Claymont Community
Volatile Organic Compound Study

Final Report Presentation

June 22, 2021

DELAWARE DEPARTMENT OF
NATURAL RESOURCES AND
ENVIRONMENTAL CONTROL

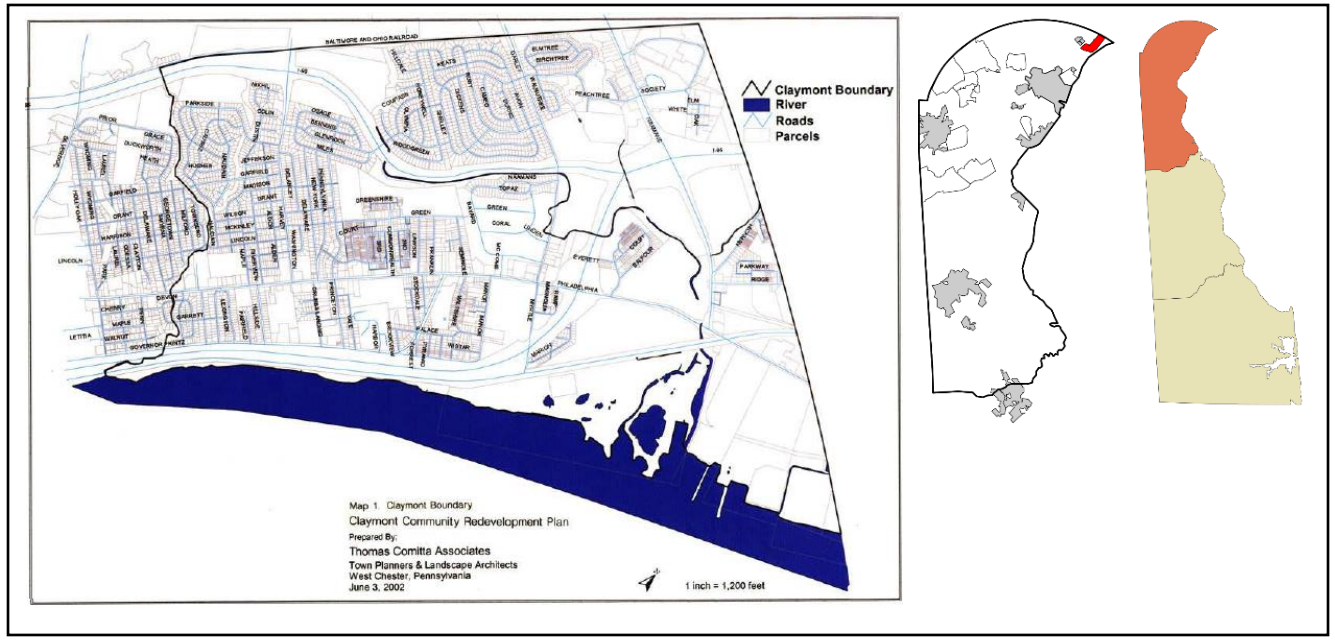
Introduction

Community of Claymont in northeast Delaware raised concerns over air quality.

Local industry has changed but concerns linger.

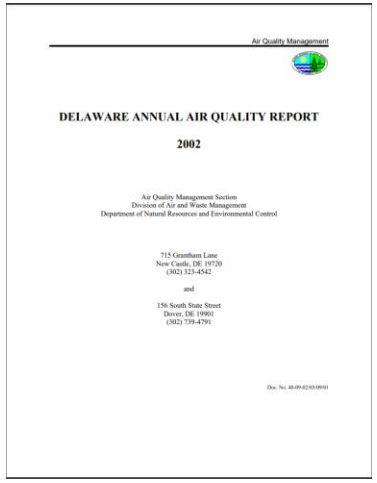
Primary concerns:

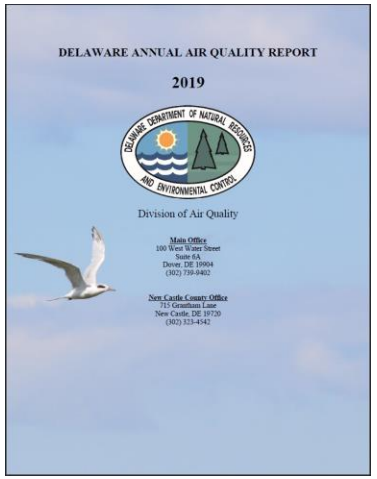
- Pollution from nearby Claymont/Marcus Hook border
- Greatest concerns regarding pollution that we call volatile organic compounds (VOCs)



Study Objectives

1. What type of VOCs can we find in Claymont?
2. Do the amount and type of VOCs differ by wind direction, particularly when wind comes from the direction of the Claymont/Marcus Hook border?
3. How do VOCs we find at Claymont compare to those we find at our MLK NCore site in Wilmington where we have been monitoring VOCs for over a decade?

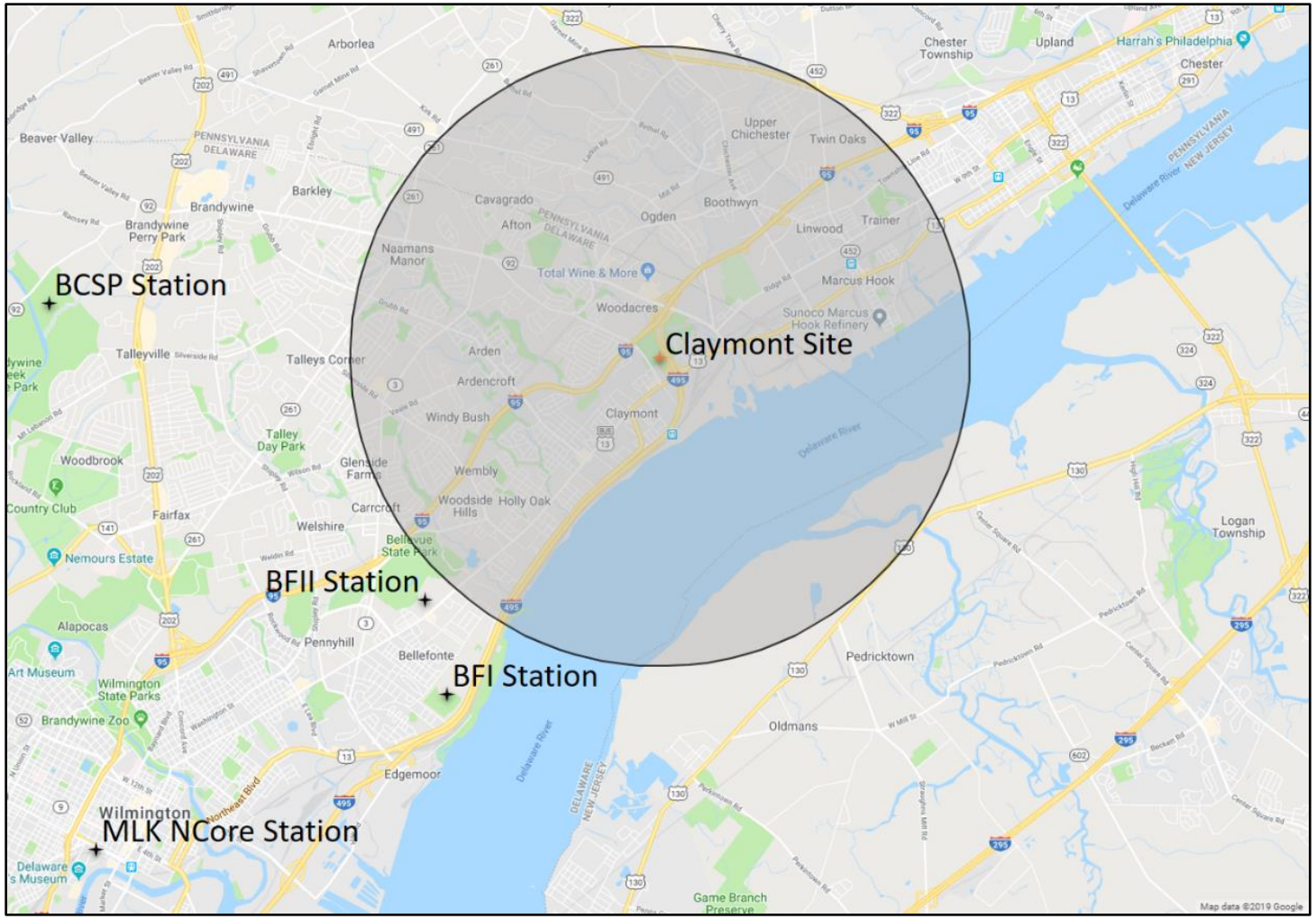




Annual Air Quality Reports available at: https://dnrec.alpha.delaware.gov/air/quality/monitoring/

