MINNESOTA POLLUTION CONTROL AGENCY

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December 8, 2017

Mr. Dale Post
Mr. Frederick Fredrickson
Ms. Kristi Rosenquist
Ms. Kathleen Bramble
Ms. Katie Doody
Land Stewardship Project
821 East 35th Street, # 200
Minneapolis, MN 55407

Re: Minnesota Pollution Control Agency Response to Citizens' Hydrogen Sulfide Monitoring Report of Kohlnhofer Farms in Goodhue County, Minnesota

Dear Mr. Post, Mr. Fredrickson, Ms. Rosenquist, Ms. Bramble, and Ms. Doody:

Thank you for bringing your concerns about hydrogen sulfide emissions in Goodhue County to my attention. In particular, I am grateful for your willingness to invest considerable time and resources to provide the MPCA with data to evaluate and address the issues raised in your September 2017 report: "A Community at Risk: A Report on Citizens' Hydrogen Sulfide Monitoring at Kohlnhofer Factor Hog Farms in Goodhue County, MN" (Report). Your willingness to take action to protect the air quality and public health of Minnesotans is a great example of a partnership that gives my agency the information necessary to prioritize MPCA resources to address issues of concern.

We are concerned about potential violations of the hydrogen sulfide (H_2S) air quality standards and Department of Health Risk Values (HRVs) at two hog facilities in Goodhue County - Holst I Finishing and Jeff Finishing - operated by the Kohlnhofer family. This letter describes what we are doing to address the situation. Governor Dayton has also asked me to respond to your Report, and I have communicated with the Governor and his staff in preparing this letter.

Our Monitoring Plan

Your Report contains several H_2S readings that indicate a potential exceedance of the H_2S air quality standards or the Department of Health's Health Risk Value (HRV) for H_2S. We need to obtain more data to determine if either of the two facilities is in violation of the H_2S standards or the HRV. To get this data, my staff has conducted short term monitoring this fall and will conduct monitoring next spring at the two sites, as explained below.

Short Term Monitoring of H2S Emissions

From October 16, 2017 through October 25, 2017, we measured H_2S readings at the Holst 1 site using similar equipment to the Jerome meter mentioned in your Report. This initial H_2S survey work did not indicate an exceedance of the H_2S standards during the 10-day survey period. The highest 30-minute average H_2S level that we recorded over the 212 hours of monitoring was 15.7 ppb.

The results of our short term monitoring are summarized in Table 1 attached to this letter. However, to determine compliance with H_2S standards, we need to monitor the facilities for a longer period of time and record additional information such as wind direction and temperature.

Our monitoring location for the October 16 – 25, 2017 period was similar but not identical to the location in your report. We located the monitor on the east side of the property at about the same distance from the feedlot as the road boundary used in the Report. We chose this location for two reasons:

1) We intended to locate the monitor to try and capture maximum concentrations of air emissions from the site; and

2) We had concerns about leaving equipment in an unsecured, visible location such as the road ditch directly to the south of the facility for a nine-day period.

The Minnesota Pollution Control Agency (MPCA) recently updated our older Jerome meters with new H_2S monitors called SPM Flex Units. We used a Flex Unit to collect the H_2S readings described above. The Flex Unit may be operated as a survey monitor, in the same manner as a Jerome meter, or deployed at a site as a continuous air monitor (CAM).

When in survey mode, we use the Flex Unit's data to screen facilities to determine if a CAM should be deployed. The CAM will provide the information needed to determine if there is an air quality violation or levels above the state's HRV. Your Report along with our initial screening data supports our decision to locate a CAM at the Holst 1 site. The CAM will collect additional data on wind direction, humidity and temperature to support comparison of the H_2S data with the standard and HRV.

Long Term Monitoring Plan

Our long-term monitoring plan includes both the Holst 1 and Jeff Finishing sites. First, we will install a CAM at the Holst 1 site for the full H_2S monitoring season, typically mid-March until the end of October. We cannot monitor this fall and winter because the CAM does not collect valid data when air temperatures are near or below freezing.

The MPCA monitors for the entirety of March through October time for several reasons:

(1) We need at least 13 weeks of data to determine if levels are above the HRV;

(2) We want to continue monitoring if we find exceedances of the H_2S air standard or the HRV to ensure we don't miss any additional exceedances; and

(3) We want to understand the seasonal H_2S conditions at the feedlot. If we do not see any exceedances in the first 13 weeks, we do not want to miss exceedances that could happen after the first 13 weeks.

Second, the MPCA will conduct survey monitoring at the Jeff Finishing site next spring through fall. If our data indicates that continuous monitoring at the Jeff Finishing site is warranted, we will review all of the data, both continuous and survey monitoring, to determine whether to move the CAM from Holst 1 to Jeff Finishing.

The MPCA has routinely conducted H_2S screening monitoring to evaluate the need for CAM placement at feedlots since the last CAM deployment in 2009. Since screening monitoring has not shown a need for longer term monitoring, the Agency has not deployed a CAM to monitor air quality at a feedlot facility since 2009.

Addressing the Potential Exceedance of the Hydrogen Sulfide Health Risk Value

As I mentioned earlier, we need a full season of monitoring to make sure we address the potential exceedance of the Minnesota Department of Health (MDH) Health Risk Value (HRV), which is 10 ug/m^3, or 7 parts per billion (ppb). This requires a 13-week averaged exposure. The data in the Land Stewardship Report had individual short-term (up to 30 minute) samples collected between June 29 and August 1, 2017. The MPCA has collected data continuously over a 9-day period. Because we do not yet have any samples taken continuously over a 13-week time period, we cannot confirm whether there is an exceedance of the HRV. This is one of the reasons the MPCA will use the CAM to collect data over an entire season starting next spring at the Holst I Finishing site.

The MDH selected a 13-week monitoring period based on available information indicating that a threshold of both dose and duration of exposure must be exceeded before possible health effects would be anticipated. For subchronic HRVs, MDH recommends sampling events that average daily concentrations in air over a period of a few (2-4) months. MDH Rule 4717.8050 states "(S)ubchronic HRVs are compared to a 13-week averaged concentration of a chemical or defined mixture of chemicals in ambient air."

Air Quality Monitoring Concerns Involving Circle K Family Farms – Z Finisher

Finally, I want to address the questions in the Report about the air modeling done for the Circle K site in Zumbrota Township. The Report questions whether the modeling for Circle K is reliable if the smaller Kohlnhofer operations (Holst I and Jeff Finishing) have actual emissions exceeding the modeled emissions for Circle K.

Circle K used a U.S. Environmental Protection Agency (EPA) approved air quality model, known as AERMOD, to evaluate the potential air impacts for the Circle K operation and surrounding area as part of the Circle K Environmental Assessment Worksheet (EAW). AERMOD is currently used throughout the U.S. to model air pollutants from a variety of air emissions sources, including livestock operations, and has been reviewed by EPA and universities for more than a decade. In Minnesota, the MPCA has not observed significant concerns with AERMOD's predictive ability, and we consider it a reliable tool for reviewing the air quality impacts of feedlots and similar projects conducting an EAW. The AERMOD results indicated that the Circle K emissions would not violate the 30 ppb or 50 ppb hydrogen sulfide air standard.

In addition, the emissions used in the Circle K EAW modeling demonstration were from a 2003 publication of air quality emissions from livestock operations in Minnesota and the upper Midwest. Based on the information available at the time of the EAW, the MPCA decided, based on characteristics specific to the Circle K project, that these emission estimates were representative to evaluate the project's air quality impacts.

Survey monitoring offers a useful "snap shot" of air quality conditions for a short time. However, an evaluation of AERMOD's performance requires a significant amount of continuous air quality monitoring at a number of locations, as well as meteorological and facility operation data. While the survey monitoring you conducted helped us decide on placement of a CAM next year and conducting follow-up survey monitoring, we cannot use it to conclude that the Circle K air modeling is flawed.

I thank you for your interest in assuring that feedlot facilities in Minnesota operate in ways that are protective of public health, and for bringing your concerns to my attention. The MPCA's mission is to protect and improve the environment and enhance human health. We are committed to working with the citizens and the Kohlnhofers to assure that their facilities fully comply with environmental regulations and operate in a way that does not adversely impact human health. We will communicate with you as we learn more from our monitoring next year.

Please let me know if you have further questions or concerns.

Sincerely,

John Linc Stine
Commissioner

JLS:bt

Enclosure

Table 1. Maximum H_2S 30 Minute Concentration
Recorded by MPCA from October 16, 2017 through October 25, 2017

Date	Maximum 30-minute Average Concentration (parts per billion)
10/16/2017	1.6
10/17/2017	0.9
10/18/2017	12.4
10/19/2017	8.6
10/20/2017	0.1
10/21/2017	7.0
10/22/2017	15.7
10/23/2017	6.1
10/24/2017	9.6
10/25/2017	14.2