

Community Air Toxics Monitoring

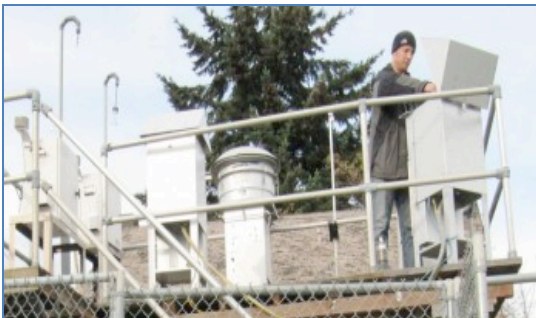
What are air toxics?

Air toxics are pollutants associated with serious health effects such as increased risk of cancer or respiratory damage.

Can communities conduct their own air toxics monitoring?

In many communities in Oregon, there is local and citizen interest in collecting data on pollutants that affect health and the environment. DEQ has collaborated successfully for over 17 years with citizens to collect water samples for pollutant analysis. Collecting air samples has unique challenges because air toxics can be very dispersed and present in low concentrations. Samples collected within a community may vary widely depending on where and when they are collected. In addition, it can be costly to monitor for air toxics. Planning is essential to ensure that resources are well spent to collect quality data.

DEQ operates two ongoing air toxics monitors in North Portland and La Grande. DEQ has done shorter term air toxics monitoring in various communities statewide including Hillsboro, Klamath Falls, Medford and Salem. Community-initiated air toxics monitoring would supplement existing DEQ data.



DEQ Air Toxics Monitoring Equipment

DEQ highly encourages local involvement in air pollution issues and supports additional air pollution data collection. For efforts to be successful, DEQ wants to collaborate with interested citizens and groups as early as possible in the monitoring planning process. DEQ has expertise to assist communities in crafting sound monitoring proposals and is willing to consult with citizens and communities considering monitoring.

How can communities scope an air toxics monitoring project?

Initiating a community-scale air toxics monitoring project involves important scoping issues, and once a decision is made to proceed, a more detailed planning process is necessary to ensure collection of quality information. To scope an air toxics monitoring project, DEQ recommends working through the following steps and related questions:

1. Understand and discuss with community, business and government representatives the reasons for performing monitoring

- What are the community's concerns about pollutants, sources and human exposures?
- What questions does the community want to answer using the data?

2. Identify clear goals for collecting and using monitoring data

- Will the data provide a better understanding of the impacts of specific emissions in a community?
- Will the data show how concentrations of a pollutant in an area compare to other areas?
- Is the data intended to identify possible sources of air toxics in an area?
- What are the realistic possibilities to use the data within the current regulatory framework?

3. Identify the best location in a community to monitor the air

- Are conditions at the potential monitoring sites typical of community exposure?
- Are the monitoring sites free from physical barriers or adjacent commercial or residential activities that could limit or distort samples?
- Are the monitoring sites secure and likely free from tampering or vandalism?

4. Identify what methods will work to monitor and analyze the air toxics of concern

- Are methods available to capture toxic air pollutants of concern?
- Will the methods adequately collect and detect lower concentrations or chemically unstable forms of toxic air pollutants?

5. Establish the level of data quality necessary to meet the reasons and goals for monitoring

- Will the data be of sufficient quality to answer key questions and concerns about air toxics?



State of Oregon
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Quality

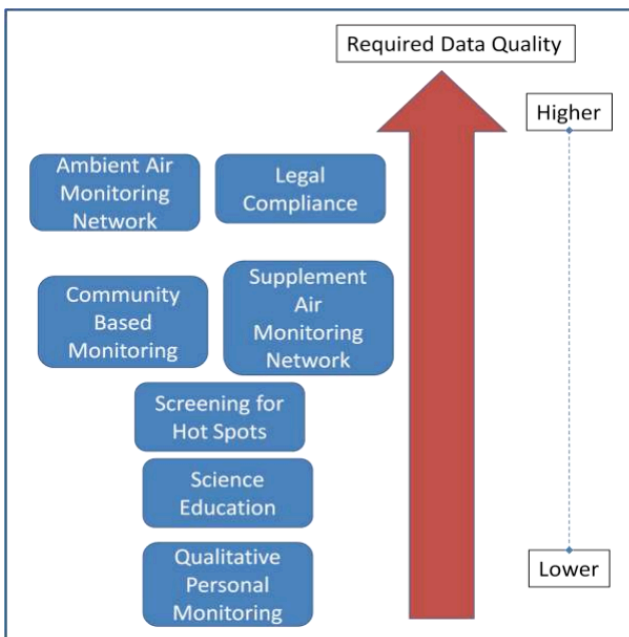
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Why is quality data important?

The type of data collected by air toxics monitoring needs to be matched to its intended purpose, or the questions communities seek to answer. For example, a community would be more likely to obtain reliable information about metals in the air by using technically advanced methods that can effectively collect and detect these highly diluted chemicals. In contrast, pollutants present in higher concentrations could potentially be monitored using simpler, less expensive methods.

For some toxic air pollutants, a limiting factor in monitoring is the ability to detect them during laboratory sample analysis. When monitoring produces samples with concentrations near or below technical detection limits, there can be gaps in data and high uncertainty about results. This type of data is not likely to reliably answer questions about what is in the air and whether there are health concerns. The accuracy range for monitoring should be good enough that it will not create misleading or uninformative data relating to public health. Data quality issues will be dependent upon the pollutant and monitoring time frame, and need to be considered on a case by case basis. DEQ is available for consultation on these issues.

The illustration below shows that lower data quality is generally acceptable for qualitative, educational or screening purposes, but higher quality data is necessary for more complex investigations.



Where can I find information about and get assistance with, community monitoring?

DEQ

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EPA

In response to recent growing interest in community monitoring and development of new technologies, EPA is investigating the means to monitor personal air quality and air quality in community settings. For more information on recent advancements and best practices in planning community air toxics monitoring please see the following links:

<http://www.epa.gov/airscience/next-generation-air-measuring.htm>

<http://epa.gov/research/priorities/docs/citizen-science-fact-sheet.pdf>

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