MINNESOTA POLLUTION CONTROL AGENCY

RESPONSES TO COMMENTS ON THE GENERAL NPDES and SDS ANIMAL FEEDLOT PERMITS

The Minnesota Pollution Control Agency (MPCA) held a concurrent public notice period June 24, 2024, through September 3, 2024, for the proposed issuance of the State of Minnesota General Animal Feedlot National Pollution Discharge Elimination System (NPDES) Permit MNG440000 and Minnesota General Animal Feedlot State Disposal System (SDS) Permit MNG450000. This document contains the MPCA response to the 183 comment letters received on time via the submittal methods specified within the public notice.

- A list of commenters is included in Appendix A.
- Changes to the draft permit language are identified in Appendix B.

Common Issues

Many comment letters included the following recurring (common) issues:

- concerns with cover crops as the primary option for nitrogen best management practices (BMP) in vulnerable groundwater areas
- challenges associated with spring manure application
- additional requirements for manure recipients and associated record keeping for owners
- desire for more water monitoring of production areas and land application areas

The MPCA will respond to these common issues at this location and not within the responses to each letter.

Common Issue # 1 - Cover Crops as a Nitrogen BMP in Vulnerable Groundwater Areas

Summary of Comments Received

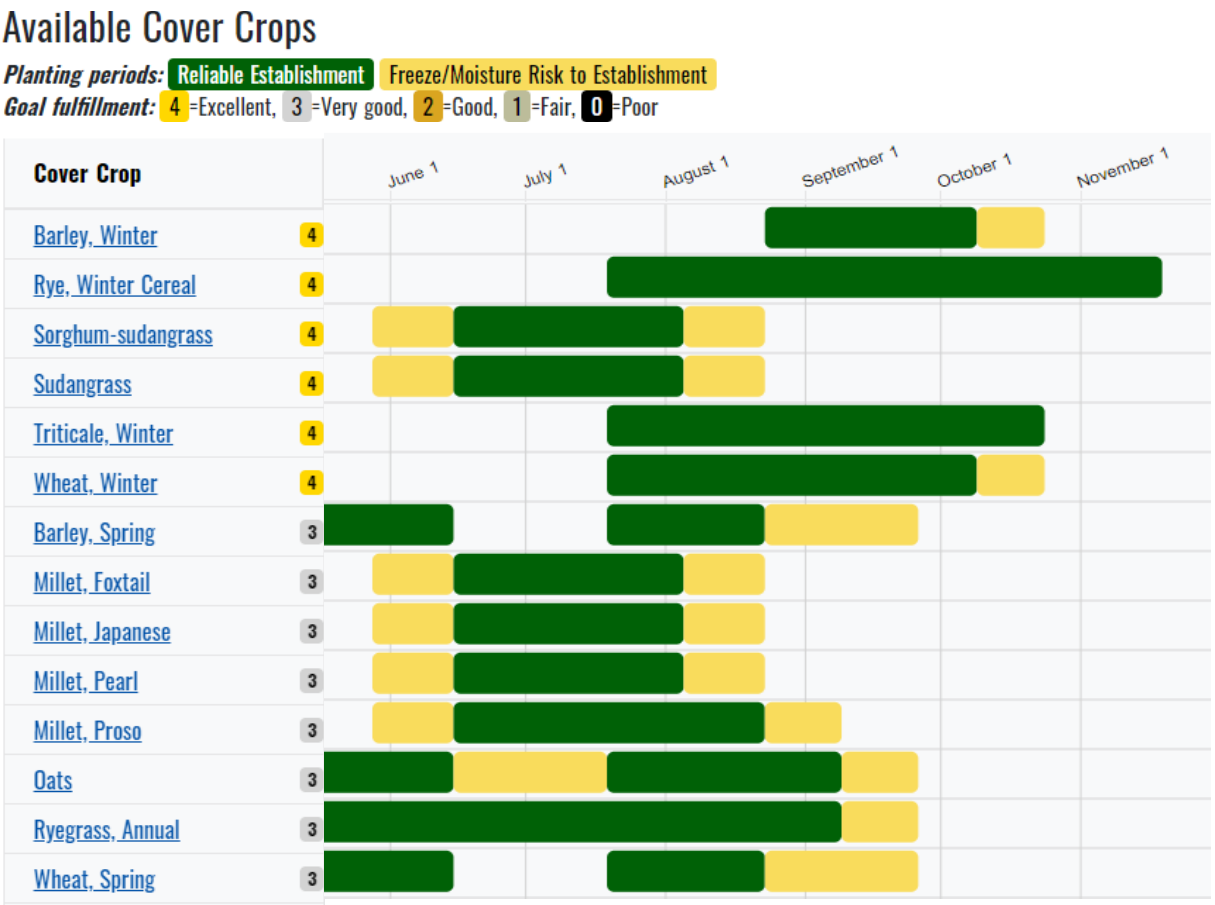
- Cover crops won't grow, or at the very least are minimally effective, if planted after harvest of corn for grain or soybeans.
- Cover crop growth and subsequent effectiveness is dependent on weather conditions.
- Cover crops are costly (e.g., seed, equipment, planting, termination) without a consistent potential for growth of the crop and associated potential nitrate leaching reductions.
- Studies show such varying effectiveness of cover crops and climate differences across the state influence cover crop viability to the degree that cover crops should not be the only practice that would allow for fall application in vulnerable groundwater areas.
    - Nitrification inhibitors, cools soils, and split applications are effective nitrate mitigation strategies and should be included as options in vulnerable groundwater areas.

Response: The current corn and soybean row crop production system employed across the state of Minnesota is commonly referred to as a "leaky" system. The use of the term "leaky" primarily stems from the propensity of nitrogen loss to the environment in the form of nitrate due to the ease with which it is transported with water. Many factors, including those not under the control of the farmer, influence nitrogen loss in row crop systems. These include temperature, precipitation, soil type, organic matter, crops grown, tillage practices, and nitrogen application rates, to name a few. As pointed out by the commenters, some of these variables also influence the implementation of nitrogen BMPs and in particular cover crops.

Many commenters were concerned about possibility of even establishing cover crops late in the growing season following harvest of the primary cash crops of corn and soybeans. The University of Minnesota as well as the Midwest Cover Crop Council indicate there are a few species of cover crops that can reliably be planted late in the growing season. Figure 1 (below) is a chart adapted from the Midwest Cover Crop Council's Cover Crop Decision Tool that illustrates reliable planting dates for various cover crops.

The most common cover crop in Minnesota is winter rye and the chart indicates that it can be reliably planted up until the early weeks of November. Winter rye seed will germinate at temperatures as cool as 34° F. Other cover crops such as triticale or winter wheat can also be reliably planted throughout the month of September and into early October. This data indicates that there are typically opportunities to plant cover crops during the month of September and into October.

Figure 1: Average cover crop establishment potential for fall in Minnesota
(Source: Midwest Cover Crop Council Cover Crop Decision Tool - https://mccc.msu.edu/covercroptool/)



A research study performed by the University of Minnesota (*Managing nitrogen from manure with a winter rye cover crop: Results of on-farm trials in Minnesota Everett et al., 2018)* utilized cover crop planting dates that ranged from September 25 to November 8 indicating that it is possible to grow cover crops later in the growing season. The study does note that there was limited growth of the cover crop as the planting dates progressed later in the growing season, but even with limited growth nitrate reductions were observed in all 19 trials in the two-year period of the study.

Although less common than traditional cover crop planting via a drill, cover crops can also be inter-seeded or aerially seeded into the cash crops earlier in the growing season to aid in establishment. Research at the University of Minnesota, including the Everett et al., study cited above, has demonstrated that low disturbance manure injection can be performed on standing cover crops with good recovery of the cover crop.

Another concern expressed by the commenters was unreliable establishment and subsequent effectiveness of cover crops due to unfavorable and unpredictable weather conditions. Cover crop growth and subsequent establishment are weather dependent and, in some situations, despite the farmers best efforts, weather conditions severely limit or prohibit cover crop establishment.

As the commenters point out, many studies have shown the nitrate reduction potential of cover crops is largely dependent on the amount of growth of the plant (biomass). While some reduction of nitrate leaching can be observed when there is limited biomass, the largest nitrate reductions are achieved when there is substantial biomass.

One study from the University of Minnesota (*Vegetative Cover Crops as a Nitrate Reduction Strategy for Tile Drainage Water, Vetsch 2000*) illustrates the influence of weather on nitrate reductions associated with cover crops. Here are some direct quotes from that research. "Warm Sep and Oct in 2016 and Apr in 2017 were ideal for cover crop germination and growth, especially cereal rye that was terminated on 17 Apr. In 2017, NO3-N concentrations and flow-adjusted losses were 70 and 20% less with cereal rye and annual blend than no cover, respectively." "Even though a cold Apr in 2018 (13° F below normal) hindered rye growth, NO3-N concentrations and flow-adjusted losses were about 20% less with cereal rye than no cover." "A wet and cold fall in 2018 and spring in 2019 resulted in very little cover crop growth. Cover crops did not affect NO3-N concentrations, NO3-N losses or corn grain yields in 2019."

As the Vetsch study indicated, when weather conditions are favorable, significant reductions in nitrate can be achieved. Even when only one of the growing periods for cover crops (fall or spring) is cool and doesn't promote vigorous vegetative growth, a reduction of soil nitrate levels is still possible. It was only when both fall and spring were cool and wet that the cover crop did not show a reduction in soil nitrate levels. Even with the uncertainty of weather conditions, cover crops remain a very effective BMP because the years that are favorable for cover crop growth also typically represent the years of greatest nitrate leaching potential.

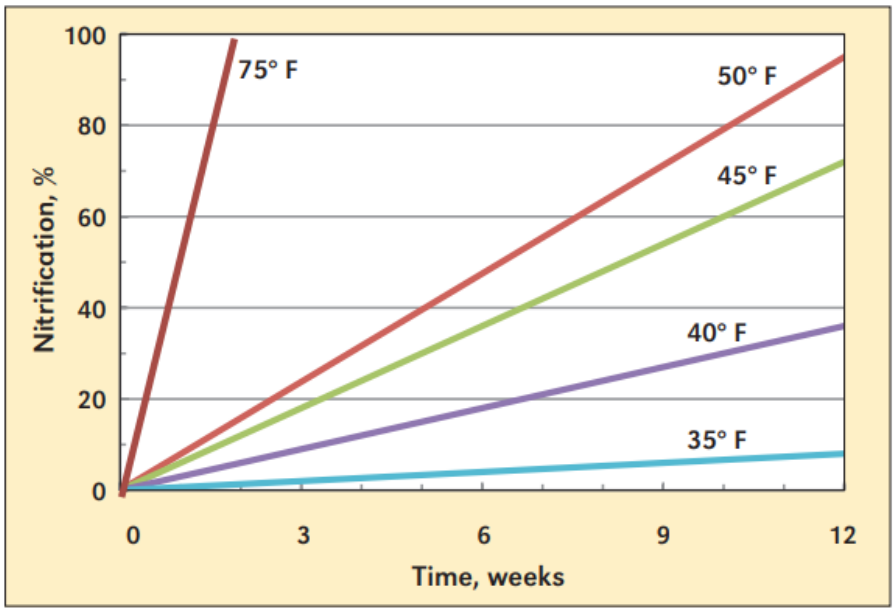
The permits recognize the weather uncertainty by requiring cover crops to be planted and allowed to grow prior to eventual termination. In other words, the Permittee is required to make a good faith effort to establish a cover crop.

Commenters also were weary of the cost associated with cover crops. There is no doubt a cost to farmers to implement cover crops in vulnerable groundwater areas, but there is also a cost to the general public as a result of nitrate contamination of water supplies. Removing nitrates from drinking water is a very expensive endeavor for public water suppliers and private well owners. There are also significant issues associated with nitrate pollution in surface waters, most notable the hypoxic conditions in the Gulf of Mexico. Likewise, nitrogen that is applied and subsequently lost to the environment is also an expense for farmers. Nitrogen loss may result in crop nitrogen deficiencies that could impact yields, which lowers profitability. Also, minimizing potential loss to the environment may lessen the total amount of nitrogen farmers need to apply, potentially lowering crop production costs. Cover crops also provide benefits beyond nitrate leaching mitigation (weed suppression, soil health, etc.), which can result in subsequent cost savings. There are just some of the impacts associated with nitrate leaching as well as potential benefits to utilizing nitrogen BMPs.

Finally, commenters stated that the variability and implementation challenges associated with cover crops, as well as the influence of climatic differences across the state, necessitates including additional all nitrogen BMPs within the permits for vulnerable groundwater areas. Nitrification inhibitors, cools soils, and split applications were the prevalent suggestions for additional BMPs in vulnerable groundwater areas. The basic concepts of each of these nitrogen BMPs is provided below.

One of the most common BMPs to minimize nitrate leaching from fall nitrogen applications, is to apply nitrogen when the soil temperatures are 50° F or less. Cool soil temperatures slow down microbial activity that breaks down nitrogen in the ammonium form into the nitrate form (nitrification), which is susceptible to losses due to leaching (see Figure 2.).

Figure 2: Nitrification potential at varying soil temperatures
(Source: International Plant Nutrition Institute)



Another popular nitrogen BMP is the use of a nitrification inhibitor. Much like cool soil temperature, nitrification inhibitors reduce soil microbial activity so that conversion of ammonium nitrogen to nitrate is reduced so as to limit leaching potential. While primarily developed for commercial fertilizer applications, they can also be used in conjunction with manure applications.

The last nitrogen BMP recommended by commenters is split application of nitrogen. The effectiveness of split application is primarily based on the concept that less nitrogen in the soil in the fall means there is simply less that can be lost to the environment.

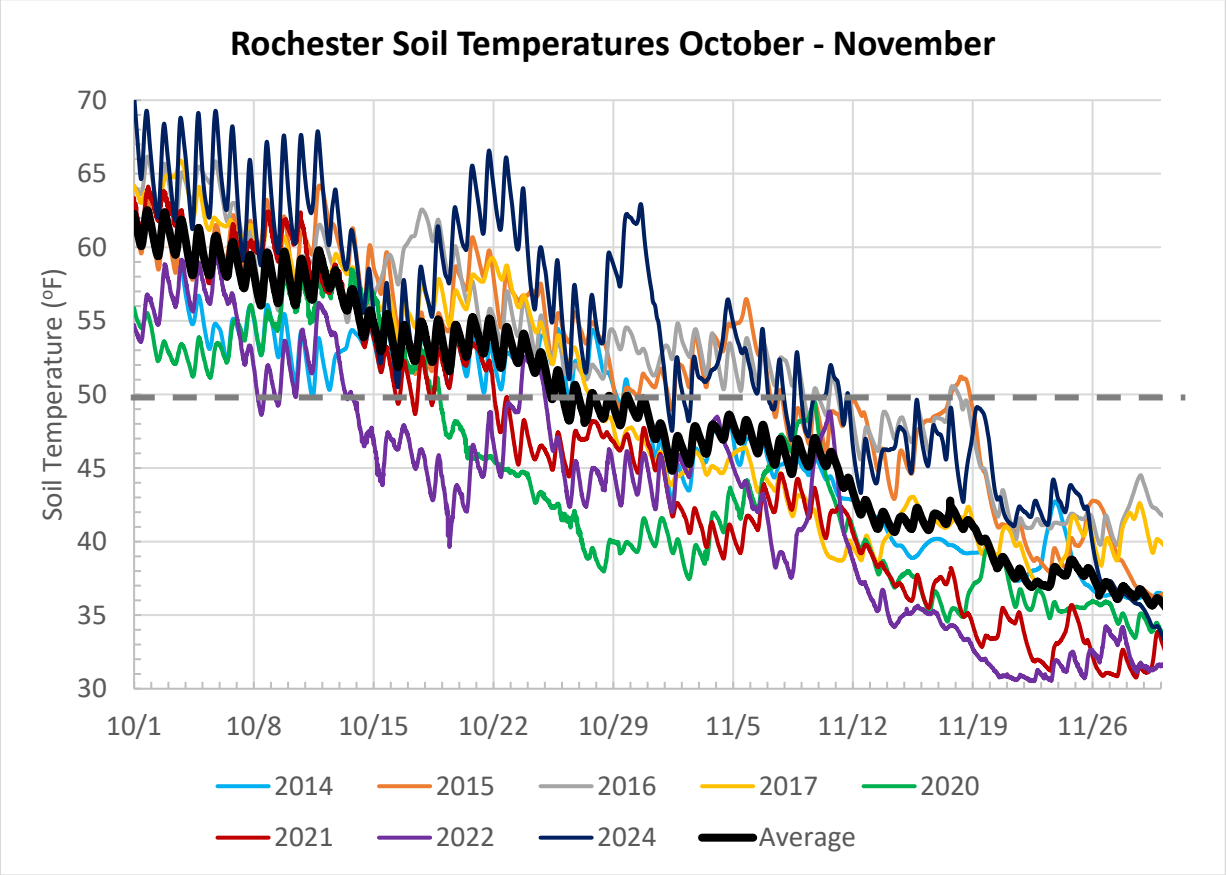
In response to the comments and concerns raised, the final permits include revisions to the nitrogen BMPs for vulnerable groundwater areas.

The draft permits required the same BMPs for all of October and November. As the commenters pointed out, there are substantial differences in climatic conditions from the beginning of October to the end of November that will significantly affect the potential for nitrate leaching and the ability to implement the nitrogen BMPs as drafted.

As discussed above, soil temperature plays a key role in potential for nitrate leaching from fall manure application. As weather conditions vary from month to month and year to year, so do soil temperatures, making it necessary to consider average conditions across a significant period of time.

The soil temperature graph on the next page (Figure 3) was developed using data from the Minnesota Department of Agriculture (MDA) soil temperature network station near Rochester. It displays soil temperature readings taken every 15 minutes during the months of October and November from 2014 – 2024 (*a few years of inaccurate data were excluded*). The graph demonstrates the existence of three timeframes, one where soils are consistently warm, one where the soils are consistently cool, and a transition phase in between.

Figure 3: October and November soil temperatures near Rochester Minnesota for 2014 - 2024
(Derived using data from DNR stream gaging site 41061002 - https://www.dnr.state.mn.us/waters/csg/index.html)



In response to the comments and available data, the final permits establish three distinct periods, October 1 – 14 (warm soils), October 15 – 31 (transition), and November 1 – 30 (cool soils), each with varying requirements for nitrogen BMPs. The final requirements as well as the reason for adjustments to the draft permit requirements for vulnerable groundwater areas are presented below for each of the three timeframes.

October 1 – 14: Allowable BMPs reduced to three options and no delayed implementation.

Soils are consistently warm early in October in vulnerable groundwater areas. As Figure 3 shows, soils are consistently well above the 50°F threshold and Figure 2 illustrates the increased potential for nitrification when soils are above this threshold. The draft permits allowed application to a field that uses perennials two out of five years provided the soils were also 50°F or less. This option was removed given the unlikely occurrence of soils reaching the 50°F threshold.

Further, the draft permits delay in implementation until 2028 was also removed because the weather conditions in early October provide for a higher likelihood of successful cover crop establishment than later in October and into November. Also, as Figure 1 illustrates, there are four varieties of cover crops that reliably have a good success rate of establishment in early October, addressing the concerns with ability to establish cover crops at this time.

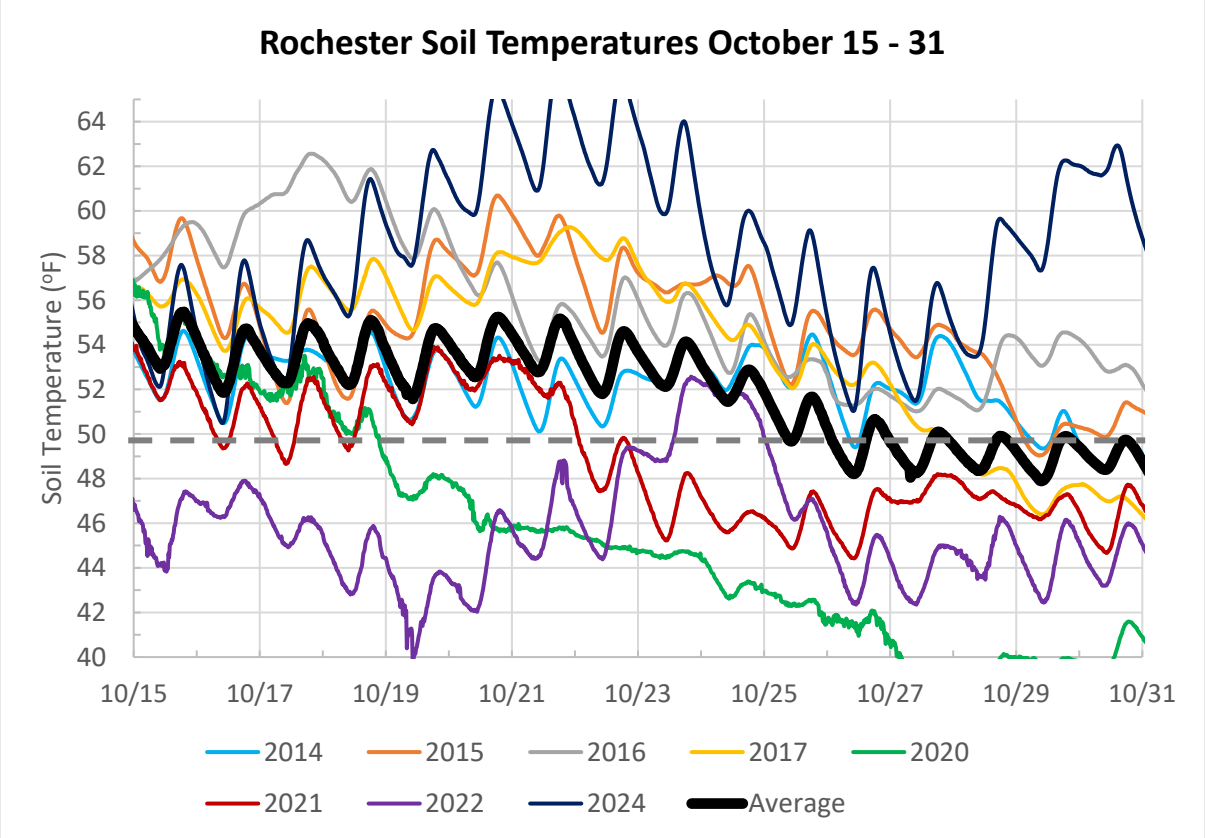
October 15 – 31: Nitrogen BMP combination allowed and 2027 implementation.

The October 15 – 31 timeframe is one of transition from warmer soils to cool soils. The additional nitrogen BMP allowed in the final permits requires a combination of assuredly cool soils and either a nitrification inhibitor or a split application. These three BMPs were also suggested by the commenters for consideration.

The first part of the combination BMP is cool soils. In order for this BMP to be most effective, soils need to remain cool and continue cooling to further limit nitrification. As weather fluctuates, so does the soil temperature. For instance, if manure is applied on the first day 50°F soil temp is reached and that is then followed by a number of warm days, nitrification rapidly increases making nitrogen loss to leaching more likely, especially in vulnerable areas. An October 16, 2024, podcast from the University of Minnesota provides a rough estimate of nitrification for anhydrous ammonia that 15% of the ammonium will nitrify from when soils consistently are 50° F or less until freeze up. If nitrogen is applied earlier to soils that are just slightly warmer, about 55° F for 10 days before staying below 50° F, the estimate jumps to 40% of ammonium has converted to nitrate. While nitrogen in manure is different than anhydrous ammonia, manure, especially liquid manure, has nitrogen in the ammonium form, which would behave in a similar manner.

As Figure 4 illustrates, there can be great differences in soils temperatures during this time frame from year to year. On average, soils cool to 50°F during the last week of October but in some years that cooling happens earlier. It is reasonable to include a nitrogen BMP that recognizes this variability and provides an option for land application in years when soils are cool and nitrate leaching potential is lower.

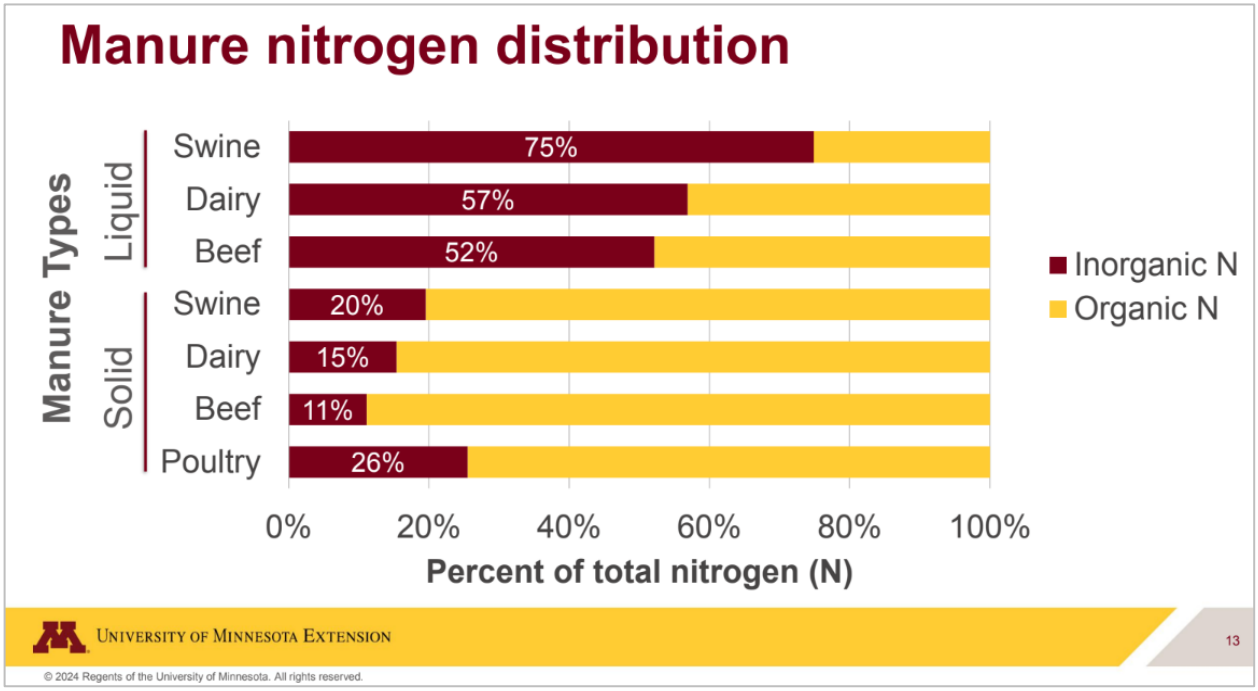
Figure 4: October 15 - 31 soil temperatures near Rochester Minnesota for 2014 - 2024
(Derived using data from DNR stream gaging site 41061002 - https://www.dnr.state.mn.us/waters/csg/index.html)



To provide a reasonable assurance that soils will remain cool, the permits requires at least two consecutive days of soil temps reaching 50°F or less. As the average in Figure 4 shows, once soils reach 50°F they tend to stay at that level and continue cooling. As the yearly data indicates, once soils have reached 50°F for two consecutive days any increase in soil temperatures is short-lived and not significantly above the 50°F threshold. Requiring two consecutive days of cool soils provides reasonable assurance that soils will remain cool. For consistency, the final permits use the two consecutive day threshold for all nitrogen BMPs where soil temperature requirements are specified.

The second part of the combination BMP is dictated by the type of manure to be applied. As Figure 5 below indicates, the percentage of nitrogen in the ammonium (inorganic) form differs substantially between liquid and solid manure.

Figure 5: Typical inorganic and organic fractions of nitrogen in manure
(Source: Melissa Wilson – University of Minnesota)



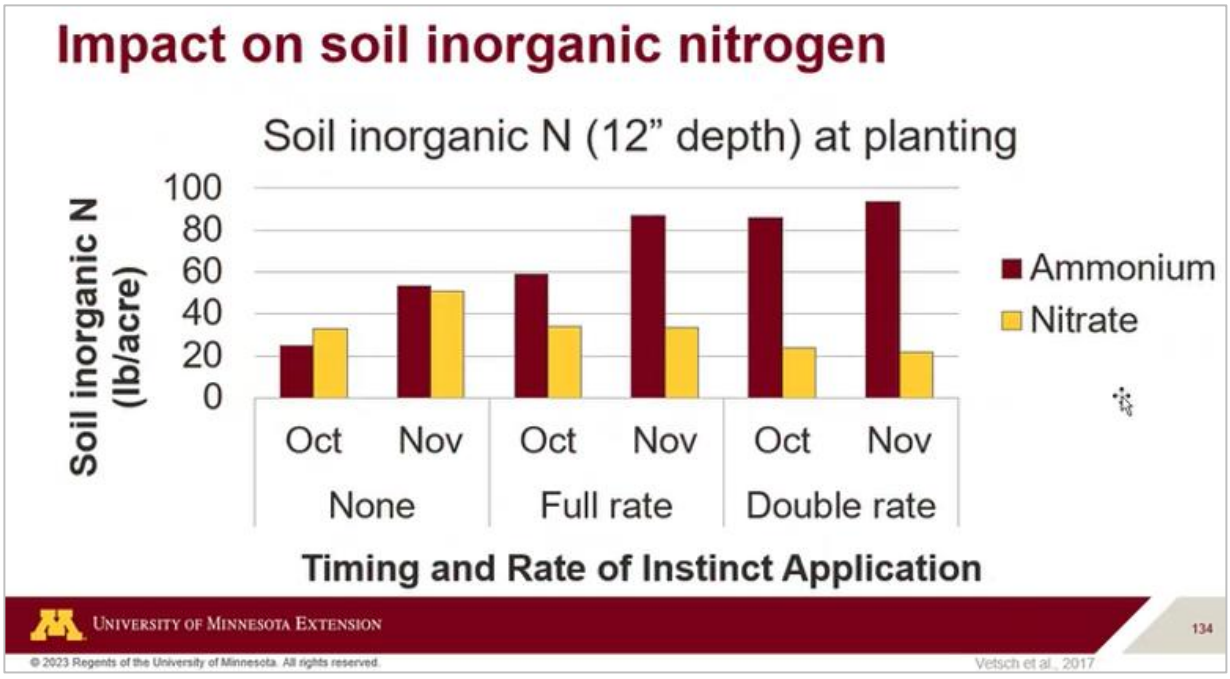
Solid manure has a lower percentage of nitrogen in the inorganic form lending itself well to appreciable reduction in nitrate leaching potential via a split application. Simply applying at a half rate lowers the inorganic nitrogen to a range of 13% to 5.5% of the total Nitrogen (N) that will be applied to the field, presenting a low risk of nitrate leaching. When combined with the cool soils BMP, the nitrate leaching risk is reduced even further. Therefore, all solid manure applications wishing to implement the combined BMP will be required to utilize a split application.

Liquid manure on the other hand has a higher percentage of manure in the inorganic form, which is more easily converted to nitrate by soil microbes. Nitrification inhibitors slow microbial conversion of nitrogen to nitrate meaning they are more effective with liquid manures given the higher percentage of nitrogen in the easily converted inorganic form. Also, nitrification inhibitors are a liquid product, which is best suited for mixing with liquid manure for land application. Therefore, all liquid manure applications wishing to utilize the combined BMP will be required to utilize an inhibitor.

Nitrification inhibitors are also rendered less effective by warm soils. Again, the October 16, 2024, University of Minnesota podcast provides an estimated effectiveness timeline for inhibitor use with anhydrous ammonia. If an inhibitor is applied with the anhydrous ammonia to soils that are below and stay below 50°F, climatic averages indicate it will provide reduce nitrate leaching potential until mid-April, which is about the time of corn planting. While nitrogen in manure is different than anhydrous ammonia, manure, especially liquid manure, has nitrogen in the ammonium form, which would behave in a similar manner.

Research by Jeff Vetsch of the University of Minnesota (*Does Liquid Swine Manure Application Timing and Nitrapyrin Affect Corn Yield and Inorganic Soil Nitrogen, Agronomy Journal Volume 109 Issue 5 2017*) directly supports the effectiveness of the combined nitrogen BMP of cool soils and nitrification inhibitor. In the study, liquid swine manure was fall applied with and without an inhibitor to both warmer (October) and cooler soils (November). Soil samples taken at the time of planting show the benefits of using an inhibitor in conjunction with the cool soils. First, more total inorganic nitrogen (ammonium + nitrate) remains in the soil profile, which indicates less was lost before planting. Second, more of the total inorganic nitrogen remained in the ammonium form and subsequently less nitrate, the form susceptible to leaching, was present in soil samples taken at spring planting. This study shows that more of the nitrogen that was fall applied with an inhibitor to cool soils will be available to the crops which is good for both crop production and the environment (see Figure 6).

Figure 6: Effects of nitrification inhibitor use with swine manure.
(Sources: Slide – Melissa Wilson, University of Minnesota, Data - Jeff Vetsch et al, 2017)



Another benefit to the combination BMP is that if one of the BMPs is not effective due to unforeseen weather conditions, the other BMP can still offer nitrate leaching reduction potential on its own. For instance, if a warm stretch of weather occurs after soils have cooled to 50°F, use of a nitrification inhibitor will still help limit nitrate leaching potential from the warmer soils.

One final note about climatic influence on the final nitrogen BMPs for this timeframe. As would be expected, air and soil temperatures cool sooner in northern Minnesota. While not presented here, data from Little Falls and Westport (northerly vulnerable groundwater areas) show a very similar trend with soil temperatures staying generally above 50°F October 1 – 14 and being consistently cool in November. However, soils do cool to 50°F sooner during October 15 – 31 in the northerly reaches of the vulnerable groundwater areas. Likewise, there may be less opportunity to facilitate cover crop establishment due to cooler growing conditions. This climatic difference is now better addressed by the additional BMP option.

The vulnerable groundwater areas of the state are more prone to impacts from nitrate leaching given the geologic and soil conditions that allow for quicker movement of water, and any nitrates it has picked up along the way, to ground and/or surface water resources. Due to this increased sensitivity, great care must be taken to ensure the potential for nitrate leaching is minimized during the transition from warm

to cool soils at the end of October, hence the need for cover crops, perennial crops, or a combination of other nitrogen BMPs.

Finally, this requirement will become effective in 2027 instead of 2028. As commenters correctly identified, there is current nitrate issue in vulnerable groundwater areas that needs to be addressed as soon as possible. At the same time, there is also a need to allow those that need to make significant modifications to their operation sufficient time to comply. It is anticipated that many producers will utilize the additional combination BMP as it incorporates two practices more commonly employed in current crop production. As this is a more familiar option, less time is needed to make the necessary changes to equipment and manure application practices.

November 1 – 30: Additional nitrogen BMP, BMPs only for liquid manure, and 2027 implementation.

In the same manner as the October 15 – 31 requirements above, an additional combination nitrogen BMP was added as an option for November. However, there is a notable difference in soil temperatures, which is accounted for in the final permit requirements.

As the data in Figure 3 clearly shows, average soil temperature is well below 50°F for the entire month of November. Even the outlier years only see warm soils occur the first week of November, with the soil temperature not significantly above 50°F. The consistently cool soil trend is even more pronounced in the northerly extents of the vulnerable groundwater area, as they rarely experience readings above 50°F the first week of November.

This allows the requirements for November application to be simplified given there is no reasonable need to verify soil temperatures are cool. As a result, the final permits simply require use of a nitrification inhibitor for liquid manure as an additional nitrogen BMP. Refer to the discussion above (October 15 – 31) for more details about the combination BMP of cool soils and nitrification inhibitors and the potential to reduce nitrate leaching. Likewise, the need to verify cool soils was removed from the BMP option of perennial crops two out of five years, as well.

The final permits only require nitrogen BMPs for liquid manure application in November because of its higher inorganic nitrogen (ammonium) content (see Figure 5). The use of a nitrification inhibitor in November will keep more of the inorganic nitrogen in the non-leachable ammonium form (see Figure 6). As discussed above, if an inhibitor is applied with highly inorganic nitrogen manure to soils that are below and stay below 50°F, it is estimated to provide reduced nitrate leaching potential until mid-April, which is about the time of corn planting. This will significantly lower nitrate leaching concerns from liquid manure applications.

Solid manure, on the other hand, has a high organic nitrogen content. With the consistently cool and continuing to cool soils in November it is unlikely that the organic nitrogen will be converted to the leachable form of nitrate. Also, there is a very limited amount of inorganic nitrogen in solid manure, providing minimal opportunity for significant accumulation of nitrate in the soil that could be subject to leaching. Therefore, no nitrogen BMPs are required for solid manure application in November.

Finally, this requirement will become effective in 2027 instead of 2028. As commenters correctly identified, there is current nitrate issue in vulnerable groundwater areas that needs to be addressed as soon as possible. At the same time, there is also a need to allow those that need to make significant modifications to their operation sufficient time to comply. It is anticipated that many producers will utilize the nitrification inhibitor option as that practice is more commonly employed in current crop production. As this is a more familiar option, less time is needed to make the necessary changes to equipment and manure application practices.

Common Issue #2 – Spring Manure Application

Summary of Comments Received

- Weather conditions can make spring manure application nearly impossible due to excess soil moisture, especially this past spring.
- Soils are already wet in the spring so adding more moisture from a manure application can delay crop planting.
- Spring application causes soil compaction that will impact crop yields, increase surface runoff, and potentially increase nitrate losses.
- There is not enough time/resources to apply manure and plant the crops in the spring.
- If manure storage areas cannot be emptied completely before planting, there is an increased risk of overflow.

Response: Just as MDA has requirements to address commercial fertilizer's contribution to the nitrate issues in the vulnerable areas of Minnesota (i.e., no fall application), the MPCA determined that it is necessary to enact similar measures for manure application to limit nitrate loss to the environment. Like MDA, the MPCA acknowledges a lower nitrate leaching risk by moving manure application to spring to limit the amount of time nitrogen is in the soil profile and susceptible to conversion to nitrate. Even so, the MPCA realizes the challenges associated with spring manure application presented in the comments and continues to allow fall application, provided additional nitrogen BMPs are employed as part of the fall application.

It is anticipated that many producers will want to forgo the added expense and uncertainty of utilizing cover crops in conjunction with a fall application, which will inherently increase the occurrence of spring application. All the issues summarized above are truly potential downfalls associated with spring application of manure. However, some manure types and some locations in the state are better suited to accommodate spring manure application making it a viable option for limiting nitrate leaching potential. In addition, the Minnesota extension service recommends spring application to coarse textured soils.

There are serious nitrate issues in the vulnerable areas of Minnesota that will necessitate changes to current crop production practices. Where possible the permits provide multiple options for nitrogen BMPs to allow producers to choose the practice that best fits with their operations. Those that do not want to manage the challenges associated with spring application may find the changes to the fall nitrogen BMPs in the final permits (see common issue 1 for details) more amenable to their operations.

Common Issue #3 – Manure transfer

Summary of Comments Received

- The MPCA does not have the authority to require manure recipients to follow permit conditions.
- What someone does with the manure I give/sell them is none of my business.
- Manure recipients' cropping information is private data already required as part of their records; there is no need for Permittees to gather this information for the MPCA.
- Who is responsible if a recipient does not follow the requirements?
- More regulations on manure application that recipients must follow make it likely crop farmers will switch to commercial fertilizer instead of manure, which does not have the same soil health benefits or regulations as manure.
    - What is a Permittee to do when crop farmers no longer want to take their manure as a result of the increased requirements?

Response: Commenters questioned the legal authority to require manure recipients to comply with the land application requirements of the permits. As outlined below, the authority for the permits to specify the content of manure management plans (MMP) and then require manure recipients to follow the MMP is contained within existing state rules.

First, under Minn. R. 7001.0150, subp. 2, the MPCA is required to include conditions within a permit that not only achieve compliance with state and federal statutes/rules, but also conditions that the MPCA determines to be necessary to protect human health and the environment. Under this authority, the MPCA includes conditions in permits that are not explicitly required in state or federal rules. The draft permits specify specific items that must be included within a MMP to limit potential impacts to human health and the environment associated with land application of manure. The MMP is incorporated into the permits.

Second, Minn. R. 7020.2225, subp. 4(D)(9) clearly indicates that MMPs must contain protective measures to minimize risk of surface and groundwater contamination. The rule provides examples of areas that must be considered beyond those that are specifically addressed in the rule. The list of areas that must be considered for protection in this part of the rule is not intended to be exhaustive accounting, but rather represent the minimum areas that must be included.

The statement of need and reasonableness (SONAR), developed in conjunction with the feedlot rule for Minn. R. 7020.2225, subp. 4(D)(9) supports these conclusions and goes so far as to state that even the minimum requirements of the rule may not provide enough protection to human health and the environment in some situations, including those vulnerable areas without specific rule requirements.

The feedlot rule also identifies examples of protective measures that should be considered in these situations. "*Protective measures include, but are not limited to, soil and water conservation measures, timing of application, methods of application, manure application rates, and frequency of application.*" The measures listed in the rule serve as the foundation for the land application requirements of the permits that must be incorporated into the MMP, and thus provide protection beyond what is explicitly required within the feedlot rules.

Even when manure is transferred, a complete MMP must include protective measures to minimize the risk of surface water and groundwater contamination (Minn. R. 7020.2225, subp. 4(E)). This is also supported by the SONAR that indicates transfer of manure can be contingent on the manure recipient implementing environmental protection measures.

> Finally, Minn. R. 7020.2225, subp. 1(D) clearly states that a manure recipient must comply with the MMP of the animal feedlot; "*{…….} any person receiving the manure or the process wastewater shall:*
>
> (1) *comply with the manure management plan completed by the owner of the animal feedlot where the manure or process wastewater was produced*".
>
> The SONAR for this part of the rule also provides support to the concept of manure recipients following the MMP of the animal feedlot as it states (emphasis added):
>
> *Subitem 1 clarifies that all feedlot owners have responsibility to ensure that the manure generated from their facility is handled in ways that do not cause pollution. Specifically, Subitem 1 requires the landowner receiving manure for land application to comply with the manure management plan of the original feedlot generating the manure. <u>When manure is sold or given away, the feedlot owner can specify certain environmental protection practices that must be followed as part of the agreement to receive the manure.</u>*

Some commenters claimed that once they transfer manure, they have no responsibility to ensure it is land applied in a proper manner. While Permittees do not control the ultimate actions of manure recipients, Permittees are required to include in their MMP protective measures a recipient must follow

(as outlined above) to ensure manure is applied in a proper manner. In this context Permittees do have responsibility for manure they transfer.

A part of ensuring manure is applied in a proper manner is obtaining sufficient documentation (i.e., land application records) from manure recipients. This exchange of information allows Permittees a method to verify the conditions outlined in their MMP were followed. The Permits also require use of the Manure Transfer Tracking form when manure is transferred. This form not only summarizes the required protective measures a recipient must follow, but also allows recipients a space to record their land application practices. Once the recipient completes the form, they return it to the manure generator, thereby providing enough information to demonstrate they complied with the conditions of the MMP. An added benefit to use of the Manure Transfer Tracking form is that it creates a complete record of manure application that is available where the manure was generated, instead of parts of the complete record being found in multiple locations. This allows the MPCA to better evaluate if manure recipients did indeed follow the conditions of the MMP.

Commenters were concerned about who would be held responsible if a manure recipient does not comply with the conditions of the MMP. As discussed above, feedlot owners are required to ensure land application of manure is applied in an appropriate manner. If a manure recipient consistently fails to apply manure in accordance with the MMP then the Permittee should consider no longer transferring manure to that recipient. Despite a Permittee's best efforts, manure recipients may still choose to apply in a manner that is in violation of the MMP. In such situations, enforcement actions can be taken by the MPCA against manure recipients.

A common concern of commenters was the possible reluctance of crop farmers to use manure as a nutrient source as a result of the additional requirements now applicable through the MMP. Concerns included a potential for cropland farmers to switch to commercial fertilizer, which would result in more land not realizing the inherent soil health benefits associated with manure, as well as the possibility of increased environmental impacts due to a perceived lack of regulation of commercial fertilizer applications. A related concern is the possibility that a facility will no longer have access to sufficient land from neighboring crop farmers to land apply the manure they generate.

The MPCA believes that the soil health benefits manure provides are one of the reasons cropland farmers desire to use manure for their cropping enterprise, and therefore will continue to seek out opportunities to use manure for their fertilization needs.

Further, fall application of commercial fertilizer nitrogen is prohibited in vulnerable groundwater areas, whereas the permits allow fall application of manure when BMPs are used. Cropland farmers are also already accustomed to utilizing many of the nitrogen BMPs presented in the permits in conjunction with commercial fertilizer applications. For instance, most cropland farmers will not fall apply nitrogen until soil temperatures have cooled to 50^{o}F, which is also a BMP option for manure application. The final permits also include an additional nitrogen BMP for vulnerable groundwater areas that includes cool soils as part of a combination BMP option (see common issue 1 for details). The MPCA believes that this additional nitrogen BMP, which is more consistent with current crop production practices, will alleviate some of the concern from commenters.

Finally, there are serious nitrate issues in Minnesota that will necessitate changes to current crop production practices. Where possible the permits provide multiple options for nitrogen BMPs to allow cropland farmers opportunities to choose a practice that best fits with their cropping enterprise.

Common Issue #4 – Increased Water Quality Monitoring

Summary of Comments Received

- Require water sampling of field drain tile outlets to detect high levels of nitrate or unauthorized discharges.

- Require water quality sampling of nearby water resources before, during, and after construction of facilities to understand the effects on water quality.
- Unauthorized discharge to groundwater from land application areas is occurring, as evidenced by high nitrate levels, and must be monitored.
- Seepage from a properly designed storage areas is a discharge and must be monitored under state and federal law.
    - A subsurface discharge monitoring plan that includes up and down gradient wells should be required, or the use of a double synthetic liner with leak detection.
    - Storage structure "wear
    - and tear" over-time can increase the likelihood of discharge.

Response: Though the MPCA values monitoring and its importance for assessing water quality and determining compliance, some monitoring efforts associated with feedlots prove to be challenging.

Requiring sampling of subsurface drain tile outlets to identify high levels of nitrates or unauthorized discharges is difficult, as many tile systems are complex networks that connect to other systems before daylighting, miles downstream of the original system. Due to this complexity, discerning the source of the issue is very difficult. The MPCA will continue to focus on preventing manure and manure contaminated runoff from entering drain tile networks through measures such as planning, setbacks, buffers, incorporation of manure, and visual inspections.

Requiring continued sampling of water resources near a facility is challenging because of the many factors that can contribute to nonpoint water quality issues that make it difficult to discern the source of the issue. This type of continued sampling is more amenable to point sources that have a consistent discharge to waters. The effluent limitations of the permits only authorize a discharge due to extreme weather events, which are extremely sporadic or nonexistent. These discharges, along with unauthorized discharges, are required by the permits to be sampled during the discharge event and the results can then be used to determine water quality impacts.

Nitrate issues associated with modern cropping practices are a complex issue. Many factors, including those not under the control of the farmer, influence nitrogen loss in row crop systems. These include temperature, precipitation, soil type, organic matter, crops grown, tillage practices, and nitrogen application rates to name a few. Additionally, land application of manure is only one of the potential contributors to elevated nitrate levels across the state. This does not mean, however, that nitrate issues should be ignored.

The MPCA is charged with enacting permit conditions that protect human health and the environment, but also must consider the reasonableness of the permit conditions. It is not reasonable to require groundwater monitoring of all fields across the state of Minnesota. The MPCA believes that an effective and yet reasonable method of addressing elevated nitrates in groundwater is to focus on prevention of nitrate leaching by requiring implementation of nitrogen BMPs.

Commenters also expressed concerns with seepage from liquid manure storage areas impacting water resources. State feedlot rules contain stringent design standards for construction of manure storage areas. Liquid manure storage areas in particular have many rule requirements that govern location, design, construction, and operation in order to protect human health and the environment.

Minnesota design standards for seepage been in place in excess of 20 years and far exceed the stringency of national Natural Resources Conservation Service (NRCS) standards utilized elsewhere in the country (roughly half the national standard). The design standards in Karst areas go a step further and generally require watertight liners underlain by a cohesive soil liner, in essence a dual liner system.

A vast majority of liquid storage areas in Minnesota also have perimeter tiles that encircle the structure. Its primary function is to control the seasonal water table, but it can also be used as a monitoring device looking for signs of leakage, including that which results from "wear and tear" of continued use over a long period of time. The permits include provisions to perform visual monitoring of perimeter tiles to look for signs of discharge.

Minn. R. ch. 7060, protects groundwater resources; its standards are applicable when groundwater discharges occur. Minn. R. 7060.0600, subp. 5, specifically acknowledges that it was not the intent of this rule to prohibit the use of holding tanks for storage of organic wastes, nor prohibiting land application of organic waste for production of agricultural crops. Inclusion of a seepage standard in the feedlot rule and permit requirements for land application of manure reflect that these activities are not prohibited, but rather must be managed to limit the potential for environmental effects.

As stated above, the MPCA is charged with enacting permit conditions that protect human health and the environment, but also must consider the need for and reasonableness of the permit conditions. It is not needed or reasonable to require groundwater monitoring of all liquid manure storage areas across the state, nor to retrofit all existing liquid storage areas with dual liner systems. The MPCA believes that an effective and yet reasonable method of limiting the potential for significant environmental effects is through the use of the existing rule requirements for location, design, construction, and operation of liquid manure storage areas that exceed standards typically used in other states.

To avoid any confusion that the permits are somehow in conflict with existing state rules and are prohibiting seepage from liquid manure storage areas, the citation of Minn. R. 7020.2003, subp. 1 has been removed from the effluent limitations section of the permits (Part 26.2). Similarly, part 26.3 of the final NPDES permit was modified to clarify that it applies only to surface water discharges, which is consistent with parts 26.4 and 26.5 of the NPDES permit. Part 16.11 of the NPDES permit and Part 16.10 of the SDS permit were also modified to remove any confusion about discharge from animal mortality areas. Animal mortality areas are part of the production area by definition and any discharge would be regulated as a production area discharge. These modifications do not affect the ability of the MPCA to protect groundwater resources in Minnesota as adequate authority still exists in state rules, including Minn. R. 7020.2003, subp. 1.

The permits never intended to prohibit seepage from properly designed, operated, and maintained liquid manure storage areas, nor does the MPCA consider such seepage a discharge of pollutants. With the clarifying change to the permits, the comments suggesting monitoring is required to assure compliance with a prohibition of seepage from liquid manure storage areas are also addressed.

Some commenters did suggest that seepage to groundwater constitutes a functional equivalent of a direct discharge to surface water from the facility, which is prohibited under federal law, and therefore groundwater monitoring is required to ensure compliance with the no discharge standard. It is not reasonable, nor is there precedent, to assume that all groundwater is hydraulically connected to surface waters such that it is a functional equivalent of a discharge to surface waters. A number of very site-specific factors are used to determine if such a connection exists. Upon the site-specific determination that a functional equivalent connection exists, a permit with appropriate controls and monitoring would be required.

SIMILAR COMMENT LETTERS

The following comment letters contained comments that were nearly identical: 7, 10, 12, 14, 16, 17, 19, 22, 28, 29, 30, 31, 34, 35, 37, 38, 43, 52, 55, 56, 58, 60, 61, 62, 63, 66, 69, 74, 78, 80, 90, 91, 104, 108, 116, 119, 122, 123, 124, 161, and 177.

The MPCA offers the following response to all of these comment letters at this location rather than within the response to each letter.

Group Comment 1: I want to share my support for these changes including:

- Protecting our shared groundwater by requiring that by 2028, all lands that have manure applied to them in vulnerable groundwater areas must have either a growing crop, a perennial crop planted, or have a cover crop planted with 14 days of manure application if spreading in October and November. I also support phasing out winter application entirely in these areas.
- Protecting surface waters by limiting manure application within a 100-year floodplain to only application that incorporates the manure into the soil.
- Monitoring spreading by requiring the permit holder to do visual inspections of all land application areas.
- Helping with cleanup and accountability by requiring the permit holder to do water sampling after a manure discharge event.
- Making our rules consistent by requiring people who buy or spread manure from a permit holding operation to follow the permit requirements.

Response: Comments noted.

Group Comment 2: The additional requirements to the October, November, and winter applications of manure in vulnerable groundwater areas are good, common-sense management practices, and the requirement that those practices be followed should be extended to all lands where manure is applied.

Response: State feedlot rules do regulate all manure application in Minnesota but do not contain the same requirements of the NPDES and SDS permits. The MPCA is considering the need for updates to the state feedlots rules.

Group Comment 3: There needs to be a more robust requirement for permit holders to share information record-keeping of manure applications, including water sampling and ensuring that manure buyers are following permit rules with the agency so they can ensure permits are being followed. In addition, this information should be made available to the public.

Response: Facilities covered by these permits are required to submit an annual report to the MPCA. This report includes land application records including instances of transfer of manure ownership and is available to the public. Reporting of water sampling activities is also required to be submitted to the MPCA and is available to the public.

Group Comment 4: This permit should require more proactive water samplings around the permit holding site and where liquid manure from the site is being spread to ensure long-term compliance with the permit and to help ensure accountability.

Response: See response to common issue 4.

Group Comment 5: These permits should also require that new constructions of manure basins and new lands used for spreading must undergo water sampling and testing before construction begins or manure is spread to establish a baseline nutrient load for future testing to be measured against.

Response: See response to common issue 4.

Comment letter 1. Marty Rost

Comment 1-1: Re-growth of small grain after harvest should be considered a cover crop.

Response: Should research indicate that re-growth of small grains is sufficient to be considered a cover crop, the permits allow such alternative nitrogen BMPs to be approved for use by the MPCA.

Comment 1-2: Requiring cover crops in fields that are receiving manure should be a recommendation not a requirement. Properly applied manure that has been incorporated into the soil has far less

potential for runoff than commercially applied fertilizer which can be surface applied and applied to areas where manure has restrictions.

Response: The use of cover crops as a nitrogen BMP is primarily focused on the potential for reduction of nitrate leaching potential to groundwater versus limiting surface runoff. The MPCA does encourage incorporation of manure as a method to reduce surface runoff potential.

Comment 1-3: I feel August and September application of manure needs to be allowed, without the burden of a cover crop and so producers can take advantage of a timeframe when manure applicators are not as busy. We need to be able to take advantage of the entire manure application window that mother nature gives us. Whether it starts in September 15 or October 1.

Response: Elevated nitrate levels in groundwater are an issue in many parts of Minnesota. It is well documented that applying nitrogen to bare ground when soils are warm significantly increases the potential for nitrification and potential loss of fall applied nitrogen. Nitrogen BMPs such as cover crops are required to allow applications of manure in the fall while at the same time reducing the potential for nitrate losses to the environment through leaching. More detailed information about cover crops is provided in the response to common issue 1.

Comment 1-4: What are acceptable nitrification inhibitors? Is there an approved list?

Response: The final permits have been clarified to allow inhibitors that include nitrapyrin, as this compound has been studied and proven effective with manure applications. The permits also allow alternative nitrogen BMPs to be approved for use by the MPCA, potentially including other nitrification inhibitors.

Comment letter 2. Byron Koehl

Comment 2-1: I do not agree with trying to limit fall applied manure. This is the best time for us as farmers to get it applied to our land. Trying to get it in the spring or when we have crops growing is an absolute nightmare.

Response: See response to common issue 2.

Comment letter 3. Mick Madson

Comment 3-1: It is too late to get cover crops started after crop harvest in the fall.

Response: See response to common issue 1.

Comment 3-2: No one will want to take manure in the spring because of the compaction and damage to the seed bed.

Response: The permits do not prohibit fall application but rather require nitrogen BMPs as part of fall application. Where possible the permits include several options for nitrogen BMPs to allow the producer to utilize the BMP that is best for their livestock enterprise. Also see response to common issue 3.

Comment letter 4. Tyler Scott

Comment 4-1: In Minnesota, the success of cover crops can be highly variable due to our climate. There are instances where cover crops are applied but fail to grow, rendering the effort and resources expended ineffective.

Response: See response to common issue 1.

Comment 4-2: Mandating spring application can be impractical and counterproductive. Certain years present conditions that make spring application nearly impossible, and this timing is not always conducive to the best farming practices.

Response: See response to common issue 2.

Comment letter 5. Sharon Fortunak

Comment 5-1: We do not want feedlots polluting the waterways.

Response: Comment noted.

Comment letter 6. Paige Van Pelt

Comment 6-1: Please keep our waters safe with the proposed changes and restrict the size of CAFOs to avoid unduly affecting nearby farmlands and communities' water supplies during extreme weather events.

Response: General permits do not specifically limit the number of animal units at a facility but rather consider the characteristics of the operation. General permits are a single permit issued for facilities whose operations, emissions, activities, discharges, or facilities are the same or substantially similar.

Comment letter 7. Lisa McCorison

Response to this comment letter can be found in the "Similar Comment Letter" section of this document.

Comment letter 8. Janet Nordstrom

Comment 8-1: I support any actions that will help protect our ground water! I think these huge animal farms can be a danger to our health in many ways.

Response: Comment noted.

Comment letter 9. Ruthe Thompson

Comment 9-1: As a resident of SW Minnesota where I often drive on farm roads and pass several confinements, I strongly support these proposed changes.

Response: Comment noted.

Comment letter 10. Lisa Lunsford

Response to this comment letter can be found in the "Similar Comment Letter" section of this document.

Comment letter 11. Jill Crafton

Comment 11-1: The State of Minnesota has done an inadequate job of factoring in geology, land use practices and hydrology to identify vulnerable areas of the state where water quality is at risk.

Response: The vulnerable groundwater area requirements within the draft permits take into account these items by specifically including areas with karst susceptible bedrock, coarse textured soils, shallow depth to bedrock, and highly vulnerable drinking water supply management areas (DWSMA).

Comment letter 12. Meg Anderson

Response to this comment letter can be found in the "Similar Comment Letter" section of this document.

Comment letter 13. Amy Crane

Comment 13-1: The Dead Zones at the end of major rivers around the world are largely caused by too much nitrogen from over fertilizing and runoff. These problems can be helped by not spreading manure from CAFOs during times and in places where it cannot be absorbed properly.

Response: The draft permits require the use of specific BMPs that have a high potential to reduce nitrate losses to the environment during times of the year when nitrate loss is a concern.

Comment letter 14. Paul Moss

Response to this comment letter can be found in the "Similar Comment Letter" section of this document.

Comment letter 15. Jim Bambenek

Comment 15-1: Please protect our precious water resources. Without clean water there is no life, period. All the money and good intentions will not bring back our clean water once it is gone!

Response: Comment noted.

Comment letter 16. Martha Krikava

Response to this comment letter can be found in the "Similar Comment Letter" section of this document.

Comment letter 17. Dean Borgeson

Response to this comment letter can be found in the "Similar Comment Letter" section of this document.

Comment letter 18. Lorraine Rovig

Comment 18-1: Yes, pass these new restrictions. Please do everything possible to protect clean water in ground-level streams, lakes, sloughs, other bodies of potable water, and underground aquifers from feed lot runoff. Our lives and the lives of every living thing from the bugs to the largest animals to the natural lands —all depend on clean water.

Response: Comment noted.

Comment letter 19. Kristen Anderson

Response to this comment letter can be found in the "Similar Comment Letter" section of this document.

Comment letter 20. Keith Johnson

Comment 20-1: The best way to manage feedlot manure is to compost it before field application. Compost is a powder that incorporates into the soil, not solids that can wash away into creeks and streams. Composting retains the nutrients and removes the toxins.

Response: The MPCA uses setbacks to water features to limit the potential for runoff to surface waters.

Comment letter 21. Micky McGilligan

Comment 21-1: Do the right thing. Please tighten regulations and inspections on Feedlots.

Response: Comment noted.

Comment letter 22. Jeanette Torkelson

Response to this comment letter can be found in the "Similar Comment Letter" section of this document.

Comment letter 23. Rom Madsen

Comment 23-1: We need clean water! So we need to insist on better manure management. One way to help us have clean water is to not have feed lots with so many animals at all. It's not good animal husbandry to crowd animals together. It leads to disease. Let's take better care of animals and clean up all of our water including rivers and seas.

Response: Animal husbandry practices are outside the scope of these permits and the MPCA's authority.

Comment letter 24. John King

Comment 24-1: My family lives next to the Long Prairie River. Numerous studies have shown that the primary source of pollution in the river is from field runoff which is loaded with phosphorous. Also the river is underlain by shallow aquifers vulnerable to pollution penetration from the surface that are used both by the river and by residential wells in the river valley. As the climate changes and rain events become more intense, the river and the aquifers become more vulnerable. The additional protections outlined in the NPDES are needed.

Response: Comment noted.

Comment letter 25. Douglas Weiss

Comment 25-1: I support adoption of the NPDES and SPS Feedlot Permits as an important step forward in protecting our groundwater. However, much more needs to be done to protect our critical water resources.

Response: Comment noted.

Comment letter 26. Linda Gross

Comment 26-1: We must use extreme care in strictly controlling rules and regulations surrounding the design and management of feedlots. Regular inspection of feedlots should be a top priority to ensure waste is not seeping into aquifers or flowing into streams, rivers or lakes.

Response: Comment noted. The MPCA does perform periodic inspections of feedlots with coverage under the NPDES or SDS permit.

Comment letter 27. Leland Stoe

Comment 27-1: Please invest in an online electronic system of recordkeeping for CAFO compliance. Along with making surveillance audits super easy compared to searching for the proverbial needle-in-the-haystack of papers, I believe it would make it easier for farmers--who I also support. Having an electronic recordkeeping system would give farmers peace of mind knowing they were in compliance.

Response: The MPCA is nearing completion of an online Nutrient Management Tool that will include an electronic record keeping component. These records will be submitted to the MPCA on an annual basis in an electronic format to facilitate easier review of the data.

Comment letter 28. Erika Thorne

Response to this comment letter can be found in the "Similar Comment Letter" section of this document.

Comment letter 29. Aaron Rosenblum

Response to this comment letter can be found in the "Similar Comment Letter" section of this document.

Comment letter 30. Matt Rohn

Response to this comment letter can be found in the "Similar Comment Letter" section of this document.

Comment letter 31. Kathy Zeman

Response to this comment letter can be found in the "Similar Comment Letter" section of this document.

Comment letter 32. Eileen Levin

Comment 32-1: I support these measures as a start toward protecting our land and environment from all the sewage, runoff, etc., from feedlots. Protecting our streams and rivers are public lands is most important more so than the rights a big business to have these mammoth feed lots, they can do so much damage.

Response: Comment noted.

Comment letter 33. Amy Britt

Comment 33-1: I strongly support these changes to our permitting system to protect our water systems from contamination. Feedlots are unnatural polluters and should be more highly regulated.

Response: Comment noted.

Comment letter 34. Kay Slama

Response to this comment letter can be found in the "Similar Comment Letter" section of this document.

Comment letter 35. Peg Challgren

Response to this comment letter can be found in the "Similar Comment Letter" section of this document.

Comment letter 36. Jeff B

Comment 36-1: We all want clean water, and what is not understood is that as a livestock farmer, we are more responsible with Manure now than ever before.

Response: Comment noted.

Comment 36-2: Cover crops don't work everywhere and are not the answer.

Response: See response to common issue 1.

Comment 36-3: Manure season in the fall is about 6 weeks long and still people put in 20 hours a day trying to stay ahead of Mother Nature. There is not 6 weeks in the spring to get manure out and the crop planted. We had 6 days this spring total with ideal conditions.

Response: See response to common issue 2.

Comment 36-4: Variable rating, soil sampling and N inhibitors are all being done.

Response: Comment noted.

Comment letter 37. Andy Pearson

Response to this comment letter can be found in the "Similar Comment Letter" section of this document.

Comment letter 38. Suzanne Swanson

Response to this comment letter can be found in the "Similar Comment Letter" section of this document.

Comment letter 39. Beth Rose

Comment 39-1: Nitrates in our waters are a real concern here in Lake Country, and I support the manure control measures the Minnesota Pollution Control Agency is now pushing forward. I hear about friends whose well waters are not drinkable and have seen the warning signs in local bars telling pregnant women not to eat the fish. Please continue to fight against industrial farming pollution; size really does matter when it comes to water quality issues.

Response: Comment noted.

Comment letter 40. Jean Meister-Westermann

Comment 40-1: Please both strengthen the regulations on the large animal feedlots (both confinement barns and open feedlots). Ground water is critical to everyone and groundwater protection needs to be above profit always.

Response: Comment noted.

Comment 40-2: There is no need for the very large feedlots which pollute the air, the soil and the groundwater. There are alternative approaches to big lagoons that sit for long periods of time that then seeps into the groundwater and spreading manure via irrigation systems and via manure spreaders.

Response: Comment noted.

Comment letter 41. Peter Hibma

Comment 41-1: Cover crops can work in some situations but not for every situation. There is not time get a cover crop established after crop harvest in the fall (mid Oct to Nov) so that it will actually use nitrogen and phosphorus.

Response: See response to common issue 1.

Comment 41-2: What is the definition of cover crop?

Response: The permits do not require the use of any specific cover crop(s) to allow producers to choose the type of cover crops that work best in their operation.

Comment 41-3: Will any alternatives to the Nutrient Management Tool be allowed?

Response: The Nutrient Management Tool will be the required format submit MMPs to the MPCA. The MPCA will provide training events, tools, and materials to assist users with the tool.

Comment 41-4: Not every year is the same. Some years the proposals in the permit will work, others they will not.

Response: When possible, the general permits provide multiple options for nitrogen BMPs to allow producers to choose the best option in a given year. Also see response to common issue 1.

Comment 41-5: Removing the ability to apply before October 15 and restricting many areas in the state for application until springtime makes it harder for everyone to accomplish their goals and could lead to increased overflows from storage structures that could fill before spring application.

Response: Elevated nitrate levels in groundwater are an issue in many parts of Minnesota. It is well documented that applying nitrogen to bare ground when soils are warm significantly increases the potential for nitrification and potential loss of fall applied nitrogen. Nitrogen BMPs such as cover crops are required to allow applications of manure in the fall while at the same time reducing the potential for nitrate losses to the environment through leaching. More detailed information about cover crops is provided in the response to common issue 1. Also see response to common issue 2.

Comment letter 42. Cody Hoerning

Comment 42-1: I believe the current changes, as proposed, are necessary to protect drinking water in the specified regions. While I deeply understand the economic strain this may put on farmers, I believe the changes are science-based and serve to benefit the public good.

Response: Comment noted.

Comment 42-2: I would encourage the state/agency to offset any additional permitting and compliance costs with grants and other cost-share mechanisms to ensure farmers are not solely financially responsible for this proposed change.

Response: Comment noted.

Comment letter 43. Jennifer Valentine

Response to this comment letter can be found in the "Similar Comment Letter" section of this document.

Comment letter 44. Howard Markus Ph.D., P.E.

Comment 44-1: Manure runoff doesn't happen without larger rain events. As such, during or just after a manure application followed by a large rain event, the manure applicator must immediately visually inspect the application site and immediately contact the MPCA if there is manure runoff from the application site. This must be a requirement of the manure application permit and there must be penalties associated with not reporting the event.

Response: The general permits do require inspection of manure application sites following a "large" rain event unless the manure is incorporated or injected below the soil surface. Placing manure below the soil surface significantly reduces the potential for rainfall to move manure from the field to water features.

Comment letter 45. Nancy Conger

Comment 45-1: I appreciate these beginning efforts to manage manure's impact on water. For any policy to have teeth, please strengthen the reporting requirements, and expand the need for monitoring to all lands that have manure applied. Clean water is the most foundational of all environmental issues. Please protect it as robustly as possible.

Response: See response to common issue 4.

Comment letter 46. Judy Moen

Comment 46-1: What could be more important than clean water? Once water is contaminated, it is very difficult to find a remedy and taxpayers are forced to pay for the mitigation efforts. These contaminants have a broad impact on air and water for years to come and there will be more challenges in the future. I strongly support these very minimal changes that will help us achieve clean water for everyone, regardless of where we live.

Response: Comment noted.

Comment letter 47. James Salkas

Comment 47-1: I believe the new requirements should be set for a lower threshold of 400 AU. The MN Driftless area is a precious one and deserves special consideration and treatment due to its geologic vulnerability as a karst area and cold spring watershed.

Response: State feedlot rules do regulate all manure application in Minnesota but do not contain the same requirements of the NPDES and SDS permits. The MPCA is considering the need for updates to the state feedlots rules.

Comment letter 48. Anthony Stans

Comment 48-1: Feedlots are a primary source of pollution in our groundwater and streams in SE MN. Water quality testing of wells used for drinking by SE MN residents has shown a high level of nitrate contamination from manure and agricultural fertilizer, to the degree that the Federal EPA has required the MNPCA to take action to remedy this situation. I strongly support a more comprehensive permitting process to ensure greater oversight of large feedlots in order to preserve water quality and cold water resources in SE MN.

Response: Comment noted.

Comment letter 49. Kay Slama

Comment 49-1: I'm in favor of increased land application requirements, additional visual inspections, and more requirements for manure that is transferred to others to be land applied. Minnesota needs to guard much better against polluting our water.

Response: Comment noted.

Comment letter 50. Margaret Merkow

Comment 50-1: I support regulations in the State of Minnesota that protect the citizens, animals and plants from pollution. In this case the pollution is run off from manure on large feed lots. I support laws to regulate these feed lots so they do not pollute, and further more i support the state providing money to finance the staff to monitor and enforce the laws.

Response: Comment noted

Comment letter 51. Chris Herickhoff

Comment 51-1: I am concerned about requiring a cover crop on all fall applications of manure. In my situation I apply manure late fall. Typically a week before freezing. If I continue to apply manure late fall, will a cover crop be required? As I am not sure if there will be enough growing season left to establish a cover crop.

Response: See response to common issue 1.

Comment letter 52. Gabriela Santiago

Response to this comment letter can be found in the "Similar Comment Letter" section of this document.

Comment letter 53. Kristofer Coffman

Comment 53-1: I believe that it is critically important that large animal operations are held accountable for responsible storage and management of their manure. The current system prioritizes low-cost commodities over the health of our waters and I would hope that a more stringent permitting system would be adopted and enforced.

Response: Comment noted.

Comment letter 54. Michael Schmidt

Comment 54-1: Feedlots are a potential direct heavy source of pollution when not designed properly and with fail-safes to avoid spills, discharges, and overflows, including high precipitation events or flooding Size restrictions and properly managed capacity restrictions and overflow conditions need to be mandated to reduce these impacts.

Response: The MPCA has extensive design requirements for liquid manure storage areas to address the proper design of such structures (refer to the LMSA handbook at: https://www.pca.state.mn.us/sites/default/files/wq-f8-04.pdf). The design criteria, as well as the permits, including the need to provide a minimum of one foot of "freeboard" within a liquid storage area. This is storage space specifically reserved within a liquid storage area to only be utilized in an emergency situation. The permits require notification when levels encroach into the freeboard area so the MPCA can work with the producer to mitigate potential issues.

Comment letter 55. Marc Robinson

Response to this comment letter can be found in the "Similar Comment Letter" section of this document.

Comment letter 56. David Brockway

Response to this comment letter can be found in the "Similar Comment Letter" section of this document.

Comment letter 57. Keith Laken

Comment 57-1: I believe all feedlots above 1500 head must provide complete sanitation the same as any city in MN. This means that any waste water from the facility must be as clean as the source water. In other words the same specifications for any waste treatment plant that serves the safety of the citizens. I do believe that factory farms should have the same standard than that for electroplating factories. Citizen safety over profits.

Response: In general, the draft permits prohibit any discharge to waters of the state from the production area, unless a significant rainfall event causes an overflow from a properly managed structure. Routine discharge to waters of the state authorized via permits issued to other entities in Minnesota is not authorized by the feedlot general permits.

Comment letter 58. Diane Bublitz

Response to this comment letter can be found in the "Similar Comment Letter" section of this document.

Comment letter 59. Kevin Possin

Comment 59-1: I am very concerned about the well water in the karst region--my neighbors had to drill deeper to avoid the nitrates. Please do not allow any increases in feedlot sizes--they are at dangerous levels already.

Response: General permits do not specifically limit the number of animal units at a facility but rather consider the characteristics of the operation. General permits are a single permit issued for facilities whose operations, emissions, activities, discharges, or facilities are the same or substantially similar.

Comment letter 60. Eva Barr

Response to this comment letter can be found in the "Similar Comment Letter" section of this document.

Comment letter 61. Ian Radtke-Rosen

Response to this comment letter can be found in the "Similar Comment Letter" section of this document.

Comment letter 62. Sharon Kutter

Response to this comment letter can be found in the "Similar Comment Letter" section of this document.

Comment letter 63. Nikki Fleck

Response to this comment letter can be found in the "Similar Comment Letter" section of this document.

Comment letter 64. Monta Hayner

Comment 64-1: As you are required to protect drinking water for all people in the state of Minnesota, These measures for CAFO are a starting point. Yet they are not in effect for 3 years in which the nitrates will continue to increase in the Karsts region of Minnesota.

Response: The delay in implementation acknowledged the significant change to common crop production practices. While cover crop use is increasing, most farms that apply manure to cropland do not routinely use cover crops. As stated by commenters, incorporating cover crops into cropland production practices is more detailed than simply planting the cover crop seed.

In response to comments received, the final permits include an additional nitrogen BMP option that utilizes a combination of BMPs more familiar to producers while still limiting potential for nitrate leaching (see response to common issue 1 for more details). As the new BMP is more familiar to

producers and implementation is less of a change to manure application practices than cover crops, the final permits were revised to require implementation of these BMPs by 2027. In addition, as a result of adding another BMP option to the permits, the delay for implementation of nitrogen BMPs in vulnerable groundwater areas for manure applications October 1 - 14 was removed. Applications during this time in vulnerable groundwater areas will be required to comply with the BMPs required for June – September applications.

Response: A feedlot's coverage under a general permit does not expire 5 or 10 years from the date they initially obtain coverage. All coverage under the general NPDES permit expires on January 31, 2026. All coverage under the general SDS permit expires on May 31, 2025. All permitted sites will be required to implement more protective BMPs for applications in vulnerable groundwater areas October 1 - 14 upon issuance of coverage under the permit and the BMPs for October 15 – November 30 starting in 2027.

Comment 64-2: What plans do you have to determine if these measures are effective. Is there a pre and post well and stream water testing system set up?

Response: The MPCA along with other state agencies will continue to monitor water quality across the state of Minnesota to help assess changes over time.

Comment letter 65. Kurtis Wulf

Comment 65-1: Under the new rules, fall application of manure is still acceptable, and from an operational and stewardship perspective this is vital to stay a part of future permits. Without the ability to fall apply, manure storage areas would need to be larger. The bigger challenge with spring applied manure is the soil compaction that takes place, this affects the potential of the current crop, therefore having an economic effect on my farm. Please keep fall application of manure a non-negotiable topic moving forward.

Response: See response to common issue 2.

Comment letter 66. Cheryl Utecht

Response to this comment letter can be found in the "Similar Comment Letter" section of this document.

Comment letter 67. Jeff Bauman

Comment 67-1: Best management practices for manure are not a "one-size-fits-all" approach. Farmers need options and flexibility to manage their manure and land in a way that works for them while protecting the environment.

Response: When possible, the permits provide multiple BMP options to allow producers to choose a particular BMP that best fits their operation in any given year.

Comment 67-2: The requirement to have cover crops or perennials in the rotation on sensitive soils to fall apply manure is unworkable for many farmers.

Response: See response to common issue 1.

Comment 67-3: Establishing a cover crop later in the fall is very difficult in many fall seasons in Minnesota when temperatures drop rapidly, and when moisture is variable. Getting the stand and growth necessary to scavenge nitrogen with cover crops will be a challenge and may not yield results.

Response: See response to common issue 1.

Comment 67-4: Cover crops will require termination, either through tillage or an herbicide pass in the spring, adding additional challenges in an already short spring planting season.

Response: See response to common issue 1.

Comment 67-5: Spring application of manure presents many challenges. Spring tends to be more wet, increasing the risk of compaction, which damages soil structure, decreases the water holding capacity of the soil, and increases the risk of surface runoff.

