will be incorporated immediately. No manure applications are planned for fall or winter months. Applying manure N just before crop establishment in the spring lowers the risks for N conversion and nitrate N leaching into groundwater, as manure, by definition, is a slow release N source compared to commercial N (immediately plant available) sources. Incorporating manure immediately after application will help to further retain applied nutrients within the root zone of target crops. Established alfalfa crops are planned to receive surface manure applications in summer months without incorporation.

The Department agrees that if manure is spread in fall when temperatures are above 50° F, manure nitrogen is more subject to leaching to groundwater. The Richfield Dairy NMP also contains specific procedures if manure is applied in fall months to fields. The procedures address late summer or fall manure applications to fields with high potential for N leaching to groundwater and contain soil temperature, application rate and timing restrictions. The procedures require Richfield Dairy to either apply manure in spring or measure soil temperatures on fields and delay fall applications of manure until soil temperatures fall below 50 degrees F. All manure applications in NMP are planned for

spring and early summer. No applications of manure are planned in late summer, fall or winter.

The department agrees that highly permeable, sand soils found within many Richfield Dairy fields have risks for groundwater contamination and for farm to maintain compliance with groundwater quality standards. With that said, the department considers the factors listed within comment response #36, in addition to following UW crop recommendations, will help minimize the risk for Richfield Dairy manure applications to cause additional discharges of nitrate N to groundwater resource(s).

**Comment #78:** What is the optimum application rate and timing of manure delivery in sand country?

**Response:** The department believes following UW crop recommendations (A 28909) for manure application rates/timing/amts within Richfield Dairy NMP will assure compliance with groundwater quality standards for nitrate. The UW crop recommendations were adopted by the department as regulatory/discharge limits via adoption of NR 151 and NR 243 performance standards. Compliance with the NR 243 standard is a condition within the proposed WPDES permit. Failure to meet this condition, may result in issuance of department enforcement action(s). Reference comment responses #36, #75(b) & (c), for additional information related to application timing and UW nutrient application recommendations.

**Comment #79:** Regarding the statement within the environmental assessment that there is a reduced risk of nitrate leaching from manure than from commercial fertilizer, the Department received the following comments

- Where is the data to support this claim?
- According to UW-Madison soil scientist we have no data to tell us how manure will behave on sandy soils.
- We don't know if there is a reduced risk of nitrate leaching by using manure.
- The cumulative effect on spreading manure on the Wisconsin central sands is unknown. As a result, Matt Ruark and Amanda Gevens, both of UW-Madison, are currently beginning a study to investigate the release of nitrogen and phosphates from manure in Wisconsin Central Sands and its effect on corn and potatoes.

**Response:** The Department is aware of Matt Ruark's planned research related to manure applications on sandy soils. The Department consulted with Mr. Ruark and Dr. Carrie Laboski (UW Soil Scientist) before responding to this comment and related comments related to applying manure on sandy soils.

There is a reduced risk of nitrate leaching from manure than from commercial fertilizer on sand soils. The reduced risk is supported by UW crop recommendations (A 2809), and related UW soil science publications or presentations:

<http://www.soils.wisc.edu/extension/pubs/A2809.pdf>

<http://www.soils.wisc.edu/extension/pubs/A3634.pdf>

<http://www.soils.wisc.edu/extension/pubs/A2519.pdf>

[http://www.soils.wisc.edu/extension/materials/CCA\\_N\\_Mgmt.pdf](http://www.soils.wisc.edu/extension/materials/CCA_N_Mgmt.pdf)

<http://www.soils.wisc.edu/extension/materials/N-Mgmt2005Rates.pdf>

[http://www.soils.wisc.edu/extension/materials/N\\_Balance\\_Fert\\_Organic.pdf](http://www.soils.wisc.edu/extension/materials/N_Balance_Fert_Organic.pdf)  
<http://www.soils.wisc.edu/extension/materials/FallNEfficiency.pdf>  
[http://www.soils.wisc.edu/extension/materials/CCA\\_Legume\\_Credits.pdf](http://www.soils.wisc.edu/extension/materials/CCA_Legume_Manure_Credits.pdf)  
<http://www.soils.wisc.edu/extension/materials/Hypoxia.pdf>

The department considers the factors listed within comment response #36, in addition to manure application timing and following UW crop recommendations, will help minimize the risk for Richfield Dairy manure applications to cause additional discharges of nitrate N to groundwater resource(s).

**Comment #80:** Referencing the environmental assessment stating that the operation must comply with its WPDES permit and associated NMP and the reduced risks of N leaching associated with liquid manure versus commercial N, the Department received the following comments:

- “NMPs do not prevent pollution. As noted above, there are several problems with the NMP: monitoring of growers is not included, the combination of large amount of land spread manure and irrigation is unknown, the amount of uptake of N by potatoes is variable, application rates and timing is required by both applicator and grower – yet no schedules accountability for their joint venture is included in the NMP.”
- “Ok, but what about the landowners who are receiving manure? The NMP notes that Milk Source Dairy is not responsible for any additional N, P, K, applied by the crop grower. (NMP Overview, p.4).”
- Given the vulnerabilities of the central sands, application rates and timing identified in the NMP and who is accountable for nutrient applications to soil (applicator or grower) must be specific, not vague generalities.

**Response:** Richfield Dairy is required to track commercial fertilizer application rates and amounts used by cooperating growers to properly account for second year nutrient credits in accordance with NR 243 and NRCS 590. The fields in NMP with planned manure applications, also commonly have planned starter commercial fertilizer applications (e.g., corn for grain, corn for silage, alfalfa, soybean and some sweet corn crops). However, fields with other crops (e.g., potato, snap bean, some sweet corn and corn for grain) which have no planned manure applications will rely exclusively on commercial fertilizers to meet crop fertility needs.

Given the department does not have the ability to regulate commercial fertilizer applications by cooperating growers via the proposed WPDES permit, there is a risk for total nutrient applications made by cooperating growers to not conform to the planned total nitrogen and phosphorus applications shown in NMP (e.g., potato and sweet corn crops) that follow UW crop recommendations. Application of commercial fertilizer, however, does restrict the amount of manure that can be applied to a field because manure applications are restricted by the permit, as discussed below.

The NMP contains multiple procedures to ensure the NMP is used before manure is applied to any fields to ensure all setbacks, prohibitions and restrictions/application rates are followed. Examples include:

1. Section 8.3 and 8.3.5 – shows requirements for evaluating fields before, during and after applications for restricted or prohibited features, to follow correct setbacks from restricted areas (i.e., wells, wetlands, streams or lakes) and to determine if any manure runoff occurs and for taking immediate corrective action if manure or process wastewater runoff, ponding is identified.
2. Section 5.6.1 - Meetings with Plan Writer, Operations Manager and Manure Hauler Owner will occur before Spring, Summer, and Fall application events (at least three times per year). Documentation of these meetings can be found in 8.2.4 Employee Training Log.xls. Meetings with the Operations Manager and the Manure Hauler Foreman will occur daily during hauling events. The daily meeting documentation will be summarized on a weekly basis and will also be documented in section 8.2.4. During these 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. To ensure effective communication of NR 243 spreading restrictions, setbacks and sensitive areas, each meeting will also include field inspections of these areas.

If a Richfield Dairy field receives commercial fertilizer, in addition to manure, the department still has authority to regulate the manure spread activity, because all nutrient sources, including commercial fertilizer, must be considered/credited towards total crop need when Richfield Dairy applies manure to meet remainder of crop need/UW crop recommendations.

With respect to Richfield Dairy manure and process wastewater applications: The department considers the factors listed within comment response #36, in addition to following UW recommendations, will help minimize the risk for such manure applications to leach and cause additional discharges of nitrate N or other pollutants to groundwater resource(s).

**Comment #81:** The Department received the following comments related to the general project description that liquid manure will be pumped to tanker trucks and then land spread on area crop fields:

- How has the sandy soil in the region been factored into the NMP?
- Is there data to support the application rate in the sand? If so, where is the citation?"
- Although the NMP addresses land-spread manure application, it does not address land-spread manure on irrigated lands. Because the spreading will be over 16,000 + acres, a large regional impact will result if the WPDES permit is issued as written. An EIS should be conducted to determine how manure and irrigation work together regarding manure decomposition in sand.

**Response:** The Department disagrees with the statement that the NMP fails to address land spread manure on irrigated fields and manure spreading is planned on 16,000+ acres. The NMP considers irrigation of fields on sand, highly permeable soils. All manure application rates in the NMP are set according to UW crop recommendations, which consider whether sandy soils are irrigated or not irrigated. Irrigated soils/fields are noted in the NMP and have higher recommended nitrogen application rates versus non-irrigated soils. Irrigation practices, however, are not regulated by the WPDES permit. The WPDES permit only regulates manure and process wastewater applications by the farm.

The department believes following UW crop recommendations (A 28909) for manure application rates/timing/amts within Richfield Dairy NMP will help reduce risk for leaching of nitrate and will also help ensure compliance with groundwater quality standards for nitrate. The UW crop recommendations were adopted by the department as regulatory/discharge limits via adoption of NR 151 and NR 243 performance standards. Compliance with the NR 243 standard is a condition within the proposed WPDES permit. Failure to meet this condition, may result in issuance of department enforcement action(s).

The UW recommendations are based upon years of peer reviewed agronomy/crop fertility, nutrient management and water quality research completed by UW faculty - <http://www.soils.wisc.edu/extension/dir.php> & <http://www.soils.wisc.edu/soils/staff.php> - at various UW Ag research stations - <http://www.ars.wisc.edu/> - throughout the state, including the central sands region - <http://www.ars.wisc.edu/hancock/history.html>  
<http://www.soils.wisc.edu/extension/area/horizons/2005/CornNrecs.pdf>  
<http://www.soils.wisc.edu/extension/materials/VegCropsNPMgmt0306.pdf>  
<http://www.soils.wisc.edu/extension/pubs/A3588.pdf>  
<http://learningstore.uwex.edu/Assets/pdfs/A3422.pdf>  
[http://www.soils.wisc.edu/extension/materials/Potato\\_ACA.pdf](http://www.soils.wisc.edu/extension/materials/Potato_ACA.pdf)  
[http://www.soils.wisc.edu/extension/materials/Manure\\_Potatoes.pdf](http://www.soils.wisc.edu/extension/materials/Manure_Potatoes.pdf)  
[http://www.soils.wisc.edu/extension/pubs/pa\\_sampling.pdf](http://www.soils.wisc.edu/extension/pubs/pa_sampling.pdf)  
[http://www.soils.wisc.edu/extension/nhss/2011/11\\_07\\_ruark\\_sweetcorn.pdf](http://www.soils.wisc.edu/extension/nhss/2011/11_07_ruark_sweetcorn.pdf)

The department believes that the UW nutrient application recommendations reference in comment response 75(c) & (d), help prevent over-application of nutrients and helps protect surface and ground waters of the state from environmental degradation. The underlying goal of the recommendations is to apply enough nutrients to the crop for optimum (not maximum) growth throughout the season. Because crop nutrient demands are not uniform throughout the growing season, an adequate supply must be available during the period of peak demand. The program defines the “critical” level as the cutoff between optimum and high soil test levels. The critical level determination within the UW recommendations is based upon the probability of yield increase to applied nutrients. If nutrient supply exceeds the critical soil test level, there is an increased risk of mobile nutrients moving into groundwater and surface water.

