**Ethylene Oxide: Technical Reviews and Outreach to Potentially Affected Communities**

**Status Report — Union Carbide, Institute, West Virginia**

As EPA pursues its mission to protect public health and the environment, addressing ethylene oxide (EtO) remains a major priority for the Agency. EPA's National Air Toxics Assessment (NATA), released in August 2018, identified a number of areas (census tracts) with potentially elevated risk from continuous exposure, over 70 years, to EtO in the outdoor air. NATA estimated these risks based on EtO emissions from 2014, which were the most recently available at the time.

NATA is a screening-level analysis that is intended to identify pollutants or areas for closer examination. Because of this, additional work is needed to better understand emissions in areas that NATA identified as potentially having elevated risk. EPA has been supporting its state air agency partners as they conduct that work and identify opportunities for reducing EtO emissions from individual facilities, while the Agency reviews its national regulations for industrial facilities that emit EtO. Actual risks today may be higher or lower than NATA estimated due to several factors, including updated or more refined facility emissions information, or recent facility changes such as the installation of pollution controls.

The information below describes the technical analyses conducted for Union Carbide, located in Institute, West Virginia, as part of the follow-up work conducted since NATA was issued in August 2018. It also summarizes outreach to nearby communities about the NATA results. EPA is providing this information, in part, in response to the EPA Office of Inspector General's March 31, 2020, Management Alert which called on EPA to provide information to the 25 communities that NATA identified as potentially having the highest risk from EtO emissions.

## Technical reviews conducted

The West Virginia Department of Environmental Protection (WVDEP) has requested EPA Region 3 help in air modeling and risk exposure modeling. Region 3 has provided support to WVDEP with the following:

- Provided 2014 NATA and EtO findings for the Mid-Atlantic Regional Air Management Association's (MARAMA) Air Toxics conference in August 2018.
- Presented 2014 NATA and EtO findings at R3 annual State Air Directors meeting in September 2018.
- Shared remodeled risk results using 2017 emissions with WVDEP on July 2019.
- Coordinated an EPA technical call on ambient monitoring of EtO conducted by Office of Air Quality Planning and Standards (OAQPS) with PA, DE, WV —our states with high risk facilities, on July 2019.
- Coordinated EPA webinar on technical methods used for EtO analysis for state and local Agencies and contract laboratories in August 2019.

**Actions to date:**

- An initial modeling effort by R3 in 2019 using meteorological data from the local airport was considered possibly biased high due to the higher elevation of the location of the meteorological tower and turbulences at that elevation.
- WVDEP requested onsite met data from Union Carbide Institute, so that R3 can use that input to the air model in order to get results from localized data.
- R3 received the raw dataset in September 2020. Initial date files have been processed and returned to WVDEP in October 2020 and the completed files were returned to WVDEP in early December 2020.
- WVDEP will then run the air dispersion model, AERMOD, and provide R3 with the results. R3 will use these results as input to the Human Exposure Model (HEM) to get new risk exposure results (expected early 2021).
- WVDEP has requested R3 take the lead to explain the results to both the facility and the community once the results have been analyzed.

**Outreach conducted:**

- R3 has held conference calls with local community advocates in 2019 and plans to provide an update after the risk exposure results have been analyzed.