Response: See response to common issue 2.

Comment 67-6: There are tools such as nitrogen stabilizers that can be utilized, in conjunction with applying manure after soil temperatures reach 50 degrees, to help mitigate nitrogen losses.

Response: The final permits have been modified to include this as an option. More details are available in response to common issue 1.

Comment 67-7: Transferring manure is made more complicated and puts manure at a disadvantage to commercial fertilizer under the proposed changes. It increases the reporting requirements of the permit holder, requiring they get more information from transferees who may be hesitant to share private farm data.

Response: See response to common issue 3.

Comment 67-8: The required visual inspection process presents little protection as majority of manure is incorporated at the time of application, nearly eliminating the potential for surface runoff.

Response: Visual inspection is a reasonable practice to catch situations where runoff does occur. The inclusion of visual inspection requirements of land application fields is in part a result of a recent court decision in the state of Idaho where the court concluded that monitoring for discharges from land application activities must be part of these types of permits.

Comment letter 68. Aaron Goemann

Comment 68-1: I deeply value the quality of both surface and groundwater in our state and support this regulation. Although manure can be a valuable source of fertilizer in both conventional and regenerative farming practices, great care must be taken to ensure that it is stored, transported, and applied to farmland in meaningful circumstances and by non-destructive means.

Response: Comment noted.

Comment letter 69. Mike Kennedy

Response to this comment letter can be found in the “Similar Comment Letter” section of this document.

Comment letter 70. Angela Anderson

Comment 70-1: Thousand animals and most often more in one place require stringent measures to avoid disease spreading amongst them; and we know that antibiotics and maybe other medications are administered. Manure from these medicated animals is not clean manure. Have we ever studied what this toxic brew does to already compromised soil and ultimately does to us.

Response: The MPCA does not have the authority to regulate pharmaceuticals given to animals; therefore it is not possible to develop a permit condition that would regulate such practices. The MPCA does regulate the application of manure and utilizes setbacks to water resources as a way to minimize exposure via runoff. Additionally, although not required by the permits, a majority of sites with NPDES or SDS permit coverage inject or immediately incorporate manure applications to minimize runoff potential. Application of manure during the winter cannot be incorporated; however, the permits contain conditions to limit applications to times when runoff chances are lower.

Comment 70-2: We need nothing short of a paradigm shift, there should be worldwide moratorium on today's large scale Ag Industry. It will take every one of us to adjust our eating habits, cut the waste, and

relearn what it takes to grow healthy food grown in living soil as local as possible. Globalized agriculture is not the answer.

Response: Comment noted.

Comment letter 71. Mark Schultz

Comment 71-1: The unnatural concentration of livestock in industrial operations is an unsound practice. The only winners are corporate executives and shareholders. The losers are those of us consuming unwholesome food, our soil, water, air, rural communities and the animals themselves.

Response: Animal husbandry practices are not regulated by the permits.

Comment 71-2: Instead of permitting more feedlots, why not concentrate your efforts on rewarding farmers who are trying to do it right, by grazing livestock with selective grazing practices that build healthy soil, eliminate runoff, and recharge wetlands and streams with clean water. I understand that corporations have political clout, but their methods are not wholesome or healthy.

Response: Comment noted.

Comment letter 72. Kent Grandlienard

Comment 72-1: You need to stop ignoring/allowing this repeated pollution by farmers and "Big Ag" that literally washes away decades of clean up /resorption efforts of our State's waters. Same thing with ignoring the repeated "sewage discharges" into waters after "storm events". Enforce the laws, impose SERIOUS fines, and require actually remedies that prevent future pollution. (Like requiring municipalities to update/enlarge their sewerage treatment systems)

Response: The permits include measures to limit the potential for environmental impacts. The MPCA does take enforcement actions for non-compliance with permit conditions.

Comment letter 73. Austin Bernstein

Comment 73-1: What about the other fertilizers and sprays the farms are putting on fields are they part of the problem too? With how fields are tiled now days rain that falls on the fields makes it to our water ways very fast so wouldn't those other chemicals that you can't see make it to our waterways just like the manure does?

Response: The MPCA does not have the authority to regulate other fertilizers and sprays applied to crop fields; therefore, it is not possible to develop a permit condition that would regulate such practices.

Comment letter 74. Judith Moore

Response to this comment letter can be found in the “Similar Comment Letter” section of this document.

Comment letter 75. Matthew Obermeyer

Comment 75-1: I support the increased requirements for feed lots in MN. I believe the spring creeks of southern MN are an incredible natural resource and protection of the water quality for the fish as well as the natural beauty is important. The apparent impact of feedlot run off causing fish kills reduces anglers access to a unique opportunity, to fish stream trout in the midwest.

Response: Comment noted.

Comment letter 76. Jennifer Hsia

Comment 76-1: I feel it is important that these restrictions on manure application be required of all 17,000 feedlots in Minnesota, not just the 1000 largest with over 1000 animal units.

Response: State feedlot rules do regulate all manure application in Minnesota but do not contain the same requirements of the NPDES and SDS permits. The MPCA is considering the need for updates to the state feedlots rules.

Comment 76-2: We need more stringent rules when rain is in the forecast. Manure runoff is the number reason for fish kills and it pollutes our lakes, rivers, and streams.

Response: The permits require incorporation or injection of manure when a significant rainfall is likely. This practice greatly reduces the chance for impacts from contaminated runoff.

Comment letter 77. Shannon Watrin

Comment 77-1: CAFO regulation is daunting and expensive to the midsized farm. We would like to grow to add our next generation of sons, nephews and daughters but fear this policy will prevent that from happening.

Response: Comment noted.

Comment 77-2: We grow cover crops in east central Minnesota and due to the wet spring we were not able to harvest the acres on time or plant this season's crop. Cover crops are a great tool but they don't work every where or all of the time.

Response: See response to common issue 1.

Comment 77-3: Manure is a great resource for crops and soils and it is in the best interest of farmers to be able to apply manure, manage manure and maintain manure for soil health. I assert that farmers need more tools and less mandatory requirements for manure management. Please use common sense, driven by farmer input for the best practices that can help farmers and citizens in MN.

Response: When possible, the draft permits give multiple BMP options for land application of manure to allow producers to choose practices that best fit into their operation.

Comment letter 78. Michelle Gobely

Response to this comment letter can be found in the "Similar Comment Letter" section of this document.

Comment letter 79. Cherie Hales

Comment 79-1: Here in SE Minnesota nitrate and chemical contamination of the groundwater has been an issue for decades. In spite of numerous studies, recommendations and initiatives, and millions of dollars spent, drinking water has gotten worse. It is a public health crisis. I'm glad to see some of the proposed changes regarding the NPDES and SDS permits.

a) Application only on fields with a perennial or cover cop in vulnerable areas and phasing out winter application.

b) Setbacks on floodplains and other water access points unless incorporated.

c) Visual inspections.

d) Rule consistency between original source and whoever spreads it.

Response: Comment noted.

Comment 79-2: I feel that our shared water resources would benefit by some additional changes in the permits.

a) Testing of fields pre-planting before more nitrogen is added.

Response: Not all requirements from the feedlot rule are specifically included within the permits. Permitted sites are still required to comply with state feedlot rules and the need to

perform soil nitrate testing in accordance with University of Minnesota guidelines. At this time, the recommendations for manure applications do not include soil nitrate testing.

b) Water testing at production and storage sites and fields to establish a baseline.

Response: See response to common issue 4.

c) Prohibit winter application everywhere, not just vulnerable lands.

Response: There is a difference because vulnerable groundwater areas of Minnesota are more susceptible to impacts from winter application practices.

d) Use of the Runoff Risk Advisory Forecast tool should be required and spreading prohibited when the risk is high.

Response: The Runoff Risk Advisory Forecast (RRAF) tool is another source of information available to producers to use to assist with planning their manure applications. While the RRAF tool is user friendly, there are other tools crop farmers mind know and understand to make their decisions. Additionally, historical records of rainfall and temperatures are routinely maintained to allow for compliance determinations after a significant time has passed, which is not the same as the RRAF tool. The MPCA will explore opportunities to utilize the RRAF in future regulations.

e) Stronger monitoring should be part of the permit because self-reporting has not been effective.

Response: Many regulatory programs rely on elements of self-reporting. It is not possible for MPCA inspectors to be at every feedlot and field location across the state when manure is being applied. Self-reporting is one of many compliance monitoring tools the agency uses, along with on-site inspections, complaint investigations, and enforcement actions.

Comment letter 80. Judy Harder

Response to this comment letter can be found in the "Similar Comment Letter" section of this document.

Comment letter 81. Andre Lima

Comment 81-1: I support this as it is critical to keep our water clean.

Response: Comment noted.

Comment letter 82. Caroline van Schaik

Comment 82-1: Field inspections for and reporting of spill and discharge, spreading onto a growing crop, water samples because of a spill or excessive rain, and manure buyer permit compliance are excellent, essential additions to feedlot regulations.

Response: Comment noted.

Comment 82-2: Self reporting does not work. No one is going to self-report non-compliance. More monitoring and stated consequences are needed to ensure compliance with the new requirements.

Response: Many regulatory programs rely on elements of self-reporting. It is not possible for MPCA inspectors to be at every feedlot and field location across the state when manure is being applied. Self-reporting is one of many compliance monitoring tools the agency uses, along with on-site inspections, complaint investigations, and enforcement actions.

Comment 82-3: Seed and equipment companies are well stocked and re-imagined, having responded in the steady demand in the past 15-20 years for soil cover options. There is no need to wait until 2028 to implement cover crop requirements.

Response: The delay in implementation acknowledged the significant change to common crop production practices. While cover crop use is increasing, the majority of farms that apply manure to

cropland do not routinely use cover crops. As stated by commenters, incorporating cover crops into cropland production practices is more detailed than simply planting the cover crop seed.

In response to comments received, the final permits include an additional nitrogen BMP option that utilizes a combination of BMPs more familiar to producers while still limiting potential for nitrate leaching (see response to common issue 1 for more details). As the new BMP is more familiar to producers and implementation is less of a change to manure application practices than cover crops, the final permits were revised to require implementation of these BMPs by 2027. In addition, as a result of adding another BMP option to the permits, the delay for implementation of nitrogen BMPs in vulnerable groundwater areas for manure applications October 1 - 14 was removed. Applications during this time in vulnerable groundwater areas will be required to comply with the BMPs required for June – September applications.

A feedlot's coverage under a general permit does not expire 5 or 10 years from the date they initially obtain coverage. All coverage under the general NPDES permit expires on January 31, 2026. All coverage under the general SDS permit expires on May 31, 2025. All permitted sites will be required to implement more protective BMPs for applications in vulnerable groundwater areas October 1 - 14 upon issuance of coverage under the permit and the BMPs for October 15 – November 30 starting in 2027.

Comment letter 83. Mike Bottin

Comment 83-1: The current report info and system is very comprehensive and complete. I can not see how adding more reports to file, will improve water quality or reduce any possible issues. The current system is very through with many checks and balances.

Response: Comment noted.

Comment letter 84. Ryan Thelemann

Comment 84-1: The current feedlot permits are an appropriate measure that enforce common sense measures regarding how manure should be handled. Some of the new proposed rules, especially those regarding fall manure application on certain soil types are too broad and have not been researched far enough.

Response: The nitrogen BMPs in the permits take into account research from the University of Minnesota and other neighboring institutions. The permits do allow for implementation of alternatives should new research indicate other practices provide similar nitrate leaching reduction capacity.

Comment 84-2: It appears that there will be no consideration for lighter soils (based on old soil maps) where organic matter has been improved through soil conservation and the improvement of crop hybrids that resist drought and leave more crop residue on soils, increasing soil organic matter.

Response: The dominant factors in nitrate loss in lighter soils are soil texture and moisture. Lighter soils, by soil texture alone, have a high potential of nitrate loss via leaching. The MPCA vulnerable groundwater area map is using the fall fertilizer restriction map created by the MDA. The MDA has a process to amend their map and has made modifications to it based on site specific soils investigations. If the area is removed from the MDA map it will also be removed from the MPCA vulnerable groundwater area map.

Comment 84-3: By restricting only permitted farms with these permits and on these soil types will put us at a disadvantage to other producers, including smaller livestock producers who are not regulated and are by no means better stewards of manure and discharge. Perhaps it would be better to get all livestock producers regulated under some basic manure management principles before imposing more regulations on those of us already going above and beyond those producers' management who aren't regulated by these permits.

Response: State feedlot rules do regulate all manure application in Minnesota but do not contain the same requirements of the NPDES and SDS permits. The MPCA is considering the need for updates to the state feedlots rules.

Comment letter 85. Renee Bjork

Comment 85-1: If we already have proof of high nitrates in our lakes, rivers and wells. Why are we continuing to add more and more feed lots? When and where is our limit? It's very reckless to continue on this trajectory.

Response: Minnesota state rules and statutes do not regulate the number of allowable feedlots. Fields that are planted to corn will receive nitrogen fertilizer. Manure is just one source of nitrogen. Limiting the amount of manure available as fertilizer simply means the nitrogen will come from another source and will not have the desired effect to stop nitrate leaching from cropland in Minnesota. The feedlot permits include nitrogen BMPs that will limit the potential for nitrate leaching whereas other sources of nitrogen may not.

Comment letter 86. Colleen Werdien

Comment 86-1: I think the small producers need more limits on what they can do.

Response: State feedlot rules do regulate all manure application in Minnesota but do not contain the same requirements of the NPDES and SDS permits. The MPCA is considering the need for updates to the state feedlots rules.

Comment 86-2: I would like to see some measures to quantify if we are improving water quality with this legislation.

Response: The MPCA along with other state agencies will continue to monitor water quality across the state of Minnesota to help assess changes over time.

Comment letter 87. Aaron Meyer

Comment 87-1: I support the proposed tighter restrictions on large feedlots and encourage further work to protect our waters from pollution, including mandating better practices on the more common smaller scale operations that are polluting waters throughout the state via drain tile and runoff.

Response: The MPCA along with other state agencies will continue to monitor water quality across the state of Minnesota to help assess changes over time.

Comment letter 88. James Rossow

Comment 88-1: These feedlots need serious oversight and regular inspections for compliance.

Response: Comment noted.

Comment 88-2: Farmers need help to better understand best practices.

Response: Comment noted.

Comment letter 89. Steve Peterson

Comment 89-1: These rules will help ensure Minnesotans will continue to have clean water.

Response: Comment noted.

Comment letter 90. Joshua Howe

Response to this comment letter can be found in the “Similar Comment Letter” section of this document.

Comment letter 91. Lynne Reeck

Response to this comment letter can be found in the "Similar Comment Letter" section of this document.

Comment letter 92. Nancy Ebel

Comment 92-1: We cannot ruin our groundwater and expect to prosper the people. We are all connected.

Response: Comment noted.

Comment letter 93. Dag Knudsen

Comment 93-1: The permits should require anyone who applies synthetic fertilizers, and pesticides to monitor and report groundwater quality in their application area.

Response: The MPCA does not have the authority to directly regulate these products; therefore, it is not possible to develop a permit condition that would regulate such practices.

Comment 93-2: The permits should require NO degradation of water quality in respective impact areas surrounding the farm.

Response: In general, the draft permits prohibit any discharge to waters of the state from the production area, unless a significant rainfall event causes an overflow from a properly managed structure. The permits also include implementation of nitrogen BMPs in vulnerable groundwater areas that will lower the risk of nitrate leaching.

Comment 93-3: The permits should require improvement on a schedule in areas where there is non-clean water.

Response: The permits include implementation of nitrogen BMPs in vulnerable groundwater areas that will lower the risk of nitrate leaching. It is expected that these measures will improve water quality over time.

Comment 93-4: Enforcement is a must and should be funded to assure it happens. Let the permit holders pay a fee to cover this cost.

Response: Comment noted.

Comment 93-5: The permits should place strict limits on CAFO sizes especially in water quality problem areas. We already have too many large ones.

Response: General permits do not specifically limit the number of animal units at a facility but rather consider the characteristics of the operation. General permits are a single permit issued for facilities whose operations, emissions, activities, discharges, or facilities are the same or substantially similar.

Comment 93-6: Longer term the state should require full treatment of the wastes for the same reasons that I have a sewage treatment/drain field on my property and for the same reasons that cities regardless of size must provide treatment of domestic and industrial sewage.

Response: In general, the draft permits prohibit any discharge to waters of the state from the production area, unless a significant rainfall event causes an overflow from a properly managed structure. Routine discharge to waters of the state authorized via permits issued to other entities in Minnesota is not authorized by the feedlot general permits.

Comment letter 94. Kerri Meyer

Comment 94-1: I am encouraged by the important progress being made in the feedlot permit process and the requirements around best practices for manure management. I most heartily support the requirements that all manure in vulnerable groundwater areas be incorporated into the soil that sustains perennial or cover crops.

Response: Comment noted.

Comment letter 95. Tom Beer

Comment 95-1: The protection of Minnesota's water resources from agricultural and industrial pollution must be the top priority as new standards are written regarding feed lots. Local community, environmental and health impacts must be considered above economic considerations as negative climate impacts mount and water resources are threatened. As a member of the Land Stewardship Project, I support its common sense proposals to protect our water and family farmers.

Response: Comment noted.

Comment letter 96. Kathy Herron

Comment 96-1: Manure management from our large feedlots is one of the many tools we can use to help keep our waters clean. We love our farmers in Minnesota but they are an independent group. Through education and more "boots in the field" working with the farmers and the public can make a big difference.

Response: Comment noted.

Comment letter 97. Diane Bublitz

Comment 97-1: I support changes to the permits required for the spreading of manure from large feedlots. It makes sense that the operators of feedlots take responsibility for safely disposing of the waste products of their business. These regulations put the responsibility for protecting ground water where it belongs, on the businesses that cause the pollution.

Response: Comment noted.

Comment letter 98. Shirley Carpenter

Comment 98-1: Many of the changes and updates that the agency has proposed for the new NPDES and SDS permits are commonsense ways to protect our shared land, water, and communities from the harmful effects of CAFOs, and I want to share my support for these changes.

Response: Comment noted.

Comment 98-2: This permit should require more proactive water samplings to ensure long-term compliance with the permit and to help ensure accountability. These permits should require water sampling and testing be done regularly around the permit holding site and where liquid manure from the site is being spread so that the agency and the public can know that long-term damage and contamination is not occurring.

Response: See response to common issue 4.

Comment 98-3: These permits should also require that new constructions of manure basins and new lands used for spreading undergo water sampling and testing before construction begins or manure is spread to establish a baseline nutrient load for future testing to be measured against.

Response: See response to common issue 4.

Comment letter 99. John Klein

Comment 99-1: I totally support the Land Stewardship Project position. I know that the Canon River is such a beautiful river, but the farm runoff is poisoning it and it is not clean because of runoff from unmanaged manure and Other agricultural runoff. Likewise southeastern Minnesota needs this in enforcement.

Response: Comment noted.

Comment letter 100. Robert Brommerich

Comment 100-1: I have read the proposed changes and fully agree with these changes, especially with the inspections that may be required because of several reasons that may protect the land owner.

Response: Comment noted.

Comment letter 101. Annette Skrukrud

Comment 101-1: We are in karst country and our water has doubled the amount of nitrates in our water in the last 5 years. We just don't need more big farms and feedlots in Fillmore county or neighboring counties.

Response: Comment noted.

Comment letter 102. Julius Salinas

Comment 102-1: I support the Land Stewardship Project position. The Canon River is a beautiful river and farm runoff is destroying it from unmanaged manure and other agricultural runoff. Farm chemical and manure pollution must be addressed immediately for our health now and for the future.

Response: Comment noted.

Comment letter 103. Arlene Renshaw

Comment 103-1: In recent years I became increasingly concerned about the impact of very large corporate farms and their impact on the environment: threatening both surface and groundwater purity as well as the health of the land itself. I completely endorse the recommendations you have received from the Land Stewardship Project, a group that recognizes that the health of land and water is a matter for all Minnesota residents, not just a few individual farm entities.

Response: Comment noted.

Comment letter 104. Carley Nipp

Response to this comment letter can be found in the "Similar Comment Letter" section of this document.

Comment letter 105. Dayna Burtness

Comment 105-1: I'm writing in support of these changes, especially eliminating winter application entirely. It's incredibly painful and maddening to see manure-soaked snow melt flow from the fields into our shared water supply.

Response: Comment noted.

Comment 105-2: I also support the changes to requirements about having a perennial crop or cover crop planted or at least a growing annual crop. Other changes that make a ton of sense are the rules about consistently following the permit requirements even once the manure is transferred (I assumed this was already the case, yikes) and also that if you cause a manure spill or discharge, you gotta help clean it up and pay for water sampling.

Response: Comment noted.

Comment 105-3: Something that hasn't been updated and ought to be is the requirement for proactive sampling and testing of the water wherever liquid manure is being spread. Farmers already do proactive soil sampling to give us info about how to make changes to our nutrient management programs (or at least we all should), so sampling the water nearby makes sense as well.

Response: See response to common issue 4.

Comment letter 106. Anna Larsson

Comment 106-1: I support the proposed changes in the draft general National Pollutant Disposal Elimination System (NPDES) feedlot permit and draft general State Disposal System (SDS) feedlot permit. I would also like to see stronger limits and robust enforcement.

Response: Comment noted.

Comment letter 107. Isabel McNally

Comment 107-1: I am writing to express my strong support for the state's efforts to protect Minnesota's water systems through the implementation of the NPDES and SDS feedlot permits. However, I urge the state to take additional steps to safeguard these critical resources, particularly the nitrate-sensitive Karst landscape of southeastern Minnesota.

Response: Comment noted.

Comment 107-2: While the proposed permits include commendable plans to enforce rules regarding feedlot management and cover crop planting, these measures do not go far enough. It is essential to implement stricter limitations on manure management practices to prevent further contamination and degradation of our water systems.

Response: Comment noted.

Comment letter 108. Anne Plummer

Response to this comment letter can be found in the "Similar Comment Letter" section of this document.

Comment letter 109. Christine Popowski

Comment 109-1: I am writing to express my strong support for the state's efforts to protect Minnesota's water systems through the implementation of the NPDES and SDS feedlot permits. However, I urge the state to take additional steps to safeguard these critical resources, particularly the nitrate-sensitive Karst landscape of southeastern Minnesota.

Response: Comment noted.

Comment letter 110. Tim Harmening

Comment 110-1: I agree with soil samples from the landowners so we don't overapply.

Response: Comment noted.

Comment 110-2: I also agree that farmers that use commercial fertilizer should be checked on where and how much they are applying, not just manure applications.

Response: The MPCA does not have the authority to directly regulate these products; therefore, it is not possible to develop a permit condition that would regulate such practices.

Comment 110-3: What about pollution from urban areas? Everyone likes a nice green lawn and that runs right of the yard onto the street and into the storm sewer and right to the river or pond. That fertilizer is applied right before a rain without any incorporation.

Response: Urban sources of nitrogen are considered to be around 1% of the total contribution of nitrogen to waters whereas cropland sources are considered to be around 70% of the total contribution.

Comment letter 111. Elizabeth OBrien

Comment 111-1: Thanks for you kind attention to the matter of not over crowding animals and making sure to error on the side of clean water, clean air, and not too much manure in one place.

Response: Comment noted.

Comment letter 112. Sonja Montgomery

Comment 112-1: Thank you for proposing fair and clear regulations for feedlot requirements. Clear and concise policy helps everyone follow the rules and makes the playing field more fair from farmer to farmer. I really appreciate the new policy implementation so that we can continue to have clean drinking water, especially with floods coming more frequently than in years past.

Response: Comment noted.

Comment letter 113. Pamela Eyden

Comment 113-1: I strongly support the feedlot permit revisions. Controlling animal and feedlot runoff is one of the very important issues in the Mn Board of Soil & Water Resources One Watershed/One Plan project, in which I participate. If we don't use careful feedlot and farming practices to keep manure and nutrients on the land, where they can be useful, they end up in water, to the damage of human water supplies, besides trout and the other forms of life that depend on water. Without more careful control, it will only get worse — and more expensive — to clean up.

Response: Comment noted.

Comment letter 114. Brad Wenz

Comment 114-1: We already have the tools and procedures in place to solve the problems in the karst region and in coarse textured soils in north central Minn. If problems are still occurring, I would first try to determine if the required practices are not being applied, and why, before adding more.

Response: The MPCA has and will continue to enforce the existing permit requirements, but water monitoring data continues to show elevated levels of nitrates in groundwater resources. The existing nitrogen BMPs provide a good baseline level of protection for most areas of Minnesota; however, the unique geologic and hydrologic characteristics of vulnerable groundwater areas present an elevated susceptibility to nitrate contamination and require additional BMPs to safeguard these areas from contamination.

Comment 114-2: The proposed additional requirements burden the applicants with increased costs, time, and labor and may push livestock producers out of business. Livestock producers, especially dairy, utilize contour strips, contour buffers, perennials in the rotation, soil health inputs, perennial cover in critical areas, nitrogen fixing legumes, managed grazing systems, and functional grass waterways, where as cash crop farmland (i.e., corn soybean rotation) utilizes very few of these measures.

Response: Comment noted. Additional regulations can require changes to past practices, take additional resources to implement, and/or result in additional costs. Removing nitrates from drinking water is a very expensive endeavor for public water supplies and private well owners. There are also significant issues associated with nitrate pollution in surface waters, most notable the hypoxic conditions in the Gulf of Mexico.

Likewise, nitrogen that is applied and subsequently lost to the environment is also an expense for farmers. Nitrogen loss may result in crop nitrogen deficiencies that could impact yields which lowers profitability. Also, the same amount of nitrogen could have been spread on more acres if the nitrogen loss was minimized, which would reduce crop production costs for the farmer.

Where possible the permits include several options for nitrogen BMPs to allow the producer to utilize the BMP that is best for their livestock enterprise.

Comment 114-3: Research from Fabian Fernandez of the University of Minnesota within the central sand plains has shown that over 70 lbs of nitrates per year leave the root zone in a typical corn and soybean rotation fertilized with commercial fertilizer, even when University recommendations are followed. A very similar situation is likely occurring in the karst region of Minnesota as well. Are there similar

research results for manure applications? If not, there is no basis for the increased nitrate BMPs being proposed for manure application.

Response: The source of the nitrogen does not impact the inherent vulnerability of the areas of the state where the increased nitrogen BMPs are proposed. Nitrate in the environment behaves the same whether it was generated as a result of mineralization of nitrogen from commercial fertilizer, manure, or even natural organic matter. There has been research on manure that indicates it also can lose nitrogen to the environment.

Comment 114-4: Increased regulation is not the answer. You need highly trained resource professionals work one on one with each farmer to prove to them that voluntary BMPs can be tailored to their farm and fit into their business plan.

Response: Where possible the permits include several options for nitrogen BMPs to allow the producer to utilize the BMP that is best for their livestock enterprise.

Comment 114-5: There is no need for increased visual inspections if a facility is following its MMP. You also need to define what "discharge" means.

Response: Visual inspection is a reasonable practice to catch situations where runoff does occur. The inclusion of visual inspection requirements of land application fields is in part a result of a recent court decision in the state of Idaho where the court concluded that monitoring for discharges from land application activities must be part of these types of permits. Discharge is a defined term in the permits.

Comment 114-6: Self reporting of discharges as a result of land application inspections will not be successful as farmers will be hesitant to report a discharge for fear of fines or increased public scrutiny or lawsuits.

Response: Many regulatory programs rely on elements of self-reporting. It is not possible for MPCA inspectors to be at every feedlot and field location across the state when manure is being applied. Self-reporting is one of many compliance monitoring tools the agency uses, along with on-site inspections, complaint investigations, and enforcement actions.

Comment 114-7: Why are nitrate leaching BMPs required outside of vulnerable groundwater areas?

Response: Potential for nitrate leaching exists wherever nitrogen is applied to cropland. There are also private wells in these areas that may be impacted as well as subsurface drainage systems that carry water to surface water resources.

Comment 114-8: After October 1st the only cover crop worth planting is cereal rye which is costly to plant ($30/acre) and terminate in the spring ($30/acre). Using a late planted cover crop like this to reduce nitrate leaching is mostly a waste of time and money. Research from Fabian Fernandez (University of Minnesota) found that ½ to ¾ of the total annual drainage and nitrate leaching load happens during late April and mid to late June which is after the cover has been terminated. As quoted in the research, "The benefit of rye in reducing nitrate leaching would be limited, which is what we observed in our measurements".

Response: See response to common issue 1.

Comment 114-9: More research is needed to see if nitrogen inhibitors are effective with manure applications. I believe this to be mostly a waste of time and money with bovine manure. At best only 55% of the nitrogen in manure is converted to nitrates or ammonium the first year and that happens in the spring, well past the couple of weeks the inhibitor is effective in the fall. There may be some effectiveness with swine or poultry manure but I want to see some research about it.

Response: The University of Minnesota has studied the effectiveness of inhibitors with swine manure and found an increase the amount of nitrogen in the soil profile in the spring, in other

words, lower losses to the environment. More detailed information is available in the response to common issue 1.

Comment 114-10: Split application is not realistic with manure applications as big operations hire commercial applicators who will only come one time.

Response: This is only one option for nitrogen BMPs. If a particular producer cannot perform a certain BMP, they can choose a different nitrogen BMP.

Comment 114-11: Application to growing or perennial crops in October and November in vulnerable groundwater areas is OK for hay crops but in reality there is little water or nitrogen uptake after October 1st. This is also the case if cover crops are planted prior to within 14 days or manure application.

Response: Cover crops and perennials have nitrate leaching reduction potential that reaches beyond the fall season. Over wintering cover crops also utilize nitrate in the spring that might otherwise be lost to leaching. The most common perennial is alfalfa which has a deeper root system to remove nitrate at greater depth than corn plants which increases the reduction potential.

Comment 114-12: Remove the perennial crop in rotation requirement for vulnerable groundwater areas. This would exclude the row crop operator that is buying the manure under contract and places undue burden on the NPDES permit holder. Also nearly impossible to enforce. Fifty degree min. temp is ok but also hard to enforce.

Response: This is only one option for nitrogen BMPs. If a particular producer cannot perform a certain BMP, they can choose a different nitrogen BMP.

Comment 114-13: There is no need to prohibit winter application in all vulnerable groundwater areas. The MMP already requires setbacks for winter application. In Stearns County there is already very little application in the winter from large sites unless there is an emergency. This requirement makes more sense for the karst region.

Response: As there is very little winter application from large sites, compliance with this requirement is not expected to be burdensome to producers while providing increased surface water quality protection in these areas.

Comment 114-14: The existing requirements for winter application are hard to administer and enforce. How is slope measured on the field? Is it the dominant slope, maximum slope, or average slope? Who measures this? It is impossible to enforce the Under 50% chance of 1/4 inch rainfall within 24 hours of application requirement. The 2 or more inches of snow requirements is too complicated.

Response: The MPCA is not aware of significant confusion from permittees over these conditions. They have been a part of the NPDES permit for the last 18 years and have not presented a significant challenge to administer or enforce. If producers have questions about the requirements, they can call their regional MPCA staff person for assistance. In regard to the slope question, the entire area where manure is applied must meet the slope restriction.

Comment 114-15: Having permittees report more information about land application of transferred manure makes sense because this information is used to implement the MMP.

Response: Comment noted.

Comment 114-16: Try to separate out groundwater BMPs and Runoff BMPs better in the permit.

Response: Comment noted.

Comment 114-17: The karst regions should have its own set of BMPs to address the unique issues in that region without making them apply to other part of the state without the same issues.

Response: The vulnerable groundwater area BMPs are the same for the karst region of Minnesota as other vulnerable areas, such as coarse textured soils, because the BMPs that are effective at limiting the potential for nitrate leaching are the same across the regions.

Comment 114-18: Follow the Minnesota Nitrogen Fertilizer Plan approach and use well testing data to identify critical areas for regulation of land application. Why does MPCA have to be so different than MDA in regulation of nitrate pollution?

Response: The MPCA is aligning its regulation of manure application with the MDA regulations where possible. The most prominent example is adoption of the MDA fall fertilizer restriction map for the MPCA vulnerable groundwater areas map. While there are commonalities between manure and commercial fertilizer management, there are also differences that need to be taken into consideration.

The MDA regulations only utilize well testing data in relation to vulnerable DWSMA regulations. The MPCA includes all vulnerable DWSMAs within its vulnerable groundwater areas as a proactive measure to prevent elevated levels from occurring in these public water sources. This approach was commended by the Minnesota Department of Health (MDH).

Comment letter 115. Larry Greden

Comment 115-1: I do not accept as fact that more than 70% of the nitrate in Minnesota waters comes from cropland. Science does not yet have all the answers when it comes to Karst topography and the water flow between aquifers. New wells have far less contamination problems than older wells. Countless older wells without proper casing contribute nitrates to the deeper aquifers and they need to be identified and properly sealed. What does science say about their level of contribution to nitrate levels? The City of Altura and Lewiston have in the past had total sewer pond failure where the high-nitrate liquid disappeared into a sinkhole overnight. What does science say about their contribution to nitrate levels?

Response: Nitrate issues in Minnesota are a complex issue. There are many sources of nitrates across the state but there is no doubt that agriculture is a major contributor. There are numerous studies that identify agriculture as a significant source of nitrates in Minnesota. Other sectors may also need to increase efforts to address nitrate issues just as these permits require for feedlots.

More information about agriculture's contribution to nitrogen in Minnesota waters can be found at: https://www.pca.state.mn.us/sites/default/files/wq-s6-26a.pdf.

Comment 115-2: Proposed new regulations will require additional manure storage, which is extremely expensive. Will there be additional funding for cost share monies to help producers comply?

Response: Cost share opportunities are available through the National Resources Conservation Service, soil and water conservation districts, and other sources.

Comment 115-3: Minnesota is losing 8%+ dairy farms each year. In the current economic climate, these new un-funded regulations greatly risk speeding up the loss of Minnesota farms.

Response: Comment noted.

Comment letter 116. Marc Robbins

Response to this comment letter can be found in the "Similar Comment Letter" section of this document.

Comment letter 117. Steve Timmer

Comment 117-1: I write to support better and more stringent rules for CAFOs. Since it is apparently difficult to monitor and identify CAFOs as point sources of water pollution (although I think you could

with better monitoring), it makes sense to regulate the construction, maintenance, and use of CAFOs to prevent or minimize nitrogen, phosphate, and bacterial pollution from entering streams or groundwater.

Response: Comment noted.

Comment 117-2: We already have many impaired streams in the state that are the result of agricultural activity. It is unfair that the state and its citizens bear the cost of this private economic activity.

Response: Comment noted.

Comment letter 118. Jennifer Valentine

Comment 118-1: We need manure management reform - please enact the changes to protect Minnesota water by reducing nitrate contamination from manure produced by feedlots that are 1,000 animal units or more, especially in parts of the state with vulnerable groundwater such as southeastern Minnesota.

Response: Comment noted.

Comment letter 119. Paul Moss

Response to this comment letter can be found in the "Similar Comment Letter" section of this document.

Comment letter 120. Bonnie Hammack

Comment 120-1: We desperately need solutions to our groundwater and surface water contamination problem. The efforts set forth in these permits are only a start of what is needed. These rules should apply to all feed lots, not just those with 1000 animal units or more.

Response: State feedlot rules do regulate all manure application in Minnesota but do not contain the same requirements of the NPDES and SDS permits. The MPCA is considering the need for updates to the state feedlots rules.

Comment 120-2: I appreciate that there must be a groundcover to apply manure, and setbacks.

Response: Comment noted.

Comment 120-3: There must be funding for site inspections.

Response: Comment noted.

Comment letter 121. Madeline Neenan

Comment 121-1: This permit should require more proactive water samplings to ensure long-term compliance with the permit and to help ensure accountability. These permits should require water sampling and testing be done regularly around the permit holding site and where liquid manure from the site is being spread so that the agency and the public can know that long-term damage and contamination is not occurring.

Response: See response to common issue 4.

Comment 121-2: These permits should also require that new constructions of manure basins and new lands used for spreading undergo water sampling and testing before construction begins or manure is spread to establish a baseline nutrient load for future testing to be measured against.

Response: See response to common issue 4.

Comment letter 122. Dana Jackson

Response to this comment letter can be found in the "Similar Comment Letter" section of this document.

Comment letter 123. Mary Ness

Response to this comment letter can be found in the “Similar Comment Letter” section of this document.

Comment letter 124. Mary Voight

Response to this comment letter can be found in the “Similar Comment Letter” section of this document.

Comment letter 125. Roger Wacek

Comment 125-1: I like the changes to feedlot permits but hopefully with the nitrate contamination in SE Minnesota these changes aren't shutting the gate after the cattle are out. With that said SWCDs (Soil & Water Connservation Districts) can protect our environment by enforcing feedlot permits.

Response: Comment noted.

Comment letter 126. Peter Molenaar

Comment 126-1: Beyond permitting as per the recording of dump sites and the rate of disposal, might we view liquid manure as a raw material for the production of compost? In this vision, tall prairie grass would be shredded and piled in rows in scaled up barns, and then injected with the elevated liquid via syringes which would also serve to aerate the piles. To commence, the Department of Agriculture should examine the geography of CAFO distribution to determine the location of a demonstration project. Funding would flow through the IRA, which suggests that subsequent expansion would lie within the public sector. State fair facilities would then house the low cost distribution of product as planting seasons commence.

Response: Comment noted.

Comment letter 127. Lansing Shepard

Comment 127-1: I am writing to express my support for Food & Water Watch's comment on the proposed changes to the Concentrated Animal Feeding Operation National Pollutant Discharge Elimination System General Permit.

Response: Comment noted.

Comment 127-2: MPCA must also ensure that all feedlot areas are monitored for subsurface discharges to surface water and groundwater.

Response: See response to common issue 4.

Comment 127-3: I oppose the provision that allows for feedlots with anaerobic digesters to obtain coverage under the General Permit. Digesters are pollution hazards that incentivize larger feedlots and invite dirty carbon pipelines into Minnesota. I urge MPCA to require facilities with digesters to obtain individual permits with strict water quality protections.

Response: The material that comes out of an anaerobic manure digester is still fundamentally manure. Anaerobic digesters simply provide an environment that enhances the naturally occurring organic material decomposition process. Anaerobic decomposition of organic material in manure is a natural process that is occurring at all liquid manure storage areas in Minnesota making it an exceedingly common similarity between facilities. A digester is simply a liquid manure storage area.

When other organic wastes are mixed with manure and digested (co-digestion) a facility is not eligible for coverage under the general permits if the mixture is not at least 90% manure.

Response: Please see the MPCA fact sheet “Regulatory requirements for anaerobic digesters”, available at: https://www.pca.state.mn.us/business-with-us/feedlot-permits, for more information.

Comment letter 128. Amy Grace

Comment 128-1: I am writing to express my support for Food & Water Watch's comment on the proposed changes to the Concentrated Animal Feeding Operation National Pollutant Discharge Elimination System General Permit.

Response: Comment noted.

Comment 128-2: MPCA must also ensure that all feedlot areas are monitored for subsurface discharges to surface water and groundwater.

Response: See response to common issue 4.

Comment 128-3: I oppose the provision that allows for feedlots with anaerobic digesters to obtain coverage under the General Permit. Digesters are pollution hazards that incentivize larger feedlots and invite dirty carbon pipelines into Minnesota. I urge MPCA to require facilities with digesters to obtain individual permits with strict water quality protections.

Response: The material that comes out of an anaerobic manure digester is still fundamentally manure. Anaerobic digesters simply provide an environment that enhances the naturally occurring organic material decomposition process. Anaerobic decomposition of organic material in manure is a natural process that is occurring at all liquid manure storage areas in Minnesota making it an exceedingly common similarity between facilities. A digester is simply a liquid manure storage area.

When other organic wastes are mixed with manure and digested (co-digestion) a facility is not eligible for coverage under the general permits if the mixture is not at least 90% manure.

Response: Please see the MPCA fact sheet "Regulatory requirements for anaerobic digesters", available at: https://www.pca.state.mn.us/business-with-us/feedlot-permits, for more information.

Comment letter 129. Todd Selvik

Comment 129-1: Planting a cover crop within 14 days of manure application is costly, a waste of resources, adds more greenhouse gases from the application, reduces soil health from another disturbance to the soil structure, and the cover crop won't be able to get established and will rot in the soil.

Response: Not all farms will forego the use of manure in favor of commercial fertilizers. Even if the speculative switch to commercial fertilizer happens, the increase in GHG emissions is not expected to be significant as many of the nitrogen BMPs sequester carbon in the soil and reduce GHG emissions. Greenhouse gas (GHG) emissions are not expected to increase significantly as cover crops tie up nitrates that may otherwise be denitrified and lost as nitrous oxide, a greenhouse gas. Cover crops and perennials in the rotation also have soil health benefits. Also See response to common issue 1.

Comment 129-2: Commercial fertilizer is proven to leach into the ground water faster than a properly applied manure fertilizer. The permit should allow for closer applications of manure as a sustainable, stable fertilizer and to rely less on commercials.

Response: Both manure and commercial fertilizer are susceptible to losses via nitrate leaching. Inorganic nitrogen in manure behaves much the same way as commercial fertilizers as it is naturally mineralized into the nitrate form. Organic nitrogen in manure is slower to convert to the nitrate form but still does present a potential for nitrate leaching as it is broken down over time. Commercial fertilizer is prohibited from fall application in the vulnerable groundwater areas. Fall manure application is allowed so long as one of the nitrogen BMPs in the permits are utilized.

Comment 129-3: Restricting more application time in the fall and forcing spring application will create a large challenge for the manure hauling industry to complete the necessary applications so everyone can empty their pits and lagoons in the fall and the spring. If the pits and lagoons aren't able to be emptied, there is a very large chance that there will be more spill events.

Response: See response to common issue 2.

Comment 129-4: The economics of an application will become more expensive and add more hurdles to a struggling business.

Response: Comment noted.

Comment 129-5: A spring application of manure increases the chance for runoff of manure and soil into the ground water because you are adding more water into already saturated spring melt off conditions. There is more compaction to the soil from the applicators, decreasing soil structure and soil health. There is also less time in the spring for timely applications.

Response: See response to common issue 2.

Comment 129-6: Please don't make it harder for us and our families to make a living while protecting the environment. Please allow for Best Management Practices for each situation, not a one size fits all approach to manure application.

Response: Where possible the permits include several options for nitrogen BMPs to allow the producer to utilize the BMP that is best for their livestock enterprise.

Comment letter 130. Michael Madigan

Comment 130-1: I commend the MPCA for including restrictions on application of manure in a floodplain as a permit change. That was a recommendation included in the recent Legislative Report on Preventing fish kills in Minnesota's Driftless region.

Response: Comment noted.

Comment 130-2: Manure runoff into trout streams has killed over 10,000 fish in recent years. Even modest rainfall events can wash manure applied to the land into streams and underground waterways. For this reason, the proposed visual inspection requirements of land application areas are critical as well as the proposed water sampling requirement of the discharge.

Response: Comment noted.

Comment 130-3: How will these new requirements be adequately enforced and monitored? Will there be training on water sampling and testing protocol for feedlot operators?

Response: The MPCA requested assistance from U.S. Environmental Protection Agency (EPA) about this issue and guidance related to sampling these types of discharges will be available in the future.

Comment 130-4: I would recommend that these important restrictions on manure application be required of all 17,000 feedlots in Minnesota, not just the 1,000 largest with 1,000 animal units or more. As the recent flooding throughout Minnesota demonstrates, extreme rainfall events caused by climate change are becoming common. These events too often lead to runoff of improperly managed manure to our waterways. More stringent rules preventing application of manure when rainfall is forecasted are critical to ensure the quality of the water in our streams and lakes, and the health of trout and aquatic organisms that live in these waters.

Response: State feedlot rules do regulate all manure application in Minnesota but do not contain the same requirements of the NPDES and SDS permits. The MPCA is considering the need for updates to the state feedlots rules.

Comment letter 131. Phil Burfeind

Comment 131-1: Nitrates and other chemicals are nothing new to the watersheds in the area. Large and intensive farms have been proven to be dangerous to water. Guidelines regulating or limiting these facilities need be strengthened—not made easier. Please be mindful and forward looking.

Response: Comment noted.

Comment letter 132. Ferolyn Angell

Comment 132-1: Feedlots are already too big. They are horrible for the animals and it is very upsetting to have them in our counties.

Response: General permits do not specifically limit the number of animal units at a facility but rather consider the characteristics of the operation. General permits are a single permit issued for facilities whose operations, emissions, activities, discharges, or facilities are the same or substantially similar.

Comment letter 133. Dean Compart

Comment 133-1: Cover crops planted in late September have virtually no time to germinate and grow if put on bean stubble.

Response: See response to common issue 1.

Comment 133-2: Forcing spring applied manure has many issues, especially when you get a wet spring like this year. A dry spring has sufficient time to allow for an optimum seed bed to develop which could take 4-7 days to allow for proper drying out of the soil. In wet springs such as 2024, there is not enough time for the soil to dry and apply manure in time for planting the crop. Planting into a wet, cold seed bed will dramatically damage the crop for the entire year. Our corn and bean operation went around the clock to just get crops planted this year now use an event like manure application to smear up the fields and then try to get back in to plant would have caused many to not get their crop planted at all.

Response: See response to common issue 2.

Comment 133-3: Feedlots that sell or transfer manure and would be forced to move to spring application will struggle to find any of the crop farmers in the area to take manure in the spring. What would a permit holder do in that situation?

Response: The permits do not prohibit fall application but rather require nitrogen BMPs as part of fall application. Where possible the permits include several options for nitrogen BMPs to allow the producer to utilize the BMP that is best for their livestock enterprise. Also see response to common issue 3.

Comment 133-4: Older manure storage (pits) often lack capacity for a full twelve months of storage 12 months and all the washing and cleaning that is a normal practice today wasn't being done in the past. With limited capacity manure application in spring only isn’t possible.

Response: Lack of storage capacity at all farms is one reason the permits allow fall application of manure as long as one of the identified nitrogen BMPs are utilized.

Comment letter 134. Don Buhl

Comment 134-1: Fall application is essential to properly utilizing manure nutrients for crop production, avoiding compaction, and protecting the environment which is a high priority for us. Fall application allows us to choose a time to apply manure when the soils are cool and in good condition to accept and retain the nutrients applied.

Response: The permits do allow fall application as long as one of the identified nitrogen BMPs are utilized.

Comment 134-2: Mandated spring application would force producers to compromise because of the time pressure of a short planting window. This would be likely to harm the environment because of increased compaction, increased runoff, and the absence of a freeze/thaw cycle after application to condition the soil for crop production.

Response: See response to common issue 2.

Comment 134-3: The proposed changes would do nothing to improve on how we are protecting the environment. These changes would only make it harder for us to handle our manure in a way that

utilizes the nutrients in a way that protects the environment. They may look good on paper, but in the real world this could be a real mess.

Response: There are elevated nitrate levels in many areas of Minnesota. The permit conditions seek to limit the potential for nitrate loss to the environment by requiring nitrogen BMPs that are based on research from the University of Minnesota as well as neighboring institutions. Where possible the permits include several options for nitrogen BMPs to allow the producer to utilize the BMP that is best for their livestock enterprise.

Comment letter 135. Dawn Georgieff M.D.

Comment 135-1: I would suggest the following to limit feedlot generated manure contamination of our waters:

- Apply manure only to growing crops (certainly no winter application)
- Plant a cover crop within 14 days of manure application
- A perennial crop needs to be applied for 2-5 years

Response: These are included in the permits as options for nitrogen BMPs.

Comment letter 136. Thomas Kunkel

Comment 136-1: As you know, the winter of 2023-24 and the spring of 2024 were very difficult for fertilizer application. One need only look at the fields of yellow corn around me to know that a lot of the fall application went out the tile lines and headed toward the Gulf of Mexico. One might say that this is an abberation, but I see it as the coming future. I think that the possibility of fertilizing in the spring closer to planting has to be given consideration.

Response: Comment noted.

Comment 136-2: I know that farmers prefer applying in November- the air is heavy with the smell most of the month. I don't think that is very healthy either. But if some kind of incentive could be offered, I think some would consider it after the financial hit they took by fertilizing last fall.

Response: Comment noted.

Comment letter 137. James Salkas

Comment 137-1: For too long there has been inadequate monitoring of farms in the Minnesota driftless area. As fish kills mount, the MPCA needs to ensure those responsible can be identified and sanctioned.

Response: See response to common issue 4.

Comment letter 138. Brad Wenz

Previous comment re-submitted as an attached file. Refer to comment letter 114.

Comment letter 139. Matthew Voxland

Comment 139-1: There are 17000 active feedlots in Minnesota and about 1000 Cafo's, not all nitrates in water comes from the large sites. Non-permitted sites are able to apply manure year round, in the rain, snow everyday, which has a higher chance of impacting waters. The proposed regulations should apply to all feedlots not just the largest ones.

Response: State feedlot rules do regulate all manure application in Minnesota but do not contain the same requirements of the NPDES and SDS permits. The MPCA is considering the need for updates to the state feedlots rules.

Comment 139-2: The idea of all this cover crops and split applications is totally unworkable and expensive. I would be fine with using N serve or a similar product.

Response: See response to common issue 1.

Comment letter 140. Ryan Bonow

Comment 140-1: I oppose the changes to the feedlot permits. The changes place another financial burden on family farms. The cost of building manure storage facilities has grown exponentially while the value of the products farms produce has remained flat.

Response: Comment noted.

Comment letter 141. John Huneke

Comment 141-1: I would agree with the information and comments submitted by Brad Wenz.

Response: Comment noted.

Comment 141-2: As it is with taking corn out mid to late October it's a race against time and weather to get the crop out manure applied, and tillage done before freeze up.

Response: Where possible the permits include several options for nitrogen BMPs to allow the producer to utilize the BMP that is best for their livestock enterprise.

Comment 141-3: There has been advances in technology in the last 5 to 10 years that allow a more precise crop production system, cutting costs, and having a positive environmental impact.

Response: The permits allow for approval of other nitrogen BMPs should research indicate they are effective at reducing the potential for nitrate leaching.

Comment letter 142. Gary Trogstad

Comment 142-1: All field tile needs to be tested for nitrate discharges to streams and lakes.

Response: See response to common issue 4.

Comment letter 143. Joel Nelson

Comment 143-1: The research that has been done in Minnesota is not justified in numbers. Today, it is estimated 21% of Minnesota's population receives their drinking water from private wells (1.2 million). Of that 21%, less than 4% have nitrate levels above 3 mg/L. Of the 21% of private wells, an average of .65% have contamination levels of 10% or greater. My math calculates that to be roughly 12,000+/- people of the 5,700,000 people in the state of Minnesota.

Response: Groundwater is the source of drinking water for 75% of all Minnesotans making prevention of nitrate leaching to groundwater an important issue.

Comment 143-2: I am opposed to a state-wide regulation. Topography and groundwater tables vary in every part of the 51 million acres of Minnesota. Regulations and requirements should be left to local county agencies to make best decisions for their populations and best practices for their farmers and ranchers.

Response: Groundwater and surface water resources flow across/beneath geo-political boundaries such as county lines making concerns of nitrate contamination of these resources, at the very least, a regional issue and likely a state-wide issue. The permits do identify regions of the state that are particularly vulnerable to groundwater contamination and require nitrogen BMPs best suited for these areas to limit nitrate leaching potential.

Comment 143-3: Mandating a requirement to plant cover crops in the fall with minimal evidence to conclude that such proposals will be effective, is an unfair and undermining mandate. The Minnesota Department of Health even cites that "It can be difficult to pinpoint where the nitrate in drinking water comes from because there are many possibilities."

Response: NPDES and SDS permitted feedlots are not solely responsible for the nitrate issues in Minnesota, but there is no doubt that they have the potential to contribute to the problem as well as the opportunity to help address the nitrate issue with changes to their current practices. Cropland sources are considered to be around 70% of the total nitrate contribution to waters across the state, which includes manure applications. Also, see response to common issue 1 for more information about cover crops.

Comment 143-4: This regulation will require us to rip up the highest quality native grass forage pastureland to plant oats and cover crops each time manure is spread.

Response: Application to growing crops such as pastureland is a nitrogen BMP that is a part of the permits. There would be no need to plant a cover crop if there is a growing crop on the land application site.

Comment letter 144. David Mensink

Comment 144-1: We feel it is necessary to apply our hog manure in the fall because the equipment needed to apply in the spring will cause soil compaction, which leads to nutrient deficiencies, reduced crop productivity, restricted root development, reduced soil aeration, decreased soil available water, reduced infiltration rate, increased surface runoff, and it damages soil structure.

Response: See response to common issue 2.

Comment 144-2: A one size fits all regulation does not work for the 8 county area that is being singled out.

Response: Groundwater and surface water resources flow across/beneath geo-political boundaries such as county lines making concerns of nitrate contamination of these resources a regional issue. The vulnerable groundwater areas identified in the permits are not one-size-fits-all, and instead are based on the geology and hydrology of regions of Minnesota and go well-beyond the eight counties of the Karst region. This approach is the same that used by the MDA as part of existing commercial fertilizer application regulations. Where possible the permits include several options for nitrogen BMPs to allow the producer to utilize the BMP that is best for their livestock enterprise.

Comment 144-3: There are many BMP used today by farmers to protect water quality, while fully capturing the benefits from manure including, applying after soil temperatures fall below 50 degrees, utilizing a biological or synthetic additive to stabilize nitrogen, split applying and the use of precision technologies and equipment to help apply it precisely. The generations that farmed this land and raised livestock on this same land did not have access to many of these BMP that we use today.

Response: The final permits have been modified to include an additional nitrogen BMP in vulnerable groundwater areas that is consistent with the BMPs identified in the comment. See response to common issue 1 for more details.

Comment letter 145. Duane Wirt

Comment 145-1: Are we focusing on nitrates but not considering arsenic, lead, and manganese?

Response: These compounds are not predominant components of manure.

Comment 145-2: Have we considered the risks of each problem? What causes have we considered- well-casings, local sewer systems, old filled in cisterns, improperly managed well closures or sink holes, city sewer sludge spreading on farm land?

Response: Nitrate issues in Minnesota are a complex issue. There are many sources of nitrates across the state but there is no doubt that agriculture is a major contributor. There are numerous studies that identify agriculture as a significant source of nitrates in Minnesota. Other sectors may also need to increase efforts to address nitrate issues just as these permits require for feedlots.

More information about agriculture's contribution to nitrogen in Minnesota waters can be found at: https://www.pca.state.mn.us/sites/default/files/wq-s6-26a.pdf.

Comment 145-3: How would only Spring manure application work with rains every 2-3 days which happened this year?

Response: See response to common issue 2.

Comment 145-4: Strips, tillage, cover crops are helpful but won't work in every situation.

Response: See response to common issue 1.

Comment 145-5: Consider the financial aspect. Farmers work with a very small margin. Large expensive demands like pits need to be supported by tax dollars or the farmer will sell the cows. Perhaps encourage more or bigger dairies because there is very little erosion when growing alfalfa and small grains that cattle need instead of row crops.

Response: Comment noted.

Comment 145-6: Slow down please, be respectful and get more input from all stakeholders. With more input maybe better ideas will surface.

Response: The permits include the option for approval of additional nitrogen BMPs should research indicate they are effective at limiting nitrate leaching potential.

Comment letter 146. Barbara Courneya

Comment 146-1: I support the proposed changes intended to better protect Minnesota waters from nitrate contamination and require feedlot operations to incorporate additional best management practice into their operations. If anything, I'd like to see even more stringent rules as it is easier to protect clean water than to recover it after it has been polluted. Sustainable farming must be mandated to protect our waters.

Response: Comment noted.

Comment letter 147. Liz Wirt

Comment 147-1: What you are proposing doesn't work and won't solve the problems because only part of the issue has been addressed. Weather is unpredictable and forecasts are not always correct so even with the best information available there will be challenges with spreading.

Response: Weather will continue to be an unpredictable variable that will influence the effectiveness of nitrogen BMPs. Where possible the permits include several options for nitrogen BMPs to allow the producer to utilize the BMP that is best for their livestock enterprise considering variables such as the weather.

Comment 147-2: The increased costs for larger pits and stacking slabs where there is very little profit margin to begin with, will result in a loss of dairy cows. Dairy farming requires land being used for alfalfa and small grains that decrease runoff. Losing cows means increased row crops and more runoff.

Response: Dairy farms may be better suited to adjust to the vulnerable groundwater nitrogen BMPs when compared to other livestock farms. As stated, dairy farms typically include alfalfa in the rotation, which is a nitrogen BMP option in the permits that likely fits well into the current crop production practices of the dairy farm.

Comment 147-3: All farms need to be included - not just those over 1000 animal units. I would guess that in time that number will drop to 750 and then 500 animal units. 10 small farms might equal one large farm.

Response: State feedlot rules do regulate all manure application in Minnesota but do not contain the same requirements of the NPDES and SDS permits. The MPCA is considering the need for updates to the state feedlots rules.

Comment 147-4: It is easy to blame farmers because they are so visible. Please remember that they are not the only people who impact our water. Have there been municipal sewage spills or septic systems contributing?

Response: Nitrate issues in Minnesota are a complex issue. There are many sources of nitrates across the state but there is no doubt that agriculture is a major contributor. There are numerous studies that identify agriculture as a significant source of nitrates in Minnesota. Other sectors may also need to increase efforts to address nitrate issues just as these permits require for feedlots.

More information about agriculture's contribution to nitrogen in Minnesota waters can be found at: https://www.pca.state.mn.us/sites/default/files/wq-s6-26a.pdf.

Comment letter 148. Lawrence Baker Ph.D.

Comment 148-1: The permit requires N to be applied at the U of M "agronomic rate". As I understand this language, it means no more than the crop needs to achieve maximum crop potential. Does this assure that no nitrate will leach through the subsoil and into aquifers? I think that it doesn't (although my knowledge might be a bit dated), and that the regulation needs to be much more stringent.

Response: The recommendations are not as simple as only trying to achieve maximum crop potential. The recommendations do incorporate economics and profitability, but those same economics also prevent excessive nitrogen application to simply maximize yield of the crops. When recommended rates are exceeded, nitrogen loss becomes exceedingly more common, and profitability is decreased because the nitrogen was simply lost. Nitrogen loss is largely influenced by an unpredictable variable, weather conditions. Much focus is given to the rate at which nitrogen is applied; but, even at rates below the University of Minnesota recommendations nitrate losses can occur depending on the weather conditions. In other words, rate is just one factor in the potential for nitrate losses.

Comment 148-2: Cropped fields could be equipped with one or more infiltrometers designed to collect samples of water infiltrating below the root zone. These samples would then be collected to analyze for nitrate. The goal would be to keep average below-root zone nitrate less than 10 mg/L.

Response: See response to common issue 4.

Comment 148-3: It is possible that there is enough previous research that MPCA could develop nitrogen application rates needed to keep below-root zone nitrate levels <10 mg/L. If so, these rates should be the basis for the regulation.

Response: Nitrogen loss is largely influenced by an unpredictable variable, weather conditions. Much focus is given to the rate at which nitrogen is applied; but, even at rates below the University of Minnesota recommendations nitrate losses can occur depending on the weather conditions. In other words, rate is just one factor in the potential for nitrate losses.

Comment 148-4: It is entirely possible that N application rates needed to maximize (or optimize) for corn production would result in nitrate contamination of aquifers in some areas. If so, corn shouldn't be grown, though perhaps other crops could be.

Response: Comment noted. The permits use nitrogen BMPs as a reasonable method to limit potential for nitrate losses to the environment.

Comment 148-5: In summary, we've been very lax about preventing nitrate contamination of groundwater, at great cost and inequity (shifting the cost to private well owners and community water systems). We should be moving our nitrate problem upstream, to the source of the problem.

Response: Comment noted.

Comment letter 149. Scott Winslow

Comment 149-1: Eliminating fall application will be extremely unhealthy for the livestock as well as the farmer taking care of the livestock because the air quality will be diminished. Our air filtration systems won't be able to keep up.

Response: The permits do not prohibit fall application but rather require nitrogen BMPs as part of fall application. Where possible the permits include several options for nitrogen BMPs to allow the producer to utilize the BMP that is best for their livestock enterprise.

Comment 149-2: Without fall application farms will need more storage. You say there are low interest loans to build more manure holding capacity but the price of construction will make it a hardship on many farmers to comply. There is also an increased chance of spills when transferring for one pit to another.

Response: The permits do not prohibit fall application but rather require nitrogen BMPs as part of fall application. A producer may need to construct additional manure storage if they choose to only apply manure in the spring.

Comment 149-3: Research shows that manure adheres to the soil much better than commercial fertilizer. If we wait for the temps to get cool enough, below 50 degrees, as is the current practice, fall spreading is a good option.

Response: The final permits have been modified to include an additional nitrogen BMP in vulnerable groundwater areas that is consistent with the BMPs identified in the comment. See response to common issue 1 for more details.

Comment 149-4: You want us to plant a cover crop prior to fall application, but the cover crop will be destroyed when we inject the manure.

Response: See response to common issue 1.

Comment 149-5: If we wait for spring to try to haul all of our manure, the roads will take quite a beating and our field soil will become compacted. If it is a wet spring planting may get further delayed. With late planting comes smaller yields which effects the bottom line and state economy.

Response: See response to common issue 2.

Comment letter 150. Ben Daley

Comment 150-1: NPDES and SDS farms have the most regulations put on any type of farming operations in Minnesota. The acres where manure from NPDES/SDS permitted sites is applied is far less than the total number of acres in Minnesota that received either commercial fertilizer or manure. NPDES /SDS may generate about 1/3 of the manure but these sites do not have a 1/3 of the acres in total farmland in Minnesota so we can't have 1/3 of the responsibility. If you breakdown NPDES/SDS, non-NPDES/SDS, and farms without animals, this regulation change affects the least amount of acres out of all 3.

Response: NPDES and SDS permitted feedlots are not solely responsible for the nitrate issues in Minnesota but there is no doubt that they have the potential to contribute to the problem as well as the opportunity to help address the nitrate issue with changes to their current practices. In regard to the requirements applying to all livestock farms, state feedlot rules do regulate all manure application in Minnesota but do not contain the same requirements of the NPDES and SDS permits. The MPCA is considering the need for updates to the state feedlots rules.

Comment 150-2: Also a large portion of the NPDES/SDS sites are dairy and have alfalfa in the rotation and that is well below the threshold of 10ppm according to your information. Take Winona County as an example, only 5% of all the ag ground in Winona county is managed by NPDES/SDS sites, with some of

that in a Corn alfalfa rotation which your data shows is below 10ppm nitrate. I've looked at other surrounding counties and have found the same.

Response: Use of perennials in the rotation is a nitrogen BMP option included within the permits.

Comment 150-3: What happens when this gets approved, and the needle doesn't change? Land Stewardship and the like come banging on your door saying we are the ones at fault. Are you going to ask more out of the ones with the most regulations and the least amount of acres and doing the most prevention with those acres?

Response: The MPCA along with MDA and MDH are continuing to work to address nitrate issues across Minnesota from many different entities. The NPDES and SDS permits need to be re-issued so now is the opportunity for this particular sector to implement changes to address the larger issue.

Comment letter 151. Nancy Ventura

Comment 151-1: Best Management Practices (BMP) as guidelines to control and minimize negative consequences of manure and fertilizer applications are wholly insufficient and have not worked.

Response: The permits include BMPs as required practices, which is different than the traditional voluntary nature of BMPs in the past.

Comment 151-2: Since the emphasis of these permitting changes are focused on factory farms, reduce animal unit caps per location, such as in Winona County; as well as provide federal and state subsidies for building manure storage facilities for all farms.

Response: General permits do not specifically limit the number of animal units at a facility but rather consider the characteristics of the operation. General permits are a single permit issued for facilities whose operations, emissions, activities, discharges, or facilities are the same or substantially similar.

Cost share opportunities are available through the National Resources Conservation Service, soil and water conservation districts, and other sources.

Comment 151-3: Epidemiological evidence shows colon cancer begins with long term use of water with nitrate contamination even under 2 ppm (Dr. Eleta Borrud research). We should plan that until the EPA limits are revised downward that no more than 5 ppm of nitrate in wells and bodies of water currently testing over 10 ppm or more would be acceptable for human use and consumption.

Response: The Minnesota MDH has set the health risk limit at 10 ppm for human consumption.

Comment letter 152. Pat Lunemann

Comment 152-1: Mid to late fall has always need the best time to apply manure because of the reasonable soil conditions including cool soil temperatures and it provides adequate time for commercial applicators to get the job done. Spring application is not a reliable option. Winter may last until May. Until frost leaves the ground, soils and roads for equipment are unstable. Soils may be saturated making it impossible to apply manure.

Response: See response to common issue 2.

Comment 152-2: A cover crop is best planted in September or early October otherwise there will not be enough time for the seed to germinate due to cool soil temperatures or lack of moisture. Soybeans are typically harvested in early October and corn as grain mid to late October so applying manure and cover crops post-harvest would not make a difference. Cover crops require clean seed, significant equipment investment, and labor to operate the equipment at a time when labor is scarce due to harvest and other seasonal demands.

Response: See response to common issue 1.

Comment 152-3: Nitrate inhibitors are a good tool and likely more successful than cover cops in mid to late fall. The MPCA should be open to new scientific advancements in nitrate management rather than

confine manure application to narrow unworkable guidelines. The 50 degree soil temperature is still a good rule for manure application especially in conjunction with the new scientific manure management practices.

Response: See response to common issue 1.

Comment 152-4: Manure transfer should be encouraged not discouraged. Some fields need the benefits of a livestock manure application. Establish reasonable guidelines for transfer without creating a burden of paperwork. Consider third party recommendations from certified parties that are then followed and documented in a manner similar to commercial fertilizer.

Response: See response to common issue 3.

Comment 152-5: Land application site inspections "after the fact" are not very useful and more focus should be given to prevention and action plans/reporting instead of simply observing the application.

Response: Visual inspection is a reasonable practice to catch situations where runoff does occur. The inclusion of visual inspection requirements of land application fields is in part a result of a recent court decision in the state of Idaho where the court concluded that monitoring for discharges from land application activities must be part of these types of permits.

Comment letter 153. Margaret Trott

Comment 153-1: While I respect the lengths that modern farmers must go to in order to stay afloat, I do not want feedlots in my community. They degrade air quality and detract from the beauty of the countryside.

Response: Comment noted.

Comment letter 154. Bonnie Haugen

Comment 154-1: I support the new changes proposed for cover crops, incorporating manure, visual inspections water sampling, and having consistency in regulations on spreading or buying manure.

Response: Comment noted.

Comment 154-2: Where nitrate contamination is rising, limiting the number of permitted feedlots in the region should be considered. For example, Ten 1,000 a.u. CAFO's within a 5 township area can be as bad or more risky than one 10,000 a.u. in the same 5 townships. In some regional areas such as the karst region or central sands there is a need for regulation considerations even if the nitrates are not increasing.

Response: Minnesota state rules and statutes do not regulate the number of allowable feedlots. Fields that are planted to corn will receive nitrogen fertilizer. Manure is just one source of nitrogen. Limiting the amount of manure available as fertilizer simply means the nitrogen will come from another source and will not have the desired effect to stop nitrate leaching from cropland in Minnesota. The feedlot permits include nitrogen BMPs that will limit the potential for nitrate leaching whereas other sources of nitrogen may not.

Comment 154-3: The 10 ppm of nitrate level was set with the best intentions years ago and may not be protective enough when considering some studies are showing health issues and lower levels and there is often other contaminants in the water if high levels of nitrates are present.

Response: The MDH has set the health risk limit at 10 ppm for human consumption.

Comment 154-4: Manure application anywhere should get basic attention, and especially when a business is spreading over many acres.

Response: Feedlot rules contain requirements for all manure applications including applying at agronomic rates and observing setbacks.

Comment 154-5: Record keeping that involves protecting water for all should not be secretive.

Response: NPDES and SDS permitted sites are required to submit annual reports to the MPCA which are public information.

Comment 154-6: Extensive water testing and monitoring before, during and after construction of a CAFO should be done.

Response: See response to common issue 4.

Comment letter 155. Randy Wenthold

Comment 155-1: I am writing to express my support for Food & Water Watch's comment on the proposed changes to the Concentrated Animal Feeding Operation National Pollutant Discharge Elimination System General Permit.

Response: Comment noted.

Comment 155-2: MPCA must also ensure that all feedlot areas are monitored for subsurface discharges to surface water and groundwater.

Response: See response to common issue 4.

Comment 155-3: I oppose the provision that allows for feedlots with anaerobic digesters to obtain coverage under the General Permit. Digesters are pollution hazards that incentivize larger feedlots and invite dirty carbon pipelines into Minnesota. I urge MPCA to require facilities with digesters to obtain individual permits with strict water quality protections.

Response: The material that comes out of an anaerobic manure digester is still fundamentally manure. Anaerobic digesters simply provide an environment that enhances the naturally occurring organic material decomposition process. Anaerobic decomposition of organic material in manure is a natural process that is occurring at all liquid manure storage areas in Minnesota making it an exceedingly common similarity between facilities. A digester is simply a liquid manure storage area.

When other organic wastes are mixed with manure and digested (co-digestion) a facility is not eligible for coverage under the general permits if the mixture is not at least 90% manure.

Please see the MPCA fact sheet “Regulatory requirements for anaerobic digesters”, available at: https://www.pca.state.mn.us/business-with-us/feedlot-permits, for more information.

Comment letter 156. Katie Subra

Comment 156-1: I agree with MPCA about the vital importance of reducing runoff and mitigating the impact of nitrates in the soil. However, I do not feel that the national (NPDES) and state (SDS) permit standards are rigorous enough.

Response: Comment noted.

Comment 156-2: Other states have full bans on manure application during the months of December-March, which would be wise to adopt with the extensive karst regions and interconnected waterways in Minnesota. There should not be variance opportunities to bypass these regulations and storage regulations should be better monitored and tested to ensure that no farm is able to skirt the responsibility of keeping our waters safe.

Response: Most significant impacts from winter runoff events are seen when manure is applied within a few weeks prior to a snowmelt or rainfall event. About 2% of total winter runoff in Minnesota occurs in the months of December and January combined. This percentage increases in February to 11% and almost 70% in March. Even though there is limited winter runoff in December and January, the permits include prohibition of winter application when conditions make a runoff event likely. In the month of February, the permits conditions are more restrictive than those

applicable to December and January given the increased potential for runoff. Winter application is prohibited in the month of March because of the high likelihood of a runoff event occurring.

The permits do allow for emergency application of liquid manure to avoid overflow of a storage structure so as to protect the integrity of structure from being compromised. Winter application is only allowed to those fields approved in the MPCA- approved MMP.

Comment 156-3: Not only should we be discussing stricter limits on manure application, we should be focusing our attention on limiting the size of CAFOs in general, as their operations do not benefit but a small number of farmers.

Response: General permits do not specifically limit the number of animal units at a facility but rather consider the characteristics of the operation. General permits are a single permit issued for facilities whose operations, emissions, activities, discharges, or facilities are the same or substantially similar.

Comment letter 157. Tess Dornfeld

Comment 157-1: Your proposed changes to these permits are a step in the right direction, but more must be down to make sure feedlot operations are monitored for surface and groundwater impacts from subsurface discharges.

Response: See response to common issue 4.

Comment 157-2: Soil testing should be required before feedlots are allowed to make additional manure applications.

Response: The permits require soil testing in accordance with University of Minnesota guidance.

Comment 157-3: Wintertime manure application should be banned statewide.

Response: Most significant impacts from winter runoff events are seen when manure is applied within a few weeks prior to a snowmelt or rainfall event. About 2% of total winter runoff in Minnesota occurs in the months of December and January combined. This percentage increases in February to 11% and almost 70% in March. Even though there is limited winter runoff in December and January, the permits include prohibition of winter application when conditions make a runoff event likely. In the month of February, the permits conditions are more restrictive than those applicable to December and January given the increased potential for runoff. Winter application is prohibited in the month of March because of the high likelihood of a runoff event occurring.

The permits do allow for emergency application of liquid manure to avoid overflow of a storage structure so as to protect the integrity of structure from being compromised. Winter application is only allowed to those fields approved in the MPCA- approved MMP.

Comment 157-4: More effective permit monitoring must be done to make sure violations can be identified and addressed in a timely manner.

Response: See response to common issue 4.

Comment 157-5: I'm also concerned about the rapid increase of interest in anaerobic digesters and their use on feedlots. Anaerobic digesters should not be covered under the General Permit. Digesters have many additional impacts on local air pollution and quality of life for neighboring residents and communities due to increased odors and other air emissions.

Response: The material that comes out of an anaerobic manure digester is still fundamentally manure. Anaerobic digesters simply provide an environment that enhances the naturally occurring organic material decomposition process. Anaerobic decomposition of organic material in manure is a natural process that is occurring at all liquid manure storage areas in Minnesota making it an exceedingly common similarity between facilities. A digester is simply a liquid manure storage area.

When other organic wastes are mixed with manure and digested (co-digestion) a facility is not eligible for coverage under the general permits if the mixture is not at least 90% manure.

Please see the MPCA fact sheet "Regulatory requirements for anaerobic digesters", available at: https://www.pca.state.mn.us/business-with-us/feedlot-permits, for more information.

Comment 157-6: I support the comments submitted by the Land Stewarship Project, the Minnesota Center for Environmental Advocacy, and Food & Water Watch on this matter as well.

Response: Comment noted.

Comment letter 158. Tri M Farms

Comment 158-1: It would be impossible to raise pork if we are not allowed to apply manure in the fall season after crops are harvested. Spring does not provide the opportunity to pump pits and get manure applied before planting must happen. Field packing, short time frame and quality of seed bed are all major concerns. We are already worked to the max of human capacity trying to get all the fall work before the ground freezes. Please reconsider

Response: See response to common issue 2.

Comment letter 159. Holden Farms Inc.

Comment 159-1: The 1,000 NPDES and SDS Permit holders generate a minority share of manure in the state of Minnesota at 33% (information shared via MPCA Chatfield Meeting 7/24/24). NPDES and SDS permits holders have stringent restrictions on land application of manure. The remaining 66% of manure generated in the state is applied with virtually no regulation. I would propose that we could make a larger impact on protecting our groundwaters by regulating the majority, rather than increasing the already high level of restrictions on NPDES and SDS permit holders.

Response: State feedlot rules do regulate all manure application in Minnesota but do not contain the same requirements of the NPDES and SDS permits. The MPCA is considering the need for updates to the state feedlots rules.

Comment 159-2: The proposed changes to NPDES and SDS permits will discourage farmers from using manure as a natural and renewable nutrient source for crop land. The result will be increased use of commercial, chemically produced fertilizers. The application of these fertilizers is unregulated, which may lead to an increase in nitrate load in the soil and furthering the risk to our groundwaters.

Response: See response to common issue 3.

Comment letter 160. This comment was identified as "spam".

Comment letter 161. Midwest Food Connection

Response to this comment letter can be found in the "Similar Comment Letter" section of this document.

Comment letter 162. Wakefield Pork Inc.

Comment 162-1: The holders of NPDES and SDS permits land applications have strict regulations in which they already follow, and each land application is reported to the MPCA. Are you looking at the right entity to combat this problem?

Response: NPDES and SDS permitted feedlots are not solely responsible for the nitrate issues in Minnesota but there is no doubt that they have the potential to contribute to the problem as well as the opportunity to help address the nitrate issue with changes to their current practices.

In regard to the requirements applying to all livestock farms, state feedlot rules do regulate all manure application in Minnesota but do not contain the same requirements of the NPDES and SDS permits. The MPCA is considering the need for updates to the state feedlots rules.

Comment 162-2: The proposed changes to the NPDES and SDS permits are discouraging farmers from using manure as a natural nutrient source and will result in more use of commercial, chemically produced fertilizers. Utilizing manure as a fertilizer has more benefits that using commercial fertilizer. Properly applied manure, which has been incorporated into the soil, aids in developing more organic material in the soil, and has less risk of run off that that of commercial fertilizer, which may have been surface applied.

Response: See response to common issue 3.

Comment 162-3: Restricting the time of manure applications in the fall puts a strain on the producer, along with manure applications companies. The number of companies that apply manure is limited, and by shortening up that time frame, planned removal of manure may not be completed before fall freeze up.

Response: Elevated nitrate levels in groundwater are an issue in many parts of Minnesota. It is well documented that applying nitrogen to bare ground when soils are warm significantly increases the potential for nitrification of fall applied nitrogen. Nitrogen BMPs are required to allow applications of manure in the fall while at the same time reduce the potential for nitrate losses to the environment through leaching.

Comment 162-4: Requiring the use of cover crops following an early fall application of manure not only becomes a financial and time burden on the farmer, but it also requires additional equipment use to plant the cover crop, creating more compaction and more carbon emissions. Cover crops are of no benefit if the conditions are not present for proper growth.

Response: See response to common issue 1.

Comment 162-5: Spring application of all manure would be impractical. Spring field conditions and the window in which spring crop planting occurs does not allow for large volume manure application. With the spring soils being more wet, a spring application could increase compaction and damage the soil structure.

Response: See response to common issue 2.

Comment 162-6: Transferring manure will become more complicated. It increases the reporting requirements of the NPDES/SDS permit holder, and the transfer recipients may be hesitant to share their farm data.

Response: See response to common issue 3.

Comment letter 163. Minnesota Agricultural Water Resource Center

Comment 163-1: The proposed permit changes for vulnerable groundwater areas have been developed with little engagement with farmers. In addition, the MPCA has initiated the Southeast Minnesota Nitrate Strategies Collaborative Work Group to develop strategies to address nitrate in groundwater. The Work Group is charged with developing recommendations for improving, prioritizing, and implementing strategies, including strengthening communication and engagement activities, policy or funding proposals, or collaborative strategies to accelerate prevention and mitigation activities. The Work Group includes several farmers. Allowing the work group to complete its work first will result in greater buy-in and engagement of all sectors, but only if the agencies then implement the strategies they have contributed to and agreed on. It is extremely disingenuous of the agency to convene this group while proposing such substantive changes to feedlot permits. The proposed permit changes should be withdrawn until the Work Group concludes its process.

Response: The requirements for vulnerable groundwater areas were modeled after existing nitrogen BMPs from the University of Minnesota that take into account the ability of Minnesota's farmers to implement these practices. Where possible the permits include several options for nitrogen BMPs to allow the producer to utilize the BMP that is best for their livestock enterprise. The permits also

include the option for approval of additional nitrogen BMPs should research indicate they are effective at limiting nitrate leaching potential.

The workgroup is an important part of the broad effort to address nitrate issues in Minnesota; however, that does not mean that all work to address nitrate issues should be put on hold. One possible outcome of the workgroup is to recommend approaches that are consistent with the BMP approach of the feedlot permits that are based on current research, which would make a delay unnecessary. Conversely the opposite is also a possibility, but the feedlot permits are written with the option for alternative nitrogen BMPs to be approved through MMPs.

The need to address nitrate issues that are influenced by feedlots sites is more urgent than simply waiting until these permits next expire (2031 for NPDES and 2035 for SDS). The outcome of the workgroup will be used to refine future iterations of general feedlot permits.

Comment 163-2: The agency proposes new prohibitions and/or requirements for manure applications defined by the agency as "vulnerable," but provides no criteria for the vulnerable groundwater designation. It appears that the agency is largely adopting the MDA's vulnerable groundwater map. However, MDA lists the specific data sources that determine the vulnerable groundwater areas subject to the fall fertilizer application restriction. At a minimum, MPCA should list the data sources on the map description page of their website.

Response: The map is a compilation of the existing MDA's fall fertilizer restriction map and MDH's DWSMA vulnerability map for highly vulnerable DWSMAs. The vulnerable groundwater area shape file and full metadata record is available on the Minnesota geospatial commons. To assist producers and the general public, the MPCA has placed on its website an interactive Nutrient Management Planning Map, which is referenced by the permits as the location for delineating the vulnerable groundwater areas subject to the permit requirements. The Nutrient Management Planning Map is available from this MPCA webpage: https://www.pca.state.mn.us/business-with-us/land-application-of-manure.

Comment 163-3: The broad singular characterization as "vulnerable" does not recognize degrees of vulnerability, which differ across the designated regions. Soil depth above bedrock and karst differ, suggesting different levels of vulnerability which the proposed rule does not account for.

Response: General permits are drafted to provide coverage to many facilities across the state. Inherent to this concept is the need to balance variability across the state with the need to create clear and concise conditions for the permittee and general public to understand. The permits do recognize variability across the state on a broad scale by establishing vulnerable groundwater areas.

Furthermore, the permits establishment of vulnerable groundwater areas is consistent with the approach taken by MDA for commercial fertilizer to characterize "vulnerable" areas of the state. The MDA's fall fertilizer restriction map is directly used to define vulnerable groundwater areas in the permits. This means the same concept of "vulnerability" exists no matter the source of nitrogen to be applied to the field. This is reasonable as the source of nitrogen does not influence the inherent vulnerability created by the geology of the vulnerable areas. Additionally, this creates a permit condition that is more easily understood and implemented because it establishes consistency between agencies in the approach to addressing nitrate issues in Minnesota.

Comment 163-4: Utilizing the same map as the MDA's Groundwater Protection Rule is also problematic because the logistics of manure and fertilizer management are very different. The timeframe for fertilizer application includes a few weeks prior to planting, at planting, and for several weeks during the growing season. Manure applications under the agency proposal would be greatly limited, as applications at planting time and into a growing crop are not feasible with current technology.

Response: The source of nitrogen or the logistics associated with application does not influence the inherent vulnerability of a land application site as the primary variable is geology. The draft permits

do take into account the logistics of manure application. Most notably, the permits allow for fall application of manure as long as nitrogen BMPs are utilized. Also, where possible the permits include several options for nitrogen BMPs to allow the producer to utilize the BMP that is best for their livestock enterprise.

Comment 163-5: Narrowing the window of available days for manure applications could also lead to negative management outcomes due to poor early crop growth due to soil compaction and the inability to avoid runoff-inducing rainfall events, which could all lead to a loss of yield and potentially *increase* nitrate leaching. For example, an unintended consequence of spring application is soil compaction which could create nutrient runoff rather than allowing nutrients to soak into the soil.

Response: See response to common issue 2.

Comment 163-6: Many livestock farmers apply manure both in the spring and fall. For many of them, inadequate manure storage would prevent them from storing 12 months manure production. Further, weather conditions frequently disrupt application plans. The current proposal to limit fall applications would require farmers to increase storage capacity to 14-18 months production to provide a buffer against weather delays. This would require a significant investment and may not be feasible for some farmers.

Response: Producers still have the option to continue manure application during both the spring and fall. Manure can be applied at any time in the fall so long as nitrogen BMPs are implemented. Likewise, spring application is not prohibited. Some producers may choose to increase manure storage volume instead of implement nitrogen BMPs, but the permits do not require additional storage to be constructed.

Comment 163-7: Current permit requirements, specifically, delaying fall applications until soils are below 50 degrees F, should be a continued option, along with nitrogen stabilizers and split application.

Response: The final permits have been modified to include an additional nitrogen BMP in vulnerable groundwater areas that is consistent with the BMPs identified in the comment. See response to common issue 1 for more details.

Comment 163-8: Cover crops hold promise for reducing nitrate leaching loss. We support the incentivizing of cover crops as an option. However, research and farmer experience show that later planted cover crops have much less potential to reduce nitrate leaching due to limited growth in our short growing season.

Response: See response to common issue 1.

Comment 163-9: In a four-year replicated study, conducted at the University of Minnesota Southern Research and Outreach Center drainage facility, it was documented that the weather permitted adequate cover crop growth only during one season that allowed for a significant reduction of nitrates in tile drainage. Vetsch, J. 2020. Vegetative cover crops as a nitrate reduction strategy for tile drainage water. Four-year final report available at mncorn.org.

Response: See response to common issue 1.

Comment 163-10: Research has shown that the lack of precipitation for more than a week after cover crop seeding often results in their poor establishment. The authors argued that “in rainfed agriculture of northern climates weather conditions drive the success of cover crops use in conventional maize production systems”. Rusch, H.L., Coulter, J.A., Grossman, J.M., Johnson G.A., Porter, P.M and Garcia y Garcia. A., 2020. Towards sustainable maize production in the U.S. upper Midwest with interseeded cover crops. PLoS ONE 15(4): e0231032. https://doi.org/10.1371/journal.pone.0231032.

Response: See response to common issue 1.

Comment 163-11: The ability of cover crops to reduce nitrate losses without adverse effects on the primary crop greatly depends on season length. Research conducted in Minnesota shows that cover crops work best in late planted, early harvested crops. This is a significant limitation for full season crops intended to be planted in April or early May and harvested in October. "Cover cropping practice provides promising opportunities for reductions in N losses for cropping rotations wherein the primary crops are harvested before mid-September and planted after mid-May." Feyereisen, G.W., Wilson, B.N., Sands, G.R., Strock, J.S., Porter, P.M. 2006. Potential for a rye cover crop to reduce nitrate loss in southwestern Minnesota. Agron. J. 98, 1416-1426.

Response: See response to common issue 1.

Comment 163-12: Dr. Melissa Wilson's recent and ongoing manure management research is modernizing University of Minnesota manure application recommendations. She reports that "waiting until after soils had cooled to below 50ºF resulted in similar or better corn yields than spring fertilizer. This trend happened regardless of whether cover crops were planted or not." https://www.mncorn.org/research-item/best- management-practices-to-integrate-cover-crops-and-manure/

Response: Crop yields can be influenced by many factors beyond the amount of nitrogen available to the plant. While it does suggest that there was adequate nitrogen for the crop, it does not mean that nitrate was not lost to the environment nor that said possible nitrate loss was the same between the different applications. Cover crops undoubtedly used nitrogen as they grew in the fall so that nitrogen was immobilized by the cover crops and not subject to potential leaching.

Also see response to common issue 1.

Comment 163-13: We ask the agency to provide additional options in addition to cover crops, specifically, continuation of the current permit options to delay application until soil temp is below 50 degrees F, the use of a nitrogen stabilizing agent/product, or split application.

Response: The final permits have been modified to include an additional nitrogen BMP in vulnerable groundwater areas that is consistent with the BMPs identified in the comment. See response to common issue 1 for more details.

Comment 163-14: The MPCA does not have authority through the permit process to extend its reach to recipients of transferred manure. Legally, the permit is issued to the permittee and the permittee only – the permit is not and cannot be issued to a purchaser of manure. The proposed rule places an undue burden on permitholders to collect information from manure recipients that is beyond their purview, and beyond MPCA's authority under the NPDES process. This is unreasonable and will cause some current manure users to switch to fertilizer.

Response: See response to common issue 3.

Comment 163-15: Manure is a proven source of nitrogen that helps to reduce greenhouse gas (GHG) emissions in agriculture. A switch from manure to fertilizer would increase greenhouse gas emissions and work at cross purposes with other MPCA goals and initiatives to reduce GHG emissions in agriculture. Changes to the general feedlot permits should also take into account any unintended consequences of the proposed changes and the increased difficulty in achieving MPCA goals in other areas.

Response: Not all farms will forego the use of manure in favor of commercial fertilizers. Even if the speculative switch to commercial fertilizer happens, the increase in GHG emissions is not expected to be significant as many of the nitrogen BMPs sequester carbon in the soil and reduce GHG emissions.

Cover crops and perennials in the rotation also have soil health benefits. Much like with GHG emissions, the increased soil health benefits from the nitrogen BMPs offset soil health losses from those that switch to commercial fertilizer.

The MPCA also believes that cropland farmers that currently use manure realize the soil health, micro-nutrients, and other benefits of manure application and will continue to seek out opportunities to utilize manure.

Comment 163-16: Livestock and crop production working together provide a sustainable cycle, reducing dependence on fertilizer manufactured elsewhere and transported here. Our environment and economy benefit when manure is used efficiently as plant food. Reporting mandates should be streamlined.

Response: See response to common issue 3.

Comment 163-17: The requirement for field inspections during and up to 14 days following application should be clarified. Delays and costs associated with agency inspection would be unworkable. Any reporting required by manure applicators or permittees should be streamlined. Additionally, most manure is incorporated within 24 hours as a best practice recognized by the MPCA.

Response: Inspections would be completed by the Permittee or their designee, not the MPCA. Visual inspection is a reasonable practice to catch situations where runoff does occur. The inclusion of visual inspection requirements of land application fields is in part a result of a recent court decision in the state of Idaho where the court concluded that monitoring for discharges from land application activities must be part of these types of permits.

Comment letter 164. Winona and Houston County Farm Bureau Federations

Comment 164-1: What is the cost analysis for the practices being required? Cover crops, new equipment i.e. drills, manure, tillage, tractors etc. or even more equipment to be in compliance with the extremely short 14 day window they propose to have the work done. Also include different equipment needed since the new rule requires them to also follow the permit holders' rules.

Response: A cost analysis was not completed; however, cover crops are not required by the permits as there are several options for nitrogen BMPs to allow the producer to utilize the BMP that is best for their livestock enterprise.

Additionally, there is also a cost to the general public as a result of nitrate contamination of water supplies. Removing nitrates from drinking water or having to drill new wells is a very expensive endeavor for public water supplies and private well owners. Likewise, nitrogen that is applied and subsequently lost to the environment is also an expense for farmers. Nitrogen loss may result in crop nitrogen deficiencies that could impact yields, which lowers profitability. Also, the same amount of Nitrogen could have been spread on more acres if the nitrogen loss was minimized, which would reduce crop production costs for the farmer. Also see response to common issue 1.

Comment 164-2: When transferring manure how can I force my neighbor to give me his data? I understand showing transfer and ownership of manure, but what someone does with the product they receive is not my business, I have no right to my neighbors' personal farm data.

Response: See response to common issue 3.

Comment 164-3: How can I force the landowner or purchaser of manure to abide by the proposed new rules? Who is responsible for enforcing these rules on the person buying a product (manure)? The agency should be the one to have that information directly and not through the permit holder who has no authority over another farmer's information and personal data.

Response: See response to common issue 3.

Comment 164-4: Why is the purchaser of transferred manure responsible for following the strict rules for a product they purchase? It isn't that way with commercial fertilizer.

Response: Different rules apply to each product. There are rules that apply to commercial fertilizer applications; for instance, fall nitrogen application is prohibited in vulnerable groundwater areas.

Comment 164-5: Why are there dates for manure application and not weather condition related parameters? If the climate is changing why wouldn't we make it weather related instead of arbitrary dates on a calendar?

Response: Many of the permit conditions relating to manure application timing include weather-related aspects within the calendar dates identified. This is intended to provide clarity as to when certain requirements apply but at the same time account for weather variability within the timeframes. For instance, the requirements for December and January reference specific weather-related conditions that allow for application to frozen or snow-covered soils during those months. If the December and January timeframes were removed, those requirements would apply if winter "came early" and there were frozen or snow-covered fields in November. Additionally, the final permits include an additional nitrogen BMP option for vulnerable groundwater areas based the weather-related condition of soil temperature. For more details refer to the response to common issue 1.

Comment 164-6: Have you done an analysis on how long every farm takes to get their pits cleaned out? Time frame of 14 day to have manure hauled out to cover crops planted is not a feasible time frame for farmers to clean out their pits completely, have time to let the manure dry in the soil before planting a crop without causing soil compaction. Not to mention if there's a rain event in that time frame, it pushes out when you can get in that field to plant. 14 days is not enough time. To have the equipment needed to inject manure as fast as possible manner so they could follow the new proposed rules would cost well over 2 million dollars.

Response: Circumstances, such as weather and soil conditions, that prevent planting a cover crop in the allotted 14-day window after application would be considered in the MPCA's response to noncompliance with this requirement.

Comment 164-7: I am concerned with setting an arbitrary date for manure application. For example, during the month of February 2024, there were many days where soil was thawed and dry and conditions would have been favorable for manure injection. If we abide by a strict prohibition on winter application, we limit ourselves to too narrow of a window for manure application."

Response: Liquid manure application is only prohibited when fields are frozen or snow-covered. If the field is not frozen or snow-covered, which does occur in March and even sometimes February, application is not prohibited.

Comment 164-8: These proposed changes will do little to impact water quality in the region because much of the manure is applied by smaller livestock farms who are not subject to these regulations and might not be able to afford compliance if these changes are adopted.

Response: State feedlot rules do regulate all manure application in Minnesota but do not contain the same requirements of the NPDES and SDS permits. The MPCA is considering the need for updates to the state feedlots rules.

Comment 164-9: It's important to remember that cities are applying sludge from the sewer plants to cropland. If farmers have to build (at their own expense) manure containment for 12-13 months, then all cities will have to do that as well. For farmers and cities this will be a significant financial burden.

Response: Nitrate issues in Minnesota are a complex issue. There are many sources of nitrates across the state but there is no doubt that agriculture is a major contributor. There are numerous studies that identify agriculture as a significant source of nitrates in Minnesota. Other sectors may also need to increase efforts to address nitrate issues just as these permits require for feedlots.

More information about agriculture's contribution to nitrogen in Minnesota waters can be found at: https://www.pca.state.mn.us/sites/default/files/wq-s6-26a.pdf.

The MPCA along with MDA and MDH are continuing to work to address nitrate issues across Minnesota from many different entities. The NPDES and SDS permits need to be re-issued so now is the opportunity for this particular sector to implement changes to address the larger issue.

Producers still have the option to continue manure application during both the spring and fall. Manure can be applied at any time in the fall so long as nitrogen BMPs are implemented. Likewise, spring application is not prohibited. Some producers may choose to increase manure storage volume instead of implement nitrogen BMPs, but the permits do not require additional storage to be constructed.

Comment 164-10: If the suggested changes are made, we will lose a lot of animal agriculture in our area. This is important because when we lose animal units, alfalfa acres are planted with corn and beans which have a greater chance for run-off. A recent change is more rye grass is being planted as cover crops which takes up nitrogen and binds it until Spring when it is needed.

Response: Use of perennials in the rotation is a nitrogen BMP option included within the permits.

Comment 164-11: All types of farmers should be included in the discussion about changing any rules.

Response: State feedlot rules do regulate all manure application in Minnesota but do not contain the same requirements of the NPDES and SDS permits. The MPCA is considering the need for updates to the state feedlots rules.

Comment 164-12: The proposed changes to the NPDES and SDS General Permit do not account for the uncertainties of local weather and economic conditions and threaten the livelihood of our local family farms.

Response: Where possible the permits include several options for nitrogen BMPs to allow the producer to utilize the BMP that is best for their livestock enterprise. Many of the permit conditions relating to manure application timing include weather-related aspects within the calendar dates identified. This is intended to provide clarity as to when certain requirements apply but at the same time account for weather variability within the timeframes. For instance, the requirements for December and January reference specific weather-related conditions that allow for application to frozen or snow-covered soils during those months. If the December and January timeframes were removed, those requirements would apply if winter "came early" and there were frozen or snow-covered fields in November. Additionally, the final permits include an additional nitrogen BMP option for vulnerable groundwater areas based the weather-related condition of soil temperature. For more details refer to the response to common issue 1.

Comment letter 165. Minnesota Farm Bureau Federation

Comment 165-1: We believe that requiring manure recipients to follow the same permit requirements as the feedlot they receive the manure from is a hyperextension of the rule itself and could drive more use of commercial fertilizer instead of manure for nutrient applications. Manure is a sustainable and healthy source of nutrients for soil and plant health, and extending the current scope of the SDS permit in such a way that use of manure could be reduced is not a worthwhile pursuit.

Response: See response to common issue 3.

Comment 165-2: The proposal of information to be recorded and shared back to the permit holder is an overreach in our opinion. Feedlot permits, whether they be the NPDES or SDS permit, were not created to record the cropping data, soil sample tests, or nutrient application rates of farmers individual and private operations. Moreover, forcing a permit holder to be the de facto manager of this information is not realistic nor protective of the private information of individual farms. To place the burden of protecting another farm's private data on an individual permit holder puts that permit holder in a

difficult position. The MPCA cannot expect these requirements to be managed by the regulated community and should acknowledge that if they cannot perform their duties as a regulatory agency those duties should not be thrust onto farmers.

Response: See response to common issue 3.

Comment 165-3: Data privacy is a legitimate concern, especially in a data-driven world where farmers are increasingly becoming more sophisticated on their farms. Data is now used to determine best practices that lead to real business decisions, making it a valuable tool for farmers. This data is for their farms, meant to be kept by them, not thrust upon a permit holder to be made available to the state at the MPCA's discretion.

Response: See response to common issue 3.

Comment 165-4: The Agency proposes that farmers self-report possible discharges that could occur from a rain event within 14 days of manure application, placing farmers in a confusing situation. These proposed requirements would require farmers to self-inspect while not being specific enough in describing what is or isn't a discharge. In addition, the Agency does not elaborate on what will occur once a farmer does self-report to them.

Response: Discharge is defined by the permits (Part 31.18) and it, along with self-reporting to the Minnesota State Duty Officer, has been included in the NPDES general permit since 2001. The permits also include procedures to report the discharge (Part 27.2) and actions producers must take when a discharge occurs (Part 27.3). Actions taken by the agency will depend on the specific circumstances related to the discharge. There has not been evidence of widespread confusion related to these items.

Comment 165-5: Farmers cannot predict weather events that could occur in a 14-day period, thus making this timeline incapable of being used in their application decisions. Moreover, this requirement does not take into account the management of the farm ground where manure is applied and how that could affect possible runoff or subsurface nutrient movement in water.

Response: The permits take into account the management of the land application site as inspections are not required following completion of the land application event when manure is injected or incorporated, even if rainfall is expected in the next 14 days.

Comment 165-6: The creation of a "vulnerable groundwater area" is incredibly vague and does not acknowledge the complexity of the Minnesota landscape. Across the state, including in the MDA's fertilizer restriction map, there is an incredible amount of nuance within the farm ground referenced in the proposed rulemaking. Creating a one-size-fits-all designation will only make it more difficult for farmers to both store and apply manure.

Response: General permits are drafted to provide coverage to many facilities across the state. Inherent to this concept is the need to balance variability across the state with the need to create clear and concise conditions for the permittee and general public to understand. The permits do recognize variability across the state on a broad scale by establishing vulnerable groundwater areas.

Furthermore, the permits establishment of vulnerable groundwater areas is consistent with the approach taken by MDA for commercial fertilizer to characterize "vulnerable" areas of the state. The MDA's fall fertilizer restriction map is directly used to define vulnerable groundwater areas in the permits. This means the same concept of "vulnerability" exists no matter the source of nitrogen to be applied to the field. This is reasonable as the source of nitrogen does not influence the inherent vulnerability created by the geology of the vulnerable areas. Additionally, this creates a permit condition that is more easily understood and implemented because it establishes consistency between agencies in the approach to addressing nitrate issues in Minnesota.

Comment 165-7: Although cover cropping and growing perennial varieties show promise in mitigating nitrate leaching, the requirements proposed in this subsection do not reflect the variability of Minnesota's weather and climate. It is common for wet weather to delay fall harvest, removing a farmer's ability to plant cover crops due to frozen ground or unfavorable growing conditions. Farmers do not control the weather, and cannot predict if they will be able to grow cover crops every year on their acreage.

Response: See response to common issue 1.

Comment 165-8: Not all farms wish to utilize perennial crops in their crop rotation and should not be forced to grow commodities that do not fit their farm or business plan.

Response: Perennials not required by the permits as there are several options for nitrogen BMPs to allow the producer to utilize the BMP that is best for their livestock enterprise.

Comment 165-9: There is a finite amount of equipment available to plant cover crops that require significant monetary investment, and only so many seed varieties and volumes available. With this context, we believe the 2028 implementation timeline for these requirements would be too fast for farmers to comply for fall manure applications.

Response: The final permits have been modified to include an additional nitrogen BMP in vulnerable groundwater areas that utilizes existing nitrogen BMPs that are more common in the industry today. See response to common issue 1 for more details.

Comment 165-10: If farmers are not able to apply manure in the fall, they will be forced to store that manure for longer periods of time which will lead to a need for greater manure storage on their feedlots. As the MPCA is aware, livestock do not stop producing manure simply because the fall and winter have come again, and if feedlot managers are not given the opportunity to apply manure when it is best for both soil health and manure storage, they will be forced into a no-win situation of needing more storage capacity and having to apply a greater amount of manure at individual times.

Response: Producers still have the option to continue manure application during both the spring and fall. Manure can be applied at any time in the fall so long as nitrogen BMPs are implemented. Likewise, spring application is not prohibited. Some producers may choose to increase manure storage volume instead of implement nitrogen BMPs, but the permits do not require additional storage to be constructed.

Comment 165-11: We request the MPCA consider creating flexibility to the proposed fall application requirements that consider circumstances out of farmer's control and encourage the continued use of the 50-degree F soil temperature threshold.

Response: The final permits have been modified to include an additional nitrogen BMP in vulnerable groundwater areas that is consistent with the BMPs identified in the comment. See response to common issue 1 for more details.

Comment 165-12: The recent creation of the MPCA-led Southeast Minnesota Nitrate Strategies Collaborative Work Group as a reason to withdraw the current proposed rule change and allow the work group to provide recommendations to the agency regarding manure management and nitrate mitigation.

Response: The requirements for vulnerable groundwater areas were modeled after existing nitrogen BMPs from the University of Minnesota that take into account the ability of Minnesota's farmers to implement these practices. Where possible the permits include several options for nitrogen BMPs to allow the producer to utilize the BMP that is best for their livestock enterprise. The permits also include the option for approval of additional nitrogen BMPs should research indicate they are effective at limiting nitrate leaching potential.

The workgroup is an important part of the broad effort to address nitrate issues in Minnesota; however, that does not mean that all work to address nitrate issues should be put on hold. One

possible outcome of the workgroup is to recommend approaches that are consistent with the BMP approach of the feedlot permits that are based on current research, which would make a delay unnecessary. Conversely the opposite is also a possibility, but the feedlot permits are written with the option for alternative nitrogen BMPs to be approved through MMPs.

The need to address nitrate issues that are influenced by feedlots sites is more urgent than simply waiting until these permits next expire (2031 for NPDES and 2035 for SDS). The outcome of the workgroup will be used to refine future iterations of general feedlot permits.

Comment letter 166. Christensen Farms

Note: This commentor submitted comments both online and via U.S. mail. The mailed comment letter was received after the posted deadline required in the public notice document and it will not be considered in the formulation of the final permits. Nonetheless, the MPCA reviewed the letter and found some additional language used to provide context to comments submitted online but did not find additional comments that required a response.

Comment 166-1: Permittees should not be required to utilize the MPCA's Nutrient Management Tool to develop an MMP. Will the tool be able to accommodate changes to crop field management such as changes to crop rotations, multiple crops per year, alternative crops, and changes in field boundaries? Previous version of the MPCA Manure Management Planner have not accommodated these items.

Response: Use of a standardized form to submit application materials to the agency is authorized by existing state feedlot rules. The tool addresses some of the identified shortcomings of the current standardized form and will have opportunities for improvements in the future. The MPCA will work with users to address issues they may encounter as they use the new tool.

Comment 166-2: Permit and environmental compliance are determined by the data not by the format in which it is submitted. Permittees should be able to use other methods to develop MMPs, record land application information, and submit data to the MPCA. Requiring use of the Nutrient Management Tool will increase the regulatory burden but provide no environmental benefit.

Response: The data from MMPs will now be electronic data once submitted through the Nutrient Management Tool. This will allow for more detailed analysis of the land application practices implemented at permitted sites providing opportunities to refine or improve regulations to achieve desired environmental benefits.

Comment 166-3: There has been no access to the Nutrient Management Tool to allow permittees to get a first hand look at the new system and provide feedback to the MPCA. MPCA has provided no guidance on how to maintain compliance should the system become unavailable for some reason. MPCA should not mandate the use of a computer program that has not been thoroughly vetted and reviewed by permittees before being incorporated into a regulatory permit.

Response: Standardized forms are not required to be public noticed like a permit. Over 15 years of using the current standardized form the MPCA has gathered numerous ideas and suggestions for improvements, many of which are now part of the Nutrient Management Tool. The MPCA will provide guidance and hold training events to help producers use the new tool and there will be opportunities for improvements to the tool in the future. Issues with availability of the tool will be addressed as they are encountered.

Comment 166-4: Email and phone numbers of manure transfer recipients should not be required as part of the electronically stored manure transfer record, only a mailing address with the option to provide email and phone number. MPCA has not provided any assurances to permittees or manure transfer recipients regarding the security of the stored contact information.

Response: The contact data required follows the MPCA standards for a complete contact record. Having access to multiple forms of communication for those that receive manure provides for more efficient communication with the MPCA.

Comment 166-5: The permit references a MPCA fact sheet entitled "Land Application of Manure: Minimum State Requirements" for determining crop phosphorus removal rates. This fact sheet does not contain this information and it has not been updated since 2011. Permittees should be allowed to use phosphorus removal data from land grant colleges or other sources such as the Fertilizer Institute or the International Plant Nutrition Institute, and not rely on outdated fact sheets.

Response: Updates to the fact sheet are being finalized and will be made available before the permits become effective. Phosphorus removal data will be based on information from land grant universities. Incorporating a specific value for crop phosphorus removal into the permits provides clarity for permittees and allows for effective implementation of permit requirements.

Comment 166-6: Agricultural production is unique due to the individuality of fields and localized weather conditions, which often do not align with specific calendar dates; each year and location has its own distinct characteristics. Simply stated, applying calendar restrictions does not guarantee better environmental outcomes.

Response: Many of the permit conditions relating to manure application timing include weather-related aspects within the calendar dates identified. This is intended to provide clarity as to when certain requirements apply but at the same time account for weather variability within the timeframes. For instance, the requirements for December and January reference specific weather-related conditions that allow for application to frozen or snow-covered soils during those months. If the December and January timeframes were removed, those requirements would apply if winter "came early" and there were frozen or snow-covered fields in November. Additionally, the final permits include an additional nitrogen BMP option for vulnerable groundwater areas based the weather-related condition of soil temperature. For more details refer to the response to common issue 1.

Comment 166-7: Restricting manure utilization, which would lead to increased use of commercial fertilizers, will not only raise greenhouse gas emissions (GHG) but also hinder soil health improvement, directly contradicting the State of Minnesota's soil health goals.

Response: Not all farms will forego the use of manure in favor of commercial fertilizers. Even if the speculative switch to commercial fertilizer happens, the increase in GHG emissions is not expected to be significant as many of the nitrogen BMPs sequester carbon in the soil and reduce GHG emissions.

Cover crops and perennials in the rotation also have soil health benefits. Much like with GHG emissions, the increased soil health benefits from the nitrogen BMPs offset soil health losses from those that switch to commercial fertilizer.

The MPCA also believes that cropland farmers that currently use manure realize the soil health, micro-nutrients, and other benefits of manure application and will continue to seek out opportunities to utilize manure.

Comment 166-8: MPCA has provided limited research related to the effectiveness of the restrictions proposed to mitigate nitrogen loss. At a public meeting, MPCA referenced the Iowa Nutrient Reduction Strategy, which cites only two studies related to manure where both indicated that timing of application was not significantly related to nutrient loss.

Response: The fact sheet for the permits includes regionally based research that supports the potential for reductions in nitrate leaching from the practices. There are many studies that show timing of application does impact nutrient loss. This is the basis for the MDA's fall nitrogen fertilizer prohibition in vulnerable groundwater areas. Also refer to response to common issue 1 for a

University of Minnesota study specific to nutrient loss related to timing of application of swine manure.

Comment 166-9: MPCA has not accounted for the impact to rural infrastructure by shifting manure application to the spring of the year. Additional, significant, challenges exist with spring application versus fall application, such as spring road weight restrictions imposed by the State and local governmental units that would only increase the number of trips, miles driven by applicators and their equipment, and fossil fuel used. Utilizing drag hose does not mitigate this risk as there are situations that would prevent the use of drag hoses or other equipment, including locations of wind tribunes, application rates, and distance to the field from the manure storage area.

Response: Producers still have the option to continue manure application during both the spring and fall. Manure can be applied at any time in the fall so long as nitrogen BMPs are implemented. Likewise, spring application is not prohibited. Some producers may choose to increase manure storage volume instead of implement nitrogen BMPs, but the permits do not require additional storage to be constructed. Also see response to common issue 2.

Comment 166-10: It's currently unknown if MPCA has considered the availability of approved cover crop seed, especially limited alternatives in certain areas. Supply chain challenges will be exacerbated by planting cover crops late in the year (October and November) with limited hope for growth.

Response: The MDA indicated seed availability should not be an issue. Also, the final permits have been modified to include an additional nitrogen BMP in vulnerable groundwater areas that utilizes existing nitrogen BMPs that are more common in the industry today. See response to common issue 1 for more details.

Comment 166-11: Research documents referenced by MPCA including the research study "Nitrogen Application Rate Effect on Nitrate-Nitrogen Concentration and Loss in Subsurface Drainage for a Corn-Soybean Rotation (Lawlor et al., 2008) " addresses results from other nitrogen timing studies including one related to swine manure stating *"Results from this study indicated that timing of nitrogen application had little differential effect on nitrate-N concentrations in subsurface drainage."* Further it states, *"While not different on an annual basis, these results suggest fall fertilizer nitrogen application may be slightly "riskier" than spring application."* It's important to acknowledge the conclusion of this research that recognizes *"Relative to timing of nitrogen application, i.e. moving from fall to spring application, studies conducted in north-central Iowa and south-central Minnesota have documented little to moderate potential to decrease nitrate-N concentrations. Likely the largest factor when looking at the effect from fertilizer application timing is when precipitation and associated nitrate-N loss occurs."*

Response: Moving from fall to spring nitrogen application is a nitrogen BMP where the basic concept is the less time nitrogen is in the soil the less opportunity it has to be lost to the environment. This concept is prevalent in the MDA's fertilizer management plan where fall application is prohibited in vulnerable groundwater areas. While the reduction in nitrate leaching potential may be lower than other BMPs, moving from fall to spring application will undoubtedly lessen the amount of time nitrogen from that application is in the soil profile and subject to potential loss.

Comment 166-12: The research study "Cover Cropping to Reduce Nitrate Loss through Subsurface Drainage in the Northern U.S. Corn Belt, Strock et al., 2004" also states that *"Not every farm operation or every production field will require or benefit from the use of cover cropping. There are cost and logistical obstacles to overcome before widespread adoption and implementation of cover cropping."*

Response: The final permits have been modified to include an additional nitrogen BMP in vulnerable groundwater areas that utilizes existing nitrogen BMPs that are more common in the industry today. See response to common issue 1 for more details.

Comment 166-13: The research study Managing nitrogen from manure with a winter rye cover crop: Results of on-farm trials in Minnesota (Everett et al., 2018), referenced by MPCA, does not demonstrate

the ability to establish a cover crop in Minnesota in November. Rather, the study only looked at spring soil nitrates and not tile line nitrates. While MPCA may have the position that reduced soil nitrates are equal to reduced tile line nitrates, this study does not conclude that. In addition, the research was conducted in a Mollisol dominated region but mollisols would not be found in vulnerable groundwater areas. In the study, the cover crop was only measured in the spring for growth and not in the fall as it specifically states that "*aboveground biomass of rye in the fall was limited, especially with the later seeding dates, and therefore was not measured*". Pictures used in the study were based on cover crops planted in September and therefore are not representative of the requirements for October and November. If rye is not used as a cover crop the study's validity for this application should be challenged as many cover crops experience winter kill. Finally, the study points out that in the second year there were delays in cover crop planting due to weather conditions and that the spring of 2016 had above normal precipitation from May through October.

Response: See response to common issue 1.

Comment 166-14: Using rye as a cover crop requires additional management including tillage and/or spraying to terminate the growth. This, again, would increase emissions of GHG which is not believed to be accounted for in MPCA's analysis.

Response: GHG are not expected to increase significantly as cover crops tie up nitrates that may otherwise be denitrified and lost as nitrous oxide, a greenhouse gas.

Comment 166-15: MPCA 's referenced research recognizes that weather has a greater impact on the environmental results than calendar days, application based on calendar days limits when manure can best be applied, and requirements based on calendar dates or dates limited to the spring are not reasonable.

Response: Many of the permit conditions relating to manure application timing include weather-related aspects within the calendar dates identified. This is intended to provide clarity as to when certain requirements apply but at the same time account for weather variability within the timeframes. For instance, the requirements for December and January reference specific weather-related conditions that allow for application to frozen or snow-covered soils during those months. If the December and January timeframes were removed, those requirements would apply if winter "came early" and there were frozen or snow-covered fields in November. Additionally, the final permits include an additional nitrogen BMP option for vulnerable groundwater areas based the weather-related condition of soil temperature. For more details refer to the response to common issue 1.

Comment 166-16: In the referenced material it is estimated that cover crops are about 25% effective. Nevertheless, MPCA indicates this is still sound strategy. Would a 25% success rate be reasonable to assume as adequate for other decisions such as yield goals for nitrogen rates?

Response: See response to common issue 1.

Comment 166-17: MPCA should provide the full list of research studies considered in the writing of these proposed rules so that permittees can review and better understand what has been considered when making comments.

Response: The fact sheet for the permits includes regionally based research that supports the potential for reductions in nitrate leaching from the practices.

Comment 166-18: MPCA has removed previous language "to harvested fields" from permit requirement 13.4. Double cropping involves applying manure after one crop is harvested but before another is planted. Under the current language, manure application would not be feasible in these situations because there would be no actively growing crop or cover crop, and no cover crop would be planted before the primary crop. An additional option should be provided to accommodate double cropping.

Response: The final permits include clarifying language.

Comment 166-19: If a permittee utilizes soil temperature as a BMP for application Oct 1 - 15, is it the temperature of their own field or is it based on University of Minnesota Research and Outreach Centers' (MROC) data? Would permit holders have to measure the temperature over the day or just the beginning of the day? MPCA provides no guidance on determining compliance nor data to show that October 15th is significantly more protective than October 1st.

