

905R91103



# FACT SHEET

## REGION 5 COMPARATIVE RISK PROJECT

MAY, 1991 905/91/022

### Background

EPA Region 5 program managers compared and ranked 26 environmental problems based upon their estimated relative risk to public health and the environment. This comparative risk project evolved from a 1987 EPA Headquarters report, "Unfinished Business: A Comparative Assessment of Environmental Problems". All ten EPA regions have completed similar projects. By evaluating environmental problems according to relative risks, U.S. EPA can better allocate its limited resources to reduce the most significant of those risks. EPA can also evaluate whether current laws adequately address the most significant environmental problems and whether those laws can be used more effectively and creatively to reduce risks.

### Q. How was the project conducted?

A. Current risks of the 26 problems were determined and ranked relative to one another given existing regulations and policies. To assess and compare relative health risks, the study considered: (1) the cancer and non-cancer effects of toxic substances and other hazards (i.e., exposure to ultraviolet radiation) and (2) the number of people exposed to these substances. Ecological risks were based on the severity of effects caused by these toxic substances or other hazards on wildlife, the size of the affected area, and ecosystem recovery time. For some problems, such as global warming, stratospheric ozone depletion and accidental chemical releases, analyses were based upon projected rather than current risks. Each problem was placed into one of four risk categories: high, medium-high, medium-low and low. However, problems were not ranked within each of these categories.

REPLYING 2

12K Harking


H2IH

1. The first step is to identify the problem.
 2. The second step is to analyze the problem.
 3. The third step is to develop a solution.
 4. The fourth step is to implement the solution.
 5. The fifth step is to evaluate the solution.

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## REGION 5 COMPARATIVE RISK RANKINGS

### Ecological Risk Ranking

#### HIGH

Accidental Chemical Releases\*  
CO2 and Global Warming\*  
Hazardous/Toxic Air Pollutants  
Municipal Wastewater Discharges  
Non-point Source Discharges  
to Surface Waters  
Pesticides  
Physical Degradation of  
Terrestrial Ecosystems  
Physical Degradation of Water  
& Wetlands Habitat  
Stratospheric Ozone Depletion\*

#### MEDIUM HIGH

Abandoned/Superfund Sites  
Industrial Wastewater Discharges  
Ozone & Carbon Monoxide  
Sulfur & Nitrogen Oxides

#### MEDIUM LOW

RCRA Hazardous Waste  
Storage Tanks

#### LOW

Industrial Solid Waste Sites  
Municipal Solid Waste Sites

Possible Risks Not Assessed:  
Aggregated Ground-Water  
Airborne Lead  
Lead  
Particulate Matter  
Radiation other than Radon

No Known Impacts:  
Aggregated Drinking Water  
Indoor Air Pollutants  
Indoor Radon  
PCBs Worker Exposure & TSCA

### Human Health Risk Ranking

#### HIGH

Accidental Chemical Releases\*  
Indoor Air Pollutants  
Indoor Radon  
Stratospheric Ozone Depletion

#### MEDIUM HIGH

Hazardous/Toxic Air Pollutants  
Lead  
Non-point Source Discharges  
Ozone & Carbon Monoxide  
Pesticides  
Radiation other than Radon  
Sulfur & Nitrogen Oxides

#### MEDIUM LOW

Abandoned/Superfund Sites  
Aggregated Drinking Water  
Aggregated Ground-Water  
Airborne Lead  
Industrial Solid Waste Sites  
Industrial Wastewater Discharges  
Municipal Wastewater Discharges  
Particulate Matter  
PCB Worker Exposure - TSCA \*\*  
Storage Tanks

#### LOW

Municipal Solid Waste Sites  
Physical Degradation of  
Terrestrial Ecosystems  
RCRA Hazardous Waste

No Known Impacts:  
Physical Degradation of Water & Wetlands  
Habitat

\*Ranking reflects risk of future impacts.

\*\*Pre-manufacture Controls portion of this problem area is not ranked.

Q. What were the results?

A. The problems ranked are listed in the table. Adequate data did not always exist to fully evaluate each problem area. Because the risk assessments were semi-quantitative, the rankings are accurate to one risk group. Therefore, a medium-high risk problem could be ranked as high or medium-low in the future if more data were to become available.

The highest human health risks were found to be from indoor air pollutants, indoor radon, stratospheric ozone depletion, and accidental chemical releases. Medium-high human health risks included hazardous/toxic air pollutants; other air pollutants such as, ozone and sulfur and nitrogen oxides; lead; pesticides; and non-point water pollution from agriculture and air pollutants.

As shown in the table, one-half (13) of the problem areas evaluated were found to have high or medium-high risks and included problems such as physical degradation of terrestrial and aquatic habitats/ecosystems, stratospheric ozone depletion and global warming.

Q. Why did the report find many high ecological risks?

A. Ecosystems are very sensitive to chemical and physical damage and, once damaged, take a long time to recover. In addition, more information on human health risks has been available and many environmental laws were drafted primarily to protect human health. EPA, accordingly, has devoted a greater portion of its resources to reducing human health risks than to reducing ecological risks. As a result of the comparative risk project, EPA recognized this disparity and will increase its efforts to protect critical ecosystems.

EPA is only one of many federal and state agencies charged with environmental protection. However, EPA's clear mandate is environmental preservation. The results of this project emphasizes EPA's need to work with others in protecting and preserving ecosystems.

Q. How does Region 5's project compare to other Comparative Risk Projects?

A. Because each EPA regional project assessed risks from different geographical areas, risk rankings of environmental problems varied. However, nationwide, several problems consistently ranked as high or medium high human health risks: outdoor air pollutants,

indoor radon and agricultural pesticides. Ecological risks consistently ranked high were: physical degradation of both terrestrial and aquatic ecosystems/habitats, the buildup of carbon dioxide emissions and global warming, non-point source water pollution and stratospheric ozone depletion.

Nationally, EPA's Science Advisory Board (SAB) 1990 report, "Setting Priorities and Strategies for Environmental Protection", stated that the highest human health risks were from outdoor and indoor air pollution, agricultural pesticides and stratospheric ozone depletion. Highest ranked ecological risks were global warming (climate change), stratospheric ozone depletion and habitat destruction (ecosystem alteration).

**Q. How does Region 5's risk ranking compare to public opinion?**

**A.** Opinion polls show that the public perceives hazardous waste sites and local landfills as the nation's most significant environmental problems. Due to the smaller number of individuals or wildlife exposed and the often localized nature of the problem however, this report ranked those problems fairly low. However, a low risk problem does not imply that persons or wildlife are not at risk and that EPA is not committed to removing that risk. EPA will continue to allocate resources to hazardous waste site cleanups and ensuring proper waste management.

**Q. How will the results be used?**

**A.** Region 5 has already begun to use the study results in developing a three-year strategic plan to reduce the highest human health and ecological risks. For example, programs have been proposed to reduce risks from outdoor and indoor air pollution, global warming, stratospheric ozone depletion, lead contamination, pesticides and accidental chemical releases. Restoring the Great Lakes and protecting aquatic and terrestrial ecosystems are major components of these plans. Region 5 will increase environmental law enforcement, pollution prevention programs, public outreach and education programs to achieve these goals. Finally, Region 5 will improve environmental data collection to better assess risks and to track the success of these Regional risk reduction programs.

**Q. How can I get more information?**

**A.** The following two free documents are available: Region 5's "A Risk Analysis of 26 Environmental

Problems" and the Science Advisory Board's "Reducing Risk: Setting Priorities and Strategies for Environmental Protection". To request the documents, or for more information on Region 5's use of risk assessment in setting environmental priorities, contact the Office of Public Affairs, toll-free at (800) 621-8431 (MN, WI, IN, MI, OH) or (800) 572-2515 (IL only) between 9:00 a.m. and 4:00 p.m. (central time zone). You may also write to:

United States Environmental Protection Agency  
Office of Public Affairs  
230 South Dearborn Street  
Chicago, IL 60604  
ATTN: Comparative Risk Project