

## **Summary: Ethylene Oxide (EtO) Emissions in Lake County, January 3, 2019**

On November 2, 2018, the Lake County Health Department (LCHD) learned of concerns regarding ethylene oxide (EtO) emissions from Medline Industries in Waukegan, and Vantage Specialty Chemicals in Gurnee. LCHD continues to investigate and has completed the following since learning of those concerns:

### **Meetings with the Illinois Environmental Protection Agency and the U.S. Environmental Protection Agency**

The Illinois Environmental Protection Agency (IEPA) and the U.S. Environmental Protection Agency (USEPA) have sole jurisdiction for regulating (monitoring and permitting) emissions in Lake County. LCHD requested and participated in two USEPA meetings on November 7 and 28, 2018, and one with IEPA on November 16, 2018. Based on our discussions, a Lake County-specific EtO webpage was created by USEPA, which they maintain and update as new information becomes available. (<https://www.epa.gov/il/addressing-ethylene-oxide-emissions-lake-county-illinois>).

### **IEPA Freedom of Information Act Request Update**

On November 2, 2018, the LCHD submitted a Freedom of Information Act (FOIA) request to the IEPA for the following information:

- EtO emissions data for Sterigenics (Willowbrook), Medline (Waukegan), and Vantage (Gurnee) for the past 10 years;
- Air operating permits and violations occurring in the past 10 years for those facilities; and
- Documented levels of permissible EtO emissions at those facilities.

LCHD received the FOIA response from IEPA on November 20, 2018. After review of all documents, LCHD staff created a summary of permitted and reported EtO emissions and violations that occurred.

Medline reported an average of 1.8 tons of EtO emissions per year, well below the allowable limit of 5.4 tons. Vantage's air permit differs from Medline in that only reported data for 2016 and 2017 was available for review. EtO emissions at Vantage averaged just over 1 ton per year. We will request USEPA to post this data on their website for public accessibility.

### **Site Visits at Medline and Vantage**

On November 27, 2018, LCHD staff conducted a site visit at Medline in Waukegan. Medline utilizes EtO for sterilization of medical supplies. After the EtO sterilization process is complete, EtO gas is captured in two ways: (1) 99% of the EtO moves through a wet (sulfuric acid) scrubber that converts

over 99% of the EtO to ethylene glycol and the remaining EtO is emitted through the stack; (2) when the sterilization chambers are opened, 1% of EtO remaining on the products moves via negative pressure to a room and exits through a back-vent. Ethylene glycol is recovered and appropriately stored in above-ground storage units with requisite emergency containment until it is removed and sold to other companies.

Medline stated that they currently do not have an FDA-approved alternative sterilization methodology that would be as effective as EtO. Medline is in the process of adding a second scrubber to reduce back-vent emissions. It is unknown at this time what type of scrubber will be added and what amount of emission reduction will occur.

On December 19, 2018, LCHD staff conducted a site visit at Vantage in Gurnee. Vantage utilizes EtO during the manufacturing of additives for food and other products. During the manufacturing, the majority of the EtO is consumed as part of the final product (e.g., polysorbate 80). After the manufacturing is complete, any remaining EtO gas moves through a wet (phosphoric acid) scrubber that converts over 99% of the EtO to ethylene glycol, and the remainder EtO is emitted through the stack. Ethylene glycol is recovered and appropriately stored in above ground storage units with requisite emergency containment until it is removed and sold to other companies. Vantage plans to add a second scrubber (dry) with resin beads that would potentially reduce their reported EtO emissions from the estimated 2018 emission rate of 0.7 tons per year to 0.35 tons per year.

### **EtO Presentations/Updates**

LCHD Executive Director, Mark Pfister, presented EtO updates at the following meetings:

- Lake County Board, Health and Community Services Committee (November 6, 2018)
- Lake County Board, Committee of the Whole (November 9, 2018)
- Waukegan City Council (November 19, 2018)
- Lake County Board of Health (November 28, 2018)

### **What additional actions has the Health Department requested from USEPA, IEPA, Medline, and Vantage?**

- LCHD requests USEPA and IEPA post additional information with regard to Medline and Vantage EtO emissions on the USEPA website as soon as it becomes available (e.g., permitting information of new scrubbers being installed, air monitoring, risk assessment, FOIA data, etc.).
- If Medline and Vantage conduct ambient air quality testing for EtO at their fence line, LCHD has recommended to both companies that they do pre- and post-ambient air quality monitoring (before and after the second scrubber is added) to assure that a baseline EtO value exists.