

# The National Air Toxics Assessment

## Overview

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**Presentation to the Science Advisory**  
**Board**  
**March 20, 2001**

## Overview

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- **Context of the assessment**
  - **Clean Air Act Air Toxics Strategy**
  - **EPA's Air Toxics Program**
  - **Focus on NATA**
  - **Focus on the National-Scale Assessment**
  - **Charge for Science Advisory Board review**
  - **Plan for today**

## **1990 Clean Air Act Amendments: Air Toxics Strategy**

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- **Main principles**
  - **First phase: technology-based actions**
  - **Second phase: risk-based actions to fill gaps left by first phase**
- **First phase focused on major stationary sources**
  - **Also smaller "area" sources clustered in urban areas**
  - **Integrated with mobile source regulations and indoor air strategies**

## **The Air Toxics Program**

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- **Designed to characterize, prioritize, and equitably address the serious impacts of hazardous air pollutants on public health and the environment through a strategic combination of:**
  - **Regulatory approaches**
  - **Voluntary partnerships**
  - **Ongoing research and assessments**
  - **Educational outreach**

## Components of the Air Toxics Program

- Source-specific standards and sector-based standards (e.g., MACTs, Utilities Study)
- Initiatives to focus on multimedia and cumulative risks (e.g., Great Waters, Mercury initiatives, Urban Air Program)
- Educational outreach
- National air toxics assessments (NATA)

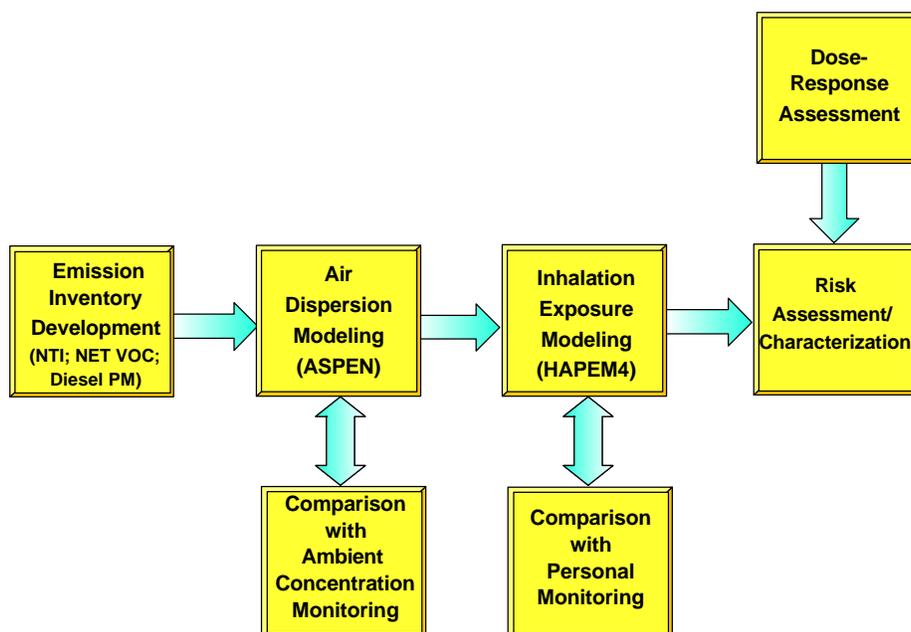
## NATA activities are...

- ...a number of technical support activities designed to provide all parts of EPA's Air Toxics Program with the following quantitative, policy-relevant, and consistent information:
  - Emissions inventories
  - Monitoring network
  - Air quality, exposure, and risk modeling
  - Research on effects and assessment tools

## NATA encompasses:

- National-scale assessments
- Regional-scale assessments
- Urban-scale assessments
- Local-scale assessments

## The 1996 NATA National Scale Assessment



## Scope of the National-Scale Assessment

- Inhalation exposure only
- Chronic exposures only
- 1996 emissions data
- Indoor sources excluded
- Focuses on average exposures, not individual extremes
- Census tract-level calculations; county-level and higher presentations
- 33 HAPs only

## Scope of the National-Scale Assessment: 33 Pollutants

- |  |   |
|--|---|
| ■ acetaldehyde                               | ■ formaldehyde                            |
| ■ acrolein                                   | ■ hexachlorobenzene                       |
| ■ acrylonitrile                              | ■ hydrazine                               |
| ■ arsenic compounds                          | ■ lead compounds                          |
| ■ benzene                                    | ■ manganese compounds                     |
| ■ beryllium compounds                        | ■ mercury compounds                       |
| ■ 1,3-butadiene                              | ■ methylene chloride (dichloromethane)    |
| ■ cadmium compounds                          | ■ nickel compounds                        |
| ■ carbon tetrachloride                       | ■ polychlorinated biphenyls (PCBs)        |
| ■ chloroform                                 | ■ polycyclic organic matter (POM)         |
| ■ chromium compounds                         | ■ quinoline                               |
| ■ coke oven emissions                        | ■ 1,1,2,2-tetrachloroethane               |
| ■ 1,2-dibromoethane (ethylene dibromide)     | ■ tetrachloroethylene (perchloroethylene) |
| ■ 1,2-dichloropropane (propylene dichloride) | ■ trichloroethylene                       |
| ■ 1,3-dichloropropene                        | ■ vinyl chloride                          |
| ■ ethylene dichloride (1,2-dichloroethane)   | ■ diesel particulate matter               |
| ■ ethylene oxide                             |   |

## The NATA National Scale Assessment is...

- ...being used to help identify priority air toxics and sources
- ...being used to help identify potential national-scale air toxics problems
- ...being used to help prioritize future data collection and localized modeling efforts
- ...being used to inform air toxics program development
- ...*NOT* being used to make specific regulatory decisions

## Peer Review for the National-Scale Assessment

- National Toxics Inventory (NTI) and modeled ambient concentrations:
  - ◆ State/local government review (July 2000)
- Modeled exposure estimates:
  - ◆ State/local government review (prior to public release).
- AQ model evaluation methods (model:monitor comparison):
  - ◆ SAB peer review (spring 2000).
- HAPEM microenvironment factors and assessment methodology:
  - ◆ External peer review (spring/summer 2000)
- Risk characterization
  - ◆ SAB peer review (spring 2001)

## Important Limitations of the National-Scale Assessment

- Does not currently include CDDs/CDFs
- Background levels approximate; need more research
- Model comparison to monitors shows tendency to underpredict; means risks may be underestimated
- Bottom-up uncertainty analysis was not possible
  - Report provides illustration of top-down approach
  - OAQPS is developing a plan for full uncertainty analysis over the next year

## Air Toxics Risk Warehouse, Pre-NATA

- Small sections illuminated by local studies
- Most of warehouse not visible



Source: *Raiders of the Lost Ark*, Lucasfilm, Ltd. and Paramount Pictures.

## Air Toxics Risk Warehouse, post-NATA

- Large sections of warehouse dimly illuminated
- Shows where to shine flashlight



Source: *Raiders of the Lost Ark*, Lucasfilm, Ltd. and Paramount Pictures.

## Important Outcomes of the National-Scale Assessment

- Better overall understanding of part of the air toxics problem
- Improved process for developing and sharing high quality air toxics emission data between EPA and stakeholders
  - First time for such an expansive effort
  - Sets stage for future improvements in databases and knowledge
- Improved sharing of information between EPA, stakeholders, and interested public

## **EPA will use the SAB's review of the NATA National-Scale Assessment to...**

- ...shape EPA's risk communication efforts to educate the public about the Air Toxics Program
- ...improve the analysis and presentation of the initial assessment under review
- ...improve the design of future National-Scale Assessments
  - EPA will repeat every three years to track trends
- ...prioritize EPA resources to develop risk assessment tools and information

## **Charge for SAB Review**

- **Scope:**
  - Overall approach
  - Each element of the approach
- **Areas of interest:**
  - Use of data
  - Integration of models
  - How to improve individual elements
  - Methods used to summarize and communicate results
  - Consistency with CASAC (diesel PM) and potential for benefits analysis
  - Any other areas of concern to SAB

## Today's EPA Presentations

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- Overview of each major component
- Summarize methods; major results
- Discuss limitations/uncertainties in each
- Discuss propagation of uncertainties & variabilities with illustration in risk characterization section
- Brief discussions on presenting results to public and EPA's air toxics research strategy
- Clarifying questions encouraged
- Can engage in more detailed Q&A during charge question discussions