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FACT SHEET

UTILITY AIR TOXICS REPORT TO CONGRESS

TODAY'S ACTION...

- ◆ The Environmental Protection Agency (EPA) is today issuing a report to Congress on air toxics emissions from the utility industry. Air toxics, which are also known as hazardous air pollutants, are pollutants which are known or suspected to cause cancer or other serious health effects such as birth defects or reproductive effects.
- ◆ The report to Congress was developed over several years with extensive input and peer review from outside scientific experts and major stakeholders, including industry representatives, State and local agencies, and other Federal agencies.
- ◆ The report does not make a regulatory determination regarding utilities. EPA plans to make a determination at a later date as to whether regulation of air toxics emissions from utilities is appropriate and necessary to ensure the protection of public health. This determination is required by the Clean Air Act and a court order.

WHAT ARE THE MAIN COMPONENTS OF EPA'S UTILITY REPORT?

- ◆ Under the Clean Air Act, EPA is required to conduct a study of the public health impacts of emissions of air toxics from utilities that burn fossil fuel. Emissions from utilities include 67 air toxics, including arsenic, nickel, chromium, radionuclides, and mercury.
- ◆ The report evaluates those utilities that burn coal, oil or gas to generate electricity and are greater than 25 megawatts (which is a small unit) in size.
- ◆ The report includes: (1) a description of the utility industry; (2) an analysis of air toxics emissions data from coal-, oil- and gas-fired utility plants; (3) an assessment of risks to public health from exposure to air toxics emissions through inhalation; (4) an assessment of potential risks to the public health from exposure to 4 specific air toxics (radionuclides, mercury, arsenic, and dioxins) through other indirect means of exposure (e.g., food ingestion, dermal absorption, etc.); (5) a general assessment of the fate and transport of mercury through environmental media; and (6) a discussion of alternative control strategies.

- ◆ The study was based primarily on two scenarios: (1) 1990 base year emissions, when the Amendments to the Clean Air Act were passed, and (2) 2010 emissions, to represent emissions remaining after regulations and other requirements under the Clean Air Act (e.g., acid rain program) are implemented.
- ◆ Air toxics emission estimates were based on an evaluation of emissions test data from 52 boilers (A utility plant could have more than one boiler). The testing program was designed to test a wide range of plant types with a variety of control scenarios.

WHAT ARE THE MAIN CONCLUSIONS OF EPA'S UTILITY AIR TOXICS REPORT?

The key findings of the report to Congress include:

Air Toxics Emissions of Concern

- ◆ The report indicates that, although uncertainties in the analysis exist, on balance, mercury from coal-fired utilities is the hazardous air pollutant of greatest potential public health concern.
- ◆ The report identifies three other air toxics for which there are some potential concerns and uncertainties that may need further study: dioxins, arsenic, and nickel.

Risk Assessment

The report evaluates the risk to public health from air toxics emissions from utilities through: 1) routes of exposure other than inhalation (e.g. food ingestion, dermal absorption, etc.), and 2) breathing the pollutants (i.e. inhalation exposure). The key findings of these two analyses are included below:

1) Assessment of Exposure Pathways Other than Inhalation:

- ◆ “Non-inhalation” exposures (e.g., food consumption and water ingestion) may be more important than inhalation exposures for air toxics that are persistent, and bioaccumulative.
- ◆ The report assessed the impact on public health due to non-inhalation exposures for radionuclides, mercury, arsenic, and dioxins.
- ◆ The assessment determined that exposures due to non-inhalation routes are by far the most important route of exposure for mercury and dioxins. For arsenic and radionuclides, both inhalation and ingestion appear to be important exposure routes.

- ◆ However, there are uncertainties and limitations in the data and the analysis, therefore, further evaluation is needed to more fully characterize the public health impacts of these pollutant emissions from utilities.

2) Inhalation Exposure Assessment:

- ◆ The modeling assessment suggests that a substantial fraction of the utility emissions are dispersed well beyond the local area due to the nature of the emissions (mostly fine particulate substances) and the height of the tall stacks.
- ◆ Most of the risk assessment focused on inhalation exposure since this is expected to be the main route of exposure for many of the 67 air toxics emitted by utilities.
- ◆ For the majority of utility plants, the cancer risk from inhalation exposure is estimated to be less than 1 in a million (A risk level of 1 in a million implies that one person, out of one million equally-exposed people, would contract cancer over a lifetime as a result of exposure. This one cancer case would be in addition to those cancer cases that would normally occur in an unexposed population of one million people.) A few plants may have slightly greater risks.
- ◆ Based on the overall assessment [considering local and regional (longer range) dispersion of the hazardous air pollutants], no more than two cancer cases per year are estimated to occur in the U.S. due to inhalation exposure to hazardous air pollutant emissions from all utilities (coal-, oil-, and gas-fired).
- ◆ Further research and evaluation may be needed to more comprehensively assess the inhalation cancer risks.

Mercury:

- ◆ The results of the investigation indicate that mercury from coal-fired utilities is the air pollutant of greatest potential concern to public health from utilities.
- ◆ Coal-fired utilities are estimated to emit about one-third (52 tons) of U.S. anthropogenic (man-made) mercury emissions per year.
- ◆ Based on the risk assessment findings, ingestion of contaminated fish is the most important route of exposure to mercury.

- ◆ The modeling assessment, in conjunction with available scientific data, provides evidence for a plausible link between emissions of mercury from utilities and the methylmercury found in soil, water, air, and fish.
- ◆ Consequently, mercury emissions from coal-fired utilities may contribute to the potential exposures to mercury through consumption of contaminated fish.
- ◆ There remain uncertainties, however, about the extent of impacts directly attributable to mercury emissions from utilities.

Alternative Control Strategies:

- ◆ There are numerous potential alternative control technologies and strategies for air toxics control, but the feasibility and effectiveness of potential control technologies varies. The various control strategies need to be examined further for technical and economic considerations.
- ◆ EPA has not been able to identify any currently demonstrated, feasible, and commercially available technology for reducing various chemical forms of mercury emissions from coal-fired utilities.

Background Information:

- ◆ In the 1990 Clean Air Act Amendments, the Congress restructured the national regulatory program to control air toxics. However, concerned that utilities emit air toxics, but aware that utilities were already required to control emissions that cause acid rain and other pollutants under other requirements in the Clean Air Act, the Congress requested that EPA study air toxics emissions from utilities and determine whether additional controls are needed.
- ◆ The report included a projection of emissions in the year 2010 to represent emissions remaining after regulations and other requirements under the Clean Air Act are implemented. This assessment included estimates of impacts due to projected trends in fuel choices, implementation of the acid rain program, and projected increases in electric energy demands.
- ◆ Based on EPA's assessment of these future emissions trends, emissions of air toxics from coal-fired utilities are projected to increase by 10 to 30 percent by the year 2010. Over that same period, emissions from oil-fired utilities are predicted to decrease by 40 percent.
- ◆ However, other potential actions that were not incorporated into the 2010 projections (e.g., electric

industry restructuring, new ozone and particulate matter standards, and global climate change abatement activities) may affect these air toxics emission estimates. EPA plans to further investigate the overall effect on mercury emissions as a result of these actions.

FOR MORE INFORMATION...

- ◆ Interested parties can download the executive summary, this fact sheet and the Utility Air Toxics Report from EPA's web site on the Internet at the following address: (<http://www.epa.gov/airlinks>). The executive summary and report are also available through EPA's Air and Radiation Docket and Information Center (Docket Number A-92-55) by calling (202) 260-7548 or -7549 or FAX (202) 260-4000 (a reasonable fee may be charged for copying). For technical questions about the report, contact Bill Maxwell or Chuck French of EPA's Office of Air Quality Planning and Standards at (919) 541-5430 or (919) 541-0467, respectively.

- ◆ Further information about EPA's approach to addressing mercury emissions from electric utilities is described in the "Mercury Emissions and Electric Utilities" fact sheet at the following address: (<http://www.epa.gov/airlinks>).

- ◆ For more information on mercury and EPA's recent, ongoing, and planned actions to reduce mercury pollution, visit the following Internet address : (<http://www.epa.gov/oar/merwhite.html>)

- ◆ EPA's Office of Air and Radiation's home page on the Internet contains a wide range of information on the air toxics program, as well as many other air pollution programs and issues. The Office of Air and Radiation's home page address is: (<http://www.epa.gov/oar/>).