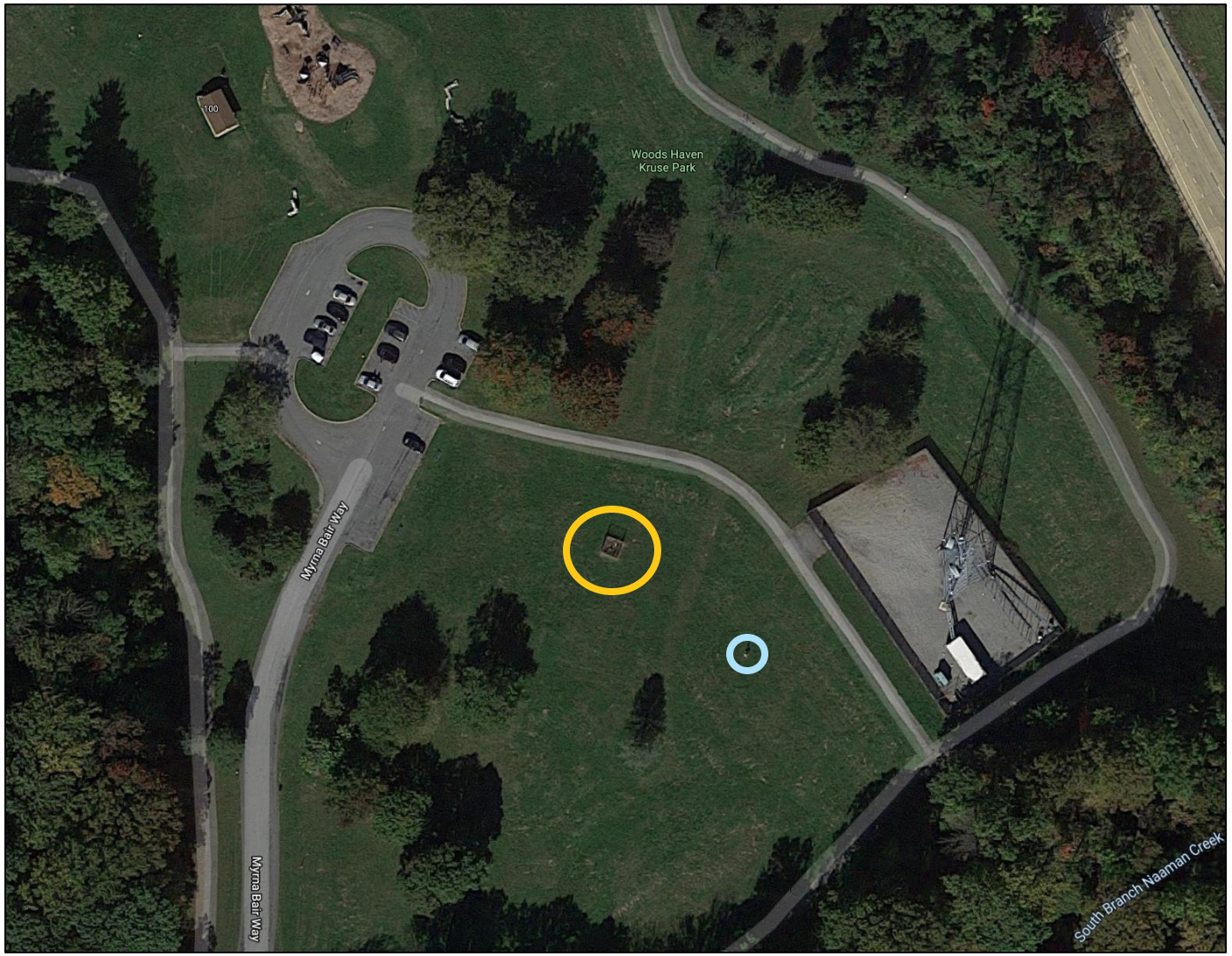
Study Planning

- Six Month Study
- Site at Woodshaven Kruse Park between community and sources of interest.
- Same sampling method as MLK NCore station in Wilmington which has a long history of VOC monitoring
- Collect samples at MLK NCore site using the same lab for analysis as used in the study for comparison



Study Planning

- Site at Woodshaven Kruse Park which meets siting needs.
- University of Delaware: Delaware Environmental Observing System (DEOS) site for Wind Direction



Study Planning

Study Method

- VOC sampling following EPA's method TO-15 using stainless steel canisters.
- VOC sampling once every three days following the National Sampling Calendar.
- Timer and sample inlet to collect 24-hour sample midnight to midnight.
- For better quality assurance, each sample event collected in two canisters at the same time.
- Canisters from both Claymont and MLK analyzed by Test America Labs (now Eurofins)

