



MICHIGAN DEPARTMENT OF  
ENVIRONMENT, GREAT LAKES, AND ENERGY

# Ethylene Oxide and the Michigan Case Study

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# Why did we become concerned with EtO?

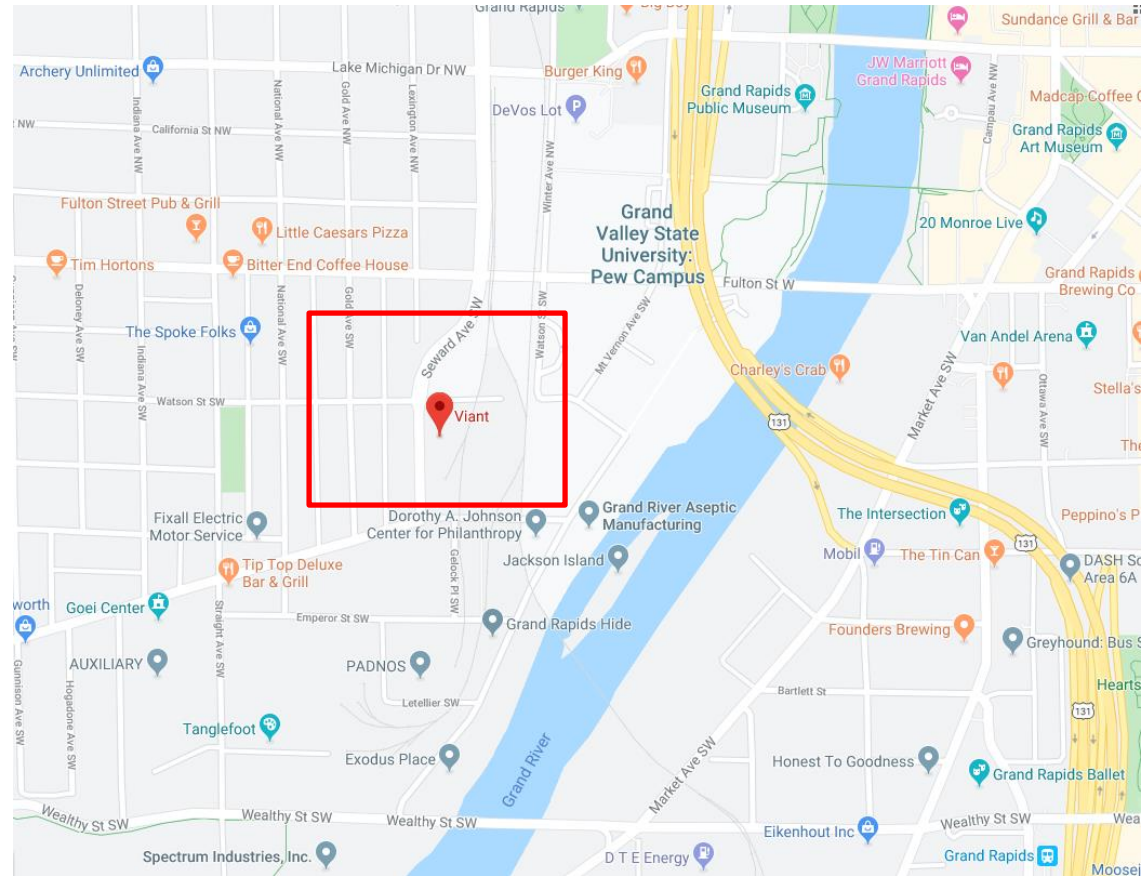
- National Air Toxics Assessment (NATA)
- Most recent NATA – August 2018
  - Identified that the cancer risk in the west side of Grand Rapids, MI was higher than the national average.
- Modeling data based on actual emissions support NATA conclusions

Figure 7 – 24-Hour Impacts ( $\mu\text{g}/\text{m}^3$ ) Resulting from 2018 Actual Emissions



# Michigan's Efforts to Address Ethylene Oxide

- At the time NATA data was released, Viant Medical, Inc. was the largest EtO emitter in Michigan
- Documented non-compliance issues
- New info about EtO + non-compliance = potential health concerns



# Phase 1 Sampling

NOVEMBER 28-29, 2018



 Viant location

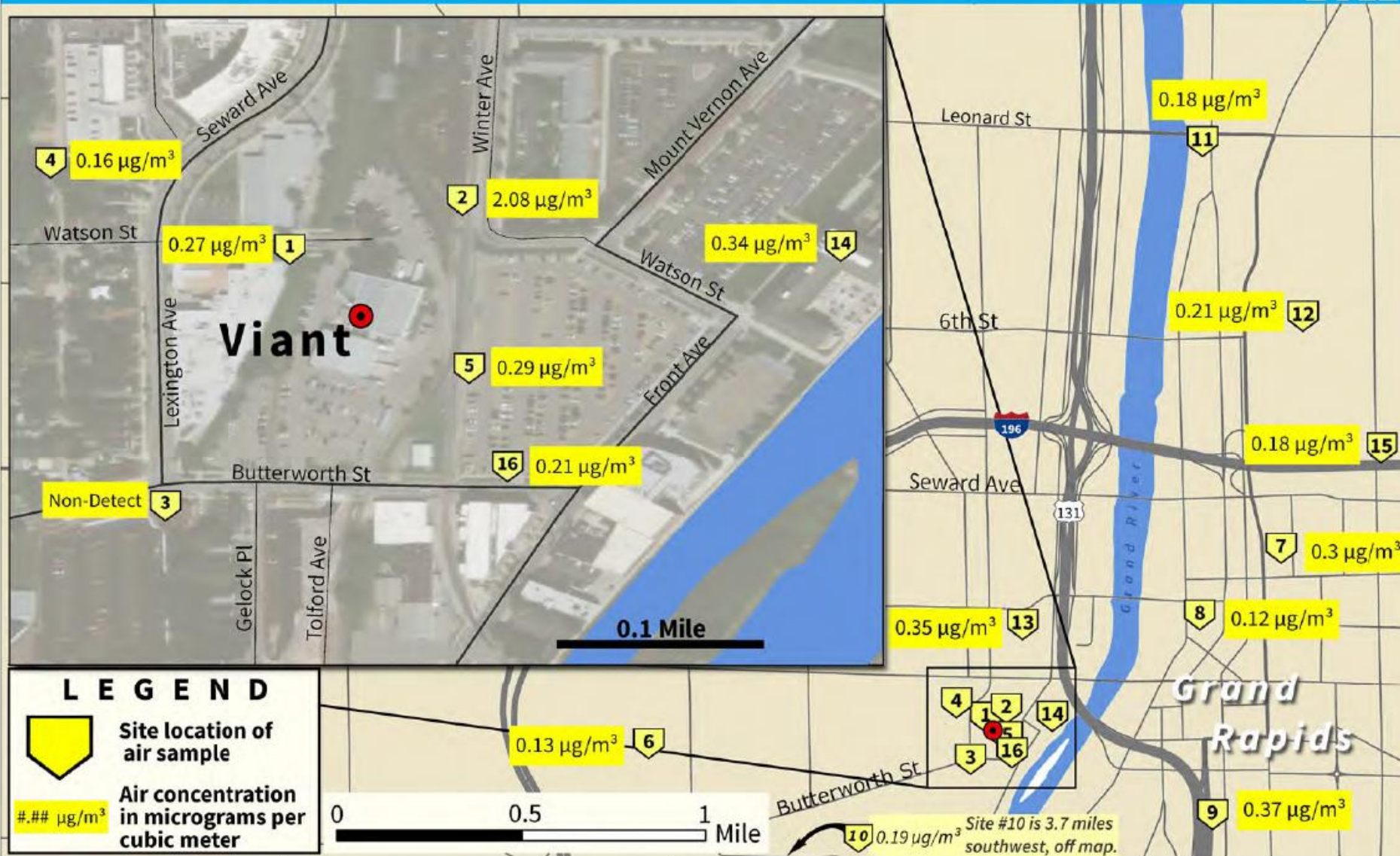
 Canister sites

 MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY  
AIR QUALITY DIVISION

# Ethylene Oxide Phase II Sampling

MARCH 27 - 28, 2019

EGLE

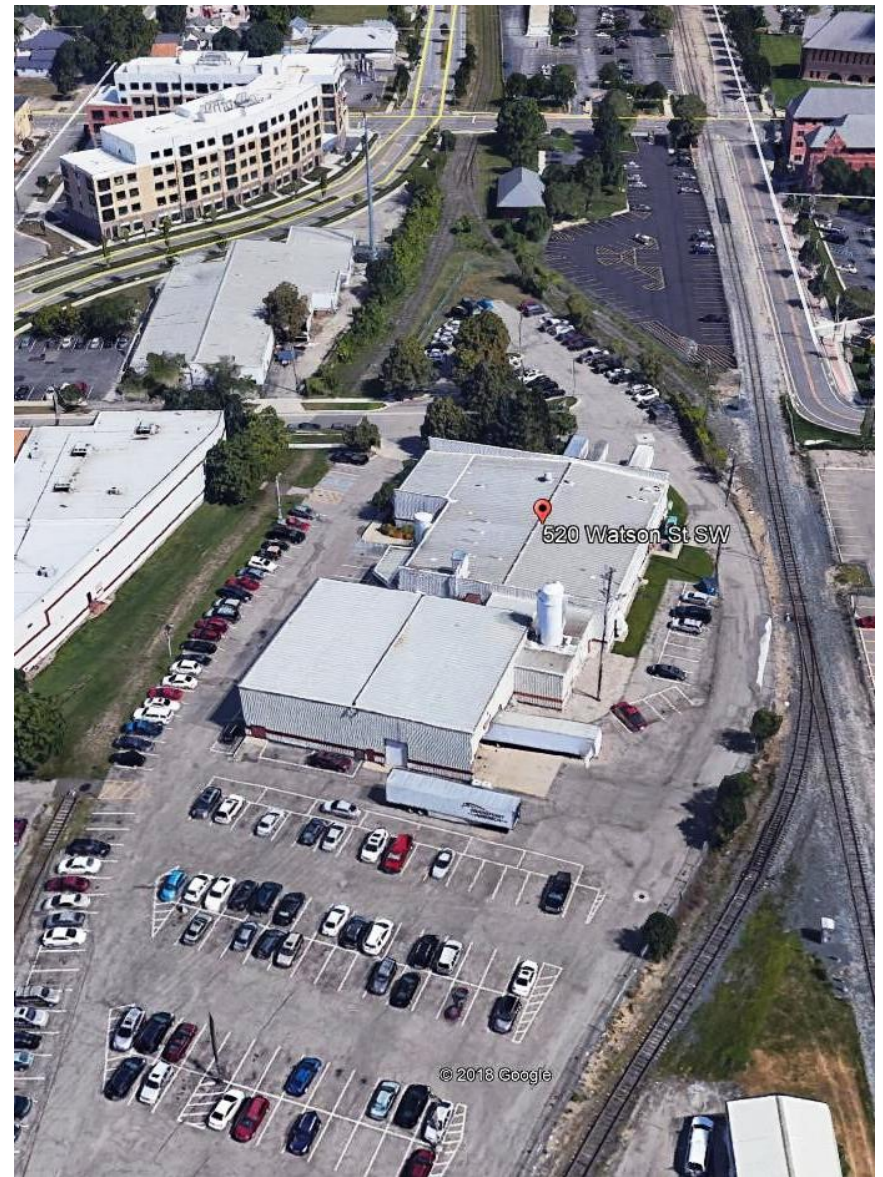


# Escalated Enforcement Action

- Settlement (Administrative Consent Order) includes:
  - Monthly monitoring of EtO around the facility to continue for 2 months after shut down
  - Legally required the removal of the sterilization process
  - Penalty of \$110,000
  - Stipulated fines for violations of the Consent Order
- Formal Public Hearing – October 23, 2019
  - Well attended by the community and students
  - Provided Q&A sessions that included state, federal, and local agencies

# Significant Events Since Settlement Signed

- Viant has discontinued all sterilization operations
- EGLE staff have confirmed that all containers of EtO have been removed from the facility
- Penalty paid
- Compliance with the Consent Order



# Michigan's Outreach Efforts

- AQD notified the community of the EtO issue very early in the process.
- Public information meeting in March 2019
- Website created – [www.Michigan.gov/viant](http://www.Michigan.gov/viant)
- Coordinated with the EPA, state and county health department officials, representatives from Grand Valley State University.





# Effects of Engineering Controls on Fugitive Emissions

- Elimination of Positive Pressure Cycle
- Leave materials inside sterilization chamber until ready to move into aeration room to minimize fugitive emissions
- Maintain and properly operate gas chromatograph detectors within the facility
- FID readings taken after removal from aeration chamber found higher levels of residual EtO in coated cardboard higher than uncoated.

# Post-closure Sampling

- Sampling continued for two months following facility closure
- Results from the co-located canisters for January and February were greater than the recommended +/-20% criteria
- Due to COVID-19, Phase III sampling to determine background levels of EtO has been postponed until late summer



# Questions?

- For more info:
  - Viant Website – [www.Michigan.gov/Viant](http://www.Michigan.gov/Viant)
  - LazzaroA1@Michigan.gov