Tonawanda Community Air Quality Study

Monitoring Data Shows Further Benzene Reductions

Fact Sheet

Division of Air Resources **October, 2011**

Benzene reduced

Three years of air monitoring since the conclusion of the New York State Department of Environmental Conservation's (NYSDEC's) Tonawanda Community Air Quality Study (Study) show reductions in the ambient concentrations of benzene and other air pollutants within the Tonawanda community. The results at the industrial monitor (Grand Island Boulevard) show a reduction in benzene concentration of 86%. The estimated excess annual lifetime cancer risk was calculated to be 11 in-one-million. The results at the residential monitor (Brookside Terrace) show a reduction in benzene concentration of 68%. The estimated excess annual lifetime cancer risk was calculated to be 4.8 in-one-million, which is below 2010 levels found in urban locations in the state.

Observed benzene reductions were the result, in part, of operational modifications made by the Tonawanda Coke Corporation (TCC) in response to NYSDEC and U.S. Environmental Protection Agency's (USEPA) inspections of the facility and subsequent federal and state enforcement actions against TCC. Operational modifications include the installation of flares to manage the coke oven gas and numerous repairs to address leaks in the coke oven gas system. Additional modifications required by the agencies will further reduce emissions of air toxics from TCC. For instance, TCC is improving its handling of coke oven gas throughout the plant, monitoring of key operating parameters of the coke oven gas system, and improving the coke oven gas leak detection and repair program. TCC will also make improvements to address the ammonia emissions from its wastewater still, which are suspected to be the source contributing to complaints of odors and eye, nose and throat irritation in the Study area.

About the Tonawanda study

In July 2007, NYSDEC initiated a year-long community air quality monitoring study in the Town of Tonawanda (Erie County) to measure the concentration of air pollutants within the community and evaluate the potential risk to public health. The Study community is an urban area and home to some of New York's largest industrial facilities. The Study was funded through in-kind contributions from NYSDEC and a Community-Scale Air Toxics Ambient Monitoring Grant from the USEPA.

Air monitors were installed at four locations in the community to measure air concentrations of 56 air toxics and fine particulate matter. One of the monitors also measured sulfur dioxide and carbon monoxide. A comprehensive inventory of sources was prepared for the Study area to use in modeling air toxics that were unable to be monitored and to evaluate how well the models estimated air pollutant concentrations in relation to the monitored results. A meteorological station was installed at one location for use in assessing source contributions and the influence of wind direction.

A public health evaluation was conducted by comparing the results from the air toxics monitoring with NYSDEC's health-based annual guideline concentrations. NYSDEC provided the monitoring and modeling information to the New York State Department of Health to assist in their Tonawanda community health study.

Major findings of the Tonawanda study

- The results of the Study provided a strong basis for further compliance monitoring and regulatory actions to reduce the risk associated with exposures to air pollution in the Tonawanda community.
- The public health evaluation indicated that the highest area of cancer risk in the Study community was found at the industrial monitor located on Grand Island Boulevard. An estimated excess annual lifetime cancer risk for benzene was calculated to be 75 in-one-million. All cancer risk estimates are derived using conservative assumptions of continuous exposure for 70 years (365 days per year, 24 hours per day) at the monitor location and assume that the benzene concentrations remain constant for 70 years. Additionally, an "upper-bound" estimate on the likelihood that benzene causes cancer was used in the Study. Due to the conservative nature of the estimate, the true risk of developing cancer from benzene exposure is not likely to be higher, and may be lower, than the cancer risk estimates provided.
- Elevated concentrations of benzene and formaldehyde were found at the industrial monitor on Grand Island Boulevard located next to NOCO Energy Corporation. Higher daily concentrations of benzene were found when the wind came from the direction of TCC, the largest known point source of benzene in the Study area. The formaldehyde evaluation indicated that the measured concentrations were influenced by local facilities and mobile sources.
- The annual average concentration for six air toxics (1,3-butadiene, acetaldehyde, acrolein, benzene, carbon tetrachloride, and formaldehyde), each exceeded NYSDEC's health-based annual guideline concentrations.

What is NYSDEC doing to improve air quality in the Tonawanda community?

- NYSDEC continues to monitor ambient air toxics at two monitoring stations in the Tonawanda community. The results have been used by NYSDEC to evaluate the effectiveness of emission reduction strategies at TCC for benzene and other air toxics found to be exceeding NYSDEC's health-based annual guideline concentrations.
- NYSDEC is participating in the Tonawanda Economy, Energy, and Environment (E3) sustainability initiative. This initiative is a coordinated federal, state and local program that helps communities work in collaboration with industry to promote sustainable manufacturing and growth while utilizing pollution prevention technologies to improve environmental quality.
- NYSDEC continues its collaboration with the USEPA by expanding inspection efforts at other facilities in the Tonawanda area.
- NYSDEC and USEPA's joint enforcement action against TCC continues. It is anticipated that these actions will result in further improvements to the air quality of the Tonawanda community. Due to the on-going nature of those proceedings, NYSDEC is not able to discuss the particulars of those proceedings at this time.

Where can I find more information?

To learn more about the Study and read the full Study report, please visit:
http://www.dec.ny.gov/chemical/55471.html

Who should I contact if I have questions about the Air Quality Study?

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