OVERVIEW OF EPA'S 2011 NATIONAL AIR TOXICS ASSESSMENT

- On December 17, 2015, the U.S. Environmental Protection Agency (EPA) released the fifth version of the National Air Toxics Assessment (NATA) – a state-of-the-science screening tool that provides information on the potential risks from breathing air toxics. This tool can inform efforts to identify and prioritize air toxic pollutants, source types, and locations of potential concern.
- EPA suggests that the results of this assessment be used cautiously, as the overall quality and uncertainties of the assessment will vary from location to location as well as from pollutant to pollutant.
- The 2011 NATA is based on emissions for the 2011 calendar year – the most complete and up-to-date emissions data available at the time of the assessment.
- The 2011 NATA assessed 180 air toxics such as benzene, formaldehyde and acrolein, plus diesel particulate matter (PM) (181 total), from the following types of emissions sources:
    - **Stationary sources**, e.g., industrial facilities such as coke ovens for the steel industry, refineries and smaller sources like gas stations
    - **Mobile sources**, e.g., cars, trucks and off-road vehicles like construction equipment and trains
    - **Events**, e.g., wildfires, prescribed burning
    - **Biogenics**, e.g., naturally-occurring emissions
- In addition, NATA includes:
    - **Secondary formation**, e.g., pollutants that form from chemical reactions from other pollutants emitted into the air such as formaldehyde
    - **Background**, e.g., long-range transport from distant sources
- The emissions data were then modeled to make broad estimates of health risks (both cancer and non-cancer risks) over geographic areas of the country to provide a snapshot of air quality in 2011. Estimated health risks are provided for about 140 air toxics for which we have health benchmarks.

HIGHLIGHTS

The 2011 NATA uses improved emissions and modeling methods that help better characterize risks across the country.

- Monitoring data and emissions inventories show overall reductions in air toxics across the country as a result of Clean Air Act programs. Results from the 2011 NATA support this downward trend.

- Emissions from fires and biogenic sources are included in this version of NATA and more detailed location information was available for some sources, such as oil and gas wells and airports.
- Two air quality models - a long range transport and chemistry model and a near-field model - were combined to estimate ambient air concentrations of air toxics across the country.
- By combining the two models, EPA is able to provide an improved air quality prediction that accounts for air pollution transport across regions, secondary pollution formation in the atmosphere, and local conditions near specific sources.

Pollutants

- Nationwide, the key pollutants that contribute most to overall cancer risks are formaldehyde, benzene, and acetaldehyde.
- The key pollutants that contribute most to overall nationwide non-cancer risk are acrolein, diesel PM, and chlorine.
- Key pollutants in some local areas vary depending on local industrial emissions and the amount and type of emissions from transportation.
- The 2011 NATA includes diesel PM for non-cancer health effects only.

Sources

- Secondary formation is the largest contributor to cancer risks nationwide, accounting for 47 percent of the risk. On-road mobile sources contribute the most risk from directly emitted pollutants (about 18 percent).
- Nationally, on-road mobile sources contribute the largest amount to non-cancer risks (34 percent). Nonroad mobile sources and nonpoint sources also contributed to the non-cancer risks in nearly equal amounts (15 percent).
- Contributing sources in some areas may be local industry sources.

Geographic Areas

- According to the 2010 U.S. census, there are approximately 78,000 census tracts in the country. Based on the 2011 NATA, EPA estimates there are approximately 130 tracts (or less than one percent) with cancer risks greater than 100-in-1 million.
- For census tracts with risk greater than 100-in-1 million, the risks are due to large and small industry, as well as mobile sources and secondary formation.
- Urban areas tend to have higher overall estimates of cancer and non-cancer risks than rural areas because there are more air toxics emissions from varied sources, in addition to higher population densities. Secondary formation also tends to occur more in urban areas because of the complex mixture of emitted pollutants.

BACKGROUND

- EPA developed NATA because there is not a large, nationwide monitoring network in place for the 187 pollutants identified as air toxics. To understand potential health risks from breathing air toxics, the agency developed the model-based NATA.
- NATA is useful in informing national and localized efforts to collect air toxics information, characterize emissions and prioritize pollutants and geographic areas for more refined data collection and analyses, and other activities designed to reduce pollution and risks to public health. However, it should not be used to single out or rank areas of the country as having the highest risk.
- EPA collaborates extensively with industry, state, local and Tribal air agencies to develop and quality assure the information contained in the assessment.
- For more information on NATA, visit the website at: www.epa.gov/national-air-toxics-assessment
- To view the interactive mapping tool, visit: www.epa.gov/national-air-toxics-assessment/2011-nata-map
- For additional questions and answers regarding NATA, go to: www.epa.gov/national-air-toxics-assessment/nata-frequent-questions