April 13, 2022 Ethylene Oxide (EtO) Meeting Follow-Up Questions

The questions below were received by email or in the chat during the April 13, 2022 informational meeting on ethylene oxide conducted by the U.S. Environmental Protection Agency, the Delaware Division of Public Health, Croda and the Delaware Department of Natural Resources and Environmental Control. For additional information please go to the following link, de.gov/eto or email DAQpermittinginfo@delaware.gov.

Questions from E-mail

1. *Will the Department of Natural Resources and Environmental Control (DNREC) establish maximum exposure levels for chronic exposure (non occupational) to ethylene oxide (EtO) to protect residents? Such limits should also consider the cumulative impacts of EtO in conjunction with other pollutants present in the area. Without such a target level how would DNREC know that any EtO reduction efforts are adequate?*

   DNREC does not plan to establish a maximum exposure level at this time.

   Based on currently available data, we do not expect EtO levels in the air around facilities to be high enough to cause immediate health effects. The short-term (one-hour) estimated levels in the air are well below levels that may immediately cause serious, long-lasting or irreversible noncancer health effects. The mid-term estimated levels (two weeks to one year) and the long-term estimated levels in the air are also below levels that may cause noncancer health effects.

   DNREC continues to follow guidance from the U.S. Environmental Protection Agency (EPA) on EtO exposure and cumulative impacts of pollution. The science surrounding these topics is evolving. As these complex topics are better understood, DNREC will continue to update regulations, policies, and monitoring to protect public health and welfare.

Questions from the Zoom Chat

1. *What is a stack test?*

   Air contaminants are commonly released from stacks. Stacks are typically a flue, chimney or pipe. A stack test, or performance test, is a test performed by an independent third party to measure the emissions from an emissions unit (or stack). These tests can measure pollutants directly or capture them (particulate matter, for instance) for later analysis. A rigorous process is followed when stack testing is conducted. Facilities and the independent third party must submit a stack test plan for approval to DNREC and DNREC observes stack tests as they are being conducted. The results of a stack test are also submitted to DNREC for review. The results must show compliance with the emission limits in the permit for the emission unit.

2. *I have a clarifying questions. Ms. Marconi said that Croda will certify their emissions by 4/30. What does that mean? How do they "certify" their emissions if there is no monitoring (as it was said there are not)?*

   Each year, Croda is required to certify its emissions (a.k.a. Emission Inventory) by April 30th. To do so, stack test results, engineering knowledge, operating data and purchasing records can be used to calculate the emissions from each emissions unit. These emission calculations are reviewed by DNREC for accuracy.

3. *How often do they do stack testing?*

   The frequency of stack testing depends on the emissions unit, and the regulations which apply to the unit. Stack testing could be as frequent as once per year, or in some cases once every 8760 operational hours (equal to a year of operation), all the way up to every 3 years or 5 years. Additionally, some regulations will require a stack test if a change is made to the emissions unit's process or upon startup of a new emissions unit.

4. *Has EPA "LDAR" Enforcement staff been to DNREC to test?*

   EPA Region III air enforcement staff has previously conducted leak detection and repair (LDAR) testing at the batch plant (legacy plant) at Croda. In addition, the EPA was on-site in January 2020 to conduct an Air Quality inspection of the ECO plant with a focus on LDAR. No areas of concern were identified as a result of this inspection.

5. *What Ethylene Oxide policy or variable do you think may need to be modified or reviewed as a result of this meeting?*

   Work at the Federal, State and Facility level is ongoing. DNREC DAQ will continue to monitor Federal Regulations for future changes pertaining to EtO, as well as monitor the American Conference of Governmental Industrial Hygienists' (ACGIH's) 8-hour Time Weighted Average (TWA) for any changes. If there are ongoing questions or concerns, we encourage the community to reach out to DNREC and EPA as appropriate. The email address DAQpermittinginfo@delaware.gov can be used.

