WVDEP Community Meeting:

Ethylene Oxide in the Institute and South Charleston Areas

August 18, 2022
Introduction

WVDEP Division of Air Quality
Mike Egnor, Air Toxics Coordinator
What has WVDEP done?

• August 2018 – EPA publicly released the National Air Toxics Assessment (NATA)

• NATA identified four census tracts in the Kanawha Valley for further investigation
What has WVDEP done?

- WVDEP requested the state Department of Health and Human Resources (DHHR) Bureau of Public Health (BPH) to review EtO associated cancer rates in the Kanawha Valley

  - DHHR compared Kanawha County vs. West Virginia using the WV Cancer Registry
  - No elevated levels of breast, lymphoma, or leukemia cancers found for Kanawha County as a whole
  - Kanawha County is not significantly higher than other counties in the state
What has WVDEP done?

• 2019: Requested the most recent and accurate emissions data and onsite weather data

• Visited the Institute and South Charleston facilities

• Updated the model with the more accurate emissions and weather data
  - The locations and level of risk changed as a result
What has WVDEP done?

• December 2019: Issued press release identifying the elevated risk factor of ethylene oxide

• Jan 2020: Formally requested EPA to prioritize the review of the federal regulation to which the facilities are subject
Facilities in the Kanawha Valley that emit EtO

• Institute
  - Union Carbide Corporation
  - Specialty Products US, LLC

• South Charleston
  - Union Carbide Corporation
  - Covestro LLC
What has WVDEP done?

• Public Outreach:
  - Met with Elected Officials and Higher Education Representatives on August 10, 2021
  - Had a Virtual Community Meeting on September 23, 2021
  - Established an EtO Website and Mailing List
  - Had a Community Open House on March 26, 2022 at the Dunbar Recreation Center in Dunbar
  - Attend monthly South Charleston and Western Kanawha Valley Community Advisory Panel (CAP) meetings
  - The WVDEP’s Environmental Advocate provides updates on EtO through virtual town hall meetings
What has WVDEP done?

• Four (4) sets of short-term monitoring in both the South Charleston and Institute areas
• Worked with UCC to do an additional seven (7) sets of short-term fence-line and background monitoring
• Released the monitoring results after analyzed by the lab and Q/A’d by DAQ
What has WVDEP done?
What has WVDEP done?
**What has WVDEP done?**

### Ethylene Oxide Initial Monitoring Results

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<tr>
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<tbody>
<tr>
<td></td>
<td>Results (ppbv)*</td>
<td>Results (ppbv)*</td>
<td>Results (ppbv)*</td>
<td>Results (ppbv)*</td>
</tr>
<tr>
<td>Guthrie Background **</td>
<td>0.0361</td>
<td>0.0884</td>
<td>0.0321</td>
<td>0.271</td>
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<tr>
<td>#0 South Charleston, WV</td>
<td>Nondetect</td>
<td>Not exposed</td>
<td>0.08</td>
<td>0.146</td>
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<tr>
<td>#3 North Charleston, WV</td>
<td>0.0165</td>
<td>0.0227</td>
<td>0.155</td>
<td>0.221</td>
</tr>
<tr>
<td>#4 North Charleston, WV</td>
<td>0.0121</td>
<td>0.088</td>
<td>0.0794</td>
<td>0.277</td>
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<tr>
<td>#10 Institute, WV</td>
<td>0.0821</td>
<td>0.0996</td>
<td>0.182</td>
<td>0.674</td>
</tr>
<tr>
<td>#13 Institute, WV</td>
<td>0.0375</td>
<td>0.204</td>
<td>0.0714 (co-located)</td>
<td>0.124</td>
</tr>
<tr>
<td>#14 Institute, WV</td>
<td>0.0376</td>
<td>0.0958</td>
<td>0.119</td>
<td>0.514</td>
</tr>
<tr>
<td>#15 Institute, WV</td>
<td>0.0505</td>
<td>1.3</td>
<td>0.447</td>
<td>0.183</td>
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<tr>
<td>#16 Buffalo, WV Background **</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>0.365</td>
</tr>
</tbody>
</table>

* Concentrations measured in parts per billion by volume (ppbv)

** Background site: This is an area with no known emitters of Ethylene Oxide

*** April 26-27, 2022 for #0 South Charleston, #3 North Charleston and #4 North Charleston

- Method Detection Level (MDL) for the January through March sampling = 0.0261 ppb
- Method Detection Level (MDL) for the June sampling = 0.048 ppb

MDL is the minimum concentration of a substance that can be measured and reported with 99% confidence that the concentration is greater than zero.
What has WVDEP done?

## Ethylene Oxide Additional Monitoring Results

<table>
<thead>
<tr>
<th>Sample Location</th>
<th>May 24-25, 2022</th>
<th>May 31-June 1, 2022</th>
<th>June 7-8, 2022</th>
<th>June 14-15, 2022</th>
<th>June 22-23, 2022</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Results (ppbv)*</td>
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<td>Results (ppbv)*</td>
<td>Results (ppbv)*</td>
</tr>
<tr>
<td>Guthrie Background **</td>
<td>0.0733</td>
<td>0.296</td>
<td>0.636</td>
<td>0.95</td>
<td>0.817</td>
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<tr>
<td>#3 North Charleston, WV</td>
<td>0.184</td>
<td>0.257</td>
<td>0.762</td>
<td>2.48</td>
<td>0.979</td>
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<tr>
<td>#15 Institute, WV</td>
<td>1.23</td>
<td>1.93</td>
<td>0.571</td>
<td>1.76</td>
<td>1.65</td>
</tr>
<tr>
<td>#16 Buffalo, WV Background**</td>
<td>0.169</td>
<td>0.109</td>
<td>0.714</td>
<td>0.122</td>
<td>0.354</td>
</tr>
</tbody>
</table>

* Concentrations measured in parts per billion by volume (ppbv)

** Background site: This is an area with no known emitters of Ethylene Oxide

Method Detection Level (MDL) for the sampling = 0.048 ppb

MDL is the minimum concentration of a substance that can be measured and reported with 99% confidence that the concentration is greater than zero.
What has WVDEP done?

• Worked with the four EtO emitting facilities in Institute and South Charleston to provide written commitments to work practice standards greater than required by state and federal regulations

• These may include:
  - Repairing components with detected leaks at levels lower than what is considered a leak by applicable regulations
  - Increase monitoring frequency of potential leak points
  - Reducing the number of fugitive components by replacing them with welded connections
What has EPA done?

• Updated the NATA with a new air toxics risk screening tool - AirToxScreen
  - Will use more current emissions data
  - Screening using 2017 emissions data is available now, 2018 emissions data is due out by the end of 2022
  - Data from 2017 emissions indicates that all census tracts in West Virginia are under the 100 in 1 million cancer risk level

https://www.epa.gov/AirToxScreen
What has WVDHHR BPH done?

• Conducted updated cancer-mapping - released June 9, 2022

• Findings include:
  - Kanawha County does not rank in the top 10 for any of the EtO related cancers
  - There are no cancer clusters for EtO related cancers around the Institute and South Charleston areas

Total Ethylene Oxide Emissions in the Kanawha Valley

Source: WVDEP DAQ SLEIS

*2021 Covestro Estimated
What is WVDEP doing?

• Modeling actual EtO emissions

• Comparing air monitoring data with air modeling results
What is WVDEP doing?

• DAQ draft report 2-3 months after final sampling and modeling are completed
• DAQ sends draft report to EPA 3-4 months after sampling and modeling are completed
• EPA provides advice on analyses and comments on the draft report throughout development
• DAQ releases final report to public within 6 months after final monitoring data received from lab (December 2022)
Summary

• WVDEP has been working with EPA, the facilities, and DHHR to accurately identify the risks
• Questions remain regarding the revised EPA risk factor for EtO
• Questions remain regarding the background levels of EtO
• WVDEP is committed to continue working with EPA, the facilities, and DHHR to address the associated risks
• WVDEP is committed to continued dialogue with the community and holding additional meetings as new information becomes available
Additional Resources

• The WVDEP has a webpage dedicated to EtO: [https://dep.wv.gov/daq/Air%20Toxics/EthyleneOxide/Pages/default.aspx](https://dep.wv.gov/daq/Air%20Toxics/EthyleneOxide/Pages/default.aspx)

• Additional questions for the WVDEP can be submitted via email to [DEP.Comments@wv.gov](mailto:DEP.Comments@wv.gov)

• Media inquiries should be directed to Terry Fletcher, WVDEP Communications Director, at [Terry.A.Fletcher@wv.gov](mailto:Terry.A.Fletcher@wv.gov)