

School Air Toxics

Monitoring: Program Office Perspective

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Key “Up-Front” Points

- Screening study
 - Ambient air quality data sufficient to initially screen for potential air toxics impacts
 - Provide basis for additional actions by EPA, state, and local agencies including, but not limited to:
 - Additional monitoring
 - Enforcement or other risk mitigation efforts
- Interdisciplinary project
 - Considerations from seemingly disparate disciplines often affect “unrelated” matters / decisions

Initial Challenge

- Develop a coherent monitoring plan in 30 days
 - Which schools? What pollutants?
 - Sampling frequency and duration?
 - Sampling and analysis methodologies?
 - Equipment? Assumptions? Specifications?

Monitoring Plan Development

- Which schools?
 - Largely a risk-based decision process
 - Specific schools identified by cooperative effort between EPA and affected state and local agencies
 - Note: four jurisdictional agencies unable to perform sampling
 - Contractor (MACTEC) hired for such cases (ten total sites)
- What pollutants?
 - Risk-based
 - For most sites some combination of “standard” HAPs
 - Two non-standard HAPs emerged
 - Diisocyanates (OSHA Method No. 42)
 - 4,4'-methylenedianiline (NIOSH No. 5029)

Siting and Equipment Considerations

- Given relatively short duration, made following assumptions for siting ease:
 - No shelter
 - Equipment must have option for no AC power
 - *Exceptions: PAHs and TSP Pb*
- These restrictions greatly narrowed viable equipment options
 - Equipment acquisition specifications included operable by both battery and AC power (*PAHs and TSP Pb excepted*)

Siting Guidelines

- Monitors required to be sited on school grounds
- Reasonable effort to comply with basic monitor placement guidelines such as:
 - Locate samplers in area with unobstructed air flow
 - Avoid locations directly influenced by nearby adjacent, school-based biasing emissions
 - Avoid locations where reactive surfaces may cause chemical changes in the air sampled
 - Place sampler intake probes at a representative height between 2 and 15 m above ground level (AGL)

Other

- Meteorology
 - Only wind speed and direction required
- Standardized sampling and analysis protocols
 - Single laboratory for analytical consistency
- Sampling frequency, duration, and quantity
 - 1 in 6 day, minimum of 10 valid samples
 - Up to 3 additional discretionary samples authorized

End of Sampling

- Sampling ends with collection of the tenth regularly scheduled sample
- Exception: invalidated samples necessitate extended monitoring until ten valid samples achieved
- Upon reaching ten valid samples:
 - EPA will assess data, report assessment to the jurisdictional agency, and discuss whether or not further monitoring indicated
 - Until joint (EPA and jurisdictional agency) determination that no further monitoring indicated, equipment remains in place
 - Anemometer remains operational during this time

Implementing The Plan

- Implementation begins with communication
 - Plan forwarded to affected Regions and jurisdictional agencies
 - Conference calls
 - Initially Regions only
 - Shortly thereafter expanded to monitoring agencies
- SOP development
 - Revisions based on feedback as equipment received / used
 - Procedural adjustments and in some cases equipment retrofits

Equipment Issues

- Retrofits
 - Carbonyls - principle modification was addition of heated O₃ scrubber
 - Diisocyanates - tubing adaptation to ease sample cartridge loading
- Malfunctions
 - Limited: PQ100 and Buck Elite pumps
 - Extensive: VOC timers (sticking solenoid valves and bulkhead fitting leaks)

Summary

- In spite of less than optimal circumstances, active feedback has allowed for timely issue identification and (in most cases) resolution
- Special thanks to all participating agencies – much has been asked and you've delivered
- For further information (e.g., monitoring plan, QAPP, and SOPs) please visit the SAT monitoring web page at <http://www.epa.gov/ttn/amtic/airtoxschool.html>