

Public Feedback

2024 Revision to the Alternative EAW Form for Feedlots aka "Feedlot EAW"

Please Note:

To measure public response to suggested changes, we posted the Draft Feedlot EAW and Guidance Documents from January 2 - January 31, 2024 in Smart Comment and received additional comments through February 29 from Tribal Nations. However, **this was not considered a formal "Public Comment" period.** Procedures to update the Feedlot Form does not require such notice. We received 15 responses from this outreach, proving to be a substantial and informative means of gaging interest in the revision.

Respondents will be advised of upcoming ERIS and EQB meetings if they wish to provide further public comment to the Feedlot EAW revision.

Megen Kabele, Revision Lead

MPCA Environmental Review Unit

March 6, 2024

Ann Cohen

If DNR has requested that a pump test be conducted to ascertain whether any proposed water appropriation will cause interference with either existing well users or natural resources, MPCA should require the pump test results to be included with the EAW as required information. Where pump tests are recommended as a result of DNR's initial analysis, the EAW should not be deemed complete until those results are available.

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January 31, 2024

Minnesota Pollution Control Agency

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Submitted electronically

Dear <<*>>

Thank you for the opportunity to comment on the draft for Environmental Assessment Worksheets (EAWs) for Feedlots and Confined Animal Feeding Operations (CAFO)

Introduction and Qualifications:

As a Minnesota Licensed Professional Geologist and environmental risk management consultant with over 30 years of experience in Minnesota, I have been preparing and reviewing EAWs since 1990. My expertise includes familiarity with the rules, the process, and litigation related to EAW's. I have represented dozens of project applicants on various projects across the State. I have worked for Regulating Government Units (RGUs) in and around Rochester and have been retained by dozens of environmental interest groups across the State from Winona to Wadena. I have been a technical consultant for four court challenges to EAW negative declarations, representing applicants and project opponents. I have a deep knowledge and understanding of Minnesota environmental review.

The statutory purpose of an EAW in MR 4410.1000 is to prepare and receive public input from *"a brief document prepared in worksheet format which is designed to rapidly assess the environmental effects which may be associated with a proposed project. The EAW serves primarily to aid in the determination of*

Whether an EIS is needed for a proposed project and serves as a basis to begin the scoping process for an EIS."

The worksheet is designed to assess and reveal whether there is potential for "significant environmental effects." Unfortunately, this law term is misunderstood, manipulated, and sometimes ignored in EAWs. Conflicts arise most often when the EAWs are incomplete or incorrect.

I believe EAWS can be improved, more straightforward to prepare, and easier to defend when the document focuses on likely impacts. Starting from the beginning of the EAW narrative, the probable risks and consequences should be addressed. With the power of the risk assessment work Minnesota has already done. With the history of known success and failure, it is easier than ever to generate a "brief document" if the EAW requires a standard set of existing published risk maps accompanied by a brief discussion about how risks can be avoided, managed, controlled and mitigated it will be easier for applicants and more user-friendly to the Public.

There are valuable structures for addressing risks in the Watershed Restoration and Protection Strategies, and Implementation plansⁱ USDA Soil Suitability and Limitations, Minnesota Geologic Atlas that should be discussed at the EAWS.

I applaud the MPCA's efforts to set alternative review guidance to focus on EAW risk management standards for Feedlots and confined animal feeding operations. An alternative EAW or feedlots is finally an opportunity to address the probable environmental risks for every feedlot. A more focused alternative review will make the EAW easier for the applicants and RGU to prepare and keep the focus on the risks that are apparent on the landscape and how feedlot managers can control all their risks.

I have both general comments and specific recommendations for the Alternative EAW, and I have included a PDF of the draft with comments for each section.

I believe that the feedlot EAW will be more robust and more accessible to prepare if the EAW is required to include a basic standardized set of readily available risk assessment and risk avoidance tools.

General Comments

The first goal of the EAW should require project applicants to inform themselves of potential environmental risks from the feedlot operations and from manure storage and use. The applicants must first assess the site's existing conditions and surroundings and share the available data on trends in water quality, air quality, and ecological and biological integrity. The tools for a thorough risk assessment are available in the Web Soil Survey, the County Geological Atlas, Watershed Management Plans, the MNDNR Explore Watershed Health website, and the University of Minnesota Natural Resource Atlas website.

Once the EAW is published and available for public review, the goal shifts to engaging the community about how risks will be managed. The final goal is to apprise government decision-makers and permitting agencies of the tools to control significant environmental effects along with the project location, purpose, design, construction, and operations.

It is my opinion that without significant refinements focused on tangible risks, the Draft EAW for Feedlots does not meet the purpose, intent, or objectives of the Minnesota Environmental Policy Act because project applicants are allowed to make their uninformed risk assessments and can obfuscate likely "adverse environmental effects." This flaw can easily be corrected by requiring a standard set of risk assessment tools, maps, and strategies already adopted across the State. By requiring complete transparency about known and probable risks, applicants are better prepared to manage the risks, the Public is better informed, and permits and regulations can be applied to protect the health, safety, and welfare of all Minnesotans.

Risk Management:

Fundamentally, the EAW is a risk assessment, management, and communication exercise that starts with the applicant's summary of the project location and scope. For feedlots, the risk factors are well known and can be mapped, tabulated, and summarized using fundamental tools like the USDA Web Soil Survey Suitability and Limitations maps, the County Geologic Atlas and Hydrologic Atlas plates, the MPCA Watershed Assessments (Stressor Analysis,

WRAPS and GRAPS), local 1W1P plans, the Ag Department Runoff Forecast Advisory, and other peer-reviewed risk assessment maps.

I recommend that the list of required maps and web links be expanded and standardized for each feedlot EAW. Applicants should submit the maps and address how the feedlot and manure management will avoid, control, and mitigate the risks.

The EAW must delineate the risks by location and activity, and the proposed risk management plans should be defined for each feedlot and each manure spreading field. The Best Management Practices for runoff and infiltration should be documented. If the potential risks are not avoided, the applicant should describe a response plan, a receptor survey, and a mitigation plan.

Suppose the risk assessments were tabulated in a standard format for several known feedlot risks. In that case, the risk management techniques can be abbreviated in the table with citations to the appropriate narrative and the supporting maps or plans. A risk assessment table, a standard set of risk assessment and management maps, and the applicant's risk management plans can provide the desired brief overviews for project impacts from feedlots.

Media	Risks	Risk Management	EAW section	Maps and Figures
Surface Water	Nutrient runoff Leaks and spills etc	Nutrient management Runoff control Erosion prevention Runoff Risk Assessment tool PTMapp		Impaired waters Watershed Docs LiDAR Stream Power
Groundwater/Drinking Water	Rapid infiltration	Avoidance		Karst map USDA Manure

	Water appropriation Drinking water receptors			Suitability and Nutrient Mgt Recharge zones (coarse soils and shallow bedrock)
Odor/Noise		OFFSET Model		OFFSET maps
Ecological/Biological Impact		MPCA Watershed Health Assessment Framework		
Landuse/Community Impact				

A standard set of risk assessment maps would eliminate many errors and omissions from the applicants and the Regulating Government Units (RGUs). It can make it easier for applicants, RGUs, and the Public.

While the Draft EAW plan focuses on the existential threat and the unknowns of climate change, it is still helpful to focus feedlot operators' attention on the range of options to manage change. However, the EAW is not strong enough to deal with the tangible and ongoing threats from widespread nitrate contamination of drinking water. There is no health risk assessment nor proposal for drinking water safety plans for rural areas with feedlots and widespread manure contamination. These public health risks need to be considered by accounting for manure and commercial fertilizers for all the cropping systems related to the feedlot.

Each feedlot EAW should develop a brief water safety plan based on groundwater testing and source water protection. An EAW should assess feedlot and potable water well risks on abutting property. The safety plans should define the risk, the appropriate risk managers, and the plans to ensure drinking water quality, which should be part of every EAW. The safety plan will likely identify local private well owners responsible for their wells, water systems, and water quality at the kitchen tap. Source water protection will require risk management from landowners and farmers.

In the eight karst counties of SE MN, the USEPA Ordered the State of Minnesota to immediately address the imminent health risk of nitrate contamination in drinking water. The order demands that the Safe Drinking Water Act principles be applied to private well owners and community water supplies who share underground drinking water sources in these eight counties. Feedlots in these counties should acknowledge the USEPA Orders in the EAW and discuss how the feedlot will protect drinking water.

I advise that the EAW incorporate the SDWA principles of coordination, communication, well testing, alternative water supplies, risk assessments, and long-range source water protection should be cited and woven into the fabric of the EAW.

Finally, the EAW should pay closer attention to the 1w1p that is completed for every watershed in the State. These plans are often exhaustive but rarely followed, even as they promise that local efforts to implement protection, enhancement, and restoration strategies can be successful. Without coordination and a commitment to institute the plans in environmental review and permitting the 1w-1p plans, they will fail.

Specific Recommendations

Water:

It should be required because of local surface water impairments and the existing trends in groundwater quality in shared underground drinking water sources.

Existing and proposed water appropriation permits, or the lack of permits, should be cited in the EAW and the annual water use reports. Permit

Compliance records should be included for existing and re-permitted facilities, and links to pump tests for new permits should be required.

Water appropriation permits have been required for feedlots using more than 10,000 gallons daily. However, many smaller farms do not have permits. Any farm with over 200 animal units should have a water appropriations permit unless pumping data shows less water use. Existing permits, or the lack of permits, should be cited along with the annual water use reports. Permit compliance records should be included, and no feedlot permit should be granted or renewed unless the feedlot is compliant with water appropriation permits.

Water quality assessments of wells and aquifers in the area that are likely to be impacted should be documented from data available from the Dept of Ag Township Testing Plans or the MDH new well testing, or the local/regional testing programs should be cited, and the appropriate maps should be in the EAW.

Maps:

I recommend expanding the list of maps to include a small number of published risk assessment maps from the USDA Web Soil Survey, the Minnesota Geological Survey, the Department of Natural Resources, the Pollution Control Agency, the Department of Agriculture, the Department of Health and Board of Water and Soil Resources. All the proposed maps are in addition to the other required maps, and all maps should have a scale, north arrow, and legend and must accurately identify and delineate the feedlot, the manure storage site, and all the fields used for manure application.

Regional or County Scale Maps: each with a legend, scale, and north arrow

1. HUC-10 Watershed maps from MNDNR and USEPA for all watersheds with manure applications.
2. One-Watershed, One-Plan watershed maps, and link to website.
3. Groundwater Province Map from MNDNR
4. MDNR Groundwater Pollution Sensitivity Maps (https://www.dnr.state.mn.us/waters/groundwater_section/mapping/mn-hydro-atlas.html)
 - a. Pollution sensitivity of bedrock surface (HG-01)
 - b. Pollution sensitivity of near-surface materials (HG-02)
 - c. Water table elevation and depth to water table (HG-03) from MNDNR

5. Regional Hydrological Assessments, where applicable.
(https://www.dnr.state.mn.us/waters/groundwater_section/mapping/regional-hydro-assess.html).
- a. Surficial Geology
- b. Water table hydrology
- c. Geologic sensitivity to the uppermost aquifer
6. Map of Groundwater Advisory Areas, DWSMAS, Wellhead advisory areas, and the USEPA Safe Drinking Water area.
7. Karst features maps where applicable.
8. Mn Dept of Agriculture Township Well Testing:
 - a. Initial and Final Test Results
 - b. Pesticide Analysis

Township Scale Maps

1. Township Plat Map and Legend showing public land survey sections, roads, and parcel ownership with location of occupied building sites
2. Minnesota Well Index/County Well Index map with a Legend and Scale
3. County Geologic Atlas Maps, each with a legend, scale, and north arrow.
 - a. Part A: Geologic Atlas
 - i. Bedrock geology
 - ii. Surficial geology
 1. Quaternary Stratigraphy and Sand Distribution Model where applicable
 2. Karst Features, where applicable
 - iii. Bedrock Topography and Depth of Bedrock
 - iv. Nearest geological cross-sections that identify the approximate distance and direction from the center of the cross-section
 - b. Part B Hydrologic Atlas map or citations from the Hydrology Report
 - i. Each Part B atlas is different and usually has three or four maps and cross-sections. Regional factors apply, and appropriate maps should be required based on the area.
 1. Bedrock hydrology
 2. Multiple aquifer pollution sensitivity
 3. Sinkholes, springs, seeps, and spring-sheds (dye trace studies)
 4. Water chemistry
 5. Hydrogeologic cross-sections

4. Land Cover (NASS)
5. County Land Use Plan and Zoning maps

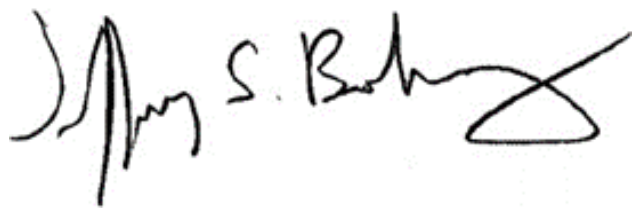
Site and abutting properties maps

1. LiDAR topography in greyscale
 - a. Stream power index
2. USDA Web Soil Survey Maps with 1.5-mile radiusⁱⁱ
<https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>
 - i. Soil Map
 - ii. Suitability and Limitations for Use
 1. Waste Management Manure and Food Waste
 2. Waste Management Sensitive Lands for Nutrient Management
 - iii. Water Management
 1. Subsurface Water Management Outflo Quality
 - iv. Other valuable maps include data on soil qualities, parent materials, water features, depth to water table, flood frequency, and ponding.

I used the above recommendations to assess my farm as if I were compiling maps for an EAW. The total exercise took less than three hours to compile all the maps in a file, and it would take another two hours to format, make legends, and label all the maps. Of course, it would take more time to include all the maps for all the proposed manure application sites, so a smaller number of maps assessing runoff, infiltration, and groundwater recharge might be more appropriate for these fields. The management issues identified in the proposed maps clarified the local risks made risk avoidance an easy management choice, and made it easier to conduct environmental reviews.

Thank you for the opportunity to provide input into the EAW process.

Sincerely:

A handwritten signature in black ink, appearing to read "Jeffrey S. Broberg". The signature is stylized and cursive.

Jeffrey S. Broberg, LPG, MA

Attachment:

1-PDF DRAFT Feedlot EAW form with comments and recommended additions

2- PDF Web Soil Survey Report with soil maps, maps of suitability and limitations, and soil properties and qualities.

ⁱ One-Watershed One Plan BWSR Policy

A. Issues That Must Be Addressed

According to Minnesota Statutes, Section 103B.801, subdivision 4, the following issues must be addressed in the plan.

- Surface water and ground water quality protection, restoration, and improvement, including prevention of erosion and soil transport into surface water systems
- Restoration, protection, and preservation of drinking water sources and natural surface water and groundwater storage and retention systems
- Promotion of groundwater recharge
- Minimization of public capital expenditures needed to correct flooding and water quality problems
- Wetland enhancement, restoration, and establishment
- Identification of priority areas for riparian zone management and buffers
- Protection and enhancement of fish and wildlife habitat and water recreational facilities

www.bwsr.state.mn.us 4

B. Other Topics

The following topics, and others identified by planning partnerships, may also be addressed in the plan.

- Soil health
- Altered hydrology
- Climate impacts on water resources (see II.C)
- Land cover changes
- Ecosystem health and resilience
- Water supply (protect, provide, and conserve)
- Drinking water supply
- Drainage system management
- Wastewater management
- Storm water management
- Drought mitigation
- Chlorides
- Contaminants of emerging concern
- Emerging issues
- Invasive species prevention and/or management
- Public outreach
- Equity and environmental justice
- Maintenance of core services; understanding of local capacity
- Administrative priorities (e.g., establishment of uniform local policies and controls in the watershed)
- Fiscal challenges (e.g., minimizing public capital expenditures in resolving problems in areas such as flood

ⁱⁱ Attached is the 93 page Web Soil Survey of my farm in Elba Township of Winona County with the recommended maps and narrative text. This Web Soil Survey took less than one hour to compile.



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Darin Broton
Senior Advisor to the Commissioner &
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Dear Mr. Broton,

CURE respectfully submits these comments on the Minnesota Pollution Control Agency's (MPCA) proposed updates to its animal feedlot EAW and guidance document. Although we are encouraged by many of the additions in the MPCA's updated feedlot EAW, we have several recommendations that we believe would improve the form. This list is not exhaustive, and CURE looks forward to submitting additional comments in the forthcoming more formal public comment process.

Project Location. Given the potential for impacts to travel significant distances, CURE recommends that the EAW require attaching a map showing general locations of Tribal boundaries within 50 miles of the proposed project.

Project Description. We are pleased to see the inclusion of new sections on manure information in the proposed updates. Given the ongoing issues our state faces with water quality,¹ it is important to understand how much manure is already being generated by a facility and how much may be generated if the proposed project is approved. CURE is also pleased to see the checklist of manure management systems and hopes that all of section 6(d) will be included in the final EAW form.

Permits and Approvals Required. CURE recommends that the MPCA require project proposers to list any prior violations (within the last 10 years) or ongoing investigations of environmental, animal health, or human health permits or regulations at the state and federal level. Requiring this information would allow the MPCA to determine whether the project proposer has been able to meet existing regulations and whether the proposed project may exacerbate the current circumstances.

¹ Madison McVan, *EPA Says Minnesota Needs to Take More Action on Nitrates in Drinking Water*, Minnesota Reformer, Nov. 9, 2023, <https://minnesotareformer.com/2023/11/09/epa-says-minnesota-needs-to-take-more-action-on-nitrates-in-drinking-water/>.

Land Uses. The MPCA should expand the list of nearby residences, schools, daycares, etc., described in section 10(a)(i) to include those within 5 miles (currently 1 mile) and existing feedlots within at least 10 miles (currently 5 miles). Second, we note that section 10(a)(iii) requires the project proposer to “reach out” to Tribes within 10 miles of the proposed project with regarding zoning. CURE recommends that the EAW expand that distance to 50 miles and clarify whether this provision is intended to serve as notice to Tribes of the proposed project or is only meant to inform the project proposer of what zoning requirements may impact their proposal. If it is the former, it is unclear how it interacts with the MPCA’s policies regarding Tribal consultation.²

Water Resources. Under section 12(a)(i), the requirement to list surface waters on or near the feedlot project site and manure application area listed on the current MPCA 303(d) Impaired Water List is insufficient, especially for areas with karst bedrock. This should be expanded to include such waters within 5 miles. MPCA may also want to consider explicitly including calcareous fens in the list of surface waters to describe in section 12(a)(i).

Lastly, section 12(b)(iii) concerning water appropriation requires the project proposer to “Discuss how the proposed water use is resilient in the event of changes in total precipitation, large precipitation events, drought, increased temperatures, variable surface water flows and elevations, and longer growing seasons.” CURE strongly recommends the MPCA replace the phrase “is resilient in the event of” with “may be impacted by.” By asking the project proposer to describe the “resiliency” of their water appropriation, the form assumes without any evidence that the proposed water use *will* be resilient. This may not always be the case, so the form should instead require a discussion of the impacts on existing water resources.

Fish, Wildlife, Plant Communities and Sensitive Ecological Resources. MPCA should consider defining what “near” and “within close proximity” mean in sections 14(a) and (b) and provide specific distances for each.

GHG Emissions. The MPCA should clarify what types of activities must be included in the operational emissions calculations in section 18(A). Currently, it is not clear from the table that Scope 1 emissions would include emissions from vehicles at the feedlot as well as vehicles and machinery used on the farm to apply manure or conduct other activities. It is also unclear whether project proposers are expected to include emissions from manure storage and application. Finally, the operational emissions calculations should include the specific electricity profile of the utility provider where available instead of the grid average.

CURE thanks the MPCA for the opportunity to provide early feedback on the animal feedlot EAW and guidance document.

² Minnesota Pollution Control Agency, *Minnesota Pollution Control Agency Policy on Consultation and Coordination with Indian Tribal Governments*, Sept. 2013, <https://www.pca.state.mn.us/sites/default/files/p-gen5-06.pdf>.

Sincerely,

/s/ Sarah Mooradian

Sarah Mooradian

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January 31, 2024

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Re: Feedlot Guidance and Environmental Assessment Worksheet Updates

Dear Mr. Broton:

Thank you for this opportunity to present Minnesota Farm Bureau's feedback on the proposed changes to the feedlot guidance and environmental assessment worksheet (EAW) updates us by both Minnesota Pollution Control Agency (MPCA) and Department of Natural Resources (DNR).

The process of starting or expanding a feedlot in the state of Minnesota is something many farmers across the state have had to work through to be able to operate their farms. Farmers recognize the need for a regulatory framework that protects the land and its resources and take their role as caretakers of the land seriously. This includes working with the appropriate Responsible Government Unit (RGU), in these cases the MPCA, to participate in an EAW.

As the public comment form indicates, the purpose of conducting an EAW when a farmer is applying for a feedlot permit is "to assess the project's possible impact on the environment and ways to avoid or minimize it". In recognizing this purpose, the Minnesota Farm Bureau knows the importance of having scientifically focused parameters used to evaluate the various factors that an EAW covers. Having a focus on scientific factors that lead to scientific determinations removes the possibility of the EAW being used as a tool to disrupt creation or expansion of feedlots who have performed the necessary management practices to meet the requirements to receive a permit.

When vague factors are placed within the EAW, it opens a door to decisions being made not on what is scientifically sound regarding environmental protections when feedlots



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are placed on farms, but on theoretical possibilities that no individual person or group can factor in.

To this specific concern, we direct our comments to section 7, titled Climate Adaptation and Resilience. It is difficult to have access to current and updated data regarding the multitude of factors listed in the chart outlined in this proposal. Moreover, it is also difficult to understand to what role feedlots play in climate change, and how these expansive and vague factors will be used to determine the need for an environmental impact statement (EIS) or to allow a permit to go forward.

The ability to quantify these factors into data that clearly directs the impact of new feedlot or expanding feedlot projects is a difficult and constantly changing environment. We believe it will be difficult to clearly define these factors and would ask the MPCA and DNR ensure the Environmental Quality Board (EQB) discusses what kind of scientific factors would be used to collect and quantify the data the proposed section 7 will require.

Additionally, we identify a similar issue with section 18, titled Greenhouse Gas Emissions (GHG)/Carbon Footprint. The term "carbon footprint" is not a scientific nor quantifiable term, and we would ask that this vague reference not be used within the EAW. Moreover, many factors that are being sought by section 18 could combined with section 7, putting the requirement for this information in one place.

In conclusion, we believe the process for receiving a feedlot permit in Minnesota is an already expansive requirement for our farmers and that any changes made to the EAW requirements must be made with consideration of how much work, science, and education many of Minnesota's farmers have already done on behalf of their farms and communities. Creating difficult to understand charts and asking for vague criteria that cannot be easily quantified does not serve our farmers or the environment but will only make an already strenuous process more difficult for our farmers.

Sincerely

Dan Glessing
President

Institute for Agriculture and Trade Policy

The Institute for Agriculture and Trade Policy submits the attached comment for consideration. We appreciate the opportunity to provide these comments.



January 29, 2024

To: Minnesota Pollution Control Agency

Re: Environmental Assessment Worksheet Draft

The Institute for Agriculture and Trade Policy (IATP) welcomes the opportunity to comment on updates for the Animal Feedlot Environmental Assessment Worksheet. IATP has been working on issues surrounding the impacts of Concentrated Animal Feeding Operations (CAFOs), including those on farmers, rural communities, public health and the environment, for more than two decades.

Here, we offer three high-level comments to the draft EAW, with some more specific section-based comments below.

- 1) In the context of this revised EAW, we encourage the Minnesota Pollution Control Agency (MPCA) to reassess the thresholds for an Environmental Impact Statement (EIS). To our knowledge, the MPCA has never requested an EIS for a proposed feedlot, despite clear indications that feedlots are contributing to significant environmental harms in the state, most notably water and climate pollution. The EPA lists over 300 bodies of water in the state as threatened or impaired by nitrogen or phosphorus pollution.¹ The state's most recent report on climate emissions, shows that agriculture is the largest emitting sector, primarily from emissions linked to beef, dairy and hog CAFO operations. MPCA reported that since 2005 the state has seen a 10% increase in agriculture methane emissions and a 9% increase in nitrous oxide emissions from manure and fertilizer use for crops, including for animal feed.² A major advantage of an EIS is that, unlike an EAW, it can consider social and economic impacts of a project: two critical areas of consideration that have not been scrutinized during the CAFO expansion in the state over the last three decades.
- 2) In light of concerns about water pollution and increasingly agriculture-related climate emissions, IATP urges the lowering of the animal unit threshold for requiring an EAW from 1,000 to 700 animal units, and to 400 animal units for identified sensitive areas.

¹ <https://mywaterway.epa.gov/state/MN/advanced-search>

² <https://public.tableau.com/app/profile/mpca.data.services/viz/GHGemissioninventory/GHGsummarystory>

- 3) We are encouraged by the greater incorporation of climate-related information within the EAW. However, IATP believes the current EAW is not recognizing the full scope of environmental risks associated with the emerging use of anaerobic digesters to capture methane on large CAFOs and pipe or transport that gas offsite to a natural gas pipeline. New digester projects are introducing the capture, storage and transport of an explosive, odorless and colorless gas onto a farming operation. Such digesters around the country have experienced explosions and leaks.^{3 4 5} Most digester projects include the constructions of pipelines on the farm and potentially off-the-farm to reach natural gas pipelines. Other projects have considered trucking either the manure from the CAFO to a local digester on another site, or trucking the actual methane captured on the farm to a natural gas pipeline.⁶ The capture and transfer of the explosive gas methane through anaerobic digester projects pose new environmental and community risks and need to be fully considered within an EAW.

What follows are some more specific comments on the draft EAW:

Section 5. In the Project Location, require a map and documentation of any pipelines to be built associated with the project, including those linked to anaerobic digesters. If biogas or manure is to be transported by truck, include a map of the delivery route.

Section 6 b. The EAW should include whether the project developer has been fined for violating environmental pollution laws, state or federal, within the last 10 years, and all other owners that are part of the project. If another company owns the animals for the feedlot, that should be identified. If another company owns the gas produced through an anaerobic digester, that should also be identified.

If the project does include an anaerobic digester that will require pipelines or specialized trucking to haul manure or biogas, that should also be disclosed.

Section 6 d. The language on manure application should emphasize the need to follow recommended Best Management Practices. For an anaerobic digester, it would be important to report on how much methane gas is expected to be produced on the site, how long the methane will be stored on the site, and how the gas will be transported off the site.

Section 7 a. When considering climate trends for a project, consider larger geographic scopes than just the farm and connected lands. For example, the Minnesota Climate Trends includes

³ <https://thecounter.org/misbegotten-promise-anaerobic-digesters-cafo/>

⁴ <https://www.iowapublicradio.org/2022-07-06/workers-in-iowa-failed-to-investigate-a-leak-that-poured-manure-wastewater-into-the-rock-river>

⁵ <https://www.oregonlive.com/news/2019/07/manure-spill-splashes-300000-gallons-near-tillamook-bay.html>

⁶ <https://www.mprnews.org/story/2023/09/12/digesters-make-renewable-energy-from-manure-but-face-hurdles>

data by watershed. The U.S. National Climate Assessment #5 is now published and available to be listed as a resource.

Section 7 b. If waste or gas is transported from a feedlot, consider the environmental risks of transporting that waste or explosive gas – either through pipeline or vehicle.

Section 10 a. Include the distance from any additional pipelines or travel routes transporting methane gas.

Section 12. Include any new pipeline infrastructure associated with the project.

Section 12 v. Under manure management, if an anerobic digester is used, include information on how gas will be stored, how it will be transported, and how much will be produced. If truck transport is used, include information on how frequently trucks will be hauling and what type of trucks will be used.

Section 18 a. Include offsite materials used in construction and infrastructure of the new feedlot or manure anerobic digester infrastructure. It should be clear that direct methane emissions from ruminant animals should also be included, along with additional manure-related emissions and nitrogen oxide emissions associated with fertilizer use for animal feed.

Section 18 b. Report on whether non-CAFO based systems of raising animals or producing milk were considered and why they were rejected.

Section 21. The EAW could provide more guidance on how to assess the cumulative effects of a project on water pollution within a watershed that is already impaired or threatened to be impaired, and greenhouse gas emissions, where the ongoing approval of new and larger CAFOs is affecting the state's GHG reduction goals.

Thanks for considering these comments. Please direct any questions to Ben Lilliston (blilliston@iatp.org).

Black – current Feedlot EAW language
 Green – new GHG and Climate Change language
 Blue – language & formatting from standard EAW (unless a [hyperlink](#))
 Red – staff edits, housekeeping, improvements

- DRAFT -

ENVIRONMENTAL ASSESSMENT WORKSHEET

Alternative Form for Animal Feedlots

Note to preparers: This form is authorized for the preparation of Environmental Assessment Worksheets (EAWs) for **animal feedlots**. Project proposers should consult the Pollution Control Agency's *Guidelines for Alternative EAW Form for Animal Feedlots* at <https://www.eqb.state.mn.us/guidelines-alternative-eaw-form-animal-feedlots>.

Note to reviewers: The Alternative EAW Form for Animal Feedlots provides information about a feedlot project that may have the potential for significant environmental effects. **The project proposer** may supply **reasonably accessible data but does not complete the final worksheet**. The final EAW is prepared by the Minnesota Pollution Control Agency (MPCA) **Environmental Review Unit**, acting as the Responsible Governmental Unit (RGU). The EAW determines whether an Environmental Impact Statement (EIS) should be prepared. Comments on this EAW must be submitted to the MPCA during the 30-day comment period which begins with notice of the availability of the EAW in the [EQB Monitor](#), found at <https://mpca.commentinput.com/comment/search>. Comments should address the accuracy and completeness of information, potential impacts that warrant further investigation and the need for an EIS.


1. **Feedlot Project Title:** _____ **1a: Tempo ID #:** _____
2. **Feedlot Proposer**
 Landowner, Leasee, or other title
 Address, Email, Phone
- 2a. **Technical Contact / Contractor**
 Title
 Address, Email, Phone
3. **RGU:**
 Contact:
 Title
 Address, Email, Phone
4. **Reason for EAW Preparation: (check one)**

EIS Scoping		Mandatory EAW		Citizen Petition		RGU Discretion		Proposer Requested	
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If EAW is mandatory, does it apply to Subpart A or B?