Response: The final permits have been clarified to require use of the data from the nearest MDA soil temperature network location along with more clarity about the 50-degree threshold by specifying that the soil temperature must reach 50 degrees for two consecutive days prior to application. The establishment of October 15th was in response to data provided during the comment period for the current NPDES permit. In general, soil temperatures across the state are above 50°Fin the first two weeks of October leading to increased potential for nitrate leaching. Justification for existing permit conditions is not typically provided when the same/similar requirement is included in subsequent permits. Please refer to the response to comments document for the current NPDES permit for more information about this requirement.

Comment 166-20: Planting cover crops for manure application, requiring cover crops in October is incredibly problematic. The individual year and the geographic location's weather will dictate if planting a cover crop will provide the desired benefit to the environment. There are some years where the weather and field conditions would not be conducive to planting a cover crop in October.

Response: See response to common issue 1.

Comment 166-21: Use of nitrification inhibitors is problematic. Currently available nitrification inhibitors are not allowed for use in organic crop production including those that are put into manure. Limiting the ability to utilize manure in organic cropping systems is troublesome both from encouraging organic production and from a manure utilization standpoint.

Response: Where possible the permits include several options for nitrogen BMPs to allow the producer to utilize the BMP that is best for their livestock enterprise.

Comment 166-22: Use of split application of manure would have a negative impact on GHG emissions from both soil disturbance and additional fossil fuel use.

Response: GHG are not expected to increase significantly as split application reduces the amount of nitrogen in the soil profile that may be converted to nitrates which may be denitrified and lost as nitrous oxide, a greenhouse gas.

Comment 166-23: Certain manure types would not be able to be split applied as the rate applied is too low for equipment to achieve.

Response: Where possible the permits include several options for nitrogen BMPs to allow the producer to utilize the BMP that is best for their livestock enterprise.

Comment 166-24: MPCA has provided no clarity on the criteria for land to be labeled "vulnerable".

Response: The map is a compilation of the existing MDA's fall fertilizer restriction map and MDH's DWSMA vulnerability map for highly vulnerable DWSMAs. The vulnerable groundwater area shape file and full metadata record is available on the Minnesota geospatial commons. To assist producers and the general public, the MPCA has placed on its website an interactive Nutrient Management Planning Map, which is referenced by the permits as the location for delineating the vulnerable groundwater areas subject to the permit requirements. The Nutrient Management Planning Map is available from this MPCA webpage: https://www.pca.state.mn.us/business-with-us/land-application-of-manure.

Comment 166-25: During feedback sessions when concerns were expressed about vulnerable areas restrictions, a request was made to allow for field verification of conditions to remove the field as a vulnerable area. This was not included in the proposed rules.

Response: The MDA has a process to amend the map to remove it from a vulnerable designation. As the MPCA vulnerable groundwater area map is using the MDA's data, it would also be removed from the MPCA map.

Comment 166-26: The application to an actively growing perennial crop would limit which manure this would apply to or how it could be applied to the fields. Irrigation is not allowed for swine manure; in addition, the perennial crop would limit the amount of incorporation that could be done to reduce odors and loss of nutrients from volatilization.

Response: Where possible the permits include several options for nitrogen BMPs to allow the producer to utilize the BMP that is best for their livestock enterprise. Also, irrigation of swine manure is not prohibited by the permits or state rules.

Comment 166-27: MPCA has provided no research to demonstrate that leaching is occurring in November or that planting a cover crop in November will bind up nitrogen.

Response: Nitrate leaching occurs when water moves nitrate in the soil past the root zone of the crops. When a rainfall happens in November it will carry nitrates with it as it infiltrates into the soil profile. At the very least this will move nitrates deeper in the soil profile making those nitrates easier to migrate out of the root zone with subsequent rains. Growing vegetation will utilize at least some of the nitrate in the soil profile preventing it from migrating past the root zone with rainfall events.

Comment 166-28: Remove the 3,500 gallons per acre restriction for emergency winter application. The permit limits application based on the amount of P2O5 and to preclude runoff or ponding. This makes the rate cap of 3,500 arbitrary, as it is not related to any environmental condition. The risk with this restriction is that it could force a permittee to use less desirable land for emergency application. This begs the question, if the P2O5 and the runoff restriction can be met at a higher rate, would it not make sense to use less land versus forcing a wider area to be used which might have steeper slopes than the first field?

Response: This requirement has been within the NPDES general permit since 2011. The MPCA is not aware of this provision being needed very frequently or the rate restriction being problematic for producers when emergencies arise. The rate cap is very simplistic in its intended purpose that a lower rate of application carries less risk of snowmelt moving manure off the field. Higher rates of application simply increase the potential for manure to leave the field because there is just more manure on that field. The rate of 3,500 gallon per acre was also chosen because it is toward the lower end of rates achievable with common application equipment. Finally, this is an emergency situation where only the volume needed to prevent manure storage overflows and should be land applied resulting in a relatively small amount of acreage being required for application. It is likely that there will be sufficient land with lower slopes that can provide low risk of runoff.

Comment 166-29: The required visual inspection process presents little protection as majority of manure is incorporated at the time of application, nearly eliminating the potential for surface runoff. Permittees are already required to not exceed the hydraulic loading capacity of the soils so visual inspections are a redundant requirement and should be removed.

Response: Visual inspection is a reasonable practice to catch situations where runoff does occur. The inclusion of visual inspection requirements of land application fields is in part a result of a recent court decision in the state of Idaho where the court concluded that monitoring for discharges from land application activities must be part of these types of permits.

Comment 166-30: What does the required visual inspection of land application sites need to entail and how will the MPCA determine compliance with this requirement? When you apply manure 24 hours a

day what constitutes the end of each day? How do you determine down-gradient on very flat fields? Do you need to inspect tile inlets or outlets? It can be impossible to inspect the outlet as it may be located many miles away on private land that an applicator may not have access to.

Response: The requirement is for a visual inspection to look for evidence of manure leaving the intended application field. Similar to other visual inspection requirements, permittees will need to keep record that these inspections were completed. The Nutrient Management Tool provides for this record to be maintained. If you cannot determine downgradient field edges, then you will need to inspect all field edges. Inspections are required at all sensitive features, which includes tile intakes. The final permits include clarified language regarding frequency of inspections and the need to inspect tile intakes.

Comment 166-31: If visual inspections is not removed change it to require certification that the hydraulic loading capacity of the field has not been exceeded.

Response: Visual inspection is a reasonable practice to catch situations where runoff does occur. The inclusion of visual inspection requirements of land application fields is in part a result of a recent court decision in the state of Idaho where the court concluded that monitoring for discharges from land application activities must be part of these types of permits.

Comment 166-32: There has been no access to the Feedlot Annual Report Service to allow permittees to get a first hand look at the new system and provide feedback to the MPCA. Requiring use of the Feedlot Annual Report Service will increase the regulatory burden but provide no environmental benefit. MPCA should not mandate the use of a computer program that has not been thoroughly vetted and reviewed by permittees before being incorporated into a regulatory permit. Permittees should be able to use other methods and formats to submit annual report data to the MPCA.

Response: Standardized forms are not required to be public noticed like a permit. The MPCA will provide guidance and hold training events to help producers use the new tool and there will be opportunities for improvements to the tool in the future. Electronic submittal of the data will allow for more detailed analysis of the land application practices implemented at permitted sites, both individually and aggregated, providing opportunities to refine or improve regulations to achieve desired environmental benefits.

Comment 166-33: Requiring notices of a discharge, spill, or overflow to 2 separate State Agencies (Duty Officer and MPCA) is duplicative. In addition, permittees have experienced issues with phone number changes and staff turnover which makes such communication nearly impossible. Currently, the State Duty Officer is always staffed with a consistent phone number. In the event of an emergency ease of contact is important so that focus can be placed on addressing the incident.

Response: The final permits remove the requirement for notice to the MPCA.

Comment 166-34: Requiring sampling of waters of the state at the location of a discharge presents several logistical challenges including access to the water of the state without trespassing, access to appropriate sample bottles, access to a certified laboratory, and the ability to meet required holding times to complete the sampling within 6 hours of discovery and get to a certified laboratory. In addition, proper sampling techniques are required to minimize the risk of contamination of the sample. Expecting permittees to have that level of expertise in an uncontrolled setting is unreasonable.

Response: Samples are required as close as possible to the entry point into waters of the State, so trespassing would not be required. The MPCA will make guidance related to sampling these types of discharges available in the near future.

Comment 166-35: MPCA has not demonstrated nor documented that the existing regulations on NPDES sites are resulting in environmental impact. It seems as if the decision to increase restrictions is a reaction to specific issues that are not properly addressed in a general permit.

Response: Water quality monitoring performed by MPCA, other state agencies, and cooperating partners illustrate that nitrates are a concerning issue in Minnesota. While NPDES and SDS permitted feedlots are not solely responsible there is no doubt that they have the potential to contribute to the problem as well as the opportunity to help address the nitrate issue with changes to their current practices through the revisions to the permits.

Comment letter 167. Clean Water Organizations

Comment 167-1: Remove language stating that fall manure spreading Best Management Practices ("BMPs") in vulnerable groundwater areas are not required until 2028. Nitrate pollution is a crisis *now*, and improvements in groundwater quality will not be immediate, even after changes are implemented. Because of that lag time, it is even more important to take action as quickly as possible. In addition, because producers' permits expire five or ten years after they are obtained, some producers will not have to reapply for a new permit until well after the initial permit date. Producers know now—more than a year before October 2025, the very earliest anyone would have to comply with the new requirements—of these provisions and can make plans to comply with them.

Response: The delay in implementation acknowledged the significant change to common crop production practices. While cover crop use is increasing, the majority of farms that apply manure to cropland do not routinely use cover crops. As stated by commenters, incorporating cover crops into cropland production practices is more detailed than simply planting the cover crop seed.

In response to comments received, the final permits include an additional nitrogen BMP option that utilizes a combination of BMPs more familiar to producers while still limiting potential for nitrate leaching (see response to common issue 1 for more details). As the new BMP is more familiar to producers and implementation is less of a change to manure application practices than cover crops, the final permits were revised to require implementation of these BMPs by 2027. In addition, as a result of adding another BMP option to the permits, the delay for implementation of nitrogen BMPs in vulnerable groundwater areas for manure applications October 1 - 14 was removed. Applications during this time in vulnerable groundwater areas will be required to comply with the BMPs required for June – September applications.

A feedlot's coverage under a general permit does not expire 5 or 10 years from the date they initially obtain coverage. All coverage under the general NPDES permit expires on January 31, 2026. All coverage under the general SDS permit expires on May 31, 2025. All permitted sites will be required to implement more protective BMPs for applications in vulnerable groundwater areas October 1 - 14 upon issuance of coverage under the permit and the BMPs for October 15 – November 30 starting in 2027.

Comment 167-2: Fall manure spreading Best Management Practices ("BMPs") in vulnerable groundwater areas should be required statewide as nitrates are an issue across the entire state.

Response: The permits do have nitrogen BMPs applicable statewide. They are different than those required for vulnerable groundwater areas due to the lower risk to groundwater resources. In addition, those that receive manure must also comply with these requirements meaning that more acres statewide will be using nitrogen BMPs to address nitrates across the state.

Comment 167-3: Require restrictions on winter spreading of solid manure in December, January, and February to be applied statewide. Applying manure to frozen or snow-covered ground, when there is assuredly no crop to use it, and when there is a significant risk that it will run off, should not be allowed anywhere in Minnesota.

Response: There is a difference because vulnerable groundwater areas of Minnesota are more susceptible to impacts from winter application practices.

Comment 167-4: For land application areas, require a visual monitoring plan that identifies locations where monitoring will occur. The plan should identify all locations where monitoring will occur, including

subsurface drain tile outlets if they exist, and all sensitive features that require buffers or setbacks as outlined in Section 15 of the Proposed Permit. The monitoring plan should describe the methodology that will be used to determine representative monitoring locations. It also should be integrated into the public notice for permit coverage, so it is available for public review and comment.

Response: The permit requirements for land application inspections are prescriptive and adequately identify where and when inspection must be conducted. Land application maps generated by the Nutrient Management Tool can be used to guide producers where these inspections should be done, making a separate plan unnecessary.

Comment 167-5: For land application areas, require monitoring of drain tile outlets. Monitored points of discharge must include subsurface drain tile outlets in addition to tile intakes. This aligns with the EPA's recommendation that the Proposed NPDES Permit should require the identification of any subsurface drain tile on all land application fields as well as requiring "observation of subsurface drain tile outlets prior to, during, and following land application of manure or process wastewater for volume/rate of flow and color, turbidity, foam, and odor to identify any discharges that may violate effluent limitations.

Response: The Nutrient Management Tool, that will be used by permittees to develop MMPs, requires the permittee to identify the presence of subsurface drain tile inlets on fields where manure and process wastewater will be applied. Requiring observations of subsurface drain tile outlets to identify any discharges that may violate effluent limitations presents challenges in Minnesota. Many tile systems in Minnesota are complex networks that connect to other systems before daylighting, miles downstream of the original system. Due to this complexity, discerning the source of effluent volume/rate of flow and color, turbidity, foam, and odor is very difficult. Minnesota will continue to focus on preventing manure and manure contaminated runoff from entering drain tile intakes through measures such as planning, setbacks, buffers, incorporation of manure, and inspections.

Comment 167-6: For land application areas, require motion detecting cameras for downgradient field edges and sinkholes to detect discharges during applications and for 14 days thereafter.

Response: It is not reasonable to expect installation of motion detecting cameras at every potential discharge location on every land application field. The visual monitoring required by the permits is sufficient.

Comment 167-7: For land application areas, require groundwater monitoring for fields within vulnerable groundwater areas. The permits are purportedly "zero discharge" permits, but it is well-established that most of the nitrate load to Minnesota's waters comes from cropland sources. Clearly, discharges are occurring from land application fields, and permittees must be required to take further action—including creating a comprehensive visual inspection plan and adding subsurface monitoring to high-risk fields—to ensure they are not violating the provisions of their permits and state and federal laws. Subsurface monitoring of this kind is the only way to ensure that unauthorized discharges to groundwater, which would not be discovered by a visual inspection, are not occurring in violation of the Proposed Permits.

Response: See response to common issue 4.

Comment 167-8: MPCA should incorporate risk assessment tools like the USDA Web Soil Survey maps for coarse textured soils, shallow bedrock, and Manure and Food-Processing Waste limitations into the statewide definition of vulnerable groundwater areas, as well as the Minnesota Department of Natural Resources maps on Groundwater Sensitivity to Pollution.

Response: The Nutrient Management Tool that is required for development of MMPs incorporates some soils information from the United States Department of Agriculture (USDA) web soil survey. The Nutrient Management Tool also includes the vulnerable groundwater area map referenced by the permits. This map considered the information from the maps referenced in this comment.

Comment 167-9: Permittees should be required to create a plan for appropriate subsurface monitoring of their fields within their MMP, which would use soil probes, soil moisture probes, or lysimeters to

monitor water quality within high-risk fields. These technologies would effectively monitor whether land application practices "exceed the hydraulic loading capacity of the land application site based on soil conditions.

Response: The requirement to not exceed the hydraulic loading capacity of the field can be effectively monitored through the visual inspections required by the permits. Also see response to common issue 4.

Comment 167-10: For production areas, require daily visual inspections of identified points where surface discharges are likely to occur and daily visual inspections of Liquid Manure Storage Areas ("LMSAs"). In order for a permittee to notify the MPCA "within 24 hours of encroachment" and list "the date when the freeboard encroachment began" under section 17.5, MPCA must require permittees to conduct daily, not weekly, visual inspections of the liquid level and freeboard marker in each LMSA.

Response: The permits have included a weekly visual inspection for many years and that has proven to be an adequate inspection frequency. The final permits include clarifying language to require notification within 24 hours of discovery of encroachment to address the conflicting language.

Comment 167-11: For production areas, add a site-specific groundwater monitoring plan or a Subsurface Discharge Monitoring Plan. MPCA cannot avoid the need for groundwater monitoring by asserting that the Proposed Permits will prevent any discharges to groundwater, as the permits allow significant discharges to groundwater through the allowable designs for LMSA and manure stockpile liners. Visual inspection requirements of lagoons are ineffective in lieu of monitoring because an inspector cannot visually see a leak below the opaque, manure-laden process wastewater. Indeed, as the Ninth Circuit Court of Appeals recently found in a challenge to a similar general feedlot permit in Idaho, "[w]ithout a requirement that CAFOs monitor waste containment structures for underground discharges, there is no way to ensure that production areas comply with the Permit's zero-discharge requirements.

Response: See response to common issue 4.

Comment 167-12: For land application areas and production areas, require permittees to identify sampling points with specificity and create regular plans for sampling. The Proposed Permits require compliance with all state and federal water quality standards, including the groundwater antidegradation standard and the narrative standards for Class 2 waters. The permits must, therefore, contain provisions that would determine whether discharges are causing violations of these standards. This can only be done by requiring routine water sampling.

Response: Antidegradation standards are directly applicable to point sources that have a consistent discharge to waters. The effluent limitations of the permits only authorize a discharge due to extreme weather events, which are extremely sporadic or nonexistent. The effluent limitations of the permits and the inspections/monitoring required are sufficient to prevent antidegradation of surface waters.

Comment 167-13: For land application areas and production areas, add further details about sampling protocols. The Proposed Permits provide little guidance for permittees who may not know how to correctly obtain a discharge or water sample. Though the Proposed Permits point to Minn. R. 7053.0155, this rule does not provide any practical information about how to obtain the samples. Nor do the Proposed Permits explain where, how, or when to send such samples, other than to a "certified lab." Additional details—either in the permit itself or a linked document— likely would increase compliance with this new provision of the Proposed Permits.

Response: The MPCA requested assistance from EPA about this issue and guidance related to sampling these types of discharges will be available in the near future.

Comment 167-14: For land application areas and production areas, add sampling requirements for drain tile outlets. In its comments on the Proposed Permits, EPA recommended to MPCA that it include sampling requirements for drain tile outlets, but MPCA asserted that such a requirement would be too

difficult to implement. However, tile drainage is one of the most significant ways that nitrate gets into Minnesota's waters, making the tile outlets one of the most important sources to monitor and sample.

Response: See response to common issue 4.

Comment 167-15: Feedlot rules require MMPs to include plans for annual soil nitrate tests in accordance with University of Minnesota Extension Service ("Extension Service") guidelines for fall tests in western Minnesota and spring tests in south-central, southeastern, and east-central Minnesota. It is well-established that producers often fail to properly credit all sources of nitrogen, particularly for previously planted legumes and previously applied manure. Requiring a pre-plant soil nitrate test would ensure that producers who may not properly account for all nitrogen sources actually need additional applications of nitrogen. Adding requirements for nitrate pre-plant testing will ensure that producers are appropriately taking credit for nutrients already in the soil before they add even more nitrogen.

Response: Not all requirements from the feedlot rule are specifically included within the permits. Permitted sites are still required to comply with state feedlot rules and the need to perform soil nitrate testing in accordance with University of Minnesota guidelines. At this time, the recommendations for manure applications do not include soil nitrate testing.

Comment 167-16: The Proposed Permits currently require permittees to analyze manure for its nutrient content annually and following any changes that may significantly affect its nutrient content. This provision should be revised to explicitly require that any digestate from an anaerobic digester be sampled and analyzed for nutrient content before application. Manure that enters a digester and the digestate that exits it will have significantly different properties and nutrient content, particularly if different waste streams are combined. Digestate has significantly higher concentrations of nutrients than manure, with higher proportions of plant-available forms of nitrogen. This higher concentration could easily lead to overapplication of nitrogen when digestate is applied.

Response: The digestion process does not add nutrients nor remove other components of manure to concentrate nutrients. Anaerobic digesters simply harness and enhance the natural processes that break down organic material. The material that comes out of an anaerobic manure digester is still fundamentally manure and is subject to the regulations of the permits which include nutrient testing.

Digestion can influence the plant availability of the nutrients in manure. Manure contains nitrogen in organic and inorganic forms. Digestion simply accelerates the process of conversion of organic nitrogen to inorganic nitrogen, which is the form that plants can utilize. This conversion also happens naturally in the environment, albeit at a slower pace, which is why there are credits associated with manure application for the following year's crop.

The current system of nitrogen recommendation for manure is based on the average total nitrogen content of manure expected from various animal species to estimate the amount of nitrogen available to the crop to be grown this year (1st year crop) and the crop to be grown next year (2nd year crop). Digested manure will have more nitrogen in the inorganic form than other manure generated by a particular animal species. The University of Minnesota is working towards a nutrient recommendation system based on the inorganic and organic fractions of manure to allow more precise recommendations for first- and second-year nitrogen availability to crops. As the permits and state feedlot rules require the use of the University of Minnesota recommendations, this new approach will be a requirement of the permits when the University changes its recommendations.

Comment 167-17: Require permittees to follow the Runoff Risk Advisory Forecast recommendations before spreading manure. The RRAF is more accurate in predicting a runoff risk than a weather report, as it considers not only upcoming rainfall, but also soil moisture content, temperatures, snow melt, and other factors.

Response: The RRAF tool is another source of information available to producers to use to assist with planning their manure applications. While the RRAF tool is user friendly, there are other tools crop farmers mind know and understand to make their decisions. Additionally, historical records of rainfall and temperatures are routinely maintained to allow for compliance determinations after a significant time has passed, which is not the same as the RRAF tool. The MPCA will explore opportunities to utilize the RRAF in future regulations.

Comment 167-18: Require additional BMPs for emergency manure applications. Even in an emergency application, certain of the fall BMPs still could be used, including using a nitrogen stabilizing agent or requiring cover crops after the application. MPCA could also require the BMPs for winter application of liquid manure to be followed for any emergency application of manure.

Response: The intent of emergency applications is to prevent a catastrophic manure storage area failure due to an overflow which presents an immediate risk to water quality. The definition of emergency application identifies that only the application of the volume of manure that is necessary to prevent manure storage overflow is considered to be emergency manure application. This will be a relatively small amount of manure that will need land application without the use of a nitrogen BMP thereby limiting the potential impact to the environment.

Comment 167-19: Define "unusual weather conditions" to include only extraordinary rain events. In response to EPA, MPCA asserted that further restrictions on emergency application are unnecessary because producers must notify MPCA within 24 hours of encroachment of the freeboard in an LMSA, which allows MPCA and the producer to explore options other than an emergency application. If MPCA is indeed relying on permittees to discuss an emergency application with MPCA in advance, MPCA should simply prohibit all emergency applications until the permittee has contacted MPCA to discuss options for the application.

Response: Inherently there is some vagueness to the concept of an "emergency" as it is not possible to identify all potential contributing factors to an emergency situation. The intent of emergency applications is to prevent a catastrophic manure storage area failure due to an overflow, which presents an immediate risk to water quality. Simply prohibiting application in an emergency situation until MPCA approval can create a heightened concern of structure failure in the situation where MPCA staff is unavailable (e.g., weekends, holidays) to approve emergency applications.

Comment letter 168. Minnesota Turkey Growers Association.

Comment 168-1: The MPCA does not have the legal authority to require manure recipients to comply with the requirements of the general permit. The permit is issued to the feedlot facility not the cropland farmer that receives manure from the facility.

Response: See response to common issue 3.

Comment 168-2: The MPCA lacks the authority to impose additional permit conditions on a limited class of livestock producers, unless those requirements are clearly required by the Clean Water Act or Minnesota Statutes and Rules.

Response: The MPCA feedlot program, just like other programs at the MPCA, has the authority through state rules (Minn. R. ch. 7001) and statutes (Minn Stat. ch. 115) to require permit conditions the agency deems necessary to protect human health and the environment.

Comment 168-3: The majority of the manure produced by turkey farms is transferred to third parties for land application because they do not have their own cropland upon which to apply the manure. If the proposed changes are adopted, crop farmers who currently buy turkey litter will switch to commercial fertilizer simply to avoid the hassles associated with the new permit recordkeeping, inspection, fall application, cover crop, perennial, and growing crop requirements. The Agency will essentially, by government fiat, be eliminating major outlets for the manure without any corresponding environmental benefit.

Response: See response to common issue 3.

Comment letter 169. Minnesota AgriGrowth

Comment 169-1: Nitrate contamination is a serious environmental challenge facing Minnesota and the entire country. This challenge requires serious conversations and innovative solutions, not one-size-fits-all requirements.

Response: Where possible the permits include several options for nitrogen BMPs to allow the producer to utilize the BMP that is best for their livestock enterprise. The permits also include the option for approval of additional nitrogen BMPs should research indicate they are effective at limiting nitrate leaching potential.

Comment 169-2: Some new proposed permit conditions will result in unintended consequences that could force some livestock farms to reduce or, worse, end their operations. In other cases, the permit conditions contradict science and best management practices.

Response: Water quality monitoring performed by MPCA, other state agencies, and cooperating partners illustrate that nitrates are a serious issue in Minnesota. The requirements for vulnerable groundwater areas were modeled after existing nitrogen BMPs from the University of Minnesota that take into account the ability of Minnesota's farmers to implement these practices. Where possible the permits include several options for nitrogen BMPs to allow the producer to utilize the BMP that is best for their livestock enterprise. The permits also include the option for approval of additional nitrogen BMPs should research indicate they are effective at limiting nitrate leaching potential.

Comment 169-3: Some of these proposed requirements will result in numerous farmers choosing to drop their NDPES and SDS feedlot permits which seems counterproductive to the work the MPCA is trying to accomplish.

Response: While NPDES permit coverage is optional for many feedlots, SDS permit coverage is required for all feedlots over 1,000 animal units. It is true that NPDES and SDS permitted feedlots are not solely responsible for nitrate issues in Minnesota, there is no doubt that they have the potential to contribute to the problem as well as the opportunity to help address the nitrate issue with changes to their current practices through the revisions to the permits. Further, the MPCA is considering the need for updates to the state feedlots rules to continue the work of addressing the nitrate issues in Minnesota.

Comment 169-4: University of Wisconsin – Madison research concluded that cover crops planted in late August to early September have the highest potential to prevent or reduce nitrate leaching from occurring in winter and spring. Unfortunately, that timeline is unrealistic for most farmers, especially those who harvest field corn and soybeans.

Response: See response to common issue 1.

Comment 169-5: Minnesota's weather and climate challenges often delay the fall harvest. That means farmers couldn't plant cover crops because the ground would be frozen. Even if the ground is not frozen, precipitation is a significant challenge. Research has shown that the lack of rainfall for more than a week after cover crop seeding often results in poor establishment. No farmer wants to buy and plant cover crop seeds knowing that they won't be successful just to be able to apply manure in October.

Response: See response to common issue 1.

Comment 169-6: There also continue to be market challenges for cover crops. While seed supply chain issues have improved, supply and demand have significantly increased farmers' seed costs. Additionally, another significant challenge is the amount of equipment and qualified labor available to plant and harvest cover crops.

Response: The final permits have been modified to include an additional nitrogen BMP in vulnerable groundwater areas that utilizes existing nitrogen BMPs that are more common in the industry today. See response to common issue 1 for more details.

Comment 169-7: The MPCA should delay the 2028 implementation timeline for cover crops until 2032 in the SDS permit and consider this requirement in the subsequent NPDES permit.

Response: The need to address nitrate issues that are influenced by feedlots sites is more urgent than simply waiting until these permits next expire (2031 for NPDES and 2035 for SDS). In response to comments received, the final permits include an additional nitrogen BMP option that does not include the requirement for cover crops, is protective of the environment, and utilizes a combination of BMPs more familiar to producers. See response to common issue 1 for more details.

Comment 169-8: Nitrification inhibitors should be an option for all farmers who apply manure in October. University of Minnesota research concluded that when inhibitors are combined with liquid dairy or swine manure and applied in October, a significant amount of nitrogen is conserved in the soil, reducing the risk of nitrate leaching. The MPCA's climate program recently shared that using nitrification inhibitors in manure can significantly reduce greenhouse gas emissions across Minnesota annually. The MPCA has not provided a clear answer to why nitrification inhibitors are an option for non-vulnerable groundwater areas but not for vulnerable groundwater areas.

Response: The final permits have been modified to include an additional nitrogen BMP in vulnerable groundwater areas that is consistent with the BMPs identified in the comment. See response to common issue 1 for more details.

Comment 169-9: Climatologists from the University of Minnesota, DNR, and MPCA, as well as experts from around the globe, have concluded that Minnesota is getting warmer and wetter. That is especially true in the spring. Wetter springs make it increasingly difficult for farmers to get into the fields to work the soil, plant row crops and cover crops, and apply manure or fertilizer. Getting in the fields too early risks soil compaction, which limits crop yields and increases soil denitrification.

Response: See response to common issue 2.

Comment 169-10: Applying manure in early October before the soil temperatures are below 50 degrees is bad for water quality. The University of Minnesota promotes fall as the best time for manure application. Research has shown that waiting to apply manure and commercial fertilizer until soil temperatures reach below 50 degrees Fahrenheit significantly reduces nitrogen conversion. Soil temperature, not an arbitrary October date should be the threshold for applying manure.

Response: Many of the permit conditions relating to manure application timing include weather-related aspects within the calendar dates identified. This is intended to provide clarity as to when certain requirements apply but at the same time account for weather variability within the timeframes. The final permits include an additional nitrogen BMP option for vulnerable groundwater areas based on the weather-related condition of soil temperature. For more details refer to the response to common issue 1.

Comment 169-11: For too many farmers, the additional manure transfer requirements vastly outweigh the cost-savings and nutrient benefits from manure. As a result, many crop farmers will cease purchasing manure, creating a manure capacity crisis for livestock farmers.

Response: See response to common issue 3.

Comment 169-12: For many livestock farmers, inadequate manure storage would prevent them from storing 12 months of manure production. Weather conditions frequently disrupt application plans. The current proposal to limit fall application would require farmers to increase storage capacity to 14-18 months of production to provide a buffer against weather delays. If livestock farmers cannot store

additional manure or apply it to their cropland, they will be forced to reduce their number of animals or, worse yet, stop raising livestock.

Response: Producers still have the option to continue manure application during both the spring and fall. Manure can be applied at any time in the fall so long as nitrogen BMPs are implemented. Likewise, spring application is not prohibited. Some producers may choose to increase manure storage volume instead of implement nitrogen BMPs, but the permits do not require additional storage to be constructed.

Comment 169-13: Remove the manure transfer requirements. Manure transfer recipients are already required to maintain records of manure application activities, which include soil and manure test information, crop type and yield, field location, application timing, rate, and method, nitrogen and phosphorus accounting, and information on who applied the manure. These records are already maintained by those liable for the manure, regardless of ownership status, and should be sufficient if inspection or enforcement activities need to be executed.

Response: See response to common issue 3.

Comment 169-14: Out of the nearly 17,000 registered feedlots in Minnesota, the MPCA only issues permits for approximately 1,000 facilities. According to the MPCA, those 1,000 permitted facilities account for one-third of the manure generated in Minnesota. That leaves a large majority of farms with less prescriptive manure regulations intended to protect water quality.

Response: State feedlot rules do regulate all manure application in Minnesota but do not contain the same requirements of the NPDES and SDS permits. The MPCA is considering the need for updates to the state feedlots rules.

Comment letter 170. Minnesota Pork Producers Association

Comment 170-1: Spring manure application presents farmers with many challenges and could cause unintended consequences. The spring planting season is already shorter than the fall season, making the logistics of hauling manure and preparing and planting a field difficult, even under good conditions. This requirement will also strain manure pumping equipment, spring road weight restrictions, and custom applicators during a short window of suitable field conditions in the spring. Farmers have also shared concerns about increased soil compaction, reduction in water infiltration, and potential for increased surface runoff if manure must be applied in the spring as their only option to be compliant.

Response: The permits do not prohibit fall application but rather require nitrogen BMPs as part of fall application. Also see response to common issue 2.

Comment 170-2: Cover crops have the potential to help mitigate nitrogen losses. However, the science suggesting their potential effectiveness is inconclusive, and they should not be the only practice that would allow for fall application in these areas. The draft permit looks to implement a one-size-fits-all approach for cover crops. This requirement has shown agronomic and economic challenges for farmers because a single practice change uniquely impacts the biological system and management approach for each farmer. (Plastina A, Liu F, Miguez F, Carlson S (2020). Cover crops use in Midwestern US agriculture: perceived benefits and net returns.)

Response: See response to common issue 1.

Comment 170-3: It is well documented that plant uptake and biomass production are critical for cover crops to be successful in storing nitrogen. The University of Minnesota, in a replicated study, documented that the weather allowed for adequate cover crop growth during one of four seasons. (Vetsch, J. 2020. Vegetative cover crops as a nitrate reduction strategy for tile drainage water.) University of Minnesota researchers authored a project which argued that "*in rainfed agriculture of northern climates weather conditions drive the success of cover crops use in conventional maize production*

systems". (Rusch, H.L., Coulter, J.A., Grossman, J.M., Johnson G.A., Porter, P.M and Garcia y Garcia. A., 2020). Towards sustainable maize production in the U.S. upper Midwest with interseeded cover crops).

Response: See response to common issue 1.

Comment 170-4: University of Minnesota researchers have said, "Cover cropping practice provides promising opportunities for reductions in N losses for cropping rotations wherein the primary crops are harvested before mid-September and planted after mid-May." (Feyereisen, G.W., Wilson, B.N., Sands, G.R., Strock, J.S., Porter, P.M. 2006. Potential for a rye cover crop to reduce nitrate loss in southwestern Minnesota). This window can limit farmers' opportunities to plant, harvest, apply nutrients, and establish a cover crop in a growing season. Farmers need more options to make the best decision according to the conditions and the best management practices they can successfully implement.

Response: See response to common issue 1.

Comment 170-5: Dr. Melissa Wilson's paper considered soil moisture content, soil temperature, and water potential of different soil types where rye was aerially applied. Her work showed that "*These results suggest that overseeding a rye cover crop, including aerial seeding, may not be of practical value in more northern climates if the sole intention is to scavenge N*." Dr. Wilson also concluded that "*It is likely that areas with a longer growing season may experience more benefit from the use of cover crops if the main goal is to scavenge N*." (Wilson M, Baker J, and Allan D (2013) Factors affecting successful establishment of aerially seeded winter rye).

Response: See response to common issue 1.

Comment 170-6: Instead of adding additional requirements for nitrogen BMPs in vulnerable groundwater areas, the MPCA should require use of the existing nitrogen BMPs, applying manure after soil temperatures reach 50 degrees Fahrenheit or colder, implementing nitrification inhibitors, and the split application/reduced rate application of manure, for all fall applications in vulnerable groundwater areas. Stacking best management practices that provide multiple benefits is common and should be considered for changes related to manure applications.

Response: The final permits have been modified to include an additional nitrogen BMP in vulnerable groundwater areas that is consistent with the BMPs identified in the comment. See response to common issue 1 for more details.

Comment 170-7: It is well documented that waiting to apply manure and commercial fertilizer until soil temperatures reach below 50 degrees Fahrenheit will significantly reduce the nitrogen conversion process by soil microbes. The University of Minnesota, through its nutrient management team, suggests fall nutrient applications should be directed by soil temperature rather than by date.

Response: Many of the permit conditions relating to manure application timing include weather-related aspects within the calendar dates identified. This is intended to provide clarity as to when certain requirements apply but at the same time account for weather variability within the timeframes. The final permits include an additional nitrogen BMP option for vulnerable groundwater areas based on the weather-related condition of soil temperature. For more details refer to the response to common issue 1.

Comment 170-8: Dr. Melissa Wilson's research in modernizing the University of Minnesota manure recommendations reports that "waiting until after soils had cooled to below 50ºF resulted in similar or better corn yields than spring fertilizer. This trend happened regardless of whether cover crops were planted or not." Additional research is needed to continue evaluating the effectiveness of cover crops as a mitigation strategy for nitrogen in Minnesota livestock and cropping system.

Response: Where possible the permits include several options for nitrogen BMPs to allow the producer to utilize the BMP that is best for their livestock enterprise. Many of the permit conditions relating to manure application timing include weather-related aspects within the calendar dates

identified. This is intended to provide clarity as to when certain requirements apply but at the same time account for weather variability within the timeframes. For instance, the requirements for December and January reference specific weather-related conditions that allow for application to frozen or snow-covered soils during those months. If the December and January timeframes were removed, those requirements would apply if winter "came early" and there were frozen or snow-covered fields in November. Additionally, the final permits include an additional nitrogen BMP option for vulnerable groundwater areas based the weather-related condition of soil temperature. For more details refer to the response to common issue 1.

Comment 170-9: Research has been done and shows nitrification stabilizers can have a positive impact on reducing nitrogen conversions in soils where swine manure is applied (Sassman AM, Barker DW, Lundvall JP, Sawyer JE. Evaluation of fall-applied liquid swine manure with encapsulated nitrapyrin). When used in conjunction with soil temps below 50 degrees, the efficiency of inhibitors is even greater (Minnesota Crop News – 1/1/24).

Response: The final permits have been modified to include an additional nitrogen BMP in vulnerable groundwater areas that is consistent with the BMPs identified in the comment. See response to common issue 1 for more details.

Comment 170-10: Split application of manure will reduce the rate applied during the fall and reduce the overall potential leeching, runoff, and volatilization. While this option is viable for many sites and provides added flexibility, older sites might not have enough storage to bridge these application windows.

Response: Where possible the permits include several options for nitrogen BMPs to allow the producer to utilize the BMP that is best for their livestock enterprise.

Comment 170-11: The draft permit will require permit holders to obtain information from manure transfer recipients, along with extending permit conditions to non-permitted farmers, adding additional barriers and further disincentivizing the utilization of manure. Farmer that receive manure will refuse to follow the extra permit condition beyond the Chapter 7020 rules, refuse to provide the required data and information, or altogether do not accept the transfer because of the permit conditions- what options or accommodations exist for the manure originator?

Response: See response to common issue 3.

Comment 170-12: The additional manure transfer requirements will increase the use of commercial fertilizers. Commercial fertilizer production is energy and water-intensive and contributes significantly to additional greenhouse gas emissions, all things the state of Minnesota has goals and plans to reduce.

Response: Not all farms will forego the use of manure in favor of commercial fertilizers. Even if the speculative switch to commercial fertilizer happens, the increase in GHG emissions is not expected to be significant as many of the nitrogen BMPs sequester carbon in the soil and reduce GHG emissions.

Cover crops and perennials in the rotation also have soil health benefits. Much like with GHG emissions, the increased soil health benefits from the nitrogen BMPs offset soil health losses from those that switch to commercial fertilizer.

Response: The MPCA also believes that cropland farmers that currently use manure realize the soil health, micro-nutrients, and other benefits of manure application and will continue to seek out opportunities to utilize manure.

Comment 170-13: Requiring the holder of the permit to maintain information about a manure recipients crop production practices creates concern for the security and liability of private data. Manure transfer recipients are already required to maintain records of manure application activities, which include soil and manure test information, crop type and yield, field location, application timing, rate and method,

nitrogen and phosphorus accounting, and information on who applied the manure. Regardless of ownership status, these records are already maintained by those liable for the manure and should be sufficient for inspections or enforcement needs.

Response: See response to common issue 3.

Comment 170-14: Feedlots under the NPDES and SDS permit are not allowed to discharge. Clear guidelines and protections are in place, including setbacks required around sensitive features that protect the environment from discharges related to manure application. Nearly all swine manure is incorporated at the time of application and at rates that significantly reduce the risk of observable discharges. The permit already requires manure applications to not exceed the hydraulic loading capacity of the field and any spill, breach, or overflow must be reported to the duty office so there is negligible additional environmental protection provided by the field inspection requirement.

Response: Visual inspection is a reasonable practice to catch situations where runoff does occur. The inclusion of visual inspection requirements of land application fields is in part a result of a recent court decision in the state of Idaho where the court concluded that monitoring for discharges from land application activities must be part of these types of permits.

Comment letter 171. New Fashion Pork

Comment 171-1: The University of Minnesota cover crop page states "The primary challenge that successful cover cropping faces in Minnesota is the short growing season. There's rarely ample time and favorable field conditions to plant and establish a cover crop after the grain harvest and before winter sets in." The Strock et al., 2004 study concluded that cover crop establishment in Minnesota is difficult leading to inconsistent nitrate reduction and soil erosion control. Additional research from the University of Minnesota also shows years 2019-2024 were very challenging years for cover crops in Minnesota. With such a short planting window the opportunity for a successful cover crop is shown to be minimal.

Response: See response to common issue 1.

Comment 171-2: Though cover crops have been shown to increase soil health it has also been shown to decrease corn yields. The University of Minnesota is still conducting research on the effectiveness of cover crop practices in Minnesota. Current research will also help to understand the amount of nitrogen remaining in the soil after said cover crop is harvested or terminated.

Response: State feedlot rules and the permits reference the University of Minnesota recommendations. If changes are made to the recommendations to account for nitrogen immobilization via cover crops those changes will also be permissible by the permits.

Comment 171-3: Northern Minnesota has a shorter growing season than southern Minnesota, making cover crops even more difficult for those in northern Minnesota where there is a large area of vulnerable soils. According to the data provided by the National Centers for Environmental Information, in northern Minnesota there is a 70% chance that after October 2nd the temperature will fall under 32 degrees.

Response: See response to common issue 1.

Comment 171-4: The last permit update restricted applications prior to October 15th due to the soil temperature history being at or below 50 degrees. It has been shown that once the soil temperature reaches 50 degrees or lower the rate of nitrification greatly reduces. Microbial activity will rapidly slow down, decreasing the plants opportunity for nutrient uptake as temperatures continue to decrease into the winter months. This is a large contributing factor as to why cover crops in much of Minnesota have been unsuccessful for the past 5 years.

Response: See response to common issue 1.

Comment 171-5: I don't believe enough time has been given to show the impact of the delayed manure application in regard to soil temperature to justify the additions of even more regulations. Before cover

crops or 100% spring manure application are made the exclusive options to fall application on vulnerable soils, the land grant universities need to have time to prove the effectiveness of them.

Response: See response to common issues 1 and 2.

Comment 171-6: In 2022 the U of M published a study that shows cover crops to be more suited for cropping systems following sweet corn, peas, or other canning crops, small grains, or corn silage. These types of systems where the crop is harvested earlier in the year allow for the cover crop to get established and grow before the soil begins to freeze. Though these types of farming practices do occur in some parts of Minnesota it is a very small percentage.

Response: See response to common issue 1.

Comment 171-7: Other information that is still unknown and needs further research is nitrogen credit depending on which cover crop is planted. There has not been enough data in Minnesota with different cover crops to conclude what is left over in the soil after the crop is killed off.

Response: See response to common issue 1.

Comment 171-8: When using cover crops it is important that they are terminated as soon as conditions are good for the herbicide to be effective. This opens another avenue for more chemicals to get into our food and water systems. Glyphosate is a water soluble chemical which is already found in 1/3 of the US waterways according to the Battaglin W., et al.(2014) study.

Response: Glyphosate is a widely used chemical within agriculture. It is not expected that a small increase in use to terminate cover crops will be a significant contributor to increased water quality issues. Further, cover crops help control weeds so this may lessen the need to apply chemicals to control weeds and potentially offset an increase in use to terminate cover crops.

Comment 171-9: When it comes to spring application a major concern is the compaction issues it will cause when trying to apply manure. Compaction presses together the soil particles reducing the pore space and the ability for the soil to penetrate water. This causes issues with the plants root system and its ability to penetrate through the soil picking up the necessary nutrients. Soil compaction from the spring application could cause greater harm than good when trying to eliminate erosion and capture nitrogen to limit leaching.

Response: See response to common issue 2.

Comment 171-10: Equipment today is built a lot bigger than it was in the past, this can greatly increase the chances of soil compaction depending on weather and soil type. Compaction can occur more easily when soil conditions are wet which happens often in a Minnesota spring.

Response: See response to common issue 2.

Comment 171-11: Provide additional best management practices, that could apply to fall manure applications throughout the vulnerable soils in Minnesota, instead of a one size fits all approach. As an example, in our farming operation we utilize zone tillage, (strip tillage) which is a practice that disturbs very little of the soil when applying manure and planting the crop. This practice uses RTK technology that allows accuracy within 1 inch, to strategically inject manure which results in reduced risk of storm runoff. The GPS allows the seed to be planted right where the manure was injected allowing for an increased uptake in nutrients, lowering the gallons of manure that needs to be applied and creates an increased crop yield. No other fall tillage is used in this system which greatly reduces input costs such as tractor hours, fuel consumption, and soil compaction to the fields ultimately reducing the fields carbon footprint substantially.

Response: Where possible the permits include several options for nitrogen BMPs to allow the producer to utilize the BMP that is best for their livestock enterprise. The permits also include the

option for approval of additional nitrogen BMPs should research indicate they are effective at limiting nitrate leaching potential.

Comment 171-12: Natural fertilizers like manure, reduce the generation of greenhouse gases in-leu of synthetic fertilizers that can deplete the soil health.

Response: Not all farms will forego the use of manure in favor of commercial fertilizers. Even if the speculative switch to commercial fertilizer happens, the increase in GHG emissions is not expected to be significant as many of the nitrogen BMPs sequester carbon in the soil and reduce GHG emissions.

Cover crops and perennials in the rotation also have soil health benefits. Much like with GHG emissions, the increased soil health benefits from the nitrogen BMPs offset soil health losses from those that switch to commercial fertilizer.

The MPCA also believes that cropland farmers that currently use manure realize the soil health, micro-nutrients, and other benefits of manure application and will continue to seek out opportunities to utilize manure.

Comment letter 172. Minnesota Milk Producers Association

Comment 172-1: The additional requirements and cost to comply with the requirements associated with the NPDES and SDS permits are preventing smaller size feedlots from expanding.

Response: Comment noted.

Comment 172-2: The potential for additional permit requirements to be including in the next version of the NPDES and SDS permits places an unreasonable amount of risk on farms with these permits. They have built a facility to comply with the current requirements with the unknown prospect of future changes to the requirements that may require substantial facility changes and financial investment to comply.

Response: As science advances our knowledge of how agriculture can affect human health and the environment, regulations will inevitably change in response. Adapting facilities to changes in permit requirements is undoubtedly challenging; therefore, where possible the permits include several options for nitrogen BMPs to allow the producer to utilize the BMP that is best for their livestock enterprise.

Comment 172-3: Direct injection can increase nutrient recovery, prevents nutrient loss, improves soil health with micronutrients, and therefore protects water and air quality. MPCA should allow land utilizing direct-injection of manure to have a wider calendar window, slightly higher soil temperatures and more options for cover crop installation compared to land-applied manure, crediting its soil health benefits.

Response: Injection of manure will result in less potential for runoff from land application of manure. This is reflected in the land application setbacks required by the permits as well as the new permit conditions for land application inspections. Injection of manure also provides for less nitrogen loss to the atmosphere during application. Injection does not affect the natural process of mineralization that converts nitrogen in manure to the leachable form of nitrate; therefore, it is not considered in the context of methods to limit nitrate leaching potential.

Comment 172-4: In some parts of Minnesota manure is well received as an option, and in others it is seen as a burden. The new regulations for manure transfer and record keeping will devalue manure and make it difficult for manure recipients to incorporate the new rules including record keeping into their operation.

Response: See response to common issue 3.

Comment 172-5: Utilizing average temperatures and average data overall – from three weather stations in the southern half of the state – creates an unacceptable situation for farmers as there are typically always good agronomic and ecological days to apply manure, but they may not fit with a regulatory calendar if we assume March will have snow, October will become cold, and December and January will be frozen.

> **Response:** Many of the permit conditions relating to manure application timing include weather-related aspects within the calendar dates identified. This is intended to provide clarity as to when certain requirements apply but at the same time account for weather variability within the timeframes. For instance, the requirements for December and January reference specific weather-related conditions that allow for application to frozen or snow-covered soils during those months. If the December and January timeframes were removed, those requirements would apply if winter "came early" and there were frozen or snow-covered fields in November. Additionally, the final permits include an additional nitrogen BMP option for vulnerable groundwater areas based the weather-related condition of soil temperature. For more details refer to the response to common issue 1.

Comment 172-6: No criteria for the vulnerable groundwater area designation was provided; instead it is stated by staff that MPCA has adopted MDA's vulnerable groundwater map plus DWSMAs.

> **Response:** The map is a compilation of the existing MDA's fall fertilizer restriction map and MDH's DWSMA vulnerability map for highly vulnerable DWSMAs. The vulnerable groundwater area shape file and full metadata record is available on the Minnesota geospatial commons. To assist producers and the general public, the MPCA has placed on its website an interactive Nutrient Management Planning Map, which is referenced by the permits as the location for delineating the vulnerable groundwater areas subject to the permit requirements. The Nutrient Management Planning Map is available from this MPCA webpage: https://www.pca.state.mn.us/business-with-us/land-application-of-manure.

Comment 172-7: A survey conducted by the Minnesota Agricultural Water Resource Center found that over 25% of respondents would need to move manure applications and purchase commercial fertilizer, need additional manure storage, adopt cover crops for the first time, or have difficulty scheduling a manure applicator as a result of the proposed requirements for vulnerable groundwater areas.

> **Response:** In response to comments received, the final permits include an additional nitrogen BMP option for vulnerable groundwater areas that utilizes a combination of BMPs more familiar to producers. See response to common issue 1 for more details.

Comment 172-8: Current permit requirements, specifically delaying fall applications until soils are below 50 degrees F, split applications and use of a nitrogen stabilizing agent/product should be a continued option for vulnerable groundwater areas. Without these options, a neighboring farm who has committed to taking manure may be unable to take it with the tight requirements and uneven adoption of situations not considering crop rotation in different parts of the state.

> **Response:** The final permits have been modified to include an additional nitrogen BMP in vulnerable groundwater areas that is consistent with the BMPs identified in the comment. See response to common issue 1 for more details.

Comment 172-9: It is difficult to find the right year, location, and rotation to incorporate cover crops into a farming operation. Four studies from the University of Minnesota illustrate the challenges with cover crops in Minnesota.

- "We estimate that establishment of a winter rye cover crop after corn will be successful in one of four years in southwestern Minnesota."- (Strock, J.S., Porter, P.M., Russelle, M.P. 2004. Cover cropping to reduce nitrate loss through subsurface drainage in the northern U.S. corn belt)

- "Cover cropping practice provides promising opportunities for reductions in N losses for cropping rotations wherein the primary crops are harvested before mid-September and planted after mid-May." (Feyereisen, G.W., Wilson, B.N., Sands, G.R., Strock, J.S., Porter, P.M. 2006. Potential for a rye cover crop to reduce nitrate loss in southwestern Minnesota)
- In a four-year replicated study, conducted at the Univ. of Minnesota Southern Research Center drainage facility, it was documented that the weather permitted adequate cover crop growth only during one season that allowed for a significant reduction of nitrates in tile drainage. (Vetsch, J. 2020. Vegetative cover crops as a nitrate reduction strategy for tile drainage water)
- Lack of precipitation for more than a week after cover crop seeding often results in their poor establishment. The authors argued that "in rainfed agriculture of northern climates weather conditions drive the success of cover crops use in conventional maize production systems". (Rusch, H.L., Coulter, J.A., Grossman, J.M., Johnson G.A., Porter, P.M and Garcia y Garcia. A., 2020. Towards sustainable maize production in the U.S. upper Midwest with interseeded cover crops) Furthermore; as reported at the February 9, 2021, Nitrogen: Minnesota's Grand Challenge and Compelling Opportunity Conference by Axel Garcia y Garcia, one of this studies authors, cover crop biomass was greatly reduced with planting dates later than September 20 and near zero with planting dates in mid-October.

Response: See response to common issue 1.

Comment 172-10: It is difficult to incorporate cover crops into a manure based system because there is typically tillage involved with the manure application.

Response: Research at the University of Minnesota has demonstrated that low disturbance manure injection can be performed on standing cover crops with good recovery of the cover crop. While this is not an option for all facilities, the permits include several options for nitrogen BMPs to allow the producer to utilize the BMP that is best for their livestock enterprise.

Comment 172-11: The BMP option to grow a perennial crop 2 out of 5 years should be added to the available options in the current NPDES permit that would allow manure application in October.

Response: The permits use this BMP in conjunction with soil temperature being below 50°F. In the first two weeks of October, historical soil temperatures show average soil temperatures well about 50°F (see response to common issue 1). It is not until the later part of October that you can expect soil temperatures to drop below 50°F and primarily stay below 50°F to limit nitrification.

Comment 172-12: The requirement for permittees to obtain more information from manure recipients is unreasonable and will cause some current manure recipients to switch to commercial fertilizer.

Response: See response to common issue 3.

Comment 172-13: A survey conducted by the Minnesota Agricultural Water Resource Center found that 60% of the respondents expected manure recipients they currently use to switch to commercial fertilizer as a result of the additional measures they would need to follow as a manure recipient.

Response: See response to common issue 3.

Comment 172-14: Delays and costs associated with agency inspection of land application sites would be unworkable. There would not be enough inspectors and there would be bio-security concerns with inspectors visiting multiple sites in one day.

Response: Inspections would be completed by the Permittee or their designee, not the MPCA. Visual inspection is a reasonable practice to catch situations where runoff does occur. The inclusion of visual inspection requirements of land application fields is in part a result of a recent court decision

in the state of Idaho where the court concluded that monitoring for discharges from land application activities must be part of these types of permits.

Comment 172-15: Farmers don't believe these are the right rules for the environment, as it will devalue manure so the "new" practice of the future will simply be eliminating manure from land management for many transferees (and potentially even livestock owners who will quit the business, or not enter NPDES size permits to avoid the new rules).

Response: Comment noted. Additional regulations can require changes to past practices, take additional resources to implement, and/or result in additional costs. Removing nitrates from drinking water is a very expensive endeavor for public water supplies and private well owners. There are also significant issues associated with nitrate pollution in surface waters, most notable the hypoxic conditions in the Gulf of Mexico.

Likewise, nitrogen that is applied and subsequently lost to the environment is also an expense for farmers. Nitrogen loss may result in crop nitrogen deficiencies that could impact yields which lowers profitability. Also, the same amount of nitrogen could have been spread on more acres if the nitrogen loss was minimized, which would reduce crop production costs for the farmer.

Where possible the permits include several options for nitrogen BMPs to allow the producer to utilize the BMP that is best for their livestock enterprise

Comment letter 173. Senator Torrey Westrom

Comment 173-1: These proposed rules offer a one size fits all framework that cannot possibly accommodate the breadth of Minnesota agriculture. Minnesota farms vary widely in size, the crops grown, soil type, topography, and water sources used.

Response: The permits are not rules that apply to all producers, but permits that only apply to larger operations. The permits do identify regions of the state that are particularly vulnerable to groundwater contamination and require nitrogen BMPs best suited for these areas to limit nitrate leaching potential, rather than applying these requirements statewide. Where possible the permits include several options for nitrogen BMPs to allow the producer to utilize the BMP that is best for their livestock enterprise. The vulnerable groundwater areas identified in the permits are based on the geology and hydrology of regions of Minnesota. This approach is the same that used by the MDA as part of existing commercial fertilizer application regulations.

Comment 173-2: The proposal that all farms who receive their manure from a feedlot must comply with the feedlot's permitting requirements relating to spreading manure will result in less demand for manure due to the regulatory risk and less willingness by neighboring farmers. Instead of efficiently using manure as a natural fertilizer, livestock producers may have to increase their costs by constructing new manure storage, while crop farmers may turn to more synthetic fertilizers rather than utilizing a natural product.

Response: See response to common issue 3.

Comment 173-3: There were no recent statutory changes made to authorize these new rules. Therefore, these rules should not be adopted! At a minimum, it would be prudent to delay implementation of changes until after the conclusion of the 2025 legislative session to allow for greater public input, as well as to allow the legislative committees with authority over agriculture to scrutinize these proposals and the negative effect they may have on livestock producers.

Response: These are permit revisions, not new rules. The MPCA feedlot program, just like other programs at the MPCA, has the authority through state rules (Minn. R. ch. 7001) and statutes (Minn Stat. ch. 115) to require permit conditions the agency deems necessary to protect human health and the environment.

Comment letter 174. Winona County SWCD

Comment 174-1: Requiring a manure recipient to comply with the Permittee's MMP is a great concept. However, manure recipients may not prefer to follow the application requirements or tracking of the MMP and therefore choose to discontinue the transfer of manure. This may cause current NPDES & SDS Permittees to fall short of the spreadable acres required in their MMP and constraint as they search to find new/future manure recipients.

Response: See response to common issue 3.

Comment 174-2: This requirement may also be difficult for the manure recipient to comply with the Permittee's MMP as their manure spreader will likely not be calibrated for the manure received. Therefore, applying manure at a rate so as the estimated nitrogen available to crops does not exceed expected annual crop nitrogen needs or cause issues with phosphorus accumulation may be difficult for the manure recipient.

Response: Nitrogen application at agronomic rates and phosphorus management is required within Minn. R. ch. 7020, for anyone that applies manure and is not a new requirement for manure recipients.

Comment 174-3: Ensure the "Manure Transfer Tracking" form generated by the "Nutrient Management Tool" provides the manure recipient with the annual manure sample analysis.

Response: State rules require this information be provided to manure recipients when manure is transferred from any size facility. The new form includes this information.

Comment 174-4: Begin by having the manure recipient provide the Permittee with the location and rate of application. Then in a few years, implement manure recipient requirement to follow the Permittee's MMP.

Response: Location and rate of application has been required information since 2000.

Comment 174-5: Streamline or simplify permit requirements for land application of manure. Current timing breakdown is by the month to address common weather trends. A quarterly approach may be easier for a producer to track and successfully follow, such as Jan/Feb/Mar, Apr/May/June, July/Aug/Sept, Oct/Nov/Dec.

Response: A quarterly breakdown does not provide enough opportunity to adequately address variability in weather and field conditions within each of the quarters.

Comment 174-6: Provide visual aides, such as stickers for tractor cabs, which will help producers to quickly determine their options and BMPs required when timing of manure application does not go as planned in the MMP due to unforeseeable obstacles (i.e. equipment breakdowns, weather, etc.).

Response: Outreach and educational materials will be developed to assist with compliance.

Comment 174-7: Ensure that the forthcoming "Minnesota Nutrient Management Tool" is set up in a way that producers can easily use and plan their full year's manure application ahead of time.

Response: That is one of the goals for the new tool.

Comment 174-8: The MN Nutrient Management Tool would be especially efficient if the program would allow producers to print maps indicating which fields can be spread on and at what rate/# of loads based on the Permit requirements and the producer's previous manure application data input throughout the year.

Response: This will be an option.

Comment 174-9: Producers who are not tech savvy will likely find complying with the requirements of online MMP planning, reporting, notifying, etc. to be difficult or impossible. Provide in-person assistance or other opportunities to producers who are unable to use the online resources designed for the

compliance of the Permits. Provide printed materials, such as maps, MMP, etc, to landowners who are not tech savvy.

Response: Outreach and educational materials will be developed to assist with compliance.

Comment 174-10: Higher costs may be incurred by the proposed changes in many ways, a manager to oversee proper MMP creation and execution, custom manure applicators to follow the MMP and apply manure in a short timeframe, and additional farm laborers to free up producer's time to conduct MMP management/creation. Other potential producer costs include installation of expensive manure storage, purchase of new equipment to improve efficiency on the farm to cut down labor costs, etc.

Response: Comment noted.

Comment 174-11: Producers currently with an NPDES or SDS Permit are calling for smaller operations to be held to the same standards and requirements set by the Permits. Similarly, local and State environmental groups are pushing for higher regulation and forced adoption of manure and nitrogen BMPs across the landscape. Although standardization of regulations across all MN feedlots would provide many obvious environmental benefits, it may also produce adverse outcomes that aren't yet realized. Smaller operations often have fewer resources (labor, equipment, equity) than larger operations. This makes change difficult, and sometimes infeasible for smaller operations to implement change. Precede regulation with ample amounts of State and Federal cost-share opportunities so that smaller operations do not have to make a choice between becoming compliant or selling their animals.

Response: The MPCA is considering the need for updates to the state feedlots rules and will take into account these factors.

Comment letter 175. Lower Sioux Indian Community in the State of MN

Comment 175-1: The Lower Sioux Indian Community supports the proposed requirements for vulnerable groundwater areas, requiring incorporation of manure in floodplains, visual inspection of land application sites, and water sampling of discharge events.

Response: Comment noted.

Comment 175-2: More protection of DWSMAs is needed. A permit should not be issued if the CAFO and/or the manure application areas are in a delineated area of a State, Federal, or Tribal DWSMA.

Response: While the permits do not prohibit land application in DWSMAs they do require additional nitrogen BMPs for land application in DWSMAs identified as highly vulnerable by the MDH. The MPCA will continue to work with the tribes in Minnesota to determine if tribal DWSMAs should be added to the vulnerable groundwater areas map.

Comment 175-3: The definition of "sensitive areas" listed in the MPCA Environmental review guidance needs to be expanded to include the entire delineated DWSMA, and not limited to the 'vulnerable parts.

Response: Changing environmental review guidance is beyond the scope of the feedlot permits.

Comment 175-4: The additional requirements to the October, November, and winter applications of manure in vulnerable groundwater areas are good, commonsense management practices. The requirement that those practices are followed should be extended to all lands where manure is applied.

Response: State feedlot rules do regulate all manure application in Minnesota but do not contain the same requirements of the NPDES and SDS permits. The MPCA is considering the need for updates to the state feedlots rules.

Comment 175-5: This permit should require more proactive water samplings to ensure long-term compliance with the permit and to help ensure accountability. These permits should require water sampling and testing conducted regularly around the permit holding site and where liquid manure from

the site is being spread. This additional testing will provide data to the agency and the public on any long-term damage and contamination.

Response: See response to common issue 4.

Comment 175-6: These permits should also require that new constructions of manure basins and new manure application areas must undergo water sampling and testing before construction begins or manure is spread to establish a baseline nutrient load for future testing to be measured against.

Response: See response to common issue 4.

Comment letter 176. White Earth Nation

Comment 176-1: White Earth Nation applauds MPCA for requiring inspections on applications of manure, planting cover crops, assessing vulnerable ground water areas, protecting vulnerable surface waters for flood plain areas by limiting how manure can be applied, and phasing out winter applications of manure.

Response: Comment noted.

Comment 176-2: What are the safeguards that permittees will actually self-report spills, discharges, or overflows as required by the permit? What will happen if they fail to report – i.e. will MPCA penalize failures to report? MPCA should follow up and either require the permittee to sample the area so that the public can be made aware of any damage to the environment or have MPCA do sampling upon receipt of such reports similar to the new permit requirements for sampling discharges into waters of the state. Likewise, there needs to be consequences for permittees who fail to report spills, discharges, or overflows.

Response: Many regulatory programs rely on elements of self-reporting. It is not possible for MPCA inspectors to be at every feedlot and field location across the state when manure is being applied. Self-reporting is one of many compliance monitoring tools the agency uses, along with on-site inspections, complaint investigations, and enforcement actions.

Comment 176-3: Many animal feedlot facilities within the state do not rise to the term of art "CAFO" triggering either SDS or NPDES permits. Thousands of facilities, more than 16,000, will continue to pose great risks to our shared resources. Not only will these facilities operate without many of the commendable best management practices outlined by these proposed permits, but the manure generated by these facilities and used by countless others throughout the state will be applied without the more stringent requirements of manure recipients of SDS or NPDES permitted facilities.

Response: State feedlot rules do regulate all manure application in Minnesota but do not contain the same requirements of the NPDES and SDS permits. The MPCA is considering the need for updates to the state feedlots rules.

Comment 176-4: What about manure receipts who are in Indian Country? What about persons who receive manure from these SDS or NPDES permitted CAFOs and they wish to transport manure to apply in Indian Country? There is no mention of this very real scenario in either of the permits or the fact sheets. There should be at the very least some guidance for persons who wish to receive manure from such facilities and apply that manure in Indian Country.

Response: The permit conditions would apply to anyone that applies manure in Indian Country. Any person receiving manure from a permitted facility must follow the permit conditions and any other requirements under other federal, state, tribal, or local statutes, rules, or regulations.

Comment letter 177. Wes Libbey Northern Lakes Chapter of the Izaak Walton League

Response to this comment letter can be found in the "Similar Comment Letter" section of this document.

Comment letter 178. Institute for Agriculture and Trade Policy

Comment 178-1: We support the requirements that all October and November applications in vulnerable groundwater areas have either a growing crop, cover crop or perennial crop within 14 days of application. We agree that visual inspection at time of application and afterwards is necessary.

Response: Comment noted.

Comment 178-2: Strong record-keeping of applications, including water sampling and ensuring that manure buyers are following permit rules, is reasonably required to ensure that permits are being followed. We believe these changes could be strengthened by requiring permit holders to share this information with the agency and be publicly available to ensure permits are being followed.

Response: The permits require annual reporting of activities at the feedlot including land application records. Those reports are available to the public.

Comment 178-3: We support requiring Best Management Practices (BMPs) on timing of application, during fall, winter and summer, and the need to have a cover crop or perennial crop on applicated land for impaired groundwater areas. However, we think the MPCA should go further to expand the additional requirements outlined for October, November and winter applications of manure in vulnerable groundwater areas to all parts of the state where manure is applied. One set of rules throughout the state would have a larger impact for clean water and reduce disputes about applying these requirements.

Response: State feedlot rules do regulate all manure application in Minnesota but do not contain the same requirements of the NPDES and SDS permits. The MPCA is considering the need for updates to the state feedlots rules.

Comment 178-4: We support requirements for preplant spring testing to determine how much nitrogen is needed.

Response: The permits require soil nitrate testing in accordance with University of Minnesota guidelines.

Comment 178-5: In addition to water sampling and testing after a discharge event, this permit should require more proactive water samplings to ensure long-term compliance with the permit and to help ensure accountability. These permits should require regular water sampling and testing around the permit holding site and where liquid manure from the site is spread so that the agency and the public can know that long-term damage and contamination is not occurring.

Response: See response to common issue 4.

Comment 178-6: These permits should also require that new constructions of manure basins and new lands used for spreading undergo water sampling and testing before construction begins or manure is spread to establish a baseline nutrient load for future testing to be measured against.

Response: See response to common issue 4.

Comment 178-7: We support requirements for manure application into the soil if on a 100-year flood plain. We urge MPCA to ensure that those flood plain assessments are up to date. Climate change is rapidly changing where 100-year flood risks are located. We understand that FEMA is currently updating its flood plain maps. We urge MPCA to ensure the floodplain maps it uses are up to date and continually updated as needed. A recent analysis found that two-thirds of FEMA's floodplain maps had not been updated in the required five years and many are considered inaccurate.

Response: The most current maps will be used to define floodplain areas.

Comment 178-8: We urge MPCA to consider the unique manure properties of digestate, a product of manure digesters to produce biogas. Digestate is the waste left over after the methane gas has been

captured. It typically has higher levels of ammonia nitrogen than typical manure applications. These higher nitrogen levels could lead to overapplication, making it extra important for farmers to (1) test the digestate before application and (2) take appropriate account for all sources of nitrogen applied to the field.

Response: The digestion process does not add nutrients nor remove other components of manure to concentrate nutrients. Anaerobic digesters simply harness and enhance the natural processes that break down organic material. The material that comes out of an anaerobic manure digester is still fundamentally manure and is subject to the regulations of the permits which include nutrient testing.

Digestion can influence the plant availability of the nutrients in manure. Manure contains nitrogen in organic and inorganic forms. Digestion simply accelerates the process of conversion of organic nitrogen to inorganic nitrogen, which is the form that plants can utilize. This conversion also happens naturally in the environment, albeit at a slower pace, which is why there are credits associated with manure application for the following year's crop.

The current system of nitrogen recommendation for manure is based on the average total nitrogen content of manure expected from various animal species to estimate the amount of nitrogen available to the crop to be grown this year (1st year crop) and the crop to be grown next year (2nd year crop). Digested manure will have more nitrogen in the inorganic form than other manure generated by a particular animal species. The University of Minnesota is working towards a nutrient recommendation system based on the inorganic and organic fractions of manure to allow more precise recommendations for first- and second-year nitrogen availability to crops. As the permits and state feedlot rules require the use of the University of Minnesota recommendations, this new approach will be a requirement of the permits when the University changes its recommendations.

Comment letter 179. Sierra Club North Star Chapter

Comment 179-1: We agree with the proposed feedlot permit changes including a) manure application in the spring or planting cover on the land when manure is provided, b) incorporating manure into the soil when applied on a floodplain, c) inspections during and after manure application to assess any runoff, d) reinspection if it rains soon after application of the manure to the land surface if manure is not incorporated, and e) reporting any discharge of manure to the Minnesota Duty Officer, f) farmers who receive manure from feedlots must follow the conditions on manure management contained in the permit of the facility they purchased the manure from.

Response: Comment noted.

Comment 179-2: The manure application requirement options for October, November, and the winter should be required on all lands in Minnesota where manure is applied.

Response: State feedlot rules do regulate all manure application in Minnesota but do not contain the same requirements of the NPDES and SDS permits. The MPCA is considering the need for updates to the state feedlots rules.

Comment 179-3: Reporting by permit holders demonstrating compliance with feedlot permit conditions should be improved and adhered to, and this information should be made readily available to the public.

Response: The permits require annual reporting of activities at the feedlot including land application records. Those reports are available to the public.

Comment 179-4: Feedlot permits should require water quality monitoring plans designed for their facility and lands where manure is stored and applied and approved by the MPCA. This should include where and when sampling will be done, and which parameters are to be measured. To establish a baseline, water quality monitoring should be completed before facility construction or manure has been applied and consistently thereafter.

Response: See response to common issue 4.

Comment 179-5: Documentation of all inspections must be maintained and submitted to the MPCA on a required periodic basis.

Response: Permittees must maintain records of all inspections required by the permits. These records can be requested by the MPCA when necessary.

Comment letter 180. Socially Responsible Agriculture Project

Comment 180-1: We support and endorse comments submitted to MPCA by the Minnesota Center for Environmental Advocacy and Food and Water Watch.

Response: Comment noted.

Comment 180-2: To truly address the nitrate loading problem in areas of highly permeable soils or karst bedrock and ensure agronomic rates are being used and runoff and leaching is not occurring, additional monitoring is necessary, including:

- More stringent equipment monitoring and calibration
- More extensive visual inspections throughout a field prior to, and during, and after applications
- Greater use of soil moisture sensors
- More regular groundwater monitoring, which is submitted to the agency and made publicly available
- Providing photographic documentation submitted to the agency and made publicly available.

Response: See response to common issue 4.

Comment 180-3: A site specific visual monitoring plan should also be required to help tailor land applications at each field.

Response: The permit requirements for land application inspections are prescriptive and adequately identify where and when inspection must be conducted.

Comment 180-4: The public cannot adequately comment on the permit without seeing and understanding the Nutrient Management Tool that will be required of Permittees to develop MMPs. Without seeing how the tool works, and what information it requires, we are concerned that feedlots may present misinformation. By delaying in issuing the Tool until after this permit public notice and comment period, MPCA has eliminated the public's opportunity to comment on it as part of this permit process.

Response: Standardized forms, such as the Nutrient Management Tool, are not required to be public noticed like a permit. The MMP, which is produced by the Nutrient Management Tool is incorporated into the permits and will be available for public review for each facility during the public notice of intent to issue coverage to a facility under the permits.

Comment 180-5: Where more than one CAFO uses the same field for land applications crop, soil, surface and groundwater, odor and volatilization problems are compounded. The permit and Manure Tracking Form should be improved to more easily identify when fields are being used by multiple feedlots. We recommend Minnesota adopt a similar approach to the State of Michigan.

Response: The Nutrient Management Tool includes a geographic information system (GIS) mapping component that will allow analysis of acres used for land application, including an analysis suggested by this comment.

Comment 180-6: The MPCA must develop the Nutrient Management Tool and associated forms to ensure manure is truly transferred to a third party not that is not under the control of the CAFO and where the CAFO does not control the land where the manure is applied including through shell ownership or strawman relationships. This practice can result in inaccurate nutrient balance tallies, and surface and groundwater discharge and contamination problems.

Response: In the same way current paper forms include information about transferred ownership, the Nutrient Management Tool also includes guidance to users as to when manure ownership is truly transferred to a third party as suggested by this comment. Additionally, the permits require manure recipients, regardless of connections to ownership of the facility, to follow the requirements of the permits and report a complete manure application record back to the facility where the manure was produced for submittal to the MPCA with the required annual reports.

Comment 180-7: Feedlots proposing to include anaerobic digestion to produce biogas or biomethane should not be allowed to have the anaerobic digester included under the rubric of a NPDES or SDS General Permit because anaerobic digesters are wholly separate point sources. As a point source, anaerobic digestion activities are not included within the CWA CAFO point source definition, and should be subject to entirely separate point source regulation and permitting. By allowing anaerobic digestion to occur under a CAFO permit, MPCA is impermissibly mixing two entirely different industries, and allowing anaerobic digestion to occur without properly regulating that pollution.

Response: Anaerobic digesters are regulated as manure storage areas under Minn. R. 7020.0300, which are included in the definition of the production area of Concentrated Animal Feeding Operations (CAFOs) and are therefore properly regulated by these permits. Furthermore, the EPAs AgSTAR anaerobic digestion (AD) project development handbook states, “There are no national water-related permit requirements solely triggered by the use of an AD/biogas system.” It also goes on to say, “CAFOs are defined as point sources of water pollution and require permits to limit pollutant discharges. Adding an AD/biogas system does not change these requirements.”

Associated equipment for biogas utilization is not regulated by these permits and would be subject to other permitting programs/requirements. For instance, the feedlot may be required to obtain air emission permits for emissions associated with biogas utilization.

Please see the MPCA fact sheet “Regulatory requirements for anaerobic digesters”, available at: https://www.pca.state.mn.us/business-with-us/feedlot-permits, for more information.

Comment 180-8: The NPDES general permit framework is only intended to be used for industries that have common activities. The activities of operating a CAFO, such as housing and raising livestock, storing livestock feed, storing livestock manure, transporting and conveying livestock manure to fertilize croplands are entirely different from anaerobic digestion and gas/energy production. There are rarely enough similar characteristics between digesters, or similarity in geographic regions, to justify a general permit framework.

Response: The material that comes out of an anaerobic manure digester is still fundamentally manure. ADs simply provide an environment that enhances the naturally occurring organic material decomposition process. Anaerobic decomposition of organic material in manure is a natural process that is occurring at all liquid manure storage areas in Minnesota making it an exceedingly common similarity between facilities. A digester is simply a liquid manure storage area.

When other organic wastes are mixed with manure and digested (co-digestion) a facility is not eligible for coverage under the general permits if the mixture is not at least 90% manure.

Please see the MPCA fact sheet “Regulatory requirements for anaerobic digesters”, available at: https://www.pca.state.mn.us/business-with-us/feedlot-permits, for more information.

Comment letter 181. Minnesota Well Owners Organization

Comment 181-1: We recommend the mandatory use of the following maps for all feedlot locations and for all fields where manure is applied for all SDS and NPDES Permits for feedlots.

- USDA Web Soil Survey Maps (WSS)
  - Soil Map
  - Suitability and Limitations for
    - Waste Management - Manure and Food Waste
    - Waste Management - Sensitive Lands for Nutrient

These valuable maps are standardized, cover the entire state and are easily available assessing various risks based on soil qualities, parent materials, water features, depth to water table, flood frequency, and ponding and map out limitations and an assessment of risk for each soil type in Minnesota.

Response: The Nutrient Management Tool that is required for development of MMPs incorporates some soils information from the USDA web soil survey.

Comment 181-2: Each permit application should also include the MDNR Groundwater Pollution Sensitivity Maps at a Township Scale.

- Pollution sensitivity of bedrock surface (HG-01).
- Pollution sensitivity of near-surface materials (HG-02).
- Water table elevation and depth to water table (HG-03)

Response: The Nutrient Management Tool that is required for development of MMPs includes the vulnerable groundwater area map referenced by the permits. This map considered the information from the maps referenced in this comment.

Comment 181-3: Chemicals of Emerging Concern (CECs) including PFAS, which now has very low Health Risk Limits and is reported to be used in thousands of ag-chemicals, should be addressed in the permits. Other CECs are currently without limits including pharmaceuticals (antibiotics, growth hormones and endocrine disruptors used in animal husbandry and in veterinary care, pest control, cleaning and other products).

Response: Livestock regulated by the permits do not create Per- and polyfluoroalkyl substances (PFAS) or other contaminants of emerging concerns (CECs). The MPCA is focusing its efforts on reducing the use of items containing PFAS and CECs before they make their way into the animals themselves or the manure they produce. Animal husbandry practices such as the use of pharmaceuticals or the type of feedstocks for the animals is not regulated by these permits.

Comment 181-4: The new feedlot permits should require identification of both the Drinking Water Source Management Area (DWSMA) and each occupied household that is reliant on a private well for a 1.5 mile radius of the feedlot and for all other properties that are on, or abutting manure spreading sites. This DWSMA and private well use inventory should be tabulated, mapped and available for the permit review.

Response: The Nutrient Management Tool that is required for development of MMPs includes on the land application maps it generates, DWSMAs and wells within or near to the land application sites. An interactive statewide sensitive features map (Nutrient Management Planning Map) that mirrors the map layers within the Nutrient Management Tool has recently been made available for public viewing through the MPCA website at: https://www.pca.state.mn.us/business-with-us/land-application-of-manure.

Comment 181-5: A 300-500 foot radius around each well in addition to the work required in DWSMAS should be required. A well use inventory would provide an effective advisory footprint for private well head protection and for localized source water protection.

Response: The 50-foot setback in the permits is consistent with state feedlot rules and MDH guidelines.

Comment 181-6: Permittees should be required to test the drinking water at private wells at the facility and at spreading sites receiving manure and report the results annually.

Response: See response to common issue 4.

Comment letter 182. The Land Stewardship Project

Comment 182-1: We support these changes:

- Requiring that by 2028, all lands that have manure applied to them in vulnerable groundwater areas must have either a growing crop, a perennial crop planted, or have a cover crop planted with 14 days of manure application if spreading in October and November.
- Prohibiting solid manure spreading in vulnerable groundwater areas during the winter conditions experienced in December, January, and February,
- Limiting manure application within a 100-year floodplain to only application that incorporates the manure into the soil.
- Monitoring spreading by requiring the permit holder to do visual inspections of all land application areas.
- Helping with cleanup and accountability by requiring the permit holder to do water sampling after a manure discharge event.
- Making our rules consistent by requiring people who buy manure from a permit holding operation or spread manure for one follow the permit requirements.

Response: Comment noted.

Comment 182-2: The MPCA should not be creating rules that will only protect people once they have proven that they are at risk and have a well that is unusable. The additional requirements to the October, November, and winter manure application restrictions and practices must be extended to all lands where manure from a site that holds either an NPDES or an SDS permit is applied, regardless of whether that land is in a vulnerable groundwater area, or if the manure is being spread by the permit holder themselves or a custom applicator.

Response: Note that these are permits, not rules. State feedlot rules do regulate all manure application in Minnesota but do not contain the same requirements of the NPDES and SDS permits. The MPCA is considering the need for updates to the state feedlots rules.

Comment 182-3: The requirement for permit holders to share manure application records with the agency on an annual basis must be increased to sharing the information after each application occurs. If permit holders are sharing information with feedlot officers regularly, it helps the permit holder if they have more clarity around what is being asked of them. It also helps the agency ensure permits are being followed, and helps community members become more confident that they are being protected. In addition, the information gathered from these records should be made available to the public. Communities dealing with the risks of feedlot contamination deserve to know that permits are being followed and deserve to have the ability to check that information for themselves.

Response: The permits include additional inspections of land application fields for evidence of discharge, which must be reported upon discovery so that immediate actions can be taken. In contrast, the main component of land application records is the amount of nutrients applied to the

field and there is little to no opportunity to remove that manure application if it exceeds the nutrient needs of the crop. Land application records are best utilized in the determination of where more education about or refinement of the requirements are needed, making a yearly submittal of this information adequate. Annual reporting does not limit the MPCA's ability to take enforcement actions for violations discovered in the land application records.

Comment 182-4: Regular water sampling and testing near the permit holding site and where manure from the permitted site is being spread should be required so that the agency and the public can know that longterm damage and contamination is not occurring. This testing should take place at locations of potential surface water contamination like drain tile outlets, streams, drainage ditches, or field low points where stormwater typically runs off. Groundwater access sites like wells should also be tested regularly. These locations should be listed on the permit as well, so that operators have the knowledge they need to do this testing effectively, and repeated tests can be accurately compared.

Response: See response to common issue 4.

Comment 182-5: These permits should require that new construction of manure basins and new lands used for spreading undergo water sampling and testing before construction begins or manure is spread to establish a baseline nutrient load that future testing can be measured against. Such a baseline is required if we are to determine that these permits are meeting our goals of reducing contamination.

Response: See response to common issue 4.

Comment 182-6: There needs to be more direction given on how the agency expects farmers to comply with the water sampling and testing requirements in the event of a discharge to waters. This requirement is simply not going to work if farmers are required to drive a sample to a clinic in Minneapolis within 24 hours of taking it, or the agency is relying on farmers mailing in their samples. This requirement must include a detailed pathway in the permit for getting that testing done effectively, or a detailed plan for how the agency will either come to the farmer to test the water on-site or collect and transport samples within 24 hours.

Response: The MPCA will make guidance related to sampling these types of discharges available in the near future.

Comment 182-7: If manure from a facility holding one of these permits is going to be used in a digester and converted to digestate before it is spread, the digestate must be tested for its nutrient content before every application. Digestate, even when the feedstock used to create it is manure alone, is a more concentrated, nutrient-dense product. The risks and potential impacts of contamination or an accidental discharge event are even higher when dealing with a more concentrated product. Therefore, utilizing it as a fertilizer should be held to a higher standard of scrutiny to account for the added risk.

Response: The digestion process does not add nutrients nor remove other components of manure to concentrate nutrients. Anaerobic digesters simply harness and enhance the natural processes that break down organic material. The material that comes out of an anaerobic manure digester is still fundamentally manure and is subject to the regulations of the permits which includes nutrient testing.

Digestion can influence the plant availability of the nutrients in manure. Manure contains nitrogen in organic and inorganic forms. Digestion simply accelerates the process of conversion of organic nitrogen to inorganic nitrogen, which is the form that plants can utilize. This conversion also happens naturally in the environment, albeit at a slower pace, which is why there are credits associated with manure application for the following year's crop.

The current system of nitrogen recommendation for manure is based on the average total nitrogen content of manure expected from various animal species to estimate the amount of nitrogen available to the crop to be grown this year (1st year crop) and the crop to be grown next year (2nd year crop). Digested manure will have more nitrogen in the inorganic form than other manure

generated by a particular animal species. The University of Minnesota is working towards a nutrient recommendation system based on the inorganic and organic fractions of manure to allow more precise recommendations for first- and second-year nitrogen availability to crops. As the permits and state feedlot rules require the use of the University of Minnesota recommendations, this new approach will be a requirement of the permits when the University changes its recommendations.

Comment letter 183. Food and Water Watch

Comment 183-1: MPCA must require CAFOs to submit discharge monitoring reports that chronicle monitoring results at each potential discharge location at land application areas. A provision requiring submission of monitoring reports would also facilitate easy enforcement against permittees who jeopardize water quality by failing to monitor. Further, monitoring records must be made available through MPCA's website to keep the public informed about potential hazards and facilitate citizen enforcement.

Response: Reports of discharge are required by the Permits (part 27.4) as well as submittal of analytical results of water samples (part 28.4). This information is available to the public.

Comment 183-2: Commenters further request that MPCA clarify that "potential discharge locations" includes openings to tile drains and other subsurface conduits.

Response: The permits specify that potential discharge locations include sensitive features, which is a defined term that includes open tile intakes. The final permits include clarified language regarding the need to inspect tile intakes.

Comment 183-3: Land application of CAFO waste can result in seepage that can constitute a functional equivalent of a direct discharge. Any such discharges constitute a violation of the Permit's zero dry weather discharge limitation. Further, the Permit prohibits land application of manure or process wastewater that will "exceed the hydraulic loading capacity of the land application site based on soil conditions." Without subsurface monitoring, there is no way for permittees, the public, or MPCA to assess compliance with these requirements.

Response: The requirement to not exceed the hydraulic loading capacity of the field can be effectively monitored through the visual inspections required by the permits. Also see response to common issue 4.

Comment 183-4: The Permit currently lacks representative monitoring for subsurface discharges from liquid manure storage areas. Many liquid manure storage areas designed to MPCA's regulatory specifications are constructed to allow pollution to seep through the storage area liner, contaminating underlying groundwater. Additionally, cracks and tears in liners can cause leaks that accumulate to significant amounts of pollution over time.

Response: See response to common issue 4.

Comment 183-5: Minnesota groundwaters are both regulated as waters of the state and hydrologically connected to surface waters, when liquid manure storage areas are "designed to leak," as many covered by the CAFO Permit are, subsurface discharge monitoring is unequivocally required under state and federal law.

Response: See response to common issue 4.

Comment 183-6: MPCA should require each facility to develop a subsurface discharge monitoring plan that includes the "simple and well-established process" of monitoring through a series of up and down gradient wells. Where karst features interfere with the ability to identify up and down gradients, CAFOs must be required to use a "double synthetic liner with leak detection or a sump and pump design," or some other equally effective monitoring method.

Response: See response to common issue 4.

Comment 183-7: The anaerobic digestion process fundamentally alters the composition of manure and other inputs such that digestate has properties that are distinct from undigested CAFO manure and process wastewater. Among other differences, digestate has more ammonium, higher pH, and more water-soluble nitrogen and phosphorus. This altered composition makes the nutrients in digestate more susceptible to runoff and groundwater infiltration than nutrients in undigested CAFO waste. CAFO waste management and nutrient management planning are based entirely on the characteristics and pollution risk of undigested waste. Digestate waste management requires additional protections and may require a fundamentally different approach to comply with federal law and maintain water quality standards.

Response: The material that comes out of an anaerobic manure digester is still fundamentally manure. ADs simply provide an environment that enhances the naturally occurring organic material decomposition process that is occurring at all liquid manure storage areas in Minnesota.

Digestion can influence the plant availability of the nutrients in manure. Manure contains nitrogen in organic and inorganic forms. Digestion simply accelerates the process of conversion of organic nitrogen to inorganic nitrogen, which is the form that plants can utilize. This conversion also happens naturally in the environment, albeit at a slower pace, which is why there are credits associated with manure application for the following year's crop.

The current system of nitrogen recommendation for manure is based on the average total nitrogen content of manure expected from various animal species to estimate the amount of nitrogen available to the crop to be grown this year (1st year crop) and the crop to be grown next year (2nd year crop). Digested manure will have more nitrogen in the inorganic form than other manure generated by a particular animal species. The University of Minnesota is working towards a nutrient recommendation system based on the inorganic and organic fractions of manure to allow more precise recommendations for first- and second-year nitrogen availability to crops. As the permits and state feedlot rules require the use of the University of Minnesota recommendations, this new approach will be a requirement of the permits when the University changes its recommendations.

Comment 183-8: Digestate composition—and therefore pollution risks—are variable depending on the feedstock used. Digestate risks will be especially variable if MPCA allows up to ten percent of CAFO digester feedstocks to be comprised of non-CAFO waste products, which could include any number of organic materials, including food wastes that could be contaminated with pathogens capable of surviving digestion.

Response: When other organic wastes are mixed with manure and digested (co-digestion) a facility is not eligible for coverage under the general permits if the mixture is not at least 90% manure. This is consistent with current MPCA policy for non-digested manure storage areas that allows the addition of up to 10% of other organic materials.

Comment 183-9: The CAFO Permit is plainly not an appropriate tool to regulate facilities with anaerobic digesters. The final permit should make clear that CAFOs with digesters are not eligible for coverage and must instead obtain an individual permit.

Response: ADs are regulated as manure storage areas under Minn. R. 7020.0300, which are included in the definition of the production area of CAFOs and are therefore properly regulated by these permits. Furthermore, the EPA's AgSTAR AD project development handbook states, "There are no national water-related permit requirements solely triggered by the use of an AD/biogas system." It also goes on to say, "CAFOs are defined as point sources of water pollution and require permits to limit pollutant discharges. Adding an AD/biogas system does not change these requirements."

Associated equipment for biogas utilization is not regulated by these permits and would be subject to other permitting programs/requirements. For instance, the feedlot may be required to obtain air emission permits for emissions associated with biogas utilization.

The material that comes out of an anaerobic manure digester is still fundamentally manure. ADs simply provide an environment that enhances the naturally occurring organic material decomposition process. Anaerobic decomposition of organic material in manure is a natural process that is occurring at all liquid manure storage areas in Minnesota making it an exceedingly common similarity between facilities. A digester is simply a liquid manure storage area.

When other organic wastes are mixed with manure and digested (co-digestion) a facility is not eligible for coverage under the general permits if the mixture is not at least 90% manure.

Please see the MPCA fact sheet "Regulatory requirements for anaerobic digesters", available at: https://www.pca.state.mn.us/business-with-us/feedlot-permits, for more information.

Comment 183-10: All inspection and monitoring results must be submitted to MPCA so that they are publicly available. Ideally, monitoring reports should be posted on a database hosted on MPCA's website for easy access.

Response: This information is publicly available by request.

Comment 183-11: The Permit must mandate that all CAFO infrastructure, including monitoring equipment, be installed and functioning properly before the monitored activity begins. At present, Permit coverage can be approved so long as the applicant provides a schedule for installation of monitoring equipment.

Response: The permits require monitoring equipment to be installed prior to operation of the component that requires monitoring unless an alternative schedule is approved by the MPCA. An alternative schedule is needed to account for unique situations that arise at feedlot sites.

Comment 183-12: MPCA must review all liquid manure storage area construction inspection forms to ensure they are complete and properly certified by a professional engineer *before* an applicant obtains Permit coverage.

Response: The permits are a joint construction and operation permit. A separate construction permit is not required. State feedlot rules allow the MPCA to require removal of manure from a liquid manure storage area if the construction report materials indicate construction does not conform to the approved design.

Comment 183-13: Commenters urge MPCA to include guidance in the final Permit to ensure all discharging CAFOs obtain coverage under the Permit or an individual permit. Approximately a third of Minnesota's CAFOs are not presently covered by a NPDES Permit. Many of these unpermitted CAFOs are discharging to jurisdictional waters and therefore must have NPDES coverage.

Response: The MPCA conducts routine compliance inspections at all large CAFOs including those without NPDES permit coverage. As a result of the inspection the MPCA can require the feedlot to obtain a NPDES permit if required under federal law.

Comment 183-14: Commenters recommend that the final CAFO Permit include both annual soil testing for nitrogen and subsurface monitoring requirements for land application areas. Additionally, the final Permit should incorporate best management practices for soil testing, including timing restrictions that prohibit testing after a major rainfall event and require testing within two months of when manure or process wastewater will be applied. Applying CAFO waste to fields that have not been recently tested for nitrate substantially increases the likelihood that nitrogen will be applied in excess of crop needs, allowing the nitrogen to travel below the root zone where it cannot be used by the plant. Allowing nitrogen to be applied in this manner violates the requirement that MPCA "establish protocols to . . . ensure appropriate agricultural utilization of the nutrients.

Response: Not all requirements from the feedlot rule are specifically included within the permits. Permitted sites are still required to comply with state feedlot rules and the need to perform soil nitrate testing in accordance with University of Minnesota guidelines. At this time, the

recommendations for manure applications do not include soil nitrate testing. Also see response to common issue 4.

APPENDIX A

Minnesota Pollution Control Agency

PUBLIC COMMENTS ON THE GENERAL NPDES and SDS ANIMAL FEEDLOT PERMIT

Comment Letters **Page**

1. Marty Rost 15
2. Byron Koehl 16
3. Mick Madson 16
4. Tyler Scott 16
5. Sharon Fortunak 17
6. Paige Van Pelt 17
7. Lisa McCorison 17
8. Janet Nordstrom 17
9. Ruthe Thompson 17
10. Lisa Lunsford 17
11. Jill Crafton 17
12. Meg Anderson 17
13. Amy Crane 17
14. Paul Moss 18
15. Jim Bambenek 18
16. Martha Krikava 18
17. Dean Borgeson 18
18. Lorraine Rovig 18
19. Kristen Anderson 18
20. Keith Johnson 18
21. Micky McGilligan 18
22. Jeanette Torkelson 18
23. Rom Madsen 18
24. John King 19
25. Douglas Weiss 19
26. Linda Gross 19
27. Leland Stoe 19
28. Erika Thorne 19
29. Aaron Rosenblum 19
30. Matt Rohn 19
31. Kathy Zeman 19

32. Eileen Levin 19
33. Amy Britt 20
34. Kay Slama 20
35. Peg Challgren 20
36. Jeff B 20
37. Andy Pearson 20
38. Suzanne Swanson 20
39. Beth Rose 20
40. Jean Meister-Westermann 21
41. Peter Hibma 21
42. Cody Hoerning 21
43. Jennifer Valentine 22
44. Howard Markus Ph.D., P.E. 22
45. Nancy Conger 22
46. Judy Moen 22
47. James Salkas 22
48. Anthony Stans 22
49. Kay Slama 22
50. Margaret Merkow 23
51. Chris Herickhoff 23
52. Gabriela Santiago 23
53. Kristofer Coffman 23
54. Michael Schmidt 23
55. Marc Robinson 23
56. David Brockway 23
57. Keith Laken 24
58. Diane Bublitz 24
59. Kevin Possin 24
60. Eva Barr 24
61. Ian Radtke-Rosen 24
62. Sharon Kutter 24
63. Nikki Fleck 24
64. Monta Hayner 24
65. Kurtis Wulf 25
66. Cheryl Utecht 25

67. Jeff Bauman 25
68. Aaron Goemann 26
69. Mike Kennedy 26
70. Angela Anderson 26
71. Mark Schultz 27
72. Kent Grandlienard 27
73. Austin Bernstein 27
74. Judith Moore 27
75. Matthew Obermeyer 27
76. Jennifer Hsia 27
77. Shannon Watrin 28
78. Michelle Gobely 28
79. Cherie Hales 28
80. Judy Harder 29
81. Andre Lima 29
82. Caroline van Schaik 29
83. Mike Bottin 30
84. Ryan Thelemann 30
85. Renee Bjork 31
86. Colleen Werdien 31
87. Aaron Meyer 31
88. James Rossow 31
89. Steve Peterson 31
90. Joshua Howe 31
91. Lynne Reeck 32
92. Nancy Ebel 32
93. Dag Knudsen 32
94. Kerri Meyer 32
95. Tom Beer 33
96. Kathy Herron 33
97. Diane Bublitz 33
98. Shirley Carpenter 33
99. John Klein 33
100. Robert Brommerich 34
101. Annette Skrukrud 34

102. Julius Salinas 34
103. Arlene Renshaw 34
104. Carley Nipp 34
105. Dayna Burtness 34
106. Anna Larsson 34
107. Isabel McNally 35
108. Anne Plummer 35
109. Christine Popowski 35
110. Tim Harmening 35
111. Elizabeth OBrien 35
112. Sonja Montgomery 36
113. Pamela Eyden 36
114. Brad Wenz 36
115. Larry Greden 39
116. Marc Robbins 39
117. Steve Timmer 39
118. Jennifer Valentine 40
119. Paul Moss 40
120. Bonnie Hammack 40
121. Madeline Neenan 40
122. Dana Jackson 40
123. Mary Ness 40
124. Mary Voight 41
125. Roger Wacek 41
126. Peter Molenaar 41
127. Lansing Shepard 41
128. Amy Grace 41
129. Todd Selvik 42
130. Michael Madigan 43
131. Phil Burfeind 43
132. Ferolyn Angell 44
133. Dean Compart 44
134. Don Buhl 44
135. Dawn Georgieff M.D. 45
136. Thomas Kunkel 45

137. James Salkas 45
138. Brad Wenz 45
139. Matthew Voxland 45
140. Ryan Bonow 46
141. John Huneke 46
142. Gary Trogstad 46
143. Joel Nelson 46
144. David Mensink 47
145. Duane Wirt 47
146. Barbara Courneya 48
147. Liz Wirt 48
148. Lawrence Baker Ph.D. 49
149. Scott Winslow 50
150. Ben Daley 50
151. Nancy Ventura 51
152. Pat Lunemann 51
153. Margaret Trott 52
154. Bonnie Haugen 52
155. Randy Wenthold 53
156. Katie Subra 53
157. Tess Dornfeld 54
158. Tri M Farms 55
159. Holden Farms Inc. 55
160. This comment was identified as “spam”. 55
161. Midwest Food Connection 55
162. Wakefield Pork Inc. 55
163. Minnesota Agricultural Water Resource Center 56
164. Winona and Houston County Farm Bureau Federations 60
165. Minnesota Farm Bureau Federation 62
166. Christensen Farms 65
167. Clean Water Organizations 72
168. Minnesota Turkey Growers Association. 76
169. Minnesota AgriGrowth 77
170. Minnesota Pork Producers Association 79
171. New Fashion Pork 82

172. Minnesota Milk Producers Association 84
173. Senator Torrey Westrom 87
174. Winona County SWCD 87
175. Lower Sioux Indian Community in the State of MN 89
176. White Earth Nation 90
177. Wes Libbey Northern Lakes Chapter of the Izaak Walton League 90
178. Institute for Agriculture and Trade Policy 91
179. Sierra Club North Star Chapter 92
180. Socially Responsible Agriculture Project 93
181. Minnesota Well Owners Organization 95
182. The Land Stewardship Project 96
183. Food and Water Watch 98

Minnesota Pollution Control Agency

CHANGES TO THE GENERAL NPDES and SDS ANIMAL FEEDLOT PERMIT AS A RESULT OF PUBLIC COMMENTS

Only those parts that have been changed from the draft permits are presented in this appendix. Minor changes that do not affect the content of the permit language are not identified in this appendix.

In addition to changes made in response to comments, the following parts of the permits were also modified:

- Part 13.2 was modified to include definitions from Part 31 for convenient reference.
- Part 13.11 was modified to remove an inadvertent inclusion of a requirement .
- Parts 15.5 – 15.8 were modified to better align with wording used in state and federal rules.
- Part 15.10 was modified to correct an omission of part of the requirement found in state rule.
- Part 29.2 was modified to clarify the intent of only excluding facilities from coverage under the general permit rather than requiring issuance of a particular permit in lieu of the general permit.

Text that was deleted from the draft permits is identified via strikethrough. Text that has been added to the draft permits is identified by italics and underline.

13.2	Part 9.2 of this Permit identifies who (Permittee or manure recipient) must comply with the requirements of this part. *For reference, this part utilizes the following defined terms:* *"Vulnerable Groundwater Area" means any area identified as a Vulnerable Groundwater Area by the Nutrient Management Planning Map available at: www.pca.state.mn.us/feedlots. The map is also incorporated into the Nutrient Management Tool. If a land application field is located partially within a vulnerable groundwater area, only the portion of the field within the vulnerable groundwater area is subject to the regulations of this Permit pertaining to vulnerable groundwater areas.* *"Soil Temperature" means the soils temperature as indicated by the closest soil temperature monitoring location available on the MDA soil temperature network (including those taken at a 4-inch depth) available at https://www.mda.state.mn.us/protecting/soilprotection/soiltemp.* *"Solid Manure" means manure that has 15 percent or more solids, can be stacked at a 3:1 vertical to horizontal ratio, and is handled as a solid product.* *"Liquid Manure" means manure that does not meet the definition of solid manure. Process wastewater and manure-contaminated runoff are considered to be liquid manure.* *"Winter Conditions" means when the soils of the land application site are frozen or when the application site is snow-covered. [Minn. R. 7001,* Minn. R. 7020]

13.4	June, July, August, or September Restrictions - Manure shall not be applied in June, July, August, or September unless at least one of the following nitrogen BMPs are implemented: a) the application is to an actively growing perennial or row crop that is reasonably expected to utilize the nitrogen application;

	b) the application is to an actively growing cover crop that will be allowed to continue growing until termination in the spring or via winter-kill; or c) a cover crop*, or second crop,* is planted/seeded as soon as possible, but no later than 14 days, following manure application. Cover crops must be planted in accordance with MES recommendations and allowed to continue growing until termination in the spring or via winter-kill. Alternatives developed by a land grant University or governmental agency can be used if approved by the MPCA and included as part of the approved MMP. [Minn. R. 7001.0150, Minn. R. 7020.2225]
13.5	October *1 to 14* Restrictions - *Manure shall not be land applied in vulnerable groundwater areas October 1 to 14 unless the requirements of Part 13.4 are followed.* ~~Unless the manure application is subject to the restrictions applicable to vulnerable groundwater areas (Part 13.6), m~~*M*anure shall not be land applied *outside of vulnerable groundwater areas* ~~before~~ October *1 to 14*~~15~~ unless at least one of the following nitrogen BMPs are implemented: a) soil temperature ~~is below~~ *has reached* 50 degrees *or less for two consecutive days* ~~at the start of manure application~~; b) a *nitrapyrin-based* nitrogen stabilizing agent/product is added at the recommended inclusion rates; c) the requirements of Part 13.4 are followed; or d) a split application of nitrogen is used where no more than 1/2 of the recommended nitrogen rate is applied before October *1 to 14*~~15~~. Application of the remaining recommended nitrogen rate is prohibited during winter conditions within the months of December, January, February, and March. The Permittee shall maintain records of nitrogen BMPs implemented ~~for manure application during the month of~~ October 1 to 14 in the Nutrient Management Tool. Alternatives developed by a land grant University or governmental agency can be used if approved by the MPCA and included as part of the approved MMP. Nitrogen BMP implementation is not required for emergency manure application. [Minn. R. 7001.0150]
13.6	October *15 to 31*~~and November~~ Restrictions in Vulnerable Groundwater Areas - Beginning with the calendar year ~~2028~~*2027*, manure shall not be land applied in vulnerable groundwater areas ~~during the months of~~ *from* October *15 to 31*~~and November~~ unless at least one of the following ~~measures~~ *nitrogen BMPs* are implemented: ~~a) the application is to an actively growing perennial that is reasonably expected to utilize the nitrogen application;~~ ~~b) the application is to an actively growing cover crop that will be allowed to continue growing until termination in the spring or via winter-kill;~~ ~~c) a cover crop is planted/seeded as soon as possible after the primary crop harvest but no later than within 14 days of the application. The cover crop must be planted in accordance with MES recommendations and allowed to continue growing until termination in the spring or via winter kill; or~~ *a) the requirements of Part 13.4 are followed;* ~~d)~~*b) the soil temperature has reached 50 degrees or less for two consecutive days and* ~~T~~*t*he crop rotation *for the field* includes a perennial crop for at least two years during any five year period ~~and the soil temperature is below 50 degrees at the start of manure application.~~*; or* *c) the soil temperature has reached 50 degrees or less for two consecutive days and:* *1) for all liquid manure, a nitrapyrin-based nitrogen stabilizing agent/product is added at the recommended inclusion rates; or* *2) for all solid manure, a split application of nitrogen is used where no more than 1/2 of the recommended nitrogen rate is applied before October 15 to 31.*

	For application outside of vulnerable groundwater areas these BMPs are encouraged but not required by this Permit. *The Permittee shall maintain records of nitrogen BMPs implemented October 15 to 31 in vulnerable groundwater areas within the Nutrient Management Tool.* Alternatives developed by a land grant University or governmental agency can be used if approved by the MPCA and included as part of the approved MMP. Vulnerable groundwater area restrictions are not required for emergency manure application. [Minn. R. 7001.0150]
13.7	*November Restrictions in Vulnerable Groundwater Areas for Liquid Manure - Beginning with the calendar year 2027, liquid manure shall not be land applied in vulnerable groundwater areas in November unless at least one of the following nitrogen BMPs are implemented:* *a) the requirements of Part 13.4 are followed;* *b) the crop rotation for the field includes a perennial crop for at least two years during any five year period; or* *c) a nitrapyrin-based nitrogen stabilizing agent/product is added at the recommended inclusion rates.* *For application outside of vulnerable groundwater areas these BMPs are encouraged but not required by this Permit.* *The Permittee shall maintain records of nitrogen BMPs implemented during November within the Nutrient Management Tool.* *Alternatives developed by a land grant University or governmental agency can be used if approved by the MPCA and included as part of the approved MMP.* *Vulnerable groundwater area restrictions are not required for emergency manure application. [Minn. R. 7001.0150]*

Note: With the insertion of part 13.7, other items in part 13 were renumbered accordingly.

~~13.11~~ *13.12*	Application of snow removed from animal holding areas, mixed with an incidental amount of manure (snow-manure mix), is not subject to the Permit requirements applicable to application during winter conditions provided the application complies with all of the following: a) snow-manure mix is applied to the field(s) approved within the manure management plan for application of the snow-manure mix; ~~b) snow-manure mix is not applied in vulnerable groundwater areas of the field;~~ ~~c)~~*b)* snow-manure mix is applied at least 300 feet from sensitive features; and ~~d)~~*c)* snow-manure mix applied during the month of March is limited to the amount necessary to ensure animal welfare, such as access to feed, water, or shelter. [Minn. R. 7001.0150]

Note: Item b was inadvertently included in the draft permits.

14.3	All fields that receive manure application shall be visually inspected to check for evidence of manure discharge. The inspections shall take place at all downgradient field edges and any other potential discharge locations such as sensitive features, *tile intakes,* ditches, or other conveyances to waters. Inspections are required at all of the following intervals in the land application process: a) at least once ~~during active manure application for~~ each day *manure is applied to the field* ~~of the land application event~~. b) at the end of *manure application to the field* ~~each day of the land application event~~.

	c) as soon as possible but at a minimum within 24 hours of rainfall of 0.5 inch, or greater, that occurs within 14 days of the end of ~~the~~ manure application ~~event~~, unless the manure is injected or incorporated. Any discharge observed must be responded to and reported in accordance the requirements of this Permit. [Minn. R. 7001.0150]
15.5	Open Tile Intakes - Manure application is prohibited within 300 feet of an open tile intake unless one of the following protective measures is employed: a) manure is injected or incorporated prior to rainfall or within 24 hours (whichever occurs first) within 300 feet of the open tile intake; b) manure is not applied within 100 feet of the open tile intake and a one rod (16.5 feet) perennial ~~grass~~ *vegetated* buffer exists around the open tile intake; or c) a 35-foot perennial ~~grass~~ *vegetated* buffer exists around the open tile intake and manure is not applied to the buffer. [Minn. R. 7020.2225]
15.6	Drainage Ditches - Manure application is prohibited within 300 feet of a drainage ditch unless one of the following protective measures is employed: a) a protective berm prohibits runoff from directly entering the drainage ditch such that runoff must travel at least 300 feet, measured from the nearest point of manure application, before entering the drainage ditch; b) manure is not applied within 25 feet of the drainage ditch and manure is injected or incorporated prior to rainfall or within 24 hours (whichever occurs first) within 300 feet of the drainage ditch. Additionally, soil phosphorus levels must be managed so that levels do not increase beyond 21 ppm (Bray P1) or 16 ppm (Olsen) within any six year period; c) manure is not applied within 100 feet of the drainage ditch and a one rod (16.5 feet) perennial ~~grass~~ *vegetated* buffer exists along the drainage ditch; or d) a 50-foot perennial ~~grass~~ *vegetated* buffer exists along the drainage ditch and manure is not applied to the buffer. [Minn. R. 7020.2225]
15.7	Lakes, Rivers, and Perennial Streams - Manure application is prohibited within 300 feet of a lake, river, or perennial stream unless one of the following protective measures is employed: a) manure is not applied within 25 feet of the lake, river, or perennial stream and manure is injected or incorporated prior to rainfall or within 24 hours (whichever occurs first) within 300 feet of the lake, river, or perennial stream. Additionally, soil phosphorus levels must be managed so that levels do not increase beyond 21 ppm (Bray P1) or 16 ppm (Olsen) within any six year period; b) manure is not applied within 100 feet of the lake, river, or perennial stream and a one rod (16.5 feet) perennial ~~grass~~ *vegetated* buffer exists along the lake, river, or perennial stream; or c) a 100-foot perennial ~~grass~~ *vegetated* buffer exists along the lake, river, or perennial stream and manure is not applied to the buffer. [Minn. R. 7020.2225]
15.8	Intermittent Streams and Public Waters Wetlands - Manure application is prohibited within 300 feet of an intermittent stream or public waters wetland unless one of the following protective measures is employed: a) manure is not applied within 25 feet of the intermittent stream or wetland and manure is injected or incorporated prior to rainfall or within 24 hours (whichever occurs first) within 300 feet of the intermittent stream or wetland. Additionally, soil phosphorus levels must be managed so that levels do not increase beyond 21 ppm (Bray P1) or 16 ppm (Olsen) within any six year period; b) manure is not applied within 100 feet of the intermittent stream or wetland and a one rod (16.5 feet) perennial ~~grass~~ *vegetated* buffer exists along the intermittent stream or wetland; or

	c) a 50-foot perennial ~~grass~~ *vegetated* buffer exists along the intermittent stream or wetland and manure is not applied to the buffer. [Minn. R. 7020.2225]

15.10	Sinkholes - Manure application is prohibited within 300 feet of a sinkhole unless one of the following protective measures is employed: a) Manure is not applied within 100 feet of the sinkhole and is injected or incorporated prior to rainfall or within 24 hours (whichever occurs first) within 300 feet of the sinkhole; or b) *Manure is not applied within 50 feet of the sinkhole and a* ~~A~~ protective berm exists that prohibits runoff from entering the sinkhole. [Minn. R. 7020.2225]

Note: The added text in item b was inadvertently excluded in the draft permits.

15.12	Other Conduits to Waters - Manure application is prohibited within 100 feet of any other downgradient conduit to *surface* waters not identified in this Part. [40 C.F.R. § 412.4]

Note: This requirement is not found in the SDS general permit.

16.11	The Permittee is prohibited from ~~discharging from the animal mortality area to surface or ground waters of the state or~~ disposing of animal mortalities within any manure storage area or stormwater storage area. [40 C.F.R. § 122.42, Minn. R. 7001.0150]

Note: The requirement is numbered 16.10 in the SDS general permit.

17.5	The Permittee shall notify the MPCA, via telephone or electronic mail, within 24 hours of *discovery of* encroachment into the freeboard of the LMSA. The notification must include the approximate depth of storage space remaining, an estimated timeline for manure or process wastewater removal from the LMSA, and the date *(known or estimated)* when the freeboard encroachment began. Notification under this part does not release the Permittee from the obligation to maintain the freeboard of a LMSA. [Minn. R. 7001.0150]

~~26.2~~	~~The Permittee shall not discharge from the facility, by overflow or other means, manure, manure-contaminated runoff, or process wastewater to a sinkhole, fractured bedrock, well, surface tile intake, mine, quarry, or other natural or constructed channels that convey fluids to groundwater. [Minn. R. 7020.2003]~~

26.3	The Permittee shall not discharge manure, manure-contaminated runoff, or process wastewater from a land application area *into surface waters of the State*, except where the discharge is an agricultural stormwater discharge as defined by this Permit. [40 C.F.R. § 122.23]

Note: As Part 26 differs between the NPDES and SDS permit, this change is only applicable to the NPDES permit.

27.2	The Permittee shall immediately report by telephone to the State Duty Officer (800-422-0798) ~~and the MPCA~~ any discharge, spill, or overflow of manure, process wastewater, or manure-contaminated runoff, including those authorized by this Permit. The report to the State Duty Officer must include the location of any known fish kill directly related and the location and name, if available, of any Drinking Water Supply Management Area (DWSMA) or surface water source DWSMA that could be impacted. [Minn. Stat. 115.061]

29.2	An owner of a facility is not eligible for coverage under this Permit ~~and must obtain coverage under an individual NPDES permit~~ when any of the following apply: a) a schedule of compliance is required to address a pollution hazard; b) special conditions are required as the result of environmental review; c) a new technology for construction or operation which is not addressed by this Permit is proposed; d) removal of bedrock is proposed to comply with site restrictions under Minn. R. 7020.2100;

	e) feed for animals will be brokered or sold at the facility; f) the facility, including the feed storage area, does not meet the design standards of Minn. R. ch. 7020 and this Permit; g) the MPCA determines that the facility operations would be more appropriately controlled by an individual permit; h) the owner is proposing to land apply manure in a manner that is not consistent with the requirements of this Permit; i) the owner is proposing to use a VIB to control runoff from an open lot or manure storage area; j) the MPCA determines that discharges from a facility or the land application areas under the Permittee's control have the potential to cause or contribute to non-attainment of applicable water quality standards; k) an anaerobic digester at the facility processes a mixture of organic materials (including manure) that is less than 90% (by volume) manure, process wastewater, or manure contaminated runoff regulated by Minn. Rule Ch. 7020; or l) the facility is located within Indian Country, as defined by federal law. [Minn. R. 7001.0210]

Note: Item l was not part of the draft SDS permit and remains absent from the final SDS permit.

31.52	"Soil Temperature" means ~~a thermometer reading at a depth of six inches or~~ *the soil temperature* as indicated by the closest soil temperature monitoring location available on the MDA soil temperature network (including those taken at a 4-inch depth) available at https://www.mda.state.mn.us/protecting/soilprotection/soiltemp. [Minn. R. 7001]

Note: The requirement is numbered 31.51 in the SDS general permit.

31.58	"Vulnerable Groundwater Area" means any area identified ~~on the~~ *as a* Vulnerable Groundwater Area~~s~~ *on the Nutrient Management Planning map* available at: www.pca.state.mn.us/feedlots. The map is also incorporated into the Nutrient Management Tool. If a land application field is located partially within a vulnerable groundwater area, only the portion of the field within the vulnerable groundwater area is subject to the regulations of this Permit pertaining to vulnerable groundwater areas. [Minn. R. 7001]

Note: The requirement is numbered 31.57 in the SDS general permit.