The department considers the factors listed under comment response #36, in addition to following UW recommendations, will help minimize the risk for Richfield Dairy manure applications to leach and cause additional discharges of nitrate N or other pollutants to groundwater resource(s).

In regard to drafting an EIS, the Richfield Dairy EA adequately covers the content requirements of NR 150.22(2), and did not find significant impacts that would otherwise require the EIS process under NR 150.20(1)(c)3. The EA references the NMP, which addresses all manure spreading acreages, and requires application measures to minimize the risk of runoff.

**Comment #82:** Will *E. coli* move through the sand to the groundwater? If so, at what rate and in what quantity?

**Response:** The Department evaluated the risk for movement of pathogens (defined as bacteria, viruses and parasites that cause disease) within sand soils to groundwater associated with manure applications planned by Richfield Dairy. Land application of manure can contaminate groundwater with pathogens where *groundwater is vulnerable to contamination and where conditions allow pathogens to survive and sometimes thrive*. The unsaturated zone (the upper soil and sediment layers that have some water in pore spaces) can play an important role in slowing down pathogen transport and survival. This factor must be considered when determining the vulnerability of the aquifer to contamination, particularly with sands. Sand soils do not support ideal conditions for pathogen survival because they, by definition, have low organic matter and low moisture levels. Pathogens move easily in groundwater when pores and fractures in soil are full of water (referred to as saturated flow). Sands, compared to other soils, do not have fractures and do not support conditions for saturated flow, due to physical and permeability properties.

In general, sand soils provide some filtering/attenuation of pathogens due to their physical and high oxygen content properties; aerobic decomposition of pathogens is more possible with sands vs. other soil types, provided conditions for pathogen movement is reduced or minimized. The department has experience with using sands in stormwater and wastewater treatment systems for pollutant removal, including some pathogens. Sands have been used as part of on-site septic systems design to reduce risk for pathogen movement and to increase pathogen attenuation.

Shallow depth to groundwater represents a higher risk to groundwater contamination from pathogens. Accordingly, the department evaluated static water levels for private groundwater well sampling data (2000-2011 years) for all wells located within each township and range that contained fields listed within Richfield Dairy NMP. For all private wells, the static water level, at time of construction, was found to be greater than 10 feet in depth. This measured distance to groundwater demonstrates there is an unsaturated zone between the field surface and groundwater. This zone helps reduce the risk for pathogen delivery to groundwater, especially when compared other soil types in the state that currently receive manure from CAFO farms and have known corresponding static water levels that are close to or at the surface (0-5 feet) or soils with shallow bedrock properties (karst).

**Comment #83:** The Department received the following comments related to irrigation:

- How will irrigation affect the percolation of manure and its byproducts (nitrates, phosphorus, etc.) as they move through sandy soils?
- The NMP speaks to spreading and precipitation, but no where does it address irrigation. Irrigators run in the central sands routinely throughout the growing season – why is this not considered in the NMP?

**Response:** The Richfield Dairy NMP does consider irrigation of fields to sandy soils. All manure application rates in the NMP are set according to UW crop recommendations,

which consider whether soils are irrigated or not irrigated. Irrigated soils/fields have higher recommended nitrogen application rates versus non-irrigated soils. Irrigation practices, however, are not regulated by the WPDES permit. The WPDES permit only regulates manure and process wastewater applications by the farm. If Richfield Dairy field receives commercial fertilizer, in addition to manure, the department still has authority to regulate the manure application because all nutrient sources, including commercial fertilizer amounts, must be considered/credited towards total crop need when applying manure to meet remainder of crop need/UW crop recommendations.

Manure is primarily an organic source of N. Organic N is not immediately plant available (and leachable) and acts as a slow release fertilizer source for plants. Manure organic N must be converted by soil bacteria to a form that is immediately plant available (ammonium and nitrate). Ammonium-N binds tightly to soil particles and does not leach into groundwater. Nitrate-N does not bind tightly to soil particles, is highly soluble in water and leaches readily. Ammonium nitrogen can, under optimum conditions, quickly change to nitrate nitrogen (warm moist, well aerated soils and with pH of 6.5 – 7.0).

The conversion of manure organic N to plant available forms of N requires correct soil temperature (>50 degrees, ideal between 70-75 degrees) correct soil moisture and correct soil oxygen to occur. Conversion of organic N, however, is not an immediate or rapid process. Manure converts slowly over time during the crop growing season allowing for the applied N from manure to be utilized by established crops. This is key factor when considering risks for manure to cause N leaching into groundwater. Because sandy soils have less organic matter they retain less water compared to medium and fine textured soils. Without adequate moisture in sandy soil, conversion of manure organic N to inorganic plant available N is less likely or rapid compared to commercial N fertilizers.

Irrigation of sand soils can increase the rate that manure organic or ammonium nitrogen converts to nitrite and then nitrate (plant available form) nitrogen, which is highly mobile/leachable. With that said, the following factors, in addition to points listed above, helps reduce the risk for leaching of nutrients below crop root zone and into groundwater.

The Richfield Dairy NMP plan shows the timing of all planned manure applications are in the spring or early summer months. All spring manure applications are planned within a short period (approximately two-weeks) prior to crop establishment. All spring applied manure will be incorporated immediately. No manure applications are planned for fall or winter months. Applying manure N just before crop establishment in the spring, lowers the risks for N conversion and nitrate N leaching into groundwater, as manure, by definition, is a slow release N source compared to commercial fertilizer N (immediately plant available) sources. Incorporating manure immediately after application will help to further retain applied nutrients within the root zone of target crops. Established alfalfa crops are planned to receive surface manure applications in summer months without incorporation.

The need for irrigation of sandy soils (and corresponding higher risk for leaching of applied nutrients) during spring months is less likely, or will not occur altogether, for the

following reasons: in general, moisture levels found within sandy soils is adequate for crop establishment during spring months from snow/ice melt off, typical rainfall during spring months and lower soil and air temperatures versus summer months when higher soil and air temperatures and less rainfall can dry out sandy soils at faster rates/frequency and, thus, require irrigation for crop growth/development.

Manure applications to sandy soils, will, over time, help improved sandy soil structure with more organic matter. More organic matter helps a soil, particularly sands, retain more water and this ability helps reduce the risk for leaching nutrients into groundwater. In addition, the Richfield Dairy NMP also has planned crop rotations that will help create more organic matter than current crops grown in the area, such as potato, sweet corn and snap beans. These crops all have large root systems that help to increase organic matter in sandy soils, over time.

The department understands that some groundwater resources in proximity to RD fields currently exceed standards for nitrates and a majority source for such exceedances is agricultural land use/activities. RD will be required, via WPDES permit and NR 243, to meet more stringent nutrient management requirements than current agricultural activities on the 16,429 acres within their NMP. Current agricultural activities in the area either do not have a NMP or do not follow the requirements of a NRCS 590 NMP. Nor are growers in the area required, by state regulations, to have a WPDES permit that regulates how, where and when they apply nutrients (commercial fertilizer) to their fields and discharge to waters of the state. Richfield Dairy proposed WPDES requires this farm to not only develop and implement the NMP, but also meet strict recordkeeping and reporting requirements. The land spreading and nutrient management practices and procedures as well as recordkeeping and reporting requirements within the NMP are all enforceable conditions via the proposed WPDES permit. Because Richfield Dairy is required to meet higher regulatory and recordkeeping standards for nutrient management than current growers in the area, the department believes fewer nutrients will enter groundwater than under current agricultural land use conditions.

The Department evaluated the compliance record of three existing CAFO permitted farms (Central Sands, Gordondale Farms and Ostrowski Farms) who have repeatedly applied liquid manure, over multiple years, to fields with sandy, highly permeable soils. We found no direct or circumstantial evidence that these three farms have caused any nitrate and bacterial contamination of drinking water wells, groundwater or lakes or streams from repeatedly applying manure to fields with sand soils over the multiple years they have applied manure to sand soils. Some manure application fields evaluated were located within 100 feet of active private drinking water wells.

**Comment #84:** It is a myth that knifing in liquid manure or fertigation will build organic material in sand. In both cases the large vegetative matter characteristic of manure has been digested by microbes before it meets the land. Whatever is deposited on the surface will percolate quickly through sandy soils.

**Response:** As indicated within the Richfield Dairy NMP, the facility does not plan to knife in (inject) or use fertigation to apply manure and process wastewater to fields. Rather, all liquid and solid manure will be surface applied and incorporated except for

established alfalfa crops, where manure will be surface applied. The department disagrees that liquid manure applications planned by Richfield Dairy will not increase organic matter content and will percolate quickly through sandy soils. Manure applications to sandy soils will, over time, help improve sandy soil structure with more organic matter. More organic matter helps a soil, particularly sands, retain more water and this ability helps reduce the risk for leaching nutrients into groundwater. In addition, the Richfield Dairy NMP also has planned crop rotation that will help create more organic matter than current crops grown in the area with shallow root systems such as potato, sweet corn and snap beans. These crops include corn for silage, corn for grain, winter wheat and alfalfa. These crops all have large root systems that help to increase organic matter in sandy soils, over time.

**Comment #85:** Richfield Dairy intends to spread manure in both the spring and fall. Within only seven months of storage, it is likely the operation will be spreading the fall when temperatures are above 50° F when manure nitrogen is more subject to leaching to groundwater.

**Response:** The NMP reviewed and approved by the Department shows the timing of all planned manure applications are for spring or early summer months. All spring manure applications are planned within a short period (approximately two-weeks) prior to crop establishment. All spring applied manure will be incorporated immediately. No manure applications are planned for fall or winter months. Applying manure N just before crop establishment in the spring lowers the risks for N conversion and nitrate N leaching into groundwater, as manure, by definition, is a slow release N source compared to commercial N (immediately plant available) sources. Incorporating manure immediately after application will help to further retain applied nutrients within the root zone of target crops. Established alfalfa crops are planned to receive surface manure applications in summer months without incorporation.

The Department agrees that if manure is spread in fall when temperatures are above 50° F, manure nitrogen is more subject to leaching to groundwater. Richfield Dairy NMP contains specific procedures if manure is applied in fall months are selected for manure. The procedures address late summer or fall manure applications to fields with high potential for N leaching to groundwater and contain soil temperature, application rate and timing restrictions. The procedures require RD to either apply manure in spring, or measure soil temperatures on fields and delay fall applications of manure until soil temperatures fall below 50 degrees F. All manure applications in NMP are planned for spring and early summer. No applications of manure are planned in late summer, fall or winter.

**Comment #86:** What contracts are in place to ensure that 16,429 acres contained in Richfield Dairy's NMP will always be available for land spreading (e.g., farms that develop Scab in their potatoes may not want to spread cow manure on their fields)? A backup plan for acreage withdrawn from the spreading pool needs to be defined and put in place.

**Response:** The commenter is incorrect with respect to acres under contract. Richfield Dairy owns a total of 1,054.8 acres and has NMP subscription agreements for an

additional 15,374.3 acres (reference section 5.6 Co-Operating Growers.doc for land base documentation). Of those total acres, 1,044.8 of owned acreage and 15,247.5 of acreage under agreements are available for land spreading after various restricted areas have been accounted for. The farm has a total of approximately 16,292.4 acres of available spreading area after various restricted areas have been accounted for. Moreover, the NMP (reference SNAP+ spreading reports for 2012-2116) show only 8,500 out of a total of 16,292 available acres are planned for use each year for manure applications and no manure applications are planned for potato crops. Accordingly, if the farm does “lose” acreage, they currently have additional acreage (i.e. back up plan) available and since no manure is planned to meet potato crop nutrient requirements, we consider the commenter’s scab scenario very unlikely.