Select A or B (X)		MN Rule 4410.4300 Subp. 29 – Animal Feedlots. The PCA is the RGU for the types of projects listed in items A and B unless the county will issue the feedlot permit, in which case the county is the RGU. However, the county is not the RGU prior to January 1, 2001.
	A.	For the construction of an animal feedlot facility with a capacity of 1,000 animal units or more or the expansion of an existing facility by 1,000 animal units or more if the facility is not in an area listed in item B.
	B.	For the construction of an animal feedlot facility of more than 500 animal units or expansion of an existing animal feedlot facility by more than 500 animal units if the facility is located wholly or partially in any of the following sensitive locations: shoreland; a delineated flood plain, except that in the flood plain of the Red River of the North the sensitive area includes only land within 1,000 feet of the ordinary high water mark; a state or federally designated wild and scenic river district; the Minnesota River Project Riverbend area; the Mississippi headwaters area; or an area within a drinking water supply management area delineated under chapter 4720 where the aquifer is identified in the wellhead protection plan as vulnerable to contamination; or within 1,000 feet of a known sinkhole, cave, resurgent spring, disappearing spring, Karst window, blind valley, or dry valley.

5. Project Location

- County:
- Governing City or Township:
- PLS Location (¼, ¼, Section, Township, Range): 
- Watershed (81 major watershed scale, HUC 8):
- GPS Coordinates:
- Tax Parcel Number:

At a minimum, attach each of the following to the EAW:

- County map showing the general location of the project
- U.S. Geological Survey 7.5 minute, 1:24,000 scale map indicating project boundaries
- Site plan showing all significant project and natural features.
- Map of manure application sites 
- Map of permanent manure stockpiles
- Map showing all wells, tile inlets, residences, and sensitive receptors within a 1.5 mile radius of the feedlot and/or manure land application sites 
- Feedlot Permit Application (county or state) 
- Tribal boundaries within 10 miles   
- List of data sources, models, and other resources (from the Item-by-Item Guidance: *Climate Adaptation and Resilience* or other) used for information about current Minnesota climate trends and how climate change is anticipated to affect the general location of the project during the life of the project (as detailed below in item 7. Climate Adaptation and Resilience).

6. Project Description:

<Project Title>
<City/Twp>, Minnesota

a. Provide the brief project summary to be published in the *EQB Monitor* (approximately 50 words).

b. Give a complete description of the proposed project and related new construction, including infrastructure needs. If the project is an expansion include a description of the existing facility.

Emphasize:

- 1) Purpose of project
- 2) Construction, operation methods, and features that will cause physical manipulation of the environment or will produce wastes,
- 3) Modifications to existing equipment or industrial processes,
- 4) Significant demolition, removal, or remodeling of existing structures; and
- 5) Timing and duration of construction activities
- 6) Any future plans/stages for this project including an anticipated timeline and plans for environmental review.
- 7) Any past stages of this project including timeframe and environmental review proceedings.

Facility components (show on site map)	Existing or Proposed?	Quantity	Total Area (sq ft)/Volume (gal)
Animal Holding Areas			
• Total Confinement Barns			
• Partial Confinement Barns			
• Open Lots			
• Individual Animal Housing Areas			
Manure Storage Areas			
• Liquid Manure Storage Areas			
• Solid Manure Storage Areas			
Other Components			
• Feed Storage Areas			
• Mortality Management Areas			
• Composting Sites			
• Anaerobic Digester			
•			

c. Animal information (complete the chart below)

Animal Type	Number Existing	Animal Units ^a Existing	Number after project	Animal Units ^a after project
Swine				
Dairy cattle				
Beef cattle				

Turkeys				
Chickens				
Other (Identify species)				
TOTAL	N/A		N/A	


^a An “animal unit” or “AU” is a unit of measure developed to compare the differences in the amount of manure produced by livestock species. The “AU” is standardized to the amount of manure produced on a regular basis by a slaughter steer or heifer, which also correlates to 1,000 pounds of body weight. The “AU” is used for administrative purposes by various governmental entities for permitting and record-keeping.

d. Manure information

Annual Manure Generation

Animal Type	Existing annual generation		After project annual generation	
	liquid (gal)	solid (ton)	liquid (gal)	solid (ton)
Swine				
Dairy cattle				
Beef cattle				
Turkeys				
Chickens				
Other (Identify species)				
TOTAL				

Check any of the items below that are part of the manure management system proposed for this feedlot.

<input type="checkbox"/> Stockpiling	<input type="checkbox"/> Dry manure/litter under barn storage
<input type="checkbox"/> Liquid storage under barns	<input type="checkbox"/> Manure Composting system
<input type="checkbox"/> Liquid storage outside of barns	<input type="checkbox"/> Anaerobic Digestion
<input type="checkbox"/>  manure / litter pack	<input type="checkbox"/> Manure Solids Separation
Manure storage capacity	<input type="checkbox"/> Months <input type="checkbox"/> Days
Acres of land available for manure application	
Acres of land needed for manure application	




e. Are future stages of this development including development on any other property planned or likely to happen? If yes, briefly describe future stages, relationship to present project, timeline and plans for environmental review.

f. Is this project a subsequent stage of an earlier project? If yes, briefly describe the past development, timeline and any past environmental review.

7. Climate Adaptation and Resilience:

a. Climate Trends.

Describe the climate trends in the general location of the project and how climate change is anticipated to affect that location during the life of the project. The following climate trends are expected to continue in the future in Minnesota: warmer & wetter, cold weather warming, and more damaging rains. In addition, two projected changes are expected to occur: increasing risk of heat waves and increasing risk of drought. These trends and projected changes are listed in column 1, below. If additional climate trends are included, assess any impacts through each Resource Category and Project Component.

State of Minnesota Climate Trends (data driven) & Projected Climate Change (model driven)	County / Local Trends	Anticipated affects to Project Location Address Anticipated Climate Change Hazards: storm intensity, flooding, extreme heat, drought, and wildfire
Climate Trends		
Increasing Temperature Average annual temperature increasing		
Increasing Precipitation Average annual precipitation increasing		
Increasing Temperature Winter minimums increasing		
Increasing Temperature Nighttime temperatures increasing		
Increasing Precipitation Extreme events increasing		
Projected Climate Change		
Projected climate change: Increasing risk of heat waves		
Projected climate change: Increasing risk of drought		

Resources used to determine Climate Trends:



	Climate Trend Tools	Was tool Used in EAW?	If so, how tool was used
	From EQB guidance		
Current Trends	Minnesota Climate Trends		
Projected Changes	Minnesota Climate Explorer		
Climate Hazard Projections	Climate Mapping for Resilience and Adaptation (CMRA) Assessment		
	Climate Resilience Evaluation and Awareness Tool (CREAT) Climate Change Scenarios Projection Map		
	Risk Factor		
Additional Information Sources	National Climate Assessment (NCA4 Volume II or more recent), especially Chapter 21: Midwest; Chapter 28: Reducing Risk; Maps in Chapters 6 & 7.		
	Intergovernmental Panel on Climate Change Assessment Report (IPCC 6 or more recent) and Interactive Atlas		
	National Oceanic and Atmospheric Administration (NOAA) Climate.gov		
	Other Additional Resources used by Project Proposer		

b. Project Interaction with Climate Trends.

For each Resource Category in the table below (**Project Design, Land Use, Contamination/Hazardous Materials/Wastes**): Describe how the project's proposed activities and how the project's design will **exacerbate or mitigate** the described climate trends and projections, described in 7a. Describe proposed adaptations to address the climate change risks and vulnerabilities identified.

Proposed activities identified under the **Feedlot Project Information** include all the new (or removed) elements of this project that could be affected by the climate trends, including elements of the site design and the processes/activities happening at the site. List proposed activities and describe how these activities will interact with each climate trend. See Examples in *Feedlot EAW Guidance: Climate Adaptation and Resilience*.

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Resource Category	Climate Trends & Climate Projections	Feedlot Project Information (Components of Proposed Activities)	Potential Environmental Impacts Address Anticipated Climate Change Hazards: storm intensity, flooding, extreme heat, drought, and wildfire	Adaptation Strategies (with applicable timeframe - construction, near-term, long-term)
Project Design Land Use Contamination, Hazardous Materials, Wastes	<ul style="list-style-type: none"> • Average Temperature Increasing • Winter Minimum Temperature Increasing • Nighttime Temperature Increasing • Average Annual Precipitation Increasing • Extreme Precipitation Events Increasing • Projection: Increasing risk of heat waves • Projection: Increasing risk of drought 			
Water Resources	 Address Item 12 			

Resource Category	Climate Trends & Climate Projections	Feedlot Project Information (Components of Proposed Activities)	Potential Environmental Impacts Address <i>Anticipated Climate Change Hazards</i> : storm intensity, flooding, extreme heat, drought, and wildfire	Adaptation Strategies (with applicable timeframe - construction, near-term, long-term)
Fish, Wildlife, Plant Communities, and Sensitive Ecological Resources (rare features)	Address in Item 14			

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8. Cover types: Estimate the acreage of the site with each of the following cover types before and after development:





Cover Types	Before (acres)	After (acres)
Wetlands and shallow lakes (<2 meters deep)		
Deep lakes (>2 meters deep)		
Wooded/forest		
Rivers and streams		
Brush/Grassland		
Cropland		
Livestock rangeland/pastureland		
Lawn/landscaping		
<u>Green infrastructure TOTAL (from table below*)</u>		
Impervious surface		
Stormwater Pond (wet sedimentation basin)		
Other (describe)		
TOTAL		

<u>Green Infrastructure*</u>	<u>Before (acreage)</u>	<u>After (acreage)</u>
<u>Constructed infiltration systems (infiltration basins/infiltration trenches/ rainwater gardens/bioretention areas without underdrains/swales with impermeable check dams)</u>		
<u>Constructed tree trenches and tree boxes</u>		
<u>Constructed wetlands</u>		
<u>Constructed green roofs</u>		
<u>Constructed permeable pavements</u>		
<u>Other (describe)</u>		
<u>TOTAL*</u>		

<u>Trees</u>	<u>Percent</u>	<u>Number</u>
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<u>Percent tree canopy removed or number of mature trees removed during development</u>		
<u>Number of new trees planted</u>		

9. Permits and approvals required. List all known local, state, and federal permits, approvals, certifications, and financial assistance for the project. Include modifications of any existing permits, governmental review of plans and all direct and indirect forms of public financial assistance including bond guarantees, Tax Increment Financing, and infrastructure. *All of these final decisions are prohibited until all appropriate environmental review has been completed. See Minnesota Rules, Chapter 4410.3100.*

Unit of Government    	Application Status		
	Planned	Submitted	Not required
MPCA			
• Feedlot Permit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Construction Stormwater Permit ^a	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Solid Waste (Anaerobic Digester)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DNR			
Water Appropriations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Public Waters Work Permit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Permit to Take	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Local Government			
Conditional Use Permit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Variance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (specify regulatory unit)			
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

^a Feedlots only need to apply for a construction stormwater permit when both of the following apply; the feedlot has not applied for a NPDES feedlot permit and 5 acres or more will be disturbed during construction.

Cumulative potential effects may be considered and addressed in response to individual EAW Item No.10-20, or the RGU can address all cumulative potential effects in response to EAW Item No. 22. If addressing cumulative effect under individual items, make sure to include information requested in EAW Item No. 21.

10. Land uses:

a. Describe 

i. Existing uses of the site as well as adjacent lands to and near the site, and give the distances and directions to nearby residences, schools, daycare facilities, senior citizen housing, places of worship, open space, cemeteries, trails, prime or unique farmlands, tribal lands, culturally significant sites, and other places accessible to the public (including roads) within one mile of the feedlot and within or adjacent to the boundaries of the manure application sites. Identify existing registered feedlots within 5(?) miles.

ii. Plans. Describe planned land use as identified in comprehensive plan (if available) and any other applicable plan for land use, water, or resources management by a local, regional, state, or federal agency.

iii. Zoning, including special districts overlays such as shoreland, floodplain, wild and scenic rivers, critical area, agricultural preserves, etc. Note: If project is within 10 miles of tribal lands, reach out to respective tribal nations in consideration of this section.

iv. If any critical facilities (i.e. facilities necessary for public health and safety, those storing hazardous materials, or those with housing occupants who may be insufficiently mobile) are proposed in floodplain areas and other areas identified as at risk for localized flooding, describe the risk potential considering changing precipitation and event intensity.

b. Discuss the project's compatibility with nearby land uses, county zoning, tribal nation(s), and plans listed in Item 9a above, concentrating on implications for environmental effects.

c. Identify measures incorporated into the proposed project to mitigate any potential incompatibility as discussed in Item 10b above and any risk potential.

11. Geology, soils and topography / land forms:

a. **Geology** - Describe the geology of the underlying the project area and identify and map any susceptible geologic features such as sinkholes, shallow limestone formations, unconfined/shallow aquifers, or karst conditions. Discuss any limitations of these features for the project and any effects the project could have on these features. Identify any project designs or mitigation measures to address effects to geologic features.

Geologic Features	Project site	Manure Application Sites
Unconfined or shallow aquifer?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Less than 50 ft of soil cover over karst-identified bedrock?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Less than 40 inches of soil cover over karst-identified bedrock?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Karst features ^a within 300 ft?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No

^a Karst features include sinkholes, caves, resurgent springs, disappearing springs, karst windows, blind/dry valleys

b. **Soils and topography** - Describe the soils on the site, giving NRCS classifications and descriptions, including limitations of soils. Describe topography, any special site conditions relating to erosion potential, soil stability or other soils limitations, such as steep slopes, highly permeable soils. Provide estimated volume and acreage of soil excavation and/or grading. Discuss impacts from project activities (distinguish between construction and operational activities) related to soils and topography. Identify measures during and after project construction to address soil limitations including stabilization, soil corrections or other measures. Erosion/sedimentation control related to stormwater runoff should be addressed in response to Item 12, b.ii. *Soils information for the land application sites will be addressed in Item 12. v (d).*

NRCS Soil	Feedlot	Manure Storage Area	Manure Application Sites
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Classifications			



12. Water resources:

a. Describe surface water and groundwater features on or near the feedlot project site and manure application areas in a.i. and a.ii. below and on attached maps.

i. **Surface water** - lakes, streams, wetlands, intermittent streams, and county/judicial ditches. Include any special designations such as public waters, shoreland classification and floodway/floodplain, trout stream/lake, wildlife lakes, migratory waterfowl feeding/resting lake, and outstanding resource value water. Include the presence of aquatic invasive species and the water quality impairments or special designations listed on the current MPCA 303d Impaired Waters List that are within 1 mile of the project. Include DNR Public Waters Inventory number(s) if any.

ii. **Groundwater** – aquifers, springs, seeps. Include: 1) depth to groundwater; 2) if project is within a MDH wellhead protection area; 3) federal wellhead protection areas or drinking water supply management areas found within tribal boundaries; 4) identification of any onsite and/or nearby wells, including unique numbers and well logs if available. If there are no wells known on site or nearby, explain the methodology used to determine this; 5) Groundwater pollution susceptibility due to geology, unsealed wells, nearby contaminants, etc.

Indicate **Yes or No** whether any of the following geologic site hazards to groundwater are present at the feedlot project site, manure storage area, or manure application sites.

	Feedlot	Manure Storage Area	Manure Application Sites
Karst features (sinkhole, cave, resurgent spring, disappearing spring, karst window, blind valley, or dry valley)			
Exposed or highly fractured bedrock			
Soils developed in bedrock (as shown on soils maps)			
Sandy Soils and/or Sand Plain			
Other identified geologic hazards			

For any identified geologic hazards to groundwater, describe the features, show them on map, and discuss proposed design and mitigation measures to avoid or minimize potential impacts.

b. Describe effects from project activities on water resources and measures to minimize or mitigate the effects in Item b.i. through Item b.iv. below.

i. Wastewater

All sewage produced in Minnesota must be disposed of in accordance with Minn. R 7080.2450 subp. 6.

For each of the following, describe the sources, quantities and composition of all sanitary, municipal/domestic and industrial wastewater produced or treated at the site.

- 1) If the wastewater discharge is to a publicly owned treatment facility, identify any pretreatment measures and the ability of the facility to handle the added water and waste loadings, including any effects on, or required expansion of, municipal wastewater infrastructure.
- 2) If the wastewater discharge is to a subsurface sewage treatment system (SSTS), describe the system used, the design flow, and suitability of site conditions for such a system. If septic systems are part of the project, describe the availability of septage disposal options within the region to handle the ongoing amounts generated as a result of the project. Consider the effects of current Minnesota climate trends and anticipated changes in rainfall frequency, intensity and amount with this discussion.
- 3) If the wastewater discharge is to surface water, identify the wastewater treatment methods and identify discharge points and proposed effluent limitations to mitigate impacts. Discuss any effects to surface or groundwater from wastewater discharges, taking into consideration how current Minnesota climate trends and anticipated climate change in the general location of the project may influence the effects.

ii. Stormwater -

Describe changes in surface hydrology resulting from change of land cover. Describe the routes and receiving water bodies for runoff from the project site (major downstream water bodies as well as the immediate receiving waters). Discuss environmental effects from stormwater discharges on receiving waters post construction including how the project will affect runoff volume, discharge rate and change in pollutants. Consider the effects of current Minnesota climate trends and anticipated changes in rainfall frequency, intensity and amount with this discussion. For projects requiring NPDES/SDS Construction Stormwater permit coverage, state the total number of acres that will be disturbed by the project and describe the stormwater pollution prevention plan (SWPPP), including specific best management practices to address soil erosion and sedimentation during and after project construction. Discuss permanent stormwater management plans, including methods of achieving volume reduction to restore or maintain the natural hydrology of the site using green infrastructure practices or other stormwater management practices. Identify any receiving waters that have construction-related water impairments or are classified as special as defined in the Construction Stormwater permit. Describe additional requirements for special and/or impaired waters.

iii. Water appropriation Describe if the project proposes to appropriate surface or groundwater (including dewatering). Describe the source, quantity (amount per animal per day), duration, use and purpose of the water use and if a DNR water appropriation permit is required and has been

obtained. Describe any well abandonment. If connecting to an existing municipal water supply, identify the wells to be used as a water source and any effects on, or required expansion of, municipal water infrastructure. Discuss environmental effects from water appropriation, including an assessment of the water resources available for appropriation. Discuss how the proposed water use is resilient in the event of changes in total precipitation, large precipitation events, drought, increased temperatures, variable surface water flows and elevations, and longer growing seasons. Identify any measures to avoid, minimize, or mitigate environmental effects from the water appropriation. Describe contingency plans should the appropriation volume increase beyond infrastructure capacity or water supply for the project diminish in quantity or quality, such as reuse of water, connections with another water source, or emergency connections.

Current Water Use (gal/yr)	<input type="checkbox"/> Not applicable
Proposed Water Use (gal/yr)	<input type="checkbox"/> Not applicable

		Maximum Pumping Rate per Source (gal/yr)
Water Supply Source	<input type="checkbox"/> Existing Well	
	<input type="checkbox"/> Public Supply	
	<input type="checkbox"/> New Well	
	<input type="checkbox"/> Other:	

Aquifer Test required by DNR?	<input type="checkbox"/> Yes <input type="checkbox"/> Option Waived <input type="checkbox"/> Unknown	
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iv. Surface Waters

List all sources of surface water sources for water appropriations:

Type of surface water source	Volume	Location

a) Wetlands - Describe any anticipated physical effects or alterations to wetland features such as draining, filling, permanent inundation, dredging and vegetative removal. Discuss direct and indirect environmental effects from physical modification of wetlands, including the anticipated effects that any proposed wetland alterations may have to the host watershed, taking into consideration how current Minnesota climate trends and anticipated climate change in the general location of the project may influence the effects. Identify measures to avoid (e.g., available alternatives that were considered), minimize, or mitigate environmental effects to wetlands. Discuss whether any required compensatory wetland mitigation for unavoidable wetland impacts will occur in the same minor or major watershed and identify those probable locations.



b) Other surface waters- Describe and show on maps any anticipated physical effects or alterations to surface water features (lakes, streams, ponds, intermittent streams, county/judicial ditches) such as draining, filling, permanent inundation, dredging, diking, stream diversion, impoundment, aquatic plant removal, riparian alteration, drain tiling, and tile inlets or outlets. Discuss direct and indirect environmental effects from physical modification of water features, taking into consideration how current Minnesota climate trends and anticipated climate change in the general location of the project may influence the effects. Identify measures to avoid, minimize, or mitigate environmental effects to surface water features, including in-water Best Management Practices that are proposed to avoid or minimize turbidity/sedimentation while physically altering the water features. Discuss how the project will change the number or type of watercraft on any water body, including current and projected watercraft usage. Compare the quantity and quality of site runoff before and after the project. Describe permanent controls to manage or treat runoff. Identify water resources affected and give the DNR Public Waters Inventory number(s) if the water resources affected are on the Protected Waters Inventory (PWI). Describe proposed mitigation measures to avoid or minimize impacts.

v. Manure management. Give a brief description of how manure will be collected, stored, and applied at this facility. Include a description of any manure processing activities such as liquid solid separation and anaerobic digestion. Attach copy of Manure Management Plan (MMP). If an anaerobic digester will process manure, list any other feedstocks used in the digester.



a) Manure removal activities.

Manure removal frequency: Once per year Twice per year



Other: _____

Time required for manure removal: _____ Days/year

Time required for agitation of liquid manure storage areas: _____ Days/year Not applicable

b) Manure Transfer

Will any amount of manure be transferred to a third party for land application or anerobic digester?

No – skip 1-3

Yes, Land Application – Complete 1-3 Yes, Aerobic Digester - Complete 1, 4-5



1) Estimated amount of manure transferred throughout the year

Transfer timeframe	Liquid (gal)	Solid (ton)
June - September		
October 1 – October 14		
October 15 – November 30		

December 1 – February 28		
March 1 – March 31		
April 1 – May 31		
TOTAL		

- 2) Describe the protocols used to ensure information about nutrient content, nitrogen and phosphorus rate requirements, and setback requirements are made available to the recipient(s).
- 3) Describe any efforts to limit the potential for application of transferred manure to fields without actively growing crops during the summer and early fall (before Oct. 15) and during frozen or snow-covered conditions.
- 4) Describe any efforts to limit dust and odor to nearby residences and the amount and speed of transfer trucks.
- 5) Describe time of day and scope of operations needed to transfer manure.

c) Manure Land Application (non-transfer)

Will any amount of manure be applied to fields owned, leased, rented, or otherwise controlled by any member of the ownership entity of the feedlot?

Yes – complete 1-5 below No – skip 1-5 below




- 1) Estimated amount of manure applied throughout the year

Application timeframe	Liquid (gal)	Solid (ton)
June - September		
October 1 – October 14		
October 15 – November 30		
December 1 – February 28		
March 1 – March 31		
April 1 – May 31		
TOTAL		

- 2) Describe anticipated manure application technologies and methods of application and incorporation. Include measures to limit potential for runoff, especially for manure applied in winter conditions.
- 3) Describe any measures used to manage field soil phosphorous levels to prevent excessive phosphorus build-up.
- 4) Describe any measures (BMPs) used to limit potential for nitrate impacts to water resources.
- 5) If land application acres drain to a waterbody with an impairment, describe the measures used to limit land application effects on the impairment.

d) Manure application fields

- 1) General description
Describe each land application field. Include in the description the following:

- Field name/ID, location (Township-Range-Section), tillable acres, predominate soil type, field tiling system, irrigation system, description of bordering lands/roads, waters (within 2 miles) receiving runoff or tile line flow. 
Include DNR Public Waters Inventory numbers (if available) and any special designations such as public waters, shoreland classification and floodway/floodplain, trout stream/lake, wildlife lakes, migratory waterfowl feeding/resting lake, and outstanding resource value water
- 2) Map the manure application fields. Show on a map the following within or near (300 ft) land application fields:
- Lakes, rivers, streams, intermittent streams, wetlands, county/judicial ditches, open tile intakes, wells, springs, Karst features (*Sinkholes, caves, resurgent springs, disappearing springs, karst windows, blind/dry valleys*)
- 3) Additional field sensitivity information. Below each of the following items list any fields that meet the criteria described.
- a. Fields within Drinking water supply management areas (DWSMAs) or Source Water Protection Areas (SWPAs) with medium to high vulnerability, including tribal drinking water supply areas. Fields planned for winter manure applications.
 - b. Fields with soil phosphorous tests levels above 21 ppm Bray 1 or 16 ppm Olson and have surface water within 300 feet.
 - c. Fields with soil phosphorous tests levels above 75 ppm Bray 1 or 60 ppm Olson.
 - d. Fields that could receive broadcast manure (not immediately incorporated) that have slopes at 6% or greater.
- 4) Using Web Soil Survey data, list any fields with at least 33% of the acreage that meets the following:
- a. sensitive aquifer assessment rating
 - b. soil texture of sand, loamy sand, loamy coarse sand, fine sand, loamy fine sand, coarse sand, or very fine sand.
 - i. depth to bedrock of 40 inches or less
 - ii. soil erosion (“T factor”) rating of 5 or more tons/acre/year
 - iii. frequently flooded
- e) **Manure application setbacks** 
Describe any required setbacks for land application systems. 
- f) **Other methods of manure utilization.**
If the project will utilize manure other than by land application, please describe the methods.
- g) Dead Animal Disposal.**
Describe the quantities of dead animals anticipated, the method for storing and disposing of carcasses, and frequency of disposal. How will nuisance wildlife be managed that are attracted by carcasses?
What is the response to a major disease or death event? Identify local ordinance restrictions for animal disposal, composting, etc.

13. Contamination/Hazardous Materials/Wastes:

- A. Pre-project site conditions - Describe existing contamination or potential environmental hazards on or in close proximity to the project site such as soil or ground water contamination, abandoned dumps, closed landfills, existing or abandoned storage tanks, and hazardous liquid or gas pipelines. Discuss any potential environmental effects from pre-project site conditions that would be caused or exacerbated by project construction and operation. Identify measures to avoid, minimize or mitigate adverse effects from existing contamination or potential environmental hazards. Include development of a Contingency Plan or Response Action Plan.
- B. Project related generation/storage of solid wastes - Describe solid wastes generated/stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential environmental effects from solid waste handling, storage and disposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of solid waste including source reduction and recycling.
- C. Project related use/storage of hazardous materials - Describe chemicals/hazardous materials used/stored during construction and/or operation of the project including method of storage. Indicate the number, location and size of any new above or below ground tanks to store petroleum or other materials. Indicate the number, location, size and age of existing tanks on the property that used by the project will use. Discuss potential environmental effects from accidental spill or release of hazardous materials. Identify measures to avoid, minimize or mitigate adverse effects from the use/storage of chemicals/hazardous materials including source reduction and recycling. Include development of a spill prevention plan.
- D. Project related generation/storage of hazardous wastes - Describe hazardous wastes generated/stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential environmental effects from hazardous waste handling, storage, and disposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of hazardous waste including source reduction and recycling.

14. Fish, wildlife, plant communities, and sensitive ecological resources (rare features):

- A. Describe fish and wildlife resources as well as habitats and vegetation on or near the site.
- B. Describe rare features such as state-listed (endangered, threatened, and species of special concern) and federally listed (endangered and threatened-) species, native plant communities, Minnesota Biological Survey (MBS) Sites of Biodiversity Significance, and other sensitive ecological resources on or within close proximity to the site. Provide the license agreement number (LA-____) and/or correspondence number (-Minnesota Conservation Explorer (MCE) Project ID _____) from which the data were obtained and attach the Natural Heritage Review letter from the DNR. Federal species should be queried utilizing the U.S. Fish and Wildlife

Service Information for Planning and Consultation (IPaC) website. Indicate if any additional habitat or species survey work has been conducted within the site and describe the results.

- C. Discuss how the identified fish, wildlife, plant communities, rare features and ecosystems may be affected by the project including how current Minnesota climate trends and anticipated climate change in the general location of the project may influence the effects. Include a discussion on introduction and spread of invasive species from the project construction and operation. Separately discuss potential impacts to identified state and federally listed species, and any avoidance or mitigation measures that will be taken to avoid or minimize these impacts
- D. Identify measures that will be taken to avoid, minimize, or mitigate the adverse effects to fish, wildlife, plant communities, ecosystems, and sensitive ecological resources, such as calcareous fens. Separately discuss measures to avoid, minimize, or mitigate the adverse effects to state and federally listed species.

15. Cultural Resources:

Describe any historic structures, archeological sites, and/or traditional cultural properties on or in close proximity to the site. Include: 1) historic designations, 2) known artifact areas, 3) architectural features, 4) Tribal connections to the site.

Attach letter received from the State Historic Preservation Office (SHPO). Discuss any anticipated effects to historic properties during project construction and operation. Identify measures that will be taken to avoid, minimize, or mitigate adverse effects to historic properties.

16. Visual:

Describe any scenic views or vistas on or near the project site. Describe any project related visual effects such as vapor plumes or glare from intense lights. Discuss the potential visual effects from the project. Identify any measures to avoid, minimize, or mitigate visual effects.

17. Air

Identify the major sources of air or odor emissions from this feedlot.

a. Stationary source emissions - Describe the type, sources, quantities, and compositions of any emissions from stationary sources. Include any hazardous air pollutants and criteria pollutants. Discuss effects to air quality including any sensitive receptors, human health or applicable regulatory criteria. Include a discussion of any methods used to assess the project's effect on air quality and the results of that assessment. Identify pollution control equipment and other measures that will be taken to avoid, minimize, or mitigate adverse effects from stationary source emissions. Describe any proposed feedlot design features or air or odor emission mitigation measures to be implemented to avoid or minimize potential adverse impacts and discuss their anticipated effectiveness.

If no feedlot design features or mitigations were proposed, provide a summary of the results of an air emissions modeling study designed to compare predicted emissions at the property boundaries with state standards, health risk values, or odor threshold concentrations. The modeling must

incorporate an appropriate background concentration for hydrogen sulfide to account for potential cumulative air quality impacts.

b. Vehicle emissions - Describe the effect of the project’s traffic generation on air emissions. Discuss the project’s vehicle-related emissions effect on air quality. Identify measures (e.g. traffic operational improvements, diesel idling minimization plan) that will be taken to minimize or mitigate vehicle-related emissions.

c. Dust and odors - Describe sources, characteristics, duration, quantities, and intensity of dust and odors generated during project construction and operation. (Fugitive dust may be discussed under item 17a). Discuss the effect of dust and odors in the vicinity of the project including nearby sensitive receptors and quality of life. Identify measures that will be taken to minimize or mitigate the effects of dust and odors.

d. Describe any plans to notify neighbors of operational events (such as manure storage agitation and pumpout) that may result in higher-than-usual levels of air or odor emissions.

18. Greenhouse Gas (GHG) Emissions/Carbon Footprint

A. GHG Quantification: For all proposed projects, provide quantification and discussion of project GHG emissions. Include additional rows in the tables as necessary to provide project-specific emission sources. Describe the methods used to quantify emissions. If calculation methods are not readily available to quantify GHG emissions for a source, describe the process used to come to that conclusion and any GHG emission sources not included in the total calculation. Utilize the Feedlot Greenhouse Gas Emissions Calculator, found at XXXX.

The following tables are examples; other layouts are acceptable for providing GHG quantification results.

