



# Minnesota Pollution Control Agency

520 Lafayette Road North | St. Paul, MN 55155-4194 | 651-296-6300 | 800-657-3864 | 651-282-5332 TTY | [www.pca.state.mn.us](http://www.pca.state.mn.us)

September 19, 2008

TO: INTERESTED PARTIES

RE: Meadow Star Dairy, LLP

The Minnesota Pollution Control Agency (MPCA) has approved the Findings of Fact, Conclusions of Law, and Order for a Negative Declaration on the need for an Environmental Impact Statement on the proposed Meadow Star Dairy, LLP, Kandiyohi County. The Findings of Fact, Conclusions of Law, and Order document concludes that this project does not have the potential for significant environmental effects. The decision for a Negative Declaration completes the state environmental review process under the revised Environmental Quality Board rules, Minn. R. 4410.1700, subp. 7. This project can now proceed to permitting.

These documents can be reviewed at the following locations: the MPCA offices in St. Paul and Willmar; the Minneapolis Public Library at 300 Nicollet Mall, Minneapolis; the Legislative Reference Library at 645 State Office Building, St. Paul; and the Willmar Public Library at 410 Fifth Street SW, Willmar. The document can be viewed on our MPCA Web site at <http://www.pca.state.mn.us/news/eaw/index.html>. Requests for copies of these documents may be made by contacting the St. Paul office at 651-297-8510.

We want to express our appreciation to those of you who submitted comments on the Environmental Assessment Worksheet. Your comments and responses to them have been incorporated into the Findings of Fact, Conclusions of Law, and Order and will assist MPCA staff in drafting permits for the proposed project.

Sincerely,

A handwritten signature in black ink that reads "Craig Affeldt".

Craig Affeldt  
Supervisor, Environmental Review Unit  
St. Paul Office  
Regional Division

CA:mbo

**STATE OF MINNESOTA  
MINNESOTA POLLUTION CONTROL AGENCY**

**IN THE MATTER OF THE DECISION  
ON THE NEED FOR AN ENVIRONMENTAL  
IMPACT STATEMENT FOR THE PROPOSED  
MEADOW STAR DAIRY, LLP  
ST. JOHN'S TOWNSHIP, KANDIYOHI COUNTY  
PENNOCK, MINNESOTA**

**FINDINGS OF FACT  
CONCLUSIONS OF LAW  
AND ORDER**

**FINDINGS OF FACT**

Pursuant to Minn. R. 4410.1000 - 4410.1600 (2006), the Minnesota Pollution Control Agency (MPCA) staff has prepared an Environmental Assessment Worksheet (EAW) for the proposed Meadow Star Dairy, LLP project (Project). Based on the MPCA staff environmental review, comments, and information received during the comment period, and other information in the record of the MPCA, the MPCA hereby makes the following Findings of Fact, Conclusions of Law, and Order.

**PROPOSED PROJECT DESCRIPTION**

Meadow Star Dairy, LLP is proposing to construct a new dairy feedlot containing one 1,360-foot long by 512-foot wide free stall barn, one 360-foot long by 276-foot wide calf barn, one 80-foot wide by 288-foot long calf barn, and one 425-foot long by 95-foot wide milking parlor/holding pen. Manure from these buildings will be stored in two 575-foot long by 500-foot wide by 20-foot deep, clay-lined earthen basins. In addition, an 800-foot long by 690-foot wide feed storage pad will be built and the feed will be covered. When completed, 4,754 cows will be milked twice a day. There will also be 906 dry cows, 340 heifers, and 3,590 calves at the facility, for a total of 9,590 head (8,880 animal units).

Environmental concerns related to feedlot facilities generally include the potential for:

- Air quality (hydrogen sulfide, ammonia, and odor) impacts
- Surface-water impacts
- Ground-water impacts
- Water supply impacts

Additional Concerns Described in Comment Letters (Addressed in Appendix B, Response to Comments)

- Traffic

Community Involvement in Process

The EAW was published in the Environmental Quality Board's (EQB) July 28, 2008, edition of the *EQB Monitor*. Public comments on the EAW could be submitted to the MPCA from July 28, 2008, to August 27, 2008.

### PROCEDURAL HISTORY

1. Pursuant to Minn. R. 4410.4300, subp. 29, an EAW was prepared by MPCA staff on the proposed Project. Pursuant to Minn. R. 4410.1500 (2006), the EAW was distributed to the EQB mailing list and other interested parties on July 25, 2008.
2. The MPCA notified the public of the availability of the EAW for public comment. A news release was provided to Kandiyohi, Chippewa, Swift, Stearns, Pope, Renville, and Meeker counties, as well as other interested parties, on July 25, 2008. In addition, the EAW was published in the *EQB Monitor* on July 28, 2008, and available for review on the MPCA Web site at <http://www.pca.state.mn.us/news/eaw/index.html#open-eaw> on July 28, 2008.
3. The public comment period for the EAW began on July 28, 2008, and ended on August 27, 2008. During the 30-day comment period, the MPCA received two comment letters from Kandiyohi County and received three comment letters from citizens.
4. The MPCA prepared responses to all comments received during the 30-day public comment period. Comment letters received have been hereby incorporated by reference as Appendix A to these findings. The MPCA responses to comments received are hereby incorporated by reference as Appendix B to these findings.

### CRITERIA FOR DETERMINING THE POTENTIAL FOR SIGNIFICANT ENVIRONMENTAL EFFECTS

5. Under Minn. R. 4410.1700 (2006), the MPCA must order an Environmental Impact Statement (EIS) for projects that have the potential for significant environmental effects that are reasonably expected to occur. In deciding whether a project has the potential for significant environmental effects, the MPCA must compare the impacts that may be reasonably expected to occur from the project with the criteria set forth in Minn. R. 4410.1700, subp. 7 (2006). These criteria are:
  - A. the type, extent, and reversibility of environmental effects;
  - B. potential cumulative effects of related or anticipated future projects;
  - C. the extent to which the environmental effects are subject to mitigation by ongoing public regulatory authority; and
  - D. the extent to which environmental effects can be anticipated and controlled as a result of other available environmental studies undertaken by public agencies or the project proposer, including other EISs.

**THE MPCA FINDINGS WITH RESPECT TO EACH OF THESE CRITERIA  
 ARE SET FORTH BELOW**

**Type, Extent, and Reversibility of Environmental Effects**

6. The first criterion that the MPCA must consider when determining if a project has the potential for significant environmental effects that are reasonably expected to occur, is the "type, extent, and reversibility of environmental effects" Minn. R. 4410.1700, subp. 7.A (2006). The MPCA findings with respect to each of these factors are set forth below.
7. Reasonably expected environmental effects of this Project to **air quality**:
- Hydrogen sulfide
  - Ammonia emissions
  - Odors
  - Design features
8. The **extent** of any potential air quality effects that are reasonably expected to occur:

Air quality modeling estimated the atmospheric concentrations of hydrogen sulfide, ammonia, and selected odorous gases at the property lines for the proposed Project and at 28 of the proposed feedlot's nearest neighbors. The table below is provided as a summary of the air quality modeling findings.

**Meadow Star Dairy Project Modeling Results**

<b>Property Boundary</b>	<b>Hydrogen Sulfide Results (ppb)<sup>1</sup> (Includes a 17 ppb background concentration)</b>	<b>Acute Ammonia Results (µg/m<sup>3</sup>)<sup>2</sup> (Includes a 148 µg/m<sup>3</sup> background concentration)</b>	<b>Chronic Ammonia Results (µg/m<sup>3</sup>)<sup>3</sup> (Includes a 5.72 µg/m<sup>3</sup> background concentration)</b>	<b>Odor Results (odor units)<sup>4</sup> (Includes a 17 ppb background concentration)</b>
North	21.13	369	1.49	55
East	29.18	1,109	2.94	90
South	28.83	1,080	2.50	66
West	27.08	550	1.67	110

<sup>1</sup>State ambient hydrogen sulfide air quality standard: 30 ppb half-hour average

<sup>2</sup> Acute inhalation health risk value for ammonia: one hour average of 3,200 µg/m<sup>3</sup>

<sup>3</sup> Chronic inhalation health risk value for ammonia: one year average of 80µg/m<sup>3</sup>

<sup>4</sup> Odor impact assessment based on odor units. A value of 83 odor units is considered to be a faint odor (for cattle) detectable by most people.

ppb = parts per billion

µg/m<sup>3</sup> = micrograms per cubic meter

Air quality modeling was performed that calculated the estimated property line and nearest-neighbor concentrations of hydrogen sulfide. The computer modeling was conducted using the CALPUFF air quality model, based on five years of historical meteorological data. Background (existing) concentrations of hydrogen sulfide were also included in these calculations to account for potential cumulative effects. The property boundaries used in the modeling exercise included the property boundaries for land owned by the Project proposer.

A. Hydrogen Sulfide Emissions

The modeling results indicated that the proposed Project will not exceed the existing ambient air quality standard for hydrogen sulfide. The modeling results indicated that the proposed Project's maximum contribution to the ambient hydrogen sulfide concentration is 12.32 ppb on a volume basis at the site's effective property lines. When the background hydrogen sulfide concentration of 17 ppb is added to the modeling results, the maximum property-line hydrogen sulfide concentration is 29.18 ppb, which is below the ambient standard of 30 ppb. The modeling results suggest that no significant adverse effects are expected from the proposed Project's hydrogen sulfide emissions.

B. Ammonia Emissions

The modeling results indicate that the proposed Project will not exceed the acute inhalation Health Risk Value (iHRV) for ammonia and will not exceed the chronic iHRV for ammonia. The air quality modeling results indicate that the proposed Project's maximum contribution to the ambient ammonia concentration at the site's effective property lines is 961  $\text{ug}/\text{m}^3$ . When the local background ammonia concentration of 148  $\text{ug}/\text{m}^3$  is added to the modeling results, the maximum property line ammonia concentration is 1,109  $\text{ug}/\text{m}^3$ , which is below the acute iHRV for ammonia of 3,200  $\text{ug}/\text{m}^3$ . The predicted maximum one-year time averaged ammonia concentration for the site's nearest neighbors is 2.94  $\text{ug}/\text{m}^3$ , which includes a background annual concentration of 5.72  $\text{ug}/\text{m}^3$ . This combined concentration is below the chronic ammonia iHRV of 80  $\text{ug}/\text{m}^3$ . The modeling results indicate that no significant adverse effects are expected from the proposed Project's ammonia emissions.

C. Odors

Odor was modeled using data collected by the University of Minnesota. The model results indicate that more than 99 percent of the time, the expanded dairy's neighbors will be exposed to odor intensities below 83 odor units. In light of the modeling results, no significant adverse effects are expected from the proposed Project's emission of odorous gases.

D. Design Features

The proposed dairy has operational and design features that will be implemented to avoid and minimize adverse air and odor emissions. These features include the following:

- Mortalities will be stored in a wild-animal-proof shaded area and removed by frequent pickup (within 48 hours). Frequent pickup minimizes the emission of odor.
- Spilled food will be promptly cleaned up. This will prevent the fermentation of the spilled feed and reduces the emission of odor.
- The separation of solids from the manure and the use of a settling lagoon will substantially reduce the need for agitation of the two large lagoons, thus greatly reducing and or effectively eliminating associated odors.

- Manure will be injected beneath the soil surface during land application. Subsurface incorporation of manure helps retain the nutrient value of the manure (e.g., reduces ammonia volatilization) and reduces the emission of odorous gases (e.g., ammonia).
- The land application of the manure will be performed by a licensed custom manure applicator that has the proper equipment for the subsurface incorporation of the manure.
- The freestall barns will be cleaned two or three times each day. Frequent cleaning prevents the accumulation of manure in the barn, reduces the potential for excessive fermentation, and, hence, mitigates emission of adverse odors.

A biofilter will be installed to treat the gases emitted from the concrete manure holding tank used to collect and store the barn manure before it is pumped to the digester. Studies performed by the University of Minnesota have demonstrated the ability of organic-media biofilters to remove hydrogen sulfide, ammonia, dust, and odors from manure storage facilities. The proposed biofilter will be similar to the organic-media biofilter used by Meadow Star Dairy, LLP to successfully control odorous emissions from the manure holding tank at the Riverview Dairy of Minnesota, LLP.

No significant adverse effects to air quality are expected from the proposed Project.

9. The reversibility of any potential air quality effects that are reasonably expected to occur:

The MPCA finds that any potential effect that is reasonably likely to occur from this proposed Project would be reversible. Once emissions are released to the air, they cannot be recovered, but the release can be stopped. If air quality were to be impacted, there are measures that can be implemented to minimize impacts. For example, the MPCA could initiate a complaint investigation and require the Project proposer to make operational and maintenance changes. As discussed above, the expected effects on air quality are minimal. There is no reason to believe that this Project is reasonably expected to cause a significant negative effect on air quality.

10. Comments received that expressed concerns regarding potential effects to air quality:

Some comment letters expressed a general concern for odors. As discussed above in Findings 8 and 9, the analysis indicates that the effects on air quality that are reasonably expected to occur are not significant.

11. The MPCA finds that the environmental review is adequate to address the concerns because:

All potential impacts to air quality that are reasonably expected to occur from the proposed Project have been considered during the review process and methods to prevent these impacts have been developed.

12. The MPCA finds that the Project, as it is proposed, does not have the potential for significant environmental effects based on the type, extent, and reversibility of environmental effects reasonably expected to occur as a result of its air emissions.

13. Reasonably expected environmental effects of this Project to water quality:

- Ground water
- Surface water
- Water appropriation

14. The extent of any potential water quality effects that are reasonably expected to occur:

Ground Water

The feedlot itself is not anticipated to result in any significant adverse ground-water impacts. The plans and specifications for the clay-lined, earthen manure storage basin will have to be designed to meet the required provisions of Minn. R. ch. 7020. The MPCA design standards include provisions to prevent catastrophic releases and leaking. The National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS) Permit that will be issued will require the manure storage basin to be built in accordance to the plans and specifications submitted, and inspections must be conducted to ensure proper construction. Construction notification, verification, and certification requirements are listed in the NPDES/SDS Permit, Parts II.A. and II.E. No significant adverse effects to ground water are expected from the feedlot itself.

The details of the manure application methods to be implemented as part of this proposed Project are outlined in the Manure Management Plan. In order to avoid contaminating the ground water at the manure application sites, the manure will be incorporated into the soil at agronomic rates. These rates take into account the levels of nutrients (e.g., nitrogen and phosphorous) that will be utilized by the crops planted on the manure application sites, thereby minimizing the potential for nutrients leaching into the ground water. In addition, the MPCA setback requirements will be observed around the drain tile intakes, water supply wells located within and adjacent to the manure application areas, and near other surface water resources. As a result, it is not expected that the manure injected at the manure application sites will come in contact with ground water.

Surface Water

Drain tile will be installed around the perimeter of the manure storage basin to control hydrostatic water pressure on the bottom and side slope of the basin. The tile will be installed two to four feet deeper than the bottom of the manure storage basin and will discharge to a county tile line. The system will be set up to pump the perimeter tile discharge back into the storage basin should that ever be needed. The proposer will perform weekly examinations or the monitoring port or drain tile outlet for water flow and signs of discoloration or odor in any water flowing in the drain tile. Any changes in color or odor of the drain tile discharge will be reported to the MPCA as required in NPDES/SDS.

The construction of the facility will require an NPDES/SDS Permit, which addresses the need for temporary and permanent erosion control measures. Originally, the land was cultivated cropland. The quantity of stormwater generated at the site will increase as a result of the construction of barns and other impervious surfaces at the site. However, the rate of runoff will be reduced, as all stormwater will be collected in one of two stormwater basins. Orifices in the tile inlets will regulate the discharge. This will spread the release of water over several days. These basins also allow any sediment to settle out before the water enters the county ditch. In addition, it is most likely that the quality of the runoff will improve as the land changes from cultivated cropland to land that is covered by grass and trees.

The feed piles will all be covered with an impermeable plastic on an asphalt pad so that no rain water can come in contact with the feed. As an additional precaution, the runoff from the feed storage area will flow to the system of storage basins proposed at the site and will be land applied with the manure stored in said basins. All of the cattle will be housed inside a building and all of the manure will be contained within the barns, reception pits, or storage basin. Therefore, no contaminated runoff will be generated at the site from the feed, manure, or animal holding areas.