**Comment #87:** The Department received several comments of concern related to the issue of fertigation:

- The NMP includes both fertigation and growing season spreading and in both cases leaves monitoring up to growers to comply with NRCS 590. How will the growers be monitored?
- Does the WPDES permit include fertigation requirements and monitoring?

**Response:** Richfield Dairy NMP does not plan to use fertigation to apply manure and process wastewater to fields. Rather, all liquid and solid manure will be surface applied and incorporated except for established alfalfa crops, where manure will be surface applied. Accordingly, the WPDES permit does not include fertigation requirements and related monitoring requirements.

With respect to cooperating growers applying commercial fertilizer, the NR 243 standard and WPDES permit regulate the facilities manure and process wastewater applications. The permit does not regulate cooperating grower’s commercial fertilizer applications. If a Richfield Dairy field receives commercial fertilizer, in addition to manure, the department still has authority to regulate the manure spreading activity, because all nutrient sources, including commercial fertilizer, must be considered/credited towards total crop need when applying manure to meet remainder of crop need/UW crop recommendations. Richfield Dairy is also required to track commercial fertilizer application rates and amounts used by cooperating growers to properly account for second year nutrient credits in accordance with NR 243 and NRCS 590. The fields in NMP with planned manure applications, also commonly have planned starter commercial fertilizer applications (e.g., corn for grain, corn for silage, alfalfa, soybean and some sweet corn crops). However, fields with other crops (e.g., potato, snap bean, corn for grain) with no manure applications planned, will rely entirely on commercial fertilizers to meet crop fertility needs.

If a cooperating grower applies only commercial fertilizer to meet crop nutrient needs, these applications are not subject to WPDES permit requirements. These applications may be subject to regulation under the nutrient management performance standard under ch. NR 151.

**Comment #88:** The Department received the following comments related to concerns about manure applications in the non-growing seasons:

- What is the consequence of spreading manure in sand country when plants are not growing (fall and winter) on groundwater?
- The NMP notes fall spreading to be a problem for sandy soils, but there is not prohibition to do so in the WPDES. Reliance appears to be based on the use of nitrogen stabilizer. What research has been done on how these chemicals work in sandy soils?

**Response:** All manure applications in the NMP are planned for spring and early summer without the use of N stabilizers. No applications of manure are planned in the late summer, fall or winter. The spring manure applications are planned within a short period (approximately 2 weeks) prior to crop establishment. All spring applied manure will be incorporated immediately. No manure applications are planned for fall or winter months. Applying manure N just before crop establishment in the spring lowers the risk for N conversion and nitrate N leaching into groundwater, as manure, by definition, is a slow release N source compared to commercial fertilizer N sources, which are immediately plant available. Incorporating manure immediately after application will help to further retain applied nutrients within the root zone of target crops. Established alfalfa crops are planned to receive surface manure applications in summer months without incorporation.

If manure is spread during the fall season when temperatures are above 50° F, manure nitrogen is more likely to be able to convert to nitrate N and then leach to groundwater. The Richfield Dairy NMP contains specific procedures if manure is applied during the fall season. The procedures address late summer or fall manure applications to fields with high potential for N leaching to groundwater and contain soil temperature, application rate and timing restrictions. The procedures require Richfield Dairy to either apply manure in spring or measure soil temperatures on fields and delay fall applications of manure until soil temperatures fall below 50 degrees F. The NMP shows no applications of manure are planned in late summer, fall or winter

Some research has been conducted on N inhibitors for liquid manure however, none have been conducted on sand soils -

[http://www.soils.wisc.edu/extension/area/2009/The\\_Big\\_Laboski\\_Hour.pdf](http://www.soils.wisc.edu/extension/area/2009/The_Big_Laboski_Hour.pdf)

<http://www.dowagro.com/usag/prod/090.htm?DCSext.das=www.instinctnitrogenstabilizer.com>

<https://www.soils.org/publications/jeq/abstracts/17/2/JEQ0170020317>

<http://ipcm.wisc.edu/WCMNews/tabid/53/EntryId/1072/Are-you-using-N-Serve-or-Instinct.aspx>

Research has been conducted on N-inhibitors for commercial fertilizers on sand soils. Some have worked well, and some have not:

<http://www.soils.wisc.edu/extension/materials/ReduceVoILoss.pdf>

<http://www.soils.wisc.edu/extension/pubs/A3634.pdf>

[http://www.soils.wisc.edu/extension/wcmc/proc/2010\\_wcmc\\_proc.pdf](http://www.soils.wisc.edu/extension/wcmc/proc/2010_wcmc_proc.pdf)

There is a reduced risk of nitrate leaching from manure then from commercial fertilizer on sand soils. The reduced risk is supported by UW crop recommendations (A 2809), and related UW soil science publications or presentations that are provided within comment response #79.

**Comment #89:** The Department received the following comments related to WPDES permit authority and the growers who own the majority of the land base in which Richfield Dairy intends to land apply manure and process wastewater:

- Since growers managing fields are responsible to manage commercial fertilizer applications, not Richfield Dairy, who is accountable?
- “No where are the contracts with landowners presented. What is the duration of the contracts? Is there a backup plan if spreading acreages decline”?
- The NMP states, “The growers who manage these fields, not Richfield Dairy, are responsible to ensure their commercial fertilizer application are managed to promote crop growth and minimize impacts to the environment.” How will this be enforced? Who will be monitoring growers?

**Response:** With respect to cooperating growers applying commercial fertilizer, the NR 243 standard and WPDES permit regulate Richfield Dairy’s manure and process wastewater applications. The permit does not regulate cooperating grower’s commercial fertilizer applications. If a Richfield Dairy field receives commercial fertilizer, in addition to manure, the department still has authority to regulate the manure spreading activity, because all nutrient sources, including commercial fertilizer, must be considered/credited towards total crop need when applying manure to meet remainder of crop need/UW crop recommendations. Richfield Dairy is also required to track commercial fertilizer application rates and amounts used by cooperating growers to properly account for second year nutrient credits in accordance with NR 243 and NRCS 590.

Richfield Dairy owns a total of 1,054.8 acres and has NMP subscription agreements for an additional 15,374.3 acres (reference section 5.6, Co-Operating Growers.doc. for additional information). The agreements do not have set timeframes, and are considered on-going agreements that may be subject to change by participating growers. The proposed WPDES permit requires Richfield Dairy to have and maintain a NMP that contains adequate land base to apply all manure and process wastewater it generates to crops to meet their fertility needs, as established by UW crop recommendations. Failure to meet these requirements may subject the farm to enforcement action by the Department – for over application of nutrients to crop fields.

Furthermore, the NMP (reference SNAP+ spreading reports for 2012-2106) shows only 8,500 out of 16,292 available acres are planned for use each year for manure applications and no manure applications are planned for potato crops. Accordingly, if the farm does “lose” a large amount of acres (1000-2000 acres), they currently have additional acres that will allow them to remain in compliance with permit requirements.

The fields in NMP with planned manure applications, also commonly have planned starter commercial fertilizer applications (e.g., corn for grain, corn for silage, alfalfa,

soybean and some sweet corn crops). However, fields with other crops (e.g., potato, snap bean, some sweet corn and corn for grain) are have no manure applications planned are rely exclusively on commercial fertilizers to meet crop fertility needs.

Given the department does not have the ability to regulate the commercial fertilizer applications by cooperating growers via the proposed WPDES permit, there is a risk for total nutrient applications made by cooperating growers to not conform to the planned total nitrogen and phosphorus applications shown in NMP (e.g., potato and sweet corn crops) that follow UW crop recommendations.

**Comment #90:** To assume the fine loamy soils of eastern Wisconsin can be used as a model for what is likely to result from CAFO agriculture in Wisconsin's central sands is an error in judgment.

**Response:** The most significant groundwater contaminations from manure applications have occurred in karst areas, including areas of northeast Wisconsin that may have loam soil. Karst areas are areas underlain by carbonate bedrock, such as limestone or dolomite, and may have sinkholes and disappearing streams that are a problem because they are direct conduits to groundwater. The department did not assume, nor require, that the fine loamy soils of eastern Wisconsin be used as model to develop the Richfield Dairy NMP. Instead, the department required Richfield Dairy to adopt UW crop recommendations (A 28909) for manure application rates/timing/amts within Richfield Dairy NMP. Such recommendations help reduce risk for leaching of nitrate and also help ensure compliance with groundwater quality standards for nitrate. The UW crop recommendations were adopted by the department as regulatory/discharge limits via adoption of NR 151 and NR 243 performance standards. Compliance with the NR 243 standard is a condition within the proposed WPDES permit. Failure to meet this condition, may result is issuance of department enforcement action(s).

The UW recommendations are based upon years of peer reviewed agronomy/crop fertility, nutrient management and water quality research completed by UW faculty - <http://www.soils.wisc.edu/extension/dir.php> & <http://www.soils.wisc.edu/soils/staff.php> - at various UW Ag research stations - <http://www.ars.wisc.edu/> - throughout the state, including the central sands region - <http://www.ars.wisc.edu/hancock/history.html> <http://www.soils.wisc.edu/extension/area/horizons/2005/CornNrecs.pdf>

<http://www.soils.wisc.edu/extension/materials/VegCropsNPMgmt0306.pdf>  
<http://www.soils.wisc.edu/extension/pubs/A3588.pdf>  
<http://learningstore.uwex.edu/Assets/pdfs/A3422.pdf>  
[http://www.soils.wisc.edu/extension/materials/Potato\\_ACA.pdf](http://www.soils.wisc.edu/extension/materials/Potato_ACA.pdf)  
[http://www.soils.wisc.edu/extension/materials/Manure\\_Potatoes.pdf](http://www.soils.wisc.edu/extension/materials/Manure_Potatoes.pdf)  
[http://www.soils.wisc.edu/extension/pubs/pa\\_sampling.pdf](http://www.soils.wisc.edu/extension/pubs/pa_sampling.pdf)  
[http://www.soils.wisc.edu/extension/nhss/2011/11\\_07\\_ruark\\_sweetcorn.pdf](http://www.soils.wisc.edu/extension/nhss/2011/11_07_ruark_sweetcorn.pdf)

The department believes following UW nutrient application recommendations helps prevent over-application of nutrients and helps protect surface and ground waters of the state from environmental degradation. The underlying goal of the recommendations is to

apply enough nutrients to the crop for optimum (not maximum) growth throughout the season. Because crop nutrient demands are not uniform throughout the growing season, an adequate supply must be available during the period of peak demand. The program defines the “critical” level as the cutoff between optimum and high soil test levels. The critical level determination within the UW recommendations is based upon the probability of yield increase to applied nutrients. If nutrient supply exceeds the critical soil test level, there is an increased risk of mobile nutrients moving into groundwater and surface water.

Reference response to comment 75(c) and (d), for more information on UW Nitrogen rate recommendations and other resources.

**Comment #91:** The Applicant has Failed to Submit, and DNR has Failed to Require the Filing of, Finally Approved Versions of the Richfield Dairy NMP Tables in the Form of Directly and Easily Viewable Electronic (or Paper) Versions of Applicant-Produced and DNR-Approved Final NMP Report Table Work product.

If the provisions of a DNR-approved NMP are to be enforceable and to reflect the controlling law in effect for ‘terms of the NMP’ required by federal regulations on state NPDES permit programs, there must be no ambiguity as to what the DNR-approved and Applicant-submitted RD NMP actually is. The most basic step to ensure that the controlling law provisions of the approved RD NMP are unambiguously articulated is to ensure that such provisions (which include the nutrient tables, 590 field data tables and spreading plan tables) are written down in DNR’s files on the RD NMP as produced work product, or actually incorporated into the Permit itself.

As noted in the prior section and based on Commenter’s review of DNR’s provided RD NMP files, the Applicant never submitted final versions of its NMP 590 field data tables, nutrient/field tables, land spreading plan tables and amended land spreading restriction maps in easily available and readily viewable electronic/paper form as it did in its Draft RD NMP submittal.

The ‘Richfield Dairy LLC Fields590 Report- DNR review response’ from Applicant did not provide a fresh, final version of the 590 field data tables. Applicant provided the zip file ‘Richfield Dairy LLC SNAP Plus Database’ as its final response of what it intimated to be its version of the final and approved RD NMP.

While the Applicant provided SNAPPLUS zipped data files in which the Applicant memorialized a modified and final RD NMP, such data files are not directly and easily readable. One would have to install SNAPPLUS in exactly the same version used by the Applicant and ensure no other program setup or changes (as compared to what the Applicant used in preparing such work) in order to attempt to produce work product that represents NMP content that is the same as what the Applicant should have directly provided as final versions of RD NMP tables.

In the absence of further disclosures or preparation of work product by the Applicant and/or DNR, the present circumstances with the DNR RD NMP files means that the final table versions of the RD NMP, which are the controlling law of what the Applicant is planning in its NMP submittal, do not exist in DNR files.

While DNR has provided the SNAPPLUS data files to Commenter's, we nevertheless still object to DNR's apparent acceptance of the practice of using the not-readily-available file forms of SNAPPLUS database files to store the primary corpus of the Applicant's DNR approved NMP without actually writing down or otherwise producing final RD NMP tables in their final form.

Such an approach will always raise the question of whether what is produced by a third party from the SNAPPLUS database is a 100% exact copy of what the Applicant and DNR deem as the finally approved NMP version.

While DNR staff have provided an RD SNAPPLUS database to Commenter's, such disclosure must necessarily be considered supplemental to and not a replacement for actually requiring the filing of final versions of the RD NMP tables. DNR's acceptance of a process by which the Applicant's final and DNR-approved NMP file submission is not rendered as easily readable content in its native final form frustrates public participation.

NMP tables must be considered as both applicable requirements, terms of the NMP within the meaning of the EPA regulations show in Attachment #1, and the articulation of the NMP on the Applicant's permitted and allowed CAFO performance. Subsuming and burying plain disclosure of such crucial information in not-directly-readable electronic database files as the exclusive means of access to producing uncertified and potentially doubtful renditions of Applicants NMP is an affront to and not an assistance for public participation and public comment.

Given the regulatory importance of such RD NMP tables as the controlling law provisions of the approved NMP, any achievement less than getting copies of the finally approved NMP tables and other NMP content into the DNR files means that serious enforceability problems might occur. These problems include disagreement about what the finally approved version NMP version actually is, including whether the rotation schedule selected for report preparation is actually the same one approved by DNR and that is being relied upon by the Applicant. There is also the matter of the effect of and availability of past versions of SNAPPLUS for use in the future to provide a rendition of what was approved previously and the variability of produced final results cause by changes in the SNAPPLUS executable version used.

**Response:** The commenter (MEA) was first provided emails containing revised SNAP+ file and other documents showing how Richfield Dairy had or committed to modifying the NMP to meet DNR comments or NR 243 requirements prior to comment period. The department then provided the commenter the final approved version NMP, the final approved NMP tables and other NMP content and preliminary approval letter of Richfield Dairy NMP, dated 06-02-2011, via CD within the public comment period. The

department did not receive any requests for assistance or questions from commenter re: status of NMP tables or questions re: what is the final version of the NMP. The department specifically asked the commenter, by email on June 24, 2011, to contact the department for assistance with viewing or understanding the Richfield Dairy NMP, its status, contents, etc. The department cannot provide information or clarify status of NMP if the commenter does not give notice for needing more information. Providing such notice, after the fact, is counterproductive to the intent of the public comment process.

With respect to comments re: NMP plan tables, including the final 590 field data tables, nutrient budget and information tables and land spreading plan tables, all of these 'tables' can be generated by creating reports from the Richfield Dairy SNAP+ file electronic file, which was sent to commenter first by email, via zip file, by and then again on CD by the department within the public comment period. The CD contained the final approved NMP tables and other NMP content. The crop rotations, manure application rates, fields that receive manure, PI calculations, etc, etc listed in the final approved NMP for Richfield Dairy are planned data that demonstrate the farm can achieve compliance with all NR 243 and applicable NRCS 590 requirements over the permit term. The NMP is designed to be amended each year, or more often, with actual crop rotations, actual tillage, actual manure application rates and manure concentrations, and actual fields that receive manure selected by the farm for each crop year in plan. Richfield Dairy is responsible, via proposed WPDES permit, to select actual crop rotations, manure application rates, etc, etc, that comply with NR 243 performance standard and applicable sections of NRCS 590 standard. If farm selects manure and crop management practices that fail to meet these requirements, such action will cause violation of WPDES permit and will subject the farm to enforcement action from the department.

**Comment #92:** Applicant's Submittal of NMP Plans and Tables that Indicate Mostly Spring/Summer Process Wastewater Land Applications when the Applicant plainly admits its Intent Not to Operate with Such a Schedule of Land Application Violates the Signatory Rule and Should have Prompted a DNR Declaration that the NMP Portion of the Permit Application was Both Incomplete and Erroneous.

DNR's signatory rule NR 205.07(1)g provides: "The representative shall certify that the information was gathered and prepared under his or her supervision and based on inquiry of the people directly under his or her supervision that, to the best of his or her knowledge, the information is true, accurate and complete."

Review of the land spreading plan tables at Section 3.3.2 in the February, 2011 original RD NMP submission indicates that virtually all land application are shown for spring with a relatively small additional amount set for summer application.

However, Section 1.0 of the RD-submitted NMP states: "Richfield Dairy anticipates land applying manure approximately twice per month for 3-4 day periods in March, April, May, June, July, August, September, October and November. This spreading will occur in the spring before planting and in the fall after harvests of alfalfa, wheat and other crops. In Snap-Plus spring applications are planned, but based on field and crop

conditions, these applications may occur in the fall. All land applications will comply with this NMP and NRCS 590 and DNR 243 guidelines. There will be no planned winter spreading. See section 3.3.2 SNAP-Plus Spreading Plan Report for land application schedules for specific fields.”

Here, the Applicant plainly admits its real intended seasonal schedule for land spreading operations. The real schedule does not feature exclusive/predominate spring applications, but instead provides a schedule which departs radically from the field NMP land spreading plans portrayed in the NMP.

The Applicant’s submission of the uncharacteristic and erroneous spring-based land spreading plan table that does not reflect the Applicant’s intentions for actual land spreading operation cannot be deemed as meeting the signatory certification, since the spring-based land spreading NMP tables is content that is not true, accurate and complete.

**Response:** The Department disagrees the applicant has admitted intent not to operate with schedule of land application and violates the signatory rule. The commenter is correct that Section 1.0 of the NMP contains land application schedule language that is contradictory with remaining sections of the NMP – as it mentions the option for making manure application(s) in fall months. However, this section is only an overview of the NMP and does not contain any field specific nutrient application information. Sections 3.0 and 5.0 of the NMP do contain detailed, field specific nutrient budgeting and application information, based upon crop selected and set according to UW recommendations. These sections clearly spell out that planned schedule for manure and process wastewater applications to fields in the NMP will be in spring and summer months only. The Department accepted this vast majority of information as the applicants intent for its planned land spreading of manure and process wastewater to fields in the NMP.

**Comment #93:** The prior section discussed Applicant’s real plans for spreading and the Applicant’s intent is to spread process wastewater in March, among other months.

NR 243.14(7)c prohibits process wastewater surface applications in March unless there is an approved emergency and NR 243.14(6)c restricts applications of solid waste in March. Applicant’s submitted NMP fails to address how the Applicant will conform to DNR’s rules when the matter of March land spreading operations is considered. In addition, Applicant’s stated intention in the NMP to apply in March violates condition 1.6.6 of the Draft Permit.

**Response:** The manure application prohibitions in NR 243 and condition 1.6.6 of the permit applies to manure applications when the ground is frozen or snow covered. The commenter fails to recognize this requirement. There will be no planned winter spreading. See section 3.3.2 SNAP-Plus Spreading Plan Report for land application schedules for specific fields. Section 3.0 and 5.0 of the NMP. Sections 3.0 and 5.0 contain detailed, field specific nutrient budgeting and application information, based upon the crop selected and set according to UW recommendations. No applications are planned during frozen or snow covered ground conditions. Eleven fields, totaling 831

spreadable acres, are listed in the NMP for winter spreading of liquid or solid manure. These fields were evaluated and found to be in compliance with NR 243.14 (6-8) winter spreading requirements.

**Comment #94:** Applicant's NMP Plans to Disavow Tracking and Accountability for Commercial Fertilizer Nutrient Inputs Applied by Cooperating Field Owners Renders Nutrient Planning Ineffective.

Applicant's submitted NMP provides the following: "Soils in central Wisconsin are made up primarily of sandy soils that may require a higher level of nitrogen management to minimize the risk of leaching." Although Richfield Dairy will only be applying manure/wastewater to the fields in its NMP, many of the growers that will be working with Richfield Dairy typically apply commercial nitrogen throughout the growing season, via irrigation systems. Over the years, growers managing the fields in the Richfield Dairy NMP have developed best management practices that are designed to prevent nutrient leaching and protect the groundwater. This section describes some best management practices that growers may employ as they apply commercial nitrogen to their crops through irrigation systems. Because Richfield Dairy will not be applying these nutrients, it will not be tracking the selection or implementation of these best management practices, except to the extent such tracking is required to properly account for second year nutrient credits in accordance with NR 243 and NRCS 590. The growers who manage these fields, not Richfield Dairy, are responsible to ensure their commercial fertilizer applications are managed to promote crop growth and minimize impacts to the environment.

Many fields connected with Richfield dairy should not receive fall applications of commercial nitrogen unless a fall cover crop is planted to uptake and hold the nutrients for later use; a nitrogen stabilizer can be used to accomplish the same goal. These practices are found in the UW publication A2809, which also details potential risks and effectiveness of fall nitrogen applications on highly permeable soils." (Applicant's NMP at Section 6.1).

This qualifier as to nutrient application activities has the Applicant stating they will not be tracking nutrient applications to fields on which the Applicant will be applying process wastewater and dairy solids. Such an approach will render nutrient management either ineffective or non-representative of the submitted nutrient management plan. None of the agreements that Applicant has entered with cooperating growers requires those growers to conform to the planned NMP nutrient budgets submitted by the Applicant. Applicant's NMP qualifier as to cooperating growers is unacceptable because there is no administrative control by the Applicant over the actual or potential application of commercial fertilizer nitrogen and phosphorus by the cooperating growers. As a result, there is no assurance that total nutrient applications will conform to total nitrogen and phosphorus applications shown in the NMP. In addition, Applicant does not have any agreement with cooperating growers to ensure that assumptions made in the P Index about the maximum phosphorus applications assumed for P Index determination will be held to what is represented in the P Index assessment.