6. *Regarding Miss Chow's response to Miss Whitehead: The 100-in-1 million benchmark is not simply used for screening – it is very consequentially used as a benchmark to determine if the risk associated with a specific source category constitutes emission reductions during the rule-making process (for example the Miscellaneous Organic Chemical Manufacturing Rule). This is extremely consequential to communities in New Castle and elsewhere. I would like to request that the record be corrected on that.*

   Please note that the 100 in 1 million is not to be construed as a regulatory level. It is the upper end of acceptable risk EPA uses as a guide.

7. *What is EPA doing to develop the technology needed to detect lower levels of EtO?*

   EPA's Office of Research and Development (ORD) has been evaluating new methods and technology which might be able to measure EtO at lower levels. Also, EPA's contract laboratory Eastern Research Group (ERG) has been working to improve the current lab analysis method to further lower the minimum detection levels.

8. *Croda didn't answer the question about emission alerts. Can they respond to that question?*

   As real-time ambient monitoring for EtO is not currently possible, emission alerts cannot be offered at this time.

   Ambient monitoring of EtO is not currently possible because the concentrations around the plant are below the detection limit of EtO monitors. Croda has installed monitors inside the plant. These monitors can detect a range of chemicals at higher concentrations for worker and operational safety purposes. DNREC will continue to stay up-to-date on the research regarding EtO monitoring and is committed to monitoring when it becomes technologically available.

Croda does have a Community Notification System that is designed to notify the public of any issues at the facility. This system will be triggered by Croda in the event of an incident. The audible four-siren alarm system will sound simultaneously for five minutes to alert anyone in an approximate three miles radius of Atlas Point. Sirens are tested simultaneously for one minute, four times a year, with the testing schedule posted on the Croda Atlas Point website (https://www.croda.com/en-gb/about-us/where-we-operate/north-america/usa/atlas-point). Notification is made ahead of routine testing to inform residents the alarms are simply a test.

Response from Croda:

Absent a more detailed question, this response explains how community notifications are made at the time of a site emergency at the Croda Atlas Point facility in New Castle, Delaware.

1. Emergency Responder Notification: As with the 2018 incident, 911 will be immediately notified by Croda at the time of an emergency. Local first responders, including the New Castle County Office of Emergency Management, will be automatically contacted by 911 officials.
2. The Community Alarm System: The newly completed Community Notification System (CCNS), will be triggered by Croda. The audible four-siren alarm system will sound simultaneously for five minutes to alert anyone in an approximate three miles radius of Atlas Point. This community-based alarm system was installed at the request of local residents and DNREC. Sirens are tested simultaneously for one minute, four times a year, with the testing schedule posted on the Croda Atlas Point website (https://www.croda.com/en-gb/about-us/where-we-operate/north-america/usa/atlas-point). Notification is made ahead of routine testing to inform residents the alarms are simply a test.
3. The DENS and IPAWS Systems: The DENS system and the IPAWS system can also be triggered by emergency management officials. DENS is the primary system for public notification utilized by New Castle County's Office of Emergency Management and is maintained by the Delaware Emergency Management Agency (DEMA). Residents must register to receive DENS alerts (https://www.smart911.com/smart911/ref/login.action?pa=delaware). In late 2019, New Castle County acquired authorization to send Integrated Public Alert & Warning System (IPAWS) alerts in the case of extreme emergencies. IPAWS notifications may go directly to cell phones in the area and to local radio and TV stations.

9. *Croda never said if there are scrubbers on each of the stacks at the facility.*

Response from Croda:

All stack emissions containing ethylene oxide (EtO) are routed through air pollution control devices such as scrubbers. This use of this technology reduces emissions from these sources by 99%. In addition to scrubbers, control devices such as oxidizers and burners are also used to reduce emissions of pollutants (other than ethylene oxide) at some other emissions points.

Emissions at the plant are managed with process controls and emission control devices to meet regulatory requirements. Following environmental regulations set forth by the EPA and DNREC, as well as industry best practices, Croda strives to be well below regulatory thresholds.