March 1988

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EPA Speaker's Handbook

Agency

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
EXTERNAL AFFAIRS

EPA SPEAKER'S HANDBOOK

Introduction

This handbook was developed by OEA's Office of Public Affairs as a ready reference for those who regularly speak for the Agency at meetings and conferences and/or to media representatives.

The contents include basic facts about EPA as a whole as well as Environmental Issue Profiles and backup information to keep you up-to-date on current topics of major public/media interest. The handbook will be revised regularly to ensure its reliability as a reference tool.

As you know only too well, EPA's responsibilities span a broad range of environmental issues that in one way or another affect every citizen and every community across the nation. Any one of these issues can spark questions at a public meeting or during an interview. None of us can have all the answers all the time, but we hope this handbook will help keep you informed about major issues, especially those outside your own administrative field.

We welcome any suggestions that will help us make this handbook more useful to you.

Jennifer Joy Wilson
Assistant Administrator
for External Affairs

MAY 2 1991

KEEPING THE EPA SPEAKER'S HANDBOOK UP TO DATE

Many, if not all, of the issues treated in the Speaker's Handbook are subject to frequent change. The Speaker/Editorial Services group within OEA's Office of Public Affairs has the lead responsibility for updating the Speaker's Handbook as developments occur.

Contents of the handbook are tabbed by topic for easy reference. The table of contents also is arranged by topic because updating requirements make reference by page numbers impractical.

Staff members designated to maintain the handbook will be notified by E-mail when revisions are to be made because of legislative or regulatory actions or other developments affecting one or more issues. Information updates will be prepared and distributed promptly, with a cover note specifying where the material should be inserted in the handbook, pages to be deleted, etc.

New issues will be added as they come to the fore, replacing topics no longer of major current interest. Our goal is to keep the handbook as concise as possible so the information included will be easily accessible.

All material for the handbook will be dated to provide a chronological benchmark for users.

Varied sources of information will be utilized to keep pace with changes that mandate updating of the handbook. We hope that Speaker/Editorial Services liaison representatives will help by reporting developments in their own programs that should be reflected in the handbook.

If you have suggestions or questions about the handbook, please call the Office of Public Affairs at 382-4361. We appreciate your cooperation.

Background

March 1988

ADMINISTRATORS OF THE U.S. ENVIRONMENTAL PROTECTION AGENCY

The following is a listing of people who have served as EPA Administrator, as well as the dates they held the position. The Agency was created on December 2, 1970.

William D. Ruckelshaus	Dec. 4, 1970 - April 30, 1973
Deputy: Robert W. Fri	
Robert W. Fri (Acting)	May 1, 1973 - Sept.24, 1973
Russell E. Train	Sept. 25, 1973 - Jan. 20, 1977
Deputy: John R. Quarles Jr.	
John R. Quarles Jr. (Acting)	Jan. 21, 1977 - March 7, 1977
Douglas M. Costle	March 7, 1977 - Jan. 20, 1981
Deputy: Barbara Blum	
Steven D. Jellinek (Acting)	Jan. 20, 1981 - Jan. 24, 1981
Walter C. Barber Jr. (Acting)	Jan. 24, 1981 - May 20, 1981
Anne M. Gorsuch (Burford)	May 20, 1981 - March 9, 1983
Deputy: John W. Hernandez Jr.	
Lee L. Verstandig (Acting)	March 10, 1983 - May 18, 1983
William D. Ruckelshaus	May 18, 1983 - Jan. 7, 1985
Deputy: Alvin L. Alm	
Lee M. Thomas (Acting)	Jan. 8, 1985 - Feb. 6, 1985
Lee M. Thomas	Feb. 7, 1985 -
Deputy: A. James Barnes	

Goals/Priorities

MAR 1988

EPA PROGRAM PRIORTIES -

1. Reduce risks from exposure to **existing pesticides and toxic chemicals.**

- o Reduce risks from existing pesticides
- o Reduce risks from existing toxic chemicals
- o Improve ground-water protection
- o Control drinking water contaminants

2. Reduce risks from disposal of **hazardous waste** and stabilize imminent threats from uncontrolled hazardous waste sites.

- o Require proper management of permitted hazardous waste facilities
- o Control releases of uncontrolled hazardous waste
- o Support development of additional hazardous waste treatment and disposal capacity
- o In coordination with the States, focus underground injection control permits and enforcement efforts on existing facilities that present the greatest threat to underground sources of drinking water

3. Reduce exposure to **unhealthy air** quality conditions.

- o Control air toxics
- o Coordinate with the States to take necessary actions, including enforcement against significant VOC sources, to reduce ozone levels in areas that will not meet the 1987 attainment deadline
- o Continue development and implementation of an assessment and mitigation program for **radon**
- o Overhaul national air pollution controls for **particulate matter**
- o Strengthen technical assistance and support development of State contractor licensing and certificate programs to promote effective remedial actions for **asbestos** in schools and other public buildings

4. **Maintain and improve water quality.**

   - Take every possible action with the States to meet the July 1, 1988, deadline under the **National Municipal Policy**

   - Focus on critical water quality problems

   - Protect our coastal waters

5. Reduce damage to **sensitive environmental areas.**

   - Protect **wetlands**

   - Address **acid deposition** and other issues concerning the **long range transport of air pollutants**

U.S. ENVIRONMENTAL PROTECTION AGENCY

UNFINISHED BUSINESS:

A COMPARATIVE ASSESSMENT OF ENVIRONMENTAL PROBLEMS

VOLUME I

OVERVIEW

February 1987

PREFACE
BY
LEE M. THOMAS
ADMINISTRATOR
U.S. ENVIRONMENTAL PROTECTION AGENCY

The mission of the Environmental Protection Agency is broad. The challenges we face are complex and varied. Operating under nine basic statutes and portions of several others, we have in place major programs to protect every environmental medium.

Over the past 16 years, we have seen significant improvements in the quality of our air, water, and land resources. Still, much remains to be done.

Although EPA's mission enjoys broad public support, our agency nonetheless must operate on finite resources. Therefore, we must choose our priorities carefully so that we apply those resources as effectively as possible.

While we have made much progress to date, the cost of further environmental improvements in many areas will be high. For example, removing additional increments of toxics from industrial effluents or cleaning up contaminated ground water to background levels can be enormously expensive. The unit cost of moving ever closer to the point of zero discharge, zero contamination, and zero risk increases exponentially.

Yet, this agency must proceed to carry out its mandates and to set its priorities. With this in mind, last spring I asked a task force of EPA career staff members to examine relative risks to human health and the environment posed by various environmental problems. I am grateful to the 75 agency professionals who helped in this effort.

These employees assembled available data and applied their best professional judgment on this complex and controversial subject. Their report--although subjective and based on imperfect data--represents a credible first step toward a promising method of analyzing, developing, and implementing environmental protection in America.

This study is not the definitive work on the subject of risk-based programs, but we hope it will initiate an important discussion of the concept. In time, with better data and more discussion, I believe the merit in this idea may prove to be an invaluable tool.

In sharing this report I hope that it will stimulate an informed discussion. We plan no immediate changes in priorities until this discussion takes place. We welcome your reactions.

EXECUTIVE SUMMARY

When the Environmental Protection Agency (EPA) was established in 1970, the nation's most pressing environmental problems were obvious. Important polluters and pollutants were the visible ones: soot and smoke from cars and smokestacks, and the raw sewage and chemicals from municipal and industrial wastewater.

Since 1970 the nation has done much to abate the most visible forms of pollution, but there is still much unfinished business. Moreover, new problems have also been "discovered" or have risen in importance, such as indoor radon, global climatic change from the buildup of carbon dioxide in the atmosphere, acid precipitation and hazardous waste. Many of these new problems are difficult to evaluate, as they involve slow, cumulative changes with very serious possible ultimate effects, amidst considerable scientific uncertainty. Many involve toxic chemicals that can cause cancer or birth defects at levels of exposure that are hard to detect. And many involve persistent contaminants that can move from one environmental medium to another, causing further damage even after controls have been applied for one medium.

The complexity and gravity of these issues make it particularly important that EPA apply its finite resources where they will have the greatest effect. Thus, the Administrator of EPA commissioned a special task force of senior career managers and technical experts to assist him and other policy makers in this task. The assignment was to compare the risks currently associated with major environmental problems, given existing levels of controls. However, there was no thought that risks alone ought to determine agency priorities. Thus, the results of this project cannot be used by themselves to set priorities.

Methodology

In conducting the project, we organized and limited our work in four important ways. First, we divided the universe of environmental problems into 31 pieces. Each of the pieces represents an environmental problem area defined along lines corresponding generally with existing programs or statutes. For example, some of our 31 problems areas are: criteria air pollutants, hazardous air pollutants, contaminants in drinking water, abandoned hazardous waste (e.g., Superfund) sites, pesticide residues on food, and worker exposures to toxic chemicals.

Second, we considered four different types of risk for each problem area: cancer risks, non-cancer health risks, ecological effects, and welfare effects (visibility impairment, materials damage, etc.). Each type of risk was analyzed separately. There were no decisions that one type was more important than another,

and we made no attempt to "add" risks for a problem area across the four risk types.

Third, in view of the already massive scope of the project, we decided to limit it by not considering:

- o the economics or technical controllability of the risks;
- o the qualitative aspects of the risks that people find important, such as the degree to which the risks are voluntary, familiar, or equitable;
- o the benefits to society of the activities that cause the environmental problems; and
- o the statutory and public mandate (or lack thereof) for EPA to deal with the risks. Some problems among the 31 are primarily within the purview of other agencies.

Finally, because the intent of the project was to identify areas of unfinished business, we assessed risks as they exist now--given the levels of control that are currently in place. We did not aim to assess risks that have been abated.

The method we used to compare environmental problem areas can best be described as systematically generating informed judgments among agency experts. About 75 career managers and experts representing all EPA programs participated over a period of about nine months. The participants assembled and analyzed masses of existing data on pollutants, exposures, and effects, but ultimately had to fill substantial gaps in available data by using their collective judgment. In this sense, the project represents expert opinion rather than objective and quantitative analysis. But despite the difficulties caused by lack of data and lack of accepted risk assessment methods in some areas, the participants feel relatively confident in their final relative rankings.

Results

The major results from the project are rankings of the 31 problems areas for each of four types of risk. The rankings are based on risks existing today, assuming that current controls stay in place. We found the following:

- o No problems rank relatively high in all four types of risk, or relatively low in all four. Whether an environmental problem appears large or not depends critically on the type of adverse effect with which one is concerned.
- o Problems that rank relatively high in three of four risk types, or at least medium in all four include: criteria air pollutants; stratospheric ozone depletion; pesticide

residues on food; and other pesticide risks (runoff and air deposition of pesticides).

- Problems that rank relatively high in cancer and non-cancer health risks but low in ecological and welfare risks include: hazardous air pollutants; indoor radon; indoor air pollution other than radon; pesticide application; exposure to consumer products; and worker exposures to chemicals.

- Problems that rank relatively high in ecological and welfare risks, but low in both health risks include: global warming; point and non-point sources of surface water pollution; and physical alteration of aquatic habitats (including estuaries and wetlands) and mining waste.

- Areas related to ground water consistently rank medium or low.

In some respects, these rankings by risk do not correspond closely with EPA's statutory authorities. For example, in two relatively high health risk areas EPA shares jurisdiction with other agencies that have more direct responsibility: consumer products (the Consumer Product Safety Commission) and worker exposures to toxic chemicals (the Occupational Safety and Health Administration).

The rankings by risk also do not correspond well with EPA's current program priorities. Areas of relatively high risk but low EPA effort include: indoor radon; indoor air pollution; stratospheric ozone depletion; global warming; non-point sources; discharges to estuaries, coastal waters, and oceans; other pesticide risks; accidental releases of toxics; consumer products; and worker exposures. Areas of high EPA effort but relatively medium or low risks include: RCRA sites; Superfund; underground storage tanks; and municipal non-hazardous waste sites.

This divergence between what we found in terms of relative risks and EPA's priorities is not necessarily inappropriate. Some problems appear to pose relatively low risks precisely because of high levels of program effort that have been devoted to controlling them. And these high levels of attention may remain necessary in order to hold risks to current levels.

Overall, EPA's priorities appear more closely aligned with public opinion than with our estimated risks. Recent national polling data rank areas of public concern about environmental issues as follows:

- High: chemical waste disposal, water pollution, chemical plant accidents, and air pollution;

- Medium: oil spills, worker exposure, pesticides, and drinking water;

- Low: indoor air pollution, consumer products, genetic radiation (except nuclear power), and global warming.

A final item resulting from the project is the agenda it has given EPA for improving data and methods for performing environmental risk assessments. We have found it impossible to perform this project in a quantitatively rigorous fashion. The best information we have is on the environmental causes of cancer, but it is weak even here. There is a general lack of information on and attention to welfare and ecological effects. Exposure data are often poor in all four areas, even in problem areas where major regulatory efforts are under way. No generally accepted methods exist for assessing ecological or non-cancer health effects.

Despite the numerous difficulties involved in performing this project, the participants are confident in its general results and are enthusiastic about organizing environmental protection more around the goal of reducing risks. This study should stimulate discussion among policy makers and the public as to what EPA's priorities should be. A collective resolve that the debates about environmental policy should include more information of the type in this report would be a very significant outcome of this project.

GENERAL OBSERVATIONS AND RECOMMENDATIONS

1. NO PROBLEMS RANKED CONSISTENTLY "HIGH" OR "LOW" ACROSS ALL FOUR RISK TYPES. Whether an environmental problem appears large or not depends critically on the type of adverse effect with which one is concerned. In many cases a problem is ranked high on one and/or the other health risk categories and low on ecological and welfare risk, or vice versa. This makes the job of using these rankings to set priorities especially tricky, and emphasizes the importance of value judgments.

   - Problems that received relatively high rankings in three of the four risk types, or at least medium in all four, include criteria air pollutants, stratospheric ozone depletion and pesticide residues on food and "other" pesticides risks.

   - Problems that ranked relatively high on health but low on ecological or welfare effects (or by definition are not an ecological problem) include radon, hazardous air pollutants, indoor air pollution, drinking water, pesticides application, and consumer and worker exposure to chemicals.

   - Problems that ranked relatively high on ecological and welfare effects but low/medium on health include global warming, point and non-point sources of water pollution, physical alteration of aquatic habitats (including estuaries and wetlands), and mining waste.

   - Problems where EPA has programs to prevent future risks are difficult to rank on a risk basis--new toxic chemicals, biotechnology and pesticides.

2. THE PROJECT HAS DEVELOPED A USEFUL TOOL TO HELP SET PRIORITIES. Despite their limitations, the data and judgments assembled in this project are sufficiently well founded for EPA to use in the priority setting process. As noted in the introduction, many factors (including laws, technology and cost) must be considered in setting priorities. Thus, while the results of this project are not sufficient by themselves to determine EPA's priorities, the feasibility of organizing environmental protection more around the fundamental goal of reducing risks is clear and the concept appears compelling.

3. RISKS AND EPA'S CURRENT PROGRAM PRIORITIES DO NOT ALWAYS MATCH. In part, these differences seem to be explainable by public opinion on the seriousness of different environmental problems.

- Areas of high risk/low EPA effort--radon, indoor air pollution, stratospheric ozone depletion, global warming, accidental releases of toxics, consumer and worker exposures to chemicals, non-point sources of water pollution, "other" pesticide risks.

- Areas of medium or low risk/high EPA effort--active (RCRA) and inactive (Superfund) hazardous waste sites, releases form storage tanks and municipal non-hazardous waste.

- The data appear to support the contention that EPA has been more concerned about pollution that affects public health, as opposed to protection of natural habitats and ecosystems, in all programs except surface water protection.

- Problems related to ground water consistently ranked medium or low in most respects. This may be because of our lack of understanding of these issues. It is also because exposure to ground water--whether of humans, ecosystems or economic values--is significantly limited. Other types of exposure (e.g., air, pesticides) are simply much more direct and widespread. Ground-water protection also raises significant issues concerning intangible aspects of risks.

- This divergence between risks and priorities is not necessarily inappropriate. Not only must many factors beside risk (legislation, technology, etc.) be considered in setting priorities, but some problems appear to pose relatively low risks precisely because of the high levels of effort that have been devoted to controlling them. It may be necessary to continue to invest in permit processing, inspections and enforcement in order to maintain a high level of compliance.

- In this context it is interesting to note that EPA's priorities appear more closely aligned with public opinion than with estimated risks. Public polls conducted over the last two years by the Roper Organization indicate that the public appars to be most concerned with chemical waste disposal, water pollution, chemical plant accidents and air pollution, in that order. Oil spills, worker exposure, pesticides and drinking water are rated as medium risks, and indoor air pollution, consumer products, genetic engineering, radiation and global warming are ranked as comparatively low risks.

4. STATUTORY AUTHORITIES DO NOT MATCH NEATLY WITH RISKS.

- In two relatively high health risk areas EPA shares jurisdiction with other agencies: consumer and worker

exposures to chemicals. Good coordination with CPSC and OSHA is needed.

- In some other relatively high risk areas neither EPA nor other Federal agencies have extensive statutory authorities: indoor air pollution, CO_2 and global warming, and non-point sources of water pollution.

5. NATIONAL RANKINGS DO NOT NECESSARILY REFLECT LOCAL SITUATIONS--LOCAL ANALYSES ARE NEEDED. This analysis is not a guide to what may be the most serious problems in a particular area or for particular individuals. Any attempts to set local priorities should take into account local conditions (e.g., presence of Superfund sites, presence of wetlands, etc.). Indeed, more widespread use of risk as one basis for setting environmental protection priorities would be beneficial to all levels of government.

6. SOME CHEMICALS SHOW UP AS MAJOR CONCERNS IN MULTIPLE PROBLEM AREAS, notably lead, chromium, formaldehyde, solvents and some pesticides. This suggests the need for integrated strategies to deal with them.

7. MORE RESEARCH IS NEEDED IN SEVERAL AREAS. The basic data on many subjects studied in this project are surprisingly poor. The general weakness of exposure data is a special problem because exposure is such an important determinant of risk. In addition, specific data on the different types of risks and environmental problems are often lacking. More research would be very useful to clarify the issue of how serious various environmental problems are, particularly in the instances described below:

   - The best information available is for cancer risk. Even there, however, it was not nearly as good as one might expect.

   - The data and methods available for assessing non-cancer health risks are poor. Exposure data are surprisingly poor, even on chemicals that are objects of major regulatory efforts. There is no general methodology for assessing non-cancer risks.

   - There is no generally applicable methodology for ecological risk assessment. The number of different types of ecological systems, the relative scarcity of ecosystem exposure data and methods, and scientific uncertainties confound the problem. Moreover, the extraordinary complexity of ecological systems prohibits objective assessment of ecological risks.

   - While there are generally accepted methods for assessing welfare effects, there is a general scarcity of data and

analysis in this area. Many programs have paid little or no attention to these effects.

- Intangible aspects of risk play a very important part in the way the public values environmental problems, particularly those related to ground water. However, we do not understand them very well and perhaps underestimate them.

- The data on active and inactive hazardous waste sites, biotechnology, and new chemicals are very poor.

- There are two areas where the risks could be very great, but our understanding of the problems is not very good: global warming and stratospheric ozone depletion.

- The overall impact of pesticides on health and ecosystems is both large and not well understood, either by the science community or the public.

8. EPA SHOULD NOW STUDY OTHER AREAS IMPORTANT TO SETTING PRIORITIES. Had this exercise been conducted five, ten or twenty years ago, the results would have been rather different. For example:

   - only recently have some serious environmental problems been "discovered," such as radon and other indoor air pollutants;

   - some problems that were once much more serious are now much better controlled, such as direct and indirect discharges to surface water; and

   - some parts of the old problems are still serious, such as some of the criteria air pollutants and certain pesticide exposures.

Over time, as some problems are brought under better control and as more is learned about others the relative rankings of environmental problems described in this report are likely to change. But this is not likely to happen quickly. Thus, while EPA should carry out the research on specific items mentioned above, it should now focus more effort on the systematic study of the other factors involved in priority setting, such as costs and feasibility of addressing the unfinished business described in this report.

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EPA MANAGEMENT PRIORITIES

- **Risk reduction:** EPA's basic mission is to reduce the level of risk to health and to the environment posed by pollution. Toward that end, the Agency will focus its resources, and those of society at large, where pollution causes the most damage.

- **Balance environmental gains against the goals:** Environmental protection actions should be designed to achieve the greatest social benefit. The Agency will strive to manage its resources to achieve the greatest overall benefits for the public.

- **Environmental federalism:** We recognize that each level of government has a proper role in public health and environmental protection, and that the concerted and coordinated efforts of federal, state, and local agencies will best serve the public interest.

  Better environmental science: We will work to expand the knowledge available to manage health and environmental risks. This priority involves improving the scientific basis for environmental protection decisions.

- **Negotiation and consultation:** In finding solutions, we will expand the use of negotiated regulations and consultative proceedings with a wide range of representatives from industry, environmental organizations, state and local government, and the general public.

- **Enforcement:** We will enforce environmental laws vigorously, consistently and equally to achieve the greatest possible environmental results.

- **Human Resources:** We will promote excellence and growth in EPA staff at all levels.

Highlights

MAR 1988

OFFICE OF POLICY, PLANNING AND EVALUATION

FY 1987-1988 HIGHLIGHTS

--- Published the final emissions trading policy statement and developed a strategy for communication.

--- Risk assessment in context of determining priorities: The geographic integration program has met its objectives over approximately five years of operations. Each of the four IEMPS (Philadelphia, Baltimore, Santa Clara and Denver) has met with a different degree of success, depending on its unique operating constraints and the interests of local advisory committees.

-- Comparative risk project: Agency assessment of the risks posed by 31 health/environmental problems addressed by EPA.

-- Developed a two-and-one-half day training course on risk and decision-making and established a core of facilitators within each Program and Regional Office.

-- Began, with OAR, an extensive evaluation of materials designed to raise public awareness of radon testing.

-- Released report on EPA use of Regulatory Impact Analyses from 1981-1986.

-- Completed cost/benefit study on reducing lead in drinking water and, with OW, executed communication strategy.

-- Published "Unfinished Business: a Comparative Assessment of Environmental Problems," a categorical assessment of the risks of 31 environmental problems.

-- Developed a 2-day course on regulatory development.

OFFICE OF INTERNATIONAL ACTIVITIES

- US/USSR JOINT COMMITTEE MEETING HELD ON WIDE RANGE OF ENVIRONMENTAL PROBLEMS; MEMORANDUM SIGNED FOR FUTURE COOPERATION ON ENV. PROBLEMS
- US/MEXICO SIGNED AGREEMENT TO CONTROL AIR POLLUTION CAUSED BY COPPER SMELTERS ALONG BORDER
- LEE THOMAS SIGNED AGREEMENT WITH NEW YORK AND CANADA TO CUT TOXICS IN NIAGARA RIVER
- US/MEXICO SIGNED BILATERAL AGREEMENT ON TRANSBOUNDARY MOVEMENT OF HAZARDOUS WASTE AND SUBSTANCES, PROVIDING FOR NOTIFICATION AND PRIOR WRITTEN CONSENT
- LEE THOMAS SIGNED AGREEMENT WITH POLAND FOR COOPERATION IN SOLVING ENVIRONMENTAL PROBLEMS
- SIGNED ANNEX UNDER AN EXISTING PROTOCOL ON ENVIRONMENTAL MANAGEMENT WITH CHINA; EPA-CHINA NATIONAL EPA WORKING GROUP MEETING FOR THE PROTOCOL HELD
- LEE THOMAS SIGNED MOU WITH ENVIRONMENT ADMINISTRATION OF REPUBLIC OF KOREA FOR COOPERATION IN FIELD OF ENVIRONMENTAL PROTECTION
- US-JAPAN JOINT PLANNING AND COORDINATING COMMITTEE MEETING HELD IN TOKYO
- EXCHANGE OF LETTERS "AGREEMENT" BETWEEN EPA AND PHILIPPINE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENT ON ACTIVITIES RELATED TO RESTORATION OF POLLUTED RIVERS
- MONTREAL PROTOCOL ON SUBSTANCES THAT DEPLETE THE OZONE LAYER - 9/16/87 - SIGNED BY 24 NATIONS AND THE EUROPEAN ECONOMIC COMMUNITY. SINCE THE SIGNING 7 ADDITIONAL NATIONS HAVE SIGNED; WE ARE WORKING TO RATIFY THE PROTOCOL IN THE US AND ENCOURAGING OTHER NATIONS TO DO THE SAME.

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1987-1988 HIGHLIGHTS

OFFICE OF PESTICIDES AND TOXIC SUBSTANCES

- Issued final regulations establishing threshold of planning quantities for 402 extremely hazardous compounds.
- Announced numerous restrictions on continued use of dinocap; revoked tolerances on maximum residue for chlordane, DDT, aldrin, dieldrin; modified suspension of dinoseb on dry peas, lentils and chickpeas; make new policies to cut potential risk from toxic inert ingredients in pesticides; commenced special review of EBDC fungicides; cancelled all uses of cadmium except on golf courses, and negotiated for the voluntary cancellation of cyhexatine.
- Announced availability of funds for asbestos abatement loans and grants to schools after President Reagan signed Asbestos Hazard Emergency Response Act directing EPA to develop a regulatory framework requiring schools to inspect their facilities and take abatement action.
- Proposed to charge pesticide manufacturer fees ranging from $150,000 to $163,100 for product registration; monies to be given to US Treasury.
- Received first pre-manufacture notification for micro-organism under TSCA and granted permit to company to manufacture genetically-engineered organism and reinstated field-test permits for non-ice nucleating bacteria.
- Cancelled most non-wood preservative uses of pentachlorophenol
- Pesticide labeling regulations to preserve endandered species

MAR 1988

HIGHLIGHTS OF FY1987
FROM THE OFFICE OF WATER

- To implement the Water Quality Act Amendments of 1987, the Office of Water developed State Clean Water Strategies to encourage States voluntarily to set forth their priorities for action over a multi-year period and to provide a basis for targeting their water pollution prevention and control efforts on water resources they determine to be most valuable and/or most threatened.

- To further implement the Water Quality Act, the Office of Water issued draft guidance on the State Revolving Fund, Nonpoint Source Pollution, Clean Lakes, and State Water Quality-based Toxics Control Program Review.

- Established the Office of Wetlands Protection. EPA also worked with the Conservation Foundation to establish the Wetlands Policy Forum to explore how Federal, State and local wetlands policy can be improved to benefit both environmental protection and economic development.

- Established the National Network for Water Policy Research Analysis which sponsored 35 water policy studies conducted by Masters candidates from 18 universities. The Network was then expanded to include the entire Agency for FY88.

- Issued final public notification regulations which are requirements that apply to all public water systems that fail to meet applicable drinking water standards, fail to monitor, or have existing variance or exemptions to these requirements. These regulations include a new requirement to notify customers of potential lead contamination.

- Published "Lead In Drinking Water" pamphlet which was widely distributed nationwide.

- Released the Report to Congress on RCRA Municipal Lagoons which presented findings of a study of municipal wastewater treatment lagoons and their effects on ground-water quality.

- Issued final rule promulgating drinking water standards of eight volatile organic chemicals, monitoring requirements, conditions for receiving variances and exemptions, and monitoring requirements for fifty unregulated contaminants. Also issued guidance on wellhead protection and sole source aquifer designation.

- Issued the Report to Congress on the 1986 Assessment of Needed Publicly Owned Wastewater Treatment Facilities. The Report said it will cost $76 billion to construct or improve municipal wastewater treatment facilities with known water quality or public health problems.

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1987-88 HIGHLIGHTS

OFFICE OF RESEARCH AND DEVELOPMENT

- First phase of Western Lake Survey showed no lakes are now acidic.
- Released Executive Summary on Kanawha Valley Toxics study.
- Completed health risk assessment on formaldehyde, a possible carcinogen.
- NAPAP concluded that only a few hundred US lakes have been damaged to the point of having no buffering capacity (zero alkalinity).
- Began pilot study of pesticides in water.

OFFICE OF AIR AND RADIATION

- Completed the largest survey of indoor radon undertaken to date and found elevated radon levels in 21% of the 11,600 homes tested in 10 states.
- Set final standards under Clean Air Act limiting emissions of particulate matter and oxides of nitrogen from new industrial, commercial, and institutional steam-generating boilers.
- Lee Thomas signed protocol on behalf of the US for international control of CRCs to protect the stratospheric ozone layer. Approved 83-0 by U.S. Senate.
- OAR and ORD completed Phase I of the Eastern and Western lake surveys under NAPAP to determine effects of acid deposition.
- Established new final rules to control small particulate matter air pollution.
- Established regulations limiting particulate emissions from wood-burning stoves.
- Proposed ozone and carbon monoxide non-attainment policy including measure for on-board cannisters.

FY '87 Highlights

MAR 1988

Office of Solid Waste and Emergency Response

General

- issued comprehensive overview of national hazardous waste management practices (The Hazardous Waste System, June)
- established Federal Facilities Task Force to serve as a focal point on RCRA/CERCLA compliance issues
- negotiated first agreement under §120 of Superfund for the Twin Cities Ammunition Plant and negotiated the first RCRA corrective action order at a federal facility
- initiated Environmental Priorities Initiative - an integrated approach to identifying and addressing environmental problems

RCRA

- banned land disposal of untreated spent solvents and dioxins and restricted land disposal of PCBs, corrosive cyanides, HOCs and metallic wastes
- completed and tansmitted Reports to Congress on municipal waste combustion (July) and the "Management of Wastes from Oil and Gas Exploration, Development, and Production" (October)
- released the National Dioxin Study
- proposed a revised process to provide a more flexible and efficient system for issuing permit modifications

Superfund

- proposed adding 99 sites to the National Priorities List
- began 1000th removal action
- initiated project management improvements and streamlined the Superfund settlement process
- accepted 22 technologies into the Superfund Innovative Technology Evaluation (SITE) program

Underground Storage Tanks

- proposed rules for technical standards, approval of state programs, and financial responsibility for dealing with potentially leaking underground storage tanks
- entered into 43 cooperative agreements with states for implementing the Leaking Underground Storage Tank Trust Fund.

Emergency Planning and Prevention

- promulagted list of extremely hazardous substances and accompanying guidance
- developed final rule for material safety data sheets and hazardous chemical inventory reporting
- developed joint contingency plans for responding to releases along US/Mexico borders
- initiated preparedness/prevention project with the multilateral Organization for Economic Cooperation and Development (OECD)

Congressional

Congressional

United States
Environmental Protection
Agency

External Affairs (A-100AE)
Washington DC 20460

Congressional Liaison

EPA

100TH CONGRESS

3/15/88

LIST OF COMMITTEES & SUBCOMMITTEES, OF INTEREST TO EPA, ARE AS FOLLOWS:

A. COMPLETE LIST OF COMMITTEES & SUBCOMMITTEES, WITH THEIR CHAIRMAN & RANKING MEMBERS. EACH ONE EXERCISES JURISDICTION OVER EPA STATUES AND/OR PROGRAMS.

1. SENATE:

a.	Total Senate Committees:	14
b.	Total Senate Subcommittees:	21
c.	Grand Total for Senate	35

2. HOUSE:

a.	Total House Committees:	18
b.	Total House Subcommittees:	42 *
c.	Grand Total for House:	60

3. SENATE & HOUSE GRAND TOTAL:

a.	Committees:	32
b.	Subcommittees:	63
c.	GRAND TOTAL FOR BOTH:	95

B. BREAKDOWN BY TOPIC, STATUE, AND/OR PROGRAM OF COMMITTEES & SUBCOMMITTEES THAT EXERCISE OVERSIGHT AND/OR JURISDICTION OVER EPA STATUES OR PROGRAMS.

C. EPA STATUES AND/OR PROGRAMS LISTED BY JURISDICTIONAL COMMITTEES AND/OR SUBCOMMITTEES.

* NOTE: The Office of Indian Affairs is not considered a Subcommittee, however it is counted as one for the purpose of this list.

Pending Legislation

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

March 25, 1988

OFFICE OF
EXTERNAL AFFAIRS

MEMORANDUM

SUBJECT: Legislative Report for the Week of March 21-25, 1988

FROM: Jennifer Joy Wilson
Assistant Administrator
for External Affairs

TO: William L. Ball, III
Assistant to the President for Legislative Affairs

LEGISLATIVE ACTIVITIES

1. Issue. Clean Air Act

Senate

On Thursday, March 24 Senator Warren Rudman (R-NH) offered Senator Mitchell's (D-ME) acid rain bill as an amendment to S.79, the High Risk Notification Bill. Senator Mitchell, along with Senators Robert Stafford (R-VT), John Chafee (R-RI) and Quentin Burdick (D-ND), opposed the amendment because Senator Rudman's intent in offering this amendment was to defeat S.79. Senator Mitchell offered a motion to table the amendment which was agreed to by a vote of 70 22. This vote does not reflect the Senate's views on acid rain.

House

The Group of Nine are working to finalize their ozone and carbon dioxide attainment proposal. They and their staffs met with Administrator Lee Thomas on March 24 to discuss the proposal. Staff from the Group of Nine are also developing an acid rain proposal. We expect mark-up by the Subcommittee on Health and the Environment to continue after Easter recess.

2. Issue. Federal Insecticide, Fungicide and Rodenticide Act (FIFRA)

Senate

The Senate Agriculture, Nutrition, and Forestry Committee (Chairman Patrick Leahy, D-VT) postponed the March 23 mark-up and re-scheduled it for March 30. Committee staff is working on a package of amendments that will include a re-registration fee proposal and language on who is responsible for storage and disposal of suspended pesticides.

House

The House Agriculture Subcommittee on Department Operations, Research, and Foreign Agriculture (Chairman George Brown, D-CA) has scheduled a general hearing on FIFRA on March 30. Dr. John Moore, Assistant Administrator for Pesticides and Toxic Substances will testify for the agency.

3. Issue. Drinking Water

On Tuesday, March 22, 1988 the House passed and cleared for the President S.J. Res.185, to designate the period commencing on May 2, 1988, and ending on May 8, 1988, as "National Drinking Water Week."

4. Issue. TSCA

The House Energy and Commerce Committee (Chairman John Dingell, D-MI) mark-up of H.R.3070, the PCB Regulatory Improvement Act of 1987, is postponed until after Easter recess.

5. Issue. Radon/Indoor Air

Senator Frank Lautenberg (D-NJ) is considering introduction of three radon amendments to the Indoor Air Bill, S.1629, at the Senate Environment and Public Works Environmental Pollution Subcommittee mark-up, which is anticipated within the next two weeks. The potential amendments would: 1) authorize funding for the establishment of regional radon training centers; 2) include day care centers in EPA's national radon assessment; and 3) direct EPA and HUD to enter into a memorandum of agreement to initiate cooperative efforts to reduce the public's risk to radon exposure. The release, within two weeks, of a GAO Report scrutinizing HUD's radon reduction activities may trigger a hearing in Chairman Lautenberg's Environment and Public Works Subcommittee on Superfund and Environmental Oversight. Deputy Administrator A. James Barnes would be asked to testify for EPA. In particular, the Subcommittee would be interested in Mr. Barnes' views as to potential EPA/HUD cooperative radon reduction initiatives.

UPCOMING HEARINGS

1. Monday, March 28 - House Energy and Commerce Subcommittee on Transportation, Tourism and Hazardous Materials (Chairman Thomas Luken, D-OH) will hold a hearing to consider legislation introduced by Representatives Michael Oxley (R-OH) and Jack Fields (R-TX) to extend the compliance deadlines for school districts under the Asbestos Hazardous Emergency Response Act of 1986. Dr. John Moore, Assistant Administrator for Pesticides and Toxic Substances will testify for the agency.

2. Wednesday, March 30 - House Agriculture Subcommittee on Departmental Operations and Foreign Agricultural (Chairman George Brown, D-CA) will hold a hearing to review activities of the pesticides office. Dr. John Moore, Assistant Administrator for Pesticides and Toxic Substances will testify for the agency.

3. Wednesday, March 30 - Senate Environment and Public Works Subcommittee on Hazardous Wastes and Toxic Substances (Chairman Max Baucus, D-MT) and Subcommittee on Environmental Protection (Chairman George Mitchell, D-ME) have scheduled a tentative hearing on bills introduced by Senator Baucus (S.570) and Senator Chafee (S.571) which proposes more stringent regulation of ozone depleting chemicals than is required by the Montreal Treaty. EPA witness to be announced.

4. Wednesday, April 6 - House Science, Space and Technology Subcommittee on Natural Resources, Agricultural Research and Environment (Chairman James Scheuer, D-NY) will hold a field hearing in Research Triangle Park, NC., on environmental health trends in the 21st century. Mr. Ken Sexton, Director of Health Research for the Office of Research and Development will testify.

5. April 11 and 12 - Senate Appropriations Subcommittee on HUD Independent Agencies (Chairman William Proxmire, D-WI) will hold a hearing on FY 1989 budget. Administrator Lee Thomas, Deputy Administrator A. James Barnes, and EPA Assistant Administrators will testify on behalf of the Agency.

6. Wednesday, April 13 - House Energy and Commerce Subcommittee on Transportation, Tourism and Hazardous Materials (Chairman Thomas Luken, D-OH) will hold a hearing on municipal incineration ash legislation which Chairman Luken plans to introduce shortly. Administrator Lee Thomas, accompanied by J. Winston Porter, Assistant Administrator for Solid Waste and Emergency Response will testify on behalf of the Agency.

7. Thursday, April 14 - POSTPONED - Senate Environment and Public Works Subcommittee on Environmental Protection (Chairman George Mitchell, D-ME) will hold a hearing on Coastal Pollution, Near Coastal Waters and National Estuaries Programs. EPA witness to be announced. Hearing possibly being rescheduled for April 20th.

UPCOMING HEARINGS (cont'd)

8. Wednesday, April 20 - House Public Works and Transportation Subcommittee on Investigations and Oversight (Chairman James L. Oberstar, D-MN) will hold a hearing to discuss the Office of Technology Assessment's preliminary evaluation of Superfund Records of Decisions signed since the passage of the Superfund Amendments and Reauthorization Act of 1986. Attention is expected to focus on the use of innovative technology and permanent remedies in the clean-up process. Administrator Lee Thomas will testify for the agency.

9. Thursday, April 21 - House Science, Space and Technology Subcommittee on Natural Resources, Agriculture, Research and Environment (Chairman James Scheuer, D-NY) will hold a hearing on EPA's Office of Research and Development FY 1989 budget. Dr. Vaun Newill, Assistant Administrator for Research and Development will testify for the agency.

10. Wednesday, April 27 - House Science, Space and Technology Subcommittee on Natural Resources, Agriculture, Research and Environment (Chairman James Scheuer, D-NY) will hold a hearing on NAPAP Interim Assessment and Research to be conducted between now and 1990. Dr. Courtney Riordan, Director of Acid Deposition, Environmental Monitoring and Quality Assurance, Office of Research and Development, will testify for the agency.

HEARINGS HELD

1. March 22 and 23 - House Appropriations Subcommittee on HUD-Independent Agencies (Chairman Edward Boland, D-MA) held hearings on FY 1989 budget request. Administrator Lee Thomas, Deputy Administrator A. James Barnes, and EPA Assistant Administrators testified on behalf of the agency.

2. Thursday, March 24 - Senate Environment and Public Works Joint Water Resources, Transportation and Infrastructure Subcommittee (Chairman Daniel P. Moynihan, D-NY) and Subcommittee on Hazardous Wastes and Toxic Substances (Chairman Max Baucus, D-MT) held a hearing on groundwater legislation. No EPA witness.

3. Thursday, March 24 - Senate Agriculture Subcommittee on Conservation and Forestry (Chairman Wyche Fowler, D-GA) held a hearing on the Conservation Reserve Program. Linda Fisher, Assistant Administrator for Policy, Planning and Evaluation testified for the agency.

4. Thursday, March 24 - House Merchant Marine and Fisheries Subcommittee on Fisheries and Wildlife Conservation and Environment (Chairman Gerry Studds, D-MD) and Subcommittee on Oceanography (Chairman Mike Lowry, D-WA) held a hearing on Coastal Pollution including the Near Coastal Waters Program and the NPDES Permit Program. Tudor Davies, Director of the Office of Marine and Estuarine Protection, and Jim Elder, Director of the Office of Water Enforcement and Permits, testified for the agency.

5. Friday, March 25 - POSTPONED - Senate Governmental Affairs Subcommittee on Government Efficiency, Federalism and District of Columbia (Chairman James R. Sasser, D-TN) will hold a groundwater hearing on S.1992. Larry Jensen, Assistant Administrator for Water will testify.

EPA LEGISLATIVE AU ITIES

ACT	STATUS	NEXT STEP
CLEAN AIR ACT (expired 9/30/81)	Senate - Subcommittee mark-up took place June 29 and 30. Title I-IV were unanimously approved. Subcommittee marked up and approved Title V on July 29. Full Committee mark-up began on September 16, with bill being reported October 22 (14-2). S. 1894 and Report No. 100-231 was introduced by Senator Mitchell and other Members of the Senate Environment and Public Works on Nov. 20.	Floor action.
	House - Legislative hearings on acid rain (H.R.2666) on July 9 and 10 by Waxman Subcommittee on Health and the Environment. carbon monoxide (CO) and Ozone nonattainment bill introduced on July 28 (H.R.3054). Four Hearings held (8/3, 9/23, 9/28 and 9/30). Subcommittee mark-up of the Committee Print on Title I (H.R.2666) held February 18, 23, 24, March 1 and 2. Mark-up of Title II (H.R.3054) to continue.	House - Subcommittee markup on Committee Print to continue.
RADON	H.R.3110 introduced by Congressman Florio to require EPA to establish a standard for exposure to radon in indoor environments. Considered at Waxman's Health Subcommittee hearing on H.R.2837, the Radon State Program Development Act.	
APPROPRIATIONS	House Appropriations Committee hearings held March 22 and 23.	Senate Appropriations Committee hearings scheduled for April 11 & 12.
FIFRA (expired 9/30/86)	H.R. 2463 introduced May 19. S.1516 introduced July 21. House Sub. Hearings 5/10&17. Senate Committee hearing 7/30.	Senate markup scheduled for March 30, 1988. House Agriculture Subcommittee hearing scheduled for March 30, 1988.

EPA LEGISLATIVE AUTHORITIES (cont'd)

ACT	STATUS	NEXT STEP
TSCA (expired 9/30/83)	The President signed 10/22/86 (Asbestos in Schools) (P.L. 99-519). House - H.R.3070 to amend TSCA to require intermediate handlers of PCB's to meet notification manifest and financial responsibility requirements, the Asbestos Information Act of 1987, H.R.2693, to require asbestos manufactures to file technical protocols with EPA, H.R.3893, to extend the compliance deadlines of the Asbestos Hazard Emergency Response Act of 1986 (Senate companion bills S.2025 and S.2024) and Senate - S.981 and S.1809 to require EPA to set standards for identification and abatement of asbestos in Federal and Commercial buildings.	
MPRSA (expired 9/30/82)		
R&D AUTHORIZATION (expired 9/30/81)	House Subcommittee hearings 4/1. H.R. 2355 Subcommittee mark-up bill reported 5/7. Full Committee mark-up, bill reported 5/13. Passed House as amended 6/4/87.	Senate Action
CERCLA (Superfund) (expires 12/31/91)	The President signed 10/17/86 (P.L. 99-499).	
RCRA (expires 9/30/88)	President signed 11/8/84 (P. L. 98-616). Senate held hearing towards end of first session. Looking at reauthorization issues for Subtitle D-Solid Waste	Senate and House reauthorization bills possible by late Spring.
SAFE DRINKING WATER ACT (expires 6/19/91)	The President signed 6/19/86 (P.L. 99-339).	
CLEAN WATER ACT (expires 9/30/90- except revolving fund authorized through F '994)	Bill enacted into law by Congressional override 2/4/87 (P.L. 100-4).	

Testimony

SPEAKERS HANDBOOK

Testimony, 20 November 1987 — 11 March 1988

Statement of J. CRAIG POTTER
Assistant Administrator
Office of Air and Radiation
before the Subcommittee on Environmental Protection
Senate Committee on the Environment and Public Works
20 November 1987
"to share with you EPA's views on S. 1629, the Indoor Air Quality Act of 1987." [9 p.]

Statement of ROBERT HANNESCHLAGER
Chief, Superfund Enforcement Branch, Region 6
before the Subcommittee on Natural Resources, Agriculture Research & Environment
House Committee on Science, Space, and Technology
21 November 1987
"to discuss the Environmental Protection Agency's role in abating groundwater quality problems in the South Valley area of Albuquerque." [21 p.]

Statement of RICHARD E. SANDERSON
Director, Office of Federal Activities
before the Subcommittee on Hazardous Waste and Toxic Substances
Senate Committee on Environment and Public Works
24 November 1987
"to discuss the Environmental Protection Agency's experience with the National Environmental Policy Act." [7 p.]

Testimony of VICTOR KIMM
Deputy Assistant Administrator
Office of Pesticides and Toxic Substances
before the Subcommittee on Transportation, Tourism, and Hazardous Materials
House Committee on Energy and Commerce
2 December 1987
"to discuss the Toxic Substances Control Act (TSCA) PCB Disposal Program and H.R. 3070, which was recently introduced in the House of Representatives by Congressman Synar." [18 p.]

Statement of J. WINSTON PORTER
Assistant Administrator for Solid Waste and Emergency Response
before the Subcommittee on Hazardous Waste and Toxic Substances
Senate Committee on Environment and Public Works
3 December 1987
"to discuss the Subtitle D solid waste program under RCRA."
[22 p.]

Statement of JOHN SKINNER
Director, Office of Environmental Engineering & Technology Demonstration
Office of Research and Development
before the Subcommittee on Transportation, Tourism, and Hazardous Materials
House Committee on Energy and Commerce
7 December 1987
"to speak to you about the role of the Environmental Protection Agency in promoting innovative treatment technologies." [13 p.]

Statement of SHELDON MEYERS
Director, Office of Radiation Programs
before the Subcommittee on Energy and Environment
House Committee on Interior and Insular Affairs
8 December 1987
"to present the current activities of the EPA in the area of high-level and transuranic radioactive waste management and disposal." [6 p.]

Testimony of JOHN A MOORE
Assistant Administrator, Office of Pesticides and Toxic Substances
before the Subcommittee on Transportation, Tourism, and Hazardous Materials
House Committee on Energy and Commerce
9 December 1987
"to discuss the Toxic Substances Control Act PCB Disposal Program and H.R. 3070, which was recently introduced in the House of Representatives by Congressman Synar." [18 p.]

Testimony of ROBIE G. RUSSELL
Regional Administrator, Region 10
before the Subcommittee on Environmental Protection
Senate Committee on the Environment and Public Works
10 December 1987
"to discuss EPA's comments on the Department of the Interior's Legislative Environmental Impact Statement concerning the proposal to authorize oil exploration and possible development and production within the Arctic National Wildlife Refuge established by Section 1002 of the Alaska National Interest Lands Conservation Act, and to discuss present hazardous waste and water quality impacts at existing oil development sites on the North Slope." [6 p.]

Statement of J. WINSTON PORTER
Assistant Administrator for Solid Waste and Emergency Response
before the Subcommittee on Superfund and Environmental Oversight
Senate Committee on the Environment and Public Works
10 December 1987
"to continue this valuable series of hearings on EPA's management and implementation of the Superfund program." [16 p.]

Statement of LAWRENCE J. JENSEN
Assistant Administrator for Water
before the Subcommittee on Health and the Environment
House Committee on Energy and Commerce
10 December 1987
"to discuss the actions we have taken so far to help reduce exposure to lead in drinking water and the activities which we have planned or which are already under way to address concerns in this area." [20 p.]

Statement of RONNIE LEVIN
Economic Impact Analyst
Office of Policy, Planning, and Evaluation
before the Subcommittee on Health and the Environment
House Committee on Energy and Commerce
10 December 1987
"to discuss the issue of lead in drinking water." [29 p.]

Statement of DOUGLAS D. CAMPT
Director, Office of Pesticide Programs
before the Subcommittee on Oversight and Investigations
House Committee on Energy and Commerce
14 December 1987
"to provide comments on the 'Pesticide Monitoring Improvements Act' (H.R. 3504)." [10 p.]

Statement of J. WINSTON PORTER
Assistant Administrator for Solid Waste and Emergency Response
before the Subcommittee on Environment, Energy, and Natural Resources
House Committee on Government Operations
15 December 1987
"to discuss with you the Agency's efforts to implement the facility closure requirements under RCRA." [16 p.]

Statement of JAMES M. SEIF
Regional Administrator, Region 3
before the Subcommittee on Transporation, Tourism, and Hazardous Materials
House Committee on Energy and Commerce
26 January 1988 (in Pittsburgh)
"to discuss the recent massive oil spill in Floreffe, Pennsylvania." [15 p.]

Statement of TIMOTHY FIELDS, JR.
Director, Emergency Response Division
before the Subcommittee on Transportation, Tourism and Hazardous Materials
House Committee on Energy and Commerce
26 January 1988
"My remarks this morning will focus on three areas: the provisions of EPA's Oil Spill Prevention, Control, and Countermeasure Program; regulatory provisions for response to and notification of oil spills; and future EPA initiatives in this area." [8 p.]

Statement for the record of JAMES M. SEIF
Regional Administrator, Region 3
before the Subcommittee on Environmental Protection
Senate Committee on the Environment and Public Works
4 February 1988
"to discuss the recent massive oil spill in Floreffe, Pennsylvania." [15 p.]

Statement of MARIAN MLAY
Director, Office of Groundwater Protection
before the Senate Committee on the Environment and Public Works
8 February 1988
"to present EPA's views on ground-water protection." [13 p.]

Statement of LEE M. THOMAS
Administrator of EPA
before the Senate Committee on Foreign Relations
17 February 1988
"to discuss with you the Montreal Protocol on Substances That Deplete the Ozone Layer, signed by the United States and 23 other nations in Montreal on September 16, 1987." [7 p.]

Statement of TUDOR T. DAVIES
Director, Office of Marine and Estuarine Protection
before the Subcommittee on Environmental Protection and the Subcommittee on Superfund and Environmental Oversight
Senate Committee on the Environment and Public Works
18 February 1988
"to testify before you on the Agency's implementation of Title I of the Marine Protection, Research, and Sanctuaries Act. Title I of the MPRSA establishes the U.S. law regulating ocean dumping and also serves to implement the London Dumping Convention, an international treaty applicable to ocean dumping and to which the U.S. is a party." [7 p.]

Statement of CHRISTOPHER J. DAGGETT
Regional Administrator, Region 2
before the Subcommittee on Environmental Protection and the
Subcommittee on Superfund and Environmental Oversight
Senate Committee on the Environment and Public Works
18 February 1988
"to discuss our region's perspective on the issue of ocean disposal of
municipal sewage sludge." [7 p.]

Testimony of LEE M. THOMAS
Administrator of EPA
before the Subcommittee on Water Resources, Transportation, and Infrastructure
and the Subcommittee on Hazardous Waste and Toxic Substances
Senate Committee on the Environment and Public Works
23 February 1988
"to talk about one of the nation's most important environmental issues --
the management of the quality of this nation's ground water." [31 p.]

Testimony of CHRISTOPHER J. DAGGETT
Regional Administrator, Region 2
before the Subcommittee on Oceanography and the
Subcommittee on Fisheries and Wildlife
House Merchant Marine and Fisheries Committee
23 February 1988
"to discuss our region's perspective on the issue of ocean disposal of
municipal sewage sludge." [9 p.]

Testimony of DAVID G. DAVIS
Director, Office of Wetlands Protection
before the Subcommittee on Environmental Protection
Senate Committee on the Environment and Public Works
25 February 1988
"to discuss the potential policy implications for Section 404 of the
Clean Water Act that may result from enactment of Section 4(c)(2)
of S. 1979, a bill to establish Grays Harbor National Wildlife Refuge
in the State of Washington," [5 p.]

Testimony of CAROL FINCH
Director, Great Lakes National Program Office
before the Subcommittee on Water Resources
House Public Works and Transportation Committee
2 March 1988
"to provide you with an update on the progress made by the U.S. Environmental
Protection Agency's Great Lakes National Program Office during 1987."
[8 p.]

Statement of DR. ALVIN R. MORRIS
Director, Water Management Division, Region 3
before the Subcommittee on Water Resources
House Public Works and Transportation Committee
7 March 1988 (in Baltimore)
"to discuss the new Chesapeake Bay Agreement and the evolution of the cleanup program that led to the signing of this historic document at the Convention Center here in December." [16 p.]

Testimony of LINDA J. FISHER
Assistant Administrator for Policy, Planning, and Evaluation
before the Subcommittee on Human Rights and International Organizations
House Committee on Foreign Affairs
10 March 1988
"to discuss the Environmental Protection Agency's Global Climate Change Program and its relation to international activities. I would like to discuss the nature of the greenhouse effect problem; why EPA is involved; and the Agency's domestic and international activities on this issue." [9 p.]

Statement of J. Winston Porter
Assistant Administrator for Solid Waste and Emergency Response
before the Subcommittee on Transportation, Tourism and Hazardous Materials
House Committee on Energy and Commerce
10 March 1988
"I am responsible for implementation of the Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)...I appreciate this opportunity to discuss our efforts to implement these programs at federal facilities and to comment on the five federal facility bills that have been introduced." [17 p.]

Statement of John A Moore
Assistant Administrator for Pesticides and Toxic Substances
before the Subcommittee on Hazardous Wastes and Toxic Substances and the Subcommittee on Superfund and Environmental Oversight
Senate Committee on the Environment and Public Works
15 March 1988
"to bring you up to date on the Environmental Protection Agency's efforts to implement the Asbestos Hazard Emergency Response Act of 1986, or AHERA." [23 p.]

Budget

FINGERTIP FACTS FOR THOSE TIMES OF SHEER PANIC February 18, 1988

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DOLLAR SUMMARY - BUDGET AUTHORITY ($ MILLIONS)

Program	1981 Approp.	1982 Approp.	1983 Approp.	1984 Approp.	1985 Approp.	1986 Approp.	1987 Approp.	1988 Cur. Est.	1989 Bud. Est.
Operating	$1,353	$1,086	$1,049	$1,172	$1,348	$1,470	$1,542	$1,581	$1,629
Superfund	$75	$190	$210	$460	$620	$493	$1,133	$1,499	$1,600
LUST	$0	$0	$0	$0	$0	$0	$25	$39	$50
Total	$1,428	$1,276	$1,259	$1,632	$1,968	$1,963	$2,700	$3,119	$3,279
Const. Grants	$1,605	$2,400	$2,430	$2,435	$2,400	$1,774	$2,361	$2,304	$1,500
Grand Total	$3,033	$3,676	$3,689	$4,067	$4,368	$3,737	$5,061	$5,423	$4,779

1989 Budget percentage increase over prior years.

Operating	20%	50%	55%	39%	21%	11%	6%	3%	N/A
Superfund	2033%	742%	662%	248%	158%	225%	41%	7%	N/A
LUST	0%	0%	0%	0%	0%	0%	0%	28%	N/A
Total	130%	157%	160%	101%	67%	67%	21%	5%	N/A

PERSONNEL SUMMARY (TOTAL FTE CEILING)

Total FTE Ceiling	1981 Final Plan	1982 Final Plan	1983 Final Plan	1984 Final Plan	1985 Final Plan	1986 Final Plan	1987 Final Plan	1988 Cur. Est.	1989 Bud. Est.
Operating	13,060	11,576	10,249	10,541	11,269	11,645	11,767	11,730	11,730
Superfund	70	585	776	1,057	1,357	1,816	2,416	2,633	2,750
LUST	0	0	0	0	0	0	85	85	90
Total	13,130	12,161	11,025	11,598	12,626	13,461	14,268	14,448	14,570

On-Board End of Year (Unless otherwise noted)

Agency Total	12,355	11,681	11,172	12,232	13,165	13,348	14,538	N/A	N/A

Conversion Table - On-Boards Comparable to Ceiling

PFTE	10,171	9,364	9,277	10,565	11,616	11,980	13,025	N/A	N/A
OPFTE	1,747	1,854	1,516	1,334	1,239	1,094	1,210	N/A	N/A
Total	11,918	11,218	10,793	11,899	12,855	13,074	14,235	N/A	N/A

United States
Environmental Protection
Agency

Office of
Public Affairs (A-107)
Washington DC 20460

EPA

Environmental News

FOR RELEASE: THURSDAY, FEBRUARY 18, 1988

Elly Seng (202) 382-4384

PRESIDENT'S PROPOSED 1989 EPA BUDGET PROVIDES $4.8 BILLION

U.S. Environmental Protection Agency Administrator Lee M. Thomas today announced that President Reagan has proposed a total fiscal 1989 budget of almost $4.8 billion for the agency. Excluding construction grants, the program budget totals almost $3.3 billion and 14,57 workyears. The President's 1989 budget includes substantial increases in funding for the Superfund program. EPA research and development activities are also increasing by nearly $23 million, as emphasis is placed on reducing uncertainties in risk assessments and stratospheric-ozone depletion.

Some specifics of EPA's budget include:

-- Excluding construction grants, the Administration is requesting almost $3.3 billion supported by 14,57(workyears. This budget is $159 million more than EPA's 1988 current estimate.

-- Within the total, the operating programs increase by $48 million while the workyears remain constant. Emphasis will be given to those programs designed to meet statutory requirements and address emerging environmental issues.

-- When prior-year appropriations are included, EPA's planned Superfund program increases $200 million. Virtually, the entire increase will support remedial site activities that directly result in the cleaning up of National Priority List sites. In addition, workyears for the program increase to 2,750.

(more)

-- EPA efforts in the leaking underground storage tank trust fund program increase by $10.6 million. The increase will expand state cooperative agreement funding.

-- Funding for the construction-grants program totals $1.5 billion, which will be split evenly between grants and funding for approved state revolving funds. EPA is beginning the transition from federally subsidized construction grants to state revolving funds as a means for financing construction of municipal wastewater-treatment works.

-- EPA will provide a total of $10 million for activities that will lead to reduced uncertainties in risk assessments. In addition, the budget provides a significant increase to support the President's stratospheric-ozone-depletion initiatives. This effort will develop information in time to make recommendations in 1994 as required by the Montreal Protocol.

-- A total of $60 million is included in the President's 1989 budget for the transportation, storage and disposal of cancelled or suspended pesticides. In 1989, EPA expects to make substantial progress on the safe and effective disposal of those pesticides.

-- EPA will continue to emphasize implementation of its responsibilities under the reauthorized Clean Water Act. Additior resources are being devoted to programs that will protect the nation's wetlands and near coastal waters. EPA will also increase programs for controlling the discharge of toxic and hazardous pollutants as well as increase technical assistance to states.

-- EPA's state grants increase slightly to $290 million. EPA will continue to work with the states to assist them in developing strong programs to carry out their responsibilities.

In announcing the budget proposal, Thomas said, "In light of the constraints set forth in the Bipartisan Budget Agreement between the Administration and Congress, I believe that the request we are proposing reaffirms the President's commitment to provide the resources necessary to protect human health and the environment." He went on to say, "The request for EPA provides growth in programs that are vital to meeting the most critical environmental challenges facing EPA. In developing our 1989 budget, I have directed resources toward programs I believe will help us meet these significant challenges and demonstrate our public commitment to environmental protection."

(more)

Thomas continued, "By the end of 1989, we anticipate that engineering and design work will be underway or completed on nearly 900 of the National Priority List sites. Our focus, however, will continue to shift toward expanding the number of sites in the final and most important phases of cleanup. This will be accomplished by moving a steady stream of fund-financed projects to actual cleanup, while also overseeing a growing number of new responsible-party actions. In 1989, we anticipate managing or overseeing a total of 145 new remedial designs and 85 new constructions of which 75 designs and 50 new constructions will be fund-financed. These actions are consistent with the mandatory remedial-construction schedule set forth in the Superfund Amendments and Reauthorization Act."

Thomas added, "In the emergency-response program, expanded authorities will allow us to pursue more complete removals which are consistent with long-term remedy of an NPL site. In our remedial program, we plan to complete over 20 construction projects, while responsible parties are expected to add another 10. The completion of these activities represents a major step toward protecting public health and the environment from the dangers posed by past hazardous-waste practices.

"Superfund enforcement efforts will be broadened to achieve more responsible-party settlements through aggressive use of our expanded authorities under the Superfund Amendments and Reauthorization Act. EPA will also pursue intensive cost-recovery efforts to recoup costs previously paid by the trust fund."

Thomas announced EPA plans to implement the transition from construction grants to state revolving funds. He said, "This proposal will ensure that adequate financial resources are available to continue progress in constructing municipal facilities needed to comply with the Clean Water Act.

"This proposal will also provide states with increased control and responsibility in the construction of municipal wastewater-treatment facilities. By 1994, the state revolving funds will be self-sufficient, and federal funding will be phased out."

In concluding Thomas said, "I believe we have developed a budget that will enable EPA to continue to protect human health and the environment through its established programs. The EPA budget also underscores the Administration's commitment to push forward to better understand and control the many existing and emerging environmental issues facing the nation."

R-30

# # #

STATEMENT OF LEE M. THOMAS, ADMINISTRATOR
U.S. ENVIRONMENTAL PROTECTION AGENCY
ON
EPA'S PROPOSED BUDGET FOR 1989
FEBRUARY 18, 1988

GOOD AFTERNOON LADIES AND GENTLEMEN.

I AM HERE TODAY TO PRESENT THE PRESIDENT'S 1989 BUDGET REQUEST FOR THE ENVIRONMENTAL PROTECTION AGENCY. IN LIGHT OF THE BUDGET CONSTRAINTS SET FORTH IN THE **BIPARTISAN BUDGET AGREEMENT** BETWEEN THE ADMINISTRATION AND CONGRESS, I BELIEVE THAT THE REQUEST WE ARE PROPOSING REAFFIRMS THE PRESIDENT'S COMMITMENT TO PROVIDE THE RESOURCES NECESSARY TO PROTECT HUMAN HEALTH AND THE ENVIRONMENT AND MEET EPA'S STATUTORY RESPONSIBILITIES.

THE BUDGET REQUEST FOR EPA PROVIDES FOR GROWTH IN PROGRAMS THAT ARE VITAL TO MEETING THE MOST CRITICAL ENVIRONMENTAL CHALLENGES FACING EPA. IN DEVELOPING OUR 1989 BUDGET, I HAVE DIRECTED RESOURCES TOWARDS PROGRAMS I BELIEVE WILL HELP US MEET THESE SIGNIFICANT CHALLENGES AND DEMONSTRATE OUR PUBLIC COMMITMENT TO ENVIRONMENTAL PROTECTION. I HAVE BUILT EPA'S BUDGET ON THE FOLLOWING FOUR THEMES:

- DIRECT RESOURCES TO MEET EPA'S STATUTORY RESPONSIBILITIES AND EMERGING ENVIRONMENTAL PRIORITIES.
- REAFFIRM EPA'S COMMITMENT TO RESEARCH AND DEVELOPMENT PROGRAMS THAT SUPPORT OUR REGULATORY EFFORTS.
- CONTINUE OUR ESSENTIAL PARTNERSHIP WITH THE STATES.
- UNDERTAKE LONG-TERM AND PERMANENT REMEDIAL RESPONSE ACTIONS AT SUPERFUND HAZARDOUS WASTE SITES.

OVERVIEW

IN 1989, OUR **TOTAL DOLLAR REQUEST** IS ALMOST **$4.8 BILLION.** IN OUR **OPERATING PROGRAMS** WE ARE REQUESTING **$1.6 BILLION AND 11,730 WORKYEARS.** IN **SUPERFUND,** WE ARE REQUESTING **$1.6 BILLION AND 2,750 WORKYEARS.** WHEN WE INCLUDE ANTICIPATED FUNDING FROM PRIOR APPROPRIATIONS, OUR TOTAL SUPERFUND PROGRAM IN 1989 WILL BE APPROXIMATELY $1.7 BILLION WHICH IS $200 MILLION OVER OUR PLANNED PROGRAM IN 1988. FUNDING FOR THE **LEAKING UNDERGROUND STORAGE TANK** (LUST) PROGRAM TOTALS **$50.0 MILLION AND 90 WORKYEARS.** COMBINED FUNDING FOR ALL OF THESE PROGRAMS --- OUR OPERATING PROGRAMS, SUPERFUND, AND LUST --- REPRESENTS AN INCREASE OF FIVE PERCENT ABOVE OUR 1988 LEVEL.

THE PRESIDENT'S BUDGET ALSO INCLUDES **$1.5 BILLION** FOR THE **CONSTRUCTION GRANTS** PROGRAM TO BE DIVIDED EVENLY BETWEEN CONSTRUCTION GRANTS AND STATE REVOLVING FUNDS. THIS REQUEST, WHEN COMBINED WITH PREVIOUS APPROPRIATIONS, IS CONSISTENT WITH THE ADMINISTRATION'S $12.0 BILLION PHASE-OUT PLAN.

I WOULD LIKE TO ELABORATE FURTHER ON THE KEY INITIATIVES THAT ARE CENTRAL TO THE PRESIDENT'S 1989 BUDGET REQUEST FOR EPA.

MEETING EPA'S STATUTORY REQUIREMENTS

IN 1989, WE WILL CONTINUE OUR EFFORTS TO MEET EPA'S STATUTORY RESPONSIBILITIES. ALTHOUGH THE RECENT BIPARTISAN BUDGET AGREEMENT PLACES LIMITS ON OUR ABILITY TO INCREASE OUR PROGRAMS, I HAVE DIRECTED RESOURCES TO MEET THE MOST CRITICAL CHALLENGES FACING EPA.

WE WILL CONTINUE TO EMPHASIZE THE IMPLEMENTATION OF OUR REQUIREMENTS UNDER THE REAUTHORIZED CLEAN WATER ACT. WE HAVE PROVIDED INCREASES FOR PROGRAMS THAT WILL PROTECT OUR MOST VALUABLE WATER HABITATS, ESPECIALLY WETLANDS AND NEAR COASTAL WATERS. WE WILL ALSO INCREASE OUR EFFORTS TO CONTROL DISCHARGES OF TOXIC AND HAZARDOUS POLLUTANTS AND PROVIDE ADDITIONAL TECHNICAL ASSISTANCE TO STATES.

IN OUR AIR AND RADIATION PROGRAMS, THE 1989 BUDGET DIRECTS RESOURCES TOWARDS MEETING THE REQUIREMENTS OF THE NATIONAL OZONE AND PARTICULATE MATTER (PM_{10}) ATTAINMENT STRATEGY. WE WILL ALSO INCREASE OUR EFFORTS TO REDUCE THE RISK FROM RADON GAS AND CONTINUE OUR EFFORTS TO DEVELOP NATIONAL AND INTERNATIONAL SOLUTIONS TO THE PROBLEM OF STRATOSPHERIC OZONE DEPLETION.

OUR EFFORTS IN THE HAZARDOUS WASTE PROGRAMS WILL EMPHASIZE WASTE MANAGEMENT REGULATIONS, GUIDELINES IMPLEMENTATION, AND CORRECTIVE ACTIONS TO PRODUCE A COMPREHENSIVE APPROACH TO THE NATIONAL PROBLEM OF HAZARDOUS AND SOLID WASTE DISPOSAL.

IN THE PESTICIDES PROGRAM, WE ARE REQUESTING $60.0 MILLION TO ENSURE THAT EPA IS ABLE TO TRANSPORT, STORE, AND MAKE SUBSTANTIAL PROGRESS ON DISPOSAL OF CANCELLED OR SUSPENDED PESTICIDE PRODUCTS THAT ARE THE RESPONSIBILITY OF THE FEDERAL GOVERNMENT.

WE HAVE INCREASED THE SUPPORT FOR STATE COOPERATIVE AGREEMENTS IN THE LEAKING UNDERGROUND STORAGE TANK (LUST) PROGRAM IN 1989. THROUGH THESE AGREEMENTS EPA WILL CONTINUE TO FUND DEVELOPMENT OF STATE PROGRAMS TO RESPOND TO THIS IMPORTANT ENVIRONMENTAL PROBLEM AND WILL TARGET RESOURCES TO EXPAND THE NUMBER OF RESPONSE ACTIVITIES AND CLEANUPS IN STATES WITH HIGHLY DEVELOPED PROGRAMS.

EMPHASIS ON LONG-TERM SOLUTIONS AT SUPERFUND SITES

BY THE END OF 1989, WE ANTICIPATE THAT PLANNING WORK WILL BE UNDERWAY OR COMPLETED ON NEARLY 900 OF THE NATIONAL PRIORITY LIST (NPL) SITES. OUR FOCUS, HOWEVER, WILL CONTINUE TO SHIFT TOWARD EXPANDING THE NUMBER OF SITES IN THE FINAL AND MOST IMPORTANT PHASES OF CLEANUP. THIS WILL BE ACCOMPISHED BY MOVING A STEADY STREAM OF FUND-FINANCED PROJECTS TO ACTUAL CLEANUP, WHILE ALSO OVERSEEING A GROWING NUMBER OF NEW RESPONSIBLE PARTY ACTIONS. IN 1989, WE ANTICIPATE MANAGING OR OVERSEEING A TOTAL OF 145 NEW REMEDIAL DESIGNS AND 85 NEW CONSTRUCTIONS OF WHICH 75 DESIGNS AND 50 NEW CONSTRUCTIONS WILL BE FUND-FINANCED. THESE ACTIONS ARE CONSISTENT WITH THE MANDATORY REMEDIAL CONSTRUCTION SCHEDULE SET FORTH IN THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA).

IN THE EMERGENCY RESPONSE PROGRAM, EXPANDED AUTHORITIES WILL ALLOW US TO PURSUE MORE COMPLETE REMOVALS WHICH ARE CONSISTENT WITH THE LONG-TERM REMEDY AT AN NPL SITE. IN OUR REMEDIAL PROGRAM, WE PLAN TO COMPLETE OVER 20 CONSTRUCTION PROJECTS, WHILE RESPONSIBLE PARTIES ARE EXPECTED TO ADD ANOTHER 10. THE COMPLETION OF THESE ACTIVITIES REPRESENTS A MAJOR STEP TOWARD PROTECTING OUR ENVIRONMENT AND THE PUBLIC HEALTH FROM THE DANGERS POSED BY PAST HAZARDOUS WASTE PRACTICES.

IN OUR RESEARCH PROGRAM, WE WILL INCREASE EFFORTS TO EXPLORE ALTERNATIVE AND INNOVATIVE TREATMENT TECHNOLOGIES THAT ARE A KEY TO ACHIEVING PERMANENT SOLUTIONS AT NPL SITES.

FINALLY, WE HAVE BROADENED OUR ENFORCEMENT EFFORTS SIGNIFICANTLY. WE WILL ACHIEVE MORE RESPONSIBLE PARTY SETTLEMENTS THROUGH AGGRESSIVE USE OF OUR EXPANDED AUTHORITIES UNDER SARA. WE WILL ALSO PURSUE MORE INTENSIVE COST RECOVERY EFFORTS TO RECOUP COSTS PREVIOUSLY PAID BY THE TRUST FUND.

VIABLE AND COST EFFECTIVE RESEARCH PROGRAMS

THE PRESIDENT'S 1989 BUDGET FOR EPA'S RESEARCH AND DEVELOPMENT PROGRAM TOTALS $375.0 MILLION AND 1,848 WORKYEARS, AN INCREASE OF $22.7 MILLION AND 17 WORKYEARS OVER 1988.

A MAJOR RESEARCH AND DEVELOPMENT PRIORITY IS REDUCING THE UNCERTAINTIES IN RISK ASSESSMENT SO THAT EPA CAN MAKE BETTER INFORMED REGULATORY DECISIONS AND ESTABLISH A SOUND BASIS FOR OUR RESEARCH PRIORITIES. IN 1989, $10.0 MILLION WILL BE DEVOTED TO PROJECTS DESIGNED TO REDUCE UNCERTAINTIES IN RISK ASSESSMENTS TO IMPROVE OUR DECISIONMAKING CAPABILITIES.

OUR RESEARCH EFFORTS WILL ALSO BE INCREASED SIGNIFICANTLY TO SUPPORT THE ADMINISTRATION'S INITIATIVE ON STRATOSPHERIC OZONE DEPLETION. THIS RESEARCH WILL ENABLE THE FEDERAL GOVERNMENT TO MAKE INFORMED DECISIONS ABOUT THE RISKS POSED BY OZONE DEPLETION IN PREPARATION FOR THE 1994 SCIENTIFIC ASSESSMENT REQUIRED BY THE MONTREAL PROTOCOL.

CONTINUING OUR ESSENTIAL PARTNERSHIP WITH THE STATES

IN 1989, FUNDING FOR THE STATE GRANTS PORTION OF THE BUDGET TOTALS $290.0 MILLION, A SLIGHT INCREASE ABOVE 1988. EPA WILL CONTINUE TO WORK WITH THE STATES TO ASSIST IN DEVELOPING STRONG PROGRAMS TO CARRY OUT THE STATES' RESPONSIBILITIES. THE 1989 PRESIDENT'S BUDGET RECOGNIZES THAT CONTINUED COOPERATION OF THE STATES IS NECESSARY TO MEET OUR STATUTORY REQUIREMENTS.

CONSTRUCTION GRANTS TRANSITION

AN IMPORTANT ASPECT OF THE 1989 PRESIDENT'S BUDGET IS OUR PLAN TO IMPLEMENT THE TRANSITION FROM CONSTRUCTION GRANTS TO STATE REVOLVING FUNDS (SRFs) FOR WASTEWATER TREATMENT ASSISTANCE. IN 1989, OUR $1.5 BILLION REQUEST WILL ENSURE THAT ADEQUATE FINANCIAL RESOURCES ARE AVAILABLE TO CONTINUE PROGRESS IN CONSTRUCTING MUNICIPAL FACILITIES NEEDED TO COMPLY WITH THE CLEAN WATER ACT.

STATE REVOLVING FUNDS WILL PERMIT STATES TO PROVIDE VARIOUS FORMS OF LOCAL ASSISTANCE, INCLUDING LOW INTEREST/LONG TERM LOANS, REFINANCING, LOAN GUARANTEES AND BOND INSURANCE. THIS APPROACH WILL ALSO PROVIDE STATES WITH INCREASED CONTROL AND RESPONSIBILITY IN THE CONSTRUCTION OF MUNICIPAL WASTEWATER TREATMENT FACILITIES. BY 1994, THE STATE REVOLVING FUNDS WILL BE SELF SUFFICIENT AND FEDERAL FUNDING WILL HAVE BEEN PHASED OUT.

CONCLUSION

THE BUDGET I HAVE PUT FORTH TODAY REFLECTS MANY DIFFICULT DECISIONS. IN THESE TIMES OF LIMITED FEDERAL RESOURCES I BELIEVE WE HAVE DEVELOPED A BUDGET THAT WILL ENABLE EPA TO CONTINUE TO PROTECT HUMAN HEALTH AND THE ENVIRONMENT THROUGH ITS ESTABLISHED PROGRAMS. THE EPA BUDGET ALSO UNDERSCORES THE ADMINISTRATION'S COMMITMENT TO PUSH FORWARD TO BETTER UNDERSTAND AND CONTROL THE MANY EXISTING AND EMERGING ISSUES FACING THE NATION. I LOOK FORWARD TO DISCUSSING MY PROPOSALS WITH CONGRESS AND I AM OPTIMISTIC THAT THIS BUDGET WILL RECEIVE PROMPT AND FAVORABLE CONSIDERATION.

I AM PREPARED TO ANSWER ANY QUESTIONS AT THIS TIME.

CONTACTS FOR THE U.S. ENVIRONMENTAL PROTECTION AGENCY'S FY 1989 PRESIDENT'S BUDGET

COMPTROLLER	DAVID P. RYAN	475-9674
ASSOCIATE COMPTROLLER	RICHARD BASHAR	475-9674
BUDGET DIVISION DIRECTOR	ALVIN PESACHOWITZ	475-8340
ASSOCIATE BUDGET DIVISION DIRECTOR	JACK EDWARDSON	475-8340
BUDGET PLANNING & SYSTEMS BRANCH	EDWARD CALLAHAN	475-4157
BUDGET FORMULATION & CONTROL BRANCH	JACK SHIPLEY	382-4176
PESTICIDES & TOXIC SUBSTANCES (BUDGET DIVISION CONTACT)	CHRISTINA PARKER LESLIE BALDWIN	382-2914 (382-4170)
RESEARCH & DEVELOPMENT (BUDGET DIVISION CONTACT)	CLARENCE E. MAHAN DAVID OSTERMAN	382-7500 (382-4179)
AIR & RADIATION (BUDGET DIVISION CONTACT)	JERRY KURTZWEG GEORGIA CALLAHAN	382-7415 (475-7164)
WATER QUALITY & DRINKING WATER (BUDGET DIVISION CONTACT)	MARY BLAKESLEE LESLIE BALDWIN	382-5698 (382-4170)
HAZARDOUS WASTE, SUPERFUND & LEAKING UNDERGROUND STORAGE TANK (LUST) PROGRAM	THAD JUSZCZAK	382-4510
(BUDGET DIVISION CONTACT)	RON BACHAND	(382-4165)
ENFORCEMENT & COMPLIANCE MONITORING (BUDGET DIVISION CONTACT)	SALLY MANSBACH GEORGIA CALLAHAN	382-3125 (475-7164)
MANAGEMENT AND SUPPORT:		
OFFICE OF THE ADMINISTRATOR	DIANE BAZZLE	382-4057
OFFICE OF EXTERNAL AFFAIRS	DON FLATTERY	382-5623
OFFICE OF ADMINISTRATION & RESOURCES MANAGEMENT	DAIVA BALKUS	382-4083
OFFICE OF POLICY, PLANNING & EVALUATION	MARY FREE	382-4020
OFFICE OF INSPECTOR GENERAL	ED CANADY	382-4912
OFFICE OF GENERAL COUNSEL	BILL STEWART	382-8880
(BUDGET DIVISION CONTACT FOR MANAGEMENT & SUPPORT)	GEORGIA CALLAHAN	(475-7164)

EPA'S FY1989 BUDGET

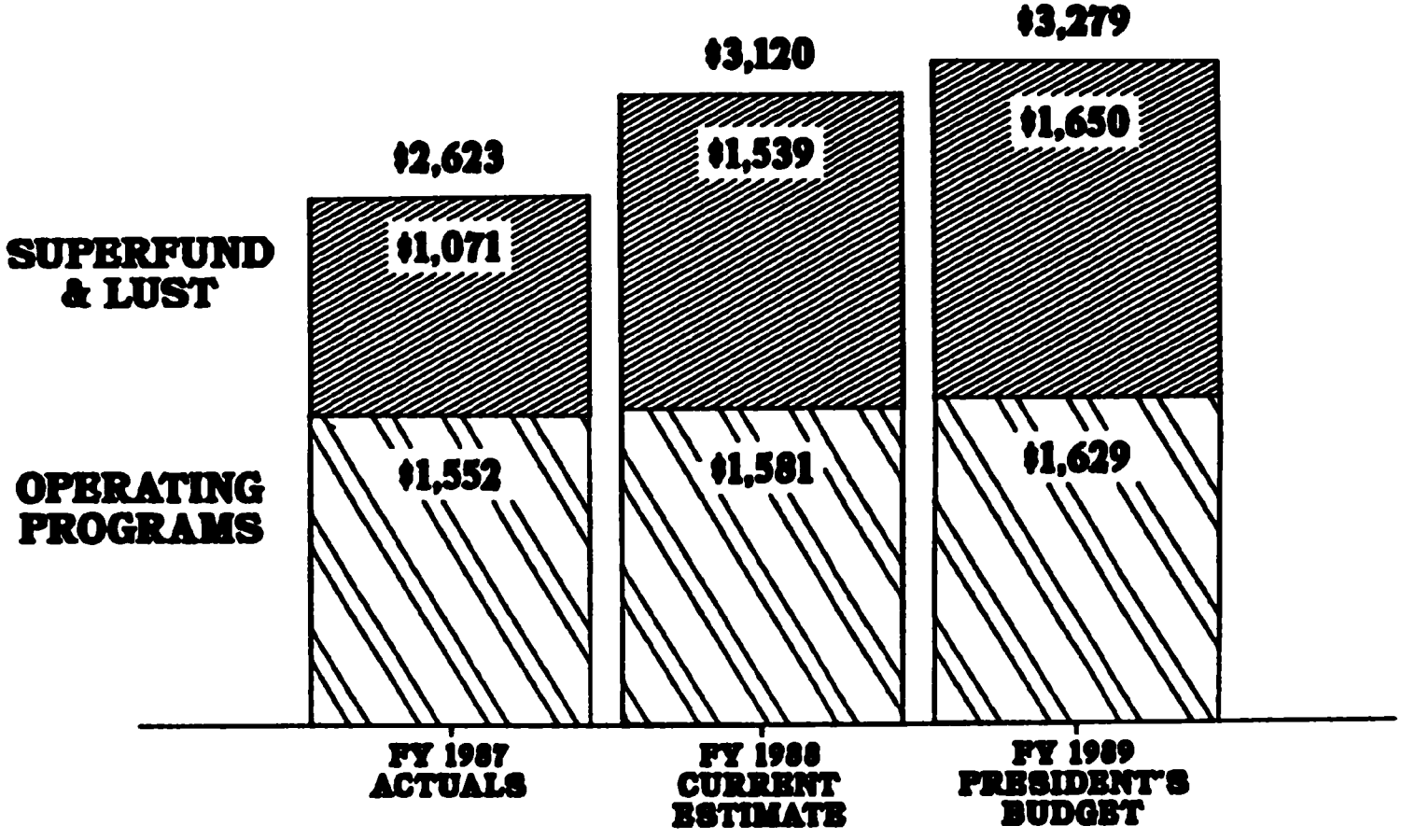
FEBRUARY - 1988

EPA'S 1989 BUDGET HIGHLIGHTS

- MEETS PROGRAM PRIORITIES WITHIN THE BUDGET AGREEMENT
- MEETS STATUTORY RESPONSIBILITIES AND ADDRESSES EMERGING PROGRAMS
- MAINTAINS OUR PARTNERSHIP WITH THE STATES
- EXPANDS COMMITMENT TO R&D
- CONTINUES SUPERFUND GROWTH

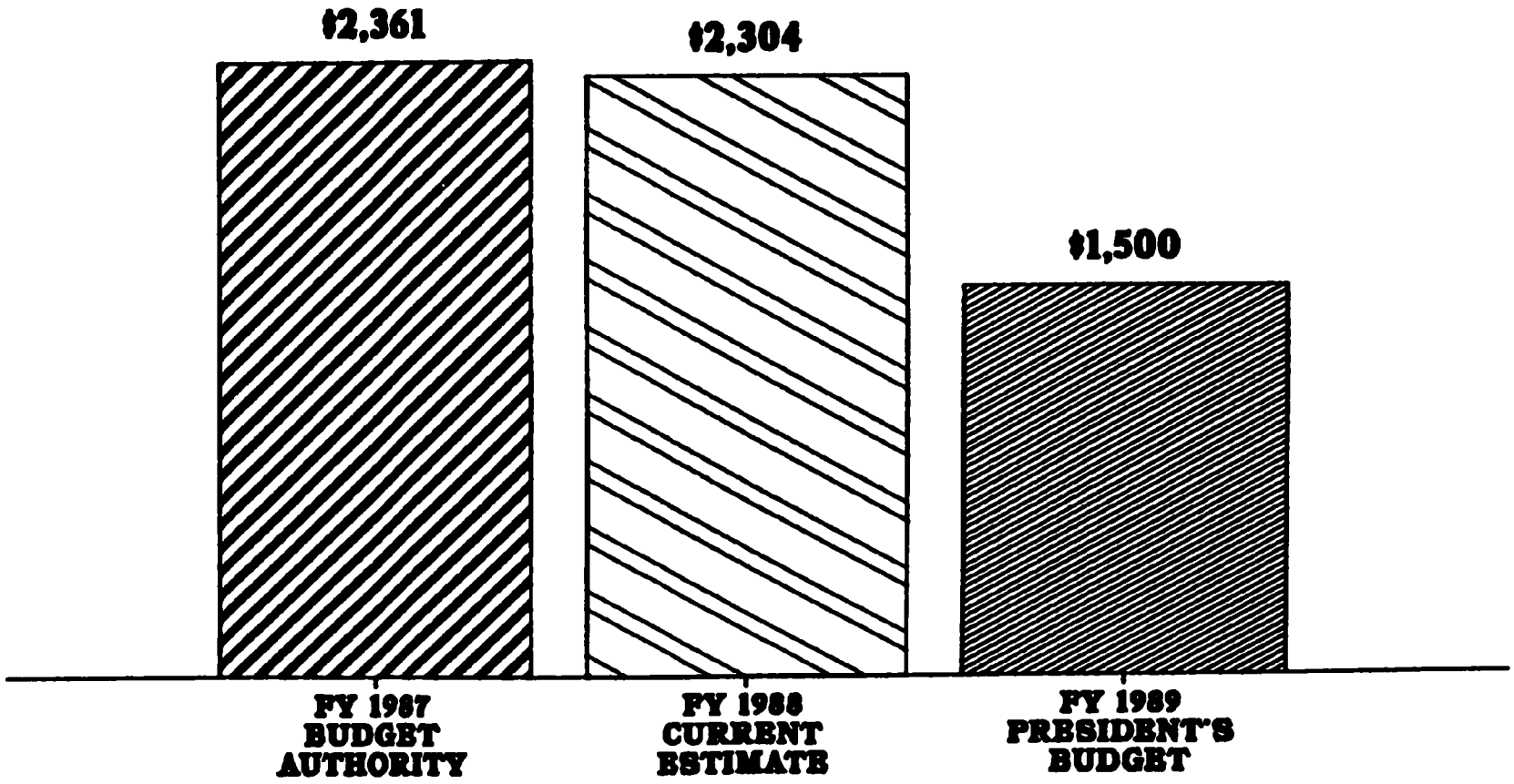
OUR OPERATING, SUPERFUND AND LUST PROGRAMS ARE GROWING

($ IN MILLIONS)



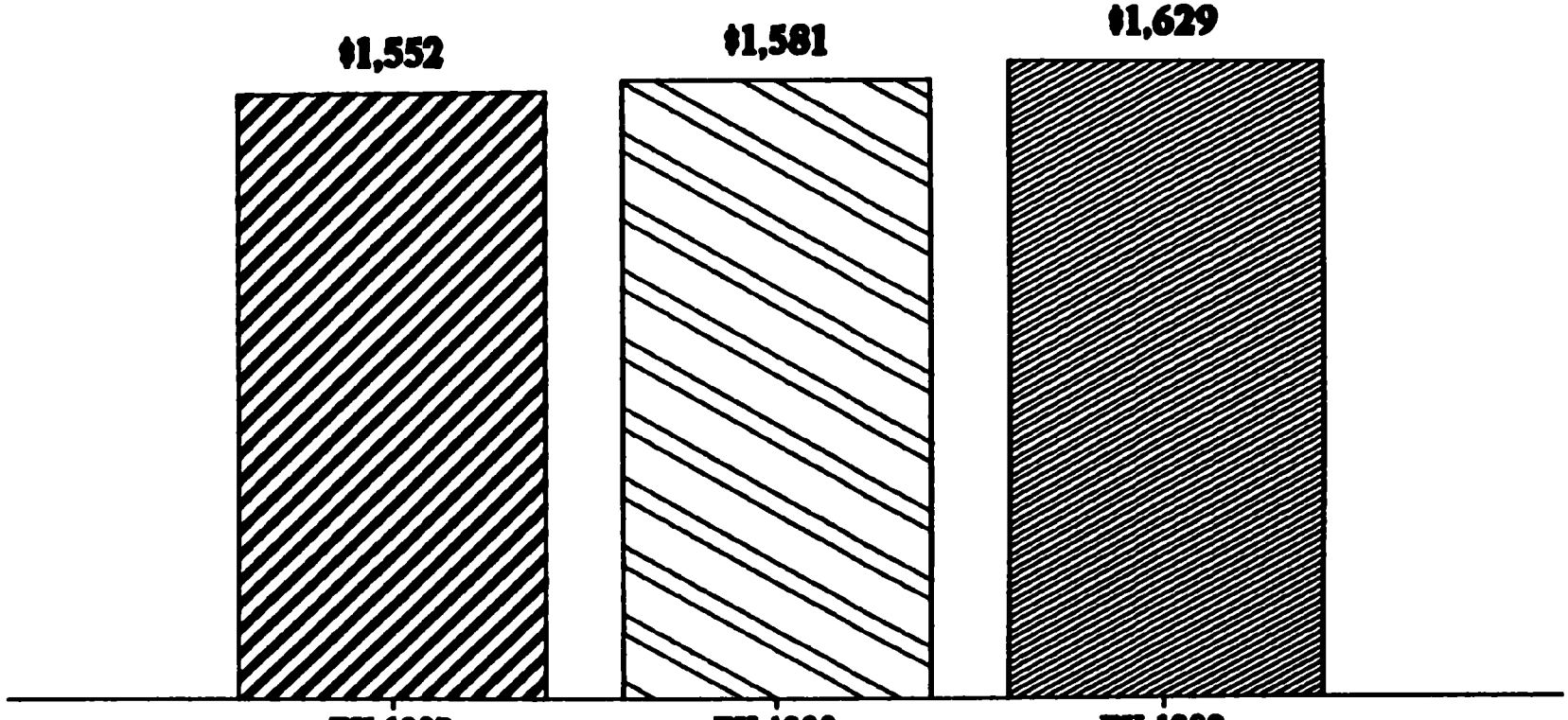
OUR BUDGET IS CONSISTENT WITH THE $12 BILLION PHASE-OUT OF CONSTRUCTION GRANTS

($ IN MILLIONS)



OUR OPERATING PROGRAMS INCREASE IN 1989, DESPITE BUDGET CONSTRAINTS

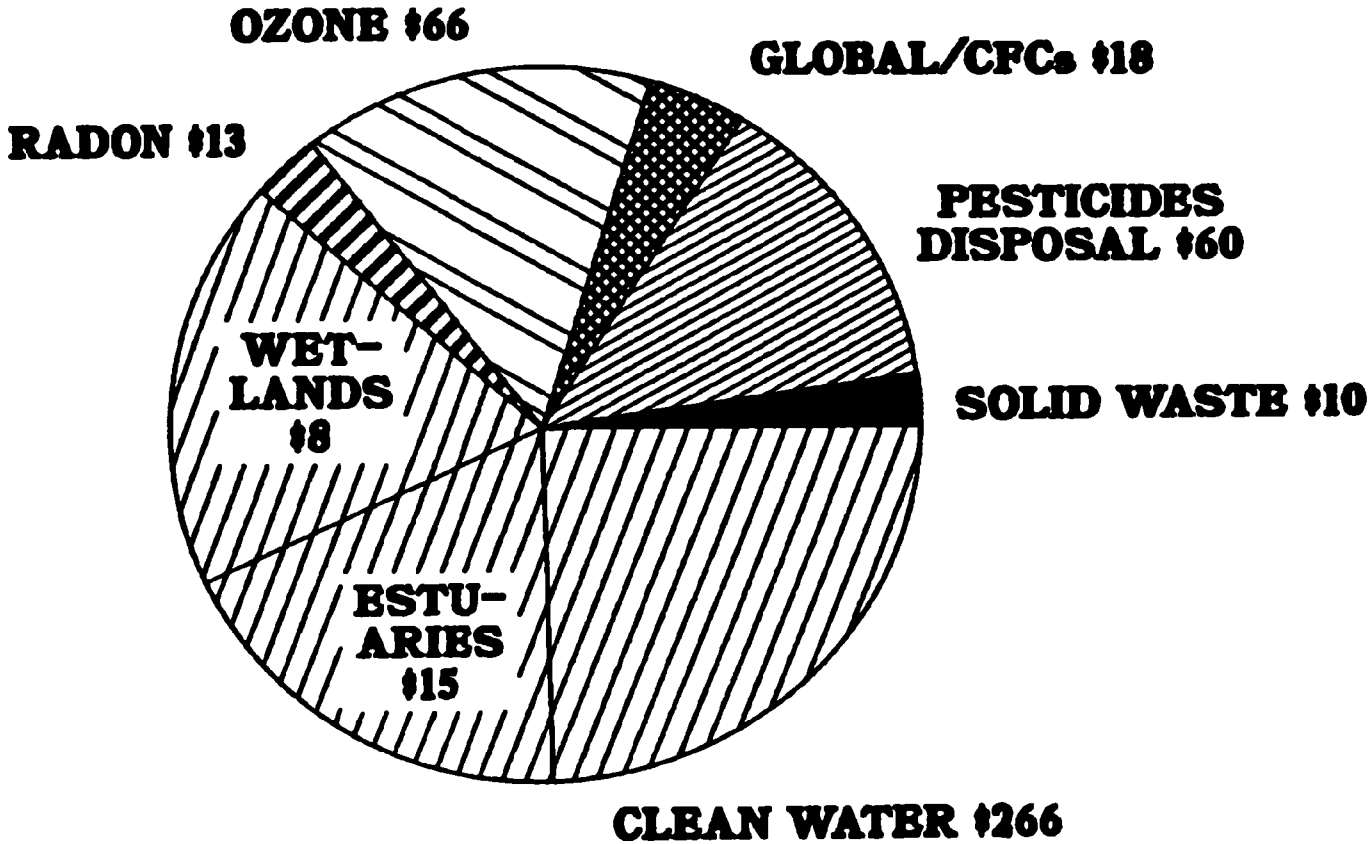
($ IN MILLIONS)



	FY 1987 ACTUALS	FY 1988 CURRENT ESTIMATE	FY 1989 PRESIDENT'S BUDGET
WORKYEARS	11,241	11,730	11,730

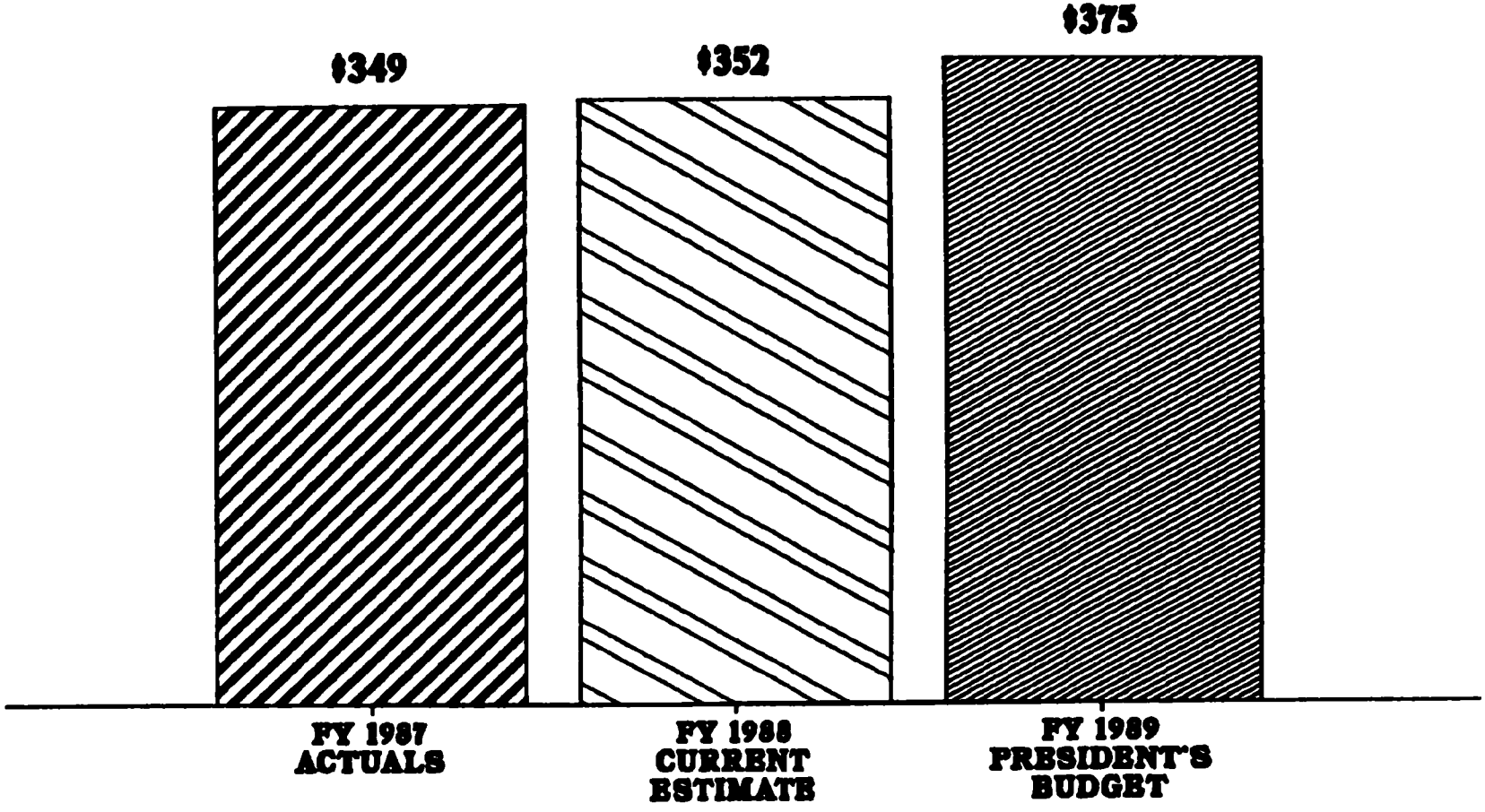
EMERGING PRIORITIES

($ IN MILLIONS)



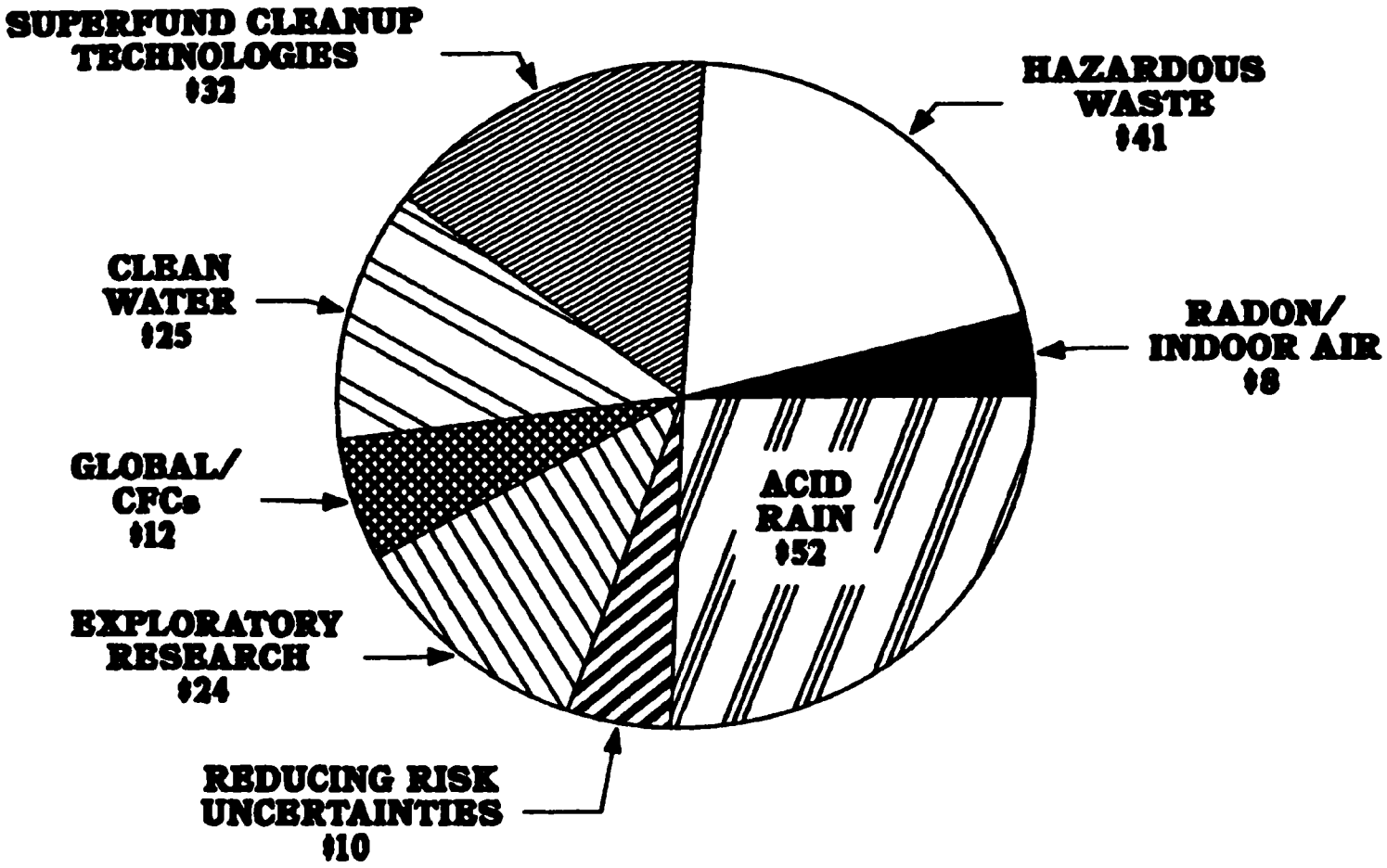
WE HAVE INCREASED RESOURCES FOR RESEARCH AND DEVELOPMENT

($ IN MILLIONS)



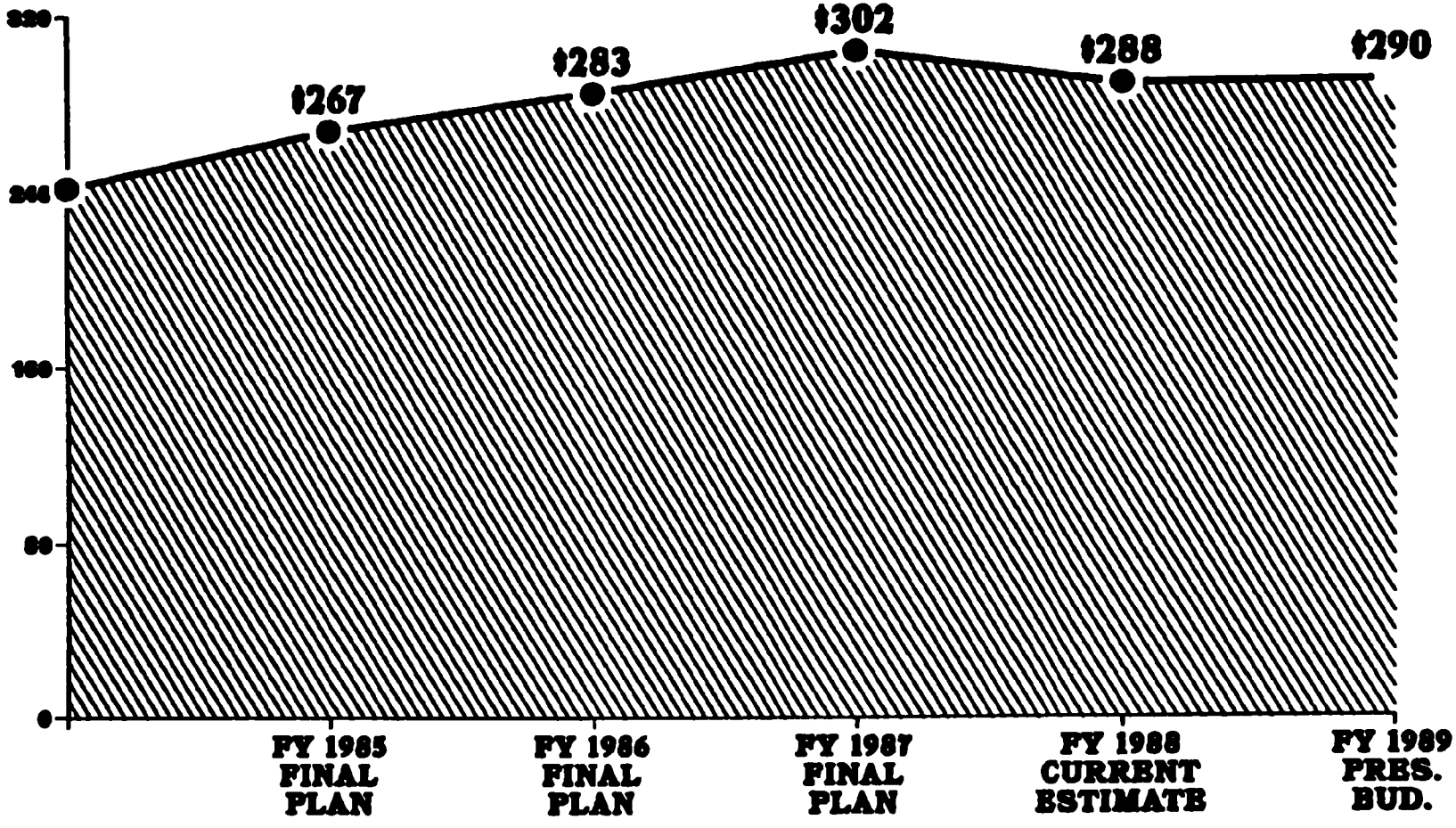
OUR R&D REQUEST WILL ADVANCE OUR SCIENTIFIC KNOWLEDGE TO IMPROVE DECISION MAKING

($ IN MILLIONS)



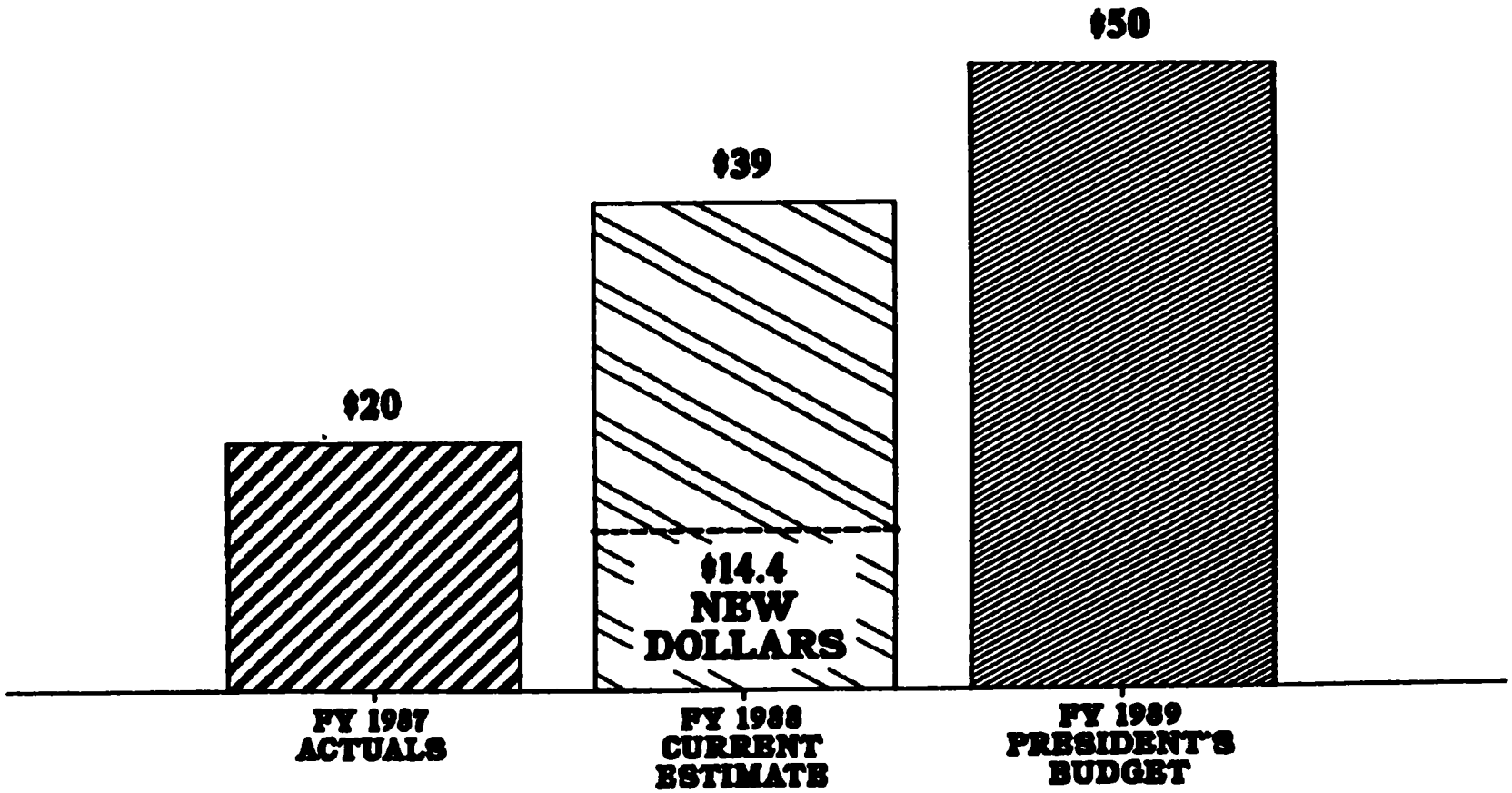
OUR GRANT PROGRAM MAINTAINS A STRONG COMMITMENT TO THE STATES

($ IN MILLIONS)



THE LUST PROGRAM INCREASES BY 28 PERCENT

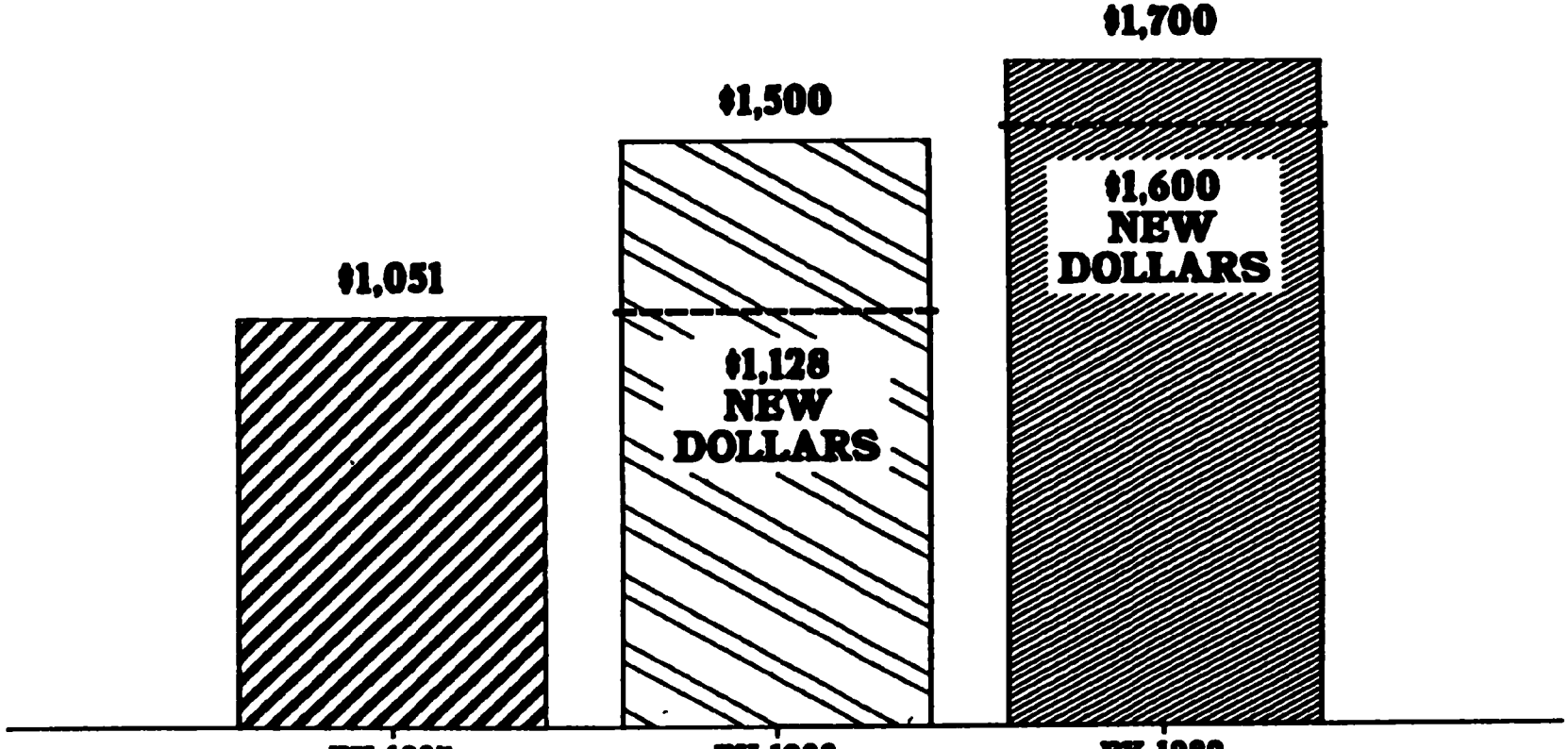
($ IN MILLIONS)



	FY 1987 ACTUALS	FY 1988 CURRENT ESTIMATE	FY 1989 PRESIDENT'S BUDGET
WORKYEARS	27	85	90

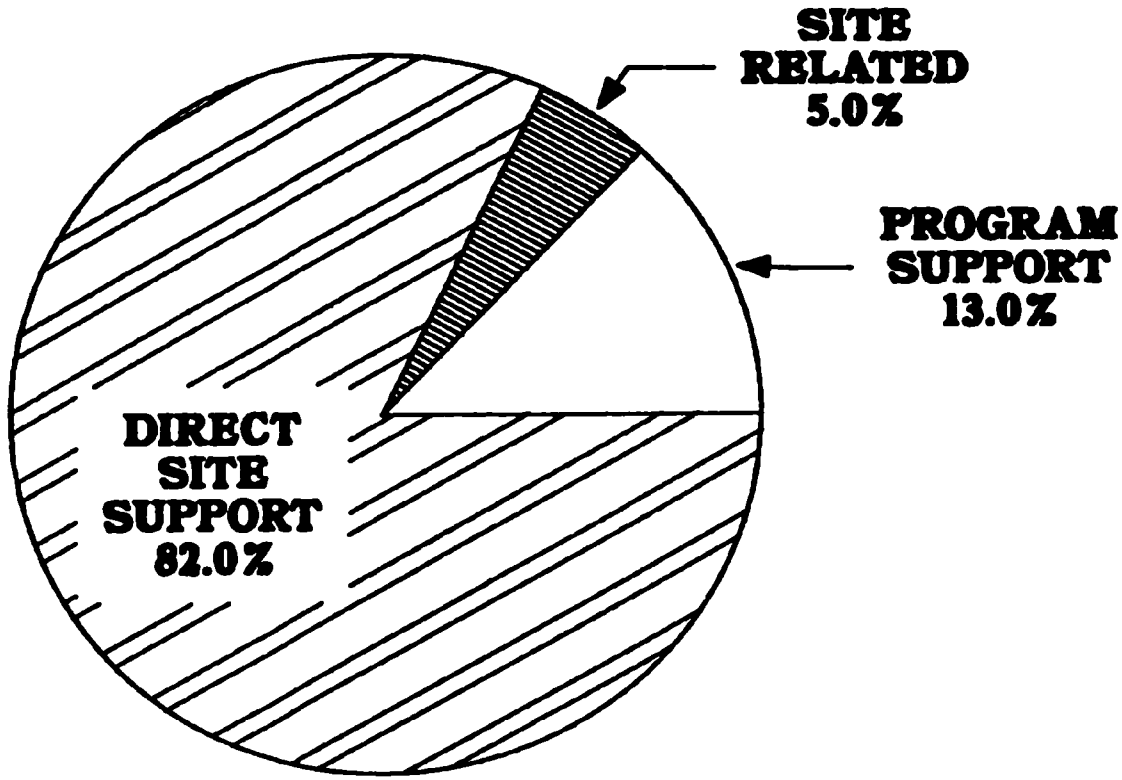
SUPERFUND CONTINUES ITS RAPID GROWTH IN 1989

($ IN MILLIONS)



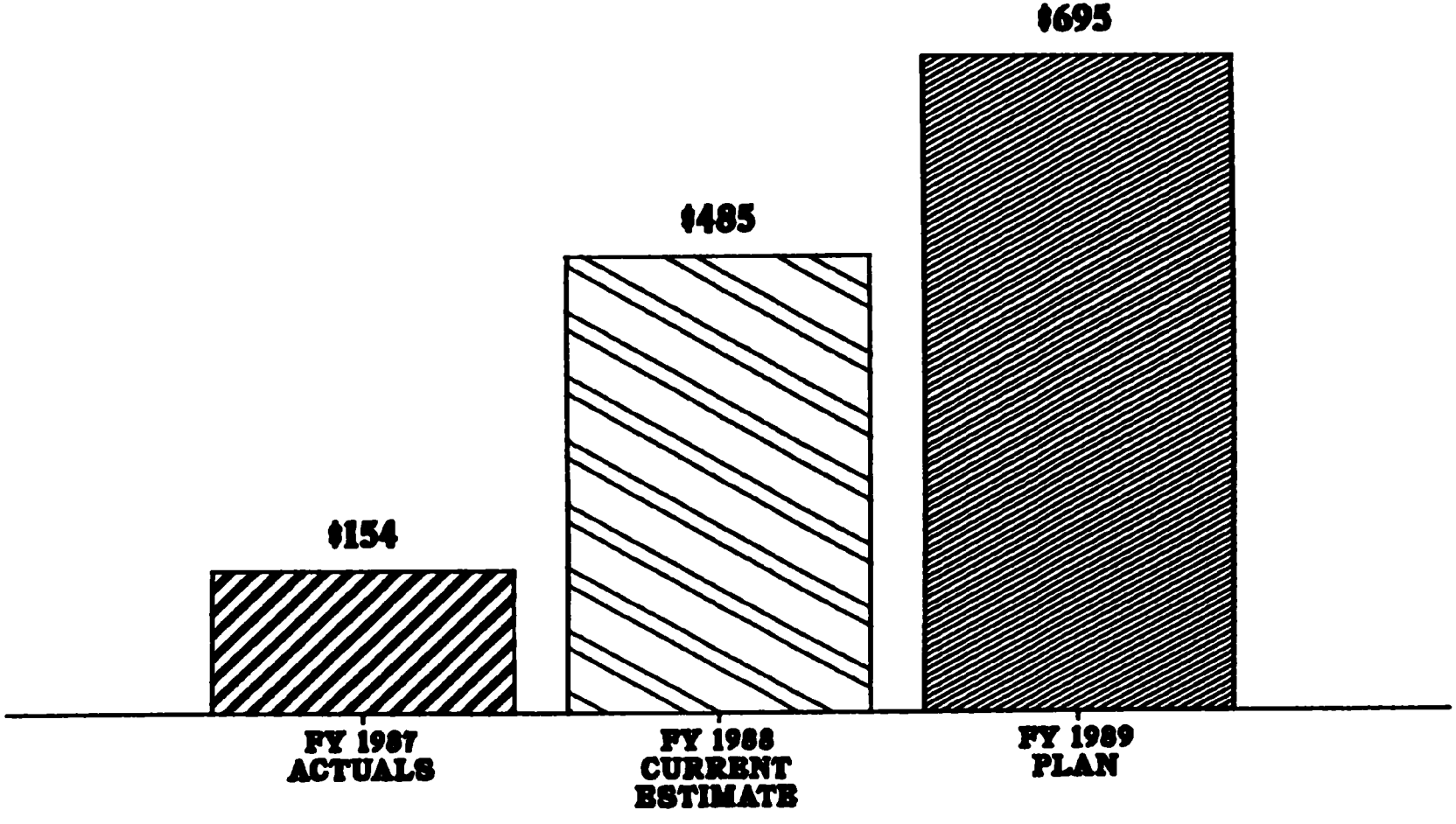
	FY 1987 ACTUALS	FY 1988 CURRENT ESTIMATE	FY 1989 PLAN
WORKYEARS	2,174	2,633	2,750

OVER 80 PERCENT OF OUR SUPERFUND RESOURCES PROVIDE DIRECT SITE SUPPORT



THE INCREASE IS DIRECTED TO THE FINAL SITE CLEANUP STAGE

($ IN MILLIONS)



IN SUMMARY, THE PRESIDENT'S REQUEST FOR EPA IN 1989 WILL:

- MEET SUPERFUND MANDATES
- ADDRESS EMERGING PROGRAMS
- ENHANCE R&D SUPPORT
- SUSTAIN THE FEDERAL/STATE PARTNERSHIP

Enforcement

MAR 1988

MEMORANDUM

SUBJECT: Inclusion of Enforcement Theme in EPA Speeches

FROM: Thomas L. Adams, Jr.
Assistant Administrator for Enforcement and Compliance Monitoring

TO: Assistant Administrators
Regional Administrators

Lee and Jim have emphasized the need to project the enforcement message to the regulated community. In your public appearances, the inclusion of the enforcement topic goes a long way towards achieving this goal.

Enforcement activity is the backstop for voluntary compliance. Maximum deterrence, however, can only be achieved when those regulated are made aware of our enforcement efforts.

To that end, I would greatly appreciate your cooperation in including the enforcement theme or examples thereof wherever practical in remarks that you make to the public. To aid you in this effort, I have asked Terrell Hunt of my staff to be available to provide you with information, facts, case histories, etc., and even assist in drafting portions of speeches dealing with enforcement. Mr. Hunt can be reached at (202) 475-8777.

OECM looks forward to working with you and your staff in this regard.

March 1988

I. OVERVIEW OF CURRENT EPA ENFORCEMENT ACTIVITY

o Record enforcement in 1986 and 1987:

-- 373 civil referrals in 1986, highest in history; 274 civil referrals in 1987, second highest in history.

-- over 3,200 administrative orders issued by EPA in 1987, highest in history (reflects trend towards greater use of administrative enforcement by Agency).

-- record $24 million in civil penalties assessed in 1987. Sixty percent of the total of all EPA civil penalties have been collected over the last three years.

-- State enforcement also at high levels. State agencies referred 723 cases to their Attorneys General for prosecution in 1987--twice the previous year. States also initiated 3200 administrative orders.

II. CRIMINAL ENFORCEMENT: EPA'S STRONGEST DETERRENT

o EPA's criminal enforcement program is expanding. During the last four years RCRA, Safe Drinking Water Act, CERCLA and Clean Water Act have been amended to add or enhance criminal authorities and sanctions:

-- 55 criminal investigators in field around the country.

-- Over the last two years EPA and DOJ have brought charges against 164 defendants and 124 defendants have been convicted of or pled guilty to criminal violations. Last year alone judges ordered criminal fines of $3.6 million and judges handed down 84 years in sentences, of which 25 years will be served.

o Recent trends in criminal enforcement:

-- EPA/DOJ policy to charge highest corporate official with violation; over one half of all indictments were against corporate directors, presidents, vice presidents or other policy-level officials. It is no defense to argue that managers "didn't know what their employees were doing."

-- About one-half of criminal prosecutions have been for RCRA or Superfund violations. Criminal investigators now working more closely with Programs to pursue appropriate potential criminal cases for all media (e.g., first FIFRA criminal enforcement action in

-- SARA "DUMPBUSTER" Amendment provides awards up to $10K to citizens who provide information leading to arrest and conviction of individuals violating criminal enforcement provisions of Superfund. Interim Final Rule soon to be published in Federal Register and program under way later in FY 1988.

o EPA criminal enforcement program is working with other federal agencies such as the U.S. Customs Service and FBI to detect and prosecute environmental crimes. EPA may report criminal violations to SEC.

o EPA is helping States develop their own criminal enforcement capabilities to detect/prosecute environmental crimes:

-- Agency helps fund the Northeast Hazardous Waste Project, a consortium of 13 States which train State hazardous waste enforcement personnel in criminal investigative techniques.

-- Agency is providing support for similar consortia of Western and Midwestern States.

III. DEFINING/EXECUTING ENFORCEMENT PRIORITIES

o EPA has an annual Strategic Planning Process to identify enforcement priorities. Programs also define Significant Noncompliance to ensure that the most important violations are systematically addressed.

o The 1987 civil judicial docket reflects the Agency's increasing emphasis upon controlling toxics. For example, over 30% of the CWA (NPDES) cases involved toxic discharges and almost 40% of the Stationary Source Air cases involved toxic pollutants (NESHAPS for asbestos D/R, benzene, vinyl chloride).

o Other 1988 Program enforcement priorities include:

-- Air: non-attainment (ozone).

-- Water (NPDES): Municipal compliance.

-- Drinking Water Standards: persistent problems.

-- CERCLA: private party response.

-- RCRA: corrective action and permitting.

-- Federal Facilities Compliance.

- o EPA also emphasizes "follow through" to ensure that consent orders and consent decrees are complied with completely and expeditiously.

IV. STREAMLINING ENFORCEMENT AND ENHANCING IMPACT

- o EPA's "timely and appropriate" enforcement criteria sets goals for making progress in resolving violations and returning to compliance. In addition, we have begun several initiatives to "speed the process along."

A. Resolving Violations Quickly and Efficiently

1. Expanded Use of Administrative Orders

- o Programs are making greater use of AOs to facilitate more rapid enforcement response and save civil referrals for the most environmentally significant and/or resource intensive cases, and for enforcing compliance with administrative orders.

2. Field Citations and Short Form Notices of Violation (NOV)

- o Under a field citation, inspectors issue the complaint (including the penalty) at the conclusion of the inspection for "routine" and easily detectable violations that do not require additional legal or analytical review.

- o Under a short form NOV, a standard Notice of Violation is filled out by Regional program personnel along with a proposed settlement and penalty. The violator can agree to the amount or face additional enforcement action and higher costs later on.

- o Mobile Sources has been using Short form NOV's successfully for several years and two Regions are currently involved in one-year pilots to use them to resolve asbestos and pesticide violations.

3. Managing Judicial Litigation

- o Agency and DOJ are taking new approaches for the efficient management of judicial litigation:

  -- expanding use of direct referrals from EPA Regions direct to DOJ.

  -- improving and formalizing the process of pre-filing negotiations.

  -- expanding the use of written case-management plans.

4. Alternative Dispute Resolution

- o OECM recently issued final guidance on the use of Alternative Dispute Resolution techniques (mediation, arbitration, fact-finding and mini-trials), all of which involve the use of neutral third parties to facilitate the negotiation of consent decrees.

- o ADR may be useful for routine matters which may not warrant the costs of formal litigation; for cases with difficult technical issues that may benefit from independent analysis; or for cases with multiple parties or issues.

- o The Administrator has strongly encouraged the Regions to nominate cases which meet the criteria for ADR.

B. Adequate Sanctions

1. Recouping the Economic Benefit of Noncompliance

- o EPA developed a generic Civil Penalty Policy to recapture at a minimum the economic benefit of noncompliance and has developed a computer model to help Regions calculate that benefit. Penalty levels have increased significantly since then. (Recent reauthorizations of statutes have also granted and/or increased administrative and criminal penalty authori for all programs but Air and FIFRA.)

2. Contractor Listing

- o The Agency has expanded its Contractor Listing Program for violators of the Clean Water Act and Clean Air Act. This is one of EPA's most powerful enforcement sanctions.

- o Violators put on the List (mandatory listing for criminal violations; discretionary listing for civil violators) are not allowed to bid on any government contract for the period they are on the List. One listed company lost the opportunity to obtain over $50 million in government contracts while on the list.

- o Eighteen facilities were on the List during 1987. Seven came into compliance and were removed from the List while 11 others were still on it at the beginning of 1988.

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EPA RELEASES ENFORCEMENT STATISTICS

The U.S. Environmental Protection Agency referred the second highest number of enforcement cases in its history to the U.S. Department of Justice and set an all-time record for the amount of civil penalties assessed in fiscal year 1987. In addition, state agencies last year developed and referred their highest number of cases to state courts and maintained strong administrative enforcement programs.

EPA also expanded its administrative penalty and contractor listing programs while maintaining and resolving a large civil and criminal judicial case docket.

State environmental agencies, which now enforce most of the federal environmental laws under authority delegated by EPA, referred 723 cases to state attorneys general for prosecution under state law, compared with 408 in the previous year. In addition, states took a total of 3,183 administrative enforcement actions under the air, water and hazardous-waste laws, compared with 4,106 in 1986.

EPA referred 304 civil and 41 criminal cases to the Justice Department, compared with 342 and 41 in those categories in 1986. The Justice Department filed 285 EPA civil cases in 1987, compared with 260 cases last year. At the end of 1987, EPA had 387 active civil judicial orders and consent decrees, compared with 322 in 1986 and 282 in 1985.

(more)

EPA issued 3,194 administrative orders in 1987 compared with 2,626 in 1986 and 2,609 in 1985. The largest increase in administrative orders--from 781 in 1986 to 1,051 in 1987 -- occurred under the Toxic Substances Control Act, primarily in the PCB and asbestos programs.

EPA established a new all-time record for the largest amount of civil penalties imposed in a year, based on a preliminary analysis. The agency imposed over $24 million in penalties in 1987 compared with $20.9 million in 1986, and $22.9 million in 1985. The penalties imposed in these three years account for 60 percent of all of EPA's penalties imposed since 1974. EPA program offices generally have increased their use of penalties and the size of typical penalties under both judicial and administrative authorities.

Thomas L. Adams, Jr., EPA's Assistant Administrator for Enforcement and Compliance Monitoring, said, "The record for 1987 reflects a strong commitment by EPA and the Department of Justice to ensure compliance with our environmental standards. The statistics also indicate that the states are equally committed to taking appropriate enforcement action.

"The higher admininistrative figures reflect a commitment by the agency to use more aggressively the administrative enforcement powers Congress has provided under most of the environmental laws. At the same time, we will continue our strong use of the federal courts when injunctive relief, court-imposed sanctions or criminal prosecution is the appropriate response to a violation."

EPA's criminal enforcement program has referred 82 cases for criminal prosecution over the past two years. In 1987, 58 defendants were convicted or entered guilty pleas, compared with 66 in 1986 and 40 in 1985. During 1987, federal judges imposed fines totalling $3.6 million and prison terms of 84 years against individuals convicted of violations of federal environmental laws.

EPA also is increasing its use of the contractor listing sanctions under the Clean Air and Clean Water Acts. As of Sept. 30, 12 facilities were on EPA's "List of Violating Facilities." EPA may place facilities on the list when their owners or operators have been convicted of criminal violations of the clean air and clean water laws (or which have had continuous or recurring violations of those laws). Listed facilities are barred from receiving future contracts, grants, loans or any other form of assistance from any branch of the federal government. A facility remains on the list until it demonstrates that it has corrected the condition that gave rise to the listing.

Federal enforcement activities also included an expansion of the direct referral program with the Justice Department, which allows EPA regions to refer civil cases directly to Justice with simultaneous EPA headquarters review. Of the above 304 cases referred to Justice in 1987, 141 were direct referrals, compared with 90 of 342 cases referred directly in 1986.

Adams noted, "During 1988 we will be pursuing an active docket of 820 civil judicial cases and conducting agressive criminal enforcement and contractor listing programs. We also will expand the administrative enforcement programs, particularly under the new statutory authorities given to EPA under the reauthorized Clean Water and Safe Drinking Water Acts."

R-16 # # #

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT

With the support of the increased funding, and strong enforcement and settlement provisions in the statute, the Agency increased the number of injunctive actions under §106 and the number of cost recovery cases under §107. In addition to the increase in the number of judicial referrals to DOJ, 54 in FY 1987 from 41 in FY 1986, there were 64 RI/FS agreements, and 19 remedial action consent decrees. These agreements require actions by the potentially responsible parties with a value of close to $200 million. The Agency also issued a number of significant and comprehensive policies designed to help implement SARA.

TOXIC SUBSTANCES CONTROL ACT/FEDERAL INSECTICIDE, FUNGICIDE AND RODENTICIDE ACT

The number of administrative enforcement actions rose for both the toxic substances (TSCA) and pesticides (FIFRA) programs. Penalties collected this past year were the highest ever obtained under the TSCA premanufacturing notice program. In addition, five civil judicial actions were referred under FIFRA and eight actions were referred under TSCA during the fiscal year. Most judicial actions are for collection of penalties previously assessed through administrative orders. One TSCA case (Noble Oil) was significant in that it represented enforcement of an administrative order issued in the first TSCA enforcement case to be appealed to the U.S. Supreme Court. The Agency also obtained, in the first reported decision on the subject, a favorable decision in U.S. District Court upholding its right to require information under a TSCA investigative subpoena.

# # #

EPA ENFORCEMENT ACTIVITY
CIVIL CASES REFERRED BY EPA TO DOJ
FY 1980 THROUGH FY 1987

	FY 1980	FY 1981	FY 1982	FY 1983	FY 1984	FY 1985	FY 1986	FY 1987
Air - Stationary	80	52	31	60	66	86	109	100
Water - NPDES	56	37	45	56	95	88	108	85
Safe Drinking Water	*	*	*	*	*	5	11	7
RCRA	53	14	29	33	60	13	43	23
Superfund	**	**	**	**	**	35	41	54
TSCA	1	1	2	7	14	8	10	9
FIFRA	***	***	***	***	***	11	14	4
Air - Mobile Sources	20	14	5	9	16	30	6	22
Total	210	118	112	165	251	276	342	304

* NPDES and SDWA cases combined
** RCRA and Superfund cases combined
*** FIFRA and TSCA cases combined

(CAPO 1/15/88)

EPA ENFORCEMENT ACTIVITY
ADMINISTRATIVE ORDERS
FY 1980 THROUGH FY 1987

	FY 1980	FY 1981	FY 1982	FY 1983	FY 1984	FY 1985	FY 1986	FY 1987
Air - Stationary	86	112	21	41	141	122	143	191
Water - NPDES	569	562	329	781	1644	1028	990	1002
Safe Drinking Water	*	*	*	*	0	3	0	212
RCRA	-	159	237	436	554	327	235	243
Superfund	-	-	-	-	137	160	139	135
TSCA	70	120	101	294	376	733	781	1051
FIFRA	176	154	176	296	272	236	338	360
Total	901	1107	864	1848	3124	2609	2626	3194

*NPDES and SDWA orders combined

(CAPO 1/15/88)

Judicial Cases Filed in Court, FY 1981 Through FY 1987

	1981	1982	1983	1984	1985	1986	1987
Air-Stationary	56	29	77	55	66	82	74
CWA	30	11	56	81	60	103	68
SDWA	2	3	20	6	9	5	12
RCRA	13	2	2	9	6	23	43
CERCLA	6	5	30	31	32	30	54
TSCA	0	0	4	5	7	4	8
FIFRA	0	0	2	5	8	6	7
Air-Mobile Sources	8	1	13	17	24	6	19
TOTALS	115	51	204	209	212	260	285

Active Judicial Cases

On September 30, 1987, the OECM automated Docket system reported that there were 820 civil judicial cases active as of that date. The following breakdown shows where the cases were in the enforcement process on that date.

- Cases pending at EPA Headquarters - 62
- Cases pending at DOJ/U.S. Attorney - 183
- Cases pending at Court - 530
- Cases pending at EPA Region - 45

Total 820

OBSERVATIONS IN TRENDS IN MEDIA ENFORCEMENT PROGRAMS

CLEAN AIR ACT

EPA has maintained a strong Federal enforcement program directed at violations of State Implementation Plan requirements (SIPs), New Source Performance Standards (NSPS), and National Emission Standards for Hazardous Air Pollutants (NESHAPs). The Agency has also increased its emphasis in the last year on enforcement of Prevention of Significant Deterioration (PSD) and non-attainment new source review (NSR) requirements.

The initiation of stationary source civil cases was down slightly from the record levels of FY 1986. The decline of about 15% may be attributable to some extent to an adverse court decision affecting enforcement of SIPs where SIP revisions are pending.

Based on initial penalty data which is currently being assembled, the median Stationary Air judicial penalty increased 65% from FY 1986 to $62,000 in FY 1987. The percentage of Air cases which involved a penalty was maintained at 96% in FY 1986 and 1987.

The Mobile Source program has achieved significant increases in penalty sizes in FY 1986 and 1987. The program doubled its yearly penalty total from $2.3 million in FY 1986 to $4.6 in FY 1987, largely due to larger sizes of penalties. The average penalty increased from $5,500 to $13,100.

CLEAN WATER ACT - NPDES

The decrease in the referral of Clean Water Act cases to the Department of Justice from FY 1986 to FY 1987 reflects a decrease in pretreatment referrals against industrial users (four in FY 1987 and 29 in FY 1986). The Agency continued its emphasis on municipalities that need construction to meet the July 1988 deadline. To support this effort EPA had 33 referrals in FY 1987 compared with 23 in the previous year. Administrative orders issued by EPA remained essentially the same as last year.

Judicial penalties continued to increase in FY 1987; based on initial figures, the total amount of penalties imposed in 1987 was nearly $6.8 million, up 30% from the FY 1986 total of $5.2 million. The median penalty for all cases also increased from $37,500 in FY 1986 to over $50,000 in FY 1987.

With the new CWA amendments EPA was given the authority to administratively assess penalties against violations of water pollution requirements. In some circumstances, an administrative order with penalties may be a more appropriate enforcement tool than a civil referral. The Regions will be using this new enforcement tool in place of the traditional civil referral to address many kinds of violations in the future.

In addition, the Regions have been providing additional legal and technical support to a growing on-going case docket. Supporting on-going litigation has required resources to be redirected from development of new cases.

SAFE DRINKING WATER ACT

EPA's Safe Drinking Water program was given a new enforcement tool this year -- authority under the Safe Drinking Water Act to issue administrative orders, with penalties if appropriate, rather than having to work solely through the courts. Under the amended SDWA, EPA proposed 123 and issued 61 final administrative orders for the Public Water System program. The Underground Injection Control program proposed 89 administrative orders and issued 18 final orders in FY 1987. Because of its use of the new administrative authority, the SDWA program referred seven cases in FY 87, compared with 11 cases in FY 86.

RESOURCE CONSERVATION AND RECOVERY ACT

Fiscal Year 1987 also marked continued prosecution of the many civil judicial cases filed last year as part of the "Loss of Interim Status" initiative.

The Hazardous and Solid Waste Amendments of 1984 required, among other things, that land disposal facilities for which owners and operators did not (1) certify compliance with groundwater monitoring and financial responsibility requirements and (2) submit a final (Part B) permit application would lose interim status on November 8, 1985. This loss of interim status (LOIS) provision requires that all noncomplying land disposal facilities be closed.

The Agency's response to the LOIS violations that are potentially the most harmful to the environment -- the continued operation of facilities lacking adequate groundwater monitoring, insurance or closure resources -- has been comprehensive. Enforcement actions have been taken to address 97% of these violations, and the prosecution of these actions remained a high priority for the Agency in 1987.

Under RCRA, the agency referred 23 judicial cases to DOJ in FY 1987, compared to 43 cases referred in FY 1986. The large majority of the cases referred last year, FY 1986, were part of the one-time LOIS initiative. The 1987 numbers reflect the changing nature of the LOIS initiative from referral of cases to litigation and settlement of these cases. Seven of these filed cases have been settled.

At this time, EPA does not anticipate that many additional LOIS violations will be discovered. The focus of EPA's effort with regard to LOIS in FY 1988 will be to continue litigating the LOIS cases which have been filed, and to monitor the closure of all the facilities that were required to close.

EPA took 243 administrative actions in FY 1987, compared with 235 actions in FY 1986. According to initial calculations, the RCRA program maintained its high level of administrative penalties, and increased the numbers of very large cases.

In addition, RCRA increased its percentage of cases with a penalty to 88% in FY 1986 and 89% in FY 1987.

STATE ENFORCEMENT ACTIVITY SUMMARY
PROGRAM TOTALS
FY 1985 TO FY 1987

	ADMINISTRATIVE ORDERS			CIVIL REFERRALS		
PROGRAM	1985	1986	1987	1985	1986	1987
AIR*	448	760	907	182	162	351
WATER	2,936	2,827	1,663	137	221	286
RCRA	459	519	613	82	25	86
TOTALS	3,843	4,106	3,183	401	408	723

*Air data is lagged one quarter and reflects 4th Qtr of first year through 3rd Qtr of next year.

(OCAPO 12/02/87)

International

International

The Growing International Dimension to Environmental Issues

Remarks by A. James Barnes
Deputy Administrator of the Environmental Protection Agency
Before the ALI/ABA Course of Study on Environmental Law
February 12, 1988

Last spring the World Commission on Environment and Development produced a landmark study entitled: "Our Common Future." The report begins very simply: "The Earth is one but the world is not." I believe that one simple sentence captures the essence of the environmental challenge we face as we head into the 21st century. Because the world is now irrevocably linked by economics as well as by ecology, we must bridge the divisions among nations if we are to solve our common, interrelated, economic/environmental problems.

Those interested in environmental policy have long understood the interdependent nature of the natural environment. From an ecological perspective, everything is connected to everything else. Indeed, in the United States these interrelationships were a critical motivating factor in the establishment of the Environmental Protection Agency in 1970. In explaining to the Congress why he wanted to create the new Federal agency, President Richard Nixon wrote: "Despite its complexity, for pollution control purposes the environment must be perceived as a single, interrelated system."

Even though ecological interdependence is a global phenomenon, most of our past actions to protect the environment have focussed on "local" problems. In the United States we have worked to protect particular water bodies and airsheds, and to clean up particular hazardous waste sites. We have passed Federal laws to restrict the use of specific chemicals in this country.

As our environmental consciousness awakened, the international dimension was not ignored. For example, in 1972, only two years after the establishment of EPA, an historic United Nations conference in Stockholm brought the nations of the world together to discuss environmental problems common in many parts of the globe. But at that conference the representatives from developed countries spent most of their time discussing the importance of taking environmental issues seriously, while many representatives from developing countries argued that environmental concerns were merely a pretext for restraining their much-needed economic development.

During the 1970s some bilateral efforts were made to exchange scientific or technical information or to solve problems along a common border. For example, the United States and Canada signed the Great Lakes Agreement in 1972, and multilateral efforts were made to confront the CFC/ozone depletion issue. But, from the perspectives of either scientific understanding or political cooperation, international environmental issues were in a very embryonic stage.

Now, in the late 1980s, all that has changed. For a number of reasons, international environmental issues are now headline news. National governments are meeting in various international fora to find cooperative ways of protecting shared natural resources. I believe that the emergence of an international environmental consciousness is going to continue to grow through the rest of this century. And it has ramifications for all of us, whether we are lawyers, environmentalists, government policy-makers, or simply individuals concerned about the overall quality of life shared on a pebble spinning through space.

Probably the single biggest force shaping this new international consciousness is the now almost commonplace belief that people today are living and working in a globally interdependent economy. This perception has been fostered by recent wide swings in foreign trade balances, and by the effect of those fluctuations on national economies. It has been boosted into the mainstream of international thought by the October stock market crash, when investors everywhere suddenly realized that when a stockbroker in Tokyo or Hong Kong sneezed, a stockbroker in London or New York caught a cold. In an essay printed in the January 3 Washington POST, Harvard social sciences professor Daniel Bell wrote: "We have today an international economy, heavily interdependent and almost integrated, tied together in 'real time'."

This new economic reality is having a profound effect on environmental policy, because--at root--many environmental questions are economic questions. Commonly, environmental laws are mechanisms by which the environmental costs of economic activity are internalized in "real time." Environmental laws require society to change its economic calculus and explicitly recognize that the dispersion of wastes into the air and water is not a free good, the disposal of solid wastes is not a free good, and the long-term health effects of exposures to toxic substances is not a free good. They must be paid for--by someone, at some time. Environmental laws simply require that some of those costs are paid up front and not by our children years or decades from now.

Thus the emergence of a global economy has transformed the concept of a global ecology from environmental mysticism to economic fact-of-life. The economic activities of the different nations, viewed both singly and in the aggregate, have real-world, real-time effects on everyone living on earth. We do not do our business in a vacuum; we all touch everyone else in ways that have sometimes become painfully apparent. The nuclear accident at Chernobyl, Russia, and the chemical fire and spill at Basel, Switzerland, imposed substantial environmental and thus economic costs on neighboring countries. These accidental disasters generated an enormous amount of press coverage world-wide, and that publicity emphasized for the moment a truth that

pertained before the accidents, and a truth that pertains today: we all have a large stake in the way that other countries manage their environmental and public health affairs.

The linkages between the interdependent global economy and the interdependent global ecology are apparent at three different levels. First, they are apparent in the kinds of environmental degradation that are "global;" that is, they have the potential to affect the lives of literally everyone on earth. Second, they are apparent in those "regional" environmental problems that are caused by one country, but impose environmental and economic costs on its neighbors. And third, as the global economy becomes more and more tightly interwoven, an international dimension is becoming apparent even in those kinds of environmental problems that in the past, and still today, are considered "local."

Over the last several years, a new class of environmental problem has evolved. These problems are global, because they touch the lives of everyone who lives on this earth. The depletion of the stratospheric ozone layer, global warming trends, loss of species, and ocean pollution are good examples. In each case, the problem is being caused largely by activities in a limited number of countries, and the economic benefits are being enjoyed in a limited number of countries. Yet the environmental costs of those activities will be born by all human beings in all countries.

Resolving this kind of global issue will be extraordinarily complex. Global environmental problems tend to be caused by total loadings of different kinds of pollutants, most of which are emitted by the economically developed nations. As the global economy and global population expand, those total loadings will tend to increase. The economically developed nations may be willing to reduce their per capita pollutant loadings in the interests of the global environment, but at the same time the developing nations will be working very hard to expand their economies in order to "catch up." Thus existing economic inequities may make it very difficult for different nations with widely differing cultural, political, and economic systems to see that it is in their best national interests to work for the common, global interest in a kind of global partnership.

Fortunately, we recently have witnessed the negotiation of a global compromise that subjugated national interests to the more global common good. Last September, 24 nations signed the Montreal Protocol to curtail the production and use of chlorofluorocarbons and halons worldwide. That treaty, which now needs to be ratified by the U.S. Senate, is an exemplary model on a number of counts. It shows that two dozen different national governments are capable of agreeing on an environmental protection program before major health or environmental problems occur. It shows the importance of developing a scientific consensus before attempting to reach a political consensus.

Most important, it shows that nations as diverse as Denmark and Egypt and New Zealand and Japan can grapple successfully with globally interrelated economic and environmental issues.

The nations who negotiated in Montreal had to cut through a thicket of thorny questions. How much control is necessary? How quickly should controls be imposed? How long will it take to develop acceptable substitutes for chlorofluorocarbons and halons? How can the different consumption patterns of developed and developing nations be accommodated? How can nations act together to limit the international trade of controlled substances?

The Montreal Protocol is truly remarkable for the innovative ways it addressed such complicated questions. For example, developing countries that now use very small amounts of CFCs are allowed to increase consumption for 10 years before they are required to abide by the agreement. International trade in products containing CFCs is banned or restricted with nations not party to the agreement. The Montreal Protocol also prohibits any new agreements to provide financial assistance to nonparties that want to produce CFCs or halons. Clearly, the Montreal Protocol is a watershed in the evolution of international environmental policy.

In the years ahead we will have ample opportunity to apply the lessons learned in Montreal. Another global environmental issue--the "greenhouse effect"--is looming. Because of total

loadings of carbon dioxide and trace gases in the atmosphere, global temperatures and the sea level may rise. If we want to limit global loadings of CO_2 in the future, developed countries must be willing to limit their emissions of industrial pollutants. Yet developing countries will be trying to industrialize at the same time. It will not be easy to balance those competing economic and environmental goals.

A quick look at energy consumption and population data shows why. If global per capita energy use is to remain the same in 2025 as it is today, total global energy use would have to increase by 40 percent to match expected population increases. That kind of increase would have grave implications for a global warming trend. Even worse, if everyone in 2025 were to consume energy like industrialized countries do today--that is, if developing countries were to "catch up" to us--, total global energy use would have to increase by 500 percent. Thus any global partnership that we attempt to negotiate in the years ahead will have to factor in the needs of developing countries, much like the Montreal Protocol did. However, to the extent that energy use is more important to economic growth than CFC production, the negotiations are likely to be that much more complicated and contentious.

The difficulty in balancing national economic growth with global environmental protection is already evident in many parts of the world. How can the economically developed nations

convince the less fortunate countries that they should not cut down their forests, if timber harvesting or clearing land for crop production on a national level is seen to be a key element of economic survival? Massive deforestation worldwide clearly poses a global environmental problem, but impoverished timber-cutters are much more likely to worry about their next meal than about global environmental quality in the next century.

Clearly, people living in economically developed countries can more easily afford to worry about their grandchildren's quality of life. Yet, if we don't convince the developing countries to think about it, and think about it soon, we face more deforestation, more species loss, and--ultimately--less of a future for everyone on earth. This necessary balancing of global economic growth today with global environmental protection tomorrow is one of the most challenging international issues we face as we head toward the 21st century.

But it's not the only one. We also face a host of what I call "regional" environmental problems; that is, problems whose causes are rooted in the economic activities of one country, but whose costs are borne by its neighbors. Accidents with transboundary environmental effects are one example; I have already alluded to the international economic consequences of the Chernobyl and Basel incidents. The movement of hazardous and solid wastes between nations is another. The transboundary air pollution that is causing ongoing political debate in North

America and Europe is yet another. In each case one nation, or group of nations, is concerned because it does not share in the benefits, but pays part of the cost, of economic activities on the other side of an international border.

Even so-called "local" environmental issues are taking on an international dimension, in large part because of the ease with which businesses can locate or relocate to countries with the lowest production costs. One of the reasons the United States passed environmental legislation in the 1970s was to "level the playing field" among the 50 states; we did not want one state to gain an economic advantage by disregarding public health and environmental quality.

We face the same problem globally in the 1980s and beyond. Uneven environmental laws from nation to nation are affecting the global competitiveness of older industries like steelmakers and refiners. Because pollution control laws in the United States are relatively strict, the ability of U.S. companies to compete in a global economy is diminished. Thus those companies argue strenuously against any proposals that would strengthen domestic environmental laws.

Environmental controls also affect the siting of new industries. For example, American scientists are now leaders of the new biotechnology industry, and all Americans look forward to the economic benefits that biotechnology is likely to bring. But even if they were reasonable from a public health

perspective, restrictive regulations this country could drive the fledgling industry elsewhere. In short, the globe is in much the same predicament that the United States was in during the 1960s. How do we provide a level playing field, in this case globally, so that human health and environmental quality are not sacrificed for the sake of economic competitiveness?

Answers to all these questions are being formulated, and, based on what I have seen over the last year or two, I have great hope for the future. In international meetings like a recently-completed OECD conference on accidental releases, groups of nations are defining their shared environmental goals, developing mutual codes of conduct, and differentiating among the expected roles of industry, labor, and government entities. Scientists in different nations are sharing the kind of information needed to build an international political consensus. Government officials are beginning to discuss the kinds of consistent environmental regulations needed to "level the playing field" globally. Bilateral and multilateral agreements are being negotiated. The United States, for example, has negotiated bilateral agreements with Mexico regarding hazardous wastes and transboundary air pollution, and we are negotiating more than two dozen bilateral agreements with other nations.

I predict that these kinds of international negotiations are going to become much more common in decades ahead. Indeed, the report of the World Commission on Environment and Development sees the world balancing on the edge of a very bleak future if

we do not develop the sense of international partnership needed to address international environmental problems that are manifested globally, regionally, and locally.

The emergence of international dimensions to environmental issues and the need to develop an international partnership will affect the way lawyers like you advise clients, it will affect the way government officials like me respond to local and national environmental issues, and it will affect the way all of us live our private and public lives. If we are indeed linked to everyone else on earth, in both an economic and an environmental sense, then we have to think of everyone else on earth when we make our economic and environmental choices.

The fragile and holistic nature of the shared human experience has been most clearly depicted in that stunning photograph of the earth, taken from space, where we see a small multicolored sphere set against the blackness of space. From that perspective, we appear to live a very tenuous existence.

But the interdependence of the global ecology is both its weakness and its strength. Whatever we do here, for better or worse, touches everyone else. So we have to make sure that what we do, as individuals and as a nation, is for the better. We need to keep in mind the old Indian saying: "The Earth is not inherited from our fathers, but borrowed from our sons." If we act accordingly, we will be able to return to future generations all the interrelated bounty that we have enjoyed so much ourselves.

March 1988

EPA'S BILATERAL AGREEMENTS

BRAZIL

MEMORANDUM OF AGREEMENT FOR COOPERATION BETWEEN CETESB (COMPANHIA DE TECNOLOGIA DE SANEAMENTO AMBIENTAL) AND EPA

CANADA

MEMORANDUM OF UNDERSTANDING (MOU) BETWEEN EPA AND THE DEPARTMENT OF THE ENVIRONMENT OF THE GOVERNMENT OF CANADA REGARDING ACCIDENTAL AND UNAUTHORIZED DISCHARGES OF POLLUTANTS ALONG THE INLAND BOUNDARY

MEMORANDUM OF UNDERSTANDING (MOU) BETWEEN EPA AND THE DEPARTMENT OF THE ENVIRONMENT, GOVERNMENT OF CANADA CONCERNING RESEARCH AND DEVELOPMENT COOPERATION IN SCIENCE AND TECHNOLOGY

AGREEMENT BETWEEN THE GOVERNMENT OF THE UNITED STATES OF AMERICA AND THE GOVERNMENT OF CANADA CONCERNING THE TRANSBOUNDARY MOVEMENT OF HAZARDOUS WASTE

CHINA

PROTOCOL BETWEEN THE OFFICE OF THE ENVIRONMENTAL PROTECTION LEADING GROUP OF THE STATE COUNCIL OF THE PEOPLE'S REPUBLIC OF CHINA AND EPA FOR SCIENTIFIC AND TECHNICAL COOPERATION IN THE FIELD OF ENVIRONMENTAL PROTECTION

FRANCE

MEMORANDUM OF UNDERSTANDING BETWEEN EPA AND THE OFFICE OF THE STATE SECRETARY FOR ENVIRONMENT AND THE QUALITY OF LIFE OF THE REPUBLIC OF FRANCE

GERMANY

MEMORANDUM OF UNDERSTANDING BETWEEN EPA AND THE FEDERAL MINISTRY FOR RESEARCH AND TECHNOLOGY OF THE FEDEAL REPUBLIC OF GERMANY ON COOPERATION IN THE DEVELOPMENT AND DEMONSTRATION OF ENVIRONMENTAL CONTROL TECHNOLOGY FOR ENERGY SYSTEMS

INDIA

AGREEMENT BETWEEN THE UNITED STATES OF AMERICA AND THE MINISTRY OF FOREIGN AFFAIRS OF THE GOVERNMENT OF INDIA ON COOPERATION IN SCIENCE AND TECHNOLOGY

ITALY

MEMORANDUM OF UNDERSTANDING (MOU) BETWEEN EPA AND THE MINISTRY OF ENVIRONMENT OF ITALY CONCERNING COOPERATION IN THE FIELD OF ENVIRONMENTAL PROTECTION

JAPAN

AGREEMENT BETWEEN THE GOVERNMENT OF THE UNITED STATES OF AMERICA AND THE GOVERNMENT OF JAPAN ON COOPERATION IN THE FIELD OF ENVIRONMENTAL PROTECTION

KOREA

MEMORANDUM OF UNDERSTANDING (MOU) BETWEEN EPA AND THE ENVIRONMENT ADMINISTRATION OF THE REPUBLIC OF KOREA

MEXICO

AGREEMENT BETWEEN THE UNITED STATES OF AMERICA AND THE UNITED MEXICAN STATES ON COOPERATION FOR THE PROTECTION AND IMPROVEMENT OF THE ENVIRONMENT IN THE BORDER AREA

-- ANNEX I: AGREEMENT OF COOPERATION BETWEEN THE UNITED STATES OF AMERICA AND THE UNITED MEXICAN STATES FOR SOLUTION OF THE BORDER SANITATION PROBLEM AT SAN DIEGO, CALIFORNIA - TIJUANA, BAJA CALIFORNIA

-- ANNEX II: AGREEMENT OF COOPERATION BETWEEN THE UNITED STATES OF AMERICA AND THE UNITED MEXICAN STATES REGARDING POLLUTION OF THE ENVIRONMENT ALONG THE INLAND INTERNATIONAL BOUNDARY BY DISCHARGES OF HAZARDOUS SUBSTANCES

-- ANNEX III: AGREEMENT OF COOPERATION BETWEEN THE UNITED STATES OF AMERICA AND THE UNITED MEXICAN STATES REGARDING THE TRANSBOUNDARY SHIPMENTS OF HAZARDOUS WASTES AND HAZARDOUS SUBSTANCES

-- ANNEX IV: AGREEMENT OF COOPERATION BETWEEN THE UNITED STATES OF AMERICA AND THE UNITED MEXICAN STATES REGARDING TRANSBOUNDARY AIR POLLUTION CAUSED BY COPPER SMELTERS ALONG THEIR COMMON BORDER

NETHERLANDS

MEMORANDUM OF UNDERSTANDING BETWEEN EPA AND THE MINISTRY OF HOUSING, PHYSICAL PLANNING, AND ENVIRONMENT OF THE NETHERLANDS

NIGERIA

MEMORANDUM OF UNDERSTANDING (MOU) BETWEEN EPA AND THE MINISTRY OF WORKS AND HOUSING OF THE GOVERNMENT OF NIGERIA ON COOPERATION IN THE FIELD OF ENVIRONMENTAL PROTECTION

PHILIPPINES

EXCHANGE OF LETTERS BETWEEN EPA AND THE PHILIPPINE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENT ON ACTIVITIES RELATED TO RESTORATION OF POLLUTED RIVERS

POLAND

AGREEMENT BETWEEN EPA THE THE MINISTRY OF ENVIRONMENTAL PROTECTION AND NATURAL RESOURCES OF THE POLISH PEOPLE'S REPUBLIC ON COOPERATION IN THE FIELD OF ENVIRONMENTAL PROTECTION

TAIWAN*

GUIDELINES FOR A COOPERATIVE PROGRAM IN THE ENVIRONMENTAL SCIENCES BETWEEN THE AMERICAN INSTITUTE IN TAIWAN (AIT) AND THE COORDINATION COUNCIL FOR NORTH AMERICAN AFFAIRS (CCNAA)

UNITED KINGDOM

MEMORANDUM OF UNDERSTANDING (MOU) BETWEEN EPA AND THE DEPARTMENT OF THE ENVIRONMENT OF THE UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND CONCERNING COOPERATION IN THE FIELD OF ENVIRONMENTAL AFFAIRS

USSR

AGREEMENT ON COOPERATION IN THE FIELD OF ENVIRONMENTAL PROTECTION BETWEEN THE UNITED STATES OF AMERICA AND THE UNION OF SOVIET SOCIALIST REPUBLICS

YUGOSLAVIA

AGREEMENT BETWEEN THE GOVERNMENT OF THE UNITED STATES OF AMERICA AND THE GOVERNMENT OF THE SOCIALIST FEDERAL REPUBLIC OF YUGOSLAVIA ON SCIENTIFIC AND TECHNOLOGICAL COOPERATION

*EPA was invited to cooperate with the American Institute in Taiwan (AIT) in activities under an AIT-CCNAA agreement on environmental cooperation

March 1988

OIA STAFF ASSIGNMENTS

ASSOCIATE ADMINISTRATOR (ACTING)	SHELDON MEYERS
DEPUTY ASSOCIATE ADMINISTRATOR	SCOTT A. HAJOST
DIRECTOR, MULTILATERAL STAFF	ALAN SIELEN
DIRECTOR, BILATERAL STAFF	CONRAD KLEVENO
DIRECTOR, DEVELOPING COUNTRIES STAFF	EDWIN JOHNSON
EXECUTIVE SECRETARY, US-USSR ENVIRONMENTAL AGREEMENT	SIDNEY G. SMITH

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Austria	David Strother	382-4892	
Brazil	Conrad Kleveno Ed Johnson	382-4896 382-4878	
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China, Peoples Republic of	Jane Lovelace	382-7394	(L)
Developing Nations	Edwin Johnson George Patrick	382-4878 382-4878	(L) (B)
Eastern Europe	Sidney Smith Amy Evans	382-4886 382-4897	(L) (B)
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France	Jane Lovelace	382-7394	
Germany (Federal Republic of)	David Strother	382-4892	
German Democratic Republic	David Strother	382-4892	
Greece	David Strother	382-4892	
India	Jane Lovelace	382-7394	
Israel	Jane Lovelace	382-7394	

Italy	David Strother	382-4892
Japan	Jane Lovelace	382-7394
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Netherlands	David Strother	382-4892
Nigeria	Jane Lovelace	382-7394
Poland	Sidney Smith Amy Evans	382-4886 (L) 382-4897 (B)
Scandinavia	David Strother	382-4892
Spain	Jane Lovelace	382-7394
Switzerland	David Strother	382-4892
Taiwan	Jane Lovelace	382-7394
United Kingdom	David Strother	382-4892
USSR	Sidney Smith Amy Evans	382-4886 (L) 382-4897 (B)
Yugoslavia	Sidney Smith Amy Evans	382-4878 (L) 382-4897 (B)

MULTILATERAL ASSIGNMENTS*

CCMS (NATO)	Alan Sielen George Patrick Lynn Schoolfield	382-4875 (L) 382-4878 (B) 382-4891 (B)
EC	David Strother	382-4892
ECE (general) (air)	Wendy Grieder Jamie Koehler	382-4887 382-4894
FAO	Jane Kim Ed Johnson	382-4888 382-4878
IAEA	Alan Sielen Pete Christich	382-4875 382-4893
IIASA	Pete Christich	382-4893
IMO	Alan Sielen	382-4875

*See attached Index for explanation of acronyms used.

IRPTC (UNEP)	Jane Kim	382-4888
LRTAP (long-range transboundary air pollution)	Jamie Koehler	382-4894
NEA (OECD)	Alan Sielen Pete Christich	382-4875 (L) 382-4893 (B)
OECD		
General	Pete Christich	382-4893
Chemicals	Jane Kim	382-4888
IEA	Pete Christich	382-4893
WMPG	Wendy Grieder	382-4887
Biotechnology	Alan Sielen/Jane Kim	382-4875/382-4888
PAHO		
General	Wendy Grieder	382-4887
Western Hemisphere	Conrad Kleveno	382-4896
UNEP		
General	George Patrick	382-4878
Reg. Seas (general)	Jamie Koehler	382-4894
Reg. Seas (Carib.)	Conrad Kleveno	382-4896
Reg. Seas (Pacific)	Alan Sielen	382-4875
WCED (World Commission on Environment and Development)	Ed Johnson	382-4878
WICEM (UNEP Industry Conference)	Ed Johnson George Patrick	382-4878 (L) 382-4878 (B)
WHO		
General	Pete Christich	382-4893
IPCS	Pete Christich	382-4893
WMO	Jamie Koehler	382-4894

ISSUE ASSIGNMENTS

Acid Rain (general)	Jamie Koehler	382-4894
Acid Rain (Canada)	Conrad Kleveno	382-4896
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Antarctic Treaty	Alan Sielen	382-4875
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Arctic Policy (USSR)	Sidney Smith	382-4886
CO_2/Climate Change	Jamie Koehler	382-4894
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Codes of Conduct	Jane Kim	382-4888
Environmental Health	Pete Christich	382-4893
Environment and Economics	Pete Christich	382-4893
Grants and Contracts	David Strother	382-4892
Hazardous Waste Exports (policy)	Wendy Grieder	382-4887
Export Notices	Djuna King	382-4875
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Pesticides	Jane Kim	382-4888
Toxic Substances	Jane Kim	382-4888
Trade	Jane Kim	382-4888

March 1988

INDEX TO ACRONYMS USED IN OIA STAFF ASSIGNMENTS

CCMS	Committee on the Challenges of Modern Society
EC	European Communities
ECE	Economic Commission for Europe
FAO	Food and Agriculture Organization
IAEA	International Atomic Energy Agency
IEA	International Energy Agency
IIASA	International Institute for Applied Systems Analysis
IMO	International Maritime Organization
IRPTC	International Registry of Potentially Toxic Chemicals
IPCS	International Programme on Chemical Safety
LRTAP	Long-Range Transboundary Air Pollution
NATO	North Atlantic Treaty Organization
NEA	Nuclear Energy Agency
OECD	Organization for Economic Cooperation and Development
PAHO	Pan American Health Organization
UNEP	United Nations Environment Program
WCED	World Commission on Environment and Development
WICEM	World Industry Conference on Environmental Management
WHO	World Health Organization
WMO	World Meteorological Organization
WMPG	Waste Management Policy Group

OARM

OARM

United States
Environmental Protection
Agency

Office of
Public Affairs (A-107)
Washington DC 20460

EPA

Environmental News

FOR RELEASE: MONDAY, FEBRUARY 22, 1988

Elly Seng (202) 382-4384

GRIZZLE CONFIRMED AS ASSISTANT ADMINISTRATOR

Charles L. Grizzle has been confirmed by the Senate to be EPA's Assistant Administrator for Administration and Resources Management.

He will be directly responsible for providing executive support for all the programs of the agency and the management of four key offices: Comptroller, including all financial and budget policy and operation; Human Resources Management, encompassing executive recruitment and development; Information Resources Management, which includes agency-wide ADP processing and procurement, data management and computer network design; and Administration, covering the areas of procurement, including Superfund contracts and agreements, grants to states, universities and other institutions, facilities management, and health and safety policies for the entire agency.

Grizzle served from 1983 until this appointment as Deputy Assistant Secretary for Administration at the U.S. Department of Agriculture (USDA). He also served as confidential assistant to the Secretary of Agriculture and as a staff assistant to the Director of the Office of Operations and Finance. He joined USDA in 1982.

From 1974 to 1981, he worked as a bank officer for the First National Bank of Louisville (Ky.). He received his bachelor's degree from the University of Kentucky in Lexington. He was born in Argillite, (Greenup County) Ky.

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# # #

March 1988

OFFICE OF ADMINISTRATION AND RESOURCES MANAGEMENT

- Total Agency employees in Headquarters - approximately 7,800

- Total Agency employees in the Regions - approximately 6,700

- Information on obtaining financial assistance from EPA - Grants Administration division (202) 382-5240

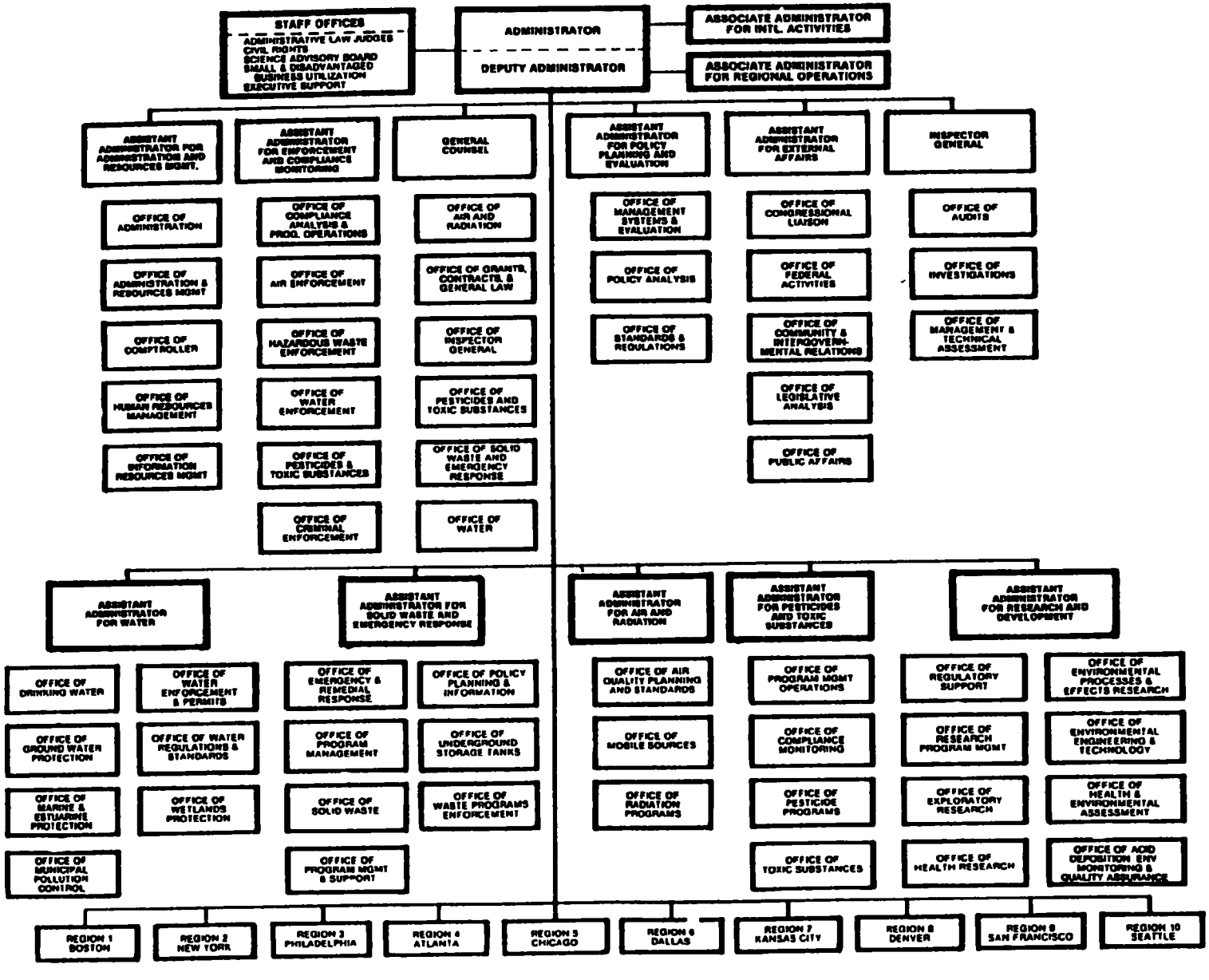
- Information on EPA contracting opportunities - contracts Division/ Client Services (202) 475-8229

- The Agency bought software in 1987 to convert EPA's accounting and budgeting system to an Integrated Financial Management System (IFMS). IFMS will affect every administrative and program office in the Agency.

- The Agency is enhancing competition and expanding the business base in the Superfund removal and remedial programs by implementing a strategy to eliminate large zone contracts and emphasize more competitive site specific and regional contracts.

- The Agency, GSA, and OMB have agreed that EPA Headquarters be consolidated into one facility in the Washington, D.C. area. Currently, EPA personnel in Washington are located in three locations; Waterside Mall, Crystal City and the Fairchild Building. Planned occupation of the new facility is 1992.

- The Agency has been involved in an effort to improve State data reporting on delegated programs and strengthen State/EPA data sharing in general. This program includes a concerted effort to upgrade information technology in the Regions.


STAFF OFFICES
ADMINISTRATIVE LAW JUDGES
CIVIL RIGHTS
SCIENCE ADVISORY BOARD
SMALL & DISADVANTAGED BUSINESS UTILIZATION
EXECUTIVE SUPPORT
ADMINISTRATOR
DEPUTY ADMINISTRATOR
ASSOCIATE ADMINISTRATOR FOR INTL. ACTIVITIES
ASSOCIATE ADMINISTRATOR FOR REGIONAL OPERATIONS
ASSISTANT ADMINISTRATOR FOR ADMINISTRATION AND RESOURCES MGMT.
OFFICE OF ADMINISTRATION
OFFICE OF ADMINISTRATION & RESOURCES MGMT
OFFICE OF COMPTROLLER
OFFICE OF HUMAN RESOURCES MANAGEMENT
OFFICE OF INFORMATION RESOURCES MGMT
ASSISTANT ADMINISTRATOR FOR ENFORCEMENT AND COMPLIANCE MONITORING
OFFICE OF COMPLIANCE ANALYSIS & PROG. OPERATIONS
OFFICE OF AIR ENFORCEMENT
OFFICE OF HAZARDOUS WASTE ENFORCEMENT
OFFICE OF WATER ENFORCEMENT
OFFICE OF PESTICIDES & TOXIC SUBSTANCES
OFFICE OF CRIMINAL ENFORCEMENT
GENERAL COUNSEL
OFFICE OF AIR AND RADIATION
OFFICE OF GRANTS, CONTRACTS, & GENERAL LAW
OFFICE OF INSPECTOR GENERAL
OFFICE OF PESTICIDES AND TOXIC SUBSTANCES
OFFICE OF SOLID WASTE AND EMERGENCY RESPONSE
OFFICE OF WATER
ASSISTANT ADMINISTRATOR FOR POLICY PLANNING AND EVALUATION
OFFICE OF MANAGEMENT SYSTEMS & EVALUATION
OFFICE OF POLICY ANALYSIS
OFFICE OF STANDARDS & REGULATIONS
ASSISTANT ADMINISTRATOR FOR EXTERNAL AFFAIRS
OFFICE OF CONGRESSIONAL LIAISON
OFFICE OF FEDERAL ACTIVITIES
OFFICE OF COMMUNITY & INTERGOVERNMENTAL RELATIONS
OFFICE OF LEGISLATIVE ANALYSIS
OFFICE OF PUBLIC AFFAIRS
INSPECTOR GENERAL
OFFICE OF AUDITS
OFFICE OF INVESTIGATIONS
OFFICE OF MANAGEMENT & TECHNICAL ASSESSMENT
ASSISTANT ADMINISTRATOR FOR WATER
OFFICE OF DRINKING WATER
OFFICE OF GROUND WATER PROTECTION
OFFICE OF MARINE & ESTUARINE PROTECTION
OFFICE OF MUNICIPAL POLLUTION CONTROL
OFFICE OF WATER ENFORCEMENT & PERMITS
OFFICE OF WATER REGULATIONS & STANDARDS
OFFICE OF WETLANDS PROTECTION
ASSISTANT ADMINISTRATOR FOR SOLID WASTE AND EMERGENCY RESPONSE
OFFICE OF EMERGENCY & REMEDIAL RESPONSE
OFFICE OF PROGRAM MANAGEMENT
OFFICE OF SOLID WASTE
OFFICE OF PROGRAM MGMT & SUPPORT
OFFICE OF POLICY PLANNING & INFORMATION
OFFICE OF UNDERGROUND STORAGE TANKS
OFFICE OF WASTE PROGRAMS ENFORCEMENT
ASSISTANT ADMINISTRATOR FOR AIR AND RADIATION
OFFICE OF AIR QUALITY PLANNING AND STANDARDS
OFFICE OF MOBILE SOURCES
OFFICE OF RADIATION PROGRAMS
ASSISTANT ADMINISTRATOR FOR PESTICIDES AND TOXIC SUBSTANCES
OFFICE OF PROGRAM MGMT OPERATIONS
OFFICE OF COMPLIANCE MONITORING
OFFICE OF PESTICIDE PROGRAMS
OFFICE OF TOXIC SUBSTANCES
ASSISTANT ADMINISTRATOR FOR RESEARCH AND DEVELOPMENT
OFFICE OF REGULATORY SUPPORT
OFFICE OF RESEARCH PROGRAM MGMT
OFFICE OF EXPLORATORY RESEARCH
OFFICE OF HEALTH RESEARCH
OFFICE OF ENVIRONMENTAL PROCESSES & EFFECTS RESEARCH
OFFICE OF ENVIRONMENTAL ENGINEERING & TECHNOLOGY
OFFICE OF HEALTH & ENVIRONMENTAL ASSESSMENT
OFFICE OF ACID DEPOSITION ENV MONITORING & QUALITY ASSURANCE
REGION 1 BOSTON
REGION 2 NEW YORK
REGION 3 PHILADELPHIA
REGION 4 ATLANTA
REGION 5 CHICAGO
REGION 6 DALLAS
REGION 7 KANSAS CITY
REGION 8 DENVER
REGION 9 SAN FRANCISCO
REGION 10 SEATTLE

Regional and Field Operations

MAR 1988

Associate Administrator for Regional Operations
Robert S. Cahill

REGION I

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Regional Administrator

Paul G. Keough (617) 565-3402
Deputy Regional Administrator
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William Muszynski (212) 264-0396
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New York, NY 10278

REGION III

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Regional Administrator

Stanley Laskowski (215) 597-9812
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Frank Covington (312) 353-2000
Deputy Regional Administrator
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Chicago, IL 60604

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John Floeter (214) 655-2100
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William W. Rice (913) 236-2800
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REGION VIII

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Regional Administrator

Alexandra Smith (303) 293-1603
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Denver, CO 80202-2413

REGION IX

Dan McGovern (415) 974-8153
Regional Administrator

John C. Wise (415) 974-8153
Deputy Regional Administrator
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REGION X

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Regional Administrator

Ralph Richard Bauer (206) 442-5810
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Seattle, WA 98101

OPPE

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United States
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Agency

Office of
Public Affairs (A-107)
Washington DC 20460

EPA

Note to Correspondents

MAR 1988

MONDAY, DECEMBER 21, 1987

Linda J. Fisher has been confirmed by the Senate to be EPA Assistant Administrator for the Office of Policy, Planning and Evaluation (OPPE). In that position, she will oversee the agency's development of policy and manage the agency's regulatory process. Fisher, who until this appointment was Executive Assistant to EPA Administrator Lee M. Thomas, served as the agency's chief expert on Superfund reauthorization. She also has served on the staff of the House Appropriations Committee and as a legislative assistant to two congressmen. A native of Columbus, Ohio, Fisher is a graduate of the Ohio State University College of Law and Miami University in Oxford, Ohio. She succeeds Milton Russell, who resigned in March, as Assistant Administrator for OPPE. Fisher, 35, who resides in Alexandria, Va., is the daughter of Jack and Jane Fisher of Upper Arlington, Ohio

Dave Cohen, Director
Press Division
202-382-4355

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SUMMARY OF THE
TESTIMONY OF
LINDA J. FISHER
BEFORE THE
SUBCOMMITTEE ON HUMAN RIGHTS AND
INTERNATIONAL ORGANIZATIONS
OF THE
HOUSE FOREIGN AFFAIRS COMMITTEE

March 10, 1988

Ms. Fisher was asked in the Committee's letter of invitation to discuss the response to global climate problems, especially the "greenhouse effect," and describe current government programs, EPA's efforts, and the role of international organizations.

The statement explains the "greenhouse effect," sources contributing to it around the world, and possible results of its increase.

EPA's interest and role in the matter are described, with reference to CAA authority, past experience in dealing with stratospheric ozone depletion, ongoing studies resulting from Congressional concern, and the role mandated by the Global Climate Protection Act of 1987, with an emphasis on research.

The statement then describes EPA's international activities, including joint US-USSR research, UN programs, and a US-China agreement; and concludes with a statement of EPA's long-term involvement in U.S. government research and development of strategies for dealing with the effects of global atmospheric warming.

SUMMARY OF STATEMENT OF LINDA FISHER
ASSISTANT ADMINISTRATOR FOR POLICY, PLANNING, AND EVALUATION
U.S. ENVIRONMENTAL PROTECTION AGENCY
BEFORE THE SUBCOMMITTEE ON CONSERVATION AND FORESTRY
COMMITTEE ON AGRICULTURE, NUTRITION, AND FORESTRY
U.S. SENATE
March 24, 1988

The purpose of the testimony is to discuss the progress being made under the Conservation Reserve Program (CRP) portion of the Food Security Act of 1985.

The Conservation Reserve Program is designed to assist owners and operators of highly erodible lands in conserving and improving soil and water resources of their farms or ranches. The objectives are (1) to remove fragile lands from production and in doing so to reduce the nation's aggregate soil erosion; (2) to stabilize commodity prices; (3) to reduce production of surplus agricultural commodities; (4) to create a better habitat for fish and wildlife; and (5) to reduce sedimentation and improve water quality. While all of these are important objectives the last two are of particular interest to the Agency.

EPA's major interest in the CRP relates to water quality management. This interest is due in part to the pervasiveness of nonpoint source water pollution. EPA is also examining the CRP's potential to address groundwater quality concerns.

The Presidential Task Force on Regulatory Relief last December announced policy initiatives involving the CRP. These initiatives are intended to: (1) increase the number of acres eligible for the CRP as well as to preserve environmentally sensitive areas not covered by the previous rule. EPA believes there are many areas of the country that will be able to include more environmentally vulnerable land within the total acres that can be placed in the CRP. It may be possible to expand eligibilities to include some of the remaining acres in the current program for water quality at no additional cost; and (2) allow states and other private organizations to "piggy-back" or supplement the federal CRP dollars to encourage additional enrollment. EPA endorses this improvement.

EPA will continue to support the USDA to ensure the continued success of the Conservation Reserve Program.

MAR 1988

USE OF BENEFIT-COST ANALYSES IN ENVIRONMENTAL RULEMAKING

While recognizing the limitations of benefit-cost analyses, EPA is finding these analyses to be increasingly usefuls tools in helping to provide the balance required in complex regulatory decisions. The Agency conducts benefit-cost analyses as one of the components of a Regulatory Impact Analysis (RIA).

During the period 1981-1986, 15 RIAs were completed, and a 1987 study of those 15 RIAs brought to light some of the important contributions of benefit-cost analyses for environmental rulemaking.

1) Analysis improves environmental regulation.

   EPA's benefit-cost analyses have resulted in several cases of increased net benefits to society from environmental regulations. Three of the RIAS showed that the net benefits from recommended improvements in the regulations would exceed $10 billion. The total cost of preparing all of the 15 RIAs studies was approximately $10 million. Thus, our analyses yielded a return on investment of 1,000 to 1.

2) Benefit-cost analyses often provides the basis for stricter environmental regulations.

   Environmentalists often fear that economic analysis will lead to less strict environmental regulations in an effort to save costs, but our study reveals that the opposite is just as often the case. For example, the most dramatic increase in net benefits ($6.7 billion) from EPA's RIAs resulted from a recommendation for much stricter standards -- to eliminate lead in motor fuels.

3) Alternatively, benefit-cost analysis may reveal regulatory alternatives that achieve the desired degree of environmental benefits at a lower cost.

   Four of the analyses studies (used oil, TSCA premanufacture review, FIFRA data requirements, and the National Contingency Plan) showed how less costly regulations would achieve results equivalent to the more expensive alternatives. In two of these cases (used oil and the National Contingency Plan), the analyses showed that the less costly alternatives would lead to greater reductions in environmental risk.

4) Statutory restrictions limit EPA's use of benefit-cost analysis for many regulations.

Many environmental statutes prevent EPA from considering costs and even some benefits when setting environmental standards. EPA was able to consider the full implications of its benefit-cost analyses when setting only 6 of the 15 regulations studied. EPA's experience shows, however, that some of the traditional statutory decision criteria, such as "health effects thresholds" and "technical feasibility," frequently do not provide clear distinctions for decision making. Being able to consider the full range of benefits and costs associated with alternative standards would enhance the information available in making these decisions.

5) The average cost of an RIA is low.

The average cost of EPA's 15 RIAs was $685,000. This amounts to about 0.1% of the minimum cost of a major rule over five years. (By definition, a major rule has a cost of at least $100 million per year.)

6) EPA can improve its benefit-cost analyses by expanding the available scientific and economic database and by following more rigorously EPA's own guidelines for preparing RIAs.

Only 6 of the 15 benefit-cost analyses presented a complete analysis that included monetized estimates of the net benefits of regulatory alternatives. For many of these analyses, the necessary scientific and/or economic data were either inadequate or unavailable. In the case of some of the other analyses, on the other hand, EPA simply did not thoroughly carry out all of the specific types of analyses called for in the RIA guidleines.

MAR 1988

OFFICE OF POLICY, PLANNING AND EVALUATION

Key Information for Designing Radon Communication Programs

In defining an effective radon message, the following issues should be stressed:

1) Seriousness of the risk - e.g. "radon can cause lung cancer."

2) Personalization of the risk - e.g. "you may be at risk from radon."

3) Action an individual can take.

Knowledge of radon health risks, testing and mitigation can help, but are not sufficient in and of themselves to motivate individuals to test their homes for radon. Instead, personalization of the risk appears to be a critical element in determinining why certain individuals test for radon. Those who believe radon is a problem in their community and who have spoken to someone about radon or know another individual who has tested, are more likely to take action.

Concern about the impact of radon on property values is both a positive and negative motivator. Some individuals test because they are concerned about home values, while others do not test to avoid having to disclose possible high radon. Length of residence in a community also appears to influence an individual's perception of the seriousness of radon risks. Those who have lived in an area tend to be more skeptical about radon than new residents.

State and federal government agencies are trusted sources when communicating about radon risks, but they should also work through other credible sources in the community (e.g. the Mayor, family physicians, etc.). Homeowners knowledgeable about radon who have tested and/or mitigated are also credible sources in speaking about radon.

Media and community outreach programs achieve different outcomes. Media outreach increases awareness of an issue while community outreach is better at educating people about an issue. In combination, media and community outreach are likely to be more effective than either alone.

R&D

R&D

RESEARCH AND DEVELOPMENT IN THE ENVIRONMENTAL PROTECTION AGENCY

EPA's dual role of:

- setting standards and limitations for pollutants and
- taking corrective steps to reduce and control pollution
- requires a diverse research and development program.

Major offices in research address key issues:

- human health effects and exposure to pollution
- ecosystem processes and effects research
- health and environmental assessment
- environmental engineering and technology
- exploratory research through grants and university centers
- environmental monitoring, measurement methods and quality assurance

The work is performed through 14 field laboratories in nine locations around the country.

The Research and Development budget in FY'88 provides $352 million which includes a workforce of about 1750 scientists, engineers, managagers and other specialists.

Research generally considers the entire pathway from the sources, transport, exposure, receptor, effects on receptors and corrective or mitigating steps.

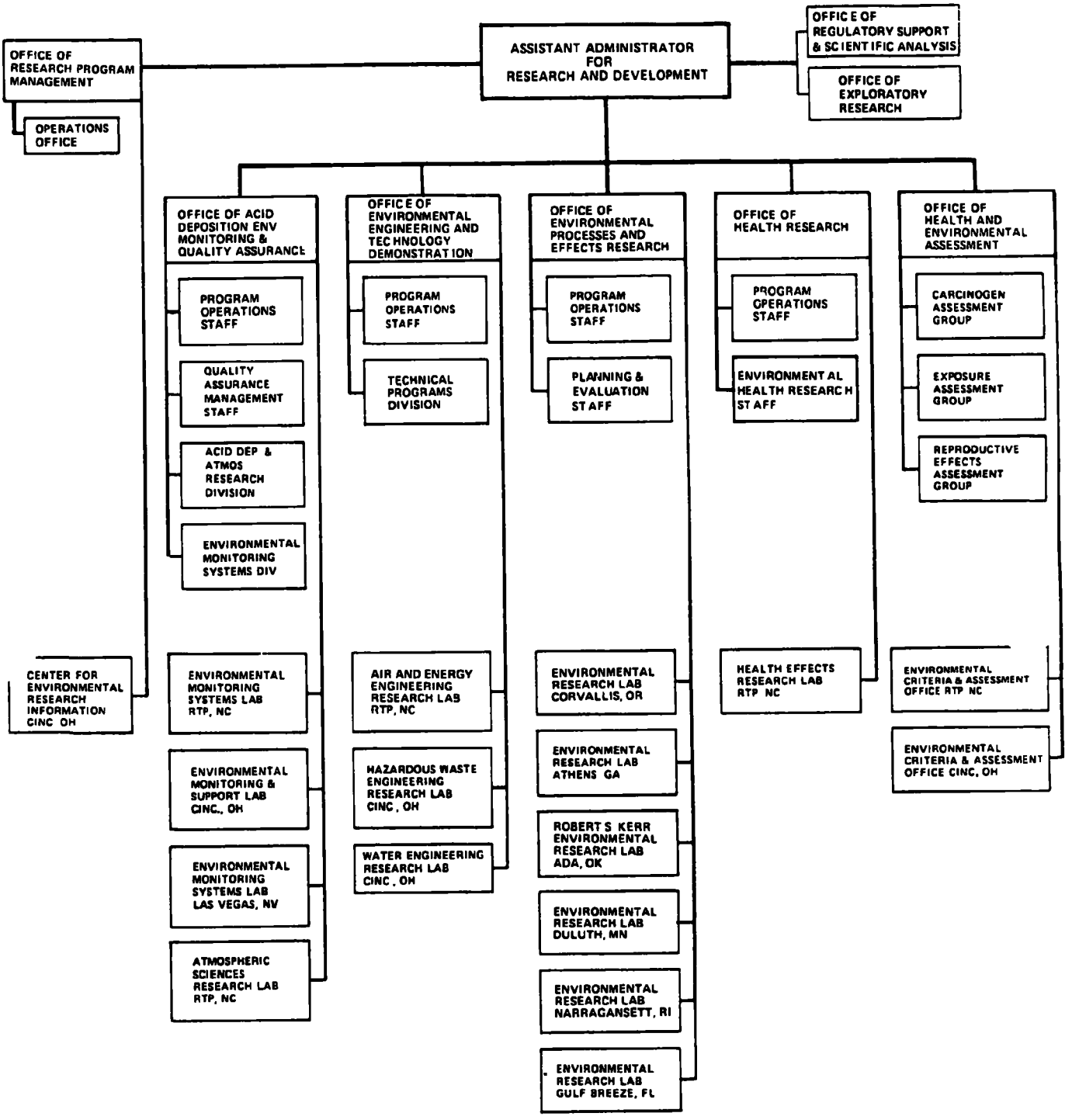
Broad categories of research include:

Air Quality	Hazardous Waste	Toxic Substances
Water Quality	Underground Storage Tanks	Interdisciplinary
Radiation	Superfund	Multi-media energy
Drinking Water	Pesticides	Technology Transfer

Some areas that are emerging and receiving increasing emphasis are:

Global Climate Change	Biotechnology
Reduction of Uncertainty in Risk Assessment	Air toxics
Indoor Air Quality (including radon)	Waste Minimization
Stratospheric Ozone Depletion	Municipal Waste Incineration
Innovative Technologies for Hazardous Waste	Regional Ozone Modeling
Acid Deposition	

OFFICE OF RESEARCH AND DEVELOPMENT



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

MAR - 4

OFFICE OF
RESEARCH AND DEVELOPMENT

MEMORANDUM

SUBJECT: Appointment of Frank Princiotta as Senior ORD Official at Research Triangle Park

FROM: Vaun A. Newill
Assistant Administrator
for Research and Development (RD-672)

TO: Administrator
Deputy Administrator
Assistant Administrators
General Counsel
Inspector General
Associate Administrators
Regional Administrators

I am today designating Frank T. Princiotta, Director, Air and Energy Engineering Research Laboratory, as the Senior ORD Official for Research Triangle Park. Frank has served as Laboratory Director for the past 7 years and will continue in this assignment as well as his new SORDO duties. He has been with EPA at headquarters and in the field since 1971. I look forward to working with Frank as we review and expand our outreach programs and other SORDO duties.

Also, I want to take this opportunity to express my sincere thanks to Dr. F. Gordon Hueter who served so well in this capacity for the past 2 years. Dr. Hueter has been with EPA and its predecessors for 27 years, serving as Director of the Health Effects Research Laboratory since 1977. We will miss Gordon's expertise and wish him well as he takes up his new ORD assignment with the World Health Organization in Geneva, Switzerland.

OFFICE OF RESEARCH AND DEVELOPMENT

1. OFFICE OF THE ASSISTANT ADMINISTRATOR FOR RESEARCH AND DEVELOPMENT. The functions and responsibilities assigned to the Assistant Administrator for Research and Development (AA-ORD) are Agencywide and apply to the satisfaction of research and development needs of the Agency's operating programs and the conduct of an integrated research and development program for the Agency. The Assistant Administrator for Research and Development serves as the principal science advisor to the Administrator, and is responsible for the development, direction, and conduct of a national research, development and demonstration program in: (a) Pollution sources, fate, and health and welfare effects; (b) Pollution prevention and control and waste management and utilization technology; (c) Environmental sciences; and (d) Monitoring systems. Participates in the development of Agency policy, standards, and regulations. Provides for dissemination of scientific and technical knowledge, including analytical methods, monitoring techniques, and modeling methodologies. Serves as coordinator for the Agency's policies and programs concerning carcinogenesis and related problems. Assures appropriate quality control and standardization of analytical measurement and monitoring techniques (for which the AA is assigned responsibility) utilized by the Agency. Exercises review and concurrence responsibilities on an Agencywide basis in all budgeting and planning actions involving monitoring which require Headquarters approval.

As Principal Science Advisor to the Administrator, the Assistant Administrator is assisted by an in-house staff of senior and experienced scientific and technical specialists. These specialists, upon request, provide technical and scientific reviews and expert consultation and advice on Agencywide technical program issues. This Office serves as the point of liaison with the EPA Science Advisory Board and administratively houses the Science Advisory Board staff.

The Center for Environmental Information, Cincinnati, Ohio. The Center is responsible for distributing publications about research and development to interested people. For more information about publications, call Bud Gallagher at 513-569-7862.

The Office of Regulatory Suppport and Scientific Analysis. This Office serves as a bridge between scientific and regulatory decision-making. ORSSA ensures that ORD scientific objectives and products are consistent with and useful for regulatory needs. Involvement in regulatory activities includes participating in the development of program office regulatory strategies, organizing and chairing ORD technical/regulatory workshops and representing ORD on Agency workgroups.

Office of Exploratory Research. The Office of Exploratory Research is responsible for overall planning, administering, managing, and evaluating EPA's anticipatory and extramural grant research in response to Agency priorities. The Director advises the Assistant Administrator on the effectiveness of ORD's long=term scientific review and evaluation. The responsibilities of this office include: administering ORD's scientific review of extramural requests for research funding assistance; developing research proposal soliciations; managing grant projects; and ensuring project quality and optimmum dissemination of results.

Office of Acid Deposition, Environmental Monitoring and Quality Assurance. The Office of Acid Deposition, Environmental Monitoring and Quality Assurance, is responsible for: (a) monitoring the cause and effects of acid deposition; (b) research and development on the causes, effects and corrective steps for the acid deposition phenomenon; (c) research,, development and demonstration of new monitoring methods, systems, techniques and equipment for detection, identification and characterization of pollutants at the source; (d) development and provision of quality assurance methods, techniques and material including validation and standardization of analytical methods, sampling techniques, and quality control methods.

Environmental Monitoring Systems Division. The Environmental Monitoring Systems Division is responsible for the planning, management, coordination and review of the Agency's research, development and demonstration programs in Air, Toxics, Pesticides, Radiation, Water, and Waste Management.

Acid Deposition and Atmospheric Research Division. This office conducts long-term assessments and short-tern analyses of scientific information to support Agency policy development on acid deposition including assessing cost, benefit, and effectiveness of control and mitigation options of acid rain; and determines the atmospheric proocsses, transport and transformation of air pollution as its relates to urban, regional, and global atmospheres.

The Division provides technical expertise and management assistance in the areas noted above; develops broad Agency policy and program plans, priorities and laboratory objectives; coordinates research and development activities with other components of ORD, the Agency, the Federal, State and local governments and the private sector; represents the Agency on the Research Coordination Council of the Federal Interagency Task Force on Acid Precipitation; reviews laboratory plans, allocates resources and monitors the status of ongoing programs; conducts or assists in conducting program reviews; and develops recommendations for corrective actions when necessary.

Environmental Monitoring Systems Laboratory, Research Triangle Park (RTP), North Carolina. The Environmental Monitoring Systems Laboratory, RTP, under the supervision of a Director, is responsible to the Director, OADEMQA, for the management within Agency and ORD policies and guidelines and allocated resources, of programs in field monitoring, analytical support, and other technical support for air pollutants in ambient air and from stationary and mobile sources; and of a quality assurance program for specialized air pollution monitoring. Assists in the development of broad research policy and program guidelines and long-range research plans. Recommends specific projects and programs, including the resources and schedules required to accomplish them. Upon obtaining the resources, carries out the work either through its own facilities and field stations or under contract, cooperative agreement, or interagency agreement with other organizations. Provides technical support to Agency components, as requested, within the resources allocated for this purpose. Assures that the results of its work are disseminated according to ORD guidelines. Provides the administrative and financial framework to assure that the activities of the Laboratory meet Agency and Federal government requirements.

Environmental Monitoring and Support Laboratory, Cincinnati, Ohio. The Environmental Monitoring and Support Laboratory, Cincinnati, under the supervision of a Director, is responsible to the Director, OADEMQA, for the management, within the Agency and ORD, of policies and guidelines and allocated resources; of programs in field monitoring analytical methods; other technical support; and quality assurance of water, wastewater, and solid waste.

Assists in the development of broad research policy and program guidelines and long-range research plans. Recommends specific projects and programs, including the resources and schedules required to accomplish them. Upon obtaining the resources, carries out the work either through its own facilities and field stations or under contract, cooperative agreement, or interagency agreement with other organizations. Provides technical support to Agency components, as requested, within the resources allocated for this purpose. Assures that the results of its work are disseminated according to ORD guidelines. Provides the administrative and financial framework to assure that the activities of the Laboratory meet Agency and Federal government requirements.

Environmental Monitoring Systems Laboratory, Las Vegas, Nevada. Responsible for the management of programs for multi-medial and remote sensing monitoring and measurements, special surveys, field testing, emergency response and other technical support operations, and of a quality assurance program. The Director is the principal contact for the teseting activities of the Department of Energy.

Office of Environmental Engineering and Technology Demonstration. This office is responsible for planning, managing and evaluating a comprehensive program of research, development and demonstration of cost effective methods and technologies (a) control environmental impacts associated with the extraction, processing, conversion, and transportation of energy, minerals, and other resources, and with industrial processing and manufacturing facilities; (b) control environmental impacts of public sector activities including publicly-owned waste water storage, treatment and disposal; (d)provide innovative technologies for response actions under Superfund and technologies for control of emergency spills of oils and hazardous waste (e) improve drinking water supply (f) characterize, reduce, and mitigate indoor air pollutants including radon (g) characterize, reduce, and mitigate acid rain precursors from stationary sources.

Technical Programs Division. The Technical Programs Staff (1) prepares planning documents for control technology (2) conducts appropriate program reviews of ongoing research (3) analyzes each existing or emerging authorization law and major regulation to determine the need for supporting environmental enginerring research and development and coordinates engineering review and comments for new or revised Agency regulations (4) Coordinates enviornmental engineering research with other federal agencies (5) prepares program master plans for ongoing technical programa and for overlapping research areas in ORD (6) conducts short and long-term studies and analyses related to cross-cutting or intermedia issues (7) serves as the Headquarter's principal point of contact with industry, associations, States and municipalities, and the program offices and regional offices.

Air and Energy Engineering Research Laboratory, Research Triangle Park, North Carolina. The Air and Energy Engineering Research Laboratory, under the supervision of a Director, catalyzes the development of control technologies and process modifications needed to establish and meet standards for air emissions in a timely and cost-effective manner, and supports EPA's regulatory and enforcement programs. The Laboratory environmentally assesses manufacture and use of synthetic fuel and other current and emerging energy sources and technologies; assures the necessary technological groundwork for assessing and controlling as necessary, the man-made sources contributing to the acid deposition problem; Assists in the assessment of the sources of indoor air pollution to provide guidance to control this problem; Promotes the development and early commercialization of techniques and technologies which will reduce the cost of attaining air quality goals and energy environmental goals.

Hazardous Waste Engineering Research Laboratory, Cincinnati, Ohio. Provides an authoritative, defensible engineering basis in support of the policies, programs and regulations of the Environmental Protection Agency with respect to solid and hazardous wastes and Superfund related activities. The Laboratory defines and characterizes sources of pollution, catalyzes advances in the state-of-the-art of pollution control, and provides engineering concepts for cost-effective engineering solutions to difficult pollution problems.

Water Engineering Research Laboratory, Cincinnati, Ohio. Responsibilities include the multi-media development and demonstration of cost-effective methods for the prevention, treatment and management of municipal wastewater and sludges and urban runoff; and of industrial processing and manufacturing and toxic discharges; and the development of technology and management systems for the treatment, distribution and preservation of public drinking water supplies.

OFFICE OF ENVIRONMENTAL PROCESSES AND EFFECTS RESEARCH.

The Office of Environmental Processes and Effects Research is the focal point within the Office of Research and Development (ORD) for providing liaison with the rest of the Agency with respect to transport, fate, and effects on organisms and ecosystems of pollutants that are released into the environment; and the planning and implementation of the Agency's biotechnology, ecological risk assessment, and expert systems research programs. The Office, in coordination with the Agency research committees: identifies specific research, development, and demonstration needs and priorities; establishes research program policies and guidelines; develops program plans, including objectives and estimates of the resources required to accomplish these objectives; justifies these resources and after receiving them, carries out the programs and activities as approved in the research plans; allocates objectives and resources to the laboratories assigned to the Office by the Assistant Administrator and to other agencies as appropriate; and conducts appropriate reviews to assure the quality, timeliness, and responsiveness of outputs.

Environmental Research Laboratory, Corvallis, Oregon. Responsible for management of a research program on terrestrial and watershed ecology, and on multi-media ecological effects assessement for pollutants and other environmentally harmful factors.

Environmental Research Laboratory, Athens, Georgia. Reespjonsible for management of fundamental and applied research required to predict and assess the human and environmental exposures and risks associated with conventional and toxic pollutants in water and soil ecosystems.

Robert S. Kerr Environmental Research Laboratory, Ada, Oklahoma. Responsible for management of research programs (1) to determine the fate, transport and transformation rates and mechanisms of pollutants in the subsurface environment (2) to define the processes to be used in characterizing the subsurface environment as a recetor of pollutants.

Environmental Research Laboratory, Narragansett, Rhode Island. With its Field Station in Newport, Oregon, it is the Agency's center for marine, coastala, and estuarine water quality research. Responsible for research in estuarine and marine disposal and discharge of complex wastes, dredged materials, and other wastes; water use designation and quality criteria for estuarine and marine water and sediment.

Environmental Research Laboratory, Gulf Breeze, Florida. Develops scientific information used to formulate guidelines, and standards, and strategies for management of hazardous materials in coastal, estuarine, and marine environments. The laboratory's research and development efforts deal primarily with toxic compounnds regulated by EPA's Office of Pesticides and Toxic Substances.

OFFICE OF HEALTH RESEARCH. The Office of Health Research is responsible for the management of planning, implementing, and evaluating a comprehensive, integrated human health research program which documents acute and chronic dverse effects to man from environmental exposure to pollutants and determines hose exposures which have a potentially adverse effect on humans. This documentation is utilized by ORD for criteria development and scientific assessments in support of the Agency's regulating and standardsetting activities. To attain this objective, the program develops test systems and associated methods and protocols, such as predictive models to determine similarities and differences among test organisms and man; develops methodology and conducts laboratory and field research studies; and develops interagency programs which effectively use pollutants.

The Office of Health Research is the Agency's focal point within the Office of Research and Development for providing liaison relative to human health effects and related human exposure issues (excluding issues related to the planning and implementation of research on the human health effects of energy pollutants hat is conducted under the Interagency Energy/Environment Program). It responds with recognized authority to changing requirements of the regions, program offices and other offices for priority technical assistance. In close coordination with Agency research and advisory committees, other agencies and offices, and interaction with academic and other independent scientific bodies, the Office develops health science policy for the Agency. Through these relationships and the scientific capabilities of its laboratories and Headquarters taffs, the Office provides a focal point for matters pertaining to the effects of human exposure to environmental pollutants.

Health Effects Research Laboratory, Research Triangle Park, North Carolina.
Responsible for the management of research programs to define the exposure-effect relationships between, and develop the data on, the health effects of environmental pollutants, acting singly or in combination, using toxicological, clinical, and epidemiological studies.

Office of Health and Environmental Assessment. Responsible for matters relating to the development of health criteria, health effects assessment and risk estimation.

Carcinogen Assessment Group, Washington D.C. Advises the Agency's operating programs on the health risks associated with suspected cancer-causing agents. It provides state-of-the-art methodology guidance and procedures for the evaluation of carcinogenicity; assures quality and consistency in the Agency's scientific risk assessments; provides independent assessment of risk and recommendations to the approrpriate offices concerning the risk associated with specific suspect carcinogens. Analyses are conducted independently of economic impact considerations.

Exposure Assessment Group, Washington, D.C. Advises the Agency's operating programs on the exposure characteristics and factors of agents that are suspected of causing detrimental health effects. In cooperation with the program offices, the Group: provides state-of-the-art methodology, guidance and procedures for exposure determinations; assures quality and consistency in the Agency's scientific risk assessments; and provides independent assessments of exposure and recommendations to the appropriate regulatory office concerning the exposure potential of specific agents. The work of the Group does not include consideration of economic impact.

Reproductive Effects Assessment Group, Washington, D.C. Responsible for advising the Agency's operating programs on the risks associated with chemicals that are suspected of causing detrimental reproductive effects, including mutagenic, teratogenic effects and sterility.

Environmental Criteria and Assessment Office, Research Triangle Park. Responsible for the preparation of criteria and assessment documents primarily in the field of air pollution, in support of program needs and schedules for use in Agency regulatory eactivities.

Environmental Criteria and Assessment Office, Cincinnati. Responsible for the preparation of criteria and assessment documents primarily in the field of water pollution, in support of program needs and schedules for use in Agency regulatory activities.

Risk
Communication

MAR 1988

EPA RISK COMMUNICATION PROJECTS

NOVEMBER, 1987

The following is a list of risk communication & risk training projects.

For additional information about a specific project, contact the person or organization whose name appears in parentheses. For comments or questions about the projects generally, contact Derry Allen (382-4012) or Ann Fisher (382-5500).

I. TRAINING

Completed

1. Handbook entitled "Explaining Environmental Risk." Sponsored by OTS, now in distribution. (OTS Hotline: 382-3790)

2. Risk Communication seminar for the Regional Public Affairs Offices (May 1987). (Linda Reed, 382-4361, Derry Allen, 382-4012)

3. RCRA Public Participation Course: Guidance on Public Involvement in RCRA published January 1986. (Vanessa Musgrave, 382-4751)

4. OERR presented "Risk Assessment in Superfund" to Superfund regional staff in ten sessions May - July 1987. The course covered the risk assessment process for superfund sites outlined in the Superfund Public Health Evaluation Manual. Updated and revised course to be presented in the future. (Sandra Lee, 382-4000).

5. Handbook entitled "Superfund Public Health Evaluation Manual", sponsored by OERR (OSWER Directive 9285.4-1, October 1986) available through the Public Information Center (382-2080). Manual to be updated to reflect SARA and new information on assessing public health risks to toxic substances. (Sandra Lee, 382-4000)

6. Risk Assessment training: the "Dinitrochickenwire" case. (Pam Stirling, 382-2747)

7. Risk Management training: the "Dinitrochickenwire" case. (Pam Stirling, 382-2747)

8. RCRA Corrective Action Case) for OSW. (Pam Stirling, 382-2747; Jackie Krieger, 382-4646)

Ongoing

9. Introductory training on risk assessment, risk management and risk communication; the "Electrobotics" case, adapted from RCRA corrective action case. Piloted in June, 1987; 25 courses being given Fall 1987. (Mary Setnicar, 382-2747)

10. Specialized training on risk assessment guidelines, IRIS, exposure (for Technical staff), ORD lead. (Peter Preuss, 382-7317)

11. Risk assessment/management/communication components of OSR course on Regulation Development in EPA. Pilot tested 10/87; to be offered periodically, beginning January 1988. (Maggie Thielen, 382-5494)

Proposed

12. Risk Communications training: concept paper presented to and accepted by Risk Training Committee, June 1987. Target starting date: Spring 1988. (Derry Allen, 382-4012)

13. Drinking water contaminants: A pilot project to develop and test training materials about communicating the risk of drinking water contaminants, using lead as a case study (Fall 1987). (Al Havinga, 382-5555; Ann Fisher, 382-5500)

14. Superfund site risk communication: Region IV has requested assistance in training staff to respond to risk questions posed at community meetings about the RI/FS. The training materials would be tested in Region IV before use in other Regions. (Ann Fisher, 382-5500)

15. Environmental Risk Education Program: Proposal being considered to fund a small clearinghouse designed to assist professors teaching environmental risk ideas. Joint project with ORD. (Scott Baker, 382-7449, Dan Beardsley, 382-2747, Derry Allen, 382-4012)

16. Handbook on individual risk perspective: To develop a training handbook for explaining how individuals can put their own environmental risks in the context of the other risks they face in their lives. (draft Winter, 88; Alan Carlin 382-5499)

II. PROBLEM - SPECIFIC CONSULTING AND ANALYSIS

Completed

1. Radon:

   a. Generation of citizens' guide, training program, etc. (OAR, OPPE, Public Affairs, Regions). (Steve Page, 475-9605)

   b. Maine study: analysis of perceptions and remedial responses of 230 households who received test results and an information brocdure as part of an epidemiological study; 1987 article in Risk Analysis. (Reed Johnson, 382-4396)

2. Evaluation of EDB risk communications (OPPE)

   a. Analysis of EPA "message" and media coverage; report and 1986 article in Risk Analysis. (Derry Allen, 382-4012)

   b. Analysis of market impacts and implicit value of information on EDB contamination. (Reed Johnson, 382-4396)

3. Study of effectiveness of present pesticide labeling and alternative formats, 1986 (OPPE). (Ann Fisher, 382-5500)

4. Evaluation of EPA risk communications concerning Chernobyl; completed June 1987 (OPPE, OEA, OAR). (Derry Allen, 382-4012, Gus Edwards, 475-8200)

5. Citizens' guide, "Lead and Your Drinking Water," April 1987 (OW, OPPE, OEA, OA). (Jeanne Briskin, 382-5456)

Ongoing

6. Radon: effectiveness of risk communication activities

   a. New York Study: 2300 homes monitored as part of NYS Energy Research and Development Authority study. OPPE (with OEA, ORP, Region II and NYS) developed information dissemination and evaluation program to test effectiveness of alternative information formats and delivery mechanisms to induce cost-effective voluntary reduction in radon risks (interim report July 1987). (Ann Fisher, 382-5500; Reed Johnson, 328-4396)

   b. Parallel comparison study being undertaken in Sweden at the Stockholm School of Economics. No EPA money, but involvement by OPPE staff. (Reed Johnson, 382-4396)

   c. Motivating people to test for radon: Public apathy is more of a concern than public panic over the well-publicized dangers from radon in homes. This study is exploring how to get people to test their homes for radon. 18 month study initiated Summer 1987. (Ann Fisher, 382-5500)

   d. Region III study: evaluation of alternative community outreach methods for motivating target audiences to test for radon. Results expected Spring, 1988 (Nancy Zahedi, 382-5349; Carol Deck, 475-7399)

7. Community response to radon information: To evaluate why the reactions were so different in Boyertown, PA, Vernon Township, NJ, and Clinton, NJ, drawing lessons about how to design a risk communication strategy that leads people to test and mitigate appropriately. (Draft report due January 1988). (Ann Fisher, 382-5500)

8. Lead in drinking water: To evaluate the effectiveness of ODW's risk communication strategy, which relies heavily on the pamphlet ("Lead and Your Drinking Water") distributed to the public. (Ann Fisher, 382-5500; Jeanne Briskin, 382-5456)

9. Pesticides in drinking water: To determine the factors that influence the public's perceptions and behavior regarding pesticides in drinking water, what sources the public views as credible, what types of messages make the risk information more meaningful, and what concerns were not satisified in the public's mind. Initiated May 1987. (Bill O'Neil, 382-3354)

10. Risk Communications for the National Survey of Pesticides in Drinking Water Wells. EPA is being advised and assisted by a panel from industry, environmental groups and academia (Georgetown University, chair). ODW, OPP, OPPE, (Bill O'Neil, 382-3354)

11. Guidance for Developing Toxic Profile Summaries: Focus groups have been used in evaluating a draft tox profile summary. The results will be used for training and guidance of contractors who will write the tox profiles starting in Fall 1987 [a joint EPA (OPA/OSR/OTS)-ATSDR effort]. (Mel Kollander, 382-2734)

12. Risk Communication at Superfund sites: OPPE studied risk perceptions around the OII landfill in California; now doing further work to understand public perception of Superfund risks and helping OERR develop a risk communication chapter for its community relations handbook. Draft being reviewed. (Alan Carlin, 382-3354)

13. Toms River, NJ, Superfund site: risk communication demonstration study (Region II, with OERR and OPPE) (Maria Pavlova, 382-3580)

14. Tributyltin in boat hull paints: To assist OPP and NOAA in developing and evaluating booklets to be sent to marinas and boat owners. One version will emphasize ecological risk, and the other will emphasize human health risk. NOAA is funding most of this study. (Judith Koontz, 382-4034)

15. Federal asbestos-in-schools program: OPTS analysis of the relationship of EPA's program to state programs and actual local abatement efforts (Ed Klein, 382-3790)

16. Hotline for Regions and Program Offices: To serve as an up-to-date resource for information on risk communication research, skill building, implementation, and evaluation: 382-5606 (in place 4/87)

17. Risk Assessment Review includes articles about Agency activities in risk assessment, risk management, and risk communication. (Peter Preuss 382-7315 or Marian Olsen, FTS 264-5682)

18. Communicating risk to change individual behavior: to determine whether risk information will lead to changes in everyday behavior. Research uses context of skin cancer risk from exposure to sunlight, because health data are firmer than most of the other risks the Agency manages. Results should apply to several issues in OPP, OTS, ODW and OAR. 18 month study initiated Summer 1987. (Alan Carlin 382-5499)

19. Community Right to Know:

    a) To conduct research about how to provide interpretive materials for the local emergency planning committees to use in explaining their emergency preparedness plans. (OPPE, OSWER, OPTS, OEA.) 12 month study initiated Fall 1987. (Terry Dinan, 382-2782)

    b) OTS project to test different ways of presenting information about data collected under Title III of SARA, especially for the continuous release data of Section 313. (Maria Pavlova, 382-3580)

20. Wood Stoves: To develop and evaluate the effectiveness of a risk communication campaign for explaining health risks from wordburning and how the risks can be reduced while still using this source of fuel. (Region VIII and Denver IEMP) Draft summary due Spring 1988. (Rich Lathrop, FTS 564-1701; Ann Fisher, 382-5500)

21. Case studies on air pollution risk communication: a review of three cases where state or local air pollution control agencies communicated the results of a source-specific risk assessment to the public. The emphasis will be on what was successful and what was not, and will be summarized in the National Air Toxics Information Clearinghouse. Report due 2/88. (Karen Blanchard, OAQPS, FTS 629-5503)

22. Measuring changes in risk beliefs: University of Colorado is measuring risk beliefs of public officials and community leaders both before and after they have participated in the Denver Integrated Environmental Management Project's risk communication program. Initiated Fall 1986. Completion is tied to IEMP schedule. (Alan Carlin 382-5499)

23. Evaluation of risk communication efforts at two IEMP sites: Philadelphia and Santa Clara. To be completed by Spring 1988. (Art Koines, 382-2700)

24. E-mail updates of Agency's risk communication activities. (Elaine Danyluk, 382-5606)

Proposed

25. Public response to environmental threat: examination of public opinion in three types of communities (those currently at risk, those currently at alarm, and those facing no known environmental threat) to learn about how the level of knowledge and basic perceptions change as the community goes through different stages. The goal is to suggest how the different actors in environmental conflicts can communicate better with each other. (Margaret Randol, FTS 264-4535)

26. Pesticides: discussions are under way with OPP staff to define projects of mutual interest. (Ann Fisher, 382-5500)

III. METHODS DEVELOPMENT

Completed

1. Catalog and evaluation of various agencies' efforts to use risk advisories (OPPE: OMSE and OPA, April, 1987). (Carol Deck, 475-7399)

Ongoing

2. NSF/EPA examination of risk communication research results that are relevant to practitioners. Draft report July 1987. (Derry Allen, 382-4012)

3. Case studies in risk communication, with accompanying analysis, Tufts University Center for Environmental Management. Draft November 1987; to be presented at workshops in January 1988. (ORD funding, OPPE assisting in management). (Daphne Kamely, 475-8917, Derry Allen, 382-4012)

4. National Academy of Sciences. The Academy is conducting major project on risk perception and communications. OPPE helped to get it launched and is following it closely. Report due in 1988. (Derry Allen, 382-4012)

5. Research and guidance on the use of risk comparisons as a communication tool, using court cases involving asbestos in schools as a case study (NSF and OPPE). (Derry Allen, 382-4012)

6. Environmental risks with long latencies or irreversible consequences. University of California--San Diego is assisting EPA in examining decision making under uncertainty, especially decision models (expected and nonexpected utility maximization) that individuals use to discount risks over time (conceptual draft received Fall 1987). (Ann Fisher, 382-5500)

7. Evaluate whether the expected amount of life lost (and other ways of expressing risk, such as the number of statistical lives lost per year) communicates risk more effectively than small changes in low probabilities. 18 month study initiated Summer 1987. (Ann Fisher, 382-5500)

8. Develop ways to achieve greater consistency between subjective and objective risks. 12 month study initiated Summer 1987. (Alan Carlin, 382-3354; Terry Dinan, 382-3354)

Proposed

9. Risk Communication Institute. OPPE has been advising a consortium of researchers interested in establishing an institute to study risk communications. (Derry Allen, 382-4012)

10. Avoiding risk information overload. OTS and OSWER are particularly interested in how to alert the public to risks without overwhelming them so that they reject all risk communication. This could be explored in the context of OTS communications about formaldehyde or para dichlorabenzene, or OTS and OSWER communications about Title III of SARA. (Ann Fisher, 382-5500)

11. Transferring natural hazards risk communication lessons for technological hazards. The natural hazards literature is relatively rich with studies of how risks have been communicated to affected groups. This research would explore how this could be applied for technological environmental risks. (Ann Fisher, 382-5500, Janice Quinn, 475-8600)

IV. OUTSIDE GROUPS AND GENERAL PUBLIC EDUCATION

Ongoing/Completed

1. "Tidewater" conferences for key public opinion leaders from government, industry, public interest groups, media, etc, focusing on case studies ("Dinitro-chickenwire") on risk assessment and risk management. (Pam Stirling, 382-2747)

2. National Conference on Risk Communication, Washington, D.C., January 1986; proceedings published, Fall 1987. (Derry Allen, 382-4012)

3. Seminars for the press on risk communication (with Georgetown University and other universities). Six held so far, with more planned. (OPPE and Public Affairs). (Derry Allen, 382-4012)

4. Integrated Environmental Management Program (OPPE): various special risk assessment/management/ communication efforts at Philadephia, Baltimore, Santa Clara, Denver, Kanawha Valley, Regions I, III, X, Commonwealth of Pennsylvania (ongoing). (Dan Beardsley, 382-2747)

5. Comparative Risk Project: report widely circulated, publicized and discussed; follow-up conference planned for April 1988. (Derry Allen, 382-4012)

6. Article comparing results from Comparative Risk Project with rankings of environmental problems by the public, examining reasons for and implications of differences; accepted for publication in Science, Technology and Human Values. (Derry Allen, 382-4012).

7. Article on New York State radon risk communication study for Risk Analysis. (Ann Fisher, 382-5500)

8. Center for Risk Management (at Resources for the Future). EPA's agency-wide contribution is providing approximately one-third of the funding (with the rest coming from foundations and industry). Functions include research, analysis, education and outreach on risk management and risk communication. Initiated April 1987. (Ann Fisher, 382-5500)

9. Interagency workshops on risk communication, sponsored by the Task Force on Environmental Cancer and Heart and Lung Disease (composed of 14 federal agencies and chaired by EPA). The first workshop was held in January 1987. The second will focus on evaluating risk communication and is planned for June 1988. (Derry Allen, 382-4012, Ann Fisher, 382-5500, Maria Pavlova, 382-3580)

10. National Conference on Environmental Gridlock, Princeton, NJ, November 1987. Report being drafted. (Margaret Randol, FTS 264-4535).

11. National Institute of Chemical Studies: OPPE helped plan and participated in a risk communication conference in Charleston, WV, March 1987. (Derry Allen, 382-4012)

12. Texas Risk Communication Project: Multiple sponsors include Texas Chemical Council and EPA's Region VI. A two-day workshop was held October 16-17, 1987, focusing on a communications package that can be used for presenting chemical risks to diverse audiences. (Ellen Greenay or Tim Underwood, FTS 255-6735)

13. EPA speakers and panels on risk communication at various conferences, including Society for Risk Analysis (11/86, 11/87), Public Relations Society of America (11/86), APCA (10/87,6/88), Hazardous Materials Spills Conference, Environmetrics 87, etc. (OPPE, ODW, OSWER).

14. EPA Journal: special issue on risk assessment management / communication (November, 1987). (Dan Beardsley, 382-2747, Derry Allen 382-4012)

MAR 1988

SEVEN CARDINAL RULES OF RISK COMMUNICATION

by Vincent T. Covello and Frederick W. Allen

There are no easy prescriptions for successful risk communication. However, those who have studied and participated in recent debates about risk generally agree on seven cardinal rules. These rules apply equally well to the public and private sectors. Although many of the rules may seem obvious, they are continually and consistently violated in practice.

RULE 1. ACCEPT AND INVOLVE THE PUBLIC AS A LEGITIMATE PARTNER.

A basic tenet of risk communication in a democracy is that people and communities have a right to participate in decisions that affect their lives, their property, and the things they value.

Guidelines: Demonstrate your respect for the public and sincerity by involving the community early, before important decisions are made. Involve all parties that have an interest or a stake in the issue under consideration. If you are a government employee, remember that you work for the public. If you do not work for the government, the public still holds you accountable.

Point to Consider:

- The goal of risk communication in a democracy should not be to diffuse public concerns or replace action; rather, it should be to produce an informed public that is involved, interested, reasonable, thoughtful, solution-oriented, and collaborative.

RULE 2. PLAN CAREFULLY AND EVALUATE YOUR EFFORTS.

Risk communication will be successful only if carefully planned.

Guidelines: Begin with clear, explicit risk communication objectives--such as providing information to the public, motivating individuals to act, stimulating response to emergencies, or contributing to the resolution of conflict. Determine if you have sufficient information to discuss the risks. Classify and segment the various groups among your audience. Aim your communications at specific subgroups in your audience. Recruit spokespeople who are good at presentation and interaction. Train your staff--including technical staff--in communication skills; reward outstanding performance. Whenever possible, pretest your messages. Carefully evaluate your efforts and learn from your mistakes.

Points to Consider:

- There is no such entity as "the public;" instead, there are many publics, each with its own interests, needs, concerns, priorities, and preferences.

- Different risk communication goals, audiences, and media require different risk communication strategies.

RULE 3. LISTEN TO THE PUBLIC'S SPECIFIC CONCERNS.

If you do not listen to people, you cannot expect them to listen to you. Communication is a two-way activity.

Guidelines: Do not make assumptions about what people know, think, or want done about risks. Take the time to find out what people are thinking: use techniques such as interviews, focus groups, and surveys. Let all parties that have an interest or a stake in the issue be heard. Identify with your audience and try to put yourself in their place. Recognize people's emotions. Let people know that you understand what they said, addressing their concerns as well as yours. Recognize the "hidden agendas," symbolic meanings, and broader economic or political considerations that often underlie and complicate the task of risk communication.

Point to Consider:

- People in the community are often more concerned about such issues as trust, credibility, competence, control, voluntariness, fairness, caring, and compassion than about mortality statistics and the details of quantitative risk assessment.

RULE 4. BE HONEST, FRANK, AND OPEN.

In communicating risk information, trust and credibility are your most precious assets.

Guidelines: State your credentials; but do not ask or expect to be trusted by the public. If you do not know an answer or are uncertain, say so. Get back to people with answers. Admit mistakes. Disclose risk information as soon as possible (emphasizing any reservations about reliability). Do not minimize or exaggerate the level of risk. Speculate only with great caution. If in doubt, lean toward sharing more information, not less--or people may think you are hiding something. Discuss data uncertainties, strengths and weaknesses--including the ones identified by other credible sources. Identify worst-case estimates as such, and cite ranges of risk estimates when appropriate.

Point to Consider:

- Trust and credibility are difficult to obtain. Once lost they are almost impossible to regain completely.

RULE 5. COORDINATE AND COLLABORATE WITH OTHER CREDIBLE SOURCES.

Allies can be effective in helping you communicate risk information.

Guidelines: Closely coordinate all inter-organizational and intra-organizational communications. Devote effort and resources to the slow, hard work of building bridges with other organizations. Use credible intermediaries. Consult with others to determine if you or someone else are best able to answer questions about risk. Try to issue communications jointly with other trustworthy sources (for example, credible university scientists, physicians, or trusted local officials).

Point to Consider:

- Few things make risk communication more difficult than conflicts or public disagreements with other credible sources.

RULE 6. MEET THE NEEDS OF THE MEDIA.

The media are a prime transmitter of information on risks; they play a critical role in setting agendas and in determining outcomes.

Guidelines: Be open with and accessible to reporters. Respect their deadlines. Provide risk information tailored to the needs of each type of media (for example, graphics and other visual aids for television). Prepare in advance and provide background material on complex risk issues. Do not hesitate to follow up on stories with praise or criticism, as warranted. Try to establish long-term relationships of trust with specific editors and reporters.

Point to Consider:

- The media are frequently more interested in politics than in risk; more interested in simplicity than in complexity; more interested in danger than in safety.

RULE 7. SPEAK CLEARLY AND WITH COMPASSION.

Technical language and jargon are useful as professional shorthand. But they are barriers to successful communication with the public.

Guidelines: Use simple, non-technical language. Be sensitive to local norms, such as speech and dress. Use vivid, concrete images that communicate on a personal level. Use examples and anecdotes take make technical risk data come alive. Avoid distant, abstract, unfeeling language about deaths, injuries, and illnesses. Acknowledge and respond (both in words and with actions) to emotions that people express-anxiety, fear, anger, outrage, helplessness. Acknowledge and respond to the distinctions that the public views as important in evaluating risks, e.g., voluntariness, controllability, familiarity, dread, origin (natural or man-made), benefits, fairness, and catastrophic potential. Use risk comparisons to help put risks in perspective; but avoid comparisons that ignore distinctions that people consider important. Always try to include a discussion of actions that are under way or can be taken. Tell people what you cannot do. Promise only what you can do, and be sure to do what you promise.

Points to Consider:

- Regardless of how well you communicate risk information, some people will not be satisfied.
- Never let your efforts to inform people about risks prevent you from acknowledging--and saying--that any illness, injury, or death is a tragedy.
- If people are sufficiently motivated, they are quite capable of understanding complex risk information, even if they may not agree with you.

* * *

Vincent T. Covello is Director of the Center for Risk Communication at Columbia University and is currently President of the Society for Risk Analysis. Frederick W. Allen is Associate Director of the Office of Policy Analysis at the Environmental Protection Agency. Both direct risk communication projects for their organizations. The views expressed here are solely those of the authors and do not necessarily represent the views of their organizations. The authors invite your comments.

EPA United States Environmental Protection Agency Washington DC 20460

MAR 1988

Why We Must Talk About Risk: A Personal View

Remarks by
Lee M. Thomas
Administrator
U.S. Environmental Protection Agency
before the
National Conference on Risk Communication
January 30, 1986

It occurred to me a little while ago that I have spent most of my time in government in jobs where one of the main things I had to do was telling people about the danger they might be in. That's certainly a major part of being a public safety director, and of working in the emergency response field, my former positions, and, of course, we're trying to make it a central part of the job I have now

At first I thought this might be the result of poor career counselling, but on reflection it appears that just about everything government does involves some form of risk communication. I would like, therefore, to take this opportunity to give you my personal view of this complex and troublesome business, to try to put it in a context broader than just environmental protection. I also want to tell you why I think risk communication has changed in recent years, why it's tougher than it used to be, why it will probably get tougher yet, and why I think we can't afford to relent in our efforts to learn how to do it better.

The Constitution tells us to provide for the general welfare, and we have defined that mandate broadly in recent times. In dozens of ways the government tries to stand between people and the risks resulting from natural or man-made phenomena. In the past, governments have approached this task through the use of experts. The expert examines the risk, makes a judgment about how much risk is tolerable, and proncunces a particular situation "safe" or "not safe."

Note that in these judgments some residual risk was always allowed; the experts knew this, but it wasn't the style to talk about it a lot. The government considered that it had done its duty if it had arranged for a reputable person to vouch for the safety of a particular process or thing. Most people were satisfied to rely on experts in those far-off days. Little information was available to the general public in any case, and if something did go wrong, it was convenient to have an individual to blame.

This general approach was considered adequate from the very earliest days of Federal involvement in the safety arena, which began with the establishment of the Steamboat Inspection Service, through the later development of safety standards for food, drugs, railways and aircraft. I think most of us would agree that it no longer is adequate, and I believe there are three reasons why.

First, the kind of risk we are most concerned about has changed as a direct result of changes in technology. The modern risk of concern, such as those you have been discussing at this conference, is subtle, hard to quantify, exotic in its origins and usually involuntary. Compare, for example, the differences between running EPA and running the Steamboat Inspection Service If your Steamboat Inspection program is working right, the number of explosions should decline over time. This is also easy to check. There should, in fact, be a good correlation between the stringency of your standards and the risk of completing a steamboat voyage unharmed Obviously, those simple days are gone forever.

The second reason is that the public has changed. Our people are both better informed and less tolerant of risk to life and health. There is ample information available about risks, much of it accessible to the non-expert. It may not be correct, but it is available

"We are expected to be more open, more responsive, more forthcoming than ever before."

This has tended to diminish expert knowledge in the public eye, as has the often-reported spectacle of distinguished experts in violent disagreement Finally, for a number of familiar reasons, government is no longer as trusted as it once was. In disputes about risk, agents of the government may be seen as pursuing institutional or political interests of their own.

Finally, government itself has changed We are expected to be more open, more responsive, more forthcoming than ever before, especially at the Federal level. Because of that we can't simply provide for the general welfare as a benevolent despot would. A British jurist once explained the necessity for open trials by saying, "Not only must justice be done, it must be seen to be done." In the same vein, not only must we protect: we must be seen to protect.

For these reasons, we can no longer simply establish safety through expert judgments privately arrived at. The response of government to perceived risk must take place within the full view of the public, hence our new emphasis on risk communication.

As I said earlier, this is happening throughout government. In one of my former jobs, for example, I had to make presentations to the state legislature on behalf of a program for releasing prisoners into the community. I had to communicate the risk that these people might commit other crimes. Again, such risks are difficult to determine; yet elicit strong opposition and debate. In siting prisons and halfway houses you have to explain these same risks to a local community. Siting prisons is quite similar to siting hazardous waste facilities, by the way. Everybody wants the capacity, but nobody wants to live next to the place itself

I've also had responsibilities in highway safety and emergency preparedness, and it's the same there as well. Your job is not only to buy the maximum in public safety with your limited resources; you also have to explain what connection there is between risk reduction and any inconveniences you're imposing on them.

"...risk communication has become an inevitable responsibility of nearly all parts of government."

My point is that risk communication has become an inevitable responsibility of nearly all parts of government. And having said that, I will have to add that environmental risk is unusual in several ways, ways that contribute to the difficulty of risk communication in this area.

To begin with, at EPA we must work with a very broad definition of risk. There are the literal risks to human health, of course, but there are also risks to particular ecological resources, to various measures of welfare—visibility, for example—and to the integrity of the environment as a whole. Different policies may have different, or even opposite, effects on these categories, and we have to explain this to the public.

Research indicates that our difficulty in dealing with a particular risk is a function of how familiar it is and of how dreaded its final effect. Many environmental risks score high in both these categories. The compounds that represent risk are often exotic, with strange alphabet-soup names. They are suspected of causing diseases like cancer and birth defects. We fear cancer in a way that we don't fear car crashes, which is one reason why many Americans are extremely sensitive to risks arising from environmental contaminants.

Another factor is the inability of science to produce definitive answers to questions about environmental risk. If we know our degree of risk, we can get used to it, even if it is quite high. Indeterminate risks, on the other hand, can breed infinite fear.

But I think the greatest difficulty lies in our inability to confront the phenomenon of residual risk, and deal with it in a constructive way. By "residual risk" I mean that risk which remains after society has expended all the resources it can afford for purposes of control. We may argue about what we can afford, but as any society's resources are in the end finite, some residual risk must inevitably exist. This has become more obvious with our increased ability to detect ever smaller concentrations of pollutants. It is also in the nature of things that some places are riskier to live in than other places and that some people bear more risk than others. These people may complain that while society at large gains the benefits of the technology that produces the pollution, society does not bear the risks; particular individuals do.

It is hard for a society such as ours, publicly dedicated to equality, and valuing so highly life and health, to confront this reality. Our discomfort has made it politically advantageous to foster the illusion of infinite resources. The EPA is often called on, for example, to eliminate all risk at a particular place, with the implied assumption that "somebody else" will pay for it.

The situation is complicated by the way that we partition risks into "voluntary" and "involuntary" categories. We have evidence that smoking is perhaps the major controllable public health problem in the country. We don't ban smoking; smoking is a voluntary risk. So is driving, but drivers kill thousands of "involuntary" pedestrians. We accept that too; people who walk on public thoroughfares in a society dominated by private transportation are expected to submit to a certain risk.

So it is odd that risks associated with the production of materials and energy, functions that are vital to our way of life, are totally rejected as "involuntary" and intolerable at vanishingly low levels.

Such is the emotional arena in which our risk communication must take place. We have our work cut out for us. Perhaps communication is, after all, too modest a concept. What I think we have to do is to re-educate ourselves with respect to risk, so that we can as a society make sensible and public judgments about safety.

"...the greatest difficulty lies in our inability to confront the phenomenon of residual risk, and deal with it in a constructive way."

This will take some time and it will expose those who attempt it to political risks. Residual environmental risk is plain bad news. Why spread this news? I think you must if you intend to serve the broadest public interest. To do so, you have to accept and publicize the reality that our society generates risk in the course of making a living for everyone in it. But when you defend the broad public interest there tend to be ranged against you special interests: the "not-in-my-backyard" interests, the "why-does-it-have-to-be-me" interests, and, of course, the interests of those who bear some responsibility for producing risk in the first place. Now even a cursory study of American politics suggests that when the

general interest and special interests are in conflict, you'd be wise to back the special interests, by about fourteen points.

Some people believe that bucking such interests is impossible. To be frank, I used to believe that myself. Now I am convinced that EPA must take the harder road. Let me turn now to some of the practical steps we are taking in that direction.

First, we will continue to express control actions in quantitative risk terms whenever possible. We will openly discuss the alternatives we considered in those terms, and openly confront the issue of residual risks. For example, we recently promulgated a regulation banning most uses of asbestos. In our announcement, the risks of all the alternatives we considered were clearly indicated, together with their costs. We will also attempt to put environmental risks in a broader context. I want people to understand that risks vary widely in their seriousness, and that EPA's program is concentrated on the worst ones. I want us

"We are not going to go into a community and 'tell' people what we intend to do. We are going to listen to local concerns and ideas."

to be aggressive in pursuit of risks; when people learn about risk, I want EPA to break the news in an authoritative and comprehensive way.

Next, we are attempting to increase the consistency and clarity of our scientific base. We are in the process of reviewing the quantitative information about chemical toxicity developed over the years in different parts of the Agency, to insure that it is correct and that the Agency gives a single answer about each substance we have studied. In the near future we will make efforts to increase direct public access to this store of information.

On the national level, we will build risk communication into regulatory policy whenever possible. The Superfund Community Relations policy is a good example of this approach. In brief, we intend to develop a community relations plan for every Superfund response action lasting longer than five days. For remedial sites, these plans must be prepared before remedial investigation work begins. The plans will be based on interviews with state and local officials, civic and community organizations, interested residents and media representatives.

The most important thing about this program is that it is designed to be a two-way system of communication. We are not going to go into a community and "tell" people what we intend to do. We are going to listen to local concerns and ideas. It is true that many of the issues involved in a site cleanup are highly technical, but we can no longer use that as an excuse for discounting what a community has to say about risk. We must empower the community to discuss risk in a rational and technically competent way.

We intend to develop a similar community relations program in connection with the permitting of hazardous waste treatment, storage and disposal facilities, under the 1984 RCRA amendments. The pattern of waste disposal is going to change in response to those amendments. Wastes that went into landfills will have to go somewhere else. There will be renewed attention paid to recycling and incineration. We intend to involve the public in the permitting process in the same way as we are involving it in cleanup planning and execution.

Now it is an odd fact that communities that would not object to, or even welcome, a manufacturer of chemicals locating near by, will offer strong resistance to a recycling plant or an incinerator, if the fatal words "hazardous waste" are used. It is clear that we cannot afford public ignorance in areas where waste disposal facilities are required. The extraordinary difficulties we now have in siting hazardous waste facilites of any kind tell us we need to do a better job.

And not only must we raise the level of sophistication about risk issues by direct action, we must do what we can to increase the number of

"State and local leaders must become more familiar with the language and skills of risk analysis."

people who can communicate effectively about risk. State and local leaders must become more familiar with the language and skills of risk analysis. We have launched a series of risk assessment workshops for such officials, and for our own regional staffs. At these meetings we take the participants through a model risk assessment, to give them a feel for the kind of information that we can derive from scientific inquiry, for the role that judgment must play in the attribution of risk, and for the degree of uncertainty involved.

We are also working with a number of states on pilot projects designed to help them assess environmental risks on a state-wide basis, and then set priorities for control. Risk communication is a central part of these projects. Their ultimate goal is to increase public cognizance of the fact that priorities

must be set if any real progress is to be made against environmental risk and to gain public acceptance of an ordered and rational program to control the most significant risks first.

The coming year will challenge our ability to communicate risk to the utmost. We will be making extent-of-remedy decisions on at least fifty sites on the Superfund National Priority List. If we don't learn how to work with the communities involved, if they don't come to feel that EPA and the state agency and the community are on the same side, grappling with difficult technical and moral problems in the best way we can, then that program is not going to work.

As we move further along, and begin addressing different kinds of risks, the need for risk communication will grow. We have been accumulating evidence that in many places the major sources of health risk are not industrial plants or even hazardous waste facilities. They come from things like radon, a natural radioactive product of certain types of rock, from the air in your home, from your wood stove, from the gas station and the dry cleaners down the street. Controlling these risks has the potential for seriously affecting individual lives and causing significant personal financial loss. People are not going to go along with programs that have such potential unless they truly understand the risk they are exposed to, and unless they participate fully in decisions about controlling it.

As I suggested earlier, this future will make risk communication more necessary, but no easier. The risk communicator has few friends. This was brought home to me in a particularly dramatic way at a public meeting in my home state some years back. I was explaining an evacuation plan for a nuclear facility. During the question period, the toughest questions came from one elderly lady who kept at me relentlessly about what the risks were, and how we knew, and whether we had considered this or that detail. That lady was my mother.

But as uncomfortable as it may be, we have no real choice in the matter. Risk communication of the type I have outlined appears to be the only approach that protects the environment while supporting both the democratic goals and the economic goals of our technological society. We will never return to the days when we were content to let people in white coats make soothing noises. The public must share directly in decisions that affect it, and we must insure that it does so with a fuller understanding of the inevitable trade-offs involved in the social management of risk.

Issues

Acid Rain

EPA Issue Profile

Issue ..... ACID RAIN
Contact ..... Brian McLean
475-9400
Revised ..... March 1988

Background: Acid rain has long been recognized as a complex environmental problem. It is most closely associated with damage to aquatic systems, historic monuments, statues, and other structures. It may also contribute to forest damage, affect crops, andndirectly affect human health. Acid rain occurs when sulphur dioxide (SO_2)--emitted primarily by coal-fueled electric utilities--are chemically transformed and transported in the atmosphere and deposited on earth in the form of dry or wet deposition. Over 80 percent of U.S. SO_2 emissions originate in a 31-eastern-state region, with most of these coming from states in or adjacent to the Ohio River Valley. Prevailing winds transport emissions to the Northeast across state and national borders. The United States historically shares with Canada a concern for this transboundary problem, and the two governments are taking an active role in dealing with it.

Status: EPA has a five-part acid rain program. ONE, actively pursuing a major research effort with other federal agencies under the National Acid Precipitation Program (NAPAP) to resolve the critical uncertainties surrounding the causes and effects of acid rain. To date, about $300 million has been spent on overall federal research under NAPAP. Phase I of the Eastern and Western Lake surveys has been completed. Forest research is evaluating the role of acid deposition and other associated air pollutants. A recent report indicated that several hundred lakes (a relatively small percentage of the total U.S. lakes) are acidic, and that damage to crops, forests and human health has not been demonstrated. TWO, continuing review of acid rain policy for key decision-makers in the Administration and Congress. THREE, working with states as part of the Congressionally-funded State Acid Rain (STAR) program to identify and resolve potential implementation issues associated with a major acid rain emissions program. FOUR, working with other federal agencies to implement the Special Envoy's report on acid rain, including the $2.5 billion government/industry program to commercially demonstrate control technologies. FIVE, enforcing provisions of the Clean Air Act to reduce the principal precursors of acid rain. From 1970-1985, SO_2 emissions have been reduced 27 percent. In addition, since 1970, motor vehicle controls have slowed the growth of NO_x emissions.

Coming Up: Over the next two years, major research results are anticipated for improving the basis of decision-making on the acid rain issue.

Air Toxics

EPA Issue Profile

Issue ..... TOXIC AIR POLLUTANTS
Contact ..... Kent Berry
8-629-5505
Revised ..... March 1988

Background: Although it is difficult to quantify the magnitude of the air toxics problem in the U.S., EPA studies have indicated that the health risks due to air toxics rank high relative to other environmental problems EPA deals with. In a limited study that focused on routine releases (as opposed to accidental releases) and only on cancer, EPA estimated that air toxics currently cause between 1300 and 1700 cancer deaths per year. The EPA found that the problem is widespread, diverse, and complex, with area sources (automobiles, trucks, wood stoves, solvent uses, etc.) accounting for 50-75 percent of the aggregate cancer risk. Furthermore, there are limited areas of high individual risk for those living close to such sources. The EPA also estimates that control programs for particulate matter and ozone [e.g., State Implementation Plans, New Source Performance Standards (NSPS) and motor vehicle standards] indirectly reduced the cancer incidence by over 50 percent between 1970 and 1980.

Status: In response to the studies and public criticism of the pace of EPA's regulatory program under section 112 of the Clean Air Act (National Emission Standards for Hazardous Pollutants or NESHAP), EPA announced in June 1985 a comprehensive air toxic strategy to address this problem. The strategy provides an important role for states in regulating air toxics in addition to an expanded and refocused Federal role. (For the current status of section 112, see attachment). The Federal role emphasizes use of all EPA authorities for regulating air toxics. Examples include new source performance standards for wood stoves, the organic chemical manufacturing industry, and municipal waste combustors; mobile source standards for diesel and methanol vehicles, vehicle refueling, and fuel additives; regulations for treatment, storage and disposal facilities under the Resource Conservation and Recovery Act (RCRA); and regulations for chromium from cooling towers and for certain chlorinated solvent uses under the Toxic Substances Control Act (TSCA.)

Coming Up: Additional attention will be focused on non-cancer health effects. State and local enforcement activities are expected to significantly increase.

Asbestos

EPA Issue Profile

Issue ..... ASBESTOS
Contact .....David Kling
382-3949
Revised ..... March 1988

Background: Asbestos is the name for a group of natural minerals that separates into strong, heat-resistant, durable fibers. Prior to 1973, asbestos products were widely used in construction in this country for fireproofing, insulation and decorative purposes. Friable forms (which easily crumble in the hand) emit tiny fibers that can remain suspended in the air for long periods. The fibers penetrate body tissues when inhaled. Asbestos is known to cause asbestosis, a potentially fatal disease of the lungs, and various forms of cancer.

Legislation: The Asbestos School Hazard Abatement Act (ASHAA) of 1984 makes available $600 million in federal loans and grants from the EPA to assist schools with severe asbestos hazards in the removal or control of friable asbestos-containing materials. Schools are required to inspect their buildings for asbestos and take appropriate abatement action using qualified, accredited persons for inspection and abatement. The Asbestos Hazard Emergency Response Act, signed in October 1986, directs EPA to develop a regulatory framework for undertaking such corrective measures.

Regulatory Action: On February 25, 1987, EPA issued the final rule to protect state and local government employees, including school maintenance workers such as janitors, from the potential hazards of asbestos abatement work, incorporating standards issued by OSHA in June 1986. In January 1986, EPA proposed an immediate ban on asbestos in some products and phasing out all its other uses over a 10-year period. Products that would be banned include asbestos-cement pipe and fittings, roofing felts, flooring felts (and felts-backed sheets flooring), vinyl-asbestos floor tile, and asbestos clothing.

Status: On March 1, 1988 EPA announced that 22.6 million in loans and grants was awarded to 103 local education agencies. Congress asked that EPA expedite the award process to distribute funds in time for asbestos abatement work to be completed during the 1988 summer recess.

Coming Up: On October 22, 1986, President Reagan signed into law the Asbestos Hazard Emergency Response Act (AHERA, Public Law 99-519). The law required EPA to develop regulations which provide a comprehensive framework for addressing asbestos problems in public and private elementary and secondary schools. On October 30, 1987, EPA published the Asbestos-Containing Materials in Schools Rule (40 CFR Part 763 Subpart E). This New Rule requires all public and private elementary and secondary schools to inspect for friable and non-friable asbestos, develop asbestos management plans that address asbestos hazards in school buildings by October of 1988; and begin implementation of response actions by July of 1989.

United States
Environmental Protection
Agency

Office of
Public Affairs (A-107)
Washington DC 20460

SUMMARY OF THE STATEMENT OF
JOHN A. MOORE
ASSISTANT ADMINISTRATOR
OFFICE OF PESTICIDES AND TOXIC SUBSTANCES
U.S. ENVIRONMENTAL PROTECTION AGENCY
BEFORE THE SUBCOMMITTEES ON
HAZARDOUS WASTES AND TOXIC SUBSTANCES
AND
SUPERFUND AND ENVIRONMENT OVERSIGHT
OF THE
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
U.S. SENATE

MARCH 15, 1988

-- Describes EPA's efforts to implement the AHERA schools program, the asbestos-in-buildings report, federal agency programs to control asbestos and the pros/cons of using an "acceptable level" standard to control public exposure to asbestos.

-- Describes the asbestos-in-buildings report including the methodology used, the findings and their implications. EPA estimates that asbestos-containing material is present in 20% of the public and commercial buildings, compared to 35% of the schools. Because of data limitations, EPA is unable to make quantitative conclusions about actual exposure of people in public and commercial buildings. Thus, a major federal regulatory program would not be prudent at this time. EPA's recommendations are: 1) enhance the nation's technical capability; 2) focus attention on thermal system insulation asbestos; 3) improve integration of activities to reduce imminent hazards; 4) assess AHERA school rules.

-- Discusses federal agency asbestos control programs: U.S. Postal Service has a formal asbestos abatement program; GSA and Veterans Administration have developed asbestos control programs with EPA participation.

-- Summarizes the information from a workshop convened by EPA regarding the concerns of the financial community (owners and managers of commercial buildings, mortgage bankers and investors and asbestos consultants and contractors) with respect to asbestos in public buildings.

-- Describes EPA's implementation of the AHERA schools rule including establishing a training and accreditation system for inspectors and management planners, awarding cooperative agreements (over $1 million to 17 states) to support state training and accreditation programs, developing the Asbestos

Inspection and Management Plan Assistance Program (to provide grants to states). EPA intends to use public outreach, inspections and a strong enforcement program to achieve compliance.

-- Concludes by stating that it would not be practical for EPA to adopt a numeric standard for asbestos exposure. Reasons: asbestos exposure results from episodic events which vary widely and are difficult to predict; the most accurate monitoring would be by the TEM direct method which is very expensive. EPA's traditional approach is the most viable one at this time: laboratory identification of asbestos-containing material and visual assessment of its condition by trained professionals.

Prepared by: Reynold Meni
Attorney-Advisor
Office of Legislative Analysis
Narch 15, 1988

Biotechnology

EPA Issue Profile

Issue ..... BIOTECHNOLOGY AND ENVIRONMENTAL REGULATION
Contact .....Elizabeth Milewski 382-2914
Revised ..... March 1988

Background: Called the equivalent of the discovery of fire because of its revolutionary scientific potential, biotechnology is expected to generate a multibillion dollar market in pharmaceutical, industrial and specialty chemicals, and in agriculture and animal husbandry. Specially engineered microorganisms to degrade pollutants, to mine minerals, to improve plant productivity and for use in oil recovery, also are in development. EPA, which is part of a government-wide coordinating framework to oversee biotechnology, is regulating biotechnology products under two of its authorities, the Federal Fungicide and Rodenticide Act and the Toxic Substances Control Act. The Agency has taken a case-by-case approach to reviewing the biotechnology products under its jurisdiction.

Research: The Agency is the primary funder of risk assessment efforts in biotechnology in the United States. EPA is also initiating research into certain biotechnology applications with the aim of showing their potential in different endeavors. For example, the Agency's laboratory in Ada, Oklahoma, has cultivated microorganisms that now consume and detoxify chlorinated hydrocarbons, and is now seeking to develop organisms to work on other chemicals, including dioxin and PCBs. The laboratory in Gulf Breeze, Fla., is developing bacterial strains resistant to mercury with the intention of using them to reduce mercury pollution in contaminated environments.

Status: The White House Office of Science and Technology Policy and the agencies working with it (EPA, USDA, FDA, NIH, NSF, OSHA) issued policy statements in June 1986 to provide the framework for federal regulation of biotechnology.

Regulation: EPA has approved permits allowing two experiments with genetically altered bacteria. The first PMN under TSCA was with Monsanto in conjunction with Clemson University. The second was with alfalfa and was with Biotechnica, Inc. It was approved in 3/9/88. See attached press releases.

Clean Water Act

EPA Issue Profile

Issue **State Revolving Fund**

Contact Rich Kuhlman, 382-7256

Revised March 1988

Background: Since 1972, EPA has awarded $44.6 billion for sewage treatment construction grants. The 1987 Clean Water Act Amendments authorize an additional $18 billion, total, for construction grants through 1990. Of this amount, at least $8.4 billion and as much as $13.2 billion the law authorizes for capitalization grants to establish state revolving funds. Federal money in the SRFs must be matched by at least 20% state funding.

The State Revolving Funds for construction of sewage treatment plants and other water-pollution control activities were created by the 1987 amendments to the Clean Water Act. They are part of the transition from the Federal construction-grants program to a state-operated loan program.

Highlights: Under the new program, states and localities will be primarily responsible for financing, constructing and managing municipal wastewater facilities. State Revolving Fund (SRF) officials will make loans to local governments for specific water pollution control purposes. Loan repayments, including interest, are to be used to make new loans for similar purposes. In this way, money is recycled to finance more projects than could be financed through Federal grants alone.

Congress has provided for capitalization grants to states for the development of SRF programs. The Federal capitalization grant (seed money) and state matching funds provide the initial money for the SRF. The fund administrators lend this money to local governments.

States may structure their particular SRF program to meet their specific needs and constraints. Several variations of funding programs are possible within the basic framework. If the fund administrators choose, they may borrow funds in the bond market to supplement initial capitalization.

Status: EPA has published, in the February 2, 1988 Federal Register, a notice of availability of guidance to assist states in establishing their revolving funds. Copies of that guidance can be obtained by writing to the Office of Municipal Pollution Control (WH-546), Office of Water, U.S. EPA, 401 M St. S.W., Washington, D.C. 20460, or calling (202) 382-7256.

United States Environmental Protection Agency

Office of Public Affairs (A-107) Washington DC 20460

SUMMARY OF TESTIMONY OF
CAROL FINCH
DIRECTOR, GREAT LAKES NATIONAL PROGRAM OFFICE
U.S. ENVIRONMENTAL PROTECTION AGENCY
BEFORE THE
SUBCOMMITTEE ON WATER RESOURCES
COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION
HOUSE OF REPRESENTATIVES

March 2, 1988

* The testimony provides an update on the progress made by the U.S. Environmental Protection Agency's Great Lakes National Program Office during 1987.

* Two important events concerning EPA's Great Lakes National Program occurred during 1987--enactment of the Water Quality Act of 1987, and the signing of amendments to the United States-Canada Great Lakes Water Quality Agreement.

* Passage of the Water Quality Act gave the Great Lakes Water Quality Agreement recognition for the first time in U.S. law.

* The updated Agreement, signed by the U.S. and Canada reaffirms our determination to restore and enhance the quality of the Great Lakes System and strengthens our commitment to solving the most critical problems on the Lakes.

* The Agreement:
  - Establishes stronger provisions for addressing the problems of toxic pollutants in the Great Lakes ecosystem;
  - Provides for a comprehensive approach to controlling pollutant sources in the Great Lakes;
  - Adds provisions for evaluating the importance of airborne toxic substances to the Great Lakes ecosystem;
  - Calls for greater attention to the relationship between ground water and surface water and the potential for contaminated ground water to affect the quality of water in the Great Lakes.

* The testimony describes the 5-year Study and Demonstration Program for contaminated sediments which EPA is conducting pursuant to section 118(c)(3) of the amended Clean Water Act.

* In response on the updated Agreement and sec. 118 of the Clean Water Act, EPA's National program office has recently embarked on a significant realignment and planning effort. The change in emphasis from conventional to persistent toxic pollutants and the increased requirements for coordination necessitate this new direction.

SUMMARY OF THE STATEMENT OF
DR. ALVIN R. MORRIS
DIRECTOR, WATER MANAGEMENT DIVISION
REGION 3
U.S. ENVIRONMENTAL PROTECTION AGENCY
BEFORE THE
SUBCOMMITTEE ON WATER RESOURCES
OF THE
COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION
HOUSE OF REPRESENTATIVES
BALTIMORE, MARYLAND
MARCH 7, 1988

- The testimony discusses the new Chesapeake Bay Agreement and the evolution of the cleanup program that led to the signing of that document.

- In December 1983, the State of Maryland, the Commonwealths of Pennsylvania and Virginia, the District of Columbia, the Chesapeake Bay Commission, and EPA strengthened their commitment to Chesapeake Bay in an historic partnership with the signing of the first Chesapeake Bay Agreement.

- The 1983 Agreement established the institutional arrangements which are the strong foundation for the far-reaching program that exists today. The 1983 Agreement also established an Executive Council to oversee the implementation of "coordinated plans to improve and protect the water quality and living resources of the Chesapeake Bay estuarine system."

- Since 1984, State and D.C. agencies have spent more than $250 million to support varied and comprehensive Bay initiatives. They include point and nonpoint source pollution control programs, legislative proposals, projects to restore living resources, and research to achieve a better understanding of the habitat requirements of desirable Bay species.

- Development of the new Agreement began in January 1987; it was approved and signed in December 1987. The new Agreement goes well beyond the 1983 pact and the 1985 Restoration and Protection Plan in both scope and detail. The Agreement establishes specific goals, objectives and commitments under six topical headings: Living Resources; Water Quality; Population Growth and Development; Public Information, Education and Participation; Public Access; and Governance.

- The testimony describes the new Chesapeake Bay Agreement, and it describes the commitment to significantly reduce nutrients in the Bay. As requested by the Committee, the statement gives particular attention to the problem of toxic pollutants and their potential effects upon the Bay.

United States
Environmental Protection
Agency

Office of
Public Affairs (A-107)
Washington DC 20460

EPA

Environmental Issue Profile

Contact: George Ames, 382-7818

[redacted]

Issue: Water Quality Act of 1987 MAR 1988

Background: This legislation amends and reauthorizes the Clean Water Act of 1972, which expired September 30, 1982, and was then funded by continuing resolution. The new measure is identical to legislation passed last year and pocket vetoed by the President. President Reagan vetoed the new bill January 20, maintaining it was too expensive. Congress overrode the veto and the bill became law February 4.

Highlights: The legislation authorizes $9.6 billion through FY 1990 for grants to the states to pay up to 55 percent of construction costs for wastewater treatment plants. Another $8.4 billion is to be used to establish state-operated revolving loan funds to finance construction of treatment facilities from FY 1989 through 1994, with stat matching 20 percent of the Federal contributions.

Deadlines for industries to comply with wastewater treatment technology standards are extended, with compliance to be achieved as "expeditiously as possible" but in no case later than three years after regulations are in place. The final deadline for compliance is March 31, 1989. States are charged with developing control strategies within two years to reduce toxic pollutants. Standards are to be met within three years after strategies are adopted.

The Act authorizes $400 million over four years in grants for state management programs aimed at curbing nonpoint source pollution (e.g., agricultural runoff), and for ground water programs.

The measure provides $10 million a year for four years for matching grants to states around Chesapeake Bay, $11 million annually over a five-year period to combat Great Lakes pollution, and $12 million a year for five years for a National Estuaries program. New authority is granted Indian tribes, which will be treated as states and given a share of construction grant funds.

Coming Up: EPA must establish regulations by February 1989 for industries and large municipalities (over 250,000 population) discharging storm water, with permit applications due the following year, and discharge permits issued by February 1991. At that time, the Agency must promulgate regulations for medium-size municipal storm water systems (serving a population between 100,000 and 250,000), with applications due by 1992 and permits issued by 1993.

FACT SHEET

KEY PROVISIONS OF THE WATER QUALITY ACT OF 1987

Construction Grants Program

The construction grants program is covered in Title II of the bill. Section 212 creates a new Title VI in the Clean Water Act. These sections address the process of phasing out the construction grants program by providing incentives for the development of alternative funding mechanisms by the States. The Act also amends the existing construction grants program. The new Title VI charges EPA to develop and implement a program to provide grants to capitalize state revolving loan funds for financing wastewater treatment projects.

Authorizations per year

Year	Grants	State Revolving Fund
1986	$2.4	---
1987	$2.4	---
1988	$2.4	---
1989	$1.2	$1.2
1990	$1.2	$1.2
1991	---	$2.4
1992	---	$1.8
1993	---	$1.2
1994	---	$0.6

State Revolving Loan Program §212

---Authorizes Federal capitalization of State revolving loan programs, with the State to provide at least 20% matching funds. The Federal money must first be used for the enforceable requirements of the Act, including the municipal compliance deadline. Once the enforceable requirements are met, funds in excess of the Federal grants may be used for any project in Section 212 (Definitions), Section 319 (Nonpoint Sources), and Section 320 (National Estuary Programs). Types of assistance include loans, refinancing local debt obligations incurred after 3/7/85, guarantees or insurance for local obligations, and as a source of revenue or security for payment of principal and interest on State bonds where proceeds go to revolving funds. Payments to States to be made quarterly within stated periods of time.

Post BAT §308

---Requires a progressive program of toxics control. Provides for States to identify waters where technology-based controls and existing water quality-based controls are not adequate to meet water quality standards for the priority pollutants or adequate to protect users, wildlife, or the fish and shellfish of a waterbody.

Section 304 is amended to add provisions for individual control strategies for toxic pollutants. Requirements include: 1) a State identification within two years of waters that are unlikely to comply with water quality standards after application of effluent limitations (BAT, BCT, secondary, pretreatment); 2) identification of specific point sources discharging toxics that may be causing the violation of standards in those waters, and amounts of toxics from each source; 3) and an individual control strategy that will reduce toxics from those point sources within three years after the strategy is established.

Nonpoint Source Pollution Management §316

---Requires that each State prepare, within 18 months of enactment, an assessment report and a management program for nonpoint source pollution. The assessment report will identify 1) those waters that are unlikely to comply with water quality standards without additional controls on nonpoint sources of pollution, and 2) the nonpoint sources causing the problem. The management program, which covers a period of four years, will include: 1) identification of measures to control the nonpoint pollution identified in the assessment report; 2) identification of programs to implement those measures; 3) certification that the state laws have adequate authority to implement the program; 4) identification of sources of all funding for nonpoint source pollution control; and 5) a schedule for expeditious implementation of the program.

---The Act authorizes $400 million over four years for grants to the States for implementation of approved Management Programs.

Municipal and Industrial Stormwater Discharges §405

---Establishes a phased and tiered approach to the control of point source. Retains the broad scope of the Act; however, until October 1, 1992, most stormwater dischargers are relieved of the obligation to get a permit. Industrial storm water sources are still subject to BAT/BCT, but municipal sources are held to a new, lesser standard, i.e. "reduce the discharge to the maximum extent practicable."

---Permit applications are required in the next few years, primarily from industrial and certain municipal stormwater dischargers. Most commercial and residential stormwater dischargers

are exempted from the requirement for NPDES permits until 10/1/92.

- By 2/89 EPA must promulgate regulations for industrial and large municipal (more than 250,000) stormwater dischargers; then their permit applications are due within one year by 2/90 and permits are to be issued by 2/91.

- By 2/91, EPA must promulgate regulations for medium-sized municipal stormwater systems (serving between 100,000 and 250,000) with application due by 2/92 and permits issued by 2/93.

Sewage Sludge §406

---Requires EPA to identify toxic pollutants of concern in sewage sludge and establish numerical limits for each of the identified pollutants and the management practices to achieve them. These management practices and numerical criteria will protect human health and the environment from any reasonably anticipated adverse effects of each pollutant. Compliance shall be no later than 12 months after publication. EPA's technical sludge regulations.

---Requires 402 permits to POTWs to include sludge management requirements implementing the toxic pollutant regulations unless these requirements are included in some other permit.

---Requires promulgation of procedures to approve State sludge control programs.

---Makes it unlawful for any person to dispose of a sludge from a POTW or any other treatment work not in compliance with EPA's technical sludge regulations.

---Authorizes $5 million to conduct scientific studies, demonstration projects and public information projects designed to promote safe and beneficial management or use of sewage sludge. Allows for grants to states or other public or nonprofit agencies to carry out this effort.

Administrative Penalties § 314

---Provides EPA and the Secretary of the Army new authority for administrative penalties for Clean Water Act violations. A Class I penalty may not exceed $10,000 per violation and a maximum amount of $25,000. A Class II penalty may be assessed through more formal proceedings and may not exceed $10,000 per day and a maximum of $125,000.

Judicial Penalties §312 and §313

---Provides for increased court assessed civil and criminal penalties for violations of the Clean Water Act.

- Civil - Changes the maximum allowable penalty from $10,000 per day to $25,000 per day for each violation. Specifies factors relevant to establishing appropriate penalty amounts.

- Criminal - Changes maximum penalties for knowing violations of the Act from $25,000 per day of violation and/or imprisonment of one year, to $50,000 per day of violation and/or imprisonment of 3 years. Increases the maximum sanctions authorized for false statements made under the Act. Establishes new criminal sanctions for knowingly endangering persons through violations of the Act.

National Estuaries Program § 317

---Provides statutory recognition for a national estuarine management program. EPA will: convene management conferences in nationally significant estuaries with priority given to New York/New Jersey Harbor, Delaware Bay and Delaware Inland Bays, Sarasota Bay, Galveston Bay and six estuaries already in the program. Each program will develop comprehensive conservation and management plans which recommend priority actions to restore and maintain the chemical, physical and biological integrity of the estuary as well as to control point and nonpoint sources of pollution. Provides grants for development of the conservation and management plans.

Clean Lakes § 315

---Establishes the Clean Lakes Program. Each State is required to submit a biennial report on the water quality of lakes as part of its water quality inventory report. This will include: identifying a lake according to its eutrophic condition, describing means to control the pollution in these lakes, describing methods and procedures to restore the lakes, and assessing the trends of water quality in the State lakes.

Chesapeake Bay Program § 103

--- Provides statutory recognition of the Chesapeake Bay program. EPA will maintain the Chesapeake Bay program office to coordinate Federal research and report results of activities affecting the environmental quality of the Bay. Provides for $10 million per year in 50% cost-sharing grants to states to implement management portions of the Bay Restoration and Protection Plan. States must report to Congress within 12 months of receiving grants.

Indian Tribes § 506

---Requires EPA to publish a regulation specifying that Indian Tribes shall be treated as States. It also requires that the regulation establish a mechanism for resolving any unreasonable consequences that may arise as a result of differing water quality standards that may be set by States and Indian Tribes on the same body of water.

---One half of 1% of construction grants funds will be set aside for developing waste treatment management plans and the construction of sewage treatment works for Indian tribes.

Fundamentally Different Factors Variances § 306

---Establishes specific statutory authority for the Administrator, with the concurrence of the State, to establish alternative effluent limitations for BAT and pretreatment standards for existing sources for a facility, based on fundamentally different factors.

---Imposes four criteria that must be satisfied before a fundamentally different factor variance may be granted and establishes deadlines and a procedure for submission of applications.

Anti-backsliding § 404

---Establishes specific statutory authority precluding backsliding from existing permit requirements except in a few narrowly defined situations. The anti-backsliding authority pertains to standards set under Best Professional Judgment, for both technology-based and water quality-based limits.

---Addresses revised effluent limits for permittees discharging into newly identified "hot spot" problem waterbodies. The effluent guidelines are bottom line requirements and no permit can be issued that would violate water quality standards.

Delegation of Partial Programs § 403

---For States that are yet to apply for NPDES approval, allows for approval of partial delegation, as long as it covers either administration of a major category of discharges or a major component of the NPDES program. This section also allows for phased program approval.

---Partial or phased approval requires the state to submit a plan for assumption of the full program within 5 years. Prohibits return to EPA of anything less than the entire NPDES authority previously assumed by the state.

Compliance Dates § 301

---Extends industrial compliance dates for Best Available Technology and Best Conventional Technology. Compliance is required as expeditiously as possible, but in no case later than 3 years from establishing limitations or later than March 31, 1989.

---Many plants with significant new BAT requirements could not meet the previous deadline of July 1, 1984. Although EPA had used administrative orders to give these facilities a reasonable time to comply, they were still legally in violation of their permits. This revised deadline will allow sufficient time for compliance with effluent limitations.

Great Lakes § 104

---Provides statutory recognition of the U.S. commitments under the provision of the Great Lakes Water Quality Agreement of 1978 with Canada.

---Annual reporting to Congress.

---Accelerates current activity in the area of toxics monitoring and puts in place toxics abatement.

Citizen Suits §504

---Requires plaintiffs bringing citizen enforcement suits under the Clean Water Act to provide copies of any complaint or proposed consent judgment to EPA and the Department of Justice.

Dioxin

EPA Issue Profile

Issue ..... **DIOXIN**

Contact .....Don Barnes
382-4126

Revised ..... **March 1988**

Background: "Dioxin" is a generic term for a group of 75 related compounds, but it generally is used to refer to the most toxic of these compounds, 2,3,7,8-TCDD. An unwanted byproduct of some manufacturing processes, dioxin is found in such formulations as the now banned herbicide 2,4,5-T. Various forms of combustion, ranging from wood stoves to waste treatment plants to auto engines, also are suspected sources of dioxin.

Adverse Effects: In humans, exposure to dioxin can cause a persistent acne-like condition called chloracne. In laboratory animals, dioxin has been found to cause liver dysfunction, reproductive failure, and immune system deficiencies. In 1971, hundreds of horses became sick and 65 died after a number of Missouri horse arenas were sprayed with dioxin-contaminated oil as a dust control measure. Later, it was found that contaminated oil had been used on roads in Times Beach, Missouri, eventually forcing the evacuation and Federal "buy-out" of the town. The Centers for Disease Control considers one part per billion of dioxin in the soil to be a level of concern in a residential setting. Some sites in Missouri had dioxin concentrations in the soil as high as 1750 to 1800 ppb.

Regulatory Actions: Many uses of 2,4,5-T were suspended by the Federal government in 1970, the same year the Department of Defense halted spraying in Vietnam of Agent Orange, a dioxin-contaminated defoliant. In 1983, Dow Chemical Company voluntarily cancelled all its registrations for 2,4,5-T and silvex. In 1985, EPA began a process which will require manufacturers to report contamination from a different dioxin compound (CDDs/CDFs) in specified chemicals. The Agency also issued rules in 1986 prohibiting land disposal of CDDs/CDFs wastes, and ordered that three million pounds of this dioxin compound be kept in storage until it can be incinerated.

Coming Up: Findings from an EPA national study of dioxin (generally 2,3,7,8-TCDD) contamination were released this year. The Agency analyzed soil, sediment, fish, water, animal and plant tissue samples from more than 1,000 sites. One preliminary finding from the three- year study: pulp and paper waste sludge was found to be contaminated. Generally, however, it was found that dioxin contamination in the United States was not widespread.

United States
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Washington DC 20460

Ground Water

SUMMARY OF THE TESTIMONY OF
LEE M. THOMAS
ADMINISTRATOR
U.S. ENVIRONMENTAL PROTECTION AGENCY
BEFORE THE
SUBCOMMITTEE ON WATER RESOURCES,
TRANSPORTATION AND INFRASTRUCTURE
AND THE
SUBCOMMITTEE ON HAZARDOUS WASTES AND TOXIC SUBSTANCES
OF THE
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE
February 23, 1988

- The testimony provided a brief overview of the characteristics of the ground-water resource.

- The federal statutory authorities used to protect ground water were described, including: the Clean Water Act, the Resource Conservation and Recovery Act, the Safe Drinking Water Act, the Federal Insecticide, Fungicide, and Rodenticide Act, and Superfund.

- EPA's Ground Water Protection Strategy was explained: (1) the states should continue to have the primary role in the management of the quality of the ground water resources. (2) the federal government has an appropriate role in controlling the use of certain toxic chemicals of national concern, in setting protective standards for major sources of contamination, in providing technical assistance, and in research and development in support of management and clean-up activities. EPA will use a differential protection policy. Differential protection means that the variability in use, value, and vulnerability of the ground-water resource is taken into account as decisions are made about how to manage the resource. (3) EPA will distinguish between prevention and corrective action in decision making, and will more emphasis on prevention.

- EPA is seeking to consistently implement its existing statutes with the Ground-water Protection Strategy around three basic principles: (1) EPA should have clear authority to harmonize the implementation of its various programs, and to establish a consistent health-protective reference point for decision-making regarding protection and cleanup for all programs. (2) The use, value, and vulnerability of ground water should be clearly factored into EPA decisionmaking. EPA would like to see the differential protection strategy become federal policy because it would focus attention on the most important areas. (3) The ability to have flexibility within a structured decision making process, i.e., the ability to deviate from the basic reference point for protection and cleanup activities in carefully defined cases, should be clearly established.

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Washington DC 20460

EPA

Environmental Issue Profile

Contact: Jackie Webster, 382-7077

[redacted]

Issue: Ground Water

MAR 1988

Background: About one-fourth of all the fresh water used in this country comes from the ground. Ground water supplies drinking water for 117 million people -- 50 percent of the nation's population -- providing 35 percent of the drinking water supply in urban areas and 95 percent in rural areas. Western states depend on ground water for irrigation and eastern states for industrial uses.

Once contaminated, cleaning up ground water is difficult, expensive, and sometimes unsuccessful. Rates of movement and mixing of ground water are dramatically different from those for air and surface water, with ground water flow measured in feet per year compared to river flow measured in feet per second.

Ground water protection involves dealing with some 1500 hazardous waste land disposal facilities, a large number of Superfund sites, thousands of surface impoundments, hundreds of thousands of injection wells, over a million underground tanks, 23 million residential septic systems, and the use of millions of pounds of pesticides and millions of tons of fertilizers.

Strategy: EPA's ground water protection strategy, issued in 1984, recognizes that states should have the principal role in protecting ground water due to their historical and legal roles in land use and water allocation. Under existing authorities (see attachment), EPA has a role in controlling the use of certain toxic contaminants of national concern, setting minimum standards for major sources of contamination, increasing the states' capacity to protect the resource, and research and development of cleanup technologies.

During the past three years in implementing the strategy, EPA has taken a leadership role in protecting the resource by assisting state ground water protection activities, dealing with major sources of contamination such as pesticides and underground storage tanks, and creating a consistent EPA policy based on the use, value and vulnerability of the resource. The Agency is currently developing a three-tiered ground water classification system as a tool for applying the ground water policy in decision-making.

Research: The Fiscal 1987 budget for ground water research is $30 million. Among the research activities proposed is development of genetically engineered or naturally enhanced microorganisms to detoxify or destroy pollutants at the site of contamination.

SUMMARY OF THE STATEMENT OF
MARIAN MLAY
DIRECTOR, OFFICE OF GROUND-WATER PROTECTION
U.S. ENVIRONMENTAL PROTECTION AGENCY
BEFORE THE
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE
February 8, 1988

- The testimony presents a brief description of EPA's views on Ground-Water Protection.

- Ground-water protection is one of EPA's top priorities. Many of the Agency's major programs and a large percentage of its budget directly support the protection, maintenance, and restoration of ground-water quality.

- There are several important statutes which EPA administers dealing with various aspects of ground-water protection including: the Resource Conservation and Recovery Act of 1976 (RCRA); the Comprehensive Environmental Response, Compensation and Liability Act (Superfund); the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA); the Clean Water Act (CWA); and the Safe Drinking Water Act (SDWA). These statutes are discussed briefly.

- EPA's Ground-Water Protection Strategy is described. The Strategy identifies four objectives for EPA's role in ground-water protection: (1) to strengthen the states' institutional capacity to protect the resource; (2) to give greater emphasis to sources of contamination that are of particular national concern; (3) to develop guidelines for consistency in EPA's ground water protection programs; and (4) to coordinate ground-water protection activities internally as well as with other federal agencies and the states.

- EPA will soon publish its proposed Agricultural Chemicals in Ground Water Strategy. The goal of the Strategy is to protect the ground-water resource, with a focus on preventing unacceptable contamination.

- EPA is now completing ground-water classification guidelines in an attempt to establish a consistent set of protection goals. The guidelines are based on the premise that ground waters should be protected according to their particular uses, value to society, and hydrogeological vulnerability.

- EPA's ground-water research program is outlined.

- The testimony concludes that, given the significant activities by EPA, other federal agencies, states, and localities, the Administration's and EPA's position is that additional federal regulatory programs for ground water are not needed.

MAR 1988

[redacted]

FEDERAL STATUTES THAT APPLY TO GROUND WATER PROTECTION:

- **The Resource Conservation and Recovery Act of 1976** (RCRA) is designed to prevent wastes from leaching into ground water from hazardous waste facilities and from such sources as municipal land fills, impoundments, and underground tanks.

- **The Comprehensive Environmental Response, Compensation and Liability Act** (Superfund) provides EPA with major authorities and resources to compel or carry out the clean up of sites which present an extensive threat to human health or the environment.

- Through the **Federal Insecticide, Fungicide and Rodenticide Act** (FIFRA), EPA controls the availability and use of pesticides which may leach into ground water.

- Under the **Safe Drinking Water Act** (SDWA), the Agency sets drinking water standards which are used in ground water protection decisions, controls the injection of fluids into the ground, and is initiating a program under the Safe Drink W Act Amendments of 1986 to assist states in protecting ground wate entering the wellhead areas of all public water wells from contamination.

- Through the **Clean Water Act**, EPA provides financial and technical assistance to states in the development of ground water protectio strategies.

- **The Toxic Substances Control Act** and the **Atomic Energy Act** also are applicable in some instances to the protection of ground water.

OTHER FEDERAL AGENCIES INVOLVED IN GROUND WATER PROTECTION:

- The land management agencies of the Department of the Interior, as well as its scientific agencies such as the U.S. Geological Survey, which conducts broad-based research to identify aquifers and the status of ground water pollution in this country.

- The Nuclear Regulatory Commission.

- The Department of Defense.

- The Department of Agriculture.

Lead in Drinking Water

Lead in Drinking Water

United States
Environmental Protection
Agency

Office of
Public Affairs (A-107)
Washington DC 20460

EPA

Environmental Issue Profile

Contact: Jeanne Briskin, 382-5456

[redacted]

MAR 1988

Issue: **Lead in Drinking Water**

Background: EPA estimates more than 40 million U.S. residents receive water containing lead levels exceeding 20 ppb, the drinking water goal proposed by the Agency in November 1985 (The current limit is 50 ppb; final action on a more restrictive standard is expected by June 1988.) Lead is harmful if inhaled or ingested. Lead is associated with mental retardation, heart attacks, strokes, high blood pressure, and hearing loss.

Status: Over the last few years, federal restrictions on gasolin and paint have reduced people's exposure to lead a great deal.

Amendments to the Safe Drinking Water Act enacted in 1986 require the use of virtually lead-free pipe, solder and flux in the installation or repair of any public water system and in plumbing in homes and non-residential facilities connected to a public water system. States are to implement and enforce the new requirements by June 1988. Use of lead in drinking water systems already is banned in 11 states: Delaware, California, Connecticut, Illinois, Massachusetts, Minnesota, New York, Oregon, Rhode Island, Virginia and Wisconsin. However, Federal and state bans cannot elimin lead contamination in existing plumbing.

Lead in Home Plumbing: Lead contamination typically occurs after water leaves the local treatment system or well. Lead solder is the m common cause of contamination in residential plumbing systems today. Older homes (plumbing installed prior to 1930) also may have lead interior pipes, however, and som localities only recently ended the use of lead piping to connect homes to water mains.

Testing water samples is the only sure way to detect lead contamination. The cost of a home sample done by a reputable lab ranges from $30 to $100. The water supplier can help reduce exposure to lead by reducing the corrosivity of the water. At the same time, homeowners can reduce possible exposure to lead by "flushing" cold water pipes when no water has been used for six hours or more, using only cold water for cooking and drinking (hot water dissolves lead more readily than cold), and instructing the plumber to use only lead-free materials in installation or repair work.

More information for homeowners is available in the EPA publication, "Lead and Your Drinking Water."

FACT SHEET ON LEAD BAN

- On June 19, 1986, President Reagan signed into law the Amendments to the Safe Drinking Water Act. A new Section 1417 of the Act addresses the long-standing public health concern about lead in drinking water. The provisions in this section include:

  - Prohibition of the use of lead solder or flux exceeding 0.2 percent lead content in new installations and repairs of public water supply systems and residences and other buildings connected to public water supply systems. The lead content of pipes and fittings used in or connected to those potable water systems may not exceed eight percent. A warning also is required on any solder containing more than 0.2 percent lead.

  - Public water supply systems are required to provide public notice to all users who may be affected by lead contamination of their drinking water. The notice must explain the potential lead contamination sources, potential adverse health effects, and reasonably available methods of mitigating lead contaminatio

  - The prohibition and the consumer notice requirement are to be enforced by the individual States; failure of the State to enforce may result in the withholding of up to five percent of the State's federal drinking water grant.

- Lead has no known useful function in the body. It is a well-known toxin. Lead causes damage to the nervous system, the blood-forming processes, the gastro-intestinal systems and the kidneys. Recent studies have shown that lead also causes cognitive damage, can stunt children's growth and can raise blood pressure in adult males, even at low levels of exposure. Health effects of lead range from relatively subtle biochemical changes at low doses to severe retardation or even death at higher levels. Young children and fetuses are most at-risk of damage from exposure to lead.

- Lead rarely occurs naturally in drinking water sources. The major source of lead in drinking water is products of the corrosive action of water on the materials used in the distribution systems and residential plumbing systems. How much lead leaches from pipes and soldered joints containing lead depends mostly upon the corrosiveness of the water, the time of contact between the water and the plumbing, and the age (new solder leaches lead easily) and condition of the plumbing.

(more)

- Alternatives to lead pipes include copper, iron, galvanized steel, and plastic. Alternatives to lead solder include tin-antimony, silver-tin, and copper-tin. All of these solde cost more than lead solders; however, as a fraction of the total cost of the plumbing system in a new home (including pipes, labor, solder, etc.), the additional cost is slight.

- Protection against contamination from materials containing lead previously installed in water supply distribution systems may by achieved by a number of corrosion control methods. Addition of corrosion inhibitors, adjustment of the acidity and the alkalinity of the water and increasing the hardness of soft, corrosive waters with the addition of lime can mitigate lead contamination in potable water.

For further information please contact Peter Lassovszky at (202) 382-3030.

Lead in Gasoline

Lead in Gasoline

EPA Issue Profile

Issue ..... **LEAD IN GASOLINE**

Contact ..... Barry Nussbaum
382-2637

Revised ..... **March 1988**

Background: EPA's program to cut the amount of lead in gasoline to protect the public health began in 1973. The "lead phasedown" that began with the regulations proposed then led to a standard that will reduce the amount of lead in gasoline by 90 percent. The current standard of 0.1 grams per leaded gallon went into effect January 1, 1986. It is expected to result in net annual benefits of over a billion dollars by 1992 by lowering health costs and reducing outlays for vehicle maintenance.

Health Effects: In deciding on the current standard, the Agency was guided by a national health and nutrition survey that showed a close correlation between leaded fuel and lead in the blood of a nationally representative sample of 10,000 Americans. Survey data showed an estimated 40 percent drop in blood levels between 1976 and 1980. This paralleled reductions in leaded gasoline.

In 1985, the federal government's Centers for Disease Control reduced lead toxicity levels for children from 30 to 25 micrograms per deciliter. Even more recent scientific data indicate toxic effects below this blood lead level in infants and in fetuses of pregnant women exposed to lead. Elevated blood lead levels can cause adverse health effects ranging from anemia and behavior disorders to mental retardation and nerve damage.

Other Effects: Reducing the allowable lead in gasoline also reduces the propensity for fuel switching, i.e., using leaded gasoline in vehicles requiring unleaded gas. Fuel switching can lead to four to eight-fold increases in hydrocarbons and carbon monoxide. Further, unleaded gasoline has fewer deposits, leadingto longer life for parts such as spark plugs and mufflers.

Coming Up: EPA had considered banning leaded gasoline as early as January 1, 1988, but has deferred that decision pending further health effects information and concerns about damage to valve seats in older engines. A joint study released April 23, 1987 by EPA and the U.S. Department of Agriculture found that a large number of gasoline-powered tractors, combines, and trucks are vulnerable to excessive valve seat wear if operated solely on unleaded gasoline. Gasoline-powered tractors represent about 40 percent of all tractors, with the rest powered by diesel fuel. According to the study, some non-lead additives have shown potential as a substitute for leaded gas. A report to Congress and the President on the results of this study, as well as EPA's recommendations will be completed in Spring, 1988.

United States
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Public Affairs (A-107)
Washington DC 20460

Ozone:
Smog

EPA Issue Profile

Issue ..... OZONE, CO_2, & URBAN SMOG
Contact ..... John Thillman
382-5575
Revised ..... March 1988

Background: Ozone, a major element of urban smog, is formed when volatile organic compounds from gasoline vapors, solvents, and other hydrocarbons and nitrogen oxides react with sunlight and high temperatures. High concentrations may have adverse effects upon healthy people as well as those with pre-existing respiratory problems. EPA's ambient air quality standard for ozone is 0.12 ppm. Several urban areas were not in compliance with the standard by December 31, 1987, as required by the Clean Air Act. There has been progress in combatting ozone,however. Ambient levels declined by some 13 percent in the U.S. from 1979 to 1986. Violations of the ozone standard decreased about one third from 1979 to 1986. The reductions were achieved despite an increase of more than 200 billion miles of vehicle travel between 1981 and 1986.

Carbon monoxide is a colorless, odorless, poisonous gas formed when carbon in fuels is not burned completely. More than two-thirds of all emissions of carbon monoxide come from motor vehicles and the highest concentrations are generally found in traffic saturated center city areas. Ambient levels of the pollutant at urban monitoring sites declined 32 percent between 1977 and 1986.

Status: On June 29, EPA Administrator Lee Thomas announced proposls to disapprove state clean air plans for 14 metropolitan areas that had demonstrated they cannot meet EPA's ozone or carbon monoxide standards by the end of the year. On November 17, the Agency published the Ozone and CO policy in the Federal Register. The policy requires "SIP calls" for all ozone and carbon monoxide non-attainment areas. It requires such areas to resubmit new SIPs that describe how and when these areas will attain standards. Sanctions for failure to properly plan or failure to implement the SIPs are also described. States would have two years to submit new SIPs and 3 years to show attainment of the standards.

Coming Up: The sanctions mean that construction bans would go into effect upon a final determination by EPA. This would prevent the construction of any new source or modification of existing sources with the potential of emitting 100 tons or more of either volatile organic compounds or carbon monoxide. Congress, however, in a continuing Congress is requiring EPA not to enforce sanctions until August 30 1988. In the meantime, EPA must issue "findings of non-attainment" for those areas that were not in compliance with the two standards on December 31, 1987. EPA will identify these areas in the Federal Register sometime in April or May 1988.

United States
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Office of
Public Affairs (A-107)
Washington DC 20460

Ozone: Stratospheric

EPA Issue Profile

Issue ..... ATMOSPHERIC OZONE DEPLETION
Contact .....Steve Seidel 382-2787
Revised ..... March 1988

Background: Scientists first theorized in 1974 that chlorine released from synthetic chemicals called chlorofluorocarbons (CFCs) could deplete the stratospheric ozone layer that serves as a shield against cancer-causing ultraviolet radiation from the sun. Since coming into use in 1931, CFCs have been used in air conditioning, refrigeration, food packaging (e.g., foam egg cartons, cups), insulation, and as solvents to clean electrical compounds. Use of CFCs as a propellant in aerosol sprays accounted for half the U.S. consumption prior to 1978 when EPA banned all but essential aerosol use to protect the ozone layer.

Chemically inert, CFCs released into the air drift into the upper atmosphere where ultraviolet radiation triggers the release of chlorine components. Each chlorine atom can act as a catalyst to destroy 100,000 molecules of ozone. CFCs have atmospheric lifetimes of 75 to 120 years. British scientists reported in 1985 the occurrence of a growing "hole" in the ozone layer over Halley Bay, Antarctica, from September to mid-November. While uncertainty still exists, recent U.S investigations found levels of chlorine dioxide 20 to 50 times higher than anticipated in the area, making CFCs the chief suspects as the cause of the Antarctic phenomenon. Whether this loss of ozone is unique to conditions in the atmosphere above Antarctica has not yet been determined.

Adverse Effects: Ultraviolet radiation has been linked to higer incidences of skin cancer, cataracts, and suppression of the immune system. Other possible effects include reductions in crop yields, damage to aquatic ecosystems, and an increase in formation of ground level ozone. CFCs are also a greenhouse gas (e.g like carbon dioxide) and therefore add to global warming.

Status: The United Nations' Vienna Convention for the Protection of the Ozone Layer, signed in March 1985 and ratified by the U.S. Senate in August 1986, provides a framework for concerted international action. Negotiations are now underway to limit CFC use on a world-wide basis. The U.S. has proposed a freeze at current emission levels and longer-range reductions of up to 95 percent in global CFC emissions linked to a periodic reassessment of scientific, technical and economic issues.

Coming Up: EPA proposed a rule to implement the Montreal Protocol on December 14, 1987. A final rule will be promulgated by August 1, 1988.

United States Environmental Protection Agency

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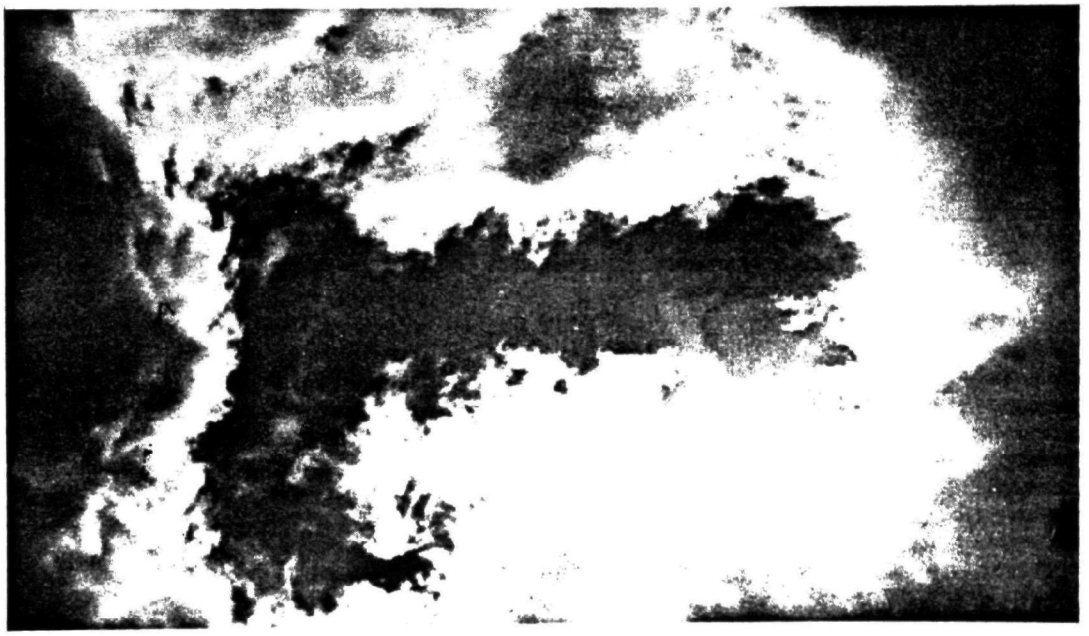
December 1987

EPA

CFCs and Stratospheric Ozone

MAR 1988

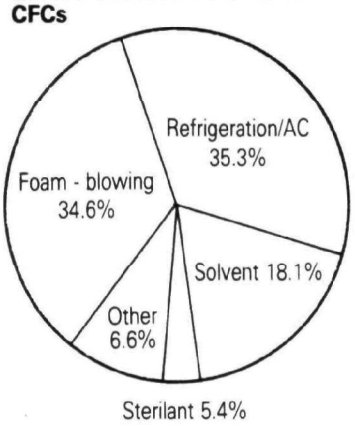


Overview

Stratospheric ozone acts as a shield against harmful solar ultraviolet (UV) radiation. A significant reduction in ozone in the upper atmosphere could result in long-term increases in skin cancer and cataracts, and probably damage the human immune system. Evidence also supports the conclusion that reductions in the total abundance of stratospheric ozone could reduce crop yields and alter terrestrial and aquatic ecosystems.

A consensus has emerged worldwide that chlorine from synthetic chemicals called chlorofluorocarbons (CFCs) and bromine from chemicals called halons will decrease ozone in the stratosphere. CFCs are used as blowing agents in plastic foam products (cushioning, insulation and packaging), as refrigerants, as solvents, as sterilants and in aerosol applications. Halons are used as fire extinguishing agents. To protect the ozone layer, the United States, twenty three other nations, and the European Economic Community on September 16, 1987, in Montreal, Canada, signed the Protocol on Substances that Deplete the Ozone Layer. This is a landmark international agreement designed to control the production and consumption of certain chlorofluorocarbon and halon compounds.

United States End uses of CFCs



The Theory of Stratospheric Ozone Depletion

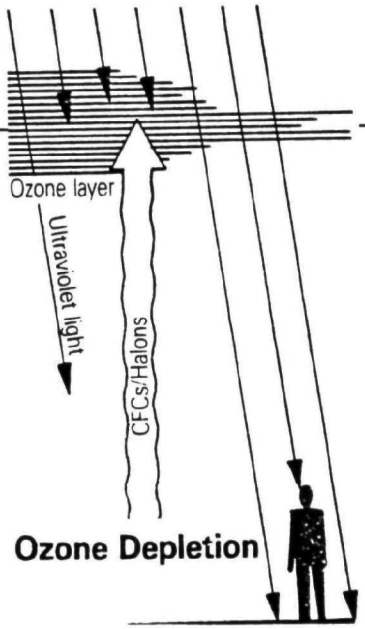
Ozone is formed when oxygen molecules absorb part of the sun's ultraviolet radiation and split apart into two oxygen atoms. These separated atoms then combine with other oxygen molecules to form ozone (O_3), which contains a total of three oxygen atoms. Ozone itself is a pungent, slightly bluish gas — a close chemical cousin to molecular oxygen (O_2). About 90 percent of the earth's ozone is located in a natural layer far ab the earth's surface in a region of the atmosphere known as the stratosphere. This natural layer acts as a shield against ultraviolet radiation.

Concern about possible depletion of the ozone layer from CFCs was first raised in 1974 with publication of research which theorized that chlorine released from CFCs could migrate to the stratosphere and destroy ozone molecules. (Molina and Rowland, 1974). Some of the CFCs have an atmospheric lifetime of more than 120 years (i.e., they do not break down in the lower atmosphere). As a result, they migrate slowly to the stratosphere where higher energy radiation strikes them, releasing chlorine. Once freed, the chlorine acts as a catalyst repeatedly combining with and breaking apart ozone molecules.

If ozone depletion occ more UV radiation pen to the earth's surface. Moreover, because of the long atmospheric lifetimes of CFCs, it would take many

decades for the ozone layer to return to past concentrations.

In the thirteen years since the theory was first proposed, substantial scientific research has supported the general concern that increased concentrations in the stratosphere of chlorine, as well as bromine from halons, pose substantial risks of depletion resulting in harm to human health and the environment.



Ozone Depletion

Health and Environmental Effects

Shielding the earth from much of the damaging part of the sun's radiation, the ozone layer is a critical resource safeguarding life on this planet. Should the ozone layer be depleted, more of the sun's damaging rays would penetrate to the earth's surface. Each one percent depletion would increase exposure to damaging ultraviolet radiation by 1.5-to-2 percent.

EPA's assessment of the risks from ozone depletion focused on the following areas:

- Increases in skin cancers
- Suppression of the human immune response system
- Increases in cataracts
- Damage to crops
- Damage to aquatic organisms
- Increases in ground level ozone
- Increased global warming

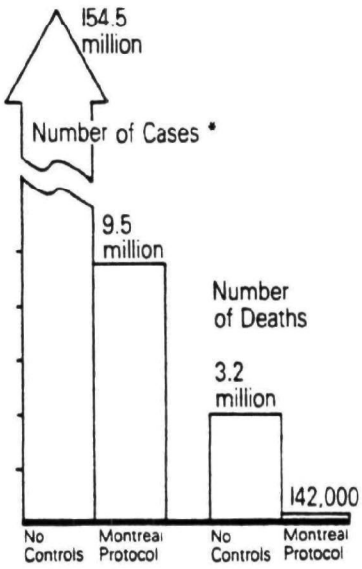
Human Health Effects

Skin cancer is already a serious problem in the United States but would increase with further depletion of the ozone layer. Under current atmospheric conditions, the greater the distance from the equator, the greater the effectiveness of the ozone layer as a shield. As a result, there is a natural experiment taking place. People who live further north are exposed to less damaging UV radiation than those residing closer to the equator. Not surprisingly, the chances of getting skin cancer follow the same gradient — the closer to the equator, the greater the risk from ultraviolet radiation.

Three distinct types of skin cancer would increase if the ozone layer is depleted. Basal and squamous cell skin cancers are the two most common types, now affecting about 500,000 people annually in the United States. If detected early, these cancers are treatable. Even so, approximately 1 percent of cases result in premature deaths.

Malignant melanoma is far less common but substantially more harmful. About 25,000 cases now occur annually resulting in 5,000 deaths. While the relationship between exposure to UV radiation and melanoma is complex, existing studies provide a basis for estimating future risks associated with ozone depletion.

The chart below projects and compares the number of all three kinds of skin cancer cases expected to result in the world without any controls on CFCs and halons and after implementation of the Montreal Protocol.



*(for persons born before 2075)

Cataracts cloud the lens of the eye, thus limiting vision. Although cataracts develop for a variety of reasons, scientific evidence supports the conclusion that increased exposure to UV radiation from ozone depletion would increase the number of people experiencing this eye disorder.

Based on epidemiological studies, if current trends in the use of ozone depleting gases continued, the number of cataract cases would increase by 18 million (for the population alive today or born before 2075). Actions required by the Montreal Protocol and EPA's proposed rule to limit the use of these chemicals would reduce the number of additional cases by 92 percent during this time period.

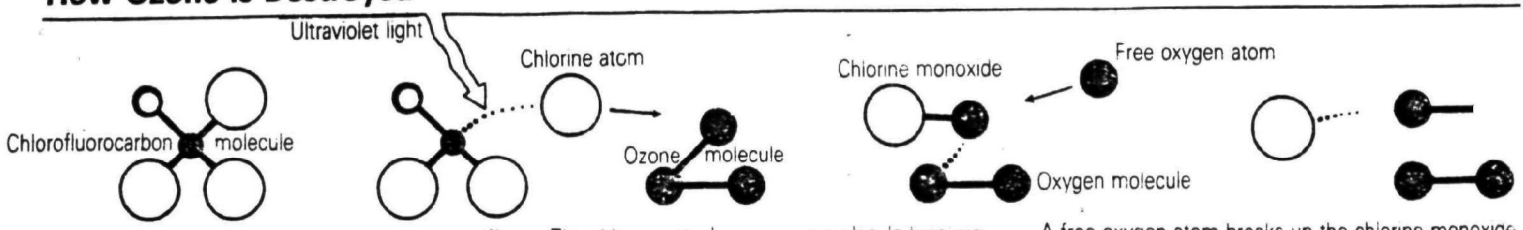
Suppression of the immune system is another possible threat to human health resulting from ozone depletion. Research to date suggests that exposure to UV radiation weakens the ability of the immune system to fend off certain diseases (i.e., herpes simplex and leishmaniasis, a parasitic disease common in the tropics). However, more needs to be known about the exact way the immune system is affected and the implications UV radiation exposure have for a wide variety of other diseases.

Plant and Marine Effects

Crops and other terrestrial ecosystems could also be adversely affected by increased exposure to UV radiation. In greenhouse studies, approximately two-thirds of the crops exposed to elevated levels of UV radiation proved sensitive. Field studies of soybeans have shown that ozone depletion of up to 25 percent could decrease yield by over 20 percent, with substantially greater reductions in years when climatic stresses were also a factor.

Certain **marine organisms**, particularly phytoplankton and the larvae of many species, may be sensitive to increased exposure to UV radiation because they spend much of their existence near the surface of the water. Although it is difficult to design experiments replicating aquatic environments, research to date suggests that adverse effects on productivity and species diversity are related to increased exposure to UV radiation.

How Ozone is Destroyed



In the upper atmosphere ultraviolet light breaks off a chlorine atom from a chlorofluorocarbon molecule

The chlorine attacks an ozone molecule breaking it apart. An ordinary oxygen molecule and a

A free oxygen atom breaks up the chlorine monoxide. The chlorine is free to repeat the process

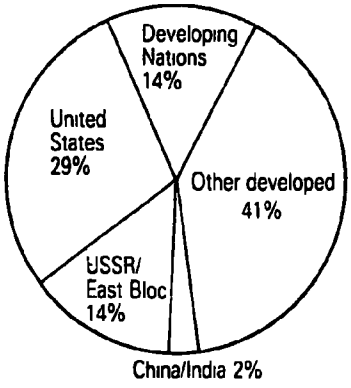
Other Impacts

- **Ground Level Ozone** — ozone depletion would increase the rate of formation of ground level (tropospheric) ozone, a major component of what is commonly called smog.
- **Degradation of Polymers** — ozone depletion would accelerate the weathering (i.e., chalking, yellowing, and cracking) of plastics used in outdoor applications.
- **Climate Change** — CFCs are greenhouse gases (i.e., have similar properties to carbon dioxide) and thus would contribute to global warming and rising sea levels

Global Nature of the Problem

Unlike many other environmental issues, stratospheric ozone protection is a truly global problem. CFCs and halons are used in many nations. And given their long atmospheric lifetimes, they become widely dispersed over time. As a result, the release of these chemicals in one country could adversely affect the stratosphere above, and therefore the health and welfare of, other countries. Many developed and some developing countries produce CFCs and halons. Most consume the chemicals in a variety of different products. The United States, for example, consumes 29 percent of the world's CFCs. Other nations are also significant users.

Approximate Consumption of CFCs by Country/Region



Therefore, to protect the ozone layer from the damages that may be caused by CFCs and halons, an international solution is critical.

Overview of Montreal Protocol

Recognizing the global nature of the problem, on September 16, 1987, in Montreal, Canada, 24 nations and the European Economic Community (EEC) signed the Montreal Protocol on Substances that Deplete the Ozone Layer. Most of the major CFC and halon producing and consuming nations signed the agreement. Other nations, including the Soviet Union, indicated that, following further consultations at home, there was a possibility of their becoming signatories.

List of Signatories

Belgium	Mexico
Canada	Netherlands
Denmark	New Zealand
Egypt	Norway
European Economic Community	Panama
Federal Republic of Germany	Portugal
Finland	Senegal
France	Sweden
Ghana	Switzerland
Italy	Togo
Japan	United Kingdom
Kenya	United States
	Venezuela

The chart below lists the eight chemicals controlled by the Montreal Protocol,

Chemicals Covered by the Montreal Protocol

- Fully-Halogenated Chlorofluorocarbons "Group I"
  - CFC-11
  - CFC-12
  - CFC-113
  - CFC-114
  - CFC-115
- Halons "Group II"
  - Halon-1211
  - Halon-1301
  - Halon-2402

subdivided into two groups (CFCs and halons). The Montreal Protocol calls for a freeze in CFC-11, -12, -113, -114 and -115 at 1986 consumption levels, beginning in approximately July 1989, or 90 days after entry into force Reductions of 20 percent from 1986 levels of these same chemicals would be required by July 1, 1993, with reductions of 50 percent required by July 1, 1998. Halon-1211, -1301, and -2402 would be frozen at 1986 consumption levels in 1992, or three years after entry into force.

Halons and CFCs are treated separately under the protocol. Halons are currently produced in far smaller quantities than CFCs and less is known about halon worldwide production and use. However, halons are substantially more potent ozone depleting chemicals. Within each group of substances (CFCs and halons), each individual chemical (e.g., Halon-1211) is assigned an ozone depletion weight, a measure of its relative ability to destroy ozone molecules in the stratosphere.

These weights are:

Chemical Compound	Depletion Weight
CFC-11	1 0
CFC-12	1 0
CFC-113	0 8
CFC-114	1 0
CFC-115	0 6
Halon-1211	3 0
Halon-1301	10 0
Halon-2402	to be determined

Under the terms of the agreement, production of each halon can be traded among the other halons, with appropriate weighting. Therefore, 100 kilograms of Halon-1211 equals, for example, 30 kilograms of Halon-1301. Similarly, depletion weights are assigned to individual CFCs, and production trades may be made between individual CFCs. CFCs, however, may not be traded with halons.

Trade Provisions

The Montreal Protocol contains provisions that provide incentives for countries to join the agreement, and other provisions that minimize potential adverse economic effects on signatory countries. Thus for instance, within one year after entry into force, each party must ban imports of bulk controlled substances from nonparties who are not subject to the accord's production restrictions. Also, there is provision for participant developing countries now using little of the chemicals to increase consumption for 10 years before being required to abide by the restrictions of the accord. Producing participants would be allowed to increase production by 10 to 15 percent to allow for export to these qualifying developing countries.

A ban or restriction on import of products containing controlled substances from nonparties is scheduled to go into effect within four years of entry into force, based on a product list to be developed by the parties. Within five years, consideration will be given to restricting imports from nonparties of products produced with controlled substances (i.e., computers). The accord also prohibits the conclusion by parties of new agreements which provide nonparties with financial assistance to produce controlled substances.

Periodic Reassessments

Because of many scientific uncertainties, reassessments of protocol provisions will be regularly scheduled, the first occurring in 1990 based on 1989 studies which examine the following areas:

- Atmospheric sciences
- Effects research
- Technical control options
- Coverage and stringency of protocol

Other Provisions

The agreement calls for bilateral and multilateral cooperation among the parties, as well as cooperation through international organizations on research, exchange of information, and development of public awareness. There will be an emphasis on technologies for reducing emissions of controlled substances as well as on alternative chemicals and chemical products. Expanded technical assistance is also urged, particularly in helping the developing nations comply with the Montreal Protocol and bridge the transition to new chemicals and technologies. Provision is made for modifying the Montreal Protocol if new data warrants.

The accord establishes requirements for data reporting, calling for the United Nations Environment Programme to convene a meeting of government experts to recommend to the parties measures for coordinating data on production, imports and exports.

Entry Into Force

The Montreal Protocol will enter into force on January 1, 1989, provided that it has been ratified by 11 nations, representing at least two-thirds of total world consumption of CFCs and halons. If sufficient notifications have not been deposited by that date, the Montreal Protocol will enter into force 90 days after these conditions have been fulfilled.

EPA's Domestic Regulatory Approach

On December 1, 1987, EPA proposed domestic regulations to implement the requirements of the Montreal Protocol in the United States. These requirements would only go into effect after the accord's entry into force — following ratification by the United States and the governing systems of at least 10 other signatory nations representing two-thirds of the total world consumption of controlled substances.

The proposed regulation follows the requirements of the Montreal Protocol. Both the international accord and the proposed regulation address CFCs and halons, and the same staged reductions are specified. For CFCs, there would be a 50 percent decrease over the next decade. For halons, production and consumption would be frozen at 1986 levels beginning in approximately 1992. The proposal also follows the Montreal Protocol by allowing trading among the different CFCs based on their ozone depletion potential and separately among the different halons.

Production and Consumption Limits

The proposed domestic regulation places limits on the production of the specified CFCs and halons and their domestic consumption. Production is defined by the Montreal Protocol as the quantity of the regulated chemicals manufactured in the United States. Consumption is defined as production plus imports minus exports.

Both the accord and the proposed rule would cap consumption at 1986 levels, followed by a reduction to 20 percent of those levels by July 1, 1993, and to 50 percent by July 1, 1998. The same limits are placed on production, with the exception that a 10 to 15 percent potential production increase (after mid 1998) is permitted for increases in exports to developing countries that have joined the Montreal Protocol and to other countries for the purpose of industrial production efficiency. Any U.S. production under this potential increase must be exported and would be permitted only under the two circumstances just noted.

The Allocated Quota System

EPA, after considering a number of possible approaches for domestic implementation of the accord's restrictions on production and consumption, is proposing an "allocated quota" system. This system would allocate production and consumption rights to firms producing and/or importing CFCs and halons based on their production and consumption levels in 1986.

Production Rights

Firms producing CFCs and halons in 1986 would be allocated a quota — their share of the allowable level of production — based on the individual firm's 1986 production. Thus, if a firm produced 100 units of CFCs in 1986, of a total U.S. production of 1,000 units, then it would receive its quota of 10 percent of the allowable U.S. production for the particular control period. The firm could use or sell its allocated "production rights." However, the firm could not produce CFCs or halons over and above its allocated quantity, except for export for the limited purposes of industrial production efficiency or providing controlled substances to qualified developing countries.

Consumption Rights

To satisfy the Montreal Protocol's restrictions on both production and consumption, EPA also proposes to allocate "consumption rights" to firms that either produced or imported CFCs and halons in 1986. Apportionment would be based on production and/or import activity in the 1986 base year. Consumption rights could also be sold to other firms and could be used for either importing or producing the allowable levels of CFCs or halons. To produce CFCs or halons, a producer must have both production and consumption rights to cover his proposed production level.

Exports

Any firm can export CFCs or halons. Since exports are subtracted in calculating total U.S. consumption limits, exporters would be allowed additional consumption rights equivalent to the quantity of the controlled substances that they exported from the United States. After January 1, 1993, this additional credit would apply only to exports for parties to the Montreal Protocol.

User Firms

Firms using (in contrast to producing or importing) CFCs and halons would continue to rely on their channels of supply for the chemicals, but, given the required limits on production, prices are likely to increase over time. In response, firms will have the incentive to explore opportunities to reduce their reliance on these ozone-depleting chemicals by developing additional recovery and reuse technologies and by investigating new substances, chemicals, and processes.

Reporting Requirements

Under the proposed rule recordkeeping and reporting are required of producers, importers and exporters of the specified CFCs and halons. Accompanying the proposed rule was a final rule requiring firms to submit specific data on 1986 activities.

Comments and Final Rule

EPA has asked for comment on its proposed approach as well as several other options for implementing the Montreal Protocol. Following analysis of comments, a final domestic rule is expected to be promulgated by August 1, 1988.

PCBs

SUMMARY OF STATEMENT
VICTOR KIMM, DEPUTY ASSISTANT ADMINISTRATOR
OFFICE OF PESTICIDES AND TOXIC SUBSTANCES
U.S. ENVIRONMENTAL PROTECTION AGENCY
BEFORE THE
SUBCOMMITTEE ON TRANSPORTATION, TOURISM, AND HAZARDOUS MATERIALS
OF THE
COMMITTEE ON ENERGY AND COMMERCE
U.S. HOUSE OF REPRESENTATIVES

DECEMBER 2, 1987

- Describes the nature of EPA's regulatory PCB disposal program under TSCA. Provides background information on PCBs and outlines the history of EPA's PCB regulations including the 1987 PCB Spill Cleanup Policy.

- Federal PCB program has greatly reduced the amount of PCBs in service.

- Discusses EPA's efforts to rectify problems associated with the PCB program: consistent review and approval of TSCA disposal permits; guidance or regulations specifying the criteria and procedures for terminating PCB disposal permits; better identification of persons who handle PCB wastes.

- Summarizes various activities that EPA has undertaken to improve the PCB Disposal Program: tracking the movement of PCB wastes; insuring the proper disposal of PCBs by TSCA-permitted disposal facilities; reallocating resources for compliance monitoring actions; including financial responsibility requirements for all new disposal permits.

- Addresses H.R. 3070, a bill introduced by Congressman Synar to amend TSCA to require persons handling PCBs to comply with the manifest and financial responsibility requirements of the Solid Waste Disposal Act. Describes the bill's provisions and states that H.R. 3070 will remove the flexibility which EPA believes is necessary for the long-term operation of the PCB program.

- Concludes by stating that the existing legislation and our aggressive administrative efforts eliminate the need for new legislation to address the PCB problem.

Prepared by: Reynold Meni
Attorney-Advisor
Office of Legislative Analysis

December 2, 1987

United States
Environmental Protection
Agency

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Public Affairs (A-107)
Washington DC 20460

EPA

Environmental Issue Profile

Contact: Lynn Vlier, 382-3965

[redacted]

MAR 1988

Issue: **PCBs**

Background: Polychlorinated biphenyls (PCBs) are members of the chlorinated hydrocarbon family which have heavy oil-like properties. PCBs have been used primarily as an insulati liquid in electrical transformers and capacitators since 1923 because of their high boiling points and low electr conductivity. They are long-lasting and fire retardant.

Health Effects: The characteristics that make PCBs commercially attractive also make them environmentally harmful. Once released into the environment, they decompose slowly over a period of several decades. These contaminants are absorbed by humans through their lungs, gastrointestinal tract or skin, and accumulate in the fatty tissues. PCBs are toxic in low dosages. Laboratory animals have suffered reproductive failures, gastric disorders, skin lesions, and cancerous tumors as a result of exposure to PCBs.

Regulatory Status: In October 1976, Congress passed the Toxic Substances Control Act (TSCA) which specifically directed EPA to regulate PCBs. By 1979, EPA issued regulations prohibiti and restricting their continued use. By 1984, EPA's rulemaking limited their uses to small amounts for resea and development, to hydraulic and heat transfer fluids concentrations below 50 parts per million (ppm), in compressors and condensate of natural gas pipelines at concentrations below 50 ppm, and in a few other areas. O March 23 of this year, EPA set national standards to gui the cleanup of PCB spills.

PCB Task Force: An Agency task force is investigating sites in states along the Texas Eastern Gas Pipeline where the company may have buried PCB wastes. In addition, EPA is beginning field investigations of six other interstate pipelines that used disposal pits for PCBs.

Pesticides

EPA

Issue Profile

Issue ..... PESTICIDE TOLERANCES (NAS REPORT)
Contact ..... Jane Hopkins 382-2892
Revised ..... March 1988

Background: In February 1985, EPA asked the National Academy of Sciences' National Research Council to study EPA's methods for setting tolerances for pesticide residues in food, and particularly how the tolerance-setting process is influenced by the Delaney Clause. EPA sets tolerances for pesticide residues on raw commodities under Section 408 of the Federal Food, Drug and Cosmetic Act, which specifies that both benefits and risks be taken into account, and under Section 409 of the law related to food additives. Consideration of benefits is not permitted under Section 409. The Delaney Clause is found in that section and it prohibits approval of a food additive that has been found to induce cancer in man or animals.

Findings: The Council's pesticide committee noted that as the Agency goes through the reregistration process, it must determine how to apply the "zero-risk" standard of the Delaney Clause to a significant number of currently registered, commercially important pesticides. The report found that 90 percent of the theoretical cancer risk came from pesticides registered for use before 1978. The study focused on 28 out of 53 chemicals that EPA identified as carcinogenic; of these, the 10 compounds thought to account for the most theoretical risk are: linuron, zineb, captafol, captan, maneb, permethrin, mancozeb, folpet, chlordimeform and chlorothalonil. The risk assessments were characterized by the committee as "very worst case risk assessments." The committee found that about 45 percent of the estimated dietary oncogenic risk is from foods that are not processed,including many fruits and vegetables, and all meat, milk, and poultry products.

Recommendations: The council recommended that a consistent risk standard be applied to both raw and processed foods. Calling for a "negligible risk" (rather than zero risk) standard, the council stated that this could eliminate 98 percent of existing dietary oncogenic risks while allowing continued use and benefits from certain low risk pesticides. By contrast, the Delaney Clause's zero-risk standard, since it applies only to oncogenic residues in processed foods and their parent raw commodities, would reduce the estimated risk by just 55 percent. (The findings are based on "worst case" estimates, so they consistently overstate the degree of risk.) EPA's response to the NAS report is expected to be prepared by April 1, 1988.

United States
Environmental Protection
Agency

Office of
Public Affairs (A-107)
Washington DC 20460

SUMMARY OF
STATEMENT OF
DOUGLAS D. CAMPT
DIRECTOR, OFFICE OF PESTICIDE PROGRAMS
U.S. ENVIRONMENTAL PROTECTION AGENCY
BEFORE THE
SUBCOMMITTEE ON OVERSIGHT AND INVESTIGATIONS
OF THE
COMMITTEE ON ENERGY AND COMMERCE
U.S. HOUSE OF REPRESENTATIVES

DECEMBER 14, 1987

- Describes EPA's tolerance-setting process under the authority of the FFDCA. EPA establishes tolerances for pesticides in food, while FDA and USDA enforce the tolerances.

- Describes the type of data required to support a tolerance petition (residue chemistry data and toxicology study results) and the analytical methods that EPA must approve.

- Critiques various provisions of the bill, including section 2 which requires FDA to develop monitoring information. This is of limited use because EPA does not use such data to set tolerances. Section 3 requires documentation of pesticide use only for imported commodities. This type of targeted requirement sets a precedent of concern to EPA.

- Concludes by stating that since FDA would have to implement this bill, EPA defers to FDA's judgment on the bill's feasibility and necessity.

Prepared by: Reynold Meni
Attorney-Advisor
Office of Legislative Analysis

December 14, 1987

United States
Environmental Protection
Agency

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Washington DC 20460

EPA

Environmental News

FOR RELEASE: THURSDAY, JANUARY 21, 1988

Bob Jacobson (206) 442-1203

FIRST CRIMINAL CASE FOR SELLING UNREGISTERED PESTICIDES ENDS IN GUILTY PLEAS

Two officers of Argent Chemical Laboratories Inc. of Redmond, Wash., each face possible prison terms after pleading guilty last week (Jan. 14) to charges filed in U.S. District Court in Seattle that Argent sold unregistered pesticide products and unapproved drugs in 10 states around the country in violation of federal laws administered by the U.S. Environmental Protection Agency and the U.S. Food and Drug Administration.

In a plea agreement with the government, Argent and its two officers agreed to pay fines totalling $100,000. The sum of $70,000 is to be paid by the company, and the remainder by Eliot Laurence Lieberman, Argent's president and treasurer ($20,000), and by Beatriz Faith Shanahan, the vice president and secretary ($10,000).

How much prison time will be served by Lieberman and Shanahan will be decided when the court imposes sentence on March 25. Lieberman could be sentenced to a maximum of three years in prison and Shanahan to a maximum of one year.

Argent, which promoted itself as the nation's largest manufacturer and distributor of aquatic pesticides, was charged with two felony counts related to false statements made to officials of EPA and FDA.

According to the charges, Argent was manufacturing, formulating and selling various pesticides at the time the company submitted a 1985 affidavit to EPA claiming it was not. Also in 1985, the company made false statements to FDA that is was not manufacturing or distributing a veterinary drug.

(more)

In addition to the two felony counts, there were 11 misdemeanor charges against the defendants, all relating to specific sales transactions of unregistered pesticides or unapproved drugs.

Six illegal pesticide sales were made between May 1983 and July 1986 to buyers in Winlock, Wash.; Parker, Ariz.; Little Rock, Ark.; Zachary, La.; Belzoni, Miss.; and Louise, Miss. The sales involved herbicides used by commercial fish farmers, or pesticides used by fish farms or hatcheries to eliminate predacious or trash fish.

Five illegal sales of unapproved veterinary drugs were made in 1985 and 1986 to state fish hatcheries or other buyers in Big Lake, Alaska; Elgin, Ore.; Boise, Idaho; Gary, Ind.; and Mercersburg, Pa.

Five of the 11 illegal sales were charged individually to Lieberman, and two to Shanahan. On three of those counts against Lieberman and on one against Shanahan, the matter of prison sentencing remains within the discretion of the court. Each of the counts carries a maximum of one year's imprisonment.

Any prison time for Lieberman or Shanahan would be in addition to the fines and five years' probation already imposed on each of the defendants by the plea agreements. Among the conditions of probation is the requirement that the defendants destroy promptly all unregistered pesticides and unapproved drugs in their possession.

In Seattle, Gene S. Anderson, the U.S. Attorney for the Western District of Washington, said that charges filed against Argent and its two officers were the product of investigations conducted by EPA and FDA.

The Argent case is the first criminal case in the country against a company selling drugs for use in the food fish industry. It is also the first criminal case in the country involving charges against a pesticide manufacturing establishment for the sale of unregistered pesticides.

R-9 # # #

EPA

Issue Profile

Issue ... **PESTICIDES IN GROUNDWATER**

Contact ..... Jerry Kotas
382-7176

Revised ..... **March 1988**

Background: The potential threat that pesticides pose to ground water quality--and thus to drinking water--has recently become a widely recognized problem. In 1982, EDB, one of the most potent cancer-causing substances ever found in an animal test program, was discovered in the ground water in California, Florida, Georgia and Hawaii. a 1985 study showed that 17 pesticides have been detected in ground water in 23 states as a result of normal agricultural use, as opposed to improper disposal, spills, or other accidents involving these pesticides. Pesticides, used to kill insects and weeds, can pose serious health threats to humans. Residues from pesticides can leach from the soil and contaminate ground water through runoff, rainfall, or infiltration.

To detect and correct pesticide contamination, EPA is conducting a national survey of drinking water wells. The survey will analyze well water for the presence of 70-100 pesticides in 1,500 drinking water wells, including 70 pesticides the Agency considers to have the greatest potential for contaminating ground water. Pesticides that pose potential hazards could be subject to a range of further regulatory actions, including labeling direction changes, restrictions in use, or suspension or cancellation of registrations. The Agency also has been issuing health advisories to state and local health officials on levels of pesticides in drinking water that may pose significant risks.

Status: In 1987, EPA completed a pilot study in three states: California, Minnesota and Mississippi, in which 48 wells were sampled. Beginning in late spring of 1988, EPA will be sampling the rest of the 1500 wells. We expect to have sampled 350 wells by the end of 1988, with all sampling completed by the end of 1989.

Coming Up: The national report is expected to be completed during fiscal year 1990. Information from the survey also will be used by the Agency to implement requirements of the Safe Drinking Water Act. New maximum contaminant levels and monitoring requirements can be proposed for pesticides shown to pose a hazard to public drinking water.

United States
Environmental Protection
Agency

Office of
Public Affairs (A-107)
Washington DC 20460

EPA

NATIONAL PESTICIDE SURVEY

Project Summary 1986/87

The Environmental Protection Agency has launched the National Pesticide Survey, a nationwide survey of pesticides in drinking water wells. This project summary explains the reasons for conducting the survey, the goals of the survey, and how the survey will be designed and conducted.

Why is a Survey Needed?

Pesticides present in drinking water may pose dangers to human health if ingested. Since 1975, urban water systems have been required to monitor for six pesticides: endrin, lindane, methoxychlor, toxaphene, 2,4-D, and 2,4,5-T. Recent evidence, however, indicates a larger problem of pesticides in ground water. At least 17 pesticides have been found in ground water in 23 states as a result of agricultural practices.[1] In the last few years, studies of pesticides in ground water have been undertaken by the States of California, Florida, Maryland, Minnesota, New York, Washington, and Wisconsin, among others. However, most of these studies have been limited to a small number of pesticides and specific geographic areas; no comprehensive nationwide study has been conducted.

The National Pesticide Survey is a major component of the Agency's overall effort to understand and characterize the problem of agricultural chemicals in ground water. The survey will provide a nationwide assessment of pesticide contamination in drinking water wells, and an understanding of how pesticide use and hydrogeology relate to contamination.

With adequate survey information on the concentrations of different pesticides in wells around the country, EPA will be able to better design its regulatory programs to target pesticides of concern and to develop further regulatory initiatives. The Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) gives the Agency authority to regulate the marketing and use of pesticides. Pesticides that are shown to pose potential hazards by their ability to leach into ground water could be subject to a range of further regulatory actions, including changes in label directions, use restrictions, or suspension or cancellation of a pesticide's registration. The Agency will also use information from the survey to implement requirements of the Safe Drinking Water Act (SDWA). New maximum contaminant levels and monitoring requirements may be proposed for pesticides shown to pose a hazard in public drinking water.

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[1] Cohen, S.Z., C. Eiden, M.N. Lorber, "Monitoring Ground Water for Pesticides in the U.S.," forthcoming in Evaluating Pesticides in Ground Water, Washington D.C., 1986. See also: Pesticides in Ground Water: Background Document, U.S. EPA, Office of Ground Water Protection, May 1986.

Goals of the Survey

EPA is designing the National Pesticide Survey to meet two major objectives: (1) to obtain sufficient information to characterize pesticide contamination in the drinking water wells of the nation; and (2) to better understand how pesticide concentrations in drinking water wells are associated with patterns of pesticide usage and ground-water vulnerability.[2]

The focus of the survey is on the quality of drinking water in wells rather than in ground water, surface water, or drinking water at the tap. The survey is not designed to estimate the risk to human health resulting from pesticides in drinking water. Estimating pesticide exposure from contaminated drinking water would require a different survey and research design. The study will, however, provide substantial data to develop inferences about populations potentially at risk from exposure to pesticides in drinking water and it will yield a wealth of information on the pesticides present in private and community drinking water wells.

How the Survey Will be Conducted

The survey will be implemented in two steps: a pilot survey of a limited number of drinking water wells beginning early in 1987 followed by the full survey about 8-10 months later. EPA expects to conduct the full survey over a period of two years, from the Fall of 1987 through 1989.

The survey design required the development of four major components: (1) a statistical design to select a set of wells that is representative of drinking water wells in the nation; (2) analytic methods to measure the types and amounts of possible pesticide contamination; (3) health advisories that establish the levels at which pesticide concentrations may pose a health problem; and (4) questionnaires to collect key information on factors potentially associated with pesticide contamination. These four components as well as the survey's logistical procedures will be tested in the pilot study.

Statistical Design. To test public drinking water wells for pesticide contamination, EPA will select about 500 community water systems, using the Federal Reporting Data System to identify systems with wells. The statistical design of the domestic wells side of the survey is more complex, primarily because there is no comprehensive tabulation of private (rural domestic) drinking water wells in the United States. The process of identifying and

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[2] Ground-water vulnerability is a composite description of geologic and hydrogeologic characteristics that indicates ground-water pollution potential. Factors that affect ground-water occurrence and availability will also influence the pollution potential of an aquifer. These characteristics can be combined to estimate the potential for pollution of ground-water resources.

selecting representative domestic wells for sampling is organized into three stages, as follows:

Stage 1: EPA classifies all U.S. counties using specified measures of ground-water vulnerability (obtained from the DRASTIC model) and measures of pesticide usage. From this classification scheme, EPA selects 90 representative counties.

Stage 2: At this stage, the counties are separated further into Census enumeration districts; these districts in turn are stratified by crop patterns and ground-water vulnerability to ensure a representative selection. Within these districts, using Census data and other sources, EPA identifies and statistically selects household clusters that use private wells.

Stage 3: In the final step of the selection process, EPA identifies private wells and characterizes their use and structure on the basis of interviews with householders. Over 700 domestic wells will be selected for pesticide sampling.

Analytic Methods. The water samples to be taken from the wells will be analyzed for the presence of about 120 pesticides (70 "priority" pesticides and 50 "non-priority" pesticide analytes). EPA has selected the pesticides to be analyzed on the basis of expected leaching potential, occurrence, production volume, and other considerations.

EPA has developed five multi-residue methods to detect and quantify the occurrence of pesticides. Each method will detect several analytes. The methods should enable EPA, states, and industry to efficiently analyze for pesticides expected to leach into ground water. In addition, a method is being developed for Ethylene thiourea (ETU). Methods already developed for nitrates, volatile organic chemicals (VOCs), and EDB/DBCP will also be used. Two EPA regional laboratories will act as Quality Assurance and Referee Laboratories.

EPA is performing laboratory validation of these methods. This effort will validate detection limits, determine the precision and accuracy of different methods, and analyze sample preservation requirements. Work on the Quality Assurance Plan for the survey is nearing completion. EPA staff are preparing specifications for sampling procedures, sample custody, data analysis, quality control, and performance audits.

Health Advisories. EPA is developing Health Advisories for about 60 priority pesticides, using information collected on physiochemical properties, uses, chemical fate, health effects, treatment, and existing criteria and guidelines. External review drafts of the Health Advisories will be available in the Spring of 1987.

Questionnaires. Questionnaires have been designed to gather information from both community water system operators and domestic well owners, as well as to collect data from local specialists on characteristics of the area surrounding the well. The major categories of information to be collected are: location of wells, well use and construction characteristics, pesticide use in relation to the well, hydrogeologic characteristics, demographic characteristics, and economic and crop characteristics.

Pilot Study. The pilot study is intended to field test the major components of the project, some of which have been developed specifically for this project. The pilot will also provide practical experience in conducting the full survey. Pilot studies are now considered essential in any large-scale or benchmark effort.

Project Participants. The Office of Pesticide Programs and the Office of Drinking Water in EPA Headquarters are jointly sponsoring the survey. Successful completion of the project will require the support and cooperation of EPA Regional programs and laboratories and the help of many other organizations. In particular, the cooperation of state water supply and health agencies will be essential, particularly in assuming a major role in sampling wells from community water systems. A high participation rate on the part of community well system operators and domestic well owners will be sought in implementing the survey.

Communications. EPA has developed a communications document that outlines procedures for notification, internal project communications, and release of sampling results to well owners and operators and to the public.

EPA will issue updates on the survey as work progresses. To be included on the mailing list for Project Updates, or for further information on the survey, please contact:

Gerald F. Kotas, Director
National Pesticide Survey
U.S. Environmental Protection Agency
401 M Street S.W. (WH-550)
Washington, D.C. 20460

Radon

EPA Issue Profile

Issue ..... **RADON IN THE HOME**
Contact ..... Miles Kahn
475-8377
Revised ..... **March 1988**

Background: Radon in the home is recognized as a major health issue in the U.S. Elevated levels of radon--a colorless, odorless gas formed by the decay of uranium--increase the risk of lung cancer. Scientists estimate 5,000 to 20,000 lung cancer deaths a year in the U.S. may be attributed to radon. (The overall annual toll from lung cancer is 135,000, the American Cancer Society says. The Surgeon General attributes about 85 percent of lung cancer deaths to smoking.) A January 1988 National Academy of Sciences report confirmed Agency risk estimates and identified radon as a major national public health problem. EPA advises homeowners to act to reduce radon when average radon levels exceed 4 picocuries per liter (PCi/l) of air. Based on limited testing, the Agency estimates as many as 8 million homes in the U.S. (10%) have levels above 4 pCi/l, the EPA recommended action level. The risk of lung cancer at the recommended action level is estimated in the range of 1 to 5 chances in a hundred over lifetime exposure (70 years).

Status: The goal of EPA's Radon Action Program is to significantly reduce the health risks of indoor radon by forming a partnership with the states. EPA is supporting state programs through a variety of activities including:

- Completion of the largest survey of indoor radon undertaken to date that found elevated radon levels in 21 percent of the 11,600 homes tested in 10 states. Results of the survey were released Aug. 4. (See attachment).
- Research into methods of mitigration and prevention in new and existing homes.
- Technical training in measuring and diagnosing radon problems, and in evaluating survey data.
- Public information materials to aid states in informing homeowners about radon.

EPA also is conducting a radon measurement proficiency program to help the public identify firms and laboratories that have demonstrated their ability to measure indoor radon levels. The latest quarterly report (2/3/87) listed 153 such organizations.

Coming Up: EPA is assisting the Indiana Health Service and the folliwng seven states in radon surveys this winter. The seven include Massachusetts, Arizona, Minnesota, Missouri, North Dakota, and Pennsylvania.

RCRA

EPA Issue Profile

Issue ..... RCRA AMENDMENTS of 1984

Contact ..... Rita Calvan, 382-4523
Revised..... March 1988

Background: While EPA's Superfund program is designed to clean up problems of the past, the Resource Conservation and Recovery Act (RCRA) is intended to prevent problems of the future. The 1984 amendments to the act established 69 new regulatory or report requirements, many with statutory deadlines. A number of the deadlines have "triggers" in place, with the regulation automatically going into effect if EPA fails to meet a deadline. The Office of Solid Waste and Emergency Response is charged with meeting 62 of these deadlines: 32 regulations, 19 listings and 11 reports. The regulations cover more than 100,000 small-quantity waste-generators, some 67,000 other generators, 4,800 treatment, storage and disposal facilities, and a million and a half storage tanks. The new amendments substantially increase the costs of the program. While the old program cost the regulated community $1-3 billion when fully implemented, the 1982 Amednments will cost an estimated $20 billion per year by the 1990s.

Requirements: Major emphasis is placed on the partnership between the Federal government and the states, with EPA setting the guidelines and the states implementing their own hazardous waste programs, as long as they are consistent with the Federal program. Deadlines established under the program call for issuing permits by November 1988, incinerator permits by November, 1989, and storage and treatment permits by November 1992. The amendments also tighten EPA's authority to force facility owners to take corrective action when a release of hazardous material is detected or existing conditions represent a health hazard. The 1984 law established a strong presumption against land disposal as a managements strategy.

Coming Up: Some of the upcoming rules that will affect the design, operation, and location of hazardous waste management facilities include: location standards for facilities; rules relating to the containment capability of landfills; ground water monitoring regulations; rules expanding the options for closing at land disposal facilities. Waste minimization will be a key term for our hazardous waste management efforts. We are committed to developing a non-regulatory program to encourage waste minimization activities. EPA intends to take a stronger leadership role in addressing solid waste issues. In fact, this is an area where we can expect to see some dramatic new emphasis from the Agency. We intend vigorously to promote source reduction and recycling and have set a national goal of reducing or recycling 25% of solid waste generated within a four-year period. We plan to deal with both the regulatory and technical aspects of incinerator ash. Revisions to existing criteria for municipal landfills are in preparation.

United States
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Washington DC 20460

SUMMARY OF
STATEMENT OF
J. WINSTON PORTER
ASSISTANT ADMINISTRATOR
FOR
SOLID WASTE AND EMERGENCY RESPONSE
BEFORE THE
SUBCOMMITTEE ON TRANSPORTATION, TOURISM AND HAZARDOUS MATERIALS
OF THE
COMMITTEE ON ENERGY AND COMMERCE
U.S. HOUSE OF REPRESENTATIVES

March 10, 1988

I. Current Activities

- Established Federal Facilities Compliance Task Force
- Successful Negotiation of interagency agreements at Rocky Flats, INEL, TCAAP
- Establishing specific annual enforcment targets, commitments tied to resource allocations
- Strategy for enforcement action at Federal facilities encourages use of all available enforcement tools, and outlines options for achieving cleanup through RCRA corrective action requirements in combination with CERCLA 106 and 120 authorities.

II. Agency comments on bills H.R. 3781-3785

H.R. 3781:
- Would establish separate office, accounting and budget authority for hazardous waste TSD program, including corrective action, under RCRA, and cleanup activities under CERCLA. EPA supports objective of adequate funding for RCRA-CERCLA compliance, but defers to DOE on the best approach to accomplish it.

H.R. 3782:
- Oppose establishment of Special Enforcement Counsel to enforce RCRA at federal facilities; would be "independent instrumentality", not responsible to or directed by program or enforcement offices, reduces flexibility to negotiate consent agreements.

MAR 1988

SUMMARY OF
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J. WINSTON PORTER
ASSISTANT ADMINISTRATOR FOR
SOLID WASTE AND EMERGENCY RESPONSE
U.S. ENVIRONMENTAL PROTECTION AGENCY
BEFORE THE
SUBCOMMITTEE ON ENVIRONMENT, ENERGY AND NATURAL RESOURCES
COMMITTEE ON GOVERNMENT OPERATIONS
UNITED STATES HOUSE OF REPRESENTATIVES

December 15, 1987

EPA is making steady progress on the permitting and closure of land disposal facilities. To date we have reviewed 72 percent of the closure plans received for closed or closing land disposal facilities and anticipate completing the remaining closure plan reviews for land disposal facilities by the end of FY 89.

Since 1985, the number of facilities intending to close some or all of their hazardous waste units has increased dramatically, first because of the loss of interim status provision, and later due to land disposal restrictions, retrofit requirements, and the 1988 permitting deadline for land disposal facilities. Also, ensuring proper closure activities has proven to be a more complex and time consuming process than anticipated.

During FY 1987 the Regions reported a steady increase in the number of closure plans approved each quarter. Based on current projections, closure plans should be approved for the vast majority of closing land disposal facilities by the end of FY 89.

RCRA also provides a specific set of authorities to compel clean-up on corrective actions before, during or after closure.

In FY87, the RCRA Implementation Plan specifically established as high priority goals the review of closure plans for interim status facilities and the initiation of corrective action activities at environmentally significant closing facilities. We are also developing and implementing an integrated RCRA/CERCLA managment system, the Environmental Priorities Initiative, to enable the Agency and ultimately the States to identify, evaluate, prioritize and clean-up first those sites which present the greatest threat to human health and the environment.

Inspection and Management Plan Assistance Program (to provide grants to states). EPA intends to use public outreach, inspections and a strong enforcement program to achieve compliance.

-- Concludes by stating that it would not be practical for EPA to adopt a numeric standard for asbestos exposure. Reasons: asbestos exposure results from episodic events which vary widely and are difficult to predict; the most accurate monitoring would be by the TEM direct method which is very expensive. EPA's traditional approach is the most viable one at this time: laboratory identification of asbestos-containing material and visual assessment of its condition by trained professionals.

Prepared by: Reynold Meni
Attorney-Advisor
Office of Legislative Analysis
Narch 15, 1988

RCRA:
Land Ban

EPA
Issue Profile

Issue ..... **RCRA LAND BAN**

Contact.....Rita Calvan, 382-4523

Revised ..... **March 1988**

Background: An estimated 33 billion gallons of untreated hazardous waste are disposed of annually in landfills, surface impoundments, land treatment units and waste piles. Most land disposal of untreated hazardous waste will be phased out by 1990 under RCRA Amendments enacted in 1984. The aim is to avert long-term public health risks by reducing or eliminating the toxicity of waste before land disposal of residues. EPA's implementing regulations are to be issued in priority order, with high-risk, high-volume wastes heading the list. Effective dates for controls may be delayed for two years, however, if treatment capacity is inadequate. Performance based treatment standards will be established for the majority of waste streams; specific treatment methods will be established in some cases.

Status: EPA has made considerable progress in meeting the regulatory deadlines set in the 1984 RCRA Amendments. We have issued a final rule that established the regulatory framework for the land disposal restrictions program. We have also promulgated effective dates and treatment standards for solvents and dioxins, as well as for wastes captured by the so-called "California list."

Coming Up: Some of the upcoming rules that will affect the design, operation, and location of hazardous waste management facilities include: location standards for new, expanding, and existing hazardous waste treatment, storage, and disposal facilities; rules to enhance the containment capability of landfills and to require leak detection systems; revisions to regulations pertaining to ground water monitoring; and a rule to expand the options for closing of landfills, surface impoundments, and waste piles. In addition, there will be a major restructuring of the corrective action program for facilities where releases of hazardous wastes occur, and the approach to defining wastes as hazardous will be revised and improved.

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RCRA:
UST Regs

RCRA:
UST Regs

EPA

Issue Profile

Issue ... **UNDERGROUND STORAGE TANKS**

Contact.....Rita Calvan, 382-4523
Revised ..... **March 1988**

Background: It has been estimated that there are about 1.4 million underground tanks in 50 states and 3000 counties, nearly half of them used to store gasoline at service stations. Of the tanks in use, an estimated 84 percent are unprotected bare steel containers, the type most likely to corrode and leak. Five percent are made of corrosion-protected steel, and 11 percent are fiberglass, which meets corrosion protective standards.

EPA's underground storage tanks program authorities derive from Subtitle I of the Solid and Hazardous Waste Amendments of 1984, which reauthorized and revised the 1976 Resource Conservation and Recovery Act.

Status: Major accomplishments related to underground storage tanks have included the proposal of regulations for tank technical standards, corrective action and state program approval, as well as development of policies and procedures to support implementation of the Leaking Underground Storage Tank Trust Fund. The emphasis has been on creating a program that is workable and realistic for the 50 states and 3,000 counties where it will have to be implemented. EPA's primary role in this area is to build effective state and local programs. We have taken a novel approach to implementing this program, viewing EPA as the franchiser and states and locals as franchisees.

Coming Up: In the future program staff will finalize regulations for tank design standards, leak detection, corrective action, and financial responsibility. This will enable states to submit their programs for EPA approval in FY '89. Forty-one states received trust fund cooperative agreements in FY '87; most of the remainder will be awarded during FY '89.

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MAR 1988

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During FY 1987 the Regions reported a steady increase in the number of closure plans approved each quarter. Based on current projections, closure plans should be approved for the vast majority of closing land disposal facilities by the end of FY 89.

RCRA also provides a specific set of authorities to compel clean-up on corrective actions before, during or after closure.

In FY87, the RCRA Implementation Plan specifically established as high priority goals the review of closure plans for interim status facilities and the initiation of corrective action activities at environmentally significant closing facilities. We are also developing and implementing an integrated RCRA/CERCLA managment system, the Environmental Priorities Initiative, to enable the Agency and ultimately the States to identify, evaluate, prioritize and clean-up first those sites which present the greatest threat to human health and the environment.

Safe Drinking Water Act

Safe Drinking Water Act

EPA

Issue Profile

Issue **Safe Drinking Water Act**

Contact Dave Fege, 382-5508

Revised **March 1988**

Background: The Safe Drinking Water Act of 1974, amended in 1977, gave EPA authority to set national standards for drinking water from both surface and ground-water sources, to protect major aquifers, and to regulate deep-well waste disposal. Amendments to the Act signed into law June 19, 1986, expanded the regulatory responsibiilities of EPA and the states, mandating standard-setting for an expanded list of contaminants, adding provisions to strengthen the protection of ground water and providing new enforcement tools.

Highlights: The 1986 amendments require: standards for 83 additional contaminants by 1989; testing for specified contaminants not covered by standards; a ban on the use of lead in or on pipes; state wellhead protection programs, monitoring wells injecting below drinking water sources, 'critical aquifer area' demonstration programs; and prompt public notification of serious violations.

The amendments also authorize use of administrative orders by EPA against public water systems in violation if states fail to act. Civil penalty limits were raised to $25,000 per day. The amendments also require that a new list of priority contaminants be published every three years, and EPA must regulate a minimum of 25 contaminants from each new list within three years of its publication.

Status: A final rule regulating eight volatile organic chemicals and requiring monitoring for 51 unregulated chemicals was promulgated in June, 1987. In January, 1988, EPA announced final action establishing a new regulatory priority list of 53 drinking water contaminants, of which the Agency is required to regulate 25 within three years. This list is in addition to an earlier statutory priority list of 83 specific contaminants that must be regulated by June 1989. That earlier list includes 34 standards set by EPA since the regulatory program began in 1975.

EPA has also removed seven unregulated drinking water contaminants from the priority list of 83 (molybdenum, vanadium, dibromomethane, sodium, zinc, silver and aluminum) and substituted seven others in their place (nitrate, heptachlor, heptachlor epoxide, ethylbenzene, styrene, aldicarb sulfoxide and aldicarb sulfone). The seven contaminants that were removed from the list will be considered for future regulation as part of the first regulatory priority list.

JUNE 1987

KEY IMPLEMENTATION DATES
1986 AMENDMENTS
SAFE DRINKING WATER ACT

The 1986 Amendments to the Safe Drinking Water Act were signed into law on June 19, 1986. Key implementation dates under various provisions of the Amendments include the following:

DRINKING WATER STANDARDS

Within 1 year	Standards to be established regulating 9 contaminants
Within 2 years	Standards for another 40 contaminants
Within 3 years	Standards for another 34 contaminants
By 1991	At least 25 additional primary standards (with 25 more expected every 3 years thereafter)

TREATMENT REQUIREMENTS

y 1988	EPA to specify criteria for filtration of surface water supplies
By 1990	EPA to specify criteria for disinfection of surface and ground-water supplies

UNREGULATED CONTAMINANTS

Within 18 months	EPA to issue regulations requiring public water systems to test for specified contaminants for which standards have not been set

GROUND WATER

Within 1 year	EPA to establish criteria for demonstration programs to protect "critical aquifer areas." Report of accomplishments due to Congress by September 1990.
	EPA to provide criteria states are to use in defining wellhead protection areas. States have 3 years to develop protection plans; two years from submittal to begin implementation.
Within 18 months	Rules to be issued for monitoring wells injecting wastes below a drinking water source (Class I wells). Report due to Congress by September 1987 summarizing results of state surveys required on Class V wells.

INDIAN LANDS

Within 1 year	EPA, in conjunction with Indian Health Service, is to complete survey of drinking water on Indian reservations.
Within 18 months	EPA to issue final regulations specifying provisions of Act under which Indian tribes will be treated as states.

JUNE 1987

DRINKING WATER STANDARDS

Standards are in effect for the following contaminants:

Inorganics:	Arsenic; barium; cadmium;, chromium; fluoride; lead; mercury; nitrate; selenium; silver
Microbials:	Coliform bacteria; turbidity
Organics:	Endrin; lindane; methoxychlor; toxaphene; 2,4-D; 2,4,5-TP silvex; trihalomethanes
Radionuclides:	Gross alpha particle activity; beta particle and photon radioactivity; radium-226 and radium-228
Volatile Organic Chemicals	Trichloroethylene; benzene; vinyl chloride; carbon tetrachloride; 1,2-dichloroethane; 1,1-dichloroethylene; 1,1,1-trichloroethane; p-dichlorobenzene; tetrachloroethylene

Standards have been proposed for the following contaminants:

Inorganics	Asbestos; copper
Microbials	Giardia lamblia; viruses
Synthetic Organic Chemicals	Aldicarb; chlordane; carbofuran; PCBs (polychlorinated biphenyls); acrylamide; DBCP (dibromochloropropane); 1,2-dichloropropane; pentachlorophenol; alachlor; EDB (ethylene dibromide); toluene; xylene

EPA Issue Profile

Issue **Drinking Water Filtration**

Contact Stig Regli, 382-7379

Revised **March 1988**

Background: In the late 1800's, filtration of drinking water greatly reduced outbreaks of waterborne disease. In the 1900's, disinfection and filtration virtually eliminated waterborne typhoid fever and cholera in the U.S. Many states and systems already require or use filtration and/or disinfection for all surface water sources.

While drinking water in the United States is among the safest in the world, EPA has proposed new standards for public water systems which draw their water from surface-water sources. These new standarc would require all such systems to provide disinfection to protect against Giardia, coliform bacteria, viruses, heterotrophic bacteria, turbidity and Legionella. EPA has had microbiological standards in effect since 1977 for coliform bacteria and turbidity. Implementatior of the new standards is expected to eliminate thousands of cases of waterborne illnesses each year.

Highlights: EPA's proposed rules require installation of additional treatment technology in water systems that need it to assure that the: drinking water is safe from microbiological contamination. Of the 9,800 drinking-water systems in the U.S. using surface water, 3,000 systems currently do not filter. Over 21 million people are served by these unfiltered systems, some of which are currently providing biologically safe water and will not require changes. Some systems will need minor modifications, such as disinfection, and some will nee to install filtration systems.

Giardia are protozoa that originate in human and animal waste and cause giardiasis. Giardiasis has flu-like symptoms, but is usually more severe. It can cause diarrhea, nausea and dehydration that can last for months. Nationally, the cost of meeting the filtration requirements for public water systems without filtration is estimated at $1.6 billion in capital and $225 million in annual costs.

Status: EPA's new regulations require the states to evaluate all unfiltered systems to see if they need filters. The regulations also require all water systems to be operated by qualified operators and to report to their state governments within 48 hours any waterborne disease outbreaks. Water systems must meet Federal requirements within four years after the final rule is issued.

A Safe Drinking Water Hotline is available at (800) 426-4791, or 382-5533 (in Washington, D.C.).

United States Environmental Protection Agency

Office of Public Affairs (A-107) Washington DC 20460

Superfund:
Facts and Figures

United States
Environmental Protection Agency

Office of Solid Waste and
Emergency Response

Washington, DC 20460

EPA

Superfund Advisory

Winter 1988

FY 1987 IS BIG YEAR FOR SUPERFUND

Considerable progress was made during FY 1987 toward cleaning up uncontrolled hazardous waste sites, according to the EPA Office of Solid Waste and Emergency Response (OSWER). Dr. J. Winston Porter, Assistant Administrator for OSWER, observed that the Superfund program's progress was achieved by accelerating site cleanup and enforcement activities and by incorporating requirements as directed by the 1986 Superfund Amendments and Reauthorization Act (SARA), which amended the original Superfund law, the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

Three types of response actions are possible under the Superfund program—removal actions, remedial actions, and enforcement activities.

Removal actions are short-term actions intended to stabilize or clean up an incident or site threatening human health and welfare or the environment. The removal program conducted the largest number of hazardous waste or chemical spill removals since the Superfund program began in December 1980. In FY 1987, 254 removal actions were initiated and 193 actions were completed using Superfund monies. This brought the total number of removals initiated since the enactment of CERCLA to 1,051.

Remedial actions include the study, design, and construction of long-term actions aimed at permanently cleaning up affected areas. Accomplishments for the remedial program during FY 1987, also significant, included 183 (123 "first starts" and 60 subsequent) remedial investigations/feasibility studies (RI/FSs), 75 (58 initial and 17 subsequent) records of decision (RODs), 75 remedial design (RD) starts, and 41 remedial action (RA) starts. Over half of the RODs addressed final source control, and the majority of these involved source treatment—especially thermal destruction (see Figure 1). Work was completed at eight sites, while five other sites were deleted from the National Priorities List (NPL).

A key management initiative in FY 1987 was a strategy designed to expedite the pre-remedial process by focusing attention on early decisions to ensure that fewer low priority sites reach the resource-intensive stages of the pre-remedial process. The pre-remedial process includes the preliminary assessment (PA), site inspection (SI), Hazard Ranking System (HRS) scoring, and listing on the NPL. During FY 1987, the pre-remedial program completed PAs for over 4,000 sites, SIs for over 1,300 sites, and 155 HRS scores. Ninety-nine sites were listed as final NPL sites, while an additional 64 sites were proposed for listing.

Superfund enforcement authorities enable EPA to encourage responsible parties to undertake cleanup activities and allow EPA to recover Fund monies spent for cleanup from those responsible parties. The Agency reached 17 settlements in which private parties will conduct the remedial design and cleanup, and 50 settlements for investigative work. The EPA Regions completed 43 cost recovery settlements for a total value of almost $36 million, and referred 37 sites for cost recovery at a combined dollar value of approximately $81 million. The value of the design and cleanup settlements is in excess of $110 million.

Dr. Porter has set tough goals for the Superfund program in FY 1988. These plans include 105 RI/FS starts, 125 remedies to be selected, 129 RD starts, 67 RA starts, 16 deletions from the NPL, 8 other site completions, 87 settlements (either RI/FS or remedial design/construction), and about $66 million in cost recovery.

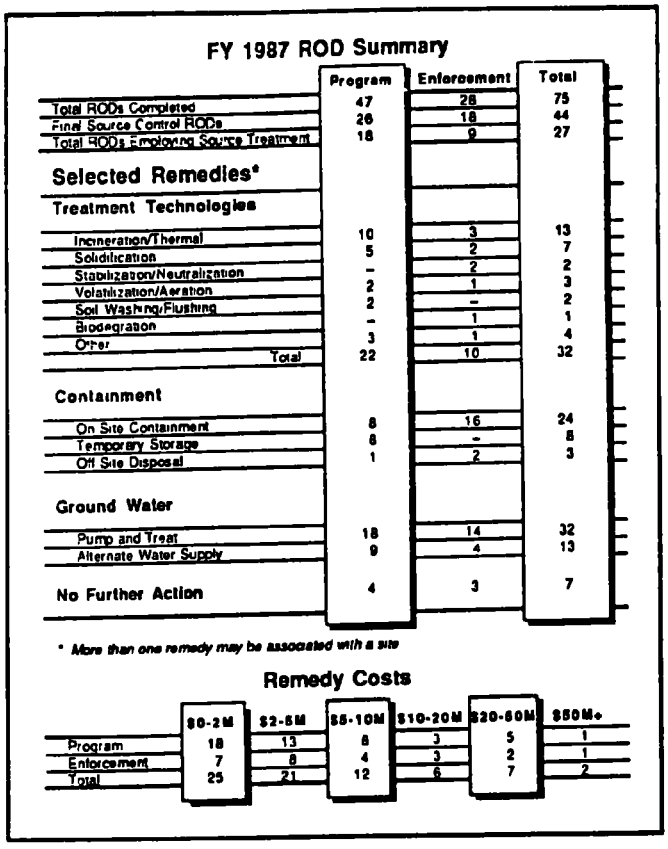

FIGURE 1

During FY 1987, the Agency approved 75 Records of Decision (RODs). The ROD documents the action plan for the remedy chosen for a site and provides background on the decision. An approved ROD must be in place before design and construction can begin.

OSWER's progress is documented in a "Solid and Hazardous Waste Report for Fiscal Year 1987," released on December 18, which summarizes EPA and State efforts regarding Superfund, managing hazardous wastes, underground storage tanks, and chemical emergency preparedness and prevention (community right-to-know).

TEN NEW INNOVATIVE CLEANUP TECHNOLOGIES SELECTED FOR DEMONSTRATION

In November 1987, EPA announced the selection of 10 new technologies slated for demonstration under the Superfund Innovative Technology Evaluation (SITE) program. The SITE program helps OSWER demonstrate, evaluate, and promote the use of new technologies that significantly decrease the toxicity, mobility, or volume of hazardous substances at Superfund sites. This effort provides private (profit and nonprofit) and public entities an opportunity to test alternative technologies at selected Superfund sites with on-site evaluation. The developer of the innovative technology pays for the demonstration, and OSWER finances the evaluation. Thomas W. Devine of OSWER manages the SITE program.

According to Dr. Porter, "The SITE program is a very important part of the research underway on Superfund cleanup methodologies. These innovative and emerging technologies are critical to the work that must be done over the next few years identifying and putting into place new and effective cle remedies."

Ten developers and technologies were selected from the second annual solicitation of the SITE demonstration program. Selected for processes involving solidification/stabilization of hazardous wastes were Solidtech, Inc. of Houston, TX; Chemfix Technologies, Inc. of Metairie, LA; Waste Chem Corp. of Paramus, NJ; and Battelle Pacific Northwest Laboratory of Richland, WA. Chosen for biological technologies were Air Products and Chemicals, Inc. of Allentown, PA; Zimpro Environmental Control Systems of Rothschild, WI; and MoTec, Inc. of Mt. Juliet, TN. Retech, Inc. of Ukiah, CA, was selected for thermal technologies; C.F. Systems, Inc. of Cambridge, MA, for an extraction process; and Sanitech, Inc. of Twinsburgh, OH, for an ion-exchange technology.

EPA issued its third annual solicitation for SITE demonstrations in the Commerce Business Daily in mid-October 1987, with requests for proposals available from the Agency in January 1988.

A new component of the SITE program, the Emerging Technologies Program, will provide funding to developers for technologies that are not yet ready for full-scale demonstration. The program will comprise innovative, emerging technologies for recycling, separation, detoxification, destruction, stabiliz and handling of hazardous chemical wastes. It will provide up to $300,000 over two years to an individual developer for taking a promising technology from bench-scale to the pilot stage. If the pilot stage is successful, then it could be eligible for evaluation under the SITE program. To obtain second-year funding, significant progress must be made during the first year. EPA is currently soliciting preproposals for this program.

TECHNICAL ASSISTANCE GRANTS TO BE MADE AVAILABLE TO CITIZENS' GROUPS

The 1986 amendments to CERCLA authorize EPA to make grants available to single groups in communities affected by a release or threatened release from a National Priorities List site. Community members may use these grants, called Technical Assistance Grants (TAGs), to obtain independent assistance in interpreting technical information on the nature of the hazards and recommended alternatives for cleanup. Grants are limited to $50,000 per NPL site. The goal of the program is to encourage informed public involvement in EPA and State Superfund cleanup activities.

To receive TAGs, community groups must provide match funds of at least 20 percent of the total costs of the grant, whi be covered with cash or "in-kind" contributions, such as don

office supplies or professional services. Eligible groups are those whose members may be affected by a release or threatened release of hazardous wastes at any site listed or proposed for inclusion and at which preliminary site work has begun) on the NPL. Potentially responsible parties, profit-making organizations, academic institutions, governmental-sponsored citizen advisory groups, and headquarters offices of National and State organizations are excluded from participation.

EPA hopes to maximize the use of TAG funds, so consolidated applications representing several community groups will receive preferred treatment. Although grants are limited to $50,000 per site, waivers may be given to applicant groups affected by multiple sites to reduce their administrative burden. For example, applicants concerned about three sites would be eligible for $150,000 in TAG monies (3 sites x $50,000/site).

The Agency plans to publish the Interim Final Rule for Superfund TAGs in late February 1988. After that time, TAG applications, complete lists of eligible/ineligible uses of TAG monies, and a "Citizens' Guidance Manual for the Technical Assistance Grant Program" can be obtained from EPA.

NEW REMEDIAL CONTRACT PROGRAM UNDERWAY IN EPA REGIONS

EPA is currently implementing the Alternative Remedial Contract Strategy (ARCS), which eventually will replace the existing Remedial Planning (REM) program. ARCS will provide the Agency with technical contractor support for remedial investigations, feasibility studies, remedial design, and remedial action activities.

EPA Regional staff will manage the ARCS contracts, although Headquarters staff will assist in the procurement process. The advantages of ARCS include promoting continuity of performance from RI/FS to construction management, increasing the level of competition for contract awards, and facilitating contract management delegations to the Regions.

The first round of ARCS procurement, covering Regions III and V, is currently being negotiated. EPA expects to make awards during the Winter and Spring of 1988. The second round of procurements, which covers Regions I, II, and the combined zone of Regions VI, VII, and VIII is currently in the technical evaluation stage, with awards scheduled to begin in late Summer/early Fall 1988. A third round of ARCS procurements will cover Region IV and a combined zone of Regions IX and X, with procurement announcements scheduled for Spring 1988 and awards during Winter 1989.

PORTER EMPHASIZES BETTER SUPERFUND PROJECT EXECUTION

As the Superfund program moves into the construction phase at many hazardous waste sites, Assistant Administrator Porter has stressed the importance of increasing the pace of remedial actions. In an August 1987 memorandum to the Regional Administrators, Dr. Porter encouraged using a variety of resources to complete projects, depending on the nature of the project and the site.

For example, he suggested that a single project management entity be used to carry the site through the remedial planning, design, and construction of remedy. The project manager will often be an EPA contractor, although the Corps of Engineers or another entity may assume the role. For larger projects, EPA will use the expertise and experience found in other Federal agencies such as the Corps of Engineers. Under the large project scenario, EPA contractors will conduct the remedial planning, while the Corps will procure both an engineering firm to design the remedy and a construction firm to carry out the plan.

Dr. Porter believes that these two mechanisms for project execution will provide EPA with the flexibility to meet the varying site conditions and challenges presented by the 951 sites now listed or proposed for inclusion on the NPL, as well as assist in moving Superfund projects more expeditiously.

SUPERFUND PROGRAM WILL PROPOSE SELECTION OF REMEDY REQUIREMENTS IN MID-1988

One of EPA's major efforts over the last year has been the revision of the National Oil and Hazardous Substances Pollution Contingency Plan, popularly referred to as the NCP. The Agency considers the selection of remedy process to be a key element of the NCP and has identified nine criteria for EPA decision-makers to use in selecting remedies at Superfund sites:

- Overall protection of human health and the environment;
- Compliance with applicable or relevant and appropriate requirements (ARARs) of other Federal and State laws;
- Long-term effectiveness and permanence;
- Reduction of toxicity, mobility, or volume;
- Short-term effectiveness;
- Ease or difficulty in implementing alternatives;
- Types of costs;
- State concerns with/acceptance of alternatives; and
- Assessment of community attitudes and acceptance.

EPA plans to release the proposed selection of remedy requirements this summer. The revision of the NCP, which addresses most of the Superfund regulatory program, was mandated by the 1986 SARA revisions to CERCLA.

SUPERFUND PROGRAM MATURING, EPA TELLS CAPITOL HILL

Dr. Porter testified before the Senate Subcommittee on Superfund and Environmental Oversight on December 10, 1987 on EPA's management and implementation of the Superfund program. He was accompanied by Henry L. Longest, II, Director of the Office of Emergency and Remedial Response; Gene A. Lucero, Director of the Office of Waste Programs Enforcement; C. Morgan Kinghorn, Acting Assistant Administrator for Administration and Resources Management; and Christopher J. Daggett, Regional Administrator for Region II. The hearing was chaired by Senator Frank Lautenberg (D-NJ), and attended by Senators Robert T. Stafford (R-VT), Larry Pressler (R-SD), and John W. Warner (R-VA).

Dr. Porter reviewed the progress achieved by EPA and the States in the Superfund program during 1987 (see p. 1) and related how the experience gained from the Agency's efforts has helped EPA revise and improve the way it administers the program. Some of EPA's initiatives include improvements in the RI/FS process and project completions, improvements in project management and execution, reforms in the alternative remedial contract strategy, greater emphasis on streamlined settlements, greater use of removal authority, and guidance on selection of remedies.

One example that EPA highlighted during the hearing was the Agency's efforts to improve the RI/FS process. EPA sought to accomplish three objectives for RI/FSs: contain project planning within a 3-month period, reduce the overall RI/FS process to an 18-month schedule, and reduce overall project costs.

To achieve these objectives, four major improvements will be initiated:

- Phased RI/FS Execution, which involves using the results of initial field investigations to better define the needs of subsequent phases;
- Streamlined Project Planning, which includes consolidating sampling and analysis plans and quality assurance project plans, incorporating standard procedures by reference, and limiting formal review of documents;
- Management of Handoffs (shifting responsibilities for review activities), which can be minimized by scheduling concurrent activities, receiving interim approvals for activities, and phasing tasks; and
- Establishment of a Quality Control and Technical Advisory Committee, which will serve to identify and resolve major technical and policy issues in the RI/FS and will assist in ensuring that the scope and costs are commensurate with the level of complexity of the site.

As Dr. Porter testified, "We have made significant progress, but are constantly seeking ways to expedite the cleanup process and improve the quality of our response and enforcement actions. These hearings are a helpful spur to our efforts, and we look forward to continuing to work with the Subcommittee to achieve our mutual goal of countering the threat presented by long years of inadequate past waste disposal practices."

GOVERNMENT, HILL, INDUSTRY, ENVIRONMENTALISTS DISCUSS SUPERFUND SETTLEMENT PROCESS

In October 1987, top EPA officials participated in a Superfund Settlements Conference in Warrenton, VA. Other attendees included representatives from the Department of Justice; State agencies from New Jersey, New York, and Pennsylvania; leading law firms and corporations; Congressional staff; and environmental organizations. Other senior EPA officials who participated include Gene A. Lucero, Director of the Office of Waste Programs Enforcement, and Linda Fisher from the Office of the Administrator.

The conference provided an excellent opportunity to bring together governmental and nongovernmental representatives to discuss the Superfund settlement process in a cooperative setting where parties could discuss problems and identify possible improvements in approaches and procedures.

Dr. Porter delivered the keynote address in which he discussed the accomplishments of the Superfund settlement process and several areas on which the Agency will focus to improve the operation of the program. He noted EPA's strong commitment the settlement process, and encouraged the use of tools provided by SARA, such as mixed funding.

Conference participants generally agreed that although considerable progress has been made toward improving the settlement program, a variety of problems still exist and need to be addressed. Some of the observations of the various participants include:

- The pace of settlements has increased during FY 1987;
- A strong settlement program is critical to the success of the overall Superfund program;
- The use of negotiation deadlines has helped drive the process;
- The Government needs to facilitate organization of potentially responsible parties (PRPs) for negotiations and better manage the conduct of negotiation deadlines;
- Better procedures are needed to assure participation by decision-makers at the early stages of the settlement process;
- Improvement is needed in providing for PRP input in the remedy selection process;

- The Agency should explore alternatives to the regular RI/FS process where appropriate;

- Mixed funding and de minimis settlements are important tools for promoting settlements; and

- Considerable controversy exists over the role of stipulated penalties in ensuring PRP compliance.

The Superfund Settlements Conference was sponsored by the law firm of Morgan, Lewis & Bockius and chaired by firm partner and former EPA Deputy Administrator John Quarles.

TITLE III PROGRAM OBJECTIVES AND DEADLINES ON TRACK

EPA's Chemical Emergency Preparedness and Prevention (CEPP) program has been active for some years. With the passage of SARA in 1986, however, the program received a new infusion of activity. The new Title III provisions enacted under SARA—mandating Emergency Planning and Community Right-to-Know programs—have led to an accelerated Agency effort to promote community awareness of chemical hazards, assist in the development of State and local preparedness programs and response capabilities, and develop a chemical accident prevention program.

During FY 1986, EPA concentrated on developing a list of extremely hazardous substances and accompanying guidance; building a program infrastructure at the Federal, State, and local levels; beginning CEPP program implementation; and establishing data bases to better understand the causes of chemical accidents. EPA's CEPP program is managed by James Makris, Director of the Emergency Preparedness Staff within OSWER.

Following the enactment of SARA in October 1986 and the creation of Title III, much of FY 1987 was spent incorporating SARA provisions into EPA's ongoing CEPP program and conducting activities that included the development of a State and local emergency planning structure, industry reporting requirements (community right-to-know), and broad participation in the planning process.

In 1987, all major program objectives and deadlines were met, particularly in the regulatory area:

- The SARA section 302/304 rule establishing the list of extremely hazardous substances, their threshold planning quantities, and the emergency planning and release notification requirements was promulgated on April 22, 1987—more than three weeks ahead of schedule;

- Requirements for material safety data sheets and hazardous chemical inventory reporting were promulgated in advance of the first SARA section 311 reports that were due on October 17, 1987;

- Propo[illegible] the first reporting deadlines for which trade secrets could be claimed; and

- Proposed rules and accompanying technical guidance on SARA section 313 reporting requirements (emissions inventory provision) were issued on June 4, 1987.

For more information call EPA's Emergency Planning and Community Right-to-Know Hotline at 1-800-535-0202 (toll free) or at 202-479-2449.

LUST TRUST FUND EFFORTS ACCELERATED

The increased public concern about leaking underground storage tanks (LUST) led Congress to create a LUST cleanup program under section 205 and a trust fund under section 521 of SARA. Section 205 of SARA actually amends Subtitle I of RCRA, under which underground storage tanks are regulated, and section 521 amends the Internal Revenue Code to create additional environmental taxes to subsidize the cleanup fund

Since that time, EPA has moved to establish the necessary policies to administer the trust fund during FY 1987. Ronald Brand, Director of EPA's Office of Underground Storage Tanks, has led efforts to develop OSWER guidelines for initial Cooperative Agreements and a State clearinghouse review, delegate key authorities to EPA Regional Offices, create a mechanism for allocating funds to the Regions, and develop an OSWER directive for implementation of the cost recovery provision.

These products paved the way for rapid start-up of the trust fund program and facilitated the ability of States to implement the program. Forty States and three territories have now signed Cooperative Agreements, and several more are expected in FY 1988. EPA is encouraged that most States have moved ahead with existing or new authorities to take the lead in addressing underground storage tank leaks.

EPA COMPLETES 24,500 PAs ON SCHEDULE

One of the provisions enacted under SARA requires EPA to complete a preliminary assessment (PA) by January 1, 1988 of the 24,500 non-Federal sites that were in the Agency's inventory of potential hazardous waste sites as of October 17, 1986. The Agency has completed this effort on schedule.

A PA is the first step of the remedial process in which EPA or State personnel obtain and review all available reports and documentation on a site and the surrounding environment. This information is then evaluated to determine whether the site has handled hazardous substances and if those substances have the potential to affect human health or the environment.

If a PA indicates that there may be a release of hazardous substances that may threaten human health or the environment,

EPA then recommends a site inspection (SI) to better understand the problem. On completion of the SI, if the site still poses a potential threat, it is scored using EPA's Hazard Ranking System. If the site scores high enough, it will qualify for listing on the NPL.

EPA is currently undertaking an effort to identify the precise disposition and other pertinent information on all of these sites, and expects to complete this effort in late 1988.

EDITOR'S NOTE

Welcome to the first issue of the **Superfund Advisory.** EPA's Superfund activities are diverse, numerous, and complex; they are important for all of us to be aware of if we are going to clean up hazardous waste sites in the United States effectively. For this reason, the Office of Solid Waste and Emergency Response has developed the **Superfund Advisory.**

In the eighth year of the Superfund program, as we look back at the advances and achievements that we have made, we believe it is fitting to share this information through the **Superfund Advisory**. We welcome your comments.

SUPERFUND SCORECARD

Action	Description	Number
Sites in CERCLIS	Inventory of abandoned or uncontrolled hazardous wastes sites	27,797
Preliminary Assessments (PA)	Initial assessment of potential hazards	26,034
Site Inspections (SI)	On-site investigation of hazards	8,076
National Priorities List (NPL)	List of hazardous waste sites eligible for Superfund monies	951
Removal Actions	Short-term actions to address immediate threats	
• NPL		264
• Non-NPL		818
Remedial Investigations/ Feasibility Studies (RI/FS)	Engineering studies at NPL sites to examine contamination and identify possible remedies	
• In Progress		472
• Cumulative Starts		578
Remedial Designs (RD)	Detailed design plans and specifications for implementing chosen remedy	
• In Progress		106
• Cumulative Starts		181
Remedial Actions (RA)	Construction or implementation of chosen remedy	
• In Progress		65
• Cumulative Starts		168
NPL Site Cleanups	Site cleanup actions complete	
• Site Work Completed		22
• Deleted from NPL		13
Settlements	Sites where potentially responsible parties (PRPs) are conducting cleanup work	
• Number		444
• Value		$750M

For more information on any item in this advisory, contact EPA's RCRA/CERCLA Hotline at 202-382-3000 or 1-800-424-9346.

Office of Solid Waste and Emergency Response
U.S. EPA WH-562A
Washington, DC 20460

Superfund:
SARA Highlights

Superfund:
SARA Highlights

EPA

Issue Profile

Issue ..... **SUPERFUND--PROGRESS**

Contact...Rita Calvan, 382-4523

Revised ..... **March 1988**

Background: Superfund was created by Congress in 1980 with enactment of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). The law gave the federal government broad authority to respond to emergencies stemming from uncontrolled releases of hazardous substances (removal actions) and to undertake the long-term cleanup of potentially hazardous sites. The 1980 legislation established a five-year, $1.6 billion "Superfund," financed primarily by a tax on crude oil and certain chemicals. The full $1.6 billion was obligated by EPA. In October 1986, enactment of the Superfund Amendments and Reauthorization Act (SARA) extended the program for five years, and authorized total spending of $8.5 billion over that period. Some $4.363 billion have been appropriated.

Status: More than 27,000 sites around the country have been identified as potentially requiring cleanup. Preliminary assessments have been completed at some 22,600 of these; about 950 sites have been placed on the National Priorities List (NPL), which contains those sites with the most severe levels of contamination; over 1000 emergency removals have been undertaken; remedial work has been started at many hundreds of NPL sites, including some 620 remedial investigation/feasibility studies, remedial designs at 213 sites and 146 remedial actions; 16 sites have been deleted from the NPL and site work has been completed at an additional 13 sites, with longer term operations and maintenance activities continuing; about $750 million worth of work has been secured in settlements with responsible parties for cleanup at over 400 sites. EPA has issued over 450 administrative orders requiring responsible parties to take action at sites, and 109 cases have been referred to the Justice De[artment, with 98 of these having been filed in the courts. In addition, cost recovery actions at 153 sites total $260 million, with EPA recovering $68 million of that amount thus far.

Coming Up: Emphasis will be on speeding up the pace of the program and completion of work at NPL sites. The 20-year state capacity assistance requirement in SARA will be implements. Major rulemaking will include completion of the National Contingency Plan and the revised Hazard Ranking System.

United States
Environmental Protection
Agency

Office of
Public Affairs (A-107)
Washington DC 20460

SUMMARY OF THE STATEMENT OF
TUDOR T. DAVIES
DIRECTOR
OFFICE OF MARINE AND ESTUARINE PROTECTION
U.S. ENVIRONMENTAL PROTECTION AGENCY
BEFORE THE
SUBCOMMITTEE ON ENVIRONMENTAL PROTECTION
AND THE
SUBCOMMITTEE ON SUPERFUND AND ENVIRONMENTAL OVERSIGHT
OF THE
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
U.S. SENATE
February 18, 1988

- The testimony provides an overview of EPA's implementation of Title I of the Marine Protection, Research, and Sanctuaries Act (MPRSA). Title I of the MPRSA established the U.S. law regulating ocean dumping and also serves to implement the London Dumping Convention, an international treaty applicable to ocean dumping and to which the U.S. is a party.

- The Agency Carrys out three major activities under Title I of the MPRSA: permitting; site designation/management; and regulatory development and enforcement. These activities are described in the testimony.

- Since enactment of the Ocean Dumping Act in 1972, there has been a substantial decline in both the number of dumpers and the amount of industrial waste material being dumped. At the end of 1987, all sewage sludge dumping at the 12 mile site ended and was transferred to the 106 mile deepwater municipal sludge dump site. The dumping of this sewage sludge is currently governed by court orders in litigation involving New York City.

- The existing ocean dumping permit regulations were issued in 1977 and have been the focus of several legal challenges. In City of New York v. EPA (543 F. SUPP. 1084), the court found that, under the MPRSA, EPA generally cannot prohibit ocean dumping solely because materials fail the marine impact criteria, and that EPA must take into consideration the need for such dumping and the availability and impacts of land-based alternatives. EPA is in the process of developing proposed regulations to address the issues raised by this, and other lawsuits. In working on the proposed regulations, EPA is wrestling with issues involving the balancing of risks associated with marine disposal versus disposal risks in other media.

- In recent years there has been a tendency to amend the Act focusing on specific narrow issues. EPA continues to believe that the MPRSA is a fundamentally sound statute, and that it already provides an effective mechanism for regulating ocean dumping.

Title 3

EPA

Issue Profile

Issue ..... **COMMUNITY RIGHT-TO-KNOW ACT**

Contact ... Elaine Davis or Kathy Brody
OSWER, 475-9323

Revised ..... **March 1988**

Background: The Emergency Planning and Community Right-to-Know Act of 1986 requires federal, state, and local governments and industry to plan for emergencies and to make data on hazardous chemicals available to communities. The legislation--title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA)--builds upon EPA's Chemical Emergency Preparedness Program initiated in 1985 to help communities establish contingency plans to deal with releases of toxic chemicals.

Highlights: Title III has four major sections:

Emergency Planning. Requires states to set up local planning committees, which are to develop emergency response plans by 10/17/88. Compliance with plan provisions would be required of facilities producing, using, or storing extremely hazardous substances in quantities over threshold limits.

Emergency Notification. Requires covered facilities to notify state and local emergency agencies immediately of any release of an extremely hazardous substance or CERCLA substance.

Community Right-to-Know Reporting. Requires covered owners/operators to give their state emergency planning commission, local emergency planning committee and local fire department information on hazardous chemicals and quantities.

Toxic Chemical Release Reporting. Requires owners/operators of certain facilities to submit data to EPA on toxic chemicals they manufacture, process, or use in quantities exceeding: 10,000 pounds in the first year; 500 pounds the second year; and any quantity in the third year and thereafter.

Coming Up: Title III includes specific dates for the completion of a number of implementation steps over the next five years. See the "Key Dates" listing that follows for more information on actions to come.

Key Dates In Implementation of Title III

11/17/86	o List of Extremely Hazardous Substances and designated threshold quantities published in Federal Register as an Interim Final Rule.
11/17/86	o EPA initiated comprehensive review of emergency systems.
1/27/87	o Format for Emergency Inventory Forms proposed in Federal Register.
3/17/87	o National Response Team publishes guidance for preparation and implementation of emergency plans.
4/17/87	o State governors were to appoint State emergency response commissions.
4/22/87	o List of Extremely Hazardous Substances and designated threshold quantities published in Federal Register as final rule.
5/17/87	o Facilities subject to Section 302 planning requirements must notify State emergency response commission.
5/22/87	o Interim report on emergency system review sent to Congress.
6/1/87	o EPA to publish the toxic chemical release (i.e., emissions inventory) form.
7/17/87	o State emergency response commissions to designate emergency planning districts.
8/17/87	o State emergency response commission to appoint members of local emergency planning committees (by key date or 30 days after designation of districts).
9/17/87	o Covered facilities are to designate representatives and notify local planning committee of selection (by key date or 30 days after local committee is formed).
10/17/87	o Facilities are to submit Material Safety Data Sheet or list of hazardous chemicals to State commissions, local committees,

and local fire departments.

3/1/88	o Facilities are to submit initial emergenc inventory forms to State commission, local committee and local fire department.
4/17/88	o Final report on emergency systems study due to Congress.
7/1/88	o Covered facilities to submit initial toxic chemical forms to EPA and designated State officials.
10/17/88	o Local emergency planning committees are to complete preparation of an emergency plan.
1/89	o EPA to propose permanent reporting thresholds for MSDS and emergency; inventory form submissions.
6/30/91	o Comptroller general report to Congress on toxic chemical release, information collection, use and availability.
10/17/91	o EPA report to Congress on the Mass Balance Study.

Results:

* Completion of seven rulemakings, each of which reduced reporting burdens from statutory baselines while protecting public safety and interest.

* Issuance of two guidance documents to assist local communities in their planning.

* An interim report to Congress on the status of emergency systems.

* Provision of technical guidance to industry on performing emissions inventory estimates.

* Working with the Federal Emergency Management Agency to award $5 million in training grants to states in FY 1987 and 1988.

* Conduct of an extensive public outreach program to inform industry and others responsible for implementation, as well as the public, of chemical emergency preparedness, prevention, and community right-to-know requirements.

SUMMARY OF THE STATEMENT OF
JOHN A. MOORE
ASSISTANT ADMINISTRATOR
OFFICE OF PESTICIDES AND TOXIC SUBSTANCES
U.S. ENVIRONMENTAL PROTECTION AGENCY
BEFORE THE SUBCOMMITTEES ON
HAZARDOUS WASTES AND TOXIC SUBSTANCES
AND
SUPERFUND AND ENVIRONMENT OVERSIGHT
OF THE
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
U.S. SENATE

MARCH 15, 1988

-- Describes EPA's efforts to implement the AHERA schools program, the asbestos-in-buildings report, federal agency programs to control asbestos and the pros/cons of using an "acceptable level" standard to control public exposure to asbestos.

-- Describes the asbestos-in-buildings report including the methodology used, the findings and their implications. EPA estimates that asbestos-containing material is present in 20% of the public and commercial buildings, compared to 35% of the schools. Because of data limitations, EPA is unable to make quantitative conclusions about actual exposure of people in public and commercial buildings. Thus, a major federal regulatory program would not be prudent at this time. EPA's recommendations are: 1) enhance the nation's technical capability; 2) focus attention on thermal system insulation asbestos; 3) improve integration of activities to reduce imminent hazards; 4) assess AHERA school rules.

-- Discusses federal agency asbestos control programs: U.S. Postal Service has a formal asbestos abatement program; GSA and Veterans Administration have developed asbestos control programs with EPA participation.

-- Summarizes the information from a workshop convened by EPA regarding the concerns of the financial community (owners and managers of commercial buildings, mortgage bankers and investors and asbestos consultants and contractors) with respect to asbestos in public buildings.

-- Describes EPA's implementation of the AHERA schools rule including establishing a training and accreditation system for inspectors and management planners, awarding cooperative agreements (over $1 million to 17 states) to support state training and accreditation programs, developing the Asbestos

Inspection and Management Plan Assistance Program (to provide grants to states). EPA intends to use public outreach, inspections and a strong enforcement program to achieve compliance.

-- Concludes by stating that it would not be practical for EPA to adopt a numeric standard for asbestos exposure. Reasons: asbestos exposure results from episodic events which vary widely and are difficult to predict; the most accurate monitoring would be by the TEM direct method which is very expensive. EPA's traditional approach is the most viable one at this time: laboratory identification of asbestos-containing material and visual assessment of its condition by trained professionals.

Prepared by: Reynold Meni
Attorney-Advisor
Office of Legislative Analysis
Narch 15, 1988

Wetlands

United States
Environmental Protection
Agency

Office of
Public Affairs (A-107)
Washington DC 20460

EPA

Environmental Issue Profile

Contact: John Meaghar, 382-5043

[redacted]

MAR 1988

Issue: **Wetlands Protection**

Background: Under section 404 of the Clean Water Act, EPA and the Army Corps of Engineers are jointly responsibile for protecting waters of the United States, including wetlands, against degradation from disposal of dredged spoils or fill. Permits to discharge dredged or fill material are granted by the Corps, or a state approved by EPA, subject to environmental criteria set forth in the section 404 (b) (1) guidelines.

Wetlands are ecologically vital water resources. Many act as screens, filtering out pollution before it reaches lakes, streams and estuaries. They often aid in flood control. Wetlands offer vital nesting and rearing areas for millions of waterfowl and serve as a habitat for myriad species of mammals. Despite their importance, wetlands are fast disappearing, having been converted to farmland or for development. At one time, there were roughly 215 million acres of wetlands in the lower 48 states; today there are about 95 million. The U.S. is losing an estimated 300,000 acres of freshwater wetlands every year.

Status: EPA created the Office of Wetlands Protection within the Office of Water in October 1986 to strengthen its efforts to protect wetlands. In addition to continued implementation and enforcement of the wetlands protection aspects of the Clean Water Act, the new office is coordinating long-range research efforts, intensifying efforts to identify the nation's most valuable and vulnerable wetlands, enhancing coordination with Federal, state, local and private programs which affect wetlands, and developing an outreach program to give the public and individual property owners and developers a better understanding of the value of wetland resources.

Coming Up: EPA, through a grant to the Conservation Foundation, is sponsoring a National Forum on Wetlands, bringing together people from many walks of life to discuss national wetlands policy. Governor Keane of New Jersey is chairing the Forum, which held its first meeting July 16, 1987, and will conclude its efforts next spring.

MAR 1988

FACTS ON WETLANDS JUNE 1987

- At one time there were approximately 215 million acres of wetlands in the lower 48 states. Today there are about 95 million. More than 11 million acres were lost between 1950 and 1980.

- The U.S. is losing an estimated 300,000 acres of freshwater wetlands every year.

- Ninety-nine percent of Iowa's marshes and 80 percent of Minnesota's potholes have been destroyed, primarily due to conversion of wetlands to farmlands.

- Bottomland hardwood forests in the lower Mississippi River Valley have decreased by over 80 percent. That loss continues at a rate of 167,000 acres a year.

- About 25,000 acres of Louisiana coastal marshes are lost each year, due to coastal subsidence, sea level rise, channelization, and salt water intrusion.

- California's Klamath River Basin was the winter nesting ground for more than 6 million migratory birds in 1899. Today, the basin can sustain fewer than a million.

- Ninety percent of the plants, 50% of the fish, 30% of the birds, an 15% of the mammals on the Endangered Species List depend on wetlands as their habitat.

- A major part of the commercial and recreational fish catchin the United States is comprised of species which use wetlands as a food source or as habitat during some part of their life cycle.

- Wetlands absorb peak flow during floods and release the waters gradually, reducing damage to downstream farms and cities.

- Cranberries, wild rices, marsh hay, and hardwood trees are among the commercial crops harvested in wetlands.

- Population growth puts heavy pressure on coastal wetlands. Coastal populations increased 69 percent from 1950 to 1980. It's estimated that 70 percent of the U.S. population will live and work within 50 miles of coastlines by 1990.

- Florida's coastal population is growing at the rate of 3,000 to 4,000 people a week.

- Ninety percent of California's population lives within an hour's drive of the coast.

- Wetlands have always been among the most fertile and productive ecosystems on earth. The first great civilizations flourished in th flood plains and marshes of the Tigris and Euphrates, the Nile, and the Indus.

United States
Environmental Protection
Agency

Office of
Public Affairs (A-107)
Washington DC 20460

EPA Environmental News

FOR RELEASE: MONDAY, OCTOBER 6, 1986

NOTE TO CORRESPONDENTS

EPA Administrator Lee M. Thomas today issued the following statement on endangered wetlands and the formation of a new Office of Wetlands Protection.

A STATEMENT BY EPA ADMINISTRATOR LEE THOMAS

The protection of America's endangered wetlands resources is one of my top priorities at EPA.

As a measure of my commitment to a strong and visible program, I am today announcing the creation of a new EPA Office of Wetlands Protection reporting directly to Lawrence J. Jensen, the Assistant Administrator for Water.

The wetlands program has been ably administered by a division in the Office of Federal Activities, under EPA's Assistant Administrator for External Affairs. Transferring its responsibilites to the Office of Water, however, and elevating the program from division to separate Office stature, will result in enhanced wetlands protection. This enhanced protection will result from the technical expertise and strong enforcement capabilities of the marine, estuarine and groundwater protection programs ongoing in the Office of Water.

I have directed the new office to take on five key objectives for immediate environmental enhancement: First, it will increase coordination of the long-range research efforts underway at EPA and other federal agencies. We must improve our scientific understanding of wetlands ecosystems. Second, it will expedite the achievement of consensus on the value and uses of wetlands. A National Forum will be held to bring together representatives from a broad range of key interests to develop options for a national policy. I will play a personal role in these deliberations. Third, this new Office will build on the progress already made in cooperation with other federal agencies to establish consistent policies and procedures for wetlands protection. EPA will continue to implement its responsibilities under Section 404 of the Clean Water Act vigorously. Fourth, it will redouble efforts to identify, protect and restore wetlands,

(more)

strongly stressing the early identification of particularly valuable and vulnerable wetlands. Fifth, it will include an aggressive outreach program to individual property owners and developers to give them a better understanding of the value of wetlands resources.

Attached to this statement is a speech giving more details on the new wetlands office, delivered today by Lawrence J. Jensen, EPA Assistant Administrator for Water, at the Water Pollution Control Federation meeting in Los Angeles.

If you have any questions, please call Dave Ryan in the EPA Headquarters Press Office, (202) 382-2981.

R-133

# # #

Appendix

Publications

MAR 1988

EPA's Non-Technical Publications

August, 1987
Office of External Affairs
Washington, D.C.

EPA's Public-Oriented Publications

Air

Available:	Source:	Quantity:
Radon:		
A Citizen's Guide to Radon (14p. 8/86)	OAR	
Indoor Radon: What is it? What to do. (5p. 1/85)	OEA	
Radon Reduction Methods -- Homeowner's Guide	ORD/OEA	
Radon: Pinpointing a Mystery, EPA Journal. (8/86)	OEA	
Ozone:		
Ozone in the Lower Atmosphere -- Threat to Health & Welfare (10p., 11/86, OPA-86-005)	OAR/OEA	
Ozone, Smog & You, How to Protect Yourself (6p. 9/96, OPA-86-007)	OPA	
Ozone: Its effect & Control, (15p., 4-79)	OPA	
Our Fragile Atmosphere: The Greenhouse Effect and Ozone Depletion - EPA Journal		
Other:		
Protecting the Air - EPA Journal		
The Invisible Problem (4p., 9/86, OPA-86-008)		
Asbestos Hazard Emergency Response Act Fact Sheet	OEA	
Q'a & A's on the Model Incineration System		
·Wood Stove Features and Operation Guide (8p., 9/83, EPA 600-8-83-112)	ORD/OPA	

Planned:	Source:	Date:
Selected Magazine Articles on Radon	OEA	July '87
Selected Magazine Articles on Stratospheric Ozone	OEA	July '87
Selected Magazine Articles on Ground-level Ozone	OEA	July '87

Water

Available:	Source:	Quantity:
Wetlands:		
Be Aware of Wetlands (8p., 5-86)	Region 8	
Take Pridein Preserving Wetlands (8p., 11/86)	Region 3	
Protecting Our Wetlands, EPA Journal. (1/86)		
Lead:		
Facts About Lead (1p.)		
Lead in Drinking Water: Things to Look For (7p., 2-87)	OW	
Drinking Water:		
Safe Drinking Water Act, 1986 Amendments (brochure)		
Wellhead Protection -- A Decision-Maker's Guide	OW	
Protecting Our Ground Water	OW	
You and Your Drinking Water - EPA Journal		

Water (continued)

Wastewater:

Financing New Wastewater Treatment, EPA Journal (11/86)	OEA
Less Costly Wastewater Treatment for Your Town	OW
Is Your Proposed Wastewater Project Too Costly? Options for Small Communities	OW
Small Wastewater Systems -- Alternative Systems	OW

Other:

The Oceans - EPA Journal	
The Great Lakes - EPA Journal	
Water Quality Criteria Summary (poster, 1/87)	OW

Planned:	Source:	Date:
Selected Magazine Articles on Drinking Water	OEA	July '87
Selected Magazine Articles on Ground Water	OEA	July '87
Wetlands	Region 3	Sept. '87

Acid Rain

Available:	Source:	Quantity:
National Lake Survey		
EPA's State Acid Rain Program, 1985		
Joint Report of the Special Envoys (51;. 1/86)		
What Causes Acid Rain?		
Acid Rain, EPA Journal Supplement (14p. 9/86, OPA-86-009)	OEA	
Characteristics of Lakes in Western U.S., Phase I		
Executive Summary of Eastern Lakes Survey, Phase I (6p., 9/86)		

Planned:		
Acid Rain Research Summary	ORD/OEA	Jan. '88
Selected Magazine Articles on Acid Rain	OEA	July '87

Hazardous/Solid Waste

Available:	Source:	Quantity:
Superfund:		
The New Superfund Law of 1986 (2p.)		
Superfund: What it is, How it works (8p., 6/85)		
The New Superfund Law: Protecting People - EPA Journal (1/87)	OEA	
Emergency Response::		
EPA's Emergency Response Program: How EPA Cleans up Accidental Spills (21p., 4/84)	OERM	
Alleghany National Forest Oil Spill	Region 3	
Hazardous Materials First Responders Course	Region 7	
The Day Before (Hazmat simulation planning guide)	Region 7	
Personal Protective Gear Use	Region 7	
Recycling:		
Let's Recycle! Lesson Plan Grades K to 12. (42p., 10/80)		
Residential Paper Recovery: Community Action Program. (21p., 10/80)	OSWER	
Other:		
The Challenge of Hazardous Waste - EPA Journal. (4/86)		
Controlling Hazardous Waste - EPA Journal		
Facts About Lead (8p., 11/86)		
Hazardous Waste Groundwater Task Force (4p., 8/86, OPA-86-006)		
Groundwater Analysis & Review of 58 Sites (42p., 1/80, SW-553)		
Controlling Hazardous Wastes, EPA Journal		

Planned:	Source:	Date:
Incineration: Best Option for Region 7		

Pesticides:

Available:	Source:	Quantity:
Don't Bug Me, Flyer For Kids (6p., 2/87, OPA-87-003)	OPA	
Farm Workers Pesticide Safety (22p., English & Spanish)		
Farmers Responsibilities under Federal Law. (4p., 8/77)		
Learning More About Dioxin.		
Pesticide Safety Tips (Flyer in English & Spanish)		
Regulating Pesticides (8p.)	OPA	
Suspended, Cancelled & Restricted Pesticides (29p., 1/85)		

Planned:	Source:	Date:

Toxic Substances

Available:	Source:	Quantity:
Asbestos:		
Asbestos Waste Management Guidance: Generation, Transport & Disposal. (32p., 5/85)	OSWER	
Asbestos Fact Book, A Primer. (11p., 6/86)	OEA	
Asbestos Hazard Emergency Response Act Fact Sheet: Requirements for Schools (3p., 8/85)	OPTS	
Twenty Lessons from Asbestos (EPA Journal, 4p., 4/84)	OEA	
Toxic Information Series:		
Cadmium		
Dioxins		
Lead		
Mercury		
Other:		
Toxic Substances Control Act. (15p., 7/84, EPA 560/1-83-002)	OPTS	
PCB Transformers and the Risk of Fire: A Building Guide for Owners (4/86, OPA/86-001)	OPTS	
What is EPA Doing About Lead? What You Can Do. (11/86)	OAR	
Learning About Dioxin		

Planned:.	Source:	Date:

Automobiles

Available:	Source:	Quantity:
Auto Import Fact Sheet (13p.)	OAR	
Controlling Brake Dust. (7/86)	OERR	
Mechanics -- New Law Affects You. (8p., 4/80)	OE	
Do You Own a Car? (8p., 4/80)	OE	
Know About Your Emission Warranty (8p.)	OE	
Unleaded Gasoline -- The Only Way. (8p., 4/84)		
1987 Gas Mileage Guide. (15p., 10/86)	EPA/DOE	
I/M Fact Sheet (2p., 6/84)	OEA	
So Your Car Just Failed an Emissions Test. (8p., 10/86)		

Planned:	Source:	Date:

Spanish Language

Available:	Source:	Quantity:
Libre de Peligros El Agua Que Usted Bebe. (15p., 6/78, drinking water)	OEA	
Gasolina Sin Polmo -- Es Lo Mejor. (8p., 3/79, unleaded gasoline)	OEA	
Habia Una Vez Un Dragon Malvado (Para ninos, coloring book, 1/78)		
Mecanicos -- Hay Una Nueva Ley Que Les Afecta (for auto mechanics)		
No Dejo Al Alcance De Sus Ninos Ningu Producto Veneoso. (8p., 5/78, keep poisons away from kids)	OEA	
Sobre Plaguicidas. (2p., pesticide safety)		
Tu Mondo, Tu Ambiente (13p., 5/79)your environment)		
Seguridad de los Trabajadores Agricolas de Pesticidos (21p., 4/80, farmworker safety)	OEA	

Planned:	Source:	Date:

Legislation

Available:	Source:	Quantity:
CERCLA Act of 1980		
Superfund Amendments of 1986		
Solid Waste Act as amended 1987		
Hazardous and Solid Waste Amendments of 1984		
Safe Drinking Water Act Amendments of 1986		
NEPA 1969		
The Clean Air Act as Amended through July 1981		
Federal Insecticide, Fungicide and Rodenticide Act		
Toxic Substances Control Act		
Water Quality Act of 1987		

Miscellaneous:

Available:	Source:	Quantity:
Human Health:		
Protecting the Public Health - EPA Journal		
Public Health -- EPA Journal		
Environmental Cancer and Heart and Lung Disease (Report to Congress -- 1985)	ORD	
Heating:		
Get the Most From Your Gas Heating Dollar. (13p., 8/79)	ORD	
Get the Most from your Heating Oil Dollar. (6p., 11/84)	ORD	

Miscellaneous: (continued)

EPA Goals:

Environmental Challenges Today and Tomorrow, Oct. 1986	
Environmental Progress & Challenges: An EPA Perspective (115p., 6/84)	OMSE
The Next Four Years: Agenda for Environmental Results. (9p., 1/85)	
Why We Must Talk About Risk: Personal View. (12p., 1/86)	

Directories:

Directory of Environmental Groups	Region One
Your Guide to EPA	
EPA Telephone Directory	

Video:

EPA HQ Videotape Catalog, Oct 1983	
Films on the Rack: Environmental Films. (3p., 9/86)	OEA
Videotape Library Supplement: Two Volumes (597p., 1/84)	OEA

Youth:

Books for Young People on Environmental Issues. (9p.)	OEA
The President's Youth Awards	OEA

Other:

Employment Opportunities: Environmental Jobs.	
Environmental Monitoring Laboratory Fact Sheet (L.V.)	
Report ... on Women at Work	ORD

Planned:

	Source:	Date:
Our Environment: Progress and Challenges	OPPE/OPA	Dec. 1988

Quotes

[redacted]

QUOTES FROM THE ADMINISTRATOR

(Excerpted from EPA Administator Lee Thomas' luncheons with the Washington news media on April 14 and 16, 1987)

On meeting ozone and carbon monoxide standards: "I think we'll see more of a solution in the works for carbon monoxide because so much of that is dependent on cars, and when you look at the motor vehicle controls that we've already got in place with turnover over the next 10 years, you'll see a good bit of the carbon monoxide problem dealt with. But for ozone, it's going to be a lot tougher...."

On controlling evaporative emissions from vehicles: "If we brought volatility* down to a 9-pound average from where it is today (10-and-a-half to 11 psi), we would reduce hydrocarbon emissions nationally by about 6 to 8 percent....(*The volatility of a liquid is a measure of its tendency to evaporate.)

"To give you a contrast,...if you put the on-board controls on automobiles to control the emissions from your fill-ups, you would reduce hydrocarbons nationally by one-and-a-half to two percent."

"Volatility does interact with altitude. It interacts with seasons. Obviously, in the summer it's more of a problem....In other words, in the northern part of the country, you can have higher volatility levels than you can in the southern part of the country if you want to maintain an average of 9 pounds."

"Now, the issue has really only arisen during...the last two to three years. Gasoline volatility has gone up significantly during that period of time."QUESTION: Because of the lead regulation? MR. THOMAS:"I think that's part of it, yes."

On the difficulties in controlling hydrocarbons: "...most of your sources of hydrocarbons are fairly small sources. When I talked about gasoline volatility being 6 to 8 percent (of the hydrocarbon source), it is by far the biggest. Most of them, like regulations on dry cleaners, regulations on paints, those kinds of things, you're talking in a half percentage or less kind of level when you're talking nationally."

"That's why states have had to look at putting regulations on a lot of small sources, meaning auto body shops, mom and pop dry cleaners, paints. California has got requirements for paints. Anything that emits hydrocarbons they're looking at. Some places they're even looking at things like gasoline lawn mowers."

On the extensive control equipment on autos and trucks: "All the pollution control equipment we've put on cars and trucks to get hydrocarbon, CO, NOx control have gotten most of the controls you're going to get out of those for the foreseeable future...The only way you

can...get more emission reductions for cars and trucks [would be] to take cars and trucks off the road.

"That's why places like California and New York and others are now at a point where they're beginning to look hard at transportation control planning, which means how many cars do you have go into an area, how many trucks...."

"...if you look at a place like Los Angeles, which obviously is one extreme of the problem with ozone, you need 65 to 70 percent reduction in the hydrocarbon emissions in order to attain the ozone standard."

On using methanol as a substitute fuel: "...pure methanol...would solve some of the ozone problem and some of the carbon monoxide problem if it was used extensively, and by that, I'm talking about a good portion of the cars burning it in some of these big city areas....we've got pilot projects underway. We've got a bus pilot with New York City....They're putting 30 some busses on the street -- methanol fueled. We've got pilot projects with California...."

"...the thing that impedes methanol probably more than anything is economics....methanol largely comes from natural gas. And when natural gas is very cheap, methanol is pretty cheap. But you've got a big distribution system problem....We see a lot of advantage environmentally from methanol and ethanol, but we also see some big impediments. Economics are a large part. It's probably the biggest to overcome...."

On ground water legislation: "...I have come to the conclusion that...it would be advisable to incorporate in one statute a ground water protection program for the country. And I think that's a major issue during the next year-and-a-half."

On changing FIFRA (the Federal Insecticide, Fungicide and Rodenticide Act): "...I'm very much into speeding up the re-registration process and trying to take the administrative cancellation-suspension process and streamlining [it]....I thought the idea of fees to support some of our resource requirements was a good way to go.

"...indemnification and disposal is a major issue that I think needs to be addressed in the statute....We went through it with [the pesticides] EDB and 2,4,5-T. We've got major problems with disposal. We're facing them right now where the Agency takes this stuff and...[tries] to deal with the...disposal of it as opposed to the people who made it....indemnification and disposal are handled...fundamentally differently under FIFRA than...under other statutes....I'd like to see that dealt with."

On seeking new legislative authority:..."If you look at what this Agency has got with RCRA (the Resource Conservation and Recovery Act) and Superfund and the Safe Drinking Water Act and the Clean Water Act and the Asbestos Hazard Abatement Program, I mean, the last three years we have just been the most fortunate people in town as far as new authorities are concerned....We've got to get some of those programs implemented and well-managed before we hop into [others]...while at the

same time trying to maintain the base programs that this Agency operates. I mean, when we're talking about ozone and carbon monoxide, those are base programs this Agency operates."

"I also find that under our existing authorities, we can pretty well jump into other things if we find risks that are not being dealt with."

On negotiations to protect the stratospheric ozone layer: "When we started...negotiations, I'd say the United States, the Scandinavian countries, Canada, some third world countries were probably the closest together as far as proposals for control. The Soviet Union was for controls and has come closer to our position as far as controls. The European Community, meaning the Common Market countries, were not in favor of the kind of controls that we were suggesting. And Japan was still debating the science.

"Over time...there has...developed a general consensus that controls should be established on a global basis...."

"The U.S. is pushing for a 95 percent phaseout [of CFCs: chlorofluorocarbons] in 10 to 15 years. The European Community has now come to the point where they seem to be ready to talk about a 20 percent phasedown guaranteed in the protocol, with reviews for future phasedowns being incorporated in the scientific review process....

"There is a key element ...that I think we have got agreement on and that is setting up a formal scientific review process that probably every three years would review and make recommendations for additional phasedowns or additional phaseouts, or additional chemicals being incorporated."

On locating toxic waste sites in minority neighborhoods: QUESTION: Ben Cavus and the United Church of Christ released their toxic waste and race study [and said] there's a correlation between where toxic waste sites are and race....Are you satisfied that all the voices that need to be heard on those issues are heard...? MR. THOMAS: "The siting program is based on geologic criteria, hydrogeologic criteria. And where ever it is, it's based on insuring that there is protection to human health in the environment."

"...I can't think of any community ...that wants one of those incinerators or one of those landfills or even storage facilities, in many cases, in their community. They just don't want them there. They'r afraid of them, or because of property values,...they don't want them there....The decisions on siting of any kind of those facilities is one that I have found is largely made at a local level."

On changing the Clean Air Act: "I think more flexibility [is needed] to try to work out some kind of regional approach in planning and implementing solutions on the Clean Air Act....I can't give you a specific on it, because that's exactly the question I have asked my staff: to give me some specifics on how could you better do it for ozon than it's currently structured....how you could set up a process to mak it far easier to deal with up wind sources than currently exist."

Speech Schedules

EPA SENIOR STAFF SI .RS CALENDAR
AS OF MARCH 15, 1988

DATE	OFFICIAL	LOCATION	GROUP	THEME/MAJOR FOCUS OF SPEECH	NOTES
MARCH 1988					
1	Robie G. Russell	Seattle, WA	Air and Toxics Division Directors' National Mtg.		Opening Remarks
1	Lee A. DeHihns	Atlanta, GA	Federal Facilities' Multi-Media Environmental Seminar		
2	Christopher Daggett	San Juan, Puerto Rico	American Water Works/Water Pollution Control Assoc.		
2	John C. Wise	San Francisco, CA	Region 9's Environmental Regulation Conference		
2	Robert E. Layton	Dallas, TX	Presidential Management Intern Conference		Welcoming Address
3	Robert E. Layton	Dallas, TX	Alternate Waste Treatment and Technologies Forum		Welcoming Address
3	A. James Barnes	Washington, DC	ORD Headquarters Awards Ceremony		Remarks
3	Christopher Daggett	New York, NY	Environmental Law Comm. New York City Bar Assoc.	Hudson River AVID	
7	Lee M. Thomas	Washington, DC	National Association of Counties	Solid Waste	
7	J. Winston Porter	Washington, DC	National Association of Counties	Solid Waste	
7	Robie G. Russell	Seattle, WA	The Society of American Military Engineers		

EPA SENIOR STAFF SPEAKERS CALENDAR

DATE	OFFICIAL	LOCATION	GROUP	THEME/MAJOR FOCUS OF SPEECH	NOTES
MARCH 1988					
8	Lee M. Thomas	Washington, DC	National Association of of State Dept. of Agriculture Mid-Year Conference		
8	Linda J. Fisher	Washington, DC	1988 Foundry Industry Government Affairs Conference		
8	Lee A. DeHihns	Atlanta, GA	Superfund Cost Recovery Conf.		Welcoming Address
9	A. James Barnes	New Orleans, LA	The Chlorine Institute		Luncheon Speaker
9	Michael R. Deland	New Haven, CT	Yale School of Forestry		
10	Lee M. Thomas	Washington, DC	EEI Board of Directors		
10	Lee M. Thomas	Cambridge, MA	Kennedy School Address		
10	Sheldon Meyers	Ottawa, Canada	Environment Canada	Bilateral Consultations	
11	Lee M. Thomas	Providence, RI	Narragansett Bay Designation Ceremony		
11	Lawrence J. Jensen	Providence, RI	Narragansett Bay Designation Ceremony		
11	Michael R. Deland	Providence, RI	Narragansett Bay Designation Ceremony		
14	Lee M. Thomas	Washington, DC	National Association of Attorneys General		
14	Linda J. Fisher	Washington, DC	American Public Transit Association	Clean Air Standards	

EPA SENIOR STAFF SPEAKERS CALENDAR

DATE	OFFICIAL	LOCATION	GROUP	THEME/MAJOR FOCUS OF SPEECH	NOTES
MARCH 1988					
14	J. Winston Porter	Washington, DC	Beveridge & Diamond (Exec. Enterprises)	Environmental Compliance	
14	Thomas L. Adams	New Orleans, LA	The Associated General Contractors of America		
15	J. Winston Porter	Washington, DC	American Academy of Environmental Engineers	Awards Banquet	
15	J. Winston Porter	Washington, DC	State/EPA Committee Meeting	RCRA Subtitle C and D	
15	J. Winston Porter	Washington, DC	American Academy of Environmental Engineers	Award Banquet	
15	Lawrence J. Jensen	Washington, DC	Interstate Conference on Water Policy		
15	Lawrence J. Jensen	Washington, DC	State/EPA Committee Meeting		
15	Thomas L. Adams	Washington, DC	State/EPA Committee Meeting		
15	Christopher Daggett	Iselin, NJ	New Jersey Bar Association		Luncheon Address
15-16	Lee M. Thomas	Washington, DC	State/EPA Committee Meeting		
15-16	J. Winston Porter	Washington, DC	State/EPA Committee Meeting		
15-16	Sheldon Meyers	San Diego, CA/ Tijuana, Mexico	IBWC and City of San Diego Officials	San Diego/Tijuana Environmental Issues	
15-16	J. Craig Potter	Washington, DC	Air Pollution Control Assoc.		
16	Robie G. Russell	Seattle, WA	Solvent Waste Reduction Alternatives Conference		Opening Remarks

EPA SENIOR STAFF SPEAKERS CALENDAR

DATE	OFFICIAL	LOCATION	GROUP	THEME/MAJOR FOCUS OF SPEECH	NOTES
MARCH 1988					
16	Morris Kay	New Orleans, LA	American Public Power Association Meeting		Guest Speaker
16	Valdas V. Adamkus	Detroit, MI	Engineering Society of Detroit	"Science and Technology Role in Protection of Environment"	
17	Lawrence J. Jensen	Seattle, WA	Puget Sound Designation Ceremony		
17	Robie G. Russell	Seattle, WA	Puget Sound Water Quality Authority		
17-18	Thomas L. Adams	Washington, DC	National Environmental Enforcement Counsel Mtg.		
18	Lawrence J. Jensen	Seattle, WA	Puget Sound Water Quality Authority	Great Salt Lake	Keynote Speaker
18	James J. Scherer	Pueblo, CO	Pachyderms of Pueblo	High Oxygen Fuels	Panelist
21	Lee M. Thomas	Washington, DC	National League of Cities		
21	Sheldon Meyers	Washington, DC	Foreign Embassy Officials Based in Washington, DC	Briefing on Montreal Protocol (stratospheric ozone)	
(T)23	J. Winston Porter	Washington, DC	National Resource Recovery Association (Conf. of Mayors)	Recycling and Incinerator Ash	
24	A. James Barnes	Orlando, FL	National Rural Electric Cooperative Association	PCBs, Acid Rain, Superfund TSCA, RCRA	Guest Speaker
25	J. Winston Porter	Hot Springs, VA	Tufts University Recycling Conference	Solid Waste Reduction/ Recycling	

DATE	OFFICIAL	LOCATION	GROUP	THEME/MAJOR FOCUS OF SPEECH	NOTES
MARCH 1988					
25	Christopher Daggett	Pt. Pleasant, NJ	Authorities Association of New Jersey	Cross Media Transfer	Keynote Speaker
26	Lee M. Thomas	Medford, MA	New England Environmental Conference - Tufts Univ.		
26	Michael R. Deland	Medford, MA	New England Environmental Conference - Tufts Univ.		
28	Lee M. Thomas	Kings Points, NY	Long Island Sound Designation Ceremony		
28	Lawrence J. Jensen	Kings Point, NY	Long Island Sound Designation Ceremony		
28	Michael R. Deland	Kings Point, NY	Long Island Sound Designation Ceremony		
28	Christopher Daggett	Kings Point, NY	Long Island Sound Designation Ceremony		
28	Lee A. DeHihns	Nashville, TN	Solid Waste Conference		Luncheon Speaker
29	Michael R. Deland	Boston, MA	Secretary/Clerk of the Year Awards		
30	Michael R. Deland	Boston, MA	"Rebuilding Boston" TV Special, Channel 2/WGBH (Live)		
30	Lee M. Thomas	Washington, DC	ICMA Luncheon Meeting		Luncheon Address

EPA SENIOR STAFF SPEAKERS CALENDAR

DATE	OFFICIAL	LOCATION	GROUP	THEME/MAJOR FOCUS OF SPEECH	NOTES
APRIL 1988					
(T) 5	J. Winston Porter	Washington, DC	Washington Analysis (County Securities)	RCRA/Superfund	
(T) 6	Lawrence J. Jensen	Boston, MA	Water Quality Symposium		
9-13	John A. Moore	Paris, France	OECD Biotech. Meeting		
11	Christopher Daggett	Neptune, NJ	Asbury Park Press	Ocean Water Quality	Press Conf./ Panelist
13	J. Craig Potter	Washington, DC	Brookings Institute	The Clean Air Act	
13	Lawrence J. Jensen	Washington, DC	Brookings Institute		
14	Lee M. Thomas	RTP, NC	RTP Visit		
15	Lee M. Thomas	Durham, NC	Duke University		
(T) 18	J. Winston Porter	San Francisco, CA	Hazardous Waste Superconf.	RCRA/Superfund	
18	Christopher Daggett	New Brunswick, NJ	Rutgers Univ.—Government and Business Class	Business/Government Relations	
18	Sheldon Meyers	Paris, France	European Communities' Reps.	US-EC Annual Consultations	
(T) 19-21	J. Winston Porter	Las Vegas, NV	HMCRI National Conference and Exhibition	RCRA	
(T) 19-21	Sheldon Meyers	Paris, France	OECD Environment Committee Meeting		
22	Christopher Daggett	New York, NY	EPA Employees Ceremony	Environmental Awards	Keynote Address
25	J. Winston Porter	Washington, DC	Society for Occupational and Environmental Health	Superfund & Public Health	

EPA SENIOR STAFF SPEAKERS CALENDAR

DATE	OFFICIAL	LOCATION	GROUP	THEME/MAJOR FOCUS OF SPEECH	NOTES
APRIL 1988					
27	Thomas L. Adams	St. Petersburg, FL	National Association of Attorney's General Training		
MAY 1988					
1-4	John A. Moore	Wrightsville Beach, NC	Symposium on Human Cancer Risk Assessment		
3	Lee M. Thomas	Washington, DC	Global Habitability Seminar		
4	Christopher Daggett	Greenwich, CT	Hazardous Waste Seminar	Tri-State Hazardous Waste Issues	
4	Lee M. Thomas	Washington, DC	Public Recognition Day		
9	J. Winston Porter	Washington, DC	Hazardous Waste Superconf. (NAM et. al.)	RCRA/Superfund	
10-11	John A. Moore	Amherst, MA	Northeast Regional Environmental Public Health Center Meeting		
(T) 12	Sheldon Meyers	New York, NY	Global Business Forum	International Environmental Issues	
18	Christopher Daggett	Princeton, NJ	Wetlands Conference	EPA View on New Jersey Wetlands	
(T) 19	J. Winston Porter	Austin, TX	Texas Dept. of Health and Region VI Visit	Solid Waste	
19	Lee M. Thomas	Washington, DC	American Iron and Steel Institute Members' Luncheon		
19-20	Thomas L. Adams	Washington, DC	NEEC Meeting		

EPA SENIOR STAFF SPEAKERS CALENDAR

DATE	OFFICIAL	LOCATION	GROUP	THEME/MAJOR FOCUS OF SPEECH	NOTES
MAY 1988					
T)20	Lee M. Thomas	Washington, DC	EPA Employees	Gold Medal Award Ceremony	
24	Lee M. Thomas	New York, NY	Rene Dubos Foundation		Recept/Dinner Address
24-26	Linda J. Fisher	New York, NY	Rene Dubos Foundation		Workshop Panelist
24-26	John A. Moore	New York, NY	Only One Earth Forum		
25	Thomas L. Adams	Cincinnati, OH	Proctor and Gamble Co. Environmental Seminar Compliance and Risk Communication		
T)26	Lee M. Thomas	Washington, DC	Izaak Walton League Chesapeake Bay Conservation Award Ceremony		
JUNE 1988					
2	J. Winston Porter	Washington, DC	Executive Enterprises Fed. Facilities Conference	Federal Facilities Compliance	
6	James J. Scherer	Denver, CO	Executive Enterprises, Inc.	Region VIII Environmental Regulation Briefing	
9	Lee M. Thomas	Washington, DC	National Coal Council		
20	Lee M. Thomas	Dallas, TX	APCA Annual Meeting		
21	Christopher Daggett	Atlanta City, NJ	World Affairs Council		Dinner Speaker

EPA SENIOR STAFF SPEAKERS CALENDAR

DATE	OFFICIAL	LOCATION	GROUP	THEME/MAJOR FOCUS OF SPEECH	NOTES
JUNE 1988					
22	Lawrence J. Jensen	Orlando, FL	American Water Works Assoc.		Keynote Speaker
23	J. Winston Porter	Washington, DC	Center for Chemical Process Safety Advisory Board Mtg.		Informal Remarks
(T) 28-29	Lee M. Thomas	Washington, DC	EPA/State Committee Meeting		
JULY 1988					
29	Lee M. Thomas	Washington, DC	Wetlands Forum		
AUGUST 1988					
NO SPEAKING ENGAGEMENTS THUS FAR					
SEPTEMBER 1988					
8	Lee M. Thomas	Detroit, MI	HEI Meeting		Luncheon Address
11-17	Lawrence J. Jensen	Keszthely, Hungary	Third International Conf. on the Conservation and Management of Lakes "Balaton '88"	U.S. National Water Issues	

Additions/corrections/deletions only (no duplicates, please) should be submitted to WT1204, in writing, or by electronic mail to EPA 1016, by COB the Friday before the calendar is to be distributed (i.e., the Friday before the 1st and 15th).

Statutes

TEN MAIN PUBLIC LAWS UNDER JURISDICTION OF EPA

1) National Environmental Policy Act (NEPA)

2) Clean Air Act

3) Comprehensive Environmental Response, Compensation, and Liability Act (Superfund)

4) Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

5) Federal Water Pollution Control Act (Clean Water Act)

6) Marine Protection, Research and Sanctuaries Act (Ocean Dumping)

7) Noise Control Act

8) Safe Drinking Water Act

9) Solid Waste Disposal Act (RCRA: Resource Conservation and Recovery Act)

10) Toxic Substances Control Act (TSCA)

.OTHER PUBLIC LAWS WITH SOME EPA ENVOLVEMENT

1) Asbestos Hazard Emergency Response Act

2) Asbestos School Abatement Act

3) Atomic Energy Act

4) Food, Drug and Cosmetic Act

5) Nuclear Waste Policy Act

6) Public Health Service Act

7) Uranium Mill Tailing Act

U.S. ENVIRONMENTAL PROTECTION AGENCY STATUTES -- EXPIRING AUTHORIZATIONS

Popular Name	Expiration Date
NEPA	No expiration date
Noise Control Act	9/30/79
Clean Air Act	9/30/81
R & D Authorization	9/30/81
Ocean Dumping/MPRSA (Title I)	9/30/82
TSCA	9/30/83
FIFRA	9/30/86
Solid Waste/RCRA (generally)	9/30/88
Clean Water Act	9/30/90
Asbestos School Hazard Abatement Act	9/30/90
Asbestos Hazard Emergency Response Act	9/30/90
Safe Drinking Water Act	9/30/91
Superfund/CERCLA/SARA (taxing authority)	12/31/91

Note that FY 1987 appropriations were enacted on October 18, 1986 (Public Law 99-591) for EPA programs.

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Glossary

United States
Environmental Protection
Agency

Office of
Public Affairs (A-107)
Washington DC 20460

March 1988
OPA-87-017

Glossary of Environmental Terms

Introduction

This glossary of environmental and related terms replaces "Common Environmental Terms," published by the Environmental Protection Agency in 1974 and revised in 1978. It is designed to give the user an explanation of the more commonly used environmental terms appearing in EPA publications, news releases and other Agency documents available to the general public, students, the news media, and Agency employees. The terms and definitions in this publication were selected to give the user a general sense of what a term or phrase means in relatively non-technical language, although it was obviously necessary to use some scientific terminology.

The terms selected for inclusion came from previously published lists, internal glossaries produced by various programs, and specific suggestions made by many Agency programs and offices. The chemicals and pesticides selected for inclusion were those most frequently referred to in Agency publications or which are the subject of major EPA regulatory or program activities.

Definitions or information about substances or program activities not included in this glossary may be found in EPA libraries or scientific/technical reference documents or may be obtained from the various program offices.

The definitions do not constitute the Agency's official use of terms and phrases for regulatory purposes. Nothing in this document should be construed to in any way alter or supplant any other federal document. Official terminology may be found in the laws and related regulations as published in such sources as the Congressional Record and the Federal Register.

Users with suggestions for future editions should write to the Publications Division, Office of Public Affairs, A-107, USEPA Washington DC, 20460.

A

Abatement: Reducing the degree or intensity of, or eliminating, pollution.

Abandoned Well: A well whose use has been permanently discontinued or which is in a state of disrepair such that it cannot be used for its intended purpose.

ABEL: EPA's computer model for analyzing a violator's ability to pay a civil penalty.

Absorption: The passage of one substance into or through another; e.g., an operation in which one or more soluble components of a gas mixture are dissolved in a liquid.

Accelerator: In radiation science, a device that speeds up charged particles such as electrons or protons.

Accident Site: The location of an unexpected occurrence, failure or loss, either at a plant or along a transportation route, resulting in a release of hazardous materials.

Acclimatization: The physiological and behavioral adjustments of an organism to changes in its environment.

Acetylcholine: A substance in the human body having important neurotransmitter effects on various internal systems; often used as a bronchoconstrictor.

Acid Deposition: A complex chemical and atmospheric phenomenon that occurs when emissions of sulfur and nitrogen compounds and other substances are transformed by chemical processes in the atmosphere, often far from the original sources, and then deposited on earth in either a wet or dry form. The wet forms, popularly called "acid rain," can fall as rain, snow, or fog. The dry forms are acidic gases or particulates.

Acid Rain: (See: acid deposition)

Action Levels: 1. Regulatory levels recommended by EPA for enforcement by FDA and USDA when pesticide residues occur in food or feed commodities for reasons other than the direct application of the pesticide. As opposed to "tolerances" which are established for residues occurring as a direct result of proper usage, action levels are set for inadvertent residues resulting from previous legal use or accidental contamination. 2. In the Superfund program, the existence of a contaminant concentration in the environment high enough to warrant action or trigger a response under SARA and the National Oil and Hazardous Substances Contingency Plan. The term can be used similarly in other regulatory programs. (See: tolerances.)

Activated Carbon: A highly adsorbent form of carbon used to remove odors and toxic substances from liquid or gaseous emissions. In waste treatment it is used to remove dissolved organic matter from waste water. It is also used in motor vehicle evaporative control systems.

Activated Sludge: Sludge that results when primary effluent is mixed with bacteria-laden sludge and then agitated and aerated to promote biological treatment. This speeds breakdown of organic matter in raw sewage undergoing secondary waste treatment.

Active Ingredient: In any pesticide product, the component which kills, or otherwise controls, target pests. Pesticides are regulated primarily on the basis of active ingredients.

Acute Exposure: A single exposure to a toxic substance which results in severe biological harm or death. Acute exposures are usually characterized as lasting no longer than a day.

Acute Toxicity: The ability of a substance to cause poisonous effects resulting in severe biological harm or death soon after a single exposure or dose. Also, any severe poisonous effect resulting from a single short-term exposure to a toxic substance. (See: chronic toxicity, toxicity.)

Adaptation: Changes in an organism's structure or habit that help it adjust to its surroundings.

Add-on Control Device: An air pollution control device such as carbon adsorber or incinerator which reduces the pollution in an exhaust gas. The control device usually does not affect the process being controlled and thus is "add-on" technology as opposed to a scheme to control pollution through making some alteration to the basic process.

Adhesion: Molecular attraction which holds the surfaces of two substances in contact.

Administrative Order: A legal document signed by EPA directing an individual, business, or other entity to take corrective action or refrain from an activity. It describes the violations and actions to be taken, and can be enforced in court. Such orders may be issued, for example, as a result of an administrative complaint whereby the respondent is ordered to pay a penalty for violations of a statute.

Administrative Order On Consent: A legal agreement signed by EPA and an individual, business, or other entity through which the violator agrees to pay for correction of violations, take the required corrective or cleanup actions, or refrain from an activity. It describes the actions to be taken, may be subject to a comment period, applies to civil actions, and can be enforced in court.

Administrative Procedures Act: A law that spells out procedures and requirements related to the promulgation of regulations.

Adsorption: 1. Adhesion of molecules of gas, liquid, or dissolved solids to a surface. 2. An advanced method of treating wastes in which activated carbon removes organic matter from wastewater.

Adulterants: Chemical impurities or substances that by law do not belong in a food, or in a pesticide.

Advanced Waste Water Treatment: Any treatment of sewage that goes beyond the secondary or biological water treatment stage and includes the removal of nutrients such as phosphorus and nitrogen and a high percentage of suspended solids. (See primary, secondary treatment.)

Advisory: A non-regulatory document that communicates risk information to persons who may have to make risk management decisions.

Aeration: A process which promotes biological degradation of organic water. The process may be passive (as when waste is exposed to air), or active (as when a mixing or bubbling device introduces the air).

Aeration Tank: A chamber used to inject air into water.

Aerobic: Life or processes that require, or are not destroyed by, the presence of oxygen. (See: anaerobic.)

Aerobic Treatment: Process by which microbes decompose complex organic compounds in the presence of oxygen and use the liberated energy for reproduction and growth. Types of aerobic processes include extended aeration, trickling filtration, and rotating biological contactors.

Aerosol: A suspension of liquid or solid particles in a gas.

Afterburner: In incinerator technology, a burner located so that the combustion gases are made to pass through its flame in order to remove smoke and odors. It may be attached to or be separated from the incinerator proper.

Agent Orange: A toxic herbicide and defoliant which was used in the Vietnam conflict. It contains 2,4,5-trichlorophenoxyacitic acid (2,4,5-T) and 2-4 dichlorophenoxyacetic acid (2,4-D) with trace amounts of dioxin.

Agglomeration: The process by which precipitation particles grow larger by collision or contact with cloud particles or other precipitation particles.

Agglutination: The process of uniting solid particles coated with a thin layer of adhesive material or of arresting solid particles by impact on a surface coated with an adhesive.

Agricultural Pollution: The liquid and solid wastes from farming, including: runoff and leaching of pesticides and fertilizers; erosion and dust from plowing; animal manure and carcasses; crop residues, and debris.

Airborne Particulates: Total suspended particulate matter found in the atmosphere as solid particles or liquid droplets. Chemical composition of particulates varies widely, depending on location and time of year. Airborne particulates include: windblown dust, emissions from industrial processes, smoke from the burning of wood and coal, and the exhaust of motor vehicles.

Airborne Release: Release of any chemical into the air.

Air Changes Per Hour (ACH): The movement of a volume of air in a given period of time; if a house has one air change per hour, it means that all of the air in the house will be replaced in a one-hour period.

Air Contaminant: Any particulate matter, gas, or combination thereof, other than water vapor or natural air. (See: air pollutant.)

Air Curtain: A method of containing oil spills. Air bubbling through a perforated pipe causes an upward water flow that slows the spread of oil. It can also be used to stop fish from entering polluted water.

Air Mass: A widespread body of air that gains certain meteorological or polluted characteristics—e.g., a heat inversion or smogginess—while set in one location. The characteristics can change as it moves away.

Air Monitoring: (See: monitoring)

Air Pollutant: Any substance in air which could, if in high enough concentration, harm man, other animals, vegetation, or material. Pollutants may include almost any natural or artificial composition of matter capable of being airborne. They may be in the form of solid particles, liquid droplets, gases, or in combinations of these forms. Generally, they fall into two main groups: (1) those emitted directly from identifiable sources and (2) those produced in the air by interaction between two or more primary pollutants, or by reaction with normal atmospheric constituents, with or without photoactivation. Exclusive of pollen, fog, and dust, which are of natural origin, about 100 contaminants

have been identified and fall into the following categories: solids, sulfur compounds, volatile organic chemicals, nitrogen compounds, oxygen compounds, halogen compounds, radioactive compounds, and odors.

Air Pollution: The presence of contaminant or pollutant substances in the air that do not disperse properly and interfere with human health or welfare, or produce other harmful environmental effects.

Air Pollution Episode: A period of abnormally high concentration of air pollutants, often due to low winds and temperature inversion, that can cause illness and death. (See· episode, pollution.)

Air Quality Control Region: An area—designated by the federal government—in which communities share a common air pollution problem. Sometimes several states are involved.

Air Quality Criteria: The levels of pollution and lengths of exposure above which adverse health and welfare effects may occur.

Air Quality Standards: The level of pollutants prescribed by regulations that may not be exceeded during a specified time in a defined area.

Alachlor: A herbicide, marketed under the trade name Lasso, used mainly to control weeds in corn and soybean fields.

Alar: Trade name for daminozide, a pesticide that makes apples redder, firmer, and less likely to drop off trees before growers are ready to pick them. It is also used to a lesser extent on peanuts, tart cherries, concord grapes, and other fruits.

Aldicarb: An insecticide sold under the trade name Temik It is made from ethyl isocyanate

Algae: Simple rootless plants that grow in sunlit waters in relative proportion to the amounts of nutrients available They can affect water quality adversely by lowering the dissolved oxygen in the water They are food for fish and small aquatic animals

Algal Blooms: Sudden spurts of algal growth, which can affect water quality adversely and indicate potentially hazardous changes in local water chemistry

Alpha Particle: A positively charged particle composed of 2 neutrons and 2 protons released by some atoms undergoing radioactive decay. The particle is identical to the nucleus of a helium atom

Alternate Method: Any method of sampling and analyzing for an air pollutant which is not a reference or equivalent method but which has been demonstrated in specific cases to EPA's satisfaction to produce results adequate for compliance

Ambient Air: Any unconfined portion of the atmosphere· open air, surrounding air

Ambient Air Quality Standards: (See Criteria Pollutants and National Ambient Air Quality Standards)

Anadromous: Fish that spend their adult life in the sea but swim upriver to fresh-water spawning grounds to reproduce.

Anaerobic: A life or process that occurs in, or is not destroyed by, the absence of oxygen.

Antagonism: The interaction of two chemicals having an opposing, or neutralizing effect on each other, or—given some specific biological effect—a chemical interaction that appears to have an opposing or neutralizing effect over what might otherwise be expected.

Antarctic "Ozone Hole": Refers to the seasonal depletion of ozone in a large area over Antarctica.

Antibodies: Proteins produced in the body by immune system cells in response to antigens, and capable of combining with antigens.

Anti-Degradation Clause: Part of federal air quality and water quality requirements prohibiting deterioration where pollution levels are above the legal limit.

Antigen: A substance that causes production of antibodies when introduced into animal or human tissue.

Aquifer: An underground geological formation, or group of formations, containing usable amounts of groundwater that can supply wells and springs.

Arbitration: A process for the resolution of disputes. Decisions are made by an impartial arbitrator selected by the parties. These decisions are usually legally binding. (See: mediation.)

Area of Review: In the UIC program, the area surrounding an injection well that is reviewed during the permitting process to determine whether the injection operation will induce flow between aquifers

Area Source: Any small source of non-natural air pollution that is released over a relatively small area but which cannot be classified as a point source Such sources may include vehicles and other small fuel combustion engines.

Asbestosis: A disease associated with chronic exposure to and inhalation of asbestos fibers. The disease makes breathing progressively more difficult a can lead to death.

Asbestos: A mineral fiber that can pollute air or water and cause cancer o. asbestosis when inhaled. EPA has banned or severely restricted its use in manufacturing and construction

Ash: The mineral content of a product remaining after complete combustion.

A-Scale Sound Level: A measurement of sound approximating the sensitivity of the human ear, used to note the intensity or annoyance of sounds.

Assimilation: The ability of a body of water to purify itself of pollutants.

Atmosphere [an]: A standard unit of pressure representing the pressure exerted by a 29 92-inch column of mercury at sea level at 45' latitude and equal to 1000 grams per square centimeter. (the) The whole mass of air surrounding the earth, composed largely of oxygen and nitrogen

Atomize: To divide a liquid into extremely minute particles, either by impact with a jet of steam or compressed air, or by passage through some mechanical device

Attainment Area: An area considered to have air quality as good as or better than the national ambient air quality standards as defined in the Clean Air Act. An area may be an attainment area for one pollutant anu a non-attainment area for others.

Attenuation: The process by which a compound is reduced in concentration over time, through adsorption, degradation, dilution, and/or transformation

Attractant: A chemical or agent that lures insects or other pests by stimulating their sense of smell.

Attrition: Wearing or grinding down of a substance by friction A contributing factor in air pollution, as with dust

Autotrophic: An organism that produces food from inorganic substances

B

Background Level: In air pollution control, the concentration of air pollutants in a definite area during a fixed period of time prior to the starting up or on stoppage of a source of emission under control In toxic substances mon ing, the average presence in the environment, originally referring to natur. occurring phenomena.

BACT—Best Available Control Technology: A emission limitation based on the maximum degree of emission reduction which (considering energy, environmental, and economic impacts and other costs) is achievable through application of production processes and available methods, systems, and techniques. In no event does BACT permit emissions in excess of those allowed under any applicable Clean Air Act provisions Use of the BACT concept is allowable on a case by case basis for major new or modified emissions sources in attainment areas and applies to each regulated pollutant.

Bacteria: (Singular: bacterium) Microscopic living organisms which can aid in pollution control by consuming or breaking down organic matter in sewage or by similarly acting on oil spills or other water pollutants. Bacteria in soil, water or air can also cause human, animal and plant health problems.

Baffle Chamber: In incinerator design, a chamber designed to promote the settling of fly ash and coarse particulate matter by changing the direction and/or reducing the velocity of the gases produced by the combustion of the refuse or sludge.

Baghouse Filter: Large fabric bag, usually made of glass fibers, used to eliminate intermediate and large (greater than 20 microns in diameter) particles. This device operates in a way similar to the bag of an electric vacuum cleaner, passing the air and smaller particulate matter, while entrapping the larger particulates.

Baling: Compacting solid waste into blocks to reduce volume and simplify handling.

Ballistic Separator: A machine that sorts organic from inorganic matter for composting.

Band Application: In pesticides, the spreading of chemicals over, or next to, each row of plants in a field.

Banking: A system for recording qualified air emission reductions for later use in bubble, offset, or netting transactions. (See. emissions trading.)

Bar Screen: In wastewater treatment, a device used to remove large soli

Barrier Coating(s): A layer of a material that acts to obstruct or prevent passage of something through a surface that is to be protected, e g grout, caulk, or various sealing compounds sometimes used with polyurethane membranes to prevent corrosion or oxidation of metal surfaces, chemical impacts on s materials, or, for example, to prevent soil-gas-borne radon from through walls, cracks, or joints in a house

Application: In pesticides, the application of a chemical on plant stems or tree trunks just above the soil line

BEN: EPA's computer model for analyzing a violator's economic gain from not complying with the law

Benthic Organism (Benthos): A form of aquatic plant or animal life that is found on or near the bottom of a stream, lake or ocean

Benthic Region: The bottom layer of a body of water.

Beryllium: An airborne metal that can be hazardous to human health when inhaled. It is discharged by machine shops, ceramic and propellant plants, and foundries.

Beta Particle: An elementary particle emitted by radioactive decay, that may cause skin burns. It is halted by a thin sheet of paper

Bioaccumulative: Substances that increase in concentration in living organisms (that are very slowly metabolized or excreted) as they breathe contaminated air, drink contaminated water, or eat contaminated food (See. biological magnification)

Bioassay: Using living organisms to measure the effect of a substance, factor, or condition by comparing before-and-after data Term is often used to mean cancer bioassays.

Biochemical Oxygen Demand (BOD): A measure of the amount of oxygen consumed in the biological processes that break down organic matter in water The greater the BOD, the greater the degree of pollution

Biodegradable: The ability to break down or decompose rapidly under natural conditions and processes.

Biological Control: In pest control, the use of animals and organisms that eat or otherwise kill or out-compete pests

Biological Magnification: Refers to the process whereby certain substances such as pesticides or heavy metals move up the food chain, work their way into a river or lake and are eaten by aquatic organisms such as fish which in are eaten by large birds, animals or humans The substances become ntrated in tissues or internal organs as they move up the chain. (See. cumulative.)

Biological Oxidation: The way bacteria and microorganisms feed on and decompose complex organic materials Used in self-purification of water bodies and in activated sludge wastewater treatment.

Biological Treatment: A treatment technology that uses bacteria to consume waste. This treatment breaks down organic materials

Biomass: All of the living material in a given area, often refers to vegetation Also called "biota"

Biomonitoring: 1 The use of living organisms to test the suitability of effluents for discharge into receiving waters and to test the quality of such waters downstream from the discharge 2 Analysis of blood, urine, tissues, etc , to measure chemical exposure in humans

Biosphere: The portion of Earth and its atmosphere that can support life

Biostabilizer: A machine that converts solid waste into compost by grinding and aeration.

Biota: (See· biomass.)

Biotechnology: Techniques that use living organisms or parts of organisms to produce a variety of products (from medicines to industrial enzymes) to improve plants or animals or to develop microorganisms for specific uses such as removing toxics from bodies of water, or as pesticides

Biotic Community: A naturally occurring assemblage of plants and animals that live in the same environment and are mutually sustaining and interdependent.

Black Lung: A disease of the lungs caused by habitual inhalation of coal dust

Blackwater: Water that contains animal, human, or food wastes

Bloom: A proliferation of algae and/or higher aquatic plants in a body of water, often related to pollution, especially when pollutants accelerate growth

BOD5: The amount of dissolved oxygen consumed in five days by biological cesses breaking down organic matter

A type of wetland that accumulates appreciable peat deposits Bogs id primarily on precipitation for their water source, are usually acidic and in plant residue with a conspicuous mat of living green moss

Boom: 1. A floating device used to contain oil on a body of water 2 A piece of equipment used to apply pesticides from ground equipment such as a tractor or truck (See sonic boom)

Botanical Pesticide: A pesticide whose active ingredient is a plant produced chemical such as nicotine or strychnine

Bottle Bill: Proposed or enacted legislation which requires a returnable deposit on beer or soda containers and provides for retail store or other redemption centers. Such legislation is designed to discourage use of throw-away containers

Bottom Land Hardwoods: Forested freshwater wetlands adjacent to rivers in the southeastern United States They are especially valuable for wildlife breeding and nesting and habitat areas

Brackish Water: A mixture of fresh and salt water

Broadcast Application: In pesticides, the spreading of chemicals over an entire area.

Bubble: A system under which existing emissions sources can propose alternate means to comply with a set of emissions limitations, under the bubble concept, sources can control more than required at one emission point where control costs are relatively low in return for a comparable relaxation of controls at a second emission point where costs are higher

Bubble Policy: (See: emissions trading)

Buffer Strips: Strips of grass or other erosion-resisting vegetation between or below cultivated strips or fields

Burial Ground (Graveyard): A disposal site for radioactive waste materials that uses earth or water as a shield

By-product: Material, other than the principal product, that is generated as a consequence of an industrial process

C

Cadmium (CD): A heavy metal element that accumulates in the environment

Cancellation: Refers to Section 6 (b) of the the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) which authorizes cancellation of a pesticide registration if unreasonable adverse effects to the environment and public health develop when a product is used according to widespread and commonly recognized practice, or if its labeling or other material required to be submitted does not comply with FIFRA provisions

Cap: A layer of clay, or other highly impermeable material installed over the top of a closed landfill to prevent entry of rainwater and minimize production of leachate.

Capture Efficiency: The fraction of all organic vapors generated by a process that are directed to an abatement or recovery device

Carbon Adsorber: An add-on control device which uses activated carbon to absorb volatile organic compounds from a gas stream The VOCs are later recovered from the carbon

Carbon Dioxide (CO2): A colorless, odorless, non-poisonous gas, which results from fossil fuel combustion and is normally a part of the ambient air

Carbon Monoxide (CO): A colorless, odorless, poisonous gas produced by incomplete fossil fuel combustion

Carboxyhemoglobin: Hemoglobin in which the iron is associated with carbon monoxide (CO). The affinity of hemoglobin for CO is about 300 times greater than for oxygen

Carcinogen: Any substance that can cause or contribute to the production of cancer.

Carcinogenic: Cancer-producing

Carrying Capacity: 1 In recreation management, the amount of use a recreation area can sustain without deterioration of its quality 2 In wildlife management, the maximum number of animals an area can support during a given period of the year

Cask: A thick-walled container (usually lead) used to transport radioactive material Also called a coffin

Catanadramous: Fish that swim downstream to spawn

Catalytic Converter: An air pollution abatement device that removes pollutants from motor vehicle exhaust, either by oxidizing them into carbon dioxide and water or reducing them to nitrogen and oxygen

Catalytic Incinerator: A control device which oxidizes volatile organic compounds (VOCs) by using a catalyst to promote the combustion process Catalytic incinerators require lower temperatures than conventional thermal incinerators, with resultant fuel and cost savings

Categorical Exclusion: A class of actions which either individually or cumulatively would not have a significant effect on the human environment and therefore would not require preparation of an environmental assessment or environmental impact statement under the National Environmental Policy Act (NEPA).

Categorical Pretreatment Standard: A technology-based effluent limitation for an industrial facility which discharges into a municipal sewer system. Analogous in stringency to Best Availability Technology (BAT) for direct dischargers.

Cathodic Protection: A technique to prevent corrosion of a metal surface by making that surface the cathode of an electrochemical cell.

Caustic Soda: Sodium hydroxide, a strong alkaline substance used as the cleaning agent in some detergents

CBOD5: The amount of dissolved oxygen consumed in 5 days from the carbonaceous portion of biological processes breaking down in an effluent. The test methodology is the same as for BOD5, except that nitrogen demand is suppressed.

Cells: 1.In solid waste disposal, holes where waste is dumped, compacted, and covered with layers of dirt on a daily basis. 2. The smallest structural part of living matter capable of functioning as an independent unit.

Centrifugal Collector: A mechanical system using centrifugal force to remove aerosols from a gas stream or to de-water sludge

Cesium (Cs): A silver-white, soft ductile element of the alkali metal group that is the most electropositive element known Used especially in photoelectric cells.

Channelization: Straightening and deepening streams so water will move faster, a flood-reduction or marsh-drainage tactic that can interfere with waste assimilation capacity and disturb fish and wildlife habitats

Characteristic: Any one of the four categories used in defining hazardous waste: ignitability, corrosivity, reactivity, and toxicity

Chemical Oxygen Demand (COD): A measure of the oxygen required to oxidize all compounds in water, both organic and inorganic.

Chemical Treatment: Any one of a variety of technologies that use chemicals or a variety of chemical processes to treat waste.

Chemosterilant: A chemical that controls pests by preventing reproduction.

Chilling Effect: The lowering of the Earth's temperature because of increased particles in the air blocking the sun's rays. (See. greenhouse effect)

Chlorinated Hydrocarbons: These include a class of persistent, broad-spectrum insecticides, that linger in the environment and accumulate in the food chain. Among them are DDT, aldrin, dieldrin, heptachlor, chlordane, lindane, endrin, mirex, hexachloride, and toxaphene Other examples include TCE, used as an industrial solvent.

Chlorinated Solvent: An organic solvent containing chlorine atoms, e g., methylene chloride and 1,1,1-trichloromethane which are used in aerosol spray containers and in traffic paint.

Chlorination: The application of chlorine to drinking water, sewage, or industrial waste to disinfect or to oxidize undesirable compounds.

Chlorinator: A device that adds chlorine, in gas or liquid form, to water or sewage to kill infectious bacteria.

Chlorine-Contact Chamber: That part of a water treatment plant where effluent is disinfected by chlorine

Chlorofluorocarbons (CFCs): A family of inert, nontoxic, and easily liquified chemicals used in refrigeration, air conditioning, packaging, insulation, or as solvents and aerosol propellants. Because CFCs are not destroyed in the lower atmosphere they drift into the upper atmosphere where their chlorine components destroy ozone.

Chlorosis: Discoloration of normally green plant parts, that can be caused by disease, lack of nutrients, or various air pollutants

Chromium: (See: heavy metals.)

Chronic Toxicity: The capacity of a substance to cause long-term poisonous human health effects. (See: acute toxicity)

Clarification: Cleaning action that occurs during wastewater treatment when solids settle out. This is often aided by centrifugal action and chemically induced coagulation in wastewater

Clarifier: A tank in which solids are settled to the bottom and are subsequently removed as sludge

Cleanup: Actions taken to deal with a release or threat of release of a hazardous substance that could affect humans and/or the environment The term "cleanup" is sometimes used interchangeably with the terms remedial action, removal action, response action, or corrective action

Clear Cut: A forest management technique that involves harvesting all the trees in one area at one time. Under certain soil and slope conditions it contribute sediment to water pollution.

Cloning: In biotechnology, obtaining a group of genetically identical cells .. a single cell. This term has assumed a more general meaning that includes making copies of a gene.

Closed-Loop Recycling: Reclaiming or reusing wastewater for non-potable purposes in an enclosed process.

Coagulation: A clumping of particles in wastewater to settle out impurities It is often induced by chemicals such as lime, alum, and iron salts.

Coastal Zone: Lands and waters adjacent to the coast that exert an influence on the uses of the sea and its ecology, or, inversely, whose uses and ecology are affected by the sea.

Coefficient of Haze (COH): A measurement of visibility interference in the atmosphere.

Coliform Index: A rating of the purity of water based on a count of fecal bacteria.

Coliform Organism: Microorganisms found in the intestinal tract of humans and animals. Their presence in water indicates fecal pollution and potentially dangerous bacterial contamination by disease-causing microorganisms.

Combined Sewers: A sewer system that carries both sewage and storm-water runoff. Normally, its entire flow goes to a waste treatment plant, but during a heavy storm, the storm water volume may be so great as to cause overflows When this happens untreated mixtures of storm water and sewage may flow into receiving waters Storm-water runoff may also carry toxic chemicals from industrial areas or streets into the sewer system

Combustion: Burning, or rapid oxidation, accompanied by release of energy in the form of heat and light A basic cause of air pollution.

Combustion Product: Substance produced during the burning or oxidation of a material.

Command Post: Facility located at a safe distance upwind from an accident site, where the on-scene coordinator, responders, and technical representatives can make response decisions, deploy manpower and equipment, r tain liaison with news media, and handle communications

Comment Period: Time provided for the public to review and commen proposed EPA action or rulemaking after it is published in the Federal Register.

Comminution: Mechanical shredding or pulverizing of waste Used in both solid waste management and wastewater treatment.

Comminuter: A machine that shreds or pulverizes solids to make waste treatment easier.

Community Relations: The EPA effort to establish two-way communication with the public to create understanding of EPA programs and related actions, to assure public input into decision-making processes related to affected communities, and to make certain that the Agency is aware of and responsive to public concerns. Specific community relations activities are required in relation to Superfund remedial actions

Community Water System: A public water system which serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents.

Compaction: Reduction of the bulk of solid waste by rolling and tamping.

Compliance Coating: A coating whose volatile organic compound content does not exceed that allowed by regulation.

Compliance Schedule: A negotiated agreement between a pollution source and a government agency that specifies dates and procedures by which a source will reduce emissions and, thereby, comply with a regulation.

Compost: A mixture of garbage and degradable trash with soil in which certain bacteria in the soil break down the garbage and trash into organic fertilizer.

Composting: The natural biological decomposition of organic material in the presence of air to form a humus-like material. Controlled methods of composting include mechanical mixing and aerating, ventilating the materials by dropping them through a vertical series of aerated chambers, or placing the compost in piles out in the open air and mixing it or turning it periodically

Conditional Registration: Under special circumstances, the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) permits registration of pesticide products that is "conditional" upon the submission of additional data. These special circumstances include a finding by the EPA Administrator a new product or use of an existing pesticide will not significantly increase risk of unreasonable adverse effects A product containing a new (previously unregistered) active ingredient may be conditionally registered only if the Administrator finds that such conditional registration is in the public interest, that a reasonable time for conducting the additional studies has not elapsed, and the use of the pesticide for the period of conditional registration will not present an unreasonable risk.

Confined Aquifer: An aquifer in which ground water is confined under pressure which is significantly greater than atmospheric pressure

Consent Decree: A legal document, approved by a judge, that formalizes an agreement reached between EPA and potentially responsible parties (PRPs) through which PRPs will conduct all or part of a cleanup action at a Superfund site; cease or correct actions or processes that are polluting the environment; or otherwise comply with regulations where the PRP's failure to comply caused EPA to initiate regulatory enforcement actions. The consent decree describes the actions PRP's will take and may be subject to a public comment period.

Conservation: Avoiding waste of, and renewing when possible, human and natural resources The protection, improvement, and use of natural resources according to principles that will assure their highest economic or social benefits.

Contact Pesticide: A chemical that kills pests when it touches them, rather than by being eaten (stomach poison) Also, soil that contains the minute skeletons of certain algae that scratches and dehydrates waxy-coated insects

Contaminant: Any physical, chemical, biological, or radiological substance or matter that has an adverse affect on air, water, or soil

Contingency Plan: A document setting out an organized, planned, and coordinated course of action to be followed in case of a fire, explosion, or other accident that releases toxic chemicals, hazardous wastes, or radioactive materials which threaten human health or the environment. (See National Oil and Hazardous Substances Contingency Plan.)

Contract Labs: Laboratories under contract to EPA, which analyze samples taken from wastes, soil, air, and water or carry out research projects

Contrails: Long, narrow clouds caused when high-flying jet aircraft disturb atmosphere.

Contour Plowing: Farming methods that break ground following the shape of the land in a way that discourages erosion.

Control Technique Guidelines (CTG): A series of EPA documents designed to assist states in defining reasonable available control technology (RACT) for major sources of volatile organic compounds (VOC)

Conventional Pollutants: Statutorily listed pollutants which are understood well by scientists These may be in the form of organic waste, sediment, acid, bacteria and viruses, nutrients, oil and grease, or heat

Conventional Systems: Systems that have been traditionally used to collect municipal wastewater in gravity sewers and convey it to a central primary or secondary treatment plant prior to discharge to surface waters

Coolant: A liquid or gas used to reduce the heat generated by power production in nuclear reactors, electric generators, various industrial and mechanical processes, and automobile engines

Cooling Tower: A structure that helps remove heat from water used as a coolant, e g , in electric power generating plants

Core: The uranium-containing heart of a nuclear reactor, where energy is released.

Corrosion: The dissolving and wearing away of metal caused by a chemical reaction such as between water and the pipes that the water contacts, chemicals touching a metal surface, or contact between two metals.

Corrosive: A chemical agent that reacts with the surface of a material causing it to deteriorate or wear away

Cost-Effective Alternative: An alternative control or corrective method identified after analysis as being the best available in terms of reliability, permanence, and economic considerations Although costs are one important consideration, when regulatory and compliance methods are being considered, such analysis does not require EPA to choose the least expensive alternative. For example, when selecting a method for cleaning up a site on the Superfund National Priorities List, the Agency balances costs with the long-term effectiveness of the various methods proposed

Cost Recovery: A legal process by which potentially responsible parties who contributed to contamination at a Superfund site can be required to reimburse the Trust Fund for money spent during any cleanup actions by the federal government

Cover: Vegetation or other material providing protection as ground cover

Cover Material: Soil used to cover compacted solid waste in a sanitary landfill

Crawl Space: In some types of houses, which are constructed so that the floor is raised slightly above the ground, an area beneath the floor which allows access to utilities and other services This is in contrast to slab-on-grade or basement construction houses

Criteria: Descriptive factors taken into account by EPA in setting standards for various pollutants These factors are used to determine limits on allowable concentration levels, and to limit the number of violations per year. When issued by EPA, the criteria provide guidance to the states on how to establish their standards.

Criteria Pollutants: The 1970 amendments to the Clean Air Act required EPA to set National Ambient Air Quality Standards for certain pollutants known to be hazardous to human health. EPA has identified and set standards to protect human health and welfare for six pollutants ozone, carbon monoxide, total suspended particulates, sulfur dioxide, lead, and nitrogen oxide The term, "criteria pollutants" derives from the requirement that EPA must describe the characteristics and potential health and welfare effects of these pollutants It is on the basis of these criteria that standards are set or revised

Cubic Feet Per Minute (CFM): A measure of the volume of a substance flowing through air within a fixed period of time With regard to indoor air, refers to the amount of air, in cubic feet, that is exchanged with indoor air in a minute's time, or an air exchange rate

Cultural Eutrophication: Increasing rate at which water bodies "die" by pollution from human activities

Cumulative Working Level Months (CWLM): The sum of lifetime exposure to radon working levels expressed in total working level months

Curie: A quantitative measure of radioactivity equal to 3 7 x 1010 disintegrations per second

Cutie-Pie: An instrument used to measure radiation levels

Cyclone Collector: A device that uses centrifugal force to pull large particles from polluted air.

D

DDT: The first chlorinated hydrocarbon insecticide (chemical name Dichloro-Diphsdyl-Trichloromethane). It has a half-life of 15 years and can collect in fatty tissues of certain animals. EPA banned registration and interstate sale of DDT for virtually all but emergency uses in the United States in 1972 because of its persistence in the environment and accumulation in the food chain

Data Call-In: A part of the Office of Pesticide Programs (OPP) process of developing key required test data, especially on the long-term, chronic effects of existing pesticides, in advance of scheduled Registration Standard reviews Data Call-In is an adjunct of the Registration Standards program intended to expedite reregistration and involves the "calling in" of data from manufacturers.

Dechlorination: Removal of chlorine from a substance by chemically replacing it with hydrogen or hydroxide ions in order to detoxify the substances involved.

Decibel (dB): A unit of sound measurement. In general, a sound doubles in loudness for every increase of ten decibels

Decomposition: The breakdown of matter by bacteria and fungi It changes the chemical makeup and physical appearance of materials

Degradation: The process by which a chemical is reduced to a less complex form.

Delegated State: A state (or other governmental entity) which has applied for, and received authority to administer, within its territory, its state regulatory program as the federal program required under a particular federal statute As used in connection with NPDES, UIC, and PWS programs, the term does not connote any transfer of federal authority to a state

Defoliant: A herbicide that removes leaves from trees and growing plants

Delist: Use of the petition process to have a facility s toxic designation rescinded.

Denitrification: The anaerobic biological reduction of nitrate nitrogen to nitrogen gas.

Depletion Curve: In hydraulics, a graphical representation of water depletion from storage-stream channels, surface soil, and ground water. A depletion curve can be drawn for base flow, direct runoff, or total flow

Depressurization: A condition that occurs when the air pressure inside a structure is lower that the air pressure outside. Depressurization can occur when household appliances that consume or exhaust house air, such as fireplaces or furnaces, are not supplied with enough makeup air. Radon-containing soil gas may be drawn into a house more rapidly under depressurized conditions.

Dermal Toxicity: The ability of a pesticide or toxic chemical to poison people or animals by contact with the skin (See: contact pesticide)

DES: A synthetic estrogen, diethylstilbestrol is used as a growth stimulant in food animals. Residues in meat are thought to be carcinogenic.

Desalinization: Removing salt from ocean or brackish water.

Desiccant: A chemical agent that absorbs moisture; some desiccants are capable of drying out plants or insects, causing death.

Designated Pollutant: An air pollutant which is neither a criteria nor hazardous pollutant, as described in the Clean Air Act, but for which new sources performance standards exist. The Clean Air Act does require states to control these pollutants, which include acid mist, total reduced sulfur (TRS), and fluorides

Designer Bugs: Popular term for microbes developed through biotechnology that can degrade specific toxic chemicals at their source in toxic waste dumps or in ground water

Desulfurization: Removal of sulfur from fossil fuels to reduce pollution

Designated Uses: Those water uses identified in state water quality standards which must be achieved and maintained as required under the Clean Water Act. Uses can include cold water fisheries, public water supply, agriculture, etc.

Detergent: Synthetic washing agent that helps to remove dirt and oil. Some contain compounds which kill useful bacteria and encourage algae growth when they are in wastewater that reaches receiving waters.

Developer: A person, government unit, or company that proposes to build a hazardous waste treatment, storage, or disposal facility.

Diatomaceous Earth (Diatomite): A chalk-like material (fossilized diatoms) used to filter out solid waste in waste-water treatment plants, also used as an active ingredient in some powdered pesticides

Diazinon: An insecticide In 1986, EPA banned its use on open areas such as sod farms and golf courses because it posed a danger to migratory birds who gathered on them in large numbers The ban did not apply to its use in agriculture, or on lawns of homes and commercial establishments.

Dicofol: A pesticide used on citrus fruits.

Differentiation: The process by which single cells grow into particular forms of specialized tissue, e.g., root, stem, leaf.

Diffused Air: A type of aeration that forces oxygen into sewage by pumping air through perforated pipes inside a holding tank and bubbling it through the sewage.

Digester: In wastewater treatment, a closed tank; in solid waste conversion, a unit in which bacterial action is induced and accelerated in order to break down organic matter and establish the proper carbon to nitrogen ratio.

Digestion: The biochemical decomposition of organic matter, resulting in partial gasification, liquefaction, and mineralization of pollutants.

Dike: A low wall that can act as a barrier to prevent a spill from spreading

Dilution Ratio: The relationship between the volume of water in a stream and the volume of incoming water It affects the ability of the stream to assimilate waste

Dinocap: A fungicide used primarily by apple growers to control summer diseases. EPA, in 1986, proposed restrictions on its use when laboratory tests found it caused birth defects in rabbits.

Dinoseb: A herbicide that is also used as a fungicide and insecticide It was banned by EPA in 1986 because it posed the risk of birth defects and sterility

Dioxin: Any of a family of compounds known chemically as dibenzo-p-dioxins. Concern about them arises from their potential toxicity and contaminants in commercial products. Tests on laboratory animals indicate that it is one of the more toxic man-made chemicals known.

Direct Discharger: A municipal or industrial facility which introduces pollution through a defined conveyance or system, a point source

Disinfectant: A chemical or physical process that kills pathogenic organis in water. Chlorine is often used to disinfect sewage treatment effluent, w supplies, wells, and swimming pools.

Dispersant: A chemical agent used to break up concentrations of organic material such as spilled oil.

Disposal: Final placement or destruction of toxic, radioactive, or other wastes; surplus or banned pesticides or other chemicals, polluted soils, and drums containing hazardous materials from removal actions or accidental releases. Disposal may be accomplished through use of approved secure landfills, surface impoundments, land farming, deep well injection, ocean dumping, or incineration.

Dissolved Oxygen (DO): The oxygen freely available in water. Dissolved oxygen is vital to fish and other aquatic life and for the prevention of odors. Traditionally, the level of dissolved oxygen has been accepted as the single most important indicator of a water body's ability to support desirable aquatic life. Secondary and advanced waste treatment are generally designed to protect DO in waste-receiving waters.

Dissolved Solids: Disintegrated organic and inorganic material contained in water. Excessive amounts make water unfit to drink or use in industrial processes.

Distillation: The act of purifying liquids through boiling, so that the steam condenses to a pure liquid and the pollutants remain in a concentrated residue.

DNA: Deoxyribonucleic acid, the molecule in which the genetic information for most living cells is encoded. Viruses, too, can contain RNA.

DNA Hybridization: Use of a segment of DNA, called a DNA probe, to identify its complementary DNA, used to detect specific genes This process takes advantage of the ability of a single strand of DNA to combine with a complimentary strand.

Dose: In radiology, the quantity of energy or radiation absorbed.

Dosimeter: An instrument that measures exposure to radiation.

Dredging: Removal of mud from the bottom of water bodies using a scoop machine. This disturbs the ecosystem and causes silting that can kill aq life Dredging of contaminated muds can expose aquatic life to heavy m and other toxics. Dredging activities may be subject to regulation under Section 404 of the Clean Water Act

Dump: A site used to dispose of solid wastes without environmental controls

Dust: Particles light enough to be suspended in air

Dustfall Jar: An open container used to collect large particles from the air for measurement and analysis

Dystrophic Lakes: Shallow bodies of water that contain much humus and/or organic matter, that contain many plants but few fish and are highly acidic.

E

Ecological Impact: The effect that a man-made or natural activity has on living organisms and their non-living (abiotic) environment.

Ecology: The relationship of living things to one another and their environment, or the study of such relationships

Economic Poisons: Chemicals used to control pests and to defoliate cash crops such as cotton.

Ecosphere: The "bio-bubble" that contains life on earth, in surface waters, and in the air. (See: biosphere.)

Ecosystem: The interacting system of a biological community and its non-living environmental surroundings.

Effluent: Wastewater—treated or untreated—that flows out of a treatment plant, sewer, or industrial outfall. Generally refers to wastes discharged into surface waters

Effluent Limitation: Restrictions established by a State or EPA on quantities, rates, and concentrations in wastewater discharges.

Electrodialysis: A process that uses electrical current applied to permeable membranes to remove minerals from water Often used to desalinize salty or brackish water.

Electrostatic Precipitator (ESP): An air pollution control device that rem particles from a gas stream (smoke) after combustion occurs. The ESP im an electrical charge to the particles, causing them to adhere to metal pla inside the precipitator Rapping on the plates causes the particles to fall into a hopper for disposal.

Eligible Costs: The construction costs for waste-water treatment works upon which EPA grants are based.

Emergency (Chemical): A situation created by an accidental release or spill of hazardous chemicals which poses a threat to the safety of workers, residents, the environment, or property.

Emergency Episode: (See. air pollution episode)

nt Domain: Government taking—or forced acquisition—of private land blic use, with compensation paid to the landowner

Emission: Pollution discharged into the atmosphere from smokestacks, other vents, and surface areas of commercial or industrial facilities, from residential chimneys; and from motor vehicle, locomotive, or aircraft exhausts

Emission Factor: The relationship between the amount of pollution produced and the amount of raw material processed For example, an emission factor for a blast furnace making iron would be the number of pounds of particulates per ton of raw materials.

Emission Inventory: A listing, by source, of the amount of air pollutants discharged into the atmosphere of a community. It is used to establish emission standards.

Emission Standard: The maximum amount of air polluting discharge legally allowed from a single source, mobile or stationary

Emissions Trading: EPA policy that allows a plant complex with several facilities to decrease pollution from some facilities while increasing it from others, so long as total results are equal to or better than previous limits Facilities where this is done are treated as if they exist in a bubble in which total emissions are averaged out Complexes that reduce emissions substantially may "bank" their "credits" or sell them to other industries

Endangered Species: Animals, birds, fish, plants, or other living organisms threatened with extinction by man-made or natural changes in their environment. Requirements for declaring a species endangered are contained in the Endangered Species Act.

Endangerment Assessment: A study conducted to determine the nature and extent of contamination at a site on the National Priorities List and the risks posed to public health or the environment EPA or the state conduct the study when a legal action is to be taken to direct potentially responsible parties to clean up a site or pay for the cleanup. An endangerment assessment supplements a remedial investigation

Enforcement: EPA, state, or local legal actions to obtain compliance with ronmental laws, rules, regulations, or agreements and/or obtain penalties iminal sanctions for violations Enforcement procedures may vary, de- ding on the specific requirements of different environmental laws and related implementing regulatory requirements Under CERCLA, for example, EPA will seek to require potentially responsible parties to clean up a Superfund site, or pay for the cleanup, whereas under the Clean Air Act the agency may invoke sanctions against cities failing to meet ambient air quality standards that could prevent certain types of construction or federal funding. In other situations, if investigations by EPA and state agencies uncover willful violations, criminal trials and penalties are sought

Enforcement Decision Document (EDD): A document that provides an explanation to the public of EPA's selection of the cleanup alternative at enforcement sites on the National Priorities List. Similar to a Record of Decision.

Enrichment: The addition of nutrients (e.g , nitrogen, phosphorus, carbon compounds) from sewage effluent or agricultural runoff to surface water. This process greatly increases the growth potential for algae and aquatic plants

Environment: The sum of all external conditions affecting the life, development and survival of an organism.

Environmental Assessment: A written environmental analysis which is prepared pursuant to the National Environmental Policy Act to determine whether a federal action would significantly affect the environment and thus require preparation of a more detailed environmental impact statement

Environmental Audit: 1 An independent assessment of the current status of a party's compliance with applicable environmental requirements. 2. An independent evaluation of a party's environmental compliance policies, practices, and controls.

Environmental Impact Statement: A document required of federal agencies by the National Environmental Policy Act for major projects or legislative proposals significantly affecting the environment A tool for decision making, it describes the positive and negative effects of the undertaking and lists alternative actions.

Environmental Response Team: EPA experts located in Edison, N J , and Cincinnati, OH, who can provide around-the-clock technical assistance to EPA regional offices and states during all types of emergencies involving hazardous waste sites and spills of hazardous substances.

EPA: The U.S. Environmental Protection Agency, established in 1970 by Presidential Executive Order, bringing together parts of various government agencies involved with the control of pollution

Epidemic: Widespread outbreak of a disease, or a large number of cases of a disease in a single community or relatively small area

Epidemiology: The study of diseases as they affect population, including the distribution of disease, or other health-related states and events in human populations, the factors (e.g age, sex, occupation, economic status) that influence this distribution, and the application of this study to control health problems.

Episode (Pollution): An air pollution incident in a given area caused by a concentration of atmospheric pollution reacting with meteorological conditions that may result in a significant increase in illnesses or deaths Although most commonly used in relation to air pollution, the term may also be used in connection with other kinds of environmental events such as a massive water pollution situation.

Equivalent Method: Any method of sampling and analyzing for air pollution which has been demonstrated to the EPA Administrator's satisfaction to be, under specific conditions, an acceptable alternative to the normally used reference methods.

Equilibrium: In relation to radiation, the state at which the radioactivity of consecutive elements within a radioactive series is neither increasing nor decreasing.

Erosion: The wearing away of land surface by wind or water Erosion occurs naturally from weather or runoff but can be intensified by land-clearing practices related to farming, residential or industrial development, road building, or timber-cutting

Estuary: Regions of interaction between rivers and nearshore ocean waters, where tidal action and river flow create a mixing of fresh and salt water These areas may include bays, mouths of rivers, salt marshes, and lagoons These brackish water ecosystems shelter and feed marine life, birds, and wildlife (See wetlands)

Ethylene Dibromide (EDB): A chemical used as an agricultural fumigant and in certain industrial processes Extremely toxic and found to be a carcinogen in laboratory animals, EDB has been banned for most agricultural uses in the United States

Eutrophication: The slow aging process during which a lake, estuary, or bay evolves into a bog or marsh and eventually disappears During the later stages of eutrophication the water body is choked by abundant plant life as the result of increased amounts of nutritive compounds such as nitrogen and phosphorus. Human activities can accelerate the process

Eutrophic Lakes: Shallow, murky bodies of water that have excessive concentrations of plant nutrients causing excessive algal production (See dystrophic lakes)

Evaporation Ponds: Areas where sewage sludge is dumped and allowed to dry out

Evapotranspiration: The loss of water from the soil both by evaporation and by transpiration from the plants growing in the soil

Exceedance: Violation of environmental protection standards by exceeding allowable limits or concentration levels

Exclusionary: Any form of zoning ordinance that tends to exclude specific classes of persons or businesses from a particular district or area

Exempt Solvent: Specific organic compounds that are not subject to requirements of regulation because they have been deemed by EPA to be of negligible photochemical reactivity

Exempted Aquifer: Underground bodies of water defined in the Underground Injection Control program as aquifers that are sources of drinking water (although they are not being used as such) and that are exempted from regulations barring underground injection activities

Exposure: The amount of radiation or pollutant present in an environment which represents a potential health threat to the living organisms in that environment.

Extremely Hazardous Substances: Any of 406 chemicals identified by EPA on the basis of toxicity, and listed under SARA Title III The list is subject to revision.

F

Fabric Filter: A cloth device that catches dust particles from industrial emissions

Feasibility Study: 1 Analysis of the practicability of a proposal, e.g., a description and analysis of the potential cleanup alternatives for a site or alternatives for a site on the National Priorities List The feasibility study usually recommends selection of a cost-effective alternative It usually starts as soon as the remedial investigation is underway, together, they are commonly referred to as the "RI/FS" The term can apply to a variety of proposed corrective or regulatory actions. 2. In research, a small-scale investigation of a problem to ascertain whether or not a proposed research approach is likely to provide useful data.

Fecal Coliform Bacteria: Bacteria found in the intestinal tracts of mammals Their presence in water or sludge is an indicator of pollution and possible contamination by pathogens.

Feedlot: A relatively small, confined area for the controlled feeding of animals that tends to concentrate large amounts of animal wastes that cannot be absorbed by the soil and, hence, may be carried to nearby streams or lakes by rainfall runoff

Fen: A type of wetland that accumulates peat deposits Fens are less acidic than bogs, deriving most of their water from groundwater rich in calcium and magnesium (See wetlands)

Fermentation: Chemical reactions accompanied by living microbes that are supplied with nutrients and other critical conditions such as heat, pressure, and light that are specific to the reaction at hand

Fertilizer: Materials such as nitrogen and phosphorus that provide nutrients for plants. Commercially sold fertilizers may contain other chemicals or may be in the form of processed sewage sludge

Filling: Depositing dirt and mud or other materials into aquatic areas to create more dry land, usually for agricultural or commercial development purposes. Such activities often damage the ecology of the area.

Filtration: A treatment process, under the control of qualified operators, for removing solid (particulate) matter from water by passing the water through porous media such as sand or a man-made filter. The process is often used to remove particles that contain pathogenic organisms

Finding of No Significant Impact: A document prepared by a federal agency that presents the reasons impact why a proposed action would not have a significant impact on the environment and thus would not require preparation of an Environmental Impact Statement. An FNSI is based on the results of an environmental assessment

First Draw: The water that immediately comes out when a tap is first opened. This water is likely to have the highest level of lead contamination from plumbing materials.

Floc: A clump of solids formed in sewage by biological or chemical action.

Flocculation: The process by which clumps of solids in water or sewage are made to increase in size by biological or chemical action so that they can be separated from the water

Floor Sweep: A vapor collection designed to capture vapors which are heavier than air and which collect along the floor

Flowmeter: A gauge that shows the speed of wastewater moving through a treatment plant. Also used to measure the speed of liquids moving through various industrial processes.

Flue Gas: The air coming out of a chimney after combustion in the burner it is venting It can include nitrogen oxides, carbon oxides, water vapor, sulfur oxides, particles and many chemical pollutants.

Flue Gas Desulfurization: A technology which uses a sorbent, usually lime or limestone, to remove sulfur dioxide from the gases produced by burning fossil fuels. Flue gas desulfurization is current the state-of-the art technology in use by major SO2 emitter, e g., power plants

Fluorides: Gaseous, solid, or dissolved compounds containing fluorine that result from industrial processes Excessive amounts in food can lead to fluor

Fluorocarbon (FCs): Any of a number of organic compounds analogous to hydrocarbons in which one or more hydrogen atoms are replaced by fluorine. Once used in the United States as a propellant in aerosols, they are now primarily used in coolants and some industrial processes FCs containing chlorine are called chlorofluorocarbons (CFCs). They are believed to be modifying the ozone layer in the stratosphere, thereby allowing more harmful solar radiation to reach the Earth's surface

Fluorosis: An abnormal condition caused by excessive intake of fluorine, characterized chiefly by mottling of the teeth

Flume: A natural or man-made channel that diverts water.

Flush: 1. To open a cold-water tap to clear out all the water which may been sitting for a long time in the pipes. In new homes, to flush a system means to send large volumes of water gushing through the unused pipes to remove loose particles of solder and flux. 2 To force large amounts of water through liquid to clean out piping or tubing, storage or process tanks.

Fly Ash: Non-combustible residual particles from the combustion process, carried by flue gas.

Fogging: Applying a pesticide by rapidly heating the liquid chemical so that it forms very fine droplets that resemble smoke or fog It may be used to destroy mosquitoes, black flies, and similar pests.

Food Chain: A sequence of organisms, each of which uses the next, lower member of the sequence as a food source.

Formaldehyde: A colorless, pungent, irritating gas. CH20, used chiefly as a disinfectant and preservative and in synthesizing other compounds and resins.

Formulation: The substance or mixture of substances which is comprised of all active and inert ingredients in a pesticide

Fresh Water: Water that generally contains less than 1,000 milligrams-per-liter of dissolved solids.

Fuel Economy Standard: The Corporate Average Fuel Economy Standard (CAFE) which went into effect in 1978 It was meant to enhance the national fuel conservation effort by slowing fuel consumption through a miles-per-gallon requirement for motor vehicles.

Fugitive Emissions: Emissions not caught by a capture system

Fume: Tiny particles trapped in vapor in a gas stream

Fumigant: A pesticide that is vaporized to kill pests Used in buildings and greenhouses

Functional Equivalent: Term used to describe EPA's decision-making process and its relationship to the environmental review conducted under the National Environmental Policy Act (NEPA) A review is considered functi[illegible]y equivalent when it addresses the substantive components of a NEPA r

Fungi: (Singular, Fungus) Molds, mildews, yeasts, mushrooms, and [illegible]-balls, a group organisms that lack chlorophyll (i.e., are not photosynthetic) and which are usually non-mobile, filamentous, and multicellular. Some grow in the ground, others attach themselves to decaying trees and other plants, getting their nutrition from decomposing organic matter Some cause disease, others stabilize sewage and break down solid wastes in composting.

Fungicide: Pesticides which are used to control, prevent, or destroy fungi.

G

Game Fish: Species like trout, salmon, or bass, caught for sport Many of them show more sensitivity to environmental change than "rough" fish.

Gamma Radiation: Gamma rays are true rays of energy in contrast to alpha and beta radiation. The properties are similar to x-rays and other electromagnetic waves They are the most penetrating waves of radiant nuclear energy but can be blocked by dense materials such as lead.

Gasification: Conversion of solid material such as coal into a gas for use as a fuel.

Geiger Counter: An electrical device that detects the presence of certain types of radioactivity

Gene: A length of DNA that directs the synthesis of a protein.

Gene Library: A collection of DNA fragments from cells or organisms So far, no simple way for sorting the contents of gene libraries has been devised However, DNA pieces can be moved into bacterial cells where sorting according to gene function becomes feasible

General Permit: A permit applicable to a class or category of dischargers.

Generator: A facility or mobile source that emits pollutants into the air or releases hazardous wastes into water or soil

Genetic Engineering: A process of inserting new genetic information into existing cells in order to modify any organism for the purpose of changing one of its characteristics

Germicide: Any compound that kills disease-causing microorganisrl

Grain Loading: The rate at which particles are emitted from a pollution! Measurement is made by the number of grains per cubic foot of gas emitted.

Granular Activated Carbon Treatment: A filtering system often used in small water systems and individual homes to remove organics. GAC can be highly effective in removing elevated levels of radon from water

Gray Water: The term given to domestic wastewater composed of washwater from sinks, kitchen sinks, bathroom sinks and tubs, and laundry tubs.

Greenhouse Effect: The warming of the Earth's atmosphere caused by a build-up of carbon dioxide or other trace gases, it is believed by many scientists This build-up allows light from the sun's rays to heat the Earth but prevents a counterbalancing loss of heat

Grinder Pump: A mechanical device which shreds solids and raises the fluid to a higher elevation through pressure sewers

Gross Alpha Particle Activity: Total activity due to emission of alpha particles. Used as the screening measurement for radioactivity generally due to naturally-occurring radionuclides Activity is commonly measured in picocuries.

Gross Beta Particle Activity: Total activity due to emission of beta particles Used as the screening measurement for radioactivity from man-made radionuclides since the decay products of fission are beta particle and gamma ray emitters Activity is commonly measured in picocunes

Ground Cover: Plants grown to keep soil from eroding

Ground Water: The supply of fresh water found beneath the Earth's surface, usually in aquifers, which is often used for supplying wells and springs Because ground water is a major source of drinking water there is growing concern over areas where leaching agricultural or industrial pollutants or substances from leaking underground storage tanks are contaminating ground water

H

Habitat: The place where a population (e g , human, animal, plant, microorganism) lives and its surroundings, both living and non-living

Half-Life: 1. The time required for a pollutant to lose half its affect on the environment For example, the half-life of DDT in the environment is 15 years, of radium, 1,580 years 2. The time required for half of the atoms of a radioactive element to undergo decay 3. The time required for the elimination of one half a total dose from the body

Halogen: Any of a group of 5 chemically-related nonmetallic elements that includes bromine, fluorine, chlorine, iodine, and astatine

Halons: Bromine-containing compounds with long atmospheric lifetimes breakdown in the stratosphere cause depletion of ozone Halons are in fire-fighting

Hammermill: A high-speed machine that hammers and cutters to crush, grind chip, or shred solid wastes

Hard Water: Alkaline water containing dissolved salts that interfere with some industrial processes and prevent soap from lathering.

Hazardous Air Pollutants: Air pollutants which are not covered by ambient air quality standards but which, as defined in the Clean Air Act, may reasonably be expected to cause or contribute to irreversible illness or death. Such pollutants include asbestos, beryllium, mercury, benzene, coke oven emissions, radionuclides, and vinyl chloride.

Hazardous Ranking System: The principle screening tool used by EPA to evaluate risks to public health and the environment associated with abandoned or uncontrolled hazardous waste sites. The HRS calculates a score based on the potential of hazardous substances spreading from the site through the air, surface water, or ground water and on other factors such as nearby population This score is the primary factor in deciding if the site should be on the National Priorities List and, if so, what ranking it should have compared to other sites on the list

Hazardous Substance: 1 Any material that poses a threat to human health and/or the environment Typical hazardous substances are toxic, corrosive, ignitable, explosive, or chemically reactive 2 Any substance designated by EPA to be reported if a designated quantity of the substance is spilled in the waters of the United States or if otherwise emitted to the environment

Hazardous Waste: By-products of society that can pose a substantial or potential hazard to human health or the environment when improperly managed. Possesses at least one of four characteristics (ignitability, corrosivity, reactivity, or toxicity), or appears on special EPA lists

Hazards Analysis: The procedures involved in (1) identifying potential sources of release of hazardous materials from fixed facilities or transportation accidents; (2) determining the vulnerability of a geographical area to a release of hazardous materials, and (3) comparing hazards to determine which pr- it greater or lesser risks to a community

Hazards Identification: Porviding information on which facilities have extremely hazardous substances, what those chemicals are, and how much there is at each facility The Process also provides information on how the chemicals are stored and whether they are used at high temperatures

Heat Island Effect: A "dome" of elevated temperatures over an urban area caused by structural and pavement heat fluxes, and pollutant emissions from the area below the dome

Heavy Metals: Metallic elements with high atomic weights, e g , mercury, chromium, cadmium, arsenic, and lead They can damage living things at low concentrations and tend to accumulate in the food chain.

Heptachlor: An insecticide that was banned on some food products in 1975 and all of them 1978. It was allowed for use in seed treatment until in 1983 More recently it was found in milk and other dairy products in Arkansas and Missouri, as a result of illegally feeding treated seed to dairy cattle

Herbicide: A chemical pesticide designed to control or destroy plants, weeds, or grasses

Herbivore: An animal that feeds on plants

Heterotrophic Organisms: Consumers such as humans and animals, and decomposers—chiefly bacteria and fungi—that are dependent on organic matter for food

High-Density Polyethylene: A material that produces toxic fumes when burned. Used to make plastic bottles and other products

High-Level Radioactive Waste (HLW): Waste generated in the fuel of a nuclear reactor, found at nuclear reactors or nuclear fuel reprocessing plants It is a serious threat to anyone who comes near the wastes without shielding (See Low-Level Radioactive Waste)

Holding Pond: A pond or reservoir, usually made of earth, built to store polluted runoff.

Hood Capture Efficiency: The emissions from a process which are captured by hood and directed into the control device, expressed as a percent of all emissions

Host: 1. In genetics, the organism, typically a bacterium, into which a gene from another organism is transplanted 2 In medicine, an animal infected by or parasitized by another organism

Humus: Decomposed organic material

Hybrid: A cell or organism resulting from a cross between two unlike plant or animal cells or organisms

Hybridoma: A hybrid cell that produces monoclonal antibodies in large quantities.

Hydrocarbons (HC): Chemical compounds that consist entirely of carbon and hydrogen

Hydrogen Sulfide (HS): Gas emitted during organic decomposition Also a byproduct of oil refining and burning It smells like rotten eggs and, in heavy concentration, can cause illness

Hydrogeology: The geology of ground water, with particular emphasis on the chemistry and movement of water

Hydrology: The science dealing with the properties,distribution, and circulation of water.

I

Ignitable: Capable of burning or causing a fire

Impoundment: A body of water or sludge confined by a dam, dike, floodgate, or other barrier

Immediately Dangerous to Life and Health (IDLH): The maximum level to which a healthy individual can be exposed to a chemical for 30 minutes and escape without suffering irreversible health effects or impairing symptons Used as a "level of concern." (See level of concern)

In Vitro: 1 "In glass", a test-tube culture 2 Any laboratory test using living cells taken from an organism

In Vivo: In the living body of a plant or animal In vivo tests are those laboratory experiments carried out on whole animals or human volunteers

Incineration: 1. Burning of certain types of solid, liquid or gaseous materials 2. A treatment technology involving destruction of waste by controlled burning at high temperatures, e g , burning sludge to remove the water and reduce the remaining residues to a safe, non-burnable ash which can be disposed of safely on land, in some waters or in underground locations

Incineration at Sea: Disposal of waste by burning at sea on specially-designed incinerator ships

Incinerator: A furnace for burning wastes under controlled conditions

Indicator: In biology, an organism, species, or community whose characteristics show the presence of specific environmental conditions

Indirect Discharge: Introduction of pollutants from a non-domestic source into a publicly owned waste treatment system Indirect dischargers can be commercial or industrial facilities whose wastes go into the local sewers.

Indoor Air: The breathing air inside a habitable structure or conveyance

Indoor Air Pollution: Chemical, physical, or biological contaminants in indoor air.

Indoor Climate: Temperature, humidity, lighting and noise levels in a habitable structure or conveyance. Indoor climate can affect indoor air pollution.

Inert Ingredient: Pesticide components such as solvents, carriers, and surfactants that are not active against target pests. Not all inert ingredients are innocuous.

Inertial Separator: A device that uses centrifugal force to separate waste particles

Infiltration: 1 The penetration of water through the ground surface into sub-surface soil or the penetration of water from the soil into sewer or other pipes through defective joints, connections, or manhole walls. 2 A land application technique where large volumes of waste water are applied to land, allowed to penetrate the surface and percolate through the underlying soil (See: percolation)

Inflow: Entry of extraneous rain water into a sewer system from sources other than infiltration, such as basement drains, manholes, storm drains, and street washing.

Influent: Water, wastewater, or other liquid flowing into a reservoir, basin, or treatment plant.

Information File: In the Superfund program, a file that contains accurate, up-to-date documents on a Superfund site The file is usually located in a public building such as a school, library, or city hall that is convenient for local residents.

Injection Well: A well into which fluids are injected for purposes such as waste disposal, improving the recovery of crude oil, or solution mining

Injection Zone: A geological formation, group of formations, or part of a formation receiving fluids through a well.

Inoculum: 1 Bacterium placed in compost to start biological action. 2. A medium containing organisms which is introduced into cultures or living organisms,

Inorganic Chemicals: Chemical substances of mineral origin, not of basically carbon structure

Insecticide: A pesticide compound specifically used to kill or control the growth of insects

Inspection and Maintenance (I/M): 1 Activities to assure proper emissions-related operation of mobile sources of air pollutants, particularly automobile emissions controls 2 Also applies to to wastewater treatment plants and other anti-pollution facilities and processes

Instream Use: Water use taking place within a stream channel, e g , hydroelectric power generation, navigation, water-quality improvement, fish propagation, recreation

Integrated Pest Management (IPM): A mixture of pesticide and non-pesticide methods to control pests

Interceptor Sewers: Large sewer lines that, in a combined system, control the flow of the sewage to the treatment plant. In a storm, they allow some of the sewage to flow directly into a receiving stream, thus preventing an overload by a sudden surge of water into the sewers They are also used in separate systems to collect the flows from main and trunk sewers and carry them to treatment points

Interim (Permit) Status: Period during which treatment, storage and disposal facilities coming under RCRA in 1980 are temporarily permitted to operate while awaiting denial or issuance of a permanent permit. Permits issued under these circumstances are usually called "Part A" or "Part B" permits

Interstate Carrier Water Supply: A source of water for drinking and sanitary use on planes, buses, trains, and ships operating in more than one state These sources are federally regulated.

Interstate Waters: Waters that flow across or form part of state or international boundaries, e.g , the Great Lakes, the Mississippi River, or coastal waters

Interstitial Monitoring: The continuous surveillance of the space between the walls of an underground storage tank

Inventory: TSCA inventory of chemicals produced pursuant to Section 8 (b) of the Toxic Substances Control Act.

Inversion: An atmospheric condition caused by a layer of warm air preventing the rise of cooling air trapped beneath it This prevents the rise of pollutants that might otherwise be dispersed and can cause an air pollution episode.

Ion: An electrically charged atom or group of atoms which can be drawn from waste water during the electrodialysis process

Ion Exchange Treatment: A common water softening method often found on a large scale at water purification plants that remove some organics and radium by adding calcium oxide or calcium hydroxide to increase the ph to a lev where the metals will precipitate out.

Ionization Chamber: A device that measures the intensity of ionizing radiation

Ionizing Radiation: Radiation that can remove electrons from atoms, i.e., alpha, beta, and gamma radiation

Irradiated Food: Food that has been subject to brief radioactivity, usually by gamma rays, to kill insects, bacteria, and mold, and preserve it without refrigeration or freezing

Irradiation: Exposure to radiation of wavelengths shorter than those of visible light (gamma, x-ray, or ultraviolet), for medical purposes, the destruction of bacteria in milk or other foodstuffs, or for inducing polymerization of monomers or vulcanization of rubber

Irrigation: Technique for applying water or wastewater to land areas to supply the water and nutrient needs of plants

Isotope: A variation of an element that has the same atomic number but a different weight because of its neutrons Various isotopes of the same element may have different radioactive behaviors

K

Kinetic Rate Coefficient: A number that describes the rate at which a water constituent such as a biochemical oxygen demand or dissolved oxygen increases or decreases.

L

Lagoon: (1) A shallow pond where sunlight, bacterial action, and oxygen work to purify wastewater; also used to storage of wastewaters or spent nuclear fuel rods. (2) Shallow body of water, often separated from the sea by coral reefs or sandbars.

Land Application: Discharge of wastewater onto the ground for treatment or reuse. (See: irrigation.)

Land Farming (of waste): A disposal process in which hazardous was, deposited on or in the soil is naturally degraded by microbes

Landfills: 1 Sanitary landfills are land disposal sites for non-hazardous solid wastes at which the waste is spread in layers, compacted to the smallest practical volume, and cover material applied at the end of each operating day 2. Secure chemical landfills are disposal sites for hazardous waste They are selected and designed to minimize the chance of release of hazardous substances into the environment

Lateral Sewers: Pipes that run under city streets and receive the sewage from homes and businesses.

LC50/Lethal Concentration: Median level concentration, a standard measure of toxicity It tells how much of a substance is needed to kill half of a group of experimental organisms at a specific time of observation (See LD50)

Leachate: A liquid that results from water collecting contaminants as it trickles through wastes, agricultural pesticides or fertilizers Leaching may occur in farming areas, feedlots, and landfills, and may result in hazardous substances entering surface water, ground water, or soil

Leachate Collection System: A system that gathers leachate and pumps it to the surface for treatment

Leaching: The process by which soluble constituents are dissolved and carried down through the soil by a percolating fluid (See leachate.)

Lead (PE): A heavy metal that is hazardous to health if breathed or swallowed Its use in gasoline, paints, and plumbing compounds has been sharply restricted or eliminated by federal laws and regulations. (See: heavy metals)

Leaded Gasoline: Gasoline to which lead has been added to raise the octane level.

LD 50/ Lethal Dose: The dose of a toxicant that will kill 50 percent of the test organisms within a designated period of time The lower the LD 50, the more toxic the compound.

LD 0: The highest concentration of a toxic substance at which none of the test organisms die.

LD L0: The lowest concentration and dosage of a toxic substance which kills test organisms.

el of Concern (LOC): The concentration in air of an extremely hazardous substance above which there may be serious immediate health effects to anyone exposed to it for short periods of time

Lift: In a sanitary landfill, a compacted layer of solid waste and the top layer of cover material.

Lifting Station: (See pumping station)

Limestone Scrubbing: Process in which sulfur gases moving towards a smokestack are passed through a limestone and water solution to remove sulfur before it reaches the atmosphere

Limiting Factor: A condition, whose absence, or excessive concentration, is incompatible with the needs or tolerance of a species or population and which may have a negative influence on their ability to grow or even survive

Limnology: The study of the physical, chemical, meteorological, and biological aspects of fresh water

Liner: 1 A relatively impermeable barrier designed to prevent leachate from leaking from a landfill Liner materials include plastic and dense clay 2 An insert or sleeve for sewer pipes to prevent leakage or infiltration

Lipid Solubility: The maximum concentration of a chemical that will dissolve in fatty substances, lipid soluble substances are insoluble in water If a substance is lipid soluble it will very selectively disperse through the environment via living tissue

Liquefaction: Changing a solid into a liquid

List: Shorthand term for EPA list of violating facilities or list of firms debarred from obtaining government contracts because they violated certain sections of the Clean Air or Clean Water Acts The list is maintained by The Office of Enforcement and Compliance Monitoring

Listed Waste: Wastes listed as hazardous under RCRA but which have not been subjected to the Toxic Characteristics Listing Process because the dangers they present are considered self-evident

Local Emergency Planning Committee (LEPC): A committee appointed by e state emergency response commission, as required by SARA Title III to rmulate a comprehensive emergency plan for its jurisdiction

Lower Explosive Limit (LEL): The concentration of a compound in air below which a flame will not propagate if the mixture is ignited

Lowest Achievable Emission Rate: Under the Clean Air Act, this is the rate of emissions which reflects (a) the most stringent emission limitation which is contained in the implementation plan of any state for such source unless the owner or operator of the proposed source demonstrates such limitations are not achievable, or (b) the most stringent emissions limitation achieved in practice, which ever is more stringent Application of this term does not permit a proposed new or modified source to emit pollutants in excess of existing new source standards

Low-Level Radioactive Waste (LLRW): Wastes less hazardous than most of those generated by a nuclear reactor. Usually generated by hospitals, research laboratories, and certain industries The Department of Energy, Nuclear Regulatory Commission, and EPA share responsibilities for managing them (See high-level radioactive wastes.)

M

Marine Sanitation Device: Any equipment installed on board a vessel to receive, retain, treat, or discharge sewage and any process to treat such sewage

Major Modification: This term is used to define modifications with respect to Prevention of Significant Deterioration and New Source Review under the Clean Air Act and refers to modifications to major stationary sources of emissions and provides significant pollutant increase levels below which a modification is not considered major

Major Stationary Sources: Term used to determine to applicability of Prevention of Significant Deterioration and new source regulations In a nonattainment area, any stationary pollutant source that has a potential to emit more than 100 tons per year is considered a major stationary source In PSD areas the cutoff level may be either 100 or 250 tons, depending upon the type of source

Manufacturers Formulation: A list of substances or component parts as described by the maker of a coating, pesticide or other product containing chemicals or other substances.

Marsh: A type of wetland that does not accumulate appreciable peat deposits and is dominated by herbaceous vegetation Marshes may be either fresh or saltwater and tidal or non-tidal (See wetlands)

Matabolite: Any substance produced in or by biological processes and derived from a pesticide

Material Safety Data Sheet (MSDS): A compilation of information required under the OSHA Communication Standard on the identity of hazardous chemicals, health, and physical hazards, exposure limits, and precautions Section 311 of SARA requires facilities to submit MSDSs under certain circumstances.

Maximum Contaminant Level: The maximum permissible level of a contaminant in water delivered to any user of a public water system MCLs are enforceable standards

Mechanical Aeration: Use of mechanical energy to inject air into water to cause a waste stream to absorb oxygen

Mechanical Turbulence: Random irregularities of fluid motion in air caused by buildings or mechanical, non-thermal, processes

Media: Specific environments—air, water, soil—which are the subject of regulatory concern and activities

Mercury: A heavy metal that can accumulate in the environment and is highly toxic if breathed or swallowed (See heavy metals)

Methane: A colorless, nonpoisonous, flammable gas created by anaerobic decomposition of organic compounds

Method 18: An EPA test method which uses gas chromatographic techniques to measure the concentration of individual volatile organic compounds in a gas stream

Method 24: An EPA reference method to determine density, water content and total volatile content (water and VOC) of coatings

Method 25: An EPA reference method to determine the VOC concentration in a gas stream

Million-gallons Per Day (MGD): A measure of water flow

Microbes: Microscopic organisms such as algae, animals, viruses bacteria fungus, and protozoa, some of which cause diseases (See microorganism)

Microbial Pesticide: A microorganism that is used to control a pest They are of low toxicity to man

Microorganism: Living organisms so small that individually they can usually only be seen through a microscope

Mist: Liquid particles measuring 500 to 40 microns, that are formed by condensation of vapor By comparison, "fog" particles are smaller than 40 microns.

Mitigation: Measures taken to reduce adverse impacts on the environment

Mixed Liquor: A mixture of activated sludge and water containing organic matter undergoing activated sludge treatment in an aeration tank

Mobile Source: A moving producer of air pollution, mainly forms of transportation such as cars, trucks, motorcycles, airplanes

Modeling: An investigative technique using a mathematical or physical representation of a system or theory that accounts for all or some its known properties Models are often used to test the effect of changes of system components on the overall performance of the system

Model Plant: A description of a typical but theoretical plant used for developing economic, environmental impact and energy impact analyses as support for regulations or regulatory guidelines It is an imaginary plant, with features of existing or future plants used to estimate the cost of incorporating air pollution control technology as the first step in exploring the economic impact of a potential NSPS

Monitoring: Periodic or continuous surveillance or testing to determine the level of compliance with statutory requirements and/or pollutant levels in various media or in humans, animals, and other living things

Monitoring Wells: Wells drilled at a hazardous waste management facility or Superfund site to collect ground-water samples for the purpose of physical, chemical, or biological analysis to determine the amounts, types, and distribution of contaminants in the ground water beneath the site

Monoclonal Antibodies: (Also called MABs and MCAs) Molecules of living organisms that selectively find and attach to other molecules to which their structure conforms exactly This could also apply to equivalent activity by chemical molecules

Muck Soils: Earth made from decaying plant materials

Mulch: A layer of material (wood chips, straw, leaves, etc) placed around plants to hold moisture, prevent weed growth, protect the plants, and enrich the soil

Multiple Use: Use of land for more than one purpose i e , grazing of livestock, wildlife production, recreation, watershed, and timber production Could also apply to use of bodies of water for recreational purposes, fishing, and water supply

Mutagen: Any substance that can cause a change in genetic material

Mutate: To bring about a change in the genetic constitution of a cell by altering its DNA. In turn, "mutagenesis" is any process by which cells are mutated.

N

National Ambient Air Quality Standards (NAAQS): Air quality standards established by EPA that apply to outside air throughout the country (See. criteria pollutants, state implementation plans, emissions trading)

National Emissions Standards For Hazardous Air Pollutants (NESHAPS): Emissions standards set by EPA for an air pollutant not covered by NAAQS that may cause an increase in deaths or in serious, irreversible, or incapacitating illness Primary standards are designed to protect human health, secondary standards to protect public welfare

National Oil and Hazardous Substances Contingency Plan (NOHSCP/NCP): The federal regulation that guides determination of the sites to be corrected under the Superfund program and the program to prevent or control spills into surface waters or other portions of the environment.

National Pollutant Discharge Elimination System (NPDES): A provision of the Clean Water Act which prohibits discharge of pollutants into waters of the United States unless a special permit is issued by EPA, a state, or (where delegated) a tribal government on an Indian reservation

National Priorities List (NPL): EPA's list of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial action under Superfund. A site must be on the NPL to receive money from the Trust Fund for remedial action. The list is based primarily on the score a site receives from the Hazard Ranking System. EPA is required to update the NPL at least once a year.

National Response Center: The federal operations center that receives notifications of all releases of oil and hazardous substances into the environment The Center, open 24 hours a day, is operated by the U S Coast Guard, which evaluates all reports and notifies the appropriate agency

National Response Team (NRT): Representatives of 13 federal agencies that, as a team, coordinate federal responses to nationally significant incidents of pollution and provide advice and technical assistance to the responding agency(ies) before and during a response action.

Natural Gas: A natural fuel containing primarily methane and ethane that occurs in certain geologic formations.

Natural Selection: The process of survival of the fittest, by which organisms that adapt to their environment survive and those that do not disappear

Navigable Waters: Traditionally, waters sufficiently deep and wide for navigation by all, or specified sizes of vessels, such waters in the United States come under federal jurisdiction and are included in certain provisions of the Clean Water Act

Necrosis: Death of plant or animal cells In plants, necrosis can discolor areas on the plant or kill it entirely

Nematocide: A chemical agent which is destructive to nematodes (round worms or threadworms.)

Neutralization: Decreasing the acidity or alkalinity of a substance by adding to it alkaline or acidic materials respectively

New Source: Any stationary source which is built or modified after publication of final or proposed regulations that prescribe a standard of performance which is intended to apply to that type of emission source

New Source Performance Standards (NSPS): Uniform national EPA air emission and water effluent standards which limit the amount of pollution allowed from new sources or from existing sources that have been modified

Nitrate: A compound containing nitrogen which can exist in the atmosphere or as a dissolved gas in water and which can have harmful effects on humans and animals. Nitrates in water can cause severe illness in infants and cows.

Nitric Oxide (NO): A gas formed by combustion under high temperature and high pressure in an internal combustion engine. It changes into nitrogen dioxide in the ambient air and contributes to photochemical smog

Nitrification: The process whereby ammonia in wastewater is oxidized to nitrite and then to nitrate by bacterial or chemical reactions

Nitrilotriacetic Acid (NTA): A compound being used to replace phosphates in detergents:

Nitrite: 1. An intermediate in the process of nitrification. 2. Nitrous oxide salts used in food preservation

Nitrogen Dioxide (NO2): The result of nitric oxide combining with oxygen in the atmosphere A major component of photochemical smog

Nitrogenous Wastes: Animal or vegetable residues that contain significant amounts of nitrogen.

Nitrogen Oxide (NOx): Product of combustion from transportation and stationary sources and major a contributor to the formation of ozone in the troposphere and acid deposition.

Non-Attainment Area: Geographic area which does not meet one or more the National Ambient Air Quality Standards for the criteria pollutants designated in the Clean Air Act.

Non-Community Water System: A public water system that is not a community water system, e.g., the water supply at a camp site or national park.

Non-Conventional Pollutant: Any pollutant which is not a statutorily listed or which is poorly understood by the scientific community.

Non-ionizing Electromagnetic Radiation: 1. Radiation that does not change the structure of atoms but does heat tissue and may cause harmful biological effects. 2. Microwaves, radio waves, and low-frequency electromagnetic fields from high-voltage transmission lines.

Non-Point Source: Pollution sources which are diffuse and do not have a single point of origin or are not introduced into a receiving stream from a specific outlet. The pollutants are generally carried off the land by stormwater runoff. The commonly used categories for non-point sources are. agriculture, forestry, urban, mining, construction, dams and channels, land disposal, and saltwater intrusion.

Nuclear Power Plant: A facility that converts atomic energy into usable power; heat produced by a reactor makes steam to drive turbines which produce electricity.

Nuclear Winter: Prediction by some scientists that smoke and debris rising from massive fires resulting from a nuclear war could enter the atmosphere and block out sunlight for weeks or months The scientists making this prediction project a cooling of the earth's surface, and changes in climate which could, for example, negatively effect world agricultural and weather patterns

Nutrient: Any substance assimilated by living things that promotes growth The term is generally applied to nitrogen and phosphorus in wastewater, but is also applied to other essential and trace elements

O

Off-Site Facility: A hazardous waste treatment, storage or disposal area that is located at a place away from the generating site

Oil Spill: An accidental or intentional discharge of oil which reaches bod water. Can be controlled by chemical dispersion, combustion, mechan containment, and/or adsorption.

Oil Fingerprinting: A method that identifies sources of oil and allows spills to be traced back to their source

Oligotrophic Lakes. Deep clear lakes with low nutrient supplies They contain little organic matter and have a high dissolved-oxygen level

Oncogenic: A substance that causes tumors, whether benign or malignant

On-Scene Coordinator (OSC): The predesignated EPA, Coast Guard, or Department of Defense official who coordinates and directs Superfund removal actions or Clean Water Act oil-or hazardous-spill corrective actions

On-Site Facility: A hazardous waste treatment, storage or disposal area that is located on the generating site.

Opacity: The amount of light obscured by particulate pollution in the air; clear window glass has a zero opacity, a brick wall has 100 percent opacity Opacity is used as an indicator of changes in performance of particulate matter pollution control systems.

Open Burning: Uncontrolled fires in an open dump

Open Dump: An uncovered site used for disposal of waste without environmental controls. (See· dump)

Operable Unit: Term for each of a number of separate activities undertaken as part of a Superfund site cleanup A typical operable unit would be removing drums and tanks from the surface of a site

Operation And Maintenance: 1. Activities conducted at a site after a Superfund site action is completed to ensure that the action is effective and operating properly 2. Actions taken after construction to assure that facilities constructed to treat waste water will be properly operated, maintained,and managed to achieve efficiency levels and prescribed effluent limitations in an optimum manner

Organic: 1. Referring to or derived from living organisms. 2. In chemistry, any compound containing carbon.

nic Chemicals/Compounds: Animal or plant-produced substances con- g mainly carbon, hydrogen, and oxygen

nic Matter: Carbonaceous waste contained in plant or animal matter and originating from domestic or industrial sources.

Organism: Any living thing.

Organophosphates: Pesticide chemicals that contain phosphorus, used to control insects They are short-lived, but some can be toxic when first applied

Organotins: Chemical compounds used in anti-foulant paints to protect the hulls of boats and ships, buoys, and dock pilings from marine organisms such as barnacles.

Osmosis: The tendency of a fluid to pass through a permeable membrane such as the wall of a living cell into a less concentrated solution so as to equalize the concentrations on both sides of the membrane

Outfall: The place where an effluent is discharged into receiving waters

Overburden: The rock and soil cleared away before mining.

Overfire Air: Air forced into the top of an incinerator or boiler to fan the flames.

Overland Flow: A land application technique that cleanses waste water by allowing it to flow over a sloped surface As the water flows over the surface, the contaminants are removed and the water is collected at the bottom of the slope for reuse

Overturn: The period of mixing (turnover), by top to bottom circulation, of previously stratified water masses This phenomenon may occur in spring and/or fall, or after storms It results in a uniformity of chemical and physical properties of the water at all depths

Oxidant: A substance containing oxygen that reacts chemically in air to produce a new substance The primary ingredient of photochemical smog

Oxidation: 1 The addition of oxygen which breaks down organic waste or chemicals such as cyanides, phenols, and organic sulfur compounds in sewage by bacterial and chemical means. 2. Oxygen combining with other elements 3 The process in chemistry whereby electrons are removed from a ecule

lation Pond: A man-made lake or body of water in which waste is con- ned by bacteria. It is used most frequently with other waste-treatment processes. An oxidation pond is basically the same as a sewage lagoon.

Oxygenated Solvent: An organic solvent containing oxygen as part of the molecular structure. Alcohols and ketones are oxygenated compounds often used as paint solvents

Ozonator: A device that adds ozone to water

Ozone (O3): Found in two layers of the atmosphere, the stratosphere and the troposphere In the stratosphere (the atmospheric layer beginning 7 to 10 miles above the earth's surface) ozone is a form of oxygen found naturally which provides a protective layer shielding the earth from ultraviolet radiation's harmful health effects on humans and the environment.In the troposphere (the layer extending up 7 to 10 miles from the earth's surface), ozone is a chemical oxidant and major component of photochemical smog. Ozone can seriously affect the human respiratory system and is one of the most prevalent and widespread of all the criteria pollutants for which the Clean Air Act required EPA to set standards. Ozone in the troposphere is produced through complex chemical reactions of nitrogen oxides, which are among the primary pollutants emitted by combustion sources, hydrocarbons, released into the atmosphere through the combustion, handling and processing of petroleum products, and sunlight

Ozone Depletion: Destruction of the stratospheric ozone layer which shields the earth from ultraviolet radiation harmful to biological life This destruction of ozone is caused by the breakdown of certain chlorine and/or-bromine containing compounds (chlorofluorocarbons or halons) which break down when they reach the stratosphere and catalytically destroy ozone molecules

P

Packed Tower: A pollution control device that forces dirty air through a tower packed with crushed rock or wood chips while liquid is sprayed over the packing material The pollutants in the air stream either dissolve or chemically react with the liquid

Pandemic: Widespread throughout an area, nation or the world

Part A Permit, Part B Permit: (See Interim Permit Status.)

Paraquat: A standard herbicide used to kill various types of crops, including marijuana.

Particulates: Fine liquid or solid particles such as dust, smoke, mist, fumes, or smog, found in air or emissions

Particulate Loading: The mass of particulates per unit volume of air or water

Pathogenic: Capable of causing disease

Pathogens: Microorganisms that can cause disease in other organisms or in humans, animals and plants. They may be bacteria, viruses, or parasites and are found in sewage, in runoff from animal farms or rural areas populated with domestic and/or wild animals, and in water used for swimming Fish and shellfish contaminated by pathogens, or the contaminated water itself, can cause serious illnesses

PCBs: A group of toxic, persistent chemicals (polychlorinated biphenyls) used in transformers and capacitators for insulating purposes and in gas pipeline systems as a lubricant. Further sale of new use was banned by law in 1979

Percolation: The movement of water downward and radially through the sub-surface soil layers, usually continuing downward to the ground water

Permeability: The rate at which liquids pass through soil or other materials in a specified direction.

Permit: An authorization, license, or equivalent control document issued by EPA or an approved state agency to implement the requirements of an environmental regulation; e g., a permit to operate a wastewater treatment plant or to operate a facility that may generate harmful emissions

Persistence: Refers to the length of time a compound, once introduced into the environment, stays there A compound may persist for less than a second or indefinitely

Persistent Pesticides: Pesticides that do not break down chemically or break down very slowly and that remain in the environment after a growing season

Pest: An insect, rodent, nematode, fungus, weed or other form of terrestrial or aquatic plant or animal life or virus, bacterial or microorganism that is injurious to health or the environment

Pesticide: Substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest Also, any substance or mixture of substances intended for use as a plant regulator, defoliant, or desiccant Pesticides can accumulate in the food chain and/or contaminate the environment if misused

Pesticide Tolerance: The amount of pesticide residue allowed by law to remain in or on a harvested crop By using various safety factors, EPA sets these levels well below the point where the chemicals might be harmful to consumers

pH: A measure of the acidity or alkalinity of a liquid or solid material

Phenols: Organic compounds that are by products of petroleum refining, tanning, and textile, dye, and resin manufacturing Low concentrations cause taste and odor problems in water, higher concentrations can kill aquatic life and humans

Pheromone: Hormonal chemical produced by female of a species to attract a mate.

Phosphates: Certain chemical compounds containing phosphorus

Phosphorus: An essential chemical food element that can contribute to the eutrophication of lakes and other water bodies Increased phosphorus levels result from discharge of phosphorus-containing materials into surface waters

Photochemical Oxidants: Air pollutants formed by the action of sunlight on oxides of nitrogen and hydrocarbons

Photochemical Smog: Air pollution caused by chemical reactions of various pollutants emitted from different sources

Photosynthesis: The manufacture by plants of carbohydrates and oxygen from carbon dioxide and water in the presence of chlorophyll, using sunlight as an energy source

Physical and Chemical Treatment: Processes generally used in large-scale waste-water treatment facilities Physical processes may involve air-stripping or filtration Chemical treatment includes coagulation, chlorination, or ozone addition. The term can also refer to treatment processes, treatment of toxic materials in surface waters and ground waters, oil spills, and some methods of dealing with hazardous materials on or in the ground.

Phytoplankton: That portion of the plankton community comprised of tiny plants, e.g., algae, diatoms

Phytotoxic: Something that harms plants

Picocurie: Measurement of radioactivity. A picocurie is one million millionth, or a trillionth, of a curie, and represents about 2.2 radioactive particle disintegrations per minute

Picocuries Per Liter pCi/L): A unit of measure used for expressing levels of radon gas. (See picocurie.)

Pig: A container, usually lead, used to ship or store radioactive materials

Pile: 1. The fuel element in a nuclear reactor. 2 A heap of waste.

Plankton: Tiny plants and animals that live in water

Plasmid: A circular piece of DNA that exists apart from the chromosome and replicates independently of it Bacterial plasmids carry information that renders the bacteria resistant to antibiotics. Plasmids are often used in genetic engineering to carry desired genes into organisms.

Plastics: Non-metallic compounds that result from a chemical reaction, and are molded or formed into rigid or pliable construction materials or fabrics

Plugging: 1. The act or process of stopping the flow of water, oil, or gas into or out of a formation through a borehole or well penetrating that formation 2. Stopping a leak or sealing off a pipe or hose.

Plume: 1. A visible or measurable discharge of a contaminant from a given point of origin. Can be visible or thermal in water, or visible in the air as, for example, a plume of smoke. 2 The area of measurable and potentially harmful radiation leaking from a damaged reactor. 3. The distance from a toxic release considered dangerous for those exposed to the leaking fumes.

Plutonium: A radioactive metallic element similar chemically to uranium.

Point Source: A stationery location or fixed facility from which pollutants are discharged or emitted. Also, any single identifiable source of pollution, e g , a pipe, ditch, ship, ore pit, factory smokestack.

Pollen: 1. A fine dust produced by plants. 2.The fertilizing element of flowering plants. 3. A natural or background air pollutant.

Pollutant: Generally, any substance introduced into the environment that adversely affects the usefulness of a resource.

Pollutant Standard Index (PSI): Measure of adverse health effects of air pollution levels in major cities.

Pollution: Generally, the presence of matter or energy whose nature, location or quantity produces undesired environmental effects. Under the Clean Water Act, for example, the term is defined as the man-made or man-induced alteration of the physical, biological, and radiological integrity of water

Polyelectrolytes: Synthetic chemicals that help solids to clump during sewage treatment.

Polymer: Basic molecular ingredients in plastic.

Polyvinyl Chloride (PVC): A tough, environmentally indestructible plastic that releases hydrochloric acid when burned.

Population: A group of interbreeding organisms of the same kind occupying a particular space. Generically, the number of humans or other living creatures in a designated area.

Post-Closure: The time period following the shutdown of a waste management or manufacturing facility For monitoring purposes, this is often considered to be 30 years.

Potable Water: Water that is safe for drinking and cooking

Potentially Responsible Party (PRP): Any individual or company—including owners, operators, transporters or generators—potentially responsible for, or contributing to, the contamination problems at a Superfund site Whenever possible, EPA requires PRPs, through administrative and legal actions, to clean up hazardous waste sites they have contaminated.

PPM/ PPB: Parts per million/ parts per billion, a way of expressing tiny concentrations of pollutants in air, water, soil, human tissue, food, or other products

Precipitate: A solid that separates from a solution because of some chemical or physical change.

Precipitation: Removal of solids from liquid waste so that the hazardous solid portion can be disposed of safely, removal of particles from airborne emissions.

Precipitators: Air pollution control devices that collect particles from an emission.

Precursor: In photochemical terminology, a compound such as a volatile organic compound (VOC) that "precedes" an oxidant. Precursors react in sunlight to form ozone or other photochemical oxidants

Preliminary Assessment: The process of collecting and reviewing available information about a known or suspected waste site or release

Pressure Sewers: A system of pipes in which water, wastewater, or other liquid is transported to a higher elevation by use of pumping force

Pretreatment: Processes used to reduce, eliminate, or alter the nature of wastewater pollutants from non-domestic sources before they are discharged into publicly owned treatment works.

Prevention: Measures taken to minimize the release of wastes to the environment

Prevention of Significant Deterioration (PSD): EPA program in which state and/or federal permits are required that are intended to restrict emissions for new or modified sources in places where air quality is already better than required to meet primary and secondary ambient air quality standards

Primary Drinking Water Regulation: Applies to public water system specifies a contaminant level, which, in the judgement of the EPA Administrator, will have no adverse effect on human health

Primary Waste Treatment: First steps in wastewater treatment, screens and sedimentation tanks are used to remove most materials that floats or will settle. Primary treatment results in the removal of about 30 percent of carbonaceous biochemical oxygen demand from domestic sewage

Process Weight: Total weight of all materials, including fuel, used in a manufacturing process. It is used to calculate the allowable particulate emission rate from the process.

Proteins: Complex nitrogenous organic compounds of high molecular weight that contain amino acids as their basic unit and are essential for growth and repair of animal tissue Many proteins are enzymes.

Protoplast: A membrane-bound cell from which the outer cell wall has been partially or completely removed. The term often is applied to plant cells

Public Water System: A system that provides piped water for human consumption to at least 15 service connections or regularly serves 25 individuals

Publicly Owned Treatment Works: A waste-treatment works owned by a state, unit of local government, or Indian tribe, usually designed to treat domestic wastewaters.

Pumping Station: Mechanical devices installed in sewer or water systems or other liquid-carrying pipelines that move the liquids to a higher level

Putrescible: Able to rot quickly enough to cause odors and attract flies

Pyrolysis: Decomposition of a chemical by extreme heat

Q

Quality Assurance/Quality Control: A system of procedures, checks, audits, and corrective actions to ensure that all EPA research design and performance, environmental monitoring and sampling, and other technical and reporting activities are of the highest achievable quality

Quench Tank: A water-filled tank used to cool incinerator residues materials during industrial processes

R

RAD (Radiation Absorbed Dose): A unit of absorbed dose of radiation One RAD of absorbed dose is equal to 01 joules per kilogram

Radiation: Any form of energy propagated as rays, waves, or streams of energetic particles. The term is frequently used in relation to the emission of rays from the nucleus of an atom

Radiation Standards: Regulations that set maximum exposure limits for protection of the public from radioactive materials

Radioactive Substances: Substances that emit radiation

Radiobiology: The study radiation effects on living things

Radio Frequency Radiation: (See Non-ionizing Radiation)

Radionuclide: Radioactive element characterized according to its atomic mass and atomic number which can be man-made or naturally occurring Radioisotopes can have a long life as soil or water pollutants, and are believed to have potentially mutagenic effects on the human body

Radius of Vulnerable Zone: The maximum distance from the point of release of a hazardous substance in which the airborne concentration could reach the level of concern under specified weather conditions

Radon: A colorless naturally occurring, radioactive, inert gaseous element formed by radioactive decay of radium atoms in soil or rocks

Radon Decay Products: A term used to refer collectively to the immediate products of the radon decay chain These include Po-218, Pb-214, Bi-214, and Po-214, which have an average combined half-life of about 30 minutes

Rasp: A machine that grinds waste into a manageable material and helps prevent odor

Raw Sewage: Untreated wastewater

Reasonably Available Control Technology (RACT): The lowest emissions it that a particular source is capable of meeting by the application of control nology that is both reasonably available, as well as technologically and economically feasible RACT is usually applied to existing to existing sources in nonattainment areas and most cases is less stringent than new source performance standards

Receiving Waters: A river, lake, ocean, stream or other watercourse into which wastewater or treated effluent is discharged

Recharge: The process by which water is added to a zone of saturation, usually by percolation from the soil surface, e.g , the recharge of an aquifer

Recharge Area: A land area in which water reaches to the zone of saturation from surface infiltration, e g., an area where rainwater soaks through the earth to reach an aquifer.

Recombinant Bacteria: A type of microorganism whose genetic makeup has been altered by deliberate introduction of new genetic elements The offspring of these altered bacteria also contain these new genetic elements

Recombinant DNA (rDNA): The new DNA that is formed by combining pieces of DNA from different organisms or cells

Recommended Maximum Contaminant Level (RMCL): The maximum level of a contaminant in drinking water at which no known or anticipated adverse affect on human health would occur, and which includes an adequate margin of safety Recommended levels are nonenforceable health goals (See· maximum contaminant level)

Reconstructed Source: An existing facility in which components are replaced to such an extent that the fixed capital cost of the new components exceed 50 percent of the capital cost that would be required to construct a comparable entirely new facility New source performance standards may be applied to sources which are reconstructed after the proposal of the standard if it is technologically and economically feasible to meet the standard

Record of Decision (ROD): A public document that explains which cleanup alternative(s) will be used at National Priorities List sites where, under CERCLA, Trust Funds pay for the cleanup

Recycle/Reuse: The process of minimizing the generation of waste by recover- usable products that might otherwise become waste Examples are the cycling of aluminum cans, wastepaper, and bottles.

Red Border: An EPA document that is undergoing final review before being submitted for final management decision

Red Tide: A proliferation of a marine plankton that is toxic and often fatal to fish This natural phenomenon may be stimulated by the addition of nutrients A tide can be called red, green or brown, depending on the coloration of the plankton

Reentry Interval: The period of time immediately following the application of a pesticide during which unprotected workers should not enter a field

Refuse: (See· solid waste)

Refuse Reclamation: Conversion of solid waste into useful products, e g , composting organic wastes to make soil conditioners or separating aluminum and other metals for melting and recycling

Regeneration: Manipulation of individual cells or masses of cells to cause them to develop into whole plants

Regional Response Team (RRT): Representatives of federal, local, and state agencies who may assist in coordination of activities at the request of the On-Scene Coordinator before and during a Superfund response action.

Registrant: Any manufacturer or formulator who obtains registration for a pesticide active ingredient or product,

Registration: Formal listing with EPA of a new pesticide before it can be sold or distributed in intra- or inter-state commerce The product must be registered under the Federal Insecticide, Fungicide, and Rodenticide Act EPA is responsible for registration (pre-market licensing) of pesticides on the basis of data demonstrating that they will not cause unreasonable adverse effects on human health or the environment when used according to approved label directions

Registration Standards: Published reviews of all the data available on pesticide active ingredients

REM (Roentgen Equivalent Man): The unit of dose equivalent from ionizing diation to the human body, used to measure the amount of radiation to hich a person or a part of a human has been exposed

Remedial Action (RA): The actual construction or implementation phase of a Superfund site cleanup that follows remedial design

Remedial Design: A phase of remedial action that follows the remedial investigation/feasibility study and includes development of engineering drawings and specifications for a site cleanup

Remedial Investigation: An in-depth study designed to gather the data necessary to determine the nature and extent of contamination at a Superfund site, establish criteria for cleaning up the site, identify preliminary alternatives for remedial actions, and support the technical and cost analyses of the alternatives The remedial investigation is usually done with the feasibility study Together they are usually referred to as the "RI/FS"

Remedial Project Manager (RPM): The EPA or state official responsible for overseeing remedial action at a site.

Remedial Response: A long-term action that stops or substantially reduces a release or threat of a release of hazardous substances that is serious but not an immediate threat to public health

Removal Action: Short-term immediate actions taken to address releases of hazardous substances that require expedited response (See cleanup)

Reportable Quantity (RQ): The quantity of a hazardous substance that triggers reports under CERCLA. If a substance is released in amounts exceeding its RQ, the release must be reported to the National Response Center, the SERC, and community emergency coordinators for areas likely to be affected

Reregistration: The reevaluation and relicensing of existing pesticides originally registered prior to current scientific and regulatory standards EPA reregisters pesticides through its Registration Standards Program

Reservoir: Any natural or artificial holding area used to store, regulate, or control water

Residual: Amount of a pollutant remaining in the environment after a natural or technological process has taken place, e g , the sludge remaining after initial wastewater treatment, or particulates remaining in air after the air passes through a scrubbing or process

Resistance: For plants and animals, the ability to withstand poor environmental conditions and/or attacks by chemicals or disease The ability may be inborn or developed

Resource: A person, thing, or action needed for living or to improve the quality of life

Response Action: A CERCLA-authorized action involving either a short-term removal action or a long-term removal response that may include but is not limited to removing hazardous materials from a site to an EPA-approved hazardous waste facility for treatment, containment, or destruction, containing the waste safely on-site, destroying or treating the waste on-site, and identifying and removing the source of ground-water contamination and halting further migration of contaminants (See cleanup)

Resource Recovery: The process of obtaining matter or energy from materials formerly discarded

Restoration: Measures taken to return a site to pre-violation conditions

Restricted Use: When a pesticide is registered, some or all of its uses may be classified (under FIFRA regulations) for restricted use if the pesticide requires special handling because of its toxicity Restricted-use pesticides may be applied only by trained, certified applicators or those under their direct supervision.

Restriction Enzymes: Enzymes that recognize certain specific regions of a long DNA molecule and then cut the DNA into smaller pieces

Reverse Osmosis: A water treatment process used in small water systems by adding pressure to force water through a semi-permeable membrane Reverse osmosis removes most drinking water contaminants Also used in wastewater treatment Large-scale reverse osmosis plants are now being developed

Ribonucleic Acid (RNA): A molecule that carries the genetic message from DNA to a cell's protein-producing mechanisms, similar to, but chemically different from, DNA

Ringlemann Chart: A series of shaded illustrations used to measure the opacity of air pollution emissions The chart ranges from light grey through black and is used to set and enforce emissions standards

Riparian Habitat: Areas adjacent to rivers and streams that have a high density, diversity, and productivity of plant and animal species relative to nearby uplands

Riparian Rights: Entitlement of a land owner to the water on or bordering his property, including the right to prevent diversion or misuse of upstream waters Generally, a matter of state law

Risk Assessment: The qualitative and quantitative evaluation performed in an effort to define the risk posed to human health and/or the environment by the presence or potential presence and/or use of specific pollutants

Risk Communication: The exchange of information about health or environmental risks between risk assessors, risk managers, the general public, news media, interest groups, etc

Risk Management: The process of evaluating alternative regulatory and non-regulatory responses to risk and selecting among them. The selection process necessarily requires the consideration of legal, economic and social factors.

River Basin: The land area drained by a river and its tributaries.

Rodenticide: A chemical or agent used to destroy rats or other rodent pests, or to prevent them from damaging food, crops, etc.

Rough Fish: Those fish, not prized for eating, such as gar and suckers. Most are more tolerant of changing environmental conditions than game species.

Rubbish: Solid waste, excluding food waste and ashes, from homes, institutions, and work-places.

Run-Off: That part of precipitation, snow melt, or irrigation water that runs off the land into streams or other surface-water. It can carry pollutants from the air and land into the receiving waters.

S

Salinity: The degree of salt in water.

Salts: Minerals that water picks up as it passes through the air, over and under the ground, and as it is used by households and industry.

Salt Water Intrusion: The invasion of fresh surface or ground water by salt water. If the salt water comes from the ocean it may be called sea water intrusion.

Salvage: The utilization of waste materials.

Sanitation: Control of physical factors in the human environment that could harm development, health, or survival.

Sand Filters: Devices that remove some suspended solids from sewage. Air and bacteria decompose additional wastes filtering through the sand so that cleaner water drains from the bed.

Sanitary Landfill: (See: landfill, sanitary.)

Sanitary Sewers: Underground pipes that carry off only domestic or industrial waste, not storm water.

Sanitary Survey: An on-site review of the water sources, facilities, equipment, operation and maintenance of a public water system to evaluate the adequacy of those elements for producing and distributing safe drinking water.

Saturated Zone: A subsurface area in which all pores and cracks are filled with water under pressure equal to or greater than that of the atmosphere.

Scrap: Materials discarded from manufacturing operations that may be suitable for reprocessing.

Screening: Use of screens to remove coarse floating and suspended solids from sewage.

Scrubber: An air pollution device that uses a spray of water or reactant or a dry process to trap pollutants in emissions.

Secondary Drinking Water Regulations: Unenforceable regulations which apply to public water systems and which specify the maximum contamination levels which, in the judgement of EPA, are required to protect the public welfare. These regulations apply to any contaminants that may adversely affect the odor or appearance of such water and consequently may cause people served by the system to discontinue its use.

Secondary Treatment: The second step in most publicly owned waste treatment systems in which bacteria consume the organic parts of the waste. It is accomplished by bringing together waste, bacteria, and oxygen in trickling filters or in the activated sludge process. This treatment removes floating and settleable solids and about 90 percent of the oxygen-demanding substances and suspended solids. Disinfection is the final stage of secondary treatment. (See: primary, tertiary treatment.)

Secure Chemical: (See: landfills.)

Secure Maximum Contaminant Level: Maximum permissible level of a contaminant in water which is delivered to the free flowing outlet of the ultimate user of a water supply, the consumer, or of contamination resulting from corrosion of piping and plumbing caused by water quality.

Sediments: Soil, sand, and minerals washed from land into water usually after rain. They pile up in reservoirs, rivers and harbors, destroying fish-nesting areas and holes of water animals, and clouding the water so that needed sunlight might not reach aquatic plants. Careless farming, mining, and building activities will expose sediment materials, allowing them to be washed off the land after rainfalls.

Sedimentation: Letting solids settle out of wastewater by gravity during wastewater treatment.

Sedimentation Tanks: Holding areas for wastewater where floating wastes are skimmed off and settled solids are removed for disposal.

Selective Pesticide: A chemical designed to affect only certain types of pests, leaving other plants and animals unharmed.

Semi-Confined Aquifer: An aquifer that is partially confined by a soil layer (or layers) of low permeability through which recharge and discharge can occur.

Senescence: Term for the aging process. Sometimes used to describe lakes, other bodies of water in advanced stages of eutrophication.

Septic Tank: An underground storage tank for wastes from homes having no sewer line to a treatment plant. The waste goes directly from the home to the tank, where the organic waste is decomposed by bacteria and the sludge settles to the bottom. The effluent flows out of the tank into the ground through drains, the sludge is pumped out periodically.

Service Connector: The pipe that carries tap water from the public water main to a building.

Settleable Solids: Material heavy enough to sink to the bottom of a wastewater treatment tank.

Settling Chamber: A series of screens placed in the way of flue gases to slow the stream of air, thus helping gravity to pull particles out of the emission into a collection area.

Settling Tank: A holding area for wastewater, where heavier particles sink to the bottom for removal and disposal.

Sewage: The waste and wastewater produced by residential and commercial establishments and discharged into sewers.

Sewage Lagoon: (See: lagoon.)

Sewage Sludge: Sludge produced at a Publicly Owned Treatment Works, the disposal of which is regulated under the Clean Water Act.

Sewer: A channel or conduit that carries wastewater and stormwater runoff from the source to a treatment plant or receiving stream. Sanitary sewers carry household, industrial, and commercial waste. Storm sewers carry runoff from rain or snow. Combined sewers are used for both purposes.

Sewerage: The entire system of sewage collection, treatment, and disposal.

Shotgun: Non-scientific term for the process of breaking up the DNA derived from an organism and then moving each separate and unidentified DNA fragment into a bacterium.

Signal Words: The words used on a pesticide label—Danger, Warning, Caution—to indicate the level of toxicity of the chemicals.

Significant Deterioration: Pollution resulting from a new source in previo "clean" areas. (See: prevention of significant deterioration.)

Significant Municipal Facilities: Those publicly owned sewage treatment plants that discharge a million gallons per day or more and are therefore considered by states to have the potential for substantial effect on the quality of receiving waters.

Significant Violations: Violations by point source dischargers of sufficient magnitude and/or duration to be a regulatory priority.

Silt: Fine particles of sand or rock that can be picked up by the air or water and deposited as sediment.

Silviculture: Management of forest land for timber. Sometimes contributes to water pollution, as in clear-cutting.

Sinking: Controlling oil spills by using an agent to trap the oil and sink it to the bottom of the body of water where the agent and the oil are biodegraded.

Site Inspection: The collection of information from a Superfund site to determine the extent and severity of hazards posed by the site. It follows and is more extensive than a preliminary assessment. The purpose is to gather information necessary to score the site, using the Hazard Ranking System, and to determine if the site presents an immediate threat that requires prompt removal action.

Siting: The process of choosing a location for a facility.

Skimming: Using a machine to remove oil or scum from the surface of the water.

Slow Sand Filtration: Treatment process involving passage of raw water through a bed of sand at low velocity which results in the substantial removal of chemical and biological contaminants.

Sludge: A semi-solid residue from any of a number of air or water treatment processes. Sludge can be a hazardous waste.

Slurry: A watery mixture or insoluble matter that results from some pollution control techniques.

Smelter: A facility that melts or fuses ore, often with an accompanying chemical change, to separate the metal. Emissions are known to cause pollution. Smelting is the process involved.

Smog: Air pollution associated with oxidants (See photochemical smog)

Smoke: Particles suspended in air after incomplete combustion of materials

Soft Detergents: Cleaning agents that break down in nature

Soft Water: Any water that is not "hard," i e , does not contain a significant amount of dissolved minerals such as salts containing calcium or magnesium

Soil Adsorption Field: A sub-surface area containing a trench or bed with clean stones and a system of distribution piping through which treated sewage may seep into the surrounding soil for further treatment and disposal

Soil Conditioner: An organic material like humus or compost that helps soil absorb water, build a bacterial community, and distribute nutrients and minerals

Soil Gas: Gaseous elements and compounds that occur in the small spaces between particles of the earth and soil Such gases can move through or leave the soil or rock, depending on changes in pressure

Solder: A metallic compound used to seal the joints between pipes Until recently, most solder ocontained 50 percent lead

Sole Source Aquifer: An aquifer that supplies 50 percent or more of the drinking water of an area

Solid Waste: Non-liquid , non-soluble materials ranging from municipal garbage to industrial wastes that contain complex, and sometimes hazardous, substances Solid wastes also include sewage sludge, agricultural refuse, demolition wastes, and mining residues Technically, solid waste also refers to liquids and gases in containers

Solid Waste Disposal: The final placement of refuse that is not salvaged or recycled

Solid Waste Management: Supervised handling of waste materials from their source through recovery processes to disposal

Solidification and Stabilization: Removal of wastewater from a waste or changing it chemically to make the waste less permeable and susceptible to transport by water

Solvent: Substance (usually liquid) capable of dissolving or dispersing one or more other substances

Soot: Carbon dust formed by incomplete combustion.

Sorption: The action of soaking up or attracting substances A process used in many pollution control systems

Special Review: Formerly known as Rebuttable Presumption Against Registration (RPAR), this is the regulatory process through which existing pesticides suspected of posing unreasonable risks to human health, non-target organisms, or the environment are referred for review by EPA The review requires an intensive risk/benefit analysis with opportunity for public comment. If the risk of any use of a pesticide is found to outweigh social and economic benefits, regulatory actions—ranging from label revisions and use-restriction to cancellation or suspended registration—can be initiated

Species: A reproductively isolated aggregate of interbreeding populations of organisms.

Spill Prevention Control and Countermeasures Plan (SPCC): Plan covering the release of hazardous substances as defined in the Clean Water Act.

Sprawl: Unplanned development of open land.

Spoil: Dirt or rock that has been removed from its original location, destroying the composition of the soil in the process, as with strip-mining or dredging.

Stabilization: Conversion of the active organic matter in sludge into inert, harmless material

Stabilization Ponds: (See: lagoon.)

Stable Air: A mass of air that is not moving normally, so that it holds rather than disperses pollutants

Stack: A chimney or smokestack, a vertical pipe that discharges used air

Stack Effect: Used air, as in a chimney, that moves upward because it is warmer than the surrounding atmosphere

Stack Gas: (See flue gas)

Stagnation: Lack of motion in a mass of air or water, which tends to hold pollutants.

Standards: Prescriptive norms which govern action and actual limits on the amount of pollutants or emissions produced EPA, under most of its responsibilities, establishes minimum standards States are allowed to be stricter

State Emergency Response Commission (SERC): Commission apointed by each state governor according to the requirements of SARA Title III The SERC's designate emergency planning districts, appoint local emergency planning committees, and supervise and coordinate their activities

State Implementation Plans (SIP): EPA-approved state plans for the establishment, regulation, and enforcement of air pollution standards

Stationary Source: A fixed, non-moving producer of pollution, mainly power plants and other facilities using industrial combustion processes

Sterilization: 1 In pest control, the use of radiation and chemicals to damage body cells needed for reproduction 2. The destruction of all living organisms in water or on the surface of various materials In contrast, disinfection is the destruction of *most* living organisms in water or on surfaces

Storage: Temporary holding of waste pending treatment or dispcsal Storage methods include containers, tanks, waste piles, and surface impoundments

Storm Sewer: A system of pipes (separate from sanitary sewers) that carry only water runoff from building and land surfaces

Stratification: Separating into layers

Stratosphere: The portion of the atmosphere that is 10-to-25 miles above the earth's surface

Strip-Cropping: Growing crops in a systematic arrangement of strips or bands which serve as barriers to wind and water erosion

Strip-Mining: A process that uses machines to scrape soil or rock away from mineral deposits just under the earth's surface

Sulfur Dioxide (SO2): A heavy, pungent, colorless, gaseous air pollutant formed primarily by the combustion of fossil plants

Sump: A pit or tank that catches liquid runoff for drainage or disposal

Sump Pump: A mechanism for removing water or wastewater from a sump or wet well.

Superfund: The program operated under the legislative authority of CERCLA and SARA that funds and carries out the EPA solid waste emergency and long-term removal remedial activities These activities include establishing the National Priorities List, investigating sites for inclusion on the list, determining their priority level on the list, and conducting and/or supervising the ultimately determined cleanup and other remedial actions

Surface Impoundment: Treatment, storage, or disposal of liquid hazardous wastes in ponds

Surface Water: All water naturally open to the atmosphere (rivers, lakes, reservoirs, streams, impoundments, seas, estuaries, etc) and all springs, wells, or other collectors which are directly influenced by surface water

Surfactant: A surface-active agent used in detergents to cause lathering

Surveillance System: A series of monitoring devices designed to determine environmental quality

Suspended Solids: Small particles of solid pollutants that float on the surface of, or are suspended in sewage or other liquids They resist removal by conventional means. (See. Total Suspended Solids)

Suspension: The act of suspending the use of a pesticide when EPA deems it necessary to do so in order to prevent an imminent hazard resulting from continued use of the pesticide. An emergency suspension takes effect immediately; under an ordinary suspension a registrant can request a hearing before the suspension goes into effect Such a hearing process might take six months.

Suspension Culture: Individual cells or small clumps of cells growing in a liquid nutrient medium.

Swamp: A type of wetland that is dominated by woody vegetation and does not accumulate appreciable peat deposits. Swamps may be fresh or salt water and tidal or non-tidal. (See. Wetlands.)

Synergism: The cooperative interaction of two or more chemicals or other phenomena producing a greater total effect than the sum of their individual effects.

Synthetic Organic Chemicals (SOCs): Man-made organic chemicals Some SOCs are volatile, others tend to stay dissolved in water rather than evaporate out of it.

Systemic Pesticide: A chemical that is taken up from the ground or absorbed through the surface and carried through the system of the organism being protected, making the organism toxic to pests

T

Tailings: Residue of raw materials or waste separated out during the processing of crops or mineral ores

TBT Paints (Trybutilin): (See. organotins)

Technology-Based Standards: Effluent limitations applicable to direct and indirect sources which are developed on a category-by-category basis using statutory factors, not including water-quality effects

Teratogen: Substance that causes malformation or serious deviation from normal development of embryos and fetuses

Terracing: Diking, built along the contour of sloping agricultural land, that holds runoff and sediment to reduce erosion

Tertiary Treatment: Advanced cleaning of wastewater that goes beyond the secondary or biological stage It removes nutrients such as phosphorus and nitrogen and most BOD and suspended solids

Thermal Pollution: Discharge of heated water from industrial processes that can affect the life processes of aquatic organisms

Threshold Limit Value (TLV): Represents the air concentrations of chemical substances to which it is believed that workers may be daily exposed without adverse effect

Threshold Planning Quantity: A quantity designated for each chemical on the list of extremely hazardous substances that triggers notification by facilities to the state emergency response commission that such facilities are subject to emergency planning under SARA Title III.

Tidal Marsh: Low, flat marshlands traversed by channels and tidal hollows and subject to tidal inundation; normally, the only vegetation present are salt-tolerant bushes and grasses (See wetlands)

Tolerances: The permissible residue levels for pesticides in raw agricultural produce and processed foods. Whenever a pesticide is registered for use on a food or a feed crop, a tolerance (or exemption from the tolerance requirement) must be established EPA establishes the tolerance levels, which are enforced by the Food and Drug Administration and the Department of Agriculture.

Topography: The physical features of a surface area including relative elevations and the position of natural and man-made features

Total Suspended Solids (TSS): A measure of the suspended solids in wastewater, effluent, or water bodies, determined by using tests for "total suspended non-filterable solids " (See: suspended solids.)

Toxic: Harmful to living organisms.

Toxic Pollutants: Materials contaminating the environment that cause death, disease, birth defects in organisms that ingest or absorb them The quantities and length of exposure necessary to cause these effects can vary widely.

Toxic Chemical Release Form: Information form required to be submitted by facilities that manufacture, process, or use (in quantities above a specific amount) chemicals listed under SARA Title III.

Toxic Cloud: Airborne mass of gases, vapors, fumes, or aerosols containing toxic materials

Toxic Substance: A chemical or mixture that may present an unreasonable risk of injury to health or the environment.

Toxicant: A poisonous agent that kills or injures animal or plant life.

Toxicity: The degree of danger posed by a substance to animal or plant life (See: acute, chronic toxicity.)

Toxicology: The science and study of poisons control.

Transformation: The process of placing new genes into a host cell, thereby inducing the host cell to exhibit functions encoded by the DNA.

Transpiration: The process by which water vapor is lost to the atmosphere from living plants The term can also be applied to the quantity of water thus dissipated.

Trash-to-Energy Plan: A plan for putting waste back to work by burning trash to produce energy.

Treatment, Storage, and Disposal Facility: Site where a hazardous substance is treated, stored, or disposed. TSD facilities are regulated by EPA and states under RCRA.

Trichloroethylene TCE): A stable, low-boiling colorless liquid, toxic by inhalation. TCE is used as a solvent, metal degreasing agent, and in other industrial applications.

Trickling Filter: A coarse, biological treatment system in which wastewater is trickled over a bed of stones or other material covered with bacterial growth The bacteria break down the

Trihalomethane (THM): One of a family of organic compounds, named as derivatives of methane THM's are generally the by-product from chlorination of drinking water that contains organic material.

Troposphere: The lower atmosphere, the portion of the atmosphere between seven and ten miles from the Earth's surface where clouds are formed.

Trust Fund (CERCLA): A fund set up under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) to help pay for cleanup of hazardous waste sites and for legal action to force those responsible for the sites to clean them up

Tundra: A type of ecosystem dominated by lichens, mosses, grasses, and woody plants Tundra is found at high latitudes (arctic tundra) and high altitudes (alpine tundra) Arctic tundra is underlain by permafrost and usually very wet (See wetlands)

Turbidimeter: A device that measures the amount of suspended solids in a liquid.

Turbidity: 1. Haziness in air caused by the presence of particles and pollutants. 2. A similar cloudy condition in water due to suspended silt or organic matter.

U

Ultra Clean Coal (UCC): Coal that has been washed, ground into fine particles, then chemically treated to remove sulfur, ash, silicone, and other substances, usually briquetted and coated with a sealant made from coal.

Ultraviolet Rays: Radiation from the sun that can be useful or potentially harmful UV rays from one part of the spectrum enhance plant life and are useful in some medical and dental procedures, UV rays from other parts of the spectrum to which humans are exposed (e g , while getting a sun tan) can cause skin cancer or other tissue damage The ozone layer in the atmosphere provides a protective shield that limits the amount of ultraviolet rays that reach the Earth's surface

Underground Injection Control (UIC): The program under the Safe Drinking Water Act that regulates the use of wells to pump fluids into the ground

Underground Sources of Drinking Water: As defined in the UIC program, this terms refers to aquifers that are currently being used as a source of drinking water, and those that are capable of supplying a public water system They have a total dissolved solids content of 10,000 milligrams per liter or less, and are not "exempted aquifers." (See exempted aquifer)

Underground Storage Tank: A tank located all or partially under ground that is designed to hold gasoline or other petroleum products or chemical solutions.

Unsaturated Zone: The area above the water table where the soil pores are not fully saturated, although some water may be present.

Uranium: A radioactive heavy metal element used in nuclear reactors and the production of nuclear weapons. Term refers usually to U-238, the most abundant radium isotope, although a small percentage of naturally-occurring uranium is U-235.

Urban Runoff: Stormwater from city streets and adjacent domestic or commercial properties that may carry pollutants of various kinds into the sewer systems and/or receiving waters

V

Vaccine: Dead or partial or modified antigen used to induce immunity to certain infectious diseases.

Vapor: The gaseous phase of substances that are liquid or solid at atmospheric temperature and pressure, e.g , steam.

Vapor Capture System: Any combination of hoods and ventilation system that captures or contains organic vapors in order that they may be directed to an abatement or recovery device

Vapor Dispersion: The movement of vapor clouds in air due to wind, gravity spreading, and mixing

Vapor Plumes: Flue gases that are visible because they contain water droplets

Vaporization: The change of a substance from a liquid to a gas.

Variance: Government permission for a delay or exception in the application of a given law, ordinance, or regulation

Vector: 1. An organism, often an insect or rodent, that carries disease. 2. An object that is used to transport genes into a host cell (vectors can be plasmids, viruses, or other bacteria). A gene is placed in the vector; the vector then "infects" the bacterium

Ventilation/Suction: The act of admitting fresh air into a space in order to replace stale or contaminated air; achieved by blowing air into the space Similarly, suction represents the admission of fresh air into an interior space by lowering the pressure outside of the space, thereby drawing the contaminated air outward.

Vinyl Chloride: A chemical compound, used in producing some plastics, that is believed to be carcogenic.

Virus: The smallest form of microorganisms capable of causing disease

Volatile: Description of any substance that evaporates readily

Volatile Organic Compound (VOC): Any organic compound which participates in atmospheric photochemical reactions except for those designated by the EPA Administrator as having negligible photochemical reactivity

Volatile Synthetic Organic Chemicals: Chemicals that tend to volatilize or evaporate from water

Vulnerability Analysis: Assessment of elements in the community that are susceptible to damage should a release of hazardous materials occur

Vulnerable Zone: An area over which the airborne concentration of a chemical involved in an accidental release could reach the level of concern

W

Waste: 1. Unwanted materials left over from a manufacturing process 2 Refuse from places of human or animal habitation

Waste Load Allocation: The maximum load of pollutants each discharger of waste is allowed to release into a particular waterway Discharge limits are usually required for each specific water quality criterion being, or expected to be, violated.

Waste Treatment Stream: The continuous movement of waste from generator to treater and disposer

Waste Treatment Plant: A facility containing a series of tanks, screens, filters and other processes by which pollutants are removed from water

Wastewater: The spent or used water from individual homes, a community, a farm, or an industry that contains dissolved or suspended matter

Wastewater Operations and Maintenance: Actions taken after construction to assure that facilities constructed to treat wastewater will be properly operated, maintained, and managed to achieve efficiency levels and prescribed effluent levels in an optimum manner

Water Pollution: The presence in water of enough harmful or objectionable material to damage the water's quality

Water Quality Criteria: Specific levels of water quality which, if reached, are expected to render a body of water suitable for its designated use The criteria are based on specific levels of pollutants that would make the water harmful if used for drinking, swimming, farming, fish production, or industrial processes.

Water Quality Standards: State-adopted and EPA-approved ambient standards for water bodies The standards cover the use of the water body and the water quality criteria which must be met to protect the designated use or uses

Watershed: The land area that drains into a stream

Water Supplier: A person who owns or operates a public water system

Water Supply System: The collection, treatment, storage, and distribution of potable water from source to consumer

Water Solubility: The maximum concentration of a chemical compound which can result when it is dissolved in water If a substance is water soluble it can very readily disperse through the environment

Water Table: The level of ground water

Well: A bored, drilled, or driven shaft, or a dug hole whose depth is greater than the largest surface dimension and whose purpose is to reach underground water supplies or oil, or to store or bury fluids below ground

Well Injection: The subsurface emplacement of fluids in a well

Well Monitoring: The measurement, by on-site instruments or laboratory methods, of the quality of water in a well

Well Plug: A watertight and gastight seal installed in a bore hole or well to prevent movement of fluids

Wetlands: An area that is regularly saturated by surface or ground water and subsequently is characterized by a prevalence of vegetation that is adapted for life in saturated soil conditions Examples include swamps, bogs, fens, marshes, and estuaries

Wildlife Refuge: An area designated for the protection of wild animals, within which hunting and fishing are either prohibited or strictly controlled

Wood-Burning Stove Pollution: Air pollution caused by emissions of particulate matter, carbon monoxide, total suspended particulates, and polycyclic organic matter from wood-burning stoves

Working Level (WL): A unit of measure for documenting exposure to radon decay products One working level is equal to approximately 200 picocuries per liter

Working Level Month (WLM): A unit of measure used to determine cumulative exposure to radon.

X, Y, Z

Xenobiotic: Term for non-naturally occurring man-made substances found in the environment (i e., synthetic material solvents, plastics)

Zooplankton: Tiny aquatic animals eaten by fish