Air Toxics Monitoring Programs
A Virginia DEQ Perspective

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Goals of the Presentation

1. Describe sources of Air Toxics Monitoring Data

2. Describe the Evolution of Air Toxics Monitoring Programs

3. Introduce Community Air Toxics Monitoring Projects as a component of Overall Air Toxics Monitoring

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Air Toxics Monitoring Programs – The Virginia Monitoring Network

1. Urban Air Toxics Monitoring Program
2. National Air Toxic Trends Sites
3. Community Air Toxics Projects

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1. Urban Air Toxics Monitoring Program

Section 112 (k) (2)

The Administrator shall, after consultation with State and local air pollution control officials, conduct a program of research with respect to sources of hazardous air pollutants in urban areas and shall include within such program—

(A) ambient monitoring for a broad range of hazardous air pollutants (including, but not limited to, volatile organic compounds, metals, pesticides and products of incomplete combustion) in a representative number of urban locations;

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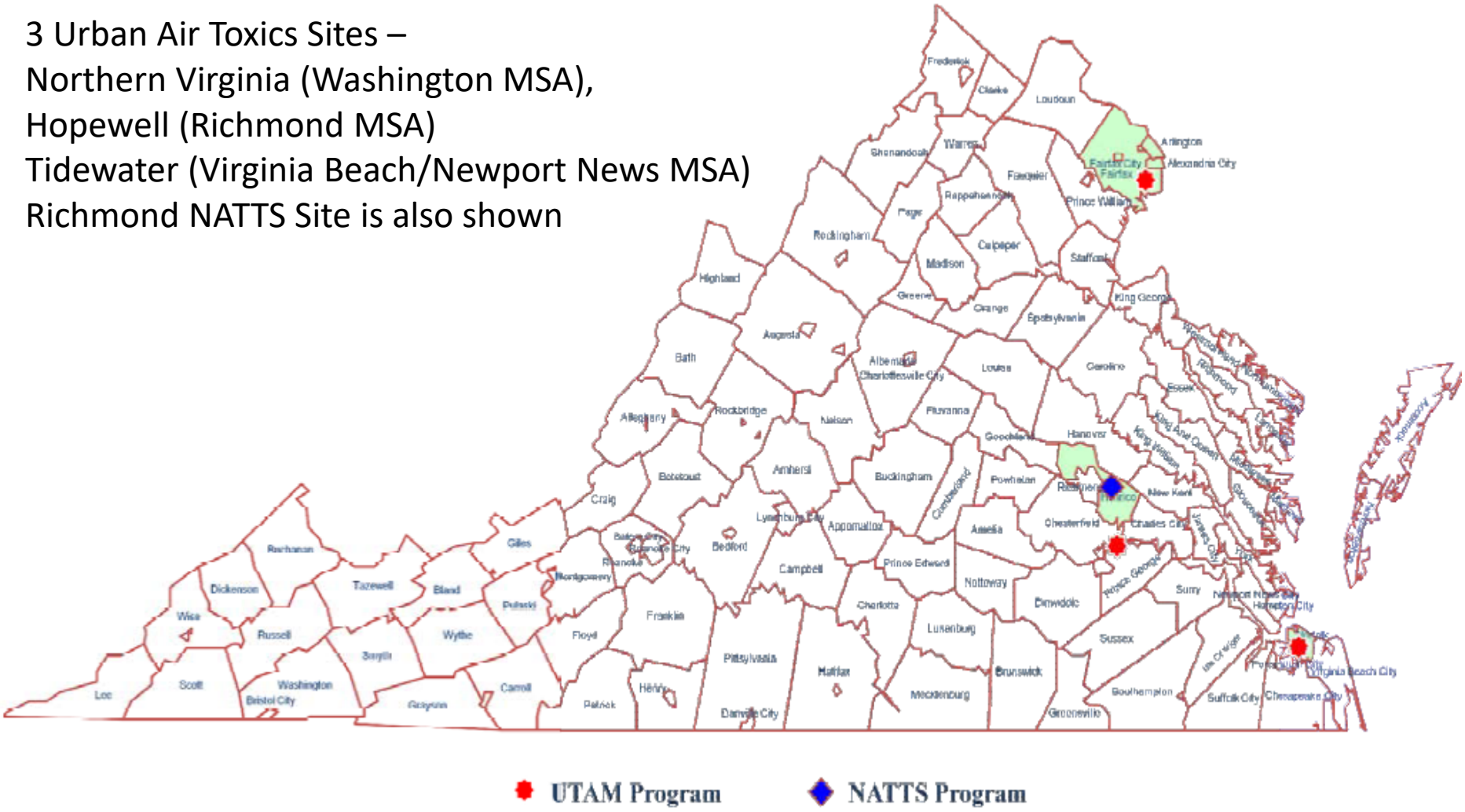
Urban Air Toxics Sites in Virginia