Construction Emissions

Scope	Type of Emission	Emission Sub-type	Project-related CO ₂ e Emissions (tons/year)	Calculation method(s)	
Scope 1	Combustion	Mobile Equipment			
Scope 1	Land Use	Conversion			
Scope 1	Land Use	Carbon Sink			
TOTAL					

Operational Emissions

Scope	Type of Emission	Emission Sub-type	Existing facility CO ₂ e Emissions (tons/year)	Project related CO ₂ e Emissions (tons/year)	Total CO ₂ e Emissions (tons/year)	Calculation method(s)
Scope 1	Combustion	Mobile Equipment				
Scope 1	Combustion	Stationary Equipment				
Scope 1	Combustion	Area				
Scope 1	Non-Combustion	Stationary Equipment				
Scope 1	Land Use	Carbon Sink				
Scope 2	Off-site Electricity	Grid-based				
Scope 2	Off-site Steam Production	Not applicable				
Scope 3	Off-site Waste Management	Area				
TOTAL						

B. GHG Assessment

- i. Describe any mitigation considered to reduce the project’s GHG emissions.
- ii. Describe and quantify reductions from selected mitigation, if proposed to reduce the project’s GHG emissions. Explain why the selected mitigation was preferred.
- iii. Quantify the proposed projects predicted net lifetime GHG emissions (total tons/#of years) and how those predicted emissions may affect achievement of the Minnesota Next Generation Energy Act goals and/or other more stringent state or local GHG reduction goals.

19. Noise

Describe sources, characteristics, duration, quantities, and intensity of noise generated during project construction and operation. Discuss the effect of noise in the vicinity of the project including 1) existing noise levels/sources in the area, 2) nearby sensitive receptors, 3) conformance to state noise standards, and 4) quality of life. Identify measures taken to minimize or mitigate the effects of noise.

20. Transportation

A. Describe traffic-related aspects of project construction and operation. Include:

- 1) existing and proposed additional parking spaces,
 - 2) estimated total average daily traffic generated,
 - a. Estimate the number of heavy truck trips generated per week and describes their routing over local roads. Describe any road improvements to be made.
 - b. Identify manure application routes and crossings, type of hauling equipment, impacts to road surface, impacts to traffic. Identify use and road crossings of drag hoses.
 - 3) estimated maximum peak hour traffic generated and time of occurrence,
 - 4) indicate source of trip generation rates used in the estimates, and
 - 5) availability of transit and/or other alternative transportation modes.
- B. Discuss the effect on traffic congestion on affected roads and describe any traffic improvements necessary. The analysis must discuss the project's impact on the regional transportation system. *If the peak hour traffic generated exceeds 250 vehicles or the total daily trips exceeds 2,500, a traffic impact study must be prepared as part of the EA.*
- C. Identify measures that will be taken to minimize or mitigate project related transportation effects.
- d. Will new or expanded utilities, roads, other infrastructure, or public services be required to serve the project? Yes No

If yes, please describe.

21. Cumulative potential effects: (Preparers can leave this item blank if cumulative potential effects are addressed under the applicable EAW Items). Cumulative potential effects may be considered and addressed in response to individual EAW Item No. 10-20.

- a. Describe the geographic scales and timeframes of the project related environmental effects that could combine with other environmental effects resulting in cumulative potential effects.
- b. Describe any reasonably foreseeable future projects (for which a basis of expectation has been laid) that may interact with environmental effects of the proposed project within the geographic scales and timeframes identified above.

Discuss the nature of the cumulative potential effects and summarize any other available information relevant to determining whether there is potential for significant environmental effects due to these cumulative effects.

22. Other potential environmental effects: If the project may cause any additional environmental effects not addressed by items 1 to 20, describe the effects here, discuss the how the environment will be affected, and identify measures that will be taken to minimize and mitigate these effects.

RGU CERTIFICATION.

I hereby certify that:

- The information contained in this document is accurate and complete to the best of my knowledge.

- The EAW describes the complete project; there are no other projects, stages or components other than those described in this document, which are related to the project as “phased actions,” pursuant to Minn. R. 4410.0200, subp. 60, 4410.1000, subp. 4, and 4410.4300, subp. 1.
- Copies of this EAW are being sent to the entire EQB distribution list.

Name and Title of Signer:

Signature

Date:

The format for the alternative Environmental Assessment Worksheet form has been approved by the Chair of the Environmental Quality Board pursuant to Minn. R. 4410.1300 for use for animal feedlot projects. For additional information contact: Environmental Quality Board, 520 Lafayette Road, St. Paul, Minnesota, 55155-4194, 651-296-6300, or at their website <https://www.eqb.state.mn.us/content/environmental-review-program>

Land Stewardship Project

Thanks for the opportunity to comment on this. I have submitted two documents to act as comment and suggestions for changes to the Feedlot EAW form. One of the documents is a copy of the original letter that we sent last year with our requested changes to the EAW form and process for feedlots. All of the items listed on there are still the things that we would like to see changed in terms of feedlot EAW's and are still relevant points to raise. The second document is a marked up copy of the draft new EAW that you have shared with us. I figured making a marked up copy would be easier for me to fill out and for you all to read without me rambling on here.

In that edited draft, the proposed changes that we would make are marked in yellow. Generally, the changes we would propose focus in on a few different points;

One, extending the range around a facility that is part of the EAW that must be mapped when submitting the EAW. We believe this will help better track potential issues with manure runoff, particularly with the increased severity of rain events making rain and anything else on the ground flow farther due to high volumes of rain.

Two, extending the mapping required and descriptions of practices and uses to include the manure application sites as well as the site itself in many different sections of the draft EAW. These changes are mostly based on our members' experiences with the recent fish kill that happened near Lewiston. In that instance, the manure runoff that most likely caused the fish kill was manure that was spread by a contracted manure spreader, not the feedlot itself. We believe that it is important to also track the fields where the manure is being spread just as rigorously as the sites themselves.

Three, There are also some sections where we added language that would encourage testing of water resources. The intention of this would be to help establish a baseline for water resources available, and the current nutrient loads waterways are experiencing. So that farmers and the community can know if their mitigation strategies are having the intended effect.

Four, the last major category of changes we suggest would be to include requirements in the mapping sections for farmers to map out any other fields that are having manure spread on them that are near the site and their proposed manure application sites as well as what time of year this manure will be spread. The intention of this is so that farmers can work together to ensure that manure is being spread in the area at different times so that if a rain event happens, there is not a massive amount of polluting runoff at once and so that the public can be sure that one field does not exist on two manure management plans and that manure is not being over applied.

Thank you again, for the opportunity to comment. I am happy to answer any questions on this or anything else within this process. Hope to work together more in the future on this.

Black – current Feedlot EAW language
 Green – new GHG and Climate Change language
 Blue – language & formatting from standard EAW (unless a [hyperlink](#))
 Red – staff edits, housekeeping, improvements

- DRAFT -

ENVIRONMENTAL ASSESSMENT WORKSHEET

Alternative Form for Animal Feedlots

Note to preparers: This form is authorized for the preparation of Environmental Assessment Worksheets (EAWs) for **animal feedlots**. Project proposers should consult the Pollution Control Agency's *Guidelines for Alternative EAW Form for Animal Feedlots* at <https://www.eqb.state.mn.us/guidelines-alternative-eaw-form-animal-feedlots>.

Note to reviewers: The Alternative EAW Form for Animal Feedlots provides information about a feedlot project that may have the potential for significant environmental effects. **The project proposer** may supply **reasonably accessible data but does not complete the final worksheet**. The final EAW is prepared by the Minnesota Pollution Control Agency (MPCA) **Environmental Review Unit**, acting as the Responsible Governmental Unit (RGU). The EAW determines whether an Environmental Impact Statement (EIS) should be prepared. Comments on this EAW must be submitted to the MPCA during the 30-day comment period which begins with notice of the availability of the EAW in the [EQB Monitor](#), found at <https://mpca.commentinput.com/comment/search>. Comments should address the accuracy and completeness of information, potential impacts that warrant further investigation and the need for an EIS.

1. **Feedlot Project Title:** _____ **1a: Tempo ID #:** _____
2. **Feedlot Proposer**
Landowner, Leasee, or other title
Address, Email, Phone
- 2a. **Technical Contact / Contractor**
Title
Address, Email, Phone
3. **RGU:**
Contact:
Title
Address, Email, Phone
4. **Reason for EAW Preparation: (check one)**

EIS Scoping		Mandatory EAW		Citizen Petition		RGU Discretion		Proposer Requested	
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If EAW is mandatory, does it apply to Subpart A or B?

<p>Select A or B (X)</p>		<p>MN Rule 4410.4300 Subp. 29 – Animal Feedlots. The PCA is the RGU for the types of projects listed in items A and B unless the county will issue the feedlot permit, in which case the county is the RGU. However, the county is not the RGU prior to January 1, 2001.</p>
	<p>A.</p>	<p>For the construction of an animal feedlot facility with a capacity of 1,000 animal units or more or the expansion of an existing facility by 1,000 animal units or more if the facility is not in an area listed in item B.</p>
	<p>B.</p>	<p>For the construction of an animal feedlot facility of more than 500 animal units or expansion of an existing animal feedlot facility by more than 500 animal units if the facility is located wholly or partially in any of the following sensitive locations: shoreland; a delineated flood plain, except that in the flood plain of the Red River of the North the sensitive area includes only land within 1,000 feet of the ordinary high water mark; a state or federally designated wild and scenic river district; the Minnesota River Project Riverbend area; the Mississippi headwaters area; or an area within a drinking water supply management area delineated under chapter 4720 where the aquifer is identified in the wellhead protection plan as vulnerable to contamination; or within 1,000 feet of a known sinkhole, cave, resurgent spring, disappearing spring, Karst window, blind valley, or dry valley.</p>

5. Project Location

- County:
- Governing City or Township:
- PLS Location (¼, ¼, Section, Township, Range):
- Watershed (81 major watershed scale, HUC 8):
- GPS Coordinates:
- Tax Parcel Number:

At a minimum, attach each of the following to the EAW:

- County map showing the general location of the project
- U.S. Geological Survey 7.5 minute, 1:24,000 scale map indicating project boundaries
- Site plan showing all significant project and natural features.
- Map of manure application sites
- Map of permanent manure stockpiles
- Map showing all wells, tile inlets, residences, and sensitive receptors within a 1.5 mile radius of the feedlot and/or manure land application sites **Karst Features, and Vulnerable fields included in map**
- Feedlot Permit Application (county or state)
- Tribal boundaries within 10 miles
- List of data sources, models, and other resources (from the Item-by-Item Guidance: *Climate Adaptation and Resilience* or other) used for information about current Minnesota climate trends and how climate change is anticipated to affect the general location of the project during the life of the project (as detailed below in item 7. Climate Adaptation and Resilience).

6. Project Description:

<Project Title>
<City/Twp>, Minnesota

- a. Provide the brief project summary to be published in the *EQB Monitor* (approximately 50 words).
including what watershed(s) the site and manure application sites are located in
- b. Give a complete description of the proposed project and related new construction, including infrastructure needs. If the project is an expansion include a description of the existing facility.

Emphasize:

- 1) Purpose of project
- 2) Construction, operation methods, and features that will cause physical manipulation of the environment or will produce wastes,
- 3) Modifications to existing equipment or industrial processes,
- 4) Significant demolition, removal, or remodeling of existing structures; and
- 5) Timing and duration of construction activities
- 6) Any future plans/stages for this project including an anticipated timeline and plans for environmental review.
- 7) Any past stages of this project including timeframe and environmental review proceedings.

8) What watershed(s) the site and manure application sites are in and who will be spreading the manure.

Facility components (show on site map)	Existing or Proposed?	Quantity	Total Area (sq ft)/Volume (gal)
Animal Holding Areas			
• Total Confinement Barns			
• Partial Confinement Barns			
• Open Lots			
• Individual Animal Housing Areas			
Manure Storage Areas			
• Liquid Manure Storage Areas			
• Solid Manure Storage Areas			
Other Components			
• Feed Storage Areas			
• Mortality Management Areas			
• Composting Sites			
• Anerobic Digester			
•			

c. Animal information (complete the chart below)

Animal Type	Number Existing	Animal Units ^a Existing	Number after project	Animal Units ^a after project
Swine				
Dairy cattle				
Beef cattle				

Turkeys				
Chickens				
Other (Identify species)				
TOTAL	N/A		N/A	

^a An “animal unit” or “AU” is a unit of measure developed to compare the differences in the amount of manure produced by livestock species. The “AU” is standardized to the amount of manure produced on a regular basis by a slaughter steer or heifer, which also correlates to 1,000 pounds of body weight. The “AU” is used for administrative purposes by various governmental entities for permitting and record-keeping.

d. Manure information

Annual Manure Generation

Animal Type	Existing annual generation		After project annual generation	
	liquid (gal)	solid (ton)	liquid (gal)	solid (ton)
Swine				
Dairy cattle				
Beef cattle				
Turkeys				
Chickens				
Other (Identify species)				
TOTAL				

Check any of the items below that are part of the manure management system proposed for this feedlot.

<input type="checkbox"/> Stockpiling	<input type="checkbox"/> Dry manure/litter under barn storage
<input type="checkbox"/> Liquid storage under barns	<input type="checkbox"/> Manure Composting system
<input type="checkbox"/> Liquid storage outside of barns	<input type="checkbox"/> Anaerobic Digestion
<input type="checkbox"/> Dry manure / litter pack	<input type="checkbox"/> Manure Solids Separation
Manure storage capacity	<input type="checkbox"/> Months <input type="checkbox"/> Days
Acres of land available for manure application	
Acres of land needed for manure application	

e. Are future stages of this development including development on any other property planned or likely to happen? If yes, briefly describe future stages, relationship to present project, timeline and plans for environmental review.

"...Likely to happen within the next 5 years? If yes, ..."

f. Is this project a subsequent stage of an earlier project? If yes, briefly describe the past development, timeline and any past environmental review.

7. Climate Adaptation and Resilience:

a. Climate Trends.

Describe the climate trends in the general location of the project and how climate change is anticipated to affect that location during the life of the project. The following climate trends are expected to continue in the future in Minnesota: warmer & wetter, cold weather warming, and more damaging rains. In addition, two projected changes are expected to occur: increasing risk of heat waves and increasing risk of drought. These trends and projected changes are listed in column 1, below. If additional climate trends are included, assess any impacts through each Resource Category and Project Component.

State of Minnesota Climate Trends (data driven) & Projected Climate Change (model driven)	County / Local Trends	Anticipated affects to Project Location Address Anticipated Climate Change Hazards: storm intensity, flooding, extreme heat, drought, and wildfire
Climate Trends		
Increasing Temperature Average annual temperature increasing		
Increasing Precipitation Average annual precipitation increasing		
Increasing Temperature Winter minimums increasing		
Increasing Temperature Nighttime temperatures increasing		
Increasing Precipitation Extreme events increasing		
Projected Climate Change		
Projected climate change: Increasing risk of heat waves		
Projected climate change: Increasing risk of drought		

Resources used to determine Climate Trends:

	Climate Trend Tools	Was tool Used in EAW?	If so, how tool was used
	From EQB guidance		
Current Trends	Minnesota Climate Trends		
Projected Changes	Minnesota Climate Explorer		
Climate Hazard Projections	Climate Mapping for Resilience and Adaptation (CMRA) Assessment		
	Climate Resilience Evaluation and Awareness Tool (CREAT) Climate Change Scenarios Projection Map		
	Risk Factor		
Additional Information Sources	National Climate Assessment (NCA4 Volume II or more recent), especially Chapter 21: Midwest; Chapter 28: Reducing Risk; Maps in Chapters 6 & 7.		
	Intergovernmental Panel on Climate Change Assessment Report (IPCC 6 or more recent) and Interactive Atlas		
	National Oceanic and Atmospheric Administration (NOAA) Climate.gov		
	Other Additional Resources used by Project Proposer		

b. Project Interaction with Climate Trends.

For each Resource Category in the table below (**Project Design, Land Use, Contamination/Hazardous Materials/Wastes**): Describe how the project's proposed activities and how the project's design will **exacerbate or mitigate** the described climate trends and projections, described in 7a. Describe proposed adaptations to address the climate change risks and vulnerabilities identified.

Proposed activities identified under the **Feedlot Project Information** include all the new (or removed) elements of this project that could be affected by the climate trends, including elements of the site design and the processes/activities happening at the site. List proposed activities and describe how these activities will interact with each climate trend. See Examples in *Feedlot EAW Guidance: Climate Adaptation and Resilience*.

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Resource Category	Climate Trends & Climate Projections	Feedlot Project Information (Components of Proposed Activities)	Potential Environmental Impacts Address <i>Anticipated Climate Change Hazards</i> : storm intensity, flooding, extreme heat, drought, and wildfire	Adaptation Strategies (with applicable timeframe - construction, near-term, long-term)
Project Design Land Use Contamination, Hazardous Materials, Wastes	<ul style="list-style-type: none"> • Average Temperature Increasing • Winter Minimum Temperature Increasing • Nighttime Temperature Increasing • Average Annual Precipitation Increasing • Extreme Precipitation Events Increasing • Projection: Increasing risk of heat waves • Projection: Increasing risk of drought 			
Water Resources	<i>Address in Item 12</i>			

Resource Category	Climate Trends & Climate Projections	Feedlot Project Information (Components of Proposed Activities)	Potential Environmental Impacts Address <i>Anticipated Climate Change Hazards</i> : storm intensity, flooding, extreme heat, drought, and wildfire	Adaptation Strategies (with applicable timeframe - construction, near-term, long-term)
Fish, Wildlife, Plant Communities, and Sensitive Ecological Resources (rare features)	<i>Address in Item 14</i>			

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8. Cover types: Estimate the acreage of the site with each of the following cover types before and after development:

Cover Types	Before (acres)	After (acres)
Wetlands and shallow lakes (<2 meters deep)		
Deep lakes (>2 meters deep)		
Wooded/forest		
Rivers and streams		
Brush/Grassland		
Cropland		
Livestock rangeland/pastureland		
Lawn/landscaping		
<u>Green infrastructure TOTAL (from table below*)</u>		
Impervious surface		
Stormwater Pond (wet sedimentation basin)		
Other (describe)		
TOTAL		

<u>Green Infrastructure*</u>	<u>Before (acreage)</u>	<u>After (acreage)</u>
<u>Constructed infiltration systems (infiltration basins/infiltration trenches/ rainwater</u>		
<u>gardens/bioretention areas without underdrains/swales with impermeable check dams)</u>		
<u>Constructed tree trenches and tree boxes</u>		
<u>Constructed wetlands</u>		
<u>Constructed green roofs</u>		
<u>Constructed permeable pavements</u>		
<u>Other (describe)</u>		
<u>TOTAL*</u>		

<u>Trees</u>	<u>Percent</u>	<u>Number</u>
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<u>Percent tree canopy removed or number of mature trees removed during development</u>		
<u>Number of new trees planted</u>		

9. Permits and approvals required. List all known local, state, and federal permits, approvals, certifications, and financial assistance for the project. Include modifications of any existing permits, governmental review of plans and all direct and indirect forms of public financial assistance including bond guarantees, Tax Increment Financing, and infrastructure. *All of these final decisions are prohibited until all appropriate environmental review has been completed. See Minnesota Rules, Chapter 4410.3100.*

Unit of Government	Application Status		
	Planned	Submitted	Not required
MPCA			
• Feedlot Permit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Construction Stormwater Permit ^a	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Solid Waste (Anaerobic Digester)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DNR			
Water Appropriations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Public Waters Work Permit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Permit to Take	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Local Government			
Conditional Use Permit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Variance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (specify regulatory unit)			
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

^a Feedlots only need to apply for a construction stormwater permit when both of the following apply; the feedlot has not applied for a NPDES feedlot permit and 5 acres or more will be disturbed during construction.

Cumulative potential effects may be considered and addressed in response to individual EAW Item No.10-20, or the RGU can address all cumulative potential effects in response to EAW Item No. 22. If addressing cumulative effect under individual items, make sure to include information requested in EAW Item No. 21.

10. Land uses:

a. Describe

of the site and manure application sites

i. Existing uses of the site as well as adjacent lands to and near the site, and give the distances and directions to nearby residences, schools, daycare facilities, senior citizen housing, places of worship, open space, cemeteries, trails, prime or unique farmlands, tribal lands, culturally significant sites, and other places accessible to the public (including roads) within two mile of the feedlot and within or adjacent to the boundaries of the manure application sites. Identify existing registered feedlots within 10 miles and where the manure from these sites is being spread per their manure management plans to ensure there is limited overlap. Identify existing registered feedlots and other major sources of water usage located within the aquifer that the feedlot will be drawing from.

ii. Plans. Describe planned land use as identified in comprehensive plan (if available) and any other applicable plan for land use, water, or resources management by a local, regional, state, or federal agency.

iii. Zoning, including special districts or overlays such as shoreland, floodplain, wild and scenic rivers, critical area, agricultural preserves, etc. Note: If project is within 10 miles of tribal lands, reach out to respective tribal nations in consideration of this section.

iv. If any critical facilities (i.e. facilities necessary for public health and safety, those storing hazardous materials, or those with housing occupants who may be insufficiently mobile) are proposed in floodplain areas and other areas identified as at risk for localized flooding, describe the risk potential considering changing precipitation and event intensity. *And how issues will be addressed in the event of a flood.*

b. Discuss the project’s compatibility with nearby land uses, county zoning, tribal nation(s), and plans listed in Item 9a above, concentrating on implications for environmental effects.

c. Identify measures incorporated into the proposed project to mitigate any potential incompatibility as discussed in Item 10b above and any risk potential.

11. Geology, soils and topography / land forms:

a. Geology - Describe the geology of the underlying the project area and identify and map any susceptible geologic features such as sinkholes, shallow limestone formations, unconfined/shallow aquifers, or karst conditions. Discuss any limitations of these features for the project and any effects the project could have on these features. Identify any project designs or mitigation measures to address effects to geologic features.

Geologic Features	Project site	Manure Application Sites
Unconfined or shallow aquifer?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Less than 50 ft of soil cover over karst-identified bedrock?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Less than 40 inches of soil cover over karst-identified bedrock?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Karst features a within 1000 ft?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No

^a Karst features include sinkholes, caves, resurgent springs, disappearing springs, karst windows, blind/dry valleys

b. Soils and topography - Describe the soils on the site, giving NRCS classifications and descriptions, including limitations of soils. Describe topography, any special site conditions relating to erosion potential, soil stability or other soils limitations, such as steep slopes, highly permeable soils. Provide estimated volume and acreage of soil excavation and/or grading. Discuss impacts from project activities (distinguish between construction and operational activities) related to soils and topography. Identify measures during and after project construction to address soil limitations including stabilization, soil corrections or other measures. Erosion/sedimentation control related to stormwater runoff should be addressed in response to Item 12, b.ii. *Soils information for the land application sites will be addressed in Item 12. v (d).*

NRCS Soil	Feedlot	Manure Storage Area	Manure Application Sites
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Classifications			

12. Water resources:

Near meaning within 1000 feet

a. Describe surface water and groundwater features on or near the feedlot project site and manure application areas in a.i. and a.ii. below and on attached maps. **Including measurements taken of current nutrient load running into waterways to establish a baseline.**

i. **Surface water** - lakes, streams, wetlands, intermittent streams, and county/judicial ditches. Include any special designations such as public waters, shoreland classification and floodway/floodplain, trout stream/lake, wildlife lakes, migratory waterfowl feeding/resting lake, and outstanding resource value water. Include the presence of aquatic invasive species and the water quality impairments or special designations listed on the current MPCA 303d Impaired Waters List that are within 3 mile of the project. Include DNR Public Waters Inventory number(s) if any.

ii. **Groundwater** – aquifers, springs, seeps. Include: 1) depth to groundwater; 2) if project is within a MDH wellhead protection area; 3) federal wellhead protection areas or drinking water supply management areas found within tribal boundaries; 4) identification of any onsite and/or nearby wells, including unique numbers and well logs if available. If there are no wells known on site or nearby, explain the methodology used to determine this; 5) Groundwater pollution susceptibility due to geology, unsealed wells, nearby contaminants, etc.

Indicate **Yes or No** whether any of the following **geologic site hazards to groundwater** are present at the feedlot project site, manure storage area, or manure application sites.

	Feedlot	Manure Storage Area	Manure Application Sites
Karst features (sinkhole, cave, resurgent spring, disappearing spring, karst window, blind valley, or dry valley)			
Exposed or highly fractured bedrock			
Soils developed in bedrock (as shown on soils maps)			
Sandy Soils and/or Sand Plain			
Other identified geologic hazards			

For any identified geologic hazards to groundwater, describe the features, show them on a map, and discuss proposed design and mitigation measures to avoid or minimize potential impacts.

b. Describe effects from project activities on water resources and measures to minimize or mitigate the effects in Item b.i. through Item b.iv. below.

i. Wastewater

All sewage produced in Minnesota must be disposed of in accordance with Minn. R 7080.2450 subp. 6.

For each of the following, describe the sources, quantities and composition of all sanitary, municipal/domestic and industrial wastewater produced or treated at the site.

- 1) If the wastewater discharge is to a publicly owned treatment facility, identify any pretreatment measures and the ability of the facility to handle the added water and waste loadings, including any effects on, or required expansion of, municipal wastewater infrastructure.
- 2) If the wastewater discharge is to a subsurface sewage treatment system (SSTS), describe the system used, the design flow, and suitability of site conditions for such a system. If septic systems are part of the project, describe the availability of septage disposal options within the region to handle the ongoing amounts generated as a result of the project. Consider the effects of current Minnesota climate trends and anticipated changes in rainfall frequency, intensity and amount with this discussion.
- 3) If the wastewater discharge is to surface water, identify the wastewater treatment methods and identify discharge points and proposed effluent limitations to mitigate impacts. Discuss any effects to surface or groundwater from wastewater discharges, taking into consideration how current Minnesota climate trends and anticipated climate change in the general location of the project may influence the effects.

ii. Stormwater

Describe changes in surface hydrology resulting from change of land cover. Describe the routes and receiving water bodies for runoff from the project site (major downstream water bodies as well as the immediate receiving waters). Discuss environmental effects from stormwater discharges on receiving waters post construction including how the project will affect runoff volume, discharge rate and change in pollutants. Consider the effects of current Minnesota climate trends and anticipated changes in rainfall frequency, intensity and amount with this discussion. For projects requiring NPDES/SDS Construction Stormwater permit coverage, state the total number of acres that will be disturbed by the project and describe the stormwater pollution prevention plan (SWPPP), including specific best management practices to address soil erosion and sedimentation during and after project construction. Discuss permanent stormwater management plans, including methods of achieving volume reduction to restore or maintain the natural hydrology of the site using green infrastructure practices or other stormwater management practices. Identify any receiving waters that have construction-related water impairments or are classified as special as defined in the Construction Stormwater permit. Describe additional requirements for special and/or impaired waters.

... Post construction including measurements of current nutrient load in these waterways.

Describe how runoff, nutrient load, and pollution discharge will be tracked and measures on an ongoing basis to ensure that mitigation practices are working.

iii. Water appropriation - Describe if the project proposes to appropriate surface or groundwater (including dewatering). Describe the source, quantity (amount per animal per day), duration, use and purpose of the water use and if a DNR water appropriation permit is required and has been

obtained. Describe any well abandonment. If connecting to an existing municipal water supply, identify the wells to be used as a water source and any effects on, or required expansion of, municipal water infrastructure. Discuss environmental effects from water appropriation, including an assessment of the water resources available for appropriation. Discuss how the proposed water use is resilient in the event of changes in total precipitation, large precipitation events, drought, increased temperatures, variable surface water flows and elevations, and longer growing seasons. Identify any measures to avoid, minimize, or mitigate environmental effects from the water appropriation. Describe contingency plans should the appropriation volume increase beyond infrastructure capacity or water supply for the project diminish in quantity or quality, such as reuse of water, connections with another water source, or emergency connections.

Describe what effects the project will have on rates of aquifer drawdown.

Current Water Use (gal/yr)		<input type="checkbox"/> Not applicable
Proposed Water Use (gal/yr)		<input type="checkbox"/> Not applicable

		Maximum Pumping Rate per Source (gal/yr)
Water Supply Source	<input type="checkbox"/> Existing Well	
	<input type="checkbox"/> Public Supply	
	<input type="checkbox"/> New Well	
	<input type="checkbox"/> Other:	

Aquifer Test required by DNR?	<input type="checkbox"/> Yes <input type="checkbox"/> Option Waived <input type="checkbox"/> Unknown	
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iv. Surface Waters

List all sources of surface water sources for water appropriations:

Type of surface water source	Volume	Location

a) Wetlands - Describe any anticipated physical effects or alterations to wetland features such as draining, filling, permanent inundation, dredging and vegetative removal. Discuss direct and indirect environmental effects from physical modification of wetlands, including the anticipated effects that any proposed wetland alterations may have to the host watershed, taking into consideration how current Minnesota climate trends and anticipated climate change in the general location of the project may influence the effects. Identify measures to avoid (e.g., available alternatives that were considered), minimize, or mitigate environmental effects to wetlands. Discuss whether any required compensatory wetland mitigation for unavoidable wetland impacts will occur in the same minor or major watershed and identify those probable locations.

b) Other surface waters- Describe and show on maps any anticipated physical effects or alterations to surface water features (lakes, streams, ponds, intermittent streams, county/judicial ditches) such as draining, filling, permanent inundation, dredging, diking, stream diversion, impoundment, aquatic plant removal, riparian alteration, drain tiling, and tile inlets or outlets. Discuss direct and indirect environmental effects from physical modification of water features, taking into consideration how current Minnesota climate trends and anticipated climate change in the general location of the project may influence the effects. Identify measures to avoid, minimize, or mitigate environmental effects to surface water features, including in-water Best Management Practices that are proposed to avoid or minimize turbidity/sedimentation while physically altering the water features. Discuss how the project will change the number or type of watercraft on any water body, including current and projected watercraft usage. Compare the quantity and quality of site runoff before and after the project. Describe permanent controls to manage or treat runoff. Identify water resources affected and give the DNR Public Waters Inventory number(s) if the water resources affected are on the Protected Waters Inventory (PWI). Describe proposed mitigation measures to avoid or minimize impacts.

v. Manure management. Give a brief description of how manure will be collected, stored, and applied at this facility. Include a description of any manure processing activities such as liquid solid separation and anaerobic digestion. Attach copy of Manure Management Plan (MMP). If an anaerobic digester will process manure, list any other feedstocks used in the digester.

a) Manure removal activities.

Manure removal frequency: Once per year Twice per year
 Other: _____

Time required for manure removal: _____ Days/year

Time required for agitation of liquid manure storage areas: _____ Days/year Not applicable

b) Manure Transfer

Will any amount of manure be transferred to a third party for land application or anerobic digester?

No – skip 1-3

Yes, Land Application – Complete 1-3 Yes, Aerobic Digester - Complete 1, 4-5

1) Estimated amount of manure transferred throughout the year

Transfer timeframe	Liquid (gal)	Solid (ton)
June - September		
October 1 – October 14		
October 15 – November 30		

December 1 – February 28		
March 1 – March 31		
April 1 – May 31		
TOTAL		

- 2) Describe the protocols used to ensure information about nutrient content, nitrogen and phosphorus rate requirements, and setback requirements are made available to the recipient(s).
- 3) Describe any efforts to limit the potential for application of transferred manure to fields without actively growing crops during the summer and early fall (before Oct. 15) and during frozen or snow-covered conditions.
- 4) Describe any efforts to limit dust and odor to nearby residences and the amount and speed of transfer trucks.
- 5) Describe time of day and scope of operations needed to transfer manure.

c) Manure Land Application (non-transfer)

Will any amount of manure be applied to fields owned, leased, rented, or otherwise controlled by any member of the ownership entity of the feedlot?

Yes – complete 1-5 below No – skip 1-5 below

- 1) Estimated amount of manure applied throughout the year

Application timeframe	Liquid (gal)	Solid (ton)
June - September		
October 1 – October 14		
October 15 – November 30		
December 1 – February 28		
March 1 – March 31		
April 1 – May 31		
TOTAL		

- 2) Describe anticipated manure application technologies and methods of application and incorporation. Include measures to limit potential for runoff, especially for manure applied in winter conditions.
- 3) Describe any measures used to manage field soil phosphorous levels to prevent excessive phosphorus build-up.
- 4) Describe any measures (BMPs) used to limit potential for nitrate impacts to water resources.
- 5) If land application acres drain to a waterbody with an impairment, describe the measures used to limit land application effects on the impairment.

d) Manure application fields

- 1) General description

Describe each land application field. Include in the description the following:

- Field name/ID, location (Township-Range-Section), tillable acres, predominate soil type, field tiling system, irrigation system, description of bordering lands/roads, waters (within 2 miles) receiving runoff or tile line flow.

Include DNR Public Waters Inventory numbers (if available) and any special designations such as public waters, shoreland classification and floodway/floodplain, trout stream/lake, wildlife lakes, migratory waterfowl feeding/resting lake, and outstanding resource value water

2) Map the manure application fields. Show on a map the following within or near (1000 ft) land application fields:

- Lakes, rivers, streams, intermittent streams, wetlands, county/judicial ditches, open tile intakes, wells, springs, Karst features (*Sinkholes, caves, resurgent springs, disappearing springs, karst windows, blind/dry valleys*) *vulnerable fields, any other manure application*

3) Additional field sensitivity information. Below each of the following items list any fields that meet the criteria described. *happening near the sites.*

- a. Fields within Drinking water supply management areas (DWSMAs) or Source Water Protection Areas (SWPAs) with medium to high vulnerability, including tribal drinking water supply areas. Fields planned for winter manure applications.
- b. Fields with soil phosphorous tests levels above 21 ppm Bray 1 or 16 ppm Olson and have surface water within 1000 feet.
- c. Fields with soil phosphorous tests levels above 75 ppm Bray 1 or 60 ppm Olson.
- d. Fields that could receive broadcast manure (not immediately incorporated) that have slopes at 6% or greater.

4) Using Web Soil Survey data, list any fields with at least 33% of the acreage that meets the following:

- a. sensitive aquifer assessment rating
- b. soil texture of sand, loamy sand, loamy coarse sand, fine sand, loamy fine sand, coarse sand, or very fine sand.
 - i. depth to bedrock of 40 inches or less
 - ii. soil erosion ("T factor") rating of 5 or more tons/acre/year
 - iii. frequently flooded

e) Manure application setbacks

Describe any required setbacks for land application systems.

f) Other methods of manure utilization.

If the project will utilize manure other than by land application, please describe the methods.

g) Dead Animal Disposal.

Describe the quantities of dead animals anticipated, the method for storing and disposing of carcasses, and frequency of disposal. How will nuisance wildlife be managed that are attracted by carcasses?

What is the response to a major disease or death event? Identify local ordinance restrictions for animal disposal, composting, etc.

13. Contamination/Hazardous Materials/Wastes:

- A. Pre-project site conditions - Describe existing contamination or potential environmental hazards on or in close proximity to the project site such as soil or ground water contamination, abandoned dumps, closed landfills, existing or abandoned storage tanks, and hazardous liquid or gas pipelines. Discuss any potential environmental effects from pre-project site conditions that would be caused or exacerbated by project construction and operation. Identify measures to avoid, minimize or mitigate adverse effects from existing contamination or potential environmental hazards. Include development of a Contingency Plan or Response Action Plan.
- B. Project related generation/storage of solid wastes - Describe solid wastes generated/stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential environmental effects from solid waste handling, storage and disposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of solid waste including source reduction and recycling.
- C. Project related use/storage of hazardous materials - Describe chemicals/hazardous materials used/stored during construction and/or operation of the project including method of storage. Indicate the number, location and size of any new above or below ground tanks to store petroleum or other materials. Indicate the number, location, size and age of existing tanks on the property that ~~used~~ by the project will use. Discuss potential environmental effects from accidental spill or release of hazardous materials. Identify measures to avoid, minimize or mitigate adverse effects from the use/storage of chemicals/hazardous materials including source reduction and recycling. Include development of a spill prevention plan.
- D. Project related generation/storage of hazardous wastes - Describe hazardous wastes generated/stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential environmental effects from hazardous waste handling, storage, and disposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of hazardous waste including source reduction and recycling.

14. Fish, wildlife, plant communities, and sensitive ecological resources (rare features):

- A. Describe fish and wildlife resources as well as habitats and vegetation on or near the site. **near meaning 1000 feet**
Change "site" in this section to "site and manure application sites."
- B. Describe rare features such as state-listed (endangered, threatened, and species of special concern) and federally listed (endangered and threatened-) species, native plant communities, Minnesota Biological Survey (MBS) Sites of Biodiversity Significance, and other sensitive ecological resources on or within close proximity to the site. Provide the license agreement number (LA-____) and/or correspondence number (-Minnesota Conservation Explorer (MCE) Project ID _____) from which the data were obtained and attach the Natural Heritage Review letter from the DNR. Federal species should be queried utilizing the U.S. Fish and Wildlife

Service Information for Planning and Consultation (IPaC) website. Indicate if any additional habitat or species survey work has been conducted within the site and describe the results.

- C. Discuss how the identified fish, wildlife, plant communities, rare features and ecosystems may be affected by the project including how current Minnesota climate trends and anticipated climate change in the general location of the project may influence the effects. Include a discussion on introduction and spread of invasive species from the project construction and operation. Separately discuss potential impacts to identified state and federally listed species, and any avoidance or mitigation measures that will be taken to avoid or minimize these impacts
- D. Identify measures that will be taken to avoid, minimize, or mitigate the adverse effects to fish, wildlife, plant communities, ecosystems, and sensitive ecological resources, such as calcareous fens. Separately discuss measures to avoid, minimize, or mitigate the adverse effects to state and federally listed species.

15. Cultural Resources:

Describe any historic structures, archeological sites, and/or traditional cultural properties on or in close proximity to the site. Include: 1) historic designations, 2) known artifact areas, 3) architectural features, 4) Tribal connections to the site.

Attach letter received from the State Historic Preservation Office (SHPO). Discuss any anticipated effects to historic properties during project construction and operation. Identify measures that will be taken to avoid, minimize, or mitigate adverse effects to historic properties.

16. Visual:

Describe any scenic views or vistas on or near the project site. Describe any project related visual effects such as vapor plumes or glare from intense lights. Discuss the potential visual effects from the project. Identify any measures to avoid, minimize, or mitigate visual effects.

17. Air

Identify the major sources of air or odor emissions from this feedlot.

a. Stationary source emissions - Describe the type, sources, quantities, and compositions of any emissions from stationary sources. Include any hazardous air pollutants and criteria pollutants. Discuss effects to air quality including any sensitive receptors, human health or applicable regulatory criteria. Include a discussion of any methods used to assess the project's effect on air quality and the results of that assessment. Identify pollution control equipment and other measures that will be taken to avoid, minimize, or mitigate adverse effects from stationary source emissions. Describe any proposed feedlot design features or air or odor emission mitigation measures to be implemented to avoid or minimize potential adverse impacts and discuss their anticipated effectiveness.

If no feedlot design features or mitigations were proposed, provide a summary of the results of an air emissions modeling study designed to compare predicted emissions at the property boundaries with state standards, health risk values, or odor threshold concentrations. The modeling must

incorporate an appropriate background concentration for hydrogen sulfide to account for potential cumulative air quality impacts.

b. Vehicle emissions - Describe the effect of the project’s traffic generation on air emissions. Discuss the project’s vehicle-related emissions effect on air quality. Identify measures (e.g. traffic operational improvements, diesel idling minimization plan) that will be taken to minimize or mitigate vehicle-related emissions.

c. Dust and odors - Describe sources, characteristics, duration, quantities, and intensity of dust and odors generated during project construction and operation. (Fugitive dust may be discussed under item 17a). Discuss the effect of dust and odors in the vicinity of the project including nearby sensitive receptors and quality of life. Identify measures that will be taken to minimize or mitigate the effects of dust and odors.

d. Describe any plans to notify neighbors of operational events (such as manure storage agitation and pumpout) that may result in higher-than-usual levels of air or odor emissions.

18. Greenhouse Gas (GHG) Emissions/Carbon Footprint

A. GHG Quantification: For all proposed projects, provide quantification and discussion of project GHG emissions. Include additional rows in the tables as necessary to provide project-specific emission sources. Describe the methods used to quantify emissions. If calculation methods are not readily available to quantify GHG emissions for a source, describe the process used to come to that conclusion and any GHG emission sources not included in the total calculation. Utilize the Feedlot Greenhouse Gas Emissions Calculator, found at XXXX.

The following tables are examples; other layouts are acceptable for providing GHG quantification results.

Construction Emissions

Scope	Type of Emission	Emission Sub-type	Project-related CO ₂ e Emissions (tons/year)	Calculation method(s)	
Scope 1	Combustion	Mobile Equipment			
Scope 1	Land Use	Conversion			
Scope 1	Land Use	Carbon Sink			
TOTAL					

Operational Emissions

Scope	Type of Emission	Emission Sub-type	Existing facility CO ₂ e Emissions (tons/year)	Project related CO ₂ e Emissions (tons/year)	Total CO ₂ e Emissions (tons/year)	Calculation method(s)
Scope 1	Combustion	Mobile Equipment				
Scope 1	Combustion	Stationary Equipment				
Scope 1	Combustion	Area				
Scope 1	Non-Combustion	Stationary Equipment				
Scope 1	Land Use	Carbon Sink				
Scope 2	Off-site Electricity	Grid-based				
Scope 2	Off-site Steam Production	Not applicable				
Scope 3	Off-site Waste Management	Area				
TOTAL						

B. GHG Assessment

- i. Describe any mitigation considered to reduce the project’s GHG emissions.
- ii. Describe and quantify reductions from selected mitigation, if proposed to reduce the project’s GHG emissions. Explain why the selected mitigation was preferred.
- iii. Quantify the proposed projects predicted net lifetime GHG emissions (total tons/#of years) and how those predicted emissions may affect achievement of the Minnesota Next Generation Energy Act goals and/or other more stringent state or local GHG reduction goals.

19. Noise

Describe sources, characteristics, duration, quantities, and intensity of noise generated during project construction and operation. Discuss the effect of noise in the vicinity of the project including 1) existing noise levels/sources in the area, 2) nearby sensitive receptors, 3) conformance to state noise standards, and 4) quality of life. Identify measures taken to minimize or mitigate the effects of noise.

20. Transportation

A. Describe traffic-related aspects of project construction and operation. Include:

- 1) existing and proposed additional parking spaces,
 - 2) estimated total average daily traffic generated,
 - a. Estimate the number of heavy truck trips generated per week and describes their routing over local roads. Describe any road improvements to be made.
 - b. Identify manure application routes and crossings, type of hauling equipment, impacts to road surface, impacts to traffic. Identify use and road crossings of drag hoses.
 - 3) estimated maximum peak hour traffic generated and time of occurrence,
 - 4) indicate source of trip generation rates used in the estimates, and
 - 5) availability of transit and/or other alternative transportation modes.
- B. Discuss the effect on traffic congestion on affected roads and describe any traffic improvements necessary. The analysis must discuss the project's impact on the regional transportation system. *If the peak hour traffic generated exceeds 250 vehicles or the total daily trips exceeds 2,500, a traffic impact study must be prepared as part of the EA.*
- C. Identify measures that will be taken to minimize or mitigate project related transportation effects.
- d. Will new or expanded utilities, roads, other infrastructure, or public services be required to serve the project? Yes No

If yes, please describe.

21. Cumulative potential effects: (Preparers can leave this item blank if cumulative potential effects are addressed under the applicable EAW Items). Cumulative potential effects may be considered and addressed in response to individual EAW Item No. 10-20.

- a. Describe the geographic scales and timeframes of the project related environmental effects that could combine with other environmental effects resulting in cumulative potential effects.
- b. Describe any reasonably foreseeable future projects (for which a basis of expectation has been laid) that may interact with environmental effects of the proposed project within the geographic scales and timeframes identified above.

Discuss the nature of the cumulative potential effects and summarize any other available information relevant to determining whether there is potential for significant environmental effects due to these cumulative effects.

22. Other potential environmental effects: If the project may cause any additional environmental effects not addressed by items 1 to 20, describe the effects here, discuss the how the environment will be affected, and identify measures that will be taken to minimize and mitigate these effects.

RGU CERTIFICATION.

I hereby certify that:

- The information contained in this document is accurate and complete to the best of my knowledge.

- The EAW describes the complete project; there are no other projects, stages or components other than those described in this document, which are related to the project as “phased actions,” pursuant to Minn. R. 4410.0200, subp. 60, 4410.1000, subp. 4, and 4410.4300, subp. 1.
- Copies of this EAW are being sent to the entire EQB distribution list.

Name and Title of Signer:

Signature

Date:

The format for the alternative Environmental Assessment Worksheet form has been approved by the Chair of the Environmental Quality Board pursuant to Minn. R. 4410.1300 for use for animal feedlot projects. For additional information contact: Environmental Quality Board, 520 Lafayette Road, St. Paul, Minnesota, 55155-4194, 651-296-6300, or at their website <https://www.eqb.state.mn.us/content/environmental-review-program>



LAND STEWARDSHIP PROJECT

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February 17, 2023

Members of the Environmental Quality Board,

For 41 years, Land Stewardship Project has organized thousands of small and mid-sized farmers, rural residents, and others to build a just and sustainable farm and food system and healthy communities. Currently, our membership includes approximately 1,500 small and mid-sized farmers and an additional 3,000 households.

We envision a state in which small and mid-sized farms thrive, our air and water are clean, our soil is healthy, and our climate is stable and resilient.

Advancing our vision for rural Minnesota has included “fighting the worst” and “promoting the best”. Small and mid-sized farms cannot thrive, or even survive, as the agricultural sector becomes more and more consolidated. This consolidation includes large-scale feedlots that threaten our air, water, soil, climate, wildlife, farm economy, local rural economies, human health, and more.

In our 41 years, our members have become incredibly familiar with Minnesota’s environmental review and permitting processes. However, lack of rigor in these processes has served industry better than the public, our members and their neighbors have had to leverage local control to protect their communities from new or expanding large-scale feedlots. In our 41 years, LSP members, local community groups, and their neighbors have successfully prevented 40 large-scale feedlots from being built or expanding.

Because of our deep familiarity with the environmental review process, we know how these processes can better serve rural communities and our environment.

We ask you to incorporate the following into environmental review moving forward:

I) Strengthen Environmental Review Thresholds

In our state’s history, there has never been an Environmental Impact Statement prepared for a proposed feedlot or feedlot expansion. Yet, Minnesota rules state that, “An EIS shall be ordered for projects that have the potential for significant environmental effects.”¹

Large-scale feedlots have proven to have the potential for significant environmental effects, including:

- **Nitrate Pollution:** Each large-scale feedlot produces millions of gallons of manure, stored in multi-million-gallon lagoons without ample access to oxygen, that is spread on fields as fertilizer. Over-application of manure onto fields is documented and extremely common². Often times, several large-scale feedlot operations are using the same fields for manure spreading, leading to over application. Other times, a single application may be excessive. In pasture-based systems using managed rotational grazing, animals evenly disperse their manure as they graze, and the manure has ample access to oxygen. Manure that breaks down anaerobically from large-scale feedlots, on the other hand, is a major cause of nitrate pollution in surface water, groundwater, and drinking water, resulting in fish kills, undrinkable tap water, algae blooms that produce toxic bacteria harmful to humans and wildlife, dead zones, and more². In 2020, the Environmental Working Group found that 69 of Minnesota’s 72 counties, nitrogen from manure combined with

nitrogen in fertilizer exceeded recommendations of the MPCA and the University of Minnesota (UMN).²

- **Ammonia Pollution:** Feedlots generate approximately 70% of ammonia emissions in the US., according to PBS.³ Large-scale feedlots are the primary driver of ammonia emissions due to large-scale fresh urine production. Within 48 hours of exposure to the atmosphere, 80% of ammonia in the urine evaporates into the air.⁴ Ammonia increases acid depositions and causes excessive levels of nutrients in soil and water.⁵ Beyond environmental impacts, ammonia causes respiratory problems for those working in and living near large-scale feedlots.⁵
- **Hydrogen Sulfide Pollution:** Large feedlots emit hydrogen sulfide due to manure decomposing without access to oxygen. Hydrogen sulfide dissipates into the air to form sulfur dioxide and sulfuric acid, altering the acidity of precipitation and periodically causing regional haze.⁶ Deaths of cattle in the Midwest have been attributed to lethal concentrations of the gas released during slurry manure agitation.⁷ Beyond environmental impacts, hydrogen sulfide is hazardous to human health, causing respiratory and other health hazards, and an odor nuisance to nearby residents.⁶
- **Methane Pollution:** It is well-known that large-scale feedlots emit tremendous amounts of methane. Methane is a powerful greenhouse gas and is more than 25 times more potent than carbon dioxide when it comes to trapping heat in the atmosphere, according to the Environmental Protection Agency.⁸ The EPA also states that, "When livestock manure is stored or treated in systems that promote anaerobic conditions (e.g., as a liquid/slurry in lagoons, ponds, tanks, or pits), the decomposition of the volatile solids component in the manure tends to produce CH₄ (methane). When manure is handled as a solid (e.g., in stacks or dry lots) or deposited on pasture, range, or paddock lands, it tends to decompose aerobically and produce CO₂ and little or no CH₄."⁹
- **Nitrous Oxide Pollution:** Manure lagoons, in which liquid manure breaks down without ample access to oxygen, emit nitrous oxide. Nitrous oxide is another potent greenhouse gas that has 300 times more warming power than carbon dioxide over a 100-year period, according to the EPA.⁸ In addition to its environmental impacts, nitrous oxide can cause dizziness, unconsciousness, and even death¹⁰. Long-term exposure can lead to infertility, according to the CDC.¹⁰
- **Particulates and Organic Compounds:** Large-scale feedlots also emit particulate pollution, which can cause chronic respiratory symptoms¹¹, as well as semi-volatile organic compounds, which can cause headaches, nausea, and increased risk of cancer¹¹.

It is clear that large feedlots have proven to have the potential for significant environmental effects. Therefore, the EQB and MPCA should be enforcing existing law and ordering EISes on all proposed new or expanding feedlots with more than 700 animal units. According to MPCA registered feedlot data, only 7% of large-scale dairy operations, only 5% of large-scale beef operations, and 52% of large-scale hog operations have more than 700 animal units.

Additionally, all feedlots with more than 400 animal units should be required to complete an Environmental Assessment Worksheet (EAW). Currently, operations with fewer than 714 dairy cattle, 1,000 beef cattle, 3,333 hogs, 55,555 turkeys, or 200,000 broiler chickens are not required to do any environmental review, unless their location requires one or an EAW petition is granted.

Moreover, EAW petitions should be automatically granted if 50 or more signees live within 10 miles of the proposed project. The public should also be able to petition for an EIS if 100 or more people who

live within 10 miles of the proposed project sign a petition. Those who would be most impacted by a proposed project deserve to know what the potential impacts are and have a voice.

2) Make Environmental Review Holistic

Unlike Environmental Impact Statements, Environmental Assessment Worksheets do not consider potential economic or social impacts. As large-scale feedlots and other proposals that require EAWs inherently impact local economies and communities, these impacts should be considered in EAWs.

For large-scale feedlots, economic and social impacts include:

- Increased property taxes. As large-scale feedlots are exempt from paying property taxes on their multi-million-dollar manure lagoons, local residents face increased property taxes to compensate for wear and tear on local roads due to increased trucking, increased pressure on water treatment systems, and more.¹² Increased trucking also increases particulate matter in the air and adds noise pollution.
- Lower property values – a hedonic price analysis on 292 rural residencies in Minnesota showed a statistically significant property value impact related to existence of and proximity to a large-scale feedlot. Homes within a half-mile of a Confined Animal Feeding Operation (CAFO) decreased in value by 40%, homes within a mile decreased in value by 30%, homes within 1.5 miles decreased in value by 20%, and homes within 2 miles decreased in value by 10%.¹³
- Lowered water tables and drying up of wells, requiring local residents to drill deeper wells. With the documented impacts on groundwater, local community members have to invest in advanced water treatment systems or purchase bottled water, as 75% of Minnesotans rely on groundwater as their drinking water source.
- Threats to human health, as previously outlined, requiring increased healthcare costs from exposure to dangerous gases and unsafe drinking water.
- Small and mid-sized operations driven out of business and off of the land, due to large-scale operations outcompeting these farms. Large feedlots have lower production costs per animal unit and are thus able to sell their milk and/or livestock for a much lower price. It's also easier for a buyer to pick up a large amount of product from a handful of large operations rather than to pick up smaller amounts of product from numerous small and mid-sized operations. Small and mid-sized operations, particularly in the dairy sector, are frequently dropped by their buyers as a result and have no market.¹⁴
- Odor nuisances, which are physically bothersome, mentally bothersome, and suppress tourism.

For environmental review of feedlots to be holistic, it should also include the entire chain of production from feed to market, rather than just the facility itself. Currently, the following environmental impacts are not considered in environmental review:

- Tillage causing the loss of soil carbon.
- Fossil fuels used to produce fertilizers and pesticides.
- Fossil fuels used in farm equipment.
- Fossil fuels used to transport, dry, and process feed.
- Fossil fuels used to transport livestock and milk to feedlots, slaughter facilities, processing plants, and markets.
- And more.

3) Strengthen Public Participation and Transparency

Environmental review and permitting decisions are personally impactful for many rural residents. It's important that, regardless of the outcome, Minnesotans have ample time and opportunities to provide public comment, state agencies demonstrate that public participation is not futile, and state agencies clearly explain the decisions they make.

Environmental review and permitting can become more transparent and participatory by:

1. Reinstating the MPCA Citizens' Board with a focus on representation from both rural and urban residents of environmental justice communities, who face the brunt of the environmental, social, and economic impacts of industrial projects. We know this is not something the EQB has the authority to do, but we urge you to support legislative efforts to do so.
2. Sending a postcard to all Minnesotans who live within a 10-mile radius of a proposed project with details on how they can learn more about the project, how they can provide input, and what the timeline is. Current public notices are not visible enough for local communities.
3. Holding a public hearing in the county of a proposed project to take official public comment and answer questions about the proposal.
4. Making the standard public comment be sixty days from when notice is given to local communities. Especially during Spring planting and Fall harvest, thirty days is simply not enough to learn about a proposed project, understand what is being proposed, and submit a public comment.

We appreciate the opportunity to provide this public comment. We hope that the Environmental Quality Board pursues changes to environmental review and permitting so that these processes center rural and environmental justice communities, rather than project proposers.

Please do not hesitate to reach out to discuss further or ask clarifying questions.

Sincerely,

The Land Stewardship Project Animal Agriculture Steering Committee

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Professor Emeritus, UMN-Morris
*Expertise: Rural Communities, Political Economy of
Agrarian Systems, Anthropology of Food*
Morris, MN

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References

¹Minnesota Rules Chapter 4410.1700 Subpart 1

²[Environmental Working Group, *Manure Overload*, 2020](#)

³[PBS, *Factory farms provide abundant food, but environment suffers*, 2020](#)

⁴[Colorado State University Extension, *Best Management Practices for Reducing Ammonia Emissions*, 2012](#)

⁵[European Environment Agency, *Ammonia emissions from agriculture continue to pose problems for Europe*, 2019](#)

⁶[Environmental Integrity, *Fact Sheet – Air Pollution from Factory Farms*](#)

⁷[Nebraska Institute of Agriculture and Natural Resources, *Dangerous Gases a Concern During Removal of Slurry and Bedded-pack Manure*, 2016](#).

⁸[Environmental Protection Agency, *Overview of Greenhouse Gases*, 2022](#)

⁹[Institute for Agriculture and Trade Policy, *New EPA data confirms role of factory farms in rising agriculture emissions*, 2022](#)

¹⁰[Center for Disease Control and Prevention, *Nitrous Oxide*, 2018](#)

¹¹[National Association of Local Boards of Health, *Understanding Concentrated Animal Feeding Operations and Their Impact on Communities*, 2010](#)

¹²[Land Stewardship Project, *The Money Pit: How Minnesota Taxpayers are Subsidizing Factory Farms*, 2010](#)

¹³[Dr. John A. Kilpatrick, *Animal Operations and Residential Property Values*, 2015](#)

¹⁴[Farm Aid, *Corporate Control in Agriculture*](#)

January 31, 2024

Minnesota Pollution Control Agency
520 Lafayette Road North
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COMMENTS ON THE DRAFT FEEDLOT EAW FORM

Minnesota Center for Environmental Advocacy submits the following comments on the draft feedlot EAW form.

I. Tribal rights

MCEA strongly supports consulting with nearby Tribal Nations and reporting on potential environmental and cultural effects. MCEA applauds the draft feedlot EAW form's consideration of the project's effects on tribal lands, waters, and cultural resources. This is a critical recognition of the need to consider tribal rights and resources in environmental review. MPCA and the EQB should also consult directly with the Tribal Nations on these additions and what else may be needed to adequately understand impacts to Tribal Nations from a proposed project. Minnesota's government-to-government relationship with Tribal Nations requires our state agencies to engage in meaningful consultation with Tribal Nations during regulatory matters such as this one. See Minn. Stat. § 10.65; Executive Order 19-24, *Affirming the Government to Government Relationship between the State of Minnesota and Minnesota Tribal Nations: Providing for Consultation, Coordination, and Cooperation* (Apr. 4, 2019). Meaningful consultation requires more than a discussion; it is a form of dialogue in which the recommendations of Tribal Nations are incorporated into decisionmaking. See *Indigenous Peoples Subcomm. of the Nat'l Env'tl. Justice Advisory Council, Guide on Consultation and Collaboration with Indian Tribal Governments and the Public Participation of Indigenous Groups and Tribal Members in Environmental Decision Making*, at 3, 5 (2000), available at https://www.epa.gov/sites/production/files/2015-03/documents/ips-consultation-guide_0.pdf (describing consultation responsibilities of the federal government).

II. Manure Management

MCEA strongly supports the expanded and additional sections related to manure management. In the project description section, it is important to know not only what the total animal manure generation will be, but also to specify animal type and whether the manure will be stored in liquid or solid form, as nutrient content will vary

by animal type and storage method. Dry manure management systems such as solid separation technologies and compost bedded pack barns also have known climate and water quality benefits: when manure is stored in a wet, anaerobic environment methane emissions are produced, and when it is stored in a dry environment, these emissions are reduced as is nutrient run-off and the risk for nitrate leachate to groundwater. MCEA appreciates the incorporation of more detailed site information for manure storage capacity - while feedlots with 1,000 or more animal units are required to provide at least 9 months of manure storage capacity, feedlots below 1,000 animal units that fall under MN Rule 4410.4300 Subp. 29(b) are not. Information on available manure storage, together with the total volume of solid and liquid animal manure and acres of land available for manure application, will help to assess the pressure on the manure management system to land apply at times of year with a higher risk of environmental loss, like fall application on bare fields and winter application on frozen or snow-covered ground.

In order to assess the cumulative impacts of animal manure generation at a broader landscape scale, it is important to identify nearby land uses and existing registered feedlots. Towards that end, MCEA appreciates the additions to Section 10(a)(i) that ask the project proposer to identify existing registered feedlots in the nearby area. While dairy, beef, and swine feedlots are generally estimated to land apply manure within a five mile radius of the feedlot, poultry feedlots have a much higher maximum manure haul distance of around 25 miles.¹ Therefore, MCEA recommends that project proposers identify existing registered feedlots within at least 10 miles and up to 25 miles of the feedlot and identify the animal types at each. This will provide more complete information to assess the potential overlap in the radius of manure land application for each, and whether the nutrient content of the generated manure across multiple feedlots will exceed the crop needs in a given area.

MCEA strongly supports the additions to Section 12(v) on manure management, which will give a much better sense of the proposed facility's ability to meet the permit conditions of the NPDES/SDS General Feedlot Permit - if applicable - as well as Minn. R. 7020.2225. For example, given the ban on land application of liquid manure on frozen and snow-covered ground in Minn. R. 7020.2225, it is useful to know if high volumes of liquid manure will be transferred for land application from December 1 through March 31. In addition, the provisions outlined in Section 12(v)(b)(2) and (3) will help to ensure

¹ Sarah Porter and Craig Cox. Environmental Working Group. "Methodology" in *Manure Overload: Manure Plus Fertilizer Overwhelms Minnesota's Land and Water*. May 28, 2020.

that the recipient of manure intended for land application is aware of and has the tools to comply with the manure management plan, the land application rules, and established nitrogen best management practices in the NPDES General Feedlot Permit.

For manure transferred for anaerobic digestion, MCEA recommends that MPCA add questions in 12(b)(v) about whether the digestate will be returned to the feedlot to be used as a soil amendment. If so, the form should ask the proposer to attach a nutrient management plan that determines the nutrient content of the digestate, proper credit for other nitrogen sources such as manure and commercial fertilizer, and the proper application rate, time, and methods for the digestate. In addition, 12(b)(v)(2) should be expanded to require the project proposer to identify if a manure recipient will receive manure from any other sources and report that as well, to help ensure an agronomic application rate.

For Section 12(v)(d) MCEA recommends that MPCA require applicants to use the digital manure management tool that is expected to be released with the next NPDES/SDS permit revision. Because this tool - as currently proposed - incorporates the Web Soil Survey as well as field sensitivity information, it will lead to more consistency and reliability in the information submitted for this section.

Taken together, the measures outlined in Section 12(v) will greatly improve MPCA's ability to assess the potential for the proposed manure management practices to have a material adverse impact on surface and groundwater resources.

III. Climate Adaptation and Resilience

MCEA strongly supports the addition of question 7 discussing climate adaptation and resilience. The question elicits the information needed to understand a project's potential environmental effects as a result of a changing climate, and allows project proposers to explain how they can mitigate those effects through smarter project design and other adaptations. This question will ensure new projects are not themselves devastated by climate change, nor exacerbating effects to others due to climate change. MCEA particularly appreciates the following in the draft feedlot EAW form and guidance on this question:

Draft Feedlot EAW Form

- The inclusion of known climate trends and climate projections in the tables under question 7
- The inclusion of links to a variety of helpful climate trend tools in the table on p.6
- The inclusion of an applicable timeline in the discussion of adaptation strategies on p. 8

Draft Feedlot EAW Guidance

- The example table showing what a response to question 7 could look like

These specific features of the draft feedlot EAW form and corresponding Guidance provide information that MCEA believes will result in better and more useful analyses of climate effects.

Question 7 also brings the Feedlot EAW form into alignment with the climate analysis other project types are already required to perform. This reduces confusion, creates regulatory certainty for project proposers, and provides consistency for the public. Moreover, feedlots are a project type for which this question is especially pertinent given that the known climatic changes include increases in annual temperature, precipitation, winter temperatures, and extreme weather events. These are all conditions which directly affect many aspects of feedlot projects and project design including manure application, growing seasons, crop viability, manure storage, and crop fertilizer needs.

IV. Geologic and soil conditions

MCEA strongly supports the additional information on geology/soils and topography/landforms, in particular the questions about karst features and sandy soils. In a November 2023 letter to the MPCA and other state agencies, the Environmental Protection Agency urged Minnesota to “consider modifications to the state’s Technical Standards for Nutrient Management with regard to land application of manure, litter or process wastewater...specific to Karst areas.”² For the purposes of environmental review, detailed information on the extent of karst features at the project site and manure application sites is an important tool to assess the potential for nutrient loss to groundwater and to nearby surface waters from baseflow. MCEA recommends that project proposers use the Karst Feature Inventory from the Minnesota Department of Natural Resources to identify karst features. The tool includes sinkholes, stream sinks, tile outlets and inlets, quarries, outcrops, blind valleys, and a miscellaneous category as well as a separate layer for springs.

To improve the consistency and reliability of information submitted under Section 11, MCEA strongly recommends that MPCA require project proposers to use the new digital manure management tool to submit information on soils, topography, and geologic features linked to groundwater vulnerability. This is because the proposed

² Debra Shore. EPA Letter to Minnesota State Agencies Regarding Southeast Minnesota Petition. United States Environmental Protection Agency. November 3, 2023.

manure management tool incorporates the Web Soil Survey as well as other field sensitivity information. If the Karst Feature Inventory is integrated with the digital manure management tool, this will address the recommendation in the above comment as well.

MCEA strongly recommends that project proposers be required to identify if the project site falls within a vulnerable groundwater area as defined in the Minnesota Department of Agriculture Vulnerable Groundwater Area map. This map includes coarse textured soils, shallow bedrock, and karst geology and therefore encompasses the various geologic site hazards to groundwater that MPCA has asked project proposers to identify. The ability of project proposers to adequately characterize the geology, soils, and topography/landforms at the project site and the manure application sites will be greatly improved if they are required to use these mapping tools.

V. Water Resources

MCEA strongly supports the addition of Section 12, which requires project proposers to identify surface and groundwater resources at the project site as well as manure application areas. Because of the potential for nutrient loss through surface runoff and groundwater leachate at manure application areas, the expansion of the form to include manure application areas is critically important. In 12(a)(i) MCEA recommends that MPCA require project proposers to identify impaired waters within 5 miles of the project site and manure application fields, rather than 1 mile. This is because, especially in regions with karst bedrock, groundwater flow can contribute to surface water impairments through baseflow at a broader distance than surface water runoff alone. These baseflow contributions to surface water impairments can be significant: for example, the average statewide contribution of cropland groundwater to nitrogen loads in Minnesota surface waters is 30%, and in the Lower Mississippi River Basin of Southeastern Minnesota cropland groundwater contributions to nitrogen loads in surface waters rises to about 60%.³ Given the EPA's recognition of the evident need to take further action to safeguard human health in the karst region, MCEA appreciates the inclusion of onsite or nearby wells in 12(a)(ii), and would recommend that MPCA specify that this includes private wells as well as public water supply wells located within 1 mile of the project site OR manure application areas.

For the section on geologic site hazards to groundwater, MCEA recommends that MPCA require the project proposer to attach pollution sensitivity maps from the DNR Groundwater County Atlas map if they are available for the county the proposed project

³ MPCA. Nitrogen in Minnesota Surface Waters. June 2013.

falls within. These maps detail geologic and groundwater information and include a pollution sensitivity map. Pollution sensitivity is defined in the County Atlas program as “the potential for groundwater to be contaminated from land surface activities because of properties of the geologic material” and therefore is directly relevant to “geologic site hazards to groundwater” in the draft feedlot EAW form. These maps document near-surface materials, such as shallowly buried karst bedrock prone to karst feature development, as well as the aquifer chemistry and residence time of bedrock aquifers. This geologic and groundwater information is important not only for pollution sensitivity, but also to identify high recharge areas for groundwater.

MCEA commends MPCA for the additional questions regarding water appropriation information in the 12(b)(iii). Feedlots can require extensive water appropriations, and especially as climate change and pollution threaten our water supplies, questions relating to water appropriation will likely become of greater concern to the public. The Minnesota Environmental Policy Act (MEPA) specifically requires an “assessment of water resources available for appropriation,” be included in an EAW (Minn. Stat. 116D.04 subd. 16). In fact, this is the only piece of information that MEPA itself states must be included in an EAW. Accordingly, the addition of this question is critical for compliance with MEPA. MCEA recommends that MPCA provide guidance to clarify what kind of information should be included in “an assessment of water resources available for appropriation.” Without guidance, applicants may not provide sufficient information for the public to understand the effects of the proposed water appropriation; instead, applicants may defer to the later, nonpublic, water appropriation permit process. Further, MCEA strongly recommends that if DNR determines that an aquifer test is required as part of its initial assessment of the project, the results of the aquifer test **must** be included in the EAW form and shared for public comment before MPCA makes its decision on the need for an EIS. This will ensure that the provisions of Minn. Stat. § 116D.04 subd. 16 are met.

MCEA strongly supports the identification of any measures to mitigate environmental effects from water appropriation and to describe contingency plans if the appropriation volume increases or water supply for the project diminishes. This contingency planning will help prevent incidents like those that occurred in 2021, when nearly 800 Minnesota farmers pumped 6.5 billion more gallons of water than their permits allowed.⁴ MCEA recommends the addition of language to clarify that the

⁴ Greg Stanley, *Fighting drought, potato farmers in northern Minnesota overdrew their water permits by tens of millions of gallons*, Star Tribune (Feb. 18, 2023),

environmental effects from water appropriation include negative impacts to surface waters, as outlined in Minn. Stat. 103G.287 subd. 2, as well as interference with public water supplies or private domestic wells.

Finally, in Section 13(a), MCEA recommends that MPCA specifically list drinking water contamination on or in close proximity to the project site. While groundwater contamination is already listed in this section, some wells also draw from surface water sources, as in Mankato and the Twin Cities. To understand the extent of both groundwater contamination and drinking water contamination, the project proposer should identify if the project site falls within a vulnerable groundwater area as identified by the Minnesota Department of Agriculture, if it falls within a vulnerable township as identified by the Township Testing Program, and if any public water supply wells in the township have exceeded the maximum contaminant level of 10mg/L for nitrate in the past 5 years.

VI. GHG analysis

MCEA strongly supports the addition of a greenhouse gas emission / carbon footprint analysis, but the form and/or guidance need to provide more information about what emissions must be included in calculations for feedlots. To accomplish this, MCEA recommends that the example tables on p.21-22 of the draft feedlot EAW form be revised to include examples pertinent to feedlots. For example, it would be helpful to show that on the Operational Emissions Table, in the row for *scope 1, combustion, mobile equipment*, emissions would include not only vehicles at the feedlot itself, but also fuel combustion from vehicles delivering feed to animals, operation of other farm machinery, use of machinery to apply manure, and other mobile sources. It would also be helpful to show in these sample tables where to include emissions from manure storage, manure land application, and enteric fermentation. While the tables are currently identical to those in the standard EAW form, it makes sense to add additional information to these tables as this form only applies to the feedlot project type.

Additionally, MCEA recommends that the information about developing a carbon footprint and incorporating climate adaptation and resilience from the standard EAW guidance document⁵ be incorporated into or linked to in the guidance for the feedlot

<https://www.startribune.com/drought-potato-farmers-in-minnesota-overdrew-water-permits-by-tens-millions-gallons-r-d-offutt/600252769/>.

⁵ Minnesota Environmental Quality Board, Environmental Assessment Worksheet (EAW) Guidance: Developing a carbon footprint and incorporating climate adaptation and resilience, July 2023, available at

EAW. This existing guidance document contains helpful information explaining what a carbon footprint is, what should go into its calculation, and useful information and resources for answering questions 18(B)(i)-(iii) on mitigations. This guidance document provides a starting point for project proposers that should make calculating their emissions and thinking through possible mitigations much easier.

MCEA is curious about the decision to require all project proposers to use one calculator, referred to as “the Feedlot Greenhouse Gas Emissions Calculator.” This calculator is unlinked in the document and MCEA therefore cannot assess whether it sufficiently captures emissions that must be included when calculating emissions from feedlots. We look forward to learning more about this calculator when further information is available.

Sincerely,

/s/ Carly Griffith

Carly Griffith

Water Program Director

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/s/ Amelia Vohs

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<https://www.eqb.state.mn.us/sites/eqb/files/documents/2023%20EAW%20Climate%20Guidance.pdf>.

Mille Lacs Band of Ojibwe Department of Natural Resources

More formalized comments will be submitted at a later date.

Considering that Feedlots operations have air emissions, and several Tribes do have Treatment as an Affected State, reaching out to Tribes within 10-mi of the operations would be insufficient. For air rules, this should be increased to 50-mi.

Additionally, the proposer may not be aware of Tribal Resources, even if the EAW prompts for an answer. The guidance document should provide a link to where more information can be found, such as the USDA Tribal Connections map site:

<https://usfs.maps.arcgis.com/apps/webappviewer/index.html?id=fe311f69cb1d43558227d73bc34f3a32>.



MILLE LACS BAND OF OJIBWE DEPARTMENT OF NATURAL RESOURCES



February 16, 2024

Megen Dvorak Kabele, Environmental Review Project Manager
Minnesota Pollution Control Agency
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e-mail: megen.kabele@state.mn.us

Re: Review of Minnesota Feedlot EAW Changes

Hello Ms. Kabele:

On behalf of the Mille Lacs Band of Ojibwe Department of Natural Resources Air Quality Program, I thank you for the opportunity to review and provide feedback to the Minnesota Feedlot EAW Changes, including the EAW's guidance document. During the initial comment period, I have provisionally submitted comments online. Today, I would like to submit these more formalized unofficial comments.

In the proposed EAW Questions 5. and 10.a.i., please increase the proposer's notification to Tribes from 10-miles to 50-miles, as many Tribes in and near Minnesota have Clean Air Act Section 505(a)(2) airshed boundaries for permit notifications. Under the Clean Air Act Section 505(a)(2), Tribes are afforded these notifications in order to safeguard our airshed.

Additionally, the State of Minnesota have extended courtesy notification, to Tribes without Clean Air Act Section 505(a)(2) and to Tribes with Clean Air Act Section 505(a)(2) but wishing to be notified of permit actions beyond the standard 50-miles range, by periodically querying which counties in Minnesota each Tribe wants to be notified for Air permit actions. Because the purpose of the EAW is to determine what kind of environmental review is needed to inform the State's permitting action, the proposed Feedlot EAW Guidance Document should point the project proposer to the State's [Tribal Contacts List \(p-gen5-25\)](#) as a resource. The Tribal Contacts List is a valuable tool that the State should promote. In addition to Air Permit notification, the list also provides a list of Minnesota counties each Tribe desires notification for Water Permit actions, which will also greatly inform the feedlot project proposer filling out the proposed Feedlot EAW. Furthermore, in the proposed Feedlot EAW Guidance Document, since many Minnesotans are not aware of the Tribal Treaty-Ceded Territory status, please include in the guidance as resource the [USDA Tribal Connections](#) page.

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Mille Lacs Band of Ojibwe DNR Air Quality Program comments regarding the review of Minnesota Feedlot EAW Changes

In the proposed EAW Question 15., in addition to contacting the State Historic Preservation Office, please have the project proposer also contact the appropriate Tribal Historic Preservation Offices and receive letters regarding the project site's Tribal Traditional Cultural Properties and Tribal Cultural Landscapes, as the State Historic Preservation Office does not necessarily have this information.

Lastly, the EAW item numbering system for its Questions is inconsistent. Based on the majority of the EAW Questions numbering system, it appears the numbering system for items in Questions 13, 14, 18, and 20 needs to be adjusted to be in harmony with the rest of the EAW Questions numbering system.

I hope these comments will assist you in developing a more robust Feedlot EAW and an informative Guidance Document for future feedlot project proposers within the State of Minnesota. If you have any questions or would like to further coordinate, please feel free to send me an e-mail at Charlie.Lippert@MilleLacsBand.com. Once the State enters an official comment period so that the Minnesota Feedlot EAW Changes and its Guidance Document can be formalized, the Mille Lacs Band of Ojibwe Department of Natural Resources may request for a formal consultation and provide the State with our official comments at that time.

Sincerely,

A handwritten signature in blue ink that reads "Charles J. Lippert". The signature is written in a cursive style with a large, stylized initial 'C'.

Charles J. Lippert, Air Quality Specialist

cc: Perry Bunting, Director of Environmental Programs, Mille Lacs Band of Ojibwe DNR
Jonathan Houle, Agricultural Coordinator, Mille Lacs Band of Ojibwe DNR

Minnesota Milk Producers Association

Comments on the Draft Environment Assessment Worksheet (EAW) Alternative Form for Animal Feedlots

Dear MPCA Staff:

We appreciate the opportunity to comment on this alternative EAW for animal feedlots, and appreciate that it exists to represent the criteria that will be examined to determine whether an Environmental Impact Statement (EIS) should be prepared. However, we'll note in conversations with Minnesota Pollution Control Agency (MPCA) staff we also now understand that this form is being used to pre-qualify for permits and that can expedite the time back-and-forth between proposer and RGU (in this case MPCA). We believe if that is the case, it should be stated and that efforts should be made to make the process consistent and simultaneous to eliminate the current double-process proposers, public commenters and RGUs must endure.

The following are the edits we would suggest:

1. 5. Project Location: Map showing all... extension of the map to 1.5 miles radius of feedlot and manure land application sites from 1 miles was not noted on the draft. It appears that this was simply suggested by DNR staff, but no scientific or logistical reason that it shouldn't be 0.75 miles versus 1.5 miles as opposed to the 1.0 mile mark. This extra 0.5 mile radius is 1 full mile, and will create significant extra research for proposer and RGU when there's nothing to state why or when this distance would cause an environmental issue.
2. 5. Project Location: Tribal Boundaries within 10 miles. We understand this has been requested by a tribal authority. Using a consistent mark to our #1 above would make more sense – the 1 or proposed 1.5 mile radius, which is 2 or 3 miles. If there is a culturally significant site outside of a tribal boundary, it should be found already within the search by MPCA, and 10 miles will not be any better number than 0 if that is the case.
3. 6. A/B/C/D. charts. We believe these charts becomes very duplicative, and MPCA could find a way to combine this with other charts throughout the sheet, allowing for one spot for inputs and other calculations made automatically from it. It's already duplicative from 6b by the time you get to the end of the chart of 6 d, and then is repeated later in 18 Climate.
4. 7. A and B. Climate Trends. We are unsure whether this section is necessary for determining EIS nor any other permits. However, if included, MPCA should state that applicants are allowed to source and use the most up-to-date projected climate change data for the state. The current list does not include the newest data or tool which is located here: <https://climate.umn.edu/MN-CliMAT>. The data underlying the DNR climate explorer tool referenced on page 6 under "projected climate" represent a previous generation of climate model output generated by members of Dr. Roop's team. As she stated in a communication, "Our new data, which the State funded, would hopefully be sourced for such applications. The newer data are, importantly, of the same generation of climate model output provided by other sources they've listed on page 6, including the NCA5 and IPCC. So, to ensure consistency and ability to compare across sources recommended by EQB, the sources provided should be clearer and ideally more consistent with one another. This would mean the state should add the newest projected climate model data for the state to this list. As a final note, we also think the tool and display created for the new data is more user-friendly and easier to interpret. In the tool itself, we have provided automated short text summaries tailored to any chosen geography

that could be copied and pasted into an application like this for specific geographies, including county or much finer scale. The hope is this would lower the bar for both understanding and using these data."

As we don't believe it helps inform the EIS decision, we would suggest either omission, making optional or automatically filling it from the RGU rather than require on the application.

5. 9. Permits and approvals required. MPCA has put together a very nice project flow with this table. It may make sense to first create a table of inputs that leads to this table with if/then type of statements. This table may be a great start to the application to help project proposers.

6. 10. Land uses: i. Why identify existing feedlots within 5 miles? (and seems to be a clerical error here with the question mark) We would recommend removal because this wouldn't inform either an EIS or other permits – the nutrient management plan would seem to consider more as to the turnover of animal manure, where it will be used and when (as well as other parts of the operation). Being a good area of the state for animal feedlots should not be used against proposers in making determinations nor should it necessarily help an application.

7. 10. Land uses: iii Zoning. The "Note: If project is within..." seems very ambiguous as to what the action here should be, and if tribal authorities do not respond. This could be an RGU responsibility through this application. Therefore we believe this Note should be removed until the word "section."

8. 11. Geology, soils and topography/land forms: Would it be useful to add words "Known potential" ahead of manure application sites here and anywhere else it is addressed?

9. 12. b. iii. With the pump test ability to be waived by DNR or unable to be done on time of the rest of the application, MPCA should consider another way to approach on the application. MPCA should also work with DNR to ensure pump tests are done on time or help applicants trigger a pump test with the DNR.

10. 12.b.v.b. and 12.b.v.c manure application. While some planning may be relevant, there are far too many estimations here to be truly useful. Applications should be allowed to point to nutrient management plans rather than answering all these questions.

11. 15. Cultural Resources: The addition of "4) Tribal connections to the site" is redundant to "traditional cultural properties on or in close proximity to the site"

12. 18. GHG Emissions/Carbon Footprint: This is not a carbon footprint – that's a marketing term and should not be used in this scale. This section would also make more sense with the earlier climate information all in one spot for reading purposes for both the proposer and RGU, we believe.

18B.ii. GHG Assessment should be explicitly stated to be allowed to be modified.

Thank you for your consideration of these comments.

Minnesota Milk Producers Association

January 31, 2024

Minnesota Pork Producers Association

Environmental Quality Board EAW Subcommittee

RE: Feedlot Guidance and Environmental Assessment Worksheet Updates

Thank you for the opportunity to comment on the proposed Feedlot Guidance and Environmental Assessment Worksheet Updates. The feedback below is from the Minnesota Pork Producers Association, on behalf of Minnesota's more than 3,000 family pig farmers.

First is on page two of the EAW form, the inclusion of an attachment showing project and/or manure application sites within ten miles of a tribal boundary. For a new required attachment, ten miles is beyond extensive. For consistency purposes, the 1.5 mile radius on the other attachment information for project location could be reasonable.

One page three, section b. and c. are redundant with c. and d.(from page five) being duplicative. We would suggest using a form where the numbers for animal units, acres, gallons, etc. are entered, they are transferred or used to complete the same calculations in other areas of the form. If animal units are used to give a baseline to manure generation based by number of head and species, we believe reducing potential confusion or errors by streamlining the data input process would be helpful for applicants and reviewers.

Climate trends information for the tables on page five could possibly be pulled based on the location of the proposed project, again to limit input error. Furthermore, keeping that input portion dynamic with the latest trend information from the University of Minnesota's Climate Mapping and Analysis Tool or any of the most up-to-date climate change projections for the state. Inclusion of such resources will reduce the need for frequent updates as data collection continues and climate projections change.

We have questions about the calculations and the "Greenhouse Gas Emissions Calculator" that is anticipated to be used on page 18. There are a number of tools and resources farmers use to estimate GHG emissions, however, section B. on page 22 lacks a similar input function to calculate the mitigation and represent the full GHG balance of a project. Additionally, a net lifetime emission factor is difficult to determine as production practices, land use and feed strategies, and genetics change over time.

Overall, we have concerns with the increasing scope of the EAW and would encourage to subcommittee to consider the differentiation of the EAW and where many of these proposed changes would come in a scoping document if a determination for an Environmental Impact Statement (EIS) is made.

Thank you for your consideration of our comments. We look forward to continuing to engage throughout the review process.

Minnesota Pork Producers Association

Minnesota State Cattlemen's Association

This draft Environmental Assessment Worksheet (EAW) is asking producers to utilize Green House Gas (GHG) data that is often times extremely difficult to locate, debatable, controversial, etc. Many producers feel that the effects of GHG on climate change are produced by varying opinions/data. Producers are asked to include data used to determine how climate change is anticipated to affect the general location of the project, but there is varying data that can be found which will offer varying projections.

We are questioning the authority that the MPCA has when it comes to regulating based on climate change and GHG emissions, and once again, we feel that livestock producers are blamed for the negative contributions of GHG emissions, and they are not credited enough for positive contributions.

On page 21, GHG Quantification, producers are asked to calculate GHG emissions. At the end of the paragraph in red, it reads, "Utilize the Feedlot Greenhouse Gas Emissions Calculator, found at XXXX." We are concerned with what calculation system will be utilized here because there isn't a universal agreed upon calculation system. Best Management Practices producers utilize to lessen GHG emissions should be included in this calculation.

Climate trends should not determine whether a feedlot is able to operate in the state of Minnesota. On this form, producers are asked to predict the effects of climate change in their area, but predictions are not proven instances and therefore should not impact the EAW outcome.

Another point we would like to provide comment on is that MPCA wants to be notified if tribal boundaries are within 10 miles of the project, stated on page two. This seems unnecessary, especially since tribes typically regulate within the tribal grounds and 5-mile diameter outside of tribal grounds.

Overall, many of these additions to the EAW seem like an overreach on regulatory authority.

1/30/24

Re: Feedlot Guidance and Environmental Assessment Worksheet Updates

Dear Environment Quality Board EAW Subcommittee,

The Minnesota Turkey Growers Association (MTGA) provides the feedback below on the new feedlot EAW form and guidance document. The MTGA is a trade association representing the interests of approximately 400 turkey producers in the State of Minnesota.

Authority in Minnesota Rules

To begin with, a reminder of exactly what is allowed to be included in an EAW form would be helpful for context. Minn. Rules Part 4410.1200, entitled "EAW Content" states as follows:

The EAW shall address at least the following major categories in the form provided on the worksheet:

- A. identification including project name, project proposer, and project location;
- B. procedural details including identification of the RGU, EAW contact person, and instructions for interested persons wishing to submit comments;
- C. description of the project, the purpose of the project, methods of construction, quantification of physical characteristics and impacts, project site description, and land use and physical features of the surrounding area;
- D. resource protection measures that have been incorporated into the project design;
- E. major issues sections identifying potential environmental impacts and issues that may require further investigation before the project is commenced, including identification of cumulative potential effects;
- F. known governmental approvals, reviews, or financing required, applied for, or anticipated and the status of any applications made, including permit conditions that may have been ordered or are being considered;
- G. if the project will be carried out by a governmental unit, a brief explanation of the need for the project and an identification of those who will benefit from the project; and
- H. an assessment of the compatibility of the project with approved plans of local units of government.

The Statutory authority for the above is found in Minn. Stat. sections 116D.04 and 116D.045. The language above was last amended in November 2009 – almost 15 years ago.

Reference to an EIS

As an overall general comment, much of the proposed new language in the EAW form and the guidance document would be more appropriately placed in the EIS section of Minn. Rules Part 4410.2300. The proposed language appears to be an effort to take a simple EAW checklist and make it into a mini-EIS.

Specific Feedback Re: The Proposed EAW Form

Page 2 of the PDF: asking for the watershed, GPS coordinates, tax parcel number, and tribal boundaries within 10 miles are all outside the scope of Minn. Rules Part 4410.1200 as outlined above and exceed the EQB's authority. None of the proposed language fits within the legal language contained in letters A-H above.

Page 2 of the PDF: asking for the list of data sources, models, and other resources used for information about current Minnesota climate trends and how climate change is anticipated to affect the general location of the project during the life of the project are outside the scope of Minn. Rules Part 4410.1200 as outlined above and exceed the EQB's authority. None of the proposed language fits within the legal language contained in letters A-H above.

Pages 3 of the PDF: asking about infrastructure needs, modifications to existing equipment or industrial processes, demolition, and timing and duration of construction activities are all outside the scope of Minn. Rules Part 4410.1200 as outlined above and exceed the EQB's authority. None of the proposed language fits within the legal language contained in letters A-H above.

Pages 5-11 of the PDF: all of the red and green ink on pages 5-10 and the first three lines on the top of page 11 are outside the scope of Minn. Rules Part 4410.1200 as outlined above and exceed the EQB's authority. None of the proposed language fits within the legal language contained in letters A-H above.

Page 14 of the PDF: the first sentence in blue ink stating "and measures to minimize of mitigate the effects in item b.i. through b.iv below" is outside the scope of Minn. Rules Part 4410.1200 as outlined above and exceeds the EQB's authority. None of the proposed language fits within the legal language contained in letters A-H above. Rather, mitigation measures are specifically addressed as part of an EIS as stated in Minn. Rules Part 1200.2300 (I).

Page 20 of the PDF: all of the red and green ink on page 20 is outside the scope of Minn. Rules Part 4410.1200 as outlined above and exceeds the EQB's authority. None of the proposed language fits within the legal language contained in letters A-H above.

Pages 21-22 of the PDF: all of the red and green ink on pages 21-22 is outside the scope of Minn. Rules Part 4410.1200 as outlined above and exceeds the EQB's authority. None of the proposed language fits within the legal language contained in letters A-H above.

Pages 22-23 of the PDF: all of the red and blue ink regarding “noise” and “transportation” on the bottom of page 22 and the top of page 23 is outside the scope of Minn. Rules Part 4410.1200 as outlined above and exceeds the EQB’s authority. None of the proposed language fits within the legal language contained in A-H above.

Conclusion

As stated at the beginning of these comments, much of the proposed language in the new feedlot EAW form and guidance document is not authorized in Minn. Rules Part 4410.1200 and, therefore, exceeds the EQB’s authority. Acting outside of the authority specifically granted in Minn. Rules Part 4410.1200 will most certainly invite legal challenges. The Agencies would do well to reevaluate their proposed changes to the new feedlot EAW form and guidance document in light of their specific legal authority.

Kindest Regards,



Ashley Kohls
Executive Director
Minnesota Turkey Growers Association



minnesota
well owners organization

PO Box 6275

Rochester, MN 55903

507-273-4961

February 1, 2024

Environmental Review Section

Minnesota Pollution Control Agency

120 Lafayette Rd N

St. Paul, MN 55155

Re: Public comment on draft Alternative Feedlot EAW.

Submitted electronically to:

Broton, Darin (MPCA) <darin.broton@state.mn.us>

"Vanderbosch, Dana (MPCA)"

<dana.vanderbosch@state.mn.us>,

"Waqui, Helen (MPCA)" <helen.waqui@state.mn.us>

The Minnesota Well Owners Organization is a statewide 501(c) (3) nonprofit trying to help ensure safe drinking water at the kitchen tap for every private well owner in Minnesota.

Our Mission is to help ensure safe drinking for the 1.2 million Minnesota private well owners who now depend on groundwater from their private water systems and wells. MnWOO's Mission is to build individual and community values for the protection, enhancement and restoration of Minnesota groundwater through outreach, education, and advocacy and to connect and activate the community of well owners, land managers, water managers and policy makers who steward Minnesota's groundwater.

MnWOO seeks to remove the threats to safe drinking water through actions formed on a foundation of accurate, up-to-date, and practical information that addresses the personal, community, economic, technical, legal and policy barriers faced by private well owners. Our Mission is to motivate private well owners and decision makers to take the individual and collective steps necessary to ensure safe drinking water from all private well for future generations.

We are in support of completing a new standard for EAW's for feedlots in Minnesota.

The EAW should provide context to regional and local environmental risks.

We recommend that the EAW recognize the six Minnesota Groundwater Provinces that address similar soils, bedrock and hydrology similarities of Minnesota's groundwater. Each GW Province may have different aquifer protection standards that should be recognized in the EAW.

EAW's should disclose the best available information about groundwater sensitivity and watershed health of the area and should provide valid weblinks to drinking water data, impaired waters and watershed health.

Water quality risks: feedlot management/nutrient management

We believe that the EAW can be improved by including specific and detailed information about surface water, surface water/groundwater interaction, groundwater sensitivity, and the trends of groundwater contamination. The feedlot EAW should consider manure and all nutrient inputs into the farms using manure. Using published information, an EAW can easily identify the groundwater risks and identify how well head protection and source water protection strategies will be implemented at the permitted facilities. It is a prudent and necessary step to identify the source, transport and fate of nitrate and other farm chemicals originating from feedlots and the row crops using manure.

MNWOO is also concerned about Chemicals of Emerging Concern including pharmaceuticals (antibiotics, growth hormones and endocrine disruptors) used in animal husbandry and in veterinary care. MNWOO is also concerned with the surface water/groundwater interactions and groundwater sensitivity in areas designated for dead animal disposal.

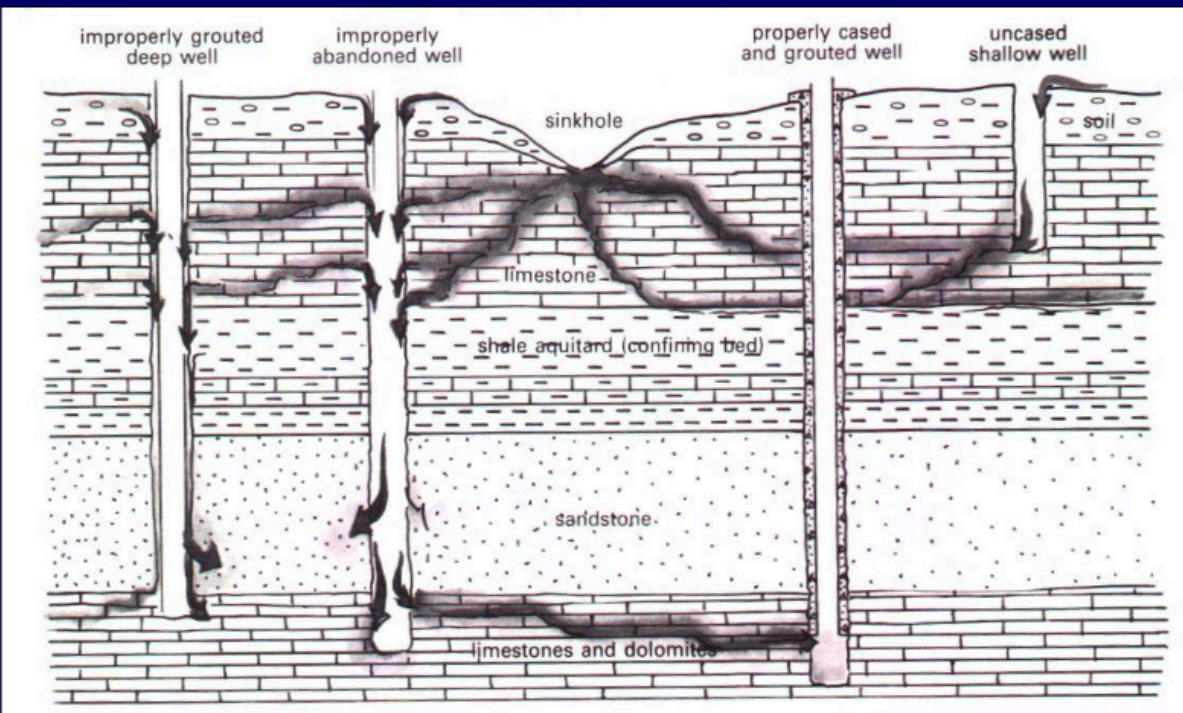
Drinking Water Testing.

MNWOO have been making a standard request in EAW comments for feedlots: Test the drinking water at the facility and report the water quality trends and test the drinking water of all potable water wells withing ½ mile of the feedlot and on the farms and abutting the farms where fertilizer is applied. The standard inclusion of this information in the EAW would be more transparent and allow the feedlot operators, the neighbors and regulators to better manage the risk of drinking water contamination.

High risk and sensitive areas:

Sinkholes and Karst

New well construction is still based on the understanding of contamination movement described by Kingston



MNWOO is concerned about how sinkholes and karst features are usually ignored by feedlots who spread manure over wide areas where surface water is injected into the groundwater at sinkhole sites. Reality contains sinkholes in the karst yet too often the sinkholes are ignored. With tens of thousands of sinkholes these

features must be recognized and managed to prevent groundwater contamination. Any environmental assessment in the karst should include the most updated sinkhole and karst maps and should include maps of setbacks and BMPS proposed to slow groundwater recharge at sinkholes. Minnesota DNR and the MGS now have high-definition LiDAR and stream power assessments that allows the public to see the sinkholes and karst features that are the conduits for groundwater recharge. The detailed sinkhole inventories of the karst counties should be a mandatory map for the new EAW.

The EAW must recognize and address the entire 10-county karst area of SE Minnesota, not just the eight counties in the USEPA Emergency Petition.

MNWOO is a petitioner to the USEPA Emergency Safe Drinking Water Act Order to three Minnesota State Agencies. The USEPA determined that aquifers in eight named karst counties are an imminent health risk to thousands of private well owners and six small communities. The USEPA Order required coordinated efforts to urgently address the thousands of households at risk of drinking nitrate contaminated water from private wells in karst aquifers.

The EAW must specifically recognize the eight counties in the USEPA Order, but should also include the other karst counties (Dakota and Washington), and the EAW karst disclosures should include all the feedlots permitted areas with known nitrate contamination.

Other Sensitive Groundwater Provinces: Central Sands, Western Province:

If a feedlot is in central Minnesota using the Central Sands Aquifers and glacial-alluvial aquifers in the Western Groundwater Province are also susceptible and known to be contaminated with nitrates. Feedlot EAW's must address the nitrate in drinking water issue in these regions. The Minnesota Department of Agriculture Township Well Testing Program shows the high-risk areas. The inclusion of this requirement as a feedlot management risk in the new EAWs is a strong step to coordinating efforts by MPCA, and the Departments of Health and Agriculture to protect the public health through risk management and apply the Safe Drinking Water Act provision to feedlot review. Public health protection requires the Agencies to urgently adopt the same SDWA principles to the karst, the central sands and wherever nitrate contamination of drinking water from feedlots and row crops is a risk.

Identify private wells and shared underground sources of drinking water.

MNWOO recommends that the feedlot EAW should identify each household with a private well at the feedlot on abutting property and on the properties and abutting properties for manure spreading sites. This water well map should define a specific well head management area that may vary between the groundwater provinces. But a typical 300-500 foot radius around each well would highlight the well head protection principles and would provide an effective advisory footprint for private well management and for localized source water protection. A map with a 300 to 500-foot radius from the wells from every occupied household should be included in the Feedlot EAW.

These private wellhead management areas should include available information about the age and construction of the well, at minimum a desk-top assessment of occupied homesites near the feedlots should identify whether the wells have a unique number or are assumed to be drilled and completed before the adoption of the Minnesota Well Coded in 1974.

Conclusion:

Environmental Assessment Review can be made easier and more transparent if feedlot applicants are required to use the risk management maps that have already been developed in the web soil survey, the County Geologic and Hydrologic Atlas, and in Watershed Plans. We cannot allow applicants to pick and choose which risks assessments they present, and we must require feedlot operators to address the known and probable risks.

MNWOO is hopeful that the EAW will promote and encourage drinking water testing and water treatment for households that are potentially impacted by feedlots, manure, and pesticides on row crops.

Sincerely:

Paul Wotzka, MNWOO President

On behalf of the Board of Directors of the Minnesota Well Owners Organization

Attachments: MN Groundwater Provinces

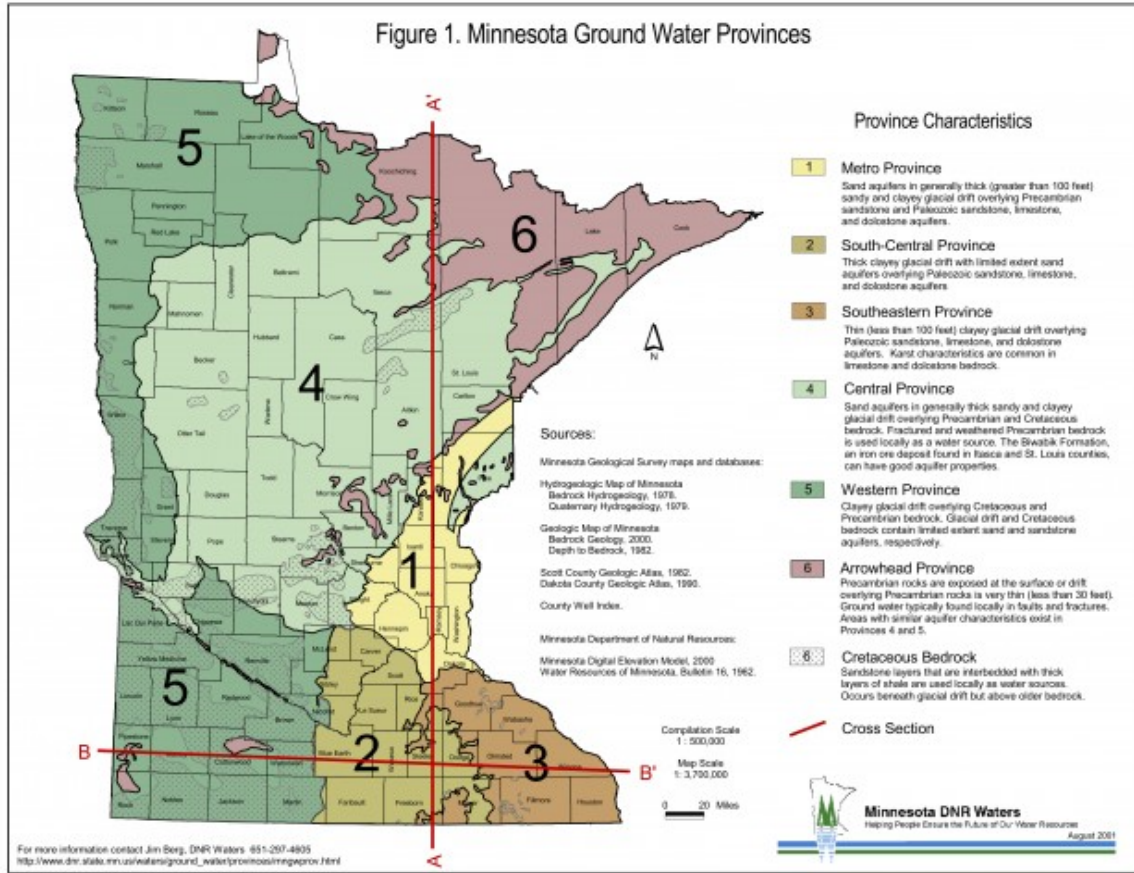


Figure 1. MNDNR Mn Groundwater Provinces

Initial MDA Township Well Testing 2022

Initial Township Testing Private Well Nitrate Results

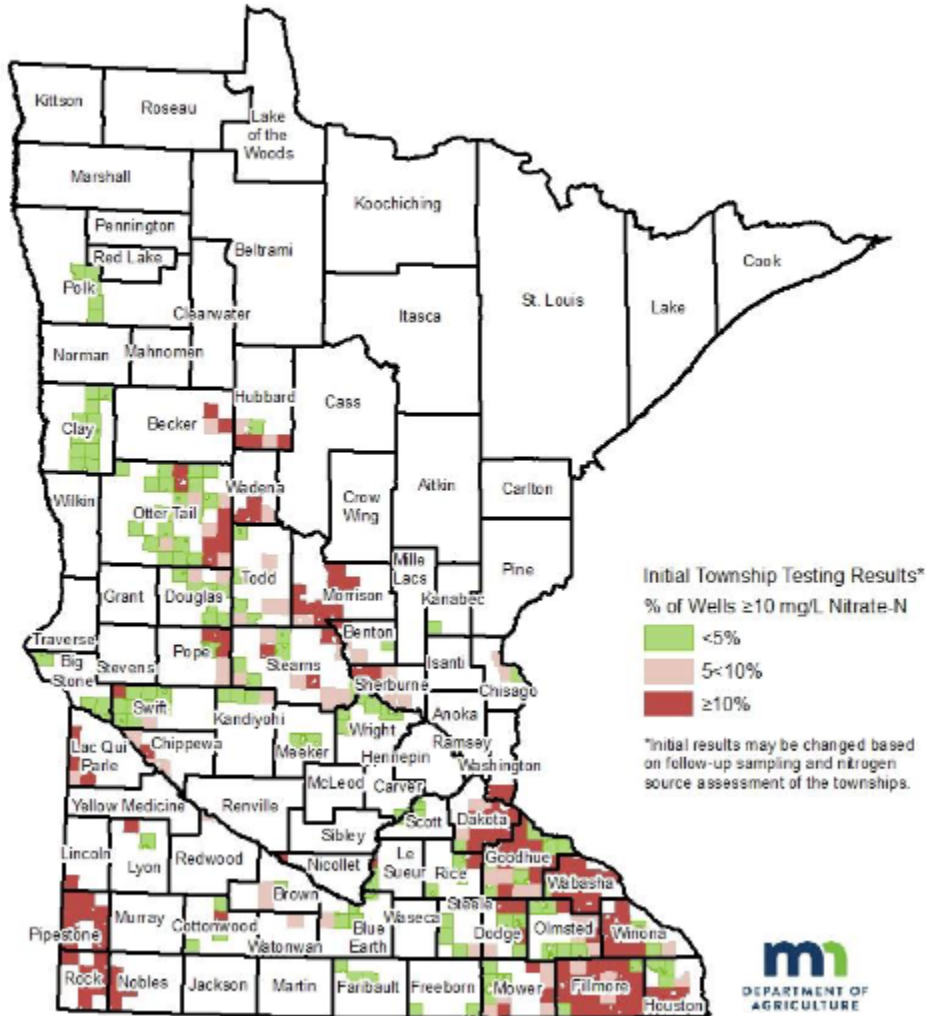


Fig 2. The initial well tests are the best data we have for assessing the actual drinking water quality from private wells. The results show only a subset of the wells used for drinking water.



WHITE EARTH RESERVATION

CHAIRMAN Michael Fairbanks SECRETARY-TREASURER Michael LaRoque
DISTRICT I Henry Fox DISTRICT II Eugene Sommers DISTRICT III Cheryl "Annie" Jackson

2/28/2024

Megen Dvorak Kabele
Project Manager
Minnesota Pollution Control Agency
520 Lafayette Road
St. Paul, MN 55155

Ms. Kabele,

White Earth appreciates the opportunity to submit informal comments on the Draft EAW worksheet and Guidance. White Earth submits the following comments:

Comments for the Environmental Worksheet:

Section 4. First table, Mn Rule 4410.4300 Subp. 29, wording to include Tribal Nations may also issue a permit.

Section 5. Project Location- Include water resource maps here. Surface and groundwater maps. Related to the maps, White Earth requests clarification on where the 1.5 mile radius distance parameter is derived from? Does this distance change depending on the location.

Referring to the Tribal boundary parameter of 10-miles, White Earth recommends to change the proposer's notification from 10-mile radius to 50-mile radius as many Tribes have a Clean Air Act 505(a)(2) airshed boundaries for permitting. This should include all Tribal lands, not just the reservation boundaries.

Section 6. Project Description, Subdivision B- Under the other components section, for the chart of facility components, an area for storage of dead animals should be included.

Subdivision C- add modifications to existing equipment or industrial process to the wording for clarification.

proponents need to be made aware as these may be required by law.

Subsection(iv)(b) Other Surface Waters- Define “indirect environmental effects” in this context. Define or provide guidance in the guidance document what is meant by “in-water Best Management Practices”.

Subsection(v) Manure Management- This section does not make any reference to mitigation efforts or cumulative impact analysis. These should be included in this section.

Subsection(v)(b)(4) White Earth would like clarification on the sentence “Describe any efforts to limit dust and odor to nearby residences and the amount and speed of transfer trucks” Clarification requested on if this is the amount of trucks or the amount of manure transported by trucks or both.

Subsection(v)(c)(5) Manure Land Application (non-transfer) Consider also to the extent practicable impacts to groundwater. Proponents should consider drainage into ANY waterbody and measures used to limit direct or indirect environmental effects on those bodies.

Subsection(v)(d)(1) Manure Application Fields- Section 12(a)(i) has a different mileage requirement. 2-mile radius is too small of a distance. White Earth would like to see consistency in boundaries throughout the EAW and greater distance than 2 miles.

Provide guidance for proponents on what “outstanding resource value water” is and where to find it.

Subsection(v)(d)(2) Map the manure application fields- Need a greater distance than 300 feet. Proponents are required to know waterbodies that are 1-2 miles out. Would like to see the distance at further than 2 miles. Maps should be consistent.

Subsection(v)(d)(4)(e)-Manure application setbacks- Require proponents to identify the source of the setbacks and provide confirmation the project complies with local laws and zoning, including Tribal law.

Subsection(v)(c) Manure Land Application (non-transfer)- Consider potential impacts(direct and indirect, as well as cumulative on ground and surface waters, and climate change on the projects manure management. Have proponents consider mitigation strategies if their proposed projects’ impact(s) are significant.

Section 13 Contamination/Hazardous Materials/Wastes- Include discussion of law in this section. Example: Subsections A through D should require proponent, at the minimum, to describe how their construction, operation, storage, or transfer would comply with the regulatory scheme of the project site and manure application fields. IE- Tribal, federal, state, and other local laws.

Section 15 Cultural Resources- “Close proximity” should be defined. Should be more concise in the description. Should state close proximity to impact resource. Include quantitative value. Tribal connection to site needs to be defined. Definition of “traditional cultural property”.

White Earth would like clarification on the difference between “Traditional cultural property” and “culturally significant sites”. White Earth would like the terms defined in a way to be inclusive of areas that are used by Tribal members exercising/practicing Treaty protected harvesting and

Tribal Connection
Near
Adjacent
Outstanding Resource Value Water
Wastewater (does this include processed waste water)
Indirect vs direct environmental effects
Quality of life

Sensitive Areas- This could include Environmental Justice Areas, including Indian Country.

Section 17 Air- Would like to see clear direction that proponents should analyze manure management here and not just in project operations.

In addition to considering mitigation, would like to see proponents consider cumulative impacts of their project on air quality and odor.

Inclusion of methane emissions as a consideration relevant to climate change. Methane is a known greenhouse gas.

Attaching the study to the application would be useful, in addition to summarizing the results of the study in this section.

Appendix 1: Agency Contacts and Other Resources- Include Tribal Nations within and bordering the State with relevant contacts (i.e. Departments of Natural Resources, etc). Include State Lead Agency Tribal Liaison contact information.

Thank you for this opportunity to provide informal comments on the Minnesota Feedlot Alternative EAW Form Changes and the accompanying Guidance Document. When the State of Minnesota formalizes these documents and enters an official comment period, the White Earth Band of Ojibwe Department of Natural Resources may request a formal consultation and provide the State with our official comments at that time.

The White Earth Band takes this opportunity, to educate the relevant agencies and people of Minnesota, of the White Earth Band's Feedlot Moratorium, Resolution No. 057-23-066A, Ordinance Imposing a Moratorium on Concentrated Animal Feedlot Operation Environmental Hazard Construction Inconsistent With Existing Activates and Land Uses, And Expansion of Concentrated Animal Feeding Operation and Animal Feedlot Operation Environmental Hazard Activities and Land Uses Pending the Study of Possible Regulatory Action.

We look forward to continuing discussions around this matter.

Sincerely,


Michael Fairbanks, Chairman

GUIDANCE

MPCA Environmental Review for Animal Feedlots

This guidance provides supplemental information for feedlot proposers about preparing an Environmental Assessment Worksheet (EAW) using the **Alternative EAW Form for Animal Feedlots**. In addition to informing the public and decision makers, the information disclosed in the EAW is an information gathering process that informs permitting actions. An EAW's purpose is to provide information regarding a project regarding the potential for significant environmental effects. This process will determine if additional environmental analysis is needed through an Environmental Impact Statement. The EAW may also indicate how the project can be modified to lessen its environmental impacts. Such modifications may be imposed as permit conditions.

The Environmental Quality Board also publishes [EAW Guidelines](#) about the EAW process and preparation of an EAW in general. Information in this Guidance may be useful to feedlot proposers when gathering project specific information necessary for preparing the alternative animal feedlot EAW form.

General guidance. The project proposer is required to supply all reasonably accessible data or information to adequately address questions within the EAW form, or as requested by the Responsible Governmental Unit (RGU). The finalized EAW (the version reviewed by the public) is required by law to be prepared by the MPCA. The Minnesota Pollution Control Agency (MPCA) is the RGU for Animal Feedlots that meet unit threshold for mandatory EAWs identified in MN Rule 4410.4300, Subp. 29, unless the county will issue the feedlot permit, in which case the county is the RGU. However, the county is not the RGU prior to January 1, 2001.

Pre-application Meeting. MPCA strongly recommends a pre-application meeting with MPCA Environmental Review Unit and relevant permit programs. This meeting will help to clarify the proposed project scope, desired construction timeframes, applicable MPCA EAW and permit requirements and respective processes necessary to complete both in a timely manner.

Item-specific guidance

1. Enter the same name used on application for feedlot permits. The name listed on the EAW should indicate the animal species. If there could be confusion with another similarly named feedlot, a geographic reference should be added (township name and, if needed, section number). An example of a complete name is: *Joe Jones Swine Facility – Norway Township*.
2. The Feedlot Proposer is the entity that has applied for or would receive the approval for the project and not a consultant, attorney, or other entity or person representing the proposer.
 - 2a. The person listed as the contact should be familiar with the technical nature of the project and the data provided on the EAW form. The contact may be an engineer or other consultant if so desired by the proposer.
3. The RGU for Animal Feedlots is the MPCA -Environmental Review Unit or the Local Government Unit (LGU). The MPCA will complete this section upon receipt.

6. Project Description. If this project is an expansion of an existing feedlot, or if there may be future expansions, it may result in a “connected or phased action.” Minnesota Rule requires all parts of a connected or phased action be reviewed, which could impact what is covered in the EAW. Connected and phased actions are discussed in [Guide to Minnesota Environmental Review Rules \(May 2010\)](#). Questions about phased actions can be referred to the RGU.

Tables 1 and 2 show the mandatory EAW and exemption categories **effective July 1, 2003** for construction of **new** animal feedlots (Table 1) and **expansion** of existing feedlots (Table 2). The boxes below provide definitions of terms used in the tables and the conditions established by the legislature that a feedlot must meet to be eligible for the new exemptions.

For further information visit the EQB website at: www.eqb.state.mn.us/review.html.

Table 1 New Animal Feedlot Construction

Number of animal units is...	<i>Non-sensitive areas</i>		<i>Sensitive areas</i>	
	Exempt?	EAW Mandatory?	Exempt?	EAW Mandatory?
1000 or more	No	Yes	No	Yes
more than 500 but less than 1000	Yes, if exemption conditions met. See box.	No	No	Yes
300 or more but less than 500	Yes, if exemption conditions met. See box.	No	No	No
50 or more but less than 300	Yes	No	No	No
less than 50	Yes	No	Yes	No

Table 2 Expansion of Existing Animal Feedlot

Number of animal units added is...	Total number of animal units after construction is...	<i>Non-sensitive areas</i>		<i>Sensitive areas</i>	
		Exempt?	EAW Mandatory?	Exempt?	EAW Mandatory?
1000 or more	1000 or more	No	Yes	No	Yes
more than 500 but less than 1000	less than 1000*	Yes, if exemption conditions met. See box.	No	No	Yes
100 or more but less than 500	less than 1000*	Yes, if exemption conditions met. See box.	No	No	No
50 or more but less than 100	Not applicable	Yes	No	No	No
less than 50	less than 50	Yes	No	Yes	No

* If the total cumulative capacity of the animal feedlot is 1000 animal units or more, then the feedlot is not exempt.

for New Construction between 300 and 1000 animal units and Expansion between 100 and 1000 animal units (see tables)

Such animal feedlots are exempt if:

1. The application for the animal feedlot includes a written commitment by the proposer to design, construct and operate the facility in full compliance with Minnesota Pollution Control Agency (MPCA) feedlot rules; and
2. The county board holds a public meeting for citizen input at least ten business days before the MPCA or county issues a feedlot permit unless another public meeting for citizen input has been held with regard to the feedlot to be permitted.

The MPCA has revised the feedlot permit application form to incorporate additional language satisfying condition #1.

For suggestions about holding a public meeting for citizen input consult “New Exemptions for Environmental Review of Feedlots From 2003 Legislative Session” (available at the EQB website under Feedlot Environmental Review at: www.eqb.state.mn.us/review.html)

Glossary

Animal units: EQB’s rules use animal units as defined in the MPCA chapter 7020 rules.

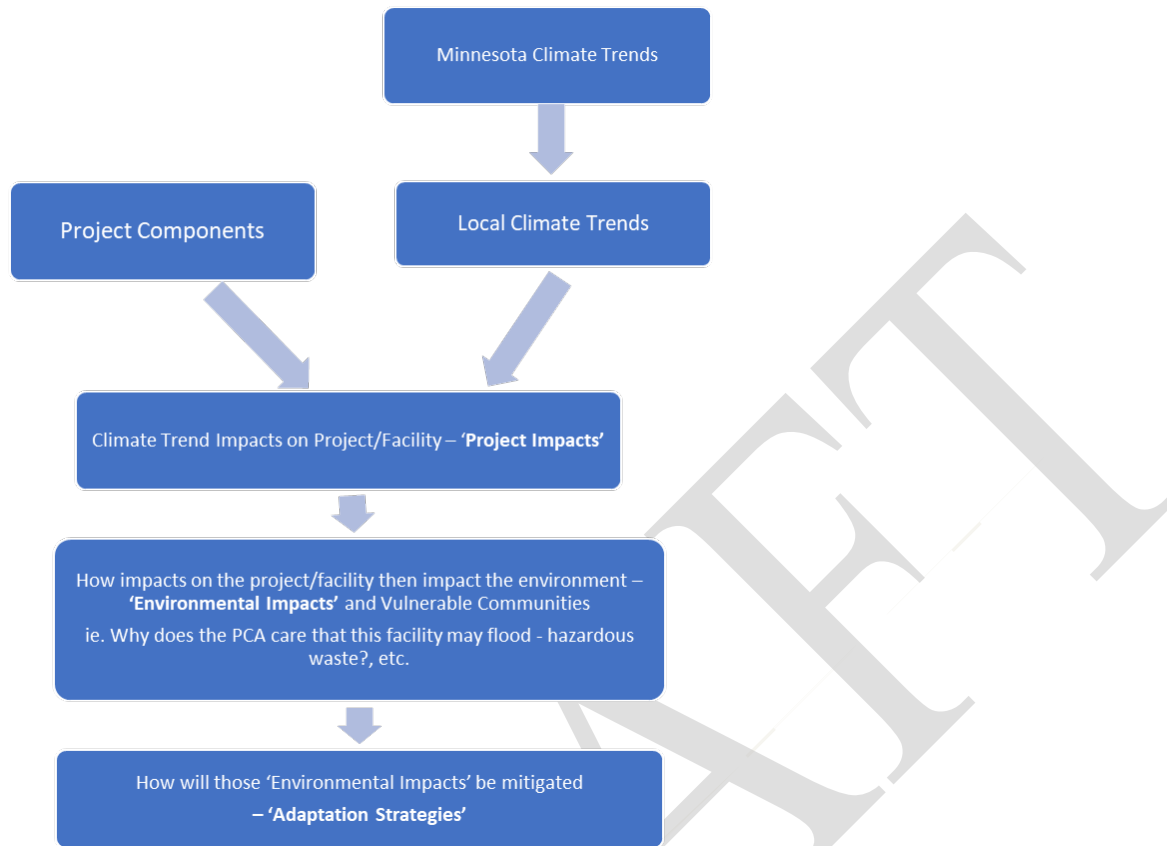
Sensitive areas are shorelands; delineated flood plains (along Red River only includes 1,000 feet from bank); federal, state or local wild and scenic river districts; within 1,000 feet of a karst feature (sinkhole, cave, disappearing spring, resurgent spring, karst window, dry valley or blind valley); and vulnerable parts of delineated drinking water supply management areas. Include perhaps cultural/historic places, outstanding resource value waters...

Mandatory EAW: An EAW is legally required.

Exempt: No EAW can be required under any circumstances by any unit of government.

7. Climate Adaptation and Resilience. It is beneficial for the proposer to clearly make the connection(s) between local climate trends and project components so reviewers can evaluate impacts to the proposed project, the surrounding area and how the impacts will be considered in the design, construction, operation, and maintenance of the project over its projected lifetime. Utilize Section 3 in the standard [EAW Guidelines for Climate Adaptation and Resilience](#) for additional clarification and examples.

Figure 1. Climate Adaptation and Resilience Review Process



7a. Climate Trends

Minnesota's climate already is changing rapidly and will continue to do so for the foreseeable future. Temperatures are increasing -- especially in winter -- and larger, more frequent extreme precipitation events are occurring. Substantial warming during winter and at night, increased precipitation, and heavier downpours already have affected our natural resources, and how we interact with and use them. The decades ahead will bring even warmer winters and nights, and even larger rainfalls, along with the likelihood of increased summer heat and the potential for longer dry spells ([MN DNR - Climate Trends](#)).

The following climate trends and projects are identified in this section and are expected to continue into the future:

Climate Trends (data-driven):

- Average annual temperature increasing
- Average annual precipitation increasing
- Winter minimums increasing
- Nighttime temperatures increasing
- Extreme events increasing

Projected climate change (model-driven):

- Increasing risk of heat waves

- Increasing risk of drought

These trends are identified the tables below and are further described in Section 3 of the [2023 EQB Guide to climate adaption and resilience](#).

DRAFT

<p>State of Minnesota Climate Trends (data driven) & Projected Climate Change (model driven)</p>	<p>Climate Trend Tools for County / Local Trends</p>
<p>Increasing Temperature 1. Average annual temperature increasing</p>	<p>Minnesota Climate Trends</p> <ul style="list-style-type: none"> • Choose Geographic Unit • Data Option Selections: <ul style="list-style-type: none"> Average Temperature Time Scale: 12 months Month Ending: December Data Start Year: 1980 Data End year: Current year • Compare Years and Show Trend starting in 1980 – Current Year • Plot Data
<p>Increasing Precipitation 2. Average annual precipitation increasing</p>	<p>Minnesota Climate Trends</p> <ul style="list-style-type: none"> • Choose Geographic Unit • Data Option Selections: <ul style="list-style-type: none"> Precipitation Time Scale: 12 months Month Ending: December Data Start Year: 1980 Data End year: Current year • Compare Years and Show Trend starting in 1980 – Current Year • Plot Data
<p>Increasing Temperature 3. Winter minimums increasing</p>	<p>Minnesota Climate Trends</p> <ul style="list-style-type: none"> • Choose Geographic Unit • Data Option Selections: <ul style="list-style-type: none"> Minimum Temperature Time Scale: 4 months Month Ending: March Data Start Year: 1980 • Compare Years and Show Trend starting in 1980 – Current Year • Plot Data
<p>Increasing Temperature 4. Nighttime temperatures increasing</p>	<p>Minnesota Climate Trends</p> <ul style="list-style-type: none"> • Choose Geographic Unit • Data Option Selections: <ul style="list-style-type: none"> Minimum Temperature Time Scale: 4 months Month Ending: March Data Start Year: 1980 • Compare Years and Show Trend starting in 1980 – Current

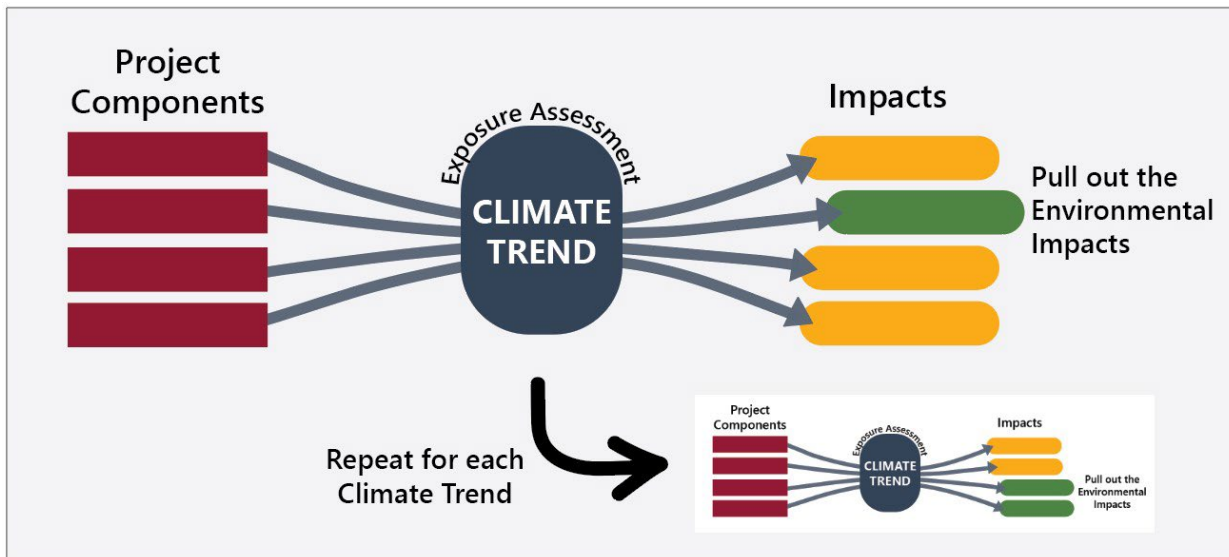
	Year
	Plot Data
<p>Increasing Precipitation</p> <p>5. Extreme events increasing</p>	<p>Minnesota Climate Trends</p> <ul style="list-style-type: none"> Choose Geographic Unit Data Option Selections: <ul style="list-style-type: none"> Precipitation Time Scale: 4 months Month Ending: March Data Start Year: 1980 Compare Years and Show Trend starting in 1980 – Current Year <p>Plot Data</p>
<p>Projected climate change:</p> <ul style="list-style-type: none"> Increasing risk of heat waves 	<p>Minnesota Climate Explorer</p> <ul style="list-style-type: none"> Choose Geographic Unit Click on Projected Future Select Climate Variable <ul style="list-style-type: none"> Maximum Temperature Time Scale: 3-months Month Ending: August <p>Plot Data</p>
<p>Projected climate change:</p> <ul style="list-style-type: none"> Increasing risk of drought 	<p>Minnesota Climate Explorer</p> <ul style="list-style-type: none"> Choose Geographic Unit Click on Projected Future Select Climate Variable <ul style="list-style-type: none"> Precipitation Time Scale: 3-months Month Ending: August <p>Plot Data</p>

Resources used to determine Climate Trends:

	Climate Trend Tools	Tool Used in EAW	How tool was used
	From EQB guidance		
Current Trends	Minnesota Climate Trends		
Projected Changes	Minnesota Climate Explorer		
Climate Hazard Projections	Climate Mapping for Resilience and Adaptation (CMRA) Assessment		
	Climate Resilience Evaluation and Awareness Tool (CREAT)		
	Climate Change Scenarios Projection Map		
	Risk Factor		
Additional Information Sources	National Climate Assessment (NCA4 Volume II or more recent), especially Chapter 21: Midwest; Chapter 28: Reducing Risk; Maps in Chapters 6 & 7.		
	Intergovernmental Panel on Climate Change Assessment Report (IPCC 6 or more recent) and Interactive Atlas		
	National Oceanic and Atmospheric Administration (NOAA) Climate.gov		
	Additional Resources used by Project Proposer		

7b. Project Interaction with Climate Trends. Review of the interactions between the project components with the climate trends follows the Exposure Assessment process as illustrated in Figure 2. Each individual project component is compared against the identified climate trend to evaluate the potential impacts and determine which may impact the environment.

Figure 2. Exposure Assessment



To understand how this project and the above outlined Climate Trends could impact the environment, it is important to understand what components of the project are being affected. Identify relevant project components under the **Feedlot Project Information** in the Table XX below. Project Components include all the new (or removed) elements of this project that could be affected by the climate trends, including elements of the site design and the processes/activities happening at the site.

For each Resource Category in Table XX (**Project Design, Land Use, Contamination/HazMat/Wastes**): Describe how the project’s proposed activities and how the project’s design will interact with the described climate trends and projections, described in 7a. Describe proposed adaptations to address the climate change risks and vulnerabilities identified.

Resource Categories

Project Design - How climate change is anticipated to affect the design of the project, such as changes to land cover, construction materials, site design, etc.

Land Use – The compatibility of activities with land use, planning and zoning, as it relates primarily to the development and the projected climate changes for the project location.

Contamination / Hazardous Materials / Wastes – Describe any operational concerns due to warmer, wetter weather with more extreme rainfall events and localized flooding such as increased leaching, erosion, and sedimentation.

Utilize the table below to list proposed activities and describe how each of these activities will interact with each climate trend and projection listed in 7a. *Examples are in italics, below.*

Resource Category	Climate Trends & Climate Projections	Project Information (Components of Proposed Activities)	Potential Environmental Impacts Address <i>Anticipated Climate Change Hazards</i> : storm intensity, flooding, extreme heat, drought, and wildfire	Adaptation Strategies (with applicable timeframe - construction, near-term, long-term)
Project Design	Increasing Temperature <ul style="list-style-type: none"> Average Temperature Increasing 	<i>Example: Increased impervious surfaces.</i>	<i>Environmental Impact not foreseen with interaction between impervious surfaces and average temperature increasing.</i>	N/A
		<i>Increased constructed surfaces, such as dark roofing and asphalt.</i>	<i>Increased heat absorption during the day that is radiated at night, which increases heat island effect and amplifies warming temperatures of climate change.</i>	<i>Use of light-colored building materials and surfaces to reduce heat absorption. Regular maintenance and updates to infrastructures, as needed, for life of project.</i>
		<i>Increased quantity of concrete and building construction materials, and infrastructure.</i>	<i>Infrastructure more vulnerable to damage and deterioration from elevated temperatures.</i>	<i>Use of construction materials that are resilient to increasing temperatures for the life of the project.</i>
		<i>(List others, as appropriate)</i>		

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Resource Category	Climate Trends & Climate Projections	Project Information (Components of Proposed Activities)	Potential Environmental Impacts Address <i>Anticipated Climate Change Hazards:</i> storm intensity, flooding, extreme heat, drought, and wildfire	Adaptation Strategies (with applicable timeframe - construction, near-term, long-term)
	Increasing Temperature <ul style="list-style-type: none"> • Winter Minimum Temperature Increasing 	<i>Increased impervious surfaces.</i>	<i>Increased seasonal melting periods, creating risk of localized flooding in immediate and generalized area of the project, in addition to other stormwater effects, especially when vegetative buffers are absent.</i> <i>Reduced site vegetation during winter thaw and increased stormflow velocity over frozen ground, increasing soil erosion and stream sedimentation.</i>	<i>Utilize best management practices and management solutions to contain stormwater and mitigate the impacts of rural development on stream ecosystems.</i> <i>Vegetate with a plant mix more tolerant of long-term changes in precipitation or temperature.</i>
		<i>Increased constructed surfaces, such as dark roofing and asphalt.</i>	<i>Increased heat absorption during the day that is radiated at night, which increases heat island effect and amplifies warming temperatures of climate change.</i>	<i>Use of light-colored building materials and surfaces to reduce heat absorption. Regular maintenance and updates to infrastructures, as needed, for life of project.</i>
		<i>Increased quantity of concrete and building construction materials, and infrastructure.</i>	<i>Infrastructure more vulnerable to damage from elevated temperatures over more days during the year.</i>	<i>Use of construction materials that are resilient to increasing temperatures for the life of the project.</i>
		<i>(List others as appropriate)</i>		
	Increasing Temperature <ul style="list-style-type: none"> • Nighttime Temp Increasing 	Repeat Project Components for each Climate Trend ↓		

UNFORMATTED DRAFT

Resource Category	Climate Trends & Climate Projections	Project Information (Components of Proposed Activities)	Potential Environmental Impacts Address <i>Anticipated Climate Change Hazards</i> : storm intensity, flooding, extreme heat, drought, and wildfire	Adaptation Strategies (with applicable timeframe - construction, near-term, long-term)
	Increasing Precipitation <ul style="list-style-type: none"> Average Annual Precipitation Increasing 			
	Increasing Precipitation <ul style="list-style-type: none"> Extreme Precipitation Events Increasing 			

UNFORMATTED DRAFT

Resource Category	Climate Trends & Climate Projections	Project Information (Components of Proposed Activities)	Potential Environmental Impacts Address <i>Anticipated Climate Change Hazards</i> : storm intensity, flooding, extreme heat, drought, and wildfire	Adaptation Strategies (with applicable timeframe - construction, near-term, long-term)
	<ul style="list-style-type: none"> Increasing risk of heatwaves 			
	<ul style="list-style-type: none"> Increasing risk of drought 			

Resource Category	Climate Trends	Project Information (Proposed Activities)	Potential Environmental Impacts Address <i>Anticipated Climate Change Hazards</i> : storm intensity, flooding, extreme heat, drought, and wildfire	Adaptation Strategies (with applicable timeframe - construction, near-term, long-term)
Land Use	Increasing Temperature	<i>Increased groundwater use.</i>	<i>Environmental Impact not foreseen with interaction between increased groundwater use and average temperature increasing.</i>	N/A

Resource Category	Climate Trends	Project Information (Proposed Activities)	Potential Environmental Impacts <i>Address Anticipated Climate Change Hazards: storm intensity, flooding, extreme heat, drought, and wildfire</i>	Adaptation Strategies <i>(with applicable timeframe - construction, near-term, long-term)</i>
	<ul style="list-style-type: none"> Average Temperature Increasing 	<p><i>Increased manure storage volume.</i></p>	<p><i>Increased risk of catastrophic spills, affecting water quality, wildlife, and wildlife habitat.</i></p>	<p><i>Follow manure hauling and application best management practices outlined in Manure Management Plan.</i></p> <p><i>Regular inspections of manure storage facilities and hauling equipment.</i></p> <p><i>Advise employees of emergency procedures in event of spill.</i></p>
		<p><i>Removal of site vegetation.</i></p>	<p><i>Increased risk of erosion, sedimentation, and pollution into nearby waterways and streams. This is amplified by increased precipitation and increased intensity of storms.</i></p>	<p><i>Utilize intermittent reclamation practices during construction to reduce erosion and establish permanent vegetation as soon as construction is complete.</i></p> <p><i>Follow SWPP practices during construction.</i></p> <p><i>Vegetate with a plant mix more tolerant of long-term changes in precipitation or temperature.</i></p>
		<p><i>(List others as appropriate)</i></p>		
	<p>Increasing Temperature</p> <ul style="list-style-type: none"> Winter Minimum Temperature Increasing 	<p><i>Repeat Project Components for each Climate Trend ↓</i></p>		

Resource Category	Climate Trends	Project Information (Proposed Activities)	Potential Environmental Impacts <i>Address Anticipated Climate Change Hazards: storm intensity, flooding, extreme heat, drought, and wildfire</i>	Adaptation Strategies (with applicable timeframe - construction, near-term, long-term)
	Increasing Precipitation <ul style="list-style-type: none"> • Extreme Precipitation Events Increasing 			
	<ul style="list-style-type: none"> • Increasing risk of heat waves 			
	<ul style="list-style-type: none"> • Increasing intensity of drought 			

Resource Category	Climate Trends	Project Information (Proposed Activities)	Potential Environmental Impacts <i>Address Anticipated Climate Change Hazards: storm intensity, flooding, extreme heat, drought, and wildfire</i>	Adaptation Strategies (with applicable timeframe - construction, near-term, long-term)
Contamination/ Hazardous Materials/Waste s	Increasing Temperature • Winter Minimum Temperature Increasing			
	Increasing Temperature • Nighttime Temp Increasing			

Resource Category	Climate Trends	Project Information (Proposed Activities)	Potential Environmental Impacts <i>Address Anticipated Climate Change Hazards: storm intensity, flooding, extreme heat, drought, and wildfire</i>	Adaptation Strategies (with applicable timeframe - construction, near-term, long-term)
	Increasing Precipitation <ul style="list-style-type: none"> Average Annual Precipitation Increasing 			

Resource Category	Climate Trends	Project Information (Proposed Activities)	Potential Environmental Impacts <i>Address Anticipated Climate Change Hazards: storm intensity, flooding, extreme heat, drought, and wildfire</i>	Adaptation Strategies (with applicable timeframe - construction, near-term, long-term)
	<ul style="list-style-type: none"> Increasing intensity of drought 			
Water Resources	<i>Address in Item 12</i>	<i>Address in Item 12</i>	<i>Address in Item 12</i>	<i>Address in Item 12</i>
Fish, Wildlife, Plant Communities, and Sensitive Ecological Resources (rare features)	<i>Address in Item 14</i>	<i>Address in Item 14</i>	<i>Address in Item 14</i>	<i>Address in Item 14</i>

8. Cover Types. [See standard EAW Climate Guidance](#) to identify acreage of Cover Types as it relates to Green Infrastructure.

9. Permits and Approvals required. Note that *final decisions are prohibited until all appropriate environmental review has been completed.* See Minnesota Rules, Chapter 4410.3100.

10. Land uses. Local planning and zoning officials, including tribal governments, should be consulted about the consistency of the project with any applicable local ordinances. It may be prudent to obtain a letter from the local unit documenting project consistency with local ordinances, and to attach a copy to the EAW submission. For projects on or near Indian Reservations/tribal lands/Indian Country, ensure the proposed project is consistent with tribal law therefore best practice is to contact relevant tribal officials and obtain a letter documenting the project's consistency with tribal law.

11. Geology, soils and topography / land forms. Distinguishes geological characteristics of the project site versus manure application site(s).

12. Water Resources. Describe surface water and groundwater features on or near the project site and manure application areas in the table and on attached maps. Indicate whether any **geologic site hazards to ground water or sensitive areas to surface waters** are present at the feedlot, manure storage area, or manure application sites. If Yes, describe the features, show them on a map, and discuss proposed design and mitigation measures to avoid or minimize potential impacts. If known, address any cumulative impacts of the proposed project or expansion to these water resources.

Water appropriation. If the project uses more than 10,000 gallons per day or 1 million gallons per year, a permit application is required by DNR to appropriate water. ([Minn. Stat. 103G.287](#)) For projects on or near Indian Reservations, a tribal permit application may be required for water appropriation. Contact relevant tribal officials for more information if your project is on or near an Indian Reservation.

Other surface waters. In addition to the standard EAW requirements, describe permanent controls to manage or treat runoff. Identify water resources affected and give the DNR Protected Waters Inventory number (PWI) if the water resources affected are on the PWI. Describe proposed mitigation measures to avoid or minimize impacts.

Manure management. Give a brief description of how manure will be collected, stored, transferred (if applicable), and applied at this facility. Include a description of any manure processing activities such as liquid solid separation and anaerobic digestion. Attach copy of Manure Management Plan (MMP). If an anaerobic digester will process manure, list any other feedstocks used in the digester.

14. Fish, wildlife, plant communities, and sensitive ecological resources (rare features)

The DNR Division of Ecological and Water Resources maintains the Natural Heritage Information System (NHIS), a collection of databases that provides the most comprehensive information on Minnesota's rare natural features (e.g., MBS Sites of Biodiversity Significance, DNR Native Plant Communities). The NHIS public layers are available to view via the Minnesota Conservation Explorer (MCE) or to download from the Minnesota Geospatial Commons. To identify potential impacts to rare features, request a Natural Heritage Review via the Minnesota Conservation Explorer. MCE will automatically assess potential impacts to Minnesota's rare features and provide a Natural Heritage Review letter or a notice that further review by DNR staff is needed before a Natural Heritage Review letter can be issued. The Natural Heritage Review letter informs project proposers of any potential impacts to rare features and includes actions to follow state law and recommended measures to avoid or minimize disturbance to ecologically significant areas or state-listed species. The Natural Heritage Review letter should be attached to the EAW and the project proposer should address all issues mentioned in the letter when answering Question 14 of the EAW.

To identify potential impacts to federally listed species, conduct a federal regulatory review using the U.S. Fish and Wildlife Service's (USFWS) online Information for Planning and Consultation (IPaC) tool. Use the information provided when answering Question 14 of the EAW.

Missing the following sections guidance information – 15 (Cultural Resources), 16 (visual).

15. Cultural Resources needs definitions of “traditional cultural properties,” “close proximity,” and “tribal connections” all need definitions or consistent terms should be used throughout the EAW worksheet.

Guidance should also be provided here to contact not only the SHPO but also the THPO (Tribal Historic Preservation Officer).

16. Visual needs to address or alert proponents to check with local (including tribal) ordinances and zoning in their area regarding visual effects.

17. Air. If no mitigations or design features are proposed or they are not considered sufficient by the RGU, then an air quality/odor modeling study must be performed to calculate emissions and impacts. The study and its results must be summarized in the EAW to provide information about the potential for significant air or odor impacts.

To address potential cumulative air impacts, the modeling must include appropriate background concentrations for hydrogen sulfide. Guidance on obtaining an appropriate background hydrogen sulfide concentration can be found in *Guidelines on Air Quality Models*, 40 CFR Ch. I (7–1–99 Edition), Appendix W to Part 51 (section 9.2). This document can be found at http://www.epa.gov/scram001/guidance/guide/appw_99.pdf Appendix 4 is a letter from the Commissioner of the PCA providing further information about the current requirements for air quality cumulative impacts analysis.

It is recommended that a modeling protocol be developed by the proposer and reviewed by the MPCA in a pre-application meeting before the modeling study is undertaken.

Missing the following sections guidance information – 18 (GHG Emissions/Carbon Footprint), 19 (Noise).

18. GHG Emissions/Carbon Footprint would like to clearly see a discussion of methane here not just CO2! Since this whole proposed section is new, I think it's necessary there's guidance for it in the guidance document. This section needs to be worked on.

19. Noise needs a discussion of how a project proponent determines the effect of noise in the vicinity of the project and define what is considered vicinity as it relates to noise. Reference state, local, tribal, and potentially federal noise standards. Quality of life is referenced in this section and needs more guidance as to how this should be considered by a proponent! For example the cumulative impact of the proposed project on noise in the area, environmental justice concerns (Minn. Stat. 116.065).

20. Transportation

Use the format and procedures described in the Minnesota Department of Transportation's Access Management Manual, Chapter 5 (*available at: <http://www.dot.state.mn.us/accessmanagement/resources.html>*) or a similar local guidance.

Missing the following sections guidance information – 21 (Cumulative potential effects), 22 (Other Potential Environmental Effects).

21. Cumulative Potential Effects glad this is here but it needs guidance for the proponent! Consider environmental justice concerns, particularly when projects are on or near Indian Country....

Appendix 1. Agency Contacts and Other Resources

The following agencies may review an EAW or provide information on how to appropriately respond to questions on the EAW form.

State agencies

Environmental Quality Board	651-757-2873
Department of Agriculture	651-296-1488
Department of Health	651-215-0807
Department of Natural Resources	651-296-4796
(or the regional office indicated on the DNR map below)	
Department of Transportation	651-779-5094
Metropolitan Council	651-602-1000
Data Center	651-602-1140
Environment Resource Planning and Management	651-602-1145
Environmental Services	651-602-1005
Minnesota Geological Survey	612-627-4780

Minnesota Historical Society 651-296-5462
Minnesota Planning 651-296-3985
Datanet 651-296-6866

Pollution Control Agency
Environmental review coordinator 651-296-7398

Federal agencies

Army Corps of Engineers 651-290-5200
Fish and Wildlife Service 612-713-5300

Natural Resources Conservation Service (check local phone
directory blue pages)

Other resources

Minnesota Department of Transportation county highway maps: These maps show all roads, national and state parks, forests, wildlife management areas and refuges.

MnDOT Map Sales 651-296-2216
<http://www.dot.state.mn.us/maps.shtml>

U.S. Geological Survey maps: These 7.5-minute maps are available for the entire state from local map dealers and government agencies.

Minnesota Geological Survey 612-627-4780
<http://www.geo.umn.edu/mgs>

U.S. Geological Survey 800-ASK-USGS
<http://mapping.usgs.gov>

Aerial photographs: Aerial photography of Minnesota is available for much of the state in several different scales.

For forested regions:

Department of Natural Resources
Division of Forestry 218-327-4449

<http://www.ra.dnr.state.mn.us/photos>

For Twin Cities metropolitan area:

Regional Data Center..... 651-602-1140
<http://www.metrocouncil.org>

For all of state:

EROS Data Center 605-594-6151
Sioux Falls, South Dakota <http://edcwww.cr.usgs.gov>

Soils and geological data: Soil surveys are available for many Minnesota counties. Soil survey information is available from the Natural Resources Conservation Service at 651-602-7891. For a report on the status of soil mapping in Minnesota, see <http://www.mnplan.state.mn.us/press/soilsrpt.html>

The Minnesota Geological Survey has a variety of geological maps and publications that may be helpful for some EAWs. Contact the Minnesota Geological Survey at 612-627-4780 or the USGS at 612-783-3100; <http://www.mn.cr.usgs.gov>

Appendix 2: Glossary of Karst Terms

The following definitions are extracted from *A Glossary of Minnesota Karst Terminology*, Jeffrey A. Green, MnDNR, and Calvin A. Alexander, Jr., University of Minnesota, May 1999.

Blind valley: A valley that terminates abruptly at a point where its stream sinks, or once sank, underground. As sinks develop higher up the blind valley, the original valley termination may be dry under most flow conditions.

Cave: A natural underground room or series of rooms and passages large enough to be entered by a man; generally formed by solution of limestone.

Dry valley: Valley that lacks a permanent surface stream. Dry valleys are common on carbonate rocks with good primary permeability, such as the chalk, and occur on other permeable rocks such as sandstone. Dry valleys on cavernous limestone were formed when streams flowed on the surface, either before secondary permeability and cave systems developed, or when caves were blocked by ground ice in periglacial climates. The valleys became dry when underground drains formed or were re-opened, capturing first part and then all of the surface drainage.

Karst: (noun): A landscape created on soluble rock with efficient underground drainage. Karst is characterized by caves, dolines, a lack of surface drainage and other climatically controlled features, and is mainly, but not exclusively, formed on limestone. The name derives from the German form of Kras – the Classical Karst straddling the border between Slovenia and Italy. In this original, temperate, karst the dominant landforms are dolines, but contrasting landscapes are the pinnacle, cone, and tower karsts of the tropics, and the fluviokarst and glaciokarst of colder climates. The uncapitalized term “kras” originally denoted bare, stony ground in the Slovene language. (adjective) Features, characteristics or functions produced by the solution of soluble geologic materials.

Karst window: Depression revealing a part of a subterranean river flowing across its floor, or an unroofed part of a cave.

Resurgence: Point at which an underground stream reaches the surface and becomes a surface stream. In European literature, the term is reserved for the reemergence of a stream that has earlier sunk upstream.

Sinkhole: General terms for closed depression. They may be basin, funnel, or cylindrical shaped.

Spring: Any natural discharge of water from rock or soil onto the surface of the land or into a body of surface water.

Appendix 3: Acceptable Feedlot Air Quality Mitigation Practices

This document is intended as guidance to assist producers and regulators in their review of various feedlot air quality control measures and practices. This information is compiled based on a review of scientific literature, demonstration projects and ongoing research efforts by the University of Minnesota Biosystems and Agricultural Engineering Department.

Production unit (livestock building and manure storage) odor control options			
System:	Description:	Advantages:	Disadvantages:
Oil Sprinkling	Vegetable oil is sprinkled daily at low levels in the animal pens.	Helps in the reduction of airborne dust and odors.	Creates an oily environment and greasy residue on the floor and pen partitions if too much oil is sprinkled.
Biofilters	Odorous gases are passed through a bed of compost and wood chips; bacteria and fungal activity help oxidize organic volatile compounds.	Reduces odor and hydrogen sulfide emissions effectively.	May need special fans because of pressure drop.
Biological and chemical wet scrubbers	Odorous gases are passed through a column packed with different media types; water (and/or chemical) is sprayed over the top of the column to help optimize biological and chemical reactions.	Reduces odors, H ₂ S, and NH ₃ emissions effectively	Capital and operational costs; disposal of collected pollutants.
Washing Wall	A wetted pad is installed in a stud wall about 5 feet upwind of ventilation fans and downwind of hog in a tunnel ventilated building.	Dust reduction of 50% and 33% reduction of ammonia at medium ventilation rates.	For tunnel ventilated buildings only. No documentation on odor reduction.

Solid Composting	Biological process in which aerobic bacteria convert organic material into a soil-like manure called compost; it's the same process that decays leaves and other organic debris in nature.		
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Natural Crust	Dairy and sometimes swine storage basins can form a natural crust. This crust will reduce odor emissions.	Effectively controls odors.	Techniques to produce and maintain a natural crust are elusive, but developing.
Straw Cover	Wheat, barley or other straw is floated on the manure surface.	Effectively controls odor.	Must be applied annually and maintained throughout the year. A geotextile cover or related material can be used to support the straw and keep solids from entering the basin.
Plastic Cover	Non-porous cover floated on the liquid surface. Cover traps gases before they escape. Gases must be drawn off and treated.	Nearly eliminates odor emissions.	Gases must be withdrawn from under the cover and treated. No good technologies developed for this process.
Anaerobic Digestion	Biological process where organic carbon is converted to methane by anaerobic bacteria under controlled conditions of temperature and pH.	Reduces odor and organic matter; produces biogas which can be converted to heat or electricity; retains nutrients; easier handling of liquid.	Capital costs and requires skilled management.

Aerobic Treatment	Biological process whereby organic matter is oxidized by aerobic bacteria; mechanical aeration is required in order to supply oxygen to the bacterial population.	Reduces odor, organic matter and nutrients (if desired).	Capital and operating costs; separation step (liquid/solid) may be necessary for most slurries.
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3. **RGU:**
 Contact:
 Title
 Address, Email, Phone

4. **Reason for EAW Preparation: (check one)**

EIS	Mandatory	Citizen	RGU	Proposer
Scoping	EAW	Petition	Discretion	Requested

If EAW is mandatory, does it apply to Subpart A or B?

Revised June XX, 2023

Select	MN Rule 4410.4300 Subp. 29 – Animal Feedlots. The PCA is the RGU for the types of projects listed in A or B items A and B unless the county will issue the feedlot permit, in which case the county is the RGU. (X) However, the county is not the RGU prior to January 1, 2001.
A.	For the construction of an animal feedlot facility with a capacity of 1,000 animal units or more or the expansion of an existing facility by 1,000 animal units or more if the facility is not in an area listed in item B.
B.	For the construction of an animal feedlot facility of more than 500 animal units or expansion of an existing animal feedlot facility by more than 500 animal units if the facility is located wholly or partially in any of the following sensitive locations: shoreland; a delineated flood plain, except that in the flood plain of the Red River of the North the sensitive area includes only land within 1,000 feet of the ordinary high water mark; a state or federally designated wild and scenic river district; the Minnesota River Project Riverbend area; the Mississippi headwaters area; or an area within a drinking water supply management area delineated under chapter 4720 where the aquifer is identified in the wellhead protection plan as vulnerable to contamination; or within 1,000 feet of a known sinkhole, cave, resurgent spring, disappearing spring, Karst window, blind valley, or dry valley.

5. **Project Location**

- **County:**
- **Governing City or Township:**

- PLS Location (¼, ¼, Section, Township, Range):
- Watershed (81 major watershed scale, HUC 8):
- GPS Coordinates:
- Tax Parcel Number:

At a minimum, attach each of the following to the EAW:

- County map showing the general location of the project
- U.S. Geological Survey 7.5 minute, 1:24,000 scale map indicating project boundaries
- Site plan showing all significant project and natural features.
- Map of water resources – surface and groundwater – on or near the project site and manure application sites
- Map of manure application sites
- Map of permanent manure stockpiles
- Map showing all wells, tile inlets, residences, and sensitive receptors within a 1.5 mile radius of the feedlot and/or manure land application sites
- Feedlot Permit Application (county or state)
- Tribal boundaries within 10 miles
- List of data sources, models, and other resources (from the Item-by-Item Guidance: *Climate Adaptation and Resilience* or other) used for information about current Minnesota climate trends and how climate change is anticipated to affect the general location of the project during the life of the project (as detailed below in item 7. *Climate Adaptation and Resilience*).

6. Project Description:

- a. Provide the brief project summary to be published in the *EQB Monitor* (approximately 50 words).
- b. Give a complete description of the proposed project and related new construction, including infrastructure needs. If the project is an expansion include a description of the existing facility. Emphasize:
 - 1) Purpose of project
 - 2) Construction, operation methods, and features that will cause physical manipulation of the environment or will produce wastes,

Timing and duration of construction activities

Any future plans/stages for this project including an anticipated timeline and plans for

Any past stages of this project including timeframe and environmental review proceedings.

	Existing or Proposed?	Quantity	
Animal Holding Areas			
• Total Confinement Barns			
• Partial Confinement Barns			
• Open Lots			
• Individual Animal Housing Areas			
Manure Storage Areas			
• Liquid Manure Storage Areas			
• Solid Manure Storage Areas			
Other Components			
• Feed Storage Areas			
• Mortality Management Areas			
• Composting Sites			
• Anaerobic Digester			
•			

c. Animal information (complete the chart below)

- 3) Modifications to existing equipment or industrial processes,
- 4) Significant demolition, removal, or remodeling of existing structures; and
- 5)
- 6)
- environmental review. 7)

Facility components (show on site map)

Total Area (sq ft)/Volume (gal)

Animal Type	Number Existing	Animal Units^a Existing	Number after project	Animal Units^a after project
Swine				
Dairy cattle				
Beef cattle				
Turkeys				
Chickens				
Other (Identify species)				
TOTAL	N/A		N/A	

^a An “animal unit” or “AU” is a unit of measure developed to compare the differences in the amount of manure produced by livestock species. The “AU” is standardized to the amount of

d. Manure information

Annual Manure Generation

Animal Type	Existing annual generation		After project annual generation	
	liquid (gal)	solid (ton)	liquid (gal)	solid (ton)
Swine				
Dairy cattle				
Beef cattle				
Turkeys				
Chickens				
Other (Identify species)				
TOTAL				

Check any of the items below that are part of the manure management system proposed for this feedlot.

<input type="checkbox"/> Stockpiling	<input type="checkbox"/> Dry manure/litter under barn storage
<input type="checkbox"/> Liquid storage under barns	<input type="checkbox"/> Manure Composting system
<input type="checkbox"/> Liquid storage outside of barns	<input type="checkbox"/> Anaerobic Digestion
<input type="checkbox"/> Dry manure / litter pack	<input type="checkbox"/> Manure Solids Separation
Manure storage capacity	<input type="checkbox"/> Months <input type="checkbox"/> Days
Acres of land available for manure application	
Acres of land needed for manure application	

e. Are future stages of this development including development on any other property planned or likely to happen? If yes, briefly describe future stages, relationship to present project, timeline and plans for environmental review.

manure produced on a regular basis by a slaughter steer or heifer, which also correlates to 1,000 pounds of body weight. The “AU” is used for administrative purposes by various governmental entities for permitting and record-keeping.

f. Is this project a subsequent stage of an earlier project? If yes, briefly describe the past development, timeline and any past environmental review.

7. Climate Adaptation and Resilience:

a. Climate Trends.

Describe the climate trends in the general location of the project and how climate change is anticipated to affect that location during the life of the project. The following climate trends are expected to continue in the future in Minnesota: warmer & wetter, cold weather warming, and more damaging rains. In addition, two projected changes are expected to occur: increasing risk of heat waves and increasing risk of drought. These trends and projected changes are listed in column 1, below. If additional climate trends are included, assess any impacts through each Resource Category and Project Component.

State of Minnesota Climate Trends (data driven) & Projected Climate Change (model driven)	County / Local Trends	Anticipated affects to Project Location Address Anticipated Climate Change Hazards: storm intensity, flooding, extreme heat, drought, and wildfire
Climate Trends		
Increasing Temperature Average annual temperature increasing		
Increasing Precipitation Average annual precipitation increasing		
Increasing Temperature Winter minimums increasing		
Increasing Temperature Nighttime temperatures increasing		
Increasing Precipitation Extreme events increasing		
Projected Climate Change		
Projected climate change: Increasing risk of heat waves		
Projected climate change: Increasing risk of drought		

Revised June XX, 2023

Resources used to determine Climate Trends:

	Climate Trend Tools	Was tool Used in EAW?	If so, how tool was used
	From EQB guidance		
Current Trends	Minnesota Climate Trends		
Projected Changes	Minnesota Climate Explorer		
Climate Hazard Projections	Climate Mapping for Resilience and Adaptation (CMRA) Assessment		
	Climate Resilience Evaluation and Awareness Tool (CREAT) Climate Change Scenarios Projection Map		
	Risk Factor		
Additional Information Sources	National Climate Assessment (NCA4 Volume II or more recent), especially Chapter 21: Midwest; Chapter 28: Reducing Risk; Maps in Chapters 6 & 7.		
	Intergovernmental Panel on Climate Change Assessment Report (IPCC 6 or more recent) and Interactive Atlas		
	National Oceanic and Atmospheric Administration (NOAA) Climate.gov		
	Other Additional Resources used by Project Proposer		

b. Project Interaction with Climate Trends .

For each Resource Category in the table below (Project Design, Land Use, Contamination/Hazardous Materials/Wastes): Describe how the project's proposed activities and how the project's design will **exacerbate or mitigate** the described climate trends and projections, described in 7a. Describe proposed adaptations to address the climate change risks and vulnerabilities identified.

Proposed activities identified under the **Feedlot Project Information** include all the new (or removed) elements of this project that could be affected by the climate trends, including elements of the site design and the processes/activities happening at the site. List proposed activities and describe how these activities will interact with each climate trend. See Examples in *Feedlot EAW Guidance: Climate Adaptation and Resilience*.

Resource Category	Climate Trends & Climate Projections	Feedlot Project Information (Components of Proposed Activities)	Potential Environmental Impacts Address <i>Anticipated Climate Change Hazards</i> : storm intensity, flooding, extreme heat, drought, and wildfire	Adaptation Strategies (with applicable timeframe - construction, near-term, long-term)
Project Design Land Use Contamination, Hazardous Materials, Wastes	<ul style="list-style-type: none"> • Average Temperature Increasing • Winter Minimum Temperature Increasing • Nighttime Temperature Increasing • Average Annual Precipitation Increasing • Extreme Precipitation Events Increasing • Projection: Increasing risk of heat waves • Projection: Increasing risk of drought 			
Water Resources	<i>Address in Item 12</i>			

Resource Category	Climate Trends & Climate Projections	Feedlot Project Information (Components of Proposed Activities)	Potential Environmental Impacts Address <i>Anticipated Climate Change Hazards</i> : storm intensity, flooding, extreme heat, drought, and wildfire	Adaptation Strategies (with applicable timeframe - construction, near-term, long-term)
Fish, Wildlife, Plant Communities, and Sensitive Ecological Resources (rare features)	Address in Item 14			

DRAFT

8. Cover types: Estimate the acreage of the site with each of the following cover types before and after development:

Cover Types	Before (acres)	After (acres)
Wetlands and shallow lakes (<2 meters deep)		
Deep lakes (>2 meters deep)		
Wooded/forest		
Rivers and streams		
Brush/Grassland		
Cropland		
Livestock rangeland/pastureland		
Lawn/landscaping		
<u>Green infrastructure TOTAL (from table below*)</u>		
Impervious surface		
Stormwater Pond (wet sedimentation basin)		
Other (describe)		
TOTAL		

<u>Green Infrastructure*</u>	<u>Before (acreage)</u>	<u>After (acreage)</u>
<u>Constructed infiltration systems (infiltration basins/infiltration trenches/ rainwater</u>		
<u>gardens/bioretention areas without underdrains/swales with impermeable check dams)</u>		
<u>Constructed tree trenches and tree boxes</u>		
<u>Constructed wetlands</u>		
<u>Constructed green roofs</u>		
<u>Constructed permeable pavements</u>		
<u>Other (describe)</u>		
<u>TOTAL*</u>		

<u>Trees</u>	<u>Percent</u>	<u>Number</u>
<u>Percent tree canopy removed or number of mature trees removed during development</u>		
<u>Number of new trees planted</u>		

9. Permits and approvals required. List all known local, state, and federal permits, approvals, certifications, and financial assistance for the project. Include modifications of any existing permits, governmental review of plans and all direct and indirect forms of public financial assistance including bond guarantees, Tax Increment Financing, and infrastructure. *All of these final decisions are prohibited until all appropriate environmental review has been completed. See Minnesota Rules, Chapter 4410.3100.*

Unit of Government	Application Status		
	Planned	Submitted	Not required
MPCA			
• Feedlot Permit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Construction Stormwater Permit ^a	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Solid Waste (Anaerobic Digester)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DNR			
Water Appropriations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Public Waters Work Permit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Permit to Take	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Local Government			
Conditional Use Permit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Variance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (specify regulatory unit)			
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

^a Feedlots only need to apply for a construction stormwater permit when both of the following apply; the feedlot has not applied for a NPDES feedlot permit and 5 acres or more will be disturbed during construction.

Cumulative potential effects may be considered and addressed in response to individual EAW Item No.10-20, or the RGU can address all cumulative potential effects in response to EAW Item No. 22. If addressing cumulative effect under individual items, make sure to include information requested in EAW Item No. 21.

10. Land uses:

a. Describe

- i. Existing uses of the site as well as adjacent lands to and near the site, and give the distances and directions to nearby residences, schools, daycare facilities, senior citizen housing, places of

worship, open space, cemeteries, trails, prime or unique farmlands, tribal lands, culturally significant sites, and other places accessible to the public (including roads) within one mile of the feedlot and within or adjacent to the boundaries of the manure application sites. Identify existing registered feedlots within 5(?) miles.

ii. Plans. Describe planned land use as identified in comprehensive plan (if available) and any other applicable plan for land use, water, or resources management by a local, regional, state, or federal agency.

iii. Zoning, including special districts or overlays such as shoreland, floodplain, wild and scenic rivers, critical area, agricultural preserves, etc. Note: If project is within 10 miles of tribal lands, reach out to respective tribal nations in consideration of this section.

iv. If any critical facilities (i.e. facilities necessary for public health and safety, those storing hazardous materials, or those with housing occupants who may be insufficiently mobile) are proposed in floodplain areas and other areas identified as at risk for localized flooding, describe the risk potential considering changing precipitation and event intensity.

b. Discuss the project’s compatibility with nearby land uses, county zoning, tribal nation(s), and plans listed in Item 9a above, concentrating on implications for environmental effects.

c. Identify measures incorporated into the proposed project to mitigate any potential incompatibility as discussed in Item 10b above and any risk potential.

11. Geology, soils and topography / land forms:

a. Geology - Describe the geology of the underlying the project area and identify and map any susceptible geologic features such as sinkholes, shallow limestone formations, unconfined/shallow aquifers, or karst conditions. Discuss any limitations of these features for the project and any effects the project could have on these features. Identify any project designs or mitigation measures to address effects to geologic features.

Geologic Features Project site Manure Application Sites	Unconfined or shallow aquifer?		Yes		No	
	Yes	No	Yes	No	Yes	No
Less than 50 ft of soil cover over karst-identified bedrock?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Less than 40 inches of soil cover over karst-identified bedrock?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Karst features^a within 300 ft?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

^a Karst features include sinkholes, caves, resurgent springs, disappearing springs, karst windows, blind/dry valleys

b. Soils and topography - Describe the soils on the site, giving NRCS classifications and descriptions, including limitations of soils. Describe topography, any special site conditions relating to erosion potential, soil stability or other soils limitations, such as steep slopes, highly permeable soils. Provide estimated volume and acreage

of soil excavation and/or grading. Discuss impacts from project activities (distinguish between construction and operational activities) related to soils and topography. Identify measures during and after project construction to address soil limitations including stabilization, soil corrections or other measures.

Erosion/sedimentation control related to stormwater runoff should be addressed in response to Item 12, b.ii.

Soils information for the land application sites will be addressed in Item 12. v (d).

NRCS Soil	Feedlot	Manure Storage Area	Manure Application Sites
Classifications			

12. Water resources:

a. Describe surface water and groundwater features on or near the feedlot project site and manure application areas in a.i. and a.ii. below and on attached maps.

i. **Surface water** - lakes, streams, wetlands, intermittent streams, and county/judicial ditches. Include any special designations such as public waters, shoreland classification and floodway/floodplain, trout stream/lake, wildlife lakes, migratory waterfowl feeding/resting lake, and outstanding resource value water. Include the presence of aquatic invasive species and the water quality impairments or special designations listed on the current MPCA 303d Impaired Waters List that are within 1 mile of the project. Include DNR Public Waters Inventory number(s) if any.

ii. **Groundwater** – aquifers, springs, seeps. Include: 1) depth to groundwater; 2) if project is within a MDH wellhead protection area; 3) federal wellhead protection areas or drinking water supply management areas found within tribal boundaries; 4) identification of any onsite and/or nearby wells, including unique numbers and well logs if available. If there are no wells known on site or nearby, explain the methodology used to determine this; 5) Groundwater pollution susceptibility due to geology, unsealed wells, nearby contaminants, etc.

Indicate **Yes or No** whether any of the following **geologic site hazards to groundwater** are present at the feedlot project site, manure storage area, or manure application sites.

	Feedlot	Manure Storage Area	Manure Application Sites
Karst features (sinkhole, cave, resurgent spring, disappearing spring, karst window, blind valley, or dry valley)			
Exposed or highly fractured bedrock			
Soils developed in bedrock (as shown on soils maps)			
< Minnesota			Environmental Assessment Worksheet
<		17	

Sandy Soils and/or
Sand Plain
Other identified geologic hazards

For any identified geologic hazards to groundwater, describe the features, show them on a map, and discuss proposed design and mitigation measures to avoid or minimize potential impacts.

b. Describe effects from project activities on water resources and measures to minimize or mitigate the effects in Item b.i. through Item b.iv. below.

i. **Wastewater**

All sewage produced in Minnesota must be disposed of in accordance with Minn. R 7080.2450 subp. 6.

For each of the following, describe the sources, quantities and composition of all sanitary, municipal/domestic and industrial wastewater produced or treated at the site.

- 1) If the wastewater discharge is to a publicly owned treatment facility, identify any pretreatment measures and the ability of the facility to handle the added water and waste loadings, including any effects on, or required expansion of, municipal wastewater infrastructure.
- 2) If the wastewater discharge is to a subsurface sewage treatment system (SSTS), describe the system used, the design flow, and suitability of site conditions for such a system. If septic systems are part of the project, describe the availability of septage disposal options within the region to handle the ongoing amounts generated as a result of the project. Consider the effects of current Minnesota climate trends and anticipated changes in rainfall frequency, intensity and amount with this discussion.
- 3) If the wastewater discharge is to surface water, identify the wastewater treatment methods and identify discharge points and proposed effluent limitations to mitigate impacts. Discuss any effects to surface or groundwater from wastewater discharges, taking into consideration how current Minnesota climate trends and anticipated climate change in the general location of the project may influence the effects.

ii. **Stormwater -**

Describe changes in surface hydrology resulting from change of land cover. Describe the routes and receiving water bodies for runoff from the project site (major downstream water bodies as well as the immediate receiving waters). Discuss environmental effects from stormwater discharges on receiving waters post construction including how the project will affect runoff volume, discharge rate and change in pollutants. Consider the effects of current Minnesota climate trends and anticipated changes in rainfall frequency, intensity and amount with this discussion. For projects requiring NPDES/SDS Construction Stormwater permit coverage, state the total number of acres that will be disturbed by the project and describe the stormwater pollution prevention plan (SWPPP), including specific best management practices to address soil erosion and sedimentation during and after

project construction. Discuss permanent stormwater management plans, including methods of achieving volume reduction to restore or maintain the natural hydrology of the site using green infrastructure practices or other stormwater management practices. Identify any receiving waters that have construction-related water impairments or are classified as special as defined in the Construction Stormwater permit. Describe additional requirements for special and/or impaired waters.

iii. Water appropriation - Describe if the project proposes to appropriate surface or groundwater (including dewatering). Describe the source, quantity (amount per animal per day), duration, use and purpose of the water use and if a DNR water appropriation permit is required and has been obtained. Describe any well abandonment. If connecting to an existing municipal water supply, identify the wells to be used as a water source and any effects on, or required expansion of, municipal water infrastructure. Discuss environmental effects from water appropriation, including an

		<input type="checkbox"/> Not applicable
		<input type="checkbox"/> Not applicable

		Maximum Pumping Rate per Source (gal/yr)
Water Supply Source	<input type="checkbox"/> Existing Well	
	<input type="checkbox"/> Public Supply	
	<input type="checkbox"/> New Well	
	<input type="checkbox"/> Other:	

Aquifer Test required by DNR?	<input type="checkbox"/> Yes <input type="checkbox"/> Option Waived <input type="checkbox"/> Unknown	
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iv. Surface Waters

List all sources of surface water sources for water appropriations:

Type of surface water source	Volume	Location

assessment of the water resources available for appropriation. Discuss how the proposed water use is resilient in the event of changes in total precipitation, large precipitation events, drought, increased temperatures, variable surface water flows and elevations, and longer growing seasons. Identify any measures to avoid, minimize, or mitigate environmental effects from the water appropriation. Describe contingency plans should the appropriation volume increase beyond infrastructure capacity or water supply for the project diminish in quantity or quality, such as reuse of water, connections with another water source, or emergency connections.

Current Water Use (gal/yr)

Proposed Water Use (gal/yr)

a) **Wetlands** - Describe any anticipated physical effects or alterations to wetland features such as draining, filling, permanent inundation, dredging and vegetative removal. Discuss direct and indirect environmental effects from physical modification of wetlands, including the anticipated effects that any proposed wetland alterations may have to the host watershed, taking into consideration how current Minnesota climate trends and anticipated climate change in the general location of the project may influence the effects. Identify measures to avoid (e.g., available alternatives that were considered), minimize, or mitigate environmental effects to wetlands. Discuss whether any required compensatory wetland mitigation for unavoidable wetland impacts will occur in the same minor or major watershed and identify those probable locations.

b) Other surface waters- Describe and show on maps any anticipated physical effects or alterations to surface water features (lakes, streams, ponds, intermittent streams, county/judicial ditches) such as draining, filling, permanent inundation, dredging, diking, stream diversion, impoundment, aquatic plant removal, riparian alteration, drain tiling, and tile inlets or outlets. Discuss direct and indirect environmental effects from physical modification of water features, taking into consideration how current Minnesota climate trends and anticipated climate change in the general location of the project may influence the effects. Identify measures to avoid, minimize, or mitigate environmental effects to surface water features, including in-water Best Management Practices that are proposed to avoid or minimize turbidity/sedimentation while physically altering the water features. Discuss how the project will change the number or type of watercraft on any water body, including current and projected watercraft usage. Compare the quantity and quality of site runoff before and after the project. Describe permanent controls to manage or treat runoff. Identify water resources affected and give the DNR Public Waters Inventory number(s) if the water resources affected are on the Protected Waters Inventory (PWI). Describe proposed mitigation measures to avoid or minimize impacts.

v. Manure management. Give a brief description of how manure will be collected, stored, and applied at this facility. Include a description of any manure processing activities such as liquid solid separation and anaerobic digestion. Attach copy of Manure Management Plan (MMP). If an anaerobic digester will process manure, list any other feedstocks used in the digester.

a) Manure removal activities.

Manure removal frequency: Once per year Twice per year _____

Other: _____

Time required for manure removal: _____ Days/year

Time required for agitation of liquid manure storage areas: _____

Days/year Not applicable

b) Manure Transfer

Will any amount of manure be transferred to a third party for land application or anerobic digester?

No – skip 1-3

Yes, Land Application – Complete 1-3 Yes, Aerobic Digester - Complete 1, 4-5

1) Estimated amount of manure transferred throughout the year

Transfer timeframe	Liquid (gal)	Solid (ton)
June - September		
October 1 – October 14		
October 15 – November 30		
December 1 – February 28		
March 1 – March 31		
April 1 – May 31		
TOTAL		

- 2) Describe the protocols used to ensure information about nutrient content, nitrogen and phosphorus rate requirements, and setback requirements are made available to the recipient(s).
- 3) Describe any efforts to limit the potential for application of transferred manure to fields without actively growing crops during the summer and early fall (before Oct. 15) and during frozen or snow-covered conditions.
- 4) Describe any efforts to limit dust and odor to nearby residences and the amount and speed of transfer trucks.
- 5) Describe time of day and scope of operations needed to transfer manure.
- 6) Consider methane emissions from manure.

c) Manure Land Application (non-transfer)

Will any amount of manure be applied to fields owned, leased, rented, or otherwise controlled by any member of the ownership entity of the feedlot?

- Yes – complete 1-5 below No – skip 1-5 below

- 1) Estimated amount of manure applied throughout the year

Application timeframe	Liquid (gal)	Solid (ton)
June - September		
October 1 – October 14		
October 15 – November 30		
December 1 – February 28		
March 1 – March 31		
April 1 – May 31		
TOTAL		

- 2) Describe anticipated manure application technologies and methods of application and incorporation. Include measures to limit potential for runoff, especially for manure applied in winter conditions.

- 3) Describe any measures used to manage field soil phosphorous levels to prevent excessive phosphorus build-up.
- 4) Describe any measures (BMPs) used to limit potential for nitrate impacts to water resources.
- 5) If land application acres drain to a waterbody with an impairment, describe the measures used to limit land application effects on the impairment.

d) Manure application fields

1) General description

Describe each land application field. Include in the description the following:

- Field name/ID, location (Township-Range-Section), tillable acres, predominate soil type, field tiling system, irrigation system, description of bordering lands/roads, waters (within 2 miles) receiving runoff or tile line flow.
Include DNR Public Waters Inventory numbers (if available) and any special designations such as public waters, shoreland classification and floodway/floodplain, trout stream/lake, wildlife lakes, migratory waterfowl feeding/resting lake, and outstanding resource value water

2) Map the manure application fields. Show on a map the following within or near (300 ft) land application fields:

- Lakes, rivers, streams, intermittent streams, wetlands, county/judicial ditches, open tile intakes, wells, springs, Karst features (*Sinkholes, caves, resurgent springs, disappearing springs, karst windows, blind/dry valleys*)

3) Additional field sensitivity information. Below each of the following items list any fields that meet the criteria described.

- a. Fields within Drinking water supply management areas (DWSMAs) or Source Water Protection Areas (SWPAs) with medium to high vulnerability, including tribal drinking water supply areas.
 - b. Fields planned for winter manure applications.
 - c. Fields with soil phosphorous tests levels above 21 ppm Bray 1 or 16 ppm Olson and have surface water within 300 feet.
 - d. Fields with soil phosphorous tests levels above 75 ppm Bray 1 or 60 ppm Olson.
 - e. Fields that could receive broadcast manure (not immediately incorporated) that have slopes at 6% or greater.
- ##### 4) Using Web Soil Survey data, list any fields with at least 33% of the acreage that meets the following:



- a. sensitive aquifer assessment rating
- b. soil texture of sand, loamy sand, loamy coarse sand, fine sand, loamy fine sand, coarse sand, or very fine sand.
 - i. depth to bedrock of 40 inches or less
 - ii. soil erosion ("T factor") rating of 5 or more tons/acre/year
 - iii. frequently flooded

e) Manure application setbacks

Describe any required setbacks for land application systems.

f) Other methods of manure utilization.

If the project will utilize manure other than by land application, please describe the methods.

g) Dead Animal Disposal.

Describe the quantities of dead animals anticipated, the method for storing and disposing of carcasses, and frequency of disposal. How will nuisance wildlife be managed that are attracted by carcasses? **What is the response to a major disease outbreak or death event? Identify local ordinance restrictions for animal disposal, composting, etc.**

13. Contamination/Hazardous Materials/Wastes:

- A. Pre-project site conditions - Describe existing contamination or potential environmental hazards on or in close proximity to the project site such as soil or ground water contamination, abandoned dumps, closed landfills, existing or abandoned storage tanks, and hazardous liquid or gas pipelines. Discuss any potential environmental effects from pre-project site conditions that would be caused or exacerbated by project construction and operation. Identify measures to avoid, minimize or mitigate adverse effects from existing contamination or potential environmental hazards. Include development of a Contingency Plan or Response Action Plan.
- B. Project related generation/storage of solid wastes - Describe solid wastes generated/stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential environmental effects from solid waste handling, storage and disposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of solid waste including source reduction and recycling.
- C. Project related use/storage of hazardous materials - Describe chemicals/hazardous materials used/stored during construction and/or operation of the project including method of storage. Indicate the number, location and size of any new above or below ground tanks to store petroleum or other materials. Indicate the number, location, size and age of existing tanks on the property that ~~used by~~ the project will use. Discuss potential environmental effects from accidental spill or release of hazardous materials. Identify measures to avoid, minimize or mitigate adverse

effects from the use/storage of chemicals/hazardous materials including source reduction and recycling. Include development of a spill prevention plan.

- D. Project related generation/storage of hazardous wastes - Describe hazardous wastes generated/stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential environmental effects from hazardous waste handling, storage, and disposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of hazardous waste including source reduction and recycling.

14. Fish, wildlife, plant communities, and sensitive ecological resources (rare features):

- A. Describe fish and wildlife resources as well as habitats and vegetation on or near the site.
- B. Describe rare features such as state-listed (endangered, threatened, and species of special concern) and federally listed (endangered and threatened-) species, native plant communities, Minnesota Biological Survey (MBS) Sites of Biodiversity Significance, and other sensitive ecological resources on or within close proximity to the site. Provide the license agreement number (LA-____) and/or correspondence number (-Minnesota Conservation Explorer (MCE) Project ID _____) from which the data were obtained and attach the Natural Heritage Review letter from the DNR. Federal species should be queried utilizing the U.S. Fish and Wildlife Service Information for Planning and Consultation (IPaC) website. Indicate if any additional habitat or species survey work has been conducted within the site and describe the results.
- C. Discuss how the identified fish, wildlife, plant communities, rare features and ecosystems may be affected by the project including how current Minnesota climate trends and anticipated climate change in the general location of the project may influence the effects. Include a discussion on introduction and spread of invasive species from the project construction and operation. Separately discuss potential impacts to identified state and federally listed species, and any avoidance or mitigation measures that will be taken to avoid or minimize these impacts
- D. Identify measures that will be taken to avoid, minimize, or mitigate the adverse effects to fish, wildlife, plant communities, ecosystems, and sensitive ecological resources, such as calcareous fens. Separately discuss measures to avoid, minimize, or mitigate the adverse effects to state and federally listed species.

15. Cultural Resources:

Describe any historic structures, archeological sites, and/or traditional cultural properties on or in close proximity to the site. Include: 1) historic designations, 2) known artifact areas, 3) architectural features, 4) Tribal connections to the site.

Attach letter received from the State Historic Preservation Office (SHPO). Discuss any anticipated effects to historic properties during project construction and operation. Identify measures that will be taken to avoid, minimize, or mitigate adverse effects to historic properties.

16. Visual:

Describe any scenic views or vistas on or near the project site. Describe any project related visual effects such as vapor plumes or glare from intense lights. Discuss the potential visual effects from the project. Identify any measures to avoid, minimize, or mitigate visual effects.

17. Air

Identify the major sources of air or odor emissions from this feedlot.

a. Stationary source emissions - Describe the type, sources, quantities, and compositions of any emissions from stationary sources. Include any hazardous air pollutants and criteria pollutants. Discuss effects to air quality including any sensitive receptors, human health or applicable regulatory criteria. Include a discussion of any methods used to assess the project's effect on air quality and the results of that assessment. Identify pollution control equipment and other measures that will be taken to avoid, minimize, or mitigate adverse effects from stationary source emissions. Describe any proposed feedlot design features or air or odor emission mitigation measures to be implemented to avoid or minimize potential adverse impacts and discuss their anticipated effectiveness.

If no feedlot design features or mitigations were proposed, provide a summary of the results of an air emissions modeling study designed to compare predicted emissions at the property boundaries with state standards, health risk values, or odor threshold concentrations. The modeling must incorporate an appropriate background concentration for hydrogen sulfide to account for potential cumulative air quality impacts.

b. Vehicle emissions - Describe the effect of the project's traffic generation on air emissions. Discuss the project's vehicle-related emissions effect on air quality. Identify measures (e.g. traffic operational improvements, diesel idling minimization plan) that will be taken to minimize or mitigate vehicle-related emissions.

c. Dust and odors - Describe sources, characteristics, duration, quantities, and intensity of dust and odors generated during project construction and operation. (Fugitive dust may be discussed under item 17a). Discuss the effect of dust and odors in the vicinity of the project including nearby sensitive receptors and quality of life. Identify measures that will be taken to minimize or mitigate the effects of dust and odors.

d. Describe any plans to notify neighbors of operational events (such as manure storage agitation and pumpout) that may result in higher-than-usual levels of air or odor emissions.

18. Greenhouse Gas (GHG) Emissions/Carbon Footprint

A. GHG Quantification: For all proposed projects, provide quantification and discussion of project GHG emissions. Include additional rows in the tables as necessary to provide project-specific emission sources. Describe the methods used to quantify emissions. If calculation methods are not readily available to quantify GHG emissions for a source, describe the process used to come to that conclusion and any GHG emission sources not included in the total calculation. **Utilize the Feedlot Greenhouse Gas Emissions Calculator, found at XXXX.**

The following tables are examples; other layouts are acceptable for providing GHG quantification results.

Construction Emissions	Scope	Type of Emission	Project-related	Calculation method(s)
Emission	Sub-type	CO ₂ e Emissions (tons/year)		
Scope 1	Combustion	Mobile Equipment		
Scope 1	Land Use	Conversion		
Scope 1	Land Use	Carbon Sink		
TOTAL				

Operational Emissions

Scope	Type of Emission	Emission Sub-type	Existing facility CO ₂ e Emissions (tons/year)	Project related CO ₂ e Emissions (tons/year)	Total CO ₂ e Emissions (tons/year)	Calculation method(s)
Scope 1	Combustion	Mobile Equipment				
Scope 1	Combustion	Stationary Equipment				
Scope 1	Combustion	Area				
Scope 1	Non-Combustion	Stationary Equipment				
Scope 1	Land Use	Carbon Sink				
Scope 2	Off-site Electricity	Grid-based				
Scope 2	Off-site Steam Production	Not applicable				
Scope 3	Off-site Waste Management	Area				
TOTAL						

B. GHG Assessment

- i.** Describe any mitigation considered to reduce the project’s GHG emissions.
- ii.** Describe and quantify reductions from selected mitigation, if proposed to reduce the project’s GHG emissions. Explain why the selected mitigation was preferred.
- iii.** Quantify the proposed projects predicted net lifetime GHG emissions (total tons/#of years) and how those predicted emissions may affect achievement of the Minnesota Next Generation Energy Act goals and/or other more stringent state or local GHG reduction goals.

19. Noise

Describe sources, characteristics, duration, quantities, and intensity of noise generated during project construction and operation. Discuss the effect of noise in the vicinity of the project including 1) existing noise levels/sources in the area, 2) nearby sensitive receptors, 3) conformance to state, local, tribal, and/or federal

noise standards as applicable, and 4) quality of life. Identify measures taken to minimize or mitigate the effects of noise. **20. Transportation**

- A. Describe traffic-related aspects of project construction and operation. Include:
- 1) existing and proposed additional parking spaces,
 - 2) estimated total average daily traffic generated,
 - a. Estimate the number of heavy truck trips generated per week and describes their routing over local roads. Describe any road improvements to be made.
 - b. **Identify manure application routes and crossings, type of hauling equipment, impacts to road surface, impacts to traffic. Identify use and road crossings of drag hoses.**
 - 3) estimated maximum peak hour traffic generated and time of occurrence, 4) indicate source of trip generation rates used in the estimates, and 5) availability of transit and/or other alternative transportation modes.
- B. Discuss the effect on traffic congestion on affected roads and describe any traffic improvements necessary. The analysis must discuss the project's impact on the regional transportation system. *If the peak hour traffic generated exceeds 250 vehicles or the total daily trips exceeds 2,500, a traffic impact study must be prepared as part of the EA.*
- C. Identify measures that will be taken to minimize or mitigate project related transportation effects.
- d. Will new or expanded utilities, roads, other infrastructure, or public services be required to serve the project? Yes No


If yes, please describe.

21. Cumulative potential effects: (Preparers can leave this item blank if cumulative potential effects are addressed under the applicable EAW Items). Cumulative potential effects may be considered and addressed in response to individual EAW Item No. 10-20.

- a. Describe the geographic scales and timeframes of the project related environmental effects that could combine with other environmental effects resulting in cumulative potential effects.
- b. Describe any reasonably foreseeable future projects (for which a basis of expectation has been laid) that may interact with environmental effects of the proposed project within the geographic scales and timeframes identified above.

Discuss the nature of the cumulative potential effects and summarize any other available information relevant to determining whether there is potential for significant environmental effects due to these cumulative effects.



22.  **Other potential environmental effects:** If the project may cause any additional environmental effects not addressed by items 1 to 20, describe the effects here, discuss the how the environment will be affected, and identify measures that will be taken to minimize and mitigate these effects.

RGU CERTIFICATION.

I hereby certify that:

- The information contained in this document is accurate and complete to the best of my knowledge.
- The EAW describes the complete project; there are no other projects, stages or components other than those described in this document, which are related to the project as “phased actions,” pursuant to Minn. R. 4410.0200, subp. 60, 4410.1000, subp. 4, and 4410.4300, subp. 1.
- Copies of this EAW are being sent to the entire EQB distribution list.

Name and Title of Signer:

Signature

The format for the alternative Environmental Assessment Worksheet form has been approved by the Chair of the Environmental Quality Board pursuant to Minn. R. 4410.1300 for use for animal feedlot projects. For additional information contact: Environmental Quality Board, 5 20 Lafayette Road, St. Paul, Minnesota, 55155-4194, 651-296-6300, or at their website <https://www.egb.state.mn.us/content/environmental-review-program>

Date: