

Sarnia Area Environmental Health Project Update

The Project aimed to help address concerns of Sarnia area communities about air pollution and other quality of life impacts associated with living close to industrial facilities. It improved our understanding of the links between the environment and health in the community.

One part of the project was the Air Exposure Review - an assessment of exposures to chemicals in outdoor air, and the associated health risks. This Review was led by a team of environmental health consultants (with guidance from several project partners, including the Aamjiwnaang First Nation Health and Environment departments).

The assessment estimated if (and by how much) the environmental contribution from exposure to a chemical in the air can increase the risk of a negative health effect.

It answers: does the air quality increase my risk of certain cancers or breathing problems, and if so, what is the risk level? It does not determine whether an individual's health condition is caused by air pollution, because many risk factors can contribute to a disease outcome.



For more information on the project, please visit the Sarnia Area Environmental Health Project website via CASA (cleanairsarniaandarea.com)



Steps in the Air Exposure Review:



1 IDENTIFY THE HAZARDS

What are the chemicals?

All chemicals potentially released in the Sarnia area were reviewed and approximately 37 were identified for further assessment based on potential exposures and toxicity.

2 ASSESS THE TOXICITY

How toxic is the chemical?

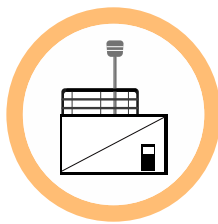
For each chemical, a health-based benchmark was selected from a reputable agency (e.g. Health Canada, US EPA). A benchmark is an air concentration below which no health effect is observed. It is established to protect the most sensitive members of the population (e.g. asthmatics, elderly etc.).



3 EVALUATE EXPOSURE

What are the pollution levels?

To determine air quality and community exposures to chemicals in air, air concentrations from monitoring and modelling data were considered.



Monitoring Data

Equipment that measures concentrations of different chemicals in the air at select locations.



Modelled Data

Computer generated air concentrations across the entire study area for seven priority chemicals: **fine particulate matter (PM2.5), oxides of nitrogen, ozone, benzene, benzo(a)pyrene, 1,3-butadiene, sulphur dioxide.**

4 CHARACTERIZE THE RISKS

What can this assessment tell me about my health?

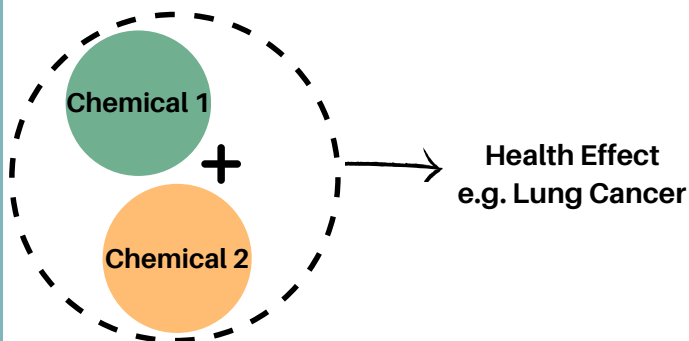
To evaluate potential health risk, the measured or modelled air concentrations were compared to established health-based benchmark values. The results of the assessment can be used to identify potential health risk and actions that may be taken by governments, industry, and the community to reduce exposures to air pollutants.



How were cumulative exposures in air considered in the assessment?

Multiple Chemicals

Chemicals were grouped and assessed together if they contributed to the same health effect (e.g. lung cancer), whenever possible.



Multiple Sources

Monitoring and modelled data were reflective of multiple emission sources including:



Road-way Traffic



Industrial/ Commercial



Airport



Rail Traffic



Residential



Marine Traffic