

MEMO TO FILE

EXHIBIT 5

TO: Lisa A. Vest, Presiding Hearing Officer

THROUGH: Angela D. Marconi, P.E., BCEE
Joanna L. French, P.E.

FROM: Melanie A. Smith, P.E.

SUBJECT: **Mountaire Farms of Delaware, Inc.**
Permit: APC-1987/0020-CONSTRUCTION(Amendment 4) Receiving Pit 1
Permit: APC-2014/0092-CONSTRUCTION(Amendment 1) Receiving Pit 3
Proposed Project Summary

DATE: May 1, 2018

BACKGROUND

John Austin requested a public hearing on March 22, 2018 for the proposed baghouses for Receiving Pits 1 and 3 at the Millsboro Complex, Mountaire Farms of Delaware, Inc. In his request, Mr. Austin had several questions that will be answered in this memo.

TECHNICAL INFORMATION

1. "Each baghouse" emits 0.005 TPY PM10 & 0.034 TPY PM, so 0.01 TPY PM10 & .068 TPY PM for both baghouses. Emissions have not changed.
2. What will be the resulting particulate concentration in ug/m3 in the surrounding community? Each baghouse 4.486 micrograms/cubic meter PM10 Maximum Downwind Concentration (MDC) at 17m. At the property line (116 m), the concentration for Pit 1 is 0.879 micrograms/cubic meter. At the property line (302 m), the concentration for Pit 3 is 0.243 micrograms/cubic meter.
3. Will the particulate levels in the community meet the National Ambient Air Quality Standards?

AERSCREEN Dispersion Modeling

The effects air contaminant emissions from each baghouse on the public health, safety, and welfare were assessed using Department criteria. The criteria assume no adverse effect when the ratio of the Threshold Limit Value to the Maximum Downwind Concentration (TLV:MDC) is at least 100:1 at the nearest property line and beyond for each air contaminant released. The TLV of each air contaminant was obtained from the pamphlet, 2016 TLVs[®] and BEIs[®], published by the American Conference of Governmental Industrial Hygienists (ACGIH). The MDC of each air contaminant was computed using AERSCREEN air dispersion modeling. AERSCREEN is EPA's recommended screening-level air quality model based on AERMOD (U.S. EPA, 2016a).

AERSCREEN is an interactive command-prompt application that interfaces with MAKEMET for generating the meteorological matrix, but also interfaces with AERMAP and BPIPPRM to automate the processing of terrain and building information, and interfaces with AERMOD model utilizing the SCREEN option to perform the modeling runs. The AERSCREEN program also includes averaging time factors for worst-case 3-hr, 8-hr, 24-hr and annual averages.

In utilizing AERSCREEN, each baghouse stack was treated as a point source. Point source variables in AERSCREEN are air contaminant emission rates (in lb/H), stack height (in ft), stack inside diameter (in inches), stack gas exit velocity (in ft/s) or air flow rate (in acfm), stack gas exit temperature (in °F),

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receptor height above ground level (in ft), and the urban option. Values input for the stack parameters were the following:

Source	Stack Height (ft)	Stack Diameter (ft)	Gas Flow Rate (acfm)	Exit Gas Temperature (°F)
Receiving Pit 1	9	2.07	14,500	70
Receiving Pit 3	9	2.07	14,500	70

The remaining input values were the minimum distance to ambient air of 3.3 ft, maximum distance to probe default value of 5000 m, default value of -10 to 100 F for minimum and maximum ambient temperature, default wind speed of 0.5 m/s, surface characteristics as grassland, wet conditions as dominant surface profile, a receptor height above ground of 0 ft, anemometer height default of 10.0 m, base elevation of source of 22.97 ft elevation (Millsboro), and the urban option (population of Millsboro in 2016 is 4,293). The nearest property line is 380 feet (115.8 m) for Pit 1 and 990 feet (301.8 m) for Pit 3.

Downwash was considered for both pits. Each pit has a small shed 12 feet from the stack. Pit 1 has 12 silo bins in a common building 75 feet from the center of the building to the stack. Pit 3 has one round silo bin 100 feet from the center of the bin to the stack. AERSCREEN predicts the MDC location for the pollutants for either pit to occur 55.8 ft (17 m) from the exhaust of the stack. The MDC for all four cases was the same. (Exhibit 6)

The MDC results from SCREEN3 adjusted to an 8-hour average along with the associated TLVs and the TLV:MDC for each contaminant are shown below:

Pollutant	Emission Rate (lb/hr)	TLV (8-hr, mg/m ³)	MDC (8-hr, mg/m ³)	TLV:MDC
PM10	0.001135	10	0.0031	3,200

Each baghouse PM10 TLV/MDC 3200 >> Department standard of 100.

4. Are there ambient air monitors? I presume not. Nearest are Lewes and Seaford as shown on <http://apps.dnrec.delaware.gov/AirMonitoring/>. (Exhibit 7)

5. With new units why won't there be better performance? Each baghouse will achieve a particulate emission rate of 0.00006 gr/SCF. 7 **DE Admin. Code** 1105 Section 2.0 states, "No person shall cause or allow particulate emissions into the atmosphere from any source not provided for in subsequent sections of this Regulation in excess of 0.2 grains per standard cubic foot."

6. I infer from the requested emission rate that 99% capture efficiency is sought. Based on the manufacturer's specifications of the baghouse filters, the particulate capture rate will be 99.9%. (Exhibit 2)

7. Will that efficiency be maintained? The percent % efficiency is not in permit; however, baghouse performance is monitored by delta P, and emission limits in the permit are based on 99.9% efficiency.

8. How will the community know? Pressure drop across the baghouses indicates the operational status of the filters and is monitored daily. If the pressure drop is outside the acceptable range, the problem is addressed. If opacity is greater than 20%, troubleshooting ensues until the problem is corrected.

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9. As a Coastal Zone facility was there an offset of these emissions? I presume no increase would not trigger any additional offset, but was there an initial offset?

The original equipment was installed prior to the Coastal Zone Act. The CZA regulations state that the following are "uses not regulated:"

- "Replacement in-kind of existing equipment or installation of in-line spares for existing equipment"
- "Installation and modification of pollution control and safety equipment...providing that such installation and modification does not result in in any negative environmental impact over and above impacts associated with the present use."

Either way, this change should not be subject to the provisions of CZA. The baghouse replacements meet the definition of both bullets above.

10. Given Mountaire's permit violations and DNREC's failed oversight, what assurance can there be that these pollution control devices will be properly maintained and operated. Who will be inspecting them? How often & if found to be not functioning as designed will the operations be halted???? The Department conducts a construction-to-operation inspection at start-up. Natural minor inspections are at least every 5 years; partial compliance inspections are every 2 to 3 years, and inspections may be conducted as issues arise. The Company is required to report non-compliance.

RECOMMENDATIONS

I recommend this memo be submitted as an exhibit for public record at the May 1, 2018 hearing in Millsboro.

ADM:JLF:MAS

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pc: Dover File
 David Fees, Acting Division Director
 Joanna French
 Angela Marconi
 Melanie Smith