Finally, Commenter's interpret Applicant's statements about cover crops to be an evasion of Applicant's NMP duties over nutrient management. Applicant, not cooperating growers, must be responsible if no cover crop is provided. Similarly, the Applicant and not the cooperating growers must be responsible for such matters as field BMPs that are put in place to control runoff of applied nutrients.

**Response:** The Department, in general, agrees with many of the commenter's points regarding cooperating growers nutrient applications of commercial fertilizer. The NR 243 standard and WPDES permit regulate Richfield Dairy's manure and process wastewater applications. The permit does not regulate cooperating growers' commercial fertilizer applications. If Richfield Dairy applies commercial fertilizer, in addition to manure, to a field, the department still has authority to regulate these activities, because all nutrient sources, including commercial fertilizer amounts must be considered/credited towards total crop need when applying manure to meet remainder of crop need/UW crop recommendations. Richfield Dairy is also required to track commercial fertilizer application rates and amounts used by cooperating growers to properly account for second year nutrient credits in accordance with NR 243 and NRCS 590.

Given the department does not have the ability to regulate the nutrient applications by cooperating growers via the proposed WPDES permit, we concur there is a risk for total nutrient applications by cooperating growers to not conform to the planned total nitrogen and phosphorus applications shown in NMP (e.g., potato and sweet corn crops). However, nutrient applications by cooperating growers limits the amount of manure that can be applied under the permit.

The department agrees the applicant does not have any agreement with cooperating growers to ensure that phosphorus applications by commercial growers, used to calculate for P Index determinations, will be held to what is represented in such P Index calculations. With that said, approximately 95% of fields in NMP are comprised of sandy, highly permeable soils and fields. Sand soils, by definition, have a much lower soil erosion risk and corresponding P delivery risk to surface waters compared to silt loams or silt-clay loam or loess type soils found in other parts of the state because they infiltrate water rapidly. Given these facts, if cooperating growers follow different nutrient application rates or practices than shown in NMP, these changes may increase P Index calculation scores on some fields, but the department does not believe such changes will increase PI scores significantly to result in exceeding PI of 6 on any field in NMP.

**Comment #95:** Applicant Has Not Explained Protocols for Adjustment of Process Wastewater Application Rates.

The submitted NMP contains the following discussion: "At this time in planning, Cooks Hauling is planned to do the manure applications. Cooks has a good reputation and are well known in the agriculture community. Currently, Cooks hauls for Omro Dairy and Rosendale Dairy, two other farms owned and managed by Milk Source.

Section 6.5.1 of this NMP includes notes to show how manure application rates can be adjusted by manure haulers. Richfield Dairy will monitor the application rates closely to ensure proper nutrient utilization. The loads and application rates will be properly monitored and documented and kept to the amount the agronomist has recommended.” (Applicant’s NMP at section 6.5)

First, this information indicates that Applicant plans to adjust process wastewater and dairy solids application rates from what was submitted in the NMP. As a result, the volumetric rates are either apparently not enforceable, or Applicant does not plan on having their application rate tables approved as NMP revisions by DNR.

Second, no section 6.5.1 provision of the NMP exists, so the Applicant has not provided the protocol by which application volumetric rates will be modified.

Third, the first sentence of the second paragraph states that application rates can be adjusted by manure haulers. This is followed by the statement that loads and application rates will be kept to the amount the agronomist has recommended. These two statements conflict, since what the agronomist recommended for volumetric rates is provided in the approved NMP. Perhaps Applicant meant the nutrient rate the agronomist recommended rather than the volumetric rate. This must be clarified in the final NMP.

Fourth, there is little point in distinguishing the manure hauler contractor from the primary responsibility of the Applicant in carrying out the NMP. That contractor is acting for the Applicant so it is the Applicant’s responsibility rather than the manure hauler’s option that must address NMP compliance.

**Response:** The department agrees that custom hauler information (section 6.5.1) in the NMP indicates that Applicant plans to adjust process wastewater and dairy solids application rates from what was submitted in the NMP. The NMP is meant to be revised with actual vs. assumed data, including manure concentration, application rates, etc. The application rates set in NMP reflect assumed manure concentrations and the ability for custom hauler to match such rates. Once manure source(s) concentration are tested – which WPDES permit requires – the application rates in NMP must be changed to reflect the actual manure source concentration – which could drive application rates lower (due to higher N-P-K concentrations) or higher. Richfield Dairy is required to ensure the manure is applied at rates that do not exceed UW crop recommendations. Failure to revise plan with actual manure test concentration or achievable manure hauling rates may result in farm exceeding UW crop recommendations (for N or P). Such exceedances are not allowed by the NMP and are enforceable requirements under the WPDES permit. As stated within the NMP, “the loads and application rates will be properly monitored and documented and kept to the amount the agronomist has recommended”.

**Comment #96:** The Department received the following question regarding the statement within the environmental assessment that the applicant owns or has agreements for land spreading on ~16,429 acres generally located within a five mile radius of the farm site. “What soil types are included?”

**Response:** The NMP contains maps, SNAP+ reports and spreadsheets that show all soil types included in the plan, by field. Sections 3.0 and 5.0 of the NMP contain SNAP+ reports showing soil types. Section 4.0 of the NMP contains soil maps; Section 5.0 of the NMP contains soil types spreadsheets. Eighty-five percent of the soil types in the NMP are highly permeable sands entitled: Plainfield, Richford, Coloma, Brems or Sparta.

**Comment #97:** Richfield Dairy should be subject to monitoring of discharges where runoff from fields occurs. Wis. Stat. s. 283.55(1).

**Response:** Monitoring under 283.55(1) applies to end-of-pipe discharges. Because of the unpredictable nature of field runoff and the difficulty in obtaining representative samples, the CAFO WPDES permit program relies on implementation of best management practices in lieu of discharge monitoring.

**Comment #98:** Soil sampling should occur at least yearly, not once every four years. This is not frequent enough to ensure nutrients are not being over-applied, especially given the five-year life of the permit.

**Response:** Given that it takes approximately 18 lbs. of phosphorus to raise soil test levels by 1 ppm, soil sampling is intended to provide information on general trends in soil phosphorus levels to help track and determine proper application rates. Sampling every four years provides information on these trends and serves as a check on whether over application of nutrients has occurred over time. This sampling frequency is consistent with ch. NR 243.

**Comment #99:** The permit should not allow application of manure on fields with a phosphorus index score of more than 1. Allowing application to fields above this score, especially on fields with ranges from 3-6, makes it virtually certain that phosphorus will be discharged to and pollute surface waters.

**Response:** Ch. NR 243 and CAFO WPDES permits allow discharges of phosphorus from fields where manure/process wastewater are applied provided the manure/process wastewater are applied in accordance with the requirements of a Department approved nutrient management plan. The code and permit require that a field's Phosphorus Index is 6 or less.

**Comment #100:** The permit application/NMP inadequately identifies water courses on fields where manure will be spread, so that proper buffer zones are not observed and risking contamination of surface waters. We ask that these water courses be adequately identified in the permit/application and that the NMP observe the appropriate buffer zones.

**Response:** The department received and responded to several field specific comments with similar claims to the commenter.

With respect to commenter's general statement that the: NMP inadequately identifies water courses on fields where manure will be spread, so that proper buffer zones are not observed and risking contamination of surface waters, the Richfield Dairy NMP narrative (section 6.1) describes the following procedures will be followed for all NR 243 SWQMA areas on NMP fields:

All spreading restriction maps within the NMP contain a legend that indicates 25 foot setbacks will be followed along all wetland areas shown on map and 25 foot or 100 foot setbacks (with injection or immediate incorporation) will be followed along all perennial streams, intermittent streams and concentrated flow channels shown on map. Richfield Dairy NMP (section 8.3) also contains detailed field and map verification procedures that require the farm to check each field and map before planned manure spreading for any restricted or prohibited features, including conduits to navigable waters that may reside within or be adjacent to field boundaries. If found, spreading maps are required to be amended and such areas be avoided or have applicable setbacks followed during manure spreading. Failure to complete these procedures may result in the department citing farm for WPDES permit violations related to NMP implementation and meeting NR 243 general and specific land spreading requirements. Taken together, the map and NMP narrative meet all applicable NR 243 SWQMA land spreading requirements. For additional information regarding the SWQMA option chosen by RD, reference response to comment #45.

**Comment #101:** The permit application/NMP inadequately tracks the application rates of other fertilizers on fields where Richfield Dairy has contracted to spread manure, leading to risk of over application of nutrients. We ask that the permit specify the tracking of the application rates so that adherence to the standards is tracked and verifiable.

**Response:** With respect to cooperating growers applying commercial fertilizer and tracking application rates of such fertilizers:

The NR 243 standard and proposed WPDES permit regulates Richfield Dairy's manure and process wastewater applications. The permit does not regulate cooperating grower's commercial fertilizer applications. If a Richfield Dairy field receives commercial fertilizer, in addition to manure, the department still has authority to regulate the manure spreading activity, because all nutrient sources, including commercial fertilizer, must be considered/credited towards total crop need when applying manure to meet remainder of crop need/UW crop recommendations. Richfield Dairy is also required to track commercial fertilizer application rates and amounts used by cooperating growers to properly account for second year nutrient credits in accordance with NR 243 and NRCS 590. The fields in NMP with planned manure applications, also commonly have planned starter commercial fertilizer applications (e.g., corn for grain, corn for silage, alfalfa, soybean and some sweet corn crops). However, fields with other crops (e.g., potato, snap bean, some sweet corn and corn for grain) have no manure applications planned are rely exclusively on commercial fertilizers to meet crop fertility needs.

Given the department does not have the ability to regulate the commercial fertilizer applications by cooperating growers via the proposed WPDES permit, there is a risk for total nutrient applications made by cooperating growers to not conform to the planned total nitrogen and phosphorus applications shown in NMP (e.g., potato and sweet corn crops) that follow UW crop recommendations.

**Comment #102:** To assume the fine loamy soils of eastern Wisconsin can be used as a model for what is likely to result from CAFO agriculture in Wisconsin's central sands is an error in judgment.

**Response:** The most severe groundwater contaminations from manure applications have occurred in karst areas, including areas of northeast Wisconsin that may have loam soil. Karst areas are areas underlain by carbonate bedrock, such as limestone or dolomite, and may have sinkholes and disappearing streams that are a problem because they are direct conduits to groundwater. Refer to comment response #34 in the “**Environmental Assessment Comment Summary and Response**” regarding Adams and Waushara County Geology as well as comment response #36 regarding the increased protections afforded with the implementation of a nutrient management plan.

**Comment #103:** DNR Must Protect Public Health and the Public's Trust in Groundwater Resources by Requiring a Clear Demonstration that Applicant's Planned Animal Waste Land-spreading and Production Area Operations Will Not Cause the Groundwater Enforcement Standards for Nitrate, Chloride and Pathogens to be exceeded or otherwise be jeopardized.

DNR is considering the Draft RD WPDES, in part, under the aegis of DNR's permit issuance authority under s. 283.31(3) which provides:

“The Department may issue a permit under this section for the discharge of any pollutant, or combination of pollutants, other than those prohibited under sub. (2), upon condition that such discharges will meet all the following, whenever applicable.....  
.....(f) Groundwater protection standards established under ch. 160.”

DNR rules further provide requirements for the content of WPDES permits:

“The department shall prescribe conditions for permits issued under this section to assure compliance with the requirements of sub. (3).”

The statute further clarifies and specifies DNR-required duties in carrying out permit issuance decisions:

“Each permit issued by the department under this section shall, in addition to those criteria provided in subs. (3) and (4), specify maximum levels of discharges. Maximum levels of discharges shall be developed from the permittee's reasonably foreseeable projection of maximum frequency or maximum level of discharge resulting from production increases or process modifications during the term of the permit.”

In its decision-making in response to the Richfield Dairy WPDES permit application, DNR must address, and its decision-making must affirmative reflect, all three provisions of s. 283.31(3), (4) & (5), taken together.

To properly make a permit issuance decision under the three subsections of the statute cited above, DNR must determine the actual effect that Applicant's groundwater discharge will have on compliance with both groundwater enforcement standards and preventative action limits, which are both 'groundwater protection standards' under the

statute. In order to make such a decision, pre-existing or 'baseline groundwater quality' must be determined and then the agency must determine how planned groundwater pollutant loadings associated with NMP planned process wastewater applications and associated fertilizer applications will cause or contribute to groundwater concentrations exceeding either enforcement standards or preventative actions limits. Such a determination must be properly carried out using a numerical model since that is the only way that a quantitative demonstration with compliance with groundwater quality standards can be demonstrated.

With regard to DNR compliance in the present context on nitrate, there should have been a series of quantitative predictions of expected groundwater concentrations of nitrate around the production area and individual spreading fields or groups of fields from both Richfield Dairy's influence alone and together with both pre-existing groundwater nitrate contamination and nitrate from other area agricultural operators and sources. The quantitative predictions of the effect of Richfield Dairy's land application operations should have been the basis for the effluent limitations as stated as maximum annual nitrogen applications to spreading fields, as such effluent limitations under s. 283.31(5) are required to assure compliance with groundwater quality standards.

There should have been extensive inquiry into pre-existing nitrate groundwater problems in the Central Sand Plains area of Applicant's planned land spreading and production area operations. There should have been a written DNR explanation of how or if permits can be issued in the case of either pre-existing nitrate groundwater concentrations exceeding 10 mg/l and whether Richfield Dairy process wastewater effluent would exacerbate such groundwater quality standard violations.

DNR should have written an explicit provision in the RD Draft Permit requiring that Richfield Dairy comply with groundwater quality enforcement standards and preventative action limits, especially given the exceedences at Rosendale. Moreover, the RD Draft Permit should have contained a provision which prohibited discharges to groundwater that caused or contribute to groundwater quality standard violations, with specific enforcement steps when violations occur. Such provisions do not appear in DNR RD Draft WPDES permit.

Finally, all of the DNR agency findings and conclusions on the groundwater standard compliance matter should have been articulated in a statement of basis and a Wisconsin Environmental Assessment, with supporting DNR file materials, calculations and model runs, and a complete copy of the finally approved NMP (which is presently lacking in DNR files). Review of DNR's Richfield Dairy files does not show such information.

The Applicant's permit application submittal should have addressed all of these issues as well, but we are not aware of any Applicant-submitted work product that makes a demonstration of either pre-existing background nitrate groundwater concentrations or expected the groundwater nitrate concentrations after RD operations commence and into the future that are attributable to Applicant land spreading and production area operations.

**Response:** As stated in the responses above regarding land application activities and the production area, the Department believes the terms and conditions of the WPDES permit will adequately protect groundwater. Also as stated above, the fact that croplands receiving RD's manure will now be subject to a nutrient management plan under chapter NR 243 which will likely reduce the risk of nitrate exceedances.

**Comment #104:** DNR's Acknowledgment that at Least Some Area of the Proposed Dairy Land spreading/Production Area Lands Have Pre-existing Groundwater Nitrate Contamination Exceeding Either the Preventative Action Limit or the Groundwater Enforcement Standard Must Necessarily Trigger Requirements for Response and Applicant Demonstration Under NR 160.19(8)

Under NR 160.19(8), the presence of a pre-existing groundwater nitrate contamination exceeding the preventative action limit or enforcement standard does not preclude a permit issuance decision in the present case. However, NR 160.19(8) provides a specific standard for permit issuance for construction of a facility when such contamination exists for nitrate: ".....if the facility is designed to achieve the lowest possible concentration for that substance which is technically and economically feasible and the anticipated increase in the concentration of the substance does not present a threat to public health or welfare."

This provision thus requires a multiple part demonstration to be considered and approved by DNR in order to make a s. 283.31 permit issuance decision. In carrying out such a decision, DNR must first determine how much the proposed facility alone will cause nitrate concentration to increase. This must be considered as a requirement to carry out a quantitative future determination based on planned facility operations of what nitrate concentration increase will occur solely attributable to planned facility operations. Once the nitrate concentration increase from proposed facility operations is determined, DNR must then determine whether such increased nitrate concentration will "....present a threat to public health or welfare." If such a public health or welfare threat will be caused by the new facility, then NR 160.19(8) precludes a s. 283.31 permit issuance decision for the facility.

If the increased concentration from the proposed permit issuance decision for a facility does not pose a public health or welfare threat, then DNR must then make a determination of whether the planned facility will "....achieve the lowest possible concentrations for that substance which is technically and economically feasible...."

Neither DNR nor the Applicant submitted or performed any of the required processes, demonstrations and decision-making in this situation NR 160.19(8) as discussed earlier in this subsection. There is no quantitative information in the file on expected nitrate concentration increases which would be attributable to Applicant's planned operations. DNR did not make any public health or welfare findings on such a quantitative nitrate increased concentration from planned operations. DNR did not carry out any evaluation of whether planned increased nitrate concentrations are the "lowest possible concentration" or whether such lowest possible concentrations are "technically and

economically feasible.” Applicant’s approve NMP cannot be deemed to be a showing that it will result in the ‘lowest possible [nitrate] concentration.

Because of the DNR’s failure to carry out required decision-making and the failure of the Applicant to address the required demonstrations under NR 160.19(8), issuance of the permit to the Applicant is improper.

**Response:** Section 160.19(8), Wis. Stats., does not apply to land application activities, even those land application areas where there may already be groundwater standard exceedances. This statutory section applies to construction of a treatment facility. Nevertheless, for construction of reviewable facilities in the production area, the Department has reviewed the production area facilities in accordance with applicable standards and does not expect exceedances of the groundwater standards from these facilities. While some wells in the area have indicated exceedances of Preventative Action Limits or Enforcement Standards in ch. NR 140, there is no monitoring to indicate exceedances of groundwater standards at the Richfield Dairy production site. Furthermore, some of the structures, including the manure storage structure, are designed above standard design requirements. Finally, the Department is requiring Richfield Dairy to install a groundwater monitoring system for the production area and conduct leak detection monitoring for two structures.

**Comment #105:** DNR’s signatory rule NR 205.07(1)g requires that all first and supplemental electronic submissions of WPDES applications must be submitted under a signatory rule compliance statement. No such certification or compliance statement was provided by the Applicant with the April, 2011 submittal of the SNAPPLUS database files which DNR and Applicant problematically allege to be the ‘final’ approved NMP form. Applicant has violated the application requirements by failing to submit that electronic information under the required certification.

**Response:** The provision cited in the comment is a permit condition that takes effect when the permit is issued. Moreover, s. NR 243.12 is the pertinent regulation which establishes the specific permit application requirements for CAFOs.

**Comment #106:** The rights of the CAFO owners take precedence over the rights of the neighbors to clean water? Why???

**Response:** The Department disagrees. The Department issues WPDES permits for CAFOs in accordance with state statutes and regulations, and includes conditions in those permits that protect water quality.

**Comment #107:** DNR Has Failed to Carry Out or Otherwise Address Mandatory Implementation of Responses to Address Pre-existing Groundwater Contamination Exceeding Preventative Action Limits and Groundwater Enforcement Standards

NR 160.19(11) provides that: “Regulatory agencies shall enforce rules promulgated under this section with respect to specific sites in accordance with ss 160.23 and 160.25”

NR 160.25 addresses sites where groundwater enforcement standards are exceeded. Under NR 160.25(2), when a planned facility is subject to permit issuance under

s.283.31, the DNR....: “.....shall require remedial actions for a specific site in accordance with rules promulgated under s. 160.21 as are necessary to achieve compliance with the enforcement standard at the point of standards application.”

DNR failed to carry out this rule since there is no Applicant demonstration or agency finding and conclusion that expected future groundwater nitrate concentrations from planned and authorized facility operation will achieve compliance with the groundwater enforcement standard for nitrate.

Although DNR admits that at least some areas of the Applicant’s lands for waste spreading and the production area exceed the groundwater enforcement standard, the agency has failed to characterize at all lands that exceed the 2 mg/l nitrate preventative action limit. Commenter’s presume that the area of such pre-existing nitrate between 2 mg/l and 10 mg/l will be a large and substantial portion of Applicant’s planned spreading fields. DNR has not required the Applicant to show or submit information on groundwater contamination in this range of intervals related to the preventative action limit. There is no evidence in the file that DNR has carried out any of its mandatory, non-discretionary duties under both NR 160.23 and NR 160.21 related to such groundwater contamination at Applicant’s site of land spreading and the production area.

**Response:** The statutory sections cited in the comment do not apply to land spreading activities. In addition, the statutory section cited does not apply to “planned” facilities. The commenter has misquoted the language in s. 160.25(2), Wis. Stats. (use of the term “planned”) The statutory provisions cited by the commenter apply to existing facilities that may be exceeding an enforcement standard at the point of standards application and are not applicable.

**Comment #108:** DNR has not implemented a System for Monitoring and Sampling Groundwater for Land Application and Production Area Sites at the Proposed Facility

NR 160.27 provides that DNR “....shall develop and operate a system for monitoring and sampling groundwater...” to address determination and compliance with preventative action limits and groundwater enforcement standards. No such monitoring systems have been provided or planned as part of the permit issuance decision.

**Response:** Response: Section 160.27, Stats., provides that DNR, with advice and cooperation of other agencies and the groundwater coordinating council, shall develop and operate a system for monitoring and sampling groundwater to determine whether certain substances are in the groundwater and whether preventive action limits or enforcement standards are attained or exceeded at points of standards application. It does not require that a system for monitoring and sampling groundwater be established for any particular geographic area, such as the RD site.

**Comment #109:** Neither the Applicant Nor the DNR Have Properly and Completely Established the Background Water Quality for Groundwater Under NR 140

Under NR 140.03 applicability provisions, all three subchapters of NR 140 apply to the subject Applicant since the proposed facility is subject to a permit issuance decision

under s. 283.31. Under NR 140.20, the background groundwater quality “shall be established” by obtaining “...groundwater samples that are representative of background water quality at or near the facility, practice or activity.”

There is no evidence that this duty has been carried out by either the Applicant or DNR. Determination of background nitrate groundwater concentrations is essential to determine what public health or welfare impact are posed by the existing ambient groundwater pollution and what might occur if planned operations take place.

**Response:** The procedures in s. 140.20 apply to existing facilities and establish requirements for groundwater monitoring activities when groundwater monitoring is required in a permit. Section NR 140.20, Wis. Adm. Code does not impose a duty on either Richfield Dairy or DNR to determine background nitrate concentrations before a facility is constructed.