3 Urban Air Toxics Sites –
Northern Virginia (Washington MSA),
Hopewell (Richmond MSA)
Tidewater (Virginia Beach/Newport News MSA)
Richmond NATTS Site is also shown



◆ UTAM Program ◆ NATTS Program

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Urban Air Toxics Program – Pollutants

Suite of Urban Air Toxics Pollutants

Volatile Organic Compounds – Canister samples – TO-15 GC-MS
Carbonyls – TO11a – liquid Chromatography -
Metals – IO-3.1/3.5 – ICP-MS

https://www.deq.virginia.gov/Programs/Air/AirMonitoring/Publications.aspx

As the UATM program matured and more data was gathered it became clear that the program had a problem with Non-detectable data. The number of sites reporting results below the MDL indicated that something needed to be done programmatically to develop a consistent approach to data that was at or below the MDL.

ENTER…

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2. National Air Toxic Trends Sites

The National Air Toxics Trends Station (NATTS) Network was developed to fulfill the need for long-term HAP monitoring data of consistent quality. Among the principle objectives are

1. assessing trends
2. emission reduction program effectiveness,
3. assessing and verifying air quality models (e.g., exposure assessments, emission control strategy development, etc.),
4. Direct input to source-receptor models.

The NATTS program has a similar suite of pollutants but includes Polyaromatic Hydrocarbons.

2. National Air Toxic Trends Sites (cont.)

The National Air Toxics Trends Station (NATTS) program was developed to fulfill the need for long-term HAP monitoring data of consistent quality.

The new NATTS Technical Assistance Document (TAD) was finalized October of 2017 and includes more stringent Monitoring Quality Objectives (MQO) and additional Quality Assurance requirements. The more extensive requirements are directed at pushing down MDLs, improving certainty in the quality of the data and facilitate progress towards emissions and risk reduction goals.

2. National Air Toxic Trends Sites (cont.)

- Commit to a listing of more rigorous Method Detection levels and implement the methodology as defined in the Method Update Rule

- More extensive certification process for instrumentation e. g. annual negative bias testing

- More extensive cleaning and certification procedures for VOC canisters.

The NATTS program is intended to address data quality to support national Trends determination. In addition to this EPA addresses the local nature of air toxics pollution by…

3. Community Scale Air Toxics Projects

The [community scale] grants are intended to support projects that are designed to assist state, local and tribal communities in identifying and profiling air toxics sources, characterizing the degree and extent of local air toxics problems, and tracking progress of air toxics reduction activities.

Expected outcomes of these projects are increased state, local and tribal agency ability to 1) characterize the sources and local-scale distribution of hazardous air pollutants (HAPs), and 2) assess human exposure and risk at a local scale.

Virginia has experience with 3 separate Community Air Toxics Grants.

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3. Community Scale Air Toxics Projects

- Winchester Air Toxics Study
- Hopewell Air Toxics Study
- Fumigation Study

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Winchester Air Toxics Study

Winchester in Northwest Virginia with several large sources that emitted air toxics

Structured with upwind, central and downwind air toxics monitoring sites

Study operated for 18 months with very good data capture

The Grant was set up with DEQ responsible for the final data study and the Virginia Department of Health to perform the Risk Analysis

We are still waiting on the Risk Analysis

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Hopewell Air Toxics Study

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Hopewell Air Toxics Study

Hopewell is a small city that is heavily industrialized

Structured with upwind, central and downwind air toxics monitoring sites

Study operated for up to 24 months with very good data capture

This time the grant was set up with the DEQ Land Revitalization performing the Risk Analysis.

The average overall risk is unacceptably high. Formaldehyde is the primary pollutant contributing to cancer and non-cancer risk.

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MeBr Fumigation Study

- VA DEQ has been studying MeBr log fumigation since 2012

- AQM had targeted 4 separate SM fumigation site – all have shutdown and withdrawn their permits.

- AQM is currently in the process of performing fence line monitoring at 2 permitted SM sources – preliminary data indicates that the concentrations along the fence line are well below any health-based standard

- Too early to finalize the analysis but it appears that the 300 feet setback has been effective at minimizing the concentrations at the fence line

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Questions?

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