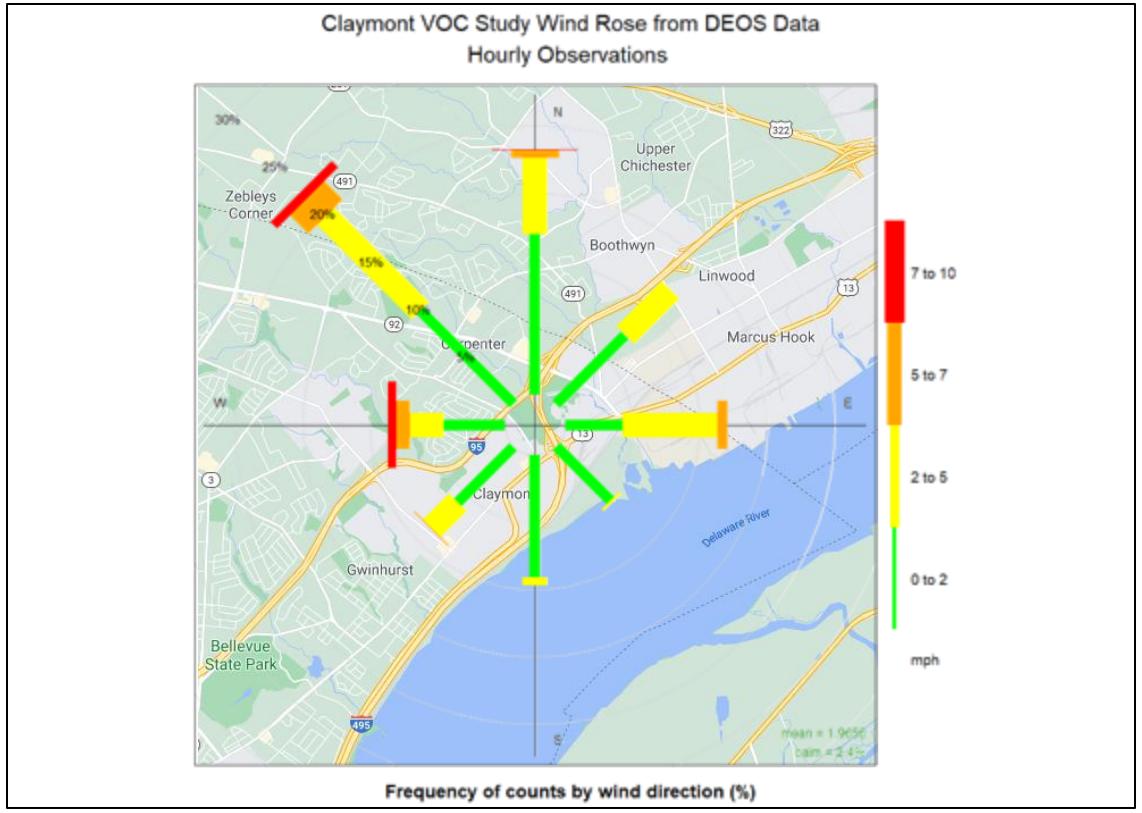
Data Summary

- Overall data capture above 80% at both sites.
  - Enough data to say what VOCs were present in the community
  - Enough data to compare between sites
- Lower paired capture due to issues with timers and sample inlet.
  - Means less confidence in the amounts of VOCs

	Individual Samplers			
	Claymont A	Claymont B	MLK A	MLK B
% Data Capture	87%	61%	80%	57%

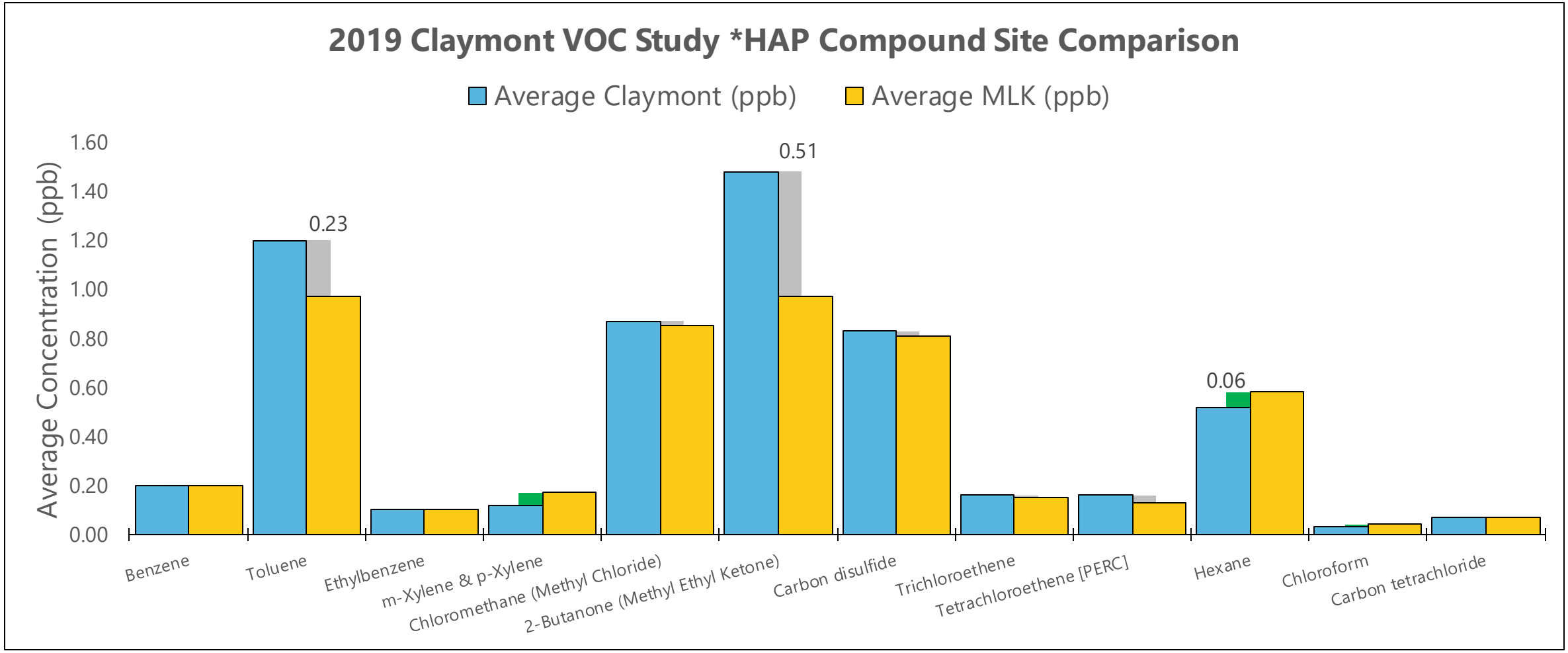
Data Summary

- Wind directions during the study period



Data Summary

- *12 Hazardous Air Pollutant (HAP) compounds with sufficient data to be characterized.



* 2-Butanone (Methyl Ethyl Ketone) removed by EPA from HAP classification in 2005

Data Summary

- Comparison of two compounds with the greatest difference in averages between Claymont and MLK

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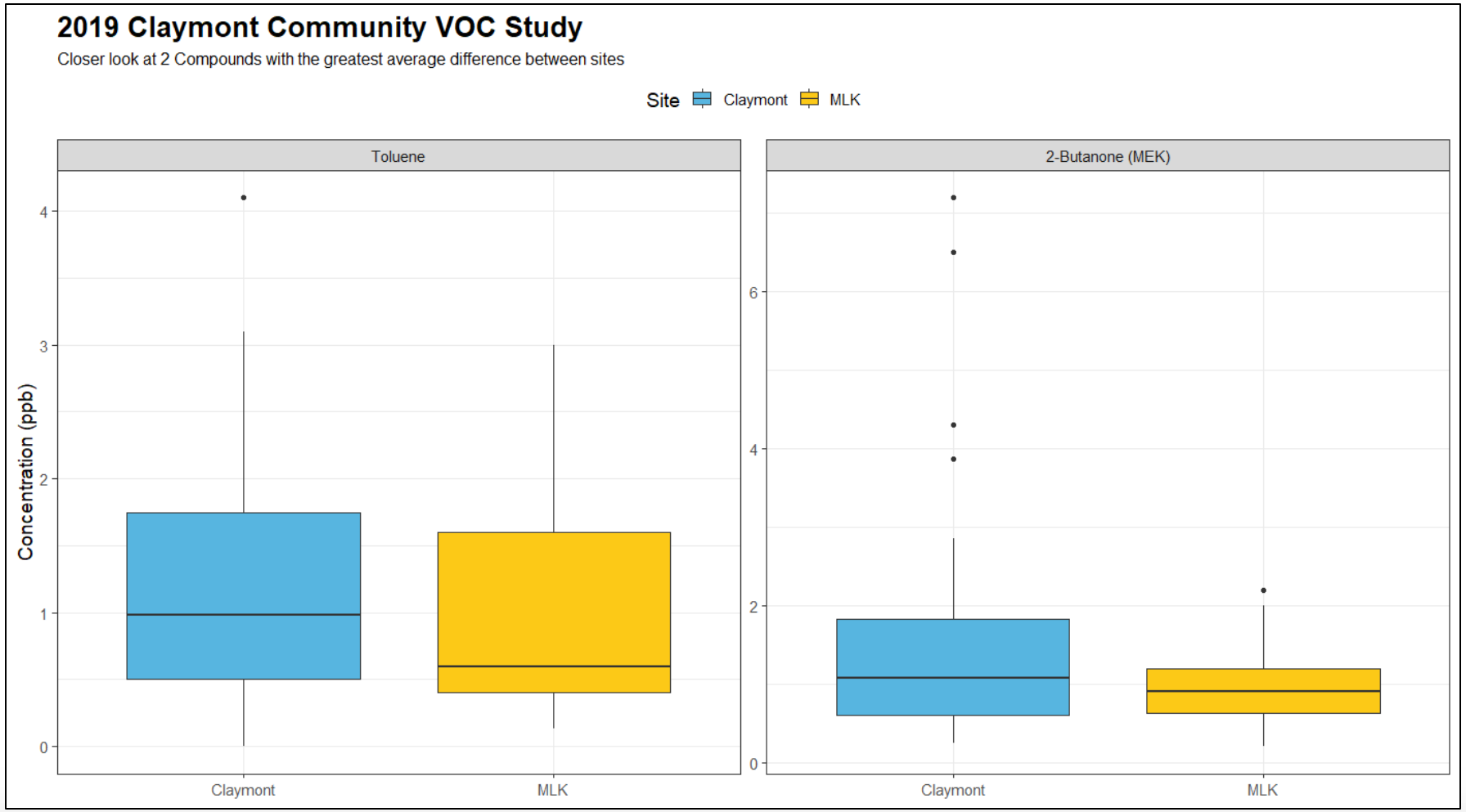
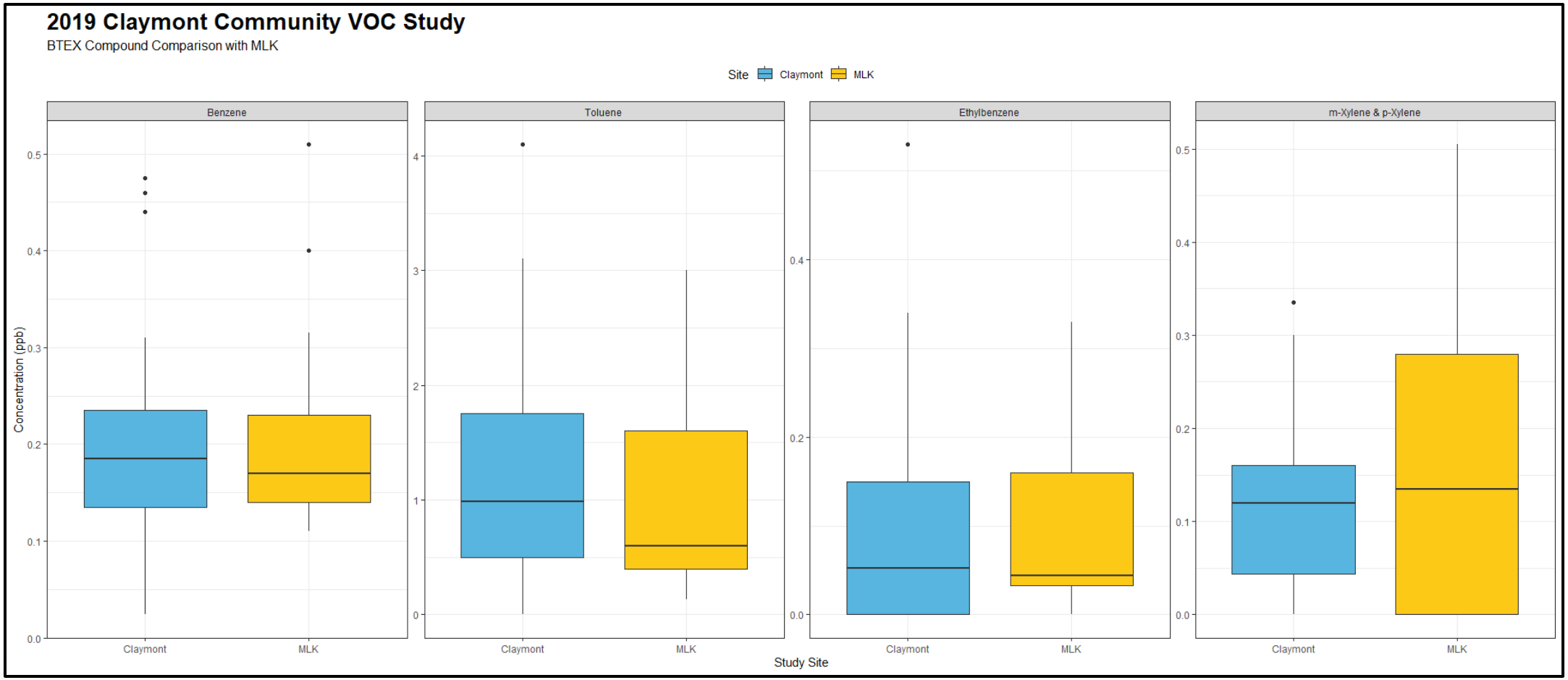


Data Summary

- BTEX Compound Box plots showing similarities between Claymont and MLK
  - Primary mobile source compounds



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Conclusions

What did we find?

*11 compounds that are classified as HAPS were found in amounts that we could identify with some degree of confidence.

*See note on slide 13

Difference with wind direction?

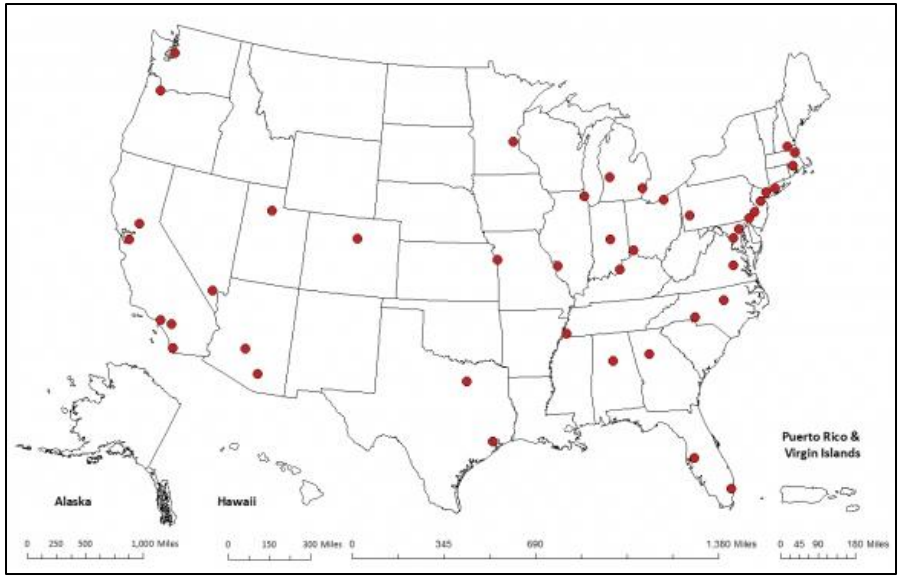
Compounds did not vary in any meaningful way by wind direction.

How did VOCs compare between sites?

Compounds observed at both sites are very similar in specific compounds and the amounts of each compound.

Next Steps

- Delaware continues to monitor VOCs at the Wilmington MLK NCore site
  - In the summer of 2022 Delaware will begin monitoring specific VOCs in near real-time as part of the national Photochemical Assessment Monitoring Station (PAMS) program



Next Steps

- How does the Department address Mobile Sources, where BTEX compound can come from:
  - The Division of Air Quality encourages people to minimize their vehicle emissions by practicing trip-chaining and works to reduce mobile source emissions through the Diesel Emissions Reduction Act Program, and emissions testing at the Division of Motor Vehicles a subset of the Department of Transportation.
  - DNREC's Division of Climate Coastal and Energy has a number of clean transportation programs including:
    - Rebate programs for alternative fuel and electric vehicles
    - Electric vehicle charging information

Resources

- DNREC Air Monitoring website
  - https://dnrec.alpha.delaware.gov/air/quality/monitoring/
- DNREC Mobile Sources information
  - https://dnrec.alpha.delaware.gov/air/mobile-sources/
  - https://dnrec.alpha.delaware.gov/air/mobile-sources/diesel-emissions/
  - https://dnrec.alpha.delaware.gov/air/mobile-sources/clean-vehicles-fuels/
- EPA Hazardous Air Pollutant website
  - https://www.epa.gov/haps
- EPA PAMS Program website
  - https://www.epa.gov/amtic/photochemical-assessment-monitoring-stations-pams

Follow up questions can also be submitted via DNREC_DAQ_Monitoring@Delaware.gov

Thank you for attending the meeting!