**Comment #110:** Neither DNR nor the Applicant Have Produced the Required Findings, Showings and Response Implementation Measures that are Mandatory Under NR 140 for Groundwater At or Near Applicant’s Land Application and Production Operational Sites that Exceeds Groundwater Enforcement Standards and Preventative Action Limits For groundwater exceeding a groundwater nitrate enforcement standard, required responses and actions are provided under NR 140.26 and specific responses are part of the permit issuance decision for a facility subject to s. 283.31 are required. For groundwater exceeding a preventive action limit for nitrate, required response actions are provided under NR 140.24. For both types of response actions, NR 140.22 specifies design and compliance evaluation requirements.

Commenter’s assert no evidence exists in the file that shows any such required response actions demonstrating compliance with NR 140.26, NR 140.24 or NR 140.22.

Commenter’s note DNR’s Environmental Assessment discussion claiming that Applicant’s compliance with an NMP is supposed to be an improvement over existing field nutrient management. Commenter’s deny that such statements constitute a valid DNR response to groundwater nitrate enforcement standard violations and the required response activities under NR 140.26.

**Response:** The procedures cited in the comment apply when an existing permitted facility has monitoring data that indicates an exceedance. These procedures do not apply to a proposed facility that has not yet been constructed. Obviously, since Richfield Dairy has yet to be constructed, existing exceedances are caused by other sources in the area, not Richfield Dairy.

**Comment #111:** Nothing in the Public Notice, Fact Sheet or DNR’s Draft Richfield Dairy WPDES Permit Shows the Granting of the Required Exemptions Under NR 140.28.

NR 140.28(1) acts as a restraint on the WPDES permit issuance decision since “the department may not approve a proposed facility, practice or activity” unless the permit

issuance decision includes the issuance of an exemption under NR 140.28(2), (3) or (4) as appropriate for the groundwater contamination classification as provided under the rule.

Each such exemption decision is subject to detailed process and standards for decision-making.

There is no evidence in the WPDES permit, the Fact Sheet, the EA, the public notice or any other document that the required exemptions were granted and that DNR properly carried out such exemption issuance decisions under the required standards and processes in NR 140.28.

**Response:** While some groundwater wells in the area have indicated exceedances of Preventative Action Limits or Enforcement Standards in ch. NR 140, there is no monitoring to indicate exceedances of groundwater standards at the Richfield Dairy production site. Therefore, the requirements of s. NR 140.28 do not apply ( also see response to comment #104). As for land application areas, section NR 140.28 does not apply to land application areas.

**Comment #112:** The Permit Application is Incomplete because applicants submittal of its permit application does not address required elements for groundwater protection as outlined in this section, the permit application cannot be approved under NR 200.09 because of the incomplete application.

**Response:** In accordance with responses to other comments in this document regarding requirements in ch. 160, Stats., and ch. NR 140, Wis. Adm. Code, the Department disagrees and believes Richfield Dairy's permit application was complete.

**Comment #113:** The Draft Permit should be amended to require, as a permit term, compliance with the CAFO WPDES permit fee requirement, which is provided at s. 283.31(8)(a). Failure of a permit holder to pay the annual \$345 fee should be a permit violation.

**Response:** The \$345 permit fee is not a permit term and it is unnecessary to have it in the permit since it is a statutory requirement directly applicable to the permit holder. If the permit holder fails to pay the annual fee, it is a violation of the statutory requirement to pay the fee.

**Comment #114:** The EA correctly states that nitrogen containing compounds such as ammonia and NO<sub>x</sub> result in increased nutrient loading and acidification of soils and waters. This statement must be researched and quantified in order for the environmental impact be accessed.

**Response:** Nitrogen containing compounds are generated during the manure application process and will result in an increased nutrient loading to soils, acidification of soils and groundwater above current conditions. However, the Richfield Dairy NMP contains several required nutrient / manure management practices that, taken together, help reduce the risk for nutrient loading above crop fertility needs and further reduces the rate, scope and/or frequency of soils and water acidification. These practices include requirements to regularly test all crop fields for soil P, K, and pH levels and plan appropriate management practices to prevent over application of nutrients. Practices include lime

applications to reduce soil acidification, immediate incorporation or injection of liquid manure, regular calibration of spreading equipment to ensure that application rates reflect the UW recommendations for crops selected and the planned application of manure in the spring, prior to crop establishment. Spring application prior to crop establishment on highly permeable soils reduces the risk for N mineralization and leaching from applied manure as opposed to fall manure applications. The NMP also includes detailed manure spreading and soil restriction maps of all fields covering more than 16,000 spreadable acres, including field and map verification procedures to ensure that all manure spreading setbacks are properly followed and s. 243.14 prohibited areas (shallow groundwater, conduits to groundwater) are followed or avoided when fields are utilized for manure application.

**Comment #115:** I am writing in regard to the large Dairy or “Milk factory” rather going on in west of Coloma. I strongly vote NO. We already have a surplus of milk. As a small farmer of 25 cows, it is hard to make ends meet. We need to stop these large Dairy’s.

**Response:** The Department does not regulate the supply of milk via the WPDES permit program or via other Department programs.

**Comment #116:** E. Coli is an old resident of the mammalian digestive system, but in the last 15 years new strains have developed and make this organism a killer.

**Response:** WPDES permit requirements are intended to avoid or minimize discharges of manure and related pollutants to water resources so that humans are not exposed to E. Coli or other pathogens.

**Comment #117:** Recently, a business owner located near a 400 herd dairy farm in the town of West Bend had his well condemned because of nitrate and e-coli contamination. Think of what 5000 cattle will do to my well on Pleasant Lake.

**Response:** The size of an operation does not dictate whether a livestock operation will cause a water quality impact. Improperly managed manure from any size operation has the potential to impact surface or groundwater. WPDES permits for CAFO’s contain restrictions, many that are more restrictive than requirements for smaller-scale farms, intended to minimize the potential of these impacts occurring.

**Comment #118:** The draft Farm Emergency Plan covering spill response and countermeasures should be required to contain a required inventory list of physical construction equipment, equipment operational capability, personnel/management responsibility designations and spill countermeasure materials that will be continuously available at the farm for use in the event of a spill emergency arising from waste storage lagoon failure or from liquid and/or solid waste transport operations and from land application operations.

**Response:** The Department agrees that the above listed information should be in the required emergency response plan, as outlined in ch. NR 243.13(6). The emergency response plan must be completed within 30-days of the issuance of the permit. Therefore, the information listed above does not need to be in the draft plan. The

required emergency response plan shall be made available to the Department upon request and accessible to all employees.

**Comment #119:** 3.2.3 Emergency Response Plans: the applicant must be required to publish publically its Emergency plan.

**Response:** Ch. NR 243.13(6) does not require submittal or public notice of the emergency response plan.

**Comment #120:** This CAFO should be required to spread manure only according to the phosphorous needs of crops, rather than the nitrogen needs, where manure spreading may cause pollution by runoff.

**Response:** With respect to a comment requesting that the Department require manure spreading only according to the phosphorous need of crops, rather than the nitrogen need, where manure spreading may cause pollution by runoff, the department reviewed and approved NMP is a phosphorus based NMP, meaning all manure applications are planned in compliance with the phosphorus requirements within NR 243.14(5). These P requirements do not limit a CAFO farm from applying manure to the P need of crop vs. N need of crop. To meet these P requirements, CAFO farms, in practice will not apply manure at N need of crop to fields that are at or above 100 ppm P. Instead, to demonstrate compliance, CAFO farms either apply manure to P needs of crops, or not apply manure to the field at all. Compliance with these requirements will not only calculate the risk of each field to deliver P nutrients to perennial waters (lakes, streams), but also limits the build up of P (from manure sources) within the soil on fields and how much manure P is applied to fields. Many fields in the Richfield Dairy have > 100 ppm P. Manure application rates are planned on these fields for compliance with all NR 243.15 P requirements

**Comment #121:** What actions has the DNR taken in other CAFO areas to mitigate such impacts to groundwater? How much time has elapsed before the water quality became acceptable? What do the residents do in the meantime? Sue the CAFO? How much has been spent on addressing the cleanup of groundwater at Badger Army Ammunition Plant? Note the term “addressing”; total cleanup is probably impossible within even a century.

Have studies been done on how long it takes Nature to restore hundreds of acres to healthy conditions? Who will pay for relocation of people and livestock when whole farms are unlivable? What is the data? “Hope” is not a plan. What do insurance companies charge to protect against such potential loss? Does this company plan to carry such insurance?

**Response:** The Department has added additional conditions to the permit to provide further protection against groundwater contamination (see response to comments #2 and #3).

The DNR does not have authority to determine how any potentially needed re-locations (referred to in the comment) would be paid for. The DNR also does not have information as to whether such commercial insurance is available, what it might cost, or whether the

farm will carry such insurance. There is no DNR rule requiring the farm to have such insurance.

**Comment #122:** In view of the already elevated nitrate levels in ground water in this area as well as the very high number of high capacity wells in the area to support overhead irrigation that serious consideration would be given to the potential damage to water resources this facility would bring given the size of the operation, the soil structure of the area and the housing plans, it is reasonable to assume there will be some waste leakage & contamination, especially in view of any potential “catastrophic events” (high winds, tornadoes, excessive rainfall, etc.), all of which happen in this area not infrequently. This could well be a disastrous situation all around. I do not support the permitting that would allow this facility to be built at this location.

**Response:** The lead DNR program for regulation of CAFOs is the Runoff Management Program, and the specific rules are based on protection of water quality. Much of the groundwater in the state is known to have elevated nitrate concentrations - not so high as to be considered a health risk to most adults, but higher than safe for the sensitive population (infants).

**Comment #123:** Due to the existing nitrate impacts in the site area and susceptibility of the area to additional impact, the design of any structures that contain nitrogen-bearing materials or pathogens should reduce the potential of leakage to a very low level. The use of an eight inch clay layer under the concrete liner of the waste storage ponds is not adequate. A 60-mil HDPE liner should be required. The four stormwater management ponds appear to be potential recipients of nitrogen-containing water. If so, they should also be underlain with a 60-mil HDPE liner. The five infiltration basins and the vegetated treatment areas appear to be potential locations for release of nitrogen or pathogen-containing water into the underlying groundwater. The potential for release of contaminants in these infiltration areas should be evaluated and appropriate design or operational changes implemented. Additional water treatment may be needed. The eight-inch clay layer underlying the manure solids storage area is not adequate. A 60-mil HDPE line should be added.

A groundwater monitoring well network and sampling protocol should be established that provides for determination of the flow direction at the site and be capable of detecting any significant release. It may be difficult to determine flow direction due to the intermittent pumping of two wells and the large number of planned infiltration areas. Additional wells and more frequent monitoring may help to overcome this problem. In addition, any areas of planned water infiltration should have sufficient wells immediately down gradient to detect any significant release. Water quality monitoring of the stormwater ponds should be included.

**Response:** The DNR agrees, livestock facilities in areas of existing nitrate contamination should be designed to have lower leakage rates than the maximum allowable, and the DNR has authority to require this on a case-by-case basis (based on site specific circumstances).

For this project the applicant proposed a manure storage facility design that is more protective than minimum standards, and the DNR did not believe further increased protection was necessary. Specifically, the manure storage facilities are proposed as concrete with liquid-tight joints (meets minimum design criteria) plus an 8 inch thick soil liner. Liquid-tight concrete is constructed by installing a flexible polyvinyl chloride (PVC) material within the poured concrete at every joint in the concrete. This liner design has among the lowest design leakage rates of any manure containment in use today, including liners of HDPE (high density polyethylene). Many experts also believe the superior material for manure storage facility liner surfaces is concrete, because it isn't easily damaged, such as during mixing and solids removal.

The facility referred to in the plans as "stormwater management pond #1" will receive low concentration contaminated runoff from the feed pad (after leachate and a significant amount of first flush runoff is collected). The pond will have a concrete liner that meets the minimum design criteria for a manure storage facility, although the runoff is expected to have much lower concentration of nutrients than does manure.

Stormwater management ponds #2, #3 and #4 will receive only stormwater, such as runoff from building roofs, not in contact with feed materials or manure. These ponds will have earthen bottom, designed in accordance with Wisconsin Construction Standard 1001 Wet Detention Basins, intended to substantially prevent infiltration.

A vegetated treatment area (VTA) is required to be designed to maintain overland flow, so infiltration is not a primary means of treatment. For this reason a VTA must have a minimum 2 ft thickness of soil that is 20% fines (above groundwater and bedrock). However, the DNR acknowledges a VTA does still have potential for infiltration, but because there is significant first flush capture (0.15 inches of precipitation) the runoff is expected to contain relatively low concentration of nutrients. UW Madison field research is underway to help determine the effectiveness of VTAs in Wisconsin, and the Natural Resource Conservation Service (NRCS) 629 Standard that applies to VTAs is currently undergoing revision. So design and operating criteria for VTAs may change in the next 1-2 yrs. If infiltration is intended as a primary means of treatment, the system is regulated under ch. NR 214, Wis. Adm. Code. All feed leachate and the 0.15 inches of first flush runoff will be collected and transferred to storage. Only the less contaminated remaining runoff (in excess of 0.15 inches of precipitation) will flow to the stormwater management pond #1 and then to the VTA. A VTA is intended mainly as erosion control, including to hold back the small amount of feed solids that may pass through the system, but a grassed VTA will also consume some nutrients.

The DNR believes 8 inches of compacted clay under concrete with water-stop joints, with positive drainage and runoff collection, will provide sufficient protection for manure solids. The storage area is curbed and the floor is sloped to provide the necessary drainage, and manure stored in this area must have a minimum 16% solids content and be stackable.

Response to comments about the potential need for a groundwater monitoring well network and sampling are contained in other portions of this document.

**Comment #124:** DNR does not have authority to require in-stream water quality monitoring. Given the distance of surface water features from the Richfield Dairy production area, it is extremely unlikely surface waters would be impacted by the production area.

**Response:** In addition to distance, design and implementation of best management practices determine the likelihood of surface water impacts. Richfield Dairy has installed appropriate best management practices to protect surface waters. The Department will conduct compliance maintenance activities to ensure these practices are implemented.

**Comment #125:** Runoff Control Systems required under 1.8.2: The applicant must have permanent runoff control systems in place.

**Response:** There are no allowed construction schedules included in the WPDES permit; therefore, all runoff control systems will be permanent and no interim control systems are needed.

**Comment #126:** Relocating Richfield Dairy to Section 22 on Highway 21 would have a number of benefits including: (1) reducing traffic issues as it is located on a state highway as opposed to a country road, (2) avoid withdrawals from the Great Lakes Basin and protect a number of important surface and groundwater resources, (3) reduce the impacts of air pollution on area residents due to prevailing winds. One such comment stated the following: “We request that, at the VERY least, you re-site or position this CAFO, on the above bases, to the West of the groundwater divide; delay or supplement this PDES permit with these additional above requirements (by law); or more preferably, deny the PDES permit altogether (at this site) due to its extreme potential discharges east of the Great Lakes Basin groundwater divide and impacted underground tributaries and because the applicant has *not* provided the necessary information or safeguards to prevent pollutant discharges to local groundwater flows and tables, nor has the DNR included the above listed requirements in the PDES permit.”

**Response:** The Department does not have the authority to dictate the siting of an operation. The Department does not regulate water quantity issues as part of the WPDES permit. Those issues are regulated under the high capacity well permit and do not serve as a basis for denying a WPDES permit.

The Livestock Facility Siting Law consists of a state statute (s. 93.90) and rule (ATCP 51) that establishes state standards and procedures local governments must use if they choose to require conditional use or other permits for siting new and expanded livestock operations. The siting statute affects local ordinances that require conditional use or other similar permits, but does not affect other ordinances such as shoreland and flood plain zoning. The statute limits the exclusion of livestock facilities from agricultural zoning districts. It also created the Livestock Facility Siting Review Board to hear appeals concerning local permit decisions. The law is implemented by local governments. Provisions of the siting law can be incorporated into local ordinance at any time. ATCP 51 became effective on May 1, 2006 and existing ordinances had to be

revised by November 1, 2006 to be enforceable, or to keep a permit threshold lower than 500 animal units. Local governments must use the application worksheets in the rule to determine if a proposed facility meets these standards:

- Property line and road setbacks
- Management and training plans
- Odor management
- Nutrient management
- Manure storage facilities
- Runoff management

The Adams County Planning and Zoning Department and Adams County Land Conservation Department have local livestock siting authority. Adams County reviewed the Richfield Dairy proposal and issued an approval letter earlier this summer. DNR authority is indirectly related to livestock siting in that a livestock facility must meet minimum technical standard requirements for reviewable facilities such as manure storage, manure transfer, feed storage and private well setback requirements as part of the WPDES permit process. The Department does not dictate where a facility can be built, rather, that any proposed new facility or proposed expansion of 1,000 animal units or more, must meet required technical standard requirements and other requirements in chapter NR 243 before a WPDES CAFO permit can be issued. The Department has made the determination that the RD operation as designed can meet all technical standards, NR 243 and WPDES permit requirements for WPDES permit issuance.

**Comment #127:** DNR does not have authority to require groundwater monitoring at land application sites.

**Response:** The Department is not proposing groundwater monitoring at land application sites for Richfield Dairy.

**Comment #128:** The design of animal housing, milk houses, liquid and solid waste handling equipment, solid and liquid waste storage facilities, the design and operation of clean water and precipitation separation/diversion systems, feed storage and leachate management facilities and irrigation piping systems are all nutrient management activities which should be articulated in the DNR-approved NMP and in terms of the NMP in the draft permit. Federal requirements for CAFO permits at 40 C.F.R. §122.42(e) identify required elements of NMPs that address standards for storage capability, animal contact with waters, clean water diversion at the production area that make such production area matters part of nutrient management plans.

The production area NMP elements, including the physical design of such facilities, are all best management practice effluent limitations within the meaning of the Waterkeeper decision for purposes of public notice and comment requirements.

The Draft Permit must explicitly require compliance with those provisions of the engineering plans and specifications WDNR determines to be “best management practices” and, therefore, effluent limitations. The WNDR Public Notice of the DNR

Draft RD WPDES permit and comment period contains no agency statement indicating that it intends to revisit the two plan approval decisions.

**Response:** The Department disagrees. EPA and the federal regulations do not provide for specific plan approvals of designed systems. Plan approvals are done under state authority (s. 281.41, Stats.) – it is not a federal requirement, nor is it a requirement under ch. 283, Stats. (the WPDES permit program). Operational requirements that would otherwise be part of a permittee’s NMP are contained as actual WPDES code and permit requirements.

**Comment #129:** Additionally, the applicant has proposed a “biofilter” to capture gases and odor from waste storage pond #1, but it is unclear how this alleged technology will work, where precisely on WSP #1 it is located, whether it will result in any additional wastewater discharges, and if so, what the contents of the wastewater are. The applicant should clarify this information to DNR and the public.

**Response:** Two biofilters were proposed at the Richfield Dairy to capture gases produced from waste storage ponds #1 - #4. One biofilter is located between ponds #3 and #4 at the north side and the other will be located between ponds #1 and #2 at the east side. Underneath each pond’s HDPE cover, there will be a network of lateral gas floats that the gases will migrate into. Gases will then move towards the perimeter pipe that surrounds each pond that routes the gases to the biofilter system. To understand how a biofilter system works, refer to the document, "Biosystems and Agricultural Engineering Update" by David Schmidt, Kevin Janni and Richard Nicolai, revised March 2004, University of Minnesota Extension Service. Based on research that has been done, it takes a large rainfall event (e.g. 9 inch) to occur in order to have a discharge from the biofilter system. When there was a discharge from the research project, the discharge was high in organic matter and nitrates. In the event that there is a discharge, it will be routed to the unloading area. The document mentioned above and the information requested was provided in the plans and specifications that the Department received on November 1, 2010.

**Comment #130:** Sensitive water resources near spreading areas must be monitored and protected from potential impacts. There is a potential for impacts to surface water and groundwater associated with spills and land application of manure from the proposed operation. This will impact tourism and sport fishing and threaten public health.

**Response:** With regard to impacts to surface water quality, the Department does not have the authority to require in-stream monitoring and disagrees that surface water monitoring is feasible or necessary due to the following reasons:

(1) Selecting location(s) for monitoring runoff/in-stream water quality associated with land application sites is very costly and difficult to do effectively and show conclusive results. This would require setting up stations at locations that would accurately monitor runoff/water quality and then operating such stations during runoff events to obtain representative samples of field runoff.

(2) In lieu of monitoring, the WPDES permit contains several restrictions that require permittees **to prevent** manure and process wastewater discharges from production and

land application areas and minimize nutrient delivery from land application areas. Such restrictions help reduce the risk for manure runoff and nutrient delivery to all surface waters.

With regard to impacts to groundwater quality, the Department does not have authority to require the permittee to monitor private wells and pay for such monitoring nor does the Department have the staff or monetary resources to do such monitoring. As with surface water monitoring, selecting location(s) for off-site groundwater monitoring is difficult to do effectively and show conclusive results. In lieu of this monitoring, the Department oversees compliance with practices designed to avoid impacts.

The Department believes that the risk associated with land application practices to water quality is minimal, as long as the operation adheres to the conditions in the NMP and permit.

The Department has required groundwater monitoring for Richfield Dairy's production area (see response to comments #2 and #3)

**Comment #131:** The operation should be required to spread manure only according to the phosphorous needs of crops, rather than the nitrogen needs, where manure spreading may cause pollution by runoff

- Require core sampling of the soil in an earthen lined manure storage pit if critical groundwater, geologic, or construction conditions warrant; *and*

A number of comments requested that if the Department issues the WPDES permit, groundwater monitoring should be required for the production area and/or land application areas. Reasons for requiring the monitoring included (1) the sandy nature of soils in the area that make it susceptible to groundwater contamination, (2) high groundwater, (3) the high quality of water resources in the area and (4) the size of the operation included the large number of acres where manure will be land spread. Requested parameters to be monitored included (1) water table height to ensure the proposed withdrawal is not adversely impacting adjacent surface waters or private wells, (2) bacteria and nutrients to ensure contamination of the groundwater is not occurring as a result of the proposed manure spreading.

**Response:** The Department does not regulate water quantity issues and impacts to private wells as part of the WPDES permit. The Department has not required groundwater monitoring at land application sites due to the complexity and ineffectiveness of requiring such monitoring (e.g., what if a permittee never land applies manure on the field where groundwater monitoring wells have been installed or only applies minimal amounts of manure to the field being monitored?). The Department does not have authority to require groundwater monitoring of private wells. In lieu of groundwater monitoring at land application sites, the permit relies on the implementation of best management practices. Regarding groundwater monitoring within the production area, reference response to comments #2 and #3.