Manure application land is currently all cultivated cropland. The quantity and quality of surface runoff will remain the same.

Land application of manure, if done improperly, can adversely impact surface-water resources through manure-laden runoff or manure residue leaching into drain tile lines that outfall to surface waters. The proposed Project includes land application acreage in six minor watersheds, each within two different major watersheds (one minor watershed in the Chippewa River and six minor watersheds within the Minnesota River). With the change in use from row-crop agriculture to confined animal agriculture, while the amount of stormwater will change, the runoff characteristics, both physical and chemical, from the land application acreage is expected to remain the same and, under certain circumstances, may improve as a result of the regulated land application activities (e.g., agronomic rates, immediate incorporation of the manure) under the NPDES/SDS Permit. The improvements would occur through the improvement in soil tilth<sup>1</sup> through the use of organic fertilizer and the uniform practice of immediate incorporation over the acres identified in the MMP.

The potential impact to surface-water resources from the proposed Project's land application activities is not expected to create a significant impact, as it will be regulated by an NPDES/SDS Permit that operates under a "no discharge" standard and the MMP. The "no discharge" standard is managed through the following practices. Manure will be incorporated into the soil at agronomic rates, meaning that only the amount of manure will be applied that supplies the crop nutrients that can be utilized by the growing crop. The agronomic rate is based on the type of crop to be grown, the soil type, and the soil chemistry. In addition, land application will only occur during the fall of the year after crops have been removed from the field, rather than in the spring when runoff potential is greater due to increased precipitation and soil moisture. The MMP will be an enforceable provision of the NPDES/SDS Permit for the Project.

No significant adverse effects to surface waters are expected from the proposed Facility.

#### Water Appropriation

This site is a new site. Plans are to drill a total of three wells on the site. Water from the wells will be used as drinking water for the livestock and as wash water. Meadow Star Dairy, LLP will apply to the Minnesota Department of Natural Resources (DNR) for a Water Appropriation Permit. A DNR Water Appropriations Permit will be required. The purpose of the DNR permit program is to

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<sup>1</sup> Good tilth is a sign of healthy soil organisms. While digesting organic material, bacteria secrete gum and slime-like matter in the soil. This works like glue, binding soil particles and humus together to form aggregates. The aggregates are crumb-like and allow for good air circulation and water drainage in the soil. Well-aggregated soil is regarded as having good tilth. The addition of organic material will feed micro-organisms and, thus, improve tilth. [www.earthandtable.com/glossary/soil/qualities.html](http://www.earthandtable.com/glossary/soil/qualities.html) (retrieved May 2, 2007).

ensure water resources are managed so that adequate supply is provided to long-range seasonal requirements for domestic, agricultural, fish and wildlife, recreational, power, navigational, and quality control. The permit program balances competing management objectives, including both the development and protection of water resources. Minn. Stat. § 103G.261 establishes domestic water use as the highest priority of the state's water when supplies are limited. If a well interference arises, the DNR has a standard procedure for investigating the matter. If a commercial operator is found to be causing the problem, the operator must correct it.

The DNR has indicated that it does not foresee any problems related to permitting the volumes of water to be appropriated at this site in relation to the water appropriation in the area. Based on the DNR's comments, MPCA staff believes that the water supply for the proposed Project will be adequate, and that the appropriation will not have a significant cumulative effect on the area water supply.

15. The reversibility of any potential water quality effects that are reasonably expected to occur:

The MPCA finds that any potential effect that is reasonably likely to occur from this Project would be reversible. As discussed above, the expected effects on water quality are minimal. There is no reason to believe that this Project is reasonably expected to cause a significant negative effect on water quality.

16. Comments received that expressed concerns regarding potential effects to water quality:

Some comment letters expressed concern that manure storage could cause ground-water and surface-water contamination. In addition, some comment letters expressed concerns that the amount of water used by the proposed Project would impact the amount of drinking water available for surrounding residences. As discussed above in Findings 14 and 15, the analysis indicates that the effects on water quality that are reasonably expected to occur are not significant.

17. The MPCA finds that the environmental review is adequate to address the concerns because:

All potential impacts to water quality that are reasonably expected to occur from the proposed expansion of this facility have been considered during the review process and a method to prevent these impacts has been developed.

18. The MPCA finds that the Project, as it is proposed, does not have the potential for significant environmental effects on water quality based on the type, extent, and reversibility of environmental effects reasonably expected to occur.

### **Potential Cumulative Effects of Related or Anticipated Future Projects**

19. The second criterion that the MPCA must consider, when determining if a project has the potential for significant environmental effects that are reasonably expected to occur, is the "potential cumulative effects of related or anticipated future projects," Minn. R. 4410.1700, subp. 7.B (2006). The MPCA findings with respect to this criterion are set forth below.
20. The EAW, public comments, and MPCA follow-up evaluation did not disclose any related or anticipated future projects that may interact with this Project in such a way as to identify any potential cumulative environmental effects that are reasonably expected to occur.

21. Public comments concerning cumulative effects:

No public comments were received concerning cumulative impacts. Based on MPCA staff experience, available information on the Project, including the feedlot permit application, and the EAW, the MPCA does not reasonably expect significant cumulative effects from this Project.

22. In considering the potential cumulative effects of related or anticipated future projects, the MPCA finds that the reasonably expected effects from this Project will not be significant.

**The Extent to Which the Environmental Effects Are Subject to Mitigation by Ongoing Public Regulatory Authority**

23. The third criterion that the MPCA must consider, when determining if a project has the potential for significant environmental effects that are reasonably expected to occur, is "the extent to which the environmental effects are subject to mitigation by ongoing public regulatory authority," Minn. R. 4410.1700, subp. 7.C (2006). The MPCA findings with respect to this criterion are set forth below.

24. The following permits or approvals will be required for the Project:

Unit of Government	Permit or Approval Required	Status
MPCA	NPDES/SDS Feedlot/Stormwater Permit	Pending
Kandiyohi County	Conditional Use Permit	To be submitted
DNR	Water Appropriation Permit	To be submitted
Minnesota Department of Animal Health	Permit to compost cattle	To be submitted

25. The above-listed permits include general and specific requirements for mitigation of environmental effects of the Project. The MPCA finds that ongoing public regulatory authority will address any significant potential environmental effects that were identified as reasonably expected to occur.

**The Extent to Which Environmental Effects can be Anticipated and Controlled as a Result of Other Available Environmental Studies Undertaken by Public Agencies or the Project Proposer, Including Other EISs**

26. The fourth criterion that the MPCA must consider is "the extent to which environmental effects can be anticipated and controlled as a result of other available environmental studies undertaken by public agencies or the project proposer, including other EISs," Minn. R. 4410.1700, subp. 7.D (2006). The MPCA findings with respect to this criterion are set forth below.

27. The following documents were reviewed by MPCA staff as part of the potential environmental impact analysis for the proposed expansion of the facility. This list is not intended to be exhaustive. The MPCA also relies on information provided by the Project proposer, commenters, staff experience, and other available information.

- NPDES/SDS Permit Application for an Animal Feedlot or Manure Storage Area
  - EAW
  - Air Quality Monitoring Report
  - Stormwater Pollution Prevention Plan
  - Emergency Response Plan
  - Animal Mortality Plan
  - Air Emissions and Odor Management Plan
  - Manure Management Plan
28. There are no elements of the Project that pose the potential for significant environmental effects that cannot be addressed in the Project design and permit development processes, or by regional and local plans.
29. Based on the environmental review, previous environmental studies, and MPCA staff experience on similar projects, the MPCA finds that the environmental effects of the Project that are reasonably expected to occur can be anticipated and controlled.

#### **CONCLUSIONS OF LAW**

30. The MPCA has jurisdiction in determining the need for an EIS for this Project. The EAW, the permit development process, the facility planning process, responses prepared by MPCA staff in response to comments on the Meadow Star Dairy, LLP EAW, and the evidence in the record are adequate to support a reasoned decision regarding the potential significant environmental effects that are reasonably expected to occur from this Project.
31. Areas where the potential for significant environmental effects may have existed have been identified and appropriate mitigation measures have been incorporated into the Project design and permits. The Project is expected to comply with all MPCA standards.
32. Based on the criteria established in Minn. R. 4410.1700 (2006), there are no potential significant environmental effects reasonably expected to occur from the Project.
33. An EIS is not required.
34. Any finding that might properly be termed a conclusion and any conclusion that might properly be termed a finding are hereby adopted as such.

**ORDER**

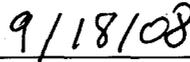
The Minnesota Pollution Control Agency determines that there are no potential significant environmental effects reasonably expected to occur from the Meadow Star Dairy, LLP project and that there is no need for an Environmental Impact Statement.

**IT IS SO ORDERED**



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Brad Moore, Commissioner  
Minnesota Pollution Control Agency



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Date

**Minnesota Pollution Control Agency**

**Meadow Star Dairy, LLP  
Environmental Assessment Worksheet**

**LIST OF COMMENT LETTERS RECEIVED**

1. Debra Petersen, Pennock, Minnesota. Letter received August 22, 2008.
2. Jeff Bredberg, Director of Environmental Services, Kandiyohi County. Letter received August 6, 2008.
3. Susan Kidrowski, Pennock, Minnesota. Letter received August 27, 2008.
4. Gary Refsland, Pennock, Minnesota. Letter received August 27, 2008.
5. Gary Geer, Kandiyohi County Zoning Administrator. Letter received August 27, 2008.

August 13, 2008  
7126 21<sup>st</sup> Avenue NW  
Pennock, MN 56279

MN Pollution Control Agency  
520 Lafayette Road North  
St. Paul, MN 55155-4194

AUG 22 2008

Attn: Kevin Kain

Dear Mr. Kain:

I am writing to comment on the proposed dairy operation approximately 1 ½ miles SW of Pennock in the SE corner of Section 8, St. John's Township. The proposed dairy, called Meadow Star Dairy, would consist of 9,590 head of cows, heifers and calves in total confinement. I live in St. John's Township near Pennock, and am very concerned about the environmental impact this will have in our area. An operation of this size and type will affect me, my neighbors and our environment in the following ways:

**Groundwater**--what happens to our water tables when mega amounts of water are needed for such an operation, and what happens if their lagoons develop a leak? (Our water comes from a well—and so does a lot of others in our area). I see this as a depletion of groundwater and possible contamination. It is staggering to realize manure must be removed every 21 days and then processed and later injected into the farmland.

**Air quality**-- manure smell—even though the manure will be in lagoons, it has to be pumped out occasionally and this will make the whole countryside smell. Our weather is not predictable, so I wonder what will happen if the weather doesn't comply with regulations on temperature and manure application? I know you have certain standards for air quality, but those standards do allow odor to exist, whether it is considered "faint" or more than "faint" by the person breathing the air.

**Noise pollution**--(cows mooing and truck/tractor noise) excessive traffic noise from trucks hauling milk, feed, and animals

**Roads**—wear and tear on our roads, whether they be township, county, state or other. I understand that 36 semi loads of milk and 9 semi loads of feed alone will travel on Township 1<sup>st</sup> Ave. W, Cty 7 and U.S. Highway 12 each week.

I grew up on a farm, so I know what working with animals entails, but I cannot imagine how an operation of this magnitude can be healthy to animals or humans. In my mind, this is nothing more than an animal factory, and it is in close proximity to a small town (Pennock) and many rural families.

The individual(s) involved in this operation do not have a very good track record with the MPCA in other business endeavors they have undertaken. What will ensure that they will comply this time without numerous warnings and penalties? Who will be the watchdog for this business? My hope would be that it would not be a self-monitoring system.

I am not in favor of this dairy operation in our township and I strongly urge you to consider these comments.

Thank you.

A handwritten signature in cursive script that reads "D.L. Petersen".

Debra L. Petersen  
320-599-4979  
320-220-3867 (cell)  
[dardeb@tds.net](mailto:dardeb@tds.net)



# KANDIYOHI COUNTY

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Department of Environmental Services

County Office Building  
400 SW Benson Ave. • Willmar, MN 56201  
320-231-6229 • FAX 320-231-6564

August 4, 2008

AUG 6 2008

Kevin Kain  
MPCA  
520 Lafayette Road N.  
St. Paul, MN 55155-4194

Dear Mr. Kain,

As the person responsible for administering the Wetland Conservation Act on behalf of Kandiyohi County, I would like to comment on the environmental review of the proposed construction of the Meadow Star Dairy project in Kandiyohi County. Has a wetland determination been performed at the construction site by a qualified individual who is familiar with the Board of Water & Soil Resources Wetland Conservation Act Rules, Chapter 8420? If wetlands are identified on the site will they be impacted by excavating, filling and/or draining? If there are any wetlands that will be impacted mitigation will have to be followed according to Chapter 8420.

If you have any questions feel free to give me a call at 320.231.6288.

Sincerely,

Jeff Bredberg  
Director of Environmental Services



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August 26, 2008



Mr. Kevin Kain  
Environmental Review Planner  
520 Lafayette Road North  
St. Paul, MN 55155-4194

RE: Meadow Star Dairy, LLP

Dear Mr. Kain,

I have a few questions and concern about the Meadow Star Dairy that is going up within ¼ mile of our property. First of all we have never been approached by these people till we heard a rumor about this dairy set up and went to our township board meeting. At that time Mr. Noah Hultgren and Mr. Kim Larson talked to my husband and me. They have since talked to my husband once but not the two of us together. I have the following questions.

Our property description is parcel # 65-100-0950 section 8, twp 119, range 36 E'y 643.5' of W'y 1434.9 of S'y 500 of SW ¼, our address is 13090 1<sup>st</sup> Avenue W, Pennock, MN 56279

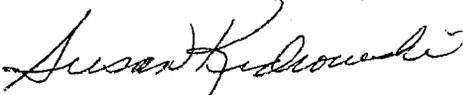
- What will this dairy set up do the quality of my water?
- How much will it take out of the ground water source for us?
- How can a dairy set up this size 9,000 to 10,000 cows get buy with a pit where MPCA expects small towns to have at least 3 holding ponds or go with another entity with their wastewater or there sewer system?
- What will the dust do caused by all the semi trucks that will be going by our property do to our heath and our lungs?
- Why wasn't our site marked out on the plans as everyone around the area is? Yes we do not at this time have a home on the property, but we did purchase the property hoping some day my husband and I would build a home there or let one of our children build a home there.
- What will happen when we have a 6 to 7 inch rain? Where will the run off go? How will this affect my property and our health?
- What will it do to the value of our property?

These people tell the newspaper that they are neighbor friendly but they have not proven this to me at all, especially when they have not really sat down and talked to my husband and me. It just like any thing else the small guy gets the blunt end of the deal. Yes we only have 7 ½ acres of land, but to us it means a lot.

I am very concern what this will do to our environment as we now live in the City of Pennock; there are turkey barns that are about 1 mile away. When these were built we were told that there would not be any smell, well you can't prove that some days to the residents of Pennock as there are days we can't even enjoy the outside for the smell.

I appreciate your time and will be waiting for a response from you.

Sincerely,



Susan Kidrowski  
PO Box 16  
Pennock, MN 56279

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August 26, 2008

Mr. Kevin Kain  
Environmental Review Planner  
520 Lafayette Road North  
St. Paul, MN 55155-4194



Re: Meadow Star Dairy, LLP

Dear Mr. Kain,

I am writing this in regard to the EAW comment period. This comment period may very well be just an attempt to appease the public since past experience with the dairies and feed lot expansions seem to prove that the dairies already have their plans approved and this seems to serve as just a means to let people vent their feelings.

It seems to only pit neighbor against neighbor, and friend against friend. Many people don't want to write in because of the backlash they would receive.

It exposes the people who do voice concerns against it to the dairy people who in turn find out who they need to avoid, or in many cases, who the investors need to suddenly "warm up to". They know who we are, but we just are given the business name of Meadow Star (or Dublin Dairy, etc.) with just one or two peoples names that are allowed to be known.

The dairies say they want to be "good neighbors", yet they refuse to let their names be released to the public. They hide behind the name whether it be Dublin Dairy, Meadow Star Dairy, etc. and yet we aren't able to find out who is involved with the project so we would then know who we want to support or if we should take our business elsewhere. Is this fair? Would a "Good Neighbor" even think of putting seven thousand cows near anyone's farms or towns – that is horrific. Should we have to give up the life we want to live with our families and should all of our dreams be destroyed, just because of the greed of a few who love to line their pockets with money and drive their new cars and pickups at our expense? It is so sad that greed has overtaken our area.

When Dublin Dairy was approved, the Swift County Commissioners allowed 120 acres of the most tillable section of farmland to be developed into a dairy. Another 20 acres were lost to the new mile long road to the north. The cost of building this road would have easily paid for upgrading the Township Road ½ mile away. The revenue

(2)

from the 20 acres of farmland saved would have maintained the township road plus the other roads the dairy wrecks and Swift County would still have the farmland.

Indiana has lost ~~of~~ 10% of its farmland to development. Wisconsin is losing 45,000 acres a year. Our rising food price is in part the ethanol industries fault but may very well be the development of our farmland. This Meadow Star Dairy is developing another 160 acres of very prime farmland and again is not mentioning the development of the road leading to it.

What do you recommend we do to diminish the huge loss of farmland? Maybe it shouldn't be allowed at all. But how do you stop them? There are rules for these types of operations. A Conditional Use Permit allows bullies to break these rules taking more than their fair share of our resources.

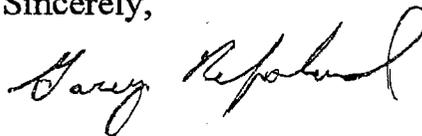
They are receiving grants to put in the lagoons. Anything related with the manure from when it leaves the cow to when it is spread on the field is tax exempt. They pay \$3.00 a cow in real estate taxes. That is \$3.00 for all of the water a cow can drink in one year, the major ingredient in milk.

They have received a 6 million, an 8 million and a 15 million dollar low interest loans from Stevens and Swift County and will probably apply again in Kandiyohi County.

What is being done for the honest small farmer? Have the bigger farmers who take more than their fair share and abuse the Subsidy System infiltrated our government and initiated the demise of the small farmer?

Thank you for your consideration of my thoughts on this matter.

Sincerely,



Gary Refsland  
197 Dakota Avenue N.W.  
P.O. Box 203  
Pennock, MN 56279  
(320) 599-4231

RECEIVED

August 26, 2008

AUG 27 2008

Kevin Kain, Environmental Review Planner  
Minnesota Pollution Control Agency  
520 Lafayette Road North  
St. Paul, MN 55155-4194

**In RE: Meadow Star Dairy, LLP Environmental Assessment Worksheet**

Dear Mr. Kain:

I would like to express my appreciation for the opportunity to review and comment on the Environmental Assessment Worksheet (EAW) prepared for Meadow Star Dairy, LLP, for which MPCA is the Responsible Governmental Unit. The proposed project represents a substantial project for Kandiyohi County, and careful consideration is of the utmost importance in order that any potential negative consequences may be avoided and the positive aspects can be appreciated and realized should the project move forward. To that end, I urge MPCA to be judicious and discerning in making final conclusions concerning this project and its potential environmental impacts.

Upon review, I offer the following comments for your consideration.

1. Under Item 4.B (Page 7) concerning a perimeter drain tile to be installed around the manure storage basins (referred to alternatively as lagoons in other portions of the EAW), more detail concerning the monitoring of these drain tiles would be beneficial. The following questions come to mind:
  - a. What constitutes a "visual test" of the perimeter tile line discharge?
  - b. Who will perform the visual test? What qualifications must this person possess?
  - c. What constitutes a "significant discoloration or odor change"? Would judging the odor of discharge water while on or near a significant odor source represent a reliable method of observation?
  - d. Will any more objective testing of the perimeter tile line be conducted (i.e.: routine sampling and analysis)?
  - e. What oversight (including proposed frequency) will MPCA have over the monitoring of the tile line discharge?
2. Under Item 5 (pages 7-12) concerning manure management, the discussion does not address solid manure except to note that it will be separated and re-used as bedding. Is it realistic to assume that there will be no net gain in solids as the

dairy continues to operate? Assumedly the dairy does not have an open-ended need for bedding. It would be beneficial to further explore the build-up, handling, storage, and disposal of solids that are likely to accumulate over time.

3. Under Item 6.A (page 12) concerning the identification of major sources of air or odor emissions, the proposed manure storage basins are not identified as potential odor sources. According to the EAW, the proposed basins are to be 500 by 575 feet in size, 20 feet deep, and storing 65 million gallons of liquid manure. It seems unlikely that approximately 13.2 acres worth of liquid manure storage is not a potential odor source. Identification and discussion of the basins as a potential odor source would be beneficial.
4. Under Item 6.C (pages 13-14) concerning air emissions modeling, the referenced *CALPUFF* modeling (detailed in Exhibit 10) makes an assumption that seems (at least anecdotally) somewhat suspect. Page 13 of Exhibit 10 contains a discussion of the assumptions and factors that were used in running the *CALPUFF* model, specifically concerning the dairy manure basins. The discussion includes a comparison between uncovered manure storage basins and the proposed geomembrane covered storage basins, noting that the model accounts for a 98% reduction in emissions for the covered vs. uncovered storage basin. This assumption seems dubious.

Numerous staff within the MPCA will recall the years of struggling with air emissions that were encountered by VALADCO, a swine cooperative in Renville County (directly south of Kandiyohi County). Although not directly analogous in all aspects, the VALADCO matter leads one to draw some conclusions concerning the effectiveness of semi-permeable and impermeable membranes for controlling air emissions from large (10 acres +/-) manure storage basins. In the VALADCO matter, the cooperative struggled for a number of years to control offensive odors and hydrogen sulfide emissions, with limited success. Included in the efforts of VALADCO at several production sites was the use of semi-permeable and impermeable membranes. Each time, the membrane product manufacturer made claims of substantial air emission reductions, yet the cooperative failed to achieve compliance and eventually large portions of the manure storage were closed by the subsequent owner. Admittedly, this example is not completely analogous and is anecdotal in nature. It does, however, legitimately lead one to have a healthy skepticism of a claim of 98% reduction in emissions. Essentially, an assumption of 98% odor reduction due to the membranes renders 65 million gallons of manure storage covering 13.2 acres to be a non-factor when considering air emissions.

Further discussion of and support for this pivotal assumption would be beneficial.

5. Under Item 9.4 (page 16) concerning traffic and public infrastructure impacts, a Traffic Volume Map and township road maintenance agreement are noted as being attached. A review of the EAW and its exhibits fails to turn up the noted

attachments. The township road maintenance agreement in particular is of interest as it would prove that Meadow Star Dairy's intentions are more than merely a statement of good intentions. Including these attachments would be beneficial.

6. Under Item 11 (page 20) concerning cumulative potential effects analysis for traffic, Item 9.A is referred to as an analysis of the direct contribution of new traffic. However, Item 9.A only discusses "heavy truck trips" and does not include identification or analysis of employee traffic. The Kandiyohi County Zoning Ordinance does not allow for on-site multiple-unit housing, and as such it is anticipated that a significant number of employees will arrive at different times by vehicle. Identification and analysis of the number of employees and the direct additional traffic from employees would be beneficial.

If you have any questions regarding these comments, please feel free to contact me at 320-231-6229. Thank you for your consideration of these comments.

Sincerely,

Gary Geer,  
Kandiyohi County Zoning Administrator

**Minnesota Pollution Control Agency (MPCA)**

**Meadow Star Dairy, LLP (Project)  
Environmental Assessment Worksheet (EAW)**

**RESPONSES TO COMMENTS ON THE EAW**

**1. Comments by Debra Petersen Pennock, Minnesota. Letter received August 22, 2008.**

**Comment 1-1:** The commenter stated concern that the large amount of water needed for the proposed Project could have a negative impact on the water table and the water supply for drinking water wells in the area.

**Response:** There is no evidence that the water supply in the area would be expected to be impacted by the proposed Project's anticipated waster usage. In the unlikely event local domestic wells are adversely impacted, existing law provides an adequate framework for resolution of the problem.

The proposed Project will require a Water Use Permit from the Minnesota Department of Natural Resources (DNR) because the Project's expected water usage will be greater than ten thousand gallons per day or one million gallons per year. The estimated water usage of the Project at full production will be approximately 70 million gallons per year. The purpose of the DNR's permit program is to ensure water resources are managed so that adequate supply is provided to long-range seasonal requirements for domestic, agricultural, fish and wildlife, recreational, power, navigational, and quality control.

The permit program exists to balance competing management objectives, including both the development and protection of water resources. Minn. Stat. § 103G.261 provides that domestic water supply shall have the first priority for the consumptive appropriation and use of the state's water. The DNR has promulgated rules that specifically address the issue of well interference problems. Minn. R. 6115.0730 provides a mechanism for resolution of any well interference or water use conflicts that arise either before or after a Water Appropriation Permit is issued. If the DNR Commissioner determines that a permit applicant's proposed water use will interfere with domestic wells, the Commissioner may require modification or restriction of the proposed use. Similarly, if the Commissioner finds that a permit holder's water use interferes with domestic wells, the Commissioner may require modification or restriction of the permit.

**Comment 1-2:** The commenter stated concern that the ground water would be impacted if the manure basin should develop a leak.

**Response:** The plans and specifications for the manure storage basin have been designed to meet the design standards required by Minn. R. 7020.2100, subp. 3, the text of which is reproduced below. In addition, the soil analysis done by the Project proposer demonstrates that the site is suitable for this proposal. Due to the engineering standards for the manure storage basin, there is no reason to believe there is a significant risk of leakage in excess of what is allowed by rule. The proposed National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS) Permit will require that the basin be built in accordance to the plans and specifications submitted, and inspections must be conducted to ensure proper construction. In addition, Minnesota Valley Testing Laboratories, Inc., of New Ulm, will sample and test the perimeter tile line surrounding the basin on a semi-annual basis. Observations/tests will include: appearance, temperature, specific conductance, pH, fecal coliform bacteria, sulfate, chloride,

nitrites plus nitrites, ammonia-nitrogen, phosphorus and total Kjeldahl nitrogen. Results of the perimeter tile monitoring will be submitted to the MPCA on an annual basis as a condition of the facility's NPDES/SDS Permit.

*Minnesota Rule 7020.2100, Subpart 3. Design standards.*

*A. A new or modified liquid manure storage area at an animal feedlot capable of holding 1,000 animal units or more or the manure storage area capable of holding the manure produced by 1,000 animal units or more must be designed to provide a minimum of nine months of storage capacity.*

*B. Liquid manure storage area liners must comply with the following:*

*(1) non-concrete lined manure storage areas must be designed and constructed to achieve a maximum theoretical seepage rate of not more than 1/56 inch per day throughout the design life of the manure storage area;*

*(2) concrete-lined manure storage areas must be designed and constructed with: water stops or joint sealant materials at all construction joints; sealing of all cracks which may extend through the concrete liner with appropriate sealing materials; and a floor having a concrete thickness of not less than five inches. The floor must have:*

*(i) steel reinforcing based on subgrade drag theory in American Concrete Institute, Slabs on Grade, ACI-360; or*

*(ii) fiber-reinforcing. If fiber-reinforcing is used, the design engineer must specify the type of fibers and the dosage rate in subpart 4, item F; and*

*(3) composite-lined or aboveground manure storage areas must be designed and constructed to achieve a maximum theoretical seepage rate of not more than 1/560 inch per day throughout the design life of the manure storage area. Aboveground manure storage areas located in areas not subject to the site restrictions under subpart 2, may be designed and constructed according to seepage standards under subitems (1) or (2), as applicable.*

The proposed basin is designed to have a 2.5-foot thick clay liner, and predesign test results indicate a hydraulic conductivity of  $6.675 \times 10^{-8}$  cm/sec ( $1.32 \times 10^{-7}$  ft/min) is achievable, which corresponds to total leakage of less than 1/56-inch per day, as required by rule.

**Comment 1-3:** The commenter stated concern that manure would be removed every 21 days and then processed and later injected into the farmland.

**Response:** Manure will be removed from the site and injected on area cropland once a year in the fall following forage harvest.

As stated in the EAW, the free-stall barn alleys will be scraped twice each day. The manure will be flushed to a fully enclosed, pre-cast concrete holding tank located on the north side of the free-stall barn. From there the manure will be pumped to an anaerobic digester to be digested with a hydraulic retention time of 21 days, where gases from the manure will be collected and combusted in reciprocating engines to produce green electricity to be sold to the local grid. Solids will then be separated for re-use as bedding and remaining effluent will then be pumped to the lagoon system.

**Comment 1-4:** The commenter stated concern that the project will generate a lot of odor that will be unpleasant to those living in the area especially when the manure is pumped out and land applied.

**Response:** The proposed dairy has operational and design features that will be implemented to avoid and minimize adverse air and odor emissions. These include an anaerobic digester, synthetically covered lagoons, good house-keeping practices, and a biofilter on the concrete manure holding tank.

A biofilter will be installed to treat the gases emitted from the concrete manure holding tank used to collect and store the barn manure before it is pumped to the digester. Studies performed by the University of Minnesota have demonstrated the ability of organic-media biofilters to remove hydrogen sulfide, ammonia, dust, and odors from manure storage facilities. The proposed biofilter will be similar to the organic-media biofilter used to successfully control odorous emissions from the manure holding tank at the Riverview Dairy of Minnesota, LLP.

The installation of a synthetic cover on the two large manure storage basins will avoid and minimize the release of adverse air and odor emissions. The cover over the dairy manure basins reduces the emission of adverse odors by (1) preventing the wind-induced mixing of the liquid-manure surface, and (2) providing a porous barrier to slow the movement of gases from the liquid-manure surface to the atmosphere.

The anaerobic digestion effluent will go through separation that will result in a significant reduction of adverse odors from the manure. Digested, separated manure will flow through an uncovered settling basin before flowing into the covered manure storage lagoon. Digester bypasses will be built in (and easily accessible to personnel) to prevent any raw manure (non-digested) from having to be stored in an uncovered lagoon should the digester ever malfunction.

Air quality, including odor, was assessed through the use of the CALPUFF computer model, consistent with MPCA practice and approved by the U.S. Environmental Protection Agency. The modeling for results for odor suggests that the odors from certain individual compounds have some potential to be detected at neighboring residences. However, the highest modeled concentration for an aggregate of odorous compounds any neighbor would experience is 5.5 times less than the threshold concentration associated with unpleasant odors. The air quality modeling results indicate that no significant adverse effects are expected from the proposed dairy's emission of odorous gases.

The operators will notify all neighbors within one-half mile of the manure storage basin and owners of the application sites prior to land application of manure to determine if this will interfere with activities in the neighborhood. Land application of manure will take place in the fall, after harvest, by injection. Cooler weather will minimize the release of odor. In the event that we were unable to pump out all of the manure in the fall, the remaining manure would be injected in the spring.

**Comment 1-5:** The commenter stated concern about what will happen if the weather does not cooperate when it comes time to pump out and apply manure.

**Response:** Land application of manure will take place in the fall, after harvest, by injection. In the event that the Project proposer is unable to pump out all of the manure in the fall, the remaining manure would be injected in the spring.

**Comment 1-6:** The commenter stated concern regarding the amount of noise pollution that will be created by the large number of cows mooing, the additional truck traffic, and tractor noise associated with the proposed Project.

**Response:** Sources of noise at the site are expected to come from feed trucks, tractors in the feedlot area, and truck traffic entering and leaving the site. The truck traffic will primarily be during the day, and the majority of the equipment will be running inside of the barns. This will keep noise problems to a minimum. The cows will be housed in the confinement barn. The MPCA is not aware of any noise impacts associated with the mooing of cows at other feedlots around the state.

**Comment 1-7:** The commenter stated concern regarding the wear and tear on township roads, county roads and state highways from the 36 milk trucks and 9 feed trucks that will be coming and going from the Project site each week.

**Response:** The Project, as proposed, is expected to generate an additional 6.5 vehicles per day (milk and feed trucks) on area roads. If use of the township road becomes an issue, Meadow Star Dairy, LLP will coordinate necessary maintenance with the township.

**Comment 1-8:** The commenter stated concerns regarding the size of the proposed Project, called it an animal factory and in close proximity of the town of Pennock and many rural families.

**Response:** The proposed Project will be required to meet all federal, state, and local permit requirements, not only for its construction, but also its day-do-day operations. This includes the application for a Conditional Use Permit from Kandiyohi County, where questions of land use should be discussed. The question of what is a proper size for a dairy operation is beyond the scope of the EAW.

**Comment 1-9:** The commenter stated concern that the individuals involved in this operation do not have a very good track record with MPCA in other business endeavors they have undertaken. Who will watchdog the operation and who will ensure compliance?

**Response:** The MPCA is not aware of any problems regarding other dairy facilities owned and operated by the proposers in the state of Minnesota. The Project will be subject to inspections by the MPCA, Kandiyohi County, and Minnesota Board of Animal Health as a result of the permits required from each. The MPCA will perform periodic inspections of the proposed facility and will also respond to any complaints received in a timely manner.

**2. Comments by Jeff Bredberg, Director of Environmental Services, Kandiyohi County. Letter received August 6, 2008.**

**Comment 2-1:** The commenter asks if a wetland determination has been performed at the construction site by a qualified individual.

**Response:** West Central Environmental Consultants of Morris, Minnesota performed a certified wetland determination on the construction site. No wetlands were found.

**Comment 2-2:** The commenter asks if wetlands are identified on the site will they be impacted by excavating, filling and/or draining.

**Response:** No wetlands were identified on the site.

**Comment 2-3:** The commenter stated if there are any wetlands that will be impacted, mitigation will have to be followed according to Chapter 8420.

**Response:** No wetlands were identified on the site.

**3. Comments by Susan Kidrowski, Pennock, Minnesota. Letter received August 27, 2008.**

**Comment 3-1:** Commenter stated concern regarding the impact the proposed Project will have on drinking water quality.

**Response:** Please see Responses to Comments 1-1 and 1-2.

**Comment 3-2:** Commenter stated concern regarding possible impacts to ground water availability for others users once the proposed Project is up and running.

**Response:** Please see Response to Comment 1-1.

**Comment 3-3:** Commenter asked how a feedlot with its storage basins differs from a wastewater treatment facility and its ponds.

**Response:** Manure storage basins are designed to hold manure generated by animals to be used as fertilizer for crops. The manure storage basins are designed to maintain the nutrients in the manure to be used by crops during the growing season.

Wastewater Treatment Ponds are designed to hold and treat wastewater generated by human activities. The treatment ponds are designed to encourage the breakdown of the nutrients in the wastewater; however, periodically some of the solids are removed and land applied in much the same manner as manure.

Confined animal feeding operations are required to be “zero discharge” facilities, meaning that no manure or other process wastewater can directly enter waters of the state. In contrast, municipal facilities are allowed to discharge directly to waters of the state from their storage facilities following adequate treatment. It is important to note that the strength of the waste is much higher in manure than in municipal wastewater, so it is easier to reduce the strength of municipal waste as opposed to manure. In addition, the design standards for each facility are equal in protection from seepage, as they both must design their basins to meet the 1/56-in/day seepage standard.

**Comment 3-4:** The commenter stated concern regarding potential impacts from the dust generated by the additional semi trucks coming and going from the site.

**Response:** The trucks traveling to and from Meadow Star Dairy will travel on less than one mile of gravel. Meadow Star Dairy plans to apply Calcium Chloride to this stretch of gavel road if dust becomes excessive. It is not anticipated that an additional 6.5 vehicles per day will significantly add to the already existing dust issues associated with area roads.

**Comment 3-5:** The commenter asked why their property was not identified on the map even though they do not have a building there now.

**Response:** The map is being used to show the proximity of the proposed Project to area residences. As the commenter pointed out, there is no residence on the property, and that is why it was not included on the map.

**Comment 3-6:** The commenter stated concern about where the runoff would go and what the health impacts are from a six or seven-inch rainfall at the site.

**Response:** The construction of the Project will require an NPDES/SDS Permit, which addresses the need for temporary and permanent erosion control measures. Originally the land was cultivated cropland. The quantity of stormwater generated at the site will increase as a result of the construction of barns and other impervious surfaces at the site. However, the rate of runoff will be reduced, as all stormwater will be collected in one of two stormwater basins. Orifices in the tile inlets will regulate the discharge. This will spread the release of water over several days. These basins also allow any sediment to settle out before the water enters the county ditch. In addition, it is most likely that the quality of the runoff will improve as the land changes from cultivated cropland to land that is covered by grass and trees.

The feed piles will all be covered with an impermeable plastic on an asphalt pad so that no rain water can come in contact with the feed. As an additional precaution, the runoff from the feed storage area will flow to the system of storage basins proposed at the site and will be land applied with the manure stored in said basins. All of the cattle will be housed inside a building and all of the manure will be contained within the barns, reception pits, or storage basin. Therefore, no contaminated runoff will be generated at the site from the feed, manure, or animal holding areas.

Manure application land is currently all cultivated cropland. The quantity and quality of surface runoff will remain the same.

Land application of manure, if done improperly, can adversely impact surface-water resources through manure-laden runoff or manure residue leaching into drain tile lines that outfall to surface waters. The Project includes land application acreage in six minor watersheds, each within two different major watersheds (one minor watershed in the Chippewa River and six minor watersheds within the Minnesota River). With the change in use from row-crop agriculture to confined animal agriculture, while the amount of stormwater will change, the runoff characteristics, both physical and chemical, from the land application acreage is expected to remain the same and, under certain circumstances, may improve as a result of the regulated land application activities (e.g., agronomic rates, immediate incorporation of the manure) under the NPDES/SDS Permit. The improvements would occur through the improvement in soil tilth,<sup>1</sup> through the use of organic fertilizer, and the uniform practice of immediate incorporation over the acres identified in the Manure and Nutrient Management Plan (MMP).

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<sup>1</sup> Good tilth is a sign of healthy soil organisms. While digesting organic material, bacteria secrete gum and slime-like matter in the soil. This works like glue, binding soil particles and humus together to form aggregates. The aggregates are crumb-like and allow for good air circulation and water drainage in the soil. Well-aggregated soil is regarded as having good tilth. The addition of organic material will feed micro-organisms and, thus, improve tilth. [www.earthandtable.com/glossary/soil/qualities.html](http://www.earthandtable.com/glossary/soil/qualities.html) (retrieved May 2, 2007).

The potential impact to surface-water resources from the Project's land application activities is not expected to create a significant impact, as it will be regulated by an NPDES/SDS Permit that operates under a "no discharge" standard and the MMP. The "no discharge" standard is managed through the following practices. Manure will be incorporated into the soil at agronomic rates, meaning that only the amount of manure will be applied that supplies the crop nutrients that can be utilized by the growing crop. The agronomic rate is based on the type of crop to be grown, the soil type, and the soil chemistry. In addition, land application will only occur during the fall of the year after crops have been removed from the field, rather than in the spring when runoff potential is greater due to increased precipitation and soil moisture. The MMP will be an enforceable provision of the NPDES/SDS Permit for the Project.

**Comment 3-7:** The commenter stated concern that the proposed Project would have a negative impact on property values in the area.

**Response:** The comment is noted. The issue of property values is beyond the scope of an EAW.

**Comment 3-8:** The commenter stated concern that odors can be a problem in the area already and it is likely to get worse with the addition of this facility.

**Response:** Please see Response to Comment 1-4.

**4. Comments by Gary Refsland, Pennock, Minnesota. Letter received August 27, 2008.**

**Comment 4-1:** The commenter stated concern that the EAW comment period for dairies and other feedlot expansions is their only opportunity to vent their feelings because the projects already have their plans approved.

**Response:** There are generally a number of opportunities for interested parties to express their feelings regarding the construction or expansion of project, in this case a feedlot. If the project requires the preparation of an EAW, as in this case, interested parties have the opportunity to comment during the 30-day public comment period. In addition, the project may require any number of county or township approvals, some of which may require a public hearing, which also provides an opportunity to discuss the proposed project.

**5. Comments by Gary Geer, Kandiyohi County Zoning Administrator. Letter received August 27, 2008.**

**Comment 5-1:** The commenter asks the following questions regarding the proposed perimeter drain tile.

- a. What constitutes a "visual test" of the perimeter tile line discharge?
- b. Who will perform the visual test and what qualifications are required?
- c. What constitutes a significant discoloration or odor change and does this represent a reliable method of indicating if something is not correct?
- d. Will any additional testing be done with the perimeter tile discharge?
- e. What oversight will the MPCA have over the monitoring of the tile line discharge?

**Response:**

- a. A visual test consists of opening the cover on the man-hole access to the perimeter tile and looking to see if the water flowing out of the perimeter tile is clear.

- b. Workers at Meadow Star Dairy will perform the tests at their scheduled intervals and employees of Riverview, LLP, the dairy's management company, will perform periodic inspections as well. Anyone performing the inspection will be instructed by the dairy's management to look for discoloration.
- c. A significant discoloration or odor change would be any changes in water color or changes in odor from the man-hole access point. The odor smell from the perimeter tile access point is a noticeable difference from the surrounding air. As such, changes in odor from the access point could be discernable by workers and provide an early means of detecting any possible basin leakage problems.
- d. Routine sampling and analysis of the perimeter tile water will take place. Minnesota Valley Testing Laboratories (MVTTL) will take samples of the water quarterly and measure the levels of bacteria, minerals, and other harmful elements.
- e. Should a problem in perimeter tile water content arise, Meadow Star Dairy will work with MPCA on mitigating any possible effects. All MVTTL tests will remain on file for a number of years and would be made available to MPCA upon request.

**Comment 5-2:** Under Item 5 (pages 7-12) concerning manure management, the discussion does not address solid manure except to note that it will be separated and re-used as bedding. Is it realistic to assume that there will be no net gain in solids as the dairy continues to operate? Assumedly the dairy does not have an open-ended need for bedding. It would be beneficial to further explore the build-up, handling, storage, and disposal of solids that are likely to accumulate over time.

**Response:** Solids will be reduced over time as they are re-used, digested, and separated. If a build-up of excess solids does occur, the separators can simply be shut off until a supply of fresh bedding is needed again, or the separated solids can be land applied in the same manner as manure. Meadow Star Dairy is currently working on developing other markets to handle excess solids as well.

**Comment 5-3:** Under Item 6.A (page 12) concerning the identification of major sources of air or odor emissions, the proposed manure storage basins are not identified as potential odor sources. According to the EAW, the proposed basins are to be 500 by 575 feet in size, 20 feet deep, and storing 65 million gallons of liquid manure. It seems unlikely that approximately 13.2 acres worth of liquid manure storage is not a potential odor source. Identification and discussion of the basins as a potential odor source would be beneficial.

**Response:** The commenter is correct in stating that all major sources of air emissions were not listed in Item 6.A of the EAW. In addition to the proposed freestall barn, the other major potential source is the uncovered settling basin. Compared to these two sources, the potential emissions from the proposed calf barns and the proposed covered manure storage basins are small. Emissions from all barns and all basins were included in the air quality modeling.

The anticipated water surface dimensions of the uncovered settling basin are 488 feet by 128 feet. The basin will receive the effluent from the anaerobic digester. While the "fuel" for generating new odorous gases will be mostly consumed in the anaerobic digester, the settling basin will emit the dissolved odorous gases found in the anaerobic digester effluent. The emission rates for odorous gases from the settling basin will vary with wind speed and basin temperature.

**Comment 5-4:** The commenter stated concern that the claim that the proposed geo-membrane cover for the manure storage basin reduces emissions 98 percent compared to a non covered storage basin. Additional supporting documentation would be beneficial

**Response:** The two manure storage basins will be covered with a gas-impermeable geomembrane. This is a solid sheet of polyolefin with a thickness of  $\frac{5}{64}$  inches (80 mils). Unlike porous geotextiles and natural crust covers, which are effective by reducing wind induced mixing of the manure basin and by providing an additional diffusion layer to slow the movement of gases from the manure to the atmosphere, the geomembrane provides a physical barrier to gas movement. The geomembrane cover contains the gases and prevents their release into the atmosphere.

However, like even the best Mylar™ balloons, the polymeric nature of the geomembrane has microscopic pores through which small gas molecules can slowly diffuse. This molecular diffusion of small gaseous molecules can be quantified using water vapor. The proposed geomembrane cover for the manure storage basins has a water vapor permeability of 0.0263 grams per square meter per day under defined test conditions (ASTM E96-00, Procedure B). This water vapor permeability was used in calculating the potential odorous gas emissions for the covered manure storage basins. Compared to an uncovered basin with the same manure chemistry, the geomembrane cover reduces gaseous emissions by about 98 percent. While appropriate for smaller gas molecules like hydrogen sulfide and ammonia, the approach probably overestimates the emissions of larger gas molecules such as *n*-valeric acid and *para*-cresol.

The process proposed by Meadow Star Dairy is very different than the one used at Valadco. Valadco did have covers installed, but they were not made of the same material and not designed to perform in the same manner as the covers described above for Meadow Star Dairy. In addition, Valadco did not have a digester or a solids separator as a part of its process. The system being proposed for Meadow Star Dairy has a proven track record. The two projects are not comparable.

There are over six years of operating history from Riverview and Dublin Dairies and four years of operating history with West River Dairy, indicating that this proposed system is working as designed.

**Comment 5-5:** Under Item 9.4 (page 16) concerning traffic and public infrastructure impacts, a Traffic Volume Map and township road maintenance agreement are noted as being attached. A review of the EAW and its exhibits fails to turn up the noted attachments. The township road maintenance agreement in particular is of interest as it would prove that Meadow Star Dairy's intentions are more than merely a statement of good intentions. Including these attachments would be beneficial.

**Response:** The township road maintenance agreement is included in this document as Attachment 1. The reference to the traffic volume map should have been removed from the EAW because the MPCA elected not to include the map because it was difficult to read. In addition, the MPCA felt that the following write-up in the EAW adequately described the expected traffic patterns and volumes.

When Meadow Star Dairy, LLP is operating at full capacity, there will be 36 semi loads of milk a week going to Milbank, South Dakota. There will be an average of 9 semi loads of feed delivered each week. These trucks will travel approximately 0.5 miles on St. John's Township 1<sup>st</sup> Avenue West to Kandiyohi County Road 7, then approximately 2.5 miles north to get to U.S. Highway 12 to the northwest. According to the Minnesota Department of Transportation 2006 traffic volumes, the average daily traffic count on County Road 7 between U.S. Highway 12 and Minnesota Highway 40 is 325, and the count on U.S. Highway 12 from County Road 7 to the west is 3,650. The milk and feed trucks will increase this daily count by an average of 6.5.

**Comment 5-6:** Under Item 11 (page 20) concerning cumulative potential effects analysis for traffic, Item 9.A is referred to as an analysis of the direct contribution of new traffic. However, Item 9.A only discusses “heavy truck trips” and does not include identification or analysis of employee traffic. The Kandiyohi County Zoning Ordinance does not allow for on-site multiple-unit housing and, as such, it is anticipated that a significant number of employees will arrive at different times by vehicle. Identification and analysis of the number of employees and the direct additional traffic from employees would be beneficial.

**Response:** An increase in standard car and pick-up traffic will occur as employees travel to and from the site. This was not addressed in the EAW as it specifically asks for an estimation of the number of heavy truck trips generated per week. The site will probably employ 35-40 workers and shifts will change twice a day. It is anticipated that workers will often carpool, resulting in an estimated 8-12 vehicles traveling to and from the site twice a day.

# Attachment 1

May 2, 2008

## St. John's Road Maintenance Agreement

For  
Meadow Star Dairy, LLP

The construction and normal operation of Meadow Star Dairy, LLP in Section 8 of St. John's Township will result in increased traffic and wear on local township roads.

Meadow Star Dairy believes that regularly maintained roads are vital to the well-being and safety of any community. As such, Meadow Star Dairy agrees to provide reimbursement to St. John's Township for any extra grading and gravel required as a direct result of Meadow Star Dairy's construction and daily operations. Reimbursement will only be provided for the St. John's Township roads adjacent and immediately accessing the Meadow Star Dairy facilities.

Reimbursement for road maintenance as described above will be provided upon the request of St. John's Township Supervisors.

This agreement is not intended to address any road upgrade costs.

Meadow Star Dairy, LLP

Nate Hultgren – Director  
11946 15<sup>th</sup> Ave. SW  
Raymond, MN 56282

Signature:



St. John's Township

David Visser--Supervisor  
4163 105<sup>th</sup> St. SW  
Raymond, MN 56282

Signature:

