

C. Integrated Approaches

Minnesota



Air Emissions Planning

Minnesota Pollution Control Agency's (MPCA) Animal Feedlot or Manure Storage Area Permit Application (feedlot permit application), used for both NPDES and State Disposal System (SDS) permits, requires applicants to identify odor control strategies currently used at the feedlot and at least one possible additional odor control strategy for animal holding areas and liquid and solid manure storage areas, as stated in the [feedlot permit application form](#) provided by MPCA. Identification of air emission control strategies on the feedlot permit application satisfies the requirement of [Minn. R. 7020.0505 subp. 4 item B \(1\)](#) for air emissions plans for animal holding areas and manure storage areas.

The air emissions plan is an enforceable component of Minnesota's NPDES CAFO permit and SDS permits. By signing the feedlot permit application the applicant certifies that if ambient air quality monitoring during a MPCA complaint response indicates an exceedance of the [Hydrogen Sulfide Standard](#)¹, the permittee will implement the air emissions plan as required by the permit and submit a report, at MPCA's request, documenting that one of the following best management practices (BMPs) will be implemented to control air emissions:

Liquid manure storage areas

- Chemical additions
- Natural crusting
- Straw cover
- Treatment of escaping air
- Synthetic cover (i.e., High-density polyethylene [HDPE])

Solid manure storage areas

- Synthetic cover
- Frequent manure removal
- Frequent land application
- Incineration
- Composting

The permittee's report must provide evidence that the selected technology will control air emissions, state when the technology will be installed and fully operational, and report temporary measures to minimize emissions prior to installation of the selected control technology. The permittee must immediately implement the air emission control BMPs upon MPCA approval. The air emissions plan becomes effective when MPCA issues permit coverage, not upon signing the application.

Programmatic Framework

The [Minnesota Ambient Hydrogen Sulfide Air Quality Standards](#) were promulgated in 1969 ([MPCA n.d.a](#)). MPCA was directed to monitor and identify livestock facility violations of the state ambient air quality standards for hydrogen sulfide through Minnesota Statutes 116.0713 (Supp. 1997). To regulate the odor produced from feedlots, it was necessary to identify a quantifiable component that could be regulated. H₂S had been identified to be a significant component of feedlot odors and was also a quantifiable gas with a known toxicology. H₂S was also known to be a human health concern. Minnesota Department of Health (MDH) monitored ambient air quality in the vicinity of large swine facilities in

¹ Minnesota's air pollution standard for hydrogen sulfide (H₂S) is a 30-minute average of 30 parts per billion (ppb) twice in five days, or a 30-minute average of 50 ppb twice per year.

1995 and 1996. H₂S levels appeared to exceed state standards and were characterized as a human health concern. Data collected indicated that H₂S was the primary compound of concern in livestock odors (MPCA 1998). MPCA's [*Statement of Need and Reasonableness \(SONAR\) In the Matter of Proposed Amendments to Minnesota Rules Relating to Animal Feedlots, Storage, Transportation, and Utilization of Animal Manure*](#) proposed the inclusion of an air emissions plan in permit applications for facilities with 1,000 or more animal units to control and reduce air emissions. Smaller feedlots also must comply with the H₂S standard, with the exception of certain times during pumpout.

MPCA is authorized to implement the air emissions plan requirement found in [Minn. R.7020.0505 subp. 4 item B \(1\)](#) pursuant to the 2015 Minnesota Statutes:

- Chapter 115 Water Pollution Control; Sanitary Districts, [Section 03 Powers and Duties](#); and
- Chapter 116 Pollution Control Agency, [Section 07 Powers and Duties](#).

MPCA is required to monitor feedlots for H₂S and to take enforcement action when needed pursuant to the 2015 Minnesota Statutes [116.0713 Livestock Odor](#).

**Minnesota Administrative Rules
7020.0505 PERMIT APPLICATIONS AND PROCESSING PROCEDURES**

Subp. 4. Content of permit application.

B. In addition to the requirements of item A [required information for permit application], a permit application for an animal feedlot capable of holding 1,000 animal units or more or a manure storage area capable of holding the manure produced by 1,000 animal units or more must contain:

4. B. (1) an air emission plan that includes:

- (a) methods and practices that will be used to minimize air emissions resulting from animal feedlot or manure storage area operations including manure storage area start-up practices, loading, and manure removal;
- (b) measures to be used to mitigate air emissions in the event of an exceedance of the state ambient hydrogen sulfide standard; and
- (c) a complaint response protocol describing the procedures the owner will use to respond to complaints directed at the facility, including:
 - i. a list of each potential odor source at the facility;
 - ii. a determination of the odor sources most likely to generate significant amounts of odors; and
 - iii. a list of anticipated odor control strategies for addressing each of the significant odor sources...

Implementation

Approximately 1,300 Minnesota CAFOs have completed air emissions plans when submitting the feedlot permit application. Inspection and enforcement of a CAFO's air emissions plan is largely driven by complaints received by MPCA. If a complaint is received about air emissions from a CAFO, MPCA staff may visit the facility. If MPCA staff believe the odor could be H₂S-related or have received a high frequency of complaints, they will collect instantaneous H₂S level readings using a hand-held meter,

called a Jerome Meter. Continuous air monitoring (CAM) may be required at the facility, depending on exceedance detected by a Jerome meter, number and nature of complaints, whether or not the actions required by the permit air emissions plan are implemented and effective, and site conditions. MPCA will only make a compliance determination on H₂S with CAM data.

If the H₂S emissions are not reduced, the MPCA may take enforcement action, which may include an administrative penalty order (APO) or stipulation agreement ([MPCA n.d.b](#); [MPCA n.d.c](#)). An APO assigns a monetary penalty and a schedule of actions the violator must follow to return to compliance. A stipulation agreement is a negotiated settlement used when actions needed to correct the problem may take longer than 30 days to complete or if the violations warrant a civil penalty greater than \$20,000. ([MPCA n.d.c](#)). According to MPCA, within the past 15 years, MPCA has only encountered 3 or 4 enforcement cases.

Results

According to the MPCA, the number of odor complaints has been reduced as a result of CAFOs that have implemented their air emissions plans.

References

- MPCA (Minnesota Pollution Control Agency). n.d.a. Ambient Air Quality & Feedlots: Minnesota's Regulations, Program, Procedures, and Experiences. <http://dnr.wi.gov/topic/AirQuality/documents/bmp/File7.pdf>. Accessed February 12, 2016.
- MPCA (Minnesota Pollution Control Agency). n.d.b. *Frequently asked questions about livestock odor*. <https://www.pca.state.mn.us/quick-links/frequently-asked-questions-about-livestock-odor>. Accessed February 10, 2016.
- MPCA (Minnesota Pollution Control Agency). n.d.c. *Enforcement*. <https://www.pca.state.mn.us/regulations/enforcement>. Accessed February 10, 2016.
- MPCA (Minnesota Pollution Control Agency). 1998. *Legislative Report of the Feedlot Hydrogen Sulfide Program*. <http://archive.leg.state.mn.us/docs/pre2003/mandated/980083.pdf>. Accessed February 12